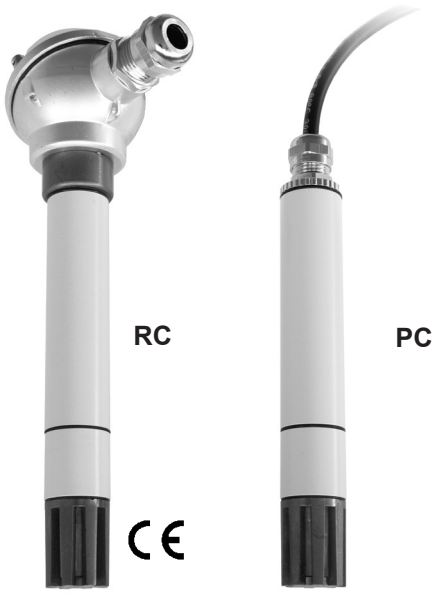
Galltec Mess- und Regeltechnik GmbH
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Tel. +49 (0)7457-9453-0 · Fax +49 (0)7457-3758
E-Mail: sensoren@galltec.de · Internet:www.galltec-mela.de

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

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 serviece 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

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 (PC) ..... -0.3...0.6 K
(depending on the air speed)
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 class B
(class 1/3 DIN on request)

Other data
operating 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 at right angles to the sensor
output signals: 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
directive about electromagnetic compatibility **2014/30/EU**
DIN EN 61326-1 ..... issue 07/13
DIN EN 61326-2-3 ..... issue 07/13

Type Versions

Measured variable	Output signals	PC series rod shape	RC series robust design
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	Pt100*)	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	approx. 340 g

*) further temperature measuring elements on demand

for
- x=5: gauze filter ZE17
- x=6: stainless steel sinter filter ZE21 [1)]
- x=9: integrated element filter made of PTFE and protective plastic basket ZE16

sensor with 1.5m cable * = C
sensor without cable * = K

1) Filters ZE20, ZE21 and ZE22 are ***not suitable*** for sensors of the PC series with ***current output*** !

Special versions available on request

This information is based on current knowledge and is intended to provide details of our products and their possible applications. It does not, therefore, act as a guarantee of specific properties of the products described or of their suitability for a particular application. It is our experience that the equipment may be used across a broad spectrum of applications under the most varied conditions and loads. We cannot appraise every individual case. Purchasers and/or users are responsible for checking the equipment for suitability for any particular application. Any existing industrial rights of protection must be observed. The perfect quality of our products is guaranteed under our General Conditions of Sale. Issue: November 2017 C23_E. Subject to modifications.

User instructions

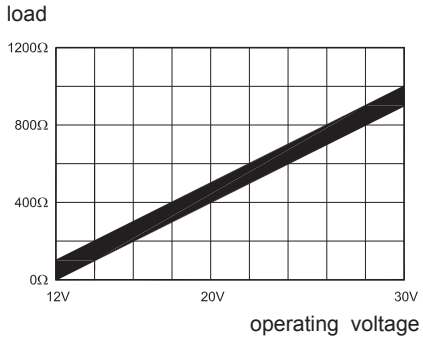
Install the Mela®-humidity/temperature sensors at a place in the room, plant or equipment where characteristic levels of humidity occur. Avoid installing them close to heaters or windows or against outside walls.
The specified minimum air speeds and the operating voltage-adapted current at current-output (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 when it is in use, we recommend that you use a screened cable 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 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.

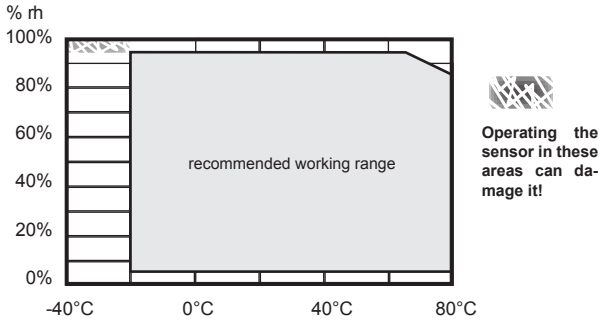
For mounting support we recommend the **console type 20.009** or the **attachment plate type ZA 20** (Product info sheet no. F 5.1). In order to check functioning in the place of installation, we recommend that you use the **ZE 31/1-type humidity standard** (product info sheet no. F 5.2).

Please consult the ***application 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.

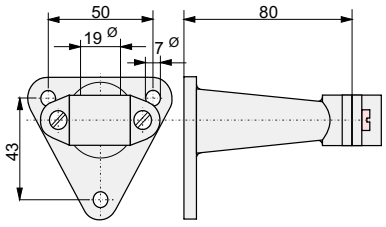
Load at current output



Recommended working range for humidity

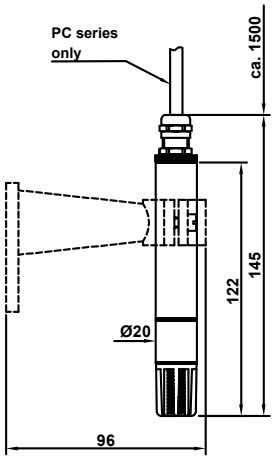


Dimensions

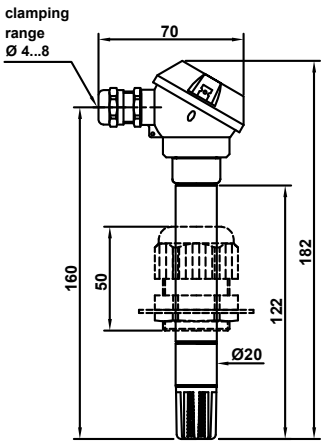


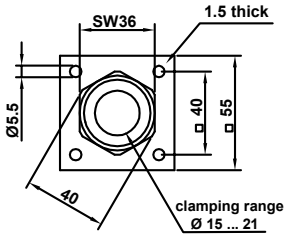
Console for wall mounting 20.009
(please order seperately)

P* series



RC series





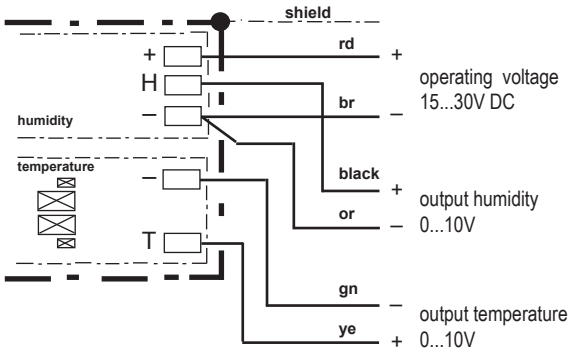
Attachment plate ZA 20

(please order seperately)

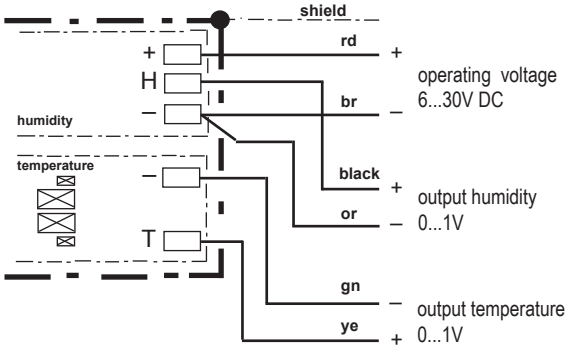
Connection diagram

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

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

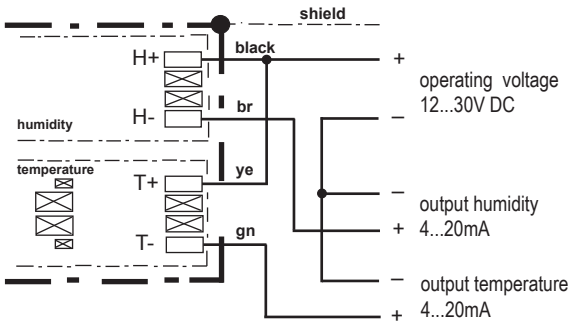


Humidity/-temperature sensor
output: 2 x 0...1V
(KPC 1/x)

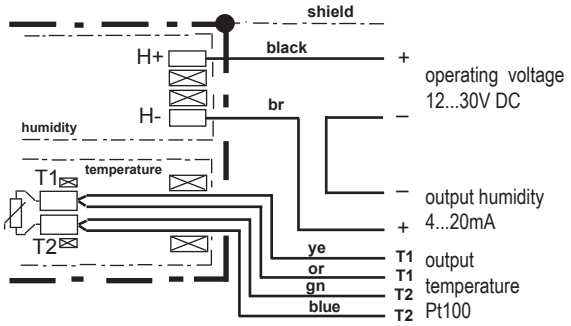


The electrical connection must only be carried out by properly qualified personnel.

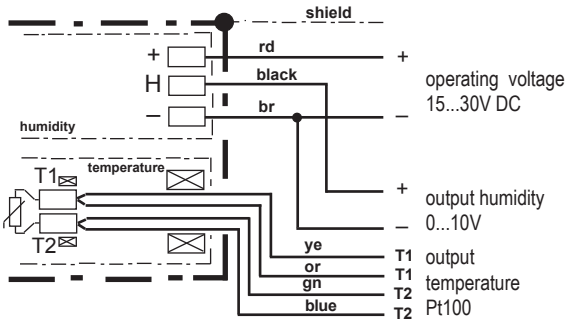
Humidity/-temperature sensor
output: 2 x 4...20mA
(KPC 3/x)



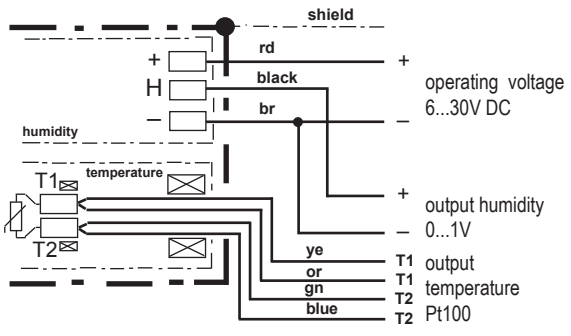
Humidity/-temperature sensor
output: 4...20mA, Pt100
(CPC 3/x)



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



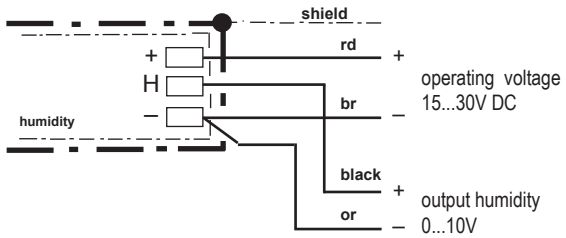
Humidity/-temperature sensor
output: 0...1V, Pt100
(CPC 1/x)



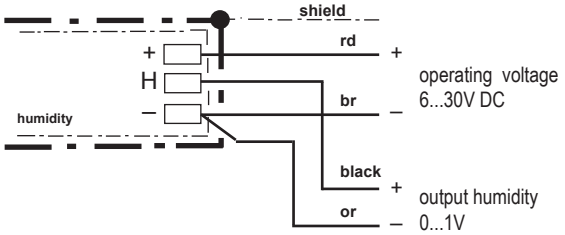
Connection diagram

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

Humidity sensor
output: 0...10V
(FPC 2/x)

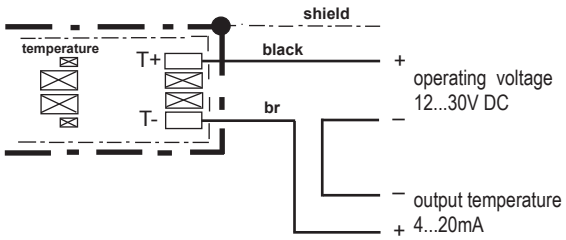


Humidity sensor
output: 0...1V
(FPC 1/x)

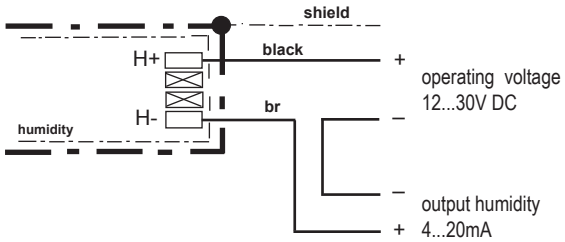


The electrical connection must only be carried out by properly qualified personnel.

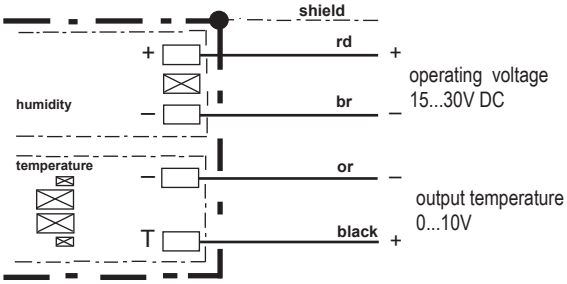
Temperature sensor
output: 4...20mA
(TPC 3/x)



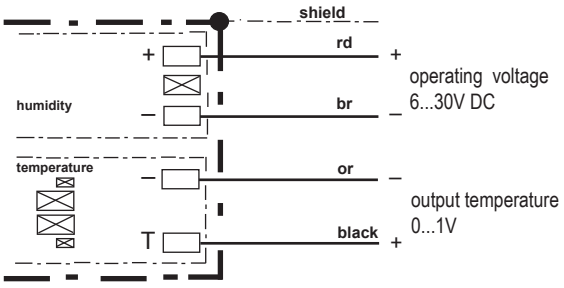
Humidity sensor
output: 4...20mA
(FPC 3/x)



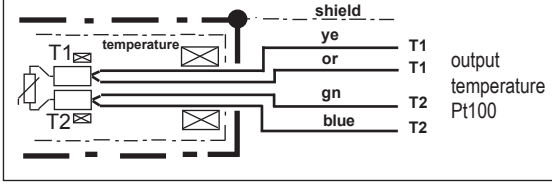
Temperature sensor
output: 0...10V
(TPC 2/x)



Temperature sensor
output: 0...1V
(TPC 1/5)



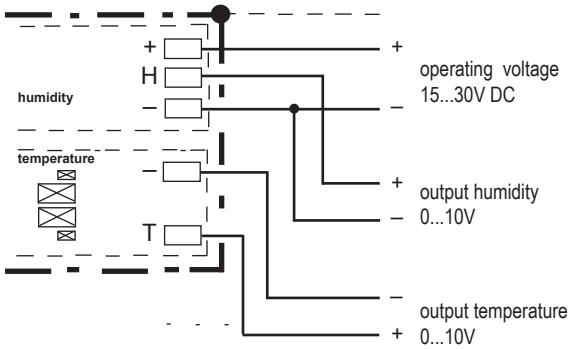
Temperature sensor
output: Pt100
(TPC 5/x)



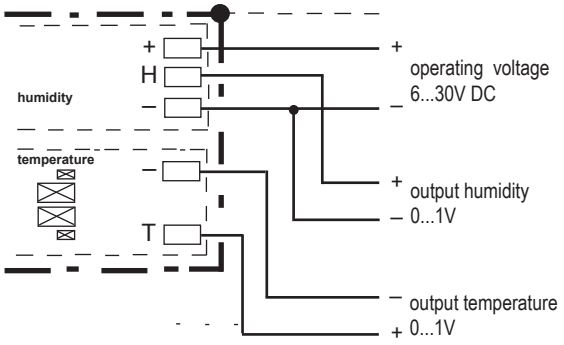
Connection diagram

Humidity/-temperature sensors
Rod-shaped compact sensors PK series

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

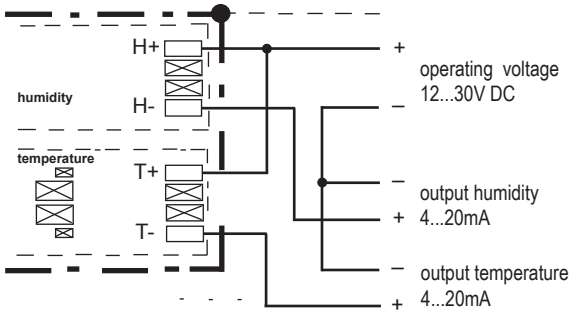


Humidity/-temperature sensor
output: 2 x 0...1V
(KPK 1/x)

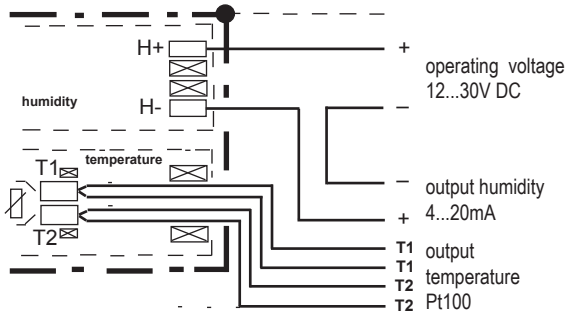


The electrical connection must only be carried out by properly qualified personnel.

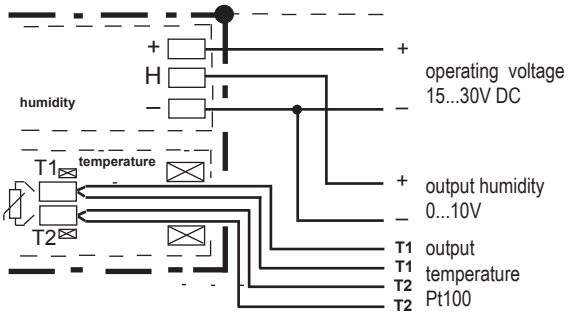
Humidity/-temperature sensor
output: 2 x 4...20mA
(KPK 3/x)



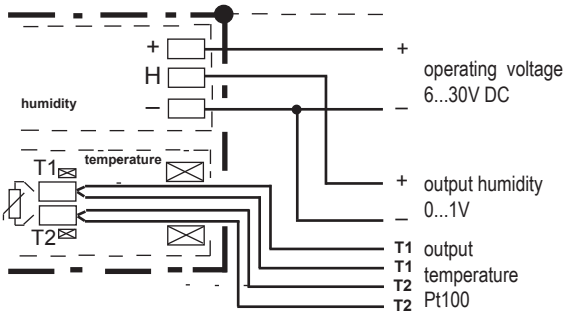
Humidity/-temperature sensor
output: 4...20mA, Pt100
(CPK 3/x)



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



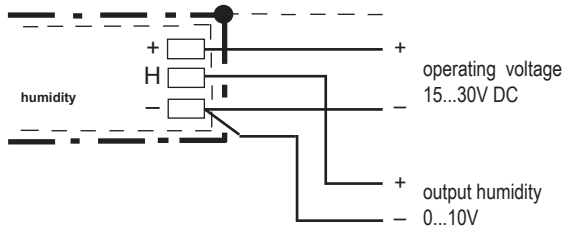
Humidity/-temperature sensor
output: 0...1V, Pt100
(CPK 1/x)



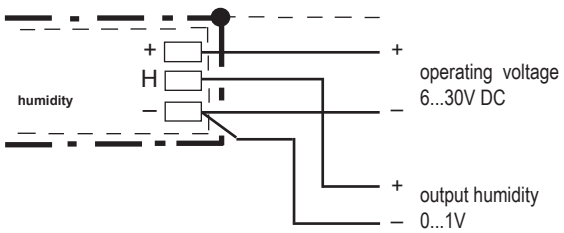
Connection diagram

Humidity/-temperature sensors
Rod-shaped compact sensors PK series

Humidity sensor
output: 0...10V
(FPK 2/x)

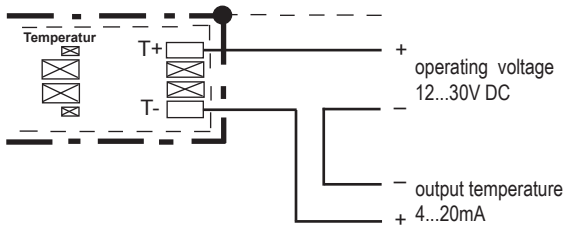


Humidity sensor
output: 0...1V
(FPK 1/x)

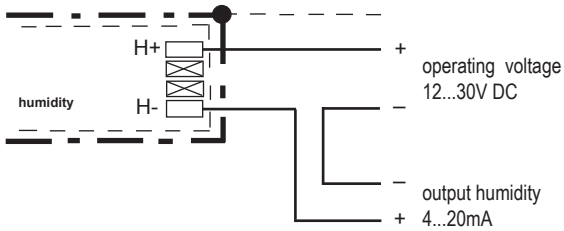


⚠ The electrical connection must only be carried out by properly qualified personnel.

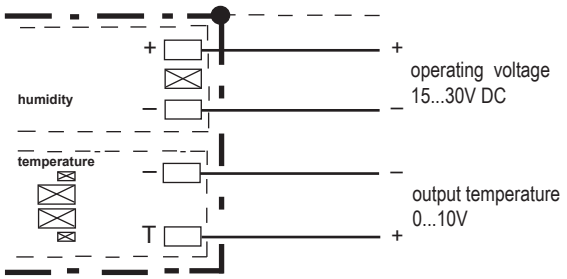
Temperature sensor
output: 4...20mA
(TPK 3/x)



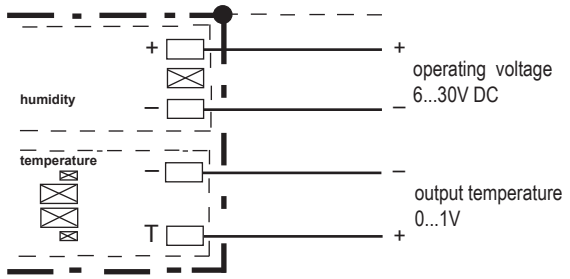
Humidity sensor
output: 4...20mA
(FPK 3/x)



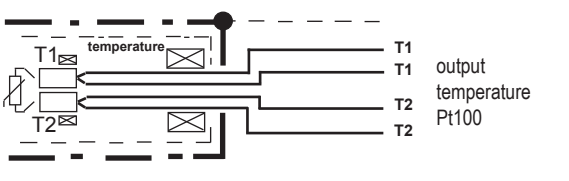
Temperature sensor
output: 0...10V
(TPK 2/x)



Temperature sensor
output: 0...1V
(TPK 1/x)



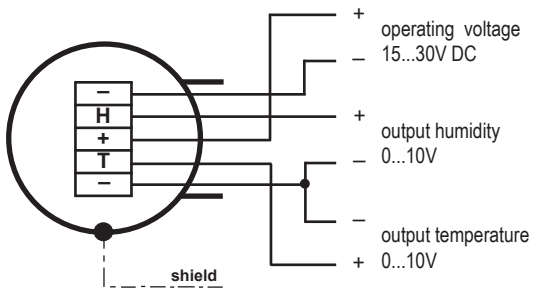
Temperature sensor
output: Pt100
(TPK 5/x)



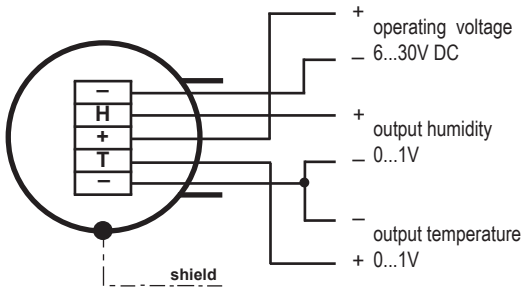
Connection diagram

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

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

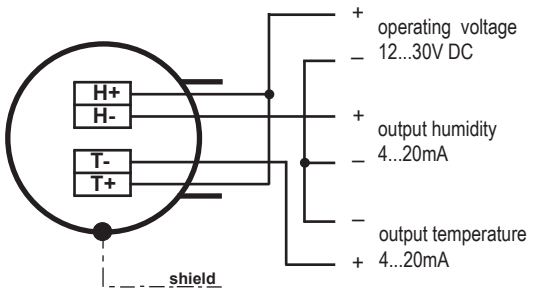


Humidity/-temperature sensor
output: 2 x 0...1V
(KRC 1/x)

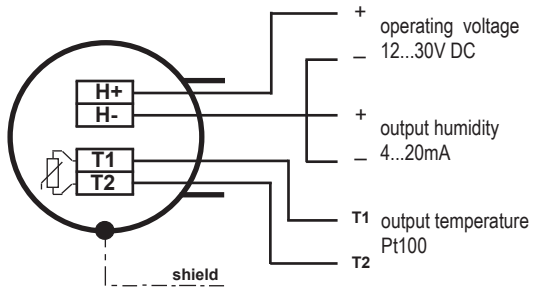


The electrical connection must only be carried out by properly qualified personnel.

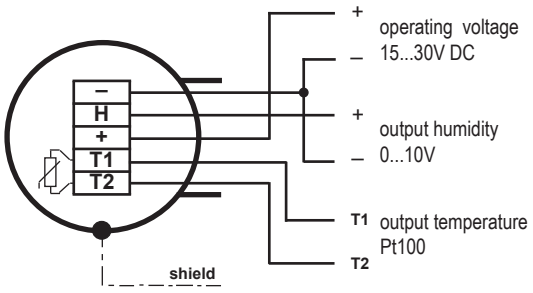
Humidity/-temperature sensor
output: 2 x 4...20mA
(KRC 3/x)



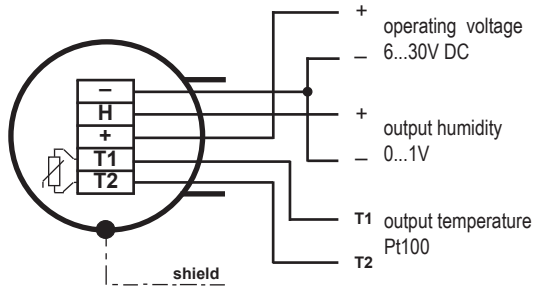
Humidity/-temperature sensor
output: 4...20mA, Pt100
(CRC 3/x)



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



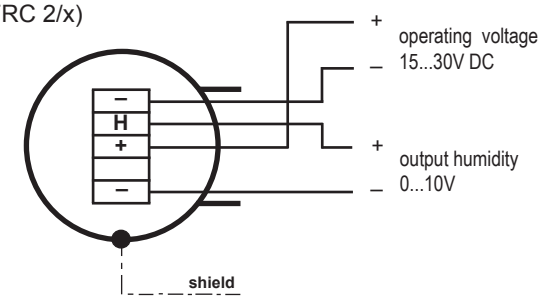
Humidity/-temperature sensor
output: 0...1V, Pt100
(CRC 1/x)



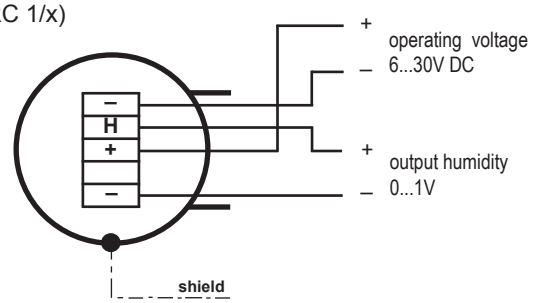
Connection diagram

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

Humidity sensor
output: 0...10V
(FRC 2/x)

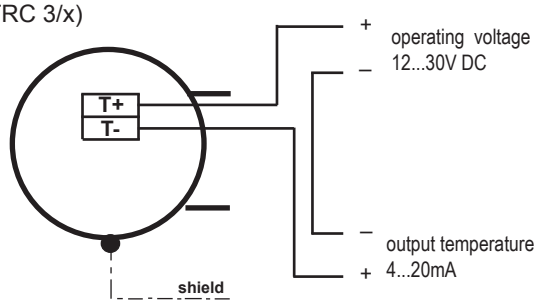


Humidity sensor
output: 0...1V
(FRC 1/x)

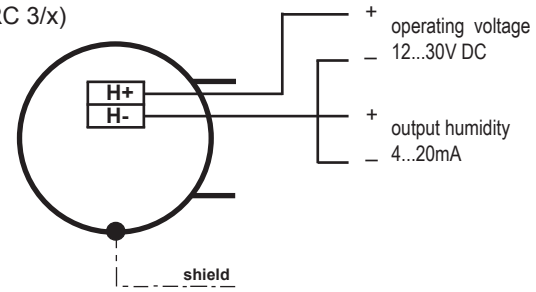


The electrical connection must only be carried out by properly qualified personnel.

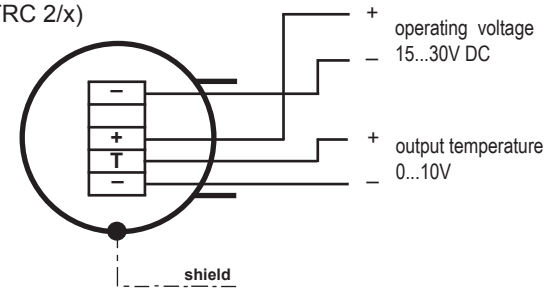
Temperature sensor
output: 4...20mA
(TRC 3/x)



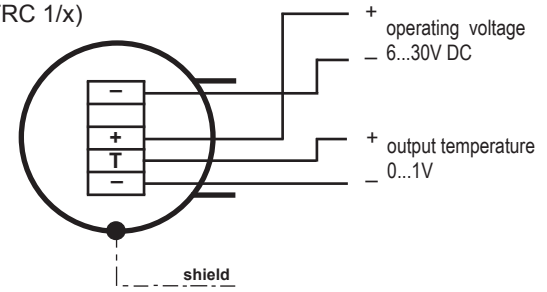
Humidity sensor
output: 4...20mA
(FRC 3/x)



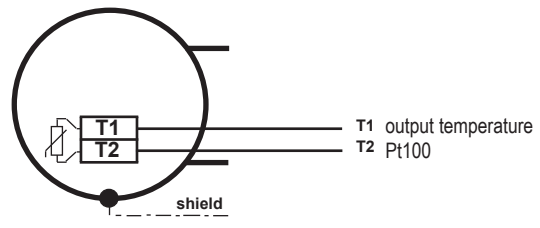
Temperature sensor
output: 0...10V
(TRC 2/x)



Temperature sensor
output: 0...1V
(TRC 1/x)



Temperature sensor
output: Pt100
(TRC 5/x)



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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

This information is based on current knowledge and is intended to provide details of our products and their possible applications. It does not, therefore, act as a guarantee of specific properties of the products described or of their suitability for a particular application. It is our experience that the equipment may be used across a broad spectrum of applications under the most varied conditions and loads. We cannot appraise every individual case. Purchasers and/or users are responsible for checking the equipment for suitability for any particular application. Any existing industrial rights of protection must be observed. The perfect quality of our products is guaranteed under our General Conditions of Sale. Issue: November 2017 C24_E. Subject to modifications.

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.

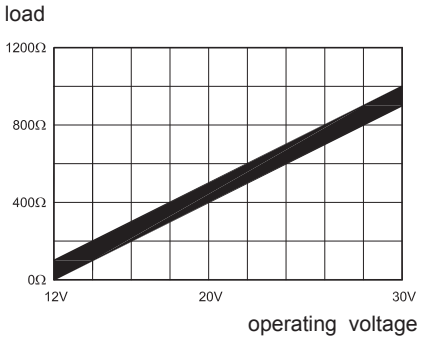
In order to maintain interference immunity in accordance with EN 61326 when it is in use, we recommend that you use a screened cable (type recommended: **8x AWG 26 C UL, order no. 5339**) for connecting the RC and PK series sensors, and have this fitted into the sensor's EMC conduit thread by a qualified 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.

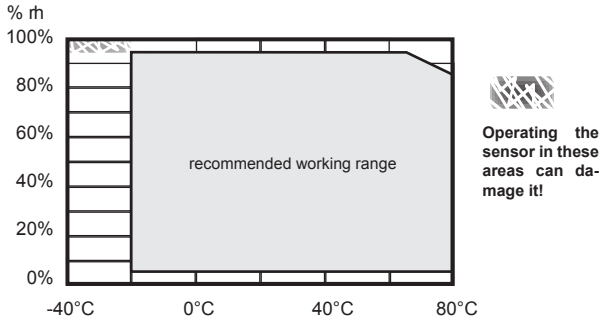
For mounting support we recommend the **console type 20.009** or the **attachment plate type ZA 20** (product info sheet no. F 5.1). In order to check functioning in the place of installation, we recommend that you use the **ZE 31/1-type** Mela® **humidity standard** (product info sheet no. F 5.2).

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

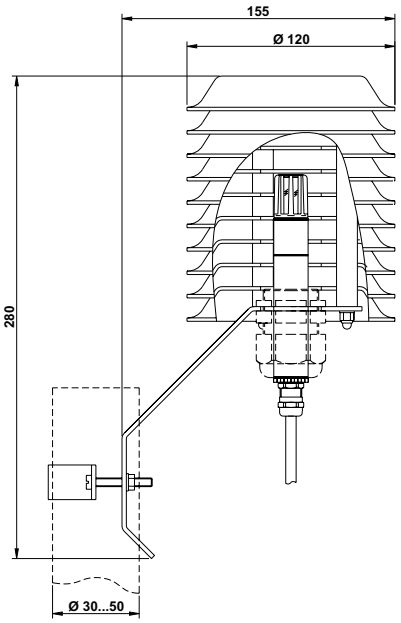


Recommended working range for humidity

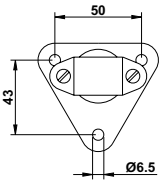


Dimensions

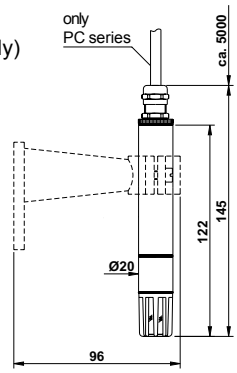
Weather guard ZA 161/1
(please order seperately)



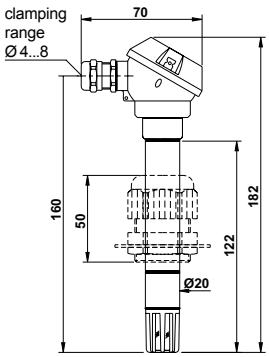
Console for wall mounting 20.009
(please order seperately)



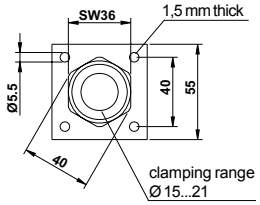
P* series



RC series



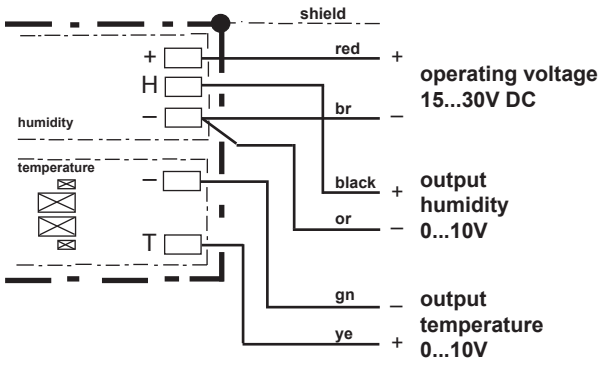
Attachment plate ZA 20
(please order seperately)



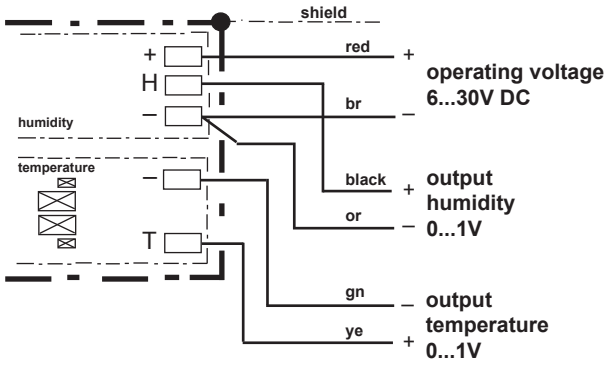
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

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

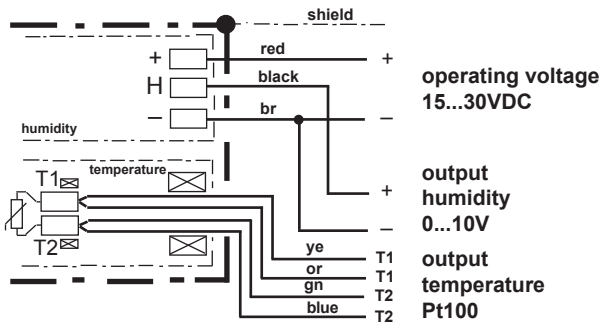


Humidity/-temperature sensor
Output: 2 x 0...1V
(KPC 1/...-ME)

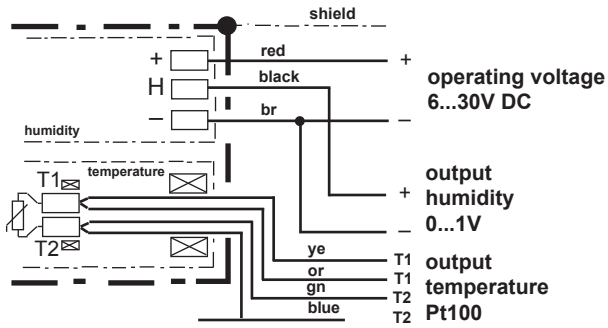


⚠ The electrical connection must only be carried out by properly qualified personnel.

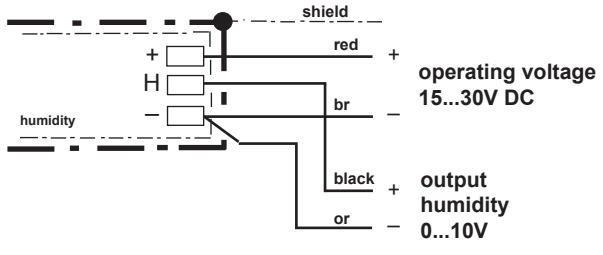
Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPC 2/...-ME)



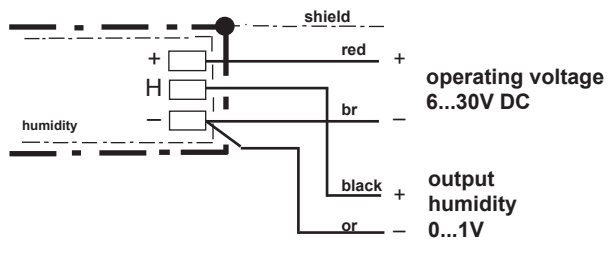
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPC 1/...-ME)



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



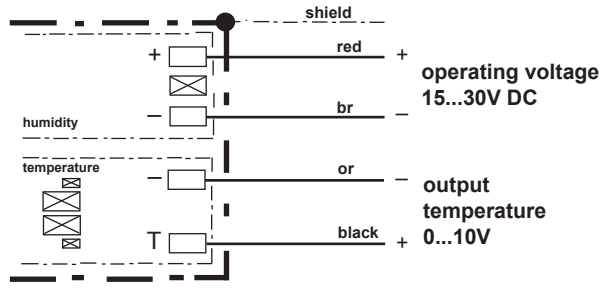
Humidity sensor
Output: 0...1V
(FPC 1/...-ME)



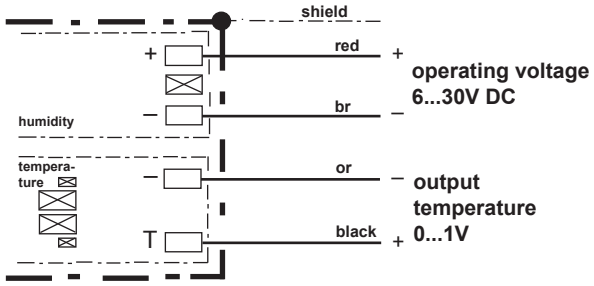
Connection diagram

Humidity/-temperature sensors
Meteorological design series PC-ME

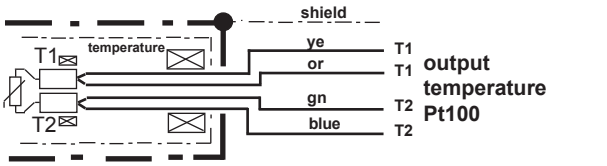
Temperature sensor
Output: 0...10V
(TPC 2/...-ME)



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



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

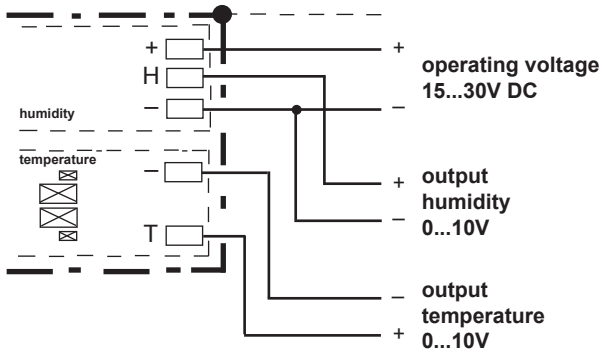


⚠ The electrical connection must only be carried out by properly qualified personnel.

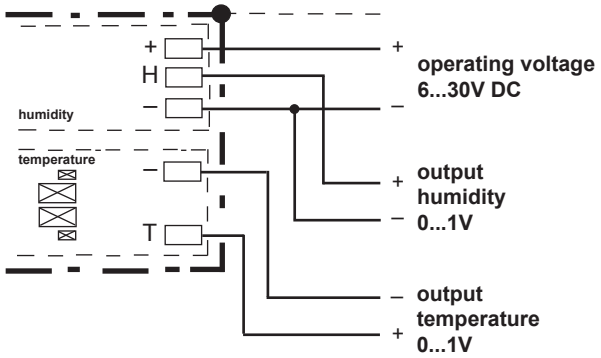
Connection diagram

Humidity/-temperature sensors
Meteorological design series PK-ME

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

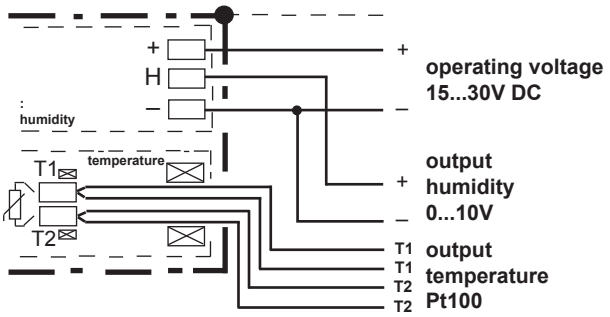


Humidity/-temperature sensor
Output: 2 x 0...1V
(KPK 1/...-ME)

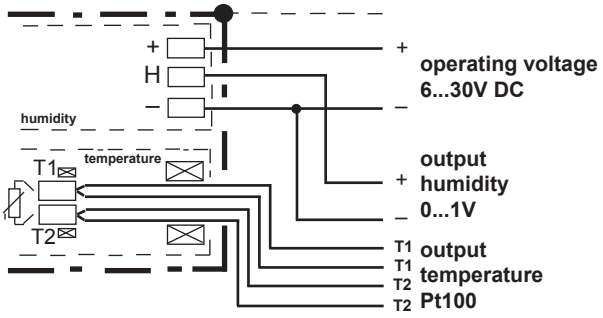


The electrical connection must only be carried out by properly qualified personnel.

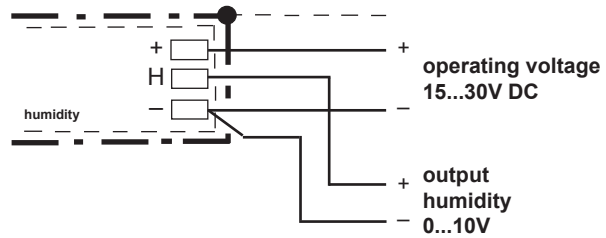
Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPK 2/...-ME)



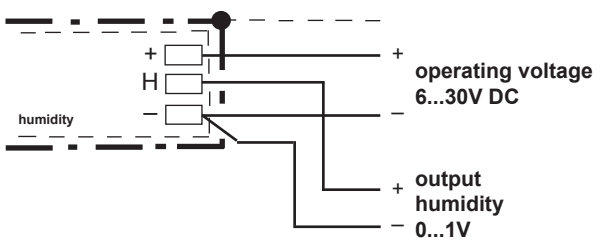
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPK 1/...-ME)



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



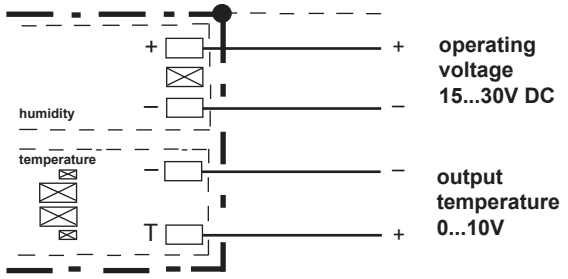
Humidity sensor
Output: 0...1V
(FPK 1/...-ME)



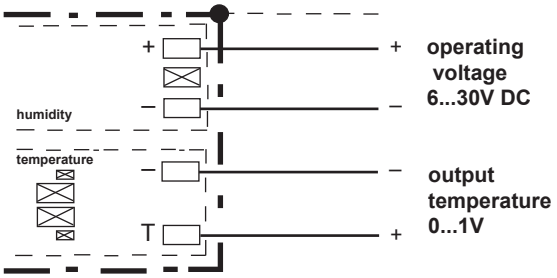
Connection diagram

Humidity/-temperature sensors
Meteorological design series PK-ME

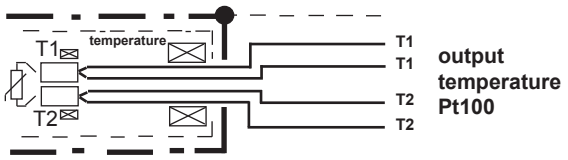
Temperature sensor
Output: 0...10V
(TPK 2/...-ME)



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



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

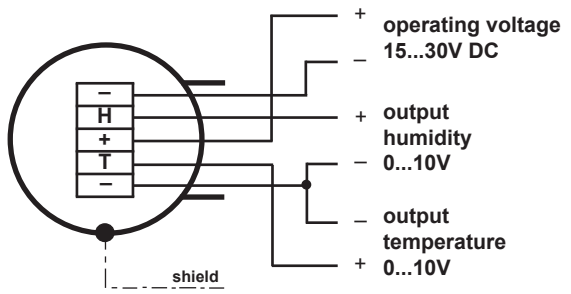


⚠ The electrical connection must only be carried out by properly qualified personnel.

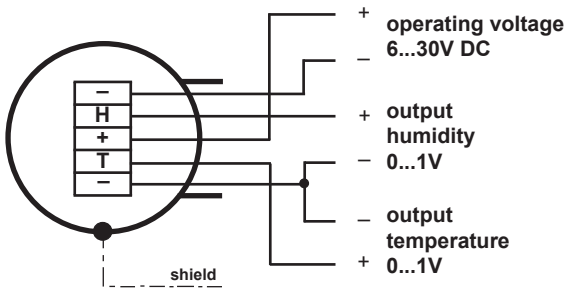
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

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

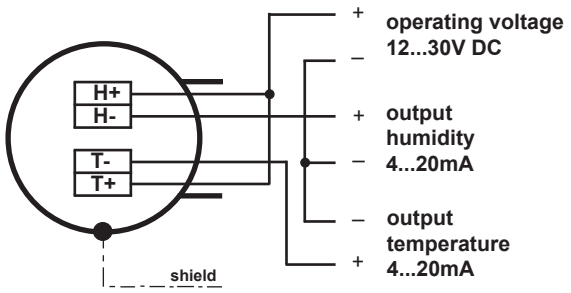


Humidity/-temperature sensor
Output: 2 x 0...1V
(KRC 1/...-ME)

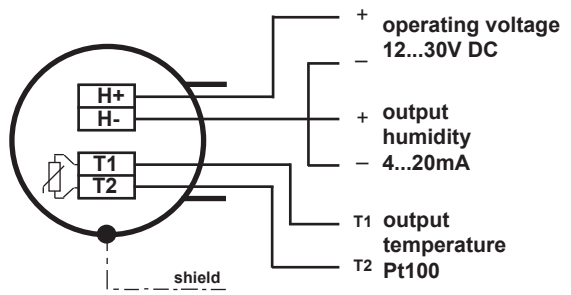


⚠ The electrical connection must only be carried out by properly qualified personnel.

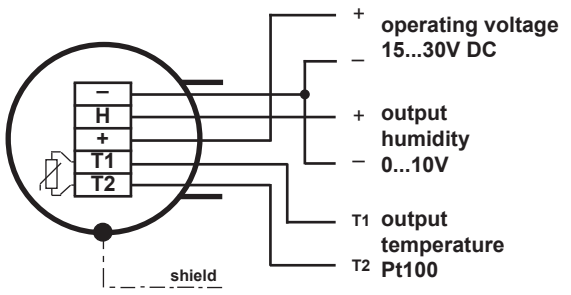
Humidity/-temperature sensor
Output: 2 x 4...20mA
(KRC 3/...-ME)



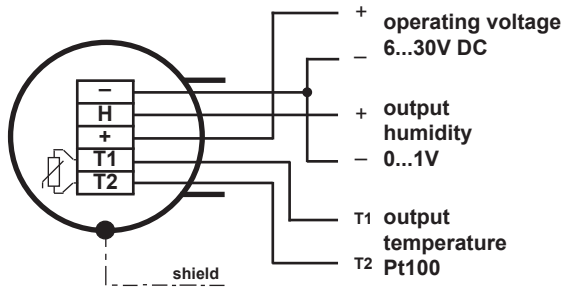
Humidity/-temperature sensor
Output: 4...20mA, Pt100
(CRC 3/...-ME)



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



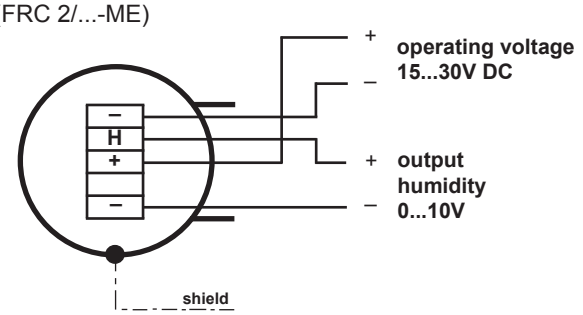
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CRC 1/...-ME)



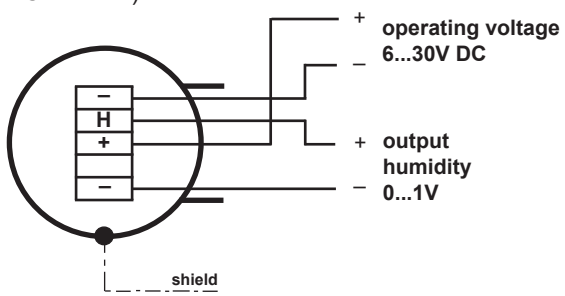
Connection diagram

Humidity/-temperature sensors
Meteorological design series RC-ME

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

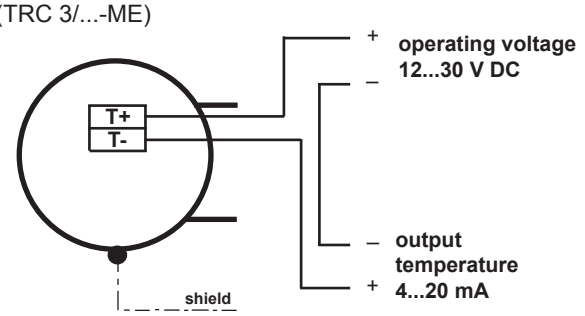


Humidity sensor
Output: 0...1V
(FRC 1/...-ME)

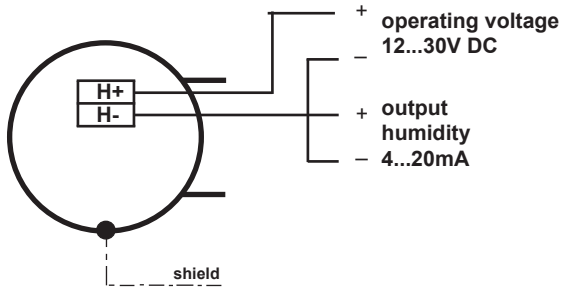


⚠ The electrical connection must only be carried out by properly qualified personnel.

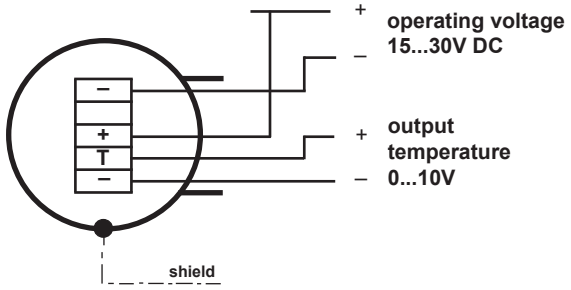
Temperature sensor
Output: 4...20mA
(TRC 3/...-ME)



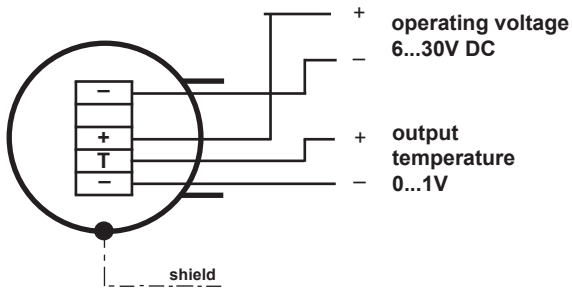
Humidity sensor
Output: 4...20mA
(FRC 3/...-ME)



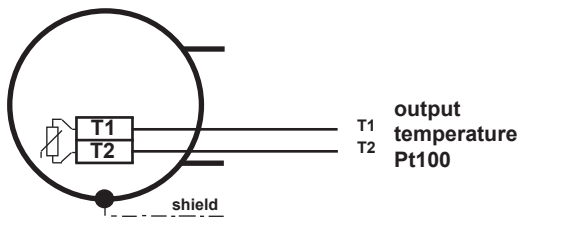
Temperature sensor
Output: 0...10V (TRC 2/...-ME)



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



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



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Product info sheet no. C 2.5
Humidity/-temperature sensors
Compact sensors with plug-in connection

Description

Mela®-**humidity/-temperature sensors** in the PC.S and PC.S-ME series are compact sensors in a rod-type design with plug-in connection to measure relative humidity and temperature (individually or together) with high precision in air and other non-aggressive gases. They can be used for a wide range of applications.
The scope of delivery includes the coupling plug without a cable. All the sensors in the series are equipped with a **ZE 17-type** gauze filter (resp. **ZE 20** membrane filter for -ME design). We recommend that you use the version with the **ZE 21/22** [1] type sintered high-grade steel filter at high wind speeds or if the sensor is exposed to salt mist, sand or dust (near the sea, industrial estates etc.).
(filter programme see product info sheet no. F 5.1).
In the .../9 series the humidity sensor element is directly protected by a PTFE filter. The advantage of this is the improved temperature dynamics, in particular at low air speeds. In the …./9-ME series a glass Pt-100 is used.

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

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

Temperature
measuring element (ref. DIN EN 60751) ..... Pt 100 class B
(class 1/3 DIN for -ME design)
measuring range ..... -30...70°C
accuracy
output: 0...1V (-27...80°) ..... ±0.2 K
0...10V (-29...80°C) ..... ±0.2 K
4...20mA ..... -0.3 - 0.6 K
(depending on the air speed)
at <10°C, >40°C ..... ±0.007K/K additional

Other data
ambient temperature ..... -40...+80°C
degree of protection sensor/electronic IP30/IP65
degree of protection coupling IP40
degree of protection coupling in -ME design IP67
operating voltage
current output ..... 12...30V DC
voltage output 0...10 V ..... 15...30V DC
voltage output 0...1 V ..... 6...30V DC

load resistance 0...10 V/0...1 V ..... ≥10kΩ/≥2 kΩ
load (current-output) ..... acc. diagramm
power consumption
0...10V, 2x 0...1V ..... approx. 5mA
0...1V ..... < 1mA
minimum air speed (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 coefficient Pt100 (v=2 m/s in air) ..... 0.2 K/mW
electromagnetic compatibility EN 61326-2-3

Type versions

Measured variable	Analogue output	Type Standard	Type Meteorology
F relative humidity	0...1 V	FPC1.S/x	FPC1.S/x-ME
	0...10 V	FPC2.S/x	FPC2.S/x-ME
	4...20 mA	FPC3.S/x	
C r.h. + T (passive)	0...1V + Pt100	CPC1.S/x	CPC1.S/x-ME
	0...10 V + Pt100	CPC2.S/x	CPC2.S/x-ME
	4...20 mA + Pt100	CPC3.S/x	
K r.h. + T (active)	2 x 0...1 V	KPC1.S/x	KPC1.S/x-ME
	2 x 0...10 V	KPC2.S/x	KPC2.S/x-ME
	2 x 4...20 mA	KPC3.S/x	
T temperature	0...1 V	TPC1.S/x	TPC1.S/x-ME
	0...10 V	TPC2.S/x	TPC2.S/x-ME
	4...20 mA	TPC3.S/x	
	Pt100	TPC5.S/x	TPC5.S/x-ME
weight		approx. 81 g	

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

Type standard gauze filter **ZE17** → **x=5**
Type meteorology membrane filter **ZE20** → **x=5**
Sintered high-grade steel filter **ZE21** [2] → **x=6**
with integrated PTFE filter and protective basket **ZE16** → **x=9**

[2] Filters ZE20, ZE21 and ZE22 are not suitable for sensors of the PC series with current output !

special types on demand

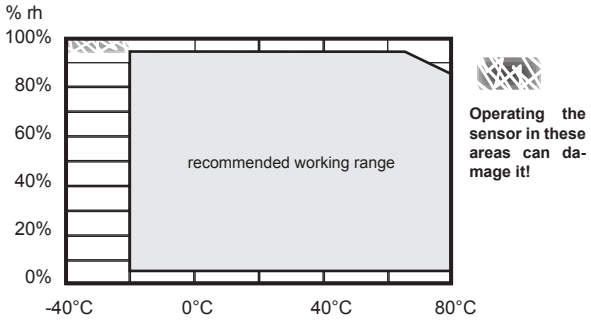
This information is based on current knowledge and is intended to provide details of our products and their possible applications. It does not, therefore, act as a guarantee of specific properties of the products described or of their suitability for a particular application. It is our experience that the equipment may be used across a broad spectrum of applications under the most varied conditions and loads. We cannot appraise every individual case. Purchasers and/or users are responsible for checking the equipment for suitability for any particular application. Any existing industrial rights of protection must be observed. The perfect quality of our products is guaranteed under our General Conditions of Sale. Issue : May 2016 C25_E. Subject to modifications.

Application recommendations

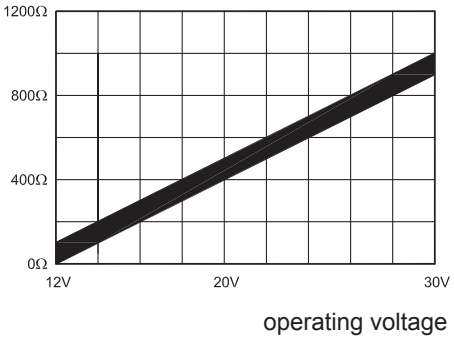
Install the Mela®-humidity/temperature sensors at a place in the room, plant or equipment where characteristic levels of humidity occur. Avoid installing them close to heaters or windows or against outside walls.
The specified minimum air speed and - with current output - the load according to the operating voltage (diagram) should be complied with. 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 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 sensors, and have this fitted to the sensor's attachment plug 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** Mela® **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.

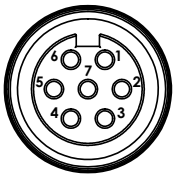
Tolerance validity range for humidity



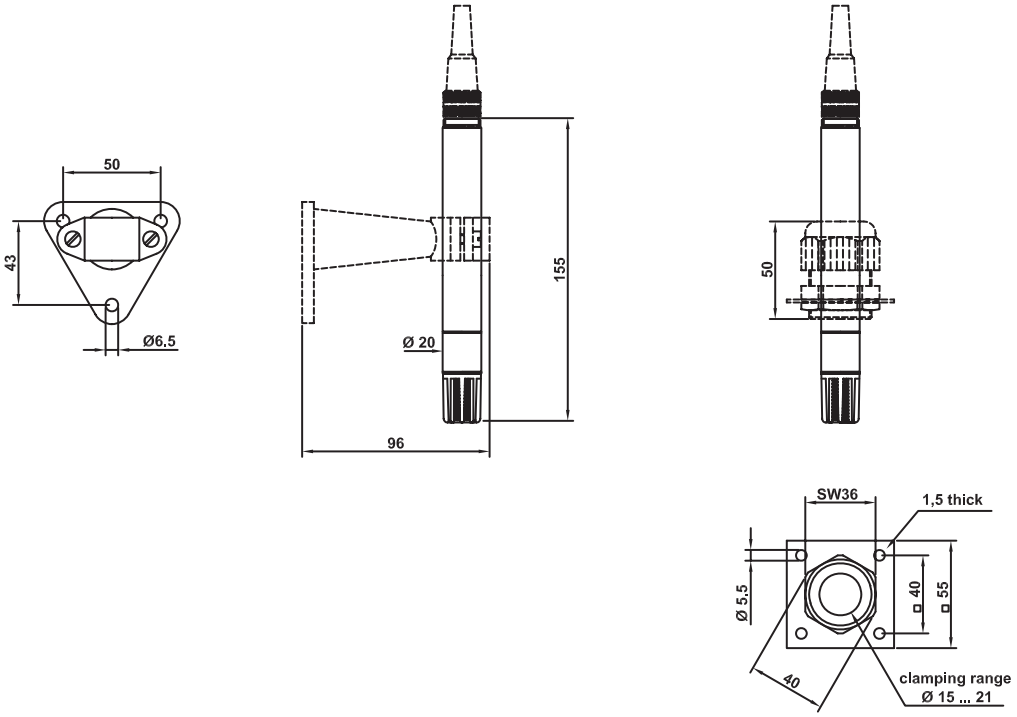
Load at current output:



Position of the sensor connections:



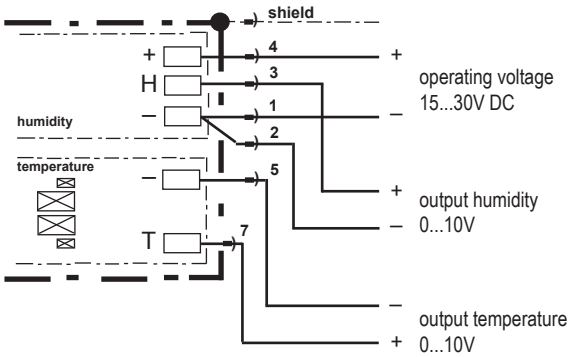
Dimensions



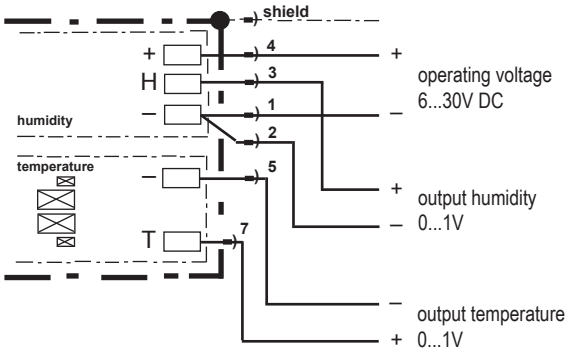
Connection diagram

Humidity/- temperature sensors
Compact sensors with plug-in connection
series .S, .S-ME

Humidity/-temperature sensor
Output: 2 x 0...10V
(KPC2.S/x , -ME)

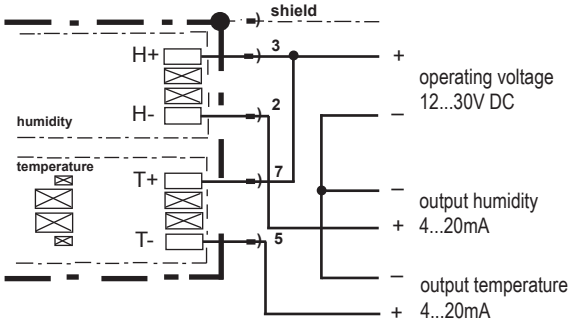


Humidity/-temperature sensor
Output: 2 x 0...1V
(KPC1.S/x , -ME)

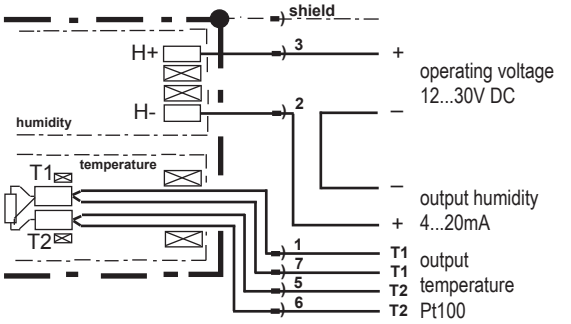


The electrical connection must only be carried out by properly qualified personnel.

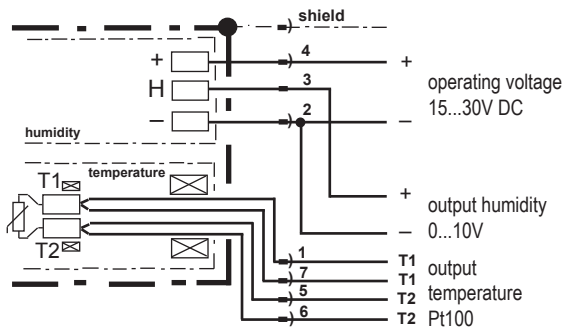
Humidity/-temperature sensor
Output: 2 x 4...20mA
(KPC3.S/x)



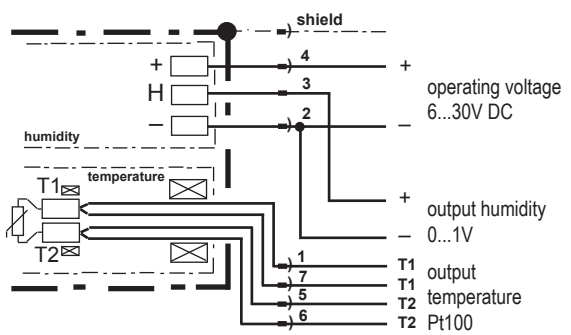
Humidity/-temperature sensor
Output: 4...20mA, Pt100
(CPC3.S/x)



Humidity/-temperature sensor
Output: 0...10V, Pt100
(CPC2.S/x , -ME)



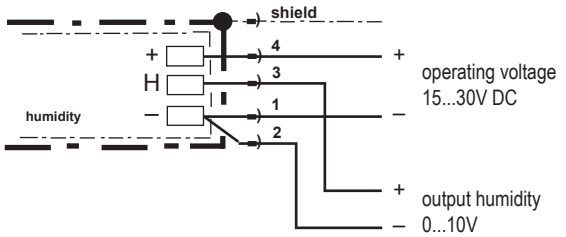
Humidity/-temperature sensor
Output: 0...1V, Pt100
(CPC1.S/x , -ME)



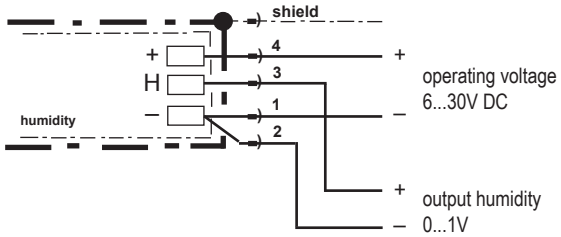
Connection diagram

Humidity/- temperature sensors
Compact sensors with plug-in connection
series .S, .S-ME

Humidity sensor
Output: 0...10V
(FPC2.S/x , -ME)

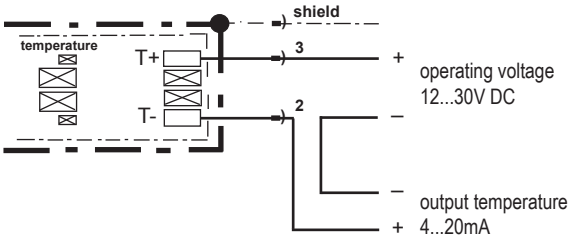


Humidity sensor
Output: 0...1V
(FPC1.S/x , -ME)

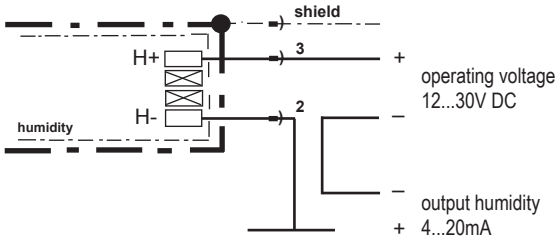


⚠ The electrical connection must only be carried out by properly qualified personnel.

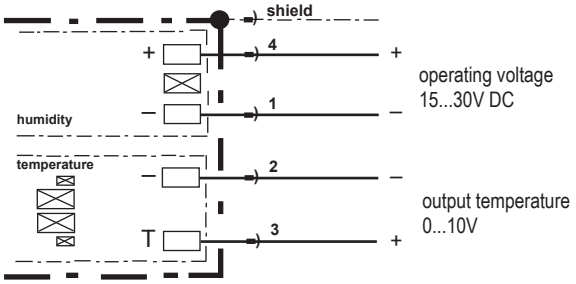
Temperature sensor
Output: 4...20mA
(TPC3.S/x)



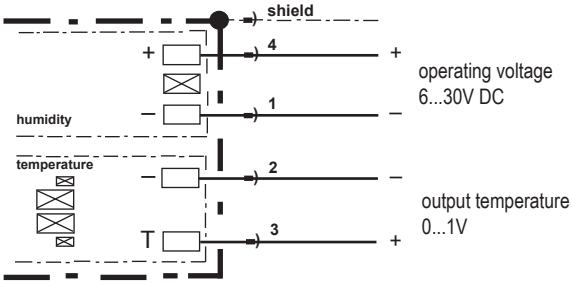
Humidity sensor
Output: 4...20mA
(FPC3.S/x)



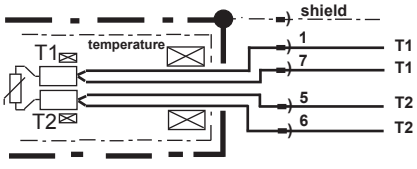
Temperature sensor
Output: 0...10V
(TPC2.S/x , -ME)



Temperature sensor
Output: 0...1V
(TPC1.S/x , -ME)



Temperature sensor
Output: Pt100
(TPC5.S/x , -ME)



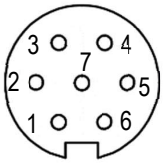
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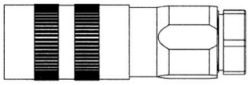
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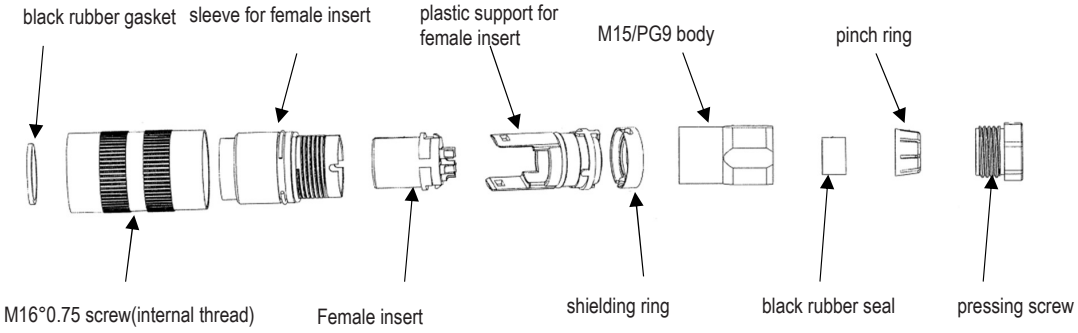
Assembly instruction sensor connectors

sensor connector solder side

article 511021 for cable diameter 6...8 mm
strip 20 mm of cable, strip 4 mm of insulation, clamp screen

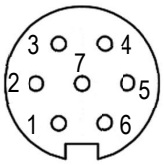


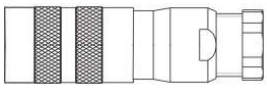


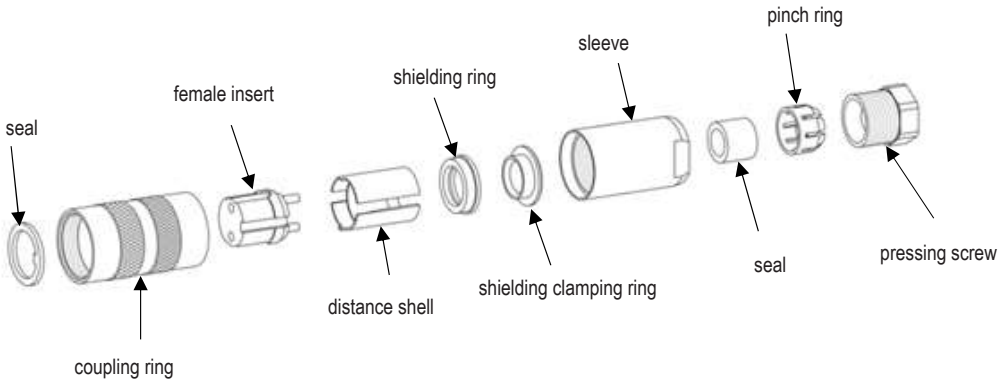


sensor connector solder side

article 5169 for cable diameter 4...6 mm
article 51102 for cable diameter 6...8 mm
strip 20 mm of cable, strip 4 mm of insulation, clamp screen







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Issue : 08/2022 C25_E. Subject to modifications.