

# thermokon®

HOME OF SENSOR TECHNOLOGY



thanos EVO | P.112

# PRODUCTS

VALID FROM 1<sup>ST</sup> APRIL 2021



SENSORS MADE IN GERMANY



# THERMOKON AT A GLANCE



USE



SR06 LCD



JOY



NOVOS Touch



Headquarters (5.300 m<sup>2</sup>)  
in Mittenaar-Offenbach  
(Administration and Production)



Factory (1.100 m<sup>2</sup>)  
in Mittenaar-Bicken  
(SMD assembling and Production)



SMD Assembly Lines

## » 2021

- 2021 **Relaunch** thermokon.de and direct.thermokon.de becoming one
- 2020 **Establishing** a further SMD assembly line in Mittenaar-Bicken
- 2019 **Launch** of the new room sensors and operating units – **NOVOS**
- 2017 **Company Anniversary** 30 Years Thermokon Sensortechnik GmbH
- 2016 **Premiere** of the new and innovative enclosure „USE“
- 2015 **Launch** of the new design room operating unit „JOY“
- 2015 **Launch** of the solar-powered room operating unit SR06 LCD
- 2015 **Investment** into a new SMD assembly line
- 2015 **Establishing** Thermokon Sensor Technology Nederland B.V., Netherlands
- 2014 **Establishing** Thermokon Norge AS, Norway
- 2013 **New Company Headquarters** in Mittenaar-Offenbach
- 2013 **Establishing** Thermokon Sensortechnik Switzerland AG
- 2012 **A reason to celebrate:** 25 Years Thermokon Sensortechnik GmbH
- 2011 **Establishing** Thermokon Automation Equipment Co. Ltd., China
- 2011 **Launch of the** high-end touch room operating unit thanos

## » 2010

- 2009 **Extension** of the product portfolio to sensors with BACnet interface
- 2007 **Further extension** of the company building by 600 m<sup>2</sup>
- 2005 **Launch** of the design room operating unit WRF08
- 2005 **Extension** of the product portfolio to sensors with Modbus interface
- 2004 **Launch** of the innovative wireless sensor system EasySens®
- 2002 **Launch** of the surface mounted room operating unit WRF04
- 2002 **Establishing** Thermokon-Danelko Elektronik AB, Sweden
- 2002 **Anniversary** 15 Years Thermokon Sensortechnik GmbH
- 2000 **Further extension** of the company building to 2.000 m<sup>2</sup>

## » 2000

- 1998 **Establishing** Thermokon Components GmbH, Austria
- 1997 **Extension** of the company building in in Mittenaar-Bicken
- 1995 **First production** of humidity sensors
- 1995 **Extension** of the product portfolio to sensors with LON interface
- 1995 **First production** of mixed gas and brightness sensors
- 1995 **Launch** of a quality management system according to DIN EN ISO 9001
- 1994 **New company building** in Mittenaar-Bicken

## » 1990

- 1987 **Development and production** of temperature sensors for the heating industry
- 1987 **Company foundation** of Thermokon Sensortechnik GmbH by Harald Zygan



**thermokon**<sup>®</sup> | **DIRECT**  
HOME OF SENSOR TECHNOLOGY | easy for you

## BECOMING ONE – THERMOKON.DE AND DIRECT.THERMOKON.DE

In addition to our new catalogue, we launch our new website with an extended range of functions. In order to give you an even better user experience, we have integrated the functionality of ThermokonDIRECT into our main page – you can now find all products and items directly on the main page. Use the convenient filter function and get the right item for your application in the blink of an eye.

The practical project management function allows you to quickly and conveniently select your required items at any time. Further you can order all items directly once you have registered and are eligible to order online\*. Registering different billing and delivery addresses offers you enormous flexibility in order placement and saves you time in daily business.

### » Your advantages:

- » Portfolio with more than 5000 online items
- » Project management for a flexible planning
- » Intelligent search via predefined filters or free text (e.g. item number or description)
- » Download of item-specific data sheets and media (BIM files, pictures, software, declarations of conformity, etc.)
- » Comparison function of multiple items or products

**REGISTER NOW:**



### Additional functions for existing corporate customers:

- » Online ordering possibility (24/7)\*
- » Online package tracking\*
- » View list and net prices\*

[www.thermokon.com](http://www.thermokon.com)

\* The additional functions will be activated after checking eligibility

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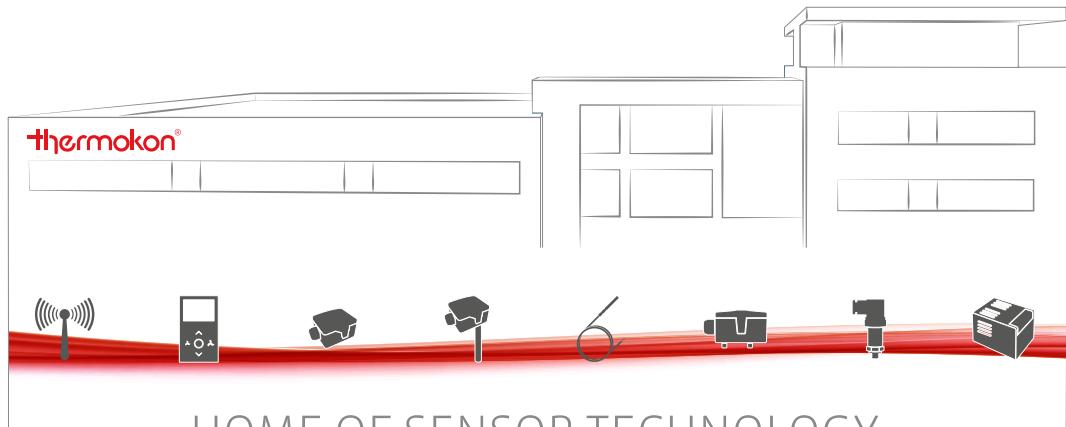
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## HOME OF SENSOR TECHNOLOGY

### FROM A SINGLE PRODUCT TO A SYSTEM SOLUTION

#### » ENERGY-EFFICIENT HIGH-TECH PRODUCTS

What started with the foundation of Thermokon Sensortechnik GmbH by Harald Zygan in 1987 has evolved to a success story quickly: The initial specialization on temperature sensors for the boiler industry was soon followed by an extension of the portfolio to sensor solutions for detection of relative humidity, air quality and brightness. Those products laid the foundation for energy-efficient products within our systems and solutions.

Nowadays, we are contributing actively to the sustainability of buildings as well as the reduction of CO<sub>2</sub> emissions. When developing our high-tech products we pay especially attention to a lean and plug & play design so that our systems are "easy to install". Of course, a time and cost-saving configuration is considered as well.

#### » CONTINUOUS GROWTH

Our growth to a Global Player involves a consequent optimization of our headquarters and included a new building in Mittenaar-Bicken in 1994. This building was continuously extended in the following years. In 2014 we moved our headquarters to a new location in Mittenaar-Offenbach.

A generous construction, latest technologies and ideal production conditions give us the flexibility and creativity for the development and production of advanced sensor solutions.





## OUR EXPERTISE – YOUR SUCCESS

For more than 30 years, Thermokon is recognized worldwide for leveraging standards in intelligent buildings with engineering, innovation and quality "Made in Germany". Thanks to the development and production of sophisticated sensors and sensor systems we are creating an additional benefit for our customers all over the world. We focus on efficiency, sustainability and openness to new fields of technology as well as a close cooperation and thorough dialogue with our clients.

As a leader for innovation with a broad scope of applications we are continuously developing our portfolio further and offer decisive benefits with regards to product-related values, customized solutions and engineering. Our complete range of products is designed to energy-efficient buildings.

### FROM MITTENAAR ACROSS THE GLOBE

Trend-setting sensors and sensor systems are developed and produced at our headquarters in Mittenaar-Offenbach with currently 200 employees. Besides our core values – safety, openness to new technologies and sustainability as well as our daily motivation striving for excellence in sensors, we established an own R&D department, an in-house test laboratory, a climatic chamber as well as an own SMD assembly line for our PCBs.

In addition, our finished goods warehouse ensures our delivery ability at any time. The responsible handling of resources in all corporate sectors is self-evident.

### REPRESENTED IN MORE THAN 80 COUNTRIES

Our clients are manufacturers, system integrators, controller companies and strategic distributors in the HVAC industry and building automation. Our products and systems are exported all over the world.

A local support and presence is guaranteed by branches in Austria, Sweden, China, Switzerland, Finland and the Netherlands as well as a sales agency in Russia. Due to a complementary cooperation with distributors in many parts of the world our product portfolio is available in more than 80 countries.



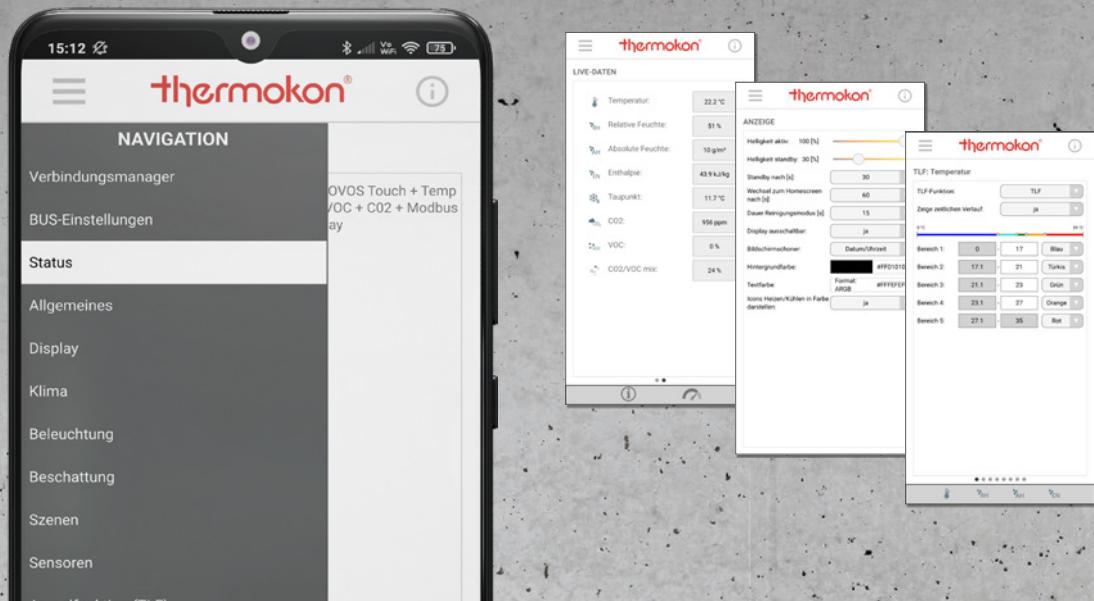


## FOR A SUSTAINABLE AND ECONOMICAL PARTNERSHIP



As the "Home of Sensor Technology" for building automation and HVAC Thermokon offers the essential knowledge to combine quality with efficiency to create customers' benefit by innovative solutions. Your success is guaranteed by our expertise. Thanks to well-engineered and high-grade products, a 5-year warranty with accommodating exceptions and pro-

active initiation of new innovations, you can rely on us at any time. Efficiency is an additional strength. We offer an excellent cost-performance ratio which pays off in terms of quality and service. Comprehensive sensor solutions are offered from a single source.



## THERMOKON® APPS – FOR INDIVIDUAL CONFIGURATION

All "USEapp" and "NOVOSapp" based products are supplied with a fully functional standard configuration for direct mounting/installation.

Via the app it is feasible to extend the range of use and to adapt the configuration individually to application requirements.

### » USEapp / NOVOSapp – HIGHLIGHTS AND FEATURES

- » Communication via Bluetooth® Low-Energy-Module (BLE)
- » For use on mobile terminals (Android and iOS)
- » Individual configuration of output signals
- » Setting of different measuring ranges
- » Additional adjustment of offset values
- » Parameterization of Live-Zero-Signal (1..10 V etc.)
- » Setting options for display indications
- » Customized parameterization of traffic-light function (TLF)
- » Setting of relay performance and thresholds
- » Modbus address offset (extension)
- » Possibility of firmware updates on-the-go (OTG)
- » Adjustment of maintenance intervals



Accessories	Item description	Item No.	Group	€
	BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80



**Bluetooth®**



Download on the  
App Store



*USEapp*



GET IT ON  
Google Play



Download on the  
App Store



*NOVOSapp*



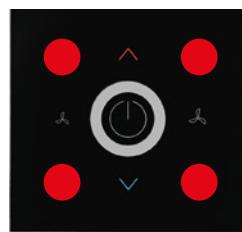
GET IT ON  
Google Play



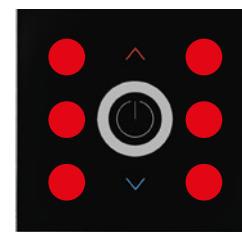
## JOY CUSTOM – FUNCTIONAL INDIVIDUALISM

With the **JOY Custom\*** you will get an individual room controller, that is optimally adapted to your requirements and desires. In addition to the classic functionality for controlling the setpoint temperature and adjusting fan speeds, our customized variants have four (JOY Fancoil) or six (JOY HC) additional, freely configurable buttons. Possible areas of application for the additional

buttons would be e.g. switching lighting or controlling blinds or shades – the choice is yours! Graphical and customizable icons for the respective buttons as well as the possibility of having your own logo laseried into the real glass surface make the JOY Custom a unique user experience.



JOY Fancoil Custom with four customizable touch buttons



JOY HC Custom with six customizable touch buttons

### » ADVANTAGES AND HIGHLIGHTS

- » Elegant, flat design – high-quality finishing
- » Flexibility due to different versions and master OFF button
- » Available with EasySens® EnOcean wireless interface transmitting instantaneous telegrams at the touch of a button
- » Demand-optimised control by setting up different user profiles
- » Bidirectional controls using BACnet or Modbus through a BMS system is possible
- » **Now available with an integrated relative humidity sensor**



## INSPIRATIONS



JOY Fancoil Custom



JOY HC Custom

\* Minimum order quantity 100 pieces



The Self-Powered, Intelligent Wireless System

## THE SELF-POWERED INTELLIGENT WIRELESS SYSTEM

The use of innovative technology makes it possible: The wireless EnOcean based system EasySens® enables a networked building automation – self-powered, intelligent and

maintenance-free. Thus, EasySens® offers best possible flexibility for realizing individual requirements in new buildings and refurbishments.

### » ADVANTAGES

- » Cost saving thanks to Energy Harvesting  
Energy generation through motion, light and temperature
- » Flexibility with sensor location – quick and easy mounting and commissioning
- » Reduction of fire load
- » Easy, wireless integration in existing buildings as well as retrofit adaptions to changed room layouts
- » Direct mounting to representative measuring points
- » Compatibility different manufacturers by using international standards (IEC 14543-3-10)
- » **airConfig:**  
Convenient parameterization of the devices using special remote commissioning commands
- » **airScan:**  
Field strength measuring system for evaluation and ideal placement of transmitters and receivers



TRANSMITTER

RECEIVERS  
(TRANSCEIVER)



TOOLBOX

INTEROPERABLE  
SYSTEM INTEGRATION



LON  
LOCAL OPERATING NETWORK





## airConfig – COMMISSIONING MADE EASY!

The use of EnOcean RF telegrams and the airScan USB transceiver make it possible: airConfig enables comfortable parameterization of your EasySens® devices by means of special remote commissioning commands.

No more direct interaction and tiresome accessing of devices in buildings. Benefit by a significant time-saving. Thus, the communication of your devices is guaranteed.

### » ADVANTAGES

- » Simple seamlessly learning-in, configuration and deletion of devices via RF technology
- » Adjustment of configuration parameters – e.g. waking-up cycles or measuring ranges – in the device settings
- » Transparent and central availability of relevant system information
- » Uncomplicated handling of maintenance and support works
- » Configuration of measured values (EEP) and sensor parameters
- » Learning-in of sensors via Drag and Drop (Remote Management)
- » Saving time resources (configuration via Copy and Paste)
- » Remote access to product and project information
- » Structured product presentation thanks to device ID
- » Change of product configurations even at inaccessible mounting places
- » Change of specifications and parameterization on-site or via remote access
- » Password protected configuration of actuators
- » Identification via visual and acoustic feedback





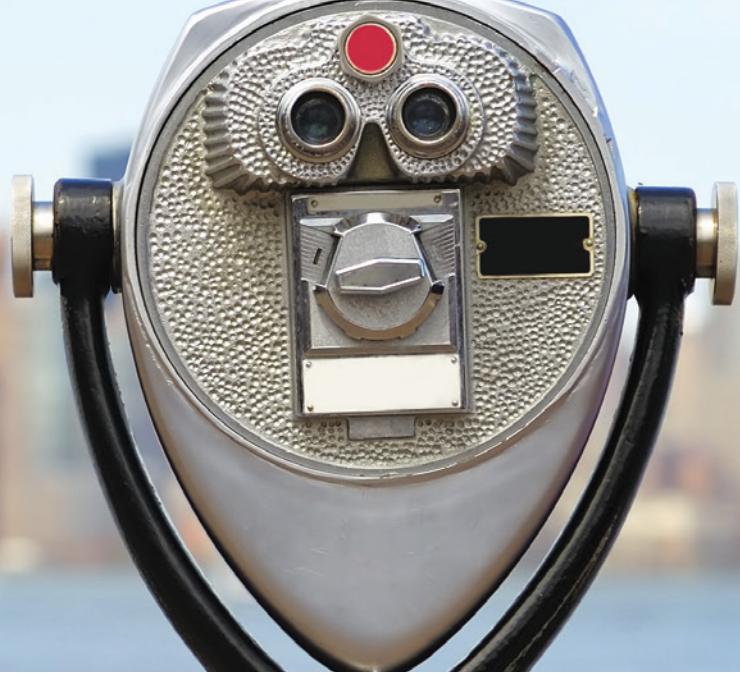
## airScan – MEASURING AND MONITORING

You would like to plan and realize EasySens projects simply? Then airScan, the field strength measuring instrument of Thermokon, is the right tool for you: The traffic light indication (RSSI) displays the signal strengths received and shows reliably the

optimal mounting place for transmitters and receivers. Even in daily use the work with airScan cannot be easier. On the well-structured surface all telegrams received are clearly listed and allocated to the corresponding product.

### » ADVANTAGES

- » Find the best location for your device
- » Monitoring function for easy evaluation of radio frequency telegrams
- » Logging, repeater function and possibility of remote maintenance
- » Data export in CSV-, XML- or XLS data formats
- » Generation and transmission of EnOcean telegrams
- » Status detection of product ID, field strength and manufacturers of integrated products
- » Full support of EEP2.6.3. standards
- » Taking-over of desired EnOcean profile from a pre-defined EEP selection
- » Definition of telegram content via input fields
- » Easy and fast generation and transmission of telegrams
- » Translation of various available measuring values
- » Reliable information on signal quality or RSSI value of telegrams by colour indicator (traffic light system) or graphs
- » Detailed evaluation of telegrams (data bytes, RSSI value, sub-telegrams etc.)
- » Decoding of measuring values
- » Background saving of received telegrams
- » Possibility of data export as well as automated forwarding to a FTP server or an e-mail account



EUROPEAN CENTRAL BANK  
FRANKFURT, GERMANY  
MORE THAN 13.000 DEVICES



## REFERENCES



Star Arctic Hotel  
Saariselkä, Finland



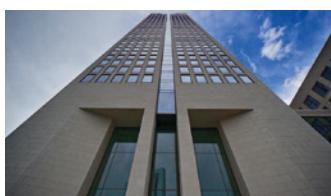
Shell Global Headquarters  
The Hague, Netherlands



Prime Tower  
Zurich, Switzerland



Fondation Louis Vuitton  
Paris, France



Opernturm  
Frankfurt, Germany



Tomson Riviera Apartment Towers  
Shanghai, China



KaDeWe  
Berlin, Germany



Semperoper  
Dresden, Germany



Grand Hyatt  
Dubai, UAE



Sheikh Abdullah Al Salem  
Cultural Center, Kuwait City



Fairmont Hotel Vier Jahreszeiten  
Hamburg, Germany



Universität Oslo  
Oslo, Norway



Generali Versicherung, Zentrale  
Trieste, Italy



Staatsoper  
Wien, Austria



Konica Minolta  
Milan, Italy



The National Gallery of Art  
Washington D.C., USA



Ascot Racecourse  
Ascot, England



European Patent Office  
Munich, Germany



## 5 YEARS WARRANTY

### » LASTING RELIABILITY

Due to high quality and durability of our products we offer a 5-year warranty from date of production for all products produced as of 01.01.2014.



You are interested in details? Please visit:

[www.thermokon.de/en-gb/highlights/5-years-warranty](http://www.thermokon.de/en-gb/highlights/5-years-warranty)

## SI-PROTECTION

### » FOR NON-CORRODING SENSORS

If the ambient temperature fluctuates around dew-point, condensation might appear. For your sensors condensate can have unpleasant consequences: Humidity penetrates into the soldering point of the sensor, the sensor oxidizes and begins to corrode. Thus, the measuring result becomes unreliable. SI-Protection offers you a safe protection against corrosion damages, vibrations and measuring inaccuracies.



The contact points of the sensors are first coated with epoxy resin and with a casting compound afterwards. Due to the permanent connection with the insulation material of the wire a closed unit is established protecting the sensor reliably against vibration and humidity. This effect is additionally supported by the rolled pocket.



SI-Protection



16-point pressed  
(protection class IP65)



rolled  
(protection class IP67)

# EasySens®



Innovative self-powered wireless technology generates energy by means of harvesting ambient light or motion. Interoperable, cost-effective and energy-efficient solutions in building automation are available using our wireless sensor system EasySens®.

## Room Operating Units

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SR-MOW Solar	Motion	<b>53</b>
SR65 Li	Light	<b>54</b>

## Input modules

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STC-IoT	<b>77</b>
STC-KNX	<b>78</b>
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## Actuators

STC-DO	<b>82</b>
STC-DO Light	<b>83</b>
STC-DO Blind	<b>84</b>
SRC-AO Climate	<b>85</b>
SRC-AO Dim	<b>86</b>
SRC-AO Multi	<b>87</b>
STC-DO8	<b>88</b>
SRC-ADO	<b>90</b>
STC-MSG Server	<b>92</b>
STC-MSG Server UP	<b>93</b>

SAB+	<b>94</b>
SAB05	<b>96</b>
SRE-Repeater	<b>98</b>
SRE-Repeater UP	<b>99</b>

## **JOY SR Fancoil**

The design-oriented JOY SR Fan coil with its EasySens® radio interface is used for individual temperature control and activation of fan coil units in hotels, offices and living rooms. The JOY is designed for 2- or 4-pipe systems and offers change-over functionality. Two configurable inputs can be used to account for room occupancy and energy locks. In addition to controlling hard-wired proportional valve actuators (also 6-way valves) and a 0..10 V EC fan, EasySens® radio sensors (e.g. motion, temperature, window contacts) can be integrated. An overwrite through radio is possible by using a superior controller profile or in hard-wired fashion via Modbus RS485. This ensures individual and energy-efficient room air conditioning. The device (glass front in white or black) uses a monochrome

display with backlight and touch-sensitive operating keys. An integrated scheduler with three time channels, each with four different time periods, allows for optimized energy control. The JOY is fitted to be installed in a flush-mounted standard EU box. For hotel applications, the device offers the possibility to integrate an additional zone (e.g. bathroom heating) in combination with a room temperature sensor and an SAB+/SAB05 radio valve actuator.



**NEW:** With additional, customizable touch buttons (see page 12)

Outputs	EC 3AO (24 V)
Fan (Relay)	–
EC Fan (0..10 V)	1
Heating/Cooling (Relay)	–
Heating/Cooling (0..10 V)	2
6-Way-Valve (0..10 V)	1*
Inputs	EC 3AO (24 V)
Universal (configurable)	2

\* Instead of 2x 0..10 V (heating/cooling)



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, standby/presence detection
<b>Operating elements</b>	5 touch buttons
<b>Configuration</b>	uConfig, BUS
<b>Input</b>	1x input for NTC10k or floating contact, 1x input for potential contact (230 V ~)
<b>Network technology</b>	RS485 Modbus
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Display</b>	LCD 60x44 mm, 240x160 px, backlight cold white
<b>Enclosure</b>	PC, cover glass
<b>Colour</b>	pure white, black
<b>Operating range temperature</b>	0..+50 °C
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , inputs max. 1,0 mm <sup>2</sup>
<b>Mounting</b>	in standard EU box (Ø=60 mm, depth min. 45 mm)

### Fan coil thermostat with radio interface temperature RS485 Modbus 24 V

Item description	Contr.	Item No.	Group	€
JOY SR Fancoil EC 3AO temp RS485 Modbus white 24 V	✓	701020	ES1	227,50
JOY SR Fancoil EC 3AO temp RS485 Modbus black 24 V	✓	701037	ES1	239,50

### Options

Description	€
Add for additional humidity sensor	40,00
Change-over sensor NTC10k (model and price on request)	

### Accessories

Item description	Item No.	Group	€
microSD card 2 GB (JOY)	500098	AS1	11,90
Decorative frame JOY pure white	681452	AS1	12,80
Decorative frame JOY black	740951	AS1	12,80
Frame for surface mounting JOY pure white	760201	AS1	25,50
Frame for surface mounting JOY black	760195	AS1	25,50

## JOY SR HC

The design-oriented JOY SR HC 3AO provides three 0..10 V outputs for the control of heating/cooling valves or a 6-way valve. The 230 V powered type AO2DO offers relay outputs for controlling heating and cooling valves through PWM. In addition, EasySens® radio sensors (e.g.motion, temperature, window contacts) can be integrated wirelessly. An overwrite through radio is possible by using a superior controller profile or in hard-wired fashion via Modbus RS485. This ensures individual and energy-efficient room air conditioning. The device (glass front in white or black) uses a monochrome display and touch-sensitive operating keys. An integrated scheduler with three time channels, each with four different time periods allows for optimized energy control. The JOY is fitted to be installed in a flush-mounted standard EU box. For hotel applications,

the device offers the possibility to integrate an additional zone (e.g. bathroom heating) in combination with a room temperature sensor and an SAB+/SAB05 radio valve actuator.



**NEW:** With additional, customizable touch buttons (see page 12)

Outputs	AO2DO (230 V)	3AO (24 V)
Heating/Cooling (Relay)	2	-
Heating/Cooling (0..10 V)	-	2
6-Way-Valve (0..10 V)	1	1*
Inputs	AO2DO (230 V)	3AO (24 V)
Universal (configurable)	2	2

\* Instead of 2x 0..10 V (heating/cooling)



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature, standby/presence detection
<b>Operating elements</b>	3 touch buttons
<b>Configuration</b>	uConfig, BUS
<b>Input</b>	1x input for NTC10k or floating contact 1x input for potential contact (230 V ~)
<b>Network technology</b>	RS485 Modbus
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Display</b>	LCD 60x44 mm, 240x160 px, backlight cold white
<b>Enclosure</b>	PC, cover glass
<b>Colour</b>	pure white, black
<b>Operating range temperature</b>	0..+50 °C
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , inputs max. 1,0 mm <sup>2</sup>
<b>Mounting</b>	in standard EU box (Ø=60 mm, depth min. 45 mm)

### Room thermostat heating/cooling with radio interface temperature RS485 Modbus 85..260 V

Item description	Contr.	Item No.	Group	€
JOY SR HC AO2DO temp RS485 Modbus white MVolt	✓	756914	ES1	227,50
JOY SR HC AO2DO temp RS485 Modbus black MVolt	✓	756938	ES1	239,50

### Room thermostat heating/cooling with radio interface temperature RS485 Modbus 24 V

Item description	Contr.	Item No.	Group	€
JOY SR HC 3AO temp RS485 Modbus white 24 V	✓	700993	ES1	227,50
JOY SR HC 3AO temp RS485 Modbus black 24 V	✓	701006	ES1	239,50

### Accessories

Item description	Item No.	Group	€
microSD card 2 GB (JOY)	500098	AS1	11,90
Decorative frame JOY pure white	681452	AS1	12,80
Decorative frame JOY black	740951	AS1	12,80
Frame for surface mounting JOY pure white	760201	AS1	25,50
Frame for surface mounting JOY black	760195	AS1	25,50

## SR06 LCD

Energy-harvesting wireless room operating unit with an integrated LCD for the measurement of temperature and relative humidity (rH version). Depending on the type, temperature set point, fan stages, room occupancy, lighting or blinds can be controlled using the operating buttons on the device. The device transmits its measured values to corresponding receivers or gateways, which directly process the information or - depending on the application - forward it to a BMS controller. Using the SmartACK protocol, the bidirectional communication is capable of managing a local overwrite from BMS of e.g. set point, fan

stages and room occupancy. The SR06 LCD can be wirelessly parameterized by using the airConfig software or alternatively through the optional USB programming interface. Although the SR06 LCD is a self-powered device, the energy capacitor of the device can also be charged via USB interface if required. It can be integrated into almost any 55x55 mm frames, allowing you to choose from many designs and frame manufacturers. The SR06 LCD is mounted by using the adhesive pad or screws.



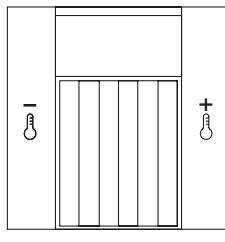
SR06 LCD 4T pure white brilliant,  
switch range Gira E2 pure white



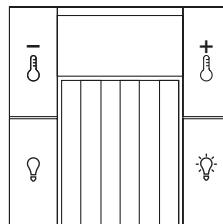
SR06 LCD 2T+Light aluminium,  
switch range Gira E2 aluminium



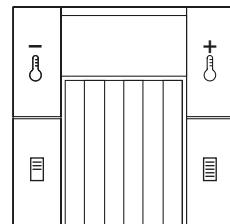
SR06 LCD 2T+Blind anthracite,  
switch range Gira E2 anthracite



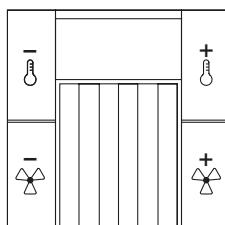
2T



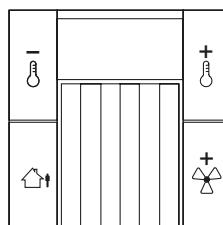
2T+Light



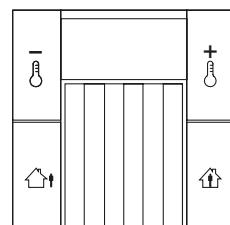
2T+Blind



4T Itype1



4T Itype2



4T Itype3

**Technical Data**

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment fan stage adjustment presence detection light ON/OFF blind UP/DOWN
<b>Operating elements</b>	2 buttons 4 buttons
<b>Configuration</b>	airConfig, Software/Plug-In for configuration
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	solar cell, maintenance-free LiPo-battery use of back-up battery possible for insufficiently lit environments, coin cell CR1632
<b>Display</b>	LCD 29x12 mm, monochrome
<b>Enclosure</b>	PC V0
<b>Colour</b>	white, pure white brilliant, aluminium, Jung aluminium
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	minimum illuminance at standard setting: 200 lx for 8 hours, for configuration an optional programming interface is available energy storage can be recharged with a separate USB-cable, to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

Wireless room operating unit temperature 2T			
Item description	Item No.	Group	€
SR06 LCD 2T temp pure white brilliant	728843	ES2	195,50
SR06 LCD 2T temp aluminium	728881	ES2	195,50
SR06 LCD 2T temp Jung aluminium	728966	ES2	195,50
SR06 LCD 2T temp anthracite	728928	ES2	195,50

Wireless room operating unit temperature 2T+light			
Item description	Item No.	Group	€
SR06 LCD 2T+Light temp pure white brilliant	728850	ES2	214,90
SR06 LCD 2T+Light temp aluminium	728898	ES2	214,90
SR06 LCD 2T+Light temp Jung aluminium	729000	ES2	214,90
SR06 LCD 2T+Light temp anthracite	728935	ES2	214,90

Wireless room operating unit temperature 2T+blind			
Item description	Item No.	Group	€
SR06 LCD 2T+Blind temp pure white brilliant	731836	ES2	214,90
SR06 LCD 2T+Blind temp aluminium	728904	ES2	214,90
SR06 LCD 2T+Blind temp Jung aluminium	729017	ES2	214,90
SR06 LCD 2T+Blind temp anthracite	728942	ES2	214,90

Wireless room operating unit temperature 4T			
Item description	Item No.	Group	€
SR06 LCD 4T ltype1 temp pure white brilliant	728874	ES2	210,70
SR06 LCD 4T ltype1 temp aluminium	728911	ES2	210,70
SR06 LCD 4T ltype1 temp Jung aluminium	729024	ES2	210,70
SR06 LCD 4T ltype1 temp anthracite	728959	ES2	210,70

Wireless room operating unit humidity + temperature 2T			
Item description	Item No.	Group	€
SR06 LCD 2T temp_rH pure white brilliant	729031	ES2	235,50
SR06 LCD 2T temp_rH aluminium	729062	ES2	235,50
SR06 LCD 2T temp_rH Jung aluminium	729109	ES2	235,50
SR06 LCD 2T temp_rH anthracite	729147	ES2	235,50

Wireless room operating unit humidity + temperature 2T+light			
Item description	Item No.	Group	€
SR06 LCD 2T+Light temp_rH pure white brilliant	693035	ES2	254,90
SR06 LCD 2T+Light temp_rH aluminium	729079	ES2	254,90
SR06 LCD 2T+Light temp_rH Jung aluminium	729116	ES2	254,90
SR06 LCD 2T+Light temp_rH anthracite	729154	ES2	254,90

<b>Wireless room operating unit humidity + temperature 2T+blind</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR06 LCD 2T+Blind temp_rH pure white brilliant	729048	ES2	254,90
SR06 LCD 2T+Blind temp_rH aluminium	729086	ES2	254,90
SR06 LCD 2T+Blind temp_rH Jung aluminium	729123	ES2	254,90
SR06 LCD 2T+Blind temp_rH anthracite	729161	ES2	254,90

<b>Wireless room operating unit humidity + temperature 4T</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR06 LCD 4T ltype1 temp_rH pure white brilliant	729055	ES2	250,70
SR06 LCD 4T ltype1 temp_rH aluminium	729093	ES2	250,70
SR06 LCD 4T ltype1 temp_rH Jung aluminium	729130	ES2	250,70
SR06 LCD 4T ltype1 temp_rH anthracite	729178	ES2	250,70

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Labelling type 2 (ltype2)	0,00
Labelling type 3 (ltype3)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Coin cell CR1632	597814	AS1	4,30
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10
USB extension 3 m	574044	NET	14,20
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## SR07 x

Energy-harvesting wireless room operating unit for the measurement of temperature and relative humidity (rH version) in living and office spaces. Also available with set point potentiometer, slide switch (for example ,Day/Night') or occupancy button. The device transmits its values unidirectionally to receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller. It can be integrated into almost any 55x55 mm frames, allowing you to choose from many designs and frame manufacturers. The SR07 x is mounted by using the adhesive pad or screws.



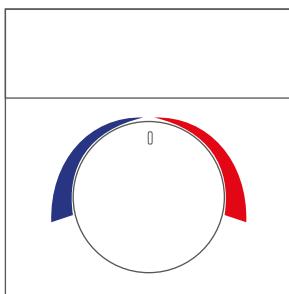
SR07 P aluminium,  
switch range Gira E2



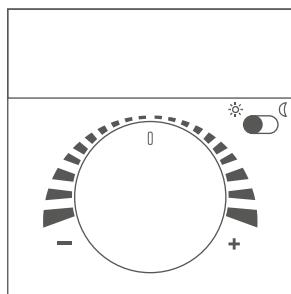
SR07 PT pure white brilliant,  
switch range Gira E2



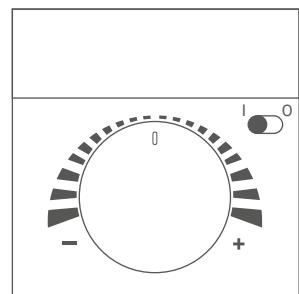
SR07 PMS (day/night) anthracite,  
switch range Gira E2



BTypSF



PMS (day/night)



PMS (I / O)



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature presence detection day/night operation operation I/O
<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C

<b>Technical Data</b>			
<b>Measuring range humidity</b>	0..100% rH non-condensing		
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR1632		
<b>Enclosure</b>	PC		
<b>Colour</b>	white, pure white brilliant, aluminium, Jung aluminium		
<b>Operating range temperature</b>	0..+40 °C		
<b>Protection (IP)</b>	IP20, according to EN 60529		
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)		
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws		
<b>Delivery content</b>	incl. adhesive foil for mounting		
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)		

<b>Wireless room operating unit temperature P</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SR07 P temp pure white brilliant	634113	ES2	159,60	
SR07 P temp aluminium	729246	ES2	159,60	
SR07 P temp Jung aluminium	729314	ES2	159,60	
SR07 P temp anthracite	729376	ES2	159,60	

<b>Wireless room operating unit temperature PT</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SR07 PT temp pure white brilliant	729185	ES2	168,40	
SR07 PT temp aluminium	729260	ES2	168,40	
SR07 PT temp Jung aluminium	729321	ES2	168,40	
SR07 PT temp anthracite	729383	ES2	168,40	

<b>Wireless room operating unit temperature PMS</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SR07 PMS (day/night) temp pure white brilliant	729192	ES2	168,40	
SR07 PMS (day/night) temp aluminium	729277	ES2	168,40	
SR07 PMS (day/night) temp Jung aluminium	729338	ES2	168,40	
SR07 PMS (day/night) temp anthracite	729390	ES2	168,40	

<b>Wireless room operating unit humidity + temperature P</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR07 P temp_rH pure white brilliant	729208	ES2	199,60
SR07 P temp_rH aluminium	729284	ES2	199,60
SR07 P temp_rH Jung aluminium	729345	ES2	199,60
SR07 P temp_rH anthracite	729406	ES2	199,60

<b>Wireless room operating unit humidity + temperature PT</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR07 PT temp_rH pure white brilliant	729215	ES2	208,40
SR07 PT temp_rH aluminium	729291	ES2	208,40
SR07 PT temp_rH Jung aluminium	729352	ES2	208,40
SR07 PT temp_rH anthracite	729413	ES2	208,40

<b>Wireless room operating unit humidity + temperature PMS</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR07 PMS (day/night) temp_rH pure white brilliant	729239	ES2	208,40
SR07 PMS (day/night) temp_rH aluminium	729307	ES2	208,40
SR07 PMS (day/night) temp_rH Jung aluminium	729369	ES2	208,40
SR07 PMS (day/night) temp_rH anthracite	729420	ES2	208,40

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Default labelling P colour red+blue (ltypeSF)	6,40
Default labelling I/0 for slide switch (MS)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Coin cell CR1632	597814	AS1	4,30

## NOVOS 3 SR x

Energy-harvesting wireless room operating unit in the NOVOS design for the integrated measurement of temperature and relative humidity (rH version) in living and office spaces as well as controls through operating elements such as set point and occupancy button. The device is mounted using the adhesive pad or screws included and transmits its values unidirectionally to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.



NOVOS 3 SR P



NOVOS 3 SR T



NOVOS 3 SR PT



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature presence detection
<b>Operating elements</b>	potentiometer (P) button (T)
<b>Configuration</b>	DIP switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery ER14505 (3,6 V)
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, aluminium, black design cover alu or black available
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless room operating unit temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
NOVOS 3 SR P white temp	754064	≡	ES2	139,50
NOVOS 3 SR T white temp	754071		ES2	144,50
NOVOS 3 SR PT white temp	754095		ES2	159,50
NOVOS 3 SR P white design temp	777964		ES2	139,50
NOVOS 3 SR PT white design temp	777988		ES2	159,50

<b>Wireless room operating unit humidity + temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
NOVOS 3 SR P white temp_rH	754101	≡	ES2	179,50
NOVOS 3 SR T white temp_rH	754118		ES2	184,50
NOVOS 3 SR PT white temp_rH	754125		ES2	199,50
NOVOS 3 SR P white design temp_rH	777971		ES2	179,50
NOVOS 3 SR PT white design temp_rH	777995		ES2	199,50

<b>Options</b>				
<b>Description</b>				<b>€</b>
Enclosure in aluminium				12,00
Enclosure in black				12,00
Design cover NOVOS 3 alu				12,00
Design cover NOVOS 3 black				12,00

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
Fixing kit rawlplugs and screws (2x each)		660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white		111584	AS1	13,20
Battery ER14505 (lithium 3.6 V AA)		759182	AS1	7,30
Adhesive foil for NOVOS 3 SR with inner cut-outs		773386	AS1	2,00
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO		668262	NET	29,80

## SR07

Energy-harvesting wireless room sensor for measuring temperature in residential and commercial buildings. The SR07 transmits its measured values unidirectionally to compatible EasySens® receiving actuators or gateways, which forward the information to a BMS controller. It can be integrated into a wide range of common switch ranges and frames, allowing you to choose from many designs and frame manufacturers.



SR07 pure white brilliant,  
switch range Gira E2



SR07 aluminium,  
switch range Gira E2



SR07 anthracite,  
switch range Gira E2



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR1632
<b>Enclosure</b>	PC
<b>Colour</b>	white, pure white brilliant, aluminium, Jung aluminium
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

<b>Wireless room sensor temperature</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR07 temp pure white brilliant	729437	ES2	142,30
SR07 temp aluminium	729444	ES2	142,30
SR07 temp Jung aluminium	729451	ES2	142,30
SR07 temp anthracite	729468	ES2	142,30

<b>Wireless room sensor humidity + temperature</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR07 temp_rH pure white brilliant	729550	ES2	182,30
SR07 temp_rH aluminium	729567	ES2	182,30
SR07 temp_rH Jung aluminium	729581	ES2	182,30
SR07 temp_rH anthracite	729598	ES2	182,30

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Coin cell CR1632	597814	AS1	4,30

## NOVOS 3 SR

Energy-harvesting wireless room sensor in the NOVOS design for measuring temperature in residential and commercial buildings. Mounted directly on the wall using the adhesive pad or screws included, the NOVOS 3 SR Temp transmits its measured values to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.



NOVOS 3 SR Temp  
enclosure colour pure white



NOVOS 3 SR Temp  
enclosure colour black



NOVOS 3 SR Temp  
enclosure colour aluminium



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Configuration</b>	DIP switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+40 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery ER14505 (3,6 V)
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, design cover alu or black available (please specify colour when ordering)
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless room sensor temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
NOVOS 3 SR temp white	754040	≡	ES2	124,50
NOVOS 3 SR temp white design	778008		ES2	124,50

<b>Wireless room sensor humidity + temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
NOVOS 3 SR temp_rH white	754057	≡	ES2	164,50
NOVOS 3 SR temp_rH white design	778015		ES2	164,50

<b>Options</b>				
<b>Description</b>				<b>€</b>
Enclosure in aluminium				12,00
Enclosure in black				12,00
Design cover NOVOS 3 alu				12,00
Design cover NOVOS 3 black				12,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>		<b>€</b>
Fixing kit rawlplugs and screws (2x each)	660945	AS1		0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1		13,20
Battery ER14505 (lithium 3.6 V AA)	759182	AS1		7,30
Adhesive foil for NOVOS 3 SR with inner cut-outs	773386	AS1		2,00
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET		29,80

## SR04 CO2

Wireless room sensor for measuring CO2, temperature and optionally relative humidity in residential and commercial buildings. Mounted directly on the wall using the adhesive pad or screws included, the NOVOS 3 SR Temp transmits its measured values to EasySens® receiving actuators or gateways, which process the information directly or – depending on the application – forward it to a BMS controller.



### Technical Data

<b>Measured values</b>	temperature, relative humidity, CO2
<b>Configuration</b>	jumper
<b>Sensor</b>	NDIR (non-dispersive, infrared)
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+51 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Measuring range CO2</b>	0..2550 ppm
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	max. 1,6 W (24 V =), 3,6 VA (24 V ~)
<b>Display</b>	LCD 29x12 mm, monochrome 3 LEDs for displaying air quality (traffic light function – TLF)
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> cable entry via rear opening, predetermined breaking point (bottom und top)
<b>Mounting</b>	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless room sensor CO2 + temperature</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR04 CO2 temp	442510	ES2	294,20
SR04 CO2 temp LCD	467131	ES2	337,20
SR04 CO2 temp TLF	436557	ES2	309,20
SR04 CO2 temp LCD TLF	630634	ES2	352,20

<b>Wireless room sensor CO2 + temperature + humidity</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR04 CO2 temp_rH	434768	ES2	334,20
SR04 CO2 temp_rH LCD	462228	ES2	377,20
SR04 CO2 temp_rH TLF	516143	ES2	349,20
SR04 CO2 temp_rH LCD TLF	474757	ES2	392,20

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20

## SR65

Energy-harvesting wireless sensor for measuring temperature in outdoor areas or industrial environments (for example in cold stores, production halls and warehouses). The airConfig software can be used to parameterize the SR65 to customized measurement ranges, transmission intervals and wake-up times. When used in dark places (e.g. server rooms), a backup battery can be inserted.



SR65 Temp



SR65 Temp\_rH



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Output signal temperature</b>	scaling according EEP, -20..+60 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	solar cell, maintenance-free internal super cap, use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
<b>Material in touch with media</b>	<b>Temp:</b> Sensor probe: Ø=6 mm, stainless steel V4A (1.4571) <b>rH:</b> Pipe: Ø=19 mm, PC, length 50 mm, with filter stainless steel wire mesh
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-25..+65 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

### Wireless outdoor sensor

Item description	Item No.	On stock	Group	€
SR65 temp	230001	✉	ES2	143,10
SR65 temp_rH	540391	✉	ES2	183,10

### Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,30
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10

## SR65 AKF

Energy-harvesting wireless duct sensor for the measurement of temperature in gaseous media of heating, ventilation and air-conditioning systems. The SR65 AKF can be configured via airConfig software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.



Technical Data	
Measured values	temperature
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, +10..+90 °C, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571)
Installation length	100 mm
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-40..+130 °C
Operating range temperature enclosure	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Notes	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless duct/immersion sensor temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SR65 AKF 100.06	630566	ES2	151,90	

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Battery LS14250	315098	AS1	4,30	
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70	
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70	
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10	

<b>Thermowells brass for sensors with pocket Ø=6 mm</b>							
<b>Item description</b>	<b>Length</b>	<b>Inst. length</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>	
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,45	
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	9,95	

<b>Thermowells stainless steel for sensors with pocket Ø=6 mm</b>							
<b>Item description</b>	<b>Length</b>	<b>Inst. length</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>	
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	19,90	
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	21,50	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473			AS2	19,20

## **SR65 TF**

Energy-harvesting wireless cable sensor for measuring temperature in gaseous media in heating, ventilation and air-conditioning systems. The SR65 TF can be configured via airConfig software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.



### **Technical Data**

<b>Measured values</b>	temperature
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, -20..+60 °C, optionally configurable
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
<b>Material in touch with media</b>	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571), rolled (IP67)
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-40..+130 °C
<b>Operating range temperature enclosure</b>	-25..+65 °C
<b>Protection (IP)</b>	enclosure IP65, according to EN 60529
<b>Connection cable</b>	silicone, 0,25 mm <sup>2</sup> , 2-wire
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless cable sensor temperature</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SR65 TF 050.06 L1000	245647	ES2	145,20	

<b>Options</b>	
<b>Description</b>	<b>€</b>
Add per meter of connection cable 2-wire -50..+180 °C	1,90

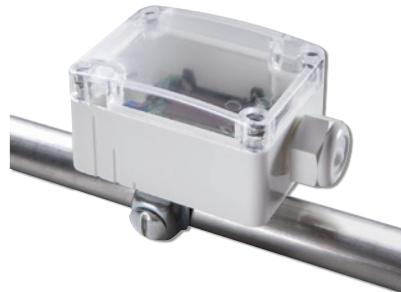
<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Battery LS14250	315098	AS1	4,30	
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70	
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70	
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	13,50	
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10	

<b>Thermowells brass for sensors with pocket Ø=6 mm</b>							
<b>Item description</b>	<b>Length</b>	<b>Inst. length</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>	
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	✉	AS2	8,35	
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	✉	AS2	9,45	

<b>Thermowells stainless steel for sensors with pocket Ø=6 mm</b>							
<b>Item description</b>	<b>Length</b>	<b>Inst. length</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>	
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	✉	AS2	18,10	
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	✉	AS2	19,90	
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473			AS2	19,20

## SR65 VFG

Energy-harvesting wireless contact sensor for measuring temperature on ducts/pipes. The SR65 VFG can be configured via airConfig software to customized measurement ranges, transmission intervals and wake-up times. When used in dark places, a backup battery can be inserted.



### Technical Data

Measured values	temperature
Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Output signal temperature	scaling according EEP, +10..+90 °C, optionally configurable
Power supply	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
Material in touch with media	Sensor probe, brass, spring loaded sensor
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Notes	to use the free software airConfig (download a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

<b>Wireless contact sensor temperature</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR65 VFG	239615	ES2	143,10

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Battery LS14250	315098	AS1	4,30
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



## SR-MDS

The SR-MDS is a radio multi-sensor to measure light levels and detect motion. The SR-MDS is typically ceiling-mounted and powered by 24 V so as to permit reliable operations in rooms with low light levels (e.g. basements).



### Technical Data

<b>Measured values</b>	temperature, luminosity, motion
<b>Configuration</b>	jumper
<b>Sensor</b>	PIR (passive infrared) detection range: 360 °, Ø=5 m at a sensor height of approx. 2,5 m
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Output signal temperature</b>	scaling according EEP, 0..+51 °C
<b>Measuring range light</b>	0..510 lux
<b>Power supply</b>	flex. 15..240 V =/~, battery LS14250 (3,6 V), (3x)
<b>Power consumption</b>	typ. 0,8 W (24 V =), 1,2 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	removable terminal block, max. 2,5 mm <sup>2</sup>
<b>Notes</b>	appropriate for constant light control

### Wireless ceiling sensor light + motion (+ temperature)

Item description	Item No.	Group	€
SR-MDS	396486	ES2	240,90
SR-MDS BAT	396462	ES2	240,90

### Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,30
Enclosure for surface mounting SR-MDS pure white	514439	AS1	50,80
Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	AS1	6,90



## SR-MDS Solar

Energy-harvesting wireless radio multi-sensor to measure light levels and detect motion. The SR-MDS Solar can be integrated into compatible receiving actuators or gateways.



### Technical Data

<b>Measured values</b>	luminosity, motion
<b>Configuration</b>	airConfig
<b>Sensor</b>	PIR (passive infrared) detection range: 102 °x92 °, Ø=5 m at a sensor height of approx. 2,8 m
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Measuring range light</b>	0..510 lux (default setting) 0.1000 lux (10 bit) 0.1020 lux
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Protection (IP)</b>	IP50, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. fixing kit rawlplugs and screws (2x each)
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

### Wireless ceiling sensor light + motion

Item description	Item No.	On stock	Group	€
SR-MDS Solar	591577	✉	ES2	226,70

### Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,30
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



## **SR-MOC Solar**

Energy-harvesting wireless ceiling-mounted sensor for motion detection and integration into EasySens® receiving actuators or gateways.



### **Technical Data**

<b>Measured values</b>	motion
<b>Configuration</b>	buttons
<b>Sensor</b>	PIR (passive infrared) detection range: 360 °, Ø=5 m at a sensor height of approx. 2,5 m
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR2032 terminal for external power supply 3..5 V =
<b>Enclosure</b>	PC
<b>Colour</b>	white
<b>Operating range temperature</b>	-10..+40 °C
<b>Protection (IP)</b>	IP50, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using included adhesive foil or screws

### **Wireless ceiling sensor motion**

Item description	Item No.	On stock	Group	€
SR-MOC Solar	566070	✉	ES2	172,00

### **Accessories**

Item description	Item No.	Group	€
Coin cell CR2032	347013	AS1	4,30
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90



## SR-MOW Solar

Energy-harvesting wireless wall-mounted sensor for motion detection and integration into EasySens® receiving actuators or gateways.



### Technical Data

<b>Measured values</b>	motion
<b>Configuration</b>	buttons
<b>Sensor</b>	PIR (passive infrared) detection range: with wide angle lens up to 15 m, with field lens up to 30 m when mounted at height 2,10 m
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, coin cell CR2032 terminal for external power supply 3..5 V =
<b>Enclosure</b>	PC
<b>Colour</b>	white
<b>Operating range temperature</b>	-10..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using included adhesive foil or screws

### Wireless wall sensor motion

Item description	Item No.	Group	€
SR-MOW Solar	566094	ES2	150,40

### Accessories

Item description	Item No.	Group	€
Coin cell CR2032	347013	AS1	4,30
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90



## **SR65 Li**

Energy-harvesting wireless light sensor for constant light control applications, saving energy by lowering the artificial light. The SR65 Li can furthermore be configured individually via airConfig.



### **Technical Data**

<b>Measured values</b>	luminosity
<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Measuring range light</b>	0..510 lux 0..1000 lux (10 bit) 0..1020 lux 300..30.000 lux (default setting) 600..60.000 lux
<b>Power supply</b>	solar cell, maintenance-free internal super cap use of back-up battery possible for insufficiently lit environments, battery LS14250 (3,6 V)
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-20..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529

### **Wireless outdoor sensor luminosity**

Item description	Item No.	Group	€
SR65 Li	598354	ES2	177,30

### **Accessories**

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,30
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



## SR-MI

EasySens® metering interface for wireless radio transmission of pulse signals for gas, water, electric and BTU meters with an S0 interface.



### Technical Data

<b>Configuration</b>	DIP switches
<b>Input</b>	3x S0-interface
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,2 W (24 V =), 0,4 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Delivery content</b>	incl. external transmitting antenna with magnetic base

### Wireless module

Item description	Item No.	Group	€
SR-MI	471428	ES2	178,80

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10



## SR65-3AI

The SR65-3AI has 3x 0..10 V inputs. The inputs can be wirelessly transmitted with the SR65-3AI to an EasySens® receiving actuator or can be integrated through gateways into existing BUS networks.



### Technical Data

Configuration	jumper
Input	3x analogue input, 0..10 V
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
Power consumption	typ. 0,2 W (24 V =), 0,4 VA (24 V ~)
Enclosure	PA6.6, with quick lock screws
Colour	pure white, transparent cover
Operating range temperature	-25..+65 °C
Protection (IP)	IP65, according to EN 60529
Connection	cable entry M16 for wire Ø=8 mm, plug-in terminal, max. 1,5 mm <sup>2</sup>

### Wireless module

Item description	Item No.	Group	€
SR65-3AI	527071	ES2	143,10



## SR65-DI

The SR65 DI is a wireless transmitter for the binary status of relay inputs. The status of the digital input is transmitted through radio to corresponding remote controllers in the EnOcean network or can be transferred through a gateway to any BUS network. It is often used as a push signal for night-time temperature reduction of heating controllers or ECO/comfort switching.



### Technical Data

<b>Configuration</b>	airConfig
<b>Input</b>	1x input for floating contact, contact resistance max. 1000 Ω
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	solar cell, maintenance-free internal super cap, battery LS14250 (3,6 V)
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-25..+65 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm, terminal block, max. 1,5 mm <sup>2</sup>
<b>Delivery content</b>	incl. battery LS14250 (3,6 V)
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) (refer to accessories)

### Wireless binary module

Item description	Item No.	Group	€
SR65-DI	267731	ES2	143,10

### Accessories

Item description	Item No.	Group	€
Battery LS14250	315098	AS1	4,30
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10

## **SRG02**

Battery- and wireless window handle for status monitoring of windows (lock option available) with radio interface. When actuated, the handle transmits a radio signal with the handle position to a receiving actuator or gateway. The window handle is used to optimize energy consumption in the building, as heating/cooling or ventilation gets deactivated when windows are open. Equipped with a variable length square spindle for profile depths of 32..42 mm for most common window frames.



aluminium pure white



aluminium steel grey



stainless steel



### **Technical Data**

<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	aluminium (locking cylinder optional), stainless steel
<b>Colour</b>	pure white painted, steel grey painted
<b>Operating range temperature</b>	+5..+40 °C
<b>Mounting</b>	square spindle, variable lengths (for tread depth 32..42 mm)
<b>Notes</b>	lateral detent with precise detent position

### **Wireless window handle**

Item description	Item No.	On stock	Group	€
SRG02 aluminium pure white	730747	⌚	ES1	110,70
SRG02 aluminium steel grey	730730	⌚	ES1	110,70
SRG02 stainless steel	730723	⌚	ES1	185,90
SRG02 lockable aluminium pure white	730716	⌚	ES1	158,90
SRG02 lockable aluminium steel grey	730709	⌚	ES1	158,90

## SRG-Basic

Battery- and wireless window handle for status monitoring of windows (lock option available) with radio interface. When actuated, the handle transmits a radio signal with the handle position to a receiving actuator or gateway. The window handle is used to optimize energy consumption in the building, as heating/cooling or ventilation gets deactivated when windows are open. Equipped with a variable length square spindle for profile depths of 32..42 mm for most common window frames.



aluminium pure white



aluminium silver



aluminium steel grey



### Technical Data

Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	maintenance-free electrodynamic energy generator
Enclosure	aluminium
Colour	pure white, steel grey, silver
Operating range temperature	+5..+40 °C
Mounting	square spindle, variable lengths (for tread depth 32..42 mm)

### Wireless window handle

Item description	Item No.	On stock	Group	€
SRG-Basic aluminium pure white	768276	✉	ES1	98,80
SRG-Basic aluminium silver	768283	✉	ES1	98,80
SRG-Basic aluminium steel grey	768290		ES1	98,80

## **SRW03**

Energy-harvesting wireless window contact for the status monitoring of windows and doors. Ideal for retrofitting applications in hotel rooms or office spaces to increase energy savings.



SRW03



SRW03 Dual BAT



### **Technical Data**

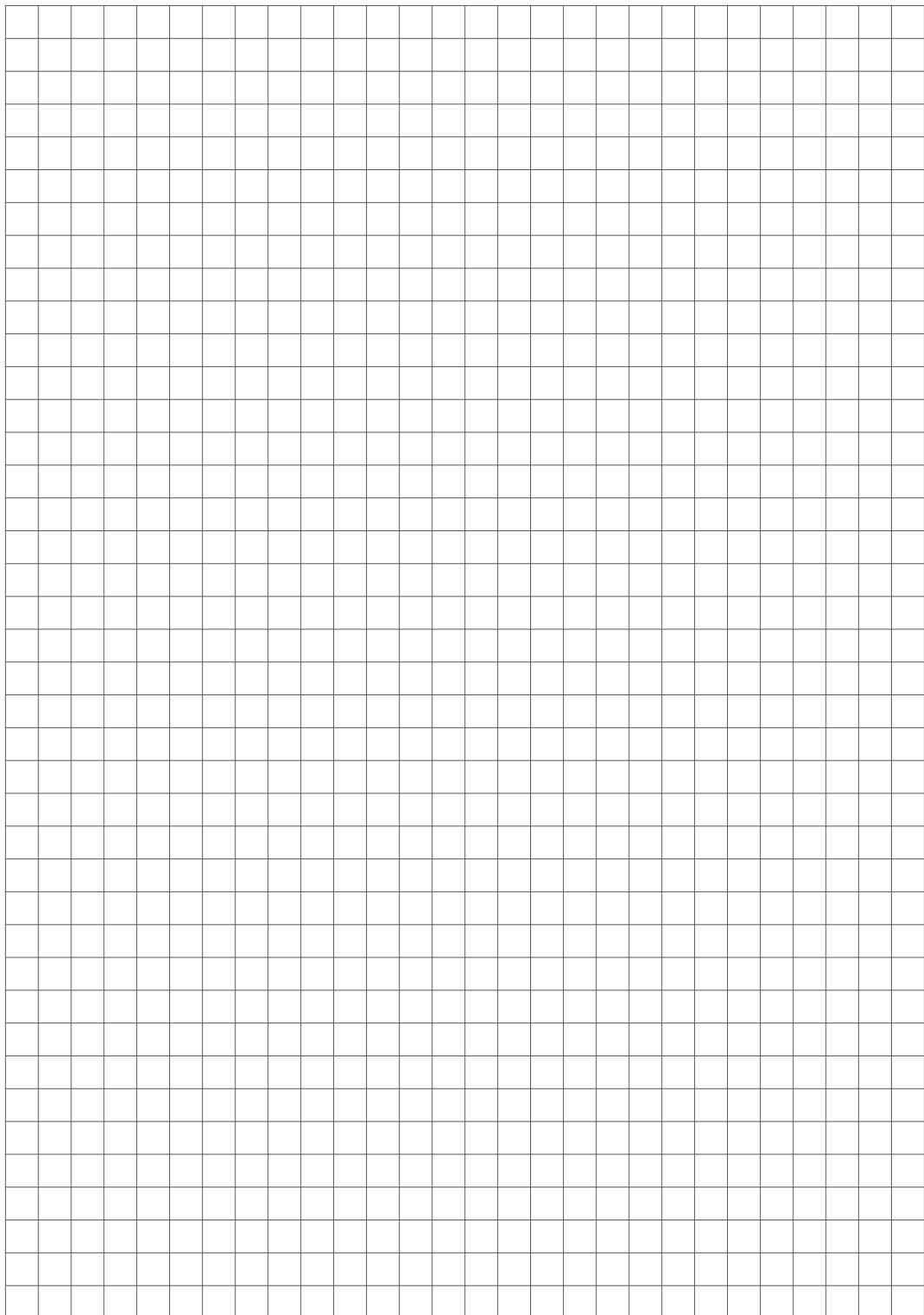
<b>Sensor</b>	reed contact and magnet
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	solar cell, maintenance-free internal super cap <b>SRW03 Dual:</b> battery type AAA
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, anthracite
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using included adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	<b>SRW03 Dual:</b> for 1 or 2-leaf windows

### **Wireless window/door contact**

Item description	Item No.	Group	€
SRW03 white	778534	ES1	71,40
SRW03 anthracite	778541	ES1	77,40
SRW03 Dual BAT white	778558	ES1	79,20
SRW03 Dual BAT anthracite	778565	ES1	85,20

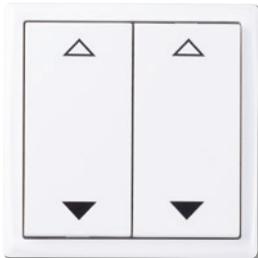
### **Accessories**

Item description	Item No.	Group	€
Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,30



## Wireless Switches Mini

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds. The EasySens® radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.



4-channel blinds, pure white brilliant



2-channel light, aluminium



2-channel blinds, anthracite



### Technical Data

<b>Operating functions</b>	light ON/OFF blind UP/DOWN
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white brilliant, aluminium painted, anthracite
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch ranges</b>	Thermokon mini
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	price including frame actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

**Wireless switch 2-channel light**

Item description	Item No.	Group	€
Switch Mini 2-channel light pure white brilliant	430647	ES2	68,00
Switch Mini 2-channel light aluminium painted	430661	ES2	68,00
Switch Mini 2-channel light anthracite	430623	ES2	68,00

**Wireless switch 4-channel light**

Item description	Item No.	Group	€
Switch Mini 4-channel light pure white brilliant	430838	ES2	70,40
Switch Mini 4-channel light aluminium painted	430852	ES2	70,40
Switch Mini 4-channel light anthracite	430814	ES2	70,40

**Wireless switch 2-channel blind**

Item description	Item No.	Group	€
Switch Mini 2-channel blind pure white brilliant	430630	ES2	68,00
Switch Mini 2-channel blind aluminium painted	430654	ES2	68,00
Switch Mini 2-channel blind anthracite	430302	ES2	68,00

**Wireless switch 4-channel blind**

Item description	Item No.	Group	€
Switch Mini 4-channel blind pure white brilliant	430821	ES2	70,40
Switch Mini 4-channel blind aluminium painted	430845	ES2	70,40
Switch Mini 4-channel blind anthracite	430807	ES2	70,40

**Options**

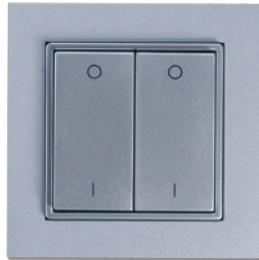
Description	€
Special printing on request	
Without printing on request	

## Wireless Switches 55x55

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds. The EasySens® radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.



2-channel blinds  
Gira E2 pure white



4-channel light  
Gira E2 aluminium



4-channel blinds  
Gira E2 anthracite



### Technical Data

<b>Operating functions</b>	light ON/OFF blind UP/DOWN
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch ranges</b>	Berker, Busch-Jaeger, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

<b>Wireless switch 2-channel light</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 2-channel light 55x55 pure white matt	730167	ES1	73,80
Switch 2-channel light 55x55 pure white brilliant	730372	ES1	73,80
Switch 2-channel light 55x55 aluminium	730419	ES1	73,80
Switch 2-channel light 55x55 Jung aluminium	730457	ES1	73,80
Switch 2-channel light 55x55 anthracite	730495	ES1	73,80

<b>Wireless switch 4-channel light</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 4-channel light 55x55 pure white matt	730181	ES1	76,10
Switch 4-channel light 55x55 pure white brilliant	730389	ES1	76,10
Switch 4-channel light 55x55 aluminium	730426	ES1	76,10
Switch 4-channel light 55x55 Jung aluminium	730464	ES1	76,10
Switch 4-channel light 55x55 anthracite	730501	ES1	76,10

<b>Wireless switch 2-channel blind</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 2-channel blind 55x55 pure white matt	730235	ES1	73,80
Switch 2-channel blind 55x55 pure white brilliant	730396	ES1	73,80
Switch 2-channel blind 55x55 aluminium	730433	ES1	73,80
Switch 2-channel blind 55x55 Jung aluminium	730471	ES1	73,80
Switch 2-channel blind 55x55 anthracite	730518	ES1	73,80

<b>Wireless switch 4-channel blind</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 4-channel blind 55x55 pure white matt	730365	ES1	76,10
Switch 4-channel blind 55x55 pure white brilliant	730402	ES1	76,10
Switch 4-channel blind 55x55 aluminium	730440	ES1	76,10
Switch 4-channel blind 55x55 Jung aluminium	730488	ES1	76,10
Switch 4-channel blind 55x55 anthracite	730525	ES1	76,10

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Special printing on request	
Without printing on request	
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

## Wireless Switches BJ 63x63

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds, especially for Busch-Jaeger (63x63mm) designs. The radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.



4-channel blinds,  
future® linear studio white



4-channel light,  
future® linear aluminium silver



2-channel blinds,  
future® linear anthracite



### Technical Data

<b>Operating functions</b>	light ON/OFF blind UP/DOWN
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	anthracite, studio white, studio white matt available on request, ivory white alu silver, black matt available on request
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch range Busch-Jaeger</b>	Busch-axcent®, carat®, future® linear, solo® (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000, frame designs Busch-Jaeger solo®, future® linear and Busch-axcent® at the same price, please ask for carat® Busch-balance® SI see Wireless Switches 55x55

<b>Wireless switch 2-channel light</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 2-channel light BJ63x63 studio white	730532	ES1	76,10
Switch 2-channel light BJ63x63 ivory white	730570	ES1	76,10
Switch 2-channel light BJ63x63 alu silver	730631	ES1	76,10
Switch 2-channel light BJ63x63 anthracite	730754	ES1	76,10

<b>Wireless switch 4-channel light</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 4-channel light BJ63x63 studio white	730549	ES1	78,50
Switch 4-channel light BJ63x63 ivory white	730587	ES1	78,50
Switch 4-channel light BJ63x63 alu silver	730648	ES1	78,50
Switch 4-channel light BJ63x63 anthracite	730761	ES1	78,50

<b>Wireless switch 2-channel blind</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 2-channel blind BJ63x63 studio white	730556	ES1	76,10
Switch 2-channel blind BJ63x63 ivory white	730594	ES1	76,10
Switch 2-channel blind BJ63x63 alu silver	730655	ES1	76,10
Switch 2-channel blind BJ63x63 anthracite	730778	ES1	76,10

<b>Wireless switch 4-channel blind</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Switch 4-channel blind BJ63x63 studio white	730563	ES1	78,50
Switch 4-channel blind BJ63x63 ivory white	730600	ES1	78,50
Switch 4-channel blind BJ63x63 alu silver	730693	ES1	78,50
Switch 4-channel blind BJ63x63 anthracite	730785	ES1	78,50

<b>Options</b>			
<b>Description</b>			<b>€</b>
Special printing on request			
Without printing on request			
Switch ranges Busch-Jaeger future® linear   solo®   Busch-axcent®			4,50

## Wireless Switches Jung LS 990

Energy-harvesting wireless switch for adjusting the (dimming) status of lights and blinds, especially for JUNG designs. The radio technology offers flexible attachment to glass and plasterboard walls using the adhesive pad or screws.



2-channel light,  
LS 990 light grey



4-channel light,  
LS 990 alpin white



4-channel blinds,  
LS 990 white



### Technical Data

<b>Operating functions</b>	light ON/OFF blind UP/DOWN
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	white, light grey, alpin white
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch range Jung</b>	LS 990
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	price including frame actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

**Wireless switch 2-channel light**

Item description	Item No.	Group	€
Switch 2-channel light Jung LS 990 white	435390	ES1	113,70
Switch 2-channel light Jung LS 990 alpin white	435376	ES1	113,70
Switch 2-channel light Jung LS 990 light grey	435413	ES1	113,70

**Wireless switch 4-channel light**

Item description	Item No.	Group	€
Switch 4-channel light Jung LS 990 white	435475	ES1	117,90
Switch 4-channel light Jung LS 990 alpin white	435451	ES1	117,90
Switch 4-channel light Jung LS 990 light grey	435499	ES1	117,90

**Wireless switch 2-channel blind**

Item description	Item No.	Group	€
Switch 2-channel blind Jung LS 990 white	435406	ES1	113,70
Switch 2-channel blind Jung LS 990 alpin white	435383	ES1	113,70
Switch 2-channel blind Jung LS 990 light grey	435420	ES1	113,70

**Wireless switch 4-channel blind**

Item description	Item No.	Group	€
Switch 4-channel blind Jung LS 990 white	435482	ES1	117,90
Switch 4-channel blind Jung LS 990 alpin white	435468	ES1	117,90
Switch 4-channel blind Jung LS 990 light grey	435505	ES1	117,90

**Options**

Description	€
Special printing on request	
Without printing on request	

## **Hand-holds**

The EasySens® hand-held switch works as a remote control for EasySens® receiving actuators or gateways, which can integrate the wireless signals into an existing network and application.



### **Technical Data**

<b>Operating elements</b>	4 buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Operating range temperature</b>	-25..+65 °C
<b>Notes</b>	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000

### **Hand-held**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Hand-held switch 4-channel	314602	ES1	103,90

## SR-KCS02

Energy-harvesting wireless key card switch for occupancy-based control of lighting or air conditioning in rooms. The self-powered wireless EasySens® radio permits flexible installation on glass surfaces or walls using adhesive pads or screws.



### Technical Data

<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting

### Wireless switch

Item description	Item No.	Group	€
SR-KCS02	691413	ES2	85,60



## STC65+ RS485 Modbus

Bidirectional gateway with RS485 Modbus interface for integration of up to 32 EasySens® devices. Freely programmable 32 channels allow for a bidirectional communication with 32 addresses (registers) and SAB+/SAB05 wireless valve actuators for example. The STC65+ RS485 Modbus includes an ext. transmitting/receiving antenna (2.5 m).



### Technical Data

<b>Configuration</b>	Software/Plug-In for configuration, BUS, jumper, DIP switches
<b>Network technology</b>	RS485 Modbus
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,8 W (24 V =), 2 VA (24 V ~)
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, plug-in terminal, max. 1,5 mm²
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	to use the free software airConfig (download a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), communication with up to 15 SmartACK devices, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

### Gateway EnOcean <-> BUS

Item description	Item No.	On stock	Group	€
STC65+ RS485 Modbus	657372	≡	ES2	254,50

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30



## STC65+ RS485 EVC

Bidirectional gateway with serial RS485 interface and IP65 enclosure for integrating up to 64 EasySens® sensors or wireless switches into a network. Transmission of field-programmable telegrams to max. 127 addresses. The gateway includes an ext. transmitting/receiving antenna (2.5 m).



### Technical Data

<b>Configuration</b>	Software/Plug-In for configuration, BUS, jumper, DIP switches
<b>Network technology</b>	RS485 EVC
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,8 W (24 V =), 2 VA (24 V ~)
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm, plug-in terminal, max. 1,5 mm²
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz), communication with up to 15 SmartACK devices, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

### Gateway EnOcean <-> BUS

Item description	Item No.	On stock	Group	€
STC65+ RS485 EVC	657396	✉	ES2	254,50

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30



## **STC65-FTT LON**

Bidirectional gateway for connecting up to 11 EasySens® sensors and transmitters to controllers and control systems with LON interface. With predefined sensor objects (sensor, switch, ...) and corresponding output variables (SNVT) for communication in a LON network. Especially designed to upgrade existing LON installations with wireless technologies for increased energy savings.



<b>Technical Data</b>	
<b>Configuration</b>	Software/Plug-In for configuration, BUS
<b>Network technology</b>	LON FT (free topology)
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,8 W (24 V =), 0,9 VA (24 V ~)
<b>Enclosure</b>	PA6.6
<b>Colour</b>	pure white, transparent cover PC
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP42, according to EN 60529
<b>Connection</b>	cable entry M20 for wire Ø=8 mm seal insert for double cable entry for wire max Ø=6 mm
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base incl. plug-in for turbo LONmaker
<b>Notes</b>	communication with up to 4 SmartACK devices magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

<b>Gateway EnOcean &lt;-&gt; BUS</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
STC65-FTT LON	393904	ES2	304,80	
STC65-FTT LON SmartACK	616638	ES2	304,80	

<b>Accessories</b>	<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Antenna extension 10 m		257206	AS1	59,10
Antenna extension 20 m		257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm		255097	AS1	15,10
Fixing kit rawplugs and screws (2x each)		660945	AS1	0,90



## STC-BACnet IP

The STC-BACnet IP gateway is designed for bidirectional communication between EasySens® devices and building management systems with a BACnet IP interface. Configuration can be easily performed with the EasySens® airConfig software tool. Details of the communication protocol are described in the software documentation accordingly. The delivery content includes an external antenna for achieving best transmission ranges.



### Technical Data

<b>Configuration</b>	airConfig, BUS
<b>Network technology</b>	BACnet IP
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 3 W (24 V =), 5 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm²
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base

### Notes

to use the free software airConfig (download a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) for network connection use a shielded standard Ethernet cable CAT 5 magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

### STC-BACnet IP – Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-BACnet IP V3	773843	ES1	449,00

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



## **SRC65-BACnet MS/TP**

The unidirectional SRC65-BACnet MS/TP gateway allows the reception of information from EasySens® sensors, switches, room units and other transmitters. Details of the communication protocol are described in the software documentation accordingly. The delivery content includes an external antenna for achieving best transmission ranges.



<b>Technical Data</b>	
<b>Configuration</b>	BUS, jumper, DIP switches
<b>Network technology</b>	RS485 BACnet (MS/TP)
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 1 W (24 V =), 1,3 VA (24 V ~)
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover PC
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP42, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

<b>Gateway EnOcean -&gt; BUS</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SRC65-BACnet MS/TP	396431	ES1	276,50	

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Antenna extension 10 m	257206	AS1	59,10	
Antenna extension 20 m	257213	AS1	71,90	
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10	



## STC-IoT

The STC-EnOcean IP gateway allows for an easy integration of EasySens® sensors and actuators into the Internet of Things (IoT). The new EnOcean-over-IP gateway communicates JSON streams or RestAPI command lines. The seamless commissioning and configuration can be done through any browser interface. The graphical dataflow-oriented processing of the EnOcean information can be performed by the integrated free Node-RED editor (<https://nodered.org/>) and enables simple, rule-based processing of information. It can further be used to send push notifications via SMS/e-Mail, if values exceed thresholds (additional required hardware not included). EasySens® devices can be integrated very easily into cloud-based applications. Compatible with IP-based controllers and display systems.



### Technical Data

<b>Configuration</b>	web interface
<b>Network technology</b>	TCP/IP
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 3 W (24 V =), 5 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) local documentation via web browser interface

### Gateway EnOcean -> BUS

Item description	Item No.	Group	€
STC-IoT	669320	ES1	415,50

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10



## STC-KNX

Bidirectional gateway for connecting up to 32 EasySens® sensors or wireless switches to a KNX network. The device offers additional logical control blocks, which can be configured for: switching and dimming lights, blinds up/down, presence, set point adjustment, fan stages, humidity sensor, window contact/handle, binary input, light and motion.



### Technical Data

<b>Configuration</b>	BUS
<b>Network technology</b>	KNX (TP)
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	supply via BUS, 29 V = SELV
<b>Power consumption</b>	max. 12 mA
<b>Display</b>	graphic display monochrome (internal)
<b>Enclosure</b>	PC
<b>Colour</b>	white
<b>Operating range temperature</b>	-5..+45 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal KNX bus
<b>Mounting</b>	flush-mounted on standard EU box ( $\varnothing=60$ mm)
<b>Notes</b>	product database (freeware via download)

### STC-KNX – Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-KNX	698948	ES1	389,50



## STC-KNX UP

Flush-mounted bidirectional gateway for EasySens® sensors to integrate into a KNX network with a maximum of 8 channels. The STC-KNX UP offers logical control blocks, which can be configured for: switching and dimming lights, blinds up/down, presence, set point adjustment, fan stages, humidity sensor, window handle/contact, binary input, light and motion.



### Technical Data

<b>Configuration</b>	Software/Plug-In for configuration, BUS
<b>Network technology</b>	KNX (TP)
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	supply via BUS
<b>Power consumption</b>	max. 12 mA
<b>Enclosure</b>	ABS
<b>Colour</b>	blue
<b>Operating range temperature</b>	-5..+45 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm)
<b>Notes</b>	product database (freeware via download)

### Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-KNX UP	725132	ES1	287,00



## STC-dS

Bidirectional gateway for extending a digitalSTROM system with EasySens® wireless devices like sensors, room units, valve actuators, switches, window contacts and window handles. These devices can be easily connected to an existing digitalSTROM network.



Technical Data	
Configuration	web interface
Network technology	digitalSTROM
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	external power supply (USB micro), 5 V =, 1 A
Power consumption	typ. 3,2 W (5 V =)
Enclosure	PC, ABS
Colour	white
Operating range temperature	0..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	USB micro (power supply) RJ45 socket (8P8C) 10/100 MBit/s Ethernet
Connection cable	patch cable, RJ45 plug
Delivery content	incl. external power supply incl. external receiving/transmitting antenna (2,5 m) with magnetic base
Notes	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

Gateway EnOcean <-> BUS			
Item description	Item No.	Group	€
STC-dS	637442	DS1	418,70

Accessories			
Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10



## STC-dS HS

Bidirectional gateway for extending a digitalSTROM system with EasySens® wireless devices like sensors, room units, valve actuators, switches, window contacts and window handles, designed to be mounted on DIN rail TS35 (35x7,5 mm) in accordance with EN 60715. The wireless devices can be seamlessly integrated and used like standard digitalSTROM components.



### Technical Data

<b>Configuration</b>	web interface
<b>Network technology</b>	digitalSTROM
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 3 W (24 V =), 5 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> RJ45 socket (8P8C) 10/100 MBit/s Ethernet
<b>Connection cable</b>	patch cable, RJ45 plug
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

### Gateway EnOcean <-> BUS

Item description	Item No.	Group	€
STC-dS HS	711340	DS1	418,70

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10

## STC-DO

Bidirectional flush-mounted receiving actuator for EasySens® devices with one relay output. Functions/applications can be individually configured via airConfig software for e.g. heating with PWM, heating ON/OFF, signal contact, status feedback, hygrostat control, heating/cooling with PWM, light ON/OFF or fan speed control. The STC-DO is a universal relay actuator that can be configured through airConfig depending on the application.



### Technical Data

Configuration	airConfig
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
Power consumption	typ. 1,5 W (24 V =), 3,4 VA (24 V ~), typ. 0,5 VA (230 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm²
Mounting	flush-mounted in standard EU box (Ø=60 mm)

### Radio multi-function actuator

Item description	Contr.	Item No.	Group	€
STC-DO airConfig 24 V	✓	593731	ES2	146,90
STC-DO airConfig 100..240 V	✓	593748	ES2	146,90

### Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10

## STC-DO Light

Bidirectional flush-mounted receiving actuator using EnOcean switch telegrams for lighting applications (e.g. light on/off, staircase function, twilight switch, etc.). The functions can be parameterised via a programming button.



### Technical Data

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	100..240 V ~
<b>Power consumption</b>	max. 0,5 mW (standby)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

### Radio lighting actuator

Item description	Item No.	Group	€
STC-DO Light 230 V	568371	ES2	146,90

## **STC-DO Blind**

Bidirectional flush-mounted receiving actuator for blind applications compatible with EasySens® wireless switches and room operating units. The functions can be parameterised via programming button.



### **Technical Data**

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	100..240 V ~
<b>Power consumption</b>	max. 0,5 mW (standby)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

### **Radio shading actuator**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
STC-DO Blind 230 V	568364	ES2	146,90

## SRC-AO Climate

Unidirectional flush-mounted receiving actuator for room temperature control of proportional heating or cooling valves (type V with 1x 0..10 V), proportional heating and cooling valves (type VV with 2x 0..10 V) or 6-way valves (type 6WV).



### Technical Data

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 1 W (24 V =), 1,2 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Notes</b>	up to 32 devices can be learned in, per channel 1 room operating unit + 1 input module for night-time reduction + up to 10 window contacts or window handles can be learned in

### Radio climate actuator

Item description	Contr.	Item No.	Group	€
SRC-AO Climate V	✓	508278	ES2	146,50
SRC-AO Climate 6WV	✓	530255	ES2	146,50
SRC-AO Climate VV	✓	508285	ES2	171,70

## SRC-AO Dim

Unidirectional flush-mounted receiving actuator for dimming up to two 1..10 V or 0..10 V dimming actuators and electronic ballasts (ECGs) through EasySens® wireless switches. The SRC-AO DIM can accommodate up to 32 EasySens® wireless switches.



### Technical Data

Configuration	buttons
Radio technology	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
Power supply	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
Power consumption	typ. 1 W (24 V =), 1,2 VA (24 V ~)
Enclosure	ABS
Colour	red
Operating range temperature	-20..+60 °C
Protection (IP)	IP20, according to EN 60529
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
Notes	up to 32 devices can be learned in

### Radio dimming actuator

Item description	Item No.	Group	€
SRC-AO Dim V	499606	ES2	146,90
SRC-AO Dim VV	502931	ES2	171,70

## SRC-AO Multi

Unidirectional flush-mounted receiving actuator with two proportional 0..10 V outputs for converting EasySens® wireless sensors such as temperature, temperature setpoint, humidity, etc. into 0..10 V signals.



### Technical Data

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
<b>Power consumption</b>	typ. 1 W (24 V =), 1,2 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	flush-mounted in standard EU box ( $\varnothing=60$ mm, depth min. 45 mm)
<b>Notes</b>	per channel 1 transmitter can be learned in

### Radio multi actuator

Item description	Item No.	Group	€
SRC-AO Multi V	508315	ES2	146,90
SRC-AO Multi VV	508322	ES2	171,70

## STC-D08

Bidirectional receiving actuator for (DIN) rail mounting with 8 relay outputs (expandable up to 12 relay outputs using the ,STC-PLUS 4DO' expansion module) for the evaluation of EnOcean sensors, switches and room operating units. Suitable for heating/cooling control, fan coil control, light switching, shutter and blind control. The delivery content includes an external antenna for achieving best possible transmission range.



### Technical Data

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	18..24 V = SELV, 24 V ~ ( $\pm 10\%$ ) SELV 100..240 V ~
<b>Power consumption</b>	typ. 2 W (24 V =), 3,5 VA (24 V ~) 3,5 VA
<b>Display</b>	LCD 37,5x31,6 mm
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) for inductive and/or capacitive loads, a suitable protective circuit must be provided (varistor, RC element, inrush current limitation, ...)
<b>Notes</b>	

<b>Radio multi-relay actuator 230 V</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
STC-D08 100..240 V type1 heating/cooling	490030	ES2	341,00
STC-D08 100..240 V type2 fancoil, heating/cooling	490047	ES2	341,00
STC-D08 100..240 V type3 switch actuator	490054	ES2	341,00

<b>Radio multi-relay actuator 24 V</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
STC-D08 24 V type1 heating/cooling	564458	ES2	341,00
STC-D08 24 V type2 fancoil, heating/cooling	631495	ES2	341,00
STC-D08 24 V type3 switch actuator	561273	ES2	341,00

<b>Extension module</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
STC-PLUS 4DO	517690	ES2	153,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10
Connector STC-D08 to STC-PLUS 4DO	517577	AS1	7,90

## SRC-ADO

Unidirectional receiving actuator for (DIN) rail mounting with 4 analogue outputs 0..10 V and 2 (max. 4) potential-free relay outputs. For connecting EasySens® sensors, wireless switches, room operating units and wireless window contacts or window handles. Depending on the application, the device can be parameterized via software to control a fan coil unit with change-over, a PI controller for heating/cooling or 1..10 V dimmers or work as an interface between EasySens® wireless sensors and a BMS controller (overwrite wirelessly). The delivery content includes an external antenna for achieving best possible transmission range.



Technical Data	
<b>Configuration</b>	Software/Plug-In for configuration
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
<b>Power consumption</b>	typ. 3,5 W (24 V =), 6,5 VA (24 V ~), max. 5 VA (230 V ~)
<b>Display</b>	4 LEDs showing status of the device, 6 LEDs showing status of the device
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories) for inductive and/or capacitive loads, a suitable protective circuit must be provided (varistor, RC element, inrush current limitation, ...)
<b>Notes</b>	

<b>Radio multi actuator 230 V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SRC-ADO 4AA/2DO 100..240 V type dimming/heating/cooling	✓	267502	ES2	330,90
SRC-ADO 4AA/2DO 100..240 V type fancoil, change-over	✓	423236	ES2	330,90
SRC-ADO 4AA/4DO 100..240 V type dimming/heating/cooling	✓	273275	ES2	355,70
SRC-ADO 4AA/4DO 100..240 V type fancoil, change-over	✓	423243	ES2	355,70

<b>Radio multi actuator 24 V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SRC-ADO 4AA/2DO 24 V type dimming/heating/cooling	✓	420105	ES2	330,90
SRC-ADO 4AA/2DO 24 V type fancoil, change-over	✓	494816	ES2	330,90
SRC-ADO 4AA/4DO 24 V type dimming/heating/cooling	✓	455428	ES2	355,70
SRC-ADO 4AA/4DO 24 V type fancoil, change-over	✓	502955	ES2	355,70

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
Antenna extension 10 m		257206	AS1	59,10
Antenna extension 20 m		257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm		255097	AS1	15,10



## STC-MSG Server

The STC-MSG server is used for stand-alone solutions in combination with EasySens® room operating units and up to 8 or 16 SAB+/SAB05 radio valve actuators. An integrated scheduler can be individually set up as well as window contacts/handles can be learned in for increased energy savings. The parameterization of individual functions can be conducted through an integrated configuration menu using the display and respective buttons. The delivery content includes an external antenna for achieving best possible transmission range.



### Technical Data

<b>Configuration</b>	buttons
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	100..240 V ~
<b>Power consumption</b>	3,5 VA
<b>Display</b>	graphic display monochrome
<b>Enclosure</b>	ABS
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base
<b>Notes</b>	per channel 1 SAB + 1 room operating unit + 10 digital input modules, switches or presence detectors + 20 window contacts or window handles can be learned in, magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)

### Wireless controller heating/cooling

Item description	Contr.	Item No.	Group	€
STC-MSG Server 8-channel	✓	501590	ES2	283,50
STC-MSG Server 16-channel	✓	507080	ES2	322,30

### Accessories

Item description	Item No.	Group	€
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10



## STC-MSG Server UP

The STC-MSG Server UP is used for stand-alone solutions in combination with EasySens® room operating units and up to 5 SAB+/SAB05 radio valve actuators. It is possible to use the 'energy lock' function by teaching-in wireless window contacts and window handles so that when a window is open, the SAB closes the valve and saves heating/cooling energy. The following number of sensors can be connected: 5 EasySens® valve actuators (SABx), 1 room unit e.g. SR04 x, SR06 LCD x or SR07 x, 10 digital input modules SR65 DI, EasySens® switches, EasySens® presence detectors (e.g. SR-MDS, SR-MOW), 20 window contacts SRW or window handles SRG.



### Technical Data

<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 100..240 V ~
<b>Power consumption</b>	typ. 0,5 VA (230 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Notes</b>	<p>to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)</p> <p>5 SAB + 1 room operating unit + 10 digital input modules + 20 window contacts or window handles can be learned in</p>

### Wireless controller heating/cooling

Item description	Contr.	Item No.	Group	€
STC-MSG Server UP 24 V	✓	688222	ES2	139,70
STC-MSG Server UP 100..240 V	✓	550048	ES2	139,70

### Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10

**SAB+**

Self-powered wireless EasySens® valve actuator for individual room temperature control. The new electronic heating valve actuator uses the temperature difference between the radiator and ambient room temperature to generate electrical energy by means of a thermo-electric generator. Sufficient energy can be stored in the integrated high-performance capacitor to ensure reliable operation even during periods of insufficient energy management (summer months, transition period between seasons). Adapters are available for numerous valve manufacturers.

**Technical Data**

<b>Measured values</b>	temperature
<b>Configuration</b>	airConfig
<b>Sensor</b>	integrated digital temperature transmitter
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	maintenance-free thermal energy harvesting, maintenance-free LiPo-battery
<b>Display</b>	LED for status feedback, red
<b>Enclosure</b>	PC
<b>Colour</b>	pure white, aluminium
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP40, according to EN 60529
<b>Connection</b>	USB micro (power supply)
<b>Mounting</b>	screw mounting M30x1,5
<b>Notes</b>	<p>to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)</p> <p>operating noise &lt;35 dB(A), nominal stroke 3,8 mm, automatically adjusting, regulation time 0,24 mm/s, pulling load &gt;100 N</p> <p>the Micro-USB connection allows charging of the internal battery directly at the socket using an USB power supply</p>

<b>Radio valve actuator</b>					
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
SAB+ (Heating)	✓	669108	≡	ES2	169,20

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)		566704	NET	106,10
Safety lock dismounting protection SAB		706148	AS1	11,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	25,40
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	25,40
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	25,40
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	25,40
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	25,40
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	25,40
Valve adapter SAB for Danfoss Z800	589079	AS1	25,40
Valve adapter SAB for Danfoss Z801	589086	AS1	25,40
Valve adapter SAB for Danfoss Z805	615181	AS1	25,40

## SAB05

Battery-powered wireless EasySens® valve actuator for individual room temperature control. The SAB05 is compatible with the STC-MSG server (for stand-alone solutions) or EasySens® gateways to integrate into BUS networks. Parameterisation can be done through airConfig software. The SAB05 is completely wireless and powered by 3x AA batteries. Adapters are available for numerous valve manufacturers.



### Technical Data

<b>Measured values</b>	temperature
<b>Configuration</b>	airConfig
<b>Sensor</b>	integrated digital temperature transmitter
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz
<b>Power supply</b>	battery type AA (3x)
<b>Display</b>	LED for status feedback, multicoloured
<b>Enclosure</b>	PC, latching battery compartment lid
<b>Colour</b>	pure white, light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP40, according to EN 60529
<b>Mounting</b>	screw mounting M30x1,5
<b>Delivery content</b>	incl. battery type AA (3x)
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) operating noise <35 dB(A), nominal stroke 3,8 mm, automatically adjusting, regulation time 0,24 mm/s, pulling load >100 N

<b>Radio valve actuator</b>					
Item description	Contr.	Item No.	On stock	Group	€
SAB05	✓	513753	≡	ES2	143,50

<b>Accessories</b>				
Item description	Item No.	Group	€	
Safety lock dismounting protection SAB	706148	AS1	11,00	
Battery protection SAB05	595612	AS1	19,50	

<b>Accessories</b>				
Item description	Item No.	Group	€	
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	25,40	
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	25,40	
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	25,40	
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	25,40	
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	25,40	
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	25,40	
Valve adapter SAB for Danfoss Z800	589079	AS1	25,40	
Valve adapter SAB for Danfoss Z801	589086	AS1	25,40	
Valve adapter SAB for Danfoss Z805	615181	AS1	25,40	

## SRE-Repeater



The SRE-Repeater is used for repeating radio telegrams between EnOcean transmitters and receivers/gateways. The repeater is typically used when transmission range problems occur between transmitter and receiver in an existing installation (e.g. due to walls being pulled in, furniture/cabinets being moved). Level 1, Level 2 and Smart Repeating (rule-based filters) can be set using the free airConfig software. Ideal for installation in suspended ceilings.



### Technical Data

<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	flex. 15..240 V =/~/
<b>Power consumption</b>	typ. 1 VA (15..240 V =/~/)
<b>Enclosure</b>	PA6.6, with quick lock screws
<b>Colour</b>	pure white, transparent cover PC
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Delivery content</b>	incl. external receiving/transmitting antenna (2,5 m) with magnetic base to use the free software airConfig (download a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz) magnetic antenna plate for the external antenna recommended to improve radio coverage (see accessories)
<b>Notes</b>	

### Wireless repeater

Item description	Item No.	Group	€
SRE-Repeater MultiLevel internal antenna	593809	ES2	140,70
SRE-Repeater MultiLevel external antenna	593830	ES2	161,30

### Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



## SRE-Repeater UP

The SRE-Repeater UP is especially designed for flush-mounting and used for repeating radio telegrams between EnOcean transmitters and receivers/gateways. The repeater is typically used when transmission range problems occur between transmitter and receiver in an existing installation (e.g. due to walls being pulled in, furniture/cabinets being moved). Level 1, Level 2 and Smart Repeating (rule-based filters) can be set using the free airConfig software.



### Technical Data

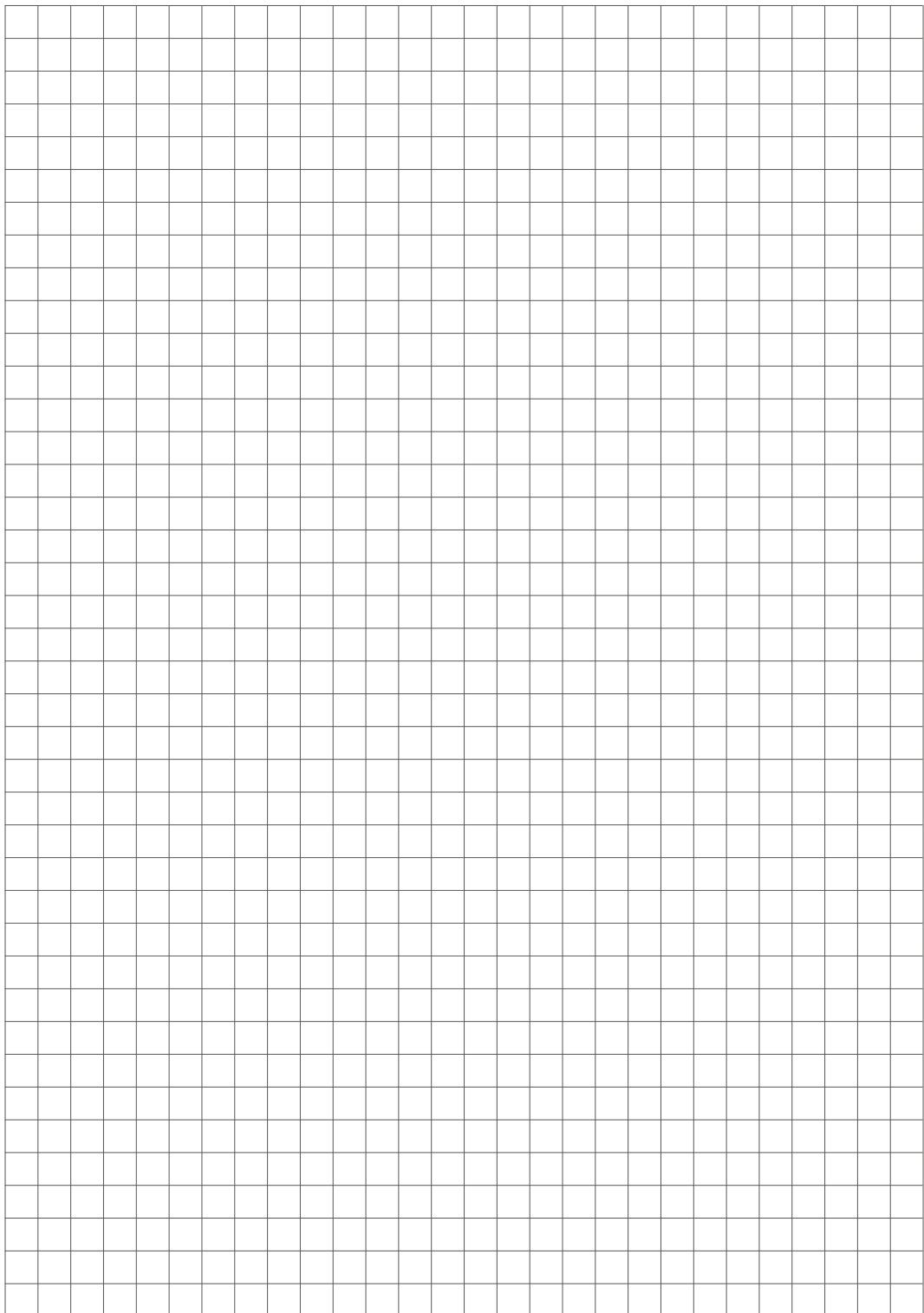
<b>Configuration</b>	airConfig
<b>Radio technology</b>	EnOcean (IEC 14543-3-10) 868 MHz, 902 MHz
<b>Power supply</b>	100..240 V ~
<b>Power consumption</b>	typ. 0,5 VA (230 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	red
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	flush-mounted in standard EU box ( $\varnothing=60$ mm, depth min. 45 mm)
<b>Notes</b>	to use the free software airConfig (download) a USB stick, which is able to send and receive EnOcean telegrams, is necessary. The EnOcean USB stick (incl. license) is included in airScan (item No. 566704 for 868 MHz)

### Wireless repeater

Item description	Item No.	Group	€
SRE-Repeater UP MultiLevel	556736	ES2	118,00

### Accessories

Item description	Item No.	Group	€
EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10



# IntoMesh (BLE)

Bluetooth® solutions gain more and more importance for modern lighting controls. Thanks to the wireless and batteryless switches of Thermokon 2,4 GHZ-BLE lighting systems can be controlled easily. The switches are ideal for switching and dimming of lights and for the call of lighting scenes.

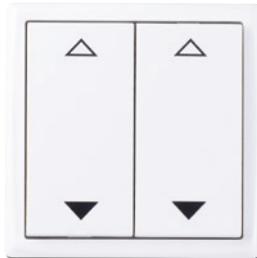


## BLE Switches (Bluetooth® Low Energy)

Mini	BLE switch (battery-free)	102
55x55	BLE switch (battery-free)	104
Busch-Jaeger	BLE switch (battery-free)	106
SR-KCS02 BLE	BLE key-card switch (battery-free)	108

## **Radio Switches BLE Mini**

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.



4-channel blinds, pure white brilliant



2-channel light, aluminium



2-channel blinds, anthracite



Bluetooth®

### Technical Data

<b>Operating functions</b>	light ON/OFF/DIM, blind UP/DOWN/SET
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Configuration</b>	NFC-based / DMC
<b>Radio technology</b>	Bluetooth® Low Energy (BLE), Beacon
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white brilliant, aluminium painted, anthracite
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch ranges</b>	Thermokon mini
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Notes</b>	configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

**Radio Switches BLE Mini – Wireless switch 2-channel light**

Item description	Item No.	Group	€
Switch Mini 2-channel BLE light pure white brilliant	731065	ES2	68,00
Switch Mini 2-channel BLE light aluminium painted	733946	ES2	68,00
Switch Mini 2-channel BLE light anthracite	733953	ES2	68,00

**Radio Switches BLE Mini – Wireless switch 4-channel light**

Item description	Item No.	Group	€
Switch Mini 4-channel BLE light pure white brilliant	708425	ES2	70,40
Switch Mini 4-channel BLE light aluminium painted	733960	ES2	70,40
Switch Mini 4-channel BLE light anthracite	733977	ES2	70,40

**Radio Switches BLE Mini – Wireless switch 2-channel blind**

Item description	Item No.	Group	€
Switch Mini 2-channel BLE blind pure white brilliant	733984	ES2	68,00
Switch Mini 2-channel BLE blind aluminium painted	733991	ES2	68,00
Switch Mini 2-channel BLE blind anthracite	734004	ES2	68,00

**Radio Switches BLE Mini – Wireless switch 4-channel blind**

Item description	Item No.	Group	€
Switch Mini 4-channel BLE blind pure white brilliant	734011	ES2	70,40
Switch Mini 4-channel BLE blind aluminium painted	734028	ES2	70,40
Switch Mini 4-channel BLE blind anthracite	734035	ES2	70,40

**Options****Description**

€

Special printing on request

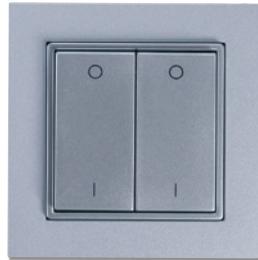
Without printing on request

## Radio Switches BLE 55x55

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.



2-channel blinds  
Gira E2 pure white



4-channel light  
Gira E2 aluminium



4-channel blinds  
Gira E2 anthracite



### Technical Data

<b>Operating functions</b>	light ON/OFF/DIM, blind UP/DOWN/SET
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Configuration</b>	NFC-based / DMC
<b>Radio technology</b>	Bluetooth® Low Energy (BLE), Beacon
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
<b>Operating range temperature</b>	-25...+65 °C
<b>Switch ranges</b>	Berker, Busch-Jaeger, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000 configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

**Radio Switches BLE 55x55 – Wireless switch 2-channel light**

Item description	Item No.	Group	€
Switch 2-channel BLE light 55x55 pure white matt	734042	ES1	73,80
Switch 2-channel BLE light 55x55 pure white brilliant	734288	ES1	73,80
Switch 2-channel BLE light 55x55 aluminium	734318	ES1	73,80
Switch 2-channel BLE light 55x55 Jung aluminium	734325	ES1	73,80
Switch 2-channel BLE light 55x55 anthracite	734332	ES1	73,80

**Radio Switches BLE 55x55 – Wireless switch 4-channel light**

Item description	Item No.	Group	€
Switch 4-channel BLE light 55x55 pure white matt	734066	ES1	76,10
Switch 4-channel BLE light 55x55 pure white brilliant	734349	ES1	76,10
Switch 4-channel BLE light 55x55 aluminium	734356	ES1	76,10
Switch 4-channel BLE light 55x55 Jung aluminium	734363	ES1	76,10
Switch 4-channel BLE light 55x55 anthracite	734370	ES1	76,10

**Radio Switches BLE 55x55 – Wireless switch 2-channel blind**

Item description	Item No.	Group	€
Switch 2-channel BLE blind 55x55 pure white matt	734110	ES1	73,80
Switch 2-channel BLE blind 55x55 pure white brilliant	734387	ES1	73,80
Switch 2-channel BLE blind 55x55 aluminium	734394	ES1	73,80
Switch 2-channel BLE blind 55x55 Jung aluminium	734400	ES1	73,80
Switch 2-channel BLE blind 55x55 anthracite	734417	ES1	73,80

**Radio Switches BLE 55x55 – Wireless switch 4-channel blind**

Item description	Item No.	Group	€
Switch 4-channel BLE blind 55x55 pure white matt	734127	ES1	76,10
Switch 4-channel BLE blind 55x55 pure white brilliant	734424	ES1	76,10
Switch 4-channel BLE blind 55x55 aluminium	734479	ES1	76,10
Switch 4-channel BLE blind 55x55 Jung aluminium	734486	ES1	76,10
Switch 4-channel BLE blind 55x55 anthracite	734493	ES1	76,10

**Options**

Switch ranges on page 369/370

**Description**

€

Special printing on request

Without printing on request

Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers) 4,50

Switch ranges plastic in other colours or dimensions (various manufacturers) 12,50

Switch ranges stainless steel | glass | aluminium (various manufacturers) 40,00

## Radio Switches BLE BJ 63x63

Energy-harvesting wireless switch for changing the status of lights and blinds. The BLE technology allows flexible attachment to glass and plasterboard walls using adhesive pads or screws.



4-channel blinds,  
future® linear studio white



4-channel light,  
future® linear aluminium silver



2-channel blinds,  
future® linear anthracite



### Technical Data

<b>Operating functions</b>	light ON/OFF/DIM, blind UP/DOWN/SET
<b>Operating elements</b>	<b>2-channel:</b> 1 switch <b>4-channel:</b> 2 switches
<b>Configuration</b>	NFC-based / DMC
<b>Radio technology</b>	Bluetooth® Low Energy (BLE), Beacon
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	anthracite, studio white, studio white matt available on request, ivory white, alu silver black matt available on request
<b>Operating range temperature</b>	-25..+65 °C
<b>Switch range Busch-Jaeger</b>	Busch-axcent®, carat®, future® linear, solo® (please specify the desired frame when ordering)
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting
<b>Notes</b>	actuation force 7 N, actuation range 2 mm, operating cycle quantity > 50.000, frame designs Busch-Jaeger solo®, future® linear and Busch-axcent® at the same price, please ask for carat® Busch-balance® SI see Wireless Switches 55x55 configuration interface NFC forum type 2 tag (ISO/IEC 14443 parts 2 and 3) Data Matrix Code (DMC) on the back of the unit for commissioning

**Radio Switches BLE BJ 63x63 – Wireless switch 2-channel light**

Item description	Item No.	Group	€
Switch 2-channel BLE light BJ63x63 studio white	734516	ES1	76,10
Switch 2-channel BLE light BJ63x63 ivory white	734547	ES1	76,10
Switch 2-channel BLE light BJ63x63 alu silver	734554	ES1	76,10
Switch 2-channel BLE light BJ63x63 anthracite	734561	ES1	76,10

**Radio Switches BLE BJ 63x63 – Wireless switch 4-channel light**

Item description	Item No.	Group	€
Switch 4-channel BLE light BJ63x63 studio white	734509	ES1	78,50
Switch 4-channel BLE light BJ63x63 ivory white	734578	ES1	78,50
Switch 4-channel BLE light BJ63x63 alu silver	734585	ES1	78,50
Switch 4-channel BLE light BJ63x63 anthracite	734592	ES1	78,50

**Radio Switches BLE BJ 63x63 – Wireless switch 2-channel blind**

Item description	Item No.	Group	€
Switch 2-channel BLE blind BJ63x63 studio white	734615	ES1	76,10
Switch 2-channel BLE blind BJ63x63 ivory white	734622	ES1	76,10
Switch 2-channel BLE blind BJ63x63 alu silver	735049	ES1	76,10
Switch 2-channel BLE blind BJ63x63 anthracite	735056	ES1	76,10

**Radio Switches BLE BJ 63x63 – Wireless switch 4-channel blind**

Item description	Item No.	Group	€
Switch 4-channel BLE blind BJ63x63 studio white	734608	ES1	78,50
Switch 4-channel BLE blind BJ63x63 ivory white	735070	ES1	78,50
Switch 4-channel BLE blind BJ63x63 alu silver	735087	ES1	78,50
Switch 4-channel BLE blind BJ63x63 anthracite	735100	ES1	78,50

**Options**

Description	€
Special printing on request	
Without printing on request	
Switch ranges Busch-Jaeger future® linear   solo®   Busch-axcent®	4,50

## **SR-KCS02 BLE**

Energy-harvesting wireless key card switch for occupancy-based control of lighting or air conditioning in rooms. The self-powered wireless Bluetooth® radio permits flexible installation on glass surfaces or walls using adhesive pads or screws.



### **Technical Data**

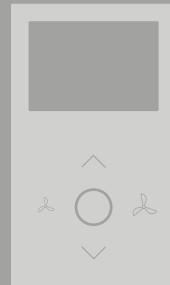
<b>Radio technology</b>	Bluetooth® Low Energy (BLE)
<b>Power supply</b>	maintenance-free electrodynamic energy generator
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	0..+40 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Mounting</b>	surface-mounted flat on base using adhesive foil or screws
<b>Delivery content</b>	incl. adhesive foil for mounting

### **SR-KCS02 BLE – Wireless switch**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SR-KCS02 BLE	728126	ES2	85,60

# Room Climate Control

Our room control units and room sensors enable the measured value acquisition and/or integrated operation of HVAC, lighting and shading in individual room control. Due to the sophisticated appearance and a variety of design options, the devices are particularly suitable for design-oriented facilities.



## Room Operating Units

JOY HC	Temperature, rel. humidity	110	NOVOS 7 move	Temperature, rel. humidity, CO2	178
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## Fan Coil Controller

JOY Fancoil	Temperature, rel. humidity	155	MDS	Light, motion, temperature	204
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## Room Sensors Climate / Air Quality

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## JOY HC

The JOY room thermostat with its high-grade materials, such as a real glass surface, is designed for individual temperature control in living spaces, hotel rooms and offices. The heating/cooling valves are controlled either by relay contacts or 0..10 V signals. 6-way valves can also be controlled with the JOY HC. This ensures individual and energy-efficient room air conditioning. The JOY (available in black or white) has an integrated display and touch-sensitive buttons. Furthermore, the integrated scheduler can handle 3 time channels and 4 periods each. The device is designed for mounting in a flush-mounted box.



### Technical Data

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature, standby/presence detection
<b>Configuration</b>	uConfig, BUS
<b>Input</b>	1x input for NTC10k or floating contact <b>AO2DO:</b> 1x input for potential contact (230 V ~) 1x input for floating contact <b>3AO:</b> 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP)
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV, 85..260 V ~
<b>Power consumption</b>	typ. 2,5 W (24 V =), max. 3 VA (260 V ~)
<b>Display</b>	LCD 60x44 mm, 240x160 px, backlight cold white
<b>Enclosure</b>	PC, cover glass
<b>Colour</b>	pure white, black
<b>Operating range temperature</b>	0..50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , inputs max. 1,0 mm <sup>2</sup>
<b>Mounting</b>	in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	AO2DO (230 V)	3AO (24 V)
Heating/Cooling (Relay)	2	-
Heating/Cooling (0..10 V)	-	2
6-Way-Valve (0..10 V)	1	1*
Inputs	AO2DO (230 V)	3AO (24 V)
Universal (configurable)	3 / BUS: 2	3 / BUS: 2

\* Instead of 2x 0..10 V (heating/cooling)

**NEW:** With additional, customizable touch buttons (see page 12)

<b>Room thermostat heating/cooling active</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
JOY HC AO2DO temp white	✓	748995	RU1	176,50
JOY HC AO2DO temp black	✓	752039	RU1	188,50
JOY HC 3AO temp white	✓	725002	RU1	176,50
JOY HC 3AO temp black	✓	725019	RU1	188,50

<b>Room thermostat heating/cooling RS485 Modbus</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
JOY HC AO2DO temp RS485 Modbus white	✓	752046	RU1	183,00
JOY HC AO2DO temp RS485 Modbus black	✓	752053	RU1	195,00
JOY HC 3AO temp RS485 Modbus white	✓	723732	RU1	183,00
JOY HC 3AO temp RS485 Modbus black	✓	725026	RU1	195,00

<b>Room thermostat heating/cooling RS485 BACnet (MS/TP)</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
JOY HC AO2DO temp RS485 BACnet (MS/TP) white	✓	778701	RU1	183,00
JOY HC AO2DO temp RS485 BACnet (MS/TP) black	✓	778695	RU1	195,00
JOY HC 3AO temp RS485 BACnet (MS/TP) white	✓	778770	RU1	183,00
JOY HC 3AO temp RS485 BACnet (MS/TP) black	✓	778756	RU1	195,00

<b>Options</b>				
<b>Description</b>	<b>€</b>			
Add for additional humidity sensor				40,00
Change-over sensor NTC10k (model and price on request)				

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
microSD card 2 GB (JOY)		500098	AS1	11,90
Converter RS485 Modbus – USB incl. driver CD		668293	NET	55,50
Decorative frame JOY pure white		681452	AS1	12,80
Decorative frame JOY black		740951	AS1	12,80
Frame for surface mounting JOY pure white		760201	AS1	25,50
Frame for surface mounting JOY black		760195	AS1	25,50

## thanos EVO

The high-grade materials and sophisticated design of the thanos EVO make it an outstanding room unit for high-end residential or commercial buildings. With its 4.8" touchscreen and up to 4 integrated sensors (temperature, relative humidity, CO<sub>2</sub> and VOC), users can individually adjust multiple HVAC and lighting/blinds features. 2D room graphics make operations even more intuitive. External sensors and inputs enhance the multi-functionality of the thanos EVO.



**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
<b>Operating elements</b>	touch screen
<b>Configuration</b>	NOVOSapp, uConfig, BUS
<b>Input</b>	<b>BACnet/Modbus:</b> 1x input for floating contact <b>KNX/LON:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rh non-condensing 0..85 KJ/kg enthalpy 0..50   0..80 g/m³ absolute humidity 0..+50   -20..+80 °C dew point optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 2.5 W (24 V =), 5 VA (24 V ~)
<b>Display</b>	TFT 4,8", 1120x480 px, capacitive touch technology
<b>Enclosure</b>	with thermal separation and sensor channel, PC V0
<b>Colour</b>	pure white, black, design frame anodised aluminium available
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	cable entry via rear opening <b>BACnet/Modbus:</b> tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus <b>LON:</b> removable plug-in terminal, max. 8 mm²
<b>Mounting</b>	base part can be mounted and wired separately <b>BACnet/Modbus:</b> flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws <b>KNX/LON:</b> flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Notes</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

Touchscreen room operating unit with up to 4 measured values – RS485 Modbus				
Item description	NOVOSapp	Item No.	Group	€
thanos EVO white temp RS485 Modbus	✓	753913	RU1	429,50
thanos EVO white temp_rH RS485 Modbus	✓	753944	RU1	469,50
thanos EVO white CO2 temp_rH RS485 Modbus	✓	753968	RU1	529,50
thanos EVO white VOC temp_rH RS485 Modbus	✓	753982	RU1	519,50
thanos EVO white CO2+VOC temp_rH RS485 Modbus	✓	754002	RU1	579,50
thanos EVO black temp RS485 Modbus	✓	753920	RU1	441,50
thanos EVO black temp_rH RS485 Modbus	✓	753951	RU1	481,50
thanos EVO black CO2 temp_rH RS485 Modbus	✓	753975	RU1	541,50
thanos EVO black VOC temp_rH RS485 Modbus	✓	753999	RU1	531,50
thanos EVO black CO2+VOC temp_rH RS485 Modbus	✓	754019	RU1	591,50

Touchscreen room operating unit with up to 4 measured values – RS485 BACnet (MS/TP)				
Item description	NOVOSapp	Item No.	Group	€
thanos EVO white temp RS485 BACnet (MS/TP)	✓	766630	RU1	429,50
thanos EVO white temp_rH RS485 BACnet (MS/TP)	✓	780339	RU1	469,50
thanos EVO white CO2 temp_rH RS485 BACnet (MS/TP)	✓	775434	RU1	529,50
thanos EVO white VOC temp_rH RS485 BACnet (MS/TP)	✓	780353	RU1	519,50
thanos EVO white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771368	RU1	579,50
thanos EVO black temp RS485 BACnet (MS/TP)	✓	774352	RU1	441,50
thanos EVO black temp_rH RS485 BACnet (MS/TP)	✓	780360	RU1	481,50
thanos EVO black CO2 temp_rH RS485 BACnet (MS/TP)	✓	780377	RU1	541,50
thanos EVO black VOC temp_rH RS485 BACnet (MS/TP)	✓	780384	RU1	531,50
thanos EVO black CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	771351	RU1	591,50

Touchscreen room operating unit with up to 4 measured values – KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
thanos EVO white temp KNX	✓	✓	780506	RU1	489,50
thanos EVO white temp_rH KNX	✓	✓	780513	RU1	529,50
thanos EVO white CO2 temp_rH KNX	✓	✓	780520	RU1	589,50
thanos EVO white VOC temp_rH KNX	✓	✓	780605	RU1	579,50
thanos EVO white CO2+VOC temp_rH KNX	✓	✓	780551	RU1	639,50
thanos EVO black temp KNX	✓	✓	780568	RU1	501,50
thanos EVO black temp_rH KNX	✓	✓	780575	RU1	541,50
thanos EVO black CO2 temp_rH KNX	✓	✓	780599	RU1	601,50
thanos EVO black VOC temp_rH KNX	✓	✓	780537	RU1	591,50
thanos EVO black CO2+VOC temp_rH KNX	✓	✓	780612	RU1	651,50

<b>Touchscreen room operating unit with up to 4 measured values LON white</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
thanos EVO white temp LON	✓	779333	RU1	549,50
thanos EVO white temp_rH LON	✓	780407	RU1	589,50
thanos EVO white CO2 temp_rH LON	✓	780414	RU1	649,50
thanos EVO white VOC temp_rH LON	✓	780421	RU1	639,50
thanos EVO white CO2+VOC temp_rH LON	✓	780438	RU1	699,50
thanos EVO black temp LON	✓	780445	RU1	561,50
thanos EVO black temp_rH LON	✓	780452	RU1	601,50
thanos EVO black CO2 temp_rH LON	✓	780476	RU1	661,50
thanos EVO black VOC temp_rH LON	✓	780483	RU1	651,50
thanos EVO black CO2+VOC temp_rH LON	✓	780490	RU1	711,50

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90	
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	



<b>Options</b>				
<b>Description</b>	<b>€</b>			
Design frame anodised aluminium	48,00			

## NOVOS Touch

Covering the 4.8" touchscreen below a real glass surface, the NOVOS Touch is the flagship model of the NOVOS family. With a maximum of up to 4 integrated sensors (temperature, relative humidity, CO<sub>2</sub> and VOC) and the possibility of including external values as well, the NOVOS Touch brilliantly combines comfort and energy efficiency. Multiple design options and colors provide individualism for the most diverse applications.



**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
<b>Operating elements</b>	touch screen
<b>Configuration</b>	NOVOSapp, uConfig, BUS
<b>Input</b>	<b>BACnet/Modbus:</b> 1x input for floating contact <b>KNX/LON:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing 0..85 KJ/kg enthalpy 0..50   0..80 g/m³ absolute humidity 0..+50   -20..+80 °C dew point optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 2,5 W (24 V =), 5 VA (24 V ~)
<b>Display</b>	TFT 4,8", 1120x480 px, capacitive touch technology
<b>Enclosure</b>	with thermal separation and sensor channel, PC V0
<b>Colour</b>	pure white, aluminium, black design cover NOVOS Touch glass black available
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529 cable entry via rear opening
<b>Connection</b>	<b>BACnet/Modbus:</b> tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus <b>LON:</b> removable plug-in terminal, max. 8 mm² base part can be mounted and wired separately
<b>Mounting</b>	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws <b>KNX/LON:</b> flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Notes</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

## » Room Climate Control – Room Operating Units/Controller

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Touchscreen room operating unit with up to 4 measured values RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS Touch white temp RS485 Modbus	✓	761802	RU1	398,80	
NOVOS Touch white temp_rH RS485 Modbus	✓	761819	RU1	438,80	
NOVOS Touch white CO2 temp_rH RS485 Modbus	✓	761826	RU1	498,80	
NOVOS Touch white VOC temp_rH RS485 Modbus	✓	761833	RU1	488,80	
NOVOS Touch white CO2+VOC temp_rH RS485 Modbus	✓	761840	RU1	548,80	

Touchscreen room operating unit with up to 4 measured values RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS Touch white temp RS485 BACnet (MS/TP)	✓	778312	RU1	398,80	
NOVOS Touch white temp_rH RS485 BACnet (MS/TP)	✓	780704	RU1	438,80	
NOVOS Touch white CO2 temp_rH RS485 BACnet (MS/TP)	✓	780735	RU1	498,80	
NOVOS Touch white VOC temp_rH RS485 BACnet (MS/TP)	✓	780766	RU1	488,80	
NOVOS Touch white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780797	RU1	548,80	

Touchscreen room operating unit with up to 4 measured values KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS Touch white temp KNX	✓	✓	780681	RU1	458,80
NOVOS Touch white temp_rH KNX	✓	✓	780711	RU1	498,80
NOVOS Touch white CO2 temp_rH KNX	✓	✓	780742	RU1	558,80
NOVOS Touch white VOC temp_rH KNX	✓	✓	780773	RU1	548,80
NOVOS Touch white CO2+VOC temp_rH KNX	✓	✓	780803	RU1	608,80

Touchscreen room operating unit with up to 4 measured values LON					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS Touch white temp LON	✓	780698	RU1	518,80	
NOVOS Touch white temp_rH LON	✓	780728	RU1	558,80	
NOVOS Touch white CO2 temp_rH LON	✓	780759	RU1	618,80	
NOVOS Touch white VOC temp_rH LON	✓	780780	RU1	608,80	
NOVOS Touch white CO2+VOC temp_rH LON	✓	780810	RU1	668,80	

Options	€
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS Touch glass black	12,00

Accessories	Item description	Item No.	Group	€
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90	
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

## NOVOS 7

The NOVOS 7 stands out for its well-known and intuitive user interface using a rotary push button and a 3.5" TFT display. Four favourite buttons allow quick access to frequently used functions such as temperature set point or light control. Blinds and lights can thus be configured accordingly. The NOVOS 7 can be equipped with up to 4 integrated sensors (temperature, relative humidity, CO<sub>2</sub> and VOC) and contributes to a comfortable room ambience and energy savings.



**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, presence detection, light ON/OFF/DIM, blind UP/DOWN/SET, setup scenarios, ECO function, showing measured value and history
<b>Operating elements</b>	rotary push button, 4 favourite buttons
<b>Configuration</b>	NOVOSapp, uConfig, BUS
<b>Input</b>	<b>BACnet/Modbus:</b> 1x input for floating contact <b>KNX/LON:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing 0..85 KJ/kg enthalpy 0..50   0..80 g/m³ absolute humidity 0..+50   -20..+80 °C dew point optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 2 W (24 V =), 4 VA (24 V ~)
<b>Display</b>	TFT 3,5", 320x480 px
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, aluminium, black design cover NOVOS 7 glass alu or black available
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529 cable entry via rear opening <b>BACnet/Modbus:</b> tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus <b>LON:</b> removable plug-in terminal, max. 8 mm²
<b>Connection</b>	base part can be mounted and wired separately <b>BACnet/Modbus:</b> flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws <b>KNX/LON:</b> flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Mounting</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)
<b>Notes</b>	

## » Room Climate Control – Room Operating Units/Controller

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Room operating unit with up to 4 measured values RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 7 white temp RS485 Modbus	✓	735018	RU1	275,80	
NOVOS 7 white temp_rH RS485 Modbus	✓	735025	RU1	315,80	
NOVOS 7 white CO2 temp_rH RS485 Modbus	✓	735032	RU1	375,80	
NOVOS 7 white VOC temp_rH RS485 Modbus	✓	735063	RU1	365,80	
NOVOS 7 white CO2+VOC temp_rH RS485 Modbus	✓	735094	RU1	425,80	
NOVOS 7 white design temp RS485 Modbus	✓	761901	RU1	275,80	
NOVOS 7 white design temp_rH RS485 Modbus	✓	761987	RU1	315,80	
NOVOS 7 white design CO2 temp_rH RS485 Modbus	✓	762007	RU1	375,80	
NOVOS 7 white design VOC temp_rH RS485 Modbus	✓	762014	RU1	365,80	
NOVOS 7 white design CO2+VOC temp_rH RS485 Modbus	✓	762038	RU1	425,80	

Room operating unit with up to 4 measured values RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 7 white temp RS485 BACnet (MS/TP)	✓	778329	RU1	275,80	
NOVOS 7 white temp_rH RS485 BACnet (MS/TP)	✓	780841	RU1	315,80	
NOVOS 7 white CO2 temp_rH RS485 BACnet (MS/TP)	✓	769037	RU1	375,80	
NOVOS 7 white VOC temp_rH RS485 BACnet (MS/TP)	✓	780896	RU1	365,80	
NOVOS 7 white CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	780926	RU1	425,80	
NOVOS 7 white design temp RS485 BACnet (MS/TP)	✓	780971	RU1	275,80	
NOVOS 7 white design temp_rH RS485 BACnet (MS/TP)	✓	781008	RU1	315,80	
NOVOS 7 white design CO2 temp_rH RS485 BACnet (MS/TP)	✓	781046	RU1	375,80	
NOVOS 7 white design VOC temp_rH RS485 BACnet (MS/TP)	✓	781077	RU1	365,80	
NOVOS 7 white design CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	775342	RU1	425,80	

Room operating unit with up to 4 measured values KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 7 white temp KNX	✓	✓	780827	RU1	335,80
NOVOS 7 white temp_rH KNX	✓	✓	780858	RU1	375,80
NOVOS 7 white CO2 temp_rH KNX	✓	✓	780872	RU1	435,80
NOVOS 7 white VOC temp_rH KNX	✓	✓	780902	RU1	425,80
NOVOS 7 white CO2+VOC temp_rH KNX	✓	✓	780933	RU1	485,80
NOVOS 7 white design temp KNX	✓	✓	780988	RU1	335,80
NOVOS 7 white design temp_rH KNX	✓	✓	781015	RU1	375,80
NOVOS 7 white design CO2 temp_rH KNX	✓	✓	781053	RU1	435,80
NOVOS 7 white design VOC temp_rH KNX	✓	✓	781084	RU1	425,80
NOVOS 7 white design CO2+VOC temp_rH KNX	✓	✓	781114	RU1	485,80

Room operating unit with up to 4 measured values LON				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 7 white temp LON	✓	780834	RU1	395,80
NOVOS 7 white temp_rH LON	✓	780865	RU1	435,80
NOVOS 7 white CO2 temp_rH LON	✓	780889	RU1	495,80
NOVOS 7 white VOC temp_rH LON	✓	780919	RU1	485,80
NOVOS 7 white CO2+VOC temp_rH LON	✓	780957	RU1	545,80
NOVOS 7 white design temp LON	✓	780995	RU1	395,80
NOVOS 7 white design temp_rH LON	✓	781039	RU1	435,80
NOVOS 7 white design CO2 temp_rH LON	✓	781060	RU1	495,80
NOVOS 7 white design VOC temp_rH LON	✓	781091	RU1	485,80
NOVOS 7 white design CO2+VOC temp_rH LON	✓	781107	RU1	545,80

Options	
Description	€
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 7 glass alu	12,00
Design cover NOVOS 7 glass black	12,00

Accessories			
Item description	Item No.	Group	€
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## NOVOS 5 x

The surface-mounted NOVOS 5 x comes in the NOVOS design with an integrated temperature sensor. Possible operating elements are set point potentiometer, status LED with up to 7 selectable colors, rotary switch for fan stage control and a presence button. The connection terminal in the back part allows for pre-wiring. The device is furthermore available with an LCD and integrated traffic light function for indicating the status of measured values. Threshold values and display settings can be individually configured using the Thermokon NOVOSapp.



NOVOS 5 S



NOVOS 5 PSTD

passive / 0..10 V   

### Technical Data

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, max. 5 stages, presence detection
<b>Operating elements</b>	potentiometer (P), rotary switch (S), button (T) with LED 24 V =
<b>Configuration</b>	NOVOSapp, uConfig, BUS, jumper (depending on type)
<b>BACnet/Modbus:</b>	
<b>Input</b>	1x input for floating contact <b>KNX:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable

Technical Data	
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), 0,8 VA (24 V ~)
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, aluminium, black design cover pure white, alu or black available
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
	cable entry via rear opening
	<b>passive/TRV/BACnet/Modbus:</b>
<b>Connection</b>	tool-free mountable spring clamp, max. 1,5 mm <sup>2</sup> predetermined breaking point (bottom) or drilling mark (top)
	<b>KNX:</b> terminal KNX bus
	base part can be mounted and wired separately
	<b>passive/TRV/BACnet/Modbus:</b>
<b>Mounting</b>	flush-mounted on standard EU box ( $\varnothing=60$ mm), surface-mounted flat on base using adhesive foil or screws
	<b>KNX:</b> flush-mounted in standard EU box ( $\varnothing=60$ mm, depth min. 45 mm)

Room operating unit temperature passive S				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 S white without sensor, FS5		730082	RU3	77,40
NOVOS 5 S white temp PT100, FS5		730129	RU3	84,90
NOVOS 5 S white temp PT1000, FS5		730150	RU3	87,20
NOVOS 5 S white temp PT1000 1/3 DIN, FS5		730204	RU3	90,60
NOVOS 5 S white temp Ni1000, FS5		730273	RU3	86,90
NOVOS 5 S white temp Ni1000TK5000, FS5		730303	RU3	90,60
NOVOS 5 S white temp NTC10k, FS5		730334	RU3	83,60

Room operating unit temperature passive S design				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 S white design without sensor, FS5		730105	RU3	77,40
NOVOS 5 S white design temp PT100, FS5		730136	RU3	84,90
NOVOS 5 S white design temp PT1000, FS5		730174	RU3	87,20
NOVOS 5 S white design temp PT1000 1/3 DIN, FS5		730211	RU3	90,60
NOVOS 5 S white design temp Ni1000, FS5		730280	RU3	86,90
NOVOS 5 S white design temp Ni1000TK5000, FS5		730310	RU3	90,60
NOVOS 5 S white design temp NTC10k, FS5		730341	RU3	83,60

<b>Room operating unit temperature passive PSTD</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 PSTD white without sensor, 10 kOhm, FS5		730112	RU3	102,00
NOVOS 5 PSTD white temp PT100, 10 kOhm, FS5		730143	RU3	109,50
NOVOS 5 PSTD white temp PT1000, 10 kOhm, FS5		730198	RU3	111,80
NOVOS 5 PSTD white temp PT1000 1/3 DIN, 10 kOhm, FS5		730228	RU3	115,20
NOVOS 5 PSTD white temp Ni1000, 10 kOhm, FS5		730297	RU3	111,50
NOVOS 5 PSTD white temp Ni1000TK5000, 10 kOhm, FS5		730327	RU3	115,20
NOVOS 5 PSTD white temp NTC10k, 10 kOhm, FS5		730358	RU3	108,20

<b>Room operating unit temperature passive PSTD design</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 PSTD white design without sensor, 10 kOhm, FS5		731683	RU3	102,00
NOVOS 5 PSTD white design temp PT100, 10 kOhm, FS5		731690	RU3	109,50
NOVOS 5 PSTD white design temp PT1000, 10 kOhm, FS5		731706	RU3	111,80
NOVOS 5 PSTD white design temp PT1000 1/3 DIN, 10 kOhm, FS5		731720	RU3	115,20
NOVOS 5 PSTD white design temp Ni1000, 10 kOhm, FS5		731737	RU3	111,50
NOVOS 5 PSTD white design temp Ni1000TK5000, 10 kOhm, FS5		731751	RU3	115,20
NOVOS 5 PSTD white design temp NTC10k, 10 kOhm, FS5		731775	RU3	108,20

<b>Options</b>	<b>Labelling fan stages on page 128</b>
<b>Description</b>	<b>€</b>
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,00
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 5 alu	12,00
Design cover NOVOS 5 black	12,00
LCD 29x35 mm, RGB backlight	43,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90

## NOVOS 5 x TRV

Room operating unit temperature active 0..10 (0..5) V				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 S white temp TRV, FS5	✓	734936	RU3	158,90
NOVOS 5 S white design temp TRV, FS5	✓	734950	RU3	158,90
NOVOS 5 PSTD white temp TRV, pot_active, FS5	✓	734943	RU3	183,50
NOVOS 5 PSTD white design temp TRV, pot_active, FS5	✓	734967	RU3	183,50

## NOVOS 5 x BUS

Room operating unit temperature RS485 Modbus				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 S white temp RS485 Modbus, FS5	✓	734974	RU2	196,80
NOVOS 5 S white design temp RS485 Modbus, FS5	✓	734998	RU2	196,80
NOVOS 5 PSTD white temp RS485 Modbus, FS5	✓	734981	RU2	221,40
NOVOS 5 PSTD white design temp RS485 Modbus, FS5	✓	735001	RU2	221,40

### Room operating unit temperature RS485 BACnet (MS/TP)

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 S white temp RS485 BACnet (MS/TP), FS5	✓	754217	RU2	196,80
NOVOS 5 S white design temp RS485 BACnet (MS/TP), FS5	✓	754415	RU2	196,80
NOVOS 5 PSTD white temp RS485 BACnet (MS/TP), FS5	✓	754255	RU2	221,40
NOVOS 5 PSTD white design temp RS485 BACnet (MS/TP), FS5	✓	754422	RU2	221,40

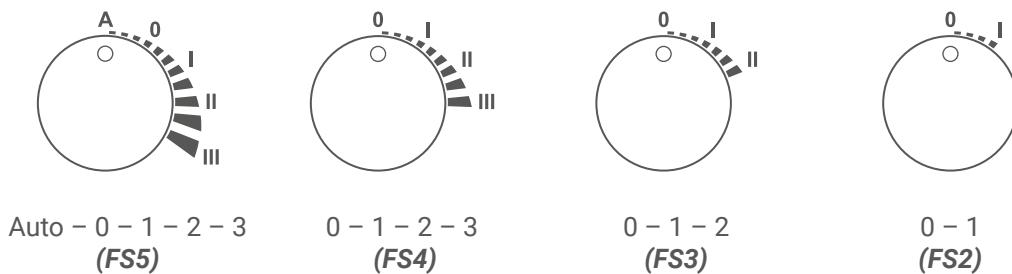
### Room thermostat temperature KNX (TP)

Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 5 S white temp KNX, FS5	✓	✓	781152	RU2	256,80
NOVOS 5 S white design temp KNX, FS5	✓	✓	781176	RU2	256,80
NOVOS 5 PSTD white temp KNX, FS5	✓	✓	781275	RU2	281,40
NOVOS 5 PSTD white design temp KNX, FS5	✓	✓	781237	RU2	281,40

Options	Labelling fan stages on page 128
Description	€
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,00
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 5 alu	12,00
Design cover NOVOS 5 black	12,00
LCD 29x35 mm, RGB backlight	43,00
Add for additional humidity sensor	40,00
Add for additional CO2+VOC sensor	180,00
Add for additional CO2 sensor	130,00
Add for additional VOC sensor	120,00

Accessories	Item No.	Group	€
Item description			
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

### Labelling fan stages (FSx)



## NOVOS 3 x

The surface-mounted NOVOS 3 x comes in the NOVOS design with an integrated temperature sensor. Possible operating elements are set point potentiometer, status LED with up to 7 selectable colors and a presence button. It furthermore provides passive outputs to superior control systems. The separate back part with its connection terminals allows pre-wiring. Threshold values and display settings can be individually configured using the Thermokon NOVOSapp.



NOVOS 3 P



NOVOS 3 TD



NOVOS 3 PTD

passive / 0..10 V

### Technical Data

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Operating functions</b>	setpoint adjustment temperature, presence detection
<b>Operating elements</b>	potentiometer (P), button (T) with LED 24 V =
<b>Configuration</b>	NOVOSapp, uConfig, BUS, jumper (depending on type)
<b>BACnet/Modbus:</b>	
<b>Input</b>	1x input for floating contact <b>KNX:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), 0,8 VA (24 V ~)
<b>Display</b>	TD / PTD: RGB LED
<b>Enclosure</b>	PC VO
<b>Colour</b>	pure white, aluminium, black design cover alu or black available (please specify colour when ordering)
<b>Operating range temperature</b>	-35..+70 °C

Technical Data	
Protection (IP)	IP20, according to EN 60529
Connection	cable entry via rear opening <b>passive/TRV/BACnet/Modbus:</b> tool-free mountable spring clamp, max. 1,5 mm <sup>2</sup> predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus  base part can be mounted and wired separately <b>passive/TRV/BACnet/Modbus:</b>
Mounting	flush-mounted on standard EU box ( $\emptyset=60$ mm), surface-mounted flat on base using adhesive foil or screws <b>KNX:</b> flush-mounted in standard EU box ( $\emptyset=60$ mm, depth min. 45 mm)

Room operating unit temperature passive without sensor				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white without sensor, 10 kOhm		729574	RU3	34,80
NOVOS 3 P white design without sensor, 10 kOhm		729628	RU3	34,80
NOVOS 3 TD white without sensor		729604	RU3	39,80
NOVOS 3 TD white design temp without sensor		729635	RU3	39,80
NOVOS 3 PTD white without sensor, 10 kOhm		729611	RU3	54,80
NOVOS 3 PTD white design without sensor, 10 kOhm		729642	RU3	54,80

Room operating unit temperature passive PT100 DIN KI. B				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp PT100, 10 kOhm		729659	RU3	42,30
NOVOS 3 P white design temp PT100, 10 kOhm		729680	RU3	42,30
NOVOS 3 TD white temp PT100		729666	RU3	47,30
NOVOS 3 TD white design temp PT100		729697	RU3	47,30
NOVOS 3 PTD white temp PT100, 10 kOhm		729673	RU3	62,30
NOVOS 3 PTD white design temp PT100, 10 kOhm		729703	RU3	62,30

Room operating unit temperature passive PT1000 DIN KI. B				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp PT1000, 10 kOhm		729727	RU3	44,60
NOVOS 3 P white design temp PT1000, 10 kOhm		729758	RU3	44,60
NOVOS 3 TD white temp PT1000		729734	RU3	49,60
NOVOS 3 TD white design temp PT1000		729765	RU3	49,60
NOVOS 3 PTD white temp PT1000, 10 kOhm		729741	RU3	64,60
NOVOS 3 PTD white design temp PT1000, 10 kOhm		729772	RU3	64,60

**Room operating unit temperature passive PT1000 1/3 DIN**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp PT1000 1/3 DIN, 10 kOhm	729789	RU3	48,00	
NOVOS 3 P white design temp PT1000 1/3 DIN, 10 kOhm	729826	RU3	48,00	
NOVOS 3 TD white temp PT1000 1/3 DIN	729796	RU3	53,00	
NOVOS 3 TD white design temp PT1000 1/3 DIN	729833	RU3	53,00	
NOVOS 3 PTD white temp PT1000 1/3 DIN, 10 kOhm	729802	RU3	68,00	
NOVOS 3 PTD white design temp PT1000 1/3 DIN, 10 kOhm	729857	RU3	68,00	

**Room operating unit temperature passive Ni1000 DIN KI. B**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp Ni1000, 10 kOhm	729864	RU3	44,30	
NOVOS 3 P white design temp Ni1000, 10 kOhm	729901	RU3	44,30	
NOVOS 3 TD white temp Ni1000	729871	RU3	49,30	
NOVOS 3 TD white design temp Ni1000	729918	RU3	49,30	
NOVOS 3 PTD white temp Ni1000, 10 kOhm	729895	RU3	64,30	
NOVOS 3 PTD white design temp Ni1000, 10 kOhm	729925	RU3	64,30	

**Room operating unit temperature passive Ni1000TK5000**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp Ni1000TK5000, 10 kOhm	729932	RU3	48,00	
NOVOS 3 P white design temp Ni1000TK5000, 10 kOhm	729963	RU3	48,00	
NOVOS 3 TD white temp Ni1000TK5000	729949	RU3	53,00	
NOVOS 3 TD white design temp Ni1000TK5000	729970	RU3	53,00	
NOVOS 3 PTD white temp Ni1000TK5000, 10 kOhm	729956	RU3	68,00	
NOVOS 3 PTD white design temp Ni1000TK5000, 10 kOhm	729987	RU3	68,00	

**Room operating unit temperature passive NTC10k**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp NTC10k, 10 kOhm	729994	RU3	41,00	
NOVOS 3 P white design temp NTC10k, 10 kOhm	730037	RU3	41,00	
NOVOS 3 TD white temp NTC10k	730013	RU3	46,00	
NOVOS 3 TD white design temp NTC10k	730044	RU3	46,00	
NOVOS 3 PTD white temp NTC10k, 10 kOhm	730020	RU3	61,00	
NOVOS 3 PTD white design temp NTC10k, 10 kOhm	730051	RU3	61,00	

Options	€
Description	€
Passive potentiometer 1 kΩ (poti_1k) or 5 kΩ (Poti_5k), for other values please request	0,00
Active potentiometer 0..10 V (poti_active)	23,60
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 3 alu	12,00
Design cover NOVOS 3 black	12,00
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80

Accessories	Item No.	Group	€
Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20

## NOVOS 3 x TRV

Room operating unit temperature active 0..10 (0..5) V				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp TRV, pot_active	✓	734691	RU3	101,20
NOVOS 3 P white design temp TRV, pot_active	✓	734806	RU3	101,20
NOVOS 3 TD white temp TRV	✓	734714	RU3	106,20
NOVOS 3 TD white design temp TRV	✓	734837	RU3	106,20
NOVOS 3 PTD white temp TRV, pot_active	✓	734776	RU3	121,20
NOVOS 3 PTD white design temp TRV, pot_active	✓	734844	RU3	121,20

## NOVOS 3 x BUS

Room operating unit temperature RS485 Modbus				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp RS485 Modbus	✓	734851	RU2	116,20
NOVOS 3 P white design temp RS485 Modbus	✓	734905	RU2	116,20
NOVOS 3 TD white temp RS485 Modbus	✓	734882	RU2	121,20
NOVOS 3 TD white design temp RS485 Modbus	✓	734912	RU2	121,20
NOVOS 3 PTD white temp RS485 Modbus	✓	734899	RU2	136,20
NOVOS 3 PTD white design temp RS485 Modbus	✓	734929	RU2	136,20

**Room operating unit temperature RS485 BACnet (MS/TP)**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp RS485 BACnet (MS/TP)	✓	754453	RU2	116,20
NOVOS 3 P white design temp RS485 BACnet (MS/TP)	✓	754484	RU2	116,20
NOVOS 3 TD white temp RS485 BACnet (MS/TP)	✓	754460	RU2	121,20
NOVOS 3 TD white design temp RS485 BACnet (MS/TP)	✓	754491	RU2	121,20
NOVOS 3 PTD white temp RS485 BACnet (MS/TP)	✓	754477	RU2	136,20
NOVOS 3 PTD white design temp RS485 BACnet (MS/TP)	✓	754507	RU2	136,20

**Room thermostat temperature KNX (TP)**

Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 P white temp KNX	✓	✓	775243	RU2	176,20
NOVOS 3 P white design temp KNX	✓	✓	781596	RU2	176,20
NOVOS 3 TD white temp KNX	✓	✓	781565	RU2	181,20
NOVOS 3 TD white design temp KNX	✓	✓	781602	RU2	181,20
NOVOS 3 PTD white temp KNX	✓	✓	781589	RU2	196,20
NOVOS 3 PTD white design temp KNX	✓	✓	781619	RU2	196,20

**Options**

Description	€
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 3 alu	12,00
Design cover NOVOS 3 black	12,00
Add for additional humidity sensor	40,00
Add for additional CO2+VOC sensor	210,00
Add for additional CO2 sensor	160,00
Add for additional VOC sensor	150,00

**Accessories**

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## NOVOS 3 INC

Room operating unit in the new Thermokon NOVOS 3 enclosure with integrated temperature sensor. The unit is operated via a push-and-rotary switch and, depending on the version, has an additional button for presence detection or for adjusting fan stages. Coloured LEDs provide feedback on the currently set setpoint status (heating/cooling) or the respective fan stage. The connection terminal in the lower part of the enclosure allows wiring in advance. The threshold values can be individually configured via the Thermokon NOVOSapp.



NOVOS 3 INC



NOVOS 3 INC TD



NOVOS 3 INC FS5



Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment (max. 5 stages), presence detection, ECO function
<b>Operating elements</b>	rotary encoder/push button for setpoint adjustment/ECO function <b>TD:</b> button (T) with LED 24 V = <b>FSx:</b> button for fan stage adjustment with up to 5 stages
<b>Configuration</b>	NOVOSapp, uConfig, BUS
<b>Input</b>	<b>BACnet/Modbus:</b> 1x input for floating contact <b>KNX:</b> 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), 0,8 VA (24 V ~)
<b>Display</b>	7 LEDs for displaying setpoint adjustment <b>TD:</b> LED for status feedback <b>FS5:</b> 4 LEDs showing fan stage
<b>Enclosure</b>	PC V0

Technical Data	
Colour	pure white, aluminium, black, design cover alu or black available (please specify colour when ordering)
Operating range temperature	-35..+70 °C
Protection (IP)	IP20, according to EN 60529  cable entry via rear opening <b>BACnet/Modbus:</b>
Connection	tool-free mountable spring clamp, max. 1,5 mm <sup>2</sup> predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus
Mounting	base part can be mounted and wired separately <b>BACnet/Modbus:</b> flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using adhesive foil or screws <b>KNX:</b> flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Room operating unit temperature RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 INC ECO white temp RS485 Modbus	✓	781626	RU2	178,50	
NOVOS 3 INC TD ECO white temp RS485 Modbus	✓	781633	RU2	184,70	
NOVOS 3 INC FS5 ECO white temp RS485 Modbus	✓	781640	RU2	198,50	

Room operating unit temperature RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 INC ECO white temp RS485 BACnet (MS/TP)	✓	781657	RU2	178,50	
NOVOS 3 INC TD ECO white temp RS485 BACnet (MS/TP)	✓	781664	RU2	184,70	
NOVOS 3 INC FS5 ECO white temp RS485 BACnet (MS/TP)	✓	781671	RU2	198,50	

Room thermostat temperature KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 INC ECO white temp KNX	✓	✓	781688	RU2	238,50
NOVOS 3 INC TD ECO white temp KNX	✓	✓	781695	RU2	244,70
NOVOS 3 INC FS5 ECO white temp KNX	✓	✓	781701	RU2	258,50

Options	€
Description	€
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 3 alu	12,00
Design cover NOVOS 3 black	12,00
Add for additional humidity sensor	40,00

Accessories	Item No.	Group	€
Item description			
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## WRF07 x

An optically appealing flush-mounted room unit in the design of various switch frame manufacturers. Available in different colors and with different labeling options. Possible operating elements are potentiometers, LEDs, buttons and rocker switches. An integrated temperature sensor is optional. The removable terminal allows for pre-wiring.



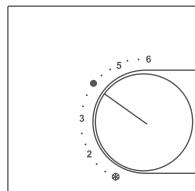
WRF07 P ltype1,  
Gira E2 pure white matt



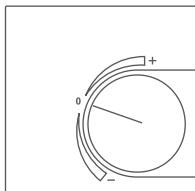
WRF07 PTD ltype1,  
Gira E2 pure white matt



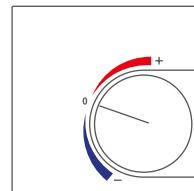
WRF07 PSD ltype1,  
Gira E2 pure white matt



ltype1



ltype2



ltype6

passive / 0..10 V

### Technical Data

<b>Measured values</b>	temperature, relative humidity, CO2/VOC on request
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment, presence detection, status feedback via LED
<b>Operating elements</b>	potentiometer (P) Rotary switch for fan stage adjustment with up to 5 stages rocker switch (S) (2 fan stages, 3 fan stages) button (T)
<b>Configuration</b>	BUS, DIP switches
<b>Input</b>	<b>A02V:</b> 2x input digital for floating switch contact <b>DI4:</b> 4x input digital for floating switch contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±10%) SELV

Technical Data	
<b>Power consumption</b>	TRV3: typ. 0,4 W (24 V =), 0,8 VA (24 V ~) BACnet/Modbus: typ. 0,9 W (24 V =), 1 VA (24 V ~) LON: typ. 1 W (24 V =), 2,5 VA (24 V ~)
<b>Display</b>	LED for status feedback
<b>Enclosure</b>	central disc in design of the manufacturer (varies depending on switch range)
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup>
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm) DO2T, DO2R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)
<b>Delivery content</b>	incl. frame <b>DO2R/DO2T/OVR/OVT:</b> incl. frame 2x with blind cover

Outputs	AO2V	DO2R	DO2T	OVR	OVT
0..10 V	2	–	–	1	1
Relay	–	2	–	1	–
Triac	–	–	2	–	1
Inputs	AO2V	DO2R	DO2T	OVR	OVT
Universal (configurable)	2	2	2	2	2

## WRF07 x passive

Room operating unit temperature passive without sensor				
Item description	Item No.	Group	€	
WRF07 P without sensor ltype1 Gira E2 pure white matt, 10 kOhm	202664	RU2	82,80	
WRF07 PTD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	542883	RU2	114,30	
WRF07 PSD without sensor ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627917	RU2	117,80	

Room operating unit temperature passive NTC10k				
Item description	Item No.	Group	€	
WRF07 P NTC10k ltype1 Gira E2 pure white matt, 10 kOhm	400237	RU2	89,00	
WRF07 PTD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	628099	RU2	120,50	
WRF07 PSD NTC10k ltype1 Gira E2 pure white matt, 10 kOhm, LED green	627986	RU2	124,00	

**Room operating unit temperature passive PT100 DIN Kl. B**

Item description	Item No.	Group	€
WRF07 P PT100 Itype1 Gira E2 pure white matt, 10 kOhm	628020	RU2	90,30
WRF07 PTD PT100 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	553278	RU2	121,80
WRF07 PSD PT100 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	627924	RU2	125,30

**Room operating unit temperature passive PT100 1/3 DIN**

Item description	Item No.	Group	€
WRF07 P PT100 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm	628037	RU2	94,40
WRF07 PTD PT100 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm, LED green	628068	RU2	125,90
WRF07 PSD PT100 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm, LED green	627931	RU2	129,40

**Room operating unit temperature passive PT1000 DIN Kl. B**

Item description	Item No.	Group	€
WRF07 P PT1000 Itype1 Gira E2 pure white matt, 10 kOhm	399012	RU2	92,60
WRF07 PTD PT1000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	291767	RU2	124,10
WRF07 PSD PT1000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	627948	RU2	127,60

**Room operating unit temperature passive PT1000 1/3 DIN**

Item description	Item No.	Group	€
WRF07 P PT1000 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm	628044	RU2	96,00
WRF07 PTD PT1000 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm, LED green	628075	RU2	127,50
WRF07 PSD PT1000 1/3 DIN Itype1 Gira E2 pure white matt, 10 kOhm, LED green	627955	RU2	131,00

**Room operating unit temperature passive Ni1000 DIN Kl. B**

Item description	Item No.	Group	€
WRF07 P Ni1000 Itype1 Gira E2 pure white matt, 10 kOhm	400220	RU2	92,30
WRF07 PTD Ni1000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	529266	RU2	123,80
WRF07 PSD Ni1000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	678643	RU2	127,30

**Room operating unit temperature passive Ni1000TK5000**

Item description	Item No.	Group	€
WRF07 P Ni1000TK5000 Itype1 Gira E2 pure white matt, 10 kOhm	193634	RU2	96,00
WRF07 PTD Ni1000TK5000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	628082	RU2	127,50
WRF07 PSD Ni1000TK5000 Itype1 Gira E2 pure white matt, 10 kOhm, LED green	627979	RU2	131,00

Options	Switch ranges on page 369/370
Description	€
Passive potentiometer 1 kΩ (poti_1k) or 5 kΩ (Poti_5k), for other values please request	0,00
Active potentiometer 0..10 V (poti_active)	23,60
Rocker switch S with 3 fan stages (FS3: 1-0-2)	3,80
Additional button	23,20
Additional diode (LED)	19,00
Rotary switch for fan stage adjustment with up to 5 stages	on request
Labelling type 2 (ltype2)	4,90
Labelling type 6 colour red+blue (ltype6)	6,40
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30

## **WRF07 x active 0..10 V**

Room operating unit temperature active			
Item description	Item No.	Group	€
WRF07 P temp TRV3 ltype1 Gira E2 pure white matt, pot_active	243902	RU2	203,70
WRF07 PTD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	369602	RU2	235,20
WRF07 PSD temp TRV3 ltype1 Gira E2 pure white matt, pot_active, LED green	332132	RU2	238,70

## **WRF07 x BUS**

Room operating unit temperature RS485 Modbus DI4			
Item description	Item No.	Group	€
WRF07 P DI4 temp RS485 Modbus ltype1 Gira E2 pure white matt	613910	RU2	183,00
WRF07 PTD DI4 temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	628181	RU2	194,00

Room operating unit temperature LON DI4			
Item description	Item No.	Group	€
WRF07 P DI4 temp LON ltype1 Gira E2 pure white matt	615600	RU2	249,70
WRF07 PTD DI4 temp LON ltype1 Gira E2 pure white matt, LED green	595230	RU2	261,80

<b>Room thermostat heating/cooling RS485 BACnet (MS/TP) AO2V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF07 P AO2V temp RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt	✓	628150	RU2	183,00
WRF07 PTD AO2V temp RS485 BACnet (MS/TP) ltype1 Gira E2 pure white matt, LED green	✓	628167	RU2	194,00

<b>Room thermostat heating/cooling RS485 Modbus AO2V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF07 P AO2V temp RS485 Modbus ltype1 Gira E2 pure white matt	✓	496094	RU2	183,00
WRF07 PTD AO2V temp RS485 Modbus ltype1 Gira E2 pure white matt, LED green	✓	497800	RU2	194,00

<b>Room thermostat heating/cooling LON AO2V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF07 P AO2V temp LON ltype1 Gira E2 pure white matt	✓	583374	RU2	249,70
WRF07 PTD AO2V temp LON ltype1 Gira E2 pure white matt, LED green	✓	628174	RU2	261,80

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Additional button	23,20
Additional diode (LED)	19,00
Rotary switch for fan stage adjustment with up to 5 stages	on request
Labelling type 2 (ltype2)	4,90
Labelling type 6 colour red+blue (ltype6)	6,40
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
Add for additional humidity sensor	40,00
Add for additional CO2 sensor	60,00
Add for additional VOC sensor	50,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20	

## WRF06 LCD

The flush-mounted room operating unit with set point adjustment, fan stage control and occupancy button can be used for an individual temperature control in living spaces as well as hotel and office rooms. With 4 push buttons and an integrated LCD for visualizing temperature, fan stage and occupancy, the WRF06 LCD VV can also control proportional valves directly besides the models to integrate into a Modbus RS485 or LON network. Removable terminals allow for pre-wiring.



WRF06 LCD I-type1 pure white,  
frame Gira E2 pure white matt



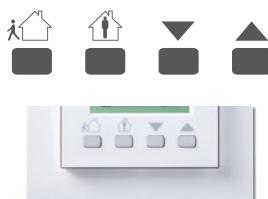
WRF06 LCD I-type1 anthracite,  
frame Peha Aura Glas



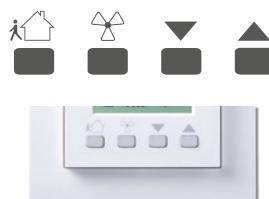
WRF06 LCD LON I-type2 aluminium,  
frame Merten M-Plan aluminium



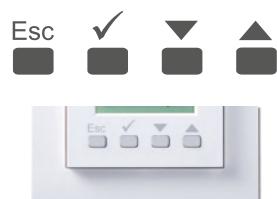
WRF06 LCD (DO2R/DO2T/OVR/OVT) I-type1 pure white,  
frame two-fold with blind cover



labelling type 1 (I-type1)  
standard for BUS / optionally for VV



labelling type 2 (I-type2)  
optionally for models with BUS



labelling type 3 (I-type3)  
standard for models VV

**Technical Data**

<b>Measured values</b>	temperature, relative humidity
<b>Operating functions</b>	setpoint adjustment temperature setpoint adjustment OK/cancel fan stage adjustment presence detection
<b>Operating elements</b>	4 buttons
<b>Configuration</b>	BUS, buttons, DIP switches
<b>Input</b>	<b>VV:</b> 2x input digital for floating contact to activate messages on the LCD display <b>DI4:</b> 4x input digital for floating switch contact <b>AO2V/D02R/D02T/OVR/OVT:</b> 2x input digital for floating switch contact
<b>Network technology</b>	RS485 Modbus, LON FT (free topology)
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	<b>VV:</b> typ. 0,8 W (24 V =), 2,5 VA (24 V ~) <b>BUS:</b> typ. 0,9 W (24 V =), 1 VA (24 V ~)
<b>Display</b>	LCD 34x21 mm, monochrome
<b>Enclosure</b>	PC
<b>Colour</b>	white, pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm) <b>AO2V/D02R/D02T/OVR/OVT:</b> flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm) D02T, D02R, OVR, OVT with IO extension need 2 flush-mounting boxes (Ø=60 mm) and double frame (alternatively, the IO unit can be mounted in a deep flush-mounted box or be detached up to 10 m)

Outputs	AO2V	D02R	D02T	OVR	OVT
0..10 V	2	–	–	1	1
Relay	–	2	–	1	–
Triac	–	–	2	–	1
Inputs	AO2V	D02R	D02T	OVR	OVT
Universal (configurable)	2	2	2	2	2

<b>Room operating unit temperature active</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
WRF06 LCD temp VV Itype3 pure white matt	731089	RU2	195,30	
WRF06 LCD temp VV Itype3 pure white brilliant	731102	RU2	195,30	
WRF06 LCD temp VV Itype3 aluminium	731119	RU2	195,30	
WRF06 LCD temp VV Itype3 Jung aluminium	731126	RU2	195,30	
WRF06 LCD temp VV Itype3 anthracite	731133	RU2	195,30	

<b>Room operating unit temperature RS485 Modbus DI4</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
WRF06 LCD DI4 temp RS485 Modbus Itype1 pure white matt	731140	RU2	195,30	
WRF06 LCD DI4 temp RS485 Modbus Itype1 pure white brilliant	730068	RU2	195,30	
WRF06 LCD DI4 temp RS485 Modbus Itype1 aluminium	731164	RU2	195,30	
WRF06 LCD DI4 temp RS485 Modbus Itype1 Jung aluminium	731195	RU2	195,30	
WRF06 LCD DI4 temp RS485 Modbus Itype1 anthracite	731201	RU2	195,30	

<b>Room operating unit temperature LON DI4</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
WRF06 LCD DI4 temp LON Itype1 pure white matt	731218	RU2	281,30	
WRF06 LCD DI4 temp LON Itype1 pure white brilliant	731232	RU2	281,30	
WRF06 LCD DI4 temp LON Itype1 aluminium	731249	RU2	281,30	
WRF06 LCD DI4 temp LON Itype1 Jung aluminium	731256	RU2	281,30	
WRF06 LCD DI4 temp LON Itype1 anthracite	731263	RU2	281,30	

<b>Room thermostat heating/cooling RS485 Modbus AO2V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF06 LCD AO2V temp RS485 Modbus Itype1 pure white matt	✓	415125	RU2	195,30
WRF06 LCD AO2V temp RS485 Modbus Itype1 pure white brilliant	✓	731379	RU2	195,30
WRF06 LCD AO2V temp RS485 Modbus Itype1 aluminium	✓	731386	RU2	195,30
WRF06 LCD AO2V temp RS485 Modbus Itype1 Jung aluminium	✓	731393	RU2	195,30
WRF06 LCD AO2V temp RS485 Modbus Itype1 anthracite	✓	731409	RU2	195,30

<b>Room thermostat heating/cooling LON AO2V</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF06 LCD AO2V temp LON Itype1 pure white matt	✓	731454	RU2	281,30
WRF06 LCD AO2V temp LON Itype1 pure white brilliant	✓	731461	RU2	281,30
WRF06 LCD AO2V temp LON Itype1 aluminium	✓	731478	RU2	281,30
WRF06 LCD AO2V temp LON Itype1 Jung aluminium	✓	731485	RU2	281,30
WRF06 LCD AO2V temp LON Itype1 anthracite	✓	731492	RU2	281,30

**Room thermostat heating/cooling RS485 Modbus IO**

Item description	Contr.	Item No.	Group	€
WRF06 LCD DO2R temp RS485 Modbus ltype1 pure white matt	✓	731416	RU2	223,50
WRF06 LCD DO2T temp RS485 Modbus ltype1 pure white matt	✓	731423	RU2	223,50
WRF06 LCD OVR temp RS485 Modbus ltype1 pure white matt	✓	731430	RU2	223,50
WRF06 LCD OVT temp RS485 Modbus ltype1 pure white matt	✓	731447	RU2	223,50

**Room thermostat heating/cooling LON IO**

Item description	Contr.	Item No.	Group	€
WRF06 LCD DO2R temp LON ltype1 pure white matt	✓	731577	RU2	309,50
WRF06 LCD DO2T temp LON ltype1 pure white matt	✓	731584	RU2	309,50
WRF06 LCD OVR temp LON ltype1 pure white matt	✓	731607	RU2	309,50
WRF06 LCD OVT temp LON ltype1 pure white matt	✓	731676	RU2	309,50

**Options**

Switch ranges on page 369/370

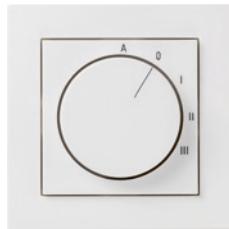
Description	€
Labelling type 1 (ltype1)	0,00
Labelling type 2 (ltype2)	0,00
Labelling type 3 (ltype3)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
Switch ranges plastic 55x55: frame 2x with blind cover alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	7,50
Switch ranges plastic in further colours and/or >55 mm: frame 2x with blind cover (various manufacturers)	18,50
Switch ranges stainless steel   glass   aluminium: frame 2x with blind cover (various manufacturers)	59,00
Add for additional humidity sensor	40,00

**Accessories**

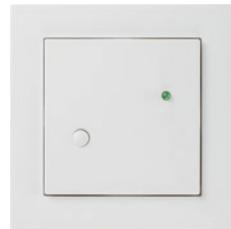
Item description	Item No.	Group	€
Converter RS485 Modbus – USB incl. driver CD	668293	NET	55,50
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20

## WRF06 x

A visually appealing flush-mounted room operating unit in the design of various switch frame manufacturers. Available in different colors and with different labeling options. Possible operating elements are rotary switches (fan stage adjustment), LEDs (optical status feedback), buttons (presence) and buttons for operating other peripheral devices. A temperature sensor can be added. The removable terminal allows for pre-wiring. It can be connected to Modbus RS485 and LON networks.



WRF06 S, Gira E2 pure white matt  
standard labelling



WRF06 TD Gira E2 pure white matt

passive  

### Technical Data

<b>Measured values</b>	temperature
<b>Operating functions</b>	fan stage adjustment, presence detection, status feedback via LED
<b>Operating elements</b>	rotary switch (S), button (T)
<b>Network technology</b>	RS485 Modbus, LON FT (free topology)
<b>Power supply</b>	24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
<b>Power consumption</b>	typ. 0,9 W (24 V =), 1 VA (24 V ~)
<b>Display</b>	LED for status feedback
<b>Enclosure</b>	central disc in design of the manufacturer (varies depending on switch range)
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
<b>Mounting</b>	flush-mounted in standard EU box ( $\emptyset=60$ mm, depth min. 45 mm)
<b>Delivery content</b>	incl. frame

**Room operating unit temperature without sensor**

Item description	Item No.	Group	€
WRF06 S without sensor Gira E2 pure white matt, FS5	629201	RU2	87,20
WRF06 TD without sensor Gira E2 pure white matt, LED green	285964	RU2	67,30

**Room operating unit temperature passive**

Item description	Item No.	Group	€
WRF06 TD PT100 Gira E2 pure white matt, LED green	564441	RU2	74,80
WRF06 TD PT100 1/3 DIN Gira E2 pure white matt, LED green	629409	RU2	78,90
WRF06 TD PT1000 Gira E2 pure white matt, LED green	629423	RU2	77,10
WRF06 TD PT1000 1/3 DIN Gira E2 pure white matt, LED green	629447	RU2	80,50
WRF06 TD Ni1000 Gira E2 pure white matt, LED green	195379	RU2	76,80
WRF06 TD Ni1000TK5000 Gira E2 pure white matt, LED green	629461	RU2	80,50
WRF06 TD NTC10k Gira E2 pure white matt, LED green	629324	RU2	73,50

**Room operating unit temperature BUS**

Item description	Contr.	Item No.	Group	€
WRF06 TD DI4 RS485 Modbus Gira E2 pure white matt, LED green		696487	RU2	215,20
WRF06 TD DI4 LON Gira E2 pure white matt, LED green		696555	RU2	240,00
WRF06 TD AO2V LON Gira E2 pure white matt, LED green	✓	696531	RU2	240,00

**Options**

Switch ranges on page 369/370

Description	€
Additional button	23,20
Additional diode (LED)	19,00
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	0,00
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30

## WRF06 INC

The flush-mounted room operating unit with an interface for RS485 Modbus or KNX is used for set point adjustment. An outstanding feature is the possibility to overwrite the status via Modbus RS485. It furthermore includes a push button for triggering an ECO mode to save energy. The central knob is used as a rotary push button. The set point can be changed as required by turning the button accordingly. The device status is visualized by LEDs i.e. heating/cooling.



WRF06 INC RS485 Modbus  
Merten M-Smart polar white brilliant



WRF06 INC KNX  
Gira E2 pure white matt



### Technical Data

<b>Measured values</b>	Modbus/KNX: temperature KNX: relative humidity
<b>Operating functions</b>	setpoint adjustment temperature, ECO function
<b>Operating elements</b>	rotary encoder/push button for setpoint adjustment/ECO function button for fan stage adjustment
<b>Configuration</b>	BUS, DIP switches
<b>Input</b>	Modbus/KNX: 1x input for NTC10k or floating contact KNX: 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, KNX (TP)
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,3 W (24 V =), 0,9 VA (24 V ~)
<b>Display</b>	7 LEDs for displaying setpoint adjustment 3 LEDs showing fan stage LED for displaying the ECO mode function
<b>Colour</b>	KNX: pure white brilliant, pure white matt, aluminium, Jung aluminium, anthracite
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , pluggable KNX: terminal KNX bus
<b>Switch ranges</b>	KNX: Berker, Busch-Jaeger, Feller, Gira, Jung, Merten
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)
<b>Notes</b>	<b>Modbus:</b> price including frame (Berker S.1, Merten M-Smart or Merten M-Plan)

**Room operating unit temperature RS485 Modbus**

Item description	Item No.	Group	€
WRF06 INC temp RS485 Modbus Merten M-Smart polar white brilliant	698214	RU2	178,50

**Accessories**

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
Converter RS485 Modbus – USB incl. driver CD	668293	NET	55,50

**Room operating unit humidity + temperature KNX (TP)**

Item description	Contr.	Item No.	Group	€
WRF06 INC temp_rH KNX pure white matt	✓	781527	RU2	219,00
WRF06 INC temp_rH KNX pure white brilliant	✓	781503	RU2	219,00
WRF06 INC temp_rH KNX aluminium	✓	781534	RU2	219,00
WRF06 INC temp_rH KNX Jung aluminium	✓	781541	RU2	219,00
WRF06 INC temp_rH KNX anthracite	✓	781558	RU2	219,00

**Options**

Switch ranges on page 369/370

Description	€
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

**Accessories**

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20

## WRF04 x RR

The surface-mounted room controller (with optional display) provides a comfortable and individual temperature control in living spaces, hotel and office rooms. Available operating elements are set point potentiometers, rotary switches for fan stage selection, buttons for occupancy and LEDs for status feedback. Depending on the type, proportional 0..10 V or 2-point valves can be controlled for heating and cooling. The terminal in the back part allows for pre-wiring.



WRF04 LCD P



WRF04 LCD PTD



WRF04 LCD PSD



WRF04 LCD PSTD



### Technical Data

<b>Measured values</b>	temperature
<b>Operating functions</b>	setpoint adjustment temperature, fan stage adjustment (max. 5 stages), presence detection, status feedback via LED
<b>Operating elements</b>	potentiometer (P), rotary switch (S), button (T)
<b>Configuration</b>	BUS, DIP switches
<b>Input</b>	2x input for floating contact
<b>Network technology</b>	RS485 Modbus
<b>Power supply</b>	15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), 0,6 VA (24 V ~)
<b>Display</b>	LCD 29x12 mm, monochrome LED for status feedback
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> cable entry via rear opening, predetermined breaking point (bottom und top)  flush-mounted on standard EU box ( $\varnothing=60$ mm), surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately
<b>Mounting</b>	

Outputs	AO2V	DO2R	DO2T	OVR	OVT
0..10 V	2	–	–	1	1
Relay	–	2	–	1	–
Triac	–	–	2	–	1
Inputs	AO2V	DO2R	DO2T	OVR	OVT
Universal (configurable)	2	2	2	2	2

**Room thermostat heating/cooling RS485 Modbus AO2V**

Item description	Contr.	Item No.	Group	€
WRF04 P AO2V temp RS485 Modbus	✓	419956	RU2	162,30
WRF04 PTD AO2V temp RS485 Modbus, LED green	✓	415613	RU2	170,40
WRF04 PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419949	RU2	188,80
WRF04 PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	480505	RU2	205,60
WRF04 LCD P AO2V temp RS485 Modbus	✓	420020	RU2	205,30
WRF04 LCD PTD AO2V temp RS485 Modbus, LED green	✓	415620	RU2	213,40
WRF04 LCD PSD AO2V temp RS485 Modbus, FS5, LED green	✓	419987	RU2	231,80
WRF04 LCD PSTD AO2V temp RS485 Modbus, FS5, LED green	✓	538442	RU2	248,60

**Room thermostat heating/cooling RS485 Modbus IO DO2R**

Item description	Contr.	Item No.	Group	€
WRF04 P DO2R temp RS485 Modbus, IO	✓	420266	RU2	206,00
WRF04 PTD DO2R temp RS485 Modbus, LED green, IO	✓	420273	RU2	214,10
WRF04 PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	420280	RU2	232,50
WRF04 LCD P DO2R temp RS485 Modbus, IO	✓	420327	RU2	249,00
WRF04 LCD PTD DO2R temp RS485 Modbus, LED green, IO	✓	420334	RU2	257,10
WRF04 LCD PSD DO2R temp RS485 Modbus, FS5, LED green, IO	✓	628822	RU2	275,50

**Room thermostat heating/cooling RS485 Modbus IO DO2T**

Item description	Contr.	Item No.	Group	€
WRF04 P DO2T temp RS485 Modbus, IO	✓	420617	RU2	206,00
WRF04 PTD DO2T temp RS485 Modbus, LED green, IO	✓	420624	RU2	214,10
WRF04 PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	420631	RU2	232,50
WRF04 LCD P DO2T temp RS485 Modbus, IO	✓	420815	RU2	249,00
WRF04 LCD PTD DO2T temp RS485 Modbus, LED green, IO	✓	628846	RU2	257,10
WRF04 LCD PSD DO2T temp RS485 Modbus, FS5, LED green, IO	✓	628839	RU2	275,50

<b>Room thermostat heating/cooling RS485 Modbus IO OVR</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF04 P OVR temp RS485 Modbus, IO	✓	420679	RU2	206,00
WRF04 PTD OVR temp RS485 Modbus, LED green, IO	✓	420686	RU2	214,10
WRF04 PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420693	RU2	232,50
WRF04 LCD P OVR temp RS485 Modbus, IO	✓	420891	RU2	249,00
WRF04 LCD PTD OVR temp RS485 Modbus, LED green, IO	✓	420907	RU2	257,10
WRF04 LCD PSD OVR temp RS485 Modbus, FS5, LED green, IO	✓	420914	RU2	275,50

<b>Room thermostat heating/cooling RS485 Modbus IO OVT</b>				
<b>Item description</b>	<b>Contr.</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
WRF04 P OVT temp RS485 Modbus, IO	✓	420747	RU2	206,00
WRF04 PTD OVT temp RS485 Modbus, LED green, IO	✓	420754	RU2	214,10
WRF04 PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	420761	RU2	232,50
WRF04 LCD P OVT temp RS485 Modbus, IO	✓	420952	RU2	249,00
WRF04 LCD PTD OVT temp RS485 Modbus, LED green, IO	✓	630122	RU2	257,10
WRF04 LCD PSD OVT temp RS485 Modbus, FS5, LED green, IO	✓	628877	RU2	275,50

<b>Options</b>				
<b>Description</b>	€			
Rotary switch S with 2/3/4 fan stages (FS2/FS3/FS4)	12,00			
Labelling type 6 colour red+blue (ltype6)	6,40			
Special printing on request				
Special painting available				

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90	
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20	
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20	
Special painting – prices on request				
Special painting setup costs (once per colour)	114998	NET	168,40	
Special printing – order quantity 20..49 pcs. (each per colour)			16,40	
Special printing – order quantity 50..99 pcs. (each per colour)			12,30	
Special printing setup and tool costs (once for one-colour print)	115049	NET	168,40	



## LCR Touch

Room operating unit with an integrated temperature sensor (rH sensor optional) and touch surface for visualization of the measured values and room control. It provides connection to an RS485 Modbus network and additional three inputs. The LCR Touch forms the basis for a pleasant indoor climate and well-being. Typical applications are schools, office buildings, hotels or cinemas. The intuitive operation offers all relevant HVAC functions for an intelligent and energy-saving room automation.



### Technical Data

<b>Measured values</b>	temperature, relative humidity, VOC
<b>Operating functions</b>	setpoint adjustment 0..+50 °C, fan stage adjustment, light ON/OFF/DIM, blind UP/DOWN, ECO function, status displays
<b>Operating elements</b>	5 touch buttons
<b>Input</b>	1x input for change-over sensor NTC10k 2x input digital for floating contact 1x ESI for window contact, dew point 1x OCC for presence detection, key card switch
<b>Network technology</b>	RS485 Modbus
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Power supply</b>	24 V = (±20%) SELV, 24 V ~ (±20%) SELV
<b>Power consumption</b>	typ. 0,3 W (24 V =), 5 VA (24 V ~)
<b>Display</b>	LCD 64x41 mm, backlight white
<b>Enclosure</b>	ABS
<b>Colour</b>	pure white, frame silver
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm)

### Room operating unit temperature and optionally humidity RS485 Modbus

Item description	Item No.	Group	€
LCR Touch white temp RS485 Modbus	754323	RU1	148,00
LCR Touch white temp_rH RS485 Modbus	754347	RU1	188,00

### Accessories

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90

## LCA

The flat surface-mounted bi-metallic room thermostat LCA with night-time lowering (ECO function) is designed for heating or cooling in 2-pipe systems in residential, industrial and commercial buildings. The set point can be selected through a large rotary knob. It is suitable for infrared heaters and other thermostat-controlled heating systems.

The flat surface-mounted bimetallic room controller LCA-D is designed for heating in 2-pipe systems in residential, industrial and commercial buildings. The set point can be adjusted through a large rotary knob. The operating mode is indicated by an LED.



LCA



LCA D

Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment +5..+30 °C, day/night operation
Operating elements	rotary knob
Input	input for night setback -3 K, 230 V ~, floating
Power supply	230 V ~
Display	LCA D: LED – heating ON
Enclosure	ABS
Colour	pure white brilliant
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening
Mounting	flush-mounted on standard EU box (Ø=60 mm)

Room thermostat on surface active				
Item description	Contr.	Item No.	Group	€
LCA	✓	660822	RU1	33,30
LCA D	✓	660815	RU1	35,30

## JOY Fancoil

The JOY fancoil controller with its high-grade materials, such as the real glass surface, is used for individual temperature control in hotel rooms, offices and living spaces. It is designed for fan coil units with 2- and 4-pipe systems. JOY is capable to control all common kinds of fan coil units (type 5DO for 3-stage fans and type EC for 0..10 V fans). With the EC 3AO model, proportional valve actuators (also 6-way valves) and a 0..10 V EC motor can be controlled. This ensures individual and energy-efficient room air conditioning. The device (available in black or white) offers an integrated LCD and touch-sensitive control buttons. A scheduler can be set with 3 time channels and 4 time periods each. The device is designed for mounting in a flush-mounted box.



Outputs	5DO (230 V)	EC AO2DO (230 V)	EC 3AO (24 V)
Fan (Relay)	3	-	-
EC Fan (0..10 V)	-	1	1
Heating/Cooling (Relay)	2	2	-
Heating/Cooling (0..10 V)	-	-	2
6-Way-Valve (0..10 V)	-	-	1*
Inputs	5DO (230 V)	EC AO2DO (230 V)	EC 3AO (24 V)
Universal (configurable)	3 / BUS: 2	3 / BUS: 2	3 / BUS: 2

\* Instead of 2x 0..10 V (heating/cooling)

Technical Data	
Measured values	temperature, relative humidity
Operating functions	setpoint adjustment temperature, fan stage adjustment, standby/presence detection
Operating elements	5 touch buttons
Configuration	uConfig, BUS
Input	1x input for NTC10k or floating contact <b>5DO/AO2DO:</b> 1x input for potential contact (230 V ~) 1x input for floating contact <b>3AO:</b> 2x input for floating contact
Network technology	RS485 Modbus, RS485 BACnet (MS/TP)
Output signal temperature	0..+50 °C
Measuring range humidity	0..100% rH non-condensing
Power supply	<b>3AO:</b> 24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>5DO/AO2DO:</b> 85..260 V ~
Power consumption	<b>5DO:</b> max. 2,5 VA (260 V ~) <b>AO2DO:</b> max. 3 VA (260 V ~) <b>3AO:</b> typ. 2,5 W (24 V =)
Display	LCD 60x44 mm, 240x160 px, backlight cold white
Enclosure	PC, cover glass
Colour	pure white, black
Operating range temperature	0..+50 °C
Protection (IP)	IP30, according to EN 60529
Connection	terminal block, max. 1,5 mm <sup>2</sup> , inputs max. 1,0 mm <sup>2</sup>
Mounting	in standard EU box (Ø=60 mm, depth min. 45 mm)

**NEW:** With additional, customizable touch buttons (see page 12)

Fan coil thermostat temperature active					
Item description	Contr.	Item No.	Group	€	
JOY Fancoil 5DO temp white	✓	751940	RU1	176,50	
JOY Fancoil 5DO temp black	✓	751957	RU1	188,50	
JOY Fancoil EC AO2DO temp white	✓	751988	RU1	176,50	
JOY Fancoil EC AO2DO temp black	✓	751995	RU1	188,50	
JOY Fancoil EC 3AO temp white	✓	724975	RU1	176,50	
JOY Fancoil EC 3AO temp black	✓	724982	RU1	188,50	

**Fan coil thermostat temperature RS485 Modbus**

Item description	Contr.	Item No.	Group	€
JOY Fancoil 5DO temp RS485 Modbus white	✓	751933	RU1	183,00
JOY Fancoil 5DO temp RS485 Modbus black	✓	751964	RU1	195,00
JOY Fancoil EC AO2DO temp RS485 Modbus white	✓	752015	RU1	183,00
JOY Fancoil EC AO2DO temp RS485 Modbus black	✓	752022	RU1	195,00
JOY Fancoil EC 3AO temp RS485 Modbus white	✓	723817	RU1	183,00
JOY Fancoil EC 3AO temp RS485 Modbus black	✓	724999	RU1	195,00

**Fan coil thermostat temperature RS485 BACnet (MS/TP)**

Item description	Contr.	Item No.	Group	€
JOY Fancoil 5DO temp RS485 BACnet (MS/TP) white	✓	778749	RU1	183,00
JOY Fancoil 5DO temp RS485 BACnet (MS/TP) black	✓	778732	RU1	195,00
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) white	✓	778725	RU1	183,00
JOY Fancoil EC AO2DO temp RS485 BACnet (MS/TP) black	✓	778718	RU1	195,00
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) white	✓	778817	RU1	183,00
JOY Fancoil EC 3AO temp RS485 BACnet (MS/TP) black	✓	778800	RU1	195,00

**Options**

Description	€
Add for additional humidity sensor	40,00
Change-over sensor NTC10k (model and price on request)	

**Accessories**

Item description	Item No.	Group	€
microSD card 2 GB (JOY)	500098	AS1	11,90
Converter RS485 Modbus – USB incl. driver CD	668293	NET	55,50
Decorative frame JOY pure white	681452	AS1	12,80
Decorative frame JOY black	740951	AS1	12,80
Frame for surface mounting JOY pure white	760201	AS1	25,50
Frame for surface mounting JOY black	760195	AS1	25,50

## LCF02 Touch

Modern, touch-operated fan coil room thermostat designed for individual control of room temperature. It is tailored to be compatible with 2-pipe and 4-pipe fan coil units and modulating valves (PWM and 0..10 V). Furthermore, LCF02 Touch provides two configurable digital inputs for e.g. occupancy, window contacts, dew-point contact or change-over. Additionally, it is equipped with an input for external (remote) temperature sensors and an RS485 Modbus interface for overwriting controls parameters. With its flush-mounted design, the LCF02 Touch combines digital technology with a large touch screen (LCD), which makes up for an intuitive operation of the fan coil thermostat. It further provides an integrated scheduler with 7 days and 4 time periods.



Technical Data	
Measured values	temperature
Operating functions	setpoint adjustment 1..+50 °C, fan stage adjustment, status displays
Operating elements	touch screen
Configuration	BUS
Input	1x input for additional external NTC10k 1x ESI for window contact, dew point 1x OCC for presence detection, key card switch
Network technology	RS485 Modbus
Power supply	24 V = (±10%) SELV, 24 V ~ (±20%) SELV
Power consumption	typ. 3 W (24 V =)
Display	LCD 64x64 mm, backlight white LCD 64x64 mm, backlight black touch technology
Enclosure	ABS, glass
Colour	pure white, black
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	5DO	2AO3DO	3AO2DO
Fan (Relay)	3	3	–
EC Fan (0..10 V)	–	–	3
Heating/Cooling (Relay)	2	–	2
Heating/Cooling (0..10 V)	–	2	(3)
6-Way-Valve (0..10 V)	–	(2)	(3)
Inputs	5DO	2AO3DO	3AO2DO
Universal (configurable)	3	3	3

<b>Fan coil thermostat temperature BUS</b>					
Item description	Contr.	Item No.	Group	€	
LCF02 Touch 5DO RS485 Modbus 24 V white	✓	721035	RU1	167,70	
LCF02 Touch 5DO RS485 Modbus 24 V black	✓	721004	RU1	167,70	
LCF02 Touch 2AO3DO RS485 Modbus 24 V white	✓	721011	RU1	167,70	
LCF02 Touch 2AO3DO RS485 Modbus 24 V black	✓	720984	RU1	167,70	
LCF02 Touch 3AO2DO RS485 Modbus 24 V white	✓	721028	RU1	167,70	
LCF02 Touch 3AO2DO RS485 Modbus 24 V black	✓	720991	RU1	167,70	

Options	€
Description	€
Change-over sensor NTC10k (model and price on request)	

Accessories	Item No.	Group	€
Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20



## LCF02

Modern and intuitive fan coil room thermostat designed for individual control of room temperature. It is tailored to be compatible with 2-pipe and 4-pipe fan coil units and modulating valves (PWM and 0..10 V). Furthermore, the LCF02 provides two configurable digital inputs for occupancy, window contact, dew-point contact or change-over, among other things. Additionally, it is equipped with an input for external (remote) temperature sensors and a RS485 Modbus interface for overwriting controls parameters. With its flush-mounted design, the LCF02 combines digital technology with a large display, making up for an intuitive room control.



### Technical Data

<b>Measured values</b>	temperature
<b>Operating functions</b>	setpoint adjustment 1..+50 °C, fan stage adjustment, status displays
<b>Operating elements</b>	5 touch buttons
<b>Input</b>	1x ESI for window contact, dew point 1x OCC for presence detection, key card switch <b>5DO/2AO3DO/3AO2DO:</b> 1x input for additional external NTC10k
<b>Network technology</b>	RS485 Modbus
<b>Power supply</b>	24 V = (±10%) SELV, 24 V ~ (±20%) SELV
<b>Power consumption</b>	typ. 0,3 W (24 V =)
<b>Display</b>	LCD 64x41 mm, backlight white
<b>Enclosure</b>	ABS
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

Outputs	C	6WV	5DO	2AO3DO	3AO2DO
Fan (Relay)	3	3	3	3	–
EC Fan (0..10 V)	–	–	–	–	3
Heating/Cooling (Relay)	1	–	2	–	2
Heating/Cooling (0..10 V)	1	–	–	2	(3)
6-Way-Valve (0..10 V)	–	1	–	(2)	(3)
Inputs	C	6WV	5DO	2AO3DO	3AO2DO
Universal (configurable)	2	2	3	3	3

**Fan coil thermostat temperature active**

Item description	Contr.	Item No.	Group	€
LCF02 C fan coil	✓	684606	RU1	64,20
LCF02 6WV fan coil	✓	684613	RU1	64,20

**Fan coil thermostat temperature BUS**

Item description	Contr.	Item No.	Group	€
LCF02 5DO RS485 Modbus 24 V	✓	703307	RU1	95,80
LCF02 2AO3DO RS485 Modbus 24 V	✓	703314	RU1	106,30
LCF02 3AO2DO RS485 Modbus 24 V	✓	703321	RU1	116,80

**Options**

Description	€
Change-over sensor NTC10k (model and price on request)	

**Accessories**

Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90



## LCF Touch

Modern, touch-operated fan coil room thermostat used for individual control of room temperature. It is tailored to be compatible with both 2-pipe and 4-pipe fan coil units and modulating valves (PWM). The device combines digital technology with a large touch screen (LCD), which permits the single room controller to be used intuitively. It further provides an integrated scheduler with 7 days and 4 time periods. It is designed for mounting in a flush-mounted box.



### Technical Data

Measured values	temperature
Operating functions	setpoint adjustment 1..+50 °C, fan stage adjustment, status displays
Operating elements	touch screen
Output switch contact	2x contact NO, 1x heating, 1x cooling 3x contact NO, fan stages
Input	1x input for change-over sensor NTC10k
Network technology	RS485 Modbus
Power supply	90..265 V ~
Power consumption	0,9 VA (265 V ~)
Display	LCD 64x64 mm, backlight white, touch technology
Enclosure	ABS, glass
Colour	black
Operating range temperature	-10..+50 °C
Protection (IP)	IP20, according to EN 60529
Connection	terminal block, max. 1,5 mm <sup>2</sup>
Mounting	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

### Fan coil thermostat temperature active

Item description	Contr.	Item No.	Group	€
LCF Touch	✓	575768	RU1	128,50

### Fan coil thermostat temperature BUS

Item description	Contr.	Item No.	Group	€
LCF Touch RS485 Modbus	✓	575775	RU1	143,40

### Options

Description	€
Change-over sensor NTC10k (model and price on request)	



## LCF

The fan coil room thermostat LCF has been designed for individual control of temperature in commercial, industrial and residential buildings. It is compatible with 2-pipe and 4-pipe applications and 3-stage fan coils. With its flush-mounted modern design, the device combines digital technology with a large LCD and operating buttons, which make up for an intuitive operation.

### Technical Data

<b>Measured values</b>	temperature
<b>Operating functions</b>	setpoint adjustment 1..+50 °C, status displays
<b>Operating elements</b>	5 touch buttons
<b>Output switch contact</b>	2x contact NO, 1x heating, 1x cooling 3x contact NO, fan stages
<b>Input</b>	1x input for NTC10k or floating contact (optionally)
<b>Power supply</b>	90..265 V ~
<b>Power consumption</b>	max. 0,9 W
<b>Display</b>	LCD 36x49 mm, backlight white
<b>Enclosure</b>	ABS, scratch-resistant acrylic glass
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

### Fan coil thermostat temperature active

Item description	Contr.	Item No.	Group	€
LCF	✓	575751	RU1	42,20

### Options

Description	€
Change-over sensor NTC10k (model and price on request)	



## NOVOS 5

Active room sensor in the NOVOS 5 enclosure for measurement of temperature, humidity (relative and absolute humidity, enthalpy, dew point), CO<sub>2</sub> and mixed gas (VOC) depending on the variant. The maintenance-free sensor contributes to a pleasant room climate and well-being. Typical applications include schools, office buildings, hotels or cinemas. The NOVOS 5 uses an LCD with color-changing backlight for displaying the measured values and exceeding threshold values. Different parameters like the display settings can be individually configured via Thermokon NOVOSapp. Optionally, operating elements for controlling HVAC systems can be added (see product NOVOS 5 x in the chapter 'Room Operating Units').

0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO <sub>2</sub> , VOC
<b>Configuration</b>	NOVOSapp, uConfig, BUS
<b>BACnet/Modbus:</b> <b>Input</b>	1x input for floating contact 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m <sup>3</sup> absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Measuring range CO<sub>2</sub></b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), 0,8 VA (24 V ~), max. 0,5 W (24 V =)
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, aluminium, black design cover alu or black available
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	cable entry via rear opening tool-free mountable spring clamp, max. 1,5 mm <sup>2</sup> predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus

**Technical Data**

<b>Mounting</b>	flush-mounted on standard EU box ( $\varnothing=60$ mm), surface-mounted flat on base using adhesive foil or screws base part can be mounted and wired separately <b>KNX:</b> flush-mounted in standard EU box ( $\varnothing=60$ mm, depth min. 45 mm)
<b>Notes</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

**NOVOS 5 – temperature**

<b>Room sensor temperature active</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 temp white LCD TRV	✓	733519	TP1	123,00
NOVOS 5 temp white LCD TRA	✓	733557	TP1	123,00
NOVOS 5 temp white design LCD TRV	✓	733533	TP1	123,00
NOVOS 5 temp white design LCD TRA	✓	733564	TP1	123,00

<b>Room sensor temperature BUS</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 temp white LCD RS485 BACnet (MS/TP)	✓	754712	TP1	161,00
NOVOS 5 temp white LCD RS485 Modbus	✓	733571	TP1	161,00
NOVOS 5 temp white LCD KNX	✓	781992	TP1	221,00
NOVOS 5 temp white design LCD RS485 BACnet (MS/TP)	✓	754729	TP1	161,00
NOVOS 5 temp white design LCD RS485 Modbus	✓	733588	TP1	161,00
NOVOS 5 temp white design LCD KNX	✓	782005	TP1	221,00

**NOVOS 5 – temperature + relative humidity**

<b>Room sensor humidity + temperature active</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 temp_rH white LCD VV	✓	733595	HU1	163,00
NOVOS 5 temp_rH white LCD AA	✓	733601	HU1	163,00
NOVOS 5 temp_rH white design LCD VV	✓	733618	HU1	163,00
NOVOS 5 temp_rH white design LCD AA	✓	733625	HU1	163,00

Room sensor humidity + temperature BUS					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 5 temp_rH white LCD RS485 BACnet (MS/TP)		✓	754842	HU1	201,00
NOVOS 5 temp_rH white LCD RS485 Modbus		✓	733649	HU1	201,00
NOVOS 5 temp_rH white LCD KNX	✓	✓	782043	HU1	261,00
NOVOS 5 temp_rH white design LCD RS485 BACnet (MS/TP)		✓	754859	HU1	201,00
NOVOS 5 temp_rH white design LCD RS485 Modbus		✓	733656	HU1	201,00
NOVOS 5 temp_rH white design LCD KNX	✓	✓	782067	HU1	261,00

### NOVOS 5 – CO2 + temperature + relative humidity

Room sensor CO2 with up to 3 measured values active					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2 temp white LCD VV	✓	734202	AQ1	273,70	
NOVOS 5 CO2 temp white LCD AA	✓	734240	AQ1	273,70	
NOVOS 5 CO2 temp_rH white LCD 3xV	✓	734226	AQ1	313,70	
NOVOS 5 CO2 temp_rH white LCD 3xA	✓	734264	AQ1	333,70	
NOVOS 5 CO2 temp white design LCD VV	✓	734219	AQ1	273,70	
NOVOS 5 CO2 temp white design LCD AA	✓	734257	AQ1	273,70	
NOVOS 5 CO2 temp_rH white design LCD 3xV	✓	734233	AQ1	313,70	
NOVOS 5 CO2 temp_rH white design LCD 3xA	✓	734271	AQ1	333,70	

Room sensor CO2 with up to 3 measured values RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2 temp white LCD RS485 BACnet (MS/TP)	✓	755672	AQ1	310,70	
NOVOS 5 CO2 temp_rH white LCD RS485 BACnet (MS/TP)	✓	755696	AQ1	350,70	
NOVOS 5 CO2 temp white design LCD RS485 BACnet (MS/TP)	✓	755689	AQ1	310,70	
NOVOS 5 CO2 temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755702	AQ1	350,70	

Room sensor CO2 with up to 3 measured values RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2 temp white LCD RS485 Modbus	✓	734295	AQ1	310,70	
NOVOS 5 CO2 temp_rH white LCD RS485 Modbus	✓	734639	AQ1	350,70	
NOVOS 5 CO2 temp white design LCD RS485 Modbus	✓	734301	AQ1	310,70	
NOVOS 5 CO2 temp_rH white design LCD RS485 Modbus	✓	734646	AQ1	350,70	

**Room sensor CO2 with up to 3 measured values KNX (TP)**

Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 5 CO2 temp white LCD KNX	✓	✓	782210	AQ1	370,70
NOVOS 5 CO2 temp_rH white LCD KNX	✓	✓	782234	AQ1	410,70
NOVOS 5 CO2 temp white design LCD KNX	✓	✓	782258	AQ1	370,70
NOVOS 5 CO2 temp_rH white design LCD KNX	✓	✓	782265	AQ1	410,70

**NOVOS 5 – VOC + temperature + relative humidity****Room sensor VOC with up to 3 measured values active**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 VOC temp white LCD VV	✓	735209	AQ1	232,70
NOVOS 5 VOC temp white LCD AA	✓	735247	AQ1	232,70
NOVOS 5 VOC temp_rH white LCD 3xV	✓	735223	AQ1	272,70
NOVOS 5 VOC temp_rH white LCD 3xA	✓	735261	AQ1	292,70
NOVOS 5 VOC temp white design LCD VV	✓	735216	AQ1	232,70
NOVOS 5 VOC temp white design LCD AA	✓	735254	AQ1	232,70
NOVOS 5 VOC temp_rH white design LCD 3xV	✓	735230	AQ1	272,70
NOVOS 5 VOC temp_rH white design LCD 3xA	✓	735278	AQ1	292,70

**Room sensor VOC with up to 3 measured values RS485 BACnet (MS/TP)**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 VOC temp white LCD RS485 BACnet (MS/TP)	✓	755719	AQ1	269,70
NOVOS 5 VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755733	AQ1	309,70
NOVOS 5 VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755726	AQ1	269,70
NOVOS 5 VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755757	AQ1	309,70

**Room sensor VOC with up to 3 measured values RS485 Modbus**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 VOC temp white LCD RS485 Modbus	✓	735292	AQ1	269,70
NOVOS 5 VOC temp_rH white LCD RS485 Modbus	✓	735322	AQ1	309,70
NOVOS 5 VOC temp white design LCD RS485 Modbus	✓	735315	AQ1	269,70
NOVOS 5 VOC temp_rH white design LCD RS485 Modbus	✓	735346	AQ1	309,70

Room sensor VOC with up to 3 measured values KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 5 VOC temp white LCD KNX	✓	✓	782272	AQ1	329,70
NOVOS 5 VOC temp_rH white LCD KNX	✓	✓	782289	AQ1	369,70
NOVOS 5 VOC temp white design LCD KNX	✓	✓	782296	AQ1	329,70
NOVOS 5 VOC temp_rH white design LCD KNX	✓	✓	782302	AQ1	369,70

## NOVOS 5 – CO2 + VOC + temperature + relative humidity

Room sensor CO2 + VOC with up to 4 measured values active					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2+VOC white LCD VV	✓	735599	AQ1	330,00	
NOVOS 5 CO2+VOC white LCD AA	✓	735667	AQ1	330,00	
NOVOS 5 CO2+VOC temp white LCD 3xV	✓	735629	AQ1	350,00	
NOVOS 5 CO2+VOC temp_rH white LCD 4xV	✓	735643	AQ1	390,00	
NOVOS 5 CO2+VOC white design LCD VV	✓	735605	AQ1	330,00	
NOVOS 5 CO2+VOC white design LCD AA	✓	735674	AQ1	330,00	
NOVOS 5 CO2+VOC temp white design LCD 3xV	✓	735636	AQ1	350,00	
NOVOS 5 CO2+VOC temp_rH white design LCD 4xV	✓	735650	AQ1	390,00	

Room sensor CO2 + VOC with up to 4 measured values RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2+VOC white LCD RS485 BACnet (MS/TP)	✓	755559	AQ1	367,00	
NOVOS 5 CO2+VOC temp white LCD RS485 BACnet (MS/TP)	✓	755597	AQ1	387,00	
NOVOS 5 CO2+VOC temp_rH white LCD RS485 BACnet (MS/TP)	✓	755658	AQ1	427,00	
NOVOS 5 CO2+VOC white design LCD RS485 BACnet (MS/TP)	✓	755580	AQ1	367,00	
NOVOS 5 CO2+VOC temp white design LCD RS485 BACnet (MS/TP)	✓	755634	AQ1	387,00	
NOVOS 5 CO2+VOC temp alu design LCD RS485 BACnet (MS/TP)	✓	771757	AQ1	399,00	
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 BACnet (MS/TP)	✓	755665	AQ1	427,00	

Room sensor CO2 + VOC with up to 4 measured values RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 5 CO2+VOC white LCD RS485 Modbus	✓	735513	AQ1	367,00	
NOVOS 5 CO2+VOC temp white LCD RS485 Modbus	✓	735728	AQ1	387,00	
NOVOS 5 CO2+VOC temp_rH white LCD RS485 Modbus	✓	735742	AQ1	427,00	
NOVOS 5 CO2+VOC white design LCD RS485 Modbus	✓	735520	AQ1	367,00	
NOVOS 5 CO2+VOC temp white design LCD RS485 Modbus	✓	735735	AQ1	387,00	
NOVOS 5 CO2+VOC temp_rH white design LCD RS485 Modbus	✓	735759	AQ1	427,00	

<b>Room sensor CO2 + VOC with up to 4 measured values KNX (TP)</b>					
<b>Item description</b>	<b>Contr.</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 5 CO2+VOC white LCD KNX	✓	✓	782098	AQ1	427,00
NOVOS 5 CO2+VOC temp white LCD KNX	✓	✓	782128	AQ1	447,00
NOVOS 5 CO2+VOC temp_rH white LCD KNX	✓	✓	782142	AQ1	487,00
NOVOS 5 CO2+VOC white design LCD KNX	✓	✓	782166	AQ1	427,00
NOVOS 5 CO2+VOC temp white design LCD KNX	✓	✓	782173	AQ1	447,00
NOVOS 5 CO2+VOC temp_rH white design LCD KNX	✓	✓	782197	AQ1	487,00

<b>Options</b>	
<b>Description</b>	<b>€</b>
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 5 alu	12,00
Design cover NOVOS 5 black	12,00

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70



## NOVOS 3

Room sensor in the NOVOS 3 enclosure for measurement of temperature (also available with passive temperature output), humidity (relative and absolute humidity, enthalpy, dew point), CO2 and mixed gas (VOC) depending on the variant. The maintenance-free sensor contributes to a pleasant room climate and well-being. Typical applications include schools, office buildings, hotels or cinemas. Different parameters can be individually configured via Thermokon NOVOSapp or uConfig. Optionally, operating elements for controlling HVAC systems can be added (see product NOVOS 3 x in the chapter 'Room Operating Units').

passive / 0..10 V / 4..20 mA



### Technical Data

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Configuration</b>	NOVOSapp, uConfig, BUS, jumper (depending on type)
<b>BACnet/Modbus:</b> <b>Input</b>	1x input for floating contact 1x input for NTC10k or floating contact 2x input for floating contact
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), KNX (TP)
<b>Output signal temperature</b>	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C -50..+50   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,4 W (24 V =), max. 0,5 W (24 V =), 0,8 VA (24 V ~)
<b>Display</b>	RGB LED, with traffic light function, threshold values configurable optionally configurable via app or uConfig
<b>Enclosure</b>	PC V0
<b>Colour</b>	pure white, aluminium, black design cover alu or black available
<b>Operating range temperature</b>	0..50 °C
<b>Protection (IP)</b>	IP20
<b>Connection</b>	cable entry via rear opening tool-free mountable spring clamp, max. 1,5 mm² predetermined breaking point (bottom) or drilling mark (top) <b>KNX:</b> terminal KNX bus

**Technical Data**

<b>Mounting</b>	flush-mounted on standard EU box ( $\varnothing=60$ mm), surface-mounted flat on base using adhesive foil or screws base part can be mounted and wired separately <b>KNX:</b> flush-mounted in standard EU box ( $\varnothing=60$ mm, depth min. 45 mm)
<b>Notes</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

**NOVOS 3 – temperature**

<b>Room sensor temperature passive</b>				
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 3 temp white PT100		728256	TP3	20,80
NOVOS 3 temp white PT100 1/3 DIN		755283	TP3	24,90
NOVOS 3 temp white PT1000		728386	TP3	23,10
NOVOS 3 temp white Ni1000		728409	TP3	22,80
NOVOS 3 temp white Ni1000TK5000		728416	TP3	26,50
NOVOS 3 temp white NTC10k		728423	TP3	19,50
NOVOS 3 temp white design PT100		728430	TP3	20,80
NOVOS 3 temp white design PT1000		728447	TP3	23,10
NOVOS 3 temp white design PT1000 1/3 DIN		728454	TP3	26,50
NOVOS 3 temp white design Ni1000		728461	TP3	22,80
NOVOS 3 temp white design Ni1000TK5000		728478	TP3	26,50
NOVOS 3 temp white design NTC10k		728485	TP3	19,50

**Options**

<b>Description</b>	<b>€</b>
4-wire connection (4-wire)	5,80
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 3 alu	12,00
Design cover NOVOS 3 black	12,00
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	
Add to price of NTC10k for sensor LM235Z	1,80

<b>Room sensor temperature active</b>					
<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
NOVOS 3 temp white TRV	✓	731614	TP2	68,00	
NOVOS 3 temp white TRA	✓	731621	TP2	68,00	
NOVOS 3 temp white design TRV	✓	731638	TP2	68,00	
NOVOS 3 temp white design TRA	✓	731645	TP2	68,00	

<b>Room sensor temperature BUS</b>					
<b>Item description</b>	<b>Contr.</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 3 temp white RS485 BACnet (MS/TP)		✓	754736	TP2	104,60
NOVOS 3 temp white design RS485 BACnet (MS/TP)		✓	754743	TP2	104,60
NOVOS 3 temp white RS485 Modbus		✓	731652	TP2	104,60
NOVOS 3 temp white design RS485 Modbus		✓	731669	TP2	104,60
NOVOS 3 temp white KNX	✓	✓	782241	TP2	164,60
NOVOS 3 temp white design KNX	✓	✓	782227	TP2	164,60

<b>Options</b>					
<b>Description</b>					<b>€</b>
Enclosure in aluminium					12,00
Enclosure in black					12,00
Design cover NOVOS 3 alu					12,00
Design cover NOVOS 3 black					12,00

<b>Accessories</b>					
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Fixing kit rawplugs and screws (2x each)		660945	AS1	0,90	
Frame for surface mounting NOVOS 3 / WRF04 pure white		111584	AS1	13,20	
PSU-UP24 – flush-mounted power supply 24 V		645737	AS1	44,20	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO		668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD		597838	AS1	36,70	

**NOVOS 3 – temperature + relative humidity**

Room sensor humidity + temperature active					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 temp_rH white VV	✓	731904	HU2	108,00	
NOVOS 3 temp_rH white AA	✓	731911	HU2	108,00	
NOVOS 3 temp_rH white design VV	✓	733472	HU2	108,00	
NOVOS 3 temp_rH white design AA	✓	733489	HU2	108,00	

Room sensor humidity + temperature BUS					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 temp_rH white RS485 BACnet (MS/TP)		✓	754866	HU2	144,60
NOVOS 3 temp_rH white design RS485 BACnet (MS/TP)		✓	754897	HU2	144,60
NOVOS 3 temp_rH white RS485 Modbus		✓	733496	HU2	144,60
NOVOS 3 temp_rH white design RS485 Modbus		✓	733502	HU2	144,60
NOVOS 3 temp_rH white KNX	✓	✓	782203	HU2	204,60
NOVOS 3 temp_rH white design KNX	✓	✓	782180	HU2	204,60

**NOVOS 3 – CO2 + temperature + relative humidity**

Room sensor CO2 with up to 3 measured values active					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 CO2 white V	✓	733663	AQ2	184,50	
NOVOS 3 CO2 white A	✓	733724	AQ2	184,50	
NOVOS 3 CO2 white temp VV	✓	733670	AQ2	230,70	
NOVOS 3 CO2 white temp AA	✓	733731	AQ2	230,70	
NOVOS 3 CO2 white temp_rH 3xV	✓	733687	AQ2	270,70	
NOVOS 3 CO2 white design V	✓	733694	AQ2	184,50	
NOVOS 3 CO2 white design A	✓	733755	AQ2	184,50	
NOVOS 3 CO2 white temp design VV	✓	733700	AQ2	230,70	
NOVOS 3 CO2 white temp design AA	✓	733762	AQ2	230,70	
NOVOS 3 CO2 white temp_rH design 3xV	✓	733717	AQ2	270,70	

Room sensor CO2 with up to 3 measured values RS485 BACnet (MS/TP)					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 CO2 white temp RS485 BACnet (MS/TP)	✓	755856	AQ2	267,70	
NOVOS 3 CO2 white temp_rH RS485 BACnet (MS/TP)	✓	755870	AQ2	307,70	
NOVOS 3 CO2 white temp design RS485 BACnet (MS/TP)	✓	755863	AQ2	267,70	
NOVOS 3 CO2 white temp_rH design RS485 BACnet (MS/TP)	✓	755894	AQ2	307,70	

Room sensor CO2 with up to 3 measured values RS485 Modbus					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 CO2 white temp RS485 Modbus	✓	734165	AQ2	267,70	
NOVOS 3 CO2 white temp_rH RS485 Modbus	✓	734172	AQ2	307,70	
NOVOS 3 CO2 white temp design RS485 Modbus	✓	734189	AQ2	267,70	
NOVOS 3 CO2 white temp_rH design RS485 Modbus	✓	734196	AQ2	307,70	

Room sensor CO2 with up to 3 measured values KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 CO2 white temp KNX	✓	✓	782050	AQ2	327,70
NOVOS 3 CO2 white temp_rH KNX	✓	✓	782036	AQ2	367,70
NOVOS 3 CO2 white temp design KNX	✓	✓	782012	AQ2	327,70
NOVOS 3 CO2 white temp_rH design KNX	✓	✓	781985	AQ2	367,70

## NOVOS 3 – VOC + temperature + relative humidity

Room sensor VOC with up to 3 measured values active					
Item description	NOVOSapp	Item No.	Group	€	
NOVOS 3 VOC white V	✓	734653	AQ2	169,20	
NOVOS 3 VOC white A	✓	734738	AQ2	169,20	
NOVOS 3 VOC white temp VV	✓	734660	AQ2	189,70	
NOVOS 3 VOC white temp AA	✓	734745	AQ2	189,70	
NOVOS 3 VOC white temp_rH 3xV	✓	734677	AQ2	229,70	
NOVOS 3 VOC white design V	✓	734684	AQ2	169,20	
NOVOS 3 VOC white design A	✓	734769	AQ2	169,20	
NOVOS 3 VOC white temp design VV	✓	734707	AQ2	189,70	
NOVOS 3 VOC white temp design AA	✓	734783	AQ2	189,70	
NOVOS 3 VOC white temp_rH design 3xV	✓	734721	AQ2	229,70	

**Room sensor VOC with up to 3 measured values RS485 BACnet (MS/TP)**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 VOC white temp RS485 BACnet (MS/TP)	✓	755900	AQ2	226,70
NOVOS 3 VOC white temp_rH RS485 BACnet (MS/TP)	✓	755948	AQ2	266,70
NOVOS 3 VOC white temp design RS485 BACnet (MS/TP)	✓	755924	AQ2	226,70
NOVOS 3 VOC white temp_rH design RS485 BACnet (MS/TP)	✓	755955	AQ2	266,70

**Room sensor VOC with up to 3 measured values RS485 Modbus**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 VOC white temp RS485 Modbus	✓	734813	AQ2	226,70
NOVOS 3 VOC white temp_rH RS485 Modbus	✓	734820	AQ2	266,70
NOVOS 3 VOC white temp design RS485 Modbus	✓	734868	AQ2	226,70
NOVOS 3 VOC white temp_rH design RS485 Modbus	✓	734875	AQ2	266,70

**Room sensor VOC with up to 3 measured values KNX (TP)**

Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 VOC white temp KNX	✓	✓	781978	AQ2	286,70
NOVOS 3 VOC white temp_rH KNX	✓	✓	781961	AQ2	326,70
NOVOS 3 VOC white temp design KNX	✓	✓	781954	AQ2	286,70
NOVOS 3 VOC white temp_rH design KNX	✓	✓	781947	AQ2	326,70

**NOVOS 3 – CO2 + VOC + temperature + relative humidity****Room sensor CO2 + VOC with up to 4 measured values active**

Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 CO2+VOC white VV	✓	735353	AQ2	287,00
NOVOS 3 CO2+VOC white AA	✓	735421	AQ2	287,00
NOVOS 3 CO2+VOC white temp 3xV	✓	735360	AQ2	307,00
NOVOS 3 CO2+VOC white temp_rH 4xV	✓	735377	AQ2	347,00
NOVOS 3 CO2+VOC white design VV	✓	735391	AQ2	287,00
NOVOS 3 CO2+VOC white design AA	✓	735452	AQ2	287,00
NOVOS 3 CO2+VOC white temp design 3xV	✓	735407	AQ2	307,00
NOVOS 3 CO2+VOC white temp_rH design 4xV	✓	735414	AQ2	347,00

Room sensor CO2 + VOC with up to 4 measured values RS485 BACnet (MS/TP)				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 CO2+VOC white RS485 BACnet (MS/TP)	✓	755771	AQ2	324,00
NOVOS 3 CO2+VOC white temp RS485 BACnet (MS/TP)	✓	755795	AQ2	344,00
NOVOS 3 CO2+VOC white temp_rH RS485 BACnet (MS/TP)	✓	755818	AQ2	384,00
NOVOS 3 CO2+VOC white design RS485 BACnet (MS/TP)	✓	755788	AQ2	324,00
NOVOS 3 CO2+VOC white temp design RS485 BACnet (MS/TP)	✓	755801	AQ2	344,00
NOVOS 3 CO2+VOC white temp_rH design RS485 BACnet (MS/TP)	✓	755825	AQ2	384,00

Room sensor CO2 + VOC with up to 4 measured values RS485 Modbus				
Item description	NOVOSapp	Item No.	Group	€
NOVOS 3 CO2+VOC white RS485 Modbus	✓	735483	AQ2	324,00
NOVOS 3 CO2+VOC white temp RS485 Modbus	✓	735544	AQ2	344,00
NOVOS 3 CO2+VOC white temp_rH RS485 Modbus	✓	735568	AQ2	384,00
NOVOS 3 CO2+VOC white design RS485 Modbus	✓	735490	AQ2	324,00
NOVOS 3 CO2+VOC white temp design RS485 Modbus	✓	735575	AQ2	344,00
NOVOS 3 CO2+VOC white temp_rH design RS485 Modbus	✓	735582	AQ2	384,00

Room sensor CO2 + VOC with up to 4 measured values KNX (TP)					
Item description	Contr.	NOVOSapp	Item No.	Group	€
NOVOS 3 CO2+VOC white KNX	✓	✓	782159	AQ2	384,00
NOVOS 3 CO2+VOC white temp KNX	✓	✓	782135	AQ2	404,00
NOVOS 3 CO2+VOC white temp_rH KNX	✓	✓	782111	AQ2	444,00
NOVOS 3 CO2+VOC white design KNX	✓	✓	782104	AQ2	384,00
NOVOS 3 CO2+VOC white temp design KNX	✓	✓	782081	AQ2	404,00
NOVOS 3 CO2+VOC white temp_rH design KNX	✓	✓	782074	AQ2	444,00

Options	€
Description	€
TLF – traffic light function, RGB-LED indicating air quality	15,00
Enclosure in aluminium	12,00
Enclosure in black	12,00
Design cover NOVOS 3 alu	12,00
Design cover NOVOS 3 black	12,00

Accessories	Item No.	Group	€
Item description			
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## NOVOS 7 move

The portable stand-alone solution of NOVOS 7 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 7 for CO<sub>2</sub> measurement as a "plug & monitor" solution. The intelligent traffic light function uses a TFT display and an acoustic signal to indicate when it is time to take appropriate action. For example, the yellow or red background indicates, that the CO<sub>2</sub> concentration in the ambient air is too high and the room should be ventilated.



### Technical Data

<b>Measured values</b>	temperature, relative humidity, CO <sub>2</sub>
<b>Operating elements</b>	4 favourite buttons
<b>Configuration</b>	NOVOSapp, uConfig
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Measuring range CO<sub>2</sub></b>	0..5000 ppm, optionally configurable
<b>Display</b>	TFT 3,5", 320x480 px, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Delivery content</b>	incl. stand and power supply unit

### Portable room sensor CO<sub>2</sub> + temperature + humidity

Item description	NOVOSapp	Item No.	Group	€
NOVOS 7 move CO2 temp_rH white	✓	779876	AQ1	339,00
NOVOS 7 move AP CO2 temp_rH white	✓	780117	AQ1	303,00
NOVOS 7 move UP CO2 temp_rH white	✓	780087	AQ1	332,00

### Accessories

Item description	Item No.	Group	€
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80

## NOVOS 5 move

The portable stand-alone solution of NOVOS 5 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 5 for CO<sub>2</sub> measurement as a "plug & monitor" solution. The intelligent traffic light function uses an LCD to indicate when it is time to take appropriate action. For example, the yellow and red light of the LCD indicate, that the CO<sub>2</sub> concentration in the ambient air is too high and the room should be ventilated.



### Technical Data

<b>Measured values</b>	temperature, CO <sub>2</sub>
<b>Configuration</b>	NOVOSapp, uConfig
<b>Measuring range CO<sub>2</sub></b>	0..5000 ppm, optionally configurable
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Delivery content</b>	incl. stand and power supply unit

### Portable room sensor CO<sub>2</sub> + temperature

Item description	NOVOSapp	Item No.	Group	€
NOVOS 5 move CO <sub>2</sub> temp white LCD	✓	777636	AQ1	301,80
NOVOS 5 move AP CO <sub>2</sub> temp white LCD	✓	780100	AQ1	265,80
NOVOS 5 move UP CO <sub>2</sub> temp white LCD	✓	780070	AQ1	294,80

### Accessories

Item description	Item No.	Group	€
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80

## **NOVOS 3 move**

The portable stand-alone solution of NOVOS 3 move simplifies the monitoring of indoor air quality and is able to initiate necessary measures improving the air quality. The practical desk display and the connected power supply unit make it possible to use the NOVOS 3 for CO<sub>2</sub> measurement as a "plug & monitor" solution. The intelligent traffic light function uses an LED to indicate when it is time to take appropriate action. For example, the yellow and red light of the LED indicate, that the CO<sub>2</sub> concentration in the ambient air is too high and the room should be ventilated.



### **Technical Data**

<b>Measured values</b>	CO <sub>2</sub>
<b>Configuration</b>	NOVOSapp, uConfig
<b>Measuring range CO<sub>2</sub></b>	0..5000 ppm, optionally configurable
<b>Display</b>	RGB LED, with traffic light function, threshold values configurable optionally configurable via app or uConfig
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Delivery content</b>	incl. stand and power supply unit

### **Portable room sensor CO<sub>2</sub>**

<b>Item description</b>	<b>NOVOSapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
NOVOS 3 move CO <sub>2</sub> white TLF	✓	774314	AQ2	261,00
NOVOS 3 move AP CO <sub>2</sub> white TLF	✓	780094	AQ2	225,00
NOVOS 3 move UP CO <sub>2</sub> white TLF	✓	780063	AQ2	254,00

### **Accessories**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80

## WRF06

Flush-mounted room sensor for temperature, humidity and air quality measurement in living rooms, offices etc. Designed for connection to controller and display systems. Due to the visual appearance and the matching design frames from various switch range manufacturers, the device is particularly suitable for design-oriented facilities. It can be mounted separately in a single frame or in a multiple frame. Optionally, it is possible to add operating elements for controlling HVAC systems from the device. Stainless steel versions are available on request.



WRF06 pure white,  
frame Gira E2 pure white matt



FTW06 / WRF06 CO2/VOC pure white,  
frame Gira E2 pure white matt



WRF06 CO2/VOC TLF pure white,  
frame Gira E2 pure white matt

passive / 0..10 V Modbus LON

### Technical Data

<b>Measured values</b>	temperature, relative humidity, CO2, VOC
<b>Configuration</b>	Software/Plug-In for configuration, BUS, jumper, DIP switches (depending on type)
<b>Input</b>	<b>A02V:</b> 2x input digital for floating switch contact <b>DI4:</b> 4x input digital for floating switch contact
<b>Network technology</b>	RS485 Modbus, LON FT (free topology)
<b>Output signal temperature</b>	0..+50 °C, scaling analogue output
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Measuring range CO2</b>	0..2000 ppm
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor, self-calibration
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>FTW06 BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>WRF06 TRV3:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>WRF06 BUS:</b> typ. 0,9 W (24 V =), 1 VA (24 V ~) <b>WRF06 CO2/VOC:</b> max. 1,6 W (24 V =), 3,9 VA (24 V ~) <b>FTW06 VV:</b> typ. 0,3 W (24 V =), 0,5 VA (24 V ~) <b>FTW06 Modbus:</b> max. 1,6 W (24 V =), 3,9 VA (24 V ~)
<b>Display</b>	3 LEDs for displaying air quality (traffic light function – TLF)
<b>Enclosure</b>	PC, central disc in design of the manufacturer (varies depending on switch range)
<b>Colour</b>	white, pure white brilliant, pure white matt, aluminium, Jung aluminium
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha (please specify the desired frame when ordering)
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm, depth min. 45 mm)

## WRF06 temperature passive

Room sensor temperature passive			
Item description	Item No.	Group	€
WRF06 without sensor Gira E2 pure white matt	626194	TP1	38,10
WRF06 PT100 Gira E2 pure white matt	128933	TP1	45,60
WRF06 PT100 1/3 DIN Gira E2 pure white matt	137768	TP1	49,70
WRF06 PT1000 Gira E2 pure white matt	158299	TP1	47,90
WRF06 PT1000 1/3 DIN Gira E2 pure white matt	160773	TP1	51,30
WRF06 Ni1000 Gira E2 pure white matt	138314	TP1	47,60
WRF06 Ni1000TK5000 Gira E2 pure white matt	121866	TP1	51,30
WRF06 NTC10k Gira E2 pure white matt	191050	TP1	44,30

Options	Switch ranges on page 369/370
Description	€
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30

## WRF06 temperature active 0..10 V

Room sensor temperature active			
Item description	Item No.	Group	€
WRF06 TRV3 Gira E2 pure white matt	627160	TP1	112,80
WRF06 TRV3 Berker S.1 polar white brilliant	582865	TP1	112,80
WRF06 TRV3 Busch-Jaeger Busch-balance® SI alpin white	703925	TP1	112,80
WRF06 TRV3 Busch-Jaeger Reflex SI alpin white	703932	TP1	112,80
WRF06 TRV3 Jung A 500 alpin white	703949	TP1	112,80
WRF06 TRV3 Merten M-Smart polar white brilliant	703956	TP1	112,80

Options	Switch ranges on page 369/370
Description	€
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

**WRF06 temperature BUS**

Room sensor temperature RS485 Modbus				
Item description	Item No.	Group	€	
WRF06 temp RS485 Modbus pure white matt	726825	TP1	126,30	
WRF06 temp RS485 Modbus pure white brilliant	726801	TP1	126,30	
WRF06 temp RS485 Modbus aluminium	726856	TP1	126,30	
WRF06 temp RS485 Modbus Jung aluminium	726832	TP1	126,30	
WRF06 temp RS485 Modbus anthracite	726818	TP1	126,30	

**Room sensor temperature RS485 Modbus DI4**

Item description	Item No.	Group	€
WRF06 DI4 temp RS485 Modbus pure white matt	781916	TP1	168,50
WRF06 DI4 temp RS485 Modbus pure white brilliant	781909	TP1	168,50
WRF06 DI4 temp RS485 Modbus aluminium	781893	TP1	168,50
WRF06 DI4 temp RS485 Modbus Jung aluminium	781886	TP1	168,50
WRF06 DI4 temp RS485 Modbus anthracite	781879	TP1	168,50

**Room sensor temperature with control function RS485 Modbus AO2V**

Item description	Contr.	Item No.	Group	€
WRF06 AO2V temp RS485 Modbus pure white matt	✓	762601	TP1	168,50
WRF06 AO2V temp RS485 Modbus pure white brilliant	✓	746359	TP1	168,50
WRF06 AO2V temp RS485 Modbus aluminium	✓	762625	TP1	168,50
WRF06 AO2V temp RS485 Modbus Jung aluminium	✓	762632	TP1	168,50
WRF06 AO2V temp RS485 Modbus anthracite	✓	762656	TP1	168,50

**Room sensor temperature LON DI4**

Item description	Item No.	Group	€
WRF06 DI4 temp LON pure white matt	781466	TP1	193,30
WRF06 DI4 temp LON pure white brilliant	781459	TP1	193,30
WRF06 DI4 temp LON aluminium	781442	TP1	193,30
WRF06 DI4 temp LON Jung aluminium	781435	TP1	193,30
WRF06 DI4 temp LON anthracite	781428	TP1	193,30

**Room sensor temperature with control function LON AO2V**

Item description	Contr.	Item No.	Group	€
WRF06 AO2V temp LON pure white matt	✓	781411	TP1	193,30
WRF06 AO2V temp LON pure white brilliant	✓	781404	TP1	193,30
WRF06 AO2V temp LON aluminium	✓	781398	TP1	193,30
WRF06 AO2V temp LON Jung aluminium	✓	781381	TP1	193,30
WRF06 AO2V temp LON anthracite	✓	781374	TP1	193,30

**FTW06 temperature + relative humidity active 2x 0..10 V**

Room sensor humidity + temperature active			
Item description	Item No.	Group	€
FTW06 temp_rH VV pure white matt	482721	HU1	214,30
FTW06 temp_rH temp_rH VV pure white brilliant	732161	HU1	214,30
FTW06 temp_rH VV aluminium	732178	HU1	214,30
FTW06 temp_rH VV Jung aluminium	732185	HU1	214,30
FTW06 temp_rH VV anthracite	732192	HU1	214,30

**FTW06 temperature + relative humidity BUS**

Room sensor humidity + temperature BUS			
Item description	Item No.	Group	€
FTW06 temp_rH RS485 Modbus pure white matt	732208	HU1	235,30
FTW06 temp_rH RS485 Modbus pure white brilliant	732215	HU1	235,30
FTW06 temp_rH RS485 Modbus aluminium	732222	HU1	235,30
FTW06 temp_rH RS485 Modbus Jung aluminium	732239	HU1	235,30
FTW06 temp_rH RS485 Modbus anthracite	732246	HU1	235,30

**WRF06 CO2 active 0..10 V**

Room sensor CO2 active			
Item description	Item No.	Group	€
WRF06 CO2 V pure white matt	732529	AQ1	296,30
WRF06 CO2 V pure white brilliant	731515	AQ1	296,30
WRF06 CO2 V aluminium	732536	AQ1	296,30
WRF06 CO2 V Jung aluminium	732543	AQ1	296,30
WRF06 CO2 V anthracite	725828	AQ1	296,30

**WRF06 CO2 + temperature active 2x 0..10 V**

Room sensor CO2 + temperature active			
Item description	Item No.	Group	€
WRF06 CO2 temp VV pure white matt	728492	AQ1	300,50
WRF06 CO2 temp VV pure white brilliant	724555	AQ1	300,50
WRF06 CO2 temp VV aluminium	732550	AQ1	300,50
WRF06 CO2 temp VV Jung aluminium	732567	AQ1	300,50
WRF06 CO2 temp VV anthracite	732123	AQ1	300,50

**WRF06 CO2 + temperature + relative humidity active 3x 0..10 V**

Room sensor CO2 + temperature + humidity active			
Item description	Item No.	Group	€
WRF06 CO2 temp_rH 3xV pure white matt	732598	AQ1	321,50
WRF06 CO2 temp_rH 3xV pure white brilliant	726641	AQ1	321,50
WRF06 CO2 temp_rH 3xV aluminium	732611	AQ1	321,50
WRF06 CO2 temp_rH 3xV Jung aluminium	726634	AQ1	321,50
WRF06 CO2 temp_rH 3xV anthracite	732628	AQ1	321,50

**WRF06 CO2 BUS**

Room sensor CO2 BUS			
Item description	Item No.	Group	€
WRF06 CO2 RS485 Modbus pure white matt	732796	AQ1	304,70
WRF06 CO2 RS485 Modbus pure white brilliant	732802	AQ1	304,70
WRF06 CO2 RS485 Modbus aluminium	732819	AQ1	304,70
WRF06 CO2 RS485 Modbus Jung aluminium	732826	AQ1	304,70
WRF06 CO2 RS485 Modbus anthracite	732833	AQ1	304,70

**WRF06 CO2 + temperature BUS**

Room sensor CO2 + temperature BUS			
Item description	Item No.	Group	€
WRF06 CO2 temp RS485 Modbus pure white matt	732840	AQ1	308,90
WRF06 CO2 temp RS485 Modbus pure white brilliant	732857	AQ1	308,90
WRF06 CO2 temp RS485 Modbus aluminium	732864	AQ1	308,90
WRF06 CO2 temp RS485 Modbus Jung aluminium	732871	AQ1	308,90
WRF06 CO2 temp RS485 Modbus anthracite	732321	AQ1	308,90

**WRF06 CO2 + temperature + relative humidity BUS**

Room sensor CO2 + temperature + humidity BUS			
Item description	Item No.	Group	€
WRF06 CO2 temp_rH RS485 Modbus pure white matt	732888	AQ1	329,90
WRF06 CO2 temp_rH RS485 Modbus pure white brilliant	732895	AQ1	329,90
WRF06 CO2 temp_rH RS485 Modbus aluminium	732901	AQ1	329,90
WRF06 CO2 temp_rH RS485 Modbus Jung aluminium	732918	AQ1	329,90
WRF06 CO2 temp_rH RS485 Modbus anthracite	728676	AQ1	329,90

### **WRF06 VOC + temperature active 2x 0..10 V**

Room sensor VOC + temperature active			
Item description	Item No.	Group	€
WRF06 VOC temp VV pure white matt	732635	AQ1	289,90
WRF06 VOC temp VV pure white brilliant	731522	AQ1	289,90
WRF06 VOC temp VV aluminium	727358	AQ1	289,90
WRF06 VOC temp VV Jung aluminium	732659	AQ1	289,90
WRF06 VOC temp VV anthracite	732666	AQ1	289,90

### **WRF06 VOC + temperature BUS**

Room sensor VOC + temperature BUS			
Item description	Item No.	Group	€
WRF06 VOC temp RS485 Modbus pure white matt	732925	AQ1	298,30
WRF06 VOC temp RS485 Modbus pure white brilliant	732932	AQ1	298,30
WRF06 VOC temp RS485 Modbus aluminium	732949	AQ1	298,30
WRF06 VOC temp RS485 Modbus Jung aluminium	732963	AQ1	298,30
WRF06 VOC temp RS485 Modbus anthracite	732970	AQ1	298,30

### **WRF06 CO2 + VOC active 2x 0..10 V**

Room sensor CO2 + VOC active			
Item description	Item No.	Group	€
WRF06 CO2+VOC VV pure white matt	732420	AQ1	346,70
WRF06 CO2+VOC VV pure white brilliant	732437	AQ1	346,70
WRF06 CO2+VOC VV aluminium	732444	AQ1	346,70
WRF06 CO2+VOC VV Jung aluminium	732451	AQ1	346,70
WRF06 CO2+VOC VV anthracite	732468	AQ1	346,70

### **WRF06 CO2 + VOC + temperature + relative humidity active 4x 0..10 V**

Room sensor CO2 + VOC + temperature + humidity active			
Item description	Item No.	Group	€
WRF06 CO2+VOC temp_rH 4xV pure white matt	732475	AQ1	350,90
WRF06 CO2+VOC temp_rH 4xV pure white brilliant	732482	AQ1	350,90
WRF06 CO2+VOC temp_rH 4xV aluminium	732499	AQ1	350,90
WRF06 CO2+VOC temp_rH 4xV Jung aluminium	732505	AQ1	350,90
WRF06 CO2+VOC temp_rH 4xV anthracite	732512	AQ1	350,90

**WRF06 CO2 + VOC BUS**

Room sensor CO2 + VOC BUS			
Item description	Item No.	Group	€
WRF06 CO2+VOC RS485 Modbus pure white matt	732680	AQ1	355,10
WRF06 CO2+VOC RS485 Modbus pure white brilliant	732697	AQ1	355,10
WRF06 CO2+VOC RS485 Modbus aluminium	732703	AQ1	355,10
WRF06 CO2+VOC RS485 Modbus Jung aluminium	732710	AQ1	355,10
WRF06 CO2+VOC RS485 Modbus anthracite	732727	AQ1	355,10

**WRF06 CO2 + VOC + temperature + relative humidity BUS**

Room sensor CO2 + VOC + temperature + humidity BUS			
Item description	Item No.	Group	€
WRF06 CO2+VOC temp_rH RS485 Modbus pure white matt	732734	AQ1	380,40
WRF06 CO2+VOC temp_rH RS485 Modbus pure white brilliant	732741	AQ1	380,40
WRF06 CO2+VOC temp_rH RS485 Modbus aluminium	732758	AQ1	380,40
WRF06 CO2+VOC temp_rH RS485 Modbus Jung aluminium	732765	AQ1	380,40
WRF06 CO2+VOC temp_rH RS485 Modbus anthracite	732772	AQ1	380,40

Options	Switch ranges on page 369/370
Description	€
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	4,50
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00
TLF – traffic light function, 3 LEDs indicating air quality	15,00

Accessories			
Item description	Item No.	Group	€
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20



## WRF04 IR

Surface-mounted room sensor for measuring the effective radiation in living rooms and offices. Designed for connection to control and display systems. For pre-wiring at the installation site, the back part with the connection terminals can be removed from the upper part of the housing.

### Technical Data

<b>Measured values</b>	radiation temperature
<b>Material in touch with media</b>	hemispherical ball, Ø=37 mm, aluminium, black
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening, predetermined breaking point (bottom und top)
<b>Connection cable</b>	2-wire
<b>Mounting</b>	flush-mounted on standard EU box (Ø=60 mm), surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

### Room sensor radiation temperature passive

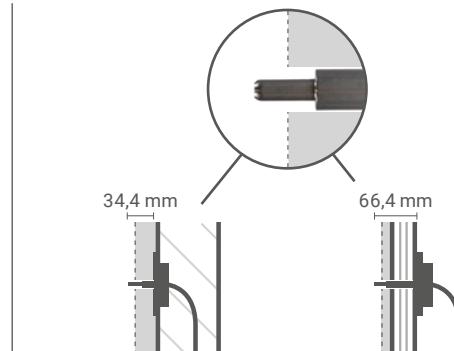
Item description	Item No.	Group	€
WRF04 IR PT1000	652094	TP2	79,00
WRF04 IR Ni1000	652063	TP2	79,00
WRF04 IR NTC10k	652100	TP2	79,00

### Accessories

Item description	Item No.	Group	€
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20
Special painting – prices on request			
Special painting setup costs (once per colour)	114998	NET	168,40

**FTB+**

Wall-mounted sensor for measuring relative humidity and temperature in a high quality and inconspicuous stainless steel design. For plastering into flush-mounted boxes or installations in hollow walls. Especially designed for museums and exhibitions, where measuring accuracy and almost invisible sensors have to be installed due to architectural design. The precise measurements provided to a BMS system contribute to a comfortable room climate and prevent mold formation.



0..10 V / 4..20 mA

**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: -20..+80 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C adjustable at the transducer, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>VV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>AA:</b> 15..24 V = (±10%) SELV <b>LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>VV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>AA:</b> max. 1 W (24 V =) <b>LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor head: Ø=13 mm, end of sensor Ø=7 mm, stainless steel V2A (1.4305)
<b>Display</b>	LCD 29x35 mm, RGB backlight
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-40..+120 °C
<b>Protection (IP)</b>	enclosure IP65, according to EN 60529

Technical Data	
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <b>VV/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Connection cable</b>	PVC, 0,14 mm <sup>2</sup> , grey
<b>Mounting</b>	plastering or installation in hollow wall
<b>Delivery content</b>	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

Wall-mounted sensor humidity + temperature active				
Item description	USEapp	Item No.	Group	€
FTB+ VV 34.06 L15m	✓	689205	HU1	515,40
FTB+ VV 66.06 L15m	✓	689083	HU1	557,40
FTB+ AA 34.06 L15m	✓	700108	HU1	515,40
FTB+ AA 66.06 L15m	✓	700115	HU1	557,40

Options	
Description	€
RS485 Modbus	45,00
RS485 BACnet (MS/TP)	45,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

Accessories				
Item description	Item No.	Group	€	
Mounting base enclosure USE-M pure white	668354	AS1	8,35	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

**RDF18**

Ceiling flush-mounted sensor for temperature measurement in indoor spaces to be mounted inconspicuously into ceiling panels, thus contributing to an overall clean architectural design.

**Technical Data**

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor head, Ø=30 mm, ABS, white
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup> , 2-wire, grey
<b>Mounting</b>	facet mounting
<b>Notes</b>	active types for temperature and humidity available (FT-RDF18+)

**Ceiling flush mount sensor temperature passive**

Item description	Item No.	Group	€
RDF18 PT100 L1000	471237	TP2	36,40
RDF18 PT100 1/3 DIN L1000	471244	TP2	40,50
RDF18 PT1000 L1000	459235	TP2	38,70
RDF18 PT1000 1/3 DIN L1000	458276	TP2	42,10
RDF18 Ni1000 L1000	463669	TP2	38,40
RDF18 Ni1000TK5000 L1000	471251	TP2	42,10
RDF18 NTC10k L1000	457828	TP2	35,10

**Options**

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add per meter of connection cable 2-wire -35..+100 °C	1,10
Add per meter of connection cable 3-wire -35..+100 °C	1,30
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30



## FT-RDF18+

Ceiling sensor for measuring relative humidity and temperature in rooms. The ideal solution for an inconspicuous, architectural integration into ceiling slabs or hollow walls. Especially designed for use in museums or showrooms. The precise measurements provided to a BMS system contribute to a comfortable room climate and prevent mold formation.

0..10 V / 4..20 mA

Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	<p>scaling analogue output:  <b>VV/AA:</b> 0..+50 °C (default setting)  <b>LCD/BUS:</b> -20..+80 °C (default setting)  selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C  adjustable at the transducer, optionally configurable via app or uConfig</p>
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point adjustable at the transducer, optionally configurable
<b>Power supply</b>	<p><b>VV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV  <b>AA:</b> 15..24 V = (±10%) SELV  <b>LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV</p>
<b>Power consumption</b>	<p><b>VV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~)  <b>AA:</b> max. 1 W (24 V =)  <b>LCD/BUS:</b> typ. 2,5 W (24 V =), 4,3 VA (24 V ~)</p>
<b>Material in touch with media</b>	Sensor head, Ø=30 mm, ABS, white
<b>Display</b>	LCD 29x35 mm, RGB backlight
<b>Enclosure</b>	<p><b>VV/AA:</b>  USE-S, impact- and shock-resistant enclosure with quick-release cover, PC  <b>LCD/BUS:</b>  USE-M, impact- and shock-resistant enclosure with quick-release cover, PC</p>
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, enclosure IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <p><b>VV/AA:</b>  removable cable entry flextherm M20 for wire Ø=4,5..9 mm  <b>BUS:</b>  removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm</p>
<b>Connection cable</b>	flat ribbon cable for mounting 15 mm from the sensor head, separable by means of RJ12 socket and plug, black
<b>Mounting</b>	facet mounting
<b>Delivery content</b>	incl. mounting set (screws and accessories) <p><b>VV/AA:</b> incl. mounting base enclosure USE-S pure white  <b>LCD/BUS:</b> incl. mounting base enclosure USE-M pure white</p>

**Ceiling flush mount sensor temperature + humidity active**

Item description	USEapp	Item No.	Group	€
FT-RDF18+ temp_rH VV	✓	659031	HU1	312,60
FT-RDF18+ temp_rH AA	✓	659055	HU1	312,60

**Options**

Description	€
RS485 Modbus	45,00
RS485 BACnet (MS/TP)	45,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting kit universal for enclosure USE	698511	AS1	9,30

## RDF-IR

Ceiling flush-mounted sensor for surface temperature measurement in rooms, office spaces and other workplaces. Using the infrared measuring principle, an averaged temperature over the circular detection range (optical detection range  $80 \pm 5^\circ$ ) is calculated. If two IR sensors are used, the mean, minimum or maximum value of both temperature signals can be provided in addition to the individually measured temperatures of each sensor (configurable via Thermokon USEapp).



RDF-IR



RDF-IR Dual

0..10 V / 4..20 mA

Technical Data	
Measured values	radiation temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C, adjustable at the transducer
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-20..+70 °C
Protection (IP)	IP30, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , 2x RJ45 socket <b>BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	patch cable, RJ45 plug <b>Dual:</b> 2x patch cable, RJ45 plug
Delivery content	incl. mounting base enclosure USE-M pure white

**Ceiling flush mount sensor radiation temperature active**

Item description	USEapp	Item No.	Group	€
RDF-IR V L1500	✓	699150	TP1	152,60
RDF-IR Dual VV 2xL1500	✓	699167	TP1	199,90

**Ceiling flush mount sensor radiation temperature BUS**

Item description	USEapp	Item No.	Group	€
RDF-IR RS485 Modbus L1500	✓	774789	TP1	197,60
RDF-IR Dual RS485 Modbus 2xL1500	✓	774796	TP1	244,90
RDF-IR RS485 BACnet (MS/TP) L1500	✓	732604	TP1	197,60
RDF-IR Dual RS485 BACnet (MS/TP) 2xL1500	✓	748087	TP1	244,90

**Options**

Description	€
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Sensor wire 1,5 m with RJ45 connector	628785	AS1	5,90
Sensor wire 3 m with RJ45 connector	708852	AS1	7,60
Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,20



## RPF40

Pendulum sensor for temperature measurement in large rooms like open space offices, arcades and production plants. Optionally available with black ball as a radiation sensor with long time constants for radiant heaters. Especially designed for control and display systems.

### Technical Data

Measured values	temperature, radiation temperature
Material in touch with media	Sensor head, PF31, white / black, Ø=40 mm
Operating range temperature	-35..+90 °C
Protection (IP)	IP30, according to EN 60529
Connection cable	PVC, 0,25 mm <sup>2</sup> , 2-wire

### Room pendulum sensor temperature passive

Item description	Item No.	Group	€
RPF40 PT100 white L1000	350006	TP2	53,80
RPF40 PT100 1/3 DIN white L1000	265621	TP2	57,90
RPF40 PT1000 white L1000	321068	TP2	56,10
RPF40 PT1000 1/3 DIN white L1000	329569	TP2	59,50
RPF40 Ni1000 white L1000	329279	TP2	55,80
RPF40 Ni1000TK5000 white L1000	144193	TP2	59,50
RPF40 NTC10k white L1000	351980	TP2	52,50

### Options

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add per meter of connection cable 2-wire -35..+100 °C	1,10
Add per meter of connection cable 3-wire -35..+100 °C	1,30
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30
Sensor head black (radiation sensor)	0,00

### Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80

## RPF40+

Pendulum sensor for temperature measurement in large rooms like open space offices, arcades and production plants. Optionally available with black ball as a radiation sensor with long time constants for radiant heaters. Especially designed for control and display systems.



0..10 V / 4..20 mA    LON

Technical Data	
<b>Measured values</b>	temperature, radiation temperature
<b>Configuration</b>	jumper
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer <b>TRV/TRA:</b> 0..+160 °C (default setting) <b>BUS:</b> -20..+80 °C (default setting)
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>LCD/BUS:</b> typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor head, PF31, white, Ø=40 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

Technical Data			
Connection cable	PVC, 0,25 mm <sup>2</sup> , white		
Delivery content	incl. mounting set (screws and accessories) <b>TRV/TRA:</b> incl. mounting base enclosure USE-S pure white <b>LCD/BUS:</b> incl. mounting base enclosure USE-M pure white		

Room pendulum sensor temperature active			
Item description	Item No.	Group	€
RPF40+ TRV MultiRange white L1000	658409	TP2	119,40
RPF40+ TRA MultiRange white L1000	658416	TP2	119,40

Options			
Description	€		
Add per meter of connection cable 2-wire -35..+100 °C	1,10		
RS485 Modbus in enclosure USE-M with option board	76,00		
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00		
Add to price of RS485 Modbus for LON FT	75,90		
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00		
Sensor head black (radiation sensor)	0,00		

Accessories			
Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70



## RPF100

Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, arcades, production plants. Especially designed for control and display systems.

### Technical Data

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe: Ø=15 mm, stainless steel V2A (1.4305), length 100 mm, hex pressed (IP65)
<b>Operating range temperature</b>	-35..+90 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup> , 2-wire, white

### Room pendulum sensor temperature passive

Item description	Item No.	Group	€
RPF100 PT100 L1000	81566	TP2	69,90
RPF100 PT100 1/3 DIN L1000	90780	TP2	74,00
RPF100 PT1000 L1000	90827	TP2	72,20
RPF100 PT1000 1/3 DIN L1000	90865	TP2	75,60
RPF100 Ni1000 L1000	90902	TP2	71,90
RPF100 Ni1000TK5000 L1000	160612	TP2	75,60
RPF100 NTC10k L1000	91060	TP2	68,60

### Options

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add per meter of connection cable 2-wire -35..+100 °C	1,10
Add per meter of connection cable 3-wire -35..+100 °C	1,30
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30

### Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80

## RPF100+

Pendulum sensor for temperature measurement in large, high rooms and spaces like open space offices, arcades, production plants. Especially designed for control and display systems.



0..10 V / 4..20 mA    LON

Technical Data	
Measured values	temperature
Configuration	jumper
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer <b>TRV/TRA:</b> 0..+160 °C (default setting) <b>BUS:</b> -20..+80 °C (default setting)
Power supply	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>LCD/BUS:</b> 15..35 V = SELV 19..29 V ~ SELV
Power consumption	<b>TRV:</b> typ. 0,4 W (24 V =) 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>LCD/BUS:</b> typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe: Ø=15 mm, stainless steel V2A (1.4305), length 100 mm, hex pressed (IP65)
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-35..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

**Technical Data**

<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup> , white
	incl. mounting set (screws and accessories)
<b>Delivery content</b>	<b>TRV/TRA:</b> incl. mounting base enclosure USE-S pure white
	<b>LCD/BUS:</b> incl. mounting base enclosure USE-M pure white

**Room pendulum sensor temperature active**

Item description	Item No.	Group	€
RPF100+ TRV MultiRange L1000	658423	TP2	135,50
RPF100+ TRA MultiRange L1000	658430	TP2	135,50

**Options**

Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,10
RS485 Modbus in enclosure USE-M with option board	76,00
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

**FTP+**

Room pendulum sensor for sectional measurement of relative humidity and temperature in large and high spaces (e.g. exhibition halls, churches and similar applications). Alternatively, the output can also be set to measure absolute humidity, enthalpy or dew point rather than relative humidity. The design ensures optimal installation and precise measurements. The accuracy of the humidity sensor is 2%.



0..10 V / 4..20 mA   

Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	-20..+80 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C adjustable at the transducer, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>VV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>AA:</b> 15..24 V = (±10%) SELV <b>LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>VV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>AA:</b> typ. 1 W (24 V =) <b>LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Pipe: Ø=20 mm, PA6, black, length 210 mm, with filter stainless steel wire mesh
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-20..+70 °C
<b>Protection (IP)</b>	IP20, according to EN 60529

**Technical Data**

<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <b>VV/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm
<b>Connection cable</b>	BUS: removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	PVC, 0,14 mm <sup>2</sup> , grey
	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

**Room pendulum sensor humidity + temperature active**

Item description	USEapp	Item No.	Group	€
FTP+ VV L2000	✓	699952	HU1	173,60
FTP+ VV L4000	✓	699983	HU1	178,90
FTP+ AA L2000	✓	699976	HU1	173,60
FTP+ AA L4000	✓	700016	HU1	178,90

**Options**

Description	€
RS485 Modbus	45,00
RS485 BACnet (MS/TP)	45,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

**Accessories**

Item description	Item No.	Group	€
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70



## MDS

Ceiling-mounted multi-sensor for detection of light and motion in rooms and office spaces. Energy-efficiency can be optimized through connecting the MDS to an automated constant light control and temperature reduction in unoccupied rooms. The flat design makes up for an inconspicuous installation in e.g. suspended ceilings. For mounting on concrete ceilings, a surface-mounted frame is available.

### Technical Data

<b>Measured values</b>	temperature, luminosity, motion
<b>Configuration</b>	potentiometer
<b>Output switch contact</b>	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 1 second..30 minutes, selectable at the device
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range light</b>	0..1000 lux (10 bit)
<b>Dectection range</b>	cone-shaped, detection range, angle 105°, 444 detection zones - with an installation height of 2,7 m circular detection range will have a r=7 m, max. range >5 m
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 1,5 W (24 V =), 4 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Colour</b>	pure white
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , pluggable
<b>Mounting</b>	ceiling flush mount or with enclosure for surface mounting

### Ceiling flush mount sensor luminosity/motion active

Item description	Item No.	Group	€
MDS Standard V	271318	LM2	188,00
MDS Standard temp VV	280433	LM2	204,20

### Accessories

Item description	Item No.	Group	€
Enclosure for surface mounting MDS pure white	448512	AS1	50,80

## RDI

Ceiling-mounted sensor for motion detection in rooms. The small design ( $d=30\text{mm}$ ) permits an inconspicuous installation in suspended ceilings. Available with 3 detection ranges (standard, small range, spot). The RDI can be used e.g. for an occupancy-based switching of lights or temperature reduction if unoccupied, which in return increases energy-efficiency.



RDI Standard

RDI Small Range

RDI Spot

### Technical Data

<b>Measured values</b>	motion
<b>Output switch contact</b>	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds  <b>Standard:</b> detection range, angle 110°/93° (H/V) - with an installation height of 2,5 m range detection will be 7,1x5,3 m, max. range 10 m
<b>Detection range</b>	<b>Small Range:</b> detection range, angle 100°/82° (H/V) - with an installation height of 2,5 m range detection will be 6x4,3 m, max. range 5 m  <b>Spot:</b> detection range, angle 38°/22° (H/V) - with an installation height of 2,5 m range detection will be 1,7x1 m, max. range 5 m
<b>Power supply</b>	15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
<b>Power consumption</b>	typ. 0,5 W (24 V =), 1,1 VA (24 V ~)
<b>Enclosure</b>	ABS
<b>Operating range temperature</b>	-20..+50 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup>
<b>Mounting</b>	ceiling flush mount

### Ceiling flush mount sensor motion relay

Item description	Item No.	Group	€
RDI Standard	187060	LM2	92,30
RDI Small Range	426503	LM2	92,30
RDI Spot	436670	LM2	92,30

## LDF+

Ceiling-mounted sensor used for the measurement of brightness or ambient light levels. Depending on the prism (straight or diagonal), light levels can be detected reliably and selectively in living rooms, offices and work spaces. The sensor is adapted to the spectral sensitivity of human eyes and contributes to a demand-based efficient control of light and sunblinds/shading systems. The remote sensor can be connected to the enclosure with a conventional RJ45 cable, allowing for an easy installation even in hardly accessible locations. If two sensors are used, the average, minimum or maximal value of both brightness signals can be provided in addition to the independent measurements of each sensor (configurable via Thermokon USEapp).



Dual



Dual

0..10 V / 4..20 mA  

Technical Data	
Measured values	luminosity
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Output switch contact	2x floating contact NO for 24 V ~ or 24 V = / 3 A
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Measuring range light	selectable from 6 ranges 0..200 lux   0..1000 lux   0..2 klux   0..10 klux   0..20 klux   0..50 klux, optionally configurable
Power supply	15..35 V = SELV, 19..29 V ~ SELV
Power consumption	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
Material in touch with media	prism: acrylic glass clear straight (mainly for interior lighting) diagonal (mainly for outdoor lighting)
Enclosure	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-25..+65 °C
Protection (IP)	IP30, enclosure IP65, according to EN 60529  removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup>
Connection	V/V/A/AA: removable cable entry flextherm M20 for wire Ø=4,5..9 mm  Relay/BUS: removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	patch cable, RJ45 plug, 2x patch cable, RJ45 plug
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

**LDF+ active 0..10 V**

Ceiling flush mount sensor luminosity active				
Item description	USEapp	Item No.	Group	€
LDF+ V L1500 straight prism	✓	662604	LM2	161,00
LDF+ V L1500 diagonal prism	✓	662628	LM2	161,00
LDF+ A L1500 straight prism	✓	662635	LM2	161,00
LDF+ A L1500 diagonal prism	✓	662642	LM2	161,00
LDF+ V L1500 straight prism relay	✓	707336	LM2	202,20
LDF+ V L1500 diagonal prism relay	✓	707350	LM2	202,20

**LDF+ Dual active 2x0..10 V**

Dual ceiling flush mount sensor luminosity active				
Item description	USEapp	Item No.	Group	€
LDF+ Dual VV 2xL1500 straight prism	✓	700849	LM1	209,40
LDF+ Dual VV 2xL1500 diagonal prism	✓	700856	LM1	209,40
LDF+ Dual AA 2xL1500 straight prism	✓	700863	LM1	209,40
LDF+ Dual AA 2xL1500 diagonal prism	✓	700870	LM1	209,40
LDF+ Dual VV 2xL1500 straight prism relay	✓	707374	LM1	250,60
LDF+ Dual VV 2xL1500 diagonal prism relay	✓	707381	LM1	250,60

**LDF+ BUS**

Ceiling flush mount sensor luminosity BUS				
Item description	USEapp	Item No.	Group	€
LDF+ RS485 Modbus L1500 straight prism	✓	700887	LM1	189,90
LDF+ RS485 Modbus L1500 diagonal prism	✓	700894	LM1	189,90
LDF+ RS485 BACnet (MS/TP) L1500 straight prism	✓	700900	LM1	189,90
LDF+ RS485 BACnet (MS/TP) L1500 diagonal prism	✓	700917	LM1	189,90

**LDF+ Dual BUS**

Dual ceiling flush mount sensor luminosity BUS				
Item description	USEapp	Item No.	Group	€
LDF+ Dual RS485 Modbus 2xL1500 straight prism	✓	700924	LM1	238,30
LDF+ Dual RS485 Modbus 2xL1500 diagonal prism	✓	700931	LM1	238,30
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 straight prism	✓	700948	LM1	238,30
LDF+ Dual RS485 BACnet (MS/TP) 2xL1500 diagonal prism	✓	700955	LM1	238,30

## » Room Climate Control – Room Sensors Light/Motion

Options	€
Description	€
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

Accessories	Item No.	Group	€
Item description			
Mounting base enclosure USE-M pure white	668354	AS1	8,35
Sensor wire 1,5 m with RJ45 connector	628785	AS1	5,90
Sensor wire 3 m with RJ45 connector	708852	AS1	7,60
Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,20
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## WRF06I

Flush-mounted sensor for motion detection in rooms. The WRF06I provides a relay contact for efficient light control or temperature reduction in unoccupied rooms. Especially designed for applications in residential and commercial buildings, offices and corridors. Available in different designs and colors of various switch frame manufacturers. The device is mounted in a flush-mounted standard EU box.



WRF06I Gira E2 pure white matt



WRF06I Jung AS 500 alpine white

### Technical Data

<b>Measured values</b>	motion
<b>Output switch contact</b>	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds
<b>Detection range</b>	cone-shaped, detection range, angle 110°/93°, 80 detection zones - at a distance of 2,8 m the detection area will be about 7x5 m, max. range 10 m
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	max. 0,5 W (24 V =), 1,1 VA (24 V ~)
<b>Enclosure</b>	central disc in design of the manufacturer (varies depending on switch range)
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	plug-in terminal, max. 1,5 mm <sup>2</sup>
<b>Switch ranges</b>	Berker, Busch-Jaeger, Feller, Gira, Jung, Merten, Peha
<b>Mounting</b>	flush-mounted in standard EU box (Ø=60 mm)
<b>Delivery content</b>	incl. frame

<b>Wall sensor motion</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
WRF06I Gira E2 pure white matt	187183	LM2	109,80	
WRF06I Berker S.1 polar white	223997	LM2	109,80	
WRF06I Busch-Jaeger Busch-balance® SI alpin white	630405	LM2	109,80	
WRF06I Busch-Jaeger Reflex SI alpin white	413350	LM2	109,80	
WRF06I Jung A 500 alpin white	630412	LM2	109,80	
WRF06I Merten M-Smart polar white brilliant	630429	LM2	109,80	

<b>Options</b>	<b>Switch ranges on page 369/370</b>
<b>Description</b>	<b>€</b>
Switch ranges plastic 55x55: alpin white/polar white/pure white/studio white, anthracite, aluminium (various manufacturers)	0,00
Switch ranges plastic in other colours or dimensions (various manufacturers)	12,50
Switch ranges stainless steel   glass   aluminium (various manufacturers)	40,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20	

**WRF04I**

Wall-mounted sensor for motion detection in rooms. The WRF04I provides a relay contact for efficient light control or temperature reduction in unoccupied rooms. Especially designed for application in residential and commercial buildings, offices and corridors. The sensor can be directly mounted on the wall, in a flush-mounted standard EU box or a surface-mounted frame (see „Accessories“).

**Technical Data**

<b>Measured values</b>	motion
<b>Output switch contact</b>	1x contact NO, load max. 1 A for 24 V =/~, floating with follow-up time 8 seconds
<b>Detection range</b>	cone-shaped, detection range, angle 110°/93°, 80 detection zones - at a distance of 2,8 m the detection area will be about 7x5 m, max. range 10 m
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	max. 0,5 W (24 V =), 1,1 VA (24 V ~)
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	-20..+50 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening, predetermined breaking point (bottom und top)
<b>Mounting</b>	flush-mounted on standard EU box (Ø=60 mm) surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

**Wall sensor motion relay**

Item description	Item No.	Group	€
WRF04I relay	195812	LM1	96,60

**Accessories**

Item description	Item No.	Group	€
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90
PSU-UP24 – flush-mounted power supply 24 V	645737	AS1	44,20
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20



## FSR01

Hygostat for ON/OFF control of ventilation and air conditioning, humidification and dehumidification equipment in rooms and office spaces, data centers, warehouses and similar applications.

### Technical Data

<b>Measured values</b>	relative humidity
<b>Operating functions</b>	threshold adjustment
<b>Operating elements</b>	rotary button
<b>Measuring range humidity</b>	30..100% rH non-condensing
<b>Enclosure</b>	PC
<b>Colour</b>	pure white
<b>Operating range temperature</b>	0..+60 °C
<b>Protection (IP)</b>	IP30, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> , cable entry via rear opening, predetermined breaking point (bottom und top)
<b>Mounting</b>	flush-mounted on standard EU box (Ø=60 mm) surface-mounted flat on base using screws or with frame for surface mounting (see accessories) base part can be mounted and wired separately

### Room hygostat on surface

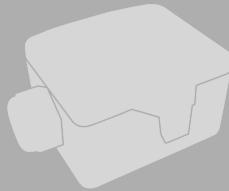
Item description	Item No.	Group	€
FSR01	427623	HU1	82,10
FSR01 internal adjuster	450607	HU1	84,20

### Accessories

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20

# Outdoor sensors

With our outdoor sensors, you always get the optimal solution for your application. Depending on type, the integrated sensor technology measures temperature, humidity, enthalpy, dew point, CO<sub>2</sub> and VOC content, brightness or atmospheric air pressure and makes our products incomparably flexible.



## Outdoor Sensors Climate / Air Quality

AGS54+	Temperature	214
AGS55+	Temperature	216
FTA54+	Temperature, humidity	220
WSA	Temperature, humidity	222
LA+	Temperature, humidity, CO <sub>2</sub> , VOC	224

## Outdoor Sensors Climate / Light

Li65+	Light, air pressure, temp., humidity	228
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## AGS54+

Passive sensor for temperature measurement in outdoor areas, cold rooms, greenhouses, production plants and warehouses. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



### Technical Data

Measured values	temperature
Configuration	jumper
Enclosure	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-35..+90 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Delivery content	incl. mounting base enclosure USE-S pure white, incl. mounting set (screws and accessories)

<b>Outdoor sensor temperature passive</b>				
<b>Item description</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
AGS54+ PT100	622837	≡	TP2	15,70
AGS54+ PT100 1/3 DIN	622844		TP2	19,80
AGS54+ PT1000	622851	≡	TP2	18,00
AGS54+ PT1000 1/3 DIN	622783		TP2	21,40
AGS54+ Ni1000	622806	≡	TP2	17,70
AGS54+ Ni1000TK5000	622813	≡	TP2	21,40
AGS54+ NTC10k	622790	≡	TP2	14,40
AGS54+ NTC10k Precon	622868		TP2	14,40
AGS54+ NTC5k	624275		TP2	14,40
AGS54+ NTC20k	622875	≡	TP2	14,40
AGS54+ NTC1,8k	643825		TP2	14,40
AGS54+ LM235Z	622820	≡	TP2	16,20
AGS54+ KTY81-110	622899		TP2	12,10
AGS54+ KTY81-121	622905		TP2	12,10
AGS54+ KTY81-122	622912		TP2	12,10
AGS54+ KTY81-210	622929		TP2	12,10

<b>Options</b>	
<b>Description</b>	<b>€</b>
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add to price of NTC10k for sensor NTC10k Carel	0,00
Add to price of NTC10k for sensor FeT/Staefa	24,30

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90	
Sun/rain protection RS150	103329	AS1	23,90	

## AGS55+

Outdoor temperature sensor with external stainless steel probe (fast response) for measuring temperature in outdoor areas, cold rooms, greenhouses, production plants and warehouses. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



AGS55+



AGS55+ relay / BUS



AGS55+ LCD

passive / 0..10 V / 4..20 mA   

### Technical Data

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer <b>TRV/TRA/Basic:</b> -50..+50 °C (default setting) <b>Relay/LCD/BUS:</b> -20..+80 °C (default setting)
<b>Power supply</b>	<b>TRV/Basic:</b> 15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV <b>TRA:</b> 15..24 V = ( $\pm 10\%$ ) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>Basic:</b> max. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe, Ø=6 mm, stainless steel V2A (1.4305)
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig <b>passive/TRV/TRA/Basic:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Operating range temperature</b>	-35..+90 °C
<b>Protection (IP)</b>	IP65, according to EN 60529

**Technical Data**

<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>passive/TRV/TRA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting set (screws and accessories) <b>passive/TRV/TRA/Basic:</b> incl. mounting base enclosure USE-S pure white <b>Relay/LCD/BUS:</b> incl. mounting base enclosure USE-M pure white

**AGS55+ passive**

Outdoor sensor temperature passive					
Item description	USeapp	Item No.	On stock	Group	€
AGS55+ PT100		622998	⌚	TP2	34,30
AGS55+ PT100 1/3 DIN		623001		TP2	38,40
AGS55+ PT1000		623018	⌚	TP2	36,60
AGS55+ PT1000 1/3 DIN		622943		TP2	40,00
AGS55+ Ni1000		622967		TP2	36,30
AGS55+ Ni1000TK5000		622974		TP2	40,00
AGS55+ NTC10k		622950		TP2	33,00
AGS55+ NTC10k Precon		623025		TP2	33,00
AGS55+ NTC5k		624268		TP2	33,00
AGS55+ NTC20k		623032		TP2	33,00
AGS55+ NTC1,8k		645812		TP2	33,00
AGS55+ LM235Z		622981		TP2	34,80
AGS55+ KTY81-110		623049		TP2	30,70
AGS55+ KTY81-121		623056		TP2	30,70
AGS55+ KTY81-122		623063		TP2	30,70
AGS55+ KTY81-210		623070		TP2	30,70

**Options**

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add to price of NTC10k for sensor NTC10k Carel	0,00
Add to price of NTC10k for sensor FeT/Staefa	24,30

**AGS55+ active**

<b>Outdoor sensor temperature active</b>					
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
AGS55+ TRV MultiRange		623087	●	TP2	79,30
AGS55+ TRA MultiRange		623094	●	TP2	79,30

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	

**AGS55+ Relay / LCD**

<b>Outdoor sensor temperature active 0..10 (0..5) V + relay</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
AGS55+ TRV MultiRange Relais	✓	663069	TP2	124,30

<b>Outdoor sensor temperature LCD</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
AGS55+ LCD TRV MultiRange	✓	658614	TP2	122,30
AGS55+ LCD TRA MultiRange	✓	658621	TP2	122,30
AGS55+ LCD TRV MultiRange Relais	✓	663076	TP2	167,30

**AGS55+ BUS**

<b>Outdoor sensor temperature BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
AGS55+ RS485 Modbus	✓	658584	TP2	110,90
AGS55+ LCD RS485 Modbus	✓	658607	TP2	153,90
AGS55+ RS485 BACnet (MS/TP)	✓	699686	TP2	110,90
AGS55+ LCD RS485 BACnet (MS/TP)	✓	699693	TP2	153,90
AGS55+ LON	✓	658577	TP2	186,80
AGS55+ Basic RS485 Modbus	✓	747844	TP2	79,30

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,35
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

**Accessories**

Item description	Item No.	Group	€
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
Sun/rain protection RS150	103329	AS1	23,90

## FTA54+

Outdoor sensor for measuring relative humidity and temperature in HVAC applications, greenhouses, industrial halls and in meteorology. The output can also be configured to measure absolute humidity, enthalpy or dew point. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers and an LCD with traffic light indication enable a wide range of applications. The accuracy of the humidity sensor is 2%. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



FTA54+



FTA54+ LCD

0..10 V / 4..20 mA

Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60   +50..+80   -20..+80   -15..+35 °C adjustable at the transducer, optionally configurable
<b>Measuring range humidity</b>	0..100 % rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Power supply</b>	<b>TRV/Basic:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 1 W (24 V =) <b>Basic:</b> max. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Pipe, PC, pure white, with filter stainless steel wire mesh
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Operating range temperature</b>	-20..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² <b>TRV/TRA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm

**Technical Data****Delivery content**

incl. mounting base enclosure USE-M pure white  
 incl. mounting set (screws and accessories)  
 incl. sun/rain protection PC, white

**FTA54+ active****Outdoor sensor humidity + temperature active**

Item description	USEapp	Item No.	On stock	Group	€
FTA54+ VV		659147	✉	HU1	168,40
FTA54+ AA		659154	✉	HU1	168,40
FTA54+ VV relay	✓	661003		HU1	213,40
FTA54+ LCD VV	✓	660983		HU1	211,40
FTA54+ LCD AA	✓	660990		HU1	211,40
FTA54+ LCD VV relay	✓	661010		HU1	256,40

**FTA54+ BUS****Outdoor sensor humidity + temperature BUS**

Item description	USEapp	Item No.	Group	€
FTA54+ RS485 Modbus	✓	659178	HU1	209,40
FTA54+ LCD RS485 Modbus	✓	661034	HU1	252,40
FTA54+ RS485 BACnet (MS/TP)	✓	700191	HU1	209,40
FTA54+ LCD RS485 BACnet (MS/TP)	✓	700214	HU1	252,40
FTA54+ Basic RS485 Modbus	✓	747752	HU1	168,40

**Options****Description**

Add for additional passive temperature sensor	15,10
Add to price of RS485 Modbus for LON FT	75,90

**Accessories****Item description****Item No.****Group****€**

Mounting base enclosure USE-M pure white	668354	AS1	8,35
Mounting kit universal for enclosure USE	698511	AS1	9,30
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30
Sun/rain protection RS150	103329	AS1	23,90
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70



## WSA

Weatherproof humidity and temperature sensor for outdoor applications. The radiation shield protects the sensors from rain, hail and radiated heat. The curved shape of the plates ensure that air can move across the sensors to keep radiated temperature from rooftops and other surrounding surfaces away and guarantee proper measurement. Typical applications are meteorology, greenhouses and industrial environments.

0..10 V / 4..20 mA   

Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output, -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C adjustable at the transducer, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point
<b>Power supply</b>	<b>VV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>AA:</b> 15..24 V = (±10%) SELV <b>BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>VV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>AA:</b> max. 1 W (24 V =) <b>BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Pipe, Ø=19,5 mm, PA6, with filter stainless steel wire mesh weather protection PC, stainless steel
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>VV/AA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-20..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm² BUS max. 1,5 mm², relay max. 1,5 mm² <b>VV/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Mounting</b>	mounting at the wall or at a pole
<b>Delivery content</b>	incl. mounting set (screws and accessories)

## WSA active

Weather protected outdoor sensor humidity + temperature active				
Item description	USEapp	Item No.	Group	€
WSA VV	✓	626408	HU2	272,20
WSA AA	✓	626415	HU2	272,20

Options				
Description	€			
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00			
Add for additional passive temperature sensor	15,10			

## WSA BUS

Weather protected outdoor sensor humidity + temperature BUS				
Item description	USEapp	Item No.	Group	€
WSA temp_rh RS485 Modbus	✓	626439	HU1	313,20
WSA temp_rh RS485 BACnet (MS/TP)	✓	700184	HU1	313,20

Options				
Description	€			
Add to price of RS485 Modbus for LON FT	75,90			
LCD 29x35 mm, RGB backlight	43,00			

Accessories				
Item description	Item No.	Group	€	
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30	
Weather protection for FTK+, WSA (replacement)	625241	AS1	71,80	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

## LA+

Air quality sensor for measuring CO<sub>2</sub>, mixed gas (VOC), optionally temperature and humidity outdoors and in areas requiring high IP protection class (e.g. underground stations, tunnels, exhibition halls, cold chains and greenhouses as well as in production halls and warehouses). For devices with CO<sub>2</sub> and VOC, every output can be configured to be a mixed output (selectable ratio between CO<sub>2</sub> and VOC). Devices with a relay option can be used as 2-point controllers or 2-stage controllers.



LA+ CO2 Temp\_rH



LA+ CO2 Temp\_rH LCD

0..10 V / 4..20 mA    LON

### Technical Data

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO <sub>2</sub> , VOC
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type) CO <sub>2</sub> +VOC: each output can be set to get a variable mix of CO <sub>2</sub> and VOC by configuration via app or uConfig
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: 0..+50 °C (default setting), selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m <sup>3</sup> absolute humidity, 0..+50   -20..+80 °C dew point
<b>Measuring range CO<sub>2</sub></b>	0..2000 ppm, 0..5000 ppm
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor, self-calibration
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV A/AA: 15..35 V = SELV
<b>Power consumption</b>	max. 2,5 W (24 V =), 4,3 VA (24 V ~) A/AA: max. 2,5 W (24 V =)
<b>Material in touch with media</b>	<b>Temp:</b> Sensor probe, stainless steel V2A (1.4305) <b>Temp+rH:</b> Pipe, PC, with filter stainless steel wire mesh
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, for example to display the air quality, optionally configurable via app or uConfig
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover

Technical Data	
Operating range temperature	0..+50 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>V/VV/3xV/A/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories) incl. sun/rain protection PC, white
Notes	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...)

## LA+ CO2

Outdoor sensor CO2 active				
Item description	USEapp	Item No.	Group	€
LA+ CO2 V		690171	AQ1	230,40
LA+ CO2 A	✓	693424	AQ1	230,40
LA+ CO2 temp VV	✓	700542	AQ1	288,80
LA+ CO2 temp AA	✓	700559	AQ1	288,80
LA+ CO2 temp VV relay	✓	700566	AQ1	333,80
LA+ CO2 temp_rH 3xV	✓	700573	AQ1	341,50

Options				
Description	€			
LCD 29x35 mm, RGB backlight	43,00			

Outdoor sensor CO2 BUS				
Item description	USEapp	Item No.	Group	€
LA+ CO2 RS485 Modbus	✓	698719	AQ1	281,90
LA+ CO2 RS485 BACnet (MS/TP)	✓	700580	AQ1	281,90
LA+ CO2 temp RS485 Modbus	✓	700634	AQ1	333,00
LA+ CO2 temp RS485 BACnet (MS/TP)	✓	700641	AQ1	333,00

Options	€
Description	€
Add for additional outdoor humidity sensor	52,70
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

## LA+ VOC

Outdoor sensor VOC active				
Item description	USEapp	Item No.	Group	€
LA+ VOC V	✓	698405	AQ1	211,00
LA+ VOC A	✓	698412	AQ1	211,00
LA+ VOC temp VV	✓	698399	AQ1	269,30
LA+ VOC temp AA	✓	698429	AQ1	269,30
LA+ VOC temp VV relay	✓	703086	AQ1	314,30
LA+ VOC temp_rH 3xV	✓	703093	AQ1	322,00

Options	€
Description	€
LCD 29x35 mm, RGB backlight	43,00

Outdoor sensor VOC BUS				
Item description	USEapp	Item No.	Group	€
LA+ VOC RS485 Modbus	✓	700597	AQ1	260,90
LA+ VOC RS485 BACnet (MS/TP)	✓	700603	AQ1	260,90
LA+ VOC temp RS485 Modbus	✓	703154	AQ1	313,50
LA+ VOC temp RS485 BACnet (MS/TP)	✓	703161	AQ1	313,50

Options	€
Description	€
Add for additional outdoor humidity sensor	52,70
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

**LA+ CO2+VOC**

Outdoor sensor CO2 + VOC or mix active				
Item description	USEapp	Item No.	Group	€
LA+ CO2+VOC VV	✓	698993	AQ1	364,50
LA+ CO2+VOC AA	✓	699006	AQ1	364,50
LA+ CO2+VOC VV relay	✓	700535	AQ1	409,50

Options				
Description	€			
Add for additional passive temperature sensor	15,10			
Add for additional outdoor humidity sensor	52,70			
LCD 29x35 mm, RGB backlight	43,00			

Outdoor sensor CO2 + VOC or mix BUS				
Item description	USEapp	Item No.	Group	€
LA+ CO2+VOC RS485 Modbus	✓	700610	AQ1	383,90
LA+ CO2+VOC RS485 BACnet (MS/TP)	✓	700627	AQ1	383,90
LA+ CO2+VOC temp_rH RS485 Modbus	✓	700658	AQ1	412,30
LA+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	700665	AQ1	412,30

Options				
Description	€			
Add for additional passive temperature sensor	15,10			
Add to price of RS485 Modbus for LON FT	75,90			
LCD 29x35 mm, RGB backlight	43,00			

Accessories				
Item description	Item No.	Group	€	
Mounting base enclosure USE-M pure white	668354	AS1	8,35	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

**Li65+**

Outdoor sensor for measuring light, temperature, humidity and atmospheric pressure in outdoor areas, greenhouses, warehouses or industrial halls. The device has an integrated ambient light sensor with a precise optical filter adapted to the spectral sensitivity of human eyes. Relay outputs for a 2-point controller or a 2-stage 2-point controller allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



Li65+



Li65+ Temp



Li65+ Temp\_rH

0..10 V / 4..20 mA

**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, luminosity, atmospheric pressure
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C, adjustable at the transducer
<b>Measuring range humidity</b>	0..100% rH non-condensing
<b>Measuring range light</b>	0..1000 lux (default setting) selectable from 6 ranges 0..200 lux   0..1000 lux   0..2 klux   0..10 klux   0..20 klux   0..50 klux
<b>Measuring range atm. pressure</b>	500..1500 hPa
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	typ. 0,6 W (24 V =), 1,2 VA (24 V ~)
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, translucent cover PC
<b>Operating range temperature</b>	-30..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>V/VV/3xV/4xV/A/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm, <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting base enclosure USE-M pure white incl. mounting set (screws and accessories)

**Li65+ active**

Outdoor sensor light active					
Item description	USEapp	Item No.	On stock	Group	€
Li65+ V	✓	662680	✉	LM2	133,50
Li65+ A	✓	662697	✉	LM2	133,50

Outdoor sensor light + temperature active					
Item description	USEapp	Item No.	Group	€	
Li65+ temp VV	✓	700672	LM1	152,50	
Li65+ temp AA	✓	700689	LM1	152,50	
Li65+ temp VV relay	✓	707305	LM1	193,70	

Outdoor sensor light + temperature + humidity + atmospheric pressure active					
Item description	USEapp	Item No.	Group	€	
Li65+ temp_rH_3xV	✓	700696	LM1	206,60	
Li65+ temp_rH_hPa_4xV	✓	700702	LM1	227,60	

Accessories					
Item description	Item No.	Group	€		
Mounting base enclosure USE-M pure white	668354	AS1	8,35		
Mounting kit universal for enclosure USE	698511	AS1	9,30		
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80		
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70		

## **Li65+ BUS**

<b>Outdoor sensor light + temperature BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Li65+ temp RS485 Modbus	✓	700733	LM1	181,40
Li65+ temp RS485 BACnet (MS/TP)	✓	700740	LM1	181,40

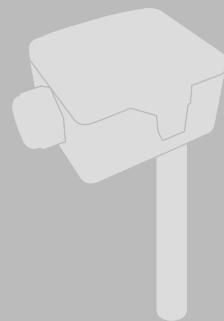
<b>Outdoor sensor light + temperature + humidity + atmospheric pressure BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Li65+ temp_rH RS485 Modbus	✓	700757	LM1	235,50
Li65+ temp_rH RS485 BACnet (MS/TP)	✓	700764	LM1	235,50
Li65+ temp_rH_hPa RS485 Modbus	✓	700771	LM1	256,50
Li65+ temp_rH_hPa RS485 BACnet (MS/TP)	✓	700788	LM1	256,50

<b>Options</b>			
<b>Description</b>			<b>€</b>
Add to price of RS485 Modbus for LON FT			75,90

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
Mounting base enclosure USE-M pure white		668354	AS1	8,35
Mounting kit universal for enclosure USE		698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO		668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD		597838	AS1	36,70

# Duct Sensors

Our duct and immersion sensors reliably measure and monitor temperature, humidity content or air quality in ducts or pipes of heating, ventilation and air conditioning systems.



## Duct Sensors Climate / Air Quality

AKF10+	Temperature	232
SFK02+	Temperature	240
SFK02+ FR	Temperature	247
MWF+	Temperature	251
MWF400+	Temperature	254
KFK01	Temperature	257
SFK01	Temperature	260
KFK03	Temperature	262
SFK03	Temperature	267
RG03	Temperature	271
RGS03	Temperature	272
FTK+	Temperature, humidity	273
LK+	CO <sub>2</sub> , VOC, temperature, humidity	277

## Duct Hygrostats

FSK01	Humidity	285
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## **AKF10+**

Duct sensor for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). Combined with a thermowell pocket, it can be used as an immersion temperature sensor as well. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



AKF10+



AKF10+



AKF10+ relay / BUS



AKF10+ LCD

**Technical Data**

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C <b>TRV/TRA:</b> 0..+160 °C (default setting) <b>Relay/LCD/BUS:</b> -20..+80 °C (default setting)
<b>Power supply</b>	<b>TRV/Basic:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>Basic:</b> max. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe: Ø=6 mm, stainless steel V4A (1.4571)
<b>Installation length</b>	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 450 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>passive/TRA/Basic:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-80..+260 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>passive/TRA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting set (screws and accessories) <b>passive/TRA/Basic:</b> incl. mounting clip enclosure USE-S pure white <b>Relay/LCD/BUS:</b> incl. mounting flange MF6DS flexible

## AKF10+ passive

Duct/immersion sensor -50..+150 °C – NTC10k TP3		
Item description	Item No.	€
AKF10+ NTC10k 050.06	620864	32,40
AKF10+ NTC10k 100.06	620871	33,70
AKF10+ NTC10k 150.06	620888	35,00
AKF10+ NTC10k 200.06	620895	35,60
AKF10+ NTC10k 250.06	620901	37,30
AKF10+ NTC10k 300.06	620918	38,50
AKF10+ NTC10k 450.06	620925	40,30

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B TP3		
Item description	Item No.	€
AKF10+ PT100 050.06	621175	33,70
AKF10+ PT100 100.06	621182	35,00
AKF10+ PT100 150.06	621199	36,30
AKF10+ PT100 200.06	621205	36,90
AKF10+ PT100 250.06	621212	38,60
AKF10+ PT100 300.06	621229	39,80
AKF10+ PT100 450.06	621236	41,60

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN TP3		
Item description	Item No.	€
AKF10+ PT100 1/3 DIN 050.06	621243	37,80
AKF10+ PT100 1/3 DIN 100.06	621250	39,10
AKF10+ PT100 1/3 DIN 150.06	621267	40,40
AKF10+ PT100 1/3 DIN 200.06	621274	41,00
AKF10+ PT100 1/3 DIN 250.06	621281	42,70
AKF10+ PT100 1/3 DIN 300.06	621298	43,90
AKF10+ PT100 1/3 DIN 450.06	621304	45,70

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B TP3		
Item description	Item No.	€
AKF10+ PT1000 050.06	621311	36,00
AKF10+ PT1000 100.06	621328	37,30
AKF10+ PT1000 150.06	621335	38,60
AKF10+ PT1000 200.06	621342	39,20
AKF10+ PT1000 250.06	621359	40,90
AKF10+ PT1000 300.06	621366	42,10
AKF10+ PT1000 450.06	621373	43,90

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN TP3		
Item description	Item No.	€
AKF10+ PT1000 1/3 DIN 050.06	620796	39,40
AKF10+ PT1000 1/3 DIN 100.06	620802	40,70
AKF10+ PT1000 1/3 DIN 150.06	620819	42,00
AKF10+ PT1000 1/3 DIN 200.06	620826	42,60
AKF10+ PT1000 1/3 DIN 250.06	620833	44,30
AKF10+ PT1000 1/3 DIN 300.06	620840	45,50
AKF10+ PT1000 1/3 DIN 450.06	620857	47,30

Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B TP3		
Item description	Item No.	€
AKF10+ Ni1000 050.06	620932	35,70
AKF10+ Ni1000 100.06	620949	37,00
AKF10+ Ni1000 150.06	620956	38,30
AKF10+ Ni1000 200.06	620963	38,90
AKF10+ Ni1000 250.06	620970	40,60
AKF10+ Ni1000 300.06	620987	41,80
AKF10+ Ni1000 450.06	620994	43,60

Duct/immersion sensor -50..+160 °C – Ni1000TK5000 TP3		
Item description	Item No.	€
AKF10+ Ni1000TK5000 050.06	621007	39,40
AKF10+ Ni1000TK5000 100.06	621014	40,70
AKF10+ Ni1000TK5000 150.06	621021	42,00
AKF10+ Ni1000TK5000 200.06	621038	42,60
AKF10+ Ni1000TK5000 250.06	621045	44,30
AKF10+ Ni1000TK5000 300.06	621052	45,50
AKF10+ Ni1000TK5000 450.06	621069	47,30

Options	€
Description	€
3-wire connection -50..+160 °C (3-wire)	2,10
4-wire connection -50..+160 °C (4-wire)	5,80
Temperature -80..+260 °C (T260)	11,50
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor DS18B20 1-wire	1,30
Add to price of NTC10k for sensor FeT/Staefa	24,30

## AKF10+ active

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V					
Item description	USEapp	Item No.	On stock	Group	€
AKF10+ TRV MultiRange 050.06		621595		TP3	78,20
AKF10+ TRV MultiRange 100.06		621601	≡	TP3	79,20
AKF10+ TRV MultiRange 150.06		621618	≡	TP3	80,10
AKF10+ TRV MultiRange 200.06		621625	≡	TP3	80,50
AKF10+ TRV MultiRange 250.06		621632		TP3	81,90
AKF10+ TRV MultiRange 300.06		621649		TP3	82,80
AKF10+ TRV MultiRange 450.06		621656		TP3	84,00

Duct/immersion sensor -50..+160 °C active 4..20 mA					
Item description	USEapp	Item No.	On stock	Group	€
AKF10+ TRA MultiRange 050.06		621663		TP3	78,20
AKF10+ TRA MultiRange 100.06		621670	≡	TP3	79,20
AKF10+ TRA MultiRange 150.06		621687	≡	TP3	80,10
AKF10+ TRA MultiRange 200.06		621694	≡	TP3	80,50
AKF10+ TRA MultiRange 250.06		621700		TP3	81,90
AKF10+ TRA MultiRange 300.06		621717		TP3	82,80
AKF10+ TRA MultiRange 450.06		621724		TP3	84,00

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V + relay					
Item description	USEapp	Item No.	Group	€	
AKF10+ TRV MultiRange 050.06 relay	✓	663304	TP2	150,70	
AKF10+ TRV MultiRange 100.06 relay	✓	663311	TP2	151,70	
AKF10+ TRV MultiRange 150.06 relay	✓	663328	TP2	152,60	
AKF10+ TRV MultiRange 200.06 relay	✓	663335	TP2	153,00	
AKF10+ TRV MultiRange 250.06 relay	✓	663342	TP2	154,40	
AKF10+ TRV MultiRange 300.06 relay	✓	663359	TP2	155,30	
AKF10+ TRV MultiRange 450.06 relay	✓	663366	TP2	156,50	

## » Duct Sensors – Duct Sensors Climate+Air Quality

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V LCD				
Item description	USEapp	Item No.	Group	€
AKF10+ LCD TRV MultiRange 050.06	✓	663380	TP2	152,20
AKF10+ LCD TRV MultiRange 100.06	✓	663397	TP2	153,20
AKF10+ LCD TRV MultiRange 150.06	✓	663403	TP2	154,10
AKF10+ LCD TRV MultiRange 200.06	✓	663410	TP2	154,50
AKF10+ LCD TRV MultiRange 250.06	✓	663427	TP2	155,90
AKF10+ LCD TRV MultiRange 300.06	✓	663434	TP2	156,80
AKF10+ LCD TRV MultiRange 450.06	✓	663441	TP2	158,00

Duct/immersion sensor -50..+160 °C active 4..20 mA LCD				
Item description	USEapp	Item No.	Group	€
AKF10+ LCD TRA MultiRange 050.06	✓	663526	TP2	152,20
AKF10+ LCD TRA MultiRange 100.06	✓	663533	TP2	153,20
AKF10+ LCD TRA MultiRange 150.06	✓	663540	TP2	154,10
AKF10+ LCD TRA MultiRange 200.06	✓	663557	TP2	154,50
AKF10+ LCD TRA MultiRange 250.06	✓	663564	TP2	155,90
AKF10+ LCD TRA MultiRange 300.06	✓	663571	TP2	156,80
AKF10+ LCD TRA MultiRange 450.06	✓	663588	TP2	158,00

Duct/immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD				
Item description	USEapp	Item No.	Group	€
AKF10+ LCD TRV MultiRange 050.06 relay	✓	663458	TP2	151,30
AKF10+ LCD TRV MultiRange 100.06 relay	✓	663465	TP2	152,30
AKF10+ LCD TRV MultiRange 150.06 relay	✓	663472	TP2	153,20
AKF10+ LCD TRV MultiRange 200.06 relay	✓	663489	TP2	153,60
AKF10+ LCD TRV MultiRange 250.06 relay	✓	663496	TP2	155,00
AKF10+ LCD TRV MultiRange 300.06 relay	✓	663502	TP2	155,90
AKF10+ LCD TRV MultiRange 450.06 relay	✓	663519	TP2	157,10

Options				
Description				€
Temperature -80..+260 °C (T260)				11,50

**AKF10+ BUS**

Duct/immersion sensor -50..+160 °C RS485 Modbus				
Item description	USEapp	Item No.	Group	€
AKF10+ RS485 Modbus 050.06	✓	621823	TP2	111,80
AKF10+ RS485 Modbus 100.06	✓	621830	TP2	112,80
AKF10+ RS485 Modbus 150.06	✓	621847	TP2	113,80
AKF10+ RS485 Modbus 200.06	✓	621854	TP2	114,20
AKF10+ RS485 Modbus 250.06	✓	621861	TP2	115,60
AKF10+ RS485 Modbus 300.06	✓	621878	TP2	116,40
AKF10+ RS485 Modbus 450.06	✓	621885	TP2	117,70

Duct/immersion sensor -50..+160 °C RS485 Modbus LCD				
Item description	USEapp	Item No.	Group	€
AKF10+ LCD RS485 Modbus 050.06	✓	663618	TP2	154,80
AKF10+ LCD RS485 Modbus 100.06	✓	663625	TP2	155,80
AKF10+ LCD RS485 Modbus 150.06	✓	663632	TP2	156,80
AKF10+ LCD RS485 Modbus 200.06	✓	663649	TP2	157,20
AKF10+ LCD RS485 Modbus 250.06	✓	663656	TP2	158,60
AKF10+ LCD RS485 Modbus 300.06	✓	663663	TP2	159,40
AKF10+ LCD RS485 Modbus 450.06	✓	663670	TP2	160,70

Duct/immersion sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	USEapp	Item No.	Group	€
AKF10+ RS485 BACnet 050.06	✓	699174	TP2	111,80
AKF10+ RS485 BACnet 100.06	✓	699181	TP2	112,80
AKF10+ RS485 BACnet 150.06	✓	683838	TP2	113,80
AKF10+ RS485 BACnet 200.06	✓	699198	TP2	114,20
AKF10+ RS485 BACnet 250.06	✓	699204	TP2	115,60
AKF10+ RS485 BACnet 300.06	✓	699211	TP2	116,40
AKF10+ RS485 BACnet 450.06	✓	699228	TP2	117,70

Duct/immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD				
Item description	USEapp	Item No.	Group	€
AKF10+ LCD RS485 BACnet 050.06	✓	699235	TP2	154,80
AKF10+ LCD RS485 BACnet 100.06	✓	699242	TP2	155,80
AKF10+ LCD RS485 BACnet 150.06	✓	682848	TP2	156,80
AKF10+ LCD RS485 BACnet 200.06	✓	699259	TP2	157,20
AKF10+ LCD RS485 BACnet 250.06	✓	699266	TP2	158,60
AKF10+ LCD RS485 BACnet 300.06	✓	699273	TP2	159,40
AKF10+ LCD RS485 BACnet 450.06	✓	699280	TP2	160,70

<b>Duct/immersion sensor -50..+160 °C Basic RS485 Modbus</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
AKF10+ Basic RS485 Modbus 050.06		747783	TP2	78,20
AKF10+ Basic RS485 Modbus 100.06		748032	TP2	79,20
AKF10+ Basic RS485 Modbus 150.06		747769	TP2	80,10
AKF10+ Basic RS485 Modbus 200.06		747790	TP2	80,50
AKF10+ Basic RS485 Modbus 250.06		748049	TP2	81,90
AKF10+ Basic RS485 Modbus 300.06		747776	TP2	82,80
AKF10+ Basic RS485 Modbus 450.06		748056	TP2	84,00

<b>Options</b>	
<b>Description</b>	<b>€</b>
Temperature -80..+260 °C (T260)	11,50

## **Accessories – passive / TRV / TRA**

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	
Mounting kit AKF10+ for enclosure USE-S	748551	AS1	7,20	

## **Accessories – Relay / LCD / BUS**

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting base enclosure USE-M pure white	668354	AS1	8,35	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

## Accessories

Accessories		Item No.	Group	€
Item description				
Mounting flange MF6DS flexible (suitable for Ø=6 mm)		669016	AS2	6,70
Mounting flange MF6 brass (suitable for Ø=6 mm)		3407	AS1	6,70
Syringe thermal contact fluid		102308	AS1	1,50
Mounting bracket with cable gland for duct sensors Ø=6 mm		670593	AS1	12,80

### Thermowells brass for sensors with pocket Ø=6 mm

Item description	Length	Inst. length	Item No.	On stock	Group	€
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	●	AS2	8,35
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,45
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	9,95
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2	10,40
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2	11,90
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2	12,30
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2	12,60

### Thermowells stainless steel for sensors with pocket Ø=6 mm

Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	●	AS2	18,10
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	19,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	21,50
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2	22,60
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2	28,00
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2	29,40
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2	30,30
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	19,20

## SFK02+

Immersion sensor for temperature measurement of gases and liquids in HVAC applications. The sensor can be optionally screwed directly into a bonded pocket (see accessories). Types SFKH02+ with a 70 mm neck pipe are designed for applications with insulation materials. The measuring insert can be exchanged without disassembling the entire sensor. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



SFK02+



SFKH02+



SFK02+ relay / BUS



SFK02+ LCD



SFKH02+ relay / BUS

**Technical Data**

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: <b>TRV/TRA:</b> 0..+160 °C (default setting) <b>Relay/LCD/BUS:</b> -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>TRV/Basic:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> max. 0,5 W (24 V =) <b>Basic:</b> typ. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe, Ø=8 mm, stainless steel V4A (1.4571), G1/2" Neck pipe (optionally): stainless steel V2A (1.4305), Ø=12 mm, length 70 mm
<b>Installation length</b>	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 450 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>passive/TRV/TRA/Basic:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>passive/TRV/TRA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting set (screws and accessories)

## » Duct Sensors – Duct Sensors Climate+Air Quality

Immersion sensor -50..+150 °C – NTC10k			TP2
Item description	Item No.	€	
SFK02+ NTC10k 050.08	622004	42,20	
SFK02+ NTC10k 100.08	622011	43,00	
SFK02+ NTC10k 150.08	622028	44,80	
SFK02+ NTC10k 200.08	622035	46,90	
SFK02+ NTC10k 250.08	622042	48,50	
SFK02+ NTC10k 450.08	622059	51,10	

Immersion sensor -50..+160 °C – PT100 DIN KI. B			TP2
Item description	Item No.	€	
SFK02+ PT100 050.08	622295	43,50	
SFK02+ PT100 100.08	622301	44,30	
SFK02+ PT100 150.08	622318	46,10	
SFK02+ PT100 200.08	622325	48,20	
SFK02+ PT100 250.08	622332	49,80	
SFK02+ PT100 450.08	622349	52,40	

Immersion sensor -50..+160 °C – PT100 1/3 DIN			TP2
Item description	Item No.	€	
SFK02+ PT100 1/3 DIN 050.08	622356	47,60	
SFK02+ PT100 1/3 DIN 100.08	622363	48,40	
SFK02+ PT100 1/3 DIN 150.08	622370	50,20	
SFK02+ PT100 1/3 DIN 200.08	622387	52,30	
SFK02+ PT100 1/3 DIN 250.08	622394	53,90	
SFK02+ PT100 1/3 DIN 450.08	622400	56,50	

Immersion sensor -50..+160 °C – PT1000 DIN KI. B			TP2
Item description	Item No.	€	
SFK02+ PT1000 050.08	622417	45,80	
SFK02+ PT1000 100.08	622424	46,60	
SFK02+ PT1000 150.08	622431	48,40	
SFK02+ PT1000 200.08	622448	50,50	
SFK02+ PT1000 250.08	622455	52,10	
SFK02+ PT1000 450.08	622462	54,70	

Immersion sensor -50..+160 °C – PT1000 1/3 DIN			TP2
Item description	Item No.	€	
SFK02+ PT1000 1/3 DIN 050.08	621946	49,20	
SFK02+ PT1000 1/3 DIN 100.08	621953	50,00	
SFK02+ PT1000 1/3 DIN 150.08	621960	51,80	
SFK02+ PT1000 1/3 DIN 200.08	621977	53,90	
SFK02+ PT1000 1/3 DIN 250.08	621984	55,50	
SFK02+ PT1000 1/3 DIN 450.08	621991	58,10	

Immersion sensor -50..+160 °C – Ni1000 DIN KI. B			TP2
Item description	Item No.	€	
SFK02+ Ni1000 050.08	622080	45,50	
SFK02+ Ni1000 100.08	622097	46,30	
SFK02+ Ni1000 150.08	622103	48,10	
SFK02+ Ni1000 200.08	622110	50,20	
SFK02+ Ni1000 250.08	622127	51,80	
SFK02+ Ni1000 450.08	622141	54,40	

Immersion sensor -50..+160 °C – Ni1000TK5000			TP2
Item description	Item No.	€	
SFK02+ Ni1000TK5000 050.08	622158	49,20	
SFK02+ Ni1000TK5000 100.08	622165	50,00	
SFK02+ Ni1000TK5000 150.08	622189	51,80	
SFK02+ Ni1000TK5000 200.08	622196	53,90	
SFK02+ Ni1000TK5000 250.08	622202	55,50	
SFK02+ Ni1000TK5000 450.08	622219	58,10	

Options	€
Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Temperature -80..+260 °C (T260)	11,50
Neck pipe 70.12 (for applications with insulation materials)	21,60
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor FeT/Staefa	24,30
Price reduction to NTC10k for sensor KTY81-110   KTY81-121   KTY81-122   KTY81-210	-2,30

Immersion sensor -50..+160 °C active 0..10 (0..5) V				
Item description	USEapp	Item No.	Group	€
SFK02+ TRV MultiRange 050.08		622592	TP2	90,00
SFK02+ TRV MultiRange 100.08		622608	TP2	90,70
SFK02+ TRV MultiRange 150.08		622615	TP2	92,00
SFK02+ TRV MultiRange 200.08		622622	TP2	93,80
SFK02+ TRV MultiRange 250.08		622639	TP2	94,90
SFK02+ TRV MultiRange 450.08		622646	TP2	96,90

Immersion sensor -50..+160 °C active 4..20 mA				
Item description	USEapp	Item No.	Group	€
SFK02+ TRA MultiRange 050.08		622653	TP2	90,00
SFK02+ TRA MultiRange 100.08		622660	TP2	90,70
SFK02+ TRA MultiRange 150.08		622677	TP2	92,00
SFK02+ TRA MultiRange 200.08		622684	TP2	93,80
SFK02+ TRA MultiRange 250.08		622691	TP2	94,90
SFK02+ TRA MultiRange 450.08		622707	TP2	96,90

Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay				
Item description	USEapp	Item No.	Group	€
SFK02+ TRV MultiRange 050.08 relay	✓	665568	TP2	135,00
SFK02+ TRV MultiRange 100.08 relay	✓	665575	TP2	135,70
SFK02+ TRV MultiRange 150.08 relay	✓	665582	TP2	137,00
SFK02+ TRV MultiRange 200.08 relay	✓	665599	TP2	138,80
SFK02+ TRV MultiRange 250.08 relay	✓	665605	TP2	139,90
SFK02+ TRV MultiRange 450.08 relay	✓	665612	TP2	141,90

<b>Immersion sensor -50..+160 °C active 0..10 (0..5) V LCD</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SFK02+ LCD TRV MultiRange 050.08	✓	665476	TP2	133,00
SFK02+ LCD TRV MultiRange 100.08	✓	665483	TP2	133,70
SFK02+ LCD TRV MultiRange 150.08	✓	665490	TP2	135,00
SFK02+ LCD TRV MultiRange 200.08	✓	665506	TP2	136,80
SFK02+ LCD TRV MultiRange 250.08	✓	665513	TP2	137,90
SFK02+ LCD TRV MultiRange 450.08	✓	665520	TP2	139,90

<b>Immersion sensor -50..+160 °C active 4..20 mA LCD</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SFK02+ LCD TRA MultiRange 050.08	✓	665681	TP2	133,00
SFK02+ LCD TRA MultiRange 100.08	✓	665698	TP2	133,70
SFK02+ LCD TRA MultiRange 150.08	✓	665704	TP2	135,00
SFK02+ LCD TRA MultiRange 200.08	✓	665711	TP2	136,80
SFK02+ LCD TRA MultiRange 250.08	✓	665728	TP2	137,90
SFK02+ LCD TRA MultiRange 450.08	✓	665735	TP2	139,90

<b>Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
SFK02+ LCD TRV MultiRange 050.08 relay	✓	665629	TP2	178,00
SFK02+ LCD TRV MultiRange 100.08 relay	✓	665636	TP2	178,70
SFK02+ LCD TRV MultiRange 150.08 relay	✓	665643	TP2	180,00
SFK02+ LCD TRV MultiRange 200.08 relay	✓	665650	TP2	181,80
SFK02+ LCD TRV MultiRange 250.08 relay	✓	665667	TP2	182,90
SFK02+ LCD TRV MultiRange 450.08 relay	✓	665674	TP2	184,90

<b>Options</b>				
<b>Description</b>	<b>€</b>			
Temperature -80..+260 °C (T260)	11,50			
Neck pipe 70.12 (for applications with insulation materials)	21,60			

**Immersion sensor -50..+160 °C RS485 Modbus**

Item description	USEapp	Item No.	Group	€
SFK02+ RS485 Modbus 050.08	✓	665742	TP2	124,40
SFK02+ RS485 Modbus 100.08	✓	665759	TP2	125,00
SFK02+ RS485 Modbus 150.08	✓	665766	TP2	126,40
SFK02+ RS485 Modbus 200.08	✓	665773	TP2	128,20
SFK02+ RS485 Modbus 250.08	✓	665780	TP2	129,20
SFK02+ RS485 Modbus 450.08	✓	665797	TP2	131,40

**Immersion sensor -50..+160 °C RS485 Modbus LCD**

Item description	USEapp	Item No.	Group	€
SFK02+ LCD RS485 Modbus 050.08	✓	665803	TP2	167,40
SFK02+ LCD RS485 Modbus 100.08	✓	665810	TP2	168,00
SFK02+ LCD RS485 Modbus 150.08	✓	665827	TP2	169,40
SFK02+ LCD RS485 Modbus 200.08	✓	665834	TP2	171,20
SFK02+ LCD RS485 Modbus 250.08	✓	665841	TP2	172,20
SFK02+ LCD RS485 Modbus 450.08	✓	665858	TP2	174,40

**Immersion sensor -50..+160 °C RS485 BACnet (MS/TP)**

Item description	USEapp	Item No.	Group	€
SFK02+ RS485 BACnet (MS/TP) 050.08	✓	699389	TP2	124,40
SFK02+ RS485 BACnet (MS/TP) 100.08	✓	699396	TP2	125,00
SFK02+ RS485 BACnet (MS/TP) 150.08	✓	699402	TP2	126,40
SFK02+ RS485 BACnet (MS/TP) 200.08	✓	699419	TP2	128,20
SFK02+ RS485 BACnet (MS/TP) 250.08	✓	699426	TP2	129,20
SFK02+ RS485 BACnet (MS/TP) 450.08	✓	699433	TP2	131,40

**Immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD**

Item description	USEapp	Item No.	Group	€
SFK02+ LCD RS485 BACnet (MS/TP) 050.08	✓	699440	TP2	167,40
SFK02+ LCD RS485 BACnet (MS/TP) 100.08	✓	699457	TP2	168,00
SFK02+ LCD RS485 BACnet (MS/TP) 150.08	✓	699464	TP2	169,40
SFK02+ LCD RS485 BACnet (MS/TP) 200.08	✓	699471	TP2	171,20
SFK02+ LCD RS485 BACnet (MS/TP) 250.08	✓	699488	TP2	172,20
SFK02+ LCD RS485 BACnet (MS/TP) 450.08	✓	699495	TP2	174,40

<b>Immersion sensor -50..+160 °C Basic RS485 Modbus</b>					
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
SFK02+ Basic RS485 Modbus 050.08	✓	755986	TP2	90,00	
SFK02+ Basic RS485 Modbus 100.08	✓	747837	TP2	90,70	
SFK02+ Basic RS485 Modbus 150.08	✓	755993	TP2	92,00	
SFK02+ Basic RS485 Modbus 200.08	✓	756006	TP2	93,80	
SFK02+ Basic RS485 Modbus 250.08	✓	756013	TP2	94,90	
SFK02+ Basic RS485 Modbus 450.08	✓	756020	TP2	96,90	

<b>Options</b>					
<b>Description</b>	<b>€</b>				
Temperature -80..+260 °C (T260)	11,50				
Neck pipe 70.12 (for applications with insulation materials)	21,60				

<b>Accessories</b>					
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>		
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80		
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70		

<b>Bonded pockets</b>						
<b>Item description</b>	<b>Length</b>	<b>Inst. length</b>	<b>Item No.</b>	<b>On stock</b>	<b>Group</b>	<b>€</b>
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	58,90
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1	47,30
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1	54,20
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1	61,00
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1	67,10

## SFK02+ FR

Immersion sensor with Ø=4 mm pocket for a fast response and integrated thermowell for temperature measurement of gases and liquids in HVAC applications. Bonded pockets are available as well (see 'Accessories'). Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



SFK02+ FR



SFK02+ FR relay / BUS



SFK02+ FR LCD

passive / 0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: <b>TRV/TRA:</b> 0..+160 °C (default setting) <b>Relay/LCD/BUS:</b> -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV, <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> max. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe 50 mm: Ø=4 mm Sensor probe 100/200 mm: Ø=6 mm, end of sensor Ø=4 mm stainless steel V4A (1.4571), G1/2"
<b>Installation length</b>	50 mm, 100 mm, 200 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>passive/TRA/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover

Technical Data	
Operating range temperature	-50..+160 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>passive/TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting set (screws and accessories)

Immersion sensor -50..+150 °C – NTC10k			TP2
Item description	Item No.	€	
SFK02+ FR NTC10k 050.04	655545	45,40	
SFK02+ FR NTC10k 100.06/04	640725	46,20	
SFK02+ FR NTC10k 200.06/04	640763	50,10	

Immersion sensor -50..+160 °C – PT100 DIN Kl. B			TP2
Item description	Item No.	€	
SFK02+ FR PT100 050.04	665926	46,70	
SFK02+ FR PT100 100.06/04	665933	47,50	
SFK02+ FR PT100 200.06/04	665940	51,40	

Immersion sensor -50..+160 °C – PT100 1/3 DIN			TP2
Item description	Item No.	€	
SFK02+ FR PT100 1/3 DIN 050.04	665957	50,80	
SFK02+ FR PT100 1/3 DIN 100.06/04	665964	51,60	
SFK02+ FR PT100 1/3 DIN 200.06/04	665971	55,50	

Immersion sensor -50..+160 °C – PT1000 DIN Kl. B			TP2
Item description	Item No.	€	
SFK02+ FR PT1000 050.04	655583	49,00	
SFK02+ FR PT1000 100.06/04	638807	49,80	
SFK02+ FR PT1000 200.06/04	640749	53,70	

Immersion sensor -50..+160 °C – PT1000 1/3 DIN			TP2
Item description	Item No.	€	
SFK02+ FR PT1000 1/3 DIN 050.04	665988	52,40	
SFK02+ FR PT1000 1/3 DIN 100.06/04	665995	53,20	
SFK02+ FR PT1000 1/3 DIN 200.06/04	666008	57,10	

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B			TP2
Item description	Item No.	€	
SFK02+ FR Ni1000 050.04	666015	48,70	
SFK02+ FR Ni1000 100.06/04	657280	49,50	
SFK02+ FR Ni1000 200.06/04	666022	53,40	

Immersion sensor -50..+160 °C – Ni1000TK5000			TP2
Item description	Item No.	€	
SFK02+ FR Ni1000TK5000 050.04	655590	52,40	
SFK02+ FR Ni1000TK5000 100.06/04	640732	53,20	
SFK02+ FR Ni1000TK5000 200.06/04	640770	57,10	

Options		€
Description		€
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k		0,00
Add to price of NTC10k for sensor LM235Z		1,80
Add to price of NTC10k for sensor FeT/Staefa		24,30

**Immersion sensor -50..+160 °C active 0..10 (0..5) V**

Item description	USEapp	Item No.	Group	€
SFK02+ FR TRV MultiRange 050.04		655620	TP2	93,20
SFK02+ FR TRV MultiRange 100.06/04		645881	TP2	93,80
SFK02+ FR TRV MultiRange 200.06/04		655637	TP2	96,90

**Immersion sensor -50..+160 °C active 4..20 mA**

Item description	USEapp	Item No.	Group	€
SFK02+ FR TRA MultiRange 050.04		655606	TP2	93,20
SFK02+ FR TRA MultiRange 100.06/04		645867	TP2	93,80
SFK02+ FR TRA MultiRange 200.06/04		655613	TP2	96,90

**Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay**

Item description	USEapp	Item No.	Group	€
SFK02+ FR TRV MultiRange 050.04 relay	✓	666169	TP2	138,20
SFK02+ FR TRV MultiRange 100.06/04 relay	✓	666176	TP2	138,80
SFK02+ FR TRV MultiRange 200.06/04 relay	✓	666183	TP2	141,90

**Immersion sensor -50..+160 °C active 0..10 (0..5) V LCD**

Item description	USEapp	Item No.	Group	€
SFK02+ FR LCD TRV MultiRange 050.04	✓	666091	TP2	136,20
SFK02+ FR LCD TRV MultiRange 100.06/04	✓	666107	TP2	136,80
SFK02+ FR LCD TRV MultiRange 200.06/04	✓	666114	TP2	139,90

**Immersion sensor -50..+160 °C active 4..20 mA LCD**

Item description	USEapp	Item No.	Group	€
SFK02+ FR LCD TRA MultiRange 050.04	✓	666121	TP2	136,20
SFK02+ FR LCD TRA MultiRange 100.06/04	✓	666138	TP2	136,80
SFK02+ FR LCD TRA MultiRange 200.06/04	✓	666145	TP2	139,90

**Immersion sensor -50..+160 °C active 0..10 (0..5) V + relay LCD**

Item description	USEapp	Item No.	Group	€
SFK02+ FR LCD TRV MultiRange 050.04 relay	✓	666190	TP2	181,20
SFK02+ FR LCD TRV MultiRange 100.06/04 relay	✓	666206	TP2	181,80
SFK02+ FR LCD TRV MultiRange 200.06/04 relay	✓	666213	TP2	184,90

## » Duct Sensors – Duct Sensors Climate+Air Quality

Immersion sensor -50..+160 °C RS485 Modbus				
Item description	USEapp	Item No.	Group	€
SFK02+ FR RS485 Modbus 050.04	✓	666220	TP2	138,20
SFK02+ FR RS485 Modbus 100.06/04	✓	666237	TP2	138,80
SFK02+ FR RS485 Modbus 200.06/04	✓	666244	TP2	141,90

Immersion sensor -50..+160 °C RS485 Modbus LCD				
Item description	USEapp	Item No.	Group	€
SFK02+ FR LCD RS485 Modbus 050.04	✓	666251	TP2	181,20
SFK02+ FR LCD RS485 Modbus 100.06/04	✓	666268	TP2	181,80
SFK02+ FR LCD RS485 Modbus 200.06/04	✓	666275	TP2	184,90

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP)				
Item description	USEapp	Item No.	Group	€
SFK02+ FR RS485 BACnet (MS/TP) 050.04	✓	699501	TP2	138,20
SFK02+ FR RS485 BACnet (MS/TP) 100.06/04	✓	699518	TP2	138,80
SFK02+ FR RS485 BACnet (MS/TP) 200.06/04	✓	699525	TP2	141,90

Immersion sensor -50..+160 °C RS485 BACnet (MS/TP) LCD				
Item description	USEapp	Item No.	Group	€
SFK02+ FR LCD RS485 BACnet (MS/TP) 050.04	✓	699532	TP2	181,20
SFK02+ FR LCD RS485 BACnet (MS/TP) 100.06/04	✓	699549	TP2	181,80
SFK02+ FR LCD RS485 BACnet (MS/TP) 200.06/04	✓	699556	TP2	184,90

Options				
Description	€			
Add to price of RS485 Modbus for LON FT	75,90			

Accessories				
Item description	Item No.	Group	€	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

## MWF+

Duct sensor for measuring the average temperature in air ducts. The sensor measures the mean temperature value throughout the entire length. A spring at the connection head reduces vibrations. Mounting angles are included in the delivery content. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



MWF+ passive / active



MWF+ passive (NTCxx)



MWF+ relay / BUS



MWF+ LCD

passive / 0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable via app or uConfig
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Installation length</b>	3000 mm, 6000 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig  <b>passive/TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-50..+80 °C
<b>Protection (IP)</b>	IP65, according to EN 60529

**Technical Data**

<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> <b>passive/TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm, <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting flange incl. mounting set (screws and accessories) incl. installation set

<b>Duct averaging sensor -50..+80 °C</b>			TP1
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
MWF+ PT1000 L3000	620413	84,00	
MWF+ PT1000 L6000	620420	93,50	
MWF+ Ni1000 L3000	620437	84,00	
MWF+ Ni1000 L6000	620444	93,50	
MWF+ Ni1000TK5000 L3000	675888	84,00	
MWF+ Ni1000TK5000 L6000	674324	93,50	
MWF+ Ni891 L3000	699297	118,80	
MWF+ Ni891 L6000	699303	152,50	

<b>Duct averaging sensor 0..+50 °C</b>			TP1
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
MWF+ NTC10k L3000	670128	115,80	
MWF+ NTC10k L6000	670135	131,60	
MWF+ NTC10k Precon L3000	670142	115,80	
MWF+ NTC10k Precon L6000	670159	131,60	
MWF+ NTC20k L3000	670166	115,80	
MWF+ NTC20k L6000	670173	131,60	

<b>Duct averaging sensor temperature active 0..10 (0..5) V, 4..20 mA</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ TRV MultiRange L3000		620475	TP1	139,70
MWF+ TRV MultiRange L6000		620482	TP1	148,30
MWF+ TRA MultiRange L3000		620499	TP1	139,70
MWF+ TRA MultiRange L6000		620505	TP1	148,30

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
Mounting base enclosure USE-S pure white		667722	AS1	5,80
Mounting kit universal for enclosure USE		698511	AS1	9,30
Mounting flange MF6DS flexible (suitable for Ø=6 mm)		669016	AS2	6,70
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)		102360	AS1	6,70
Installation set TFR / MWF+		679466	AS1	8,90

<b>Duct averaging sensor temperature active 0..10 (0..5) V + relay</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ TRV MultiRange relay L3000	✓	662758	TP1	184,70
MWF+ TRV MultiRange relay L6000	✓	662765	TP1	193,30

<b>Duct averaging sensor temperature active 0..10 (0..5) V 4..20 mA</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ LCD TRV MultiRange L3000	✓	662772	TP1	182,70
MWF+ LCD TRV MultiRange L6000	✓	662789	TP1	191,30
MWF+ LCD TRA MultiRange L3000	✓	662796	TP1	182,70
MWF+ LCD TRA MultiRange L6000	✓	662802	TP1	191,30

<b>Duct averaging sensor temperature active 0..10 (0..5) V + relay</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ LCD TRV MultiRange relay L3000	✓	662819	TP1	227,70
MWF+ LCD TRV MultiRange relay L6000	✓	662826	TP1	236,30

<b>Duct averaging sensor temperature RS485 Modbus</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ RS485 Modbus L3000	✓	662833	TP1	184,70
MWF+ RS485 Modbus L6000	✓	662840	TP1	193,30
MWF+ LCD RS485 Modbus L3000	✓	662857	TP1	227,70
MWF+ LCD RS485 Modbus L6000	✓	662864	TP1	236,30

<b>Duct averaging sensor temperature RS485 BACnet (MS/TP)</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
MWF+ RS485 BACnet (MS/TP) L3000	✓	699310	TP1	184,70
MWF+ RS485 BACnet (MS/TP) L6000	✓	699327	TP1	193,30
MWF+ LCD RS485 BACnet (MS/TP) L3000	✓	699334	TP1	227,70
MWF+ LCD RS485 BACnet (MS/TP) L6000	✓	699341	TP1	236,30

<b>Accessories</b>				
<b>Item description</b>		<b>Item No.</b>	<b>Group</b>	<b>€</b>
Mounting base enclosure USE-M pure white		668354	AS1	8,35
Mounting kit universal for enclosure USE		698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO		668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD		597838	AS1	36,70
Mounting flange MF6DS flexible (suitable for Ø=6 mm)		669016	AS2	6,70
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)		102360	AS1	6,70
Installation set TFR / MWF+		679466	AS1	8,90

**MWF400+**

Duct sensor for measuring the average temperature in air ducts. The sensor measures the mean temperature value throughout the entire length. A spring at the connection head reduces vibrations. Mounting angles are included in the delivery content. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



MWF400+



MWF400+ relay / BUS

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
Power supply	TRV: 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV Relay/LCD/BUS: 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	TRV: typ. 0,4 W (24 V =), 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =) Relay/LCD/BUS: max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor rod, copper, bendable, Ø=4 mm Sensor neck, stainless steel V4A (1.4571), Ø=6 mm
Installation length	400 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	passive/TRV/TRA: USE-S, impact- and shock-resistant enclosure with quick-release cover, PC Relay/LCD/BUS: USE-M, impact- and shock-resistant enclosure with quick-release cover, PC

**Technical Data**

<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-30..+80 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>passive/TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting flange MF6DS flexible incl. mounting clip enclosure USE-S pure white incl. fixing kit rawlplugs and screws (2x each)

**Duct averaging sensor -30..+80 °C passive**

Item description	USEapp	Item No.	Group	€
MWF400+ PT100		654166	TP1	73,50
MWF400+ PT1000		660518	TP1	73,50
MWF400+ Ni1000		641395	TP1	73,50
MWF400+ Ni1000TK5000		641425	TP1	73,50
MWF400+ Ni891		699358	TP1	73,50
MWF400+ NTC10k		641449	TP1	71,60
MWF400+ NTC20k		670319	TP1	71,60
MWF400+ NTC1,8k		670333	TP1	71,60

**Duct averaging sensor -30..+80 °C active**

Item description	USEapp	Item No.	Group	€
MWF400+ TRV MultiRange		642088	TP1	129,10
MWF400+ TRA MultiRange		642095	TP1	129,10

**Accessories**

Item description	Item No.	Group	€
Mounting clip enclosure USE-S pure white	667739	AS1	4,90
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	6,70
Mounting kit universal for enclosure USE	698511	AS1	9,30

## » Duct Sensors – Duct Sensors Climate+Air Quality

Duct averaging sensor -30..+80 °C active 0..10 (0..5) V + relay				
Item description	USEapp	Item No.	Group	€
MWF400+ TRV MultiRange Relais	✓	662871	TP1	174,10

Duct averaging sensor -30..+80 °C active LCD				
Item description	USEapp	Item No.	Group	€
MWF400+ LCD TRV MultiRange	✓	662925	TP1	172,10
MWF400+ LCD TRA MultiRange	✓	662956	TP1	172,10

Duct averaging sensor -30..+80 °C 0..10 (0..5) V + relay				
Item description	USEapp	Item No.	Group	€
MWF400+ LCD TRV MultiRange Relais	✓	662963	TP1	217,10

Duct averaging sensor -30..+80 °C BUS				
Item description	USEapp	Item No.	Group	€
MWF400+ RS485 Modbus	✓	662970	TP1	214,30
MWF400+ LCD RS485 Modbus	✓	662987	TP1	257,30
MWF400+ RS485 BACnet (MS/TP)	✓	699365	TP1	214,30
MWF400+ LCD RS485 BACnet (MS/TP)	✓	699372	TP1	257,30

Options				
Description	€			
Add to price of RS485 Modbus for LON FT	75,90			

Accessories				
Item description	Item No.	Group	€	
Mounting base enclosure USE-M pure white	668354	AS1	8,35	
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70	
Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360	AS1	6,70	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	



## KFK01

Passive duct sensor for measuring air temperature and other gaseous media of HVAC applications (e.g. supply and exhaust ducts). The sensor can be mounted by means of a mounting flange. Combined with a thermowell, it can be used as an immersion temperature sensor as well.

### Technical Data

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe, Ø=6 mm, stainless steel V4A (1.4401)
<b>Installation length</b>	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 300 mm, 450 mm
<b>Enclosure</b>	shape J, aluminium
<b>Operating range temperature</b>	-80..+260 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm, terminal block, max. 1,5 mm <sup>2</sup>
<b>Mounting</b>	when used as duct sensors: please use mounting flange MF6DS flexible (+90..+120 °C) or MF6 (brass, +120..+260 °C) for use as immersion sensors please use immersion pocket THVADS / THMSDS

Duct/immersion sensor -50..+150 °C – NTC10k TP1		
Item description	Item No.	€
KFK01 NTC10k 050.06	626880	44,00
KFK01 NTC10k 100.06	626897	44,90
KFK01 NTC10k 150.06	626903	46,50
KFK01 NTC10k 200.06	626910	48,10
KFK01 NTC10k 250.06	626927	50,70
KFK01 NTC10k 300.06	626934	52,90
KFK01 NTC10k 450.06	626941	56,40

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B TP1		
Item description	Item No.	€
KFK01 PT100 050.06	626446	45,30
KFK01 PT100 100.06	626453	46,20
KFK01 PT100 150.06	626477	47,80
KFK01 PT100 200.06	626484	49,40
KFK01 PT100 250.06	626491	52,00
KFK01 PT100 300.06	626507	54,20
KFK01 PT100 450.06	626514	57,70

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN TP1		
Item description	Item No.	€
KFK01 PT100 1/3 DIN 050.06	626521	49,40
KFK01 PT100 1/3 DIN 100.06	626538	50,30
KFK01 PT100 1/3 DIN 150.06	626545	51,90
KFK01 PT100 1/3 DIN 200.06	626552	53,50
KFK01 PT100 1/3 DIN 250.06	626569	56,10
KFK01 PT100 1/3 DIN 300.06	626576	58,30
KFK01 PT100 1/3 DIN 450.06	626583	61,80

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B TP1		
Item description	Item No.	€
KFK01 PT1000 050.06	626590	47,60
KFK01 PT1000 100.06	626606	48,50
KFK01 PT1000 150.06	626613	50,10
KFK01 PT1000 200.06	626620	51,70
KFK01 PT1000 250.06	626637	54,30
KFK01 PT1000 300.06	626644	56,50
KFK01 PT1000 450.06	626651	60,00

## » Duct Sensors – Duct Sensors Climate+Air Quality

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN TP1			Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B TP1		
Item description	Item No.	€	Item description	Item No.	€
KFK01 PT1000 1/3 DIN 050.06	626675	51,00	KFK01 Ni1000 050.06	626743	47,30
KFK01 PT1000 1/3 DIN 100.06	626682	51,90	KFK01 Ni1000 100.06	626750	48,20
KFK01 PT1000 1/3 DIN 150.06	626699	53,50	KFK01 Ni1000 150.06	626767	49,80
KFK01 PT1000 1/3 DIN 200.06	626705	55,10	KFK01 Ni1000 200.06	626774	51,40
KFK01 PT1000 1/3 DIN 250.06	626712	57,70	KFK01 Ni1000 250.06	626781	54,00
KFK01 PT1000 1/3 DIN 300.06	626729	59,90	KFK01 Ni1000 300.06	626798	56,20
KFK01 PT1000 1/3 DIN 450.06	626736	63,40	KFK01 Ni1000 450.06	626804	59,70

Duct/immersion sensor -50..+160 °C – Ni1000TK5000 TP1		
Item description	Item No.	€
KFK01 Ni1000TK5000 050.06	626811	51,00
KFK01 Ni1000TK5000 100.06	626828	51,90
KFK01 Ni1000TK5000 150.06	626835	53,50
KFK01 Ni1000TK5000 200.06	626842	55,10
KFK01 Ni1000TK5000 250.06	626859	57,70
KFK01 Ni1000TK5000 300.06	626866	59,90
KFK01 Ni1000TK5000 450.06	626873	63,40

Options	
Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor DS18B20 1-wire	1,30
Add to price of NTC10k for sensor FeT/Staefa	24,30

Accessories			
Item description	Item No.	Group	€
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70

**Thermowells brass for sensors with pocket Ø=6 mm**

Item description	Length	Inst. length	Item No.	On stock	Group	€
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	●	AS2	8,35
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,45
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	9,95
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2	10,40
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2	11,90
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2	12,30
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2	12,60

**Thermowells stainless steel for sensors with pocket Ø=6 mm**

Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	●	AS2	18,10
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	19,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	21,50
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2	22,60
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2	28,00
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2	29,40
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2	30,30
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	19,20



## SFK01

Immersion sensor with an integrated thermowell for temperature measurement of liquids in HVAC applications (e.g. water lines or water tanks). The type SFKH01 with a 70 mm neck pipe is designed for applications using insulation materials. Bonded pockets are available as well (see 'Accessories').

### Technical Data

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe: Ø=8 mm, stainless steel V4A (1.4571), SW24, G1/2" Neck pipe (optionally): stainless steel V2A (1.4305), Ø=12 mm, length 70 mm
<b>Installation length</b>	50 mm, 100 mm, 150 mm, 200 mm, 250 mm, 450 mm
<b>Enclosure</b>	shape J, aluminium
<b>Operating range temperature</b>	-80..+260 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm <sup>2</sup>

<b>Immersion sensor -50..+150 °C – NTC10k</b>			<b>TP1</b>
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
SFK01 NTC10k 050.08	45421	47,00	
SFK01 NTC10k 100.08	45438	48,10	
SFK01 NTC10k 150.08	45445	49,60	
SFK01 NTC10k 200.08	45452	51,50	
SFK01 NTC10k 250.08	45469	52,00	
SFK01 NTC10k 450.08	45476	55,10	

<b>Immersion sensor -50..+160 °C – PT100 DIN KI. B</b>			<b>TP1</b>
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
SFK01 PT100 050.08	37662	48,30	
SFK01 PT100 100.08	27717	49,40	
SFK01 PT100 150.08	27724	50,90	
SFK01 PT100 200.08	27731	52,80	
SFK01 PT100 250.08	27748	53,30	
SFK01 PT100 450.08	27755	56,40	

<b>Immersion sensor -50..+160 °C – PT100 1/3 DIN</b>			<b>TP1</b>
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
SFK01 PT100 1/3 DIN 050.08	27762	52,40	
SFK01 PT100 1/3 DIN 100.08	27779	53,50	
SFK01 PT100 1/3 DIN 150.08	27786	55,00	
SFK01 PT100 1/3 DIN 200.08	27793	56,90	
SFK01 PT100 1/3 DIN 250.08	27809	57,40	
SFK01 PT100 1/3 DIN 450.08	27816	60,50	

<b>Immersion sensor -50..+160 °C – PT1000 DIN KI. B</b>			<b>TP1</b>
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
SFK01 PT1000 050.08	27823	50,60	
SFK01 PT1000 100.08	27830	51,70	
SFK01 PT1000 150.08	27847	53,20	
SFK01 PT1000 200.08	27854	55,10	
SFK01 PT1000 250.08	27861	55,60	
SFK01 PT1000 450.08	27878	58,70	

Immersion sensor -50..+160 °C – PT1000 1/3 DIN TP1		
Item description	Item No.	€
SFK01 PT1000 1/3 DIN 050.08	27885	54,00
SFK01 PT1000 1/3 DIN 100.08	27892	55,10
SFK01 PT1000 1/3 DIN 150.08	36740	56,60
SFK01 PT1000 1/3 DIN 200.08	36757	58,50
SFK01 PT1000 1/3 DIN 250.08	36764	59,00
SFK01 PT1000 1/3 DIN 450.08	36771	62,10

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B TP1		
Item description	Item No.	€
SFK01 Ni1000 050.08	36788	50,30
SFK01 Ni1000 100.08	36795	51,40
SFK01 Ni1000 150.08	36801	52,90
SFK01 Ni1000 200.08	36818	54,80
SFK01 Ni1000 250.08	36825	55,30
SFK01 Ni1000 450.08	45292	58,40

Immersion sensor -50..+160 °C – Ni1000TK5000 TP1		
Item description	Item No.	€
SFK01 Ni1000TK5000 050.08	45308	54,00
SFK01 Ni1000TK5000 100.08	45315	55,10
SFK01 Ni1000TK5000 150.08	45322	56,60
SFK01 Ni1000TK5000 200.08	45339	58,50
SFK01 Ni1000TK5000 250.08	45346	59,00
SFK01 Ni1000TK5000 450.08	45353	62,10

Options	
Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Temperature -80..+260 °C (T260)	11,50
Neck pipe 70.12 (for applications with insulation materials)	21,60
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor DS18B20 1-wire	1,30
Add to price of NTC10k for sensor FeT/Staefa	24,30

Bonded pockets						
Item description	Length	Inst. length	Item No.	On stock	Group	€
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	58,90
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	≡	AS1	47,30
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	≡	AS1	54,20
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	≡	AS1	61,00
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	≡	AS1	67,10

## KFK03

Passive duct sensor for measuring air temperature and other gaseous media of HVAC applications (e.g. in supply and exhaust ducts). Designed for connection to superior controls systems. The sensor can be mounted by means of a mounting flange. Combined with a thermowell, it can be used as an immersion temperature sensor as well.



passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	scaling analogue output: <b>TRV1/TRA1:</b> -50..+50 °C <b>TRV2/TRA2:</b> -10..+120 °C <b>TRV3/TRA3:</b> 0..+50 °C <b>TRV4/TRA4:</b> 0..+160 °C <b>TRV5/TRA5:</b> 0..+250 °C
Power supply	<b>TRV:</b> 15..35 V = SELV, 15..26 V ~ SELV <b>TRA:</b> 15..24 V = ( $\pm 10\%$ ) SELV
Power consumption	<b>TRV:</b> max. 1 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> max. 0,5 W (24 V =)
Material in touch with media	Sensor probe, Ø=8 mm, stainless steel V4A (1.4571)
Installation length	100 mm, 150 mm, 200 mm, 250 mm
Enclosure	shape B, aluminium
Operating range temperature	-80..+260 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=7 mm, terminal block, max. 1,5 mm <sup>2</sup>
Connection cable	2-wire
Mounting	when used as duct sensors: please use mounting flange MF8 stainless steel for use as immersion sensors please use immersion pocket THVA

**KFK03 – passive**

Duct/immersion sensor -50..+150 °C – NTC10k TP1		
Item description	Item No.	€
KFK03 NTC10k 100.08	39918	54,80
KFK03 NTC10k 150.08	39925	56,90
KFK03 NTC10k 200.08	39932	58,80
KFK03 NTC10k 250.08	39949	61,10

Duct/immersion sensor -50..+160 °C – PT100 DIN Kl. B TP1		
Item description	Item No.	€
KFK03 PT100 100.08	37877	56,10
KFK03 PT100 150.08	37884	58,20
KFK03 PT100 200.08	37891	60,10
KFK03 PT100 250.08	37907	62,40

Duct/immersion sensor -50..+160 °C – PT100 1/3 DIN TP1		
Item description	Item No.	€
KFK03 PT100 1/3 DIN 100.08	37914	60,20
KFK03 PT100 1/3 DIN 150.08	37921	62,30
KFK03 PT100 1/3 DIN 200.08	37938	64,20
KFK03 PT100 1/3 DIN 250.08	37945	66,50

Duct/immersion sensor -50..+160 °C – PT1000 DIN Kl. B TP1		
Item description	Item No.	€
KFK03 PT1000 100.08	37952	58,40
KFK03 PT1000 150.08	37969	60,50
KFK03 PT1000 200.08	37976	62,40
KFK03 PT1000 250.08	37983	64,70

Duct/immersion sensor -50..+160 °C – PT1000 1/3 DIN TP1		
Item description	Item No.	€
KFK03 PT1000 1/3 DIN 100.08	37990	61,80
KFK03 PT1000 1/3 DIN 150.08	39765	63,90
KFK03 PT1000 1/3 DIN 200.08	39772	65,80
KFK03 PT1000 1/3 DIN 250.08	39789	68,10

Duct/immersion sensor -50..+160 °C – Ni1000 DIN Kl. B TP1		
Item description	Item No.	€
KFK03 Ni1000 100.08	39796	58,10
KFK03 Ni1000 150.08	39802	60,20
KFK03 Ni1000 200.08	39819	62,10
KFK03 Ni1000 250.08	39826	64,40

Duct/immersion sensor -50..+160 °C – Ni1000TK5000 TP1		
Item description	Item No.	€
KFK03 Ni1000TK5000 100.08	39833	61,80
KFK03 Ni1000TK5000 150.08	39840	63,90
KFK03 Ni1000TK5000 200.08	39857	65,80
KFK03 Ni1000TK5000 250.08	39864	68,10

Options		
Description	€	
3-wire connection (3-wire)	2,10	
4-wire connection (4-wire)	5,80	
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00	
Add to price of NTC10k for sensor LM235Z	1,80	
Add to price of NTC10k for sensor FeT/Staefa	24,30	

## KFK03 – active

Duct/immersion sensor -50..+50 °C active			
Item description	Item No.	Group	€
KFK03 TRV1 100.08	350983	TP1	136,00
KFK03 TRV1 150.08	351010	TP1	137,30
KFK03 TRV1 200.08	277860	TP1	138,80
KFK03 TRV1 250.08	286879	TP1	140,30

Duct/immersion sensor -10..+120 °C active			
Item description	Item No.	Group	€
KFK03 TRV2 100.08	332453	TP1	136,00
KFK03 TRV2 150.08	326711	TP1	137,30
KFK03 TRV2 200.08	351096	TP1	138,80
KFK03 TRV2 250.08	347242	TP1	140,30

Duct/immersion sensor 0..+50 °C active			
Item description	Item No.	Group	€
KFK03 TRV3 100.08	272315	TP1	136,00
KFK03 TRV3 150.08	351027	TP1	137,30
KFK03 TRV3 200.08	284905	TP1	138,80
KFK03 TRV3 250.08	285094	TP1	140,30

Duct/immersion sensor 0..+160 °C active			
Item description	Item No.	Group	€
KFK03 TRV4 100.08	351003	TP1	136,00
KFK03 TRV4 150.08	261418	TP1	137,30
KFK03 TRV4 200.08	351102	TP1	138,80
KFK03 TRV4 250.08	347969	TP1	140,30

Duct/immersion sensor 0..+250 °C active			
Item description	Item No.	Group	€
KFK03 TRV5 100.08	350990	TP1	144,00
KFK03 TRV5 150.08	309127	TP1	145,40
KFK03 TRV5 200.08	351119	TP1	146,80
KFK03 TRV5 250.08	335607	TP1	148,30

**Duct/immersion sensor -50..+50 °C active**

Item description	Item No.	Group	€
KFK03 TRA1 100.08	152464	TP1	136,00
KFK03 TRA1 150.08	165334	TP1	137,30
KFK03 TRA1 200.08	232166	TP1	138,80
KFK03 TRA1 250.08	204668	TP1	140,30

**Duct/immersion sensor -10..+120 °C active**

Item description	Item No.	Group	€
KFK03 TRA2 100.08	242639	TP1	136,00
KFK03 TRA2 150.08	351034	TP1	137,30
KFK03 TRA2 200.08	351041	TP1	138,80
KFK03 TRA2 250.08	351133	TP1	140,30

**Duct/immersion sensor 0..+50 °C active**

Item description	Item No.	Group	€
KFK03 TRA3 100.08	338585	TP1	136,00
KFK03 TRA3 150.08	170239	TP1	137,30
KFK03 TRA3 200.08	161909	TP1	138,80
KFK03 TRA3 250.08	134804	TP1	140,30

**Duct/immersion sensor 0..+160 °C active**

Item description	Item No.	Group	€
KFK03 TRA4 100.08	315920	TP1	136,00
KFK03 TRA4 150.08	338981	TP1	137,30
KFK03 TRA4 200.08	337380	TP1	138,80
KFK03 TRA4 250.08	303057	TP1	140,30

**Duct/immersion sensor 0..+250 °C active**

Item description	Item No.	Group	€
KFK03 TRA5 100.08	239080	TP1	144,00
KFK03 TRA5 150.08	320948	TP1	145,40
KFK03 TRA5 200.08	404792	TP1	146,80
KFK03 TRA5 250.08	281577	TP1	148,30

Accessories						
Item description			Item No.	Group	€	
Mounting flange MF8 stainless steel (suitable for Ø=8 mm)			103305	AS1	19,80	

Thermowells stainless steel for sensors with pocket Ø=8 mm						
Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 100 mm type THVA100 (KFK03)	108 mm	100 mm	584180	✉	AS2	28,50
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	✉	AS2	29,90
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	✉	AS2	31,50
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	✉	AS2	33,20



## SFK03

Immersion sensor in the enclosure form B with an integrated thermowell for temperature measurement of liquids in HVAC applications (e.g. water lines or water tanks). Designed for connection to superior control systems. The type SFK03 with a 70 mm neck pipe is designed for applications using insulation materials.

passive / 0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	temperature
	scaling analogue output: <b>TRV1/TRA1:</b> -50..+50 °C <b>TRV2/TRA2:</b> -10..+120 °C <b>TRV3/TRA3:</b> 0..+50 °C <b>TRV4/TRA4:</b> 0..+160 °C <b>TRV5/TRA5:</b> 0..+300 °C
<b>Output signal temperature</b>	
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 15..26 V ~ SELV <b>TRA:</b> 15..35 V = SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 1 W (24 V =), 1,4 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =)
<b>Material in touch with media</b>	Sensor probe: Ø=8 mm, stainless steel V4A (1.4571), SW24, G1/2" Neck pipe (optionally): stainless steel V2A (1.4305), Ø=15 mm, length 70 mm
<b>Installation length</b>	100 mm, 150 mm, 200 mm, 250 mm
<b>Enclosure</b>	shape B, aluminium
<b>Operating range temperature</b>	-80..+260 °C
<b>Protection (IP)</b>	IP66, according to EN 60529
<b>Connection</b>	cable entry M20 for wire Ø=7 mm terminal block, max. 1,5 mm <sup>2</sup>

Immersion sensor -50..+150 °C – NTC10k			TP1
Item description	Item No.	€	
SFK03 NTC10k 100.08	71345	55,90	
SFK03 NTC10k 150.08	71352	58,00	
SFK03 NTC10k 200.08	71369	60,10	
SFK03 NTC10k 250.08	71376	63,20	

Immersion sensor -50..+160 °C – PT100 DIN KI. B			TP1
Item description	Item No.	€	
SFK03 PT100 100.08	64309	57,20	
SFK03 PT100 150.08	71079	59,30	
SFK03 PT100 200.08	71086	61,40	
SFK03 PT100 250.08	71093	64,50	

Immersion sensor -50..+160 °C – PT100 1/3 DIN			TP1
Item description	Item No.	€	
SFK03 PT100 1/3 DIN 100.08	71109	61,30	
SFK03 PT100 1/3 DIN 150.08	71116	63,40	
SFK03 PT100 1/3 DIN 200.08	71123	65,50	
SFK03 PT100 1/3 DIN 250.08	71130	68,60	

Immersion sensor -50..+160 °C – PT1000 DIN KI. B			TP1
Item description	Item No.	€	
SFK03 PT1000 100.08	71147	59,50	
SFK03 PT1000 150.08	71154	61,60	
SFK03 PT1000 200.08	71161	63,70	
SFK03 PT1000 250.08	71178	66,80	

## » Duct Sensors – Duct Sensors Climate+Air Quality

Immersion sensor -50..+160 °C – PT1000 1/3 DIN TP1		
Item description	Item No.	€
SFK03 PT1000 1/3 DIN 100.08	71185	62,90
SFK03 PT1000 1/3 DIN 150.08	71192	65,00
SFK03 PT1000 1/3 DIN 200.08	71208	67,10
SFK03 PT1000 1/3 DIN 250.08	71215	70,20

Immersion sensor -50..+160 °C – Ni1000 DIN Kl. B TP1		
Item description	Item No.	€
SFK03 Ni1000 100.08	71222	59,20
SFK03 Ni1000 150.08	71239	61,30
SFK03 Ni1000 200.08	71246	63,40
SFK03 Ni1000 250.08	71253	66,50

Immersion sensor -50..+160 °C – Ni1000TK5000 TP1		
Item description	Item No.	€
SFK03 Ni1000TK5000 100.08	71260	62,90
SFK03 Ni1000TK5000 150.08	71277	65,00
SFK03 Ni1000TK5000 200.08	71284	67,10
SFK03 Ni1000TK5000 250.08	71291	70,20

Options	
Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Temperature -80..+260 °C (T260)	11,50
Neck pipe 70.15 (for applications with insulation materials)	21,60
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor LM235Z	1,80
Add to price of NTC10k for sensor DS18B20 1-wire	1,30
Add to price of NTC10k for sensor FeT/Staefa	24,30

Bonded pockets						
Item description	Length	Inst. length	Item No.	On stock	Group	€
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	58,90
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	≡	AS1	47,30
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	≡	AS1	54,20
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	≡	AS1	61,00
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	≡	AS1	67,10

Immersion sensor -50..+50 °C			TP1
Item description	Item No.	€	
SFK03 TRV1 100.08	318853	146,50	
SFK03 TRV1 150.08	352024	147,90	
SFK03 TRV1 200.08	352062	149,30	
SFK03 TRV1 250.08	352109	151,40	

Immersion sensor -10..+120 °C			TP1
Item description	Item No.	€	
SFK03 TRV2 100.08	335744	146,50	
SFK03 TRV2 150.08	352031	147,90	
SFK03 TRV2 200.08	246958	149,30	
SFK03 TRV2 250.08	352253	151,40	

Immersion sensor 0..+50 °C			TP1
Item description	Item No.	€	
SFK03 TRV3 100.08	281775	146,50	
SFK03 TRV3 150.08	352048	147,90	
SFK03 TRV3 200.08	352079	149,30	
SFK03 TRV3 250.08	352260	151,40	

Immersion sensor 0..+160 °C			TP1
Item description	Item No.	€	
SFK03 TRV4 100.08	298414	146,50	
SFK03 TRV4 150.08	292115	147,90	
SFK03 TRV4 200.08	324403	149,30	
SFK03 TRV4 250.08	352277	151,40	

Immersion sensor 0..+300 °C			TP1
Item description	Item No.	€	
SFK03 TRV5 100.08	243933	154,50	
SFK03 TRV5 150.08	295314	155,80	
SFK03 TRV5 200.08	297509	157,30	
SFK03 TRV5 250.08	306607	159,50	

Immersion sensor -50..+50 °C			TP1
Item description	Item No.	€	
SFK03 TRA1 100.08	194440	146,50	
SFK03 TRA1 150.08	200899	147,90	
SFK03 TRA1 200.08	352055	149,30	
SFK03 TRA1 250.08	254908	151,40	

Immersion sensor -10..+120 °C			TP1
Item description	Item No.	€	
SFK03 TRA2 100.08	189316	146,50	
SFK03 TRA2 150.08	344166	147,90	
SFK03 TRA2 200.08	315746	149,30	
SFK03 TRA2 250.08	352086	151,40	

Immersion sensor 0..+50 °C			TP1
Item description	Item No.	€	
SFK03 TRA3 100.08	132220	146,50	
SFK03 TRA3 150.08	165044	147,90	
SFK03 TRA3 200.08	165280	149,30	
SFK03 TRA3 250.08	303835	151,40	

Immersion sensor 0..+160 °C			TP1
Item description	Item No.	€	
SFK03 TRA4 100.08	293051	146,50	
SFK03 TRA4 150.08	295024	147,90	
SFK03 TRA4 200.08	239226	149,30	
SFK03 TRA4 250.08	352093	151,40	

Immersion sensor 0..+300 °C			TP1
Item description	Item No.	€	
SFK03 TRA5 100.08	131674	154,50	
SFK03 TRA5 150.08	146821	155,80	
SFK03 TRA5 200.08	152884	157,30	
SFK03 TRA5 250.08	157421	159,50	

Options	€
Description	€
Neck pipe 70.15 (for applications with insulation materials)	21,60

Bonded pockets						
Item description	Length	Inst. length	Item No.	On stock	Group	€
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	58,90
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	●	AS1	47,30
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	●	AS1	54,20
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	●	AS1	61,00
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	●	AS1	67,10



## RG03

Duct/Immersion sensor for high temperature measurement in gaseous and liquid media. Designed for connecting to control and display systems. Especially designed for measuring higher temperatures (e.g. in supply and exhaust ducts).

passive / 0..10 V / 4..20 mA

### Technical Data

Measured values	temperature
Output signal temperature	<b>TRV6/TRA6:</b> 0..+400 °C <b>TRV7/TRA7:</b> 0..+600 °C
Power supply	<b>TRV:</b> 15..35 V = SELV, 15..26 V ~ SELV <b>TRA:</b> 15..24 V = (±10%) SELV
Power consumption	<b>TRV:</b> typ. 1 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =)
Material in touch with media	Sensor probe, Ø=11 mm, stainless steel V4A (1.4571)
Installation length	236 mm, 486 mm
Enclosure	shape B, aluminium
Operating range temperature	0..+600 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm, terminal block, max. 1,5 mm <sup>2</sup>
Delivery content	incl. mounting flange

### Duct/immersion sensor 0..+600 °C passive

Item description	Item No.	Group	€
RG03 PT100 250.11	64361	TP1	112,40
RG03 PT100 500.11	64378	TP1	115,10
RG03 PT1000 250.11	64385	TP1	112,40
RG03 PT1000 500.11	64392	TP1	115,10

### Options

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80

### Duct/immersion sensor 0..+600 °C

TP1

Item description	Item No.	€
RG03 TRV7 250.11	64408	209,00
RG03 TRV7 500.11	242127	211,60
RG03 TRA7 250.11	64422	209,00
RG03 TRA7 500.11	78283	211,60

### Duct/immersion sensor 0..+400 °C

TP1

Item description	Item No.	€
RG03 TRV6 250.11	261982	209,00
RG03 TRV6 500.11	240789	211,60
RG03 TRA6 250.11	177405	209,00
RG03 TRA6 500.11	143936	211,60



## RGS03

Immersion sensor (high temperature) with an integrated thermowell for temperature measurement of liquids in HVAC applications. Also suitable for exhaust systems. Designed for connection to superior control systems.

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Output signal temperature	TRV6/TRA6: 0..+400 °C TRV7/TRA7: 0..+600 °C
Power supply	TRV6/TRV7: 15..35 V = SELV, 15..26 V ~ SELV TRA6/TRA7: 15..24 V = (±10%) SELV
Power consumption	TRV6/TRV7: typ. 1 W (24 V =), 0,8 VA (24 V ~) TRA6/TRA7: typ. 0,5 W (24 V =)
Material in touch with media	Sensor probe: Ø=9 mm, stainless steel V4A (1.4571), SW24, G1/2" Neck pipe: stainless steel V2A (1.4305), Ø=9 mm, length 100 mm
Installation length	250 mm, 500 mm
Enclosure	shape B, aluminium
Operating range temperature	0..+600 °C
Protection (IP)	IP66, according to EN 60529
Connection	cable entry M20 for wire Ø=8 mm terminal block, max. 1,5 mm <sup>2</sup>

Immersion sensor 0..+600 °C			TP1
Item description	Item No.	€	
RGS03 PT100 250.09 3-wire	79297	152,20	
RGS03 PT100 500.09 3-wire	385190	154,70	
RGS03 PT1000 250.09 3-wire	79310	152,20	
RGS03 PT1000 500.09 3-wire	79327	154,70	

Immersion sensor 0..+400 °C			TP1
Item description	Item No.	€	
RGS03 TRV6 250.09	223942	248,80	
RGS03 TRV6 500.09	351959	251,40	
RGS03 TRA6 250.09	164115	248,80	
RGS03 TRA6 500.09	155281	251,40	

Immersion sensor 0..+600 °C			TP1
Item description	Item No.	€	
RGS03 TRV7 250.09	351935	248,80	
RGS03 TRV7 500.09	244824	251,40	
RGS03 TRA7 250.09	79334	248,80	
RGS03 TRA7 500.09	79341	251,40	

## FTK+

Duct sensor for measuring relative and absolute humidity, enthalpy, dew point and temperature in gaseous media of heating, ventilation and air-conditioning systems as well as clean rooms. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers and color-changing LCD allow for a wide range of applications. The accuracy of the humidity sensor is 2%. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



FTK+



FTK+ relay / BUS



FTK+ LCD

0..10 V / 4..20 mA

Technical Data	
<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: -20..+80 °C (default setting) selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C <b>Relay/LCD/BUS:</b> optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Power supply</b>	<b>VV/Basic:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>AA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>VV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>AA:</b> max. 1 W (24 V =) <b>Basic:</b> max. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Pipe: PA6 with filter stainless steel wire mesh, black, Ø=19,5 mm
<b>Installation length</b>	140 mm, 270 mm, 400 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>VV/AA/Basic:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC

Technical Data	
Colour	pure white, transparent cover
Operating range temperature	-20..+70 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>VV/AA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Delivery content	incl. mounting flange incl. mounting set (screws and accessories)
Notes	air speed max. 12 m/s

## FTK+ VV / AA

Duct sensor humidity + temperature active 0..10 (0..5) V					
Item description	USEapp	Item No.	On stock	Group	€
FTK+ 140 VV		626347	☒	HU2	168,00
FTK+ 270 VV		626354	☒	HU2	175,50
FTK+ 400 VV		626361		HU2	183,00

Duct sensor humidity + temperature active 4..20 mA					
Item description	USEapp	Item No.	On stock	Group	€
FTK+ 140 AA		626378	☒	HU2	168,00
FTK+ 270 AA		626385	☒	HU2	175,50
FTK+ 400 AA		626392		HU2	183,00

Options					
Description	€				
Add for additional passive temperature sensor	15,10				

## FTK+ Relay / LCD

Duct sensor humidity + temperature active 0..10 (0..5) V + relay					
Item description	USEapp	Item No.	Group	€	
FTK+ 140 VV Relais	✓	663151	HU1	213,00	
FTK+ 270 VV Relais	✓	663168	HU1	220,50	
FTK+ 400 VV Relais	✓	663175	HU1	228,00	

**Duct sensor humidity + temperature active 0..10 (0..5) V LCD**

Item description	USEapp	Item No.	Group	€
FTK+ 140 LCD VV	✓	663083	HU1	242,00
FTK+ 270 LCD VV	✓	663090	HU1	249,50
FTK+ 400 LCD VV	✓	663113	HU1	257,00

**Duct sensor humidity + temperature active 4..20 mA LCD**

Item description	USEapp	Item No.	Group	€
FTK+ 140 LCD AA	✓	663120	HU1	242,00
FTK+ 270 LCD AA	✓	663137	HU1	249,50
FTK+ 400 LCD AA	✓	663144	HU1	257,00

**Duct sensor humidity + temperature active 0..10 (0..5) V + relay LCD**

Item description	USEapp	Item No.	Group	€
FTK+ 140 LCD VV Relais	✓	663205	HU1	256,00
FTK+ 270 LCD VV Relais	✓	663229	HU1	263,50
FTK+ 400 LCD VV Relais	✓	663236	HU1	271,00

**Options****Description**

Add for additional passive temperature sensor	15,10
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**FTK+ BUS****Duct sensor humidity + temperature RS485 Modbus**

Item description	USEapp	Item No.	Group	€
FTK+ 140 RS485 Modbus	✓	659093	HU1	213,00
FTK+ 270 RS485 Modbus	✓	659109	HU1	220,50
FTK+ 400 RS485 Modbus	✓	659116	HU1	228,00
FTK+ 140 LCD RS485 Modbus	✓	663243	HU1	256,00
FTK+ 270 LCD RS485 Modbus	✓	663250	HU1	263,50
FTK+ 400 LCD RS485 Modbus	✓	663267	HU1	271,00

**Duct sensor humidity + temperature RS485 BACnet (MS/TP)**

Item description	USEapp	Item No.	Group	€
FTK+ 140 RS485 BACnet (MS/TP)	✓	700122	HU1	213,00
FTK+ 270 RS485 BACnet (MS/TP)	✓	700139	HU1	220,50
FTK+ 400 RS485 BACnet (MS/TP)	✓	700146	HU1	228,00
FTK+ 140 LCD RS485 BACnet (MS/TP)	✓	700153	HU1	256,00
FTK+ 270 LCD RS485 BACnet (MS/TP)	✓	692878	HU1	263,50
FTK+ 400 LCD RS485 BACnet (MS/TP)	✓	700177	HU1	271,00

<b>Duct sensor humidity + temperature Basic RS485 Modbus</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
FTK+ 140 Basic RS485 Modbus		747738	HU1	168,00
FTK+ 270 Basic RS485 Modbus		747745	HU1	175,50
FTK+ 400 Basic RS485 Modbus		756037	HU1	183,00

<b>Options</b>	
<b>Description</b>	<b>€</b>
Add to price of RS485 Modbus for LON FT	75,90

## **Accessories – Relay / LCD / BUS**

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

## **Accessories**

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30
Mounting flange MF20	612562	AS1	12,50
Weather protection for FTK+, WSA (replacement)	625241	AS1	71,80

**LK+**

The maintenance-free and multi-functional duct air quality sensor measures CO2, mixed gas (VOC), temperature and humidity (relative, absolute, enthalpy, dew point). Optional features, such as a relay output for a 2-point controller or a 2-stage 2-point controller, LCD and traffic light function allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



LK+



LK+ LCD

0..10 V / 4..20 mA

**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, CO2, VOC
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type) <b>CO2+VOC:</b> each output can be set to get a variable mix of CO2 and VOC by configuration via app or uConfig
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Measuring range CO2</b>	0..2000 ppm, 0..5000 ppm, optionally configurable
<b>Measuring VOC (mixed gas)</b>	heated metal oxide semiconductor
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	max. 2.5 W (24 V =), 4.3 VA (24 V ~)
<b>Material in touch with media</b>	with filter stainless steel wire mesh <b>types V:</b> without filter Pipe: Ø=19,5 mm, black
<b>Installation length</b>	180 mm <b>types without temperature:</b> 150 mm <b>types 100:</b> 100 mm <b>types 100 without temperature:</b> 70 mm

Technical Data	
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>VV/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Delivery content</b>	incl. mounting flange incl. mounting set (screws and accessories)
<b>Notes</b>	mixed gas sensors detect gases and vapours which can be oxidised (burnt): Body odours, tobacco smoke, exhalations emitted by materials (furniture, carpets, paint, glue ...) air speed 0,3..12 m/s

## LK+ CO2 – active / Relay / LCD

Duct sensor CO2 active					
Item description	USEapp	Item No.	On stock	Group	€
LK+ CO2 V		662253	≡	AQ2	222,90

Duct sensor CO2 + temperature active					
Item description	USEapp	Item No.	On stock	Group	€
LK+ CO2 temp VV		662260	≡	AQ2	281,20
LK+ CO2 temp AA	✓	662277		AQ2	281,20
LK+ CO2 temp VV relay	✓	662307		AQ1	326,20
LK+ CO2 LCD temp VV	✓	662284		AQ1	324,20
LK+ CO2 LCD temp AA	✓	662291		AQ1	324,20
LK+ CO2 LCD temp VV relay	✓	662314		AQ1	369,20

Duct sensor CO2 + temperature + humidity active					
Item description	USEapp	Item No.	Group	€	
LK+ CO2 temp_rH 3xV	✓	662321	AQ2	335,20	
LK+ CO2 LCD temp_rH 3xV	✓	662338	AQ1	378,20	

Options	
Description	€
Add for additional passive temperature sensor	15,10

**LK+ CO2 – BUS**

Duct sensor CO2 + temperature BUS				
Item description	USEapp	Item No.	Group	€
LK+ CO2 temp RS485 Modbus	✓	662345	AQ1	326,20
LK+ CO2 LCD temp RS485 Modbus	✓	662352	AQ1	369,20
LK+ CO2 temp RS485 BACnet (MS/TP)	✓	700405	AQ1	326,20
LK+ CO2 LCD temp RS485 BACnet (MS/TP)	✓	700436	AQ1	369,20

Duct sensor CO2 + temperature + humidity BUS				
Item description	USEapp	Item No.	Group	€
LK+ CO2 temp_rH RS485 Modbus	✓	662376	AQ1	380,20
LK+ CO2 LCD temp_rH RS485 Modbus	✓	662383	AQ1	423,20
LK+ CO2 temp_rH RS485 BACnet (MS/TP)	✓	700467	AQ1	380,20
LK+ CO2 LCD temp_rH RS485 BACnet (MS/TP)	✓	700504	AQ1	423,20

Options				
Description	€			
Add to price of RS485 Modbus for LON FT	75,90			

Accessories				
Item description	Item No.	Group	€	
Mounting flange MF20	612562	AS1	12,50	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

## **LK+ CO2 100 – active / Relay / LCD**

<b>Duct sensor CO2 active</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ CO2 100 V		670418	AQ2	222,90
<b>Duct sensor CO2 + temperature active</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ CO2 100 temp VV		670432	AQ2	281,20
LK+ CO2 100 temp AA	✓	670449	AQ2	281,20
LK+ CO2 100 temp VV relay	✓	670456	AQ1	326,20
LK+ CO2 100 LCD temp VV	✓	670463	AQ1	324,20
LK+ CO2 100 LCD temp AA	✓	670470	AQ1	324,20
LK+ CO2 100 LCD temp VV relay	✓	670487	AQ1	369,20

<b>Duct sensor CO2 + temperature + humidity active</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ CO2 100 temp_rH 3xV	✓	670494	AQ2	335,20
LK+ CO2 100 LCD temp_rH 3xV	✓	670500	AQ1	378,20

<b>Options</b>				
<b>Description</b>	€			
Add for additional passive temperature sensor				15,10

## **LK+ CO2 100 – BUS**

<b>Duct sensor CO2 + temperature BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ CO2 100 temp RS485 Modbus	✓	670555	AQ1	326,20
LK+ CO2 100 LCD temp RS485 Modbus	✓	670562	AQ1	369,20
LK+ CO2 100 temp RS485 BACnet (MS/TP)	✓	704120	AQ1	326,20
LK+ CO2 100 LCD temp RS485 BACnet (MS/TP)	✓	704137	AQ1	369,20

**Duct sensor CO2 + temperature + humidity BUS**

Item description	USEapp	Item No.	Group	€
LK+ CO2 100 temp_rH RS485 Modbus	✓	670579	AQ1	380,20
LK+ CO2 100 LCD temp_rH RS485 Modbus	✓	670586	AQ1	423,20
LK+ CO2 100 temp_rH RS485 BACnet (MS/TP)	✓	704144	AQ1	380,20
LK+ CO2 100 LCD temp_rH RS485 BACnet (MS/TP)	✓	704151	AQ1	423,20

**Options****Description**

Add to price of RS485 Modbus for LON FT	75,90
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**Accessories****Item description**

Item description	Item No.	Group	€
Mounting flange MF20	612562	AS1	12,50
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70

**LK+ VOC – active / Relay / LCD****Duct sensor VOC active**

Item description	USEapp	Item No.	On stock	Group	€
LK+ VOC V		662413	✉	AQ2	203,40

**Duct sensor VOC + temperature active**

Item description	USEapp	Item No.	Group	€
LK+ VOC temp VV		662437	AQ2	261,70
LK+ VOC temp AA	✓	662444	AQ2	261,70
LK+ VOC temp VV relay	✓	662475	AQ1	306,70
LK+ VOC LCD temp VV	✓	662468	AQ1	304,70
LK+ VOC LCD temp AA	✓	662482	AQ1	304,70
LK+ VOC LCD temp VV relay	✓	662499	AQ1	349,70

<b>Duct sensor VOC + temperature + humidity active</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ VOC temp_rH 3xV	✓	662505	AQ2	315,90
LK+ VOC LCD temp_rH 3xV	✓	662529	AQ1	358,90

<b>Options</b>	<b>€</b>
<b>Description</b>	<b>€</b>
Add for additional passive temperature sensor	15,10

## **LK+ VOC – BUS**

<b>Duct sensor VOC + temperature BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ VOC temp RS485 Modbus	✓	662536	AQ1	306,70
LK+ VOC LCD temp RS485 Modbus	✓	662550	AQ1	349,70
LK+ VOC temp RS485 BACnet (MS/TP)	✓	700412	AQ1	306,70
LK+ VOC LCD temp RS485 BACnet (MS/TP)	✓	700443	AQ1	349,70

<b>Duct sensor VOC + temperature + humidity BUS</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
LK+ VOC temp_rH RS485 Modbus	✓	662574	AQ1	360,90
LK+ VOC LCD temp_rH RS485 Modbus	✓	662581	AQ1	403,90
LK+ VOC temp_rH RS485 BACnet (MS/TP)	✓	700481	AQ1	360,90
LK+ VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700511	AQ1	403,90

<b>Options</b>	<b>€</b>
<b>Description</b>	<b>€</b>
Add to price of RS485 Modbus for LON FT	75,90

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting flange MF20	612562	AS1	12,50	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

**LK+ CO2+VOC – active / Relay / LCD**

Duct sensor CO2 + VOC or mix active					
Item description	USEapp	Item No.	On stock	Group	€
LK+ CO2+VOC VV		662024	✉	AQ2	357,00
LK+ CO2+VOC AA	✓	662031		AQ2	357,00
LK+ CO2+VOC VV relay	✓	662062		AQ1	402,00
LK+ CO2+VOC LCD VV	✓	662079		AQ1	400,00
LK+ CO2+VOC LCD AA	✓	662086		AQ1	400,00
LK+ CO2+VOC LCD VV relay	✓	662093		AQ1	445,00

**Options**

Description	€
Add for additional passive temperature sensor	15,10

**Duct sensor CO2 + VOC or mix + temperature active**

Item description	USEapp	Item No.	Group	€
LK+ CO2+VOC temp 3xV	✓	662130	AQ2	377,00
LK+ CO2+VOC LCD temp 3xV	✓	662147	AQ1	420,00

**Duct sensor CO2 + VOC or mix + temperature + humidity active**

Item description	USEapp	Item No.	Group	€
LK+ CO2+VOC temp_rH 4xV	✓	662154	AQ2	427,20
LK+ CO2+VOC LCD temp_rH 4xV	✓	662161	AQ1	470,20

## LK+ CO2+VOC – BUS

Duct sensor CO2 + VOC or mix BUS				
Item description	USEapp	Item No.	Group	€
LK+ CO2+VOC RS485 Modbus	✓	662109	AQ1	402,00
LK+ CO2+VOC LCD RS485 Modbus	✓	662116	AQ1	445,00
LK+ CO2+VOC RS485 BACnet (MS/TP)	✓	700368	AQ1	402,00
LK+ CO2+VOC LCD RS485 BACnet (MS/TP)	✓	700382	AQ1	445,00

Duct sensor CO2 + VOC or mix + temperature BUS				
Item description	USEapp	Item No.	Group	€
LK+ CO2+VOC temp RS485 Modbus	✓	662178	AQ1	422,00
LK+ CO2+VOC LCD temp RS485 Modbus	✓	662185	AQ1	465,00
LK+ CO2+VOC temp RS485 BACnet (MS/TP)	✓	700429	AQ1	422,00
LK+ CO2+VOC LCD temp RS485 BACnet (MS/TP)	✓	700450	AQ1	465,00

Duct sensor CO2 + VOC or mix + temperature + humidity BUS				
Item description	USEapp	Item No.	Group	€
LK+ CO2+VOC temp_rH RS485 Modbus	✓	662192	AQ1	472,20
LK+ CO2+VOC LCD temp_rH RS485 Modbus	✓	662208	AQ1	515,20
LK+ CO2+VOC temp_rH RS485 BACnet (MS/TP)	✓	682862	AQ1	472,20
LK+ CO2+VOC LCD temp_rH RS485 BACnet (MS/TP)	✓	700528	AQ1	515,20

Options				
Description	€			
Add to price of RS485 Modbus for LON FT	75,90			

Accessories				
Item description	Item No.	Group	€	
Mounting flange MF20	612562	AS1	12,50	
Mounting kit universal for enclosure USE	698511	AS1	9,30	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	



## FSK01

Hygrostat for ON/OFF control of ventilation and air conditioning, humidification and dehumidification equipment. Designed for applications, where humidity has to be closely controlled or monitored, e.g. in office spaces, data centers, food stores, cooling rooms for fruits and vegetables, greenhouses, the textile industry, paper and printing industries, the film industry, hospitals and similar applications.

### Technical Data

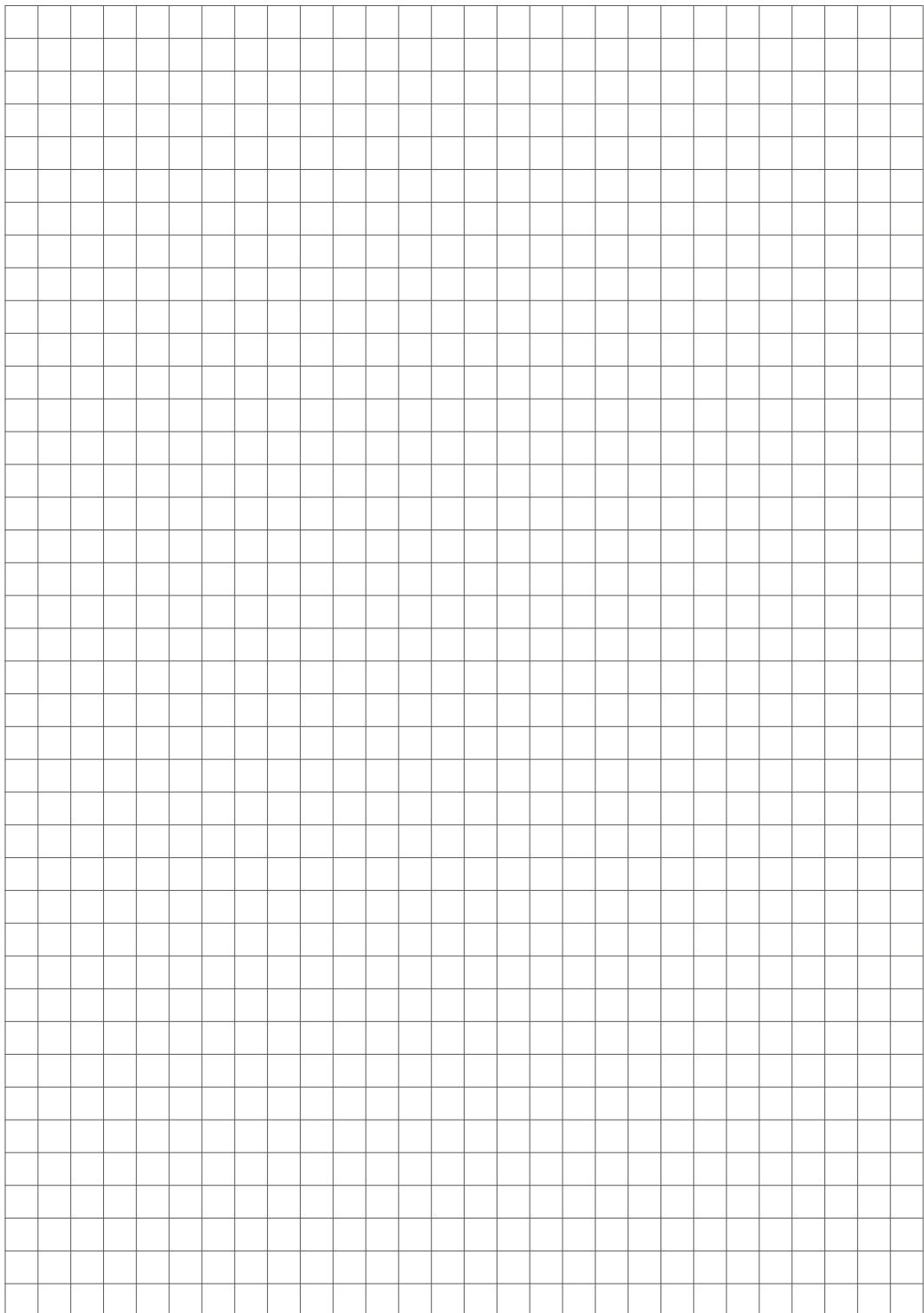
<b>Measured values</b>	relative humidity
<b>Operating functions</b>	threshold adjustment
<b>Operating elements</b>	rotary button
<b>Measuring range humidity</b>	30..100% rH non-condensing
<b>Material in touch with media</b>	Pipe: Ø=16 mm, stainless steel, length 220 mm
<b>Installation length</b>	220 mm
<b>Enclosure</b>	ABS
<b>Operating range temperature</b>	0..+60 °C
<b>Protection (IP)</b>	IP54, according to EN 60529
<b>Connection</b>	cable entry M20 for wire Ø=8 mm, terminal block, max. 1,5 mm <sup>2</sup>
<b>Notes</b>	air speed max. 8 m/s with stainless steel filter, wire mesh (see accessories) max. 15 m/s with filter PTFE (see accessories) >15 m/s

### Duct hygrostat

Item description	Item No.	On stock	Group	€
FSK01	427593	✉	HU1	231,50
FSK01 internal adjuster	708517		HU1	231,50

### Accessories

Item description	Item No.	Group	€
Mounting flange MF19	527705	AS1	12,50
Wall mounting for duct hygrostat	429030	AS1	40,00
Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30
Filter PTFE (for air velocities >15 m/s)	429054	AS1	43,90



# Cable Sensors Contact Sensors

Durable materials and state-of-the-art pressing and rolling processes guarantee the quality and durability of our cable and contact sensors. This makes them the first choice in building, heating, ventilation and air conditioning technology.



## Contact Sensors

VFG54+	Temperature	288
AF25	Temperature	291
AF25+	Temperature	293

## Cable Sensors

TF25	Temperature	295
TF25+	Temperature	299
TF14	Temperature	303
TF14+	Temperature	306

## Surface Sensors

PR25	Temperature	308
PR25+	Temperature	310
OF14	Temperature	312
OF14+	Temperature	313

## VFG54+

Contact sensor for temperature measurement (cold or hot water) on pipes and other curved surfaces. Spring-loaded brass contact sensor for a fast response. Models with a relay output for a 2-point controller or a 2-stage 2-point controller and color-changing LCD allow for a wide range of applications. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation.



VFG54+



VFG54+ relay / BUS



VFG54+ LCD

passive / 0..10 V / 4..20 mA

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: <b>TRV/TRA:</b> 0..+100 °C (default setting) <b>Relay/LCD/BUS:</b> -20..+80 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
Power supply	<b>TRV/Basic:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>Basic:</b> max. 0,7 W (24 V =), 1,8 VA (24 V ~) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, brass, spring loaded sensor
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	<b>TRV/TRA/Basic:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-35..+120 °C
Protection (IP)	IP65, according to EN 60529

**Technical Data**

<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>TRV/TRA/Basic:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Mounting</b>	along the pipe or sideways

**Contact Sensor -35..+120 °C passive**

Item description	USeapp	Item No.	On stock	Group	€
VFG54+ PT100		620642	✉	TP3	20,70
VFG54+ PT100 1/3 DIN		620659		TP3	24,80
VFG54+ PT1000		620666	✉	TP3	23,00
VFG54+ PT1000 1/3 DIN		620598		TP3	26,40
VFG54+ Ni1000		620611	✉	TP3	22,70
VFG54+ Ni1000TK5000		620628	✉	TP3	26,40
VFG54+ NTC10k		620604	✉	TP3	19,40
VFG54+ NTC10k Precon		620673		TP3	19,40
VFG54+ NTC5k		624244		TP3	19,40
VFG54+ NTC20k		620680	✉	TP3	19,40
VFG54+ NTC1,8k		643832		TP3	19,40
VFG54+ LM235Z		620635	✉	TP3	22,00
VFG54+ KTY81-110		620697		TP3	17,10
VFG54+ KTY81-121		620703		TP3	17,10
VFG54+ KTY81-122		620710		TP3	17,10
VFG54+ KTY81-210		620727		TP3	17,10

**Options**

Description	€
3-wire connection (3-wire)	2,10
4-wire connection (4-wire)	5,80
Add to price of NTC10k for sensor NTC10k Carel	0,00

**Accessories**

Item description	Item No.	Group	€
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85

**VFG54+ active**

Contact Sensor temperature active					
Item description	USEapp	Item No.	On stock	Group	€
VFG54+ TRV MultiRange		620741	●	TP2	75,50
VFG54+ TRA MultiRange		620758	●	TP2	75,50
VFG54+ TRV MultiRange relay	✓	662994		TP2	120,50

Contact Sensor temperature active LCD					
Item description	USEapp	Item No.	Group	€	
VFG54+ LCD TRV MultiRange	✓	663014	TP2	118,50	
VFG54+ LCD TRA MultiRange	✓	663021	TP2	118,50	
VFG54+ LCD TRV MultiRange relay	✓	663038	TP2	163,50	

**VFG54+ BUS**

Contact Sensor temperature BUS					
Item description	USEapp	Item No.	Group	€	
VFG54+ RS485 Modbus	✓	663045	TP2	120,50	
VFG54+ LCD RS485 Modbus	✓	663052	TP2	163,50	
VFG54+ RS485 BACnet (MS/TP)	✓	699709	TP2	120,50	
VFG54+ LCD RS485 BACnet (MS/TP)	✓	699716	TP2	163,50	
VFG54+ Basic RS485 Modbus		747806	TP2	75,50	

**Accessories**

Accessories					
Item description	Item No.	Group	€		
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85		
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40		
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85		
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80		
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70		

## AF25

Contact sensor with connection cable and brass strap for surface temperature measurement (cold or hot water) on pipes and other curved surfaces.



### Technical Data

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe: Ø=6 mm, brass, with contact tongue 16-point pressed (IP65)
<b>Installation length</b>	35 mm
<b>Operating range temperature</b>	-50..+135 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection cable</b>	0,25 mm <sup>2</sup> , <b>T100</b> : PVC, <b>T135</b> : silicone,
<b>Length connection wire</b>	1 m

### Contact Sensor -35..+100 °C passive

Item description	Item No.	Group	€
AF25 PT100 T100 L1000	81610	TP3	13,60
AF25 PT100 1/3 DIN T100 L1000	46411	TP3	17,70
AF25 PT1000 T100 L1000	54263	TP3	15,90
AF25 PT1000 1/3 DIN T100 L1000	54300	TP3	19,30
AF25 Ni1000 T100 L1000	54348	TP3	15,60
AF25 Ni1000TK5000 T100 L1000	54386	TP3	19,30
AF25 NTC10k T100 L1000	92005	TP3	12,30
AF25 NTC10k Precon T100 L1000	92043	TP3	12,30
AF25 NTC5k T100 L1000	54461	TP3	12,30
AF25 NTC20k T100 L1000	141994	TP3	12,30
AF25 NTC1,8k T100 L1000	241687	TP3	12,30
AF25 LM235Z T100 L1000	715270	TP3	14,10

Options	€
Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,10
3-wire connection -35..+100 °C (3-wire)	1,90
Add per meter of connection cable 3-wire -35..+100 °C	1,30
4-wire connection -35..+100 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Temperature -50..+135 °C (T135)	4,00
Add per meter of connection cable 2-wire -50..+135 °C	1,90
3-wire connection -50..+135 °C (3-wire)	2,10
Add per meter of connection cable 3-wire -50..+135 °C	2,70
4-wire connection -50..+135 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -50..+135 °C	3,20
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Carel	0,00

Accessories	Item No.	Group	€
Item description			
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85
Mounting clip enclosure USE-S pure white	667739	AS1	4,90
Mounting base enclosure USE-S pure white	667722	AS1	5,80



## AF25+

Contact sensor in the USE enclosure with connection cable and brass lug for surface temperature measurement (cold or hot water) on pipes and other curved surfaces.

0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)  scaling analogue output: 0..160 °C (default setting)
<b>Output signal temperature</b>	selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> typ. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe, Ø=6 mm, brass, with contact tongue 16-point pressed (IP65)
<b>Installation length</b>	35 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-50..+135 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup>
<b>Length connection wire</b>	1 m
<b>Delivery content</b>	incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories)

<b>Contact Sensor temperature active 0..10 (0..5) V, 4..20 mA</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
AF25+ TRV MultiRange T135 L1000		658751	TP2	74,60
AF25+ TRA MultiRange T135 L1000		658768	TP2	74,60

<b>Options</b>	
<b>Description</b>	<b>€</b>
Add per meter of connection cable 2-wire -50..+135 °C	1,90
RS485 Modbus in enclosure USE-M with option board	76,00
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40	
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	



## TF25

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell, the TF25 can also be used for temperature measurement in liquid media. Depending on the application requirements, different PVC, silicone, high-temperature silicone and fibreglass cables are available.

### Technical Data

Measured values	temperature
Material in touch with media	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571) rolled (IP67), hex pressed (IP65), with tension spring (tensp)
Installation length	50 mm, 100 mm, 150 mm
Enclosure	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white
Operating range temperature	-50..+400 °C
Connection	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm <sup>2</sup>
Connection cable	0,25 mm <sup>2</sup> , <b>T400</b> : 0,22 mm <sup>2</sup> <b>T100</b> : PVC, <b>T125/T150/T180</b> : silicone, <b>T250</b> : HT-silicone, <b>T400</b> : GI/GI-V2A cable ends with conductor sleeves as standard
Length connection wire	1 m
Notes	PE connection wire available (please request)

## TF25 (-35..+100 °C)

Cable sensor -35..+100 °C – NTC10k			TP3
Item description	Item No.	€	
TF25 NTC10k T100 050.06 L1000	41539	11,30	
TF25 NTC10k T100 100.06 L1000	41812	12,70	
TF25 NTC10k T100 150.06 L1000	40723	13,10	

Cable sensor -35..+100 °C – PT100 DIN KI. B			TP3
Item description	Item No.	€	
TF25 PT100 T100 050.06 L1000	35019	12,60	
TF25 PT100 T100 100.06 L1000	35026	14,00	
TF25 PT100 T100 150.06 L1000	35033	14,40	

Cable sensor -35..+100 °C – PT100 1/3 DIN			TP3
Item description	Item No.	€	
TF25 PT100 1/3 DIN T100 050.06 L1000	25799	16,70	
TF25 PT100 1/3 DIN T100 100.06 L1000	35255	18,10	
TF25 PT100 1/3 DIN T100 150.06 L1000	35262	18,50	

Cable sensor -35..+100 °C – PT1000 DIN KI. B			TP3
Item description	Item No.	€	
TF25 PT1000 T100 050.06 L1000	35484	14,90	
TF25 PT1000 T100 100.06 L1000	35491	16,30	
TF25 PT1000 T100 150.06 L1000	35507	16,70	

Cable sensor -35..+100 °C – PT1000 1/3 DIN			TP3
Item description	Item No.	€	
TF25 PT1000 1/3 DIN T100 050.06 L1000	35729	18,30	
TF25 PT1000 1/3 DIN T100 100.06 L1000	35736	19,70	
TF25 PT1000 1/3 DIN T100 150.06 L1000	35743	20,10	

Cable sensor -35..+100 °C – Ni1000 DIN KI. B			TP3
Item description	Item No.	€	
TF25 Ni1000 T100 050.06 L1000	26116	14,60	
TF25 Ni1000 T100 100.06 L1000	26154	16,00	
TF25 Ni1000 T100 150.06 L1000	26192	16,40	

Cable sensor -35..+100 °C – Ni1000TK5000			TP3
Item description	Item No.	€	
TF25 Ni1000TK5000 T100 050.06 L1000	26352	18,30	
TF25 Ni1000TK5000 T100 100.06 L1000	26390	19,70	
TF25 Ni1000TK5000 T100 150.06 L1000	388238	20,10	

Options		€
Description	€	
Add per meter of connection cable 2-wire -35..+100 °C	1,10	
3-wire connection -35..+100 °C (3-wire)	1,90	
Add per meter of connection cable 3-wire -35..+100 °C	1,30	
4-wire connection -35..+100 °C (4-wire)	5,80	
Add per meter of connection cable 4-wire -35..+100 °C	1,50	
Connection enclosure USE-S incl. mounting base pure white	14,90	
Protection class IP67 (rolled)	2,20	
Tension spring (tensp)	1,50	
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00	
Add to price of NTC10k for sensor LM235Z	1,80	
Add to price of NTC10k for sensor FeT/Staefa	24,30	
Price reduction to NTC10k for sensor KTY81-110   KTY81-121   KTY81-122   KTY81-210	-2,30	

## TF25 (-50..+150 °C / -50..+180 °C)

Cable sensor -50..+150 °C – NTC10k			TP3
Item description	Item No.	€	
TF25 NTC10k T150 050.06 L1000	59466	15,10	
TF25 NTC10k T150 100.06 L1000	59473	16,60	
TF25 NTC10k T150 150.06 L1000	59480	16,90	

Cable sensor -50..+180 °C – PT100 DIN Kl. B			TP3
Item description	Item No.	€	
TF25 PT100 T180 050.06 L1000	52771	16,40	
TF25 PT100 T180 100.06 L1000	52788	17,90	
TF25 PT100 T180 150.06 L1000	52795	18,20	

Cable sensor -50..+180 °C – PT100 1/3 DIN			TP3
Item description	Item No.	€	
TF25 PT100 1/3 DIN T180 050.06 L1000	57493	20,50	
TF25 PT100 1/3 DIN T180 100.06 L1000	57509	22,00	
TF25 PT100 1/3 DIN T180 150.06 L1000	57516	22,30	

Cable sensor -50..+180 °C – PT1000 DIN Kl. B			TP3
Item description	Item No.	€	
TF25 PT1000 T180 050.06 L1000	58247	18,70	
TF25 PT1000 T180 100.06 L1000	58254	20,20	
TF25 PT1000 T180 150.06 L1000	58261	20,50	

Cable sensor -50..+180 °C – PT1000 1/3 DIN			TP3
Item description	Item No.	€	
TF25 PT1000 1/3 DIN T180 050.06 L1000	58483	22,10	
TF25 PT1000 1/3 DIN T180 100.06 L1000	58490	23,60	
TF25 PT1000 1/3 DIN T180 150.06 L1000	58506	23,90	

Cable sensor -50..+180 °C – Ni1000 DIN Kl. B			TP3
Item description	Item No.	€	
TF25 Ni1000 T180 050.06 L1000	58728	18,40	
TF25 Ni1000 T180 100.06 L1000	58735	19,90	
TF25 Ni1000 T180 150.06 L1000	58742	20,20	

Cable sensor -50..+180 °C – Ni1000TK5000		TP3
Item description	Item No.	€
TF25 Ni1000TK5000 T180 050.06 L1000	58964	22,10
TF25 Ni1000TK5000 T180 100.06 L1000	58971	23,60
TF25 Ni1000TK5000 T180 150.06 L1000	58988	23,90

Options		€
Description		€
Add per meter of connection cable 2-wire -50..+180 °C		1,90
3-wire connection -50..+180 °C (3-wire)		2,10
Add per meter of connection cable 3-wire -50..+180 °C		2,70
4-wire connection -50..+180 °C (4-wire)		5,80
Add per meter of connection cable 4-wire -50..+180 °C		3,20
Connection enclosure USE-S incl. mounting base pure white		14,90
Protection class IP67 (rolled)		2,20
Tension spring (tensp)		1,50
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k		0,00
Add to price of NTC10k for sensor LM235Z		1,80
Add to price of NTC10k for sensor FeT/Staefa		24,30
Price reduction to NTC10k for sensor KTY81-110   KTY81-121   KTY81-122   KTY81-210		-2,30

## TF25 (-50..+250 °C)

Cable sensor -50..+250 °C – PT100 DIN Kl. B		TP3
Item description	Item No.	€
TF25 PT100 T250 050.06 L1000	167406	20,70
TF25 PT100 T250 100.06 L1000	209731	21,40
TF25 PT100 T250 150.06 L1000	205658	21,70

Cable sensor -50..+250 °C – PT100 1/3 DIN		TP3
Item description	Item No.	€
TF25 PT100 1/3 DIN T250 050.06 L1000	195478	24,80
TF25 PT100 1/3 DIN T250 100.06 L1000	345835	25,50
TF25 PT100 1/3 DIN T250 150.06 L1000	388276	25,80

Cable sensor -50..+250 °C – PT1000 DIN Kl. B		TP3
Item description	Item No.	€
TF25 PT1000 T250 050.06 L1000	168717	23,00
TF25 PT1000 T250 100.06 L1000	209724	23,70
TF25 PT1000 T250 150.06 L1000	388283	24,00

Cable sensor -50..+250 °C – PT1000 1/3 DIN		TP3
Item description	Item No.	€
TF25 PT1000 1/3 DIN T250 050.06 L1000	356749	26,40
TF25 PT1000 1/3 DIN T250 100.06 L1000	356756	27,10
TF25 PT1000 1/3 DIN T250 150.06 L1000	388290	27,40

Cable sensor -50..+250 °C – Ni1000 DIN Kl. B		TP3
Item description	Item No.	€
TF25 Ni1000 T250 050.06 L1000	151863	22,70
TF25 Ni1000 T250 100.06 L1000	182430	23,40
TF25 Ni1000 T250 150.06 L1000	388306	23,70

Cable sensor -50..+250 °C – Ni1000TK5000		TP3
Item description	Item No.	€
TF25 Ni1000TK5000 T250 050.06 L1000	150781	26,40
TF25 Ni1000TK5000 T250 100.06 L1000	157018	27,10
TF25 Ni1000TK5000 T250 150.06 L1000	388313	27,40

Options	€
Description	€
Add per meter of connection cable 2-wire -50..+250 °C	3,10
3-wire connection -50..+250 °C (3-wire)	3,00
Add per meter of connection cable 3-wire -50..+250 °C	6,50
4-wire connection -50..+250 °C (4-wire)	6,70
Add per meter of connection cable 4-wire -50..+250 °C	7,40
Connection enclosure USE-S incl. mounting base pure white	14,90
Protection class IP67 (rolled)	2,20
Tension spring (tensp)	1,50

### **TF25 (-50..+400°C)**

Cable sensor -50..+400 °C	TP3	
Item description	Item No.	€
TF25 PT100 T400 050.06 L2000	166195	35,60
TF25 PT1000 T400 050.06 L2000	166201	37,90

Options	€
Description	€
Add per meter of connection cable 2-wire -50..+400 °C	5,20
Connection enclosure USE-S incl. mounting base pure white	14,90
Protection class IP67 (rolled)	2,20
Tension spring (tensp)	1,50

Accessories	Item No.	Group	€
Item description	Item No.	Group	€
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	13,50
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85

**TF25+**

Cable sensor for temperature measurement in HVAC or refrigeration applications. In combination with a thermowell, the TF25 can also be used for temperature measurement in liquid media. Depending on the application requirements, different PVC, silicone, high-temperature silicone and fibreglass cables are available.



TF25+



TF25+ BUS

0..10 V / 4..20 mA

**Technical Data**

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>TRV:</b> 24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~), <b>TRA:</b> max. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe, Ø=6 mm, stainless steel V4A (1.4571) 16-point pressed (IP65), rolled (IP67)
<b>Installation length</b>	50 mm, 100 mm, 150 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-50..+250 °C removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup>
<b>Connection</b>	<b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Connection cable</b>	silicone, 0,25 mm <sup>2</sup>
<b>Length connection wire</b>	1 m

Technical Data	
<b>Delivery content</b>	incl. mounting set (screws and accessories) <b>TRV/TRA:</b> incl. mounting base enclosure USE-S pure white <b>Relay/LCD/BUS:</b> incl. mounting base enclosure USE-M pure white
<b>Notes</b>	PE connection wire available (please request)

## **TF25+ 0..10 V (TRV) / 4..20 mA (TRA)**

<b>Cable sensor -50..+180 °C active 0..10 (0..5) V</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TF25+ TRV MultiRange T180 050.06 L1000		658959	TP2	73,60
TF25+ TRV MultiRange T180 100.06 L1000		658966	TP2	75,10
TF25+ TRV MultiRange T180 150.06 L1000		658973	TP2	75,50

<b>Cable sensor -50..+180 °C active 4..20 mA</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TF25+ TRA MultiRange T180 050.06 L1000		658980	TP2	73,60
TF25+ TRA MultiRange T180 100.06 L1000		658997	TP2	75,10
TF25+ TRA MultiRange T180 150.06 L1000		659000	TP2	75,50

<b>Options</b>				
<b>Description</b>	<b>€</b>			
Add per meter of connection cable 2-wire -50..+180 °C				1,90
Temperature -50..+250 °C (T250)				11,50
Add per meter of connection cable 2-wire -50..+250 °C				3,10

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70	
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70	
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	13,50	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40	
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	

**TF25+ LCD / BUS**

<b>Cable sensor -50..+160 °C active LCD</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TF25+ LCD TRV MultiRange T160 050.06 L1000	✓	707039	TP2	147,60
TF25+ LCD TRV MultiRange T160 100.06 L1000	✓	693806	TP2	149,10
<b>Cable sensor -50..+160 °C RS485 Modbus</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TF25+ RS485 Modbus T160 050.06 L1000	✓	659024	TP2	109,50
TF25+ RS485 Modbus T160 100.06 L1000	✓	668255	TP2	111,00
<b>Cable sensor -50..+160 °C RS485 BACnet (MS/TP)</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TF25+ RS485 BACnet (MS/TP) T160 050.06 L1000	✓	699723	TP2	109,50
TF25+ RS485 BACnet (MS/TP) T160 100.06 L1000	✓	699730	TP2	111,00
<b>Options</b>				
<b>Description</b>				<b>€</b>
Add per meter of connection cable 2-wire -50..+180 °C				1,90
Temperature -50..+250 °C (T250)				11,50
Add per meter of connection cable 2-wire -50..+250 °C				3,10
Add to price of RS485 Modbus for LON FT				75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board				74,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	AS2	6,70	
Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	AS1	6,70	
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	13,50	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40	
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85	
Mounting base enclosure USE-M pure white	668354	AS1	8,35	
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80	
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70	

Thermowells brass for sensors with pocket Ø=6 mm						
Item description	Length	Inst. length	Item No.	On stock	Group	€
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	●	AS2	8,35
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	●	AS2	9,45
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	●	AS2	9,95
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	●	AS2	10,40
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	●	AS2	11,90
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	●	AS2	12,30
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	●	AS2	12,60

Thermowells stainless steel for sensors with pocket Ø=6 mm						
Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	●	AS2	18,10
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	●	AS2	19,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	●	AS2	21,50
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	●	AS2	22,60
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	●	AS2	28,00
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	●	AS2	29,40
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	●	AS2	30,30
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	19,20



## TF14

Cable sensor for temperature measurement in HVAC applications. Depending on the application requirements, different PVC, silicone and PTFE cables are available. The TF14 with its 4 mm diameter pocket is well suited for fast response applications.

### Technical Data

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe: Ø=4 mm, stainless steel V4A (1.4571) 16-point pressed (IP65), rolled (IP67)
<b>Installation length</b>	50 mm, 100 mm, 150 mm
<b>Connection cable</b>	0,14 mm <sup>2</sup> <b>T100:</b> PVC, <b>T150/T180:</b> silicone, <b>T250:</b> PTFE
<b>Length connection wire</b>	1 m

## TF14 (-35..+100 °C)

<b>Cable sensor -35..+100 °C – NTC10k</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 NTC10k T100 050.04 L1000	73844	11,70	
TF14 NTC10k T100 100.04 L1000	73851	12,80	
TF14 NTC10k T100 150.04 L1000	73868	13,20	

<b>Cable sensor -35..+100 °C – PT100 DIN KI. B</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 PT100 T100 050.04 L1000	64347	13,00	
TF14 PT100 T100 100.04 L1000	57554	14,10	
TF14 PT100 T100 150.04 L1000	57561	14,50	

<b>Cable sensor -35..+100 °C – PT100 1/3 DIN</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 PT100 1/3 DIN T100 050.04 L1000	69106	17,10	
TF14 PT100 1/3 DIN T100 100.04 L1000	69113	18,20	
TF14 PT100 1/3 DIN T100 150.04 L1000	69120	18,60	

<b>Cable sensor -35..+100 °C – PT1000 DIN KI. B</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 PT1000 T100 050.04 L1000	69267	15,30	
TF14 PT1000 T100 100.04 L1000	69274	16,40	
TF14 PT1000 T100 150.04 L1000	69281	16,80	

<b>Cable sensor -35..+100 °C – PT1000 1/3 DIN</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 PT1000 1/3 DIN T100 050.04 L1000	69427	18,70	
TF14 PT1000 1/3 DIN T100 100.04 L1000	69434	19,80	
TF14 PT1000 1/3 DIN T100 150.04 L1000	69441	20,20	

<b>Cable sensor -35..+100 °C – Ni1000TK5000</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 Ni1000TK5000 T100 050.04 L1000	73240	18,70	
TF14 Ni1000TK5000 T100 100.04 L1000	73257	19,80	
TF14 Ni1000TK5000 T100 150.04 L1000	73264	20,20	

<b>Cable sensor -35..+100 °C – Ni1000 DIN KI. B</b>			TP3
<b>Item description</b>	<b>Item No.</b>	<b>€</b>	
TF14 Ni1000 T100 050.04 L1000	73080	15,00	
TF14 Ni1000 T100 100.04 L2000	73134	17,20	
TF14 Ni1000 T100 150.04 L1000	73103	16,50	

Options	€
Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,10
3-wire connection -35..+100 °C (3-wire)	1,90
Add per meter of connection cable 3-wire -35..+100 °C	1,30
4-wire connection -35..+100 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Connection enclosure USE-S incl. mounting base pure white	14,90
Protection class IP67 (rolled)	2,20
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor FeT/Staefa	24,30

### **TF14 (-50..+150 °C / -50..+180 °C)**

Cable sensor -50..+150 °C – NTC10k			TP3
Item description	Item No.	€	
TF14 NTC10k T150 050.04 L1000	80408	16,60	
TF14 NTC10k T150 100.04 L1000	81443	17,70	
TF14 NTC10k T150 150.04 L1000	80484	18,00	

Cable sensor -50..+180 °C – PT100 DIN KI. B			TP3
Item description	Item No.	€	
TF14 PT100 T180 050.04 L1000	64354	17,90	
TF14 PT100 T180 100.04 L1000	78009	19,00	
TF14 PT100 T180 150.04 L1000	78016	19,30	

Cable sensor -50..+180 °C – PT100 1/3 DIN			TP3
Item description	Item No.	€	
TF14 PT100 1/3 DIN T180 050.04 L1000	78207	22,00	
TF14 PT100 1/3 DIN T180 100.04 L1000	78214	23,10	
TF14 PT100 1/3 DIN T180 150.04 L1000	78221	23,40	

Cable sensor -50..+180 °C – PT1000 DIN KI. B			TP3
Item description	Item No.	€	
TF14 PT1000 T180 050.04 L1000	78405	20,20	
TF14 PT1000 T180 100.04 L1000	78443	21,30	
TF14 PT1000 T180 150.04 L1000	78481	21,60	

Cable sensor -50..+180 °C – PT1000 1/3 DIN			TP3
Item description	Item No.	€	
TF14 PT1000 1/3 DIN T180 050.04 L1000	78603	23,60	
TF14 PT1000 1/3 DIN T180 100.04 L1000	78641	24,70	
TF14 PT1000 1/3 DIN T180 150.04 L1000	78689	25,00	

Cable sensor -50..+180 °C – Ni1000 DIN KI. B			TP3
Item description	Item No.	€	
TF14 Ni1000 T180 050.04 L1000	78795	19,90	
TF14 Ni1000 T180 100.04 L1000	78832	21,00	
TF14 Ni1000 T180 150.04 L1000	78870	21,30	

Cable sensor -50..+180 °C – Ni1000TK5000			TP3
Item description	Item No.	€	
TF14 Ni1000TK5000 T180 050.04 L1000	78993	23,60	
TF14 Ni1000TK5000 T180 100.04 L1000	79037	24,70	
TF14 Ni1000TK5000 T180 150.04 L1000	79075	25,00	

Options	€
Description	€
Add per meter of connection cable 2-wire -50..+180 °C	1,90
3-wire connection -50..+180 °C (3-wire)	2,10
Add per meter of connection cable 3-wire -50..+180 °C	2,70
4-wire connection -50..+180 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -50..+180 °C	3,20
Connection enclosure USE-S incl. mounting base pure white	14,90
Protection class IP67 (rolled)	2,20
Add to price of NTC10k for sensor NTC10k Precon   NTC10k Carel   NTC1,8k   NTC5k   NTC20k	0,00
Add to price of NTC10k for sensor FeT/Staefa	24,30

## TF14 (-80..+250 °C)

Cable sensor -80..+250 °C – PT100 DIN KI. B			TP3
Item description	Item No.	€	
TF14 PT100 T250 050.04 L1000	95563	20,70	
TF14 PT100 T250 100.04 L1000	96126	21,40	
TF14 PT100 T250 150.04 L1000	96195	21,70	

Cable sensor -80..+250 °C – PT100 1/3 DIN			TP3
Item description	Item No.	€	
TF14 PT100 1/3 DIN T250 050.04 L1000	96775	24,80	
TF14 PT100 1/3 DIN T250 100.04 L1000	96805	25,50	
TF14 PT100 1/3 DIN T250 150.04 L1000	96843	25,80	

Cable sensor -80..+250 °C – PT1000 DIN KI. B			TP3
Item description	Item No.	€	
TF14 PT1000 T250 050.04 L1000	97185	23,00	
TF14 PT1000 T250 100.04 L1000	97239	23,70	
TF14 PT1000 T250 150.04 L1000	91510	24,00	

Cable sensor -80..+250 °C – PT1000 1/3 DIN			TP3
Item description	Item No.	€	
TF14 PT1000 1/3 DIN T250 050.04 L1000	91633	26,40	
TF14 PT1000 1/3 DIN T250 100.04 L1000	91671	27,10	
TF14 PT1000 1/3 DIN T250 150.04 L1000	91718	27,40	

Cable sensor -80..+250 °C – Ni1000 DIN KI. B			TP3
Item description	Item No.	€	
TF14 Ni1000 T250 050.04 L1000	91831	22,70	
TF14 Ni1000 T250 100.04 L1000	91879	23,40	
TF14 Ni1000 T250 150.04 L1000	91916	23,70	

Cable sensor -80..+250 °C – Ni1000TK5000			TP3
Item description	Item No.	€	
TF14 Ni1000TK5000 T250 050.04 L1000	97338	26,40	
TF14 Ni1000TK5000 T250 100.04 L1000	97376	27,10	
TF14 Ni1000TK5000 T250 150.04 L1000	97413	27,40	

Options	€
Description	€
Add per meter of connection cable 2-wire -50..+250 °C	3,10
Add per meter of connection cable 2-wire -80..+250 °C	5,80
3-wire connection -80..+250 °C (3-wire)	3,00
Add per meter of connection cable 3-wire -80..+250 °C	6,50
Connection enclosure USE-S incl. mounting base pure white	14,90
Protection class IP67 (rolled)	2,20

Accessories				
Item description	Item No.	Group	€	
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2	6,70	
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1	5,40	
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	13,50	
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85	
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40	
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85	

## TF14+



Cable sensor for temperature measurement in HVAC applications. Depending on the application requirements, different PVC, silicone and PTFE cables are available. A hinged cover and tool-free wiring as well as removable cable entries ensure a quick and easy installation. The TF14 with its 4 mm diameter pocket is well suited for fast response applications.

0..10 V / 4..20 mA     

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
Power supply	TRV: 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV TRA: 15..24 V = (±10%) SELV Relay/LCD/BUS: 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	TRV: typ. 0,4 W (24 V =), 0,8 VA (24 V ~) TRA: max. 0,5 W (24 V =) Relay/LCD/BUS: typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=4 mm, stainless steel V4A (1.4571) 16-point pressed (IP65), rolled (IP67)
Installation length	50 mm, 100 mm, 150 mm
Length connection wire	1 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	TRV/TRA: USE-S, impact- and shock-resistant enclosure with quick-release cover, PC Relay/LCD/BUS: USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+250 °C
Protection (IP)	IP65, according to EN 60529

**Technical Data**

<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm
<b>Connection cable</b>	0,14 mm <sup>2</sup> <b>T180:</b> silicone, <b>T250:</b> PTFE
<b>Delivery content</b>	incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories)

**Cable sensor -50..+180 °C active**

Item description	USEapp	Item No.	Group	€
TF14+ TRV MultiRange T180 050.04 L1000		658850	TP2	72,30
TF14+ TRV MultiRange T180 100.04 L1000		658867	TP2	73,80
TF14+ TRV MultiRange T180 150.04 L1000		658874	TP2	74,30
TF14+ TRA MultiRange T180 050.04 L1000		658881	TP2	72,30
TF14+ TRA MultiRange T180 100.04 L1000		658898	TP2	73,80
TF14+ TRA MultiRange T180 150.04 L1000		658904	TP2	74,30

**Options**

Description	€
Add per meter of connection cable 2-wire -50..+180 °C	1,90
Temperature -50..+250 °C (T250)	11,50
Add per meter of connection cable 2-wire -50..+250 °C	3,10
RS485 Modbus in enclosure USE-M with option board	76,00
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00
Protection class IP67 (rolled)	2,20

**Accessories**

Item description	Item No.	Group	€
Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	AS2	6,70
Mounting flange MF4 brass (suitable for Ø=4 mm)	102438	AS1	5,40
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	13,50
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85
Mounting clip enclosure USE-S pure white	667739	AS1	4,90
Mounting base enclosure USE-S pure white	667722	AS1	5,80

**PR25**

Contact sensor with connection cable and aluminum prism for temperature measurement (cold or hot water) on pipes and other suitable surfaces.

**Technical Data**

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe: Ø=11/15 mm, aluminium, hex pressed (IP65)
<b>Installation length</b>	28 mm
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection cable</b>	0,25 mm <sup>2</sup> , <b>T100:</b> PVC, <b>T180:</b> silicone
<b>Length connection wire</b>	1 m

**Contact Sensor -35..+100 °C passive**

Item description	Item No.	Group	€
PR25 PT100 T100 L1000	81696	TP2	19,20
PR25 PT100 1/3 DIN T100 L1000	94771	TP2	23,30
PR25 PT1000 T100 L1000	94894	TP2	21,50
PR25 PT1000 1/3 DIN T100 L1000	94931	TP2	24,90
PR25 Ni1000 T100 L1000	94979	TP2	21,20
PR25 Ni1000TK5000 T100 L1000	95686	TP2	24,90
PR25 NTC10k T100 L1000	95808	TP2	17,90
PR25 NTC10k Precon T100 L1000	95846	TP2	17,90
PR25 NTC5k T100 L1000	95761	TP2	17,90
PR25 NTC20k T100 L1000	362641	TP2	17,90
PR25 NTC1,8k T100 L1000	287128	TP2	17,90
PR25 KTY81-110 T100 L1000	95884	TP2	15,60
PR25 KTY81-121 T100 L1000	95921	TP2	15,60
PR25 KTY81-210 T100 L1000	96003	TP2	15,60
PR25 LM235Z T100 L1000	96089	TP2	19,70

Options	€
Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,10
3-wire connection -35..+100 °C (3-wire)	1,90
Add per meter of connection cable 3-wire -35..+100 °C	1,30
4-wire connection -35..+100 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -35..+100 °C	1,50
Temperature -50..+180 °C (T180)	4,00
Add per meter of connection cable 2-wire -50..+180 °C	1,90
3-wire connection -50..+180 °C (3-wire)	2,10
Add per meter of connection cable 3-wire -50..+180 °C	2,70
4-wire connection -50..+180 °C (4-wire)	5,80
Add per meter of connection cable 4-wire -50..+180 °C	3,20
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Carel	0,00

Accessories	Item No.	Group	€
Item description			
Syringe thermal contact fluid	102308	AS1	1,50
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85

**PR25+**

Contact sensor with connection cable and aluminum prism for temperature measurement (cold or hot water) on pipes and other suitable surfaces.



0..10 V / 4..20 mA   

Technical Data	
Measured values	temperature
Configuration	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
Network technology	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
Output signal temperature	scaling analogue output: 0..+160 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
Power supply	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
Power consumption	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> max. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> max. 2,5 W (24 V =), 4,3 VA (24 V ~)
Material in touch with media	Sensor probe, Ø=11/15 mm, aluminium, hex pressed (IP65)
Installation length	28 mm
Display	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
Enclosure	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
Colour	pure white, transparent cover
Operating range temperature	-50..+180 °C
Protection (IP)	IP65, according to EN 60529
Connection	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup> <b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
Connection cable	silicone, 0,25 mm <sup>2</sup>
Length connection wire	1 m

**Technical Data**

incl. fixing kit raw|plugs and screws (2x each)

**TRV/TRA:****Delivery content**

incl. mounting base enclosure USE-S pure white

**Relay/LCD/BUS:**

incl. mounting base enclosure USE-M pure white

**Contact Sensor -50..+180 °C active**

Item description	USEapp	Item No.	Group	€
PR25+ TRV MultiRange T180 L1000		658782	TP2	78,20
PR25+ TRA MultiRange T180 L1000		658799	TP2	78,20

**Options**

Description	€
Add per meter of connection cable 2-wire -50..+180 °C	1,90
RS485 Modbus in enclosure USE-M with option board	76,00
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00

**Accessories**

Item description	Item No.	Group	€
Syringe thermal contact fluid	102308	AS1	1,50
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85
Mounting clip enclosure USE-S pure white	667739	AS1	4,90
Mounting base enclosure USE-S pure white	667722	AS1	5,80

**OF14**

Surface-mounted sensor for temperature measurement on glass or similar surfaces.  
Designed for connecting to controls and display systems.

**Technical Data**

<b>Measured values</b>	temperature
<b>Material in touch with media</b>	Sensor probe, aluminium, 35x10x6 mm
<b>Installation length</b>	35 mm
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup> , 2-wire, white
<b>Length connection wire</b>	1 m
<b>Mounting</b>	surface mounting due to self-adhesive sensor surface

**Contact Sensor -35..+70 °C passive**

Item description	USEapp	Item No.	Group	€
OF14 PT100 L1000		132596	TP2	33,10
OF14 PT100 1/3 DIN L1000		167307	TP2	37,20
OF14 PT1000 L1000		114851	TP2	35,40
OF14 PT1000 1/3 DIN L1000		219303	TP2	38,80
OF14 Ni1000 L1000		113922	TP2	35,10
OF14 Ni1000TK5000 L1000		141864	TP2	38,80
OF14 NTC10k L1000		190367	TP2	31,80
OF14 NTC10k Precon L1000		165006	TP2	31,80
OF14 NTC5k L1000		351263	TP2	31,80
OF14 NTC20k L1000		147736	TP2	31,80
OF14 NTC1,8k L1000		356541	TP2	31,80
OF14 LM235Z L1000		216760	TP2	33,60

**Options**

Description	€
Add per meter of connection cable 2-wire -35..+100 °C	1,10
Connection enclosure USE-S incl. mounting base pure white	14,90
Add to price of NTC10k for sensor NTC10k Carel	0,00

**OF14+**

Surface-mounted sensor for temperature measurement on glass or similar surfaces.  
Designed for connecting to controls and display systems.

0..10 V / 4..20 mA

**Technical Data**

<b>Measured values</b>	temperature
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -50..+50   -20..+80   -15..+35   -10..+120   0..+50   0..+100   0..+160   0..+250 °C adjustable at the transducer, optionally configurable
<b>Power supply</b>	<b>TRV:</b> 15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV <b>TRA:</b> 15..24 V = (±10%) SELV <b>Relay/LCD/BUS:</b> 15..35 V = SELV, 19..29 V ~ SELV
<b>Power consumption</b>	<b>TRV:</b> typ. 0,4 W (24 V =), 0,8 VA (24 V ~) <b>TRA:</b> max. 0,5 W (24 V =) <b>Relay/LCD/BUS:</b> typ. 2,5 W (24 V =), 4,3 VA (24 V ~)
<b>Material in touch with media</b>	Sensor probe, aluminium, 35x10x6 mm
<b>Installation length</b>	35 mm
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	<b>TRV/TRA:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>Relay/LCD/BUS:</b> USE-M, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
	removable plug-in terminal, max. 2,5 mm <sup>2</sup> BUS max. 1,5 mm <sup>2</sup> , relay max. 1,5 mm <sup>2</sup>
<b>Connection</b>	<b>TRV/TRA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup> , 2-wire, white
<b>Length connection wire</b>	1 m
<b>Mounting</b>	surface mounting due to self-adhesive sensor surface
	incl. mounting set (screws and accessories)
<b>Delivery content</b>	<b>TRV/TRA:</b> incl. mounting base enclosure USE-S pure white <b>Relay/LCD/BUS:</b> incl. mounting base enclosure USE-M pure white

<b>Contact Sensor -35..+70 °C active</b>				
<b>Item description</b>	<b>USEapp</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
OF14+ TRV3 L1000		658812	TP2	92,70
OF14+ TRA3 L1000		658836	TP2	92,70

<b>Options</b>	
<b>Description</b>	<b>€</b>
Add per meter of connection cable 2-wire -35..+100 °C	1,10
RS485 Modbus in enclosure USE-M with option board	76,00
RS485 BACnet (MS/TP) in enclosure USE-M with option board	76,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight in enclosure USE-M with option board	74,00

<b>Accessories</b>				
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>	
Mounting clip enclosure USE-S pure white	667739	AS1	4,90	
Mounting base enclosure USE-S pure white	667722	AS1	5,80	
Mounting kit universal for enclosure USE	698511	AS1	9,30	

# Frost Protection Condensation Leakage

Our frost protection thermostats, condensation monitors and leakage sensors protect sensitive electronics from leakage damages which often result in expensive system failures or even dropouts.



## Condensation Monitors

WK02+	Condensation, temperature, humidity	316
WK01+	Condensation	318

## Leakage Detectors

LS02+	Leakage	320
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## Frost Protection Thermostats

TFR	Temperature	322
TFRe	Temperature	323

**WK02+**

Condensation sensor with an LED signal and a relay output to prevent condensation on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water flow upon condensation. The „ext.“ model uses a 2m remote sensor for a more flexible installation.



BACnet Modbus LON

**Technical Data**

<b>Measured values</b>	temperature, relative humidity, absolute humidity, enthalpy, dew point, condensation
<b>Configuration</b>	USEapp, BUS, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Output signal temperature</b>	scaling analogue output: 0..+50 °C (default setting) selectable from 4 temperature ranges -40..+60   0..+50   -20..+80   -15..+35 °C, optionally configurable
<b>Measuring range humidity</b>	0..100% rH non-condensing, 0..85 KJ/kg enthalpy, 0..50   0..80 g/m³ absolute humidity, 0..+50   -20..+80 °C dew point, optionally configurable
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV 230 V ~ (±10%)
<b>Power consumption</b>	typ. 0,8 W (24 V =), 1,6 VA (24 V ~) typ. 3,5 W (230 V ~)
<b>Display</b>	LCD 29x35 mm, RGB backlight LED green – power supply OK, LED red – condensation
<b>Enclosure</b>	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm², BUS max. 1,5 mm² removable cable entry flextherm M20 for wire Ø=4,5..9 mm removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Connection cable</b>	PVC, 0,25 mm², white

**Technical Data**

<b>Length connection wire</b>	2 m
<b>Delivery content</b>	incl. mounting base enclosure USE-L pure white incl. mounting set (screws and accessories) incl. cable tie 140x3,6 mm incl. syringe thermal contact fluid 2 ml

**Condensation sensor 24 V**

Item description	USEapp	Item No.	Group	€
WK02+ ext. 24 V L2000	✓	737180	HU2	150,40

**Condensation sensor 230 V**

Item description	USEapp	Item No.	Group	€
WK02+ ext. 230 V L2000	✓	737197	HU2	163,80

**Options**

Description	€
Add per meter of connection cable PVC	1,10
RS485 Modbus	45,00
RS485 BACnet (MS/TP)	45,00
Add to price of RS485 Modbus for LON FT	75,90
LCD 29x35 mm, RGB backlight	43,00

**Accessories**

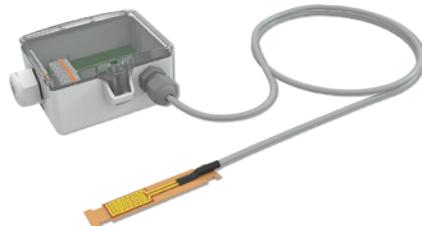
Item description	Item No.	Group	€
Mounting base enclosure USE-L pure white	668361	AS1	11,60
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80

## **WK01+**

Condensation sensor with an LED signal and a relay output for condensation detection on chilled surfaces. For control and monitoring applications or connection to cooling valves to stop the flow of chilled water upon condensation detection. The 'ext.' model uses a 2 m remote sensor for a more flexible installation.



WK01+ 24 V



WK01+ ext. 230 V

<b>Technical Data</b>	
<b>Measured values</b>	condensation
<b>Power supply</b>	<b>24 V:</b> 15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV <b>230 V:</b> 230 V ~ ( $\pm 10\%$ )
<b>Power consumption</b>	<b>24 V:</b> typ. 0,8 W (24 V =), 1,6 VA (24 V ~) <b>230 V:</b> typ. 3,5 W (230 V ~)
<b>Display</b>	LED green – power supply OK, LED red – condensation
<b>Enclosure</b>	<b>24 V:</b> USE-S, impact- and shock-resistant enclosure with quick-release cover, PC <b>230 V:</b> USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating ranges temperature</b>	<b>24 V:</b> 0..+50 <b>230 V:</b> -20..+60
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable cable entry flextherm M20 for wire Ø=4,5..9 mm removable plug-in terminal, max. 2,5 mm <sup>2</sup>
<b>Connection cable (WK01+ ext.)</b>	PVC, 0,25 mm <sup>2</sup> , grey
<b>Length connection wire (WK01+ ext.)</b>	2 m
<b>Delivery content</b>	incl. mounting set (screws and accessories) incl. cable tie 140x3,6 mm incl. syringe thermal contact fluid 2 ml <b>24 V:</b> incl. mounting base enclosure USE-S pure white <b>230 V:</b> incl. mounting base enclosure USE-L pure white

**Condensation sensor 24 V**

Item description	Item No.	Group	€
WK01+ 24 V	659215	HU2	99,30
WK01+ ext. 24 V L2000	659222	HU2	114,50

**Condensation sensor 230 V**

Item description	Item No.	Group	€
WK01+ ext. 230 V L2000	659246	HU2	157,80

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting base enclosure USE-L pure white	668361	AS1	11,60
Mounting kit universal for enclosure USE	698511	AS1	9,30
Syringe thermal contact fluid	102308	AS1	1,50

**LS02+**

Leakage detector with relay output and two signalling LEDs designed for alarm, control and monitoring applications of containers, false floors, suspended ceilings or rooms for preventing unintended ingress of water. The sensor can be adjusted to different heights so that the response time of the sensor can be adapted to the water level that is to be detected. The type flex detects water or liquid intrusion over the entire length of the sensor rod. A potential-free switching contact is used for communication with the higher-level control system. Thanks to the compact design of the sensor rod, the sensor can be mounted in a variety of places (floors, ceilings, etc.) to save space. The sophisticated and highly flexible insulation braiding also allows direct mounting on water-bearing pipe systems. The sensor rod can easily be shortened on site.



LS02+



LS02+ ext.



LS02+ flex

Technical Data	
<b>Measured values</b>	leakage
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	typ. 0,6 W (24 V =), typ. 0,8 W (24 V =), 1,2 VA (24 V ~), 1,6 VA (24 V ~)
<b>Material in touch with media</b>	Sensor rod: PVC sheathed with PBT braiding stainless steel V4A (1.4401), stainless steel V2A (1.4305)
<b>Display</b>	LED green – power supply OK, LED red – alarm, leakage detected
<b>Enclosure</b>	USE-S, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-35..+90 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable cable entry flextherm M20 for wire Ø=4,5..9 mm, removable plug-in terminal, max. 2,5 mm <sup>2</sup>
<b>Connection cable</b>	PVC, 0,25 mm <sup>2</sup>
<b>Length connection wire</b>	2 m, 5 m
<b>Mounting</b>	<b>LS02+:</b> level compensation through adjustable contacts <b>LS02+ ext.:</b> level compensation through spring contacts <b>LS02+ flex:</b> additional fixation of the sensor rod possible with adhesive pads (see accessories)
<b>Delivery content</b>	<b>LS02+ ext. / LS02+ flex:</b> incl. mounting base enclosure USE-S pure white incl. mounting set (screws and accessories) incl. fixing kit raw/plugs and screws (2x each)

**Water leak detector detector electrodes**

Item description	Item No.	Group	€
LS02+	659253	HU2	92,50
LS02+ ext. L5000	765725	HU2	107,80

**Water leak detector flex**

Item description	Item No.	Group	€
LS02+ flex L2000	778848	HU2	141,70
LS02+ flex L5000	778572	HU2	186,90

**Accessories**

Item description	Item No.	Group	€
Mounting base enclosure USE-S pure white	667722	AS1	5,80
Mounting kit universal for enclosure USE	698511	AS1	9,30
Fixing kit rawlplugs and screws (2x each)	660945	AS1	0,90
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1	8,90



## TFR

Frost protection thermostat for downstream temperature monitoring of e.g. heat exchangers in ventilation and air-conditioning systems. The product offers a small differential gap and a high reproducibility. Resetting can be done automatically or manually (type ,R'). The frost protection thermostat can be used to perform the following functions: stop fan, close outside air dampers, open heating valve 100%, start heating pump, switch-off chiller (condenser) and de-/humidifier, trigger visual and/or audible frost alarm.

### Technical Data

<b>Measured values</b>	temperature
<b>Operating elements</b>	rotary knob, reset button
<b>Material in touch with media</b>	Capillary pipe, copper with tube filling R507 sensor operating length approx. 600 mm contact material Ag/Ni (90%/10%), gold plated (3 µm)
<b>Installation length</b>	1800 mm, 3000 mm, 6000 mm, 12000 mm
<b>Enclosure</b>	PA6 GK30
<b>Operating range temperature</b>	-35..+70 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm, terminal block, max. 2,5 mm <sup>2</sup>
<b>Delivery content</b>	incl. installation set
<b>Notes</b>	mounting flange MF2 useable from installation length 3000 mm

### Frost protection thermostat automatical reset

Item description	Item No.	Group	€
TFR 1800	426435	TP1	80,10
TFR 3000	430371	TP1	75,70
TFR 6000	430395	TP1	78,50
TFR 12000	541916	TP1	91,50

### Frost protection thermostat manual reset

Item description	Item No.	Group	€
TFR-R 1800	430364	TP1	95,90
TFR-R 3000	430388	TP1	94,10
TFR-R 6000	430401	TP1	94,70
TFR-R 12000	656061	TP1	117,90

### Accessories

Item description	Item No.	Group	€
Mounting flange MF2 (suitable for TFR)	435642	AS1	6,70
Installation set TFR / MWF+	679466	AS1	8,90



## TFRe

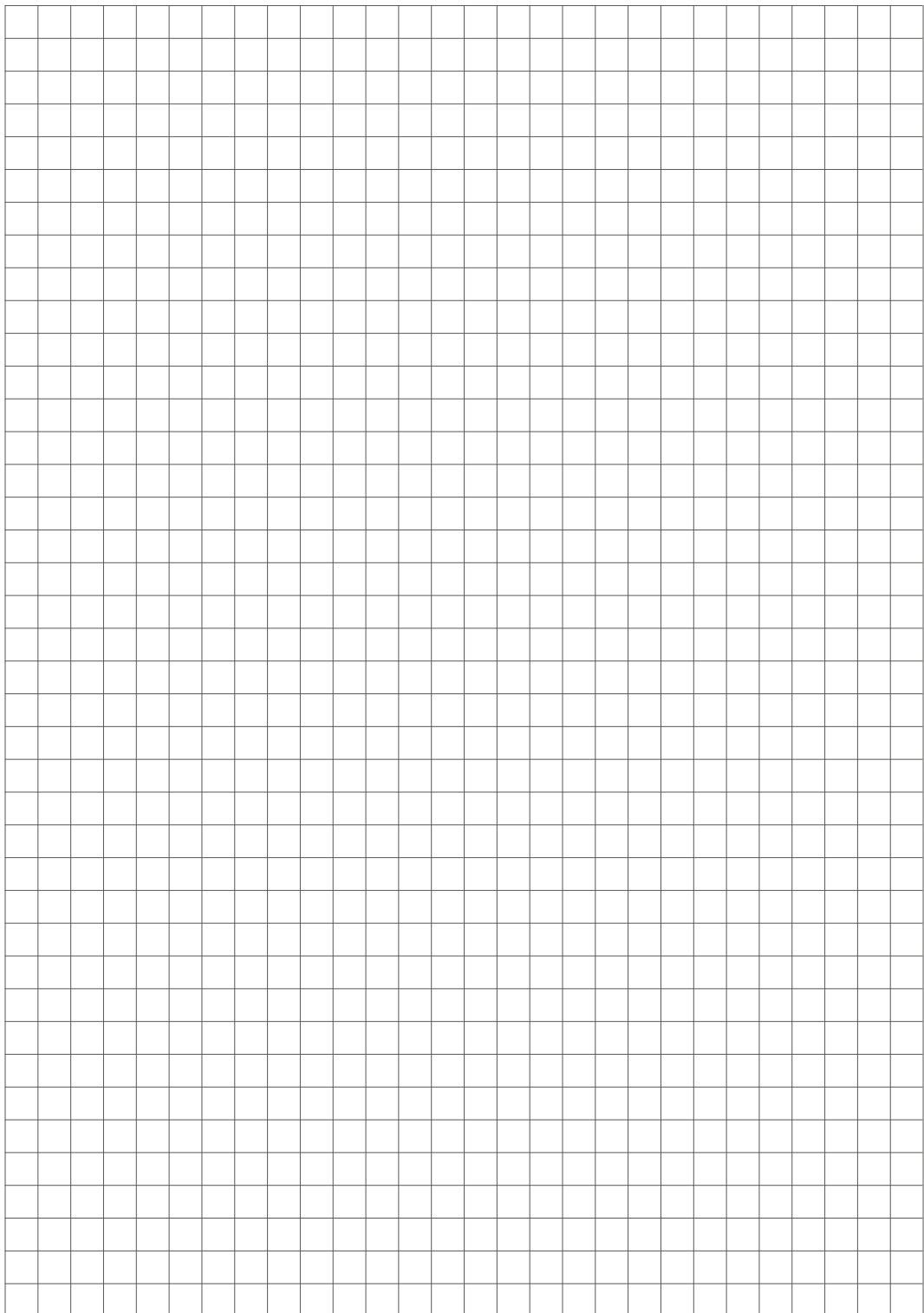
Electronic frost protection thermostat for downstream temperature monitoring of e.g. heat exchangers in ventilation and air-conditioning systems. Integrated P-controller for constant control of a heat exchanger valve within its intended operating range. Safety shutdown of the fan and - if necessary - closing the air inlet flaps to protect the heat exchanger in case set thresholds are exceeded. Temperature measurement optionally with a contact sensor, immersion sensor or cable sensor with up to four selectable sensor characteristic curves. For a quick temperature measurement in the return water pipe of the heat exchanger, a fast-response sensor (e.g. TF14 with KL4VA) should be used.

### Technical Data

<b>Measured values</b>	temperature
<b>Operating elements</b>	2 rotary knobs (Talarm and Xp)
<b>Configuration</b>	DIP switches
<b>Input</b>	1x input sensor PT1000 (default), NTC10K, Ni1000, Ni1000TK5000 1x input for external controller for defining set point 1x input for floating contact
<b>Output signal temperature</b>	0..+100 °C
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	max. 2 VA (24 V ~)
<b>Display</b>	LED green – indicator valve OUT, LED red – alarm, LED yellow – fan
<b>Enclosure</b>	ABS
<b>Colour</b>	white
<b>Operating range temperature</b>	-40..+70 °C
<b>Protection (IP)</b>	IP20, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

### Electronic frost protection thermostat

Item description	Item No.	Group	€
TFRe	667203	TP1	131,20



# Pressure and Velocity

Pressure and air flow sensors for cooling and air conditioning must resist extreme conditions. Therefore our products are customized to withstand even the harshest environments.



## Air Pressure Sensors

DPA+	Differential pressure, volume flow	326
PS	Differential pressure	332
AVT	Air flow, temperature	333

## Air Pressure / Liquid Sensors

DLF	Pressure	334
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## Liquid Sensors

DPL	Differential pressure	337
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## Manometer

MM	Differential pressure	338
DPG	Differential pressure	339
DPGe	Differential pressure	340

## DPA+

Differential pressure transmitter for measuring and monitoring overpressure, underpressure, differential pressure and flow volume of air and other non-aggressive gases in fan and filter systems in duct applications. 8 adjustable pressure and flow volume ranges permit use in HVAC applications of clean rooms, process measurement and controls systems. The optional features, such as relay outputs for 2-point controllers or 2-stage 2-point controllers, an LCD with traffic light indication allow for a wide range of applications. A hinged cover and tool-

free wiring as well as removable cable entries ensure a quick and easy installation. 'Dual' versions with 2 independent sensors for up to 2x differential pressures or 2x flow volume in a single enclosure are available. The mounting base (included in the delivery content) can be used to mount the DPA+ on a flat surface or on DIN rail TS35 (35x7,5 mm) in accordance with EN 60715.



DPA+



DPA+ LCD



DPA+  
with additional cable entry  
(refer to mounting accessories USE)



DPA+ Dual



DPA+ Dual LCD

**Technical Data**

<b>Measured values</b>	differential pressure, volume flow, pressure in Pa or inchWC, optionally configurable via app or uConfig
<b>Configuration</b>	USEapp, uConfig, BUS, jumper, DIP switches (depending on type)
<b>Network technology</b>	RS485 Modbus, RS485 BACnet (MS/TP), LON FT (free topology)
<b>Measuring range pressure</b>	<p><b>DPA250+:</b> 0..+25   0..+50   0..+100   0..+250   -25..+25   -50..+50   -100..+100   -150..+150 Pa, 0..+250 Pa (default setting)</p> <p><b>DPA2500+:</b> -100..+100   0..+100   0..+250   0..+500   0..+1000   0..+1500   0..+2000   0..+2500 Pa, 0..+2500 Pa (default setting)</p> <p><b>DPA7000+:</b> 0..+1000   0..+1500   0..+2000   0..+2500   0..+3000   0..+4000   0..+5000   0..+7000 Pa, 0..+7000 Pa (default setting)</p> <p>selectable at the device</p>
<b>Measuring range velocity</b>	0..750.000 m³/h, optionally configurable
<b>Power supply</b>	15..35 V = SELV, 19..29 V ~ SELV <b>AA:</b> 15..35 V = SELV
<b>Power consumption</b>	max. 2,5 W (24 V ~), 4,3 VA (24 V ~)
<b>Display</b>	LCD 29x35 mm, RGB backlight, with traffic light function, threshold values configurable, optionally configurable via app or uConfig
<b>Enclosure</b>	USE-L, impact- and shock-resistant enclosure with quick-release cover, PC
<b>Colour</b>	pure white, transparent cover
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	removable plug-in terminal, max. 2,5 mm², BUS max. 1,5 mm², relay max. 1,5 mm² inputs max. 1,0 mm² pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft <b>VV/4xV/AA:</b> removable cable entry flextherm M20 for wire Ø=4,5..9 mm <b>Relay/BUS:</b> removable cable entry M25 with fourfold cable entry for wire with max. Ø=7 mm
<b>Mounting</b>	surface-mounted flat on base using screws prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Delivery content</b>	incl. mounting base enclosure USE-L pure white incl. mounting set (screws and accessories) incl. pressure connection set and 2 m PVC connection hose
<b>Notes</b>	output protection circuit (reverse polarity protected)

## DPA+ VV / AA

Differential pressure and volume flow transducer active 0..10 (0..5) V				
Item description	USEapp	Item No.	Group	€
DPA250+ VV MultiRange	✓	659321	PR2	135,20
DPA2500+ VV MultiRange	✓	659369	PR2	135,20
DPA7000+ VV MultiRange	✓	659376	PR2	135,20
DPA250+ VV AZ MultiRange	✓	692397	PR2	192,10
DPA2500+ VV AZ MultiRange	✓	675970	PR2	192,10
DPA7000+ VV AZ MultiRange	✓	675994	PR2	192,10

Differential pressure and volume flow transducer active 4..20 mA				
Item description	USEapp	Item No.	Group	€
DPA250+ AA MultiRange	✓	666978	PR2	135,20
DPA2500+ AA MultiRange	✓	666985	PR2	135,20
DPA7000+ AA MultiRange	✓	666992	PR2	135,20
DPA250+ AA AZ MultiRange	✓	691598	PR2	192,10
DPA2500+ AA AZ MultiRange	✓	693981	PR2	192,10
DPA7000+ AA AZ MultiRange	✓	705325	PR2	192,10

Differential pressure and volume flow transducer active 0..10 (0..5) V + relay				
Item description	USEapp	Item No.	Group	€
DPA250+ VV MultiRange relay	✓	663687	PR1	180,20
DPA2500+ VV MultiRange relay	✓	663694	PR1	180,20
DPA7000+ VV MultiRange relay	✓	663700	PR1	180,20

Options				
Description	€			
Automatic zero-point calibration (AZ)	56,90			

## DPA+ VV LCD / AA LCD

Differential pressure and volume flow transducer active 0..10 (0..5) V LCD				
Item description	USEapp	Item No.	Group	€
DPA250+ LCD VV MultiRange	✓	659383	PR1	178,20
DPA2500+ LCD VV MultiRange	✓	659390	PR1	178,20
DPA7000+ LCD VV MultiRange	✓	659406	PR1	178,20
DPA250+ LCD VV AZ MultiRange	✓	688420	PR1	235,10
DPA2500+ LCD VV AZ MultiRange	✓	676007	PR1	235,10
DPA7000+ LCD VV AZ MultiRange	✓	676021	PR1	235,10

**Differential pressure and volume flow transducer active 4..20 mA LCD**

Item description	USEapp	Item No.	Group	€
DPA250+ LCD AA MultiRange	✓	667104	PR1	178,20
DPA2500+ LCD AA MultiRange	✓	667111	PR1	178,20
DPA7000+ LCD AA MultiRange	✓	667128	PR1	178,20
DPA250+ LCD AA AZ MultiRange	✓	700962	PR1	235,10
DPA2500+ LCD AA AZ MultiRange	✓	679725	PR1	235,10
DPA7000+ LCD AA AZ MultiRange	✓	703147	PR1	235,10

**Differential pressure and volume flow transducer active 0..10 (0..5) V + relay LCD**

Item description	USEapp	Item No.	Group	€
DPA250+ LCD VV MultiRange relay	✓	663724	PR1	223,20
DPA2500+ LCD VV MultiRange relay	✓	663748	PR1	223,20
DPA7000+ LCD VV MultiRange relay	✓	663755	PR1	223,20

**Options**

Description	€
Automatic zero-point calibration (AZ)	56,90

**DPA+ BUS****Differential pressure and volume flow transducer RS485 Modbus**

Item description	USEapp	Item No.	Group	€
DPA250+ RS485 Modbus MultiRange	✓	659413	PR1	139,70
DPA2500+ RS485 Modbus MultiRange	✓	659420	PR1	139,70
DPA7000+ RS485 Modbus MultiRange	✓	659437	PR1	139,70
DPA250+ RS485 Modbus AZ MultiRange	✓	693745	PR1	196,60
DPA2500+ RS485 Modbus AZ MultiRange	✓	676083	PR1	196,60
DPA7000+ RS485 Modbus AZ MultiRange	✓	676090	PR1	196,60

**Differential pressure and volume flow transducer RS485 BACnet (MS/TP)**

Item description	USEapp	Item No.	Group	€
DPA250+ RS485 BACnet (MS/TP) MultiRange	✓	700221	PR1	139,70
DPA2500+ RS485 BACnet (MS/TP) MultiRange	✓	700238	PR1	139,70
DPA7000+ RS485 BACnet (MS/TP) MultiRange	✓	700252	PR1	139,70
DPA250+ RS485 BACnet (MS/TP) AZ MultiRange	✓	705387	PR1	196,60
DPA2500+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700306	PR1	196,60
DPA7000+ RS485 BACnet (MS/TP) AZ MultiRange	✓	700313	PR1	196,60

## DPA+ BUS LCD

Differential pressure and volume flow transducer RS485 Modbus LCD				
Item description	USEapp	Item No.	Group	€
DPA250+ LCD RS485 Modbus MultiRange	✓	659444	PR1	182,70
DPA2500+ LCD RS485 Modbus MultiRange	✓	659451	PR1	182,70
DPA7000+ LCD RS485 Modbus MultiRange	✓	659468	PR1	182,70
DPA250+ LCD RS485 Modbus AZ MultiRange	✓	697767	PR1	239,60
DPA2500+ LCD RS485 Modbus AZ MultiRange	✓	676106	PR1	239,60
DPA7000+ LCD RS485 Modbus AZ MultiRange	✓	676113	PR1	239,60

Differential pressure and volume flow transducer RS485 BACnet (MS/TP) LCD				
Item description	USEapp	Item No.	Group	€
DPA250+ LCD RS485 BACnet (MS/TP) MultiRange	✓	700269	PR1	182,70
DPA2500+ LCD RS485 BACnet (MS/TP) MultiRange	✓	682855	PR1	182,70
DPA7000+ LCD RS485 BACnet (MS/TP) MultiRange	✓	683463	PR1	182,70
DPA250+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	705370	PR1	239,60
DPA2500+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700320	PR1	239,60
DPA7000+ LCD RS485 BACnet (MS/TP) AZ MultiRange	✓	700337	PR1	239,60

Options				
Description	€			
2x input for NTC10k or floating contact (2IN)	30,80			
Add to price of RS485 Modbus for LON FT	75,90			
Automatic zero-point calibration (AZ)	56,90			

## DPA+ Dual VV / 4xV / AA (LCD)

Dual differential pressure transducer active				
Item description	USEapp	Item No.	Group	€
DPA2500+ Dual VV MultiRange	✓	700344	PR1	202,00
DPA2500+ Dual AA MultiRange	✓	702898	PR1	202,00
DPA2500+ LCD Dual VV MultiRange	✓	705417	PR1	245,00
DPA2500+ LCD Dual AA MultiRange	✓	705431	PR1	245,00

Dual differential pressure and volume flow transducer active				
Item description	USEapp	Item No.	Group	€
DPA2500+ Dual 4xV MultiRange	✓	705448	PR1	215,00
DPA2500+ LCD Dual 4xV MultiRange	✓	700351	PR1	258,00

Options	€
Description	
Automatic zero-point calibration dual (2x AZ)	113,80

## DPA+ Dual BUS (LCD)

Dual differential pressure and volume flow transducer BUS				
Item description	USEapp	Item No.	Group	€
DPA2500+ Dual RS485 Modbus	✓	703000	PR1	225,10
DPA2500+ LCD Dual RS485 Modbus	✓	705455	PR1	268,10
DPA2500+ Dual RS485 BACnet (MS/TP)	✓	703017	PR1	225,10
DPA2500+ LCD Dual RS485 BACnet (MS/TP)	✓	705462	PR1	268,10

Options	€
Description	
2x input for NTC10k or floating contact (2IN)	30,80
Add to price of RS485 Modbus for LON FT	75,90
Automatic zero-point calibration dual (2x AZ)	113,80

## Accessories

Accessories	Item No.	Group	€
Item description			
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	31,50
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,50
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,30
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,10
Mounting base enclosure USE-L pure white	668361	AS1	11,60
Mounting kit universal for enclosure USE	698511	AS1	9,30
BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70



## PS

Adjustable differential pressure switch for air and other non-flammable and non-aggressive gases. Designed for monitoring air filters, fans, damper actuators and other industrial processes. Mounting accessories are included in the delivery content.

### Technical Data

<b>Measured values</b>	differential pressure
<b>Measuring range pressure</b>	<b>PS300:</b> 30..300 Pa <b>PS500:</b> 30..500 Pa <b>PS1500:</b> 100..1500 Pa <b>PS4500:</b> 500..4500 Pa
<b>Enclosure</b>	ABS, membrane silicone
<b>Colour</b>	pure white, translucent cover PC
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP54, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm <sup>2</sup> pressure connection male Ø=5,0 mm / Ø=6,3 mm connection tube: PVC, soft
<b>Delivery content</b>	incl. fixing screws (2x) incl. pressure connection set and 2 m PVC connection hose

### Differential pressure switch

Item description	Item No.	Group	€
PS300	269971	PR2	31,00
PS500	269995	PR2	31,00
PS1500	255202	PR2	31,00
PS4500	273138	PR2	31,00

### Accessories

Item description	Item No.	Group	€
Mounting bracket kit for differential pressure switch 135x74x60 mm	669009	AS1	8,80
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	31,50
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,50
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,30
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,10



## AVT

Air velocity transmitter with 3 field-selectable measuring ranges for measuring and monitoring air velocities in ventilation systems in order to control regulation flaps or damper actuators. An integrated LCD and relay contacts for limiting the air volume are available as options.

### Technical Data

<b>Measured values</b>	temperature, Air velocity
<b>Configuration</b>	jumper
<b>Output signal temperature</b>	0..+50 °C
<b>Measuring range velocity</b>	0..2, 0..10, 0..20 m/s, optionally configurable
<b>Power supply</b>	15..24 V = (±10%) SELV, 24 V ~ (±10%) SELV
<b>Power consumption</b>	max. 2 W, max. 2,4 W
<b>Material in touch with media</b>	Sensor probe: stainless steel V2A (1.4305), length 210 mm
<b>Installation length</b>	195
<b>Display</b>	LCD 3.5", 45.7x12.7 mm to show measured value
<b>Enclosure</b>	ABS, cover PC
<b>Colour</b>	light grey
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP54, according to EN 60529
<b>Connection</b>	terminal block, max. 1,5 mm <sup>2</sup> cable entry M16 for wire Ø=8 mm <b>Relay:</b> 2x cable entry M16 for wire Ø=8 mm
<b>Delivery content</b>	incl. mounting flange
<b>Notes</b>	adjustable immersion length using mounting flange 50..180 mm adjustable switching threshold and hysteresis

### Air velocity and temperature transmitter

Item description	Item No.	Group	€
AVT	430005	PR1	154,50
AVT LCD	430036	PR1	198,20
AVT LCD relay	430067	PR1	219,00

## DLF

Pressure transmitter for measuring absolute pressure of liquids, air or non-aggressive gases. Designed for use in refrigeration, hydraulics, production plants and processes. The dense stainless steel membrane makes the sensor suitable for use with refrigerants as well. For a quick & easy connection, a 5 m cable with a pre-installed connector is available (see 'Accessories'). The DLF can be optionally equipped with a 4-digit LED display.



DLF



DLF UD-V / DLF UD-A

0..10 V / 4..20 mA

Technical Data	
<b>Measured values</b>	pressure  DLF-1..0: -1..0 bar DLF1: 0..1 bar DLF1,6: 0..1,6 bar DLF2: 0..2 bar DLF2,5: 0..2,5 bar DLF4: 0..4 bar DLF6: 0..6 bar DLF10: 0..10 bar DLF16: 0..16 bar DLF25: 0..25 bar DLF40: 0..40 bar DLF60: 0..60 bar DLF100: 0..100 bar
<b>Measuring range pressure</b>	
<b>Power supply</b>	V: 15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV A: 15..24 V = ( $\pm 10\%$ ) SELV,
<b>Power consumption</b>	V: typ. 0,15 W (24 V =), 0,3 VA (24 V ~) A: typ. 0,5 W (24 V =),
<b>Material in touch with media</b>	stainless steel V2A (1.4305), G1/2", G1/4"
<b>Operating range temperature</b>	-40..+125 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	cable gland for wires with Ø=8 mm max. plug MVS according to DIN 175301-803

**Pressure transducer 0..10 V G1/4"**

Item description	Item No.	Group	€
DLF-1..0 V G1/4"	665070	PR1	110,90
DLF1 V G1/4"	665087	PR1	110,90
DLF1,6 V G1/4"	665094	PR1	110,90
DLF2 V G1/4"	665100	PR1	110,90
DLF2,5 V G1/4"	665117	PR1	110,90
DLF4 V G1/4"	665124	PR1	110,90
DLF6 V G1/4"	665131	PR1	110,90
DLF10 V G1/4"	665148	PR1	110,90
DLF16 V G1/4"	665155	PR1	110,90
DLF25 V G1/4"	665162	PR1	110,90
DLF40 V G1/4"	665179	PR1	110,90
DLF60 V G1/4"	665186	PR1	110,90
DLF100 V G1/4"	665193	PR1	110,90

**Pressure transducer 0..10 V G1/2"**

Item description	Item No.	Group	€
DLF-1..0 V G1/2"	682541	PR1	117,80
DLF1 V G1/2"	681193	PR1	117,80
DLF1,6 V G1/2"	682558	PR1	117,80
DLF2 V G1/2"	682565	PR1	117,80
DLF2,5 V G1/2"	681209	PR1	117,80
DLF4 V G1/2"	681216	PR1	117,80
DLF6 V G1/2"	681223	PR1	117,80
DLF10 V G1/2"	681230	PR1	117,80
DLF16 V G1/2"	681247	PR1	117,80
DLF25 V G1/2"	681254	PR1	117,80
DLF40 V G1/2"	682572	PR1	117,80
DLF60 V G1/2"	682589	PR1	117,80
DLF100 V G1/2"	682596	PR1	117,80

**Accessories**

Item description	Item No.	Group	€
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	13,30
UD-V – universal display for 0..10 V	775113	AS1	89,00

<b>Pressure transducer 4..20 mA G1/4"</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
DLF-1..0 A G1/4"	665209	PR1	105,00
DLF1 A G1/4"	665216	PR1	105,00
DLF1,6 A G1/4"	665223	PR1	105,00
DLF2 A G1/4"	665230	PR1	105,00
DLF2,5 A G1/4"	665247	PR1	105,00
DLF4 A G1/4"	665254	PR1	105,00
DLF6 A G1/4"	665261	PR1	105,00
DLF10 A G1/4"	665278	PR1	105,00
DLF16 A G1/4"	665285	PR1	105,00
DLF25 A G1/4"	665292	PR1	105,00
DLF40 A G1/4"	665308	PR1	105,00
DLF60 A G1/4"	665315	PR1	105,00
DLF100 A G1/4"	665322	PR1	105,00

<b>Pressure transducer 4..20 mA G1/2"</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
DLF-1..0 A G1/2"	682602	PR1	111,90
DLF1 A G1/2"	681261	PR1	111,90
DLF1,6 A G1/2"	682619	PR1	111,90
DLF2 A G1/2"	682626	PR1	111,90
DLF2,5 A G1/2"	681278	PR1	111,90
DLF4 A G1/2"	681285	PR1	111,90
DLF6 A G1/2"	681292	PR1	111,90
DLF10 A G1/2"	681308	PR1	111,90
DLF16 A G1/2"	681315	PR1	111,90
DLF25 A G1/2"	681322	PR1	111,90
DLF40 A G1/2"	682633	PR1	111,90
DLF60 A G1/2"	682640	PR1	111,90
DLF100 A G1/2"	682657	PR1	111,90

<b>Accessories</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	13,30
UD-A – universal display for 4..20 mA	718189	AS1	89,00



## DPL

Differential pressure transmitter for measuring differential pressure in liquids. Typical areas of application include supply and return liquid flows in HVAC systems and process engineering as well as the monitoring of filters and compressors. For a quick & easy connection, a 5 m cable with pre-installed connector is available (see ,Accessories').

0..10 V / 4..20 mA

### Technical Data

<b>Measured values</b>	differential pressure
<b>Measuring range pressure</b>	0..1 bar, 0..2,5 bar, 0..4 bar, 0..6 bar
<b>Power supply</b>	15..24 V = ( $\pm 10\%$ ) SELV, 24 V ~ ( $\pm 10\%$ ) SELV
<b>Power consumption</b>	typ. 0,37 W (24 V =), max. 0,5 W (24 V =), 0,9 VA (24 V ~)
<b>Material in touch with media</b>	stainless steel, G1/4"
<b>Enclosure</b>	stainless steel V2A (1.4305), lid die-cast aluminium, measuring cell ceramic
<b>Colour</b>	black
<b>Operating range temperature</b>	-10..+80 °C
<b>Protection (IP)</b>	IP54, according to EN 60529
<b>Connection</b>	angle plug DIN 43650, type A

### Differential pressure transducer

Item description	Item No.	Group	€
DPL1 V	346580	PR1	321,90
DPL2,5 V	346665	PR1	321,90
DPL4 V	346672	PR1	321,90
DPL6 V	346689	PR1	321,90
DPL1 A	346597	PR1	321,90
DPL2,5 A	346696	PR1	321,90
DPL4 A	346702	PR1	321,90
DPL6 A	346719	PR1	321,90

### Accessories

Item description	Item No.	Group	€
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	13,30
UD-V – universal display for 0..10 V	775113	AS1	89,00
UD-A – universal display for 4..20 mA	718189	AS1	89,00
Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1	9,40
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	AS1	59,50
Screw connection set Ø=6 mm brass (2 pcs.)	373401	AS1	14,10
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	AS1	68,30
Screw connection set Ø=8 mm brass (2 pcs.)	373418	AS1	14,20

## MM

Compact inclined tube manometer for displaying and monitoring differential air pressure in HVAC applications. Mounting accessories are included in the delivery content.



MM



MM/PS

### Technical Data

<b>Measured values</b>	differential pressure
<b>Measuring range pressure</b>	<b>MM500:</b> -100..+500 Pa <b>MM600:</b> 0..+600 Pa
<b>Display</b>	liquid indicator
<b>Enclosure</b>	ABS, cover PMMA PS: cover PC, membrane silicone
<b>Operating range temperature</b>	-40..+60 °C
<b>Protection (IP)</b>	IP54, according to EN 60529
<b>Connection</b>	cable entry M16 for wire Ø=8 mm terminal block, max. 1,5 mm <sup>2</sup> pressure connection ABS connection tube: PVC, soft
<b>Delivery content</b>	incl. fixing screws (2x) incl. pressure connection set and 2 m PVC connection hose incl. 30 ml gauge fluid incl. 2 indication stickers (red/green)

### Differential pressure inclined tube manometer

Item description	Item No.	Group	€
MM500 (-100..500 Pa)	384452	PR1	48,10
MM600 (0..600 Pa)	255240	PR1	48,10

### Differential pressure inclined tube manometer with switch contact

Item description	Item No.	Group	€
MM600/PS600 (0..600 Pa)	255257	PR1	121,10

## DPG

Compact manometer for displaying and monitoring differential air pressure in HVAC applications. Mounting accessories are included in the delivery content.



### Technical Data

<b>Measured values</b>	differential pressure
<b>Measuring range pressure</b>	<b>DPG60:</b> 0..60 Pa, <b>DPG100:</b> 0..100 Pa, <b>DPG250:</b> 0..250 Pa, <b>DPG500:</b> 0..500 Pa, <b>DPG1500:</b> 0..1500 Pa, <b>DPG2500:</b> 0..2500 Pa
<b>Display</b>	display Ø=100 mm
<b>Enclosure</b>	aluminium alloy
<b>Colour</b>	aluminium, transparent cover PC
<b>Operating range temperature</b>	-20..+60 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	connection tube: PVC, soft
<b>Delivery content</b>	incl. fixing screws (4x) incl. pressure connection set and 2 m PVC connection hose

### Differential pressure gauge

Item description	Item No.	Group	€
DPG60	718493	PR1	101,70
DPG100	718509	PR1	101,70
DPG250	718516	PR1	101,70
DPG500	718523	PR1	101,70
DPG1500	718530	PR1	101,70
DPG2500	718547	PR1	101,70

### Accessories

Item description	Item No.	Group	€
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	31,50
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,50
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,30
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,10



## DPGe

Compact electronic differential pressure manometer for displaying and monitoring differential air pressure in HVAC applications. Easy to retrofit in existing installations as the DPGe uses a AAA battery as a power supply.

### Technical Data

<b>Measured values</b>	differential pressure
<b>Configuration</b>	buttons
<b>Measuring range pressure</b>	0..2500 Pa
<b>Power supply</b>	battery type AAA
<b>Power consumption</b>	max. 60 mW (operating mode), max. 1 mW (standby)
<b>Display</b>	LCD 29x35 mm, RGB backlight
<b>Enclosure</b>	USE-M, impact- and shock-resistant enclosure with quick-release cover, PC UV-resistant
<b>Colour</b>	pure white, transparent cover PC
<b>Operating range temperature</b>	-10..+50 °C
<b>Protection (IP)</b>	IP65, according to EN 60529
<b>Connection</b>	connection tube: PVC, soft
<b>Delivery content</b>	incl. mounting set (screws and accessories) incl. pressure connection set and 2 m PVC connection hose incl. battery type AAA

### Differential pressure gauge

Item description	Item No.	Group	€
DPGe	736176	PR1	120,60

### Accessories

Item description	Item No.	Group	€
Mounting base enclosure USE-M pure white	668354	AS1	8,35
T-hose connector for pressure hoses Ø=4 mm (10 pcs)	668323	AS1	31,50
Adapter 90° angle for pressure hoses Ø=4 mm	668330	AS1	8,50
Metal duct connector MKS40 (Ø=4 mm, L=40 mm)	265138	AS1	4,30
Metal duct connector MKS100 (Ø=5 mm, L=100 mm)	302531	AS1	5,10

# Power Thyristors

Power thyristors can more and more be found where ohmic and inductive loads must be controlled (e.g. in industrial furnaces ...) By means of the modular and compact construction and control with a continuous control signal power thyristors become the perfect actuators for industrial power control.



## Power Thyristors

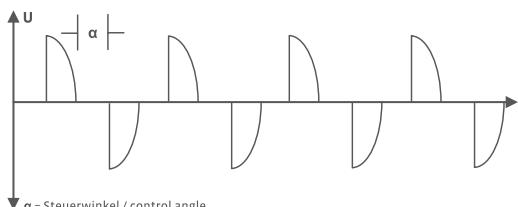
### Single-Phase

TS1 1-phase	Power thyristor
TS3 1-phase	Power thyristor

342	TS1 3-phase	Power thyristor	346
344	TS3 3-phase	Power thyristor	348
	TS2 3-phase	Power thyristor	350

### Phase angle control

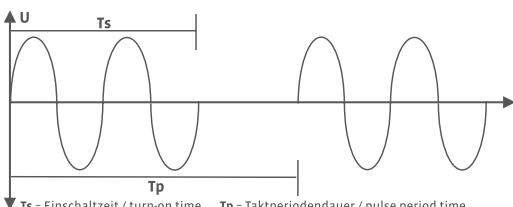
The phase angle control can be used for almost any ohmic and inductive consumers and is the most common way to control the power consumption of a consumer. The consumer is connected to the supply network via the power thyristor. The thyristors are controlled in such a way, that the consumer is not supplied with the complete sinusoidal oscillation but only a part (depending on the steering angle), whereas the voltage average value can be adjusted continuously.



### Three-Phase

### Oscillation control

The oscillation control is used with inert consumers such as heaters. Contrary to the phase angle control, complete sinusoidal waves are switched through to the consumer with the oscillation control. The control of the average voltage value is made by switching through a certain number of oscillations (depending on the switch-on time) within a certain time slot (clock cycle). Thus convertor feedback effects to the power supply network in form of harmonic components are avoided.





## **TS1 single-phase**

The TS1 single-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

### **Technical Data**

<b>Configuration</b>	DIP switches
<b>Output switch contact</b>	signal contact at 100% Ua 1x contact NO 3A for 250 V ~ or 24 V =, floating
<b>output for ohmic and inductive loads</b>	<b>2 A:</b> 0,46 kW (230 V ~ / 2 A) <b>4 A:</b> 0,92 kW (230 V ~ / 4 A) <b>6 A:</b> 1,38 kW (230 V ~ / 6 A) <b>8 A:</b> 1,84 kW (230 V ~ / 8 A) <b>10 A:</b> 2,3 kW (230 V ~ / 10 A) <b>12 A:</b> 2,76 kW (230 V ~ / 12 A)
<b>Input</b>	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
<b>Power supply</b>	L1, N: 230 V ~ 48..62 Hz, self-synchronizing
<b>Power consumption</b>	<b>2 A:</b> typ. 2,5 W <b>4 A:</b> typ. 4,5 W <b>6 A:</b> typ. 6,5 W <b>8 A:</b> typ. 9 W <b>10 A:</b> typ. 11 W <b>12 A:</b> typ. 13 W
<b>Display</b>	LED – power supply OK, LED – modulation amplitude 100%
<b>Enclosure</b>	PA
<b>Operating range temperature</b>	0..+45 °C
<b>Protection (IP)</b>	IP40, terminal blocks IP23, according to EN 60529
<b>Connection</b>	terminal block, max. 2,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Notes</b>	types up to 4 A with cooling plate types 6 A with heat sink types 8 A and higher with heat sink and fan

**Power thyristors – Phase angle**

Item description	Item No.	Group	€
TS1 single-phase 1-ph 2 A 0,46 kW	229678	TR1	195,00
TS1 single-phase 1-ph 4 A 0,92 kW	226639	TR1	227,30
TS1 single-phase 1-ph 6 A 1,38 kW	224000	TR1	264,40
TS1 single-phase 1-ph 8 A 1,84 kW	236980	TR1	291,90
TS1 single-phase 1-ph 10 A 2,3 kW	223874	TR1	314,60
TS1 single-phase 1-ph 12 A 2,76 kW	230605	TR1	342,10

**Power thyristors – Oscillation**

Item description	Item No.	Group	€
TS1 single-phase SP 1-ph 2 A 0,46 kW	283137	TR1	195,00
TS1 single-phase SP 1-ph 4 A 0,92 kW	226622	TR1	227,30
TS1 single-phase SP 1-ph 6 A 1,38 kW	238885	TR1	264,40
TS1 single-phase SP 1-ph 8 A 1,84 kW	255189	TR1	291,90
TS1 single-phase SP 1-ph 10 A 2,3 kW	266109	TR1	314,60
TS1 single-phase SP 1-ph 12 A 2,76 kW	233712	TR1	342,10



### **TS3 single-phase**

The TS3 single-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

#### **Technical Data**

<b>Configuration</b>	DIP switches
<b>Output switch contact</b>	signal contact in case of fault state 1x contact NO 2A for 230 V ~, floating
<b>output for ohmic and inductive loads</b>	<b>15 A:</b> 3,5 kW (230 V ~ / 15 A) <b>25 A:</b> 5,75 kW (230 V ~ / 25 A) <b>35 A:</b> 8,05 kW (230 V ~ / 35 A) <b>50 A:</b> 11,5 kW (230 V ~ / 50 A)
<b>Input</b>	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V =, 0..20 or 4..20 mA optionally configurable
<b>Power supply</b>	L1, N: 230 V ~ 45..65 Hz, self-synchronizing
<b>Power consumption</b>	<b>15 A:</b> typ. 13 W <b>25 A:</b> typ. 22 W <b>35 A:</b> typ. 31 W <b>50 A:</b> typ. 45 W
<b>Display</b>	4 LEDs showing status of the device
<b>Enclosure</b>	aluminium
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP40, according to EN 60529
<b>Connection</b>	terminal block
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715

**Power thyristors – Phase angle**

Item description	Item No.	Group	€
TS3 single-phase 1-ph 15 A 3,45 kW	237161	TR1	375,60
TS3 single-phase 1-ph 25 A 5,75 kW	241649	TR1	533,50
TS3 single-phase 1-ph 35 A 8,05 kW	238489	TR1	564,60
TS3 single-phase 1-ph 50 A 11,5 kW	361200	TR1	654,30

**Power thyristors – Oscillation**

Item description	Item No.	Group	€
TS3 single-phase SP 1-ph 15 A 3,45 kW	245500	TR1	375,60
TS3 single-phase SP 1-ph 25 A 5,75 kW	231091	TR1	533,50
TS3 single-phase SP 1-ph 35 A 8,05 kW	270977	TR1	564,60
TS3 single-phase SP 1-ph 50 A 11,5 kW	344333	TR1	654,30



## **TS1 three-phase**

The TS1 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

### **Technical Data**

<b>Configuration</b>	DIP switches
<b>Output switch contact</b>	signal contact at 100% U <sub>a</sub> 1x contact NO 3A for 250 V ~ or 24 V =,floating
<b>output for ohmic and inductive loads</b>	<b>2 A:</b> 1,2 kW (400 V ~ / 2 A) <b>4 A:</b> 2,5 kW (400 V ~ / 4 A) <b>6 A:</b> 4 kW (400 V ~ / 6 A) <b>8 A:</b> 5 kW (400 V ~ / 8 A) <b>10 A:</b> 6,5 kW (400 V ~ / 10 A)
<b>Input</b>	input for potentiometer 2,5..10 kΩ electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
<b>Power supply</b>	L1, L2, L3, N: 400 V ~ 48..62 Hz, self-synchronizing
<b>Power consumption</b>	<b>2 A:</b> typ. 7 W <b>4 A:</b> typ. 13 W <b>6 A:</b> typ. 19 W <b>8 A:</b> typ. 25 W <b>10 A:</b> typ. 31 W
<b>Display</b>	LED – power supply OK, LED – modulation amplitude 100%
<b>Enclosure</b>	PA
<b>Operating range temperature</b>	0..+45 °C
<b>Protection (IP)</b>	IP40, terminal blocks IP23, according to EN 60529
<b>Connection</b>	terminal block, max. 2,5 mm <sup>2</sup>
<b>Mounting</b>	prepared for mounting on DIN rail TS35 (35x7,5 mm) according to EN 60715
<b>Notes</b>	types up to 4 A with cooling plate types 6 A with heat sink types 8 A and higher with heat sink and fan

**Power thyristors – Phase angle**

Item description	Item No.	Group	€
TS1 three-phase 3-ph 2 A 1,2 kW	230148	TR1	222,60
TS1 three-phase 3-ph 4 A 2,5 kW	246514	TR1	245,30
TS1 three-phase 3-ph 6 A 4,0 kW	224260	TR1	272,70
TS1 three-phase 3-ph 8 A 5,0 kW	233736	TR1	301,40
TS1 three-phase 3-ph 10 A 6,5 kW	224314	TR1	333,70

**Power thyristors – Oscillation**

Item description	Item No.	Group	€
TS1 three-phase SP 3-ph 2 A 1,2 kW	273558	TR1	222,60
TS1 three-phase SP 3-ph 4 A 2,5 kW	268226	TR1	245,30
TS1 three-phase SP 3-ph 6 A 4,0 kW	275910	TR1	272,70
TS1 three-phase SP 3-ph 8 A 5,0 kW	275927	TR1	301,40
TS1 three-phase SP 3-ph 10 A 6,5 kW	241182	TR1	333,70



### **TS3 three-phase**

The TS3 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

#### **Technical Data**

<b>Configuration</b>	DIP switches
<b>Output switch contact</b>	signal contact at 100% U <sub>a</sub> , signal contact in case of fault state changeover contacts 2A for 230 V ~
<b>output for ohmic and inductive loads</b>	<b>15 A:</b> 10 kW (400 V ~ / 15 A) <b>25 A:</b> 16 kW (400 V ~ / 25 A) <b>35 A:</b> 23 kW (400 V ~ / 35 A) <b>50 A:</b> 33 kW (400 V ~ / 50 A)
<b>Input</b>	input for potentiometer 2,5..10 kΩ PWM input 5 V / 5..10 kHz input for PTC according to DIN 44081 input for reset electrical activation via setpoint signal 0..10 V = or 0..20 mA optionally configurable
<b>Power supply</b>	L1, L2, L3, N: 400 V ~ 45..65 Hz, self-synchronizing
<b>Power consumption</b>	<b>15 A:</b> typ. 40 W <b>25 A:</b> typ. 67 W <b>35 A:</b> typ. 94 W <b>50 A:</b> typ. 135 W
<b>Display</b>	4 LEDs showing status of the device
<b>Enclosure</b>	aluminium
<b>Operating range temperature</b>	0..+50 °C
<b>Protection (IP)</b>	IP40, according to EN 60529
<b>Connection</b>	terminal block
<b>Mounting</b>	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

**Power thyristors – Phase angle**

Item description	Item No.	Group	€
TS3 three-phase 3-ph 15 A 10 kW	224796	TR1	730,70
TS3 three-phase 3-ph 25 A 16 kW	225649	TR1	834,90
TS3 three-phase 3-ph 35 A 23 kW	225656	TR1	974,70
TS3 three-phase 3-ph 50 A 33 kW	256353	TR1	1087,10

**Power thyristors – Oscillation**

Item description	Item No.	Group	€
TS3 three-phase SP 3-ph 15 A 10 kW	225236	TR1	730,70
TS3 three-phase SP 3-ph 25 A 16 kW	240970	TR1	834,90
TS3 three-phase SP 3-ph 35 A 23 kW	241014	TR1	974,70
TS3 three-phase SP 3-ph 50 A 33 kW	223836	TR1	1087,10



## **TS2 three-phase**

The TS2 three-phase power thyristor controller is used to control the load or power of industrial load applications (e.g. fans, pumps, lamps, heating coils, industrial ovens). Its solid and compact design permit seamless installation and a wear-free control with a high degree of efficiency.

### **Technical Data**

<b>Configuration</b>	jumper, DIP switches
<b>Output switch contact</b>	signal contact at 100% U <sub>a</sub> , signal contact in case of fault state changeover contacts 2A for 230 V ~, floating
<b>output for ohmic and inductive loads</b>	<b>75 A:</b> 50 kW (400 V ~ / 75 A) <b>90 A:</b> 60 kW (400 V ~ / 90 A) <b>120 A:</b> 78 kW (400 V ~ / 120 A)
<b>Input</b>	input for potentiometer 2,5..10 kΩ input for PTC according to DIN 44081 electrical activation via setpoint signal 0..10 V =, 0..20 or 4..20 mA optionally configurable
<b>Power supply</b>	L1, L2, L3, N: 400 V ~ 48..62 Hz, self-synchronizing
<b>Power consumption</b>	<b>75 A:</b> typ. 202 W <b>90 A:</b> typ. 243 W <b>120 A:</b> typ. 324 W
<b>Display</b>	9 LEDs showing status of the device
<b>Enclosure</b>	aluminium, cover plexiglass
<b>Operating range temperature</b>	0..+55 °C
<b>Protection (IP)</b>	IP42, according to EN 60529
<b>Connection</b>	power connections, M8 connection screw for cable lug, connection control electronics, max. 1.5 mm <sup>2</sup>
<b>Mounting</b>	4 mounting holes Ø=8 mm for mounting on galvanized mounting plates (control cabinet)

### **Power thyristors – Phase angle**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TS2 three-phase 3-ph 75 A 50 kW	236522	TR1	1781,90
TS2 three-phase 3-ph 90 A 60 kW	260190	TR1	2097,60
TS2 three-phase 3-ph 120 A 78 kW	304719	TR1	2400,20

### **Power thyristors – Oscillation**

<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
TS2 three-phase SP 3-ph 75 A 50 kW	339094	TR1	1781,90
TS2 three-phase SP 3-ph 90 A 60 kW	326926	TR1	2097,60
TS2 three-phase SP 3-ph 120 A 78 kW	336482	TR1	2400,20

# Accessories Information



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Mounting		Item No.	Group	€
	Item description			
1	Mounting clip enclosure USE-S pure white	667739	AS1	4,90
2	Mounting base enclosure USE-S pure white	667722	AS1	5,80
3	Mounting base enclosure USE-M pure white	668354	AS1	8,35
4	Mounting base enclosure USE-L pure white	668361	AS1	11,60
5	Mounting kit AKF10+ for enclosure USE-S	748551	AS1	7,20
6	Mounting kit universal for enclosure USE	698511	AS1	9,30
7	Mounting bracket kit for differential pressure switch 135x74x60 mm	669009	AS1	8,80
8	Mounting bracket kit for differential pressure transducer 40x60x40 mm	663892	AS1	9,40
9	Mounting ring for hollow ceiling with retaining clips to be used with SR-MDS	627825	AS1	6,90
10	Connector STC-D08 to STC-PLUS 4DO	517577	AS1	7,90
11	Wall mounting for duct hygrostat	429030	AS1	40,00
12	L-shaped magnetic antenna holder, 180x180 mm	255097	AS1	15,10



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Fastening and screwing				
Item description	Item No.	Group	€	
Fixing kit rawplugs and screws (2x each)	660945	AS1	0,90	1
Syringe thermal contact fluid	102308	AS1	1,50	2
Compression fittings KL4VA for Ø=4 mm with cutting ring, stainless steel	103206	AS1	13,50	3
Compression fittings KL6VA for Ø=6 mm with cutting ring, stainless steel	103213	AS1	13,50	4
Tension clamp for pipes Ø up to 110 mm with contact fluid	658911	AS1	2,85	5
Tension clamp for pipes Ø up to 250 mm with contact fluid	648103	AS1	4,40	6
Tightening strap PA (max. 85 °C) for pipes Ø up to 100 mm with contact fluid	668071	AS1	2,85	7
Mounting bracket with cable gland for duct sensors Ø=6 mm	670593	AS1	12,80	8
Installation set TFR / MWF+	679466	AS1	8,90	9
C-clip adhesive pads (5 pieces) – mounting accessories for LS02+ flex	778596	AS1	8,90	10
Screw connection set Ø=6 mm stainless steel (2 pcs.)	373388	AS1	59,50	11
Screw connection set Ø=8 mm stainless steel (2 pcs.)	373395	AS1	68,30	12
Screw connection set Ø=6 mm brass (2 pcs.)	373401	AS1	14,10	13
Screw connection set Ø=8 mm brass (2 pcs.)	373418	AS1	14,20	14



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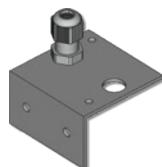
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**Thermowells brass for sensors with pocket Ø=6 mm**

Item description	Length	Inst. length	Item No.	On stock	Group	€
MS-thermowell 50 mm type THMSDS50	50 mm	36 mm	610995	✉	AS2	8,35
MS-thermowell 100 mm type THMSDS100	100 mm	86 mm	611008	✉	AS2	9,45
MS-thermowell 150 mm type THMSDS150	150 mm	136 mm	611015	✉	AS2	9,95
MS-thermowell 200 mm type THMSDS200	200 mm	186 mm	611022	✉	AS2	10,40
MS-thermowell 250 mm type THMSDS250	250 mm	236 mm	611985	✉	AS2	11,90
MS-thermowell 300 mm type THMSDS300	300 mm	286 mm	611039	✉	AS2	12,30
MS-thermowell 450 mm type THMSDS450	450 mm	436 mm	611046	✉	AS2	12,60

**Thermowells stainless steel for sensors with pocket Ø=6 mm**

Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 50 mm type THVADS50	50 mm	36 mm	611152	✉	AS2	18,10
VA-thermowell 100 mm type THVADS100	100 mm	86 mm	611817	✉	AS2	19,90
VA-thermowell 150 mm type THVADS150	150 mm	136 mm	611824	✉	AS2	21,50
VA-thermowell 200 mm type THVADS200	200 mm	186 mm	611848	✉	AS2	22,60
VA-thermowell 250 mm type THVADS250	250 mm	236 mm	611862	✉	AS2	28,00
VA-thermowell 300 mm type THVADS300	300 mm	286 mm	611879	✉	AS2	29,40
VA-thermowell 450 mm type THVADS450	450 mm	436 mm	611893	✉	AS2	30,30
Pressure screw with sealing PTFE (without silicone) for thermowell pocket THVADS			666473		AS2	19,20



THMSDS



THVADS

**Thermowells stainless steel for sensors with pocket Ø=8 mm**

Item description	Length	Inst. length	Item No.	On stock	Group	€
VA-thermowell 100 mm type THVA100 (KFK03)	108 mm	100 mm	584180	✉	AS2	28,50
VA-thermowell 150 mm type THVA150 (KFK03)	158 mm	150 mm	584197	✉	AS2	29,90
VA-thermowell 200 mm type THVA200 (KFK03)	208 mm	200 mm	584203	✉	AS2	31,50
VA-thermowell 250 mm type THVA250 (KFK03)	258 mm	250 mm	594738	✉	AS2	33,20

**Bonded pockets**

Item description	Length	Inst. length	Item No.	On stock	Group	€
Bonded pocket St52-3 Typ ESH60	60 mm	50 mm	319096		AS1	58,90
Bonded pocket St52-3 Typ ESH110	110 mm	100 mm	103459	✉	AS1	47,30
Bonded pocket St52-3 Typ ESH160	160 mm	150 mm	103466	✉	AS1	54,20
Bonded pocket St52-3 Typ ESH210	210 mm	200 mm	103473	✉	AS1	61,00
Bonded pocket St52-3 Typ ESH260	260 mm	250 mm	173247	✉	AS1	67,10



Mounting flanges					
	Item description	Item No.	On stock	Group	€
1	Mounting flange MF2 (suitable for TFR)	435642		AS1	6,70
2	Mounting flange MF6 flexible (suitable for Ø=4 / 6 / 7 mm)	399098	●	AS2	6,70
3	Mounting flange MF6DS flexible (suitable for Ø=6 mm)	669016	●	AS2	6,70
4	Mounting flange MF4 brass (suitable for Ø=4 mm)	102438		AS1	5,40
5	Mounting flange MF6 brass (suitable for Ø=6 mm)	3407	●	AS1	6,70
6	Mounting flange MF7 brass (suitable for MWF+ and Ø=7 mm)	102360		AS1	6,70
7	Mounting flange MF8 stainless steel (suitable for Ø=8 mm)	103305		AS1	19,80
8	Mounting flange MF19	527705		AS1	12,50
9	Mounting flange MF20	612562		AS1	12,50



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Connections			
Item description	Item No.	Group	€
Metal duct connector MKS40 ( $\varnothing=4$ mm, L=40 mm)	265138	AS1	4,30
Metal duct connector MKS100 ( $\varnothing=5$ mm, L=100 mm)	302531	AS1	5,10
T-hose connector for pressure hoses $\varnothing=4$ mm (10 pcs)	668323	AS1	31,50
Adapter 90° angle for pressure hoses $\varnothing=4$ mm	668330	AS1	8,50



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Wires / Cables			
Item description	Item No.	Group	€
Connection wire DLF/DPL – connection plug and wire 5 m	668309	AS1	13,30
Sensor wire 1,5 m with RJ45 connector	628785	AS1	5,90
Sensor wire 3 m with RJ45 connector	708852	AS1	7,60
Sensor wire 7,5 m with RJ45 connector	708869	AS1	14,20
Antenna extension 10 m	257206	AS1	59,10
Antenna extension 20 m	257213	AS1	71,90
USB extension 3 m	574044	NET	14,20



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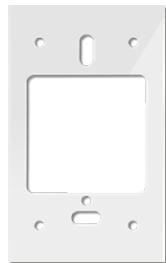
Frames and enclosures		Item No.	Group	€
Item description				
1	Frame for surface mounting JOY pure white	760201	AS1	25,50
2	Frame for surface mounting JOY black	760195	AS1	25,50
3	Decorative frame JOY pure white	681452	AS1	12,80
4	Decorative frame JOY black	740951	AS1	12,80
5	Frame for surface mounting NOVOS 3 / WRF04 pure white	111584	AS1	13,20
6	Enclosure for surface mounting MDS pure white	448512	AS1	50,80
7	Enclosure for surface mounting SR-MDS pure white	514439	AS1	50,80



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Valve adapter	Item No.	Group	€	
Valve adapter SAB for Giacomini Z810 (22,6 mm)	634724	AS1	25,40	1
Valve adapter SAB for Oventrop Z809 (M30x1,0)	611978	AS1	25,40	2
Valve adapter SAB for Herz Z807 (M28 X 1,5 mm)	595070	AS1	25,40	3
Valve adapter SAB for Danfoss RA2000 Z802	589093	AS1	25,40	4
Valve adapter SAB for Danfoss RAV Z803	589109	AS1	25,40	5
Valve adapter SAB for Danfoss RAV-L Z804	589116	AS1	25,40	6
Valve adapter SAB for Danfoss Z800	589079	AS1	25,40	7
Valve adapter SAB for Danfoss Z801	589086	AS1	25,40	8
Valve adapter SAB for Danfoss Z805	615181	AS1	25,40	9



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Enclosure protection / Anti-theft protection				
	Item description	Item No.	On stock	Group
1	Sun/rain protection RS150	103329		AS1 23,90
2	Ball stroke protection BS150, transparent	647007	●	AS1 23,90
3	Ball stroke protection BS100, stainless steel	103312		AS1 23,90
4	Weather protection for FTK+, WSA (replacement)	625241		AS1 71,80
5	Safety lock dismounting protection SAB	706148	●	AS1 11,00
6	Battery protection SAB05	595612		AS1 19,50



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Filters				
	Item description	Item No.	Group	€
1	Filter stainless steel, wire mesh FTK+ / FTA54+ / FTP+ / FSK01, (spare part)	231169	AS1	9,30
2	Filter PTFE (for air velocities >15 m/s)	429054	AS1	43,90



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Power supplies					
Item description	Item No.	On stock	Group	€	
PSU-UP24 – flush-mounted power supply 24 V	645737	1	AS1	44,20	1
PSU-HS24 - power supply unit 24 V for DIN rail mounting	764742	1	AS1	113,50	2



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Batteries					
Item description	Item No.	Group	€		
Battery LS14250	315098	AS1	4,30	1	
Battery ER14505 (lithium 3.6 V AA)	759182	AS1	7,30	2	
Battery VARTA 4003 (1,5 V AAA)	739351	AS1	4,30	3	
Coin cell CR1225	727310	AS1	4,30	4	
Coin cell CR1632	597814	AS1	4,30	5	
Coin cell CR2032	347013	AS1	4,30	6	



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## » Accessories – Configuration

Hardware		Item No.	Group	€
	Item description			
1	EnOcean USB transceiver for airConfig/airScan (incl. airScan license)	566704	NET	106,10
2	BLE dongle with micro-USB for devices USE-M / USE-L / NOVOS / thanos EVO	668262	NET	29,80
3	Thermokon USB interface for devices USE-M / USE-L / NOVOS / thanos EVO / SR06 LCD	597838	AS1	36,70
4	Converter RS485 Modbus – USB incl. driver CD	668293	NET	55,50



Storage media		Item No.	Group	€
	Item description			
	microSD card 2 GB (JOY)	500098	AS1	11,90



**Displays**

Item description	Item No.	Group	€
UD-A – universal display for 4..20 mA	718189	AS1	89,00
UD-V – universal display for 0..10 V	775113	AS1	89,00

**Material test reports**

Item description	Item No.	Group	€
Inspection certificate 3.1 (EN 10204) temperature – 2 values within range -30..+150 °C	119030	NET	47,40
Inspection certificate 3.1 (EN 10204) humidity – 2 values within range 15..90%	665407	NET	47,40
Additional measuring point		NET	23,70

**thermokon®**  
HOME OF SENSOR TECHNOLOGY

Abnahme Prüfzeugnis nach DIN EN 10204,3.1  
Inspection certificate according to DIN EN 10204,3.1

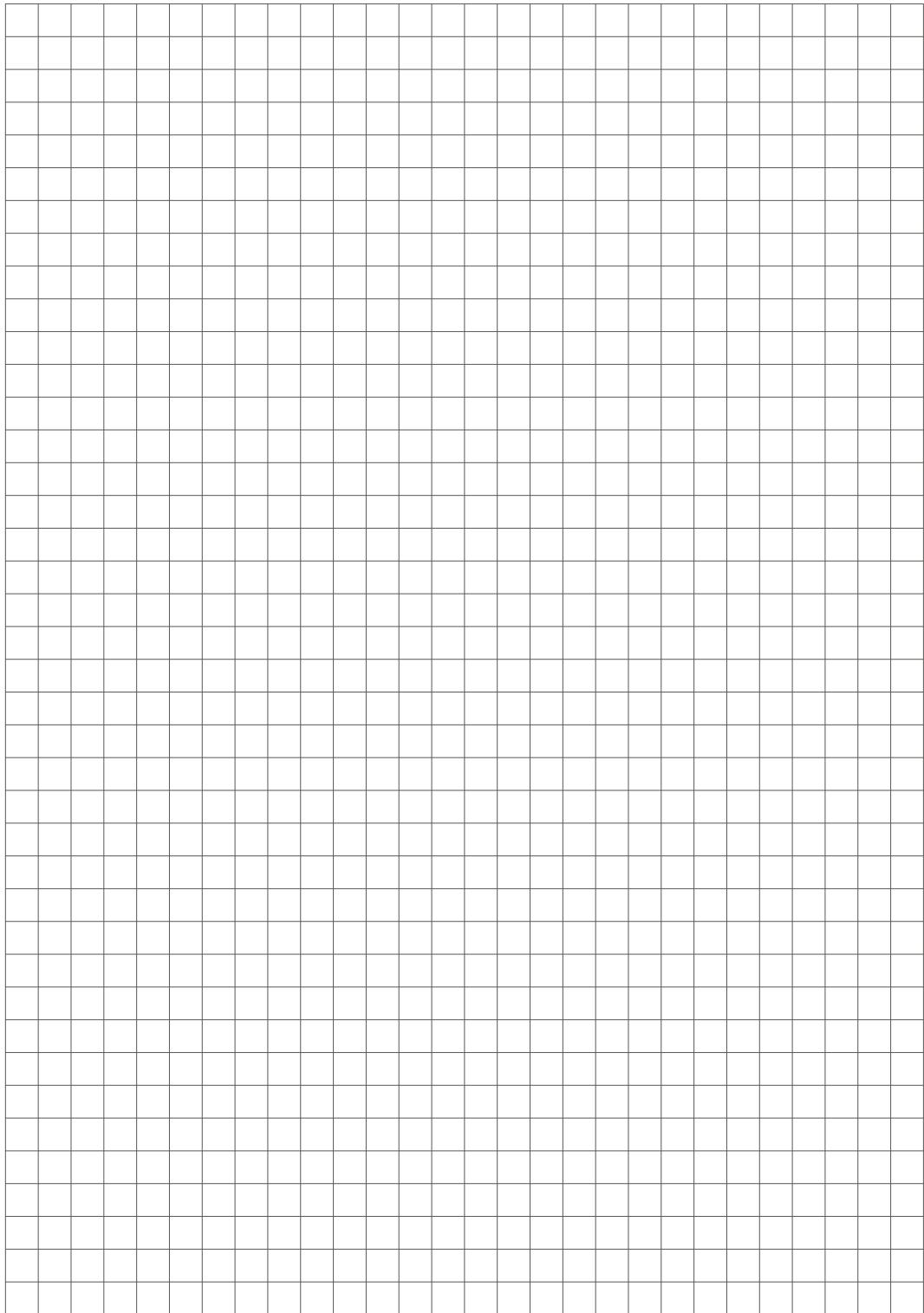
Gegenstand Object	Fauchtemperaturmessfühler Surface humidity sensor for moisture measurement
Type Type	FT404 UV-VIS200 P-Hum 400
Hersteller Manufacturer	Thermokon Bereichstechnik GmbH Thermokon Bereichstechnik GmbH
Fabrikatseriennummer Serial number	siehe Messergebnisse see results
Modell-Nr. Model No.	000000001 000000001
Auftraggeber Customer	
Auftragsnummer Order No.	00000000 00000000
Anzahl der Seiten des Abnahmen Prüfzeugnisses Number of pages of the certificate	4 4
Datum der Prüfung Date of testing	13.08.2020 2020-08-12

Auftr.-Nr. 414308 Datum 13.08.2016 Ser.-Nr. 910371201  
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<b>Special printing</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Special printing – order quantity 20..49 pcs. (each per colour)			16,40
Special printing – order quantity 50..99 pcs. (each per colour)			12,30
Special printing setup and tool costs (once for one-colour print)	115049	NET	168,40

<b>Special painting</b>			
<b>Item description</b>	<b>Item No.</b>	<b>Group</b>	<b>€</b>
Special painting – prices on request			
Special painting setup costs (once per colour)	114998	NET	168,40

<b>Special engraving / special lasering</b>		
<b>Item description</b>	<b>Group</b>	<b>€</b>
Engraving/lasering – prices on request		



## » Sensor characteristics

TEMP. °C	PT100 OHM	PT1000 OHM	NI1000 OHM	NI1000 TK5000 OHM	KTY81-110 OHM	KTY81-121 OHM	KTY81-122 OHM
-50	80,31	803,10	743,00	790,88	515	505	525
-40	84,27	842,70	791,00	830,83	567	557	577
-30	88,22	882,20	842,00	871,69	624	614	634
-20	92,16	921,60	893,00	913,48	684	674	694
-10	96,09	960,90	946,00	956,24	747	737	757
0	100,00	1.000,00	1.000,00	1.000,00	815	805	825
10	103,90	1.039,00	1.056,00	1.044,79	886	876	896
20	107,79	1.077,90	1.112,00	1.090,65	961	951	971
25	109,74	1.097,40	1.141,00	1.113,99	1.000	990	1.010
30	111,67	1.116,70	1.171,00	1.137,61	1.040	1.030	1.050
40	115,54	1.155,40	1.230,00	1.185,71	1.122	1.112	1.132
50	119,40	1.194,00	1.291,00	1.234,97	1.209	1.199	1.219
60	123,24	1.232,40	1.353,00	1.285,44	1.299	1.289	1.309
70	127,07	1.270,00	1.417,00	1.337,14	1.392	1.382	1.402
80	130,89	1.308,90	1.483,00	1.390,12	1.490	1.480	1.500
90	134,70	1.347,00	1.549,00	1.444,39	1.591	1.581	1.601
100	138,50	1.385,00	1.618,00	1.500,00	1.696	1.686	1.706
110	142,29	1.422,00	1.688,00	1.556,98	1.805	1.795	1.815
120	146,06	1.460,60	1.760,00	1.615,36	1.915	1.905	1.925
130	149,82	1.498,20	1.853,00	1.675,18	2.023	2.013	2.033
140	153,58	1.535,80	1.909,00	1.736,47	2.124	2.114	2.134
150	157,31	1.573,10	1.987,00	1.799,26	2.211	2.201	2.221

TEMP. °C	KTY81-210 OHM	FET OHM	LM235Z MVOLT	BALCO 500 OHM	NTC 1,6K OHM	NTC1,8K OHM	NTC2,2K OHM
-50	1.030	—		382,1	—	—	—
-40	1.135	—	2.332	399,8	53.370	40.375	73.060
-30	1.247	1.934,70	2.432	418,0	28.173	22.906	38.550
-20	1.367	2.030,41	2.532	435,6	15.489	13.477	21.200
-10	1.495	2.127,68	2.632	453,3	8.840	8.198	12.110
0	1.630	2.226,53	2.732	471,0	5.222	5.141	7.162
10	1.772	2.327,01	2.832	488,7	3.184	3.315	4.372
20	1.922	2.429,15	2.932	497,3	1.999	2.193	2.747
25	2.000	2.480,86	2.982	506,3	1.600	1.800	2.200
30	2.080	2.533,00	3.032	523,6	1.289	1.486	1.773
40	2.245	2.638,60	3.132	541,3	851,9	1.028	1.173
50	2.417	2.745,99	3.232	558,5	576,1	726	793
60	2.597	2.855,23	3.332	576,2	397,9	522	548
70	2.785	2.966,36	3.432	593,4	280,2	382	386
80	2.980	3.079,42	3.532	610,6	200,9	284	276
90	3.182	3.194,47	3.632	627,8	146,5	214	201
100	3.392	3.311,56	3.732	645,1	108,5	164	149
110	3.607	3.430,75	3.832	662,3	81,5	127	112
120	3.817	3.552,09	3.932	679,1	62,1	99	85
130	4.008	3.675,65	—	696,3	47,9	—	66
140	4.166	3.801,48	—	713,1	37,4	—	51
150	4.280	3.929,65	—	—	29,5	—	40

TEMP. °C	NTC3K OHM	NTC 3,3K OHM	NTC 5K OHM	NTC 5,369 OHM	NTC-SAT OHM	NTC 10K KOHM	NTC 10K PRE KOHM
-50	—	—	333.914,00	—	—	667,83	—
-40	102.690	109.600	167.835,50	116.300	9.709	335,67	239,80
-30	53.730	57.820	88.341,50	66.190	9.462	176,68	135,20
-20	29.346	31.800	48.487,00	39.100	9.063	96,97	78,91
-10	16.674	18.160	27.649,00	23.890	8.468	55,30	47,54
0	9.822	10.740	16.325,40	15.060	7.658	32,65	29,49
10	5.976	6.558	9.951,75	9.778	6.665	19,90	18,79
20	3.750	4.121	6.246,85	6.517	5.573	12,49	12,26
25	3.000	3.300	5.000,00	5.369	5.025	10,00	10,00
30	2.417	2.660	4.028,00	4.449	4.493	8,06	8,19
40	1.598	1.759	2.662,45	3.104	3.519	5,32	5,59
50	1.081	1.190	1.800,50	2.209	2.704	3,60	3,89
60	747,3	822	1.243,55	1.600	2.059	2,49	2,76
70	526,8	579	875,80	1.178	1.566	1,75	1,99
80	378,3	415	628,09	880,5	1.198	1,26	1,46
90	276,3	302	458,06	666,6	925	0,92	1,08
100	204,9	224	339,32	510,3	725	0,68	0,82
110	154,2	168	255,03	393,6	577	0,51	0,62
120	117,7	128	194,30	305,2	468	0,39	0,48
130	90,9	98	149,91	238,9	386	0,30	0,38
140	71,1	77	117,04	188,4	325	0,23	0,30
150	56,2	60	92,40	150,2	278	0,18	0,24

TEMP. °C	NTC10-CAREL OHM	NTC12K OHM	NTC20K KOHM	NTC30K OHM	NTC50K OHM	NTC100K OHM
-50	—	—	1.490,40	—	4.168.934	—
-40	186.796	396.422,72	803,20	1.219.114	2.033.606	3.216.000
-30	110.881	204.948,28	412,80	622.924	1.038.697	1.721.000
-20	67.683	111.626,16	220,60	331.871	553.243	955.400
-10	42.431	63.671,20	122,40	183.696	306.183	548.800
0	27.280	37.841,88	70,20	105.305	175.508	325.500
10	17.961	23.332,63	41,60	62.343	103.903	198.900
20	12.092	14.869,02	25,34	38.019	63.364	125.000
25	10.000	12.000	20,00	30.000	50.000	100.000
30	8.312	9.761,37	15,88	23.828	39.714	80.530
40	5.826	6.582,83	10,21	15.317	25.529	53.140
50	4.159	4.548,87	6,71	10.079	16.799	35.860
60	3.020	3.213,88	4,51	6.778	11.297	24.690
70	2.228	2.317,13	3,10	4.651	7.750,9	17.330
80	1.668	1.701,83	1,82	3.251	5.418,7	12.830
90	1.266	1.271,35	1,54	2.313	3.854,8	8.996
100	974	964,72	1,11	1.673	2.787,2	6.636
110	758	742,67	0,81	1.228	2.046,1	4.966
120	597	579,39	0,60	915	1.523,4	3.766
130	475	457,60	0,45	—	1.149,5	2.892
140	382	365,57	0,34	—	878,2	2.247
150	310	—	0,27	—	678,8	1.766

# Glossary



## OUTPUTS

A, AA, 2A	1 resp. 2 outputs 4..20 mA; output values depending on product
V, VV, 3xV, 4xV or 2V, 3V, 4V	1, 2, 3, 4 outputs 0..10 V; output values depending on product
AS, AAS, VS, VVS	1 resp. 2 active outputs + 1 passive output temperature (S)
TRA	output 4..20 mA, digit for measuring range temperature following
TRV	output 0..10 V, digit for measuring range temperature following
TRA1/TRV1	range -50..+50 °C
TRA2/TRV2	range -10..+120 °C
TRA3/TRV3	range 0..+50 °C
TRA4/TRV4	range 0..+160 °C
TRA5/TRV5	range 0..+250 °C
TRA6/TRV6	range 0..+400 °C
TRA7/TRV7	range 0..+600 °C
TRA8/TRV8	range -15..+35 °C
MultiRange	range adjustable at the device

## SI-PROTECTION

Changes in temperature are causing formation of humidity. Thus, there is a risk that the humidity can permeate in the contact point of the sensor. As a result, the sensor would corrode and oxygenate. Thus, the contact point would become unreliable.

The SI-Protection procedure provides the contact point with epoxy gum and a fluidized bed coating which unites with the insulation material of the wire. Thus, a complete unit is built protecting the sensor against vibrations and humidity.



## DUAL CHANNEL – SELF CALIBRATION

Dual Channel self calibration utilizes an independent 2nd optical beam to compare and reference the measuring beam. Because the 2nd beam is used only once a day it will wear off much less resulting in a negligible error. Contrary to products using the commonly used ABC-Logic™, dual channel sensors can be used for all applications including hospitals, casinos, horticulture and livestock etc, which are in use 24/7.

## COMMUNICATION

EasySens®	Thermokon radio based on EnOcean IEC 14543-3-10
BACnet	RS485 BACnet (MS/TP), communication protocol specifically designed for building automation; BACnet IP, if mentioned in catalogue
KNX	EIB-KNX interface
LON	LON FTX, communication protocol specifically designed for building automation; other standards, if mentioned in catalogue
Modbus	RS485 Modbus RTU
dS	digitalSTROM

## ROOM OPERATING UNITS: OPERATING ELEMENTS

P	potentiometer (setpoint adjustment)
MS	slide switch
S	switch (e.g. for fan stages)
T	button (e.g. for occupancy status)
D	LED
LCD	inclusive display
TLF	traffic light function indicating air quality via LED(s)
AZ	Automatic zero-point calibration

## PRICE OVERVIEW OF ONE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: depending on device

Manufact.	Switch range	Dim. (WxH)	Colour	Price (€)	WRF07 x WRF06 x WRF06 WRF06I
Berker	Berker S.1	55x55	polar white (g/m), white (g)	0,00	■
	Berker B.3	55x55	Aluminium, Aluminium black anodized	40,00	■
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	0,00	■
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	0,00	■
	solo®	63x63	studio white (m), chrome (g/m)	12,50	■
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	12,50	■
	Busch-axcent®	63x63	studio white (g)	12,50	■
Gira	E2	55x55	pure white (g/m), alu, anthracite	0,00	■
	E3	55x55	pure white (g)	0,00	■
	Standard 55	55x55	pure white (g/m), creme white (g)	0,00	■
	Esprit	55x55	different colours and materials	40,00	■
	Event	55x55	pure white (g/m), alu, anthracite	0,00	■
	Flächenschalter	71x71	pure white (g)	12,50	■
Jung	LS 990 plastic	70x70	white, alpine white (g)	12,50	■
	A 500	55x55	alpine white, aluminium	0,00	■
	AS 500/AS 500 antib.	55x55	white, alpine white	0,00	■
	A plus	55x55	alpine white, aluminium, anthracite	0,00	■
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	0,00	■
	CD 500	67x67	white, alpine white	12,50	■
Merten	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	0,00	■
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	0,00	■
	1-M	55x55	white (g), polar white (g), active white (g)	0,00	■
	Atelier-M	55x55	white (g), polar white (g), active white (g)	0,00	■
	M-Pure	55x55	polar white (m), active white (m), aluminium, anthracite	0,00	■
	Antik	66x66	white (m), polar white (m)	0,00	■

Explanation: ■ without intermediate frame    □ with intermediate frame    - not available    g = glossy    m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST

## PRICE OVERVIEW OF ONE-FOLD SWITCH FRAMES

Note: Prices for frames only valid in connection with basic device, discount group: AS1

Manufact.	Switch range	Dim. (WxH)	Colour	Price (€)	SR06	LCD	SR07 x	SR07	WRF06	LCD	FTW06	WRF06	Radio switches
Berker	Berker S.1	55x55	polar white (g/m), white (g)	4,50	■		■			■			■
	Berker B.3	55x55	Aluminium, Aluminium black anodized	40,00	—		■			—			—
	Berker B.7	55x55	polar white (m), anthracite, alu (m)	4,50	■		■			■			■
Busch-Jaeger	Busch-balance® SI	55x55	alpine white	4,50	■		■			■			■
	solo®	63x63	studio white (m)	12,50	■		■			—			—
	future® linear	63x63	studio white (g/m), anthracite, alu silver, ivory white	4,50	—		—			■			—
				12,50	■		■			■			—
Gira	Busch-axcent®	63x63	studio white (g)	4,50	—		—			■			—
	E2	55x55	pure white (g/m), alu, anthracite	4,50	■		■			■			■
	E3	55x55	pure white (g)	4,50	■		■			■			■
	Standard 55	55x55	pure white (g/m), creme white (g)	4,50	■		■			■			■
	Esprit	55x55	different colours and materials	40,00	■		■			■			■
	Event	55x55	pure white (g/m), alu, anthracite	4,50	■		■			■			■
Jung	Flächenschalter	71x71	pure white (g)	12,50	■		■			■			■
	LS 990 plastic	70x70	white, alpine white (g)	12,50	■		■			■			■
	A 500	55x55	alpine white, aluminium	4,50	■		■			■			■
	AS 500/AS 500 antib.	55x55	white, alpine white	4,50	■		■			■			■
	A plus	55x55	alpine white, aluminium, anthracite	4,50	■		■			■			■
	A creation plastic	55x55	alpine white, aluminium, anthracite (m)	4,50	■		■			■			■
Merten	CD 500	67x67	white, alpine white	12,50	—		■			—			—
	M-Smart	55x55	white (g/m), polar white (g/m), active white (g)	4,50	■		■			■			■
	M-Plan	55x55	white (g/m), polar white (g/m), active white (g), aluminium, anthracite	4,50	■		■			■			■
	1-M	55x55	white (g), polar white (g), active white (g)	4,50	■		■			■			■
	Atelier-M	55x55	white (g), polar white (g), active white (g)	4,50	—		■			■			■
	M-Pure	55x55	polar white (m), active white (m), aluminium, anthracite	4,50	■		■			■			■
Antik	Antik	66x66	white (m), polar white (m)	4,50	—	■	■			■		■	

Explanation: ■ without intermediate frame   ■ with intermediate frame   — not available   g = glossy   m = matt

OTHER SWITCH RANGES, COLOURS AND MATERIALS ON REQUEST

# TERMS AND CONDITIONS

## Orders

We will gladly take your order by phone, email or faxsimile, using either the product name or item number from the catalogue. Please do not hesitate to contact us for technical support or support with specific applications or sensor technology.

## Delivery Time

We keep stock of a large number of standard sensors, so that we can provide an excellent and quick lead time. Products are often shipped immediately after receipt of order. Delivery times for larger quantities or custom designs are available on request.

## Pricing

All prices are list prices in € and do not include value added tax. Prices are valid from 1<sup>st</sup> April 2021.

All previous prices are invalid.

## Delivery Conditions

Our standard delivery terms are ex-works (EXW) by parcel services or forwarders, excluding costs for insurance.

## Product return

Catalogue products can be returned within a period of 6 months after delivery for 2/3 credit of the initial purchase price. Only unused products in original packing will be accepted. Custom manufactured products such as room sensors with control elements, custom engraving, custom varnish or custom printing can not be returned.

**Our general terms & conditions as well as warranty conditions can be sent to you upon request. The complete catalogue is subject to technical and price changes; no responsibility is taken for the accuracy of these information. Illustrations may vary.**

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HOME OF SENSOR TECHNOLOGY

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