The CDI4-Series (H&T) is designed to measure relative humidity and temperature in air ducts of heating, ventilation and air-conditioning systems. The humidity sensor output is active, the temperature sensor output can be active or passive.

Use

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

Relative humidity and temperature measurement in air ducts

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

Features

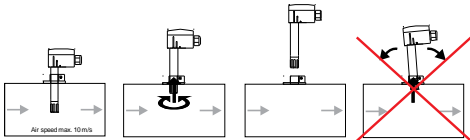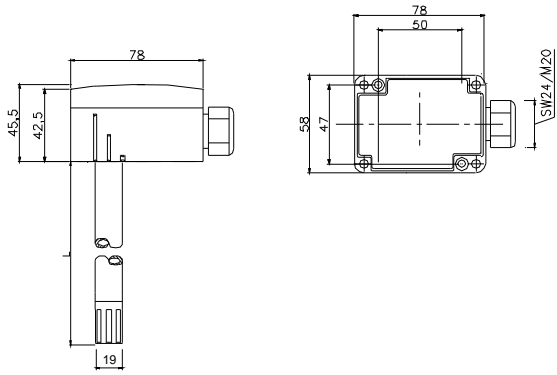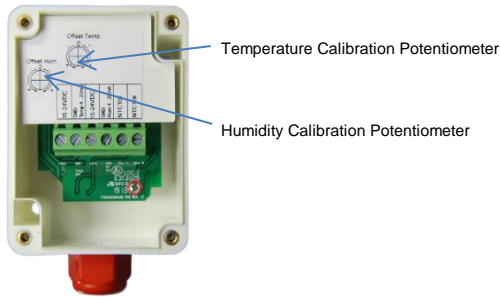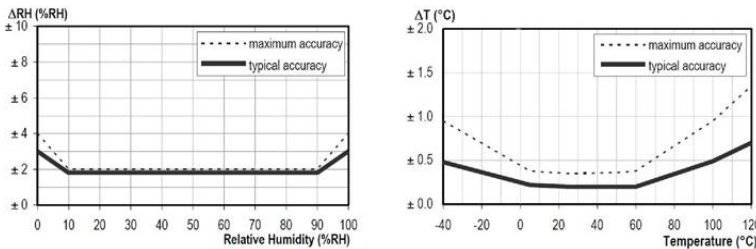Sensor with active and passive outputs (optional)

Different immersion lengths for all common air duct sizes

Professional and practical product design, withstands rough environmental conditions

Easy to use, install and maintain

Product Range

Model	Sensor Output										Immersion	
	Temperature								Humidity		Length	
	PT100	PT1000	NTC10k	NTC10k Pre	NTC20k	Ni1000	0-10V	4-20mA	0-10V	4-20mA	140mm	270mm
CDI4.AA							●		●		●	
CDI4.AJ	●						●		●		●	
CDI4.AK		●					●		●		●	
CDI4.AM			●				●		●		●	
CDI4.AO				●			●		●		●	
CDI4.AN					●		●		●		●	
CDI4.AL						●	●		●		●	
CDI4.AD								●		●	●	
CDI4.AP	●							●		●	●	
CDI4.AQ		●						●		●	●	
CDI4.AS			●					●		●	●	
CDI4.AV				●				●		●	●	
CDI4.AT					●			●		●	●	
CDI4.AR						●		●		●	●	
CDI4.BA							●		●			●
CDI4.BJ	●						●		●			●
CDI4.BK		●					●		●			●
CDI4.BM			●				●		●			●
CDI4.BO				●			●		●			●
CDI4.BN					●		●		●			●
CDI4.BL						●	●		●			●
CDI4.BD								●		●		●
CDI4.BP	●							●		●		●
CDI4.BQ		●						●		●		●
CDI4.BS			●					●		●		●
CDI4.BV				●				●		●		●
CDI4.BT					●			●		●		●
CDI4.BR						●		●		●		●

Sensor Specification

Sensor Specification	Measured	Temperature & Humidity
	Sensor Characteristics	Passive; Active
	Sensor Output (s)	See Product Range, Page 1
	Output Load	
	Type CDI4.AJ/AK/AM/AO/AN/AL/AA/BJ/BK/BM/BO/BN/BL/BA	Min. load 5kΩ @ AC/DC 24V
	Type CDI4.AP/AQ/AS/AV/AT/AR/AD/BP/BQ/BS/BV/BT/BR/BD	Max. load 500Ω @ DC 24V
	Measuring Current	<1mA
	Accuracy	
	Type CDI4.AJ/AK/AP/AQ/BJ/BK/BP/BQ	± 0.8°C between -20℃..80℃ ; ± 0.3K @ 0℃, class B ; ± 2% between 10…90% r.h.
	Type CDI4.AM/AO/AN/AS/AV/AT/BM/BO/BN/BS/BV/BT	± 0.8°C between -20℃..80℃ ; ± 0.5K @ 25℃ ; ± 2% between 10…90% r.h.
	Type CDI4.AL/AR/BL/BR	± 0.8°C between -20℃..80℃ ; ± 0.4K @ 0℃ ; ± 2% within 10…90% r.h.
	Type CDI4.AA/AD/BA/BD	± 0.8°C between -20℃..80℃ ; ± 2% within 10-90% r.h.
	Repeatability	±0.1℃ ; ±0.1% r.h.
	Long Term Drift	< 0.04℃ / year ; < 0.5% r.h. / year
	Measuring Range (s)	-20ºC…80ºC Active / -40ºC…150ºC Passive / 0…100% r.h.

Technical Information

Electrical Information	Power Supply	
	Type CDI4.AJ/AK/AM/AO/AN/AL/AA/BJ/BK/BM/BO/BN/BL/BA	DC 15-24V (±10%) or AC 24V (±10%)
	Type CDI4.AP/AQ/AS/AV/AT/AR/AD/BP/BQ/BS/BV/BT/BR/BD	DC 15-24V (±10%)
	Frequency	50 / 60 Hz at AC 24V
	Terminal Clamp	Screw terminal, max. 1.5mm²
	Power Consumption	
	Type CDI4.AJ/AK/AM/AO/AN/AL/AA/BJ/BK/BM/BO/BN/BL/BA	≤ 0.5W / AC 24V; ≤ 1.7VA / DC 24V
	Type CDI4.AP/AQ/AS/AV/AT/AR/AD/BP/BQ/BS/BV/BT/BR/BD	≤ 40mA / DC 24V
Mechanical Information	Immersion Rod Diameter	Ø19mm
	Immersion Rod Length	See Product Range, Page 1
	Cable Entry	M16, Ø6...Ø8mm cables
	Sensing Element Position	external, top of the immersion rod
User Interface	Temperature Recalibration	±3K
	Humidity Recalibration	±4% r.h.
Color and Materials	Housing Cover	White PA6, RAL9001 (Cream White)
	Housing Bottom	White PA6, RAL9001 (Cream White)
	Lock Screws	Zinc ZLO410, Fast Connectors 90˚
	Cable Gland	White PA6, RAL9001 (Cream White)
	Gland Rubber Seal	White TBS, RAL9010 (Pure White)
	Immersion Rod	Black PVC, RAL 9017 (Traffic Black)
	Filter	US:AISI 304; EU:EN X 6 CrNi 18 10; GER: W.N. 1.301, Stainless Steel
Environmental Conditions	Operation Temperature	-25ºC...+70ºC
	Operation Humidity	100% r.h., with condensation
	Transport Temperature	-35ºC...+70ºC
	Transport Humidity	< 90% r.h.
	Storage Temperature	-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 2011/65/EC
	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

Connection

Terminal Connection

1	2	3	4	5	6
OutTemp 0...10V	Out Hum 0...10V	15-24VDC/ 24/AC	GND	Passive sensor	Passive sensor

Type CDI4.AJ/AK/AM/AO/AN/AL/AJ/BK/BM/BO/BN/BL

1	2	3	4	5	6
OutTemp 0...10V	Out Hum 0...10V	15-24VDC/ 24/AC	GND		

Type CDI4.AA/BA

1	2	3	4	5	6
15-24VDC	OutTemp 4...20mA	15-24VDC	Out Hum 4...20mA	Passive sensor	Passive sensor

Type CDI4.AP/AQ/AS/AV/AT/AR/BP/BQ/BS/BV/BT/BR/BA

1	2	3	4	5	6
15-24VDC	OutTemp 4...20mA	15-24VDC	Out Hum 4...20mA		

Type CDI4.AD/BD

Miscellanies

Accessories	Mounting Kit, Included in delivery	Duct Mounting Kit, HDK0.A
Shipping & Handling	Minimum Order	1 box with 2 pieces, multiple of 2 pieces
	Product Dimension (L x W x H) / Weight	186mm x 85mm x 50mm / 102gr.
		316mm x 85mm x 50mm / 152gr.
	Transport and Storage dimension (L x W x H) / ~Weight	195mm x 95mm x 65mm / 270gr.
		330mm x 95mm x 65mm / 405gr.
	Packaging Material	Rigid Cardboards Packaging
Order Notes	Order Code	See Product Range, Page 1, e.g. CDI4.AJ

All Information and technical data are subject to alteration

Advices

Security Advice

⚠ Caution

The installation and assembly of electrical equipment may only be performed by a skilled electrician.

The products must not be used in any relation with equipment that supports, directly or indirectly, human health, life or with applications that can result in danger of people, animals or real values.

Mounting Advices

⚠ Caution

The sensor can be mounted on the air duct by a mounting flange or by screws.

For risk of condensate permeation in the sensor tube respectively in the immersion pocket, the sensor must be installed that occurred condensate can run off.

Air speed max. 10 m/s

Installation Notes

⚠ Caution

The product must be installed at a suitable place and within the range of validity of the local electrical installation laws and regulations.

Due to the self-heating, the wire current should not exceed 1mA.

Due to air circulations dirt and dust particles can be piled up in the course of time on the sintered filter which is protecting the sensor. The filter can be cleaned by blowing it out with oil-free and filtered compressed air, super-clean air or nitrogen or by washing it out with distilled water.

Commissioning Notes

⚠ Caution

Sensing devices with transducers should in principle be operated in the middle of the measuring range.

The ambient temperature of the transducer electronics should be kept constant.

When switching the supply voltage on/off, power surges must be avoided on site.

With normal environmental conditions we recommend a recalibration interval of around 1 year 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 necessarily.

Such a recalibration or a probable sensor change may not come under the general warranty.

Dimensional Drawing

Calibration diagram

Temperature Calibration Potentiometer

Humidity Calibration Potentiometer

Accuracy Curves

Active Sensor Output