



Product info sheet no. C 4.8
Humidity-/temperature sensors
 With „Ex“licence

Technical data

Humidity level

Measuring range..... 0...100%rh
 Tolerance (MR 5...95%rh at 10...40°C) ±2%rh
 Additional measurement error (< 10°C) 0.1%/K
 Set up time (T 90 at 1 m/s) < 2 minutes
 Output 4...20 mA

Temperature

Measuring element (DIN IEC 751) Pt100 Class B
 Measuring range - 20...80°C
 Tolerance ± 0.3 K
 Additional measurement error
 (<10°C, >40°C) ±0,007K/K
 Setting up time (T 90 at 1 m/s) 10 minutes
 Output 4...20 mA

Others

Storage temperature - 20...100°C
 Approved operating temperature range - 20...80°C

Sensor operating voltage 12..20 V DC (intrinsically safe)
 Maximum input voltage U_i 20V DC
 Maximum input amperage I_i 93 mA
 Maximum input power P_i 660 mW
 Maximum inner capacity C_i 121 nF
 Maximum inner inductivity L_i < 0.01 µH

Protection level

Converter part IP 64
 Sensor part IP 40

Housing material

Sensor part stainless steel
 Converter part alu-diecast

Cable entry; clamping range Pg 11; 3...7 mm

Cable between Sensor and transmitter power supply unit

Recommended type NF14 (Metrofunk)
 Maximum power transmission length 100 m
 Maximum cable capacity 20 nF
 Ends of the power line Wire cases with plastic collars

Electro-magnetic compatibility

Interference transmission level EN 55011 Kl.B
 Immunity to interference EN 50082-2

Transmitter power supply unit

Mains voltage 20...35 V DC
 Voltage U_0 ≤ 20 V DC
 Amperage I_0 ≤ 93 mA
 Output P_0 ≤ 660 mW
 Galvanic separation

Input Output according EN 50 020
 Input network according EN 50 020

Order designation KFD2-CR-EX1.20 200
 „reserve of technical modifications“

Description

MELA-Humidity-/temperature sensors in these series are used to measure relative humidity or relative humidity and temperature in air and other non-aggressive gases in rooms where there is a risk of explosion.

They comprise a robust sensor part in a high-grade steel housing with a sintered protective basket mounted on an aluminium die-casting housing.

The connection to a non-intrinsically safe electrical power circuit is achieved over one, and for the combined humidity and temperature sensors over two transmitter power supply units with galvanically separated power input points.

Use of **MELA-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 variants - order designation

Measuring unit	GC series	KC series
F (relative humidity)	FGC3.Ex/5	FKC3.Ex/5
K (rel. humidity / temp.)	KGC3.Ex/5	KKC3.Ex/5
T (temperature)	TGC3.Ex/5	TKC3.Ex/5
weight	ca. 380 g	ca. 470 g



II 2G

EEx ia IIC T4

Approved for use in areas where there is danger of an explosion:

EC Design Test Certificate:
IBExU 00 ATEX 1019

These details reflect our latest findings and are intended to supply information about our products and possible areas of application for them. Therefore, they are not meant to be guarantees that the products contain certain properties or that they are suitable to be used for specific purposes. In the past, the devices have been used for a wide range of purposes under very differing conditions and loads. We are unable to assess every single case. It is up to the buyer or user to assess the suitability of the devices. Due account must be taken of any existing commercial patent rights. We guarantee that the products are of excellent quality, within the scope of our General Terms and Conditions of Sale. Published: June 2001, sheet no. C48_E. This supersedes all previous data sheets.

Assembly instructions

MELA-humidity/temperature sensors should be installed in a location which is representative for measuring the environmental conditions.

The connection to a non-intrinsically safe power circuit should be arranged over one or two transmitter power supply units matching the required specification according to the connection diagram. Regulations according to EN 60 079 – 14 must be observed during the installation. The maximum cable length and the maximum approved cable capacity must also be observed.

The installation orientation of the sensor is not important. It should, however, be installed in such a way that one avoids the entry of water. Dew and water spray do not damage the sensor in any way but before the full drying out process on the sensor element and in its immediate environment is obtained, it leads to measurement errors. A screened cable is used to connect the cable whole in operation in order to maintain the immunity to interference according to EN 80082-2 which should be properly

installed in the EMV-Pg of the sensor.

In order to arrange a simple test of the functionality of the sensor on the site, we recommend the **MELA-humidity standard type ZE 31/1** with the **additional adapter type ZE 33** (product information no. F 5.2).

Dust does not damage the sensor but it negatively affects its dynamic behaviour.

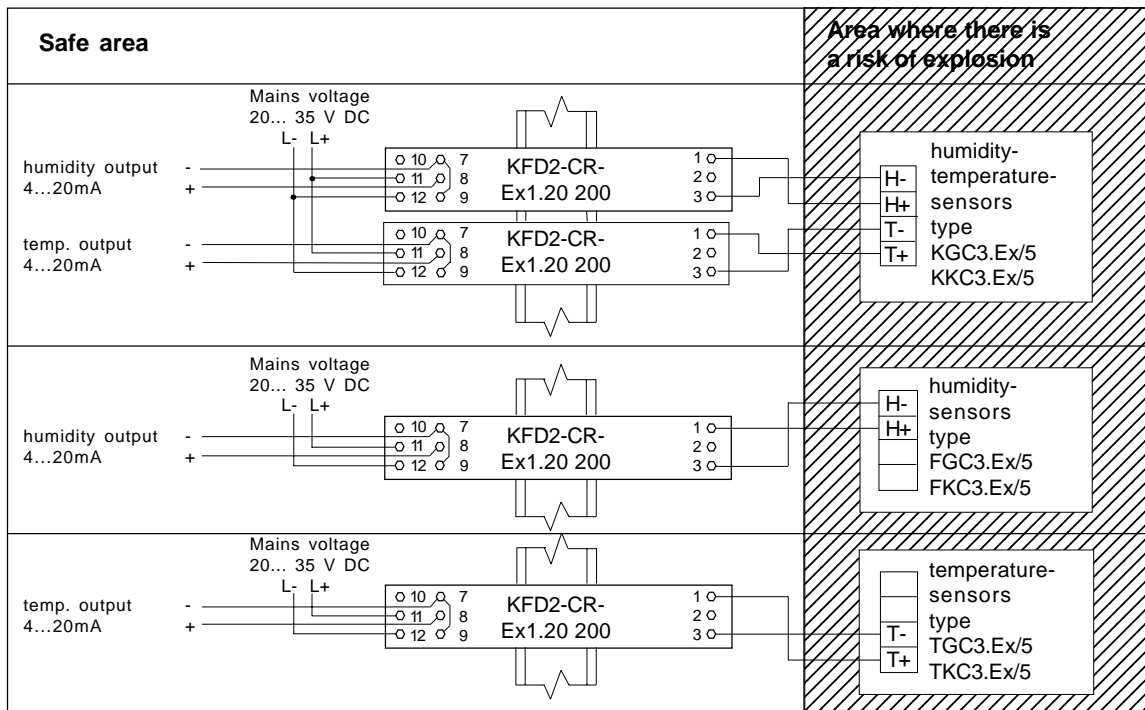
The sintered protective cage can be carefully unscrewed and washed out if too much dust accumulates.

Loose dirt can also be removed from the measuring element by blowing or carefully flushing with distilled water.

The sintered protective cage should be in an absolutely dry condition when it is screwed on again in order to avoid measurement errors. It is important not to touch the highly sensitive sensor element in the process.

Further guidelines which you should observe when using humidity sensors with capacitive sensory elements can be obtained from **Application guidelines for the use of sensory elements** (product information no. A 1) or you can ask the manufacturer.

Connection diagrams



Dimensions

