TI1212en	**Technical Information**	thermokon asia pacific
CDI4- Series (H&T)	**Duct Humidity and Temperature Sensor with Active Outputs**	

The CDI4- Series (H&T) is designed to measure temperature, relative humidity, absolute humidity, enthalpy or dew point in air ducts

The sensor operates with low power supply

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

Available with passive sensors

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

Use

Compatible to all common HVAC DDC and Analog Controls systems, with/without Building Automation System

Relative humidity, absolute humidity, enthalpy or dew point and temperature measurement in air ducts

Used in harsh environments due to IP67 protected sensor element, without impact on the accuracy or measuring time

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

Features

Sensor outputs are active

Sensor outputs 0…10V or 4…20mA, available with PT, NTC and NI passive sensors

Multiple Temperature measuring ranges

High Humidity accuracy

Sensor with different Immersion length for all common air ducts

Humidity and Temperature Field calibration potentiometer

Professional and practical product design, withstands harsh environmental conditions

Easy to use, install and maintain

Product Range

Order Codes	Immersion Lengths	Power Supply	Humidity / Temperature Output*	Temperature Passive Outputs	Temperature Ranges	Measuring Variable	Measuring Units	Humidity Accuracy
CDI4.AE	140mm	AC/DC 24V ±10%	0…10V* or 4…20mA	n.a.	-50…50°C	rel. humidity*	0…100%	±2% Full Scale
CDI4.AJa				PT100				
CDI4.AKa				PT1000				
CDI4.AMa				NTC10k				
CDI4.AOa				NTC10k Pre				
CDI4.ANa				NTC20k	0...50°C	absolute humidity	0…50gr/m3	
CDI4.ALa				NI1000				
CDI4.BE	270mm			n.a.	-20…80°C*	dew point	-20….80°C	
CDI4.BJa				PT100				
CDI4.BKa				PT1000				
CDI4.BMa				NTC10k				
CDI4.BOa				NTC10k Pre	0…100°C	enthalpy	0…85kJ/Kg	
CDI4.BNa				NTC20k				
CDI4.BLa				NI1000				

**** default setting***

Sensor Specification	Sensor Specification	Measured	Temperature & Humidity
		Sensor Characteristics	Active
		Outputs	0…10V ; 0…10V or 4…20mA ; 4…20mA
		Output Load	
		0…10V	Min. load 10kΩ @ AC/DC 24V
		4…20mA	Max. load 500Ω @ DC 24V
		Measuring Current	<1mA
		Accuracy	
		relative humidity	± 2% within 0…100% r.h.
		absolute humidity	± 2% within 0…100% r.h.
		enthalpy	± 2% within 0…100% r.h.
		dew point	± 2% within 0…100% r.h.
		Temperature	see temperature chart, page 3
		Temperature PT100/1000	± 0.3K @ 0ºC DIN EN 60751, class B
		Temperature NTC10k /10k Pre / 20k	±0.3K @ 25ºC
		Temperature NI1000	± 0.4K @ 0ºC DIN EN 43760, class B
		IP- Rating sensor element	IP67 to IEC60529
		Repeatability (H)	±0.1°C ; ±0.1% r.h.
		Long Term Drift (H)	< 0.04°C / year ; < 0.5% r.h. / year
		Measuring Range (H)	0…100%
		Measuring Range (T) (default)	-20ºC…80ºC
		Measuring Ranges (T) (optional, on board)	0ºC…50ºC ; -50ºC…+50ºC ; 0ºC…+100ºC
Technical Information	Electrical Information	Power Supply	AC/DC 24V (±10%)
		Frequency	50 / 60 Hz at AC 24V
		Terminal Clamp	Screw terminal, max. 1.5mm²
		Power Consumption	
		0…10V output	≤ 0.4W / AC 24V; ≤ 0.85VA / DC 24V
		4…20mA output	≤ 20mA / DC 24V
	Mechanical Information	Immersion Rod Diameter	Ø19mm
		Immersion Rod Length	140mm / 270mm
		Cable Entry	M16, Ø6...Ø8mm cables
		Sensing Element Position	external, top of the immersion rod
	Color and Materials	Housing Cover	White ABS, RAL9001 (Cream White)
		Housing Bottom	White ABS, RAL9001 (Cream White)
		Lock Screws	US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W.N. 1.301
		Lock Nuts	Brass
		Cable Gland	Red ABS, RAL2002 (Vermilion)
		Gland Rubber Seal	White TBS, RAL9010 (Pure White)
		Protection Caps	Red ABS, RAL2002 (Vermilion)
		Immersion Rod	Black PVC, RAL 9017 (Traffic Black)
	Environmental Condition	Operation Temperature	-25ºC...+70ºC
		Operation Humidity	<85% r.h., no condensation
		Transport Temperature	-35ºC...+70ºC
		Transport Humidity	< 90% r.h.
		Storage Temperatur	-10ºC...+70ºC
		Storage Humidity	< 85% r.h., no condensation
	Norms and Directives	IP- Rating	IP65 to IEC60529
		Safety Class	III to EN 60 730
		Product Standard 1	Automatic Electric. Controls for household and similar use
		Product Standard 2	2009/EN 60 730-1
		CE Conformities to	2004/108/EG Electromagnetic Compatibility EMV
		CE Electromagnetic Compatibility Emitted Interference	2000/EN60730-1 Emitted Interference
		CE Electromagnetic Compatibility Interference resistance	2000/EN60730-1 Interference Resistance
		RoHS Compatibility	RoHS 3, Directive 2015/863
		Operation Climatic Condition	IEC 60 721-3-3
		Operation Mechanical Condition	IEC 60 721-3-2 to class2M2
		Transport to Climatic Condition	IEC 60 721-3-2
		Transport Mechanical Condition	IEC 60 721-3-2 to class2M2
		Storage Climatic Condition	IEC 60 721-3-1
		Storage Mechanical Condition	IEC 60 721-3-1 to class2M2
Miscellaneous	Accessories	Mounting Kit, Included in delivery	Duct Mounting Kit, HDK0.A
	Shipping & Handling	Minimum Order	1 box with 2 piece
		Package Material	Rigid Cardboards Packaging
	Order Notes	Order Code	See Product Range, Page 1, e.g. CDI4.AE

Advices

Installation Notes

Caution

Observe the following general regulation for engineering and implementation:

All relevant national and heavy power regulations

Other country specific regulations

Country-specific regulations

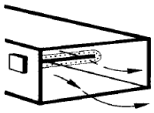
Local electrical supply authority regulations

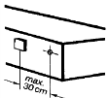
Schematics, cable listings, dispositions, specification and arrangements from the customer or engineering office in charge

Third party specifications, e.g. general contractors or constructors

Mounting Advices

Caution





Under normal environmental conditions we recommend a recalibration interval of 2 years to maintain the indicated 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	
UB+	24V AC/DC	GND	Temperature	Humidity	S+	T passive	S-	T passive

Temperature Setting (DIP1 & DIP 2)							
DIP1	DIP2	DIP1	DIP2	DIP1	DIP2	DIP1	DIP2
-20...80C°		0...100C°		-50...50C°		0...50C°	

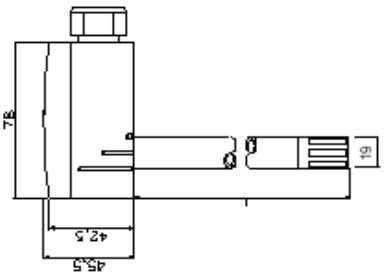
Humidity Setting (DIP3 & DIP 4)							
DIP3	DIP4	DIP3	DIP4	DIP3	DIP4	DIP3	DIP4
rel. H		abs. H		enthalpy		dew point	

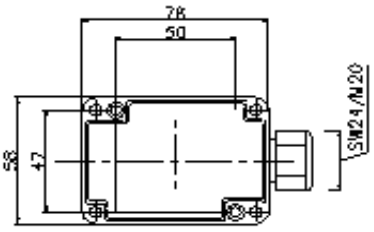
DIP5	
DIP5	DIP5
0...10V	4...20mA

R1- Off-set potentiometer (TE) 0 K, -3 K, +3 K

R2- Off-set potentiometer (HU) 0%, -5%, +5%

Dimensional Drawing





Accuracy Curves