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Product info sheet no. C 2.4
Humidity/-temperature sensor
Meteorological design

***Mela*®-humidity/-temperature sensors** in the PC-ME series with a fixed connecting cable (5 m), PK-ME series without cable or RC-ME series with a robust aluminium connecting head and terminal screws are compact sensors in a rod-type design. They have a high degree of accuracy and have been specially developed for meteorological applications. All the sensors in the series are fitted with the **ZE20**-type membrane filter.
We recommend that you use the version with the the **ZE 21/ZE22** [1)] type sintered high-grade steel filter (filter programme see product info sheet no. F 5.1)at high wind speeds or if the sensor is exposed to salt mist, sand or dust (near the sea, industrial estates etc.).
The advantage of the .../9 series is the improved temperature dynamics, in particular at low air speeds.

1) In the series …./9 it is not possible to exchange the protective plastic basket ZE16 with other filters.

Type Versions

Measured variable	**Output signals**	with filter **ZE20 or ZE21** Pt-100 platinum chip	with integrated PTFE filter **protection ZE16** Pt-100 glas
F rel. humidity	0...10 V	FP* 2/x - ME	FP* 2/9 - ME
	0...1 V	FP* 1/x - ME	FP* 1/9 - ME
C r.h. + temp.	0...10 V, Pt100*)	CP* 2/x - ME	CP* 2/9 - ME
	0...1 V, Pt100*)	CP* 1/x - ME	CP* 1/9 - ME
K r.h. + temp.	2 x 0...10 V	KP* 2/x - ME	KP* 2/9 - ME
	2 x 0...1 V	KP* 1/x - ME	KP* 1/9 - ME
T temperature	Pt100*)	TP* 5/x - ME	TP* 5/9 - ME
	0...10 V	TP* 2/x - ME	TP* 2/9 - ME
	0...1 V	TP* 1/x - ME	TP* 1/9 - ME
weight		approx. 310 g	approx. 300 g

Sensor with 5 m cable * = C
Sensor without cable * = K

Measured variable	**Output signals**	with filter **ZE20 or ZE21** Pt-100 platinum chip	with integrated PTFE filter **protection ZE16** Pt-100 glas
F rel. humidity	4...20 mA	FRC 3/x - ME	FRC 3/9 - ME
	0...10 V	FRC 2/x - ME	FRC 2/9 - ME
	0...1 V	FRC 1/x - ME	FRC 1/9 - ME
C r.h. + temp.	4...20mA, Pt100*)	CRC 3/x - ME	CRC 3/9 - ME
	0...10 V, Pt100*)	CRC 2/x - ME	CRC 2/9 - ME
	0...1 V, Pt100*)	CRC 1/x - ME	CRC 1/9 - ME
K r.h. + temp.	2 x 4...20 mA	KRC 3/x- ME	KRC 3/9 - ME
	2 x 0...10 V	KRC 2/x - ME	KRC 2/9 - ME
	2 x 0...1 V	KRC 1/x - ME	KRC 1/9 - ME
T temperature	Pt 100*)	TRC 5/x - ME	TRC 5/9 - ME
	4...20 mA	TRC 3/x - ME	TRC 3/9 - ME
	0...10 V	TRC 2/x - ME	TRC 2/9 - ME
	0...1 V	TRC 1/x - ME	TRC 1/9 - ME
weight		approx. 310 g	approx. 300 g

***)** further temperature measuring elements on demand

/x please select the appropriate filter (refer also to data sheet F5.1)

Series P*, RC
membrane filter ZE20 → **x=5**
sintered high-grade steel filter ZE21 → **x=6**

Technical Data

Output 1: relative humidity
measuring range 1 ..... 0...100% rh
output signal 1 ..... 0...1V, 0...10V or 4...20mA
accuracy (5...95%rh at 10...40°C) ..... ±2% rh
influence of temperature <10°C, >40°C ..... <0.1%/K additional

Output 2: temperature
measuring range 2 ..... -30...+70° C
output signal 2 ..... 0...1V, 0...10V or 4...20mA
accuracy
0...1V (-27...70°C) ..... ±0.2 K
0...10V (-29...70°C) ..... ±0.2 K
4...20mA (RC) ..... ±0.3 K
influence of temperature <10°C, >40°C ..... ±0.007 K/K additional
measuring element (ref. DIN EN 60751) ..... Pt 100 1/3 DIN class B

Other data
ambient temperature ..... -40...+80°C
degree of protection sensor/electronic ..... IP 30/IP 65
operating voltage
voltage output 0...10V ..... 15...30 V DC
voltage output 0...1V ..... 6...30 V DC
current output ..... 12...30 V DC
load resistance (0...10V, 0...1V) ..... ≥10 kΩ/≥2 kΩ
load (current output) ..... acc. diagramm
power consumption
0...10 V, 2 x 0...1V ..... <5mA
0...1V ..... <1mA
minimum air speed always at right angles to the sensor
output: 0...10V, 2x 0...1V ..... ≥0.5 m/s
4...20mA, 2x 0...10V ..... ≥1 m/s
2x 4...20 mA ..... ≥1.5 m/s
self-heating coefficient Pt100 (v=2 m/s in air) ..... 0.2 K/mW
Directive about electromagnetic compatibility **2014/30/EU**
DIN EN 61326-1 ..... issue 07/13
DIN EN 61326-2-3 ..... issue 07/13

User instructions

Install the Mela®-humidity/temperature sensors in a place where characteristic climatic conditions can be measured. If it is used outdoors, it should ideally be used in a **ZA 161/1-type weather guard** (product info sheet no. F 5.1). Avoid direct sunlight.

The specified minimum air speed and - with current output - the load according to the operating voltage (diagram) should be complied with in the case of the VC series. Deviations may lead to additional measuring faults resulting of the self-heating of the sensor

The sensor can be installed in any position. However, do avoid positions where water ingress can occur. 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.

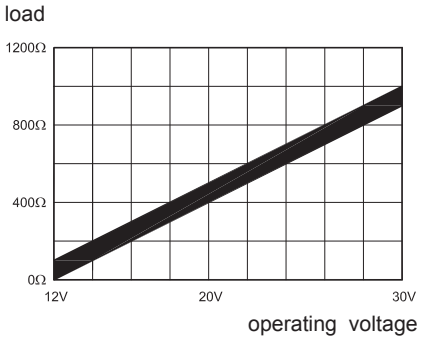
In order to maintain interference immunity in accordance with EN 61326 when it is in use, we recommend that you use a screened cable (type recommended: **8x AWG 26 C UL, order no. 5339**) for connecting the RC and PK series sensors, and have this fitted into the sensor's EMC conduit thread by a qualified electrician. The protective filter should only be screwed off carefully to check functioning with a 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. It is not possible to exchange the PTFE filter on the humidity sensor element.

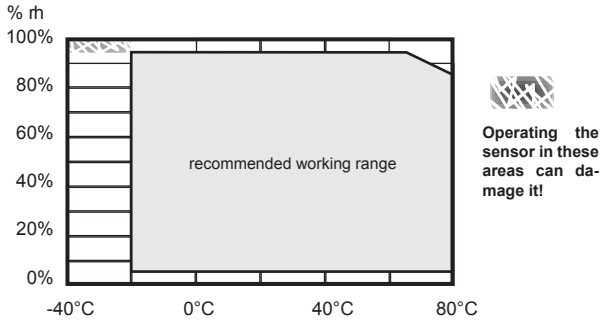
For mounting support we recommend the **console type 20.009** or the **attachment plate type ZA 20** (product info sheet no. F 5.1). In order to check functioning in the place of installation, we recommend that you use the **ZE 31/1-type** Mela® **humidity standard** (product info sheet no. F 5.2).

Please consult the **application notes for humidity 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

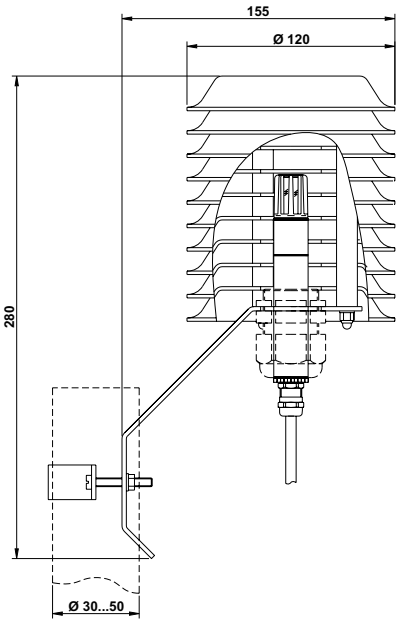


Recommended working range for humidity

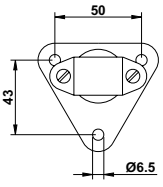


Dimensions

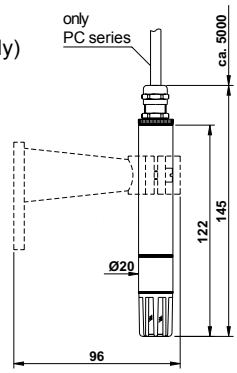
Weather guard ZA 161/1
(please order seperately)



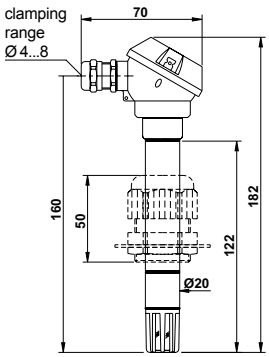
Console for wall mounting 20.009
(please order seperately)



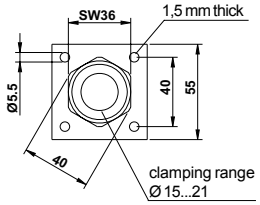
P* series



RC series



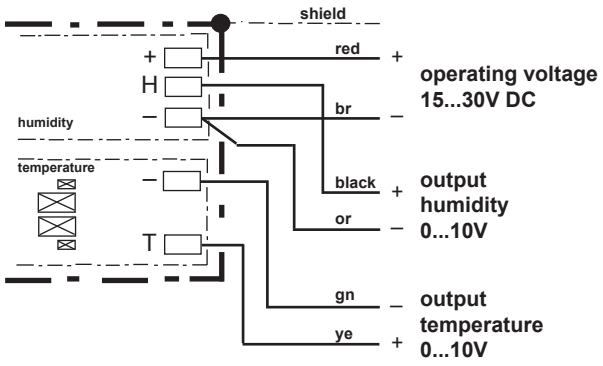
Attachment plate ZA 20
(please order seperately)



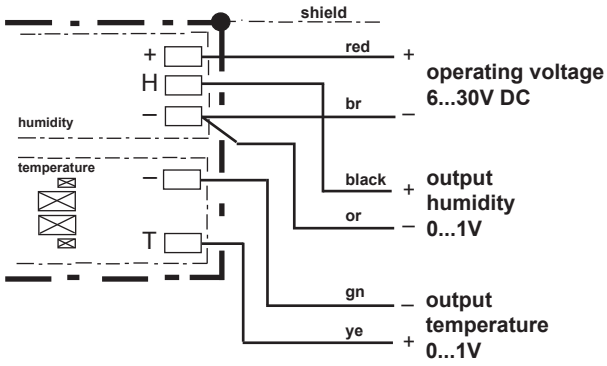
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

Humidity/-temperature sensor
Output: 2 x 0...10V
(KPC 2/...-ME)

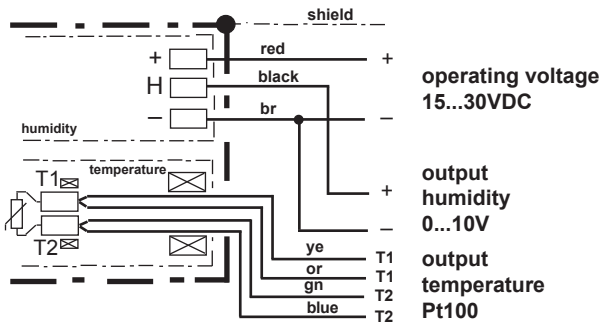


Humidity/-temperature sensor
Output: 2 x 0...1V
(KPC 1/...-ME)

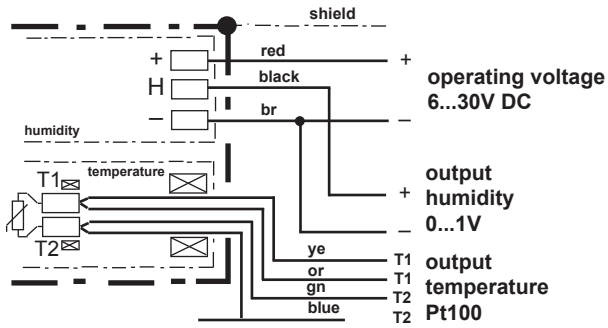


⚠ The electrical connection must only be carried out by properly qualified personnel.

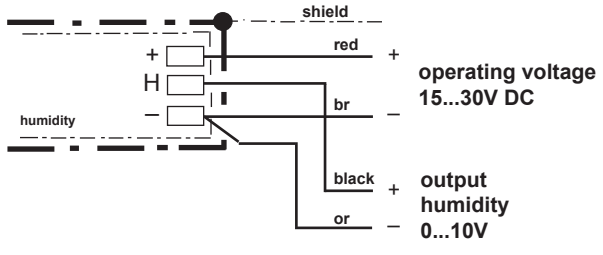
Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPC 2/...-ME)



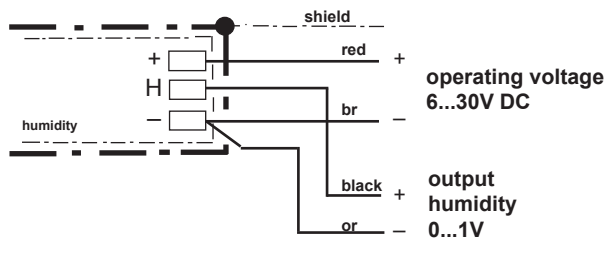
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPC 1/...-ME)



Humidity sensor
Output: 0...10V
(FPC 2/...-ME)



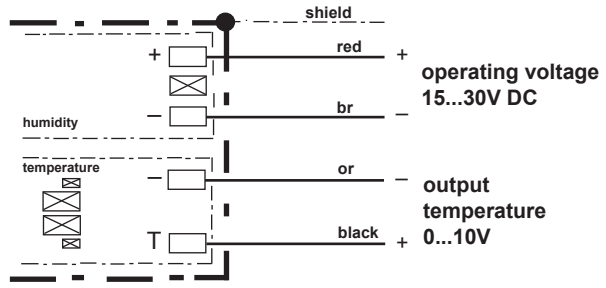
Humidity sensor
Output: 0...1V
(FPC 1/...-ME)



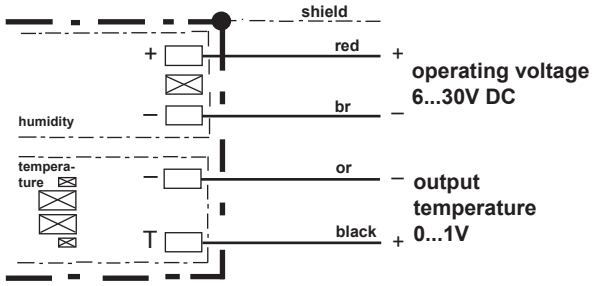
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

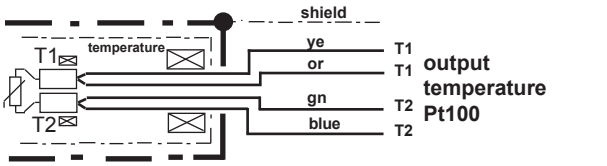
Temperature sensor
Output: 0...10V
(TPC 2/...-ME)



Temperature sensor
Output: 0...1V
(TPC 1/...-ME)



Temperature sensor
Output: Pt100
(TPC 5/...-ME)

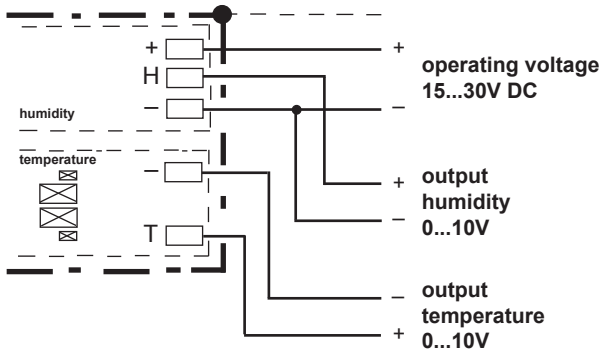


⚠ The electrical connection must only be carried out by properly qualified personnel.

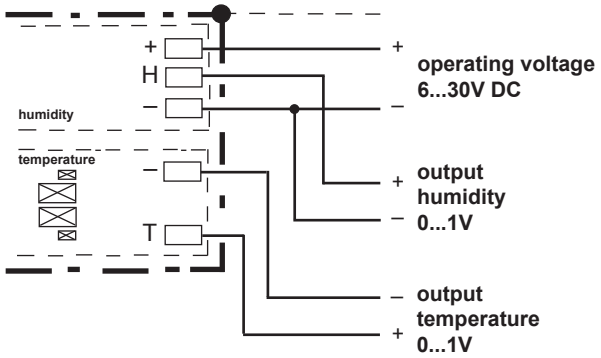
Connection diagram

Humidity/-temperature sensors
Meteorological design series PK-ME

Humidity/-temperature sensor
Output: 2 x 0...10V
(KPK 2/...-ME)

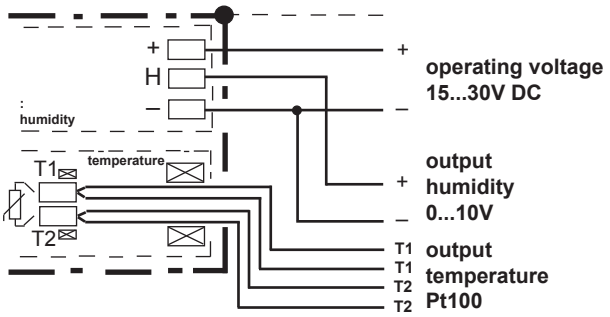


Humidity/-temperature sensor
Output: 2 x 0...1V
(KPK 1/...-ME)

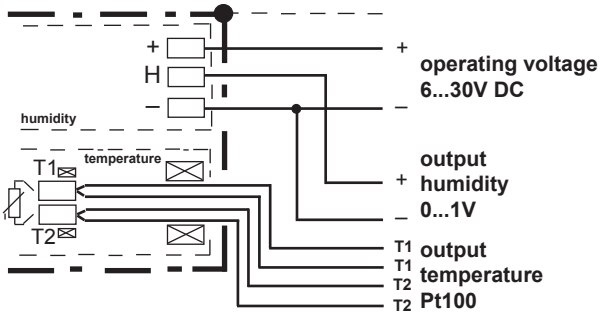


The electrical connection must only be carried out by properly qualified personnel.

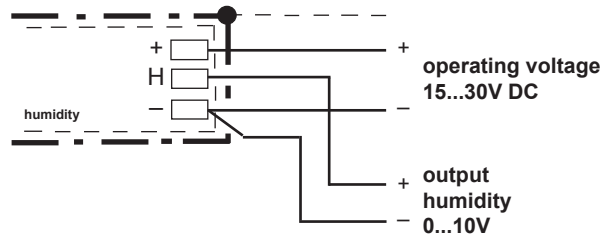
Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPK 2/...-ME)



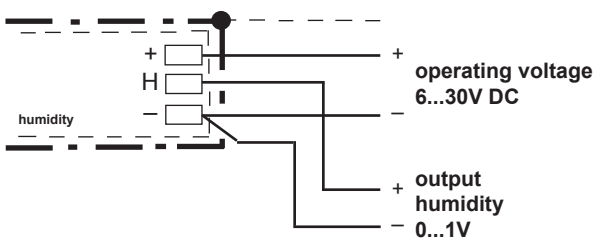
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPK 1/...-ME)



Humidity sensor
Output: 0...10V
(FPK 2/...-ME)



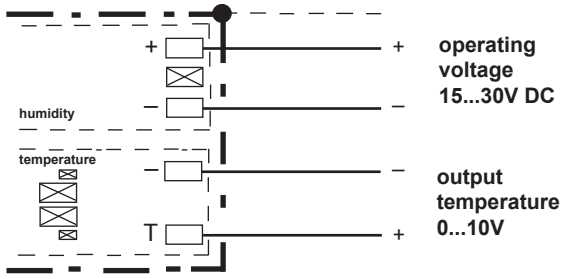
Humidity sensor
Output: 0...1V
(FPK 1/...-ME)



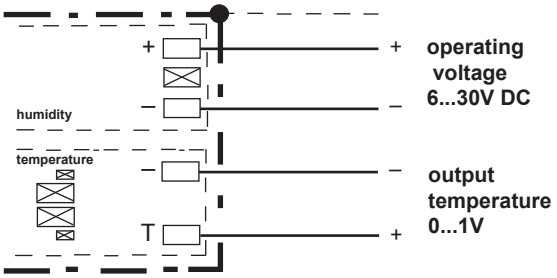
Connection diagram

Humidity/-temperature sensors
Meteorological design series PK-ME

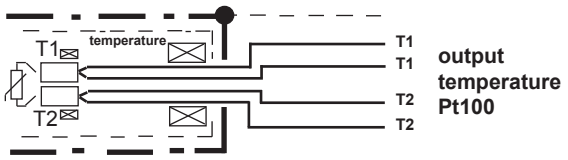
Temperature sensor
Output: 0...10V
(TPK 2/...-ME)



Temperature sensor
Output: 0...1V
(TPK 1/...-ME)



Temperature sensor
Output: Pt100
(TPK 5/...-ME)

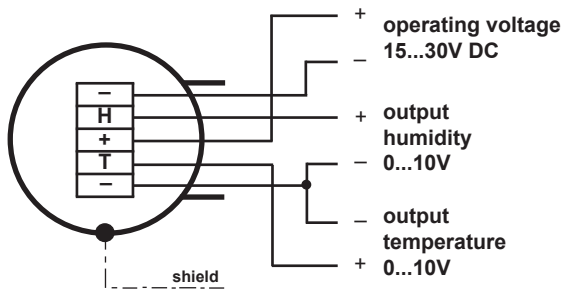


⚠ The electrical connection must only be carried out by properly qualified personnel.

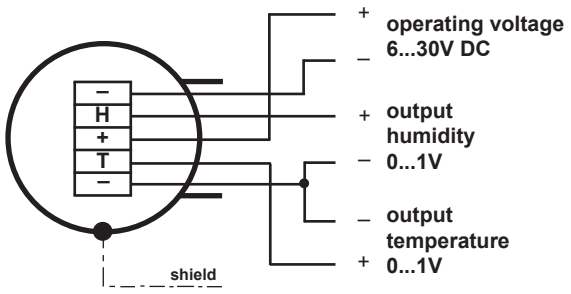
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

Humidity/-temperature sensor
Output: 2 x 0...10V
(KRC 2/...-ME)

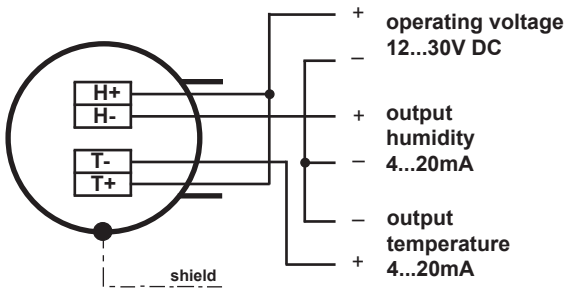


Humidity/-temperature sensor
Output: 2 x 0...1V
(KRC 1/...-ME)

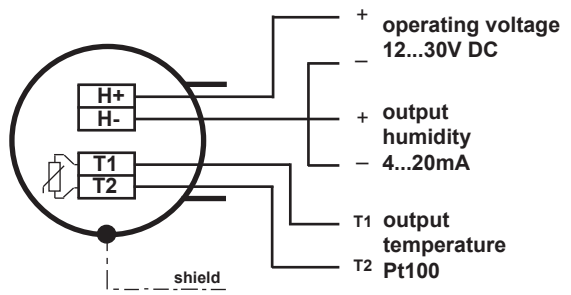


⚠ The electrical connection must only be carried out by properly qualified personnel.

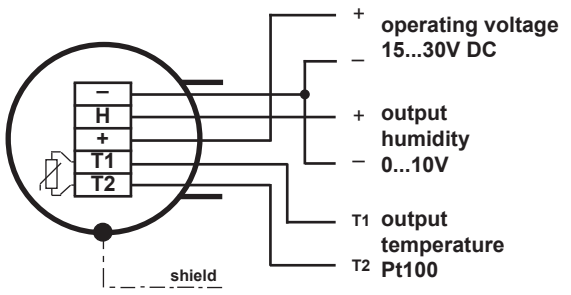
Humidity/-temperature sensor
Output: 2 x 4...20mA
(KRC 3/...-ME)



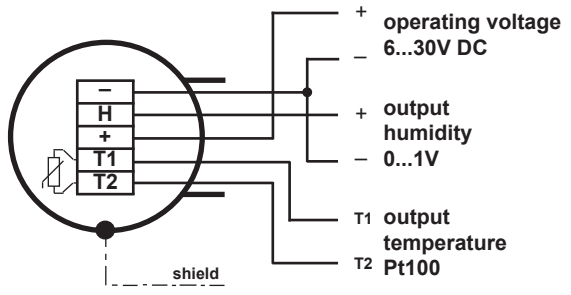
Humidity/-temperature sensor
Output: 4...20mA, Pt100
(CRC 3/...-ME)



Humidity/-temperature sensor
Output: 0...10V, Pt100
(CRC 2/...-ME)



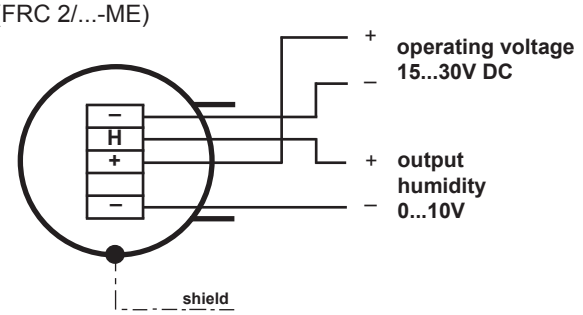
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CRC 1/...-ME)



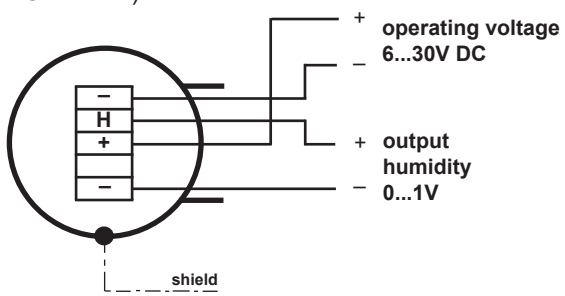
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

Humidity sensor
Output: 0...10V
(FRC 2/...-ME)

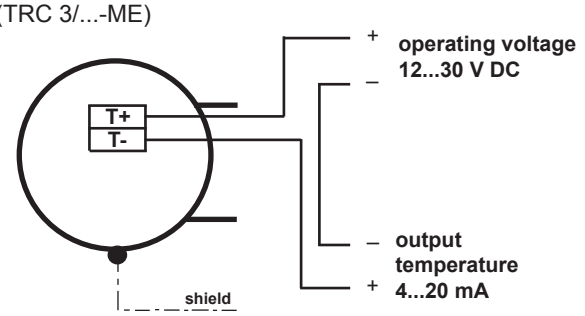


Humidity sensor
Output: 0...1V
(FRC 1/...-ME)

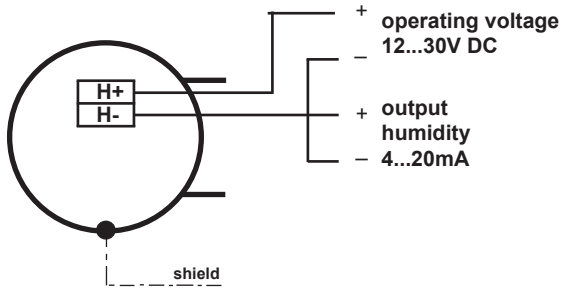


⚠ The electrical connection must only be carried out by properly qualified personnel.

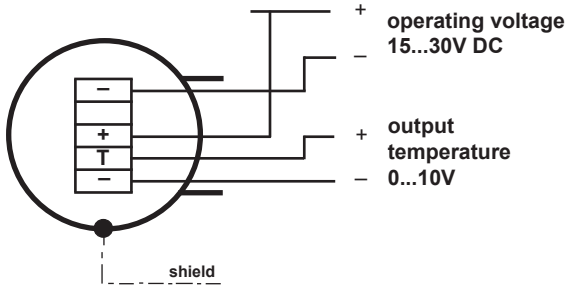
Temperature sensor
Output: 4...20mA
(TRC 3/...-ME)



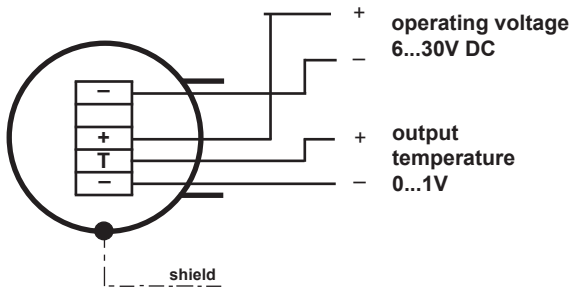
Humidity sensor
Output: 4...20mA
(FRC 3/...-ME)



Temperature sensor
Output: 0...10V (TRC 2/...-ME)



Temperature sensor
Output: 0...1V (TRC 1/...-ME)



Temperature sensor
Output: Pt100
(TRC 5/...-ME)