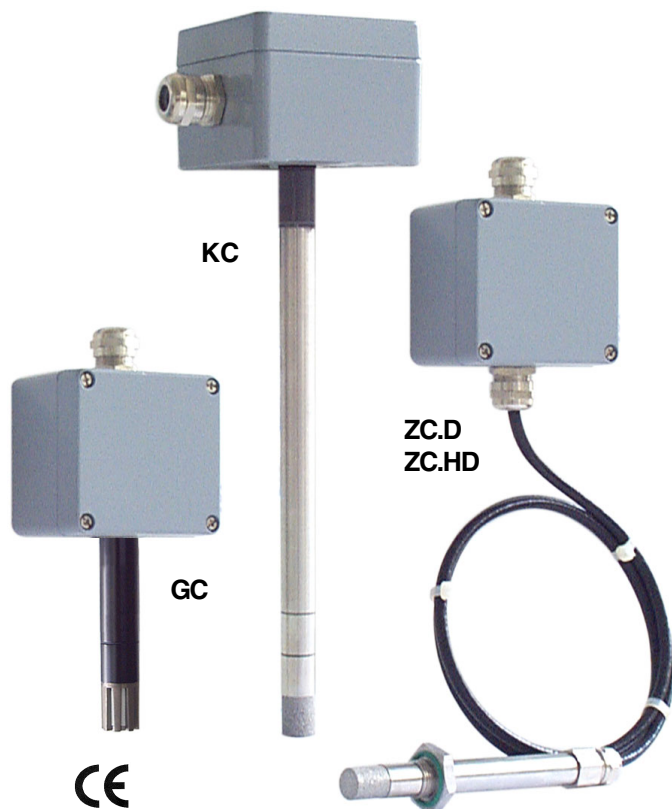




Product info sheet no. C 4.7
Humidity / temperature sensors
 for industrial applications up to 200°C, up to 25 bar



Description

The humidity/-temperature sensors of these series are supplied with a robust aluminium die cast housing with a inox or aluminium sensor part to measure relative humidity or relative humidity and temperature in air and other non-aggressive gases for an working temperature range of up to 200°C.

The pressure-proof executions „D“ and „HD“ can be used at pressures up to 25 bar, at temperatures up to 125°C and up to 160°C. These sensors are ideally suited for industrial applications, e. g. in drying processes.

Use of capacitive humidity sensor elements is a guarantee of:

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

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 s

Temperature

Measuring element (DIN EN 60751) Pt 100 class B
 Measuring range Series GCx/5 -20...+80°C
 Series ZCx/5, ZCx.D/6, KCx/5 -25...+125°C
 Series ZCx.H/6, ZCx.HD/6 0...+200°C
 Accuracy: Output: 0...10 V ±0.2 K
 Output: 4...20 mA ±0.3 K
 at <10°C, >40°C ±0.007K/K additional

Other data

Ambient temperature
 Transmitter part (Alu.-housing 80x75x57) -40...+80°C
 Sensor part, Series GC -40...+80°C
 Series ZC, KC, ZC.D -40...+125°C
 Series ZC.HD -40...+160°C
 Series ZC.H -60...+200°C
 Operating voltage, Current output 12...30V DC
 Voltage output 24V±10% AC/DC
 Degree of protection
 Transmitter part IP 64
 Sensor part..... IP 40

Housing material

Sensor part (except GC series) highgrade steel
 Sensor part GC series Aluminium
 Transformer part pressure die casting of alu

Load resistance (voltage output) ≥10kΩ
 Power consumption (voltage output) ca. 5mA
 Electromagnetic compatibility
 Emitted interference EN 55011 Kl.B
 Noise immunity EN 50082-2
 „subject to technical modifications“

Type versions (Order designation)

Measured variable	Analogue output	GC series wall-mounted	KC series duct-mounted	ZC series two-piece
F rel. humidity	0...20 mA	FGC 4/5	FKC 4/5	FZC 4/5
	4...20 mA	FGC 3/5	FKC 3/5	FZC 3/5
	0...10 V	FGC 2/5	FKC 2/5	FZC 2/5
C r.h. + Temp.	0...20 mA, Pt100	CGC 4/5	CKC 4/5	CZC 4/5
	4...20 mA, Pt100	CGC 3/5	CKC 3/5	CZC 3/5
	0...10 V, Pt100	CGC 2/5	CKC 2/5	CZC 2/5
K r.h. + Temp.	2 x 4...20 mA	KGC 3/5	KKC 3/5	KZC 3/5
	2 x 0...10 V	KGC 2/5	KKC 2/5	KZC 2/5
T Temperature	Pt 100	TGC 5/5	TKC 5/5	
	4...20 mA	TGC 3/5	TKC 3/5	
	0...10 V	TGC 2/5	TKC 2/5	
Weight (approx.)		380 g	470 g	500 g

Measuring unit	Analogue output	ZC.D series 25 bar	ZC.H series 200°C	ZC.HD series 25bar, 160°C
F rel. humidity	0...20 mA	FZC 4.D/6	FZC 4.H/6	FZC 4.HD/6
	4...20 mA	FZC 3.D/6	FZC 3.H/6	FZC 3.HD/6
	0...10 V	FZC 2.D/6	FZC 2.H/6	FZC 2.HD/6
C r.h. + temp.	0...20 mA, Pt100	CZC 4.D/6	CZC 4.H/6	CZC 4.HD/6
	4...20 mA, Pt100	CZC 3.D/6	CZC 3.H/6	CZC 3.HD/6
	0...10 V, Pt100	CZC 2.D/6	CZC 2.H/6	CZC 2.HD/6
K r.h. + temp.	2 x 4...20 mA	KZC 3.D/6	KZC 3.H/6	KZC 3.HD/6
	2 x 0...10 V	KZC 2.D/6	KZC 2.H/6	KZC 2.HD/6
Weight (approx.)		520 g	520 g	520 g

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 : June 2004 valid until 31.12.2005 C47_E. Subject to modifications, current version available at www.galltec.de. This issue supersedes all previous technical leaflets.

User instructions

Install the humidity/temperature sensors in a place where characteristic climatic conditions can be measured. We recommend to use the **ZA 22-type mounting plate** (product info sheet no. F 5.1) for wall or duct-mounting.

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 to use a screened cable (**type recommended: 8x AWG 26 C UL, order no. 5339**) for connecting the sensors, and have this fitted into the sensor's EMC heavy-gauge conduit thread by a qualified electrician.

In order to check functioning in the place of installation, we recommend that you use the **ZE 31/1-type humidity standard** with a **ZE 33-type auxiliary adapter** (product info sheet no. F 5.2). Dust does not cause any harm to the humidity sensor, however, it does affect dynamic performance. If there is an excessive build-up of dust, carefully unscrew the sintered protective basket and rinse it out. Loose dirt can also be removed from the measuring element by blowing it off or by rinsing it carefully with distilled water. In order to avoid corrupted measurement readings, only screw the sintered protective basket back on when it is completely dry. Do not touch the highly sensitive sensor element.

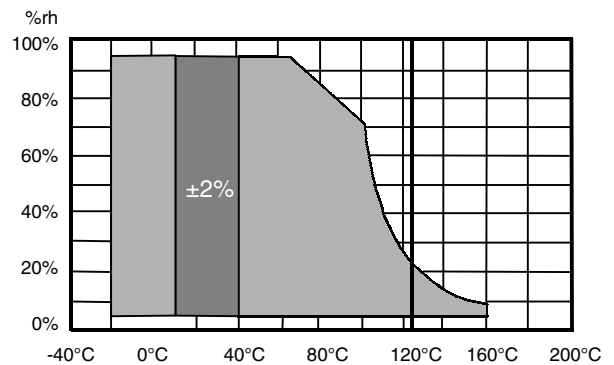
Please consult the **application instructions** for the sensing elements (product info sheet no. A 1) or check with

the manufacturer for further information which you need to bear in mind when using humidity sensors with capacitive sensing elements.

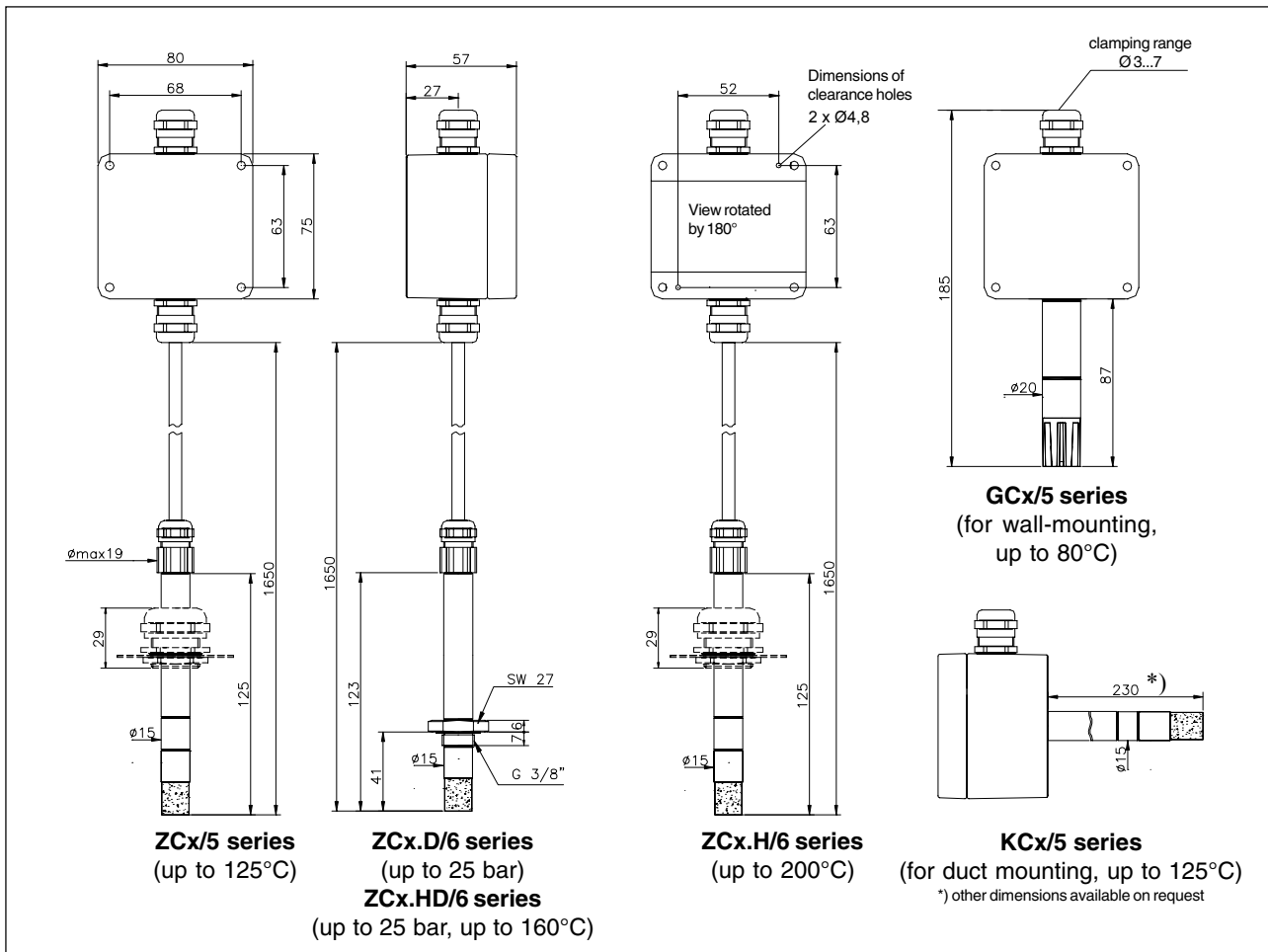
Caution!! When you install the pressure-proof sensors (series ZC.D and ZC.HD), do not apply a torque in excess of 25 Nm.

Sensors with voltage output have no galvanic separation between output and operating voltage at the negative pole. The humidity output and temperature output of sensors with current output are always galvanically separated from each other.

Tolerance validity range for humidity



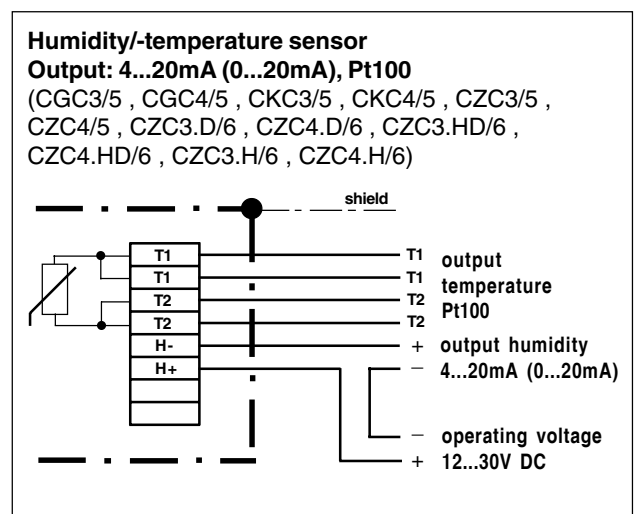
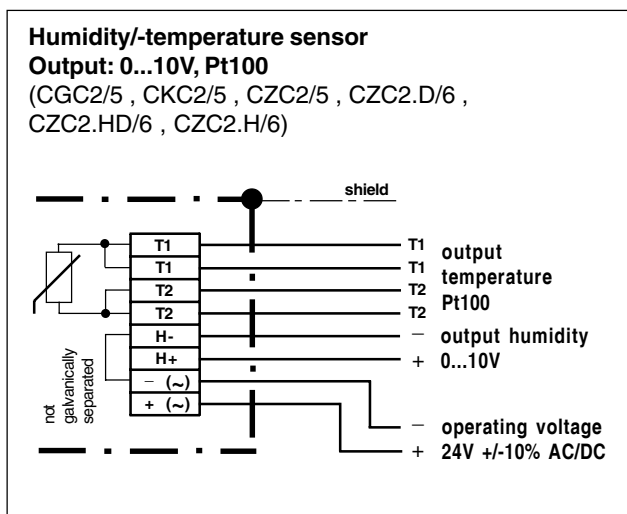
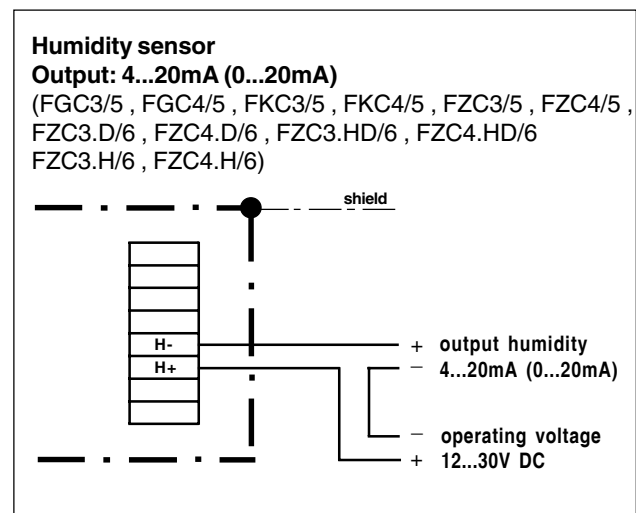
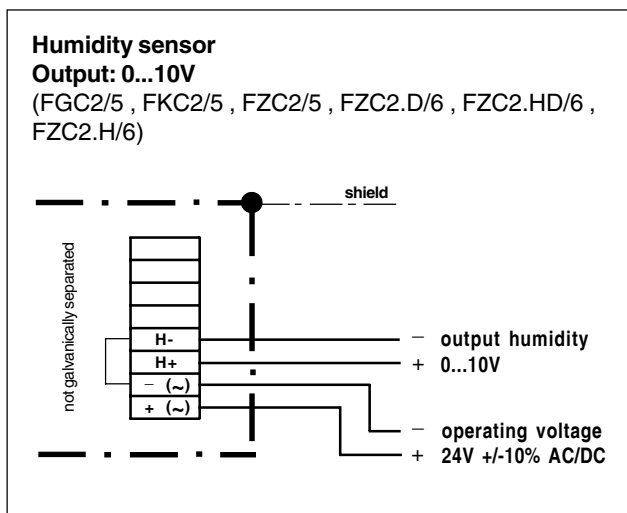
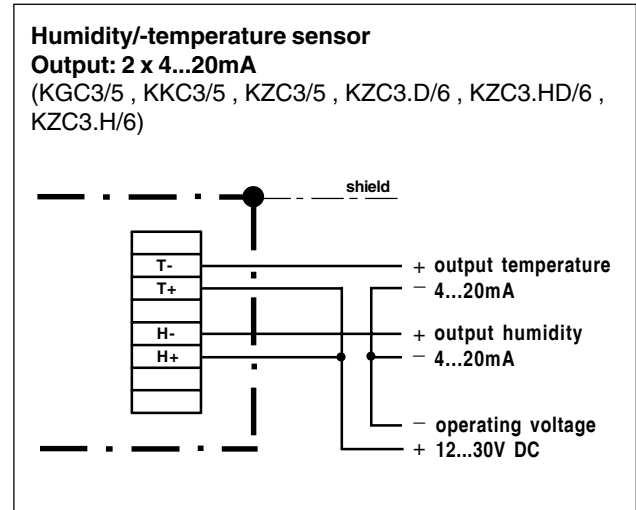
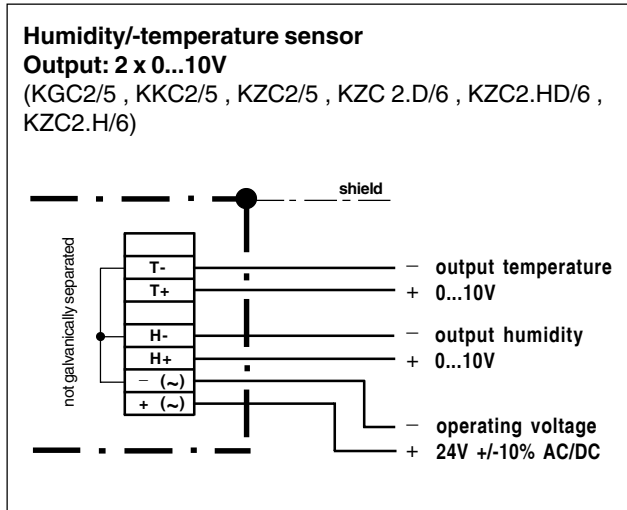
Dimensions



Connection diagram

Humidity/-temperature sensors

for industrial applications up to 200°C, up to 25 bar



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