

## Product info sheet no. C 2.3

### Humidity/- temperature sensors

rod-shaped compact sensors

#### Description

MELA® humidity/-temperature sensors in the PC, PK and RC series are compact, versatile sensors in a rod-type design. They are available with a 1.5 m connecting cable (PC series), without cable (PK 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  
(dependent 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 according to EN 61326-2-3

„subject to technical modifications“

#### Type Versions

Measured variable	Analogue output	PC series rod shape	RC series robust execution
F rel. humidity	4...20 mA	FP* 3/x	FRC 3/x
	0...10 V	FP* 2/x	FRC 2/x
	0...1 V	FP* 1/x	FRC 1/x
C r.h. + temp.	4...20 mA, Pt100	CP* 3/x	CRC 3/x
	0...10 V, Pt100	CP* 2/x	CRC 2/x
	0...1 V, Pt100	CP* 1/x	CRC 1/x
K r.h. + temp.	2 x 4...20 mA	KP* 3/x	KRC 3/x
	2 x 0...10 V	KP* 2/x	KRC 2/x
	2 x 0...1 V	KP* 1/x	KRC 1/x
T temperature	Pt 100	TP* 5/x	TRC 5/x
	4...20 mA	TP* 3/x	TRC 3/x
	0...10 V	TP* 2/x	TRC 2/x
	0...1 V	TP* 1/x	TRC 1/x
weight	approx. 145 g		

Special versions available on request

for

- x=5: gauze filter ZE17
- x=6: stainless steel sinter filter ZE21
- x=9: integrated element filter made of PTFE and protective plastic basket ZE16

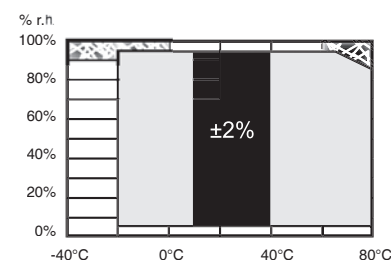
sensor with 1.5m cable

\* = C

sensor without cable

\* = K

#### Tolerance validity range for humidity



Operating the sensor in these areas can damage it!

Install the Mela®-humidity/temperature sensors at a place in the room, plant or equipment where characteristic levels of humidity occur. Avoid installing them close to heaters or windows or against outside walls.

**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 the filter has dried up.

In order to maintain interference immunity in accordance with EN 61326-2-3 when it is in use, we recommend that you use a screened cable for connecting the RC series sensors, and have this fitted into the sensor's EMC conduit thread by a qualified electrician.

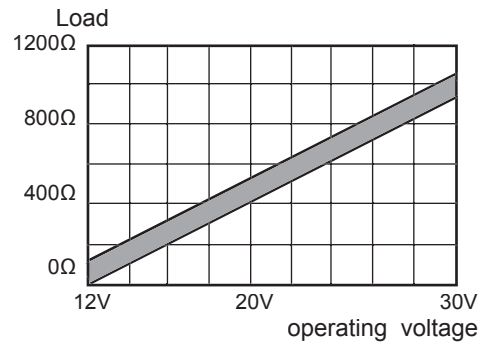
The protective filters should only be screwed off carefully to check functioning with the humidity standard.

It is important not to touch the highly sensitive sensor element in the process. If necessary, soiled filters can be screwed off and rinsed. When you screw them back on, bear in mind that sensors will not measure accurately again until they are completely dry. Sensors of the series .../9 can be completely and carefully cleaned in distilled water.

For mounting support we recommend the **console type 20.009** or the **attachment plate type ZA 20** (Product info sheet no. F 5.1). 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).

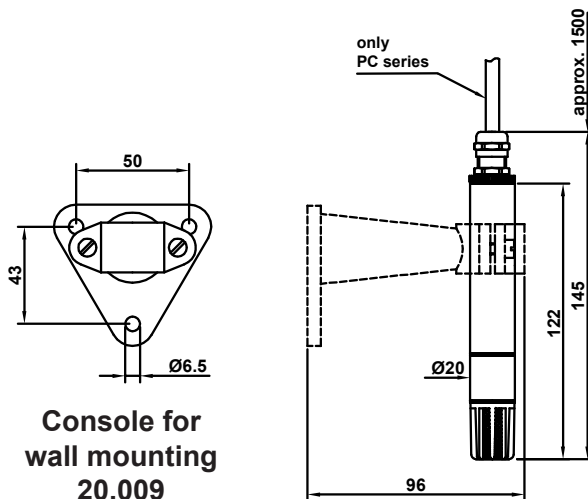
Please consult the **application instructions for the sensing elements** (product info sheet no. A 1) or check with the manufacturer for further information which you need to bear in mind when using humidity sensors with capacitive sensing elements.

**Load at current output**



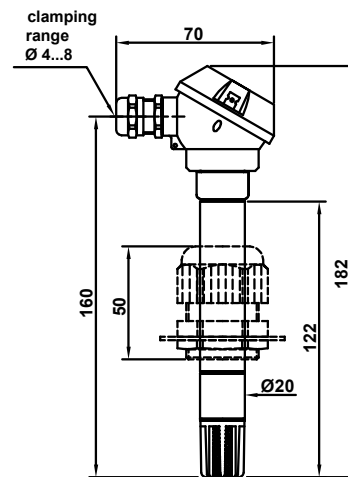
**Dimensions**

**P\* series**

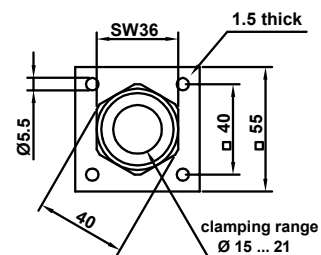


**Console for wall mounting 20.009**  
(please order separately)

**RC series**

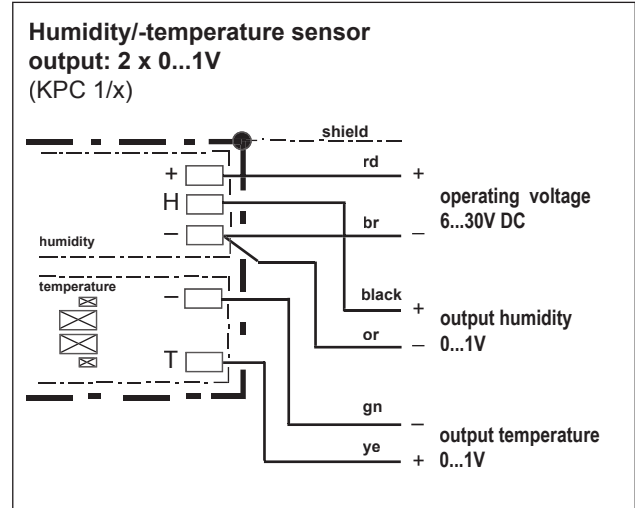
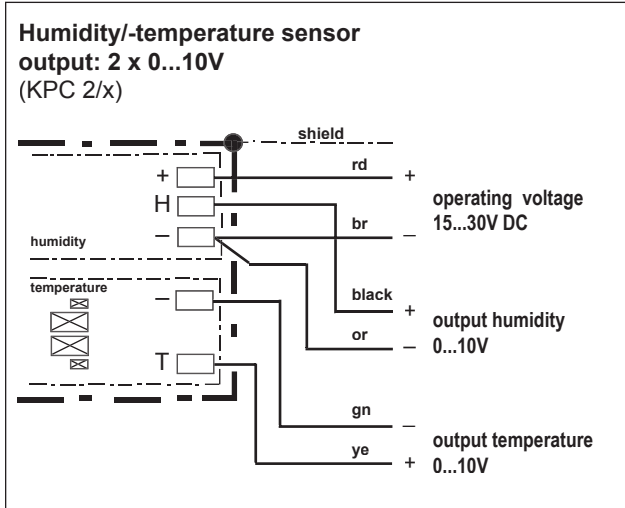


**Attachment plate ZA 20**  
(please order separately)

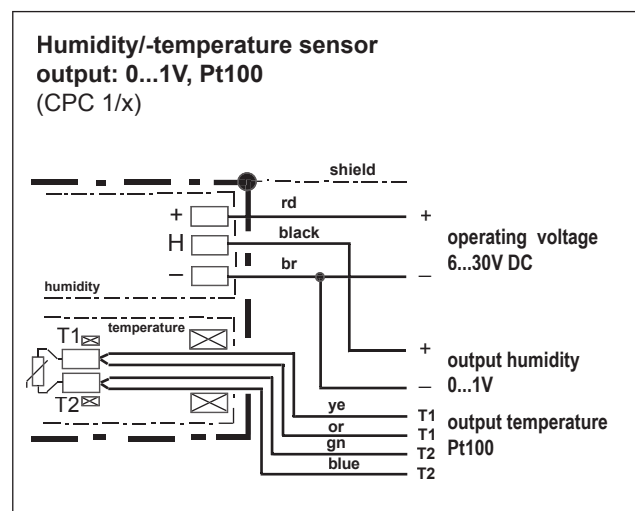
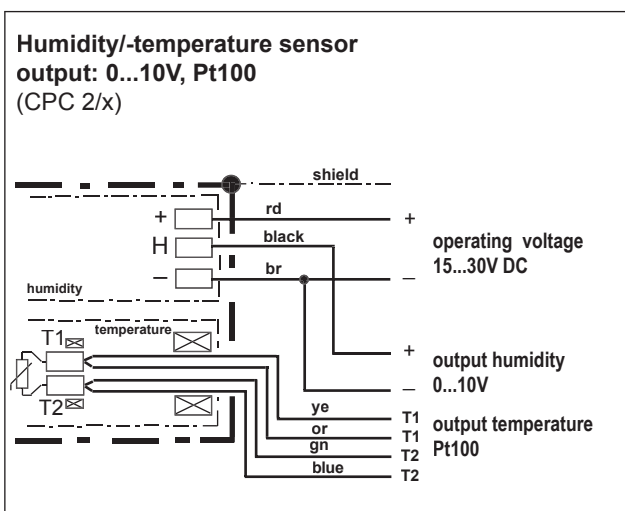
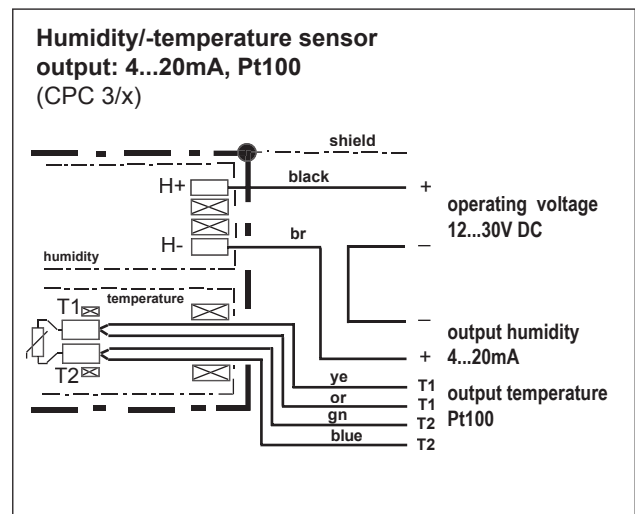
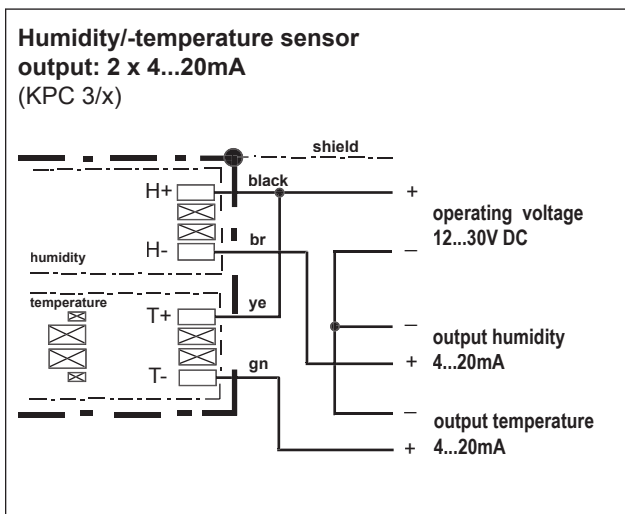


## Connection diagram

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

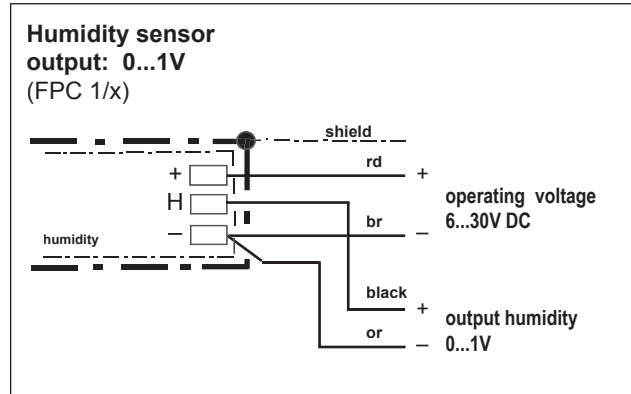
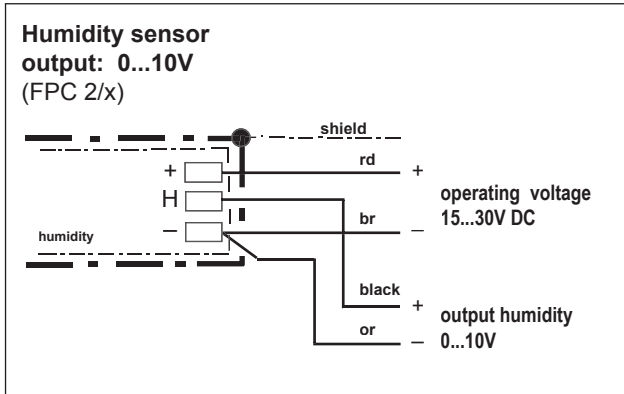



The electrical connection must only be carried out by properly qualified personnel.

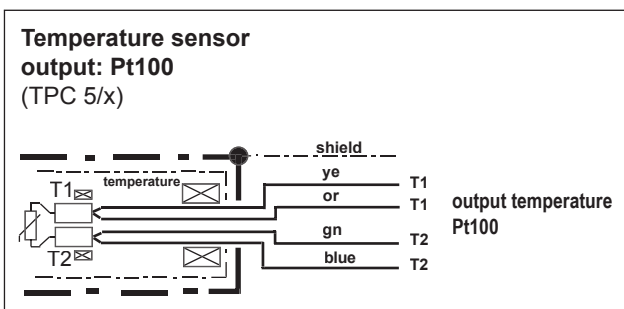
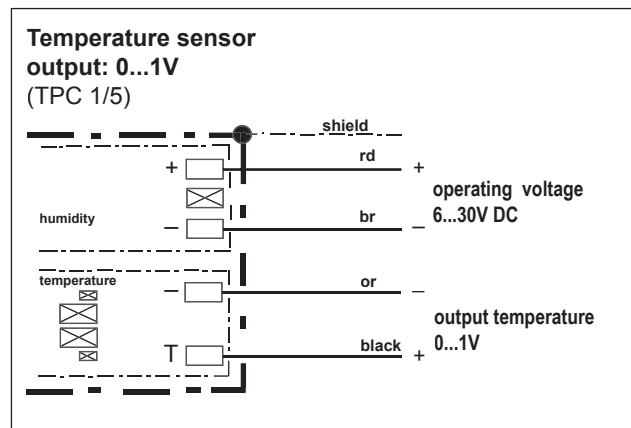
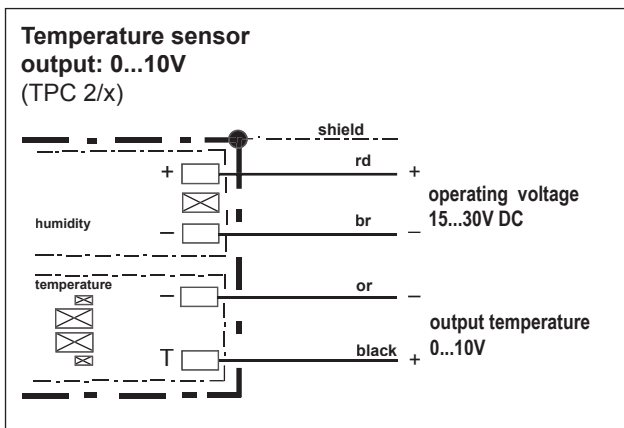
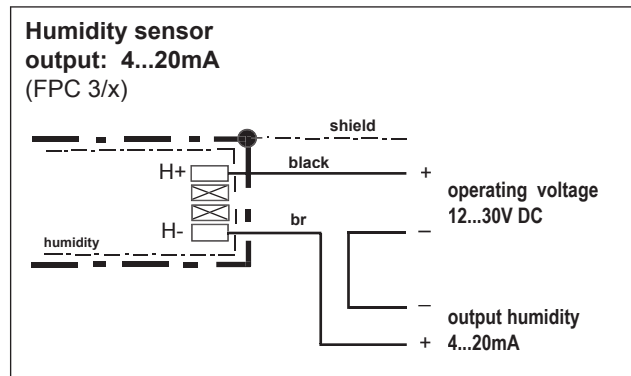
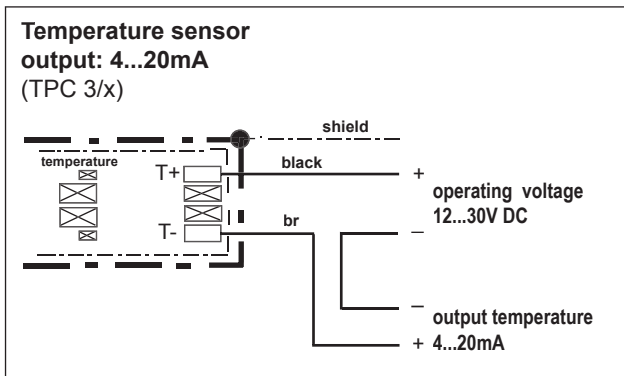


## Connection diagram

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



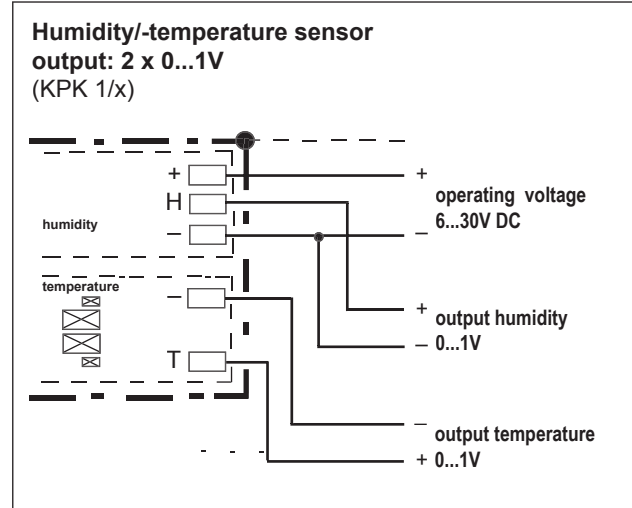
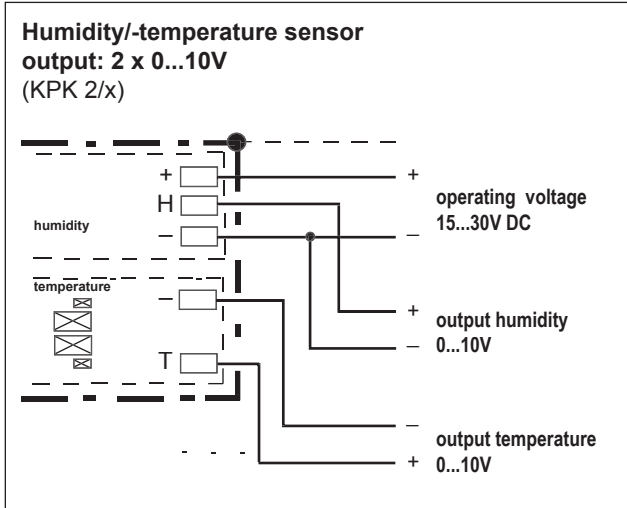
 The electrical connection must only be carried out by properly qualified personnel.



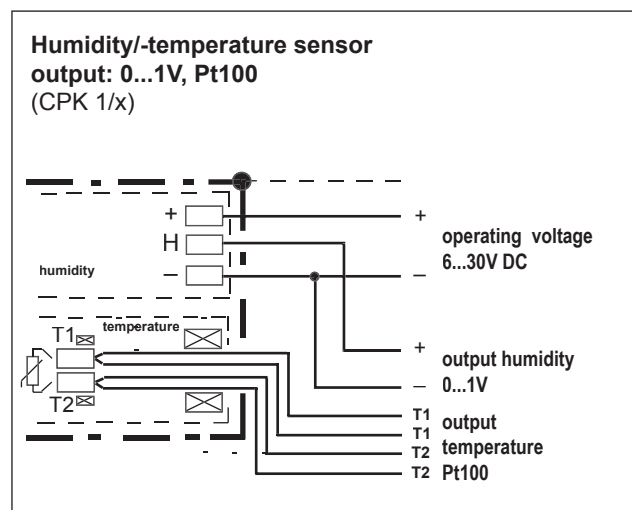
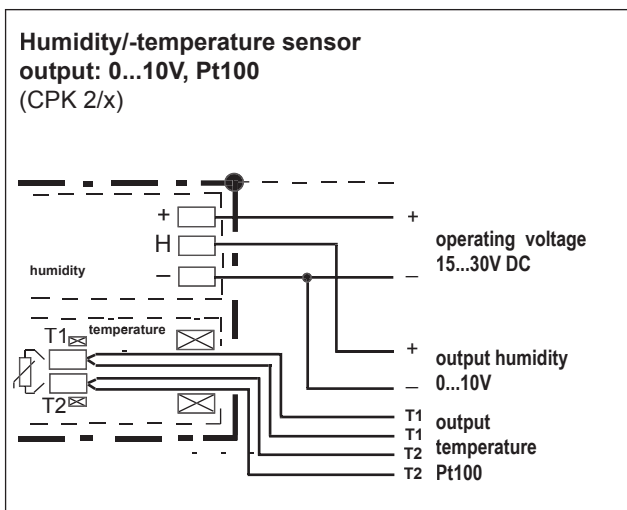
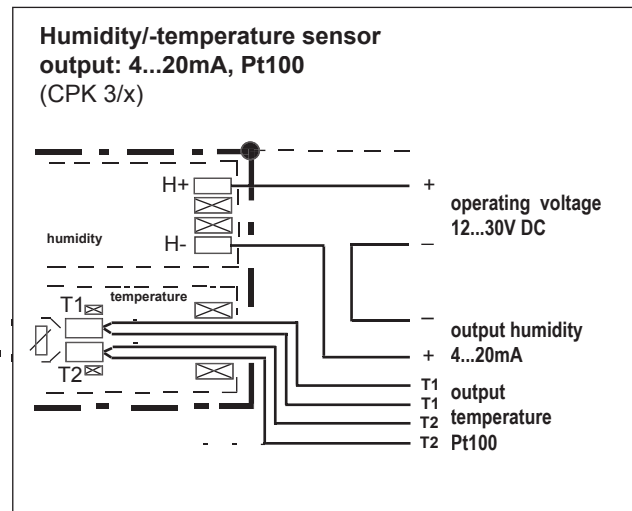
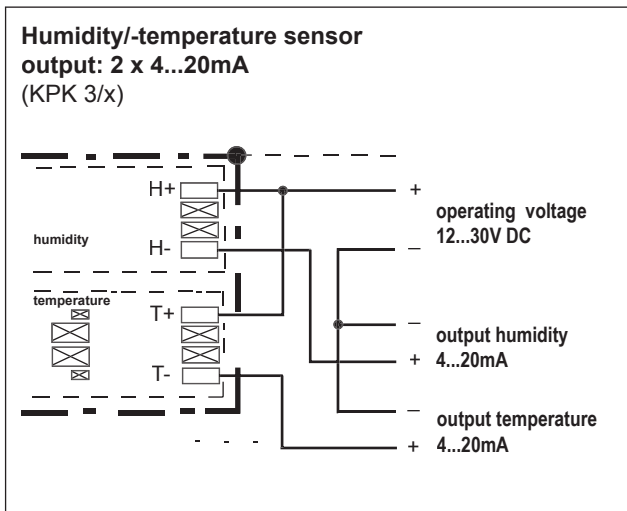
## Connection diagram

## Humidity/temperature sensors

Rod-shaped compact sensors series PK



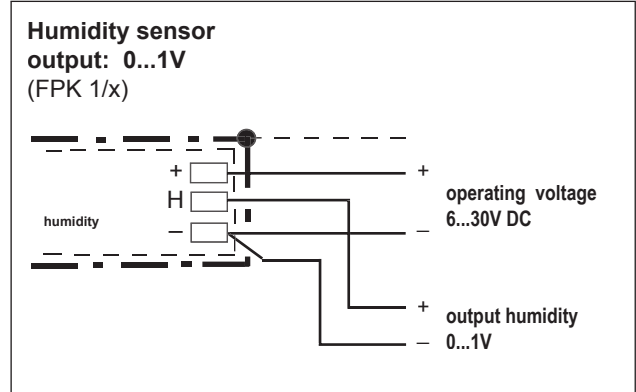
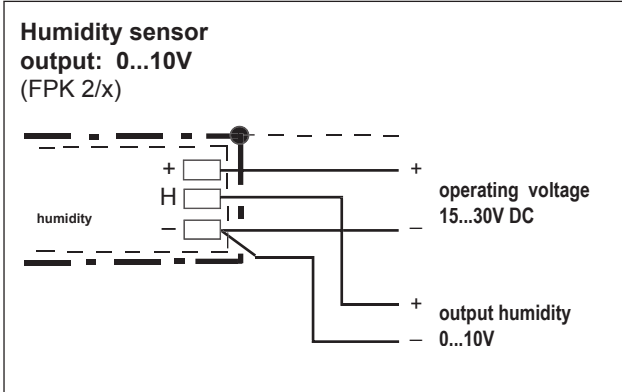
The electrical connection must only be carried out by properly qualified personnel.




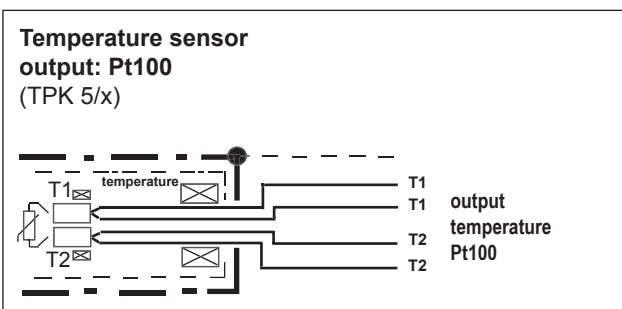
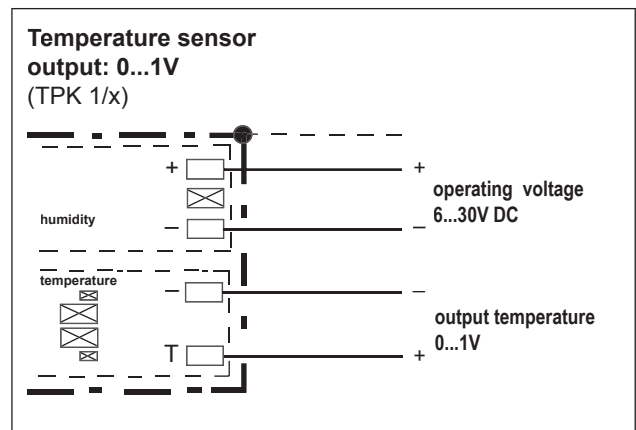
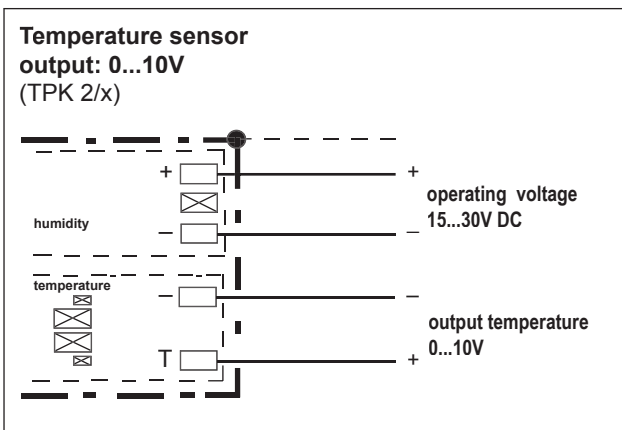
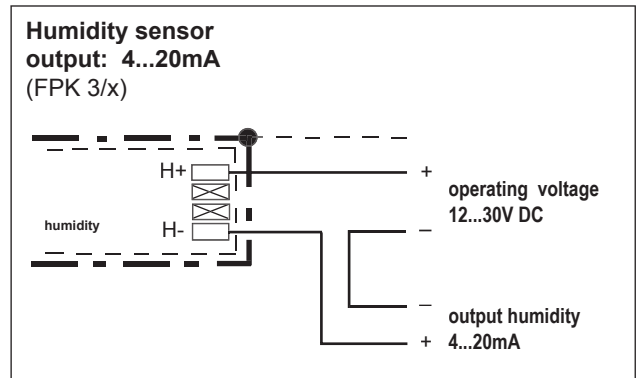
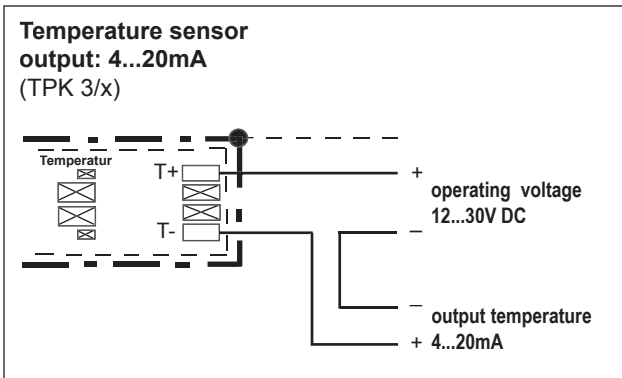
## Connection diagram

### Humidity/temperature sensors

Rod-shaped compact sensors series PK



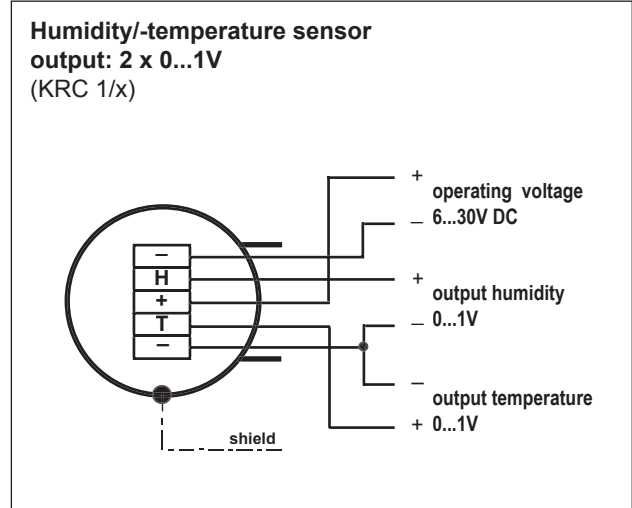
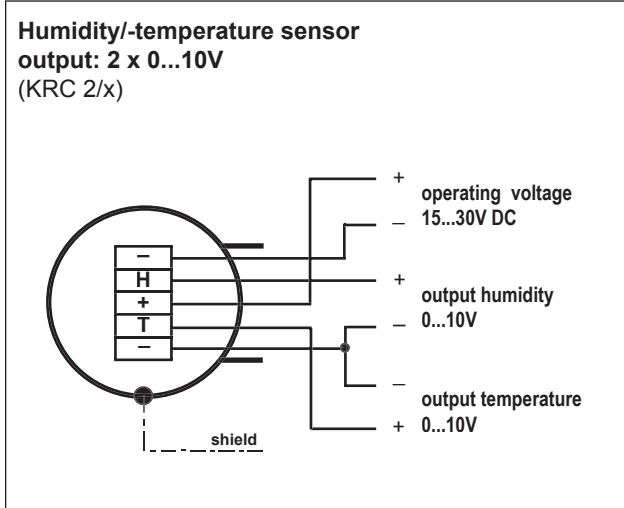
 The electrical connection must only be carried out by properly qualified personnel.




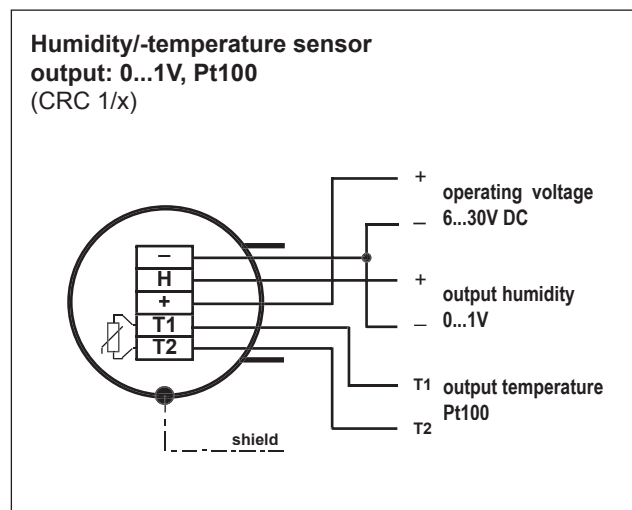
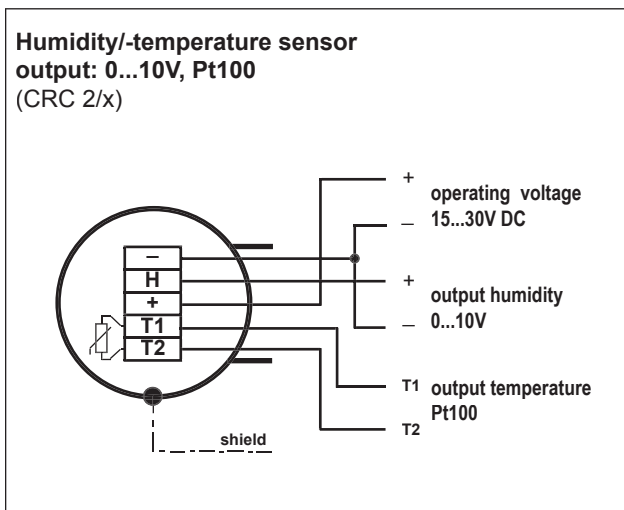
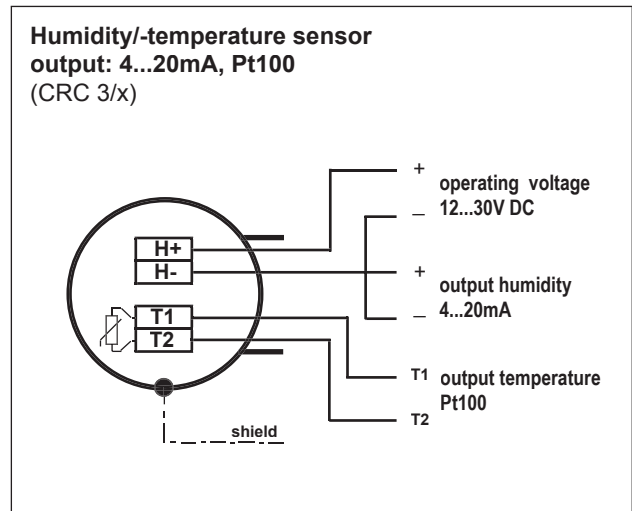
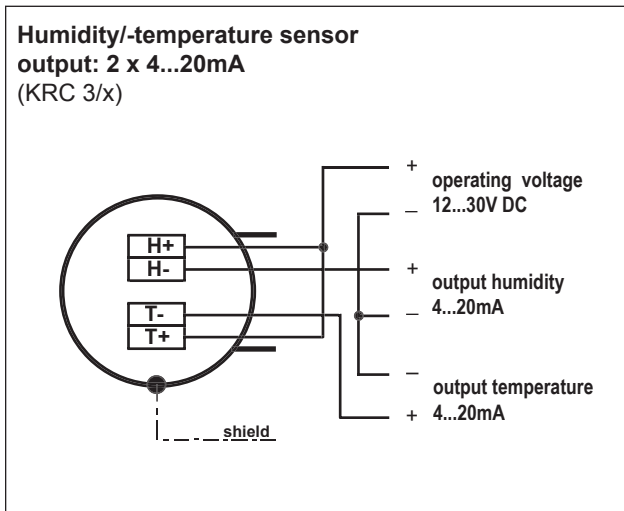
## Connection diagram

### Humidity/temperature sensors

Rod-shaped compact sensors series RC

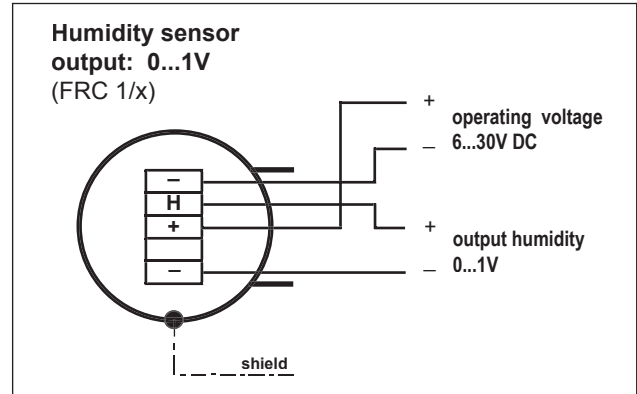
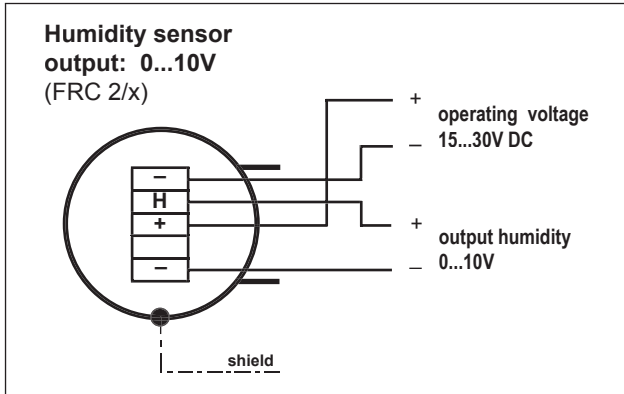



 The electrical connection must only be carried out by properly qualified personnel.



## Connection diagram

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



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

