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

Technical data

Humidity

Measuring range ..... 0...100% rh
Accuracy (MR 5...95%rh at 10...40°C) ..... ±2% rh
at <10°C, >40°C ..... <0.1%/K additional
Response time (at calm air) ..... < 20 sec

Temperature

Measuring element (DIN EN 60751) ..... Pt 100 1/3 DIN
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 (RC) ..... ±0.3 K
at <10°C, >40°C ..... ±0.007K/K additional

Other data

Ambient temperature ..... -40...+80°C
Degree of protection sensor/electronic ..... IP 30/IP 65
Operating voltage
U-output 0...10V ..... 15...30V DC
U-output 0...1V ..... 6...30V DC
I-output ..... 12...30V DC

min. load resistance 0...10V/ 0...1V ..... ≥10kΩ/≥2kΩ
Load (current-output) ..... acc. diagramm
Power consumption
0...10V, 2 x 0...1V ..... <5mA
0...1V ..... <1mA
Minimum air speed
(across the sensor):
Output: 0...10V, 2x0...1V ..... ≥0.5m/s
4...20mA, 2 x 0...10V ..... ≥1.5m/s
2x 4...20mA ..... ≥1.5 m/s
Self-heating Pt100 (1m/s, 2mA, 20°C) ..... 0.1 K
Electromagnetic compatibility
Emitted interference ..... EN 55011 cl. B
Noise immunity ..... EN 50082-2
„subject to technical modifications“

Description

Mela®-***humidity/-temperature sensors*** in the PC-ME and RC-ME series are compact sensors in a rod-type design with a fixed connecting cable (5 m) or with a robust aluminium connecting head and terminal screws and a high degree of accuracy, which have been specially developed for meteorological applications. The **ZE 20-type** membrane filter, which is fitted as standard, provides the element with reliable protection outdoors.
We recommend that you use the version with the **ZE 21-type** sintered high-grade steel filter at particularly high wind speeds or if the sensor is exposed to salt mist and sand (close to the sea, desert, mountains, areas with high wind speeds, and the likes).
Use of capacitive humidity sensor elements is a guarantee of:

- high long-term stability
- almost linear characteristic curve
- good dynamic performance
- resistance to dew formation
- small hysteresis.

Type versions

Measuring unit	Analogue output	with membrane filter ZE 20	with sintered filter ZE 21
F rel. humidity	0...10 V	FPC 2/5 - ME	FPC 2/6 - ME
	0...1V	FPC 1/5 - ME*)	FPC 1/6 - ME*)
C r.h. + temp.	0...10 V, Pt 100	CPC 2/5 - ME	CPC 2/6 - ME
	0...1 V, Pt 100	CPC 1/5 - ME*)	CPC 1/6 - ME*)
K r.h. + temp.	2 x 0...10 V	KPC 2/5 - ME	KPC 2/6 - ME
	2 x 0...1 V	KPC 1/5 - ME	KPC 1/6 - ME
T Temperature	Pt 100	TPC 5/5 - ME	TPC 5/6 - ME
	0...10 V	TPC 2/5 - ME	TPC 2/6 - ME
	0...1 V	TPC 1/5 - ME	TPC 1/6 - ME
Weight		ca. 310 g	ca. 320 g

Measuring unit	Analogue output	with connecting head ZE 20	with connecting head ZE 21
F rel. humidity	4...20 mA	FRC 3/5 - ME	FRC 3/6 - ME
	0...10 V	FRC 2/5 - ME	FRC 2/6 - ME
	0...1V	FRC 1/5 - ME	FRC 1/6 - ME
C r.h. + temp.	4...20 mA, Pt 100	CRC 3/5 - ME	CRC 3/6 - ME
	0...10 V, Pt 100	CRC 2/5 - ME	CRC 2/6 - ME
	0...1 V, Pt 100	CRC 1/5 - ME	CRC 1/6 - ME
K r.h. + temp.	2 x 4...20 mA	KRC 3/5 - ME	KRC 3/6 - ME
	2 x 0...10 V	KRC 2/5 - ME	KRC 2/6 - ME
	2 x 0...1 V	KRC 1/5 - ME	KRC 1/6 - ME
T Temperature	Pt 100	TRC 5/5 - ME	TRC 5/6 - ME
	4...20 mA	TRC 3/5 - ME	TRC 3/6 - ME
	0...10 V	TRC 2/5 - ME	TRC 2/6 - ME
	0...1 V	TRC 1/5 - ME	TRC 1/6 - ME
Weight		ca. 60 g	ca. 90 g

Special versions available on request

User instructions

Install the 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. Avoid direct sunlight.

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 not position it in a position 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 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 for connecting the RC series sensors, and have this fitted into the sensor's EMC heavy-gauge conduit thread by a qualified electrician.

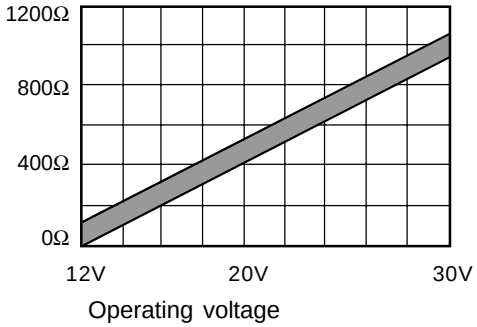
The protective filter should only be screwed off carefully to check functioning with a humidity standard.

Take care not to touch the highly sensitive sensor element. If necessary, soiled ZE 21-type sintered 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.

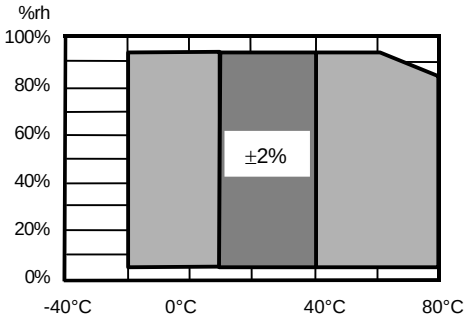
For mounting support we recommend a ***console type 20.009*** and an ***attachment plate type ZA 20*** (Product info sheet No. F5.1). In order to check functioning in the place of installation, we recommend that you use the ***ZE 31/1-type humidity standard*** (product info sheet no. F 5.2)

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

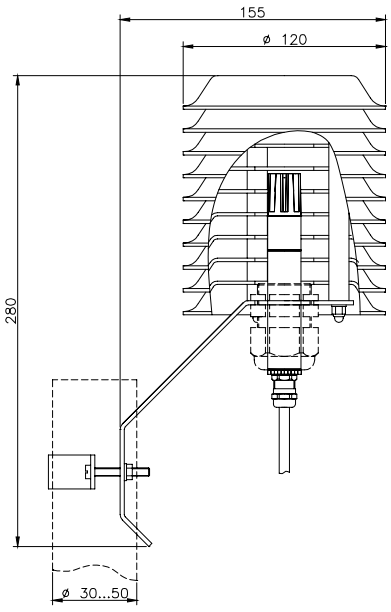


Tolerance validity range for humidity

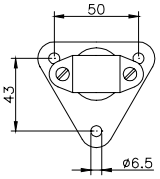


Dimensions

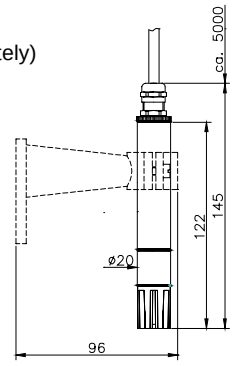
Weather guard ZA 161/1
(please order seperately)



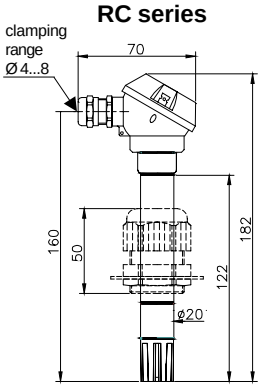
Console for wall mounting 20.009
(please order seperately)



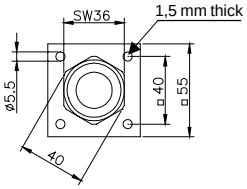
PC series



RC series



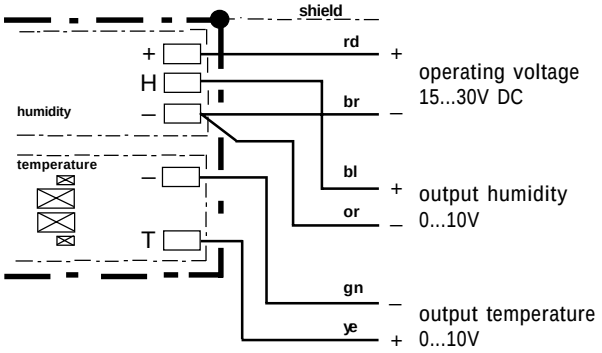
Attachment plate ZA 20
(please order seperately)



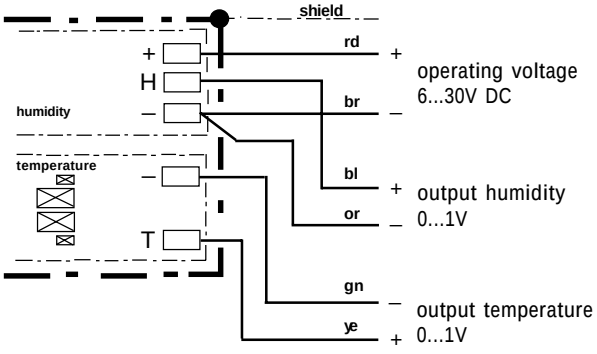
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

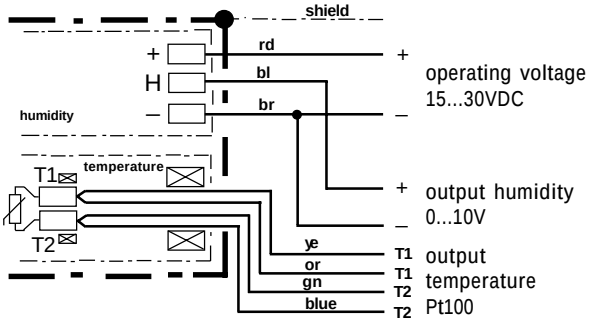
Humidity/-temperature sensor
Output: 2 x 0...10V
(KPC 2/5-ME, KPC 2/6-ME)



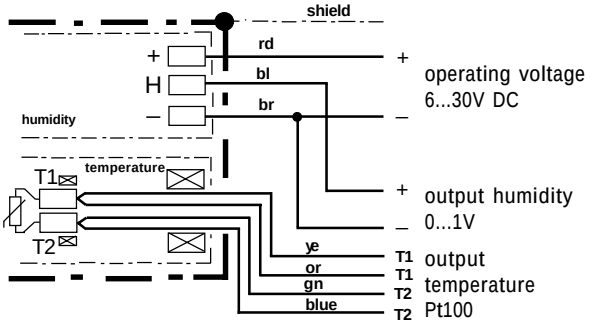
Humidity/-temperature sensor
Output: 2 x 0...1V
(KPC 1/5-ME, KPC 1/6-ME)



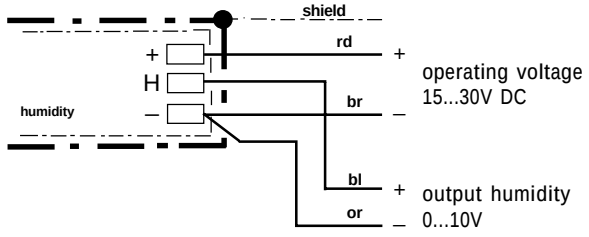
Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPC 2/5-ME, CPC 2/6-ME)



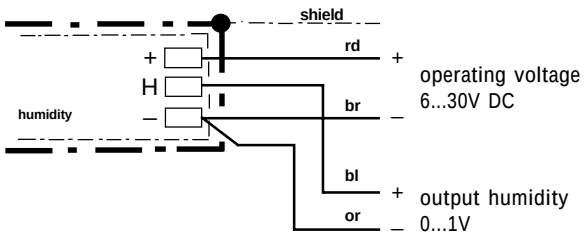
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPC 1/5-ME, CPC 1/6-ME)



Humidity sensor
Output: 0...10V
(FPC 2/5-ME, FPC 276-ME)



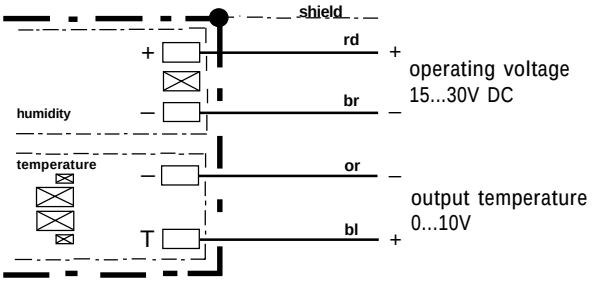
Humidity sensor
Output: 0...1V
(FPC 1/5-ME, FPC 1/6-ME)



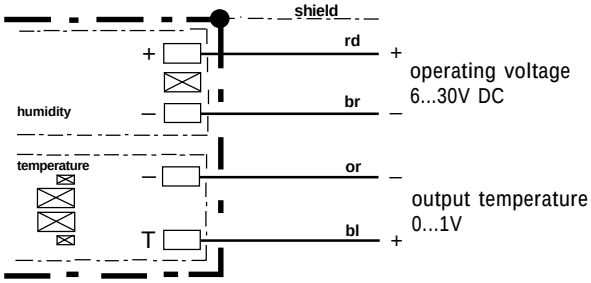
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

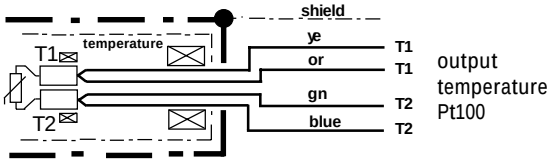
Humidity/-temperature sensor
Output: 0...10V
(TPC 2/5-ME, TPC 2/6-ME)



Temperature sensor
Output: 0...1V
(TPC 1/5-ME, TPC 1/6-ME)



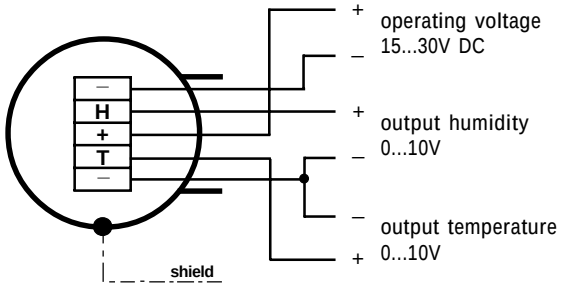
Temperature sensor
Output: Pt100
(TPC 5/5-ME, TPC 5/6-ME)



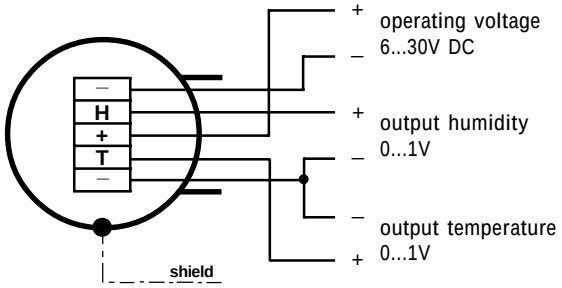
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

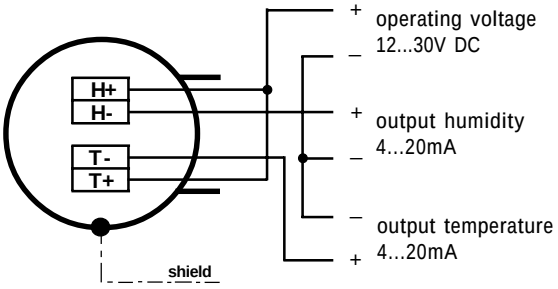
Humidity/-temperature sensor
Output: 2 x 0...10V
(KRC 2/5-ME, KRC 2/6-ME)



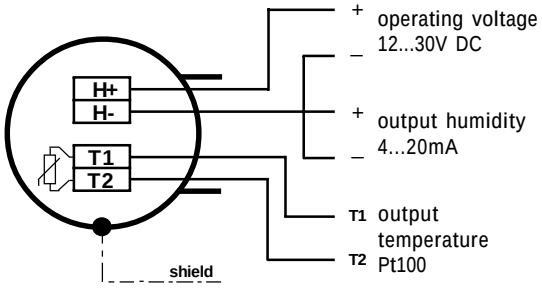
Humidity/-temperature sensor
Output: 2 x 0...1V
(KRC 1/5-ME, KRC 1/6-ME)



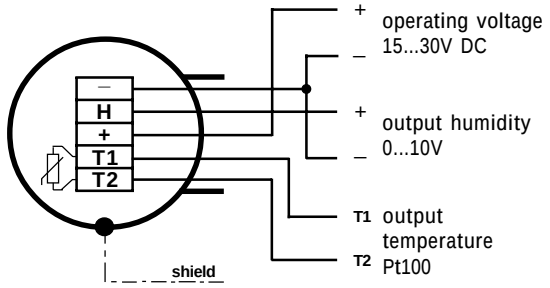
Humidity/-temperature sensor
Output: 2 x 4...20mA
(KRC 3/5-ME, KRC 3/6-ME)



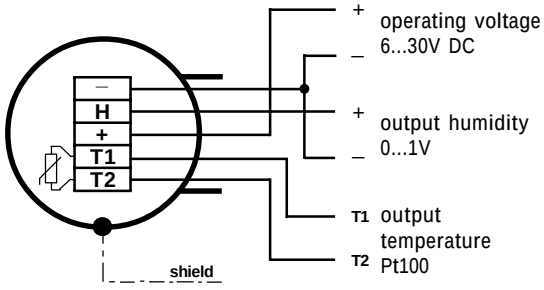
Humidity/-temperature sensor
Output: 4...20mA, Pt100
(CRC 3/5-ME, CRC 3/6-ME)



Humidity/-temperature sensor
Output: 0...10V, Pt100
(CRC 2/5-ME, CRC 2/6-ME)



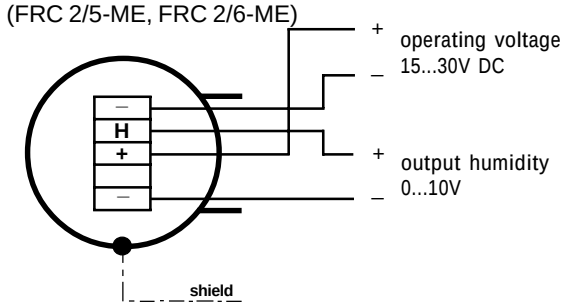
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CRC 1/5-ME, CRC 1/6-ME)



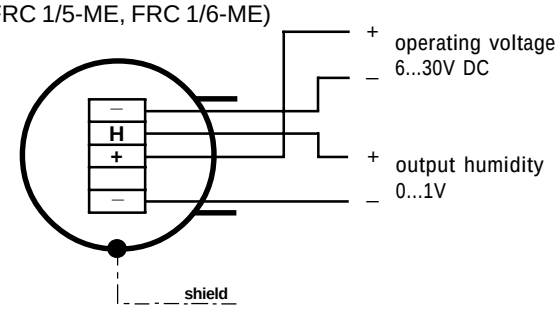
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

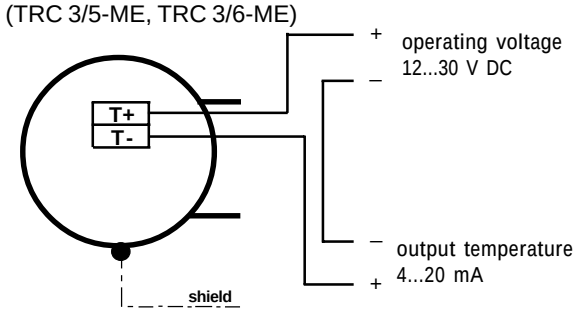
Humidity sensor
Output: 0...10V
(FRC 2/5-ME, FRC 2/6-ME)



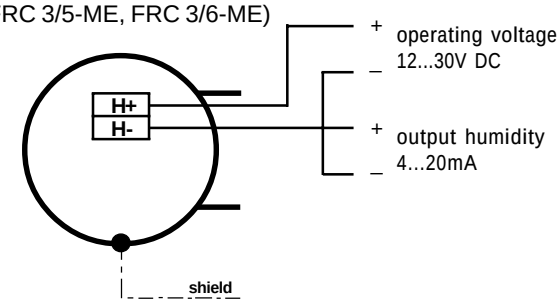
Humidity sensor
Output: 0...1V
(FRC 1/5-ME, FRC 1/6-ME)



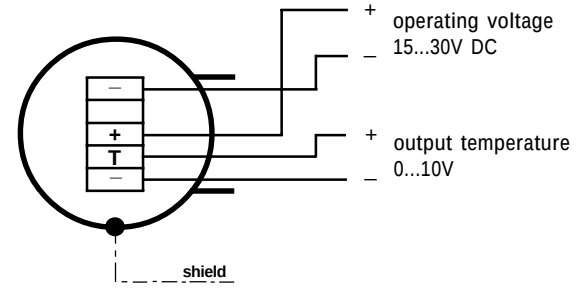
Temperature sensor
Output: 4...20mA
(TRC 3/5-ME, TRC 3/6-ME)



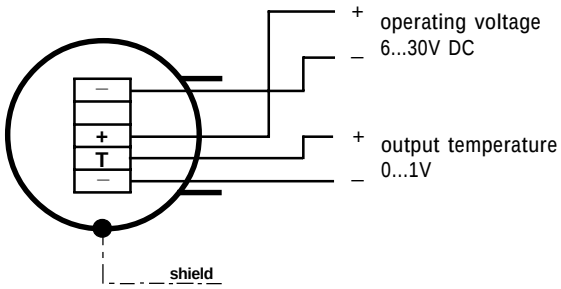
Humidity sensor
Output: 4...20mA
(FRC 3/5-ME, FRC 3/6-ME)



Temperature sensor
Output: 0...10V (TRC 2/5-ME, TRC 2/6-ME)



Temperature sensor
Output: 0...1V (TRC 1/5-ME, TRC 1/6-ME)



Temperature sensor
Output: Pt100
(TRC 5/5-ME, TRC 5/6-ME)