Product Catalogue

Humidity & temperature measurement technology - *high quality*

EN | 2024

Galltec +mela

Relative humidity has always been an important factor for the health of humans, animals and plants. We experience relative humidity daily, often without knowing it.

Relative humidity plays an important role in not only the comfort of humans, but also the condition of many goods.

In many manufacturing processes, products require the correct relative humidity to retain their desired properties.








Humidity and temperature transmitters Transmitter with 0...1 V 0...10 V 4...20 mA Modbus RTU	Economical transmitters	HVAC, for use in moderate industrial conditions	6
	All-rounder transmitters	hx converter, display, USB exchangeable measuring head, modular design, outdoor, weather-proof stainless steel	28
	Heavy duty transmitters	Compact sensor up to 80 °C, ATEX, IP 66, IP 65, hx converter, display, Modbus, operating temperature up to 200 °C, pressure-resistant up to 25 bar, ammonia-resistant	92
	POLYGA® Universal transmitters	High accuracy in the high humidity range, long term stability, robust, washable measuring element	148
Controller Humidistats and hygro-thermostats for controlling and monitoring relative humidity and temperature	POLYGA® humidistats	No external power supply required, long term stability, robust	156
	Electronic humidistats and hygro-thermostats	Two individually configurable relays and two continuous signal outputs to monitor humidity and temperature	166
	Condensation controllers	Prevent damage due to condensation or high relative humidity, with analogue output or with switching output	176
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Types

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The economical L series transmitters are primarily optimised for ambient room conditions. They are very well suited to help control energy costs in HVAC and building automation applications.

Thanks to their high quality manufacturing, these transmitters can also be used in moderate industrial conditions.

L series

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Swimming pools & spas
- Storage & logistics
- Agriculture & food industry
- Bakery technology
- Semi-industrial applications
- Paper & print
- Electric control systems & switchboard cabinets

BUS IP65 80°C

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±3 % RH 30...80 % RH
Temperature measurement	
Sensor element	
active output	Semiconductor
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C
	0 ... +100 °C
	-20 ... +80 °C
	-30 ... +70 °C
	-40 ... +60 °C
RS232 or Modbus	-40 ... +85 °C
Accuracy at 10...40 °C	±0.8 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC / 24 V AC ±10 %
0...10 V	13 ... 30 V DC / 24 V AC ±10 %
4...20 mA	12 ... 30 V DC (LW, LK)
RS232, Modbus	6 ... 30 V DC (LW, LK)

L series

In this series

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH

Options

- IP 65
- Modbus
- Vibration-resistant
- Sealing for increased requirements

Humidity sensor or humidity temperature sensor

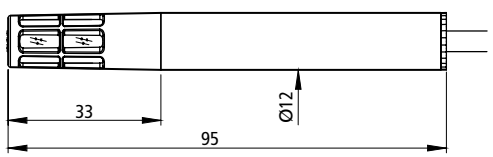
Price €	LP	LI	LW	LK
1 x output	97.25	76.17	117.72	117.72
2 x outputs	107.46	86.44	127.93	127.93
			MODBUS	MODBUS
	80 °C	60 °C	80 °C	80 °C
Connector, 6-pole	11.38			
protective basket	standard		standard	standard
with membrane	5.10		5.10	5.10
PTFE-Filter ZE05	18.75 IP65		18.75 IP65	18.75 IP65

Temperature sensors with passive output

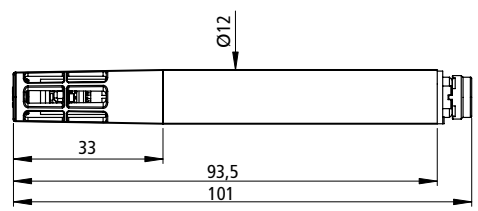
Price €	LP	LI	LW	LK
Temperature passive	37.39	25.30	41.55	41.55

Probe LP

with cable connection

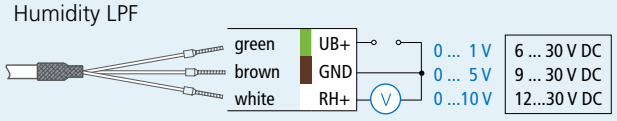


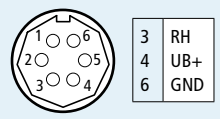
with plug-in connection



Connection diagrams

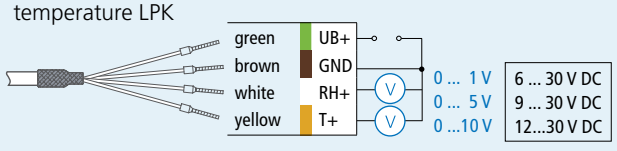
Humidity LPF

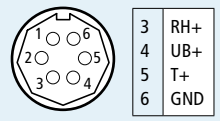




3	RH
4	UB+
6	GND

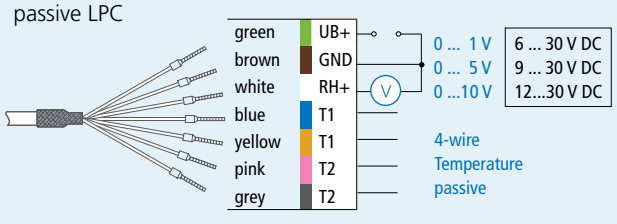
Humidity and temperature LPK

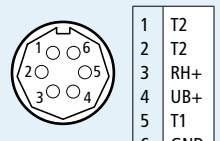




3	RH+
4	UB+
5	T+
6	GND

Humidity and temperature passive LPC





1	T2
2	T2
3	RH+
4	UB+
5	T1
6	GND

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±3 % RH 30...80 % RH ±5 % RH remaining range

Temperature measurement

Sensor element	
active output	Semiconductor
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C 0 ... +100 °C -20 ... +80 °C -30 ... +70 °C -40 ... +60 °C
Accuracy at 10...40 °C	±0.8 K

Electrical specifications

Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC
0...10 V	12 ... 30 V DC

General

Housing	Material: PC, IP 65
Storage temperature	-40...+85 °C
Operating temperature	-30...+80 °C
Measuring head	Degree of protection
Plastic protective basket ZE07	IP 20
Plastic with membrane ZE08	IP 30
Sintered filter fine pore PTFE ZE05	IP 65

Special features

Vibration-resistant	Optional
Sealing for increased requirements	Optional

L series LP

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH

Options

- IP 65
- Vibration-resistant
- Sealing for increased requirements

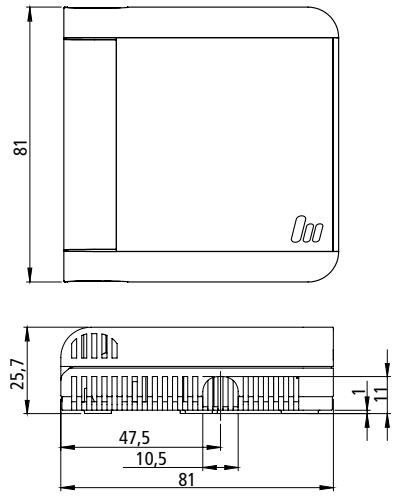
More information on the analogue L series datasheet online PDF

More information on the digital L series datasheet online PDF

Type overview	Type		Price €	Standard
Humidity	**LPF**	1 x U output	97.25	1.5 m cable and protective basket ZE07
Humidity + temperature	**LPK**	2 x U outputs	107.46	
Humidity + Pt100	**LPC**	1 x U output + (passive)	107.46	
Temperature	**LPT**		97.25	
Temperature passive	**LPT5**	1 x U output	37.39	

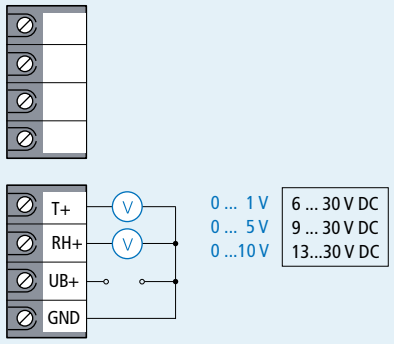
Options	Surcharge €
Connector, 6-pole	11.37
Membrane filters ZE08	5.10
PTFE filter ZE05	18.75

Indoor LI

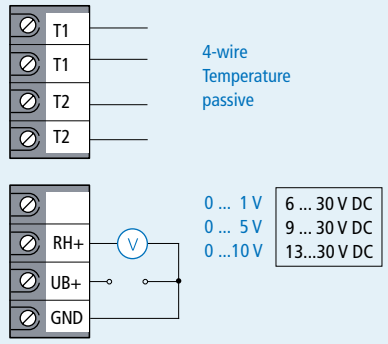


Connection diagrams

Humidity and temperature LIK



Humidity and temperature passive LIC



Type overview	Type		Price €
Humidity	**LIF**	1 x U output	76.17
Humidity + temperature	**LIK**	2 x U outputs	86.44
Humidity + Pt100	**LIC**	1 x U output + (passive)	86.44
Temperature	**LIT**	1 x U output	76.17
Temperature passive	**LIT5**		25.30

Relative humidity measurement	
Measuring/sensor element	capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±3 % RH 30...80 % RH ±5 % RH remaining range
Temperature measurement	
Sensor element	
active output	Semiconductor, MELA®
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C 0 ... +100 °C -20 ... +80 °C -30 ... +70 °C -40 ... +60 °C
Accuracy at 10...40 °C	±0.8 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC
0...10 V	13 ... 30 V DC / 24 V AC ±10 %
General	
Housing	Material: ABS (white), IP 30
Storage temperature	-40...+85 °C
Operating temperature	-20...+60 °C

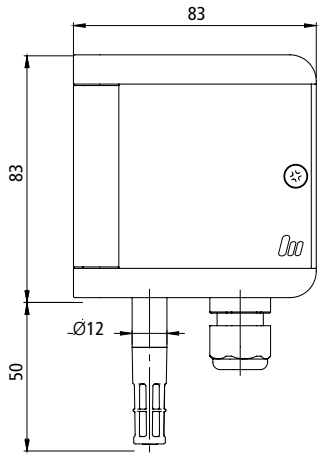
L series LI

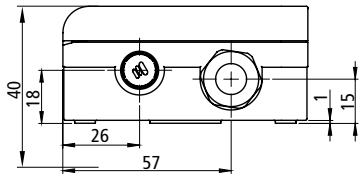
- Operating temp. up to 60 °C
- Accuracy: ±3 % RH

More information on the analogue L series datasheet online PDF

More information on the digital L series datasheet online PDF

Wall mounted LW





Type overview	Type		Price €	Standard
Humidity	**LWF**	1 x output	117.72	plastic protective basket ZE07
Humidity + temperature	**LWK**	2 x outputs	127.93	
Humidity + Pt100	**LWC**	1 x output + (passiv)	127.93	
Temperature	**LWT**	1 x output	117.72	
Temperature passiv	**LWT5**		41.55	
Humidity + temperature	**LWKR**	Output RS232	127.93	
Humidity + temperature	**LWKM**	Output RS485 Modbus	127.93	

Filter options	Type	IP	Surcharge €
Plastic protective basket ZE07	ZE07	IP 20	Standard
Plastic filter with membrane ZE08	ZE08	IP 40	5.10
Fine pore PTFE sintered filter ZE05	ZE05	IP 65	18.75

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±3 % RH 30...80 % RH ±5 % RH remaining range

Temperature measurement	
Sensor element	
active output	Semiconductor
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C
	0 ... +100 °C
	-20 ... +80 °C
	-30 ... +70 °C
	-40 ... +60 °C
RS232 or Modbus	-40 ... +85 °C
Accuracy at 10...40 °C	±0.8 K

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC
0...10 V	13 ... 30 V DC / 24 V AC ±10 %
4 ... 20 mA	12 ... 30 V DC
RS232, RS485 Modbus	6 ... 30 V DC

General	
Housing	Material: PC, IP 65
Storage temperature	-40...+85 °C
Operating temperature	-30...+80 °C
Measuring head	Degree of protection
Plastic protective basket ZE07	IP 20
Plastic with membrane ZE08	IP 30
Sintered filter fine pore PTFE ZE05	IP 65

Special features	
Vibration-resistant	Optional
Sealing for increased requirements	Optional

L series LW

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH

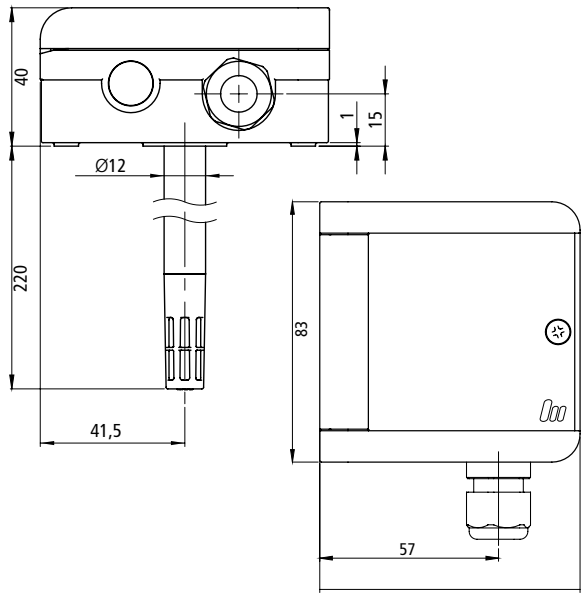
Options

- IP 65
- Modbus
- Vibration-resistant
- Sealing for increased requirements

More information on the analogue L series datasheet online PDF

More information on the digital L series datasheet online PDF

Duct mounted LK



Type overview	Type		Price €	Standard
Humidity	**LKF**	1 x output	117.72	plastic protective basket ZE07
Humidity + temperature	**LKK**	2 x outputs	127.93	
Humidity + Pt100	**LKC**	1 x output + (passiv)	127.93	
Temperature	**LKT**	1 x output	117.72	
Temperature passiv	**LKT5**		41.55	
Humidity + temperature	**LKKR**	Output RS232	127.93	
Humidity + temperature	**LKKM**	Output RS485 Modbus	127.93	

Filter options	Type	IP	Surcharge €
Plastic protective basket ZE07	ZE07	IP 20	Standard
Plastic filter with membrane ZE08	ZE08	IP 40	5.10
Fine pore PTFE sintered filter ZE05	ZE05	IP 65	18.75

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±3 % RH 30...80 % RH ±5 % RH remaining range

Temperature measurement	
Sensor element	
active output	Semiconductor
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C
	0 ... +100 °C
	-20 ... +80 °C
	-30 ... +70 °C
	-40 ... +60 °C
RS232 or Modbus	-40 ... +85 °C
Accuracy at 10...40 °C	±0.8 K

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC
0...10 V	13 ... 30 V DC / 24 V AC ±10 %
4 ... 20 mA	12 ... 30 V DC
RS232, RS485 Modbus	6 ... 30 V DC

General	
Housing	Material: PC, IP 65
Storage temperature	-40...+85 °C
Operating temperature	-30...+80 °C
Measuring head	Degree of protection
Plastic protective basket ZE07	IP 20
Plastic with membrane ZE08	IP 30
Sintered filter fine pore PTFE ZE05	IP 65

Special features	
Vibration-resistant	Optional
Sealing for increased requirements	Optional

L series LK

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH

Options

- IP 65
- Modbus
- Vibration-resistant
- Sealing for increased requirements

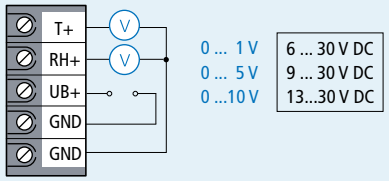
More information on the analogue L series datasheet online PDF

More information on the digital L series datasheet online PDF

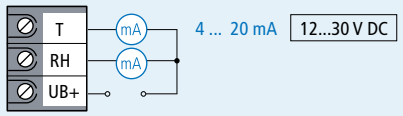
Wall mounted LW and duct mounted LK

Connection diagrams

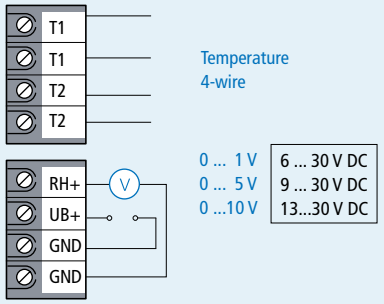
Humidity and temperature LWK



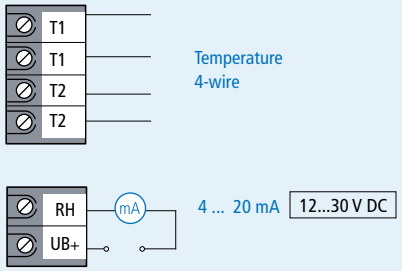
Humidity and temperature LWK



Humidity and temperature passive LWC



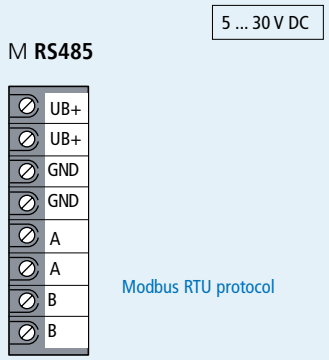
Humidity and temperature passive LWC



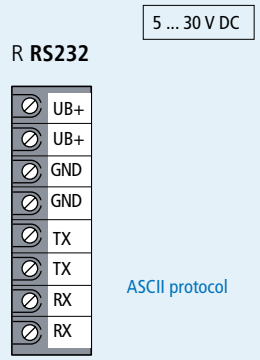
Wall mounted LW and duct mounted LK digital

Connection diagrams digital

M **RS485**

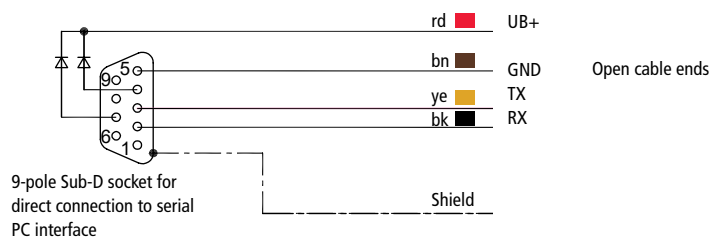


R **RS232**



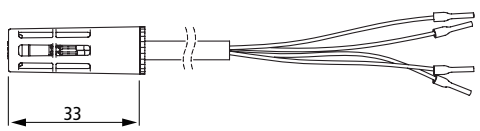
Pin assignment cable accessories

RS232

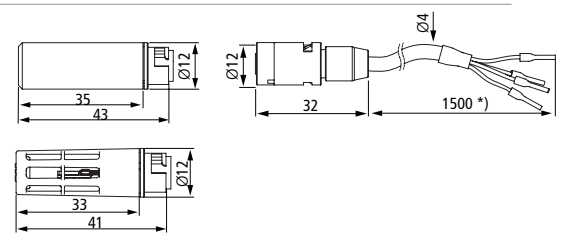


Miniature sensor MCK

with cable connection

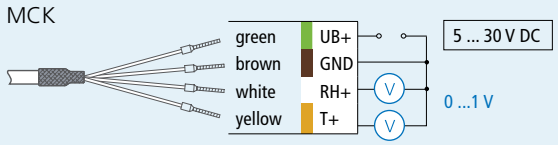


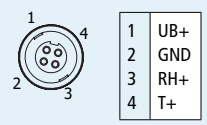
with plug-in connection



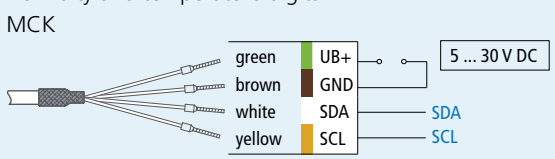
M series

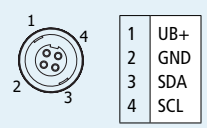
Humidity and temperature analogue
MCK





Humidity and temperature digital
MCK





Type overview	Type		Price €	Standard	Options	Surcharge €
Humidity + temperature	**MCK**	2 x outputs	54.59	1.5 m cable and protective basket ZE07	with membrane ZE08	5.10
Humidity + temperature	**MCK**	2 x outputs	47.21	Connector, 4-pole protective basket ZE07	with membrane ZE08	5.10
					PTFE filter ZE05	18.75

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10 ... 40 °C	±2.5 % RH 10...90 % RH ±5 % RH remaining range
Temperature measurement	
Sensor element	Semiconductor
Output ranges	0 ... +100 °C -20 ... +80 °C -30 ... +70 °C -40 ... +60 °C -40 ... +85 °C
Accuracy at 23 °C	±0.5 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	5...30 V DC
digital (similar to I²C)	5...30 V DC
General	
Measuring head	Degree of protection
Plastic protective basket ZE07	IP 20
Plastic with membrane ZE08	IP 30
Sintered filter fine pore PTFE ZE05	IP 65
Storage temperature	-40...+85 °C
Operating temperature	-40...+85 °C
with cable connection	-20...+70 °C
Special features	
Vibration-resistant	Optional
Sealing for increased requirements	Optional

M series

- Operating temp. up to 85 °C
- Accuracy: ±2.5 % RH
- IP 65
- Very small
- Digital (similar to I²C)

Accessories

Description	Price €
Cable for MCK, 1.5 m, ready to use with cable box	32.85
Cable for MCK, ready to use with cable box, IP 40, special lengths up to 3 m, additional charge on standard cable length	1.65
Option: Cable for MCK 1, firmly connected, in special lengths up to 5 m, surcharge on standard cable length	1.65

More information on the M series datasheet online PDF

Types

Probe	PL	p. 22
Duct mounted version	KL	p. 24
Indoor version	WL	p. 26

For use in air conditioning, building management systems and ventilation.

The Light series of sensors has been specially adapted to the needs of the ventilation and air conditioning sector. The KL and PL series come with gauze filters as standard. Filters for advanced requirements are also available.

Light series

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Swimming pools & spas
- Agriculture & food industry
- Bakery technology

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±3 % RH 40...60 % RH
Temperature measurement	
Sensor element	
active output	LM35, LM235
passive output	Pt100, Pt1000 (1/3 DIN) Ni1000, NTC 10 k, NTC 20 k LM235, KTY
Output range	0 ... +50 °C
Accuracy at 10...40 °C	±1 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	see type page
4...20 mA	see type page

Light series

In this series

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH

Humidity sensor or humidity temperature sensor

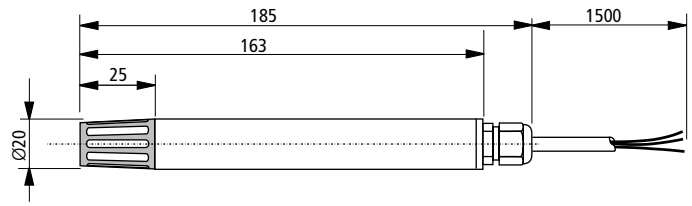
	PL	KL	WL
1 x U output	94.31	130.98	89.53
2 x U outputs	108.96	142.63	105.18
1 x I output	106.51	136.81	89.53
2 x I outputs	123.88	148.45	105.18
	80°C	80°C	60°C

Temperature sensor

U output	81.05	96.80	78.72
I output	87.10	96.80	78.72

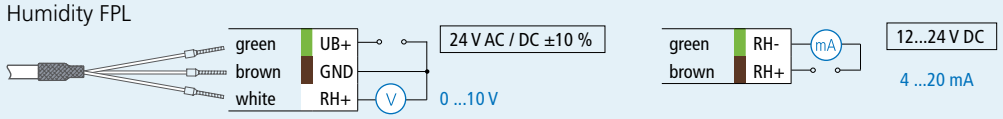
More information on the C2.6 datasheet online PDF

Probe PL

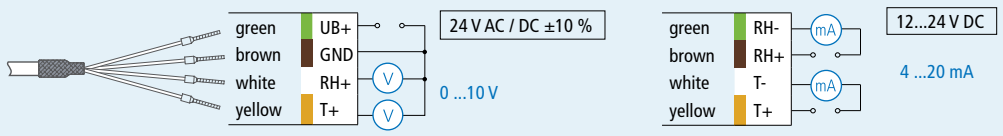


Connection diagrams

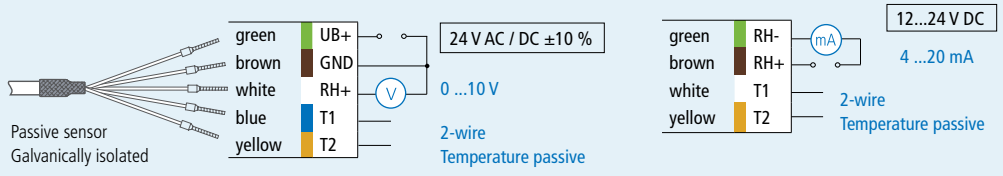
Humidity FPL



Humidity and temperature KPL



Humidity and temperature passive CPL



Type overview	Type		Price €	Standard
Humidity	**FPL**	1 x U output	94.31	PBT plastic filter, ZE17 light
Humidity + Temperature	**KPL**	2 x U outputs	108.96	
Humidity + Pt100	**CPL**	1 x U output + (passive)	108.96	
Temperature	**TPL**	1 x U output	81.05	
Humidity	**FPL**	1 x I output	106.51	PBT plastic filter, ZE17 light
Humidity + Temperature	**KPL**	2 x I outputs	123.88	
Humidity + Pt100	**CPL**	1 x I output + (passive)	123.88	
Temperature	**TPL**	1 x I output	87.10	

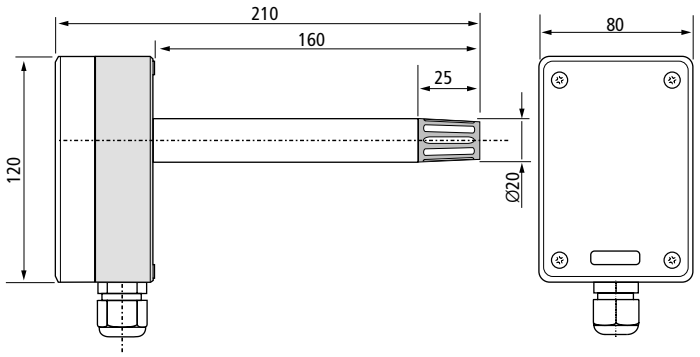
Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±3 % RH 40...60 % RH ±5 % RH remaining output range
Temperature measurement	
Sensor element	
active output	LM35, LM235
passive output	Pt100, Pt1000 (1/3 DIN) Ni1000, NTC 10 k, NTC 20 k LM235, KTY
Output ranges	0 ... +50 °C
passive	-20...+80 °C
Accuracy at 10...40 °C	±1 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	24 V AC / DC ±10 %
4...20 mA	12 … 24 V DC
General	
Sensor tube	Material: Aluminium, Ø 20 mm
Degree of protection	IP 30
Operating temperature	-20...+80 °C

Light series PL

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH
- Current outputs galvanically isolated

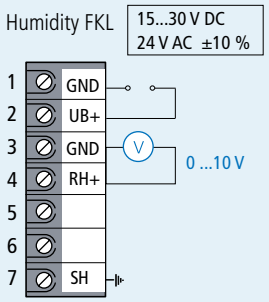
More information on the C2.6 datasheet online PDF

Duct mounted KL

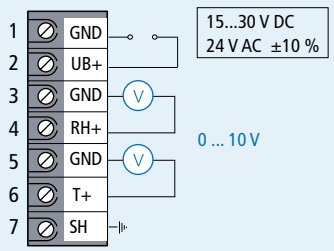


Connection diagrams

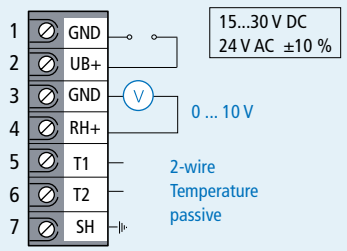
Humidity FKL

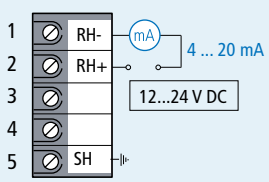


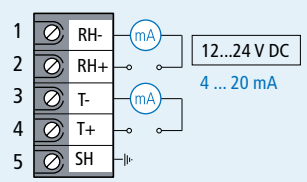
Humidity + temperature KKL



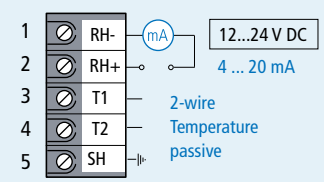
Humidity + temperature passive CKL







Galvanically isolated



Type overview	Type		Price €	Standard
Humidity	**FKL**	1 x U output	130.98	PBT plastic filter, ZE17 light
Humidity + Temperature	**KKL**	2 x U outputs	142.63	
Humidity + Pt100	**CKL**	1 x U output + (passive)	142.63	
Temperature	**TKL**	1 x U output	96.80	
Humidity	**FKL**	1 x I output	136.81	PBT plastic filter, ZE17 light
Humidity + Temperature	**KKL**	2 x I outputs	148.45	
Humidity + Pt100	**CKL**	1 x I output + (passive)	148.45	
Temperature	**TKL**	1 x I output	96.80	

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±3 % RH 40...60 % RH ±5 % RH remaining output range

Temperature measurement

Sensor element	
active output	LM35, LM235
passive output	Pt100, Pt1000 (1/3 DIN) Ni1000, NTC 10 k, NTC 20 k LM235, KTY
Output ranges	0 ... +50 °C
passive	-20 ... 80 °C
Accuracy at 10...40 °C	±1 K

Electrical specifications

Signal output	Supply voltage
0...10 V	15...30 V DC / 24 V AC ±10 %
4...20 mA	12 … 24 V DC (observe the load)

General

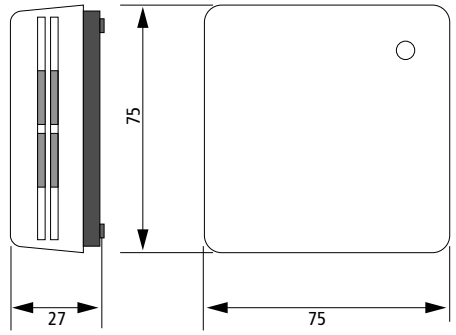
Housing	Material: ABS light grey, IP 54
Measuring head	
Degree of protection	IP 30
Operating temperature	-20...+80 °C

Light series KL

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH
- Current outputs galvanically isolated

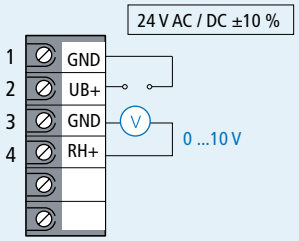
More information on the C2.6 datasheet online PDF

Indoor WL

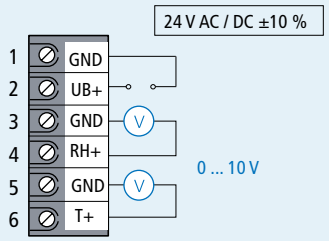


Connection diagrams

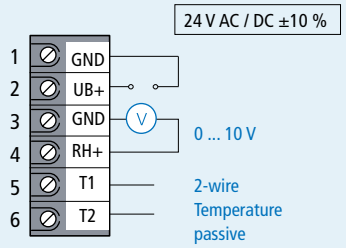
Humidity FWL

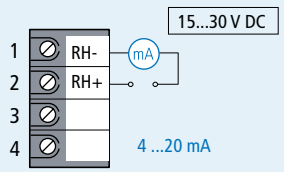


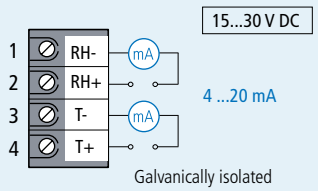
Humidity + temperature KWL



Humidity + temperature passive CWL







Type overview	Type		Price €
Humidity	**FWL**	1 x U output	89.53
Humidity + Temperature	**KWL**	2 x U outputs	105.18
Humidity + Pt100	**CWL**	1 x U output + (passive)	105.18
Temperature	**TWL**	1 x U output	78.72
Humidity	**FWL**	1 x I output	89.53
Humidity + Temperature	**KWL**	2 x I outputs	105.18
Temperature	**TWL**	1 x I output	78.72

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±3 % RH 40...60 % RH ±5 % RH remaining output range
Temperature measurement	
Sensor element	
active output	LM35, LM235
passive output	Pt100, Pt1000 (1/3 DIN) Ni1000, NTC 10 k, NTC 20 k LM235, KTY
Output ranges	0 ... +50 °C
passive	-20 ... 60 °C
Accuracy at 10...40 °C	±1 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	24 V AC / DC ±10 %
4...20 mA	15 ... 30 V DC (observe the load)
General	
Housing	Material: ABS light grey
Degree of protection	IP 20
Operating temperature	-20...+60 °C

Light series WL

- Operating temp. up to 60 °C
- Accuracy: ±3 % RH
- Current outputs galvanically isolated

More information on the C2.6 datasheet online PDF

Types

Indoor version	DI	p. 30
Wall mounted	DW	p. 32
Duct mounted version	DK	p. 34

Excellent transmitter - high accuracy and easy to install. The industrial versions DK and DW can be used at operating temperatures between -30 to 80 °C.

The integrated hx processor uses the values for relative humidity and temperature to calculate the dew point, enthalpy, mixing ratio, absolute humidity or wet bulb temperature.

Depending on customer preferences, any two of these values can be captured at two analogue outputs using standardised signals.

D series

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Swimming pools & spas
- Storage & transportation
- Cooling & air conditioning in trains
- Ship containers
- Warehousing
- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Greenhouses
- Storage and transport of fruit, vegetables & meat
- Wine cabinets
- Drying of tea, grain & meat
- Energy & environment

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy /10...40 °C up to	±2 % RH at 10...90 % RH
Temperature measurement	
Sensor element	Pt1000 1/3 DIN
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Accuracy at 10...40 °C with voltage output with current output	 ±0.2 K ±0.3 K
hx converter for derived humidity variables	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output 0...1 V 0...10 V 4...20 mA	Supply voltage 6 ... 30 V DC / 6 ... 26 V AC 15 ... 30 V DC / 13 ... 26 V AC 10 ... 30 V DC

D series

In this series

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- On-site calibration
- Electronics based on micro controller
- Easy to install

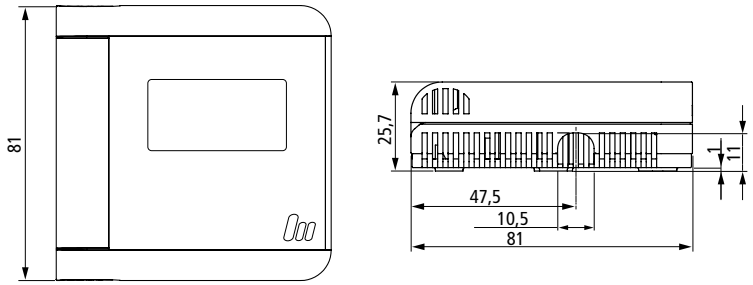
Options

- Display
- IP 65
- Output variables can be freely configured via USB port
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

Humidity sensor or humidity temperature sensor

	Price € DI	Price € DW	Price € DK
1 x output	148.95	199.00	199.00
2 x outputs	164.93	221.73	221.73
PTFE filter ZE05		13.65 IP65	13.65 IP65
USB port		9.10 USB	9.10 USB
Display	22.75	22.75	22.75
Special length sensor tube 48 or 140 mm			10.21
Accuracy	±2.5 % RH	±2 % RH	±2 % RH
Operating temperature	60 °C	80 °C	80 °C
Hx converter		hx	hx

Indoor DI

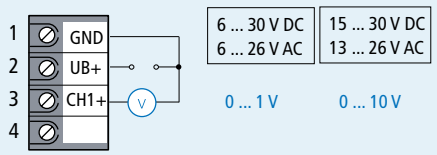


Applications

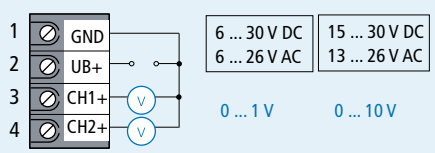
- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Storage & transport
- Cooling & air conditioning in trains
- Ship containers
- Storage and transport of fruit, vegetables & meat
- Wine cabinets
- Drying of tea, grain & meat
- Energy & environment

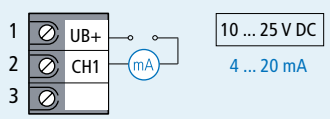
Connection diagrams

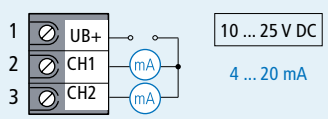
Humidity DIF



Humidity and temperature DIK







Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±2.5 % RH at 40...60 % RH ±3 % RH remaining range
Temperature measurement	
Sensor element	Pt1000
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Accuracy at 10...40 °C with voltage output with current output	 ±0.25 K ±0.4 K
Electrical specifications	
Signal output 0...1 V 0...10 V 4...20 mA	Supply voltage 6 ... 30 V DC / 6 ... 26 V AC 15 ... 30 V DC / 13 ... 26 V AC 10 ... 25 V DC
General	
Housing Storage temperature Operating temperature	Material: ABS, signal white, IP 30 -40...+85 °C -30...+60 °C
Special features	
Micro controller based	Yes
2-line digital display	Optional
Integrated measuring chamber	Yes
Installation	Clip-in cover: Transmitter electronics in the upper section, no tools required to mount and secure

D series DI

- Operating temp. up to 60 °C
- Accuracy: ±2.5 % RH
- Electronics based on micro controller
- Easy to install

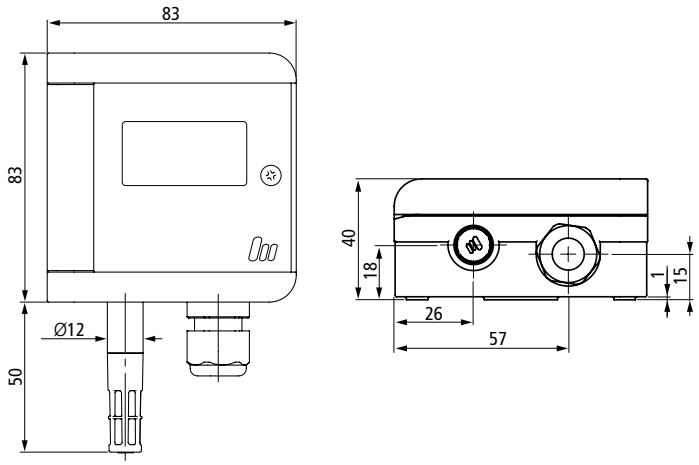
Options

- Display

Type overview	Type		Price €	Options	
Humidity	**DIF**	1 x output	148.95	Display	22.75
Humidity + temperature	**DIK**	2 x outputs	164.93		

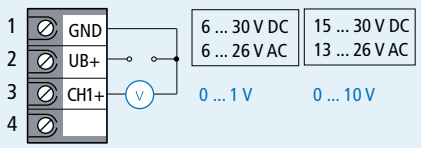
More information on the DI datasheet online PDF

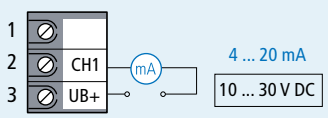
Wall mounted DW



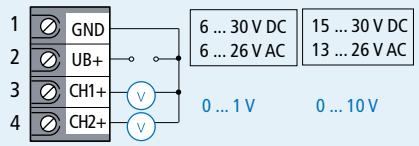
Connection diagrams

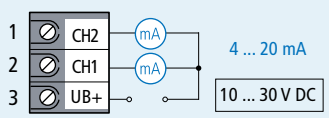
Humidity DWF





Humidity and temperature DWK





Type overview	Type		Price €	Standard
Humidity	**DWF**	1 x output	199.00	Membrane filter ZE08
Humidity + temperature	**DWK**	2 x outputs	221.73	

Options	Surcharge €
Display	22.75
PTFE filter ZE05	13.65

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±2 % RH at 10...90 % RH ±2.5 % RH remaining range

Temperature measurement

Sensor element	Pt1000
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Accuracy at 10...40 °C	
with voltage output	±0.2 K
with current output	±0.3 K

hx converter for derived humidity variables

Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications

Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6 ... 26 V AC
0...10 V	15 ... 30 V DC / 13 ... 26 V AC
4...20 mA	10 ... 30 V DC

General

Housing	Material: PC, IP 65
Operating temperature	Storage: -40...+85 °C
with display	Operating: -30...+80 °C
without display	Operating: -40...+80 °C
Measuring head	Degree of protection
with membrane filter ZE08	IP 30
with PTFE sintered filter ZE05	IP 65

Special features

Micro controller based	Yes
2-line digital display	Optional

Output variables can be freely configured via USB port

D series DW

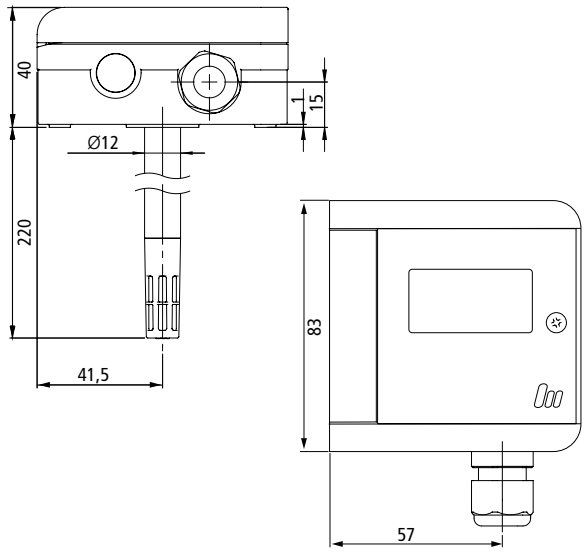
- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Output variables can be freely configured via USB port
- On-site calibration
- Electronics based on micro controller
- Easy to install

Options

- Display
- IP 65
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

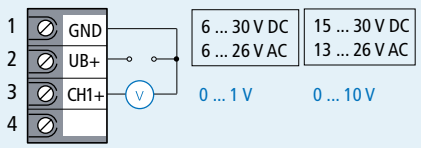
More information on the DW datasheet online PDF

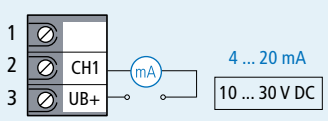
Duct mounted DK



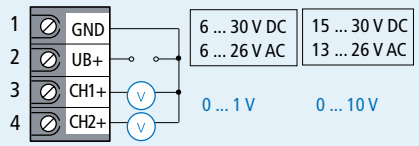
Connection diagrams

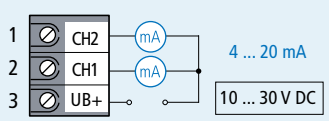
Humidity DKF





Humidity and temperature DKK





Type overview	Type		Price €	Standard
Humidity	**DKF**	1 x output	199.00	Membrane filter ZE08
Humidity + temperature	**DKK**	2 x outputs	221.73	

Options	Surcharge €
Display	22.75
PTFE filter ZE05	13.65

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±2 % RH at 10...90 % RH ±2.5 % RH remaining range

Temperature measurement

Sensor element	Pt1000
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Accuracy at 10...40 °C	
with voltage output	±0.2 K
with current output	±0.3 K

hx converter for derived humidity variables

Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications

Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6 ... 26 V AC
0...10 V	15 ... 30 V DC / 13 ... 26 V AC
4...20 mA	10 ... 30 V DC

General

Housing	Material: PC, IP 65
Operating temperature	Storage: -40...+85 °C
with display	Operating: -30...+80 °C
without display	Operating: -40...+80 °C
Measuring head	Degree of protection
with membrane filter ZE08	IP 30
with PTFE sintered filter ZE05	IP 65

Special features

Micro controller based	Yes
2-line digital display	Optional
Mounting flange	Included

Output variables can be freely configured via USB port

D series DK

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Output variables can be freely configured via USB port
- On-site calibration
- Electronics based on micro controller
- Easy to install

Options

- Display
- IP 65
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

More information on the DK datasheet online PDF

Types

Module system p. 38
Probe versions p. 41

Excellent transmitter - high accuracy and easy to install. The transmitters can be designed for customer-specific measurement tasks and optimally configured via USB.

The probe and transmitter can be used in any combination. This makes them suitable for many installation situations and applications.

Some models in this series are temperature-resistant up to 125 °C. All models can be supplied with an IP 65 safety category.

DZK series

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Swimming pools & spas
- Storage & transportation
- Cooling & air conditioning in trains
- Ship containers
- Warehousing
- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Greenhouses
- Storage and transport of fruit, vegetables & meat
- Wine cabinets
- Drying of tea, grain & meat
- Energy & environment

USB hx IP65 85°C 125°C

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 25 °C	±2 % RH at 10...90 % RH
Temperature measurement	
Sensor element	Band gap
Output ranges	0 ... +50 °C
	0 ... +100 °C
	-30 ... +70 °C
High temperature	-40 ... +125 °C
Accuracy at 5...60 °C	≤± 0.35 K
hx converter for derived humidity variables	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
	0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output	Supply voltage
0...10 V	15 ... 30 V DC / 13 ... 26 V AC
4...20 mA	10 ... 30 V DC

DZK

In this series

- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- On-site calibration
- Easy to install

Options

- IP 65
- Display
- Plug-in connection
- Interchangeable sensor part
- 4 probe lengths
- Cable up to 25 m
- Output variables can be freely configured via USB port
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

Humidity sensor or humidity temperature sensor

	Price €
Transmitters	209.25
Probes up to 85 °C	52.31
Probes up to 125 °C + PTFE filter	77.33
PTFE filter	13.65 IP65
Display	22.75
Cable connectable at both ends	28.41
Operating temperature	85 °C 125 °C
Hx converter	hx
USB port	9.10 USB

DZK transmitters...

80°C IP65

Standard:

Membrane filter IP 30
85°C

Option:

PTFE sintered filter IP 65
125°C IP65

Transmitter with plug-in probe

IP 30

Probe -40…+ 85 °C
with membrane filter IP 30
Option: PTFE sintered filter (IP 65)

85°C IP65

Transmitter with remote probe with cable connectable at both ends

IP 30

Cable -40…+80 °C, 2 m
Probe -40…+85 °C
with membrane filter IP 30
Option: PTFE sintered filter (IP 65)

85°C IP65

Transmitter with probe with cable connected cable box

IP 30

Cable -40…+80 °C, 2 m
Probe -40…+85 °C
with membrane filter IP 30
Option: PTFE sintered filter (IP 65)

85°C IP65

Transmitter with probe with cable connected cable box

IP 65

High temperature version

Cable -40...+125 °C, 2 m
Probe -40...+125 °C
with PTFE sintered filter IP 65

125°C IP65

DZK

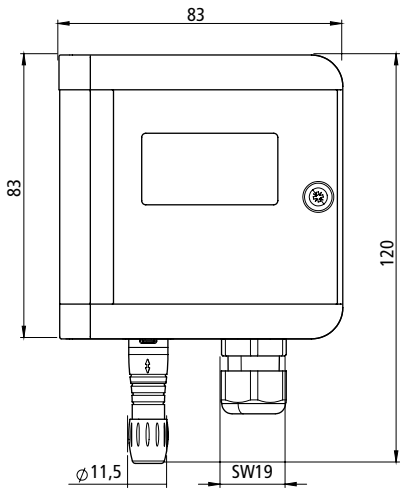
In this series

- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- On-site calibration
- Easy to install

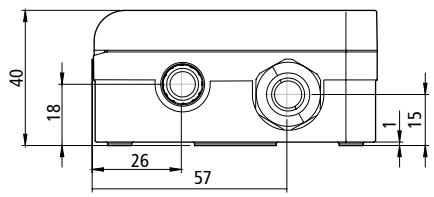
Options

- IP 65
- Display
- Plug-in connection
- Interchangeable sensor part
- 4 probe lengths
- Cable up to 25 m
- Output variables can be freely configured via USB port
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

DZK transmitters

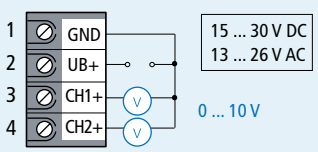


with plug-in connection

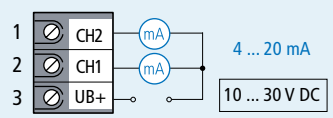


Connection diagrams

Humidity and temperature



Humidity and temperature



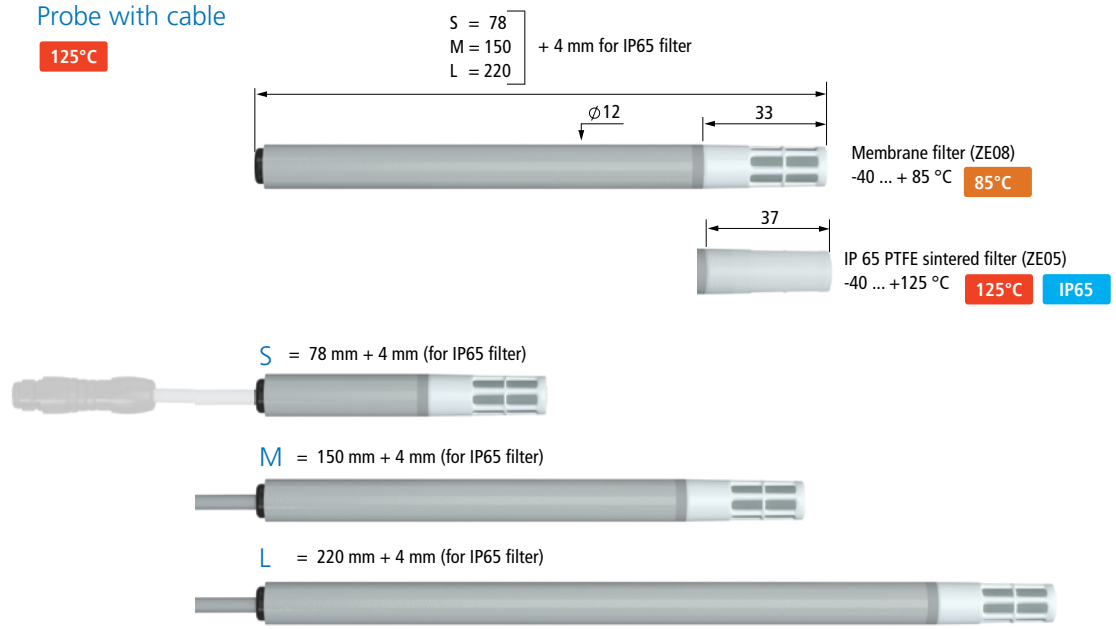
Optional: DZK transmitter with cable connected probe (firmly)

Standard version	High temperature version
233.11	258.13
IP 30  85 °C IP65 Cable max. 80 °C Probe -40... 85 °C, IP 30 Option: IP 65 with PTFE sintered filter DZK in wall mounting enclosure without display Choice of 3 probe lengths S, M, L with membrane filter (ZE 08) IP 30 Option: PTFE sintered filter (ZE05) IP 65	IP 65  125°C IP65 Cable -40...+125 °C 2 m (up to 25 m poss.) Probe -40...+125 °C with PTFE sintered filter IP 65 DZK in wall mounting enclosure without display Choice of 3 probe lengths S, M, L Filter PTFE sintered filter (ZE05) IP 65

DZK (remote) probe

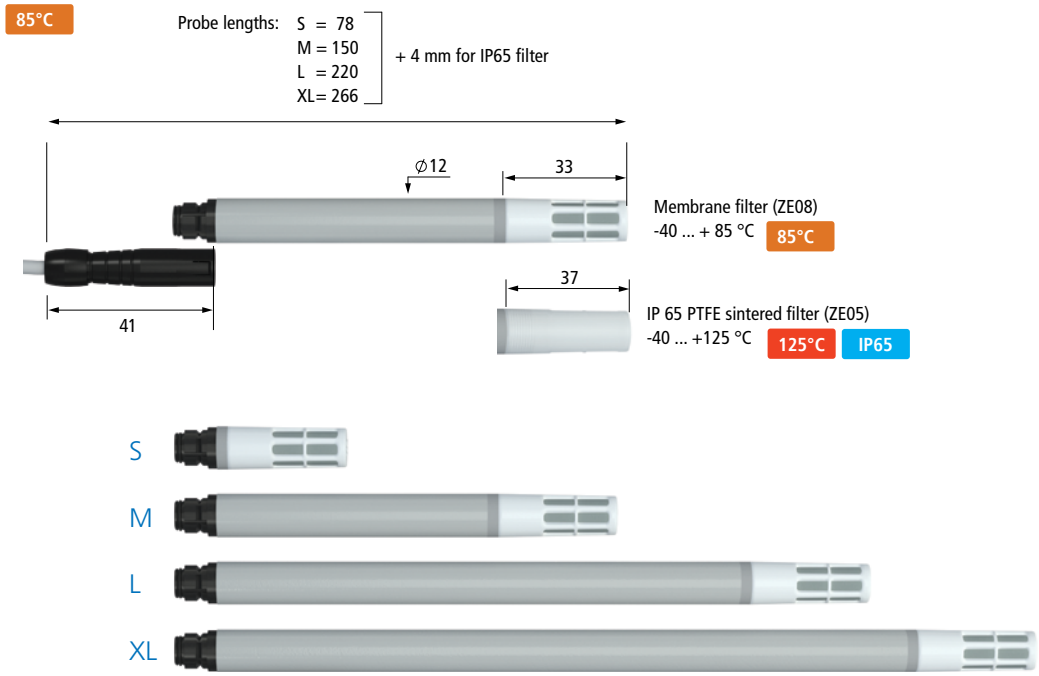
Probe with cable

125°C

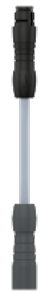


Probe with plug-in connection

85°C



DZK modules

Transmitters	Probes, plug-in	Probes with cable	Accessories
209.25	52.31	77.33	28.41
DZK in wall housing with integrated connector 80 °C 	4 probe lengths 85 °C  85 °C Standard filter IP30 Membrane filter ZE08 125°C IP65 Option PTFE sintered filter 	3 probe lengths 125°C  125°C IP65 Standard filter IP65 PTFE sintered filter ZE05 	Cable connectable at both ends 80 °C  80 °C

Options		Surcharge €
Display	≥ -30 °C	22.75
USB port	Including PC software	9.10
Additional charge for cable (> 2 m)	-40 ... +125 °C	0,89/m
IP 65 with PTFE sintered filter ZE05	-40 ... +125 °C	13.65
Mounting flange with rubber gasket		3.55

Relative humidity measurement

Output range	0...100 % RH
Accuracy at 25 °C	±2 % RH at 10...90 % RH ≤±0.2 % RH / % RH remaining operating range

Temperature measurement

Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C -40 ... +125 °C
Accuracy at 5...60 °C	±0.35 K

hx converter for derived humidity variables

Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Optional: USB interface:
All output ranges can be freely configured. Temperature in °C or °F

Electrical specifications

Signal output	Supply voltage
0...10 V	15 ... 30 V DC / 13 ... 26 V AC
4...20 mA	10 ... 30 V DC

General

Housing	Material: PC, IP 65
with display	Operating temp: -30 ... +80 °C
without display	Operating temp: -40 ... +80 °C
Probe, plug-in	Operating temp: -40 ... +85 °C
Probe + cable	Operating temp: -40...+125 °C
Cable	2 m, max. 25 m
Measuring head	Degree of protection
with membrane filter ZE08	IP 30
with PTFE sintered filter ZE05	IP 65

Special features

2-line digital display	Optional
Probes	Pluggable and interchangeable

Output variables can be freely configured via USB port

DZK

In this series

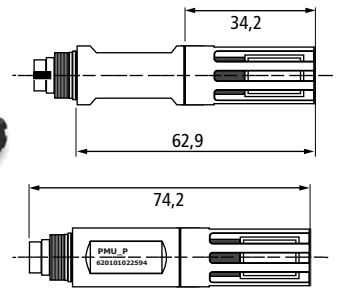
- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- On-site calibration
- Easy to install

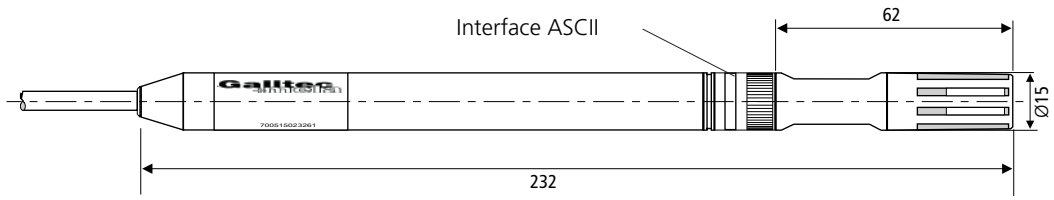
Options

- IP 65
- Display
- Plug-in connection
- Interchangeable sensor part
- 4 probe lengths
- Cable up to 25 m
- Output variables can be freely configured via USB port
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

More information on the DZK datasheet online PDF

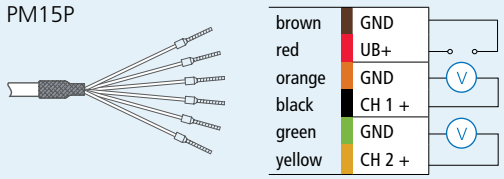
Probe PM15P with measuring head PMU-P





PM15P

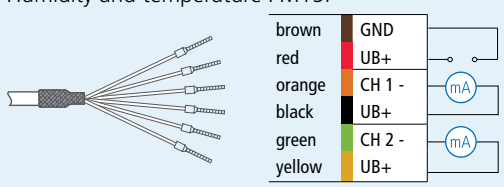
Humidity and temperature PM15P



6 ... 30 V DC | 15 ... 30 V DC

0 ... 1 V or 0 ... 10 V

Humidity and temperature PM15P



6 ... 30 V DC

0 ... 20 mA or
4 ... 20 mA

PMU-P

1	RxD (0... 3.3 V) Input
2	Vcc 3.3 V
3	TxD (0... 3.3 V) Out
4	GND

Sensor input (Pin 1) must not be contacted, only for factory calibration with special software

Type overview	Type		Price €	Standard
Humidity + temperature	**PM15P**	2 x outputs	360.04	2.5 m cable and PTFE filter (open)
Humidity + temperature	**PMU-P**	Output (ASCII)	136.81	

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 25 °C	±1.5 % RH at 10...90 % RH ±2 % RH remaining range

Temperature measurement

Sensor element	Pt1000 1/3DIN
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Accuracy at 25 °C	±0.15 K

hx converter for derived humidity variables

Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m³ 0 ... 100 g/m³
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications

Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
0...20 mA	6 ... 30 V DC
4...20 mA	6 ... 30 V DC

General

Sensor tube Measuring head (PMU-P)	IP 64, Material: Plastic, black PTFE pocket filter with protective basket
Operating temperature	-20...+70 °C

Special features

The PMU-P measuring heads are calibrated and permit uncomplicated replacement.

Installation	Any

PM15P

- Operating temp. up to 70 °C
- Accuracy: ±1.5 % RH
- IP 64
- Exchangeable measuring head
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

PMU-P

- Operating temp. up to 70 °C
- Accuracy: ±1.5 % RH
- ASCII protocol (3.3 V DC)

More information on the PM15P datasheet online PDF

More information on the PMU-P datasheet online PDF

Types

with cable	PC	p. 48
with plug-in connection	PC.S	p. 48
with robust head	RC	p. 56
Meteorology	-ME	p. 52, 56

Robust construction and the ability to equip these sensors with special filters – as well as a variety of special equipment – ensure they stand out as versatile all-rounders for use in humidity and temperature measurement applications. For extreme location conditions (near the sea, in deserts, mountains, areas with high air speeds, etc.) we recommend one of our stainless steel sintered filters.

PC / RC

Applications

- Transport & logistics
- Cooling & air conditioning in trains
- Ship containers
- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Storage and transport of fruit, vegetables & meat
- Drying of tea, grain & meat
- Energy & environment
- Wind turbines
- Meteorology
- Weather stations
- Wind field measurement systems
- Snow machines

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % and 10...40 °C

Temperature measurement	
Sensor element	Pt100 Class B
-ME version	Pt100 1/3 DIN Class B
Output range	-30 ... +70 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
with current output (PC)	-0.3 to +0.6 K

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC

PC / RC

In this series

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Options

- Meteorological applications
- Outdoor
- Vibration-resistant
- Dew-resistant

Humidity sensor or humidity temperature sensor

Price €	PC	PC-ME	PC.S	PC.S-ME	RC	RC-ME
1 x U output	199.94	238.94	213.92	232.61	243.15	257.18
2 x U outputs	258.41	306.89	274.78	291.08	317.99	340.23
1 x U output + Pt100 (passive)	219.79	267.06	237.33	253.74	277.10	299.29
1 x I output	204.59	-	217.47	-	247.87	263.07
2 x I outputs	268.89	-	282.93	-	327.37	349.56
1 x I output + Pt100 (passive)	225.62	-	240.82	-	281.76	304.01

Temperature sensor

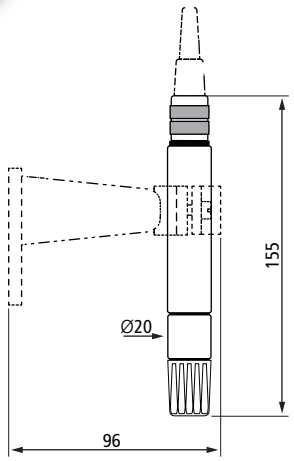
U output	183.57	229.61	198.72	212.80	233.84	252.53
I output	194.05	-	206.93	-	243.15	263.07
Pt100	104.07	-	120.44	-	111.06	-
Pt100 1/3 DIN (-ME versions)	-	151.07	-	135.64	-	127.43

More information on the C2.5 datasheet online PDF

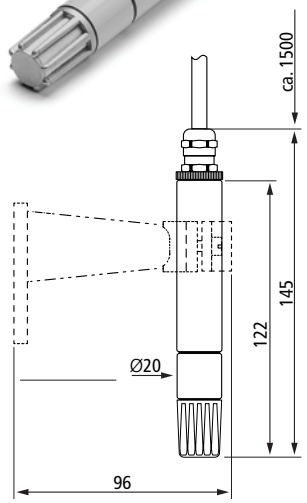
More information on the C2.4 datasheet online PDF

More information on the C2.3 datasheet online PDF

Probe PC.S with plug-in connection and coupling



PC with cable connection



Type overview		Type PC	Price €	Type PC.S	Price €	Standard
Humidity	1 x U output	**FPC**	199.94	**FPC.S**	213.92	ZE17 plastic filter, metallised with inserted stainless steel fine gauze
Humidity + temperature	2 x U outputs	**KPC**	258.41	**KPC.S**	274.78	
Humidity + Pt100	1 x U output + (passive)	**CPC**	219.79	**CPC.S**	237.33	
Temperature	1 x U output	**TPC**	183.57	**TPC.S**	198.72	
Humidity	1 x I output	**FPC**	204.59	**FPC.S**	217.47	
Humidity + temperature	2 x I outputs	**KPC**	268.89	**KPC.S**	282.93	
Humidity + Pt100	1 x I output + (passive)	**CPC**	225.62	**CPC.S**	240.82	
Temperature	1 x I output	**TPC**	194.05	**TPC.S**	206.93	
Temperature	Pt100 (passive)	**TPC**	104.07	**TPC.S**	120.44	

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % and 10...40 °C
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... +70 °C
Accuracy with voltage output with current output	 ±0.2 K -0.3 to +0.6 K
Electrical specifications	
Signal output 0...1 V 0...10 V 4...20 mA	Supply voltage 6 ... 30 V DC 15 ... 30 V DC 12 ... 30 V DC
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Degree of protection PC Degree of protection PC. S coupling	IP 65 IP 40
Measuring head	IP 40 plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+80 °C
Special features	
Measuring element is dew-resistant, vibration-resistant	Optional
Variety of special versions	

PC
PC.S

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Options

- Vibration-resistant
- Variety of special versions
- Dew-resistant

More information on the C2.3 datasheet online PDF

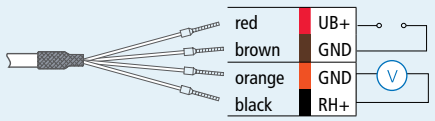
More information on the C2.5 datasheet online PDF

Probe PC
with cable connection

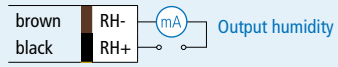
Connection diagrams

Humidity FPC

6 ... 30 V DC 0 ... 1 V | 15 ... 30 V DC 0 ... 10 V

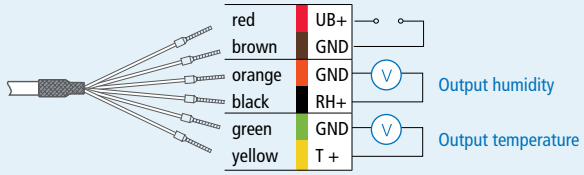


12...30 V DC 4...20 mA

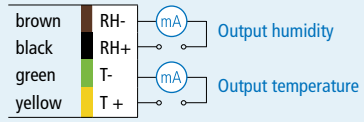


Humidity and temperature KPC

6 ... 30 V DC 0 ... 1 V | 15 ... 30 V DC 0 ... 10 V

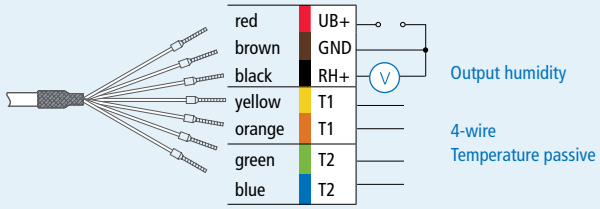


12...30 V DC 4...20 mA

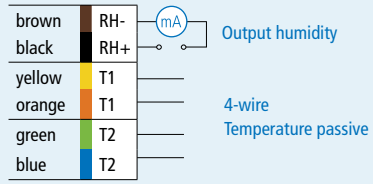


Humidity and temperature with passive measuring element CPC

6 ... 30 V DC 0 ... 1 V | 15 ... 30 V DC 0 ... 10 V

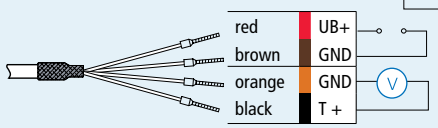


12...30 V DC 4...20 mA

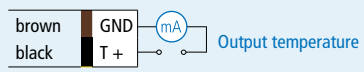


Temperature TPC

6 ... 30 V DC 0 ... 1 V | 15 ... 30 V DC 0 ... 10 V



12...30 V DC 4...20 mA

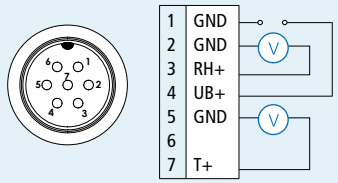


Probe PC.S
with plug-in connection

Pin assignment

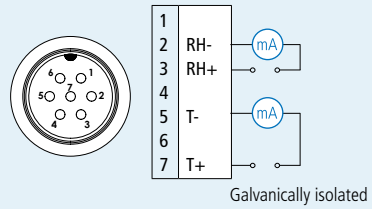
Humidity and temperature KPC.S

6 ... 30 V DC 0 ... 1 V
or
15 ... 30 V DC 0 ... 10 V



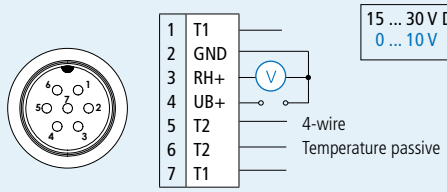
Humidity and temperature KPC.S

12 ... 30 V DC 4 ... 20 mA



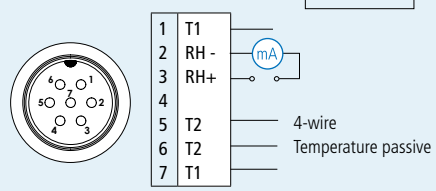
Humidity and temperature Pt100 CPC.S

6 ... 30 V DC 0 ... 1 V
or
15 ... 30 V DC 0 ... 10 V



Humidity and temperature Pt100 CPC.S

12 ... 30 V DC 4 ... 20 mA



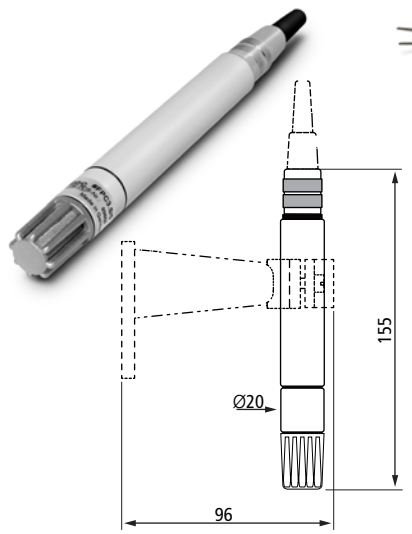
Cable accessories PC.S

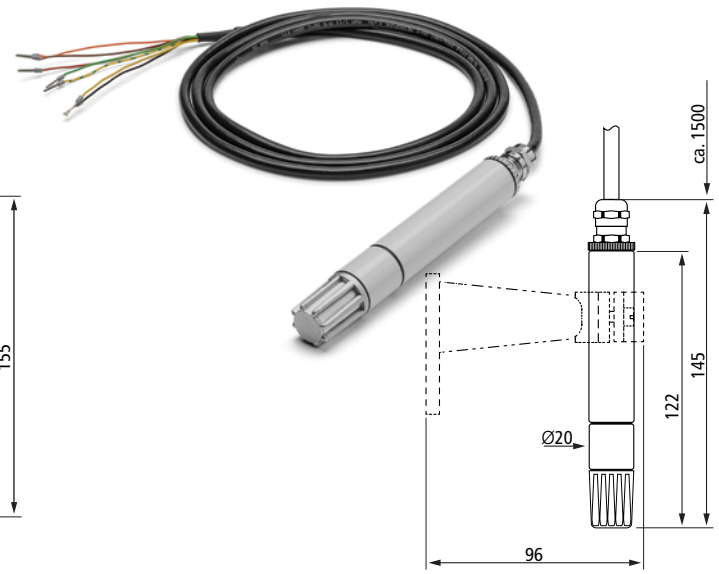
Cable for FPC.S, coupling IP67	1,5 m	44.55
Cable for FPC.S and KPC.S also for ME-versions, with coupling, 7-pin, IP67	5 m	50.25
Cable for CPC.S also for ME-versions, with coupling, 7-pin, IP67	5 m	66.65
Cable surcharge per m	on request	

More information on the C2.5 datasheet online PDF

Probe meteorology version
PC.S-ME with plug-in connection and coupling (IP 67)

PC-ME with cable





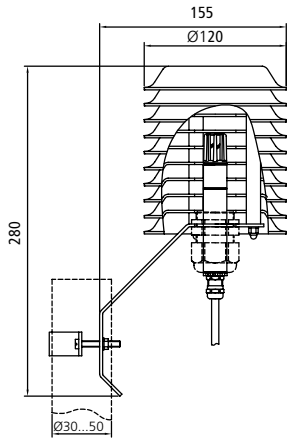
Type overview		Type PC	Price €	Type PC.S	Price €	Standard
Humidity	1 x U output	**FPC-ME**	238.94	**FPC.S-ME**	232.61	5 m cable, plastic filter, metallised with membrane ZE20
Humidity + temperature	2 x U outputs	**KPC-ME**	306.89	**KPC.S-ME**	291.08	
Humidity + Pt100	1 x U output + (passive)	**CPC-ME**	267.06	**CPC.S-ME**	253.74	
Temperature	1 x U output	**TPC-ME**	229.61	**TPC.S-ME**	212.80	
Temperature	Pt100 1/3 DIN (passive)	**TPC-ME**	151.07	**TPC.S-ME**	135.64	

Filter options

Plastic filter, metallised, membrane ZE20 (IP 54)	Standard
Stainless steel sintered filter, fine pore ZE21 (IP 65)	-
Integr. element filter PTFE and ZE16 (IP 20)	-
Stainless steel sintered filter, coarse pore ZE22 (IP 65)	-

Weather protection accessories

For probes Ø 20 mm, ZA161/1	227.00
Recommended for outdoor use to protect against precipitation and insolation (with clamping sleeve 00.502 also suitable for probes Ø 15 mm)	



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % and 10...40 °C
Temperature measurement	
Sensor element	Pt100 1/3 DIN Class B
Output range	-30 ... +70 °C
Accuracy	±0.2 K
Electrical specifications	
Signal output 0...1 V 0...10 V	Supply voltage 6 ... 30 V DC 15 ... 30 V DC
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Operating temperature range	-40...+80 °C
Measuring head Plastic filter metallised with membrane ZE20	Degree of protection IP 54
Special features	
Measuring element is dew -resistant	
Vibration-resistant	Optional
Variety of special versions	

PC-ME
PC.S-ME

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Options

- Meteorological applications
- Outdoor
- Vibration-resistant
- Dew-resistant

More information on the C2.4 datasheet online PDF

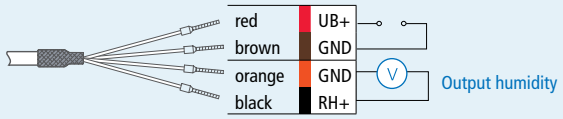
Probe PC-ME
with cable connection

Connection diagrams

Humidity FPC-ME

6 ... 30 V DC
0 ... 1 V

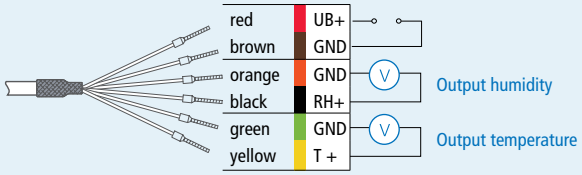
15 ... 30 V DC
0 ... 10 V



Humidity and temperature KPC-ME

6 ... 30 V DC
0 ... 1 V

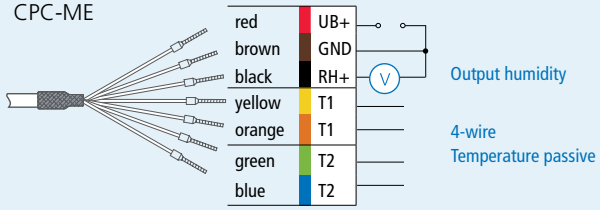
15 ... 30 V DC
0 ... 10 V



Humidity and temperature with passive measuring element CPC-ME

6 ... 30 V DC
0 ... 1 V

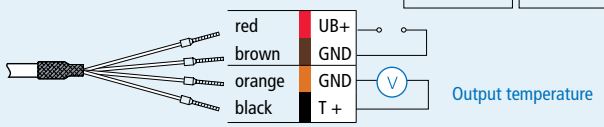
15 ... 30 V DC
0 ... 10 V



Temperature TPC-ME

6 ... 30 V DC
0 ... 1 V

15 ... 30 V DC
0 ... 10 V



Probe PC.S-ME
with plug-in connection

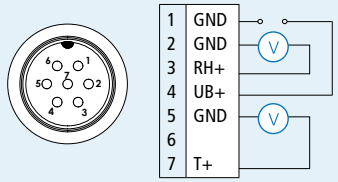
Pin assignment

Humidity and temperature KPC.S-ME

6 ... 30 V DC
0 ... 1 V

or

15 ... 30 V DC
0 ... 10 V

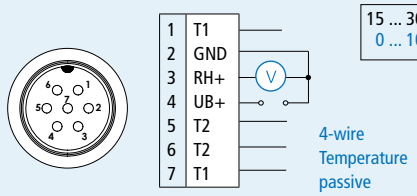


Humidity and temperature with passive measuring element CPC.S-ME

6 ... 30 V DC
0 ... 1 V

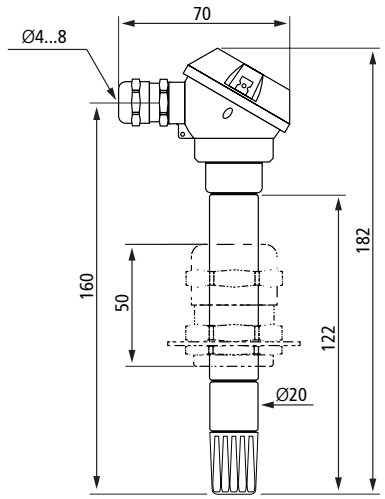
or

15 ... 30 V DC
0 ... 10 V



More information on the C2.4 datasheet online PDF

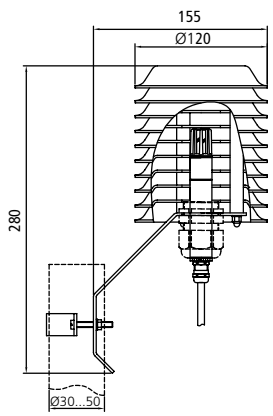
Probe RC with robust head
RC-ME meteorology



Type overview		Type RC	Price €	Type RC-ME	Price €	Standard
Humidity	1 x U output	**FRC**	243.15	**FRC-ME**	257.18	**RC:** plastic filter, metallised with stainless steel fine gauze ZE17 (IP 40)
Humidity + temperature	2 x U outputs	**KRC**	317.99	**KRC-ME**	340.23	
Humidity + Pt100	1 x U output + (passive)	**CRC**	277.10	**CRC-ME**	299.29	
Temperature	1 x U output	**TRC**	233.84	**TRC-ME**	252.53	
Humidity	1 x I output	**FRC 3**	247.87	**FRC3-ME**	263.07	**ME version:** plastic filter, metallised with membrane ZE20 (IP 54)
Humidity + temperature	2 x I outputs	**KRC 3**	327.37	**KRC3-ME**	349.56	
Humidity + Pt100	1 x I output + (passive)	**CRC 3**	281.76	**CRC3-ME**	304.01	
Temperature	1 x I output	**TRC 3**	243.15	**TRC3-ME**	263.07	
Temperature	Pt100 (passive)	**TRC 5**	111.06	**TRC5-ME**	127.43	

Filter options (ME version)

Plastic filter, metallised, membrane ZE20 (IP 54)	Standard
Stainless steel sintered filter, fine pore ZE21 (IP 65)	-
Integr. element filter PTFE and ZE16 (IP 20)	-
Stainless steel sintered filter, coarse pore ZE22 (IP 65)	-



Weather protection accessories

For probes Ø 20 mm, ZA161/1	227.00
Recommended for outdoor use to protect against precipitation and insolation (with clamping sleeve 00.502 also suitable for probes Ø 15 mm)	

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 5...95 % and 10...40 °C	±2 % RH
Temperature measurement	
Sensor element	Pt100 Class B
-ME version	Pt100 1/3 DIN Class B
Output range	-30 ... +70 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Operating temperature range	-40...+80 °C
Measuring head	
RC	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
RC-ME	IP 54, plastic filter, metallised with membrane ZE20
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

RC
RC-ME

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Options

- Meteorological applications
- Outdoor
- Vibration-resistant
- Variety of special versions
- Dew-resistant

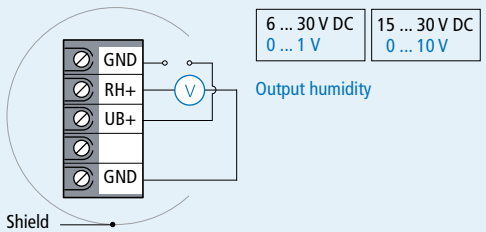
More information on the C2.3 datasheet online PDF

More information on the C2.4 datasheet online PDF

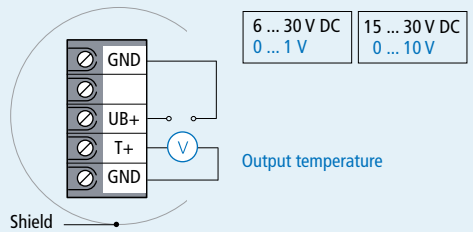
Probe RC with robust head and RC-ME meteorology

Connection diagrams voltage

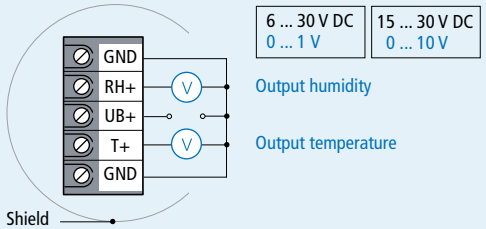
Humidity FRC / FRC-ME



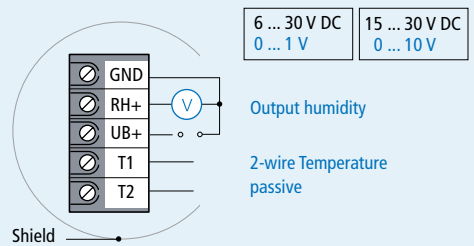
Temperature TRC / TRC-ME



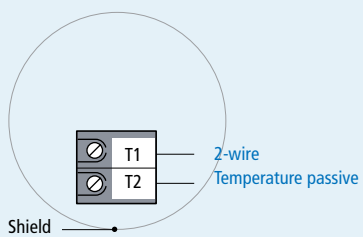
Humidity and temperature KRC / KRC-ME



Humidity and temperature with passive measuring element CRC / CRC-ME



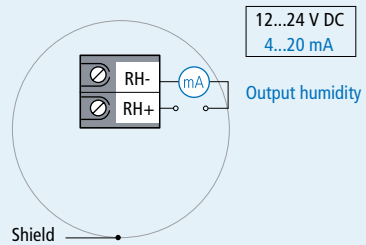
Temperature with passive measuring element TRC



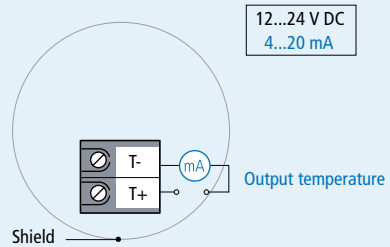
Probe RC with robust head

Connection diagrams current

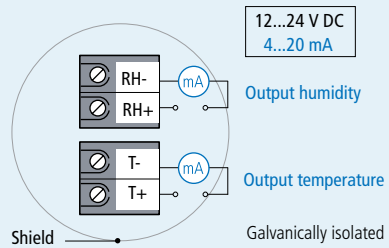
Humidity FRC 3



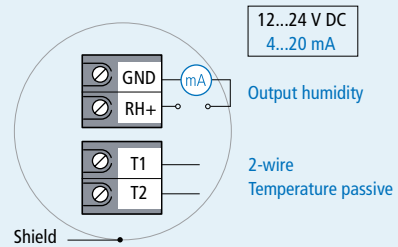
Temperature TRC 3



Humidity and temperature KRC 3



Humidity and temperature with passive measuring element CRC 3



Types

with plug-in connection	IAK	p. 62
with robust head	IRK	p. 64
Stainless steel		
with plug-in connection	IVK	p. 68
with robust head	ITK	p. 70

Transmitters in the I series are robust, compact probe sensors (with cable, connecting head or plug-in connection) to measure relative humidity and temperature with high precision. They can be used for a wide range of applications. Equipped with stainless steel sintered filters, they can be used in extreme locations near the sea, in deserts, mountains, areas with high air speeds, etc.

I series Modbus / RS232

- Storage & transportation
- Cooling & air conditioning in trains
- Ship containers
- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Storage and transport of fruit, vegetables & meat
- Drying of tea, grain & meat
- Energy & environment
- Wind turbines
- Meteorology
- Weather stations
- Wind field measurement systems
- Snow machines

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH
Temperature measurement	
Sensor element	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.2 K
hx converter for derived humidity variables (only Modbus)	
Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m³
	0 ... 100 g/m³
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output	Supply voltage
RS232, RS485 Modbus	5 ... 30 V DC

I series M / R

In this series

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust

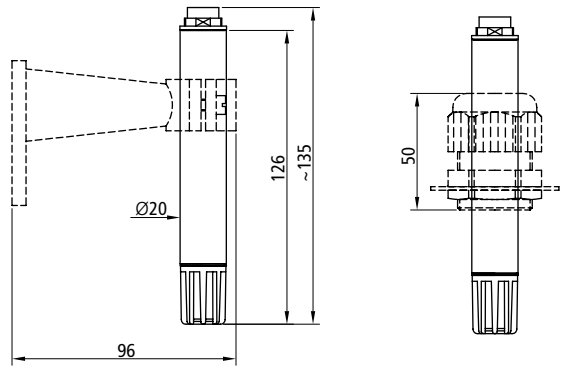
Options

- Modbus
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- Stainless steel
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

Humidity sensor or humidity temperature sensor

Price €	IA	IR	IV	IT
RS232	263.84 (5-pole)	307.06	386.39 (8-pole)	358.26
RS485 Modbus RTU	275.21 (7-pole)	318.44	397.49 (8-pole)	369.64

Probe IAK with plug-in connection



Type overview	Type		Price €	Standard
Humidity + temperature	**IAK R**	Output RS232	263.84	5-pole connector, filter ZE17 (IP 40)
Humidity + temperature	**IAK M**	Output RS485 Modbus RTU	275.21	7-pole connector, filter ZE17 (IP 40)

Filter options (Ø 20 mm)	Type	IP	Surcharge €
Plastic filter, metallised with inserted stainless steel fine gauze	ZE17	IP 40	Standard
Protective basket in PBT plastic, conductive metallised	ZE16	IP 20	-5.27 cheaper
Sintered filter made of fine pore PTFE for extreme conditions	ZE18	IP 65	21.03
Plastic filter, metallised with membrane	ZE20	IP 54	14.82
Fine pore stainless steel sintered filter	ZE21	IP 65	14.82
Coarse pore stainless steel sintered filter	ZE22	IP 65	14.82
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	5.00

Cable accessories	Accessories for	Length	Price €	Special length
Drilled cable ready to use with cable box IP 67	**IAK M (Modbus)**	1.5 m	60.55	on request
Setup cable Modbus	**IAK M (Modbus)**	1.8 m	144.77	-

RS232 cable accessories	Accessories for	Length	Price €	Special length
SUB-D adaptor cable ready to use with cable box IP 67	**IAK R (RS232)**	2.5 m	50.67	on request

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range

Temperature measurement

Sensor element	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.2 K

hx converter for derived humidity variables (only Modbus)

Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m^3 0 ... 100 g/m^3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications

Signal output	Supply voltage
RS232, RS485 Modbus	5 ... 30 V DC
Max. transmission length	
RS232	15 m
RS485 Modbus	1000 m

General

Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Plug-in connection	IP 67
Measuring head	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+85 °C

Special features

Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital IAK

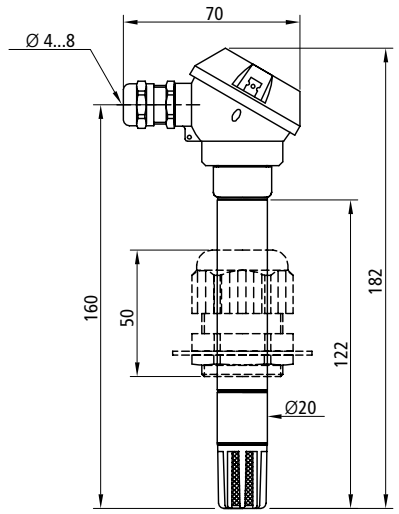
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Dew-resistant

Options

- Modbus
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

More information on the I series datasheet online PDF

Probe IRK with robust head



Type overview	Type		Price €	Standard
Humidity + temperature	**IRK R**	Output RS232	307.06	Plastic protective basket with stainless steel fine gauze ZE17 (IP 40)
Humidity + temperature	**IRK M**	Output RS485 Modbus RTU	318.44	

Filter options (Ø 20 mm)	Type	IP	Surcharge €
Plastic filter, metallised with inserted stainless steel fine gauze	ZE17	IP 40	Standard
Protective basket in PBT plastic, conductive metallised	ZE16	IP 20	-5.27 cheaper
Sintered filter made of fine pore PTFE for extreme conditions	ZE18	IP 65	21.03
Plastic filter, metallised with membrane	ZE20	IP 54	14.82
Fine pore stainless steel sintered filter	ZE21	IP 65	14.82
Coarse pore stainless steel sintered filter	ZE22	IP 65	14.82
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	5.00

Cable accessories	Accessories for	Length	Price €	Special length
Modbus setup cable	**IRK M (Modbus)**	1.8 m	148.56	-

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range

Temperature measurement	
Sensor element	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.2 K

hx converter for derived humidity variables (only Modbus)	
Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output RS232, RS485 Modbus	Supply voltage 5 ... 30 V DC
Max. transmission length RS232 RS485 Modbus	 15 m 1000 m

General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Measuring head	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+85 °C

Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital IRK

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust

Options

- Modbus
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- hx converter:
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

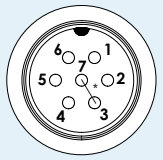
More information on the I series datasheet online PDF

Probe IAK with plug-in connection

Pin assignment **Modbus**

IAK M **RS485**

5 ... 30 V DC

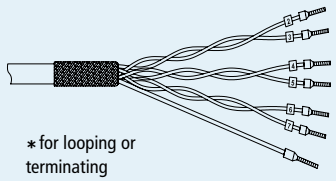


1	
2	A
3	B*
4	UB+
5	GND
6	
7	Term*

*bridges to termination

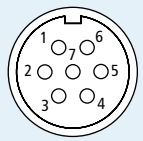
Pin assignment **Modbus** cable accessories

IAK M **RS485**



brown	A
black	B
red	UB+
black	GND
orange	A
black	B

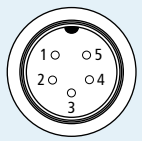
* for looping or terminating



Pin assignment RS232

IAK R **RS232**

5 ... 30 V DC

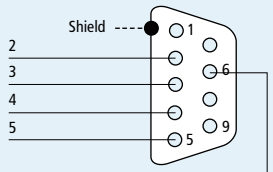


1	RTS (UB+*)
2	RX
3	TX
4	DTR (UB+*)
5	GND

* with external power supply

Pin assignment **RS232** cable accessories

IAK R **RS232**



Binder coupling IP 40 or standard 2.5 m

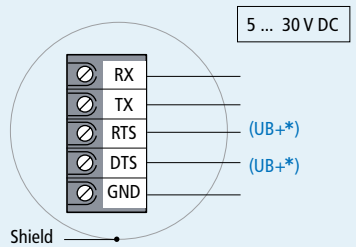
Binder coupling IP 67 max. 15 m

9-pole Sub-D socket for direct connection to serial PC interface

Probe IRK with robust head

Connection diagram **RS232**

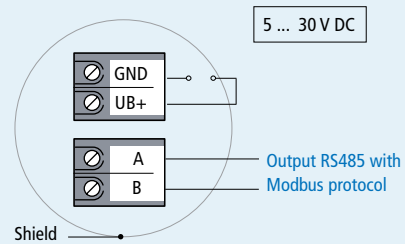
IRK R **RS232**



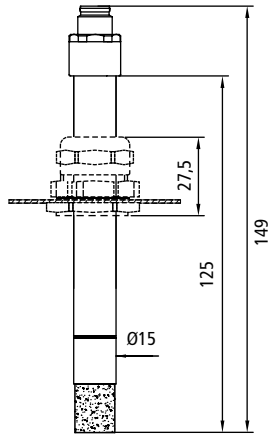
* with external power supply

Connection diagram **Modbus**

IRK M **RS485**



Probe IVK stainless steel with plug-in connection



Type overview	Type		Price €	Standard
Humidity + temperature	**IVK R**	Output RS232	386.39	8-pole connector, filter ZE13 (IP 65)
Humidity + temperature	**IVK M**	Output RS485 Modbus RTU	397.49	8-pole connector, filter ZE13 (IP 65)

Filter options Ø 15 mm	Type	IP	Surcharge €
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Cable accessories	Accessories for	Length	Price €	Special length
Drilled cable ready to use with cable box IP 67	**IVK M (Modbus)**	1.5 m	75.86	on request
Setup cable Modbus	**IVK M (Modbus)**	1.8 m	148.56	-

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining operating range

Temperature measurement	
Sensor element	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.2 K

hx converter for more humidity variables (only Modbus)	
Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output RS232, RS485 Modbus	Supply voltage 5 ... 30 V DC
Max. transmission length RS232 RS485 Modbus	 15 m 1000 m

General	
Sensor tube	IP 65, stainless steel, Ø 15 mm
Measuring head	IP 65, stainless steel sintered metal filter ZE13
Plug-in connection	IP 67
Operating temperature	-40...+85 °C

Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital IVK

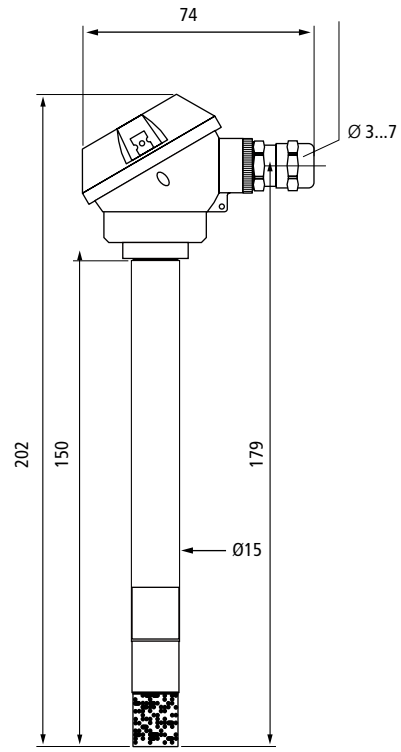
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Dew-resistant
- Stainless steel
- IP 65

Options

- Modbus
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

More information on the I series datasheet online PDF

Probe ITK stainless steel with robust head



Type overview	Type		Price €	Standard
Humidity + temperature	**ITK R**	Output RS232	358.26	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	**ITK M**	Output RS485 Modbus RTU	369.64	Stainless steel sintered metal filter ZE13 (IP 65)

Filter options Ø 15 mm	Type	IP	Surcharge €
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Cable accessories	Accessories for	Length	Price €	Special length
Modbus setup cable	**ITK M (Modbus)**	1.8 m	148.56	-

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range
Temperature measurement	
Sensor element	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.2 K
hx converter for more humidity variables (only Modbus)	
Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output RS232, RS485 Modbus	Supply voltage 5 ... 30 V DC
Max. transmission length RS232 RS485 Modbus	 15 m 1000 m
General	
Sensor tube	IP 65, stainless steel, Ø 15 mm
Measuring head	IP 65, stainless steel sintered metal filter ZE13
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital ITK

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Stainless steel
- IP 65

Options

- Modbus
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

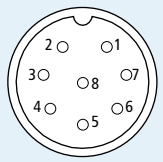
More information on the I series datasheet online PDF

Probe IVK stainless steel with plug-in connection

Pin assignment **Modbus**

IVK M **RS485**

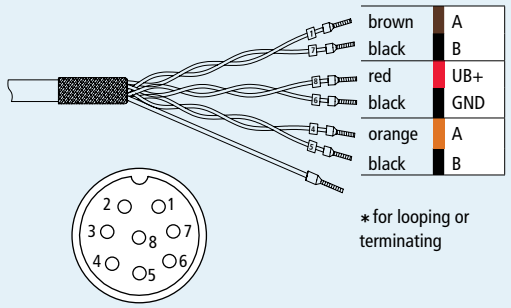
5 ... 30 V DC



1	A
2	
3	
4	A
5	B
6	GND
7	B
8	UB+

Pin assignment **Modbus** cable accessories

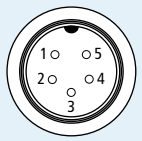
IVK M **RS485**



Pin assignment **RS232**

IVK R **RS232**

5 ... 30 V DC

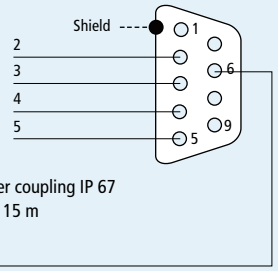


1	RTS (UB+*)
2	RX
3	TX
4	DTR (UB+*)
5	GND

* with external power supply

Pin assignment **RS232** cable accessories

IVK R **RS232**



Binder coupling IP 40 or standard 2.5 m

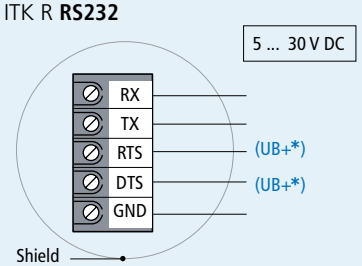
Binder coupling IP 67 max. 15 m

9-pole Sub-D socket for direct connection to serial PC interface

Probe ITK with robust head

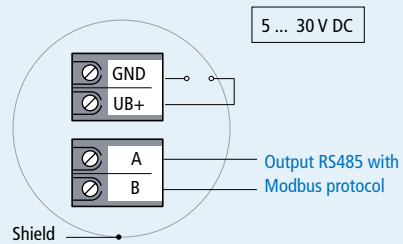
Connection diagram

ITK R **RS232**



* with external power supply

ITK M **RS485**



Types

with plug-in connection	IAK	p. 76
with robust head	IRK	p. 78
Stainless steel		
with plug-in connection	IVK	p. 80
with robust head	ITK	p. 82
Connection diagrams		p. 84

Transmitters in the I series are robust, compact probe sensors with cable, connecting head or plug-in connection to measure relative humidity and temperature with high precision. They can be used for a wide range of applications. Equipped with stainless steel sintered filters, they can be used in locations near the sea, in deserts, mountains, areas with high air speeds, etc.

I series with analogue output

Applications

- Storage & transportation
- Cooling & air conditioning in trains
- Ship containers
- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Storage and transport of fruit, vegetables & meat
- Drying of tea, grain & meat
- Energy & environment
- Wind turbines
- Meteorology
- Weather stations
- Wind field measurement systems
- Snow machines

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH
Temperature measurement	
Sensor element	Pt100
Output range	-40 ... + 60 °C -30 ... + 70 °C -20 ... + 80 °C 0 ... +100 °C
Accuracy at 23 °C	±0.2 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	5 ... 30 V DC
0...2.5 V	4.5... 30 V DC
0...10 V	12 ... 30 V DC

I series

In this series

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Dew-resistant
- Stainless steel

Options

- IP 65
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant

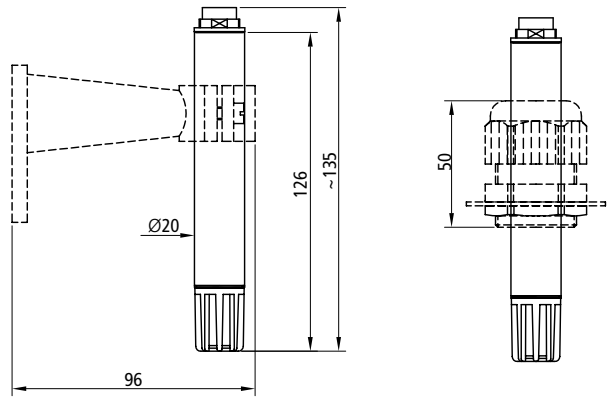
Humidity sensor or humidity temperature sensor

Price €	IA	IR	IV	IT
1 x voltage output	228.00	276.88	-	-
2 x voltage outputs	233.28	282.99	356.55	on request
1 x voltage output + Pt100 (passive)	239.32	289.31	-	-

Temperature sensor

Voltage output	222.34	265.57	-	-

Probe IAK with plug-in connection



Type overview	Type		Price €	Standard
Humidity	**IAF**	1 x output	228.00	Plastic protective basket with inserted stainless steel fine gauze ZE17 (IP 40)
Humidity + temperature	**IAK**	2 x outputs	233.28	
Humidity + Pt100	**IAC**	1 x output + (passive)	239.32	
Temperature	**IAT**	1 x output	222.34	

Filter options (Ø 20 mm)	Type	IP	Surcharge €
Plastic filter, metallised with inserted stainless steel fine gauze	ZE17	IP 40	Standard
Protective basket in PBT plastic, conductive metallised	ZE16	IP 20	-5.27 cheaper
Sintered filter made of fine pore PTFE for extreme conditions	ZE18	IP 65	21.03
Plastic filter, metallised with membrane	ZE20	IP 54	14.82
Fine pore stainless steel sintered filter	ZE21	IP 65	14.82
Coarse pore stainless steel sintered filter	ZE22	IP 65	14.82
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	5.00

Cable accessories	Accessories for	Length	Price €	Special length
Standard cable with cable box IP 67	**IAK, IAF**	1.5 m	46.21	on request
Standard cable with cable box IP 67	**IAC**	1.5 m	48.41	on request
Setup cable	**IAK, IAC, IAF**	1.8 m	144.94	-

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range
Temperature measurement	
Sensor element	Pt100
Output range	-40 ... + 60 °C -30 ... + 70 °C -20 ... + 80 °C 0 ... +100 °C
Accuracy at 23 °C	±0.2 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	5 ... 30 V DC
0...2.5 V	4.5... 30 V DC
0...10 V	12 ... 30 V DC
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Plug-in connection	IP 67
Measuring head	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series IAK

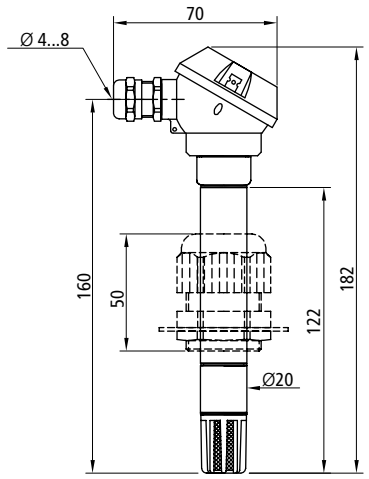
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust

Options

- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- Dew-resistant

More information on the I series analogue datasheet online PDF

Probe IRK with robust head



Type overview	Type		Price €	Standard
Humidity	**IRF**	1 x output	276.88	Plastic filter ZE17 with inserted stainless steel fine gauze (IP 40)
Humidity + temperature	**IRK**	2 x outputs	282.99	
Humidity + Pt100	**IRC**	1 x output + (passive)	289.31	
Temperature	**IRT**	1 x output	265.57	

Filter options (Ø 20 mm)	Type	IP	Surcharge €
Plastic filter, metallised with inserted stainless steel fine gauze	ZE17	IP 40	Standard
Protective basket in PBT plastic, conductive metallised	ZE16	IP 20	-5.27 cheaper
Sintered filter made of fine pore PTFE for extreme conditions	ZE18	IP 65	21.03
Plastic filter, metallised with membrane	ZE20	IP 54	14.82
Fine pore stainless steel sintered filter	ZE21	IP 65	14.82
Coarse pore stainless steel sintered filter	ZE22	IP 65	14.82
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	5.00

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining operating range
Temperature measurement	
Sensor element	Pt100
Output range	-40 ... + 60 °C -30 ... + 70 °C -20 ... + 80 °C 0 ... +100 °C
Accuracy at 23 °C	±0.2 K
Electrical specifications	
Signal output 0...1 V 0...2.5 V 0...10 V	Supply voltage 5 ... 30 V DC 4.5... 30 V DC 12 ... 30 V DC
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Measuring head	IP 40, plastic filter ZE17, metallised with inserted stainless steel fine gauze
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series IRK

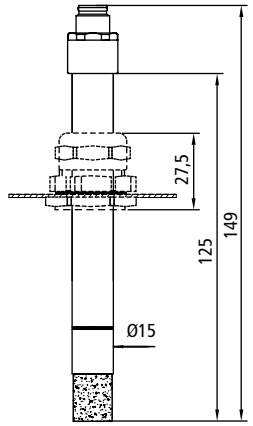
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust

Options

- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- Dew-resistant

More information on the I series analogue datasheet online PDF

Probe IVK stainless steel with plug-in connection or connecting cable



Type overview	Type		Price €	Standard
Humidity + temperature	**IVK**	2 x voltage outputs	356.55	8-pole connector, filter ZE13 (IP 65)

Filter options Ø 15 mm	Type	IP	Surcharge €
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Cable accessories	Accessories for	Length	Price €	Special length
Cable ready to use with cable box, IP 67	**IVK**	1.5 m	68.26	on request

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range
Temperature measurement	
Sensor element	Pt100
Output range	-30 ... + 70 °C
Accuracy at 23 °C	±0.2 K
Electrical specifications	
Signal output 0...1 V	Supply voltage 5 ... 30 V DC
General	
Sensor tube	IP 65, stainless steel, Ø 15 mm
Plug-in connection	IP 67
Measuring head	IP 65, filter ZE13 stainless steel sintered metal filter
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series IVK

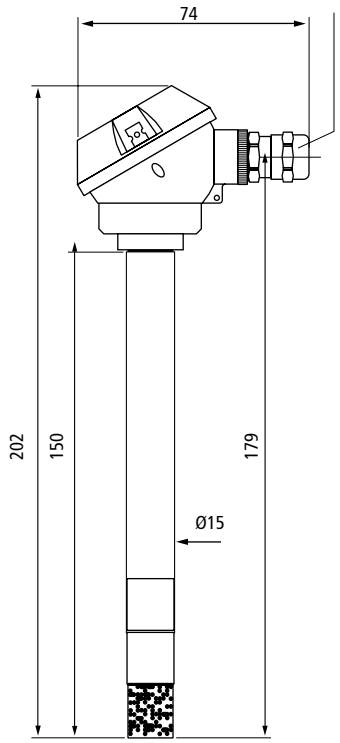
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Stainless steel
- IP 65

Options

- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- Dew-resistant

More information on the I series analogue datasheet online PDF

Probe ITK stainless steel with robust head



Type overview	Type		Price €	Standard
Humidity + temperature	**ITK**	2 x voltage outputs	on request	Filter ZE13 (IP 65)

Filter options Ø 15 mm	Type	IP	Surcharge €
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±1.5 % RH / 10...90 % RH ±2 % RH remaining range
Temperature measurement	
Sensor element	Pt100
Output range	-30 ... + 70 °C
Accuracy at 23 °C	±0.2 K
Electrical specifications	
Signal output 0...1 V	Supply voltage 5 ... 30 V DC
General	
Sensor tube	IP 65, stainless steel, Ø 15 mm
Plug-in connection	IP 67
Measuring head	IP 65, filter ZE13 stainless steel sintered metal filter
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series ITK

- Operating temp up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Stainless steel
- IP 65

Options

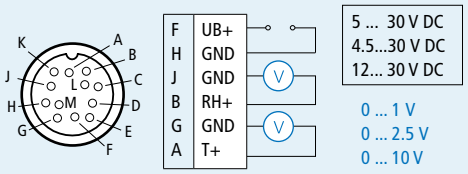
- Meteorological applications
- Outdoor
- Variety of special versions
- Vibration-resistant
- Dew-resistant

More information on the I series analogue datasheet online PDF

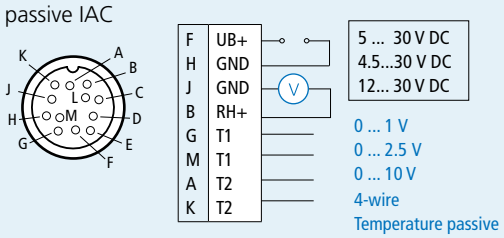
Probe IAK with plug-in connection - analogue

Pin assignment analogue output

Humidity and temperature IAK

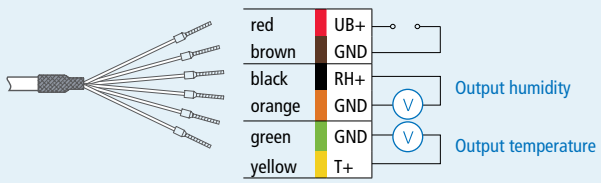


Humidity and temperature passive IAC

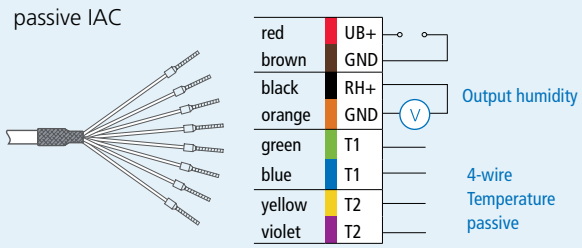


Pin assignment cable accessories

Humidity and temperature IAK



Humidity and temperature passive IAC

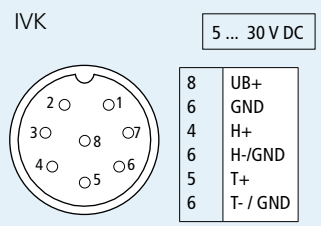


Cable accessories	Accessories for	Length	Price €	Special length
Cable for analogue probe active	IAF and IAK	1.5 m	46.21	on request
Cable for analogue probe active + passive	IAC	1.5 m	48.41	on request

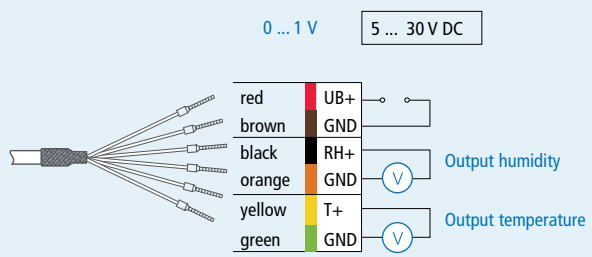
Probe IVK - analogue

Pin assignment analogue output

IVK



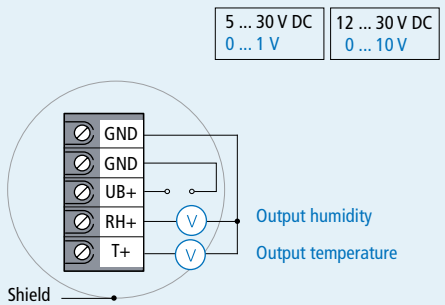
Pin assignment cable accessories



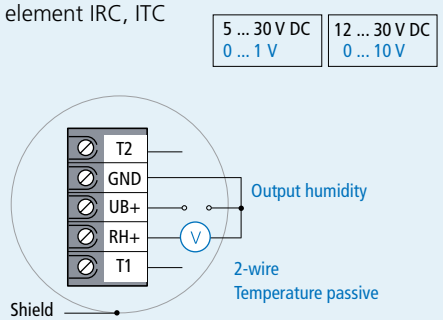
Probe IRK and ITK with robust head - analogue

Connection diagram analogue output

Humidity and temperature IRK, ITK active



Humidity and temperature with passive measuring element IRC, ITC



Types

Indoor version	FK120J	p. 88
Duct mounted version	FK80J	p. 90

Transmitters for semi-industrial and industrial applications. These humidity and temperature sensors are very robust, providing highly accurate measurements across the entire measuring range.

Applications

- Storage & transportation
- Process & factory automation
- Brick manufacturing
- Agriculture & food industry
- Storage and transport of fruit, vegetables & meat

Relative humidity measurement		
Measuring/sensor element		Capacitive
Output range		0...100 % RH
Accuracy at 23 °C	FK80	±2 % RH / 40...60 % RH
	FK120	±3.5 % RH / 10...95 % RH

Temperature measurement	
Sensor element	Pt100
Output ranges	0 ... +50 °C
	0 ... +100 °C
	-10 ... +90 °C
	-30 ... +60 °C
Accuracy	
FK80 Voltage output	±0.2 K
FK80 Current output	±0.3 K
FK120 Current output	±0.8 K

Electrical specifications	
Signal output (T)FK80	Supply voltage
0...10 V	15 … 30 V DC / 24 V AC±10 %
0...20 mA	15 … 30 V DC / 24 V AC±10 %
4...20 mA	15 … 30 V DC
Signal output (T)FK120	Supply voltage
0...10 V	15 … 24 V DC / 24 V AC
0...20 mA	15 … 24 V DC / 24 V AC
4...20 mA	15 … 24 V DC

FK

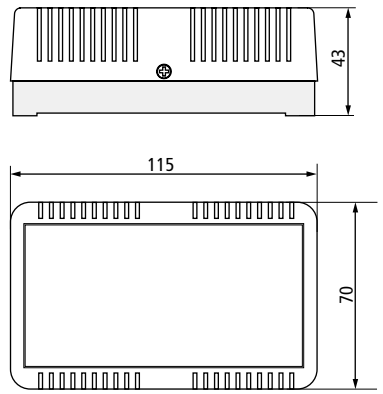
In this series

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Humidity sensor or humidity temperature sensor

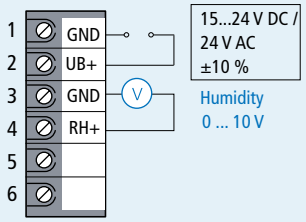
Price €	(T)FK120J	(T)FK80J
1 x output	215.14	247.87
2 x outputs	275.88	309.78
Operating temperature	60 °C	80 °C
Accuracy	±3.5 % RH	±2 % RH

Indoor (T)FK120J

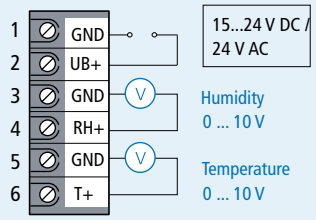


Connection diagrams

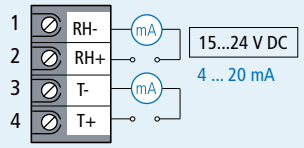
Humidity FK120J



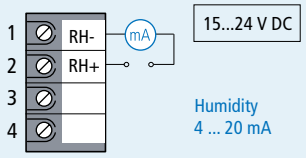
Humidity + temperature TFK120J

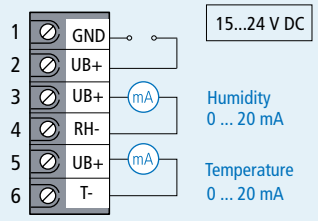


Humidity (+ temperature) TFK120J



Galvanically isolated





Type overview	Type		Price €
Humidity	**FK120J**	1 x output	215.14
Humidity + temperature	**TFK120J**	2 x outputs	275.88

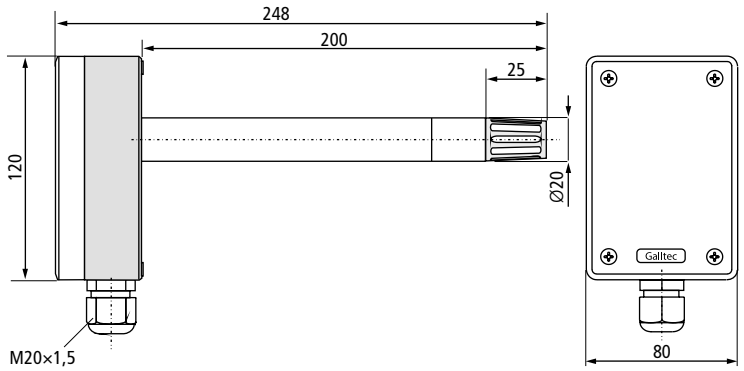
Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±3.5 % RH / 5...95 % RH
Temperature measurement	
Sensor element	Pt100
Output ranges	0 ... +50 °C 0 ... +100 °C -10 ... +90 °C -30 ... +60 °C
Accuracy	±0.8 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	15 … 24 V DC / 24 V AC
0...20 mA	15 … 24 V DC / 24 V AC
4...20 mA	15 … 24 V DC
General	
Housing	Material: Impact-resistant plastic, light grey
Degree of protection	IP 20
Operating temperature	-10...+60 °C

(T)FK120J

- Operating temp. up to 60 °C
- Accuracy: ±3.5 % RH
- Robust

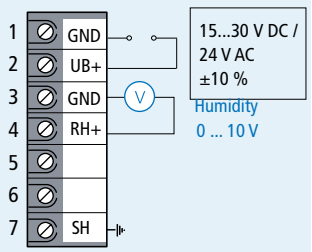
More information on the FK120 datasheet online PDF

Duct mounted (T)FK80J

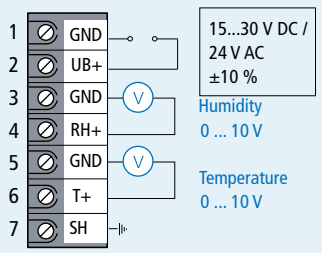


Connection diagrams

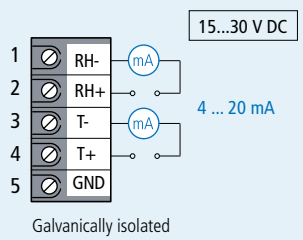
Humidity FK80J

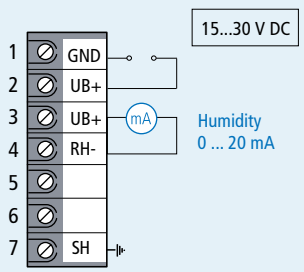


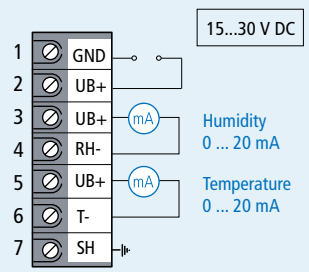
Humidity + temperature TFK80J



Humidity (+ temperature) TFK80J







Type overview	Type		Price €
Humidity	**FK80J**	1 x output	247.87
Humidity + temperature	**TFK80J**	2 x outputs	309.78
Humidity (AC)	**FK80**	1 x output	247.87
Humidity + temperature (AC)	**TFK80**	2 x outputs	309.78

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±2 % RH / 40...60 % RH ±2.5 % RH remaining range
Temperature measurement	
Sensor element	Pt100
Output ranges	0 ... +50 °C 0 ... +100 °C -10 ... +90 °C -30 ... +60 °C
Accuracy with voltage output with current output	 ±0.2 K ±0.3 K
Electrical specifications	
Signal output 0...10 V 0...20 mA 4...20 mA	Supply voltage 15 … 30 V DC / 24 V AC±10 % 15 … 30 V DC / 24 V AC±10 % 15 … 30 V DC
General	
Housing Operating temperature	IP 64, Material: ABS light grey -10...+60 °C
Sensor tube Gauze filter ZE17 Operating temperature	Anodised aluminium, Ø 20 mm, IP 40 -40...+80 °C

(T)FK80

- Operating temp up to 80 °C
- Accuracy: ±2 % RH
- Robust

More information on the FK80 datasheet online PDF

Types

with 1.5 m cable	VC	p. 94
ammonia-resistant	VC/11	p. 96
with robust head	VR	p. 98
pressure-resistant up to 25 bar	VR.D	p. 98

The sensors in the VC and VR series are rod-shaped, compact sensors. They can be used in a wide range of applications and have been specially developed for extreme conditions. Their design also makes them ideally suited to performing equilibrium humidity measurements in bulk materials and in brickwork.

The humidity and temperature values are output via two analogue current or voltage outputs.

VC / VR

Applications

- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Clean rooms
- Climate chambers
- Paper & print
- Paint shops
- Textile processing
- Drying plants
- Brick manufacturing
- Bulk materials
- Agriculture

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±2 % RH / 5...95 % RH
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	- 0.2... +0.6 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC

VC / VR

In this series

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust
- IP 65
- Stainless steel sensor tube

Options

- Pressure-resistant up to 25 bar
- Resistant to ammonia

Humidity sensor or humidity temperature sensor

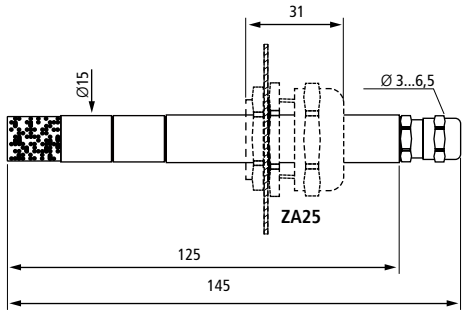

Price €	VC	VC/11	VR	VR.D
1 x voltage output	317.27	396.88	358.26	450.36
2 x voltage outputs	388.94	483.31	445.80	523.14
1 x voltage output + Pt100 (passive)	333.19	415.07	388.94	473.10
1 x current output	322.98	402.59	362.75	457.18
2 x current outputs	398.04	493.57	456.02	532.24
1 x current output + Pt100 (passive)	337.73	421.90	393.49	478.76
Standard: stainless steel sintered filter ZE13	✔	-	✔	✔
Standard: stainless steel with inserted fine gauze and membrane ZE26	-	✔	-	-
Element filter PTFE and ZE04	on request			
Accuracy	±2% RH	±3% RH	±2% RH	±2% RH
Measuring head IP 65	IP65		IP65	IP65
Pressure-resistant				25BAR
Resistant to ammonia		NH_3		

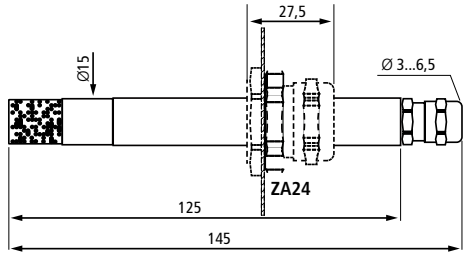
More information on the C4.2 datasheet online PDF VC / VR

More information on the C4.3 datasheet online PDF VR.D

More information on the C4.4 datasheet online PDF VC / 11

VC - Compactsensor

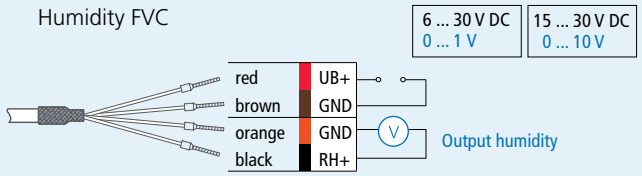


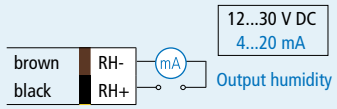


For duct mounting
ZA24 or ZA25
Accessories: page 188
(please order separately)

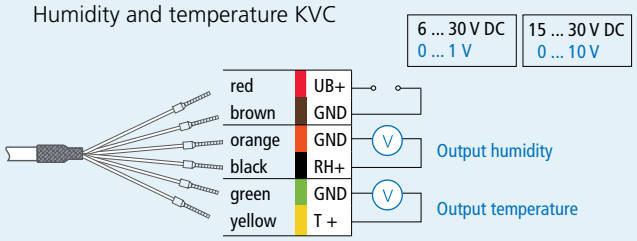
Connection diagrams

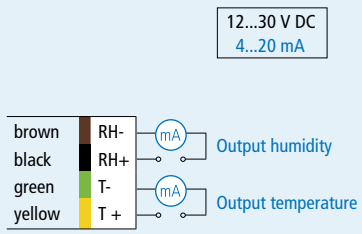
Humidity FVC



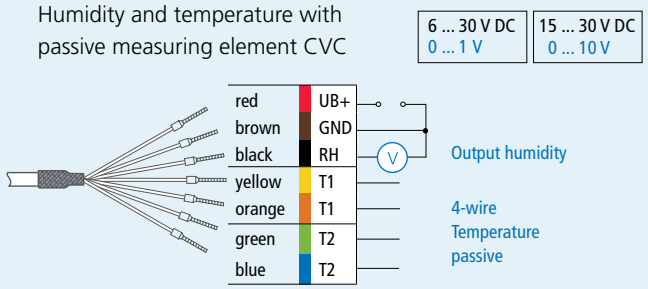


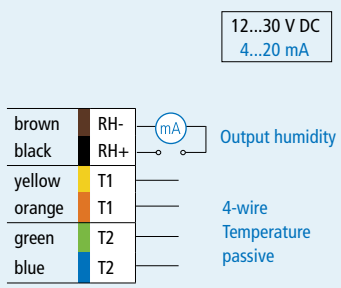
Humidity and temperature KVC





Humidity and temperature with passive measuring element CVC





Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±2 % RH / 5...95 % RH
remaining operating range	0.1 % / K add.
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	- 0.2... +0.6 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC
General	
Sensor tube	IP 65, stainless steel Ø 15 mm
Measuring head	Degree of protection
Stainless steel sintered filter ZE13	IP 65
Combi filter 94	IP 20
Operating temperature	-40...+80 °C
Cable	1.5 m

VC

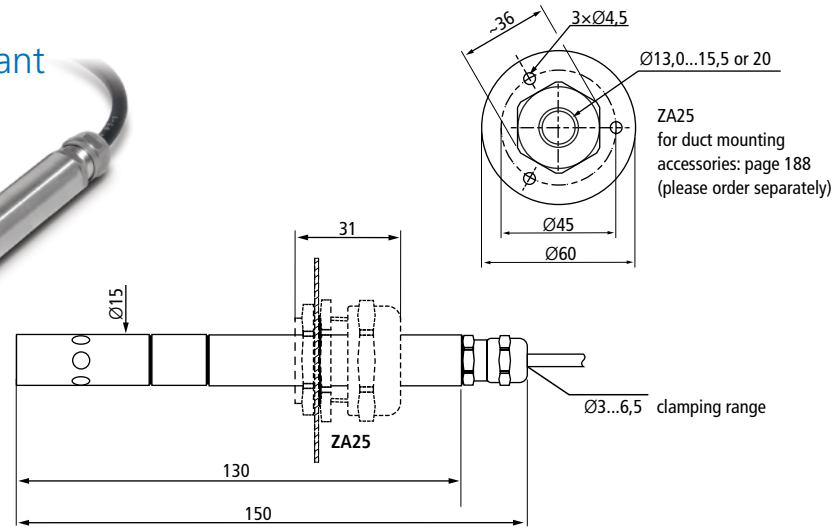
- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust
- IP 65
- Stainless steel sensor tube

More information on the C4.2 datasheet online PDF

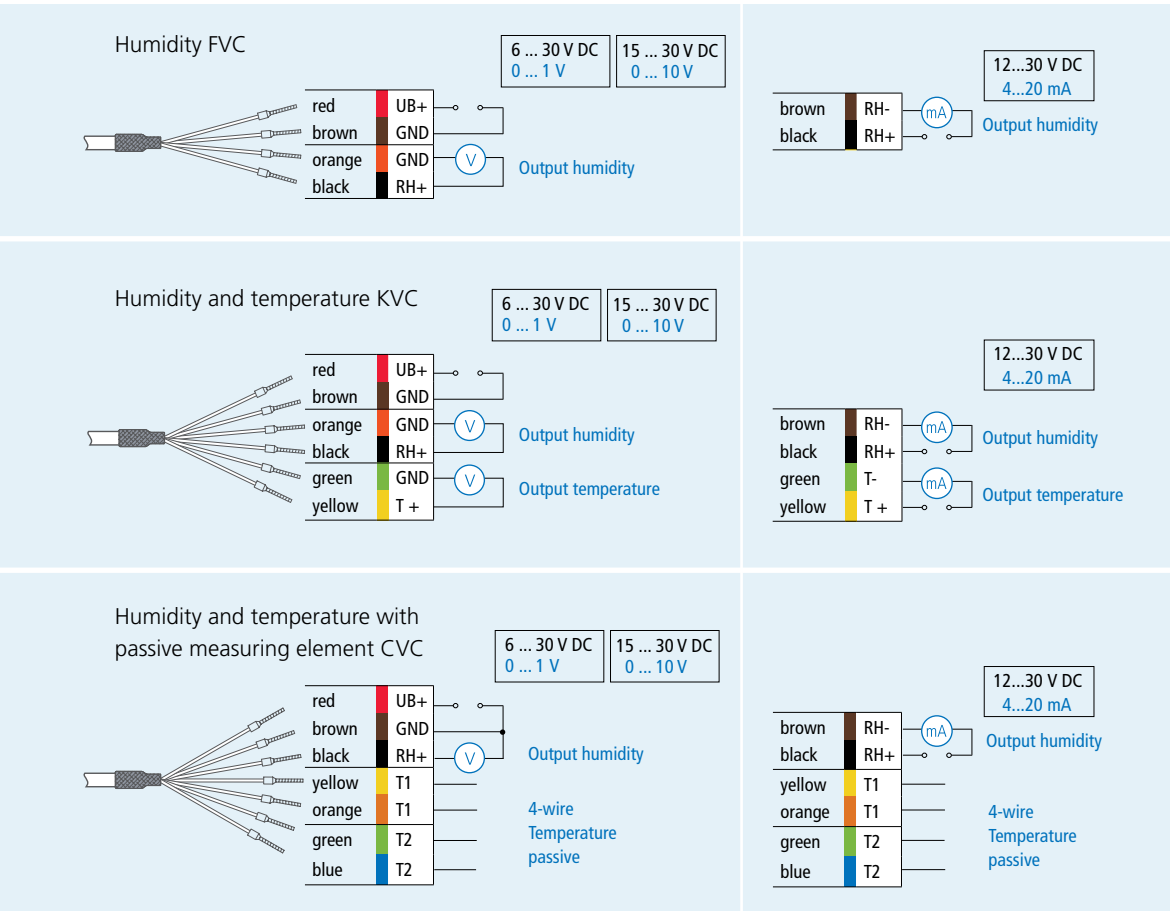
Type overview		Type	Price €	Standard
Humidity	1 x U output	**FVC**	317.27	1.5 m cable, Stainless steel sintered filter ZE13
Humidity + temperature	2 x U outputs	**KVC**	388.94	
Humidity + Pt100	1 x U output + (passive)	**CVC**	333.19	
Humidity	1 x I output	**FVC 3**	322.98	
Humidity + temperature	2 x I outputs	**KVC 3**	398.04	
Humidity + Pt100	1 x I output + (passive)	**CVC 3**	337.73	

Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

VC / 11 - ammonia-resistant



Connection diagrams



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 15...40 °C	±3 % RH / 20...90 % RH ±5 % RH / remaining range
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC
General	
Sensor tube	IP 65, stainless steel Ø 15 mm
Measuring head	IP 54, filter ZE26
Operating temperature	-40...+80 °C
Cable	1.5 m

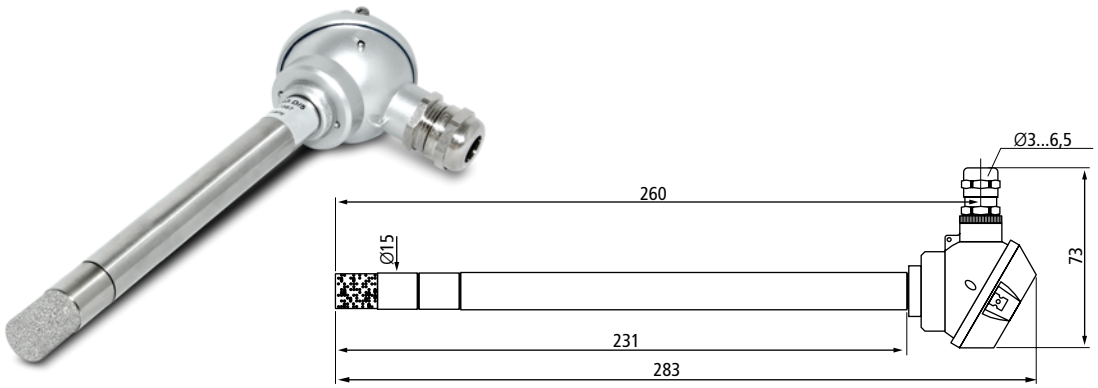
VC / 11

- Operating temp. up to 80 °C
- Accuracy: ±3 % RH
- Robust
- IP 65
- Resistant to ammonia
- Stainless steel sensor tube

More information on the C4.4 datasheet online PDF

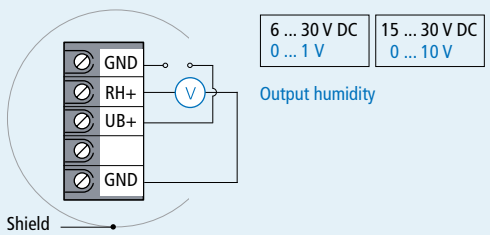
Type overview		Type VC/11	Price €	Standard
Humidity	1 x U output	**FVC/11**	396.88	1.5 m cable, stainless steel with inserted fine gauze and membrane ZE26
Humidity + temperature	2 x U outputs	**KVC/11**	483.31	
Humidity + Pt100	1 x U output + (passive)	**CVC/11**	415.07	
Humidity	1 x I output	**FVC 3/11**	402.59	
Humidity + temperature	2 x I outputs	**KVC 3/11**	493.57	
Humidity + Pt100	1 x I output + (passive)	**CVC 3/11**	421.90	

VR - transmitter with robust head

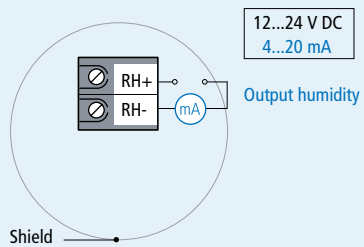


Connection diagrams

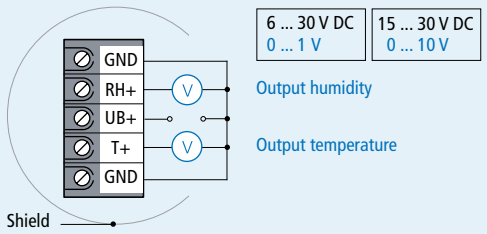
Humidity FVR



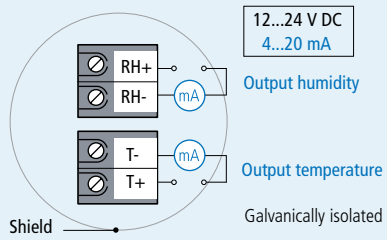
Humidity FVR 3/5



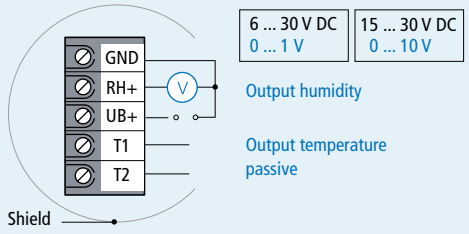
Humidity and temperature KVR



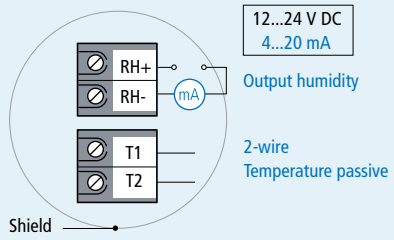
Humidity and temperature KVR 3/5



Humidity and temperature with passive measuring element CVR



Humidity and temperature with passive measuring element CVR 3/5



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 10...40 °C	±2 % RH / 5...95 % RH
remaining operating range	0.1 % / K add.

Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	-0.2... +0.6 K

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...10 V	15 ... 30 V DC
4...20 mA	12 ... 30 V DC

General	
Sensor tube	IP 65, stainless steel Ø 15 mm
Measuring head	Degree of protection
Stainless steel sintered filter ZE13	IP 65
Stainless steel protective basket ZE04	IP 10
Operating temperature	-40...+80 °C

Special features	
VR.D	pressure-resistant up to 25 bar

VR

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust
- IP 65
- Stainless steel sensor tube

Options

- Pressure-resistant up to 25 bar

More information on the C4.2 datasheet online PDF

Type overview		Type VR	Price €	Type VR.D	Price €	Standard
Humidity	1 x U output	**FVR**	358.26	**FVR.D**	450.36	Stainless steel sintered filter ZE13
Humidity + temperature	2 x U outputs	**KVR**	445.80	**KVR.D**	523.14	
Humidity + Pt100	1 x U output + (passive)	**CVR**	388.94	**CVR.D**	473.10	
Humidity	1 x I output	**FVR**	362.75	**FVR.D**	457.18	
Humidity + temperature	2 x I outputs	**KVR**	456.02	**KVR.D**	532.24	
Humidity + Pt100	1 x I output + (passive)	**CVR**	393.49	**CVR.D**	478.76	

Filter options	Type	IP	Additional charge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

Types

Wall mounted	GC	p. 102
Meteorology	GC-ME	p. 104
Duct mounted version	KC	p. 106
With remote probe	ZC	p. 108
Pressure-resistant with remote probe	ZC.HD	p. 110

Heavy-duty transmitters for advanced requirements. The transmitters in this series are supplied with a robust, pressure die-cast aluminium housing with a stainless steel or aluminium sensor part, to measure relative humidity only, or relative humidity and temperature, in air and other non-aggressive gases, for operating temperatures up to 200 °C.

The pressure-resistant versions ZC.D and ZC.HD can be used at pressures up to 25 bar, and temperatures up to 125 °C or 160 °C respectively. These sensors are ideally suited to industrial applications, e.g. drying processes.

GC / KC / ZC

Applications

- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Clean rooms
- Climate chambers
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Drying of tea, grain & meat

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 5...95 % RH 10..40 °C	±2 % RH
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-30 ... +70 °C (-ME) -20 ... + 80 °C -25 ... +125 °C 0 ... +200 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	3/4-wire 15 ... 30 V DC /24 V AC
4...20 mA	2-wire 12 ... 30 V DC

GC / KC / ZC

In this series

- Operating temp. up to 200 °C
- Accuracy: ±2 % RH

Options

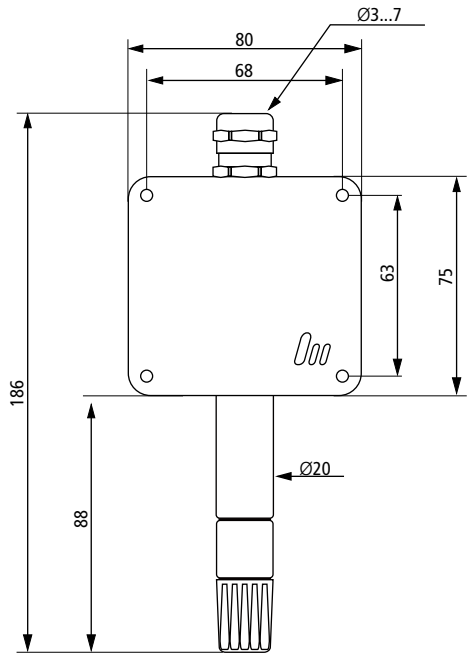
- IP 65
- Pressure-resistant up to 25 bar
- Stainless steel sensor tube

More information on the C4.7 datasheet online PDF

Humidity sensor or humidity temperature sensor

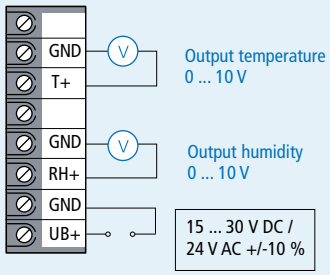
		GC	GC-ME	KC	ZC	ZC.H	ZC.D	ZC.HD
Humidity	1 x U output	268.89	296.97	368.47	463.89	692.29	554.10	768.45
Humidity + temperature	2 x U outputs	335.58	364.76	436.71	551.77	768.45	644.24	845.73
Humidity + (passive)	1 x U output + passive	280.54	308.67	379.84	484.92	705.15	565.80	781.27
Temperature	1 x U output	252.53	281.76	354.82	-	-	-	-
Humidity	1 x I output	274.78	302.79	374.13	469.77	696.95	558.76	773.12
Humidity + temperature	2 x I outputs	344.89	374.07	446.92	561.08	777.78	653.62	856.27
Humidity + (passive)	1 x I output+passive	286.43	314.49	385.50	489.64	712.20	570.46	786.04
Temperature	1 x I output	263.07	291.08	363.92	-	-	-	-
Pt100	Pt100	144.96	173.03	249.04	-	-	-	-
Operating temperature		80°C	80°C	125°C	125°C	200°C	125°C	160°C
Pressure-resistant							25BAR	25BAR
Degree of protection				IP65	IP65	IP65	IP65	IP65

Wall mounted GC

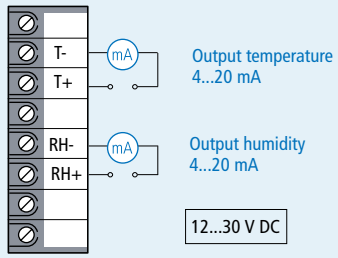


Connection diagrams

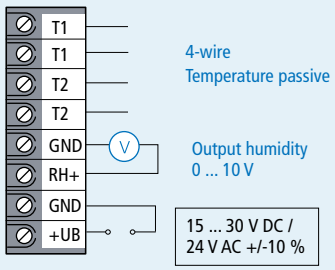
Humidity and/or temperature



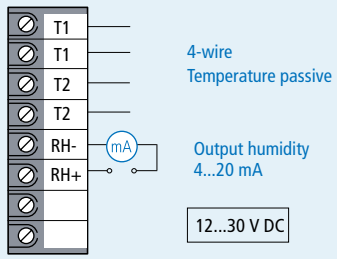
Humidity and/or temperature



Humidity and temperature
with passive measuring element



Humidity and/or temperature
with passive measuring element



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH 10..40 °C
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-20 ... +80 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	3/4-wire 15 ... 30 V DC /24 V AC
0...20 mA	2-wire 12 ... 30 V DC
4...20 mA	2-wire 12 ... 30 V DC
General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 20, aluminium, Ø 20 mm
Operating temperature	-40...+80 °C
Special features	
Galvanic separation of the current outputs	

GC

- Operating temp up to 80 °C
- Accuracy: ±2 % RH
- Current outputs galvanically isolated

Options

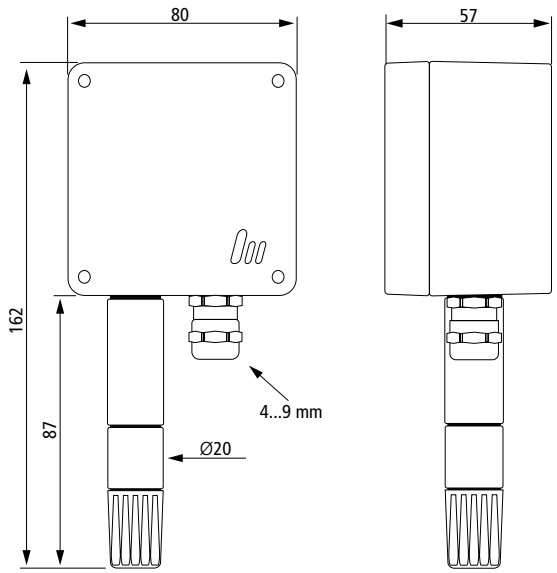
- IP 65

More information on the C4.7 datasheet online PDF

Type overview		Type GC	Price €	Standard
Humidity	1 x U output	**FGC**	268.89	Plastic protective basket conductive metallised ZE16 (IP20)
Humidity + temperature	2 x U outputs	**KGC**	335.58	
Humidity + Pt100	1 x U output + (passive)	**CGC**	280.54	
Temperature	1 x U output	**TGC**	252.53	
Humidity	1 x I output	**FGC**	274.78	
Humidity + temperature	2 x I outputs	**KGC**	344.89	
Humidity + Pt100	1 x I output + (passive)	**CGC**	286.43	
Temperature	1 x I output	**TGC**	263.07	
Temperature Pt100		**TGC**	144.96	

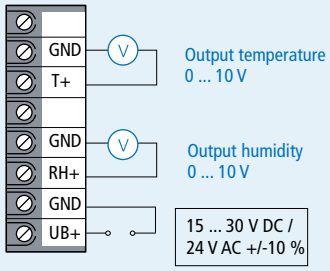
Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 00	-
Fine pore stainless steel sintered filter	ZE 21	IP 65	-

Wall mounted GC-ME meteorology

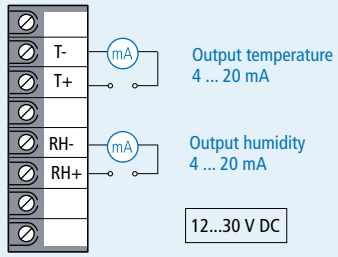


Connection diagrams

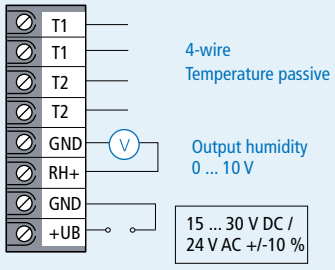
Humidity (and/or temperature)



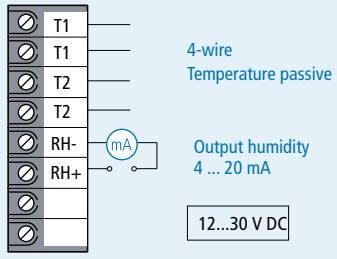
Humidity (and/or temperature)



Humidity and temperature
with passive measuring element



Humidity (and/or temperature)
with passive measuring element



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH 10..40 °C
Temperature measurement	
Sensor element	Pt100 Class 1/3-DIN
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	3/4-wire 15 ... 30 V DC /24 V AC
4...20 mA	2-wire 12 ... 30 V DC
General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 54, aluminium, Ø 20 mm
Operating temperature	-40...+80 °C
Special features	
For outdoor use	
Current outputs galvanically isolated	

GC-ME

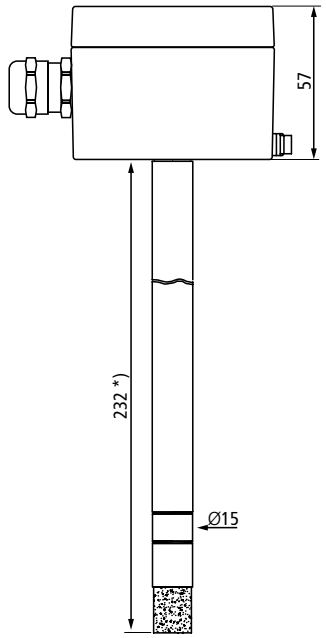
- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- IP 65
- Current outputs galvanically isolated
- Meteorological applications

More information on the C4.7-ME datasheet online PDF

Type overview		Type GC-ME	Price €	Standard
Humidity	1 x U output	**FGC-ME**	296.97	Plastic filter, metallised ZE20 (IP 54)
Humidity + temperature	2 x U outputs	**KGC-ME**	364.76	
Humidity + Pt100	1 x U output + (passive)	**CGC-ME**	308.67	
Temperature	1 x U output	**TGC-ME**	281.76	
Humidity	1 x I output	**FGC-ME**	302.79	
Humidity + temperature	2 x I outputs	**KGC-ME**	374.07	
Humidity + Pt100	1 x I output + (passive)	**CGC-ME**	314.49	
Temperature	1 x I output	**TGC-ME**	291.08	
Temperature Pt100	1 x passive	**TGC-ME**	173.03	

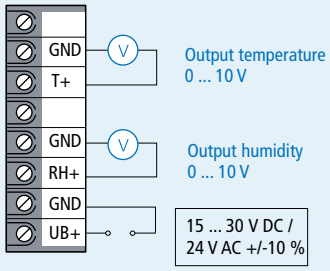
Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	-
Fine pore stainless steel sintered filter	ZE 21	IP 65	-

Duct mounted KC

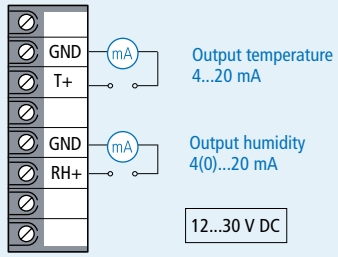


Connection diagrams

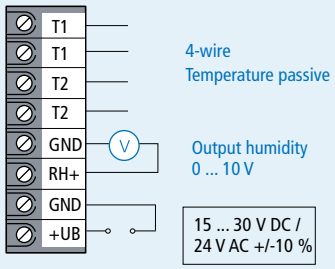
Humidity (and/or temperature)



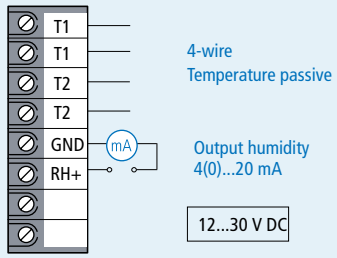
Humidity (and/or temperature)



Humidity and temperature passive Pt100



Humidity (and/or temperature) passive Pt100



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH 10..40 °C
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-25 ... +125 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	3/4-wire 15 ... 30 V DC /24 V AC
0...20 mA (humidity)	2-wire 12 ... 30 V DC
4...20 mA	2-wire 12 ... 30 V DC
General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 65, stainless steel, Ø 15 mm
Operating temperature	-40...+125 °C
Special features	
Current outputs galvanically isolated	
Operating temp. up to 200 °C	Optional

KC

- Operating temp up to 125 °C
- Accuracy: ±2 % RH
- IP 65
- Current outputs galvanically isolated
- Stainless steel sensor tube

More information on the C4.7 datasheet online PDF

Type overview		Type KC	Price €	Standard
Humidity	1 x U output	**FKC**	368.47	Stainless steel sintered filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	**KKC**	436.71	
Humidity + Pt100	1 x U output + (passive)	**CKC**	379.84	
Temperature	1 x U output	**TKC**	354.82	
Humidity	1 x I output	**FKC**	374.13	
Humidity + temperature	2 x I outputs	**KKC**	446.92	
Humidity + Pt100	1 x I output + (passive)	**CKC**	385.50	
Temperature	1 x I output	**TKC**	363.92	
Temperature Pt100		**TKC**	249.04	

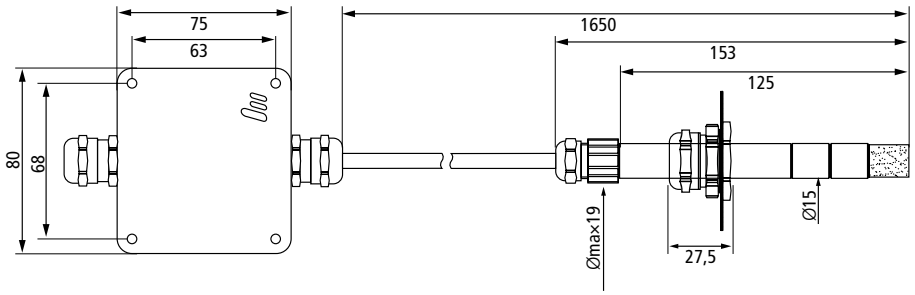
Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

Two-part design ZC and ZC.H

with remote probe

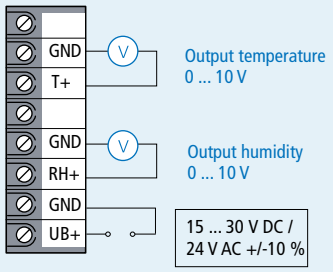
ZC
up to 125 °C

ZC.H
up to 200 °C

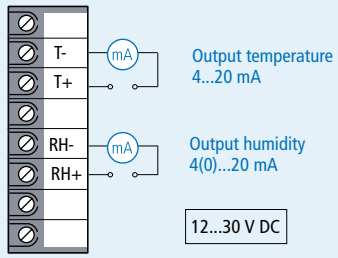


Connection diagrams

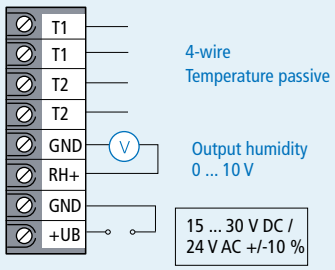
Humidity (and/or temperature)



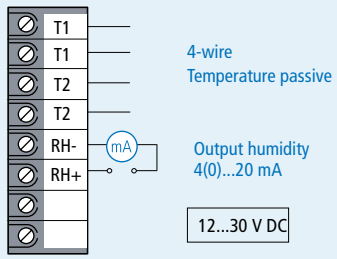
Humidity (and/or temperature)



Humidity and temperature passive Pt100



Humidity (and/or temperature) passive Pt100



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH 10..40 °C

Temperature measurement	
Sensor element	Pt100 Class B
Output range	
ZC	-25 ... +125 °C
ZC.H	0 ... +200 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K

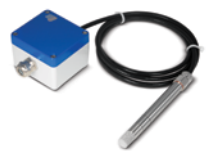
Electrical specifications	
Signal output	Supply voltage
0...10 V	3/4-wire 15 ... 30 V DC /24 V AC
0...20 mA (humidity)	2-wire 12 ... 30 V DC
4...20 mA	2-wire 12 ... 30 V DC

General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 65, stainless steel, Ø 15 mm
Operating temp. ZC	-40...+125 °C
Operating temp. ZC.H	-60...200 °C

Special features
Galvanic separation of the current outputs

ZC
ZC.H

- Operating temp. up to 200 °C
- Accuracy: ±2 % RH
- IP 65
- Current outputs galvanically isolated
- Stainless steel sensor tube



More information on the C4.7 datasheet online PDF

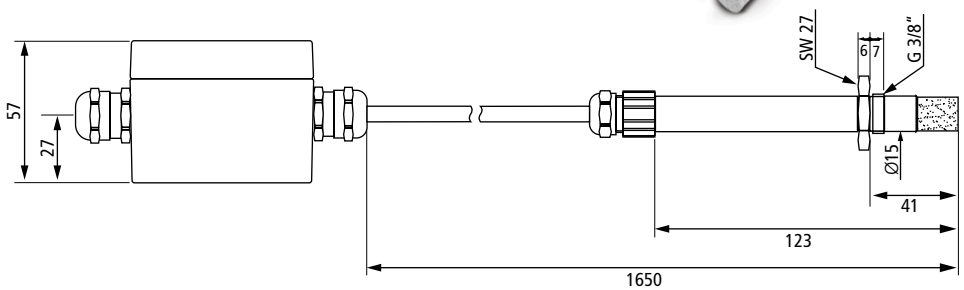
Type overview		Type	Price €	Type H	Price €	Standard
Humidity	1 x U output	**FZC**	463.89	**FZC.H**	692.29	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	**KZC**	551.77	**KZC.H**	768.45	
Humidity + Pt100	1 x U output + (passive)	**CZC**	484.92	**CZC.H**	705.15	
Humidity	1 x I output	**FZC**	469.77	**FZC.H**	696.95	
Humidity + temperature	2 x I outputs	**KZC**	561.08	**KZC.H**	777.78	
Humidity + Pt100	1 x I output + (passive)	**CZC**	489.64	**CZC.H**	712.20	

Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

Two-part design ZC.D and ZC.HD

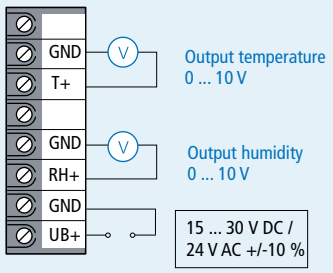
with remote probe

pressure-resistant up to 25 bar

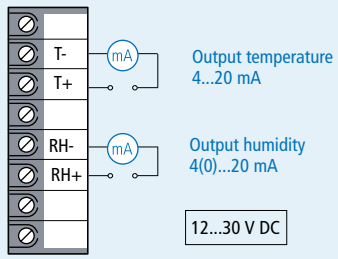


Connection diagrams

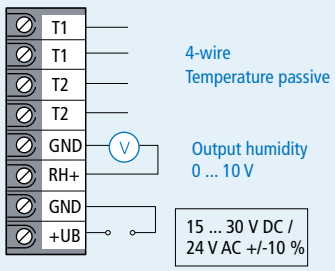
Humidity (and/or temperature)



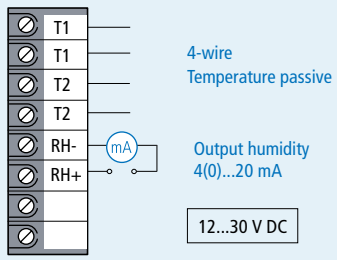
Humidity (and/or temperature)



Humidity and temperature
with passive measuring element



Humidity (and/or temperature)
with passive measuring element



Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH 10..40 °C

Temperature measurement		
Sensor element		Pt100 Class B
Output range	ZC.D	-25 ... +125 °C
	ZC.HD	0 ... +200 °C
Accuracy		
with voltage output		±0.2 K
with current output		±0.3 K

Electrical specifications		
Signal output		Supply voltage
0...10 V		3/4-wire 15 ... 30 V DC /24 V AC
0...20 mA (humidity)		2-wire 12 ... 30 V DC
4...20 mA		2-wire 12 ... 30 V DC

General		
Housing		IP 65, pressure die-cast aluminium Operating: -40...+80 °C
Sensor tube		IP 65, stainless steel, Ø 15 mm
Operating temperature	ZC.D	-40...+125 °C
	ZC.HD	-40...+160 °C

Special features	
Pressure-resistant up to 25 bar	ZC.D, ZC.HD
Galvanic separation of the current outputs	

ZC.D
ZC.HD

- Operating temp. up to 160 °C
- Accuracy: ±2 % RH
- IP 65
- Pressure-resistant
- Current outputs galvanically isolated
- Stainless steel sensor tube

More information on the C4.7 datasheet online PDF

Type overview		ZC.D	Price €	ZC.HD	Price €	Standard
Humidity	1 x U output	**FZC.D**	554.10	**FZC.HD**	768.45	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	**KZC.D**	644.24	**KZC.HD**	845.73	
Humidity + Pt100	1 x U output + (passive)	**CZC.D**	565.80	**CZC.HD**	781.27	
Humidity	1 x I output	**FZC.D**	558.76	**FZC.HD**	773.12	
Humidity + temperature	2 x I outputs	**KZC.D**	653.62	**KZC.HD**	856.27	
Humidity + Pt100	1 x I output + (passive)	**CZC.D**	570.46	**CZC.HD**	786.04	

Filter options	Type	IP	Surcharge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

ATEX

Applications

- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Paper & print
- Paint shops

Types

Wall mounted	GC.Ex	p. 114
Duct mounted version	KC.Ex	p. 116

Tailor-made explosion-proof technology with ATEX certification for use in potentially explosive atmospheres and areas with combustible dust; equipment in categories 1/2G and 2D.
The sensors consist of a sensor part with a sintered filter (both made from stainless steel), mounted on a robust aluminium pressure die-cast housing (transmitter component).

II 1/2G Ex ia IIC T4 Ga/Gb

II 2D Ex ia IIIC T95 °C Db

$-40\ °C \leq T_a \leq +80\ °C$

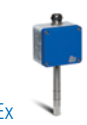
Approved for use in potentially explosive atmospheres:
EC Type Examination Certificate
IBExU 07 ATEX 1114

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH and 10...40 °C
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-20 ... + 80 °C
Accuracy at 23 °C	±0.2 K (otherwise ±0.3 K)
Electrical specifications	
Signal output 4...20 mA	Supply voltage 13 ... 24 V DC (intrinsically safe)

ATEX C.Ex

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- IP 66
- ATEX approval
- Categories 1/2 G and 2D
- Stainless steel sensor tube

Humidity sensor or humidity temperature sensor




Price €	GC.Ex	KC.Ex
1 x output	458.29	458.29
2 x outputs	531.96	531.96

Temperature sensor

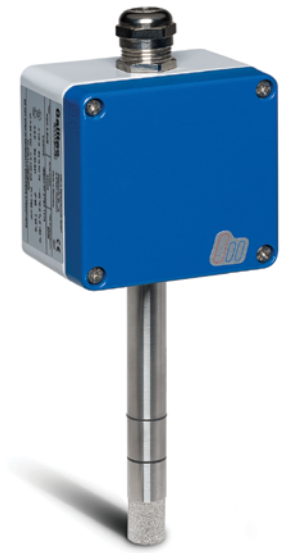
1 x output	436.10	436.10

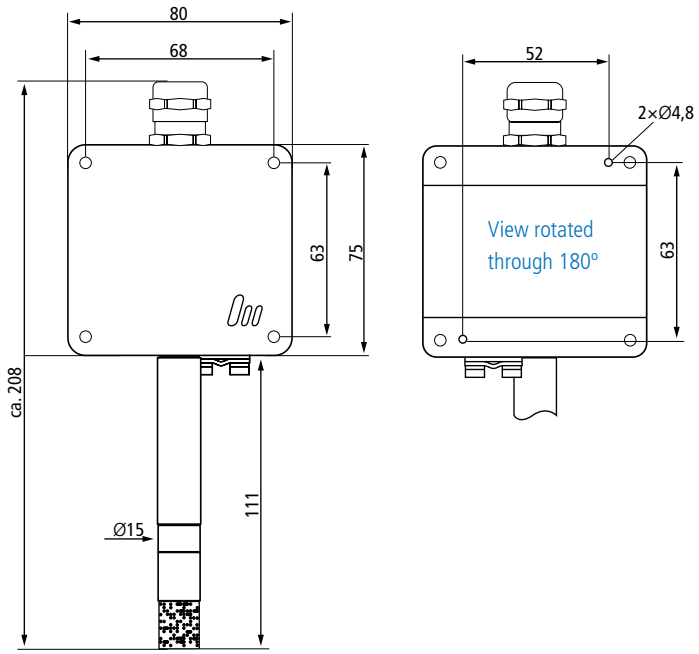
Accessories

Transmitter supply isolator, one-channel	281.54
Transmitter supply isolator, two-channel	356.60
Installation kit for Ex sensors with connection to Zone 0	51.04

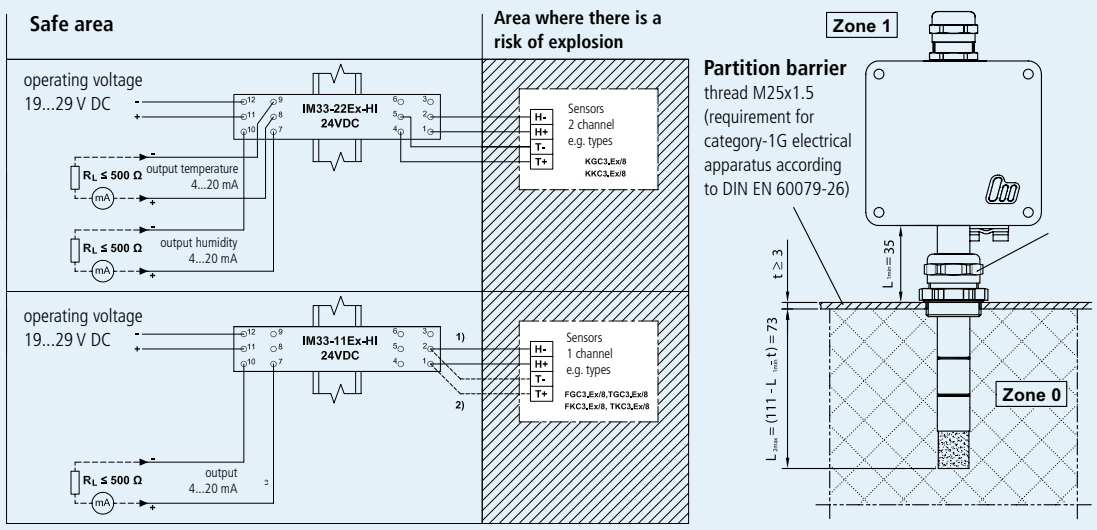
More information on the C4.8 datasheet online PDF

Wall mounted with ATEX approval





Connection diagrams



Type overview	Type		Price €	Standard
Humidity	**FGC.Ex**	1 x output	458.29	Stainless steel sintered filter ZE13 (IP 65)
Humidity + temperature	**KGC.Ex**	2 x output	531.96	
Temperature	**TGC.Ex**	1 x output	436.10	

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % RH and 10...40 °C
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-20 ... + 80 °C
Accuracy at 23 °C	±0.2 K (otherwise ±0.3 K)
Electrical specifications	
Signal output 4...20 mA	Supply voltage 13 ... 24 V DC (intrinsically safe)
General	
Housing	IP 66, pressure die-cast aluminium
Maximum surface temperature	+85 °C
Storage temperature	-40...+80 °C
Operating temperature	-40...+80 °C
Sensor tube	Stainless steel, Ø 15 mm
Degree of protection	IP 66

Special features

Approved for use in potentially explosive atmospheres:
EC Type Examination Certificate
IBExU 07 ATEX 1114

II 1/2G Ex ia IIC T4 Ga/Gb

II 2D Ex ia IIIC T95 °C Db

-40 °C ≤ T_a ≤ +80 °C

GC.Ex

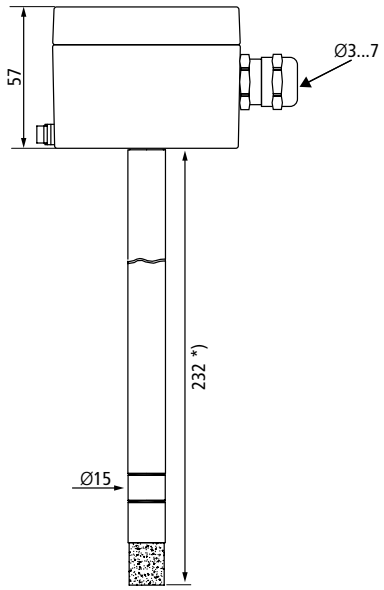
- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- IP 66
- ATEX approval
- Categories 1/2 G and 2D
- Stainless steel sensor tube

Accessories

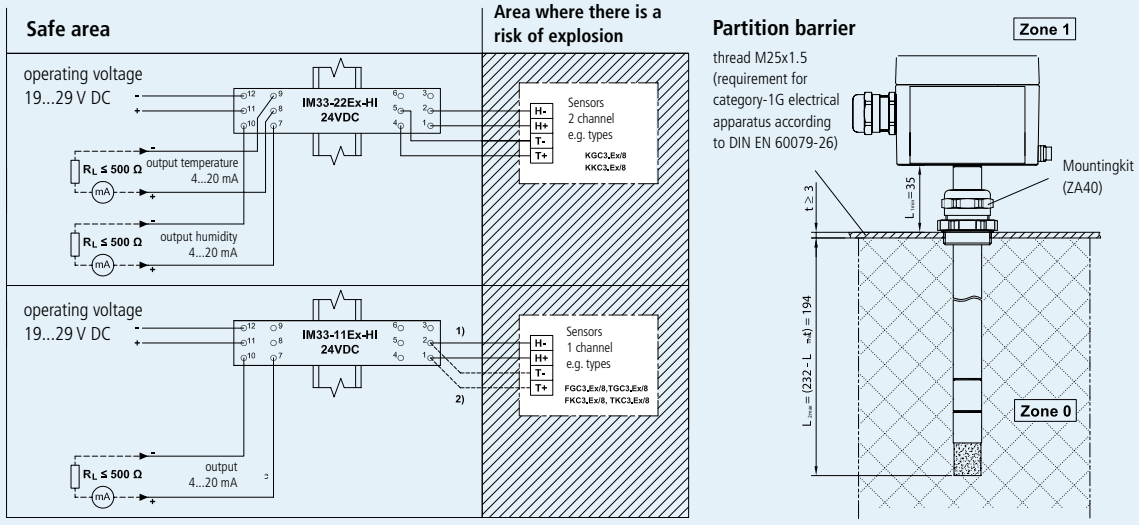
Transmitter supply isolator, one-channel	281.54
Transmitter supply isolator, two-channel	356.60
Installation kit for Ex sensors with connection to Zone 0	51.04

More information on the C4.8 datasheet online PDF

Duct mounted KC.Ex with ATEX approval



Connection diagrams



Type overview	Type		Price €	Standard
Humidity	**FKC.Ex**	1 x output	458.29	Stainless steel sintered filter ZE13 (IP 65)
Humidity + temperature	**KKC.Ex**	2 x output	531.96	
Temperature	**TKC.Ex**	1 x output	436.10	

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 5...95 % RH and 10...40 °C	±2 % RH
Temperature measurement	
Sensor element	Pt100 Class B
Output range	-20 ... + 80 °C
Accuracy at 23 °C	±0.2 K (otherwise ±0.3 K)
Electrical specifications	
Signal output 4...20 mA	Supply voltage 13 ... 24 V DC (intrinsically safe)
General	
Housing	IP 66, pressure die-cast aluminium
Maximum surface temperature	+85 °C
Storage temperature	-40...+80 °C
Operating temperature	-40...+80 °C
Sensor tube	Stainless steel, Ø 15 mm
Degree of protection	IP 66

Special features

Approved for use in potentially explosive atmospheres:
EC Type Examination Certificate
IBExU 07 ATEX 1114

II 1/2G Ex ia IIC T4 Ga/Gb

II 2D Ex ia IIIC T95 °C Db

-40 °C ≤ T_a ≤ +80 °C

KC.Ex

- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- IP 66
- ATEX approval
- Categories 1/2 G and 2D
- Stainless steel sensor tube

Accessories	Price €
Transmitter supply isolator, one-channel	281.54
Transmitter supply isolator, two-channel	356.60
Installation kit for Ex sensors with connection to Zone 0	51.04

More information on the C4.8 datasheet online PDF

Types

Wall mounted	BW	p. 120
Duct mounted	BK	p. 124
With remote probe	BZ	p. 128

Heavy-duty transmitters for advanced requirements. Depending on the individual design, these sensors can be used at temperatures between -80 °C and +200 °C and at pressures of up to 10 bar. In the B series, the probe and transmitter are firmly connected to one another.

The integrated hx processor can calculate further humidity values and apply them to the two outputs. With the RS485 standard all of the hx-values can be read simultaneously.

Due to the digitisation of signal processing, the measurement accuracy for humidity achieves excellent values of ±1.5 % RH. In temperature measurement, the platinum resistance sensor achieves tolerances of ±0.15 K.

B series

Applications

- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Clean rooms
- Climate chambers
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Drying of tea, grain & meat

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH

Temperature measurement	
Sensor element	Pt1000 Class B
Output range	-40 ... + 85 °C -50 ... +150 °C -80 ... +200 °C others on request
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

B series

In this series

- Operating temp up to 200 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65

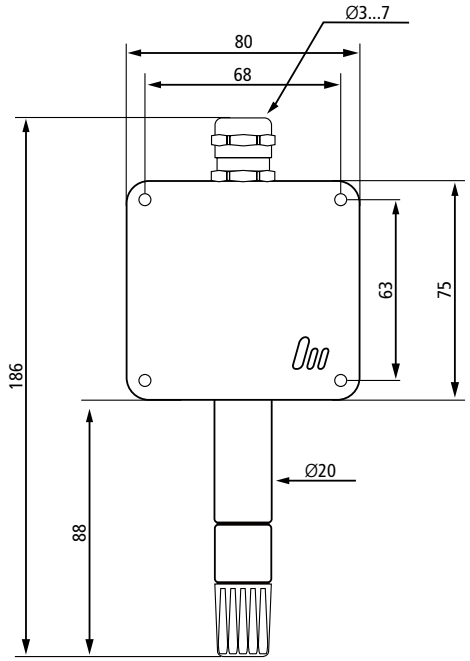
Options

- Display
- Modbus
- Pressure-resistant up to 10 bar
- Resistant to ammonia
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

Humidity sensor or humidity temperature sensor

Price €	BW_.00	BK_.0E	BZ_.0H
1 x output humidity	313.94	346.83	642.58
2 x outputs humidity + temperature	378.29	411.24	714.36
1 x output + Pt100 (passive)	384.40	417.29	720.47
1 x output temperature	275.39	307.17	602.86
Display	80.39	80.39	80.39
Operating temperature	85 °C	150°C	200°C
Ammonia-resistant on request		NH_3	NH_3
Pressure-resistant on request		10BAR	

Wall mounted BW



Type overview		Type	Price €	Standard	Options	
Humidity	1 x output	**BWF_.00**	313.94	Plastic protective basket, metallised ZE16	Display	80.39
Humidity + temperature	2 x outputs	**BWK_.00**	378.29			
Humidity + Pt100	1 x output + (passive)	**BWC_.00**	384.40			
Temperature	1 x output	**BWT_.00**	275.39			
Output RS232		**BWKR.00**	354.82	Plastic protective basket, metallised ZE16	-	-
Output RS485 Modbus		**BWKM.00**	366.47		Display	80.39

Options	Type	IP	Surcharge €
2-line display (except RS232)	-	-	80.39
Protective basket in PBT plastic, conductive metallised	ZE16	IP 20	Standard
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	15.53
Plastic filter with inserted stainless steel fine gauze	ZE17	IP 40	5.26
Sintered filter made of fine pore PTFE for extreme conditions	ZE18	IP 65	26.30
Plastic filter, metallised with membrane	ZE20	IP 54	20.08
Fine pore stainless steel sintered filter	ZE21	IP 65	20.08
Coarse pore stainless steel sintered filter	ZE22	IP 65	20.08

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)
Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)
hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC
General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+85 °C
Sensor tube	Aluminium painted, Ø 20 mm
Plastic protective basket, metallised ZE16	IP 20
Fine pore sintered filter in ZE21 stainless steel	IP 65
Special features	
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Vibration-resistant	Optional

Probe and transmitter are firmly connected to one another.

B series BW

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65

Options

- Display
- Modbus
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

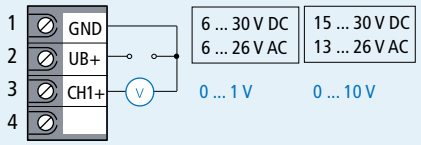
More information on the A+B series digital datasheet online PDF

More information on the A+B series analogue datasheet online PDF

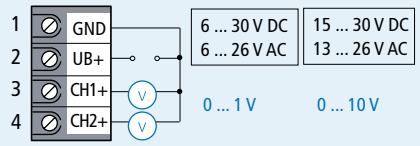
Wall mounted BW

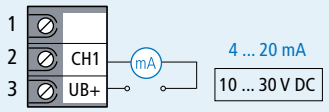
Connection diagrams analogue

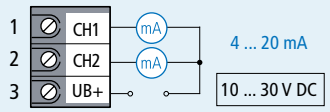
Humidity

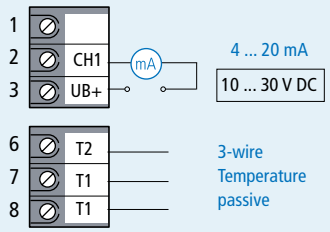


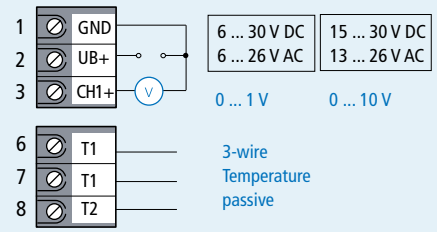
Humidity and temperature





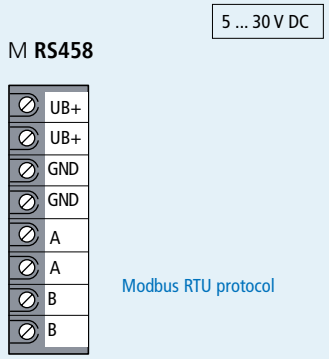




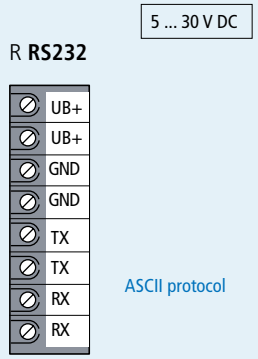


Connection diagrams digital

M RS458

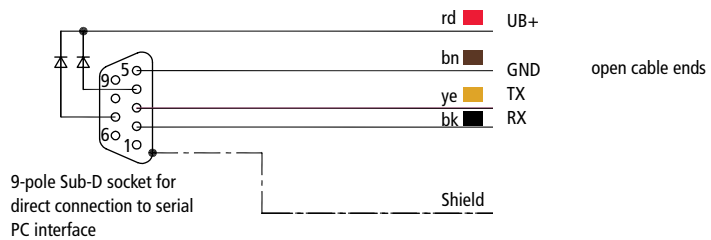


R RS232



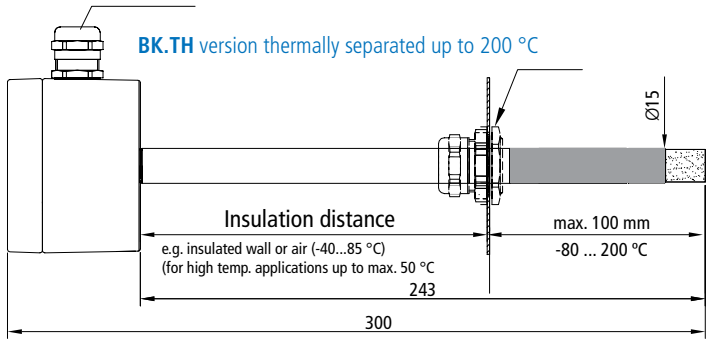
Pin assignment cable accessories

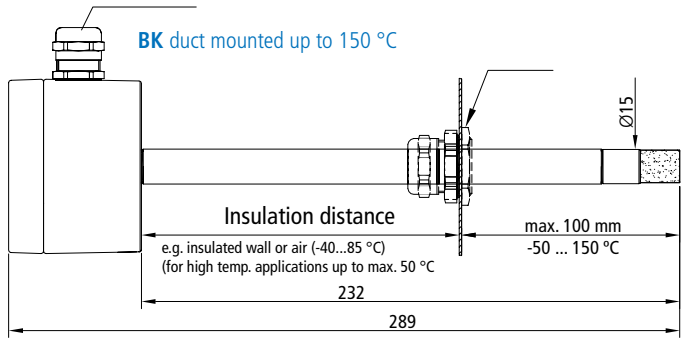
RS232



Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51

Duct mounted BK





Type overview		Type	Price €	Type TH	Price €	Standard
Humidity	1 x output	**BKF_.0E**	346.83	**BKF_.TH**	379.18	Stainless steel sintered filter, coarse ZE13 (IP 65)
Humidity + temperature	2 x outputs	**BKK_.0E**	411.24	**BKK_.TH**	443.53	
Humidity + Pt100	1 x output + (passive)	**BKC_.0E**	417.29	**BKC_.TH**	449.63	
Temperature	1 x output	**BKT_.0E**	307.17	**BKT_.TH**	339.46	
Output RS232		**BKKR.0E**	387.72	**BKKR.TH**	420.06	
Output RS485 Modbus		**BKKM.0E**	399.43	**BKKM.TH**	431.72	

Display and filter options Ø 15 mm	Type	IP	Surcharge €
2-line display (except RS232)	-	-	80.39
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)

Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-50 ... +150 °C -80 ... +200 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

General	
Housing	IP 65, pressure die-cast aluminium Operating: -40...+85 °C
For use in high temperatures	Operating: -40...+50 °C
Sensor tube	Stainless steel, Ø 15 mm
Operating temperature BK_.0E	-50 ... +150 °C
BK_.TH	-80 ... +200 °C
Stainless steel sintered filter ZE13	IP 65

Special features	
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Resistant to ammonia	On request
Pressure-resistant up to 10 bar	On request

Probe and transmitter are firmly connected to one another.

BK

- Operating temp. up to 200 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube

Options

- Display
- Modbus
- Pressure-resistant up to 10 bar
- Resistant to ammonia
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

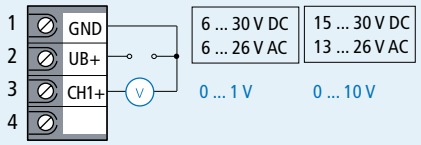
More information on the A+B series digital datasheet online PDF

More information on the A+B series analogue datasheet online PDF

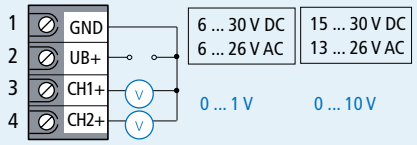
Duct mounted BK

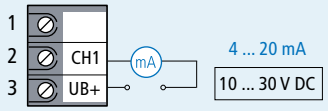
Connection diagrams analogue

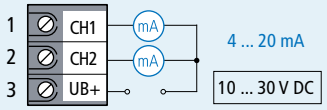
Humidity

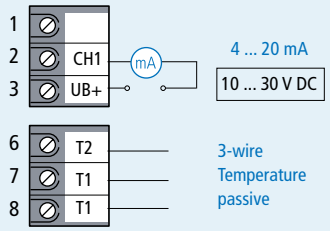


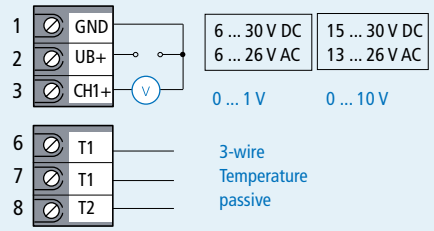
Humidity and temperature





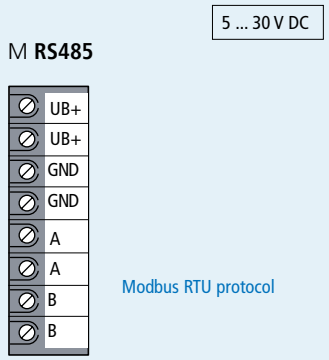


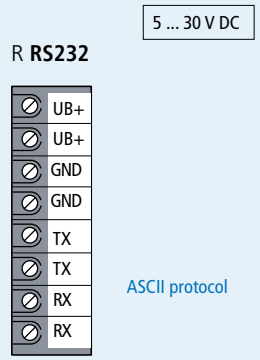




	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51

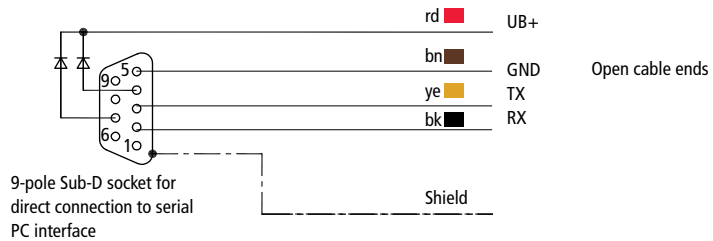
Connection diagrams digital





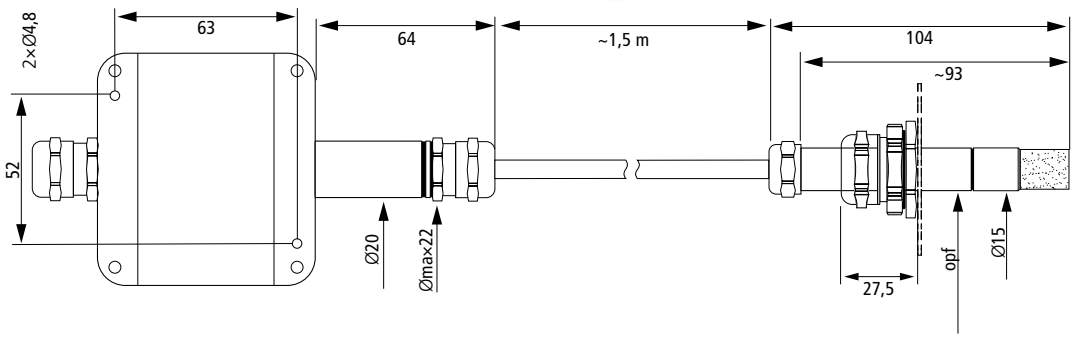
Pin assignment cable accessories

RS232



Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51

Two-part design BZ
with remote probe



Type overview		Type	Price €	Standard
Humidity	1 x output	**BZF_.0H**	642.58	1.5 m cable, Stainless steel sintered filter ZE13 (IP 65)
Humidity + temperature	2 x outputs	**BZK_.0H**	714.36	
Humidity + Pt100	1 x output + (passive)	**BZC_.0H**	720.47	
Temperature	1 x output	**BZT_.0H**	602.86	
Output RS232		**BZKR.0H**	690.89	
Output RS485 Modbus RTU		**BZKM.0H**	702.55	

Display and filter options Ø 15 mm	Type	IP	Surcharge €
2-line display (except RS232)	-	-	80.39
Coarse pore stainless steel sintered filter	ZE13	IP 65	Standard
Stainless steel filter open	ZE04	IP 00	-
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30	33.90
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65	59.50
Fine pore stainless steel sintered filter	ZE29	IP 65	2.66
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00	10.26

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)

Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-80 ... +200 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

General	
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+85 °C
Tube on housing	Aluminium, Ø 20 mm
Sensor tube	Stainless steel, Ø 15 mm
Operating temperature BZ.0H	-80...+200 °C
Stainless steel sintered filter ZE13	IP 65

Special features	
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Resistant to ammonia	On request
Pressure-resistant up to 10 bar	Optional in the Modbus version

Probe and transmitter are firmly connected via cable.

BZ

- Operating temp up to 200 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube

Options

- Display
- Modbus
- Pressure-resistant up to 10 bar
- Resistant to ammonia
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

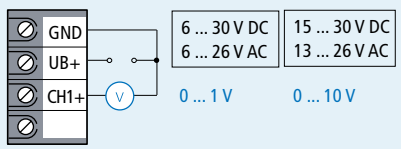
More information on the A+B series digital datasheet online PDF

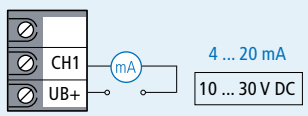
More information on the A+B series analogue datasheet online PDF

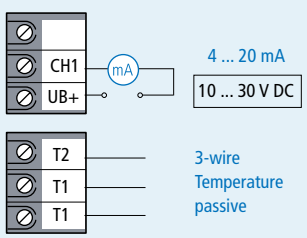
Remote probe BZ

Connection diagrams analogue

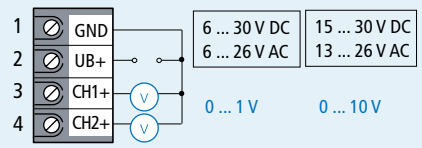
Humidity

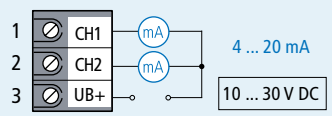


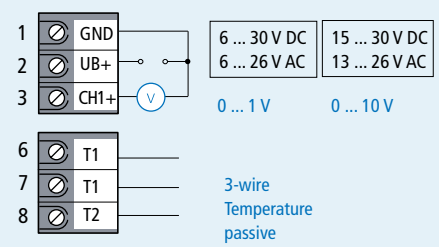




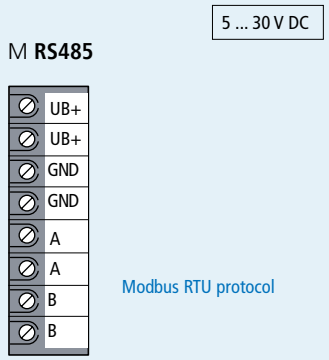
Humidity and temperature

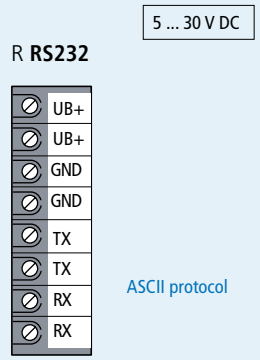






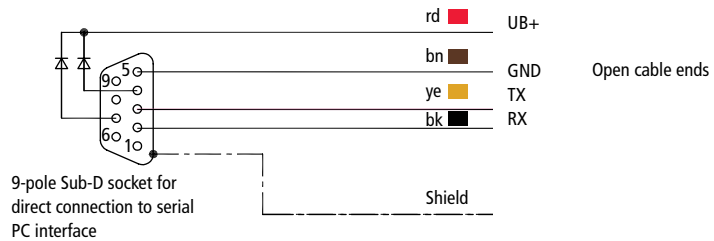
Connection diagrams digital





Pin assignment cable accessories

RS232



Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51

Types

Combination overview		p. 134
Wall mounted	AW	p. 136
Duct mounted version	AK	p. 140
With remote probe		p. 144

Heavy-duty transmitters for advanced requirements. The probe and transmitter are exchangeable and can be used in any combination. Depending on the individual design, these sensors can be used at temperatures between -80 °C and +200 °C and at pressures of up to 25 bar.

The integrated hx processor can calculate further humidity values and apply them in any way to the two outputs. With the RS485 standard all of the hx-values can be read simultaneously.

Due to the digitisation of signal processing, the measurement accuracy for humidity achieves excellent values of ±1.5 % RH. In temperature measurement, the platinum resistance sensor achieves tolerances of ±0.15 K.

A series with S series

Applications

- Process & factory automation
- Pharmaceutical industry
- Chemical industry
- Clean rooms
- Climate chambers
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Drying of tea, grain & meat

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±1.5 % RH 10...90 % RH at 23 °C

Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3 DIN Class B
Output range	-40 ... + 85 °C -50 ... +150 °C -60 ... +160 °C -80 ... +200 °C others on request
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m³
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

A series with S series

In this series

- Operating temp. up to 200 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube
- Can be combined

Options

- Modbus
- Display
- Exchangeable probe
- Pressure-resistant up to 25 bar
- Resistant to ammonia
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

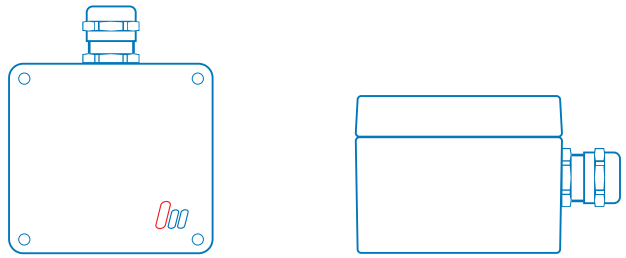
Humidity sensor or humidity temperature sensor

	AW	AK	Remote probe
Operating temperature	85°C	150°C	200°C

Other (special) versions can be combined

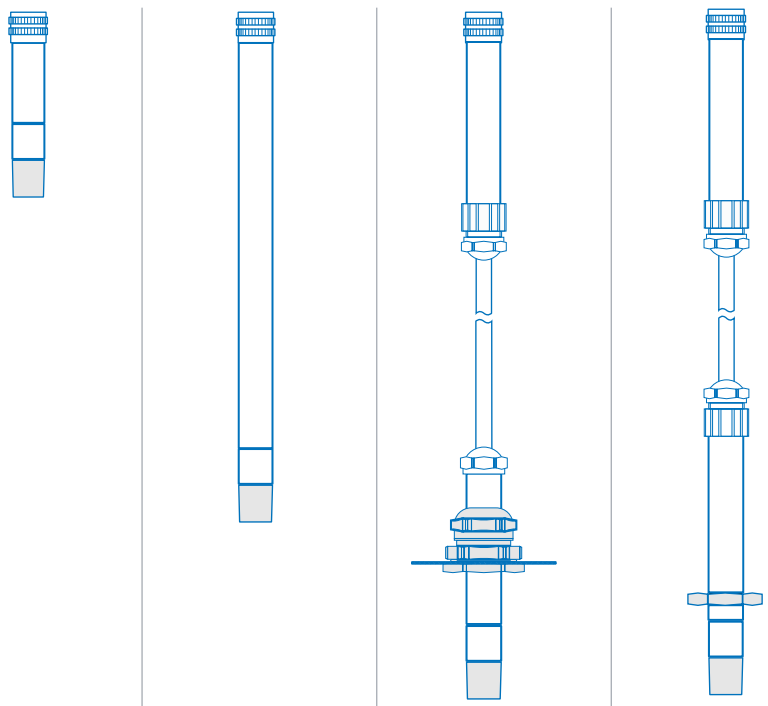
The probe and transmitter are exchangeable and can be optionally combined. This provides a lot of combinations. See page 134

A series



Transmitters of the A series
can be **combined with the probes** of the S series

S series



SVKA.00 222.90	SVKA.0E 245.65	SZKA.0H 473.10	SZKA.HD 569.74
-40 ... + 85 °C	-50 ... +150 °C	-80 ... +200 °C	-60... + 160 °C
			pressure-resistant up to 25 bar

For advanced requirements, transmitters can be combined with probes

AW AK SVKA.00 SVKA.0E SZKA.0H SZKA.HD

Transmitters	Type	Price €	Type	Price €
Humidity	**AWF**	210.25	**AKF**	218.91
Humidity + temp.	**AWK**	210.25	**AKK**	218.91
Output RS232	**AWK R**	145.85	**AKK R**	154.50
Output RS485 Modbus	**AWK M**	157.50	**AKK M**	166.15

Probes		Price €
SVKA.00	-40... 85 °C	222.90
SVKA.0E	-50...150 °C	245.65
SZKA.0H	-80...200 °C	473.10
SZKA.HD	-60...160 °C	569.74

Versions

Humidity	Temperature	Special version	Design
0 ... 100 % RH	-40 ... + 85 °C		Wall & duct mounted versions
	-50 ... +150 °C		Wall & duct mounted versions
	-60 ... +160 °C	pressure-resistant up to 25 bar	Remote probe
	-80... + 200 °C		Remote probe

Other versions e.g. pressure-resistant up to 10 bar and ammonia-resistant on request

Accessories

Filters	Operating temp. range	IP		Surcharge €
Coarse pore stainless steel sintered filter	-80..200 °C	IP 65	ZE13	Standard
PTFE filter and ZE04 stainless steel filter open	-80..200 °C	IP 20	Combi 94	10.26
Stainless steel filter with gauze and membrane to protect against aerosols	-50...150 °C	IP 54	ZE26	38.83
Stainless steel filter with fitted fine pore PTFE sintered filter, for extreme conditions	-80..200 °C	IP 65	ZE28	59.50
Sintered PTFE filters	-80..200 °C	IP 65	ZE29	2.66

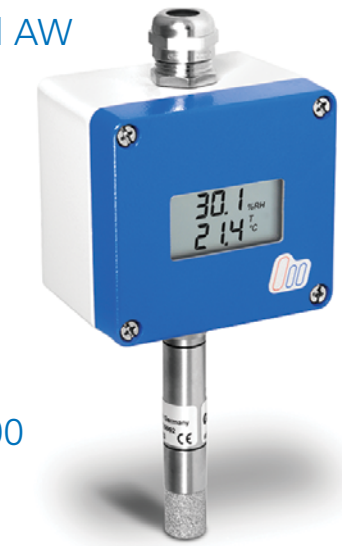
Cable	Accessories for	Length	Price €
Setup cable, for RS485 Modbus protocol	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial PC interface (IP 30)	A+B series RS232	4 m	54.67
Surcharge for cable for high temperature use sensors series SZKA.0H... /SZKA.HD...		p/m	on request
Surcharge for cable for normal temperature use sensors series SZKA.00...		p/m	on request

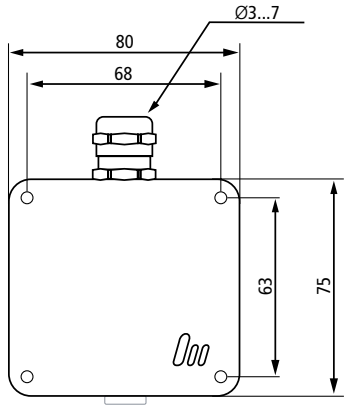
Constant module	Accessories for	Price €
Constant module for static calibration	A series	on request

Transmitter for wall mounted AW

Display optional
-40...+85 °C

85°C IP65



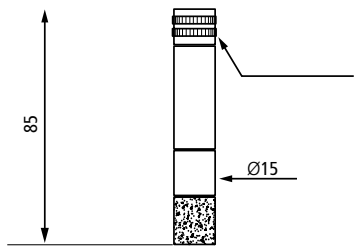


combined with

Probe SVKA.00

-40...+85 °C

85°C IP65



Transmitters	Type	Price €
Humidity	**AWF**	210.25
Humidity + temperature	**AWK**	210.25
Output RS232	**AWK R**	145.85
Output RS485 Modbus RTU	**AWK M**	157.50

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Probes	SVKA.00	SVKA.0E	Price €
SVKA.00	-40... 85 °C		222.90
SVKA.0E	-50...150 °C		245.65

Options	Type	IP	Surcharge €
2-line display		-	80.39
Stainless steel sintered filter, coarse pore	ZE13	IP 65	Standard
Stainless steel filter with PTFE membrane	ZE26	IP 54	38.84
Sintered PTFE filters	ZE29	IP 65	2.66
Stainless steel filter with fitted PTFE filter	ZE28	IP 65	59.50
PTFE filter and ZE04 stainless steel filter open	Combi filter 94	IP 20	10.26

Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)

Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

General	
Housing	IP 65, pressure die-cast aluminium
Plug-in connection probe	IP 67
Storage temperature	-40...+85 °C
Operating temperature	-40...+85 °C
Sensor tube	Stainless steel, Ø 15 mm
Stainless steel sintered filter ZE13	IP 65

Special features	
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Vibration-resistant	Optional
Ammonia-resistant (probe)	On request
Pressure-resistant up to 10 bar (probe)	On request

Combination of:
- Transmitter with analogue or digital output
- Choice of calibrated exchangeable probes for different measuring tasks

AW with S series

- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube
- Can be combined

Options

- Modbus
- Display
- Exchangeable probe
- Resistant to ammonia
- Pressure-resistant up to 10 bar
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

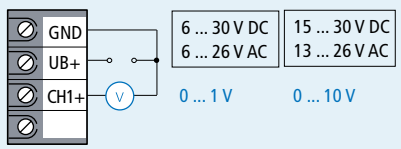
More information on the A+B series digital datasheet online PDF

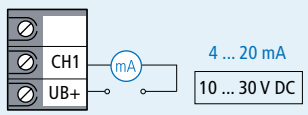
More information on the A+B series analogue datasheet online PDF

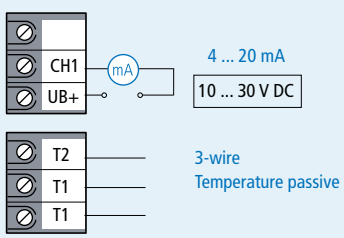
Wall mounted AW

Connection diagrams analogue

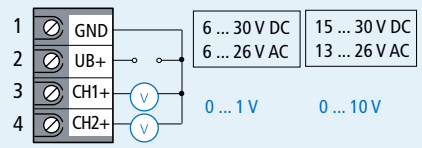
Humidity

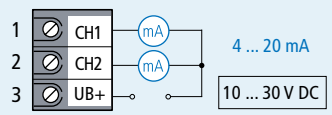


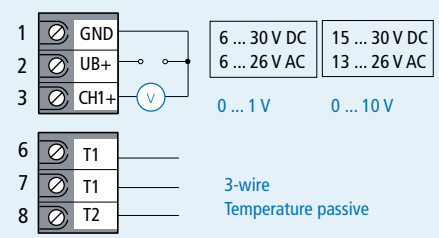




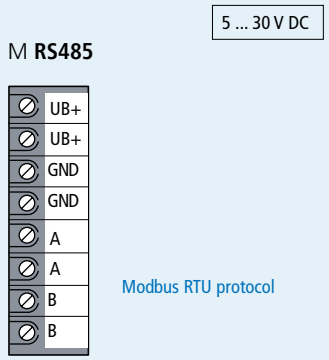
Humidity and temperature

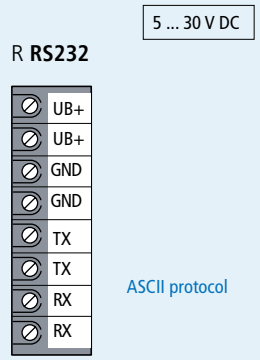






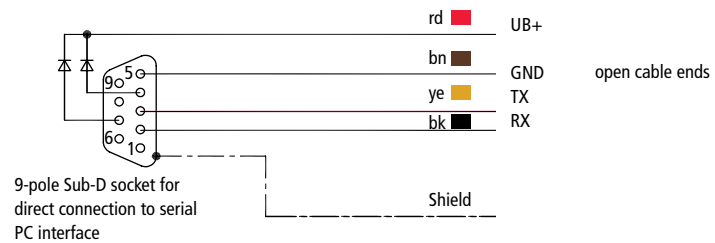
Connection diagrams digital





Pin assignment cable accessories

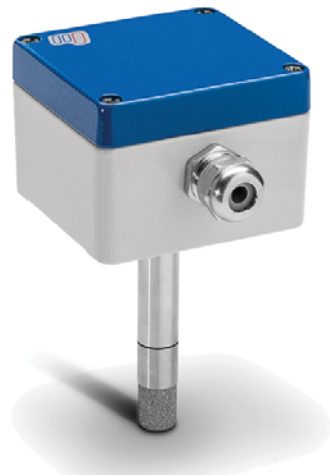
RS232

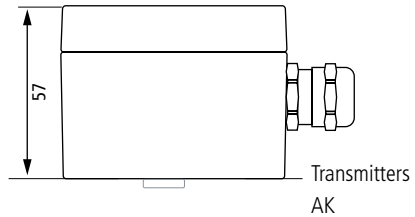


Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67

Transmitter for duct mounted AK

Display optional
-40...+85 °C
85°C IP65

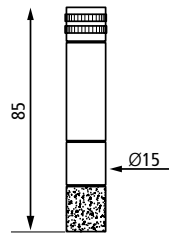




combined with

Probe SVKA.00

-40...+85 °C
85°C IP65



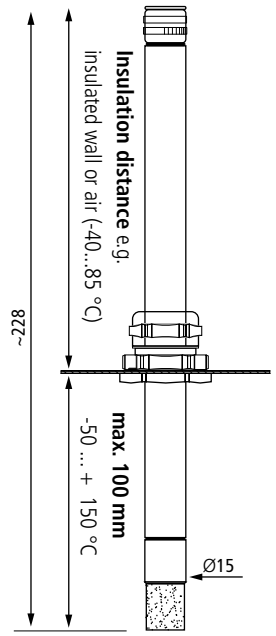
Transmitter for duct mounted AK

Display optional
-40...+85 °C
85°C IP65

combined with

Probe SVKA.0E

-50...+150 °C
150°C IP65



Transmitters

	Type	Price €
Humidity	**AKF**	218.91
Humidity + temperature	**AKK**	218.91
Output RS232	**AKK R**	154.50
Output RS485 Modbus RTU	**AKK M**	166.15

&

Probes

	SVKA.00	SVKA.0E	Price €
SVKA.00	-40... 85 °C		222.90
SVKA.0E		-50...150 °C	245.65

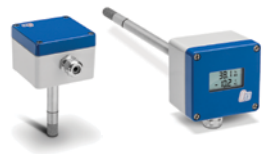
Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)
Temperature measurement	
Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-40 ... + 85 °C -50 ... + 150 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)
hx converter for derived humidity variables (except RS232)	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC
General	
Housing	IP 65, pressure die-cast aluminium
Plug-in connection probe	IP 67
Storage temperature	-40...+85 °C
Operating temperature	-40...+85 °C
Sensor tube	Stainless steel, Ø 15 mm
Stainless steel sintered filter ZE13	IP 65
Special features	
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Vibration-resistant	Optional
Ammonia-resistant (probe)	On request
Pressure-resistant up to 10 bar (probe)	On request
Combination of: - Transmitter with analogue or digital output - Choice of calibrated exchangeable probes for different measuring tasks	

AK with S series

- Operating temp. up to 150 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube
- Can be combined

Options

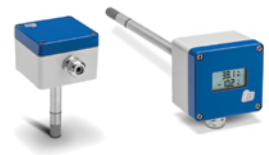
- Modbus
- Display
- Exchangeable probe
- Resistant to ammonia
- Pressure-resistant up to 10 bar
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy



More information on the A+B series digital datasheet online PDF

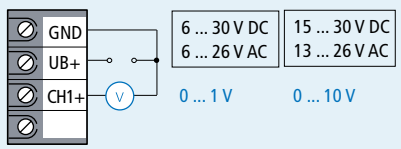
More information on the A+B series analogue datasheet online PDF

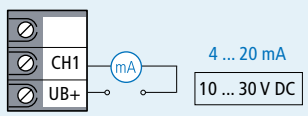
Duct mounted AK

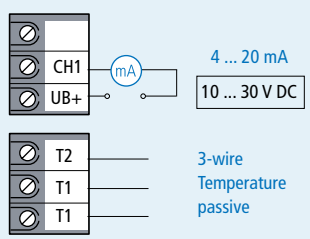


Connection diagrams analogue

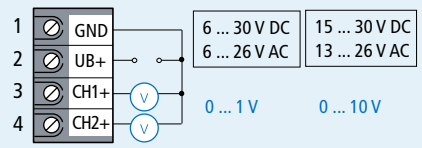
Humidity

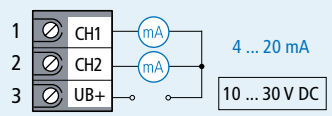


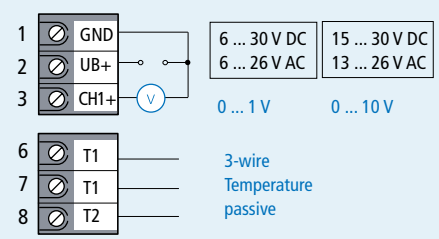


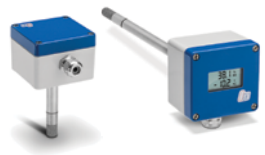


Humidity and temperature

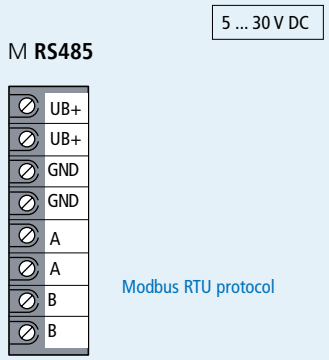


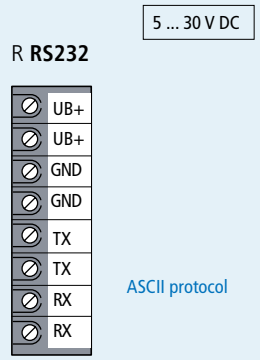






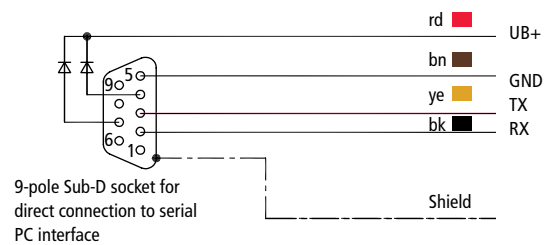
Connection diagrams digital





Pin assignment cable accessories

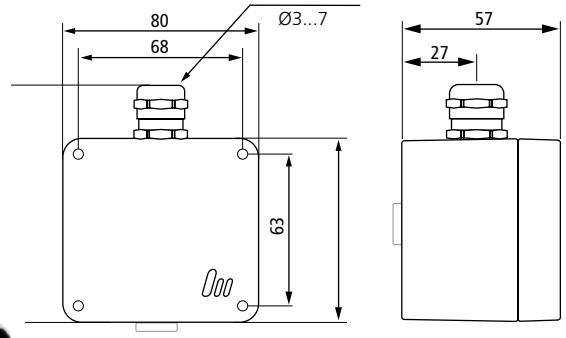
RS232



Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67

Transmitter for wall mounted AW

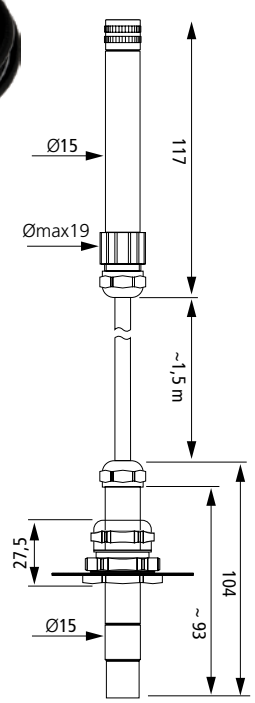
Display optional
-40...+ 85 °C
85°C IP65



combined with

remote probe SZKA.0H

-80...+200 °C
200°C IP65

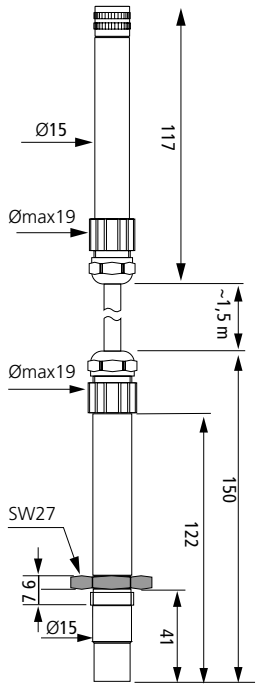


Probe SZKA.0H
-80...+200 °C

combined with

remote probe SZKA.HD

-60...160 °C
160°C IP65 25BAR



Probe SZKA.HD
-60...+160 °C, up to 25 bar

Transmitters	Type	Price €
Humidity	**AWF**	210.25
Humidity + temperature	**AWK**	210.25
Output RS232	**AWK R**	145.85
Output RS485 Modbus RTU	**AWK M**	157.50

&

SZKA.0H SZKA.HD

Probes		Price €
SZKA.0H	-80...200 °C	473.10
SZKA.HD	-60...160 °C	569.74

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy 10...90 % RH 23 °C	≤ ±1.5 % RH (other ±2 % RH)

Temperature measurement

Sensor element	Pt1000 Class B
Modbus version	Pt1000 1/3-DIN Cl. B
Output range	-60 ... + 160 °C -80 ... + 200 °C
Accuracy at 23 °C	±0.15 K (analogue) ±0.2 K (Modbus)

hx converter for derived humidity variables (except RS232)

Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg

Electrical specifications

Signal output	Supply voltage
0...1 V	6 ... 30 V DC / 6...26 V AC
0...10 V	15 ... 30 V DC / 13...26 V AC
4...20 mA	10 ... 30 V DC
RS232, RS485 Modbus	5 ... 30 V DC

General

Housing	IP 65, pressure die-cast aluminium
Plug-in connection probe	IP 67
Operating temperature	-40...+85 °C
Sensor tube	Stainless steel, Ø 15 mm
Stainless steel sintered filter ZE13	IP 65
Operating temperature SZKA.0H	-80...+200 °C
SZKA.HD	-60...+160 °C

Special features

Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Vibration-resistant	Optional
Resistant to ammonia	On request
Pressure-resistant up to 25 bar	Optional

Combination of:
- Transmitter with analogue or digital output
- Choice of calibrated exchangeable probes for different measuring tasks

A series with remote probe

- Operating temp. up to 200 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65
- Stainless steel sensor tube
- Can be combined

Options

- Modbus
- Display
- Exchangeable probe
- Resistant to ammonia
- Pressure-resistant up to 25 bar
- hx converter
  Dew point temperature
  Wet bulb temperature
  Absolute humidity
  Mixing ratio
  Enthalpy

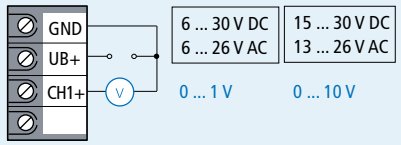
More information on the A+B series digital datasheet online PDF

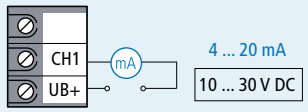
More information on the A+B series analogue datasheet online PDF

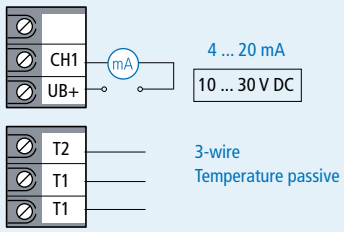
AW with remote probe

Connection diagrams analogue

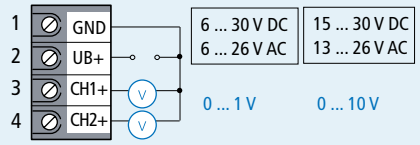
Humidity

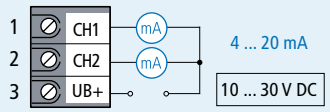


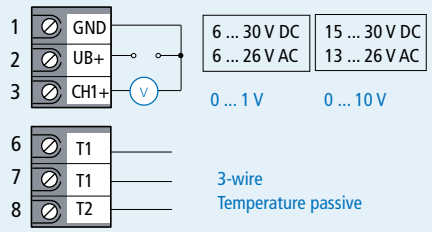




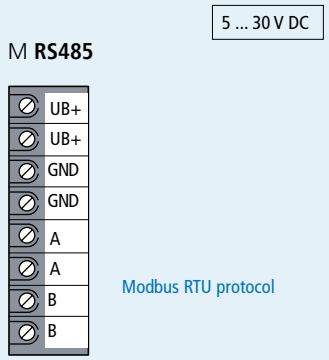
Humidity and temperature

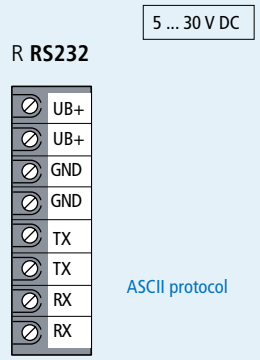






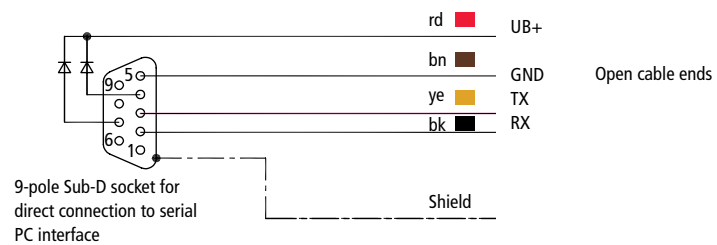
Connection diagrams digital





Pin assignment cable accessories

RS232



Cable accessories	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67

FG

Types

Indoor version	FG120	p. 150
Duct mounted (passive)	FG80H	p. 152
Duct mounted (active)	FG80J	p. 152

Description

POLYGA® transmitters demonstrate excellent measuring properties and accuracy in high humidity conditions. They can be adjusted and cleaned in water. Their outstanding durability, reliability and robustness make them the preferred choice for food processing applications such as fermenting and ripening, or in other applications with prolonged periods of high relative humidity.

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Museums
- Swimming pools & spas
- Storage & transportation
- Process & factory automation
- Paint shops
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Greenhouses
- Animal husbandry
- Bakery technology
- Drying of tea, grain, meat
- Storage and transport of fruit, vegetables & meat
- Maturing of food

Relative humidity measurement	
Measuring/sensor element	hygroscopic POLYGA®
Output range	0...100 % RH
Accuracy: >40 % RH	±2.5 % RH
Temperature measurement	
Sensor element	Pt100 to EN 60751
Accuracy	±0.5 K
Electrical specifications	
Signal output	Supply voltage
0...10 V	15 … 30 V DC / 24 V AC ±10 %
0...20 mA	15 … 30 V DC / 24 V AC
4...20 mA	15 … 30 V DC
0 …1000 Ω linear	-
100 …138.5 Ω linear	-
0 …100 Ω linear	-
0 …200 Ω linear	-

FG

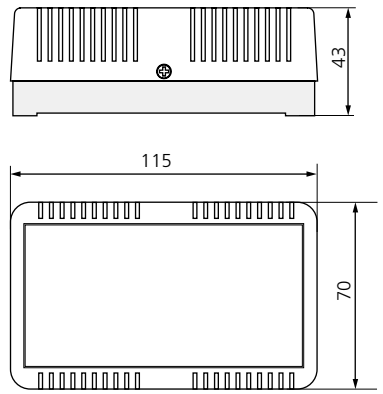
In this series

- Operating temp. up to 80 °C
- Accuracy: ±2.5 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element

Humidity sensor or humidity temperature sensor

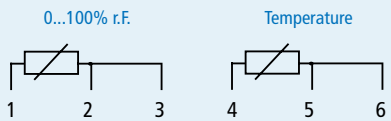
Price €	FG120	FG80
1 x output active	-	373.86
2 x outputs active	-	449.60
1 x output active + Pt100	-	449.60
1 x output passive	347.76	347.86
2 x outputs passive	415.67	415.67

Indoor (T)FG120

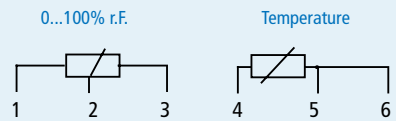


Connection diagram

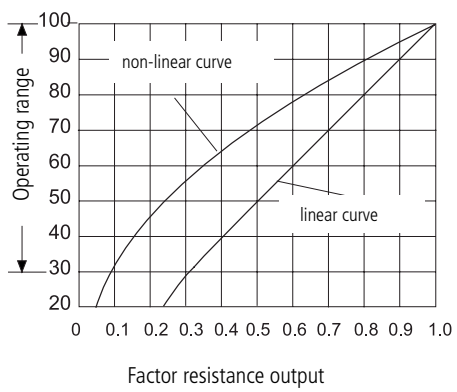
2-pole output linear

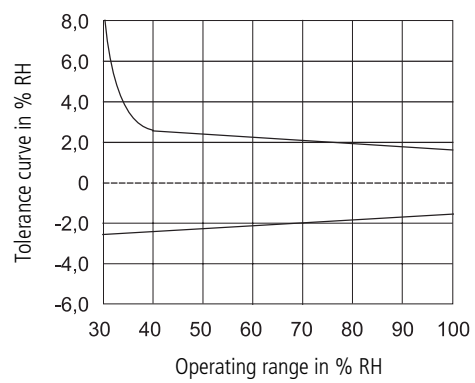


Potentiometer output non-linear



Humidity tolerance curve





Type overview	Type		Price €
Humidity	**FG120**	1 x output passive	347.76
Humidity + temperature	**TFG120**	2 x outputs passive	415.67

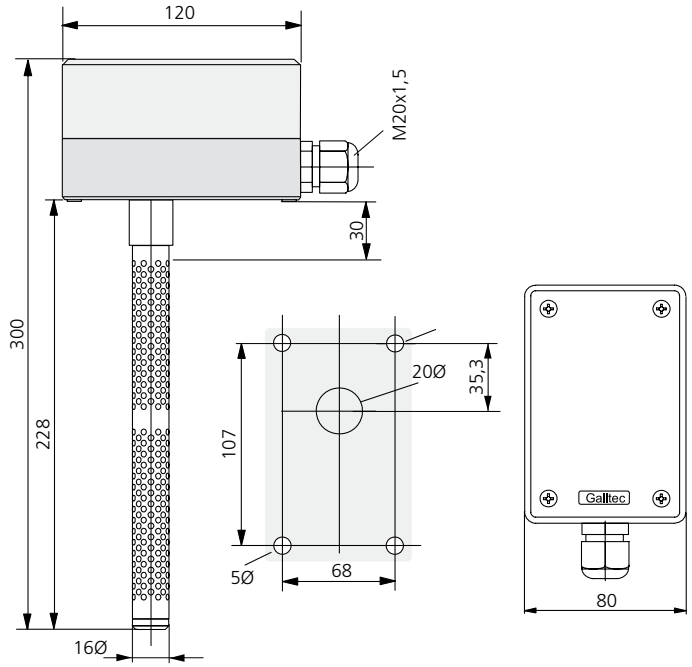
Relative humidity measurement	
Measuring/sensor element	hygroscopic POLYGA®
Output range	0...100 % RH
Accuracy: >40 % RH	±2.5 % RH
Temperature measurement	
Sensor element	Pt100 to EN 60751
Accuracy	±0.5 K
Electrical specifications	
Signal output	Supply voltage
0 …1000 Ω linear	-
100 …138.5 Ω linear	-
0 …100 Ω linear	-
0 …200 Ω linear	-
General	
Housing	IP 20, impact-resistant plastic, light grey
Operating temperature	0...+50 °C

(T)FG120

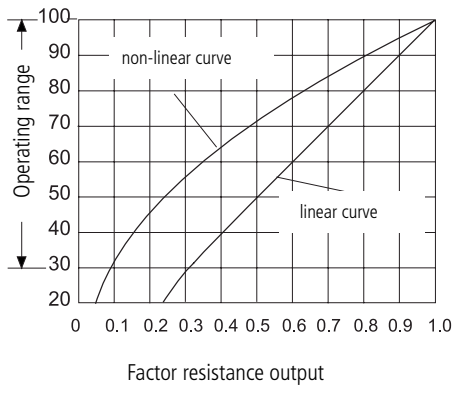
- Operating temp. up to 50 °C
- Accuracy: ±2.5 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability

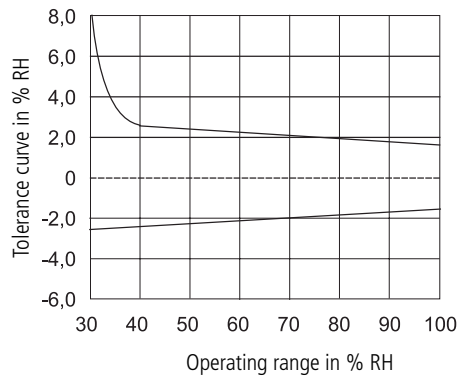
More information on the FG120 datasheet online PDF

Duct mounted (T)FG80



Humidity tolerance curve





Type overview			Type	Price €
Humidity	Active sensors	1 x output	**FG80J**	373.86
Humidity + temperature		2 x outputs	**TFG80J**	449.60
Humidity + Pt100		1 x output + (passive)	**FG80J Pt100**	449.60
Humidity	Passive sensors	1 x output	**FG80H**	347.86
Humidity + Pt100		2 x outputs	**TFG80H**	415.67

Relative humidity measurement	
Measuring/sensor element	hygroscopic POLYGA®
Output range	0...100 % RH
Accuracy: >40 % RH	±2.5 % RH
Temperature measurement	
Sensor element	Pt100 to EN 60751
Accuracy	±0.5 K
Electrical specifications	
Signal output	Supply voltage
Active output	
0...10 V	15 … 30 V DC / 24 V AC ±10 %
0...20 mA	15 … 30 V DC / 24 V AC
4...20 mA	15 … 30 V DC
Passive output	
0 …1000 Ω linear	-
100 …138.5 Ω linear	-
0 …100 Ω linear	-
0 …200 Ω linear	-
General	
Housing	ABS, light grey
Operating temperature	-20...+60 °C
Sensor tube	Stainless steel , 220 mm
Operating temperature	-40...+80 °C
Degree of protection	IP 64
Special features	
Water-resistant	Resistant to high humidity, with washable measuring element.

(T)FG80H
(T)FG80J

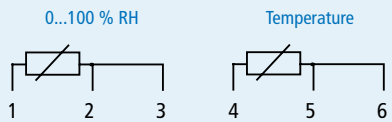
- Operating temp. up to 80 °C
- Accuracy: ±2.5 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element

More information on the FG80 datasheet online PDF

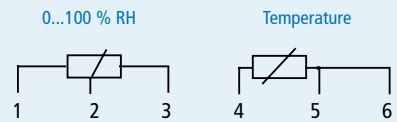
Duct mounted (T)FG80

Connection diagram for passive sensors with resistance output

2-pole output linear

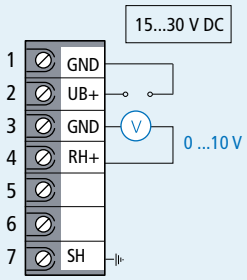


Potentiometer output non-linear

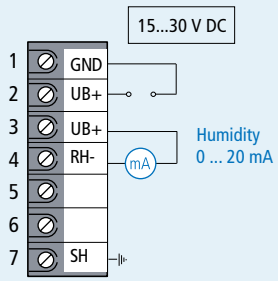


Connection diagrams for active sensors 15...30 V DC

Voltage 3/4-wire system

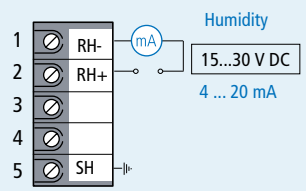


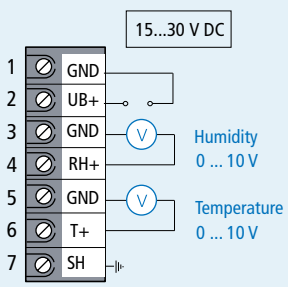
Current 4-wire system

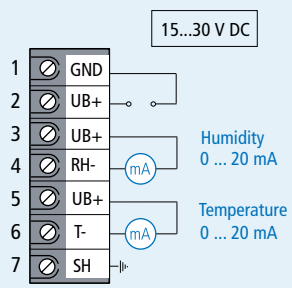


Positive pole bridged

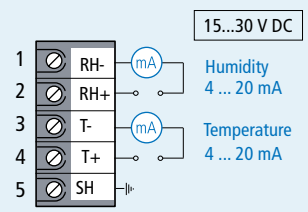
Current 2-wire system







Positive pole bridged

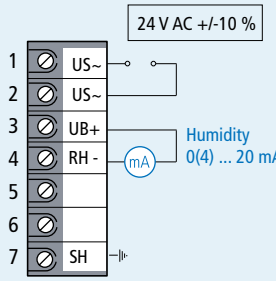


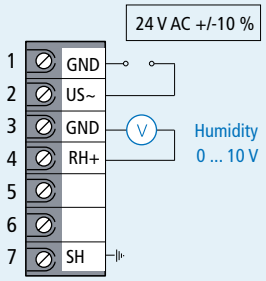
Galvanically isolated

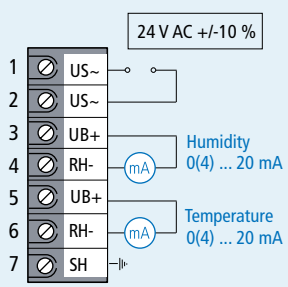
(T)FG80H
(T)FG80J

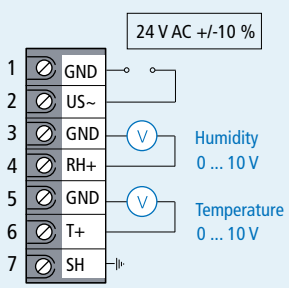
- Operating temp. up to 80 °C
- Accuracy: ±2.5 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element

Connection diagrams for active sensors 24 V AC









More information on the FG80 datasheet online PDF

HG

Types

Indoor version	HGMini	p. 158
Indoor version	Hygroswitch	p. 160
Indoor version	HG120	p. 162
Duct mounted	HG80	p. 164

with 1 or 2 changeover contacts
or internal scale
or set point adjustment lock

Description

Humidistats for monitoring and controlling relative humidity feature an impressively simple, robust design that ensures a long service life. Humidistats with no external power supply required - very robust and reliable.

The watertight and robust POLYGA® measuring element, combined with a smart mechanism, provides reliable control signals. The different humidistat types cover a range of breaking capacities from 1 mA to 15 A.

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Swimming pools & spas
- Storage & transportation
- Cooling & air conditioning in trains
- Warehousing
- Process & factory automation
- Paper & print
- Textile processing
- Drying plants
- Brick manufacturing
- Agriculture & food industry
- Greenhouses
- Animal husbandry
- Bakery technology
- Drying of tea, grain, meat
- Storage & transportation of fruit,
- Maturing of food
- Wine cabinets
- Energy & environment
- Electric control systems & switchboard cabinets
- Wind turbines

Relative humidity measurement

Measuring/sensor element	hygroscopic POLYGA®
Control range	
HGMini, Hygroswitch HG120	40 ... 90 % RH
HG80	35 ... 95 % RH
Accuracy	≤ ±4 % RH
Influence of temp. at 23 °C	≤ ± 0.2 % RH / K
Switching differential (microswitch) based on 50 % RH	approx. 4 % RH

Electrical specifications

Indoor versions	
Breaking capacity max. 250V AC	
Ohmic load, dehumidification	0.1 ... 5 A
Ohmic load, humidification	0.1 ... 2 A
Inductive load	0.1 ... 1 A (power factor >0.8)
Duct mounted version	
Breaking capacity	
Ohmic load	15 A / 250 V AC
Inductive load (power factor >0,8)	2 A / 250 V AC
Direct voltage	0.25 A / 250 V DC 0.5 A / 250 V DC
Breaking capacity, min. load	100 mA
Max. voltage	250 V AC
Operating temperature	0 ... +60 °C

HG

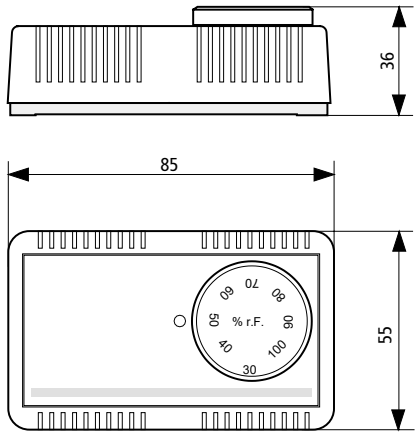
In this series

- Operating temp. up to 60 °C
- Accuracy: ±4 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

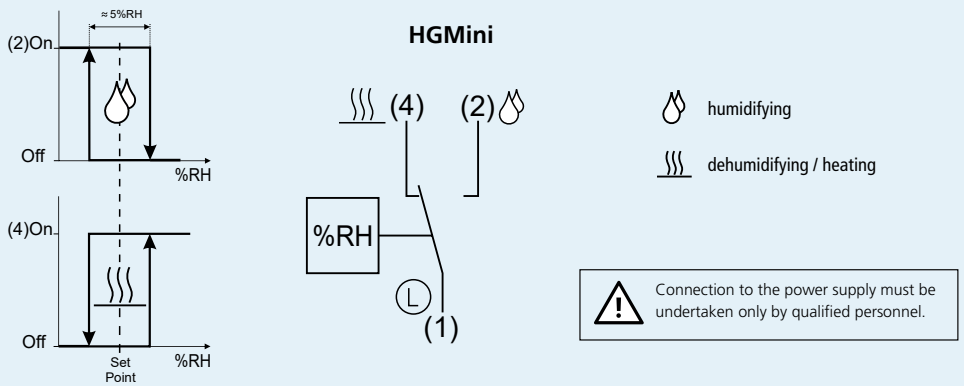
Humidistats

Price €	HGMini	Hygroswitch	HG120	HG80
1 x changeover contact	52.26	52.26	65.96	146.12
For currents <100 mA 1 x gold contact 1 x gold contact IP 67	 59.86 65.96	 59.86 -	 73.51 79.71	 - -
1 x gold contact for 1A 125 V AC				161.33
1 x set point adjustment lock	-	-	-	156.66
2 x changeover contacts	-	-	90.87	177.69
2 x set point adjustment lock	-	-	-	184.68
with internal scale	No additional charge			

Indoor humidistat HGMini



Wiring diagram



Type overview	Type	Output		Price €
External scale Internal scale	**HGMini** **HGMini-i**	Changeover contact: 1 x max. 5 A	Max. 250 V AC	52.26
External scale Internal scale	**HGMini** **HGMini-i**	Changeover contact gold-plated: 1 x max. 100 mA	Max. 250 V AC	59.86
External scale	**HGMini**	Changeover contact gold-plated, IP 67		65.96

Relative humidity measurement

Measuring/sensor element	hygroscopic POLYGA®
Control range	40 ... 90 % RH
Accuracy at 23 °C	≤ ±3 % RH (at 48 % RH)
Influence of temp. at 23 °C	≤ ± 0.2 % RH / K
Switching differential at 50 % RH	approx. 5 % RH

Electrical specifications

Changeover contact max. 5 A

Breaking capacity max. 250 V AC	
Ohmic load, dehumidification	0.1 ... 5 A
Ohmic load, humidification	0.1 ... 2 A
Inductive load	0.1 ... 1 A (power factor >0.8)
Lifetime	> 6.000 breaking cycles

Gold contact max. 100 mA

Breaking capacity max. 250 V AC and 1 ... 100 mA

General

Housing	IP 20, impact-resistant plastic, light grey
Operating temperature	0...+60 °C

Special features

Maintenance-free	The measuring element is maintenance-free in pure ambient air
Also available with internal scale	

HGMini

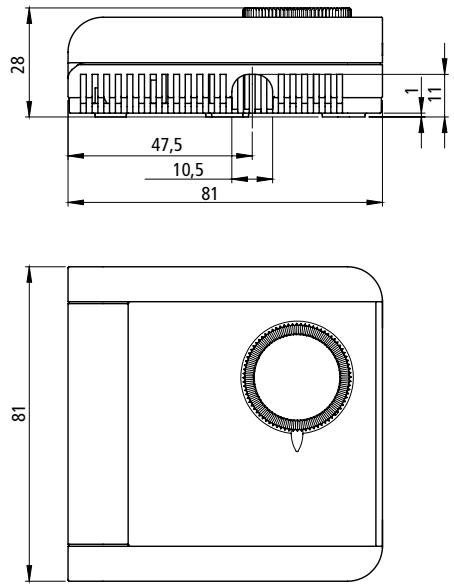
- Operating temp. up to 60 °C
- Accuracy: ±3 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

Typical humidity switching differential with typical tolerance

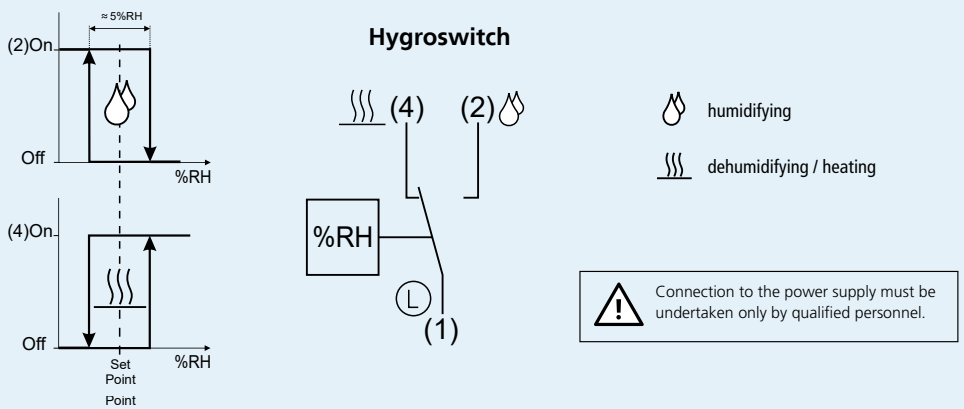
Set humidity value	Humidity switching differential	Tolerance
50 % RH	5 % RH	±1.5 % RH
60 % RH	4 % RH	±1.5 % RH
70 % RH	4 % RH	±1.5 % RH
80 % RH	3 % RH	±1 % RH
90 % RH	3 % RH	±1 % RH

More information on the HGMini datasheet HGMini online PDF

Indoor humidistat Hygroswitch



Wiring diagram



Type overview	Type	Output		Price €
External scale Internal scale	**Hygroswitch** **Hygroswitch-i**	Changeover contact: 1 x max. 5 A	Max. 250 V AC	52.26
External scale Internal scale	**Hygroswitch** **Hygroswitch-i**	Changeover contact gold-plated: 1 x max. 100 mA	Max. 250 V AC	59.86

Relative humidity measurement	
Measuring/sensor element	hygroscopic POLYGA®
Control range	40 ... 90 % RH
Accuracy at 23 °C	≤ ±3 % RH (at 48 % RH)
Influence of temp. at 23 °C	≤ ± 0.2 % RH / K
Switching differential at 50 % RH	approx. 5 % RH

Electrical specifications	
Changeover contact max. 5 A	
Breaking capacity max. 250 V AC	
Ohmic load, dehumidification	0.1 ... 5 A
Ohmic load, humidification	0.1 ... 2 A
Inductive load	0.1 ... 1 A (power factor >0.8)
Lifetime	> 6.000 breaking cycles
Gold contact max. 100 mA	
Breaking capacity max. 250 V AC and 1 ... 100 mA	

General	
Housing	IP 30D, ABS, light grey
Operating temperature	0...+60 °C

Special features	
Maintenance-free	The measuring element is maintenance-free in pure ambient air
Also available with internal scale	

Hygroswitch

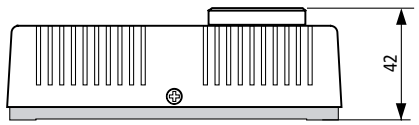
- Operating temp. up to 60 °C
- Accuracy: ±3 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

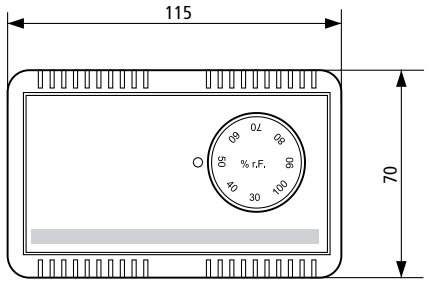
Typical humidity switching differential with typical tolerance

Set humidity value	Humidity switching differential	Tolerance
50 % RH	5 % RH	±1.5 % RH
60 % RH	4 % RH	±1.5 % RH
70 % RH	4 % RH	±1.5 % RH
80 % RH	3 % RH	±1 % RH
90 % RH	3 % RH	±1 % RH

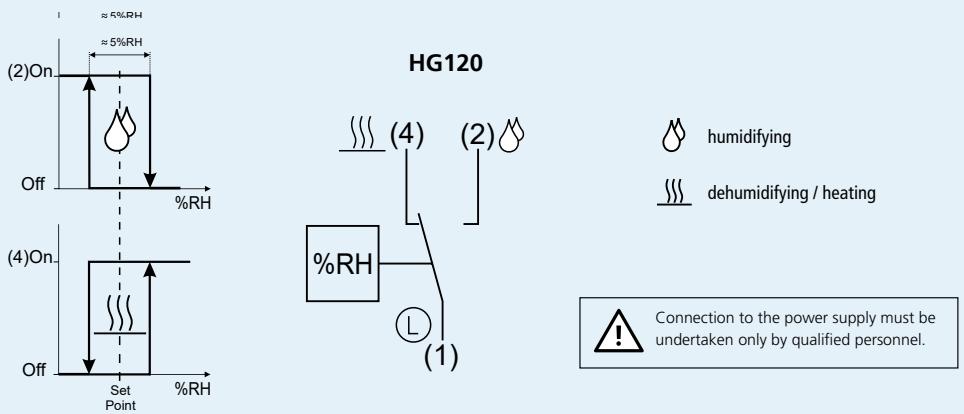
More information on the Hygroswitch datasheet online PDF

Indoor humidistat HG120





Wiring diagram



Type overview	Type	Output		Price €
External scale Internal scale	**HG120** **HG120-i**	Changeover contact: 1 x max. 15 A	Max. 250 V AC	65.96
External scale Internal scale	**HG120** **HG120i**	Changeover contact gold-plated: 1 x max. 100 mA	Max. 250 V AC	73.51
External scale Internal scale	**HG120** **HG120i**	Changeover contact gold-plated, IP 67		79.71

Relative humidity measurement

Measuring/sensor element	hygroscopic POLYGA®
Control range	40 ... 90 % RH
Accuracy	≤ ±3 % RH
Influence of temp. at 23 °C	≤ ± 0.2 % RH / K
Switching differential at 50 % RH	approx. 5 % RH

Electrical specifications

Changeover contact max. 5 A

Breaking capacity max. 250 V AC	
Ohmic load, dehumidification	0.1 ... 5 A
Ohmic load, humidification	0.1 ... 2 A
Inductive load	0.1 ... 1 A (power factor >0.8)

Gold contact max. 100 mA

Breaking capacity max. 250 V AC and 1 ... 100 mA

General

Housing	impact-resistant plastic, light grey
Degree of protection	IP 20
Operating temperature	0...+60 °C

Special features

Maintenance-free	The measuring element is maintenance-free in pure ambient air
Also available with internal scale	

Typical humidity switching differential with typical tolerance

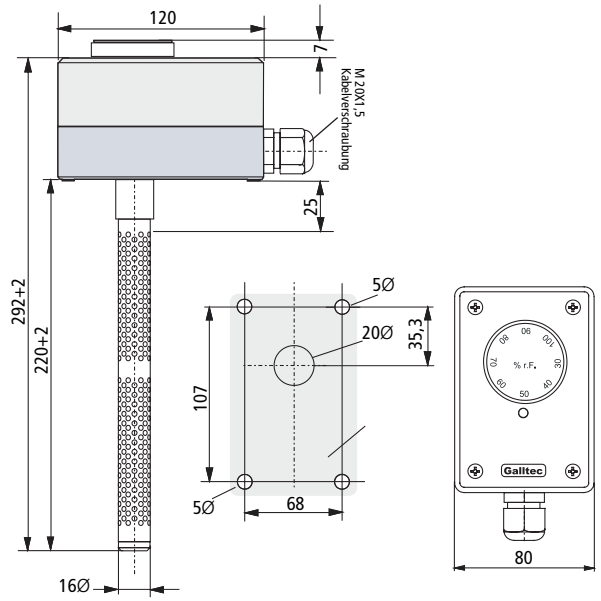
Set humidity value	Humidity switching differential	Tolerance
50 % RH	5 % RH	±1.5 % RH
60 % RH	4 % RH	±1.5 % RH
70 % RH	4 % RH	±1.5 % RH
80 % RH	3 % RH	±1 % RH
90 % RH	3 % RH	±1 % RH

HG120

- Operating temp. up to 60 °C
- Accuracy: ±3 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

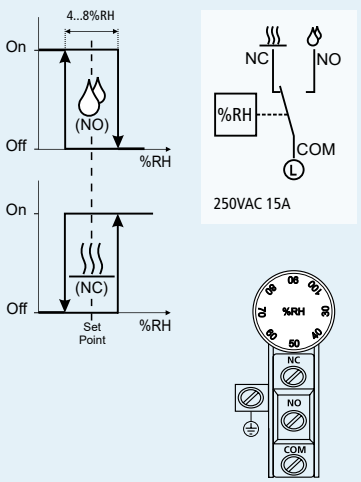
More information on the HG120 datasheet online PDF

Duct humidistat HG80

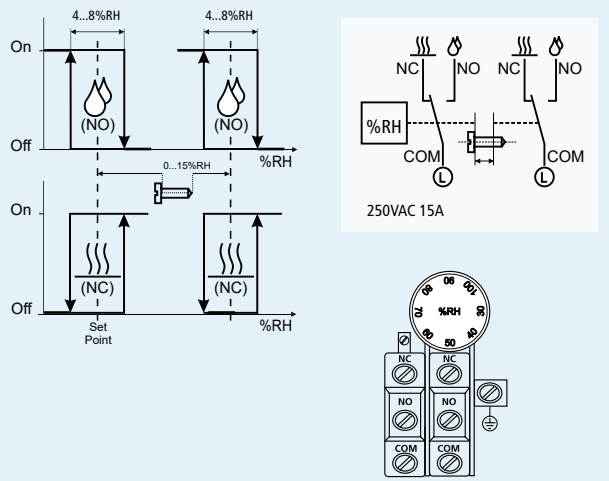


Wiring diagram

HG80



HG80-2



1. Changeover switch
based on set value adjuster

2. Changeover switch
based on set screw

humidifying

dehumidifying / heating

Connection to the power supply must be undertaken only by qualified personnel.

Relative humidity measurement

Measuring/sensor element	hygroscopic POLYGA®
Control range	40...90 % RH
Accuracy	
at > 50 % RH	≤ ±3.5 % RH
at < 50 % RH	≤ ±4 % RH
Influence of temperature	-0.2 % RH / K based on 20 °C and 50 % RH
Switching differential at 50 % RH	approx. 4 % RH

Electrical specifications

Silver contact

Breaking capacity, alternating current

Ohmic load	15 A / 250 V AC
Inductive load (power factor >0,8)	2 A / 250 V AC
Direct voltage	0.25 A / 250 V DC 0.5 A / 125 V DC
Breaking capacity, min. load	100 mA

Gold contact

Breaking capacity	15 A / 250 V AC
Breaking capacity, min. load	1 mA

General

Housing	ABS light grey
External scale	IP 54
Internal scale	IP 64
Sensor tube	Stainless steel
Storage temperature	-30...+60 °C
Operating temperature	0...+60 °C

Special features

Maintenance-free

The measuring element is maintenance-free in pure ambient air

HG80

- Operating temp. up to 60 °C
- Accuracy: ±3.5 % RH
- High accuracy in the high humidity range
- IP 64
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

More information on the HG80 datasheet online PDF

Type overview	Type	Output	Price €
External scale	**HG80**	Changeover contact: 1 x max. 15 A	146.12
Internal scale	**HG80-i**		146.12
with set value adjustment lock	**HG80vs**		156.66
External scale	**HG80-2**	Changeover contact: 2 x max. 15 A	177.69
Internal scale	**HG80-2i**		177.69
with set value adjustment lock	**HG80vs-2**		184.68
External scale Internal scale	**HG80** **HG80-i**	Changeover contact, gold-plated	161.33

eStat

Types

Humidistat	eStat10	p. 168
Hygro-Thermostat	eStat10 DUO	p. 168
with remote cable probe		
Humidistat	eStat20	p. 170
Hygro-Thermostat	eStat20 DUO	p. 170
Probe models		p. 172

Description

Hygro-Thermostat all-rounder with two individually configurable relays and two additional analogue outputs (for humidity and temperature), suitable for many applications.

The potential-free relay outputs can be configured internally as either normally closed (NC) or normally open (NO) contacts. Both humidity set values and the desired hysteresis can be easily set without having to open the housing. It can be set with dip switch or rotating knob.

Applications

- HVAC & building automation
- Construction
- Offices & public buildings
- Museums
- Swimming pools & spas
- Refrigeration technology
- Storage & transportation
- Agriculture & food industry
- Process & factory automation
- Equipment & plant engineering

IP65 85°C 125°C

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Control range	5 ... 95 % RH
Accuracy at 25 °C	and at 10...90 % RH
Indoor version	≤ ±3 % RH
with remote cable probe	≤ +2 % RH
Temperature measurement	
Sensor element	Band gap
Output ranges	0 ... +50 °C
	-30 ... +70 °C
	0 ... +100 °C
with high temperature probe	-40 ... +125 °C
Control range (eStat20 DUO)	-35 ... +80 °C
	-35 ... +120 °C
(eStat10 DUO)	-25 ... +55 °C
Accuracy at 5...60 °C and ≤ 250 mA switching current	±0.3 K (eStat10 DUO) ±0.35 K (eStat20 DUO)
Electrical specifications	
Signal output 0...10 V	Supply voltage 15 … 30 V DC / 13 … 26 V AC
Breaking capacity	≤ 60 W / 62.5 V A
Switching voltage	≤ 48 V DC / AC, ≥ 100 µV
Switching current	≤ 2 A
Switching outputs	2 relay contacts (potential-free)
Use DIP switch to select N/C or N/O contact	

eStat (DUO)

In this series

- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- 2 configurable switching outputs
- 2 permanent signal outputs
- Long-term stability
- Easy to install
- Intuitive operation
- Exchangeable sensor part
- Keylock

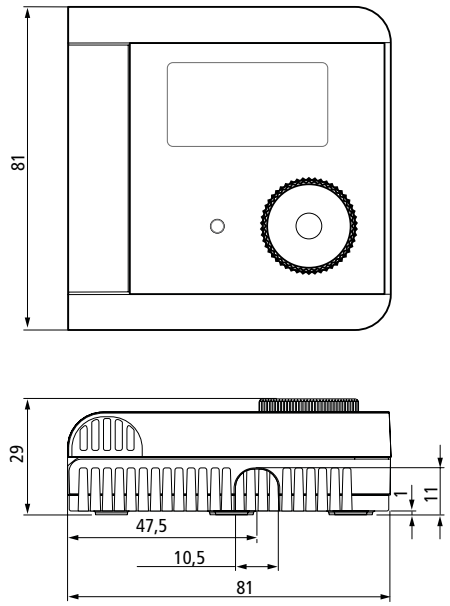
Options

- IP 65
- Plug-in connection
- 4 probe lengths
- Cable up to 25 m

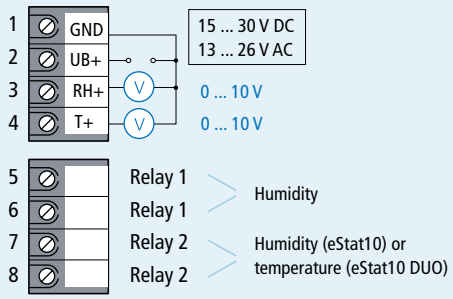
Humidistat and Hygro-Thermostat

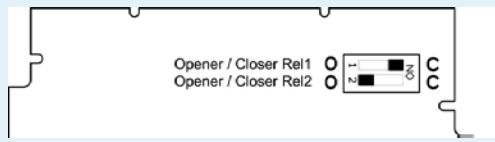
Price €		
Controller	191.06	191.06
Probes up to 85 °C	-	52.31
Probes up to 125 °C + PTFE filter	-	77.33
PTFE filter	-	13.65 IP65
Cable connectable at both ends	-	-
Operating temperature	60 °C	85 °C 125 °C

Indoor humidistat eStat10 and hyrgo-thermostat eStat10 DUO



Connection diagrams





Relay outputs: potential-free, normally open

Type overview		Type	Price €	Standard
Humidistat	2 relay contacts humidity	**eStat10**	191.06	with display
Hygro-Thermostat	2 x relay contacts humidity + temperature	**eStat10- DUO**	191.06	with display

Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Control range	5 ... 95 % RH
Setting range switching hysteresis	0.5 ... 9 % RH
Accuracy	≤ ±3 % RH
Temperature measurement	
Sensor element	Band gap
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
Control range (DUO)	-25 ... +55 °C
Setting range switching hysteresis	0.1 ... 10 K (DUO)
Accuracy at 23 °C and ≤ 250 mA switching current	±0.3 K
Electrical specifications	
Signal output 0...10 V	Supply voltage 15 … 30 V DC / 13 … 26 V AC
Breaking capacity	≤ 60 W / 62.5 V A
Switching voltage	≤ 48 V DC / AC ≥ 100 µV
Switching current	≤ 2 A
Switching outputs	2 relay contacts (potential-free) Use DIP switch to select N/C or N/O contact
General	
Housing	ABS, similar to RAL 9003 Signal white IP 30D
Operating temperature	-30...+60 °C
Degree of protection	III
Special features	
Digital display	2 lines Alternates between % RH and °C Current relay switching states

eStat10 (DUO)

- Operating temp. up to 60 °C
- Accuracy H: ±3 % RH
- Accuracy T: ±0.3 K
- 2 configurable switching outputs
- 2 permanent signal outputs
- Long-term stability
- Easy to install
- Intuitive operation

More information on the eStat10 datasheet online PDF

More information on the eStat10 DUO datasheet online PDF

Electronic hygro-thermostat eStat20

Standardfilter:

Membranfilter IP30

85°C

Filteroption:

PTFE-Sinterfilter IP65

125°C IP65

IP65 85°C 125°C

Controller with integrated connector + plug-in probe

IP 30

Housing -30...+60 °C
Probe -40...+85 °C
Membrane filter IP 30
Option: IP 65 with PTFE sintered filter

85°C IP65

Controller with remote probe with cable connectable at both ends

IP 30

Cable Connectable at both ends
Connection cable -40…+80 °C, 2 m
Probe -40... 85 °C
Membrane filter IP 30
Option: IP 65 with PTFE sintered filter

85°C IP65

Controller with remote probe with cable box

IP 30

Cable max. 80 °C, 2 m
Probe -40... 85 °C
Membrane filter IP 30
Option: IP 65 with PTFE sintered filter

85°C IP65

IP 65

High temperature version
Cable -40...+125 °C, 2 m
Probe -40...+125 °C
IP 65 with PTFE sintered filter

125°C IP65

eStat20 (DUO)

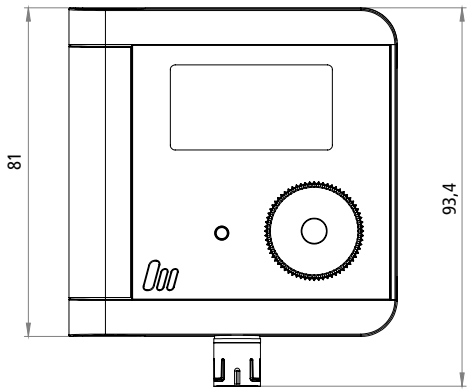
In this series

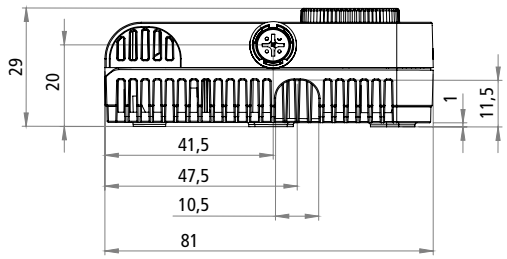
- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- 2 configurable switching outputs
- 2 permanent signal outputs
- Long term stability
- Easy to install
- Intuitive operation
- Exchangeable sensor part

Options

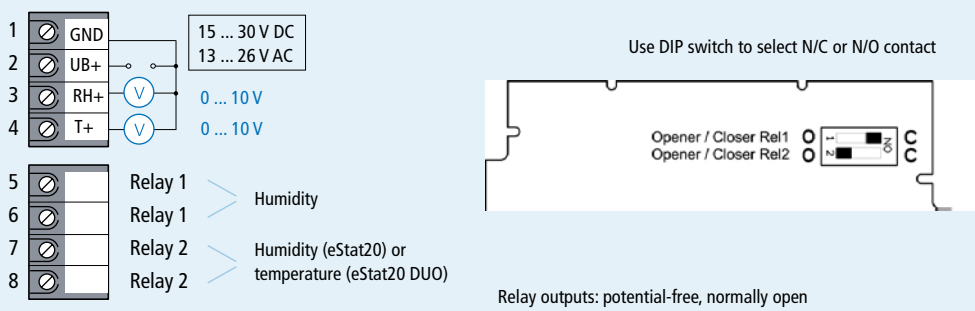
- IP 65
- Plug-in connection
- 4 probe lengths
- Cable up to 25 m

Electronic hygro-thermostat eStat20





Connection diagrams



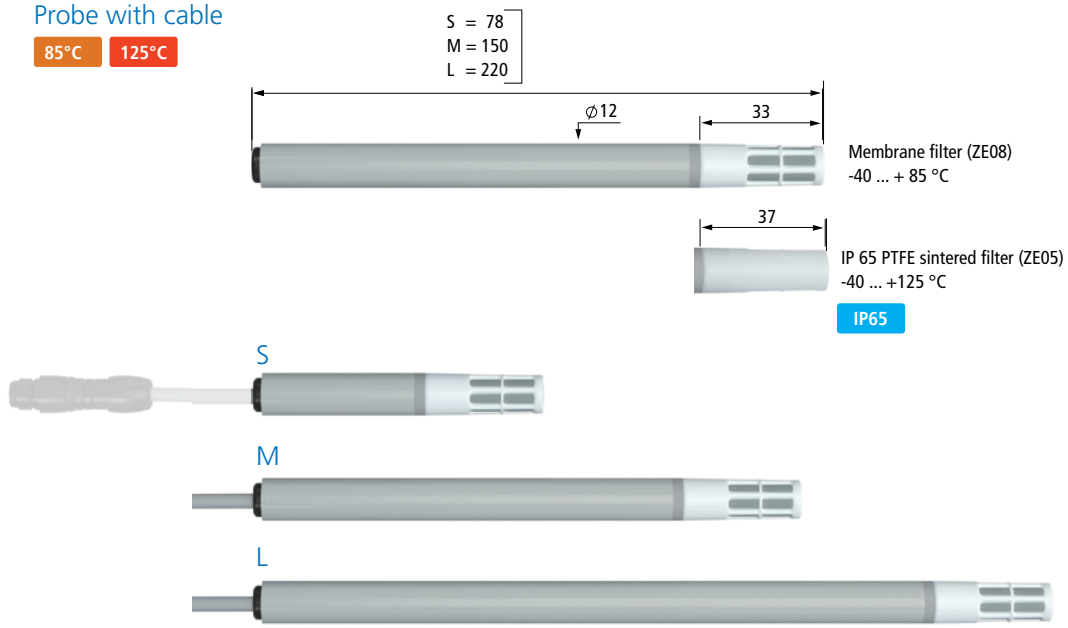
Optional: eStat controller with remote probe firmly connected

Standard version	High temperature version
214.91	239.94
 eStat20 in indoor housing with ventilation slots and display Housing -30…+60 °C, IP 30 Cable max. 80 °C, cable length 2 m Probe -40... 85 °C, Choice of 3 probe lengths Filter Membrane filter IP 30 Option: IP 65 with PTFE sintered filter 60 °C 85 °C IP65	 eStat20 in indoor housing with ventilation slots and display Housing -30…+60 °C, IP 30 Cable -40...+125 °C, cable length 2 m Probe -40...+125 °C Choice of 3 probe lengths Filter PTFE sintered filter IP 65 60 °C 125°C IP65

Remote probe

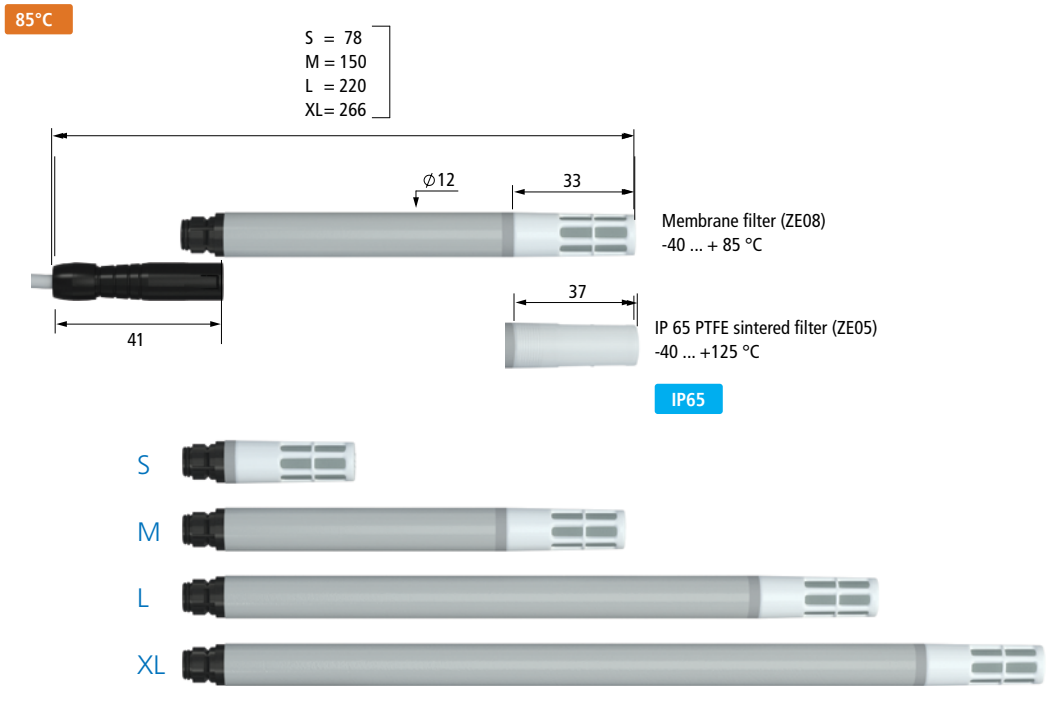
Probe with cable

85°C 125°C

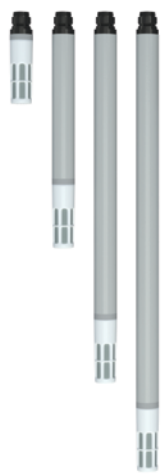


Probe with plug-in connection

85°C



eStat20 (DUO) controller modules

Controller	Probes, plug-in	Probes with IP65 Filter and high-temperature cable	Accessories
191.06	52.31	77.33	28.41
eStat20 (DUO) controller with integrated connector 60 °C 	4 probe lengths 85 °C  85 °C Standard filter IP30 Membrane filter ZE08 125°C IP65 Option PTFE sintered filter 	3 probe lengths 125°C  125°C IP65 Standard filter IP65 PTFE sintered filter ZE05 	Cable connectable at both ends 80 °C  80 °C

Options		Surcharge €
Additional charge for cable	-40 ... +125 °C	0.44/m
Additional charge for cable connectable at both ends	max. +80 °C	0.89/m
IP 65 with PTFE sintered filter ZE05	-40 ... +125 °C	13.65

Relative humidity measurement	
Sensor element	Capacitive
Output range	0...100 % RH
Control range	5 ... 95 % RH
Setting range for switching hysteresis	0.5 ... 9 % RH
Accuracy at 25 °C	≤ +2 % RH (10...90 % RH)
Temperature measurement	
Control range	-35 ... +80 °C
High temperature version	-35 ... +120 °C
Output ranges, analogue	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C
High temperature probe	-40 ... +125 °C
Setting range for switching hysteresis	0.1 ... 10 K
Accuracy at 5...60 °C	±0.35 K
Electrical specifications	
Signal output 0...10 V	Supply voltage 15 … 30 V DC / 13 … 26 V AC
Breaking capacity	≤ 60 W / 62.5 V A
Switching voltage	≤ 48 V DC / AC, ≥ 100 µV
Switching current	≤ 2 A
Switching outputs	2 relay contacts (potential-free)
Use DIP switch to select N/C or N/O contact	
General	
Housing	IP 30D, ABS, similar to RAL 9003 Signal white
Storage temperature	-40...+85 °C
Operating temperature	-30...+60 °C
Cable	2 m, max. 25 m
Measuring head	Degree of protection
with membrane filter ZE08	IP 30
with PTFE sintered filter ZE05	IP 65
Operating temperature	
Housing	-30 ... +60 °C
Probe, plug-in	-40 ... +85 °C
Probe + high temperature cable	-40 ... +125 °C
Digital display	2-line, alternates between % RH and °C Current relay switching states
Probes	Pluggable and interchangeable

eStat20 (DUO)

In this series

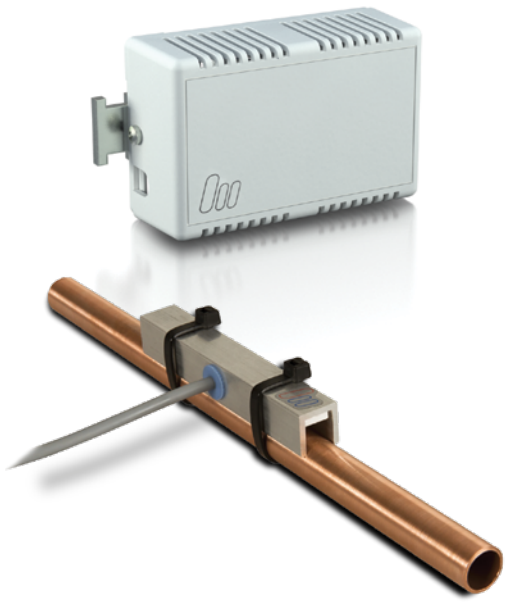
- Operating temp. up to 125 °C
- Accuracy H: ±2 % RH
- Accuracy T: ≤±0.35 K
- 2 configurable switching outputs
- 2 permanent signal outputs
- Long-term stability
- Easy to install
- Intuitive operation
- Exchangeable sensor part

Options

- IP 65
- Plug-in connection
- 4 probe lengths
- Cable up to 25 m

More information on the eStat20 datasheet online PDF

More information on the eStat20 DUO datasheet online PDF



Types

To monitor the formation of condensate

with POLYGA® fibres	FAS	p. 178
with analogue output	HSF2	p. 180
with switching output	HSFS	p. 180

Condensation controller sensors are mounted on cooling water pipes or cooled surfaces. They monitor the temperature with reference to a preset relative humidity value, in order to prevent condensation.

FAS / HSF

Applications

- Chilled ceilings
- Storage & transportation
- Cooling & air conditioning in trains
- Electric control systems & switchboard cabinets
- Wind turbines

IP65 60°C 70°C

Relative humidity measurement **FAS**	
Measuring/sensor element	hygroscopic POLYGA®
Control range	50...95 % RH
Accuracy	±3 % RH
Switching differential (microswitch) based on 50 % RH	approx. 5 % RH
Electrical specifications	
Breaking capacity max. 48 V AC and 0.1 ... 5 A at ohmic load for dehumidification 0.1 ... 2 A at ohmic load for humidification 0.1 ... 1 A at inductive load (power factor >0.8)	
Service life	>6000 switching cycles
Operating temperature	0 ... +60 °C

FAS

- Operating temp up to 60 °C
- Accuracy: ±3 % RH
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

Specifications **Switching and analogue output HSF2.KW.F3**	
Switching point	
"Standby" (contact closed)	< 90 ±2 % RH
"On"	≥ 90 ±2 % RH
Hysteresis	3 % RH
Switching output	Potential-free change-over contact
Voltage	Max. 48 V AC
Switching current	Max. 0.5 A
Breaking capacity	Max. 10 W
Signal output	0...10 V
Measuring range	50...100 % RH
Accuracy 50...95 % RH 23 °C	≤ +2 % RH
Measuring/sensor element	Capacitive
Supply voltage	15...30 V DC / 24 V AC +/- 10 %
Operating temperature	-20...+70 °C

HSF

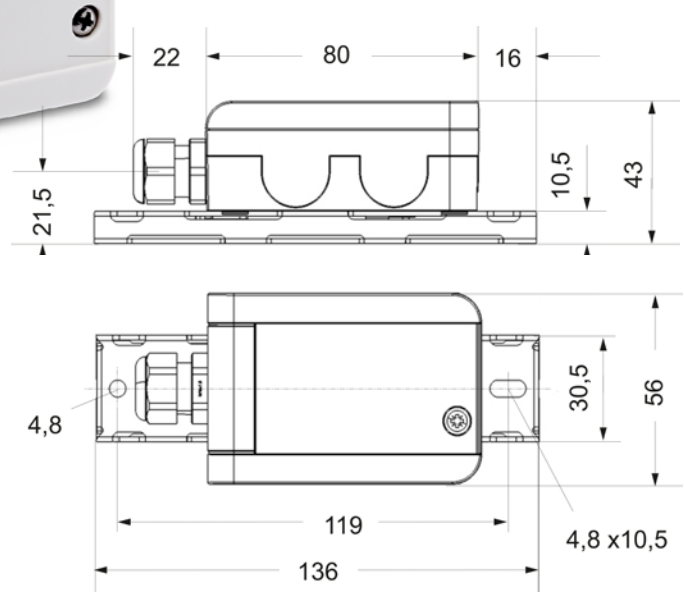
- Operating temp. up to 70 °C
- Accuracy: ±2 % RH
- Dynamic
- IP 65


Condensation controllers	FAS	HSF
Max. 48 V AC / silver contacts	103.96	-
Max. 48 V AC / gold contacts	116.67	-
Max. 250 V AC / silver contacts	109.73	-
Analogue (0 ... 10 V) and switching output (changeover contact)	- -	135.92
Switching output (changeover contact)		112.56

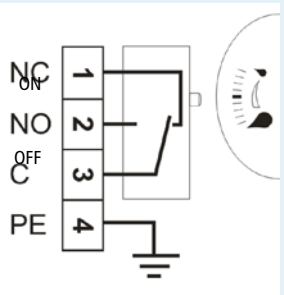
To monitor the formation of condensate, no external power supply required

IP65 100% autark 60°C

FAS condensation detector
FAS and FAS 250 V AC



Wiring diagram



Adjustment knob

Funktion 2-3
Entfeuchten
5A /250VAC

Fx Actual value of relative humidity
Fw Humidity set on set value adjuster (set value)

If the relative humidity Fx (actual value) drops below the set value Fw, contact 1/4 opens and contact 1/2 closes

Connection to the power supply must be undertaken only by qualified personnel.

Type overview	Type	Output	Price €
Max. 48 V AC	**FAS**	with silver contacts	103.96
Max. 48 V AC and 1...100 mA	**FAS**	with gold contacts	116.67
Max. 250 V AC	**FAS 250VAC**	with silver contacts	109.73

Relative humidity measurement FAS

Measuring/sensor element	hygroscopic POLYGA®
Control range	40...90 % RH
Accuracy	±3 % RH
Influence of temperature	±0.2 % RH / K based on 23 °C based on 20 °C and 50 % RH
Switching differential at 50 % RH	approx. 5 % RH

Electrical specifications

Changeover contact max. 48 V AC
Breaking capacity max. 48 V AC and
0.1 ... 5 A at ohmic load for dehumidification
0.1 ... 2 A at ohmic load for humidification
0.1 ... 1 A at inductive load (power factor >0.8)

Gold contact max. 100 mA
Breaking capacity max. 48 V AC and 1 ... 100 mA

Silver contacts max. 250 V AC
Breaking capacity max. 250 V AC and
0.1 ... 5 A at ohmic load for dehumidification
0.1 ... 1 A at inductive load (power factor >0.8)

Service life	>6000 switching cycles

General

Housing	IP 20 ABS, light grey
Operating temperature	0...+60 °C

Special features

Energy efficient	The FAS condensation detector does not require a supply voltage or auxiliary power

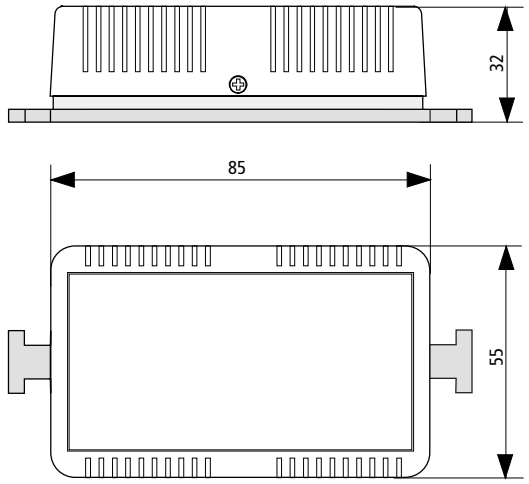
FAS
FAS 250VAC

- Operating temp up to 60 °C
- Accuracy: ±3 % RH
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

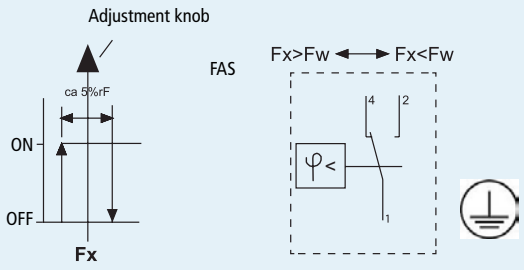
More information on the FAS datasheet online

More information on the FAS250 VAG datasheet online

FAS condensation detector
FAS and FAS 250 V AC



Wiring diagram



Fx Actual value of relative humidity
Fw Humidity set on set value adjuster (set value)

If the relative humidity Fx (actual value) drops below the set value Fw, contact 1/4 opens and contact 1/2 closes

Connection to the power supply must be undertaken only by qualified personnel.

Type overview	Type	Output	Price €
Max. 48 V AC	**FAS**	with silver contacts	103.96
Max. 48 V AC and 1...100 mA	**FAS**	with gold contacts	116.67
Max. 250 V AC	**FAS 250VAC**	with silver contacts	109.73

Relative humidity measurement FAS

Measuring/sensor element	hygroscopic POLYGA®
Control range	40...90 % RH
Accuracy	±3 % RH
Influence of temperature	±0.2 % RH / K based on 23 °C based on 20 °C and 50 % RH
Switching differential at 50 % RH	approx. 5 % RH

Electrical specifications

Changeover contact max. 48 V AC
Breaking capacity max. 48 V AC and
0.1 ... 5 A at ohmic load for dehumidification
0.1 ... 2 A at ohmic load for humidification
0.1 ... 1 A at inductive load (power factor >0.8)

Gold contact max. 100 mA
Breaking capacity max. 48 V AC and 1 ... 100 mA

Silver contacts max. 250 V AC
Breaking capacity max. 250 V AC and
0.1 ... 5 A at ohmic load for dehumidification
0.1 ... 1 A at inductive load (power factor >0.8)

Service life	>6000 switching cycles

General

Housing	IP 20 ABS, light grey
Operating temperature	0...+60 °C

Special features

Energy efficient	The FAS condensation detector does not require a supply voltage or auxiliary power

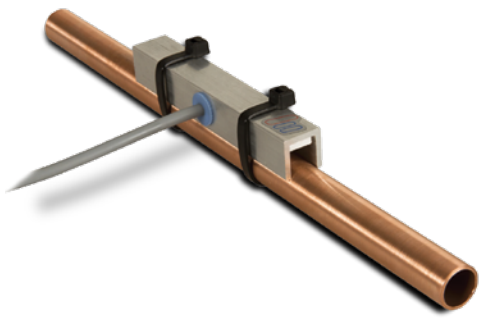
FAS
FAS 250VAC

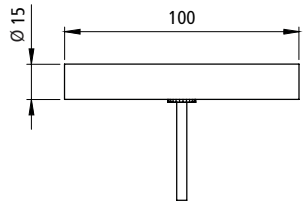
- Operating temp up to 60 °C
- Accuracy: ±3 % RH
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

More information on the FAS datasheet online

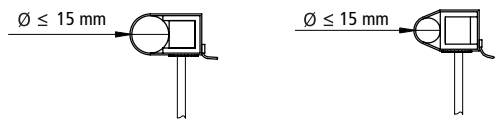
More information on the FAS250 VAG datasheet online

Condensation controller HSF

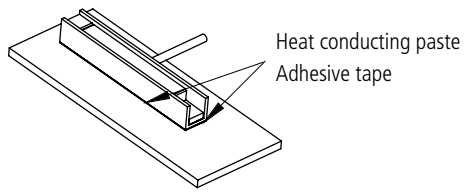




Mounting on a pipeline



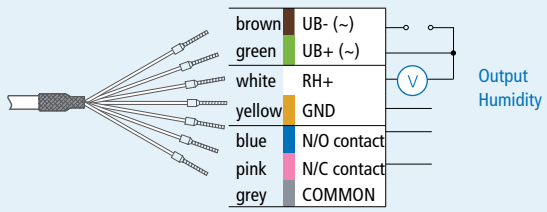
Mounting on level surfaces



Pin assignment

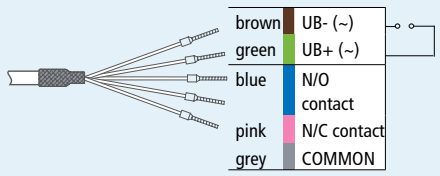
Switching and analogue output
HSF2.KW.F3

15 ... 30 V DC /
24 V AC / DC
±10 %
0 ... 10 V



Switching output
HSFS.KW.00

15 ... 30 V DC /
24 V AC / DC
±10 %



Please note! The operating voltage is conducted internally via a bridge rectifier, meaning that at the HSF2 sensors, the minus pole of the supply voltage does not correspond to the reference potential of the analogue output.

⚠ Connection to the power supply must be undertaken only by qualified personnel.

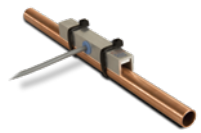
Type overview	Type	Output	Price €	Standard
Analogue output and switching output (changeover contact)	**HSF2.KW.F3**	0 ... 10 V	135.92	1.5 m cable
Switching output (changeover contact)	**HSFS.KW.00**		112.56	

Specifications **Switching and analogue output HSF2.KW.F3**

Switching point	
"Standby" (contact closed)	< 90 ±2 % RH
"On"	≥ 90 ±2 % RH
Hysteresis	3 % RH
Switching output	Potential-free changeover contact
Voltage	Max. 48 V AC
Switching current	Max. 0.5 A
Breaking capacity	Max. 10 W
Signal output	0...10 V
Measuring range	50...100 % RH
Accuracy 50...95 % RH 23 °C	±2 % RH

HSF

- Operating temp. up to 70 °C
- Accuracy: ±2 % RH
- IP 65
- Dynamic



Specifications **Switching output HSFS.KW.00**

Switching point	
"Standby" (contact closed)	< 90 ±2 % RH
"On"	≥ 90 ±2 % RH
Hysteresis	3 % RH
Switching output	Potential-free changeover contact
Voltage	Max. 48 V AC
Switching current	Max. 0.5 A
Breaking capacity	Max. 10 W

General

Measuring/sensor element	Capacitive
Supply voltage	15...30 V DC / 24 V AC +/- 10 %
Cable	1.5 m
Operating temperature	-20...+70 °C

Special features

Degree of protection	IP 65

Accessories	Type	Price €
Installation kit for FAS condensation detector, consisting of adhesive tape and heat conducting paste, for mounting on flat surfaces	**ZA30**	11.60

More information on the HSF datasheet online

Accessories

Controller

	Type	Description	Price €
	**EDJ3**	**Digital combi-controller EDJ3** for humidity and temperature with integr. power supply to the sensor Inputs: 2 x 0 … 20 mA Outputs: 2 N/O contacts for humidity circuit, 2 N/O contacts for temperature circuit Supply voltage 230 V AC	614.95

Accessories for combi controllers EDJ3

	For	Description	Price €
	EDJ3	Front doors made of glass-clear plastic	43.05
	EDJ3	Installation housing for wall mounting IP 65	596.26

Transmitter powersupply

	For	Description	Price €
	ATEX	Isolating transducer, one-channel	281.54
	ATEX	Isolating transducer, two-channel	356.60
	ATEX	Installation kit for Ex sensors with connection to Zone 0	51.04

Filter for humidity and temperature sensors

Filters and protective baskets are used to adapt sensors to the different locations where they are deployed. They protect the sensor from mechanical damage caused by particle penetration at higher air speeds and certain deposits.

Open filters

- Zero air speed
- Clean atmosphere
- Quick response time

ZE07
Ø 12 mm
Plastic PC

ZE04
Ø 15 mm
Stainless steel, open

ZE16
Ø 20 mm
Plastic PBT conductive, metallised

Possible applications
Laboratory and indoor applications

Recommended for
GC, DW, LW, BW

Humidity response time	Operating temp.	Protection	Article no.	Price €
< 20s	-40...85 °C	IP 20	ZE07	3.44
20s	-80...200 °C	IP 10	ZE04	25.35
< 20s	-40...85 °C	IP 20	ZE16	5.27

Not suitable for high humidity, outdoor applications or dusty conditions

Filters with stainless steel gauze

- Low air speed
- Clean atmosphere
- Coarse dirt

ZE15
Ø 15 mm
Stainless steel with stainless steel fine gauze

ZE17
Ø 20 mm
Plastic with stainless steel fine gauze

Possible applications
Climate chambers, ventilation systems

Recommended for
A & B series, I series
PC/RC, VC, KC, ZC, GC

Humidity response time	Operating temp.	Protection	Article no.	Price €
< 1 min	-80...200 °C	IP 40	ZE15	59.25
< 1 min	-40...85 °C	IP 40	ZE17	10.54

Filter for Polyga duct mounted version

20.014
Ø 16 mm
Gauze protection tube

23.063
Ø 16 mm
PTFE filter for extreme conditions

Recommended for
(T)FG80, HG80

Humidity response time	Operating temp.	Protection	Article no.	Price €
	bis 80 °C		20.214	6.22
	bis 80 °C		23.063	18.03

Filter with membrane

- Air speed up to 10 m/s
- Aerosols
- Dust

ZE08
Ø 12 mm
Plastic PC with membrane

ZE26
Ø 15 mm
Stainless steel with membrane

ZE20
Ø 20 mm
Plastic, metallised, with membrane

Possible applications
Meteorology
Industry

Recommended for
all capacitive sensors with filter (depending on diameter)

Humidity response time	Operating temp.	Protection	Article no.	Price €
< 1,5 min	-40...85 °C	IP 30	ZE08	6.83
< 2 min	-50...150 °C	IP 54	ZE26	64.18
< 1,5 min	-40...85 °C	IP 54	ZE20	25.35

Sintered stainless steel filters

- Air speed up to 20 m/s
- Outdoor applications
- Dust

ZE13
Ø 15 mm
Coarse pore

ZE22
Ø 20 mm
Coarse pore

ZE21
Ø 20 mm
Fine pore

Possible applications
Sand particles
Heavy duty industry

Recommended for
A & B series, I series
VC, KC, ZC, GC-ME,
PC (U output)

Humidity response time	Operating temp.	Protection	Article no.	Price €
< 1,5 min	-80...200 °C	IP 65	ZE13	25.35
< 1,5 min	-50...150 °C	IP 65	ZE22	25.35
< 1,5 min	-50...150 °C	IP 65	ZE21	25.35

Sintered PTFE filters

- Air speed up to 20 m/s
- Outdoor applications

ZE05
Ø 12 mm
ZE29
Ø 15 mm

ZE28
Ø 15 mm
Ø 20 mm (outside)
stainless steel with fine pore PTFE

ZE18
Ø 20 mm
made of sintered PTFE

Possible applications
High dust exposure
Swimming pools
Heavy duty industry

Recommended for
L series, D series, A & B series, I series, KC, ZC (only ZE28)

Humidity response time	Operating temp.	Protection	Article no.	Price €
< 3 min	-80...200 °C	IP 65	ZE05	20.48
< 3 min	-80...200 °C	IP 65	ZE29	28.01
< 3 min	-80...200 °C	IP 65	ZE18	31.57
< 3 min	-50...200 °C	IP 65	ZE28	84.85

ZE18 not suitable for series PC/RC
ZE29 not suitable for KC, ZC

Filter matrix for humidity and temperature sensors

✓ Recommended ✓ Possible

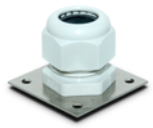
	Ø mm	ZE07 Open	ZE08 Membrane	ZE05 PTFE	ZE04 Open	ZE04+ Open+PTFE	ZE15 Gauze	ZE26 Membrane	ZE13 SiMet[1]		ZE29 PTFE	ZE28 [2] PTFE	ZE16 Open	ZE16+ Open+PTFE	ZE17 Gauze	ZE20 Membrane	ZE22 SiMet[1]	ZE21 SiMet[1]	ZE18 PTFE	20,063 PTFE	20,014 Gauze	PM15P Open+PTFE
LP	12	✓	✓	✓																		
LW	12	✓	✓	✓																		
LK	12		✓	✓																		
M	12	✓	✓	✓																		
PL	20												✓		✓	✓	✓	✓	✓			
KL	20														✓	✓	✓	✓	✓			
DW	12		✓	✓																		
DK	12		✓	✓																		
PM-P	15																					✓
PC	20												✓	✓	✓	✓	✓	✓				
RC	20												✓	✓	✓	✓	✓	✓	✓			
PC/RC-ME	20													✓		✓	✓	✓				
I series (IA, IR)	20												✓	✓	✓	✓	✓	✓	✓			
FK80	20												✓		✓	✓	✓	✓	✓			
VC	15				✓	✓	✓	✓	✓			✓										
VR	15				✓	✓	✓	✓	✓			✓										
VC/11	15							✓														
VR.D	15								✓													
GC	20												✓	✓	✓	✓	✓	✓				
GC-ME	20													✓		✓	✓	✓				
KC	15				✓	✓	✓	✓	✓			✓										
ZC	15				✓	✓	✓	✓	✓			✓										
GC.Ex and KC.Ex	15								✓			✓										
BW	20												✓	✓	✓	✓	✓	✓	✓			
BK, BZ	15				✓	✓	✓	✓	✓		✓	✓										
Sensors SVKA, SZKA	15				✓	✓	✓	✓	✓		✓	✓										
FG80 and HG80	16																			✓	✓	
eStat20	12		✓	✓																		

Outdoor Heavy duty

[1] SiMet = Stainless steel sintered filter [2] Outside diameter 20 mm

Accessories

Installation aids

	Type	Description	Price €
	**ZA20**	Mounting plate, suitable for mounting sensors Ø 20 mm in ventilation ducts up to 80 °C	14.48
	**ZA24**	Mounting plate, stainless steel and brass, nickel-plated, suitable for mounting sensors Ø 15 mm in ventilation ducts up to 200 °C	22.24
	ZA24/28	Suitable for sensors Ø 15 mm and Ø 20 mm	53.15
	**ZA25**	Mounting plate, stainless steel, suitable for mounting sensors Ø 15 mm in ventilation ducts used for air containing ammonia, up to 100 °C	49.48
	**ZA27 for B series**	Pressure-tight feed-through fitting with non-cutting removable locking ring, pressure-tight up to 6 bar, for temperatures up to 180 °C Thread G 1/2" x 12, Material: brass, Outside pipe diameter 15 ± 0.1 mm	50.43
	**ZA28 for B series**	Pressure-tight feed-through fitting, pressure-tight up to 10 bar, for temperatures up to 150 °C. Thread G 3/4" with locking ring, material: stainless steel 1.4571 Outside pipe diameter 15 ± 0.1 mm	78.11
	ZA30	Installation kit for FAS condensation detector, series FGO/FGS and condensation controller HFS, consisting of adhesive tape and heat conducting paste, for mounting on flat surfaces	11.60
	ZA40	Installation kit for Ex sensors with connection to Zone 0	51.04
	**ZA161/1**	Weather guard for probes Ø 20 mm recommended for outdoor use to protect against precipitation and insolation, with clamping sleeve 00.502, also suitable for probes Ø 15 mm	227.00

Accessories

Accessories for humidity/temperature sensors and humidistats

	Type	Description	Price €
	**ZA50 20.009**	Plastic wall mounting bracket, for mounting sensors Ø 20 mm with clamping sleeve 00.502, also suitable for probes Ø 15 mm	13.61
	00.502	Clamping sleeve for probes Ø 15 mm	3.55
	**20.045**	Mounting flange for D series and L series for sensors Ø 12 mm, with rubber gasket	3.55
	20.008	Mounting flange for HG80 and FG80	2.33
	20.011	Plastic protection tube for device types HG80 and FG80	11.60
	**20.014**	Gauze protection tube	6.22
	**23.063**	PTFE filter, remote probe for device types HG80 and FG80	18.03
	20.022	Ventilated sensor tube with fan 24 V DC for device types HG80 and FG80	143.80
	20.024	Rain canopy for outdoor installation	234.99

Accessories

Humidity standards

	Type	Description	Price €
	**ZE31/1**	Empty container	99.96
	ZE31/1-12	12 % RH at 25 °C	115.16
	ZE31/1-33	33 % RH at 25 °C	115.16
	ZE31/1-75	75 % RH at 25 °C	115.16
	ZE31/1-84	84 % RH at 25 °C	115.16
	ZE31/1-94	94 % RH at 25 °C	115.16
	**ZE33**	Test adaptor for sensor tubes Ø 15 mm and 20 mm	20.02
	ZE36	Adaptor attachment for humidity standards for sensor tube Ø 12 mm	1.83

Sensor checks

	Type	Description	Price €
	20.027	33 % RH	116.23
	20.028	53 % RH	116.23
	20.029	76 % RH	116.23

Test reports

	Price €
Certificate of Compliance with the order, in accordance with EN 10204 2.1	free of charge
Factory Certificate in accordance with EN 10204 2.2	free of charge
Certificate of origin (certified by the chamber of commerce IHK)	110.84
Acceptance certificate to EN 10204 3.1 with 3 measuring points for relative humidity and 1 measuring point for temperature	122.17
Additional charge for each additional measuring point (relative humidity or temperature)	26.48

Accessories

MCK cable accessories	Price €	Special length
Cable for MCK, 1.5 m, ready to use with cable box	32.85	
Special lengths up to 3 m, additional charge on standard cable length, IP 40	on request	on request
Option: for MCK 1, firmly connected, in special lengths up to 5 m, additional charge on standard cable length	on request	on request

Modbus cable accessories	Accessories for	Length	Price €	Special length
Drilled cable ready to use with cable box IP 67	**IAK M (Modbus)**	1.5 m	60.55	on request
Drilled cable ready to use with cable box IP 67	**IVK M (Modbus)**	1.5 m	60.55	on request

Modbus setup cable	Accessories for	Length	Price €	Special length
Modbus setup cable	**IAK M, IRK M, IVK M, ITK M**	1.8 m	148.56	-
Modbus setup cable	**IAK, IAC, IAF**	1.8 m	144.94	
Modbus setup cable	**A+B series**	1.8 m	144.94	-

RS232 cable accessories	Accessories for	Length	Price €	Special length
SUB-D adaptor cable ready to use with cable box IP 67	**IAK R (RS232)**	2.5 m	50.67	-
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	**A+B series (RS232)**	4 m	54.67	on request
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51	

Cable for digital probes with analogue output

Cable accessories	Accessories for	Length	Price €	Special length
Standard cable for probes in the I series, active output with cable box IP 67	**IAK and IAF**	1.5 m	46.21	on request
Standard cable for probes in the I series, active output humidity/temperature passive with cable box IP 67	**IAC**	1.5 m	48.41	on request
Cable ready to use with cable box, IP 67	**IVK**	1.5 m	68.26	on request

About humidity measurement technology

Relative humidity has always been an important factor for the condition and health of humans, animals, plants and objects.

We recognise the major influence that relative humidity has on our wellbeing.

We experience relative humidity daily, often without knowing it. For example, the morning dew is the relative humidity of the night air that condenses in the cool morning hours. We benefit from the laws of relative humidity and temperature, for example in the sauna, where the air temperature is increased so much that a high water vapour concentration is created. We recognise the major influence that relative humidity has on our wellbeing, for example in winter, when heated rooms cause the mucous membranes of the nose to dry out in the excessively dry air, thereby risking colds; or in summer when there is high relative humidity and we are affected by the unpleasant sultry heat.

Relative humidity plays an important role not only for the comfort of humans, but also for the condition of many objects.

In many manufacturing processes, products require the correct relative humidity to retain their desired properties.

In many manufacturing processes, products require the correct relative humidity to retain their desired properties. Think of paper, for example, which is hygroscopic and is difficult to print on when the humidity is wrong, or of the storage of fruit and vegetables that wrinkle or ripen too early, or of computer systems that stop functioning when the recirculation air is too dry or too damp, the maturing of sausage and cheese, steel stockholding... the list goes on.

Relative humidity

Atmospheric air, a gas mixture, contains not only the primary gases nitrogen (78 % by volume) and oxygen (21 % by volume), but also a certain percentage of water vapour (water in its gaseous state). This presence of water vapour is called relative humidity. Airborne water in its liquid or solid state, e.g. fog droplets, raindrops or snow crystals, is not attributed to relative humidity.

In contrast to the other gas components in the air, water vapour can condense to water or desublimate to ice at the temperatures usually prevailing on the ground or in rooms. Conversely, water present in the environment can evaporate or ice sublimate into water vapour. As a result, the percentage of water vapour in the atmospheric air can be subject to large fluctuations in time and place.

About humidity measurement technology

Relative humidity

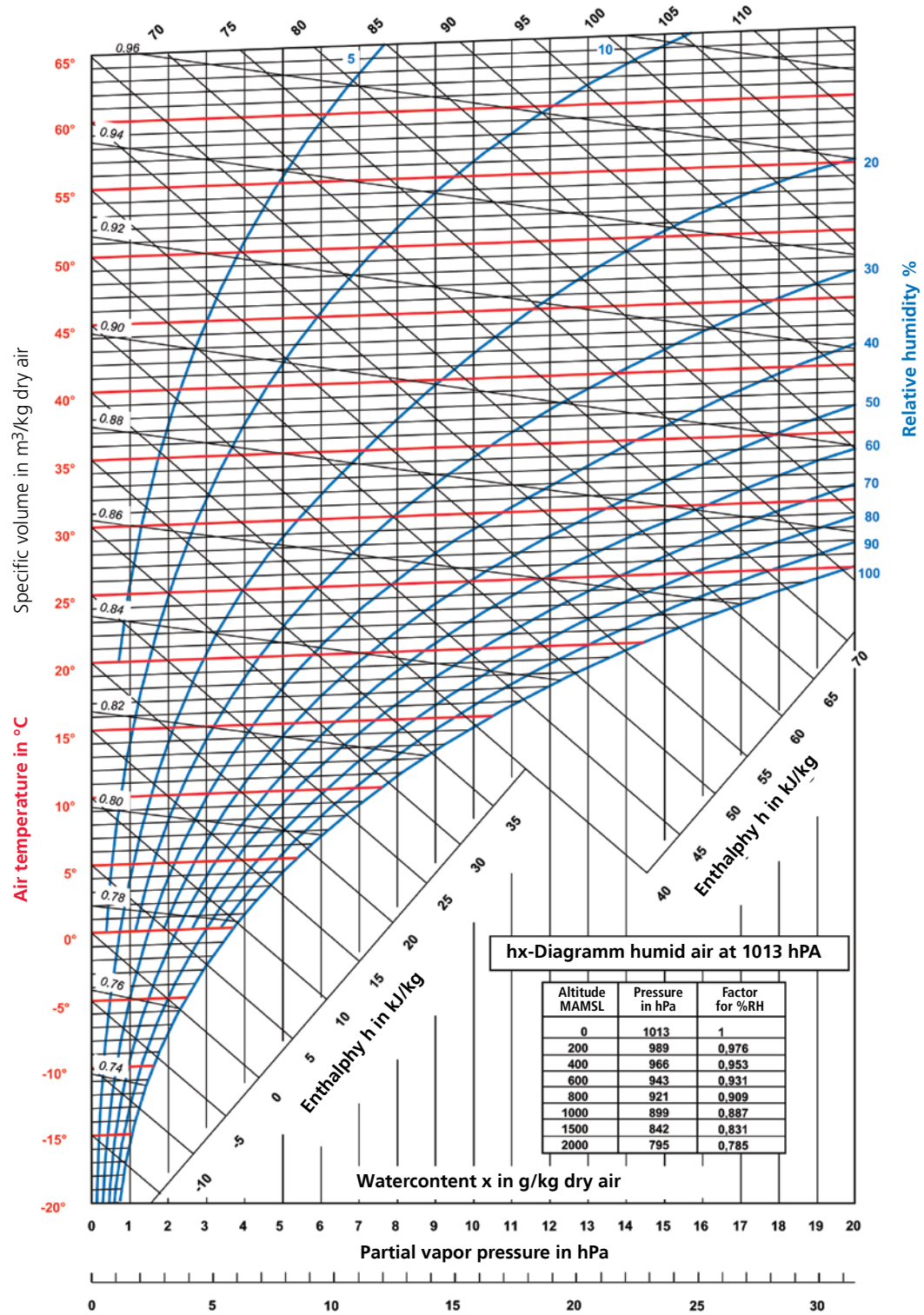
Relative humidity can be described by various physical variables. The devices manufactured by Galltec+Mela measure the relative humidity.

$$\text{Relative humidity} = \frac{\text{momentary water vapour concentration}}{\text{maximum possible water vapour concentration}}$$

(at the prevailing temperature)

The maximum possible water vapour concentration, known as the saturation concentration, depends essentially on the temperature and grows exponentially with the temperature. If the temperature is reduced with a constant water vapour concentration (and constant air pressure), the numerical value of the relative humidity increases until it reaches 100 % RH (relative humidity). The water vapour concentration then corresponds to the saturation concentration possible at this temperature, the dew point temperature.

Many of the devices from Galltec+Mela are equipped with a processor that uses the measured variables, relative humidity and temperature, to calculate the dew point temperature and other humidity variables such as absolute humidity (water vapour concentration), mixing ratio, wet bulb temperature and enthalpy.

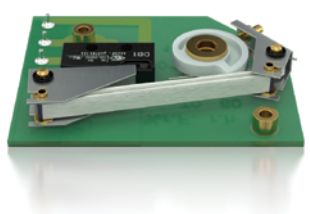


Altitude MAMSL	Pressure in hPa	Factor for %RH
0	1013	1
200	989	0,976
400	966	0,953
600	943	0,931
800	921	0,909
1000	899	0,887
1500	842	0,831
2000	795	0,785

About humidity measurement technology

Galltec+Mela are manufacturers of relative humidity detection products based on two different core measuring principles: **hygrometric** and **capacitive**.

POLYGA® fibres



Unique hygroscopic fibres with outstanding durability, exclusively manufactured by GALLTEC®

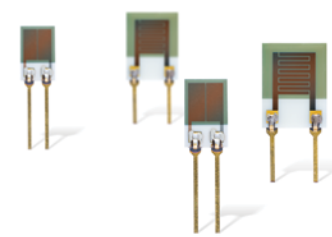
Building on the well-known fact that the length of human hair changes depending on humidity levels, GALLTEC® developed a synthetic hygroscopic fibre that also changes its length subject to humidity. It has unparalleled long-term stability and is 100 % waterproof.

POLYGA® fibres are used for two types of instruments:

Humidistats
The changes in length of the POLYGA® fibres are transferred via a lever system to a microswitch, resulting in an on/off controller that needs no auxiliary power supply.

Relative humidity transmitters
The changes in the length of the POLYGA® fibres are converted into electrical resistance values that can either be directly measured (passive transmitters) or converted further into standard analogue output signals (active transmitters).

Capacitive MELA® sensor chip



Highly dynamic capacitive sensor chips for the full range of relative humidity measurements

MELA Sensortechnik GmbH manufactures thin film capacitive sensorchips in a high-tech clean room environment. A system of layers is applied to a ceramic substrate. The layers consist of a basic electrode structure, MELA®'s proprietary hygroscopic polymer and an extremely thin covering layer of gold that is permeable to water vapour.

The MELA® polymer absorbs/desorbs atmospheric water vapour, which modifies its relative permittivity and thereby changes the capacitance of the MELA® sensorchip. This capacitance is a direct measure of relative humidity.

Service

We have been producing devices for measuring and controlling air humidity and temperature for over 50 years. The outstanding quality, performance and the reliability of the products, is based on many years of experience in a wide range of application areas. We are happy to put this experience into practice for you. Do not hesitate to call us if you have any questions.

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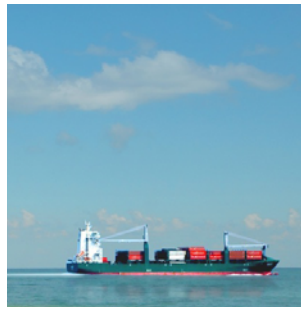
Latvia, Lithuania, Estonia	WILL Sensors SIA Dzelzavas iela 127 LV-1021 Riga Latvia	Phone +371 677 18 678 Fax +371 660 12 063	info@willsensors.lv www.willsensors.lv



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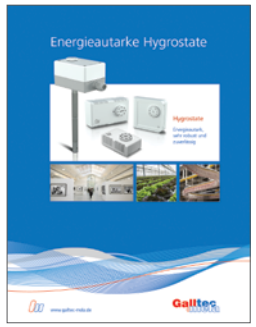
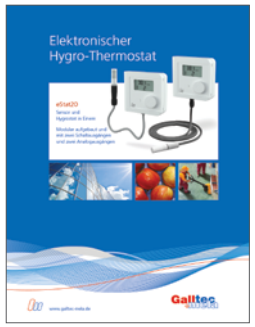
Service

Visit the downloads page on our website (www.galltec-mela.de/downloads/EN) to find leaflets, extra information and our entire product catalogue. Or simply get in touch with us – we are happy to help with any measuring task. Our dedicated employees, with their wealth of experience, will be able to come up with the perfect solution for you!

Humidistats



Combined Hygro-Thermostat



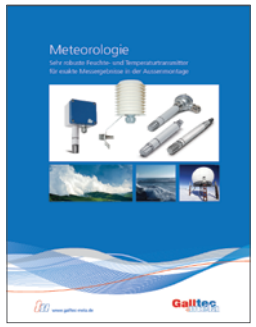
Modular DZK

D series

ATEX

A series

Meteorology



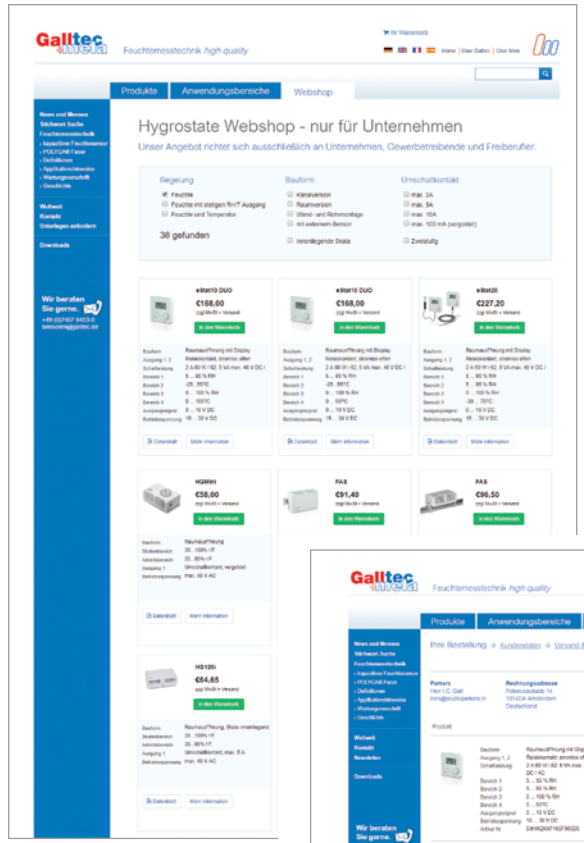
HVAC

Humidistats web shop

Order humidistats directly from the manufacturer. It's fast, economical and reliable, which is sure to please installers and maintenance companies!

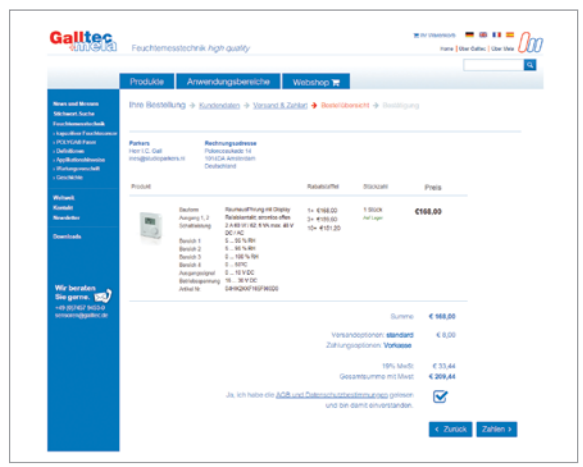
The humidistats offered in our web shop are almost always in stock and ready to ship to countries in the EU. You can even place your order as a guest without creating a customer account.

Buying a humidistat has never been so easy!



- For business customers of the EU
- Fast & convenient
- No registration required

our web shop



Experts in relative humidity measurement since 1972

Measuring and controlling atmospheric humidity and temperature is the focus of Galltec+Mela's operations.

Our wide product range, comprising transmitters, humidistats and controllers is underpinned by our expertise in developing and manufacturing humidity sensors, and is based on two core measuring principles.

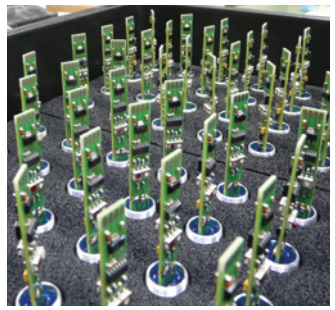
Galltec+Mela are committed to offering solutions for all applications where the control of humidity and temperature matters. Our instruments are used throughout the world.

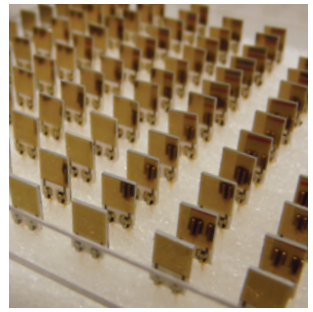
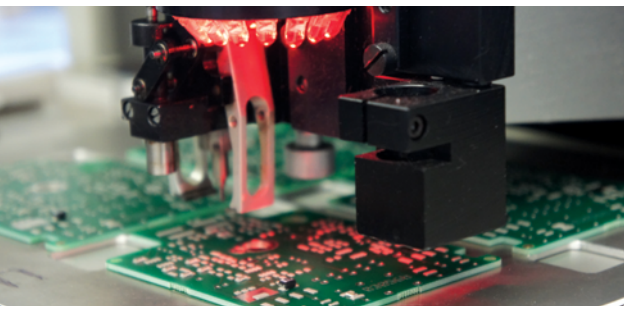
High quality and reliability are key characteristics of Galltec+Mela's products and services. Thus we achieve our primary objective: total customer satisfaction.

Facts

- Original equipment manufacturer (OEM)
- Two measurement principles
- In-house fibre and sensorchip production
- All instruments made in Germany
- Three production and development sites
- More than 2000 m² production area
- Our own clean room production
- EN ISO 9001 certified




History of Galltec

1972	Galltec begins production of humidity sensors and humidistats in Esslingen, Baden-Württemberg. The company was originally called "Gebrüder Gall".
1979	Relocation to Bondorf
1987	Due to steady growth, a new production and administration building is built (today the headquarters for administration and development).
1998	Galltec experiences further expansion: new factory buildings extend the production area. Similarly, the development, EMC laboratory and sales premises are enlarged to meet market needs.
1999	Galltec becomes the majority shareholder in MELA Sensortechnik GmbH. Both companies complement each other perfectly. The development and production of sensors using the two measuring principles - capacitive and hygrometric - now come from a single source, to the benefit of their customers.
2001	Inauguration of the new company building at MELA in Mohlsdorf, Thuringia.
2002	Certification to EN ISO 9001:2000.
2017	Certification to EN ISO 9001:2015.
Today	Galltec+Mela are known worldwide for their quality and reliability of service and their products, which are used successfully in more than 30 countries.

History of MELA

1992	Foundation of the company MELA Sensortechnik GmbH in Greiz (Thuringia), for the development, production and sale of capacitive humidity sensors.
1999	The company Galltec Mess- und Regeltechnik GmbH in Bondorf (Baden-Württemberg) becomes the majority shareholder. Both companies complement each other perfectly: From then on, they develop an effective division of labour and cooperation for the benefit of their customers.
2001	Expansion of the company through a new factory building in Mohlsdorf (near Greiz) enables the modernisation of all processes - from development through production to sales - for the benefit of their growing customer base.
2005	Certification to EN ISO 9001:2000.
2015	MELA extends its premises. Thanks to the new premises and state of the art technology, the new extension will further optimise day-to-day operations.
2017	Certification to EN ISO 9001:2015.
Today	Galltec+Mela are known worldwide for their quality and reliability of service and their products, which are used successfully in more than 30 countries.

We are always ready to help you!

As a manufacturer of humidity sensors, based on two different measuring principles, hygrometric and capacitive, we are always happy to help you with any measuring task. Our dedicated and creative engineers, with their wealth of experience, will be able to come up with the perfect solution for your needs!

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