
	TI1412en	
COW4- Series (H&T)	Technical Information Outdoor Humidity and Temperature Sensor with Active Outputs	

The COW-Series (H&T) is designed to measure temperature, relative humidity, absolute humidity, dew point or enthalpy in outdoor areas, plant rooms, factories, cold stores, greenhouses and warehouses

The sensor operates with low power supply

The sensor can withstands harsh environmental conditions due to a high protected sensor element

Available with passive sensors

The Humidity and Temperature sensor outputs are active, passive Temperature sensor optional



Use	<p>Compatible to all common HVAC DDC and Analog Controls systems, with/without Building Automation System</p> <p>Relative humidity, absolute humidity, enthalpy or dew point and temperature measurement in outdoor / plant areas</p> <p>Used in harsh environments due to IP67 protected sensor element, without impact on the accuracy or measuring time</p> <p>Used in all common HVAC applications</p> <p>Used in Commercial and Industrial Buildings</p>
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Features	<p>Sensor outputs are active</p> <p>Sensor outputs 0...10V or 4...20mA, available with PT, NTC and NI passive sensors</p> <p>Multiple Temperature sensor measuring ranges</p> <p>High Humidity sensor accuracy</p> <p>Humidity and Temperature Field calibration potentiometer</p> <p>Professional and practical product design, withstanding harsh environmental conditions</p> <p>Easy to use, install and maintain</p>
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Product Range	<table border="1"> <thead> <tr> <th>Order Codes</th> <th>Temperature Passive Outputs</th> <th>Pocket length</th> <th>Power Supply</th> <th>Humidity / Temperature Output</th> <th>Temp. Ranges</th> <th>Humidity</th> <th>Measuring Units</th> <th>Humidity Accuracy</th> </tr> </thead> <tbody> <tr> <td>COW4.BE</td> <td>n.a.</td> <td rowspan="8">50mm</td> <td rowspan="8">AC/DC 24V (±10%)</td> <td rowspan="8">0...10V* or 4...20mA</td> <td rowspan="8">-50...50°C* 0...50°C -20...80°C 0...100°C</td> <td rowspan="8">rel. humidity* absolute humidity dew point enthalpy</td> <td rowspan="8">0...100% 0...50gr/m3 -20...80°C 0...85kJ/Kg</td> <td rowspan="8">± 2%, Full Scale</td> </tr> <tr> <td>COW4.BJa</td> <td>PT100</td> </tr> <tr> <td>COW4.BKa</td> <td>PT1000</td> </tr> <tr> <td>COW4.BMa</td> <td>NTC10k</td> </tr> <tr> <td>COW4.BOa</td> <td>NTC10 Pre</td> </tr> <tr> <td>COW4.BNa</td> <td>NTC20k</td> </tr> <tr> <td>COW4.BKa</td> <td>NI1000</td> </tr> <tr> <td>COW4.BLa</td> <td>LG-NI1000</td> </tr> </tbody> </table> <p>* default setting</p>	Order Codes	Temperature Passive Outputs	Pocket length	Power Supply	Humidity / Temperature Output	Temp. Ranges	Humidity	Measuring Units	Humidity Accuracy	COW4.BE	n.a.	50mm	AC/DC 24V (±10%)	0...10V* or 4...20mA	-50...50°C* 0...50°C -20...80°C 0...100°C	rel. humidity* absolute humidity dew point enthalpy	0...100% 0...50gr/m3 -20...80°C 0...85kJ/Kg	± 2%, Full Scale	COW4.BJa	PT100	COW4.BKa	PT1000	COW4.BMa	NTC10k	COW4.BOa	NTC10 Pre	COW4.BNa	NTC20k	COW4.BKa	NI1000	COW4.BLa	LG-NI1000
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Sensor Specification	Sensor Specification	<p>Measured</p> <p>Sensor Characteristics</p> <p>Outputs</p> <p>Temperature OFF-set Potentiometer (R1)</p> <p>Humidity OFF-set Potentiometer (R2)</p> <p>Output Load</p> <p>0...10V</p> <p>4...20mA</p> <p>Measuring Current</p> <p>Accuracy</p> <p>relative humidity</p> <p>absolute humidity</p> <p>enthalpy</p> <p>dew point</p> <p>Temperature, active</p> <p>Temperature PT100/1000</p> <p>Temperature NTC10k /10k Pre / 20k</p> <p>Temperature NI1000</p> <p>IP- Rating sensor element</p> <p>Repeatability (H)</p> <p>Long Term Drift (H)</p> <p>Measuring Range (H)</p> <p>Measuring Range (T) (default)</p> <p>Measuring Ranges (T) (optional, on board)</p>	<p>Temperature & Humidity</p> <p>Active</p> <p>0...10V ; 0...10V or 4...20mA ; 4...20mA</p> <p>± 3k</p> <p>± 5%</p> <p>Min. load 10kΩ @ AC/DC 24V</p> <p>Max. load 500Ω @ DC 24V</p> <p><1mA</p> <p>± 2% within 0...100% r.h.</p> <p>± 2% within 0...100% r.h.</p> <p>± 2% within 0...100% r.h.</p> <p>± 2% within 0...100% r.h.</p> <p>see temperature chart, page 3</p> <p>± 0.15K @ 0°C DIN EN 60751, class A</p> <p>±0.25K @ 25°C</p> <p>± 0.4K @ 0°C DIN EN 43760, class B</p> <p>IP67 to IEC60529</p> <p>±0.1°C ; ±0.1% r.h.</p> <p>< 0.04C / year ; < 0.5% r.h. / year</p> <p>0...100%</p> <p>-50°C...50°C</p> <p>0°C...50°C ; -20°C...+80°C ; 0°C...+100°C</p>
Technical Information	<p>Electrical Information</p> <p>Power Supply</p> <p>Frequency</p> <p>Terminal Clamp</p> <p>Power Consumption</p> <p>0...10V</p> <p>4...20mA</p> <p>Mechanical Information</p> <p>Measuring Pocket Diameter</p> <p>Measuring Pocket Length</p> <p>Cable Entry</p> <p>Sensing Element Positic</p> <p>Color and Materials</p> <p>Housing Cover</p> <p>Housing Bottom</p> <p>Lock Screws</p> <p>Lock Nuts</p> <p>Cable Gland</p> <p>Gland Rubber Seal</p> <p>Protection Caps</p> <p>Sensor Pocket</p> <p>Environmental Condition</p> <p>Operation Temperature</p> <p>Operation Humidity</p> <p>Transport Temperature</p> <p>Transport Humidity</p> <p>Storage Temperatur</p> <p>Storage Humidity</p> <p>Norms and Directives</p> <p>IP- Rating</p> <p>Safety Class</p> <p>Product Standard 1</p> <p>Product Standard 2</p> <p>CE Conformities to</p> <p>CE Electromagnetic Compatibility Emitted Interference</p> <p>CE Electromagnetic Compatibility Interference resistance</p> <p>RoHS Compatibility</p> <p>Operation Climatic Condition</p> <p>Operation Mechanical Condition</p> <p>Transport to Climatic Condition</p> <p>Transport Mechanical Condition</p> <p>Storage Climatic Condition</p> <p>Storage Mechanical Condition</p>	<p>AC/DC 24V (±10%)</p> <p>50 / 60 Hz at AC 24V</p> <p>Screw terminal, max. 1.5mm²</p> <p>≤ 0.4W / AC 24V; ≤ 0.85VA / DC 24V</p> <p>≤ 20mA / DC 24V</p> <p>Ø19mm</p> <p>50mm</p> <p>M16, Ø6...Ø8mm cables</p> <p>external, top of the immersion rod</p> <p>White ABS, RAL9001 (Cream White)</p> <p>White ABS, RAL9001 (Cream White)</p> <p>US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W.N. 1.301</p> <p>Brass</p> <p>White ABS, RAL2002 (Vermilion)</p> <p>White TBS, RAL9010 (Pure White)</p> <p>White ABS, RAL2002 (Vermilion)</p> <p>White ABS, RAL9001 (Cream White)</p> <p>-40°C...+70°C</p> <p><85% r.h., no condensation</p> <p>-35°C...+70°C</p> <p>< 90% r.h.</p> <p>-10°C...+70°C</p> <p>< 85% r.h., no condensation</p> <p>IP65 to IEC60529</p> <p>III to EN 60 730</p> <p>Automatic Electric. Controls for household and similar use</p> <p>2009/EN 60 730-1</p> <p>2004/108/EG Electromagnetic Compatibility EMV</p> <p>2000/EN60730-1 Emitted Interference</p> <p>2000/EN60730-1 Interference Resistance</p> <p>RoHS 3, Directive 2015/863</p> <p>IEC 60 721-3-3</p> <p>IEC 60 721-3-2 to class2M2</p> <p>IEC 60 721-3-2</p> <p>IEC 60 721-3-2 to class2M2</p> <p>IEC 60 721-3-1</p> <p>IEC 60 721-3-1 to class2M2</p>	
Miscellaneous	<p>Accessories</p> <p>Shipping & Handling</p> <p>Package Material</p> <p>Order Notes</p>	<p>Accessory not included in delivery</p> <p>none</p> <p>1 box with 2 piece</p> <p>Rigid Cardboards Packaging</p> <p>e.g. COW4.AE</p>	

Installation Notes



Observe the following general regulation for engineering and implementation:

- All relevant national and heavy power regulations
- Other country specific regulations
- Country-specific regulations
- Local electrical supply authority regulation
- Schematics, cable listings, dispositions, specification and arrangements from the customer or engineering office in charge
- Third party specifications, e.g. general contractors or constructors

Advices

Mounting Advices



Under normal environmental conditions we recommend a recalibration interval of 2 year to maintain the indicate accuracy.
 Refrain from touching the sensitive sensor. Any touch of the same will result in an expiration of the warranty.
 At high ambient temperatures and high humidity, or when use the sensor in aggressive gases, an early recalibration or a change of the sensor can become necessary.
 Such a recalibration or a probable sensor change may not come under the general warranty

Disposal Notes



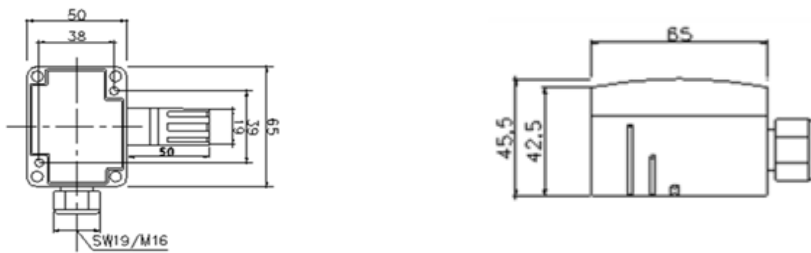
The device is considered an electronic device for disposal in terms of the EUROPEAN DIRECTIVE 2012/19/EU.
 The device may not be disposed as domestic garbage.
 The device must be disposed through channels provided for this purpose.
 It is mandatory to comply with local currently applying laws and regulations.

Connections & Settings

T1	T2	T3	T4	T5	T6	Temperature Setting (DIP1 & DIP 2)				Humidity Setting (DIP3 & DIP 4)				DIP5						
UB+	24V/AC/DC	GND	Temperature	Humidity	S+	T passive	S-	T passive	DIP1	DIP2	DIP1	DIP2	DIP1	DIP2	DIP3	DIP4	DIP3	DIP4	DIP5	DIP5
									-20...80°C	0...100°C	-50...50°C	0...50°C	rel. H	abs. H	enthalpy	dew point			0...10V	4...20mA

R1- Off-set potentiometer (TE) $\frac{0\text{ K}}{-3\text{ K} \quad \text{0 K} \quad +3\text{ K}}$ R2- Off-set potentiometer (HU) $\frac{0\%}{-5\% \quad \text{0\%} \quad +5\%}$

Dimensional Drawing



Accuracy Curves

