



**Product info sheet no. C 2.3**  
**Humidity/- temperature sensors**  
 rod-shaped compact sensors

**Description**

MELA® humidity/-temperature sensors in the PC and RC series are compact, versatile sensors in a rod-type design. They are available with a 1.5 m connecting cable (PC series) or with a robust aluminium connecting head and terminal screws (RC series) for measuring relative humidity, relative humidity and temperature or temperature in air and other non-aggressive gases.

The advantages of the series .../9 are its improved dynamics, in particular at low air speeds and also its increased service life, even under more challenging operating conditions (pollutant impact or permanent humidity > 95 %rh).

When air speeds are extremely high combined with a high number of particles, using the series .../9 is not recommended.

For extreme applications (near the sea, desert, mountains, areas with high air speed etc.) we recommend our stainless steel sinter filter **types ZE 21** resp. **ZE 22** (not recommended for the series .../9, see product info sheet F 5.1).

**Technical data**

**Humidity**

measuring range ..... 0...100% rh  
 accuracy (5...95%rh at 10...40°C) ..... ±2% rh  
 influence of temp. <10°C, >40°C ..... <0.1%/K additional

**Temperature**

measuring element (ref. DIN EN 60751) ..... Pt 100 class B  
 (class 1/3 DIN on request)  
 measuring range ..... -30...+70° C  
 accuracy  
 output: 0...1V (-27...70°C) ..... ±0.2 K  
 0...10V (-29...70°C) ..... ±0.2 K  
 4...20mA (PC) ..... -0.3...0.6 K  
 (depending on the air speed)  
 4...20mA (RC) ..... ±0.3 K  
 influence of temp. <10°C, >40°C ..... ±0.007 K/K additional

**Other data**

ambient temperature ..... -40...+80° C  
 degree of protection sensor/electronic ..... IP 30/IP 65  
 operating voltage  
 current output ..... 12...30V DC  
 voltage output (0...10V) ..... 15...30V DC  
 voltage output (0...1V) ..... 6...30V DC  
 load resistance (0...10V, 0...1V) ..... ≥10 kΩ/≥2 kΩ  
 load (current output) ..... acc.diagram  
 power consumption  
 0...10V, 2 x 0...1V ..... < 5 mA  
 0...1V ..... <1 mA  
 minimum air speed always across the sensor  
 output: 0...10V, 2x 0...1V ..... ≥0.5 m/s  
 4...20mA, 2x 0...10V ..... ≥1 m/s  
 2x 4...20mA ..... ≥1.5 m/s  
 self-heating Pt100 (v=2 m/s in the air) ..... 0.2 K/mW  
 electromagnetic compatibility  
 emitted interference ..... EN 55011 cl. B  
 noise immunity ..... EN 50082-2

„subject to technical modifications“

**Type Versions**

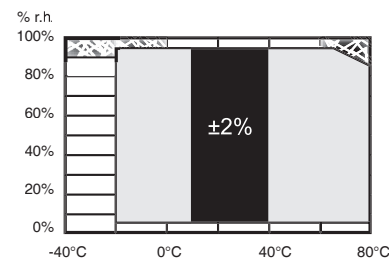
Measured variable	Analogue output	PC series rod shape with 1.5 m cable	RC series robust execution
<b>F</b> rel. humidity	4...20 mA	FPC 3/x	FRC 3/x
	0...10 V	FPC 2/x	FRC 2/x
	0...1 V	FPC 1/x	FRC 1/x
<b>C</b> r.h. + temp.	4...20 mA, Pt100	CPC 3/x	CRC 3/x
	0...10 V, Pt100	CPC 2/x	CRC 2/x
	0...1 V, Pt100	CPC 1/x	CRC 1/x
<b>K</b> r.h. + temp.	2 x 4...20 mA	KPC 3/x	KRC 3/x
	2 x 0...10 V	KPC 2/x	KRC 2/x
	2 x 0...1 V	KPC 1/x	KRC 1/x
<b>T</b> temperature	Pt 100	TPC 5/5	TRC 5/5
	4...20 mA	TPC 3/5	TRC 3/5
	0...10 V	TPC 2/5	TRC 2/5
	0...1 V	TPC 1/5	TRC 1/5
weight		ca. 145 g	ca. 340 g

for

- x=5: gauze filter ZE17
- x=9: integrated element filter made of PTFE and protective plastic basket ZE16

Special versions available on request

**Tolerance validity range for humidity**



Operating the sensor in these areas can damage it!

Install the Mela®-humidity/temperature sensors in a place where characteristic climatic conditions can be measured. Mounting close to heaters, windows, at outside wall or in direct sunlight should be avoided.

**The specified minimum air speeds and the operating voltage-adapted current at current-output (diagram) should be complied with. Deviations may lead to additional corrupted measurement readings because the sensor self-heats.**

The sensor can be installed in any position. However, do avoid positions where water can enter. Dew formation and splashes do not damage the sensor, although corrupted measurement readings are recorded until all the moisture on and directly around the sensor element has dried up.

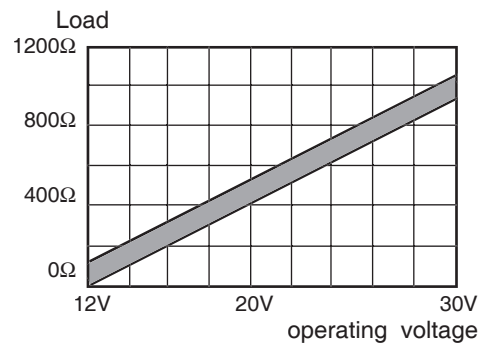
In order to maintain interference immunity in accordance with EN 80082-2 when it is in use, we recommend that you use a screened cable (type recommended: **8x AWG 26 C UL, order no. 5339**) for connecting the RC series sensors, and have this fitted into the sensor's EMC heavy-gauge conduit thread by a qualified electrician.

Dust does not cause any harm to the humidity sensor, however, it does affect dynamic performance. We advise you to use a **ZE20-type membrane filter** if there is an excessive build-up of dust or a **ZE21- resp. ZE22-type sintered filter** at high air speeds (> 5 m/s) (product info sheet no. 5.1). If the sensor is to be used outdoors, order the **ZE20-type membrane filter** and order the **ZE21-type sintered filter**

(product info sheet F 5.1) if it is to be used under extreme conditions (close to the sea, desert, mountains). We recommend that you use the **ZA 161/1-type water guard** (product info sheet F 5.1) as additional protection against rainfall and sunlight.

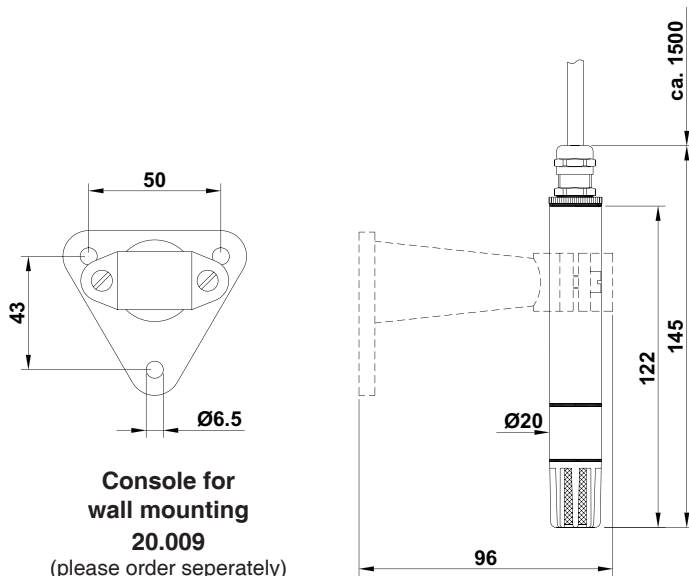
Do not touch the highly sensitive sensor element. For mounting supports we recommend a **console type 20.009** and an **attachment plate type ZA20** (product info sheet No. F5.1). In order to check functioning in the place of installation, we recommend that you use the **ZE 31/1-type humidity standard** (product info sheet no. F 5.2). Please consult the **application instructions** for the sensing elements (product info sheet no. A 1) or check with the manufacturer for further information which you need to bear in mind when using humidity sensors with capacitive sensing elements.

**Load at current output**

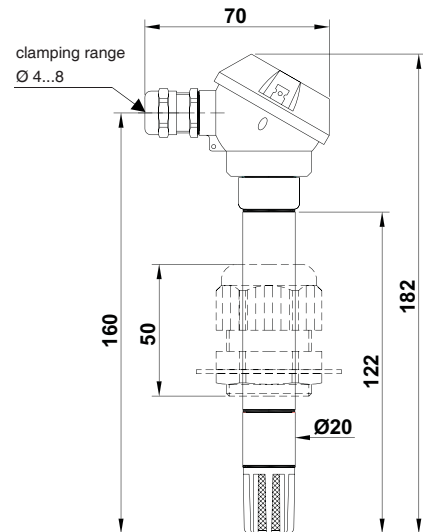


**Dimensions**

**PC series**

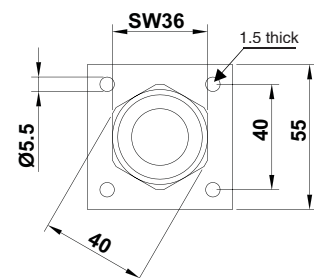


**RC series**



**Attachment plate ZA 20**

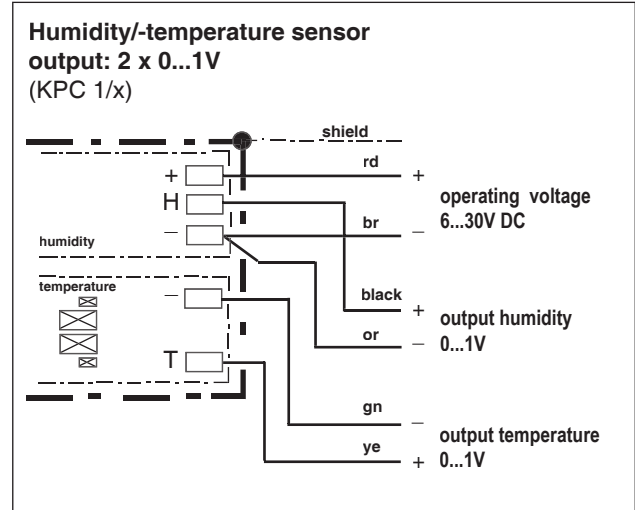
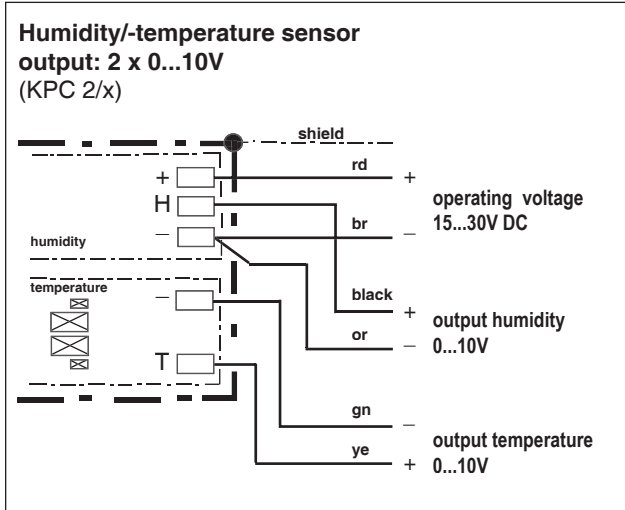
(please order separately)




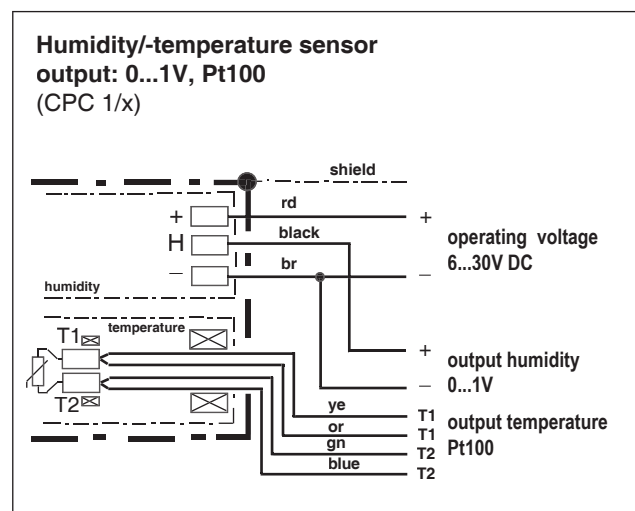
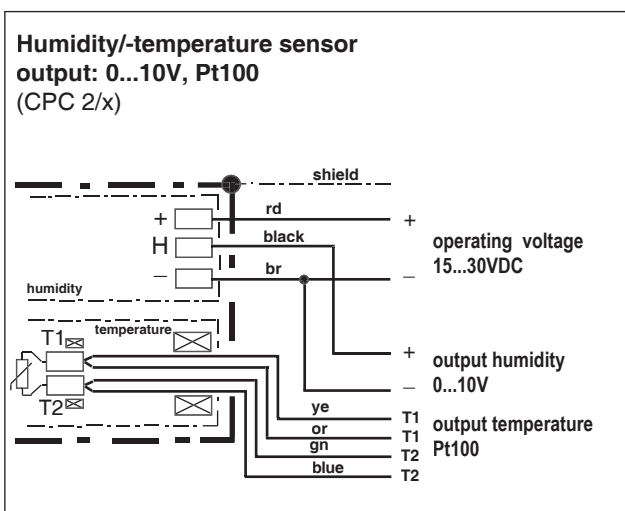
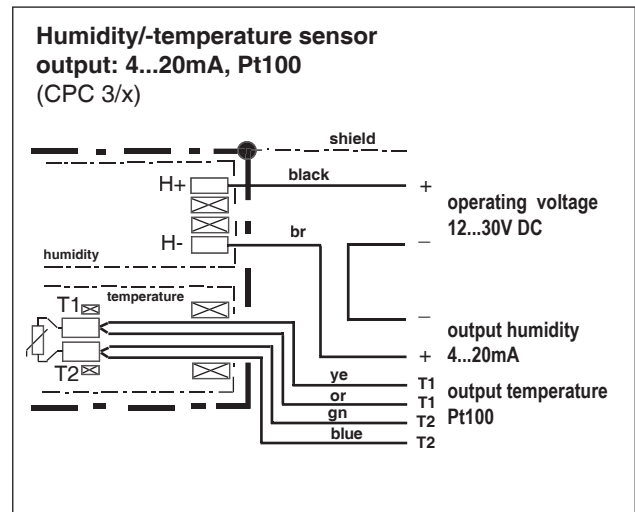
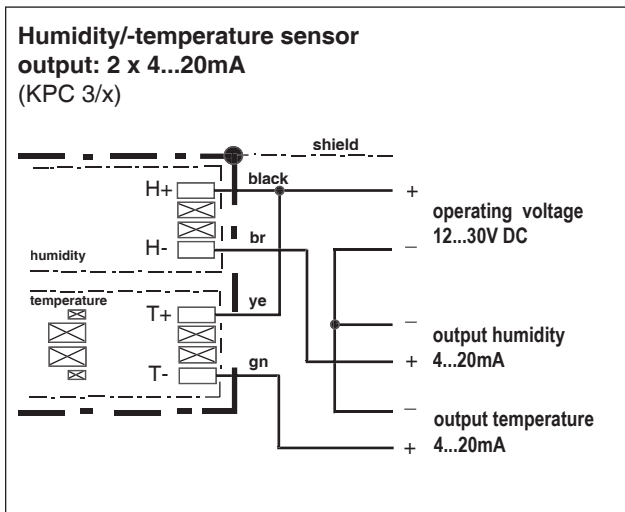
## Connection diagram

## Humidity-temperature sensors

Rod-shaped compact sensors series PC

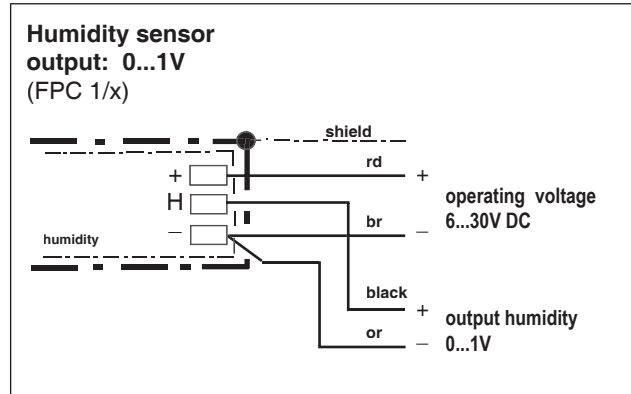
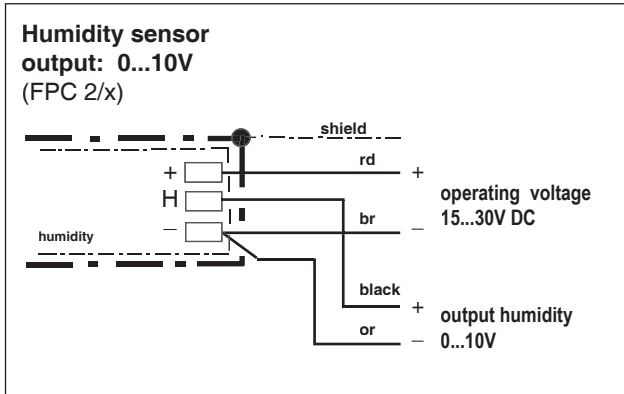



 The electrical connection must only be carried out by properly qualified personnel.

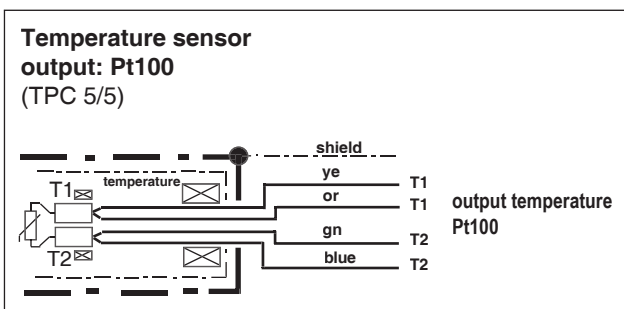
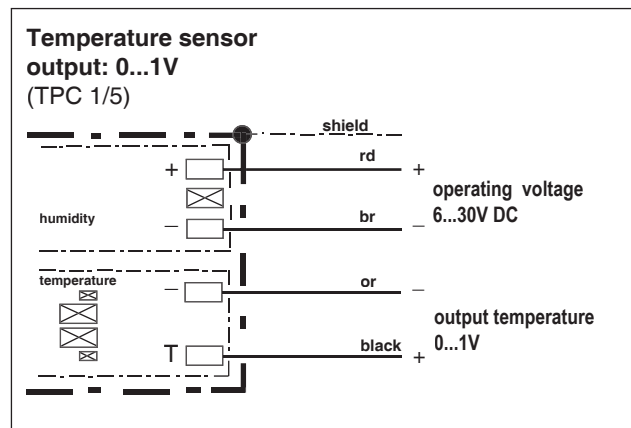
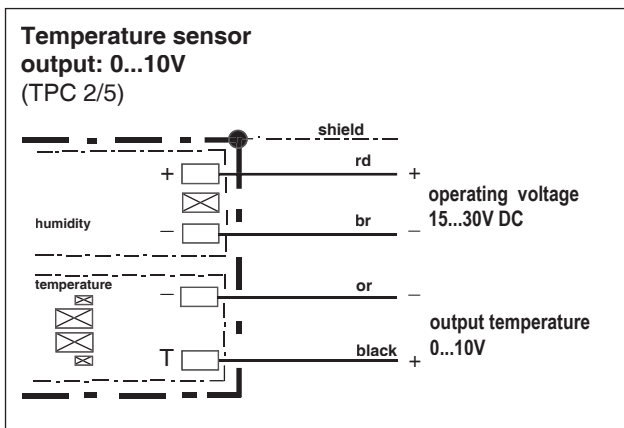
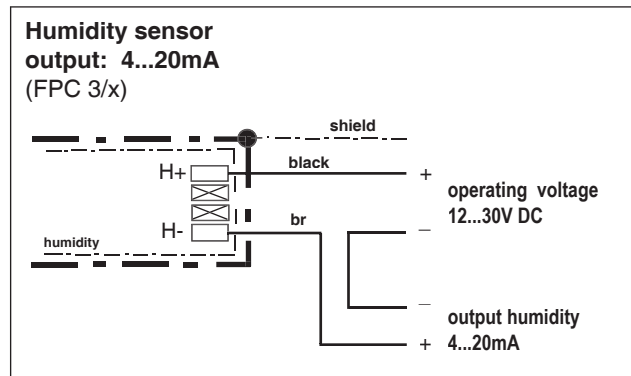
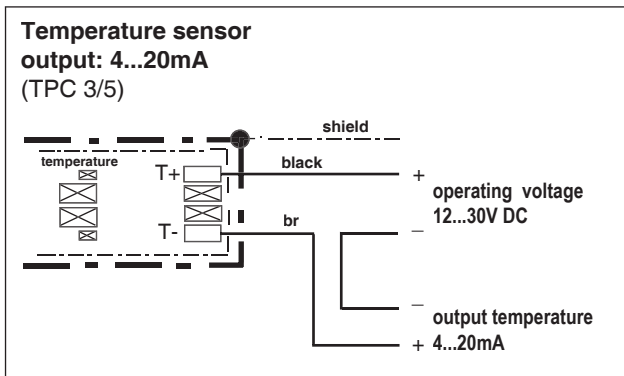


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## Humidity/temperature sensors Rod-shaped compact sensors series PC



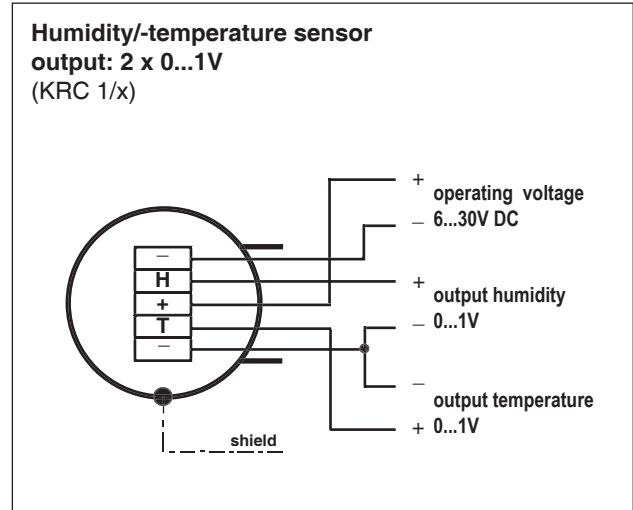
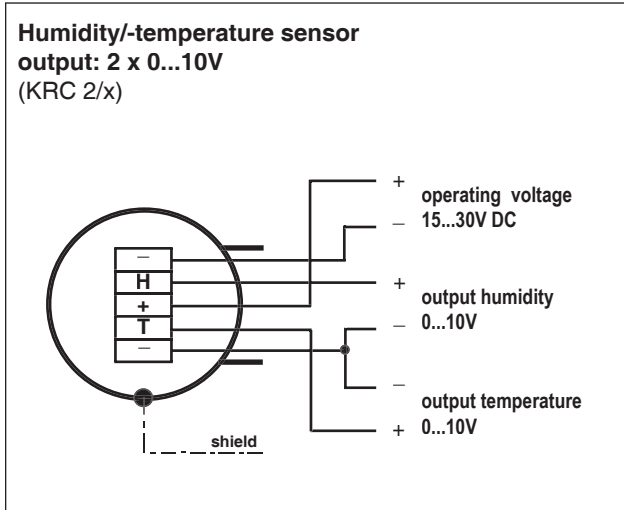
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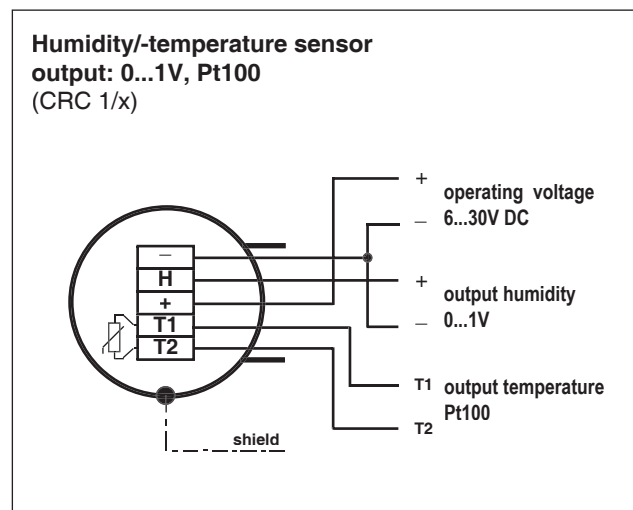
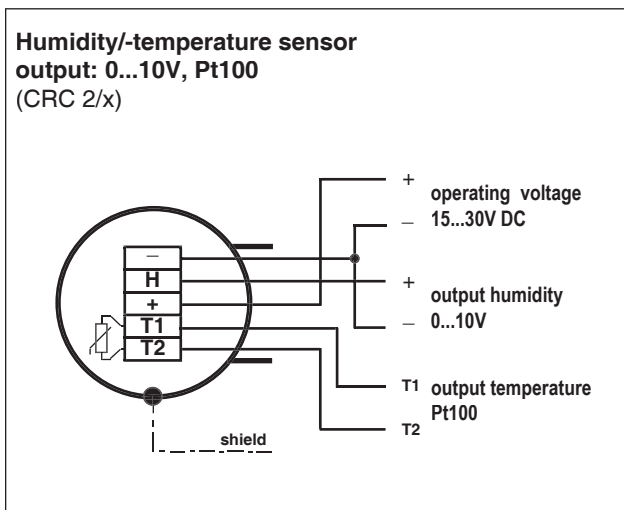
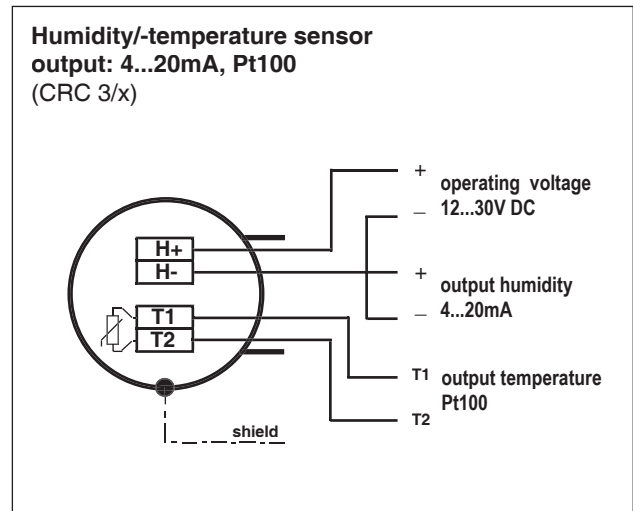
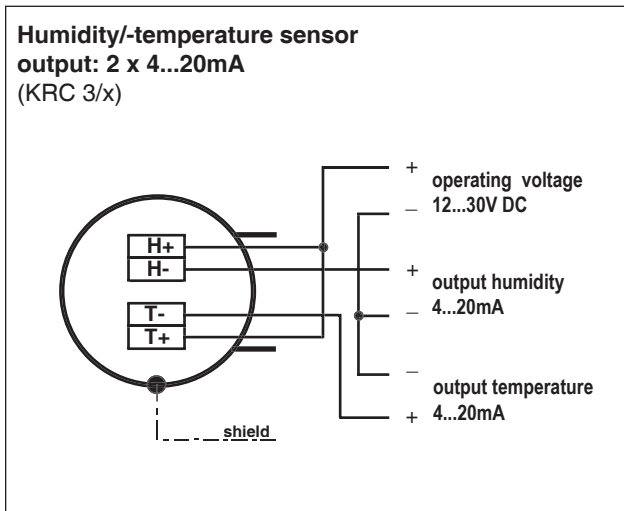
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Rod-shaped compact sensors series PC

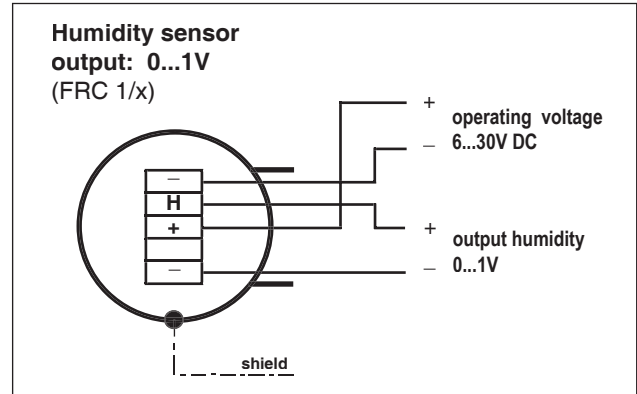
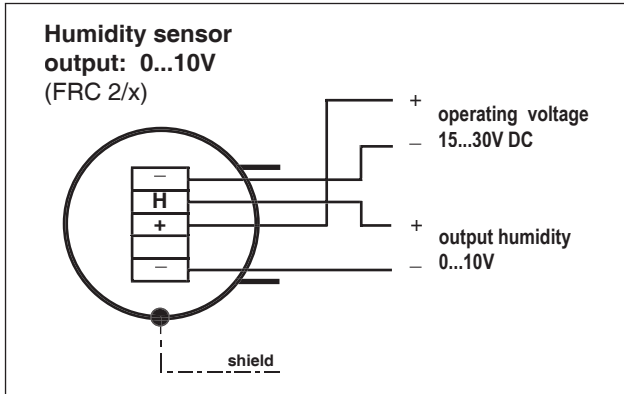



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