
	TI1212en	<b>Technical Information</b>	
<b>CDI4- Series (H&amp;T)</b>		<b>Duct Humidity and Temperature Sensor with Active Outputs</b>	

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



<b>Use</b>	<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 air ducts</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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<b>Features</b>	<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 measuring ranges</p> <p>High Humidity accuracy</p> <p>Sensor with different Immersion length for all common air ducts</p> <p>Humidity and Temperature Field calibration potentiometer</p> <p>Professional and practical product design, withstands harsh environmental conditions</p> <p>Easy to use, install and maintain</p>
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<b>Product Range</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="199 1153 319 1265">Order Codes</th> <th data-bbox="319 1153 438 1265">Immersion Lengths</th> <th data-bbox="438 1153 598 1265">Temperature Passive Outputs</th> <th data-bbox="598 1153 742 1265">Temperature Accuracy</th> <th data-bbox="742 1153 853 1265">Humidity Accuracy</th> <th data-bbox="853 1153 949 1265">Power Supply</th> <th data-bbox="949 1153 1093 1265">Humidity / Temperature Output*</th> <th data-bbox="1093 1153 1236 1265">Temperature Ranges</th> <th data-bbox="1236 1153 1380 1265">Measuring Variable</th> <th data-bbox="1380 1153 1516 1265">Measuring Units</th> </tr> </thead> <tbody> <tr> <td>CDI4.AE</td> <td rowspan="8" style="text-align: center;">140mm</td> <td>n.a.</td> <td>± 0.2K between 0°C...+80°C</td> <td rowspan="16" style="text-align: center;">±2% Full Scale</td> <td rowspan="16" style="text-align: center;">AC/DC 24V ±10%</td> <td rowspan="8" style="text-align: center;">0...10V*</td> <td rowspan="8" style="text-align: center;">-50...50°C</td> <td rowspan="8" style="text-align: center;">rel. humidity*</td> <td rowspan="8" style="text-align: center;">0...100%</td> </tr> <tr><td>CDI4.AJa</td><td>PT100</td><td>± 0.15K @ 0°C DIN EN 60751, class A</td></tr> <tr><td>CDI4.AKa</td><td>PT1000</td><td></td></tr> <tr><td>CDI4.AMa</td><td>NTC10k</td><td rowspan="4" style="text-align: center;">±0.25K @ 25°C</td></tr> <tr><td>CDI4.AOa</td><td>NTC10k Pre</td></tr> <tr><td>CDI4.ANa</td><td>NTC20k</td></tr> <tr><td>CDI4.ALa</td><td>NI1000</td><td>± 0.4K @ 0°C DIN EN 43760, class B</td></tr> <tr><td>CDI4.AWa</td><td>LG-NI1000</td><td></td></tr> <tr> <td>CDI4.BE</td> <td rowspan="8" style="text-align: center;">270mm</td> <td>n.a.</td> <td>± 0.2K between 0°C...+80°C</td> <td rowspan="8" style="text-align: center;">±2% Full Scale</td> <td rowspan="8" style="text-align: center;">AC/DC 24V ±10%</td> <td rowspan="8" style="text-align: center;">or 4...20mA</td> <td rowspan="8" style="text-align: center;">-20...80°C*</td> <td rowspan="8" style="text-align: center;">dew point</td> <td rowspan="8" style="text-align: center;">-20...80°C</td> </tr> <tr><td>CDI4.BJa</td><td>PT100</td><td>± 0.15K @ 0°C DIN EN 60751, class A</td></tr> <tr><td>CDI4.BKa</td><td>PT1000</td><td></td></tr> <tr><td>CDI4.BMa</td><td>NTC10k</td><td rowspan="4" style="text-align: center;">±0.25K @ 25°C</td></tr> <tr><td>CDI4.BOa</td><td>NTC10k Pre</td></tr> <tr><td>CDI4.BNa</td><td>NTC20k</td></tr> <tr><td>CDI4.BLa</td><td>NI1000</td><td>± 0.4K @ 0°C DIN EN 43760, class B</td></tr> <tr><td>CDI4.BWa</td><td>LG-NI1000</td><td></td></tr> </tbody> </table>									Order Codes	Immersion Lengths	Temperature Passive Outputs	Temperature Accuracy	Humidity Accuracy	Power Supply	Humidity / Temperature Output*	Temperature Ranges	Measuring Variable	Measuring Units	CDI4.AE	140mm	n.a.	± 0.2K between 0°C...+80°C	±2% Full Scale	AC/DC 24V ±10%	0...10V*	-50...50°C	rel. humidity*	0...100%	CDI4.AJa	PT100	± 0.15K @ 0°C DIN EN 60751, class A	CDI4.AKa	PT1000		CDI4.AMa	NTC10k	±0.25K @ 25°C	CDI4.AOa	NTC10k Pre	CDI4.ANa	NTC20k	CDI4.ALa	NI1000	± 0.4K @ 0°C DIN EN 43760, class B	CDI4.AWa	LG-NI1000		CDI4.BE	270mm	n.a.	± 0.2K between 0°C...+80°C	±2% Full Scale	AC/DC 24V ±10%	or 4...20mA	-20...80°C*	dew point	-20...80°C	CDI4.BJa	PT100	± 0.15K @ 0°C DIN EN 60751, class A	CDI4.BKa	PT1000		CDI4.BMa	NTC10k	±0.25K @ 25°C	CDI4.BOa	NTC10k Pre	CDI4.BNa	NTC20k	CDI4.BLa	NI1000	± 0.4K @ 0°C DIN EN 43760, class B	CDI4.BWa	LG-NI1000	
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\* default setting

All Information and technical data are subject to alteration

<b>Sensor Specification</b>	Sensor Specification	<p>Measured</p> <p>Sensor Characteristics</p> <p>Outputs</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</p> <p>Temperature PT100/1000</p> <p>Temperature NTC10k /10k Pre / 20k</p> <p>Temperature NI1000 / LG-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 &amp; Humidity</p> <p>Active</p> <p>0...10V ; 0...10V or 4...20mA ; 4...20mA</p> <p>Min. load 10kΩ @ AC/DC 24V</p> <p>Max. load 500Ω @ DC 24V</p> <p>&lt;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>±0.1C ; ±0.1% r.h.</p> <p>&lt; 0.04C / year ; &lt; 0.5% r.h. / year</p> <p>0...100%</p> <p>-20°C...80°C</p> <p>0°C...50°C ; -50°C...+50°C ; 0°C...+100°C</p>
<b>Technical Information</b>	<p>Electrical Information</p> <p>Mechanical Information</p> <p>Color and Materials</p> <p>Environmental Condition</p> <p>Norms and Directives</p>	<p>Power Supply</p> <p>Frequency</p> <p>Terminal Clamp</p> <p>Power Consumption</p> <p>0...10V output</p> <p>4...20mA output</p> <p>Immersion Rod Diameter</p> <p>Immersion Rod Length</p> <p>Cable Entry</p> <p>Sensing Element Position</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>Immersion Rod</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>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. 1.5mm<sup>2</sup></p> <p>≤ 0.4W / AC 24V; ≤ 0.85VA / DC 24V</p> <p>≤ 20mA / DC 24V</p> <p>Ø19mm</p> <p>140mm / 270mm</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>Black PVC, RAL 9017 (Traffic Black)</p> <p>-25°C...+70°C</p> <p>&lt;85% r.h., no condensation</p> <p>-35°C...+70°C</p> <p>&lt; 90% r.h.</p> <p>-10°C...+70°C</p> <p>&lt; 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>
<b>Miscellaneous</b>	<p>Accessories</p> <p>Shipping &amp; Handling</p> <p>Order Notes</p>	<p>Mounting Kit, Included in delivery</p> <p>Minimum Order</p> <p>Package</p> <p>Material</p> <p>Order Code</p>	<p>Duct Mounting Kit, HDK0.A</p> <p>1 box with 2 piece</p> <p>Rigid Cardboards Packaging</p> <p>See Product Range, Page 1, e.g. CDIA.AE</p>

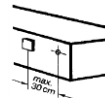
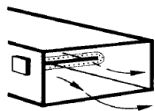
**Installation Notes**



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 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**



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.

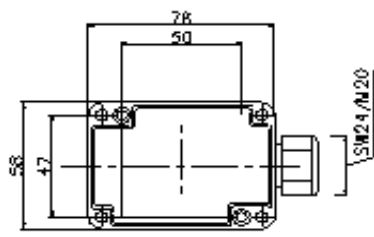
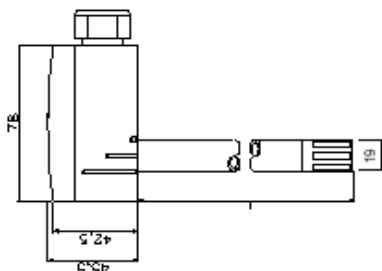
**Connections & Settings**

T1	T2	T3	T4	T5	T6	Temperature Setting (DIP1 & DIP 2)				Humidity Setting (DIP3 & DIP 4)				DIP5									
UB+	24V AC/DC	GND	Temperature	Humidity	S+	T passive	T passive	DIP1	DIP2	DIP1	DIP2	DIP1	DIP2	DIP1	DIP2	DIP3	DIP4	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)      0 K  
 -3 K      +3 K

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

**Dimensional Drawing**



**Accuracy Curves**

