

Product Catalogue

Humidity & temperature measurement technology - *high quality*

 EN | 2024



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

Controller

Humidistats and hygro-thermostats for controlling and monitoring relative humidity and temperature

Accessories

Humidity measurement

Service

Company

Economical transmitters

HVAC, for use in moderate industrial conditions

6

HVAC

All-rounder transmitters

hx converter, display, USB exchangeable measuring head, modular design, outdoor, weather-proof stainless steel

28

All-rounder

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

Industry

POLYGA® Universal transmitters

High accuracy in the high humidity range, long term stability, robust, washable measuring element

148

Polyga

POLYGA® humidistats

No external power supply required, long term stability, robust

156

Humidistats

Electronic humidistats and hygro-thermostats

Two individually configurable relays and two continuous signal outputs to monitor humidity and temperature

166

Humidistats

Condensation controllers

Prevent damage due to condensation or high relative humidity, with analogue output or with switching output

176

Condensation controllers

Controllers, protective filters, installation aids, humidity standards

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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

Optimised for HVAC

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	Semiconductor
active output	Pt100, Pt1000, etc.
passive output	
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
Connector, 6-pole	11.38			
protective basket	standard		standard	standard
with membrane	5.10		5.10	5.10
PTFE-Filter ZE05	18.75		18.75	18.75

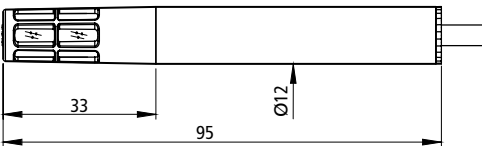
Temperature sensors with passive output

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

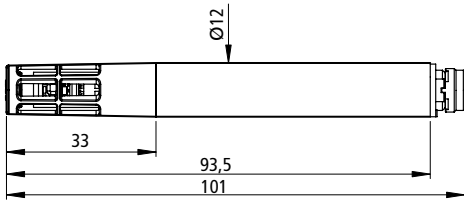
Probe LP



with cable connection

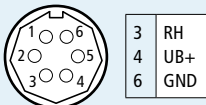
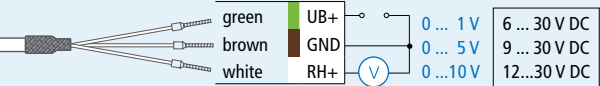


with plug-in connection

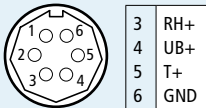
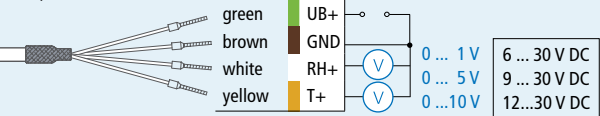


Connection diagrams

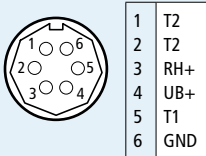
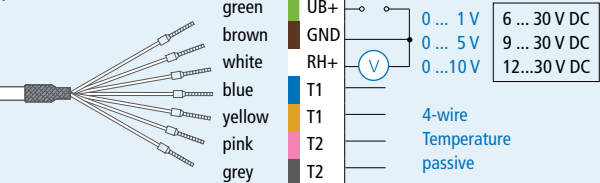
Humidity LPF



Humidity and temperature LPK



Humidity and temperature passive LPC



Optimised for HVAC

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	Semiconductor
active output	Pt100, Pt1000, etc.
passive output	
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



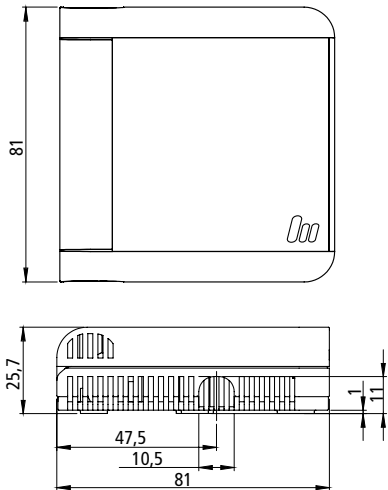
More information
on the analogue L series
datasheet online PDF



More information
on the digital L series
datasheet online PDF

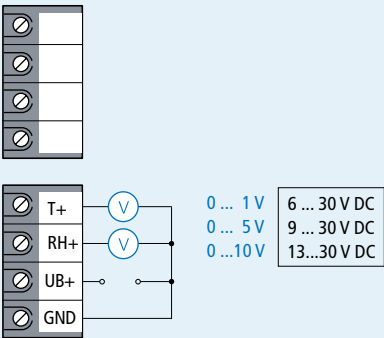
Type overview	Type		Price €	Standard	Options	Surcharge €
Humidity	LPF	1 x U output	97.25	1.5 m cable and protective basket ZE07	Connector, 6-pole	11.37
Humidity + temperature	LPK	2 x U outputs	107.46		Membrane filters ZE08	5.10
Humidity + Pt100	LPC	1 x U output + (passive)	107.46		PTFE filter ZE05	18.75
Temperature	LPT		97.25			
Temperature passive	LPT5	1 x U output	37.39			

Indoor LI

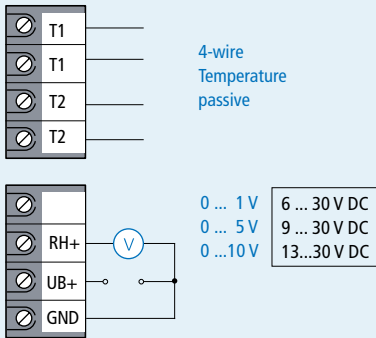


Connection diagrams

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

Optimised for HVAC

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	Semiconductor, MELA®
active output	Pt100, Pt1000, etc.
passive output	
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

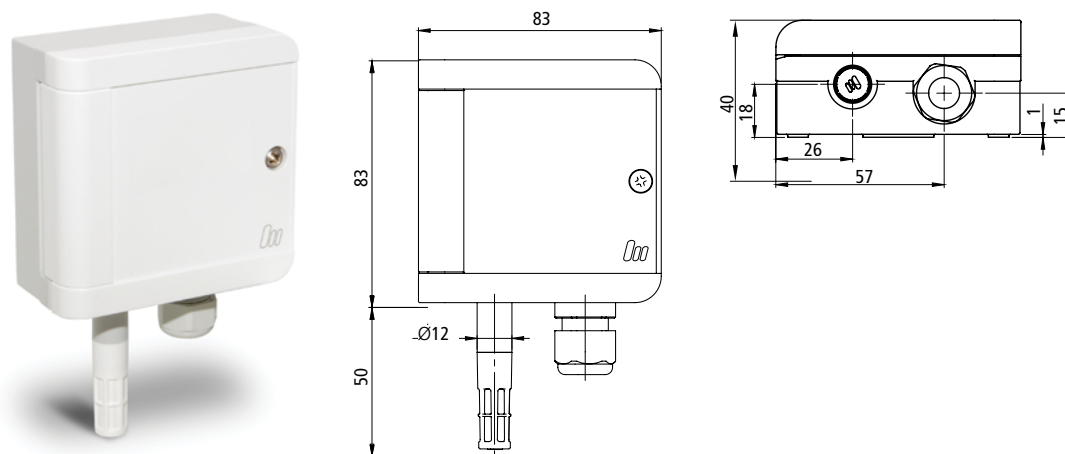


More information
on the analogue L series
datasheet online PDF



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

Optimised for HVAC

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	Semiconductor
active output	Pt100, Pt1000, etc.
passive output	
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

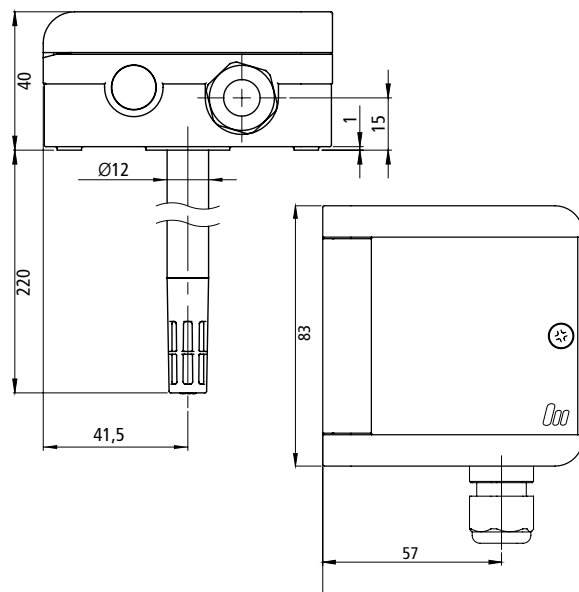


More information
on the analogue L series
datasheet online PDF



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

Optimised for HVAC

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	Semiconductor
active output	Pt100, Pt1000, etc.
passive output	
Output ranges	0 ... +50 °C 0 ... +100 °C -20 ... +80 °C -30 ... +70 °C -40 ... +60 °C -40 ... +85 °C
RS232 or Modbus	
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

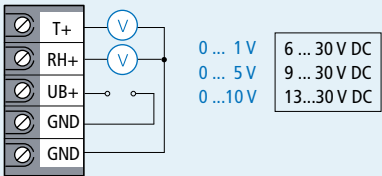


More information
on the digital L series
datasheet online PDF

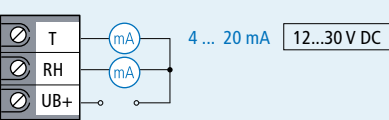
Wall mounted LW and
duct mounted LK

Connection diagrams

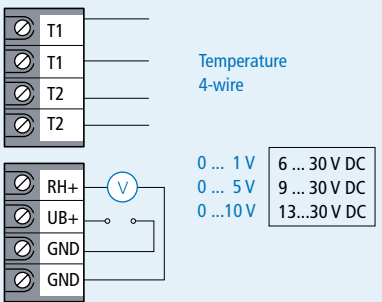
Humidity and temperature LWK



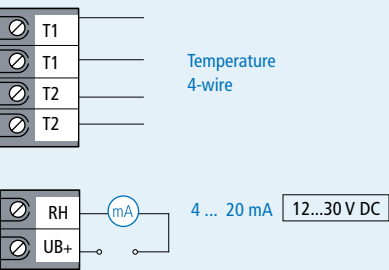
Humidity and temperature LWK



Humidity and temperature passive LWC



Humidity and temperature passive LWC

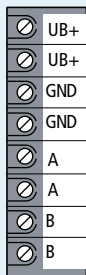


Optimised for HVAC

Wall mounted LW and
duct mounted LK digital

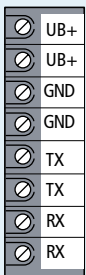
Connection diagrams digital

M RS485



Modbus RTU protocol

R RS232

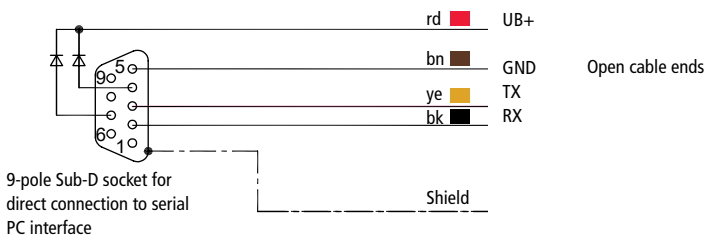


ASCII protocol



Pin assignment cable accessories

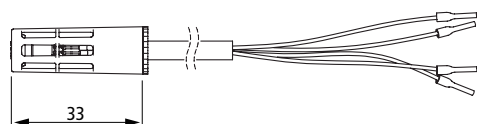
RS232



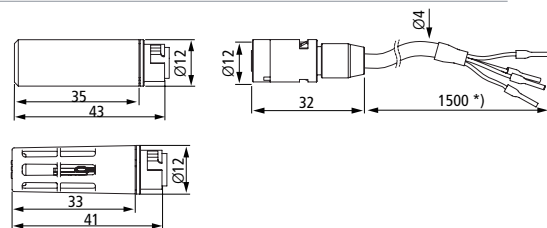
Miniature sensor MCK



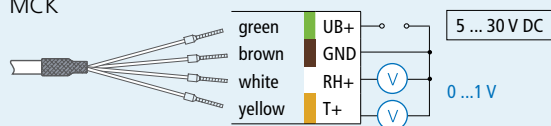
with cable connection



with plug-in connection



M series

Humidity and temperature analogue
MCKHumidity 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

Miniature sensor optimised for HVAC

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 I ² C)	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

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

M series

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



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

Optimised for HVAC

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

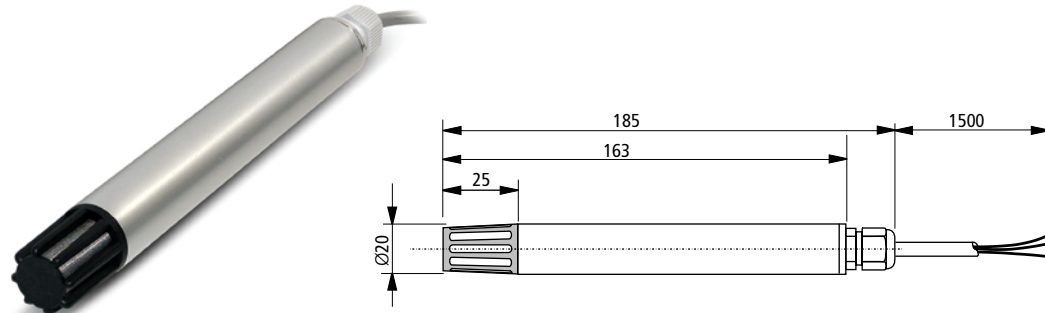
Temperature sensor

U output	81.05	96.80	78.72
I output	87.10	96.80	78.72

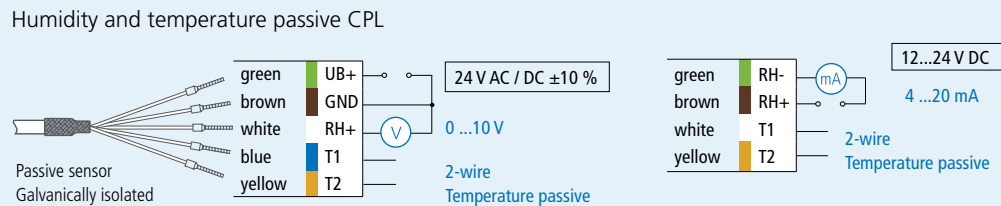
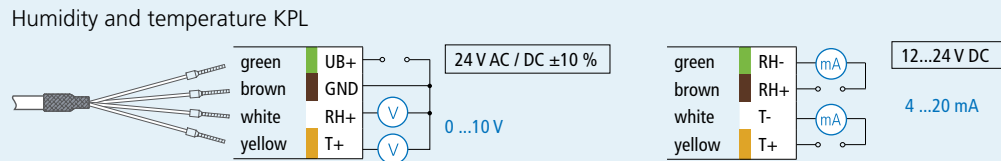
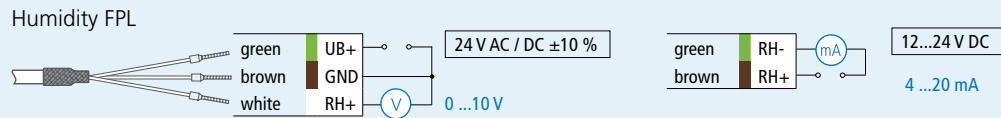


More information on the C2.6 datasheet online PDF

Probe PL



Connection diagrams



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	

Optimised for HVAC

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

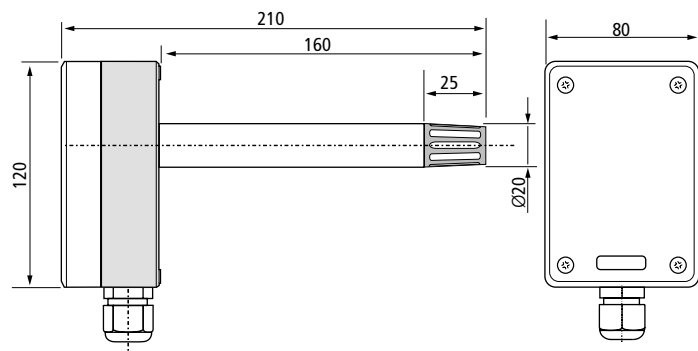
Light series PL

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

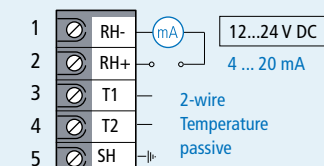
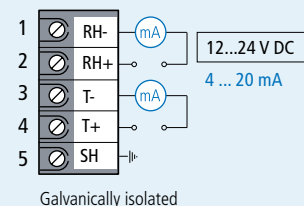
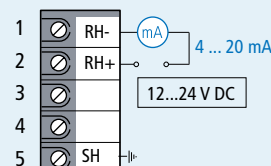
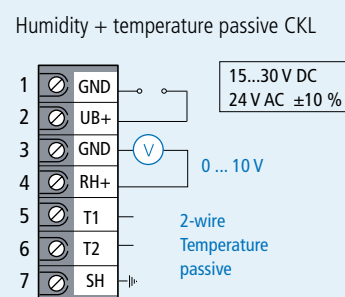
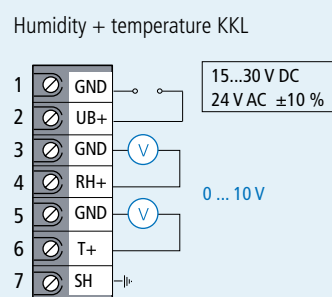
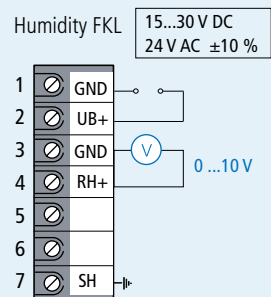


More information on
the C2.6 datasheet
online PDF

Duct mounted KL



Connection diagrams



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	

Optimised for HVAC

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	$\pm 3\%$ RH 40...60 % RH $\pm 5\%$ 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 $\pm 10\%$
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

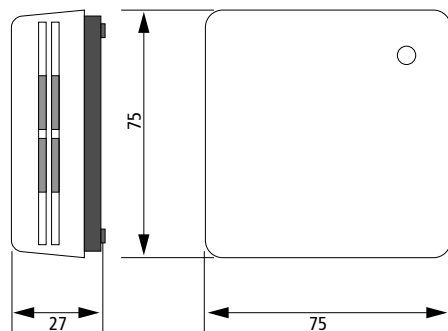
Light series KL

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



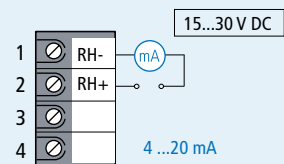
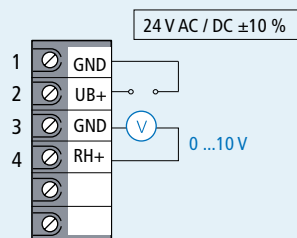
More information on
the C2.6 datasheet
online PDF

Indoor WL

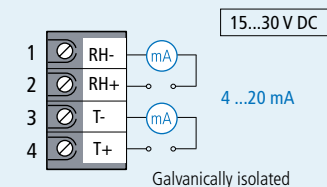
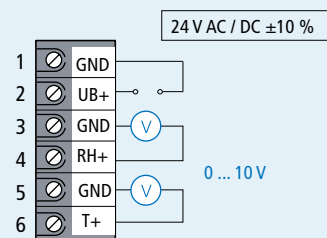


Connection diagrams

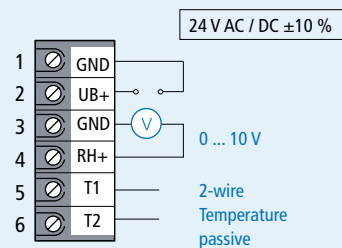
Humidity FWL



Humidity + temperature KWL



Humidity + temperature passive CWL



Type overview

Type 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

Optimised for HVAC

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	LM35, LM235
active output	Pt100, Pt1000 (1/3 DIN)
passive output	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	±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/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
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

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

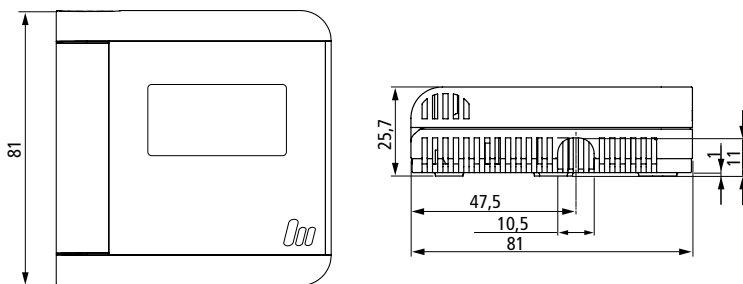
- Display
- IP 65
- Output variables can be freely configured via USB port
- hx converter:
 - Dew point temperature
 - Wet bulb temperature
 - Absolute humidity
 - Mixing ratio
 - Enthalpy

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	13.65
USB port		9.10	9.10
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			
Hx converter			

Indoor DI

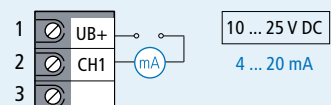
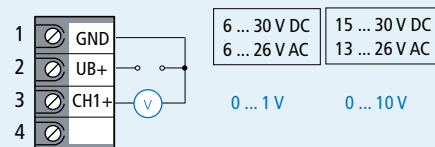


Applications

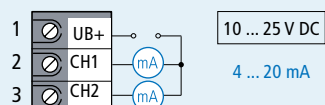
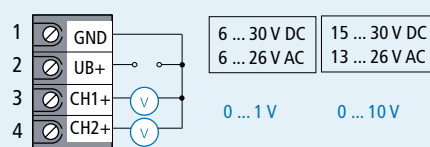
- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Storage & transport
- Cooling & air conditioning in trains
- Ship containers
- Storage and transport of fruit, vegetables & meat
- Wine cabinets
- Drying of tea, grain & meat
- Energy & environment

Connection diagrams

Humidity DIF



Humidity and temperature DIK



Very accurate and easy to install

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	±0.25 K
with current output	±0.4 K

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 ... 25 V DC

General

Housing	Material: ABS, signal white, IP 30
Storage temperature	-40...+85 °C
Operating temperature	-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



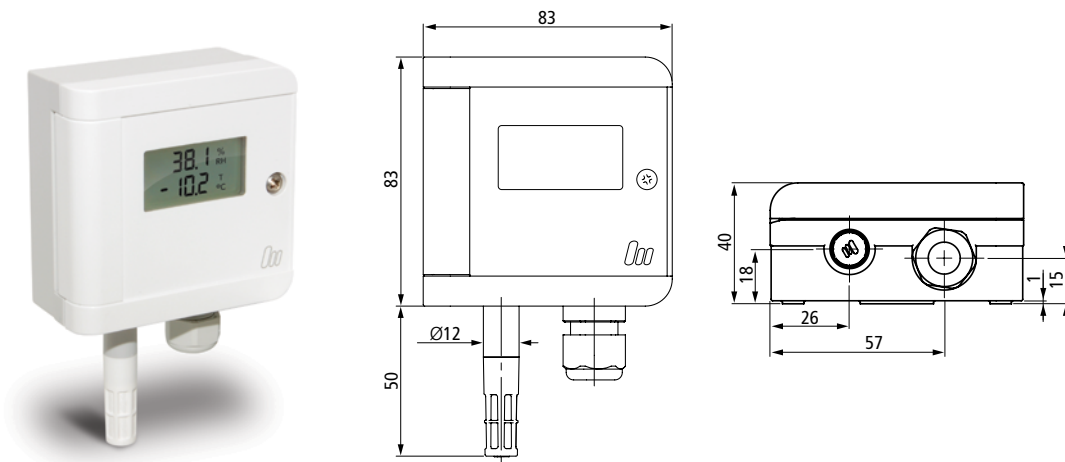
Type overview

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



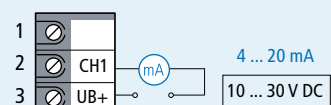
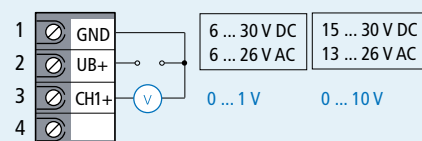
More information
on the DI datasheet
online PDF

Wall mounted DW

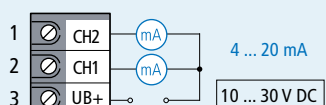
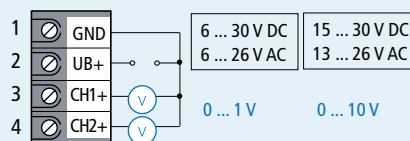


Connection diagrams

Humidity DWF



Humidity and temperature DWK



Type overview

Type overview	Type		Price €	Standard	Options	Surcharge €
Humidity	DWF	1 x output	199.00	Membrane filter ZE08	Display	22.75
Humidity + temperature	DWK	2 x outputs	221.73		PTFE filter ZE05	13.65

Very accurate and easy to install - industrial version

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/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
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

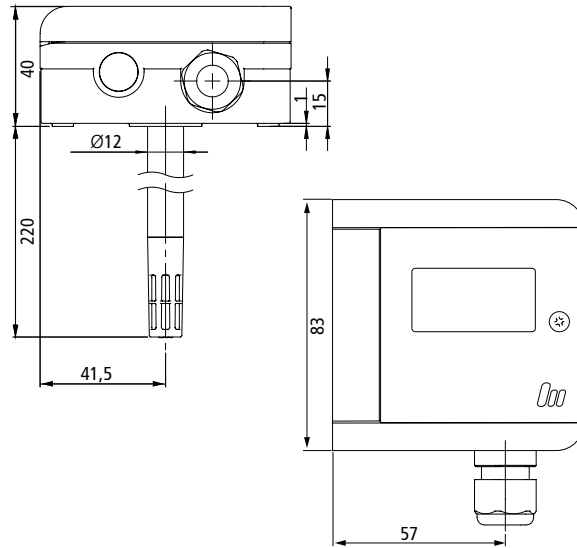
Options

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



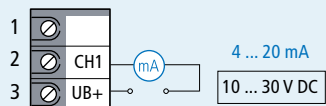
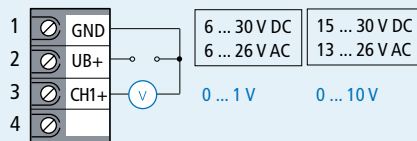
More information on the DW datasheet online PDF

Duct mounted DK

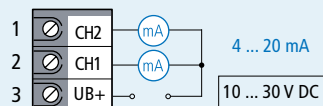
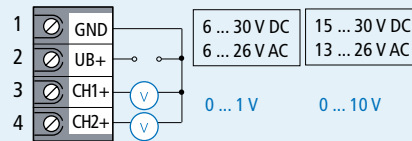


Connection diagrams

Humidity DKF



Humidity and temperature DKK



Type overview	Type		Price €	Standard	Options	Surcharge €
Humidity	DKF	1 x output	199.00	Membrane filter ZE08	Display	22.75
Humidity + temperature	DKK	2 x outputs	221.73		PTFE filter ZE05	13.65

Very accurate and easy to install - industrial version

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/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
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

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/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
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
Display	22.75
Cable connectable at both ends	28.41
Operating temperature	
Hx converter	
USB port	9.10

DZK transmitters...



Standard:



Membrane filter IP 30

85°C

Option:



PTFE sintered filter IP 65

Easily customised modular design

Transmitter with plug-in probe



IP 30

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

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)

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)

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

DZK

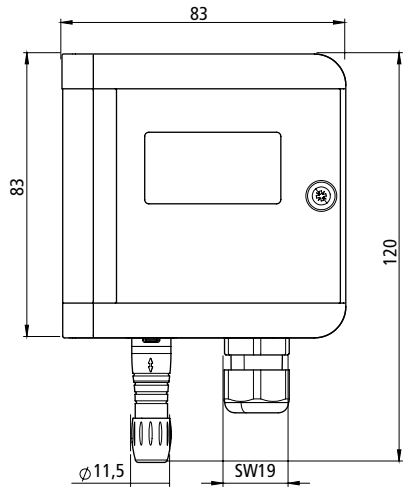
In this series

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

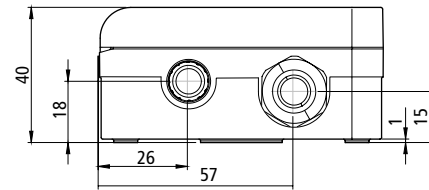
Options

- 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

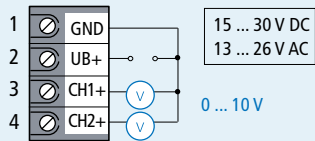


with plug-in connection

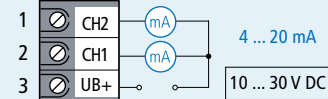


Connection diagrams

Humidity and temperature



Humidity and temperature



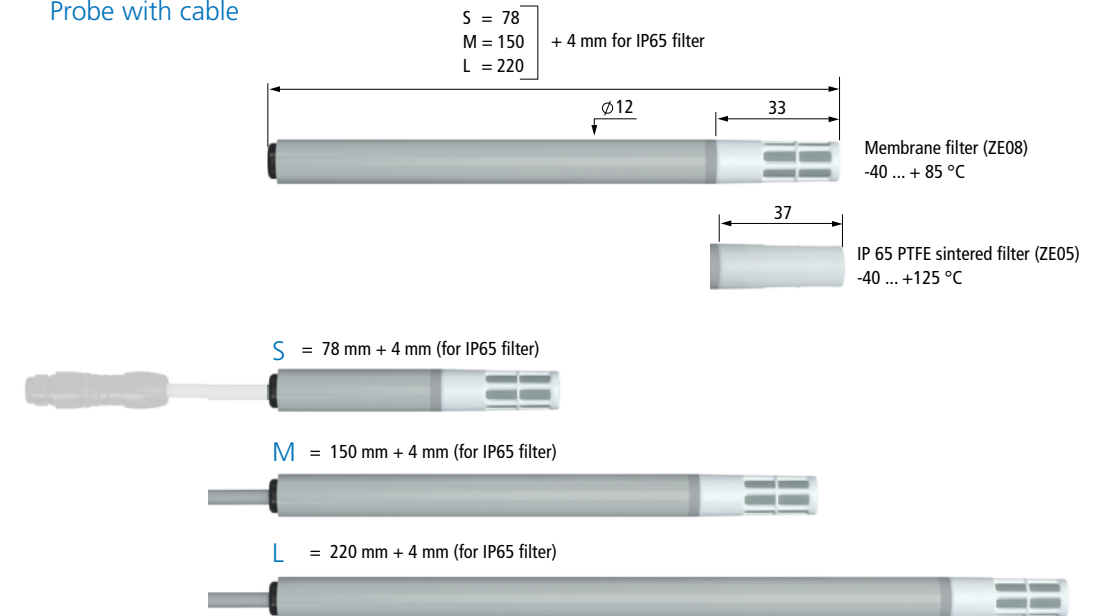
Optional: DZK transmitter with cable connected probe (firmly)

Standard version	High temperature version
233.11	258.13
IP 30 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 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

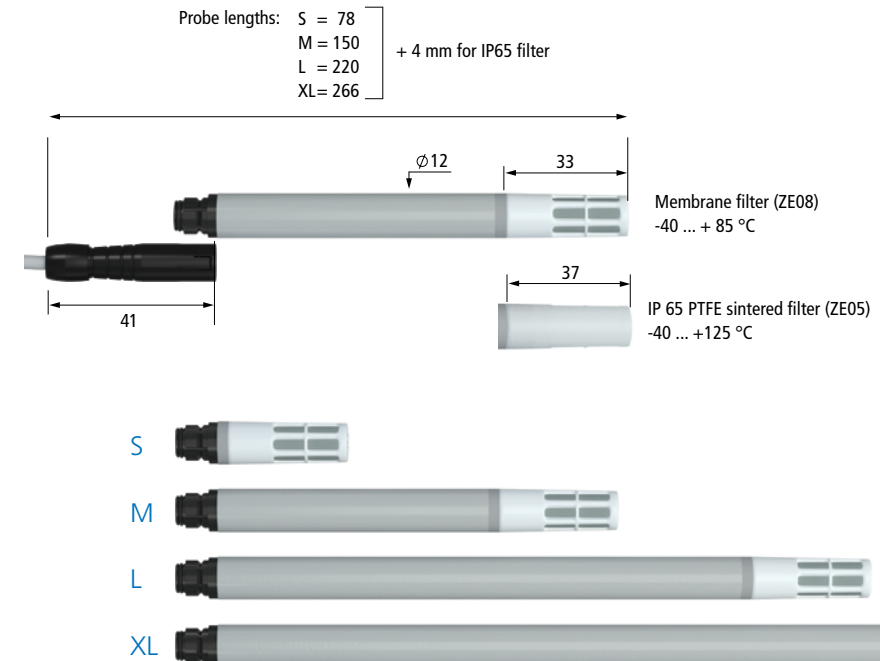
Easily customised modular design

DZK (remote) probe

Probe with cable

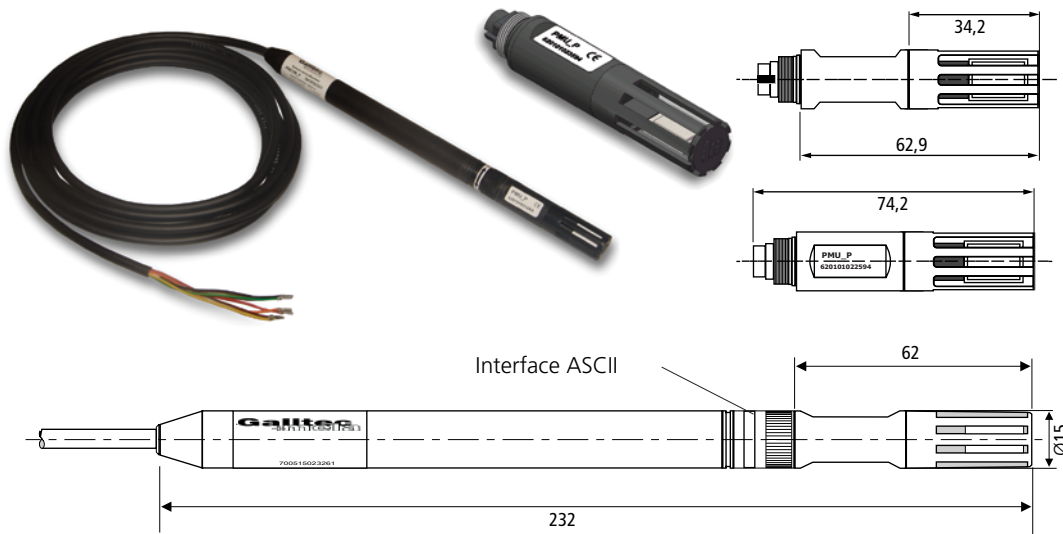


Probe with plug-in connection



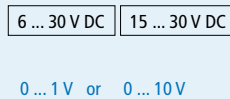
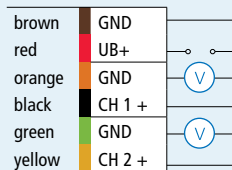
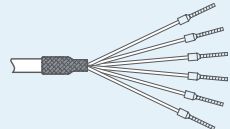
Probe PM15P

with measuring head PMU-P

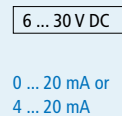
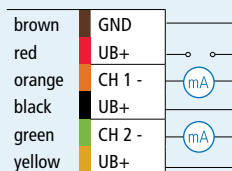
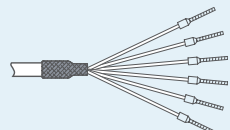


PM15P

Humidity and temperature PM15P



Humidity and temperature PM15P



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/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
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	IP 64, Material: Plastic, black
Measuring head (PMU-P)	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

Analogue probes

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



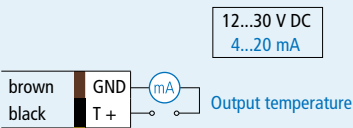
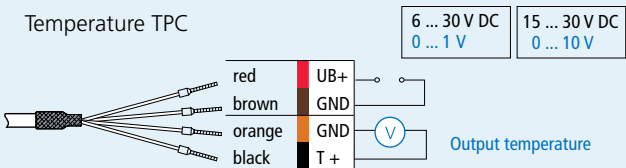
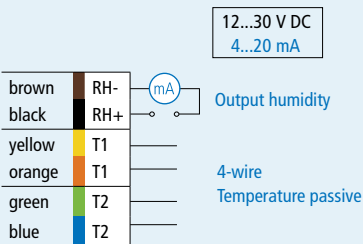
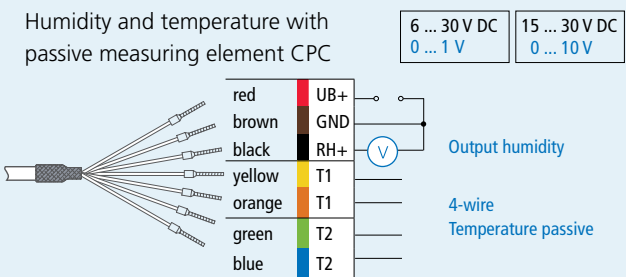
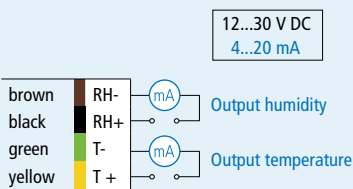
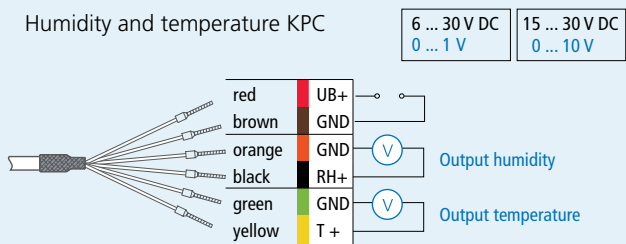
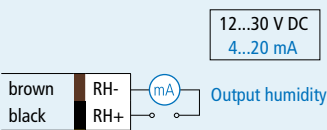
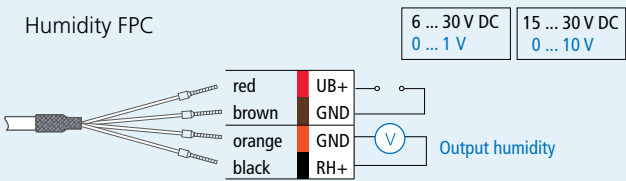
More information on
the C2.4 datasheet
online PDF



More information on
the C2.3 datasheet
online PDF

Probe PC
with cable connection

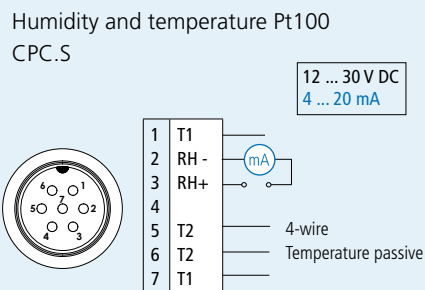
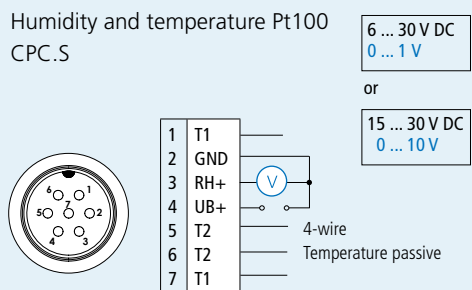
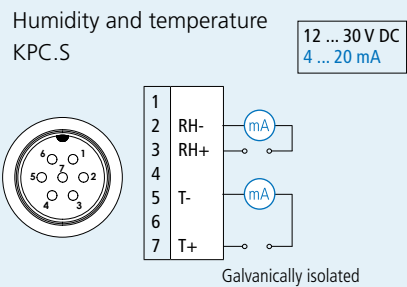
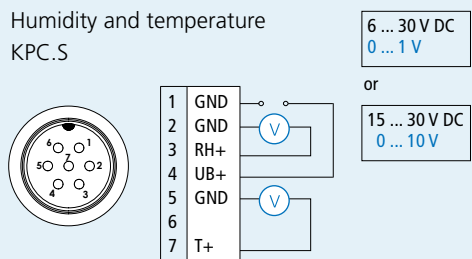
Connection diagrams



Analogue probes

Probe PC.S
with plug-in connection

Pin assignment



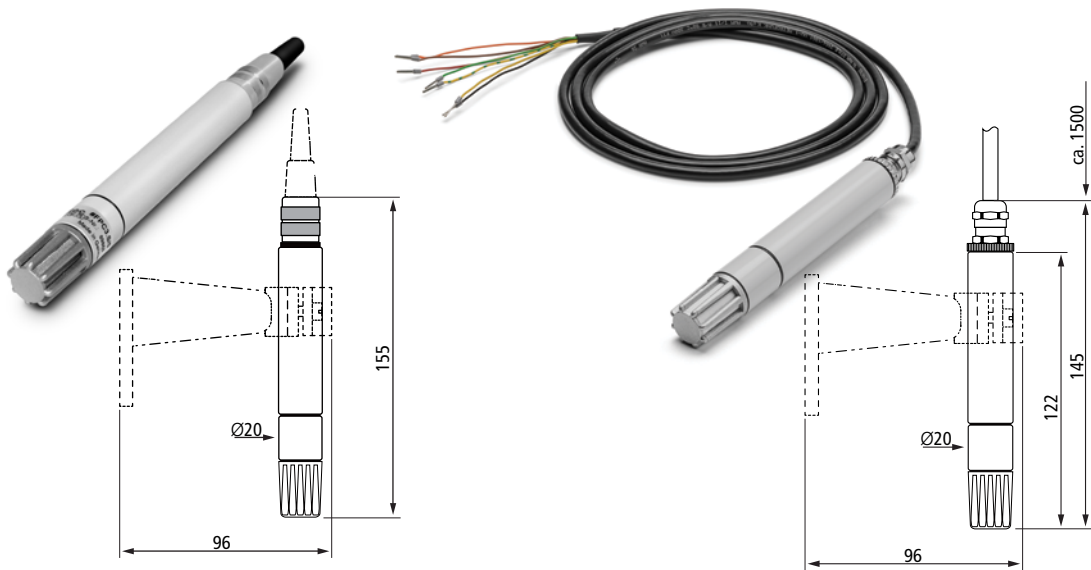
Cable accessories PC.S

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)



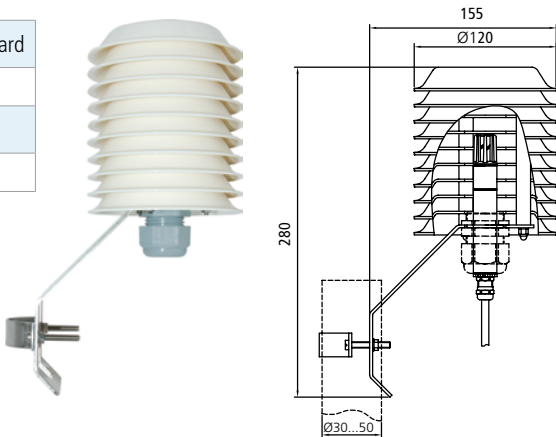
Type overview		Type PC	Price €	Type PC.S	Price €	Standard
Humidity	1 x U output	FPC-ME	238.94	FPC.S-ME	232.61	5 m cable, plastic filter, metallised with membrane ZE20
Humidity + temperature	2 x U outputs	KPC-ME	306.89	KPC.S-ME	291.08	
Humidity + Pt100	1 x U output + (passive)	CPC-ME	267.06	CPC.S-ME	253.74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



PC-ME with cable

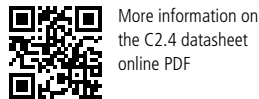
Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±2 % RH at 5...95 % and 10...40 °C
Temperature measurement	
Sensor element	Pt100 1/3 DIN Class B
Output range	-30 ... +70 °C
Accuracy	±0.2 K
Electrical specifications	
Signal output	Supply voltage
0...1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

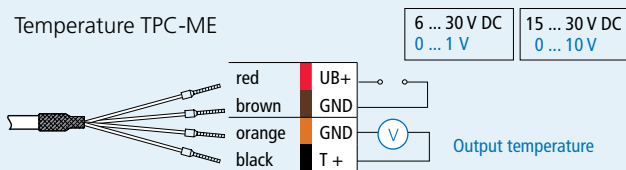
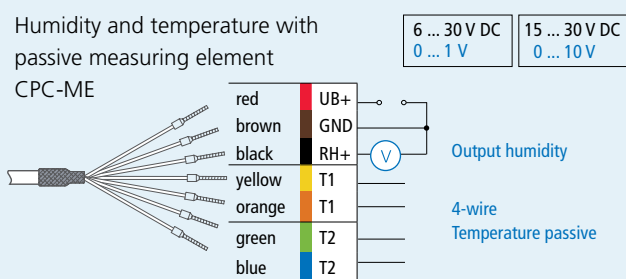
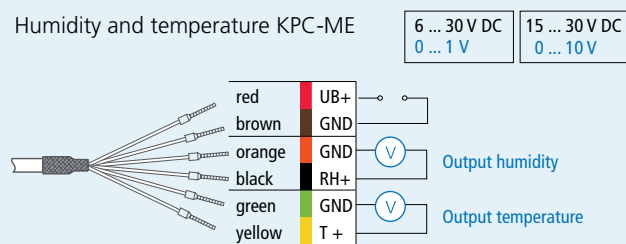
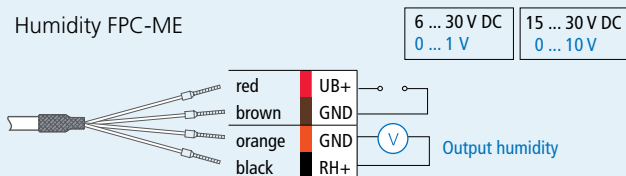


More information on the C2.4 datasheet online PDF

Probe PC-ME with cable connection



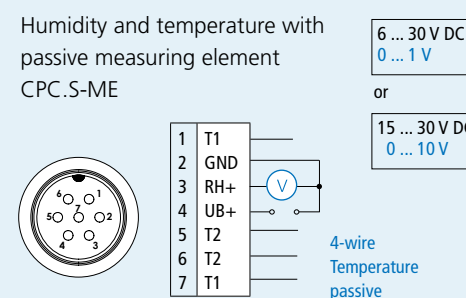
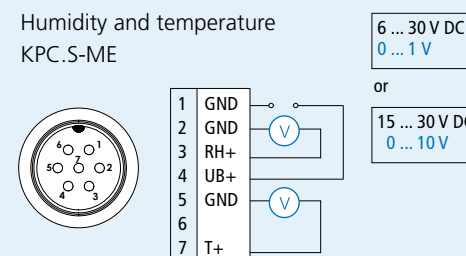
Connection diagrams



Probe PC.S-ME with plug-in connection



Pin assignment

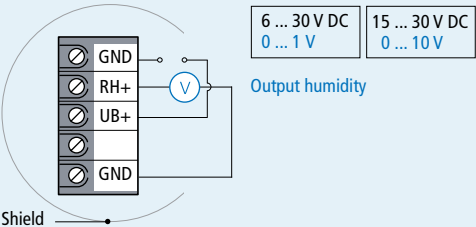


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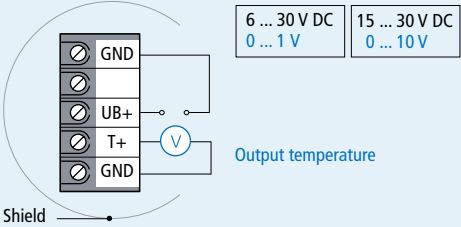
Probe RC with robust head
and RC-ME meteorology

Connection diagrams voltage

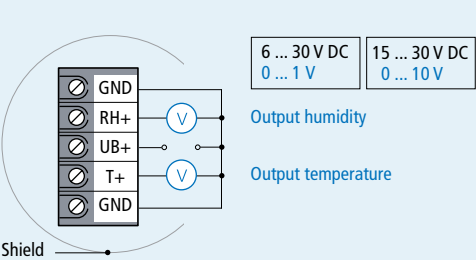
Humidity FRC / FRC-ME



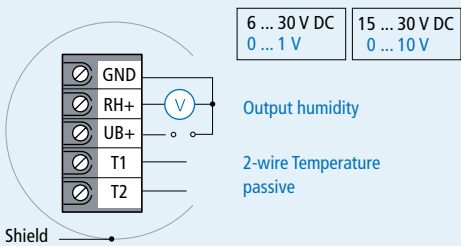
Temperature TRC / TRC-ME



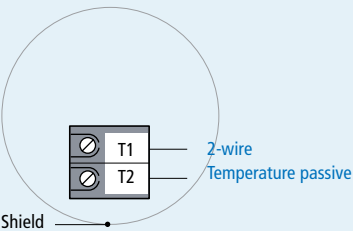
Humidity and temperature KRC / KRC-ME



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



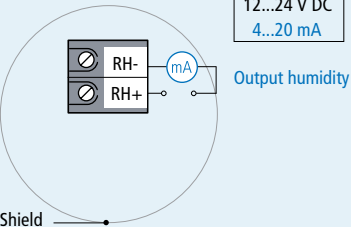
Temperature with
passive measuring
element TRC



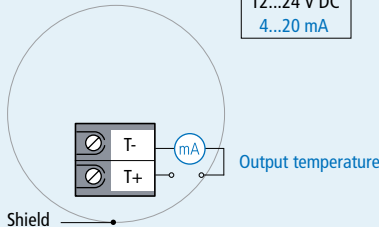
Probe
RC with robust head

Connection diagrams current

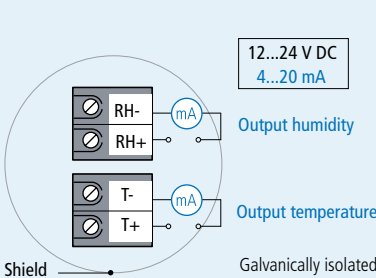
Humidity FRC 3



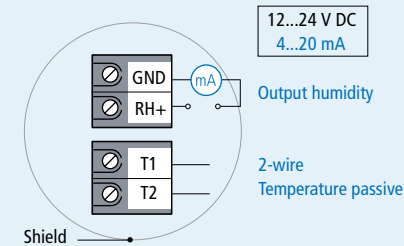
Temperature TRC 3



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

Probes with digital output

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/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

I series M / R

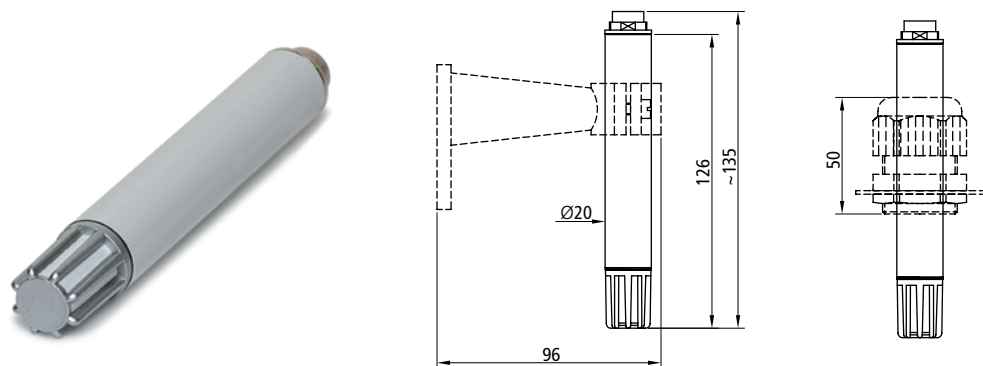
- In this series
- Operating temp. up to 85 °C
 - Accuracy: ±1.5 % RH
 - Robust

- 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

Probes with digital output and plug-in connection

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

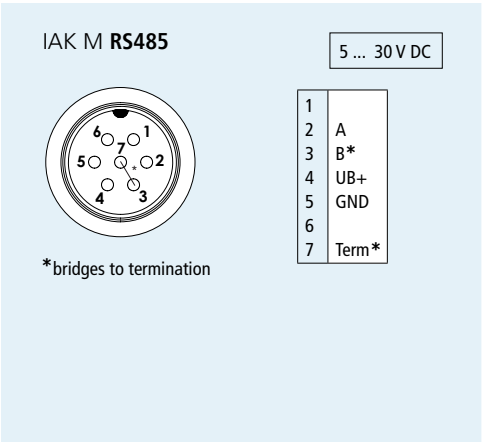


More information on
the I series datasheet
online PDF

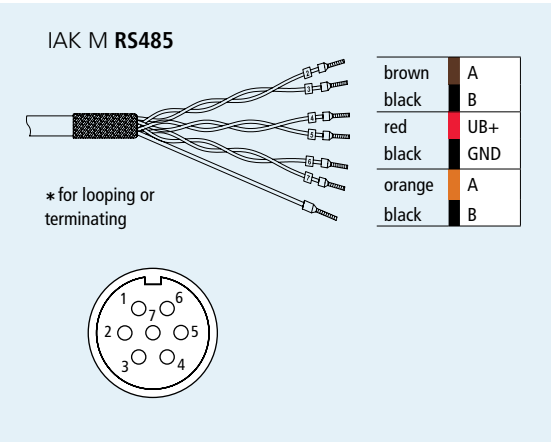
Probe IAK with plug-in connection



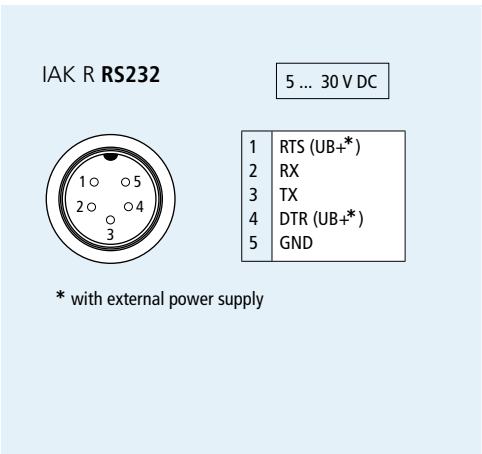
Pin assignment **Modbus**



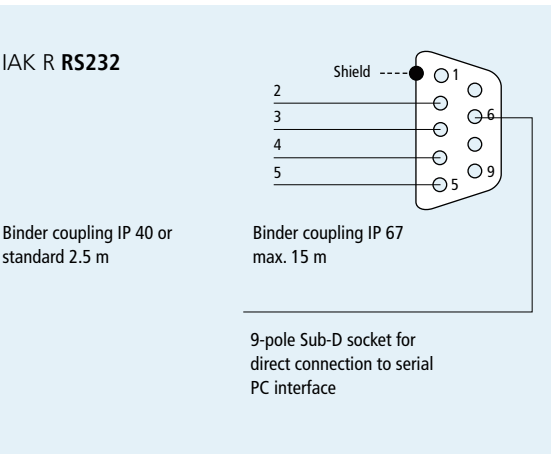
Pin assignment **Modbus** cable accessories



Pin assignment **RS232**



Pin assignment **RS232** cable accessories

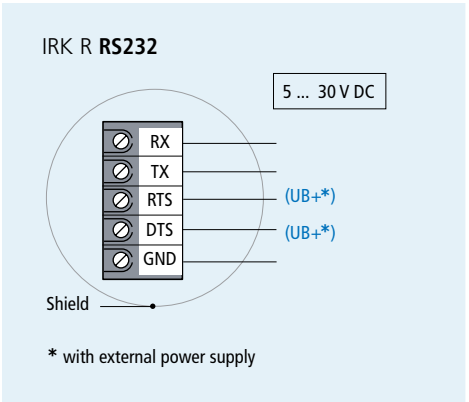


Probes with digital output

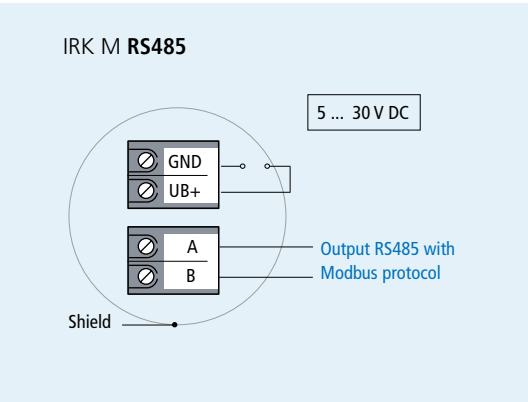
Probe IRK with robust head



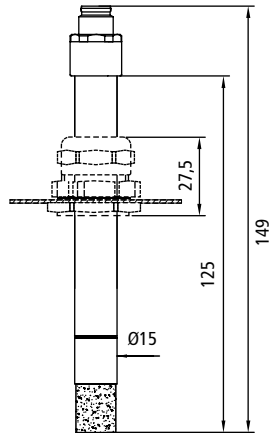
Connection diagram **RS232**



Connection diagram **Modbus**



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	-

Probes with digital output and plug-in connection

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/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, 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

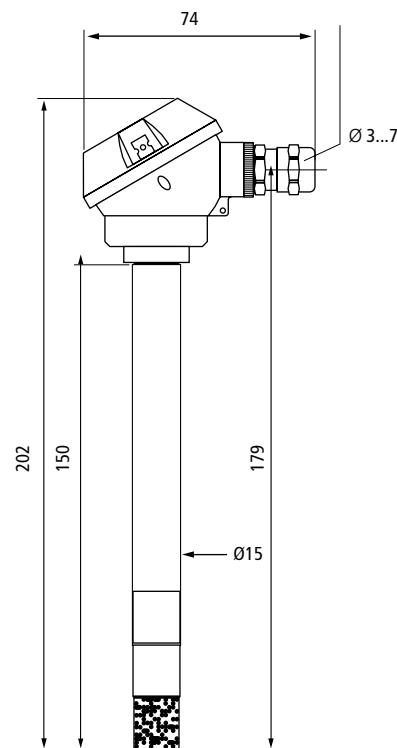
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Dew-resistant
- Stainless steel
- IP 65

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	-

Probes with digital output and robust head

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/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, 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

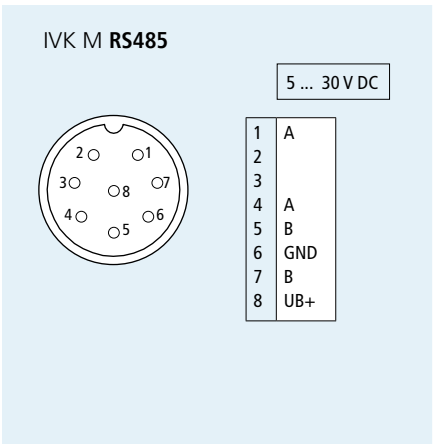


More information on
the I series datasheet
online PDF

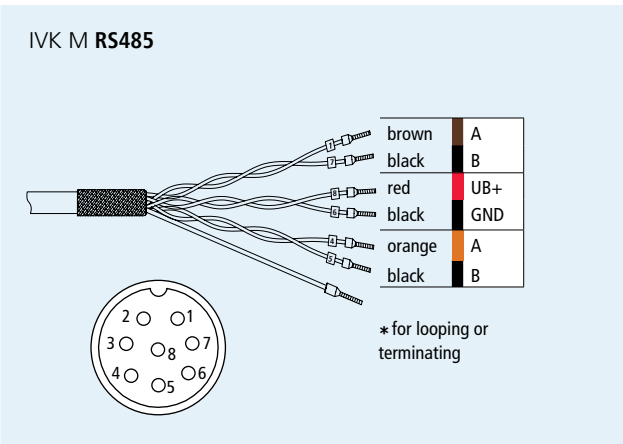
Probe IVK stainless steel
with plug-in connection



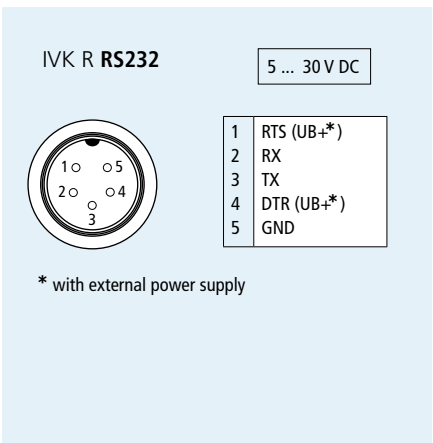
Pin assignment **Modbus**



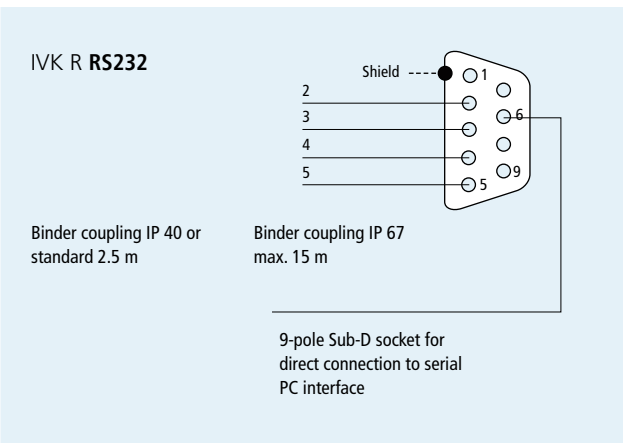
Pin assignment **Modbus** cable accessories



Pin assignment **RS232**



Pin assignment **RS232** cable accessories

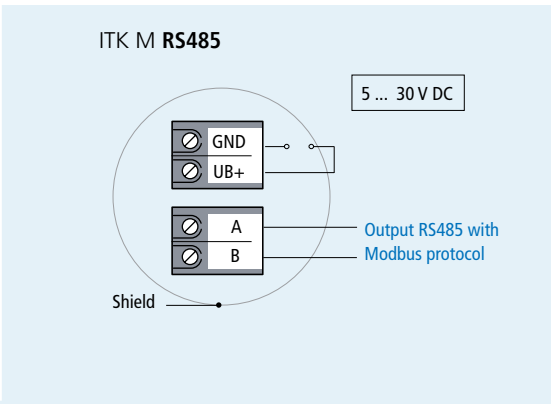
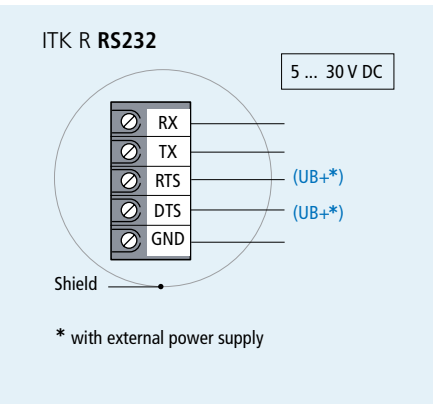


Probes with digital output, digital connection diagrams

Probe ITK with robust head



Connection diagram





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

Probes with analogue output

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

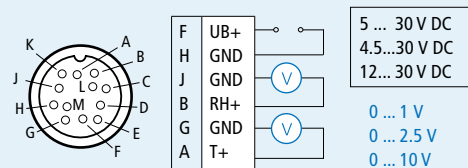
Voltage output	222.34	265.57	-	-
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Probe IAK with plug-in connection - analogue

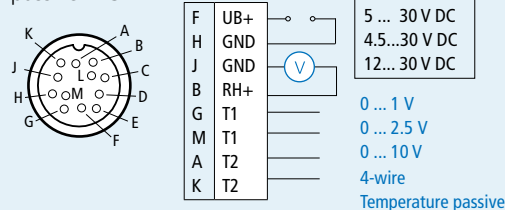


Pin assignment analogue output

Humidity and temperature IAK

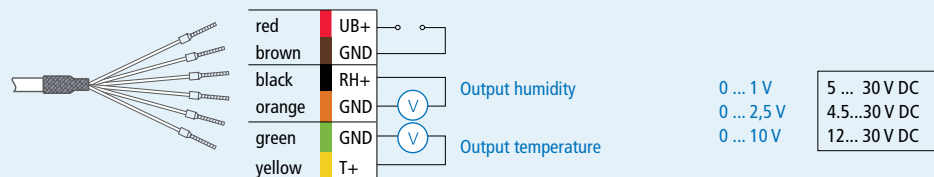


Humidity and temperature passive IAC

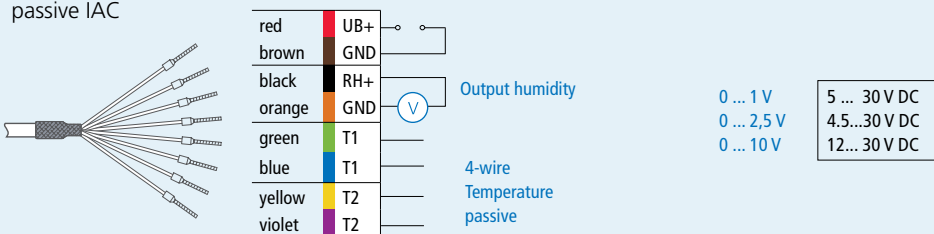


Pin assignment cable accessories

Humidity and temperature IAK



Humidity and temperature passive IAC



Cable accessories

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

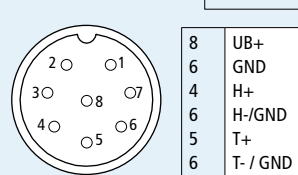
Probes with analogue output

Probe IVK - analogue

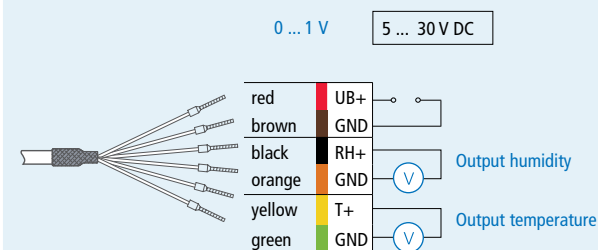


Pin assignment analogue output

IVK



Pin assignment cable accessories

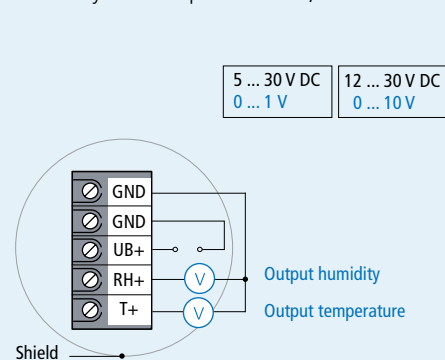


Probe IRK and ITK with robust head - analogue

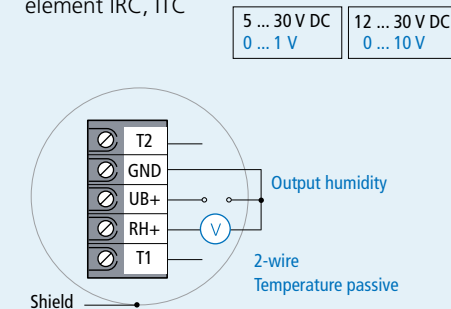


Connection diagram analogue output

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

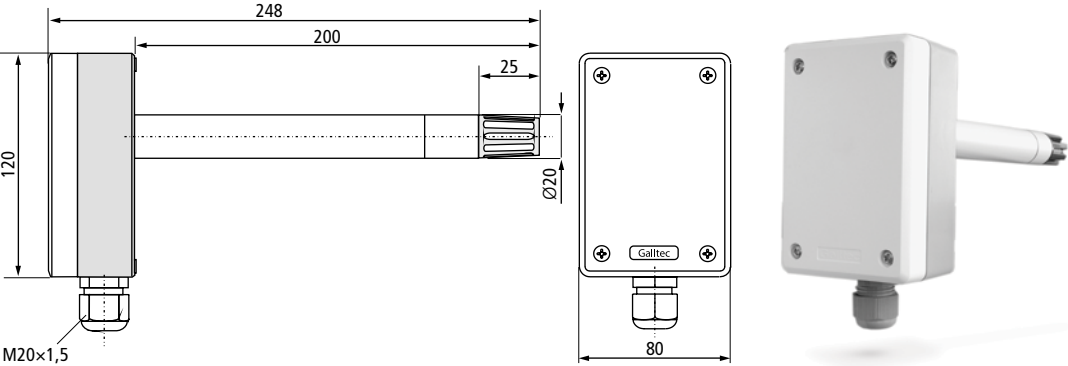
- Operating temp. up to 80 °C
- Accuracy: ±2 % RH
- Robust

Humidity sensor or humidity temperature sensor

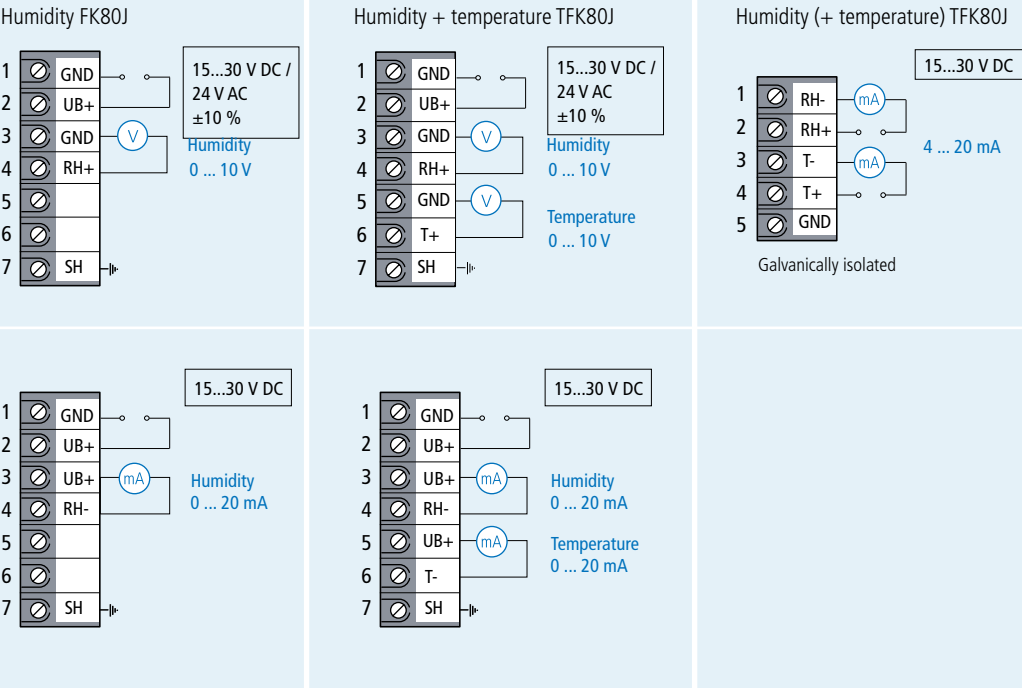


Price €	(T)FK120J	(T)FK80J
1 x output	215.14	247.87
2 x outputs	275.88	309.78
Operating temperature		
Accuracy	±3.5 % RH	±2 % RH

Duct mounted (T)FK80J



Connection diagrams



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

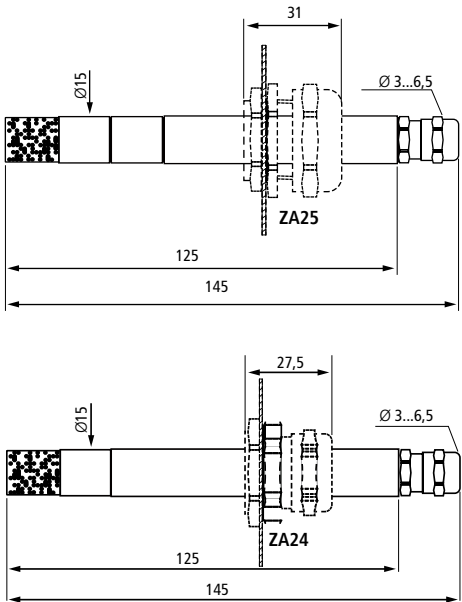
Relative humidity measurement	
Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 23 °C	±2 % RH / 40...60 % RH ±2.5 % RH remaining range
Temperature measurement	
Sensor element	Pt100
Output ranges	0 ... +50 °C 0 ... +100 °C -10 ... +90 °C -30 ... +60 °C
Accuracy	
with voltage output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

- (T)FK80
- Operating temp up to 80 °C
 - Accuracy: ±2 % RH
 - Robust



More information on the FK80 datasheet online PDF

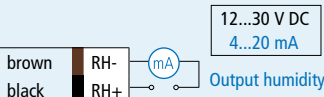
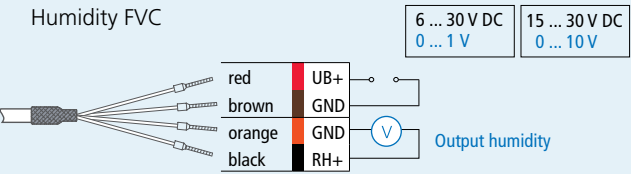
VC - Compactsensor



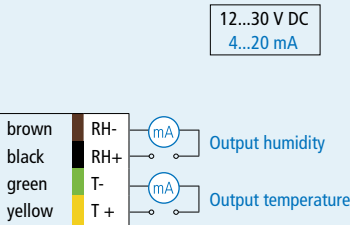
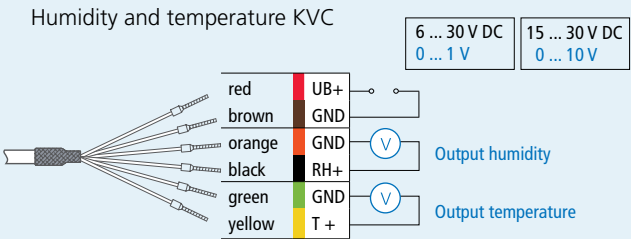
For duct mounting
ZA24 or ZA25
Accessories: page 188
(please order separately)

Connection diagrams

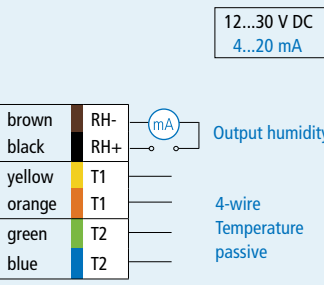
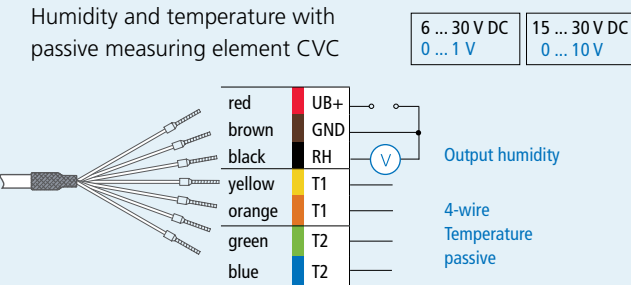
Humidity FVC



Humidity and temperature KVC



Humidity and temperature with passive measuring element CVC



Industrial sensor with stainless steel sensor tube

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



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

Analogue output - for advanced requirements

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



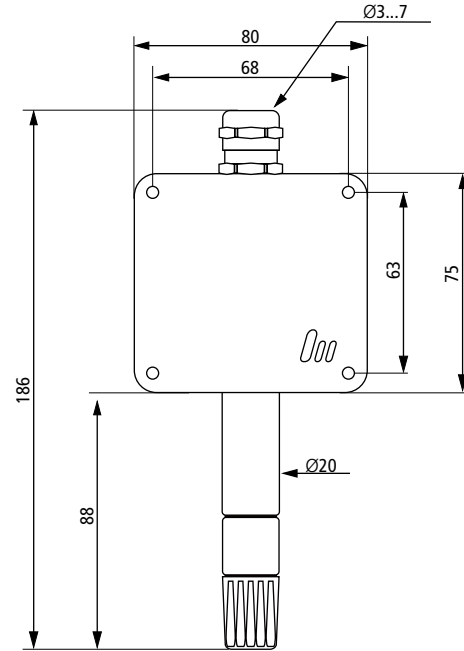
More information on the C4.7 datasheet online PDF

Humidity sensor or humidity temperature sensor



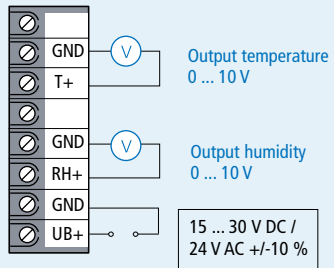
		GC	GC-ME	KC	ZC	ZC.H	ZC.D	ZC.HD
Humidity	1 x U output	268.89	296.97	368.47	463.89	692.29	554.10	768.45
Humidity + temperature	2 x U outputs	335.58	364.76	436.71	551.77	768.45	644.24	845.73
Humidity + (passive)	1 x U output + passive	280.54	308.67	379.84	484.92	705.15	565.80	781.27
Temperature	1 x U output	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								
Pressure-resistant								
Degree of protection								

Wall mounted GC

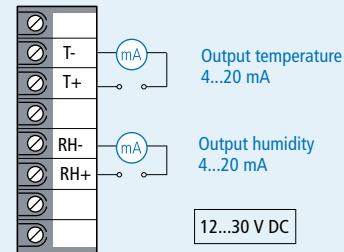


Connection diagrams

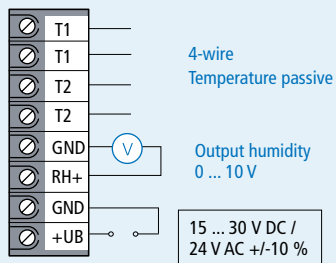
Humidity and/or temperature



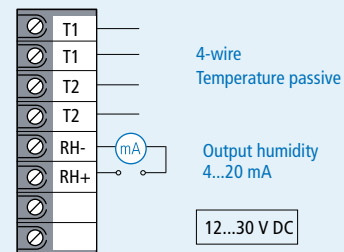
Humidity and/or temperature



Humidity and temperature with passive measuring element



Humidity and/or temperature with passive measuring element



Analogue output - for advanced requirements

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

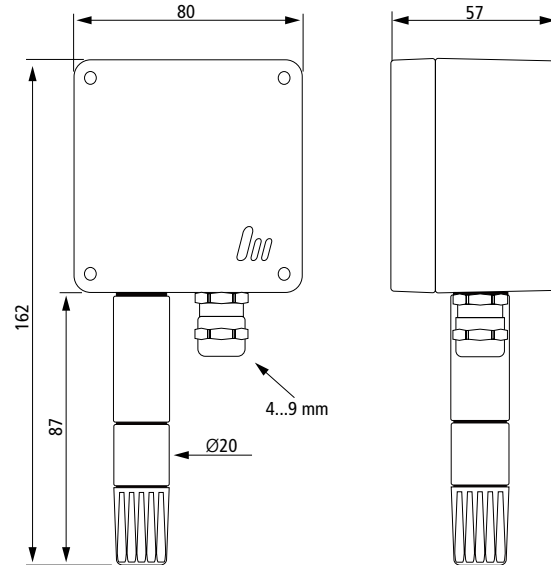
Type overview

		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

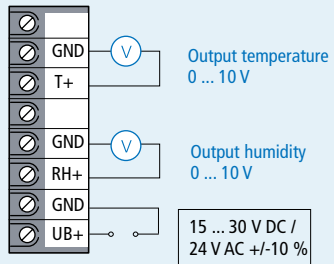
	Type	IP	Surcharge €
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 00	-
Fine pore stainless steel sintered filter	ZE 21	IP 65	-

Wall mounted GC-ME meteorology

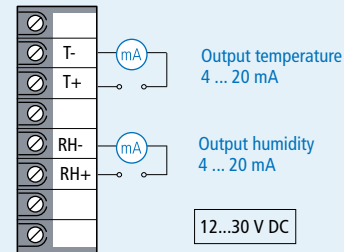


Connection diagrams

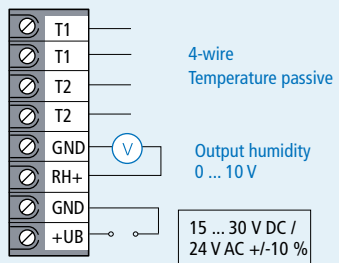
Humidity (and/or temperature)



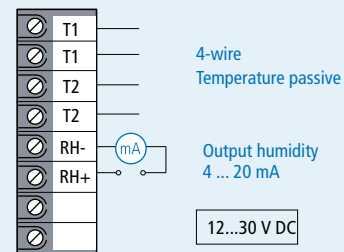
Humidity (and/or temperature)



Humidity and temperature with passive measuring element



Humidity (and/or temperature) with passive measuring element



Analogue output - for advanced requirements, outdoors

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

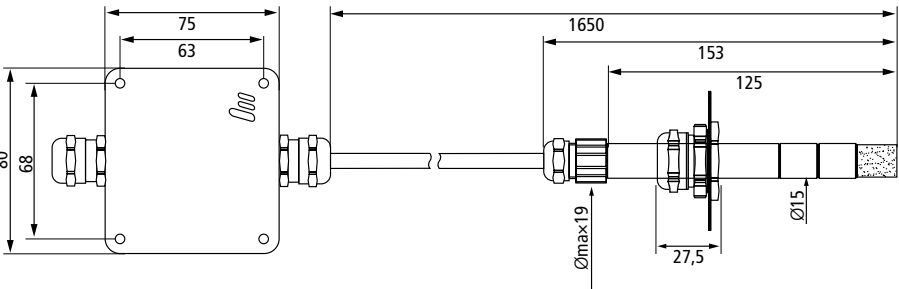
Type overview

		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

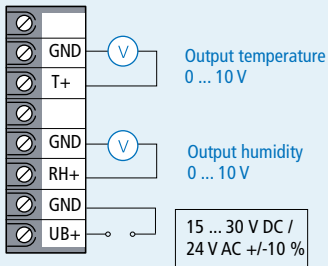
	Type	IP	Surcharge €
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20	-
Fine pore stainless steel sintered filter	ZE 21	IP 65	-

Two-part design
ZC and ZC.H
with remote probe

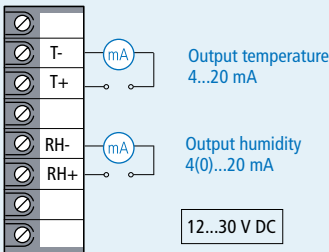


Connection diagrams

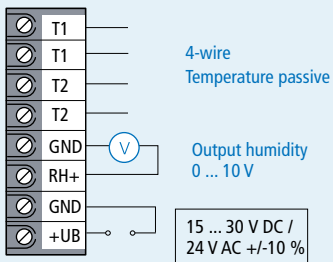
Humidity (and/or temperature)



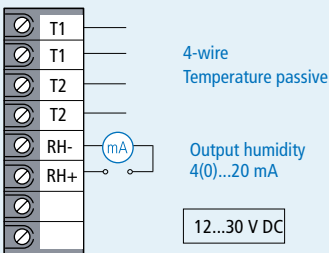
Humidity (and/or temperature)



Humidity and temperature passive Pt100



Humidity (and/or temperature) passive Pt100



Analogue output - for advanced requirements

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

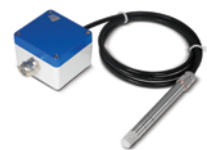
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 65, stainless steel, Ø 15 mm
Operating temp. ZC	-40...+125 °C
Operating temp. ZC.H	-60...200 °C

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

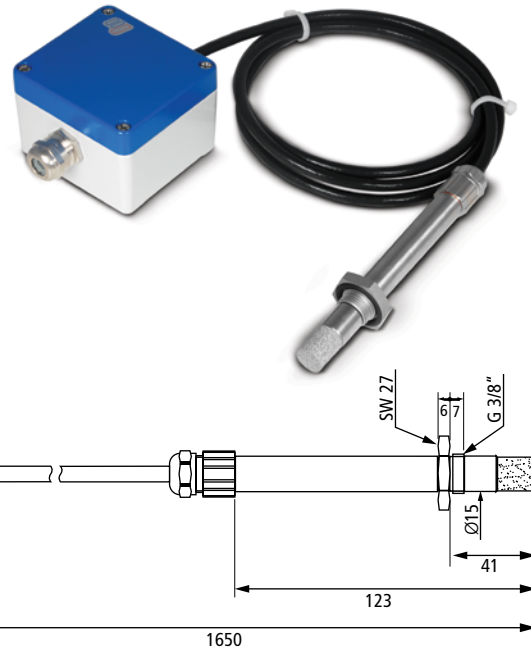
Type overview

		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

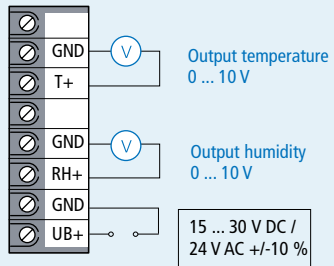
	Type	IP	Surcharge €
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20	on request

Two-part design
ZC.D and ZC.HD
with remote probe
pressure-resistant up to 25 bar

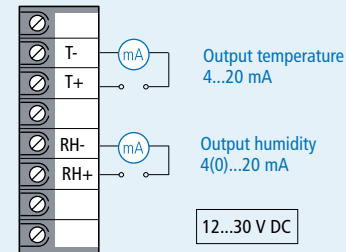


Connection diagrams

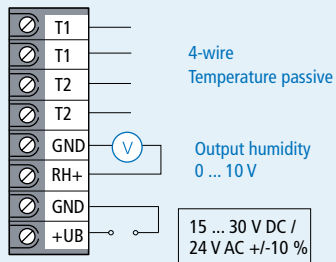
Humidity (and/or temperature)



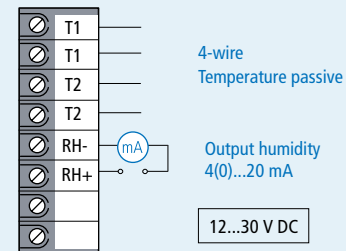
Humidity (and/or temperature)



Humidity and temperature with passive measuring element



Humidity (and/or temperature) with passive measuring element



Analogue output - for advanced requirements

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
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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).

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

Ex II 2D Ex ia IIIC T95 °C Db

$-40\text{ °C} \leq T_a \leq +80\text{ °C}$

Approved for use in potentially explosive atmospheres:

EC Type Examination Certificate
IBEXU 07 ATEX 1114

With ATEX approval for potentially explosive atmospheres

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	Supply voltage
4...20 mA	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
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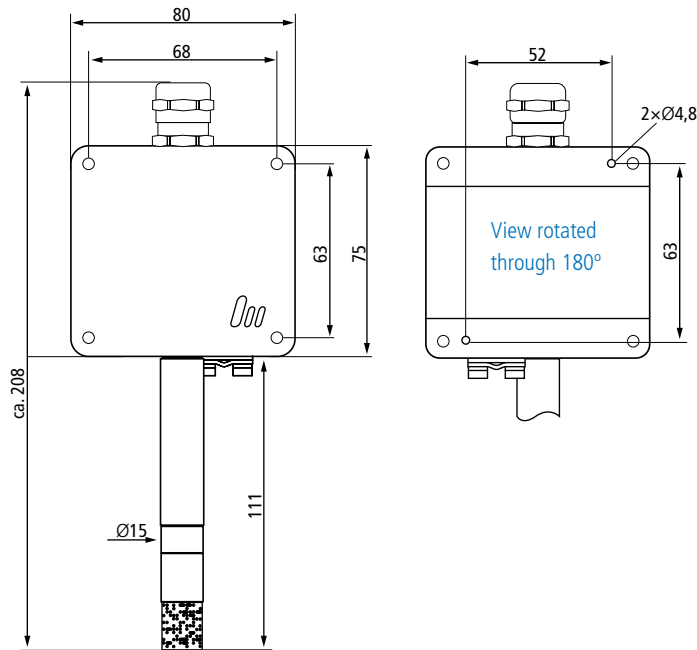
Accessories

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

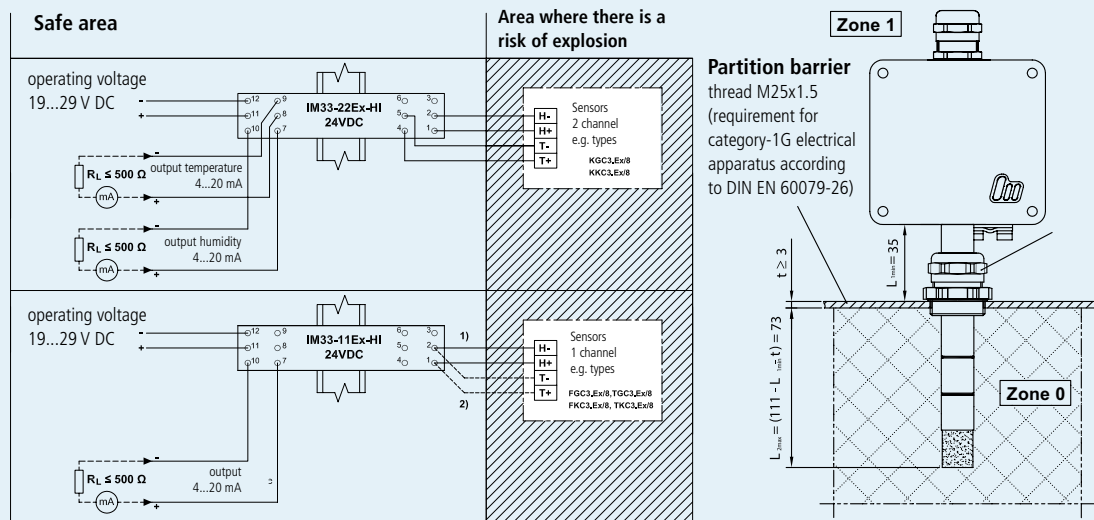


More information on
the C4.8 datasheet
online PDF

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

Ex II 1/2G Ex ia IIC T4 Ga/Gb
Ex II 2D Ex ia IIIC T95 °C Db
-40 °C ≤ T_a ≤ +80 °C

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

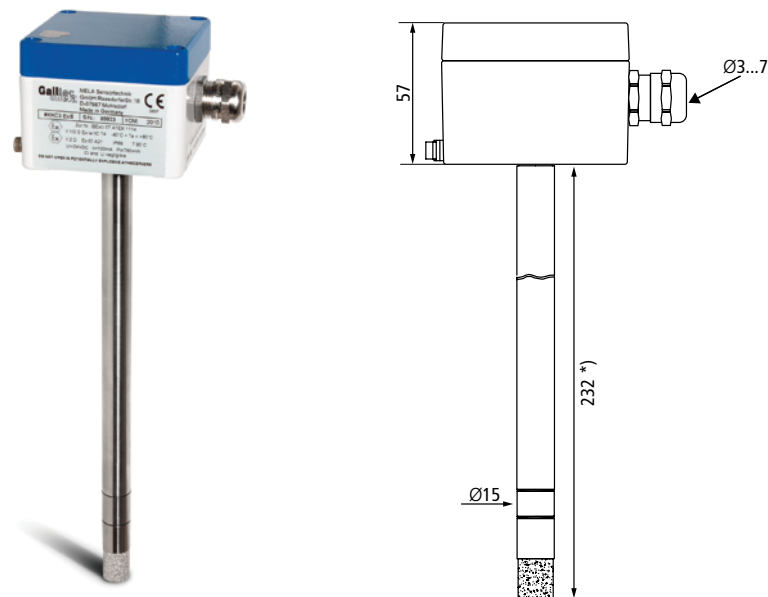
GC.Ex

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

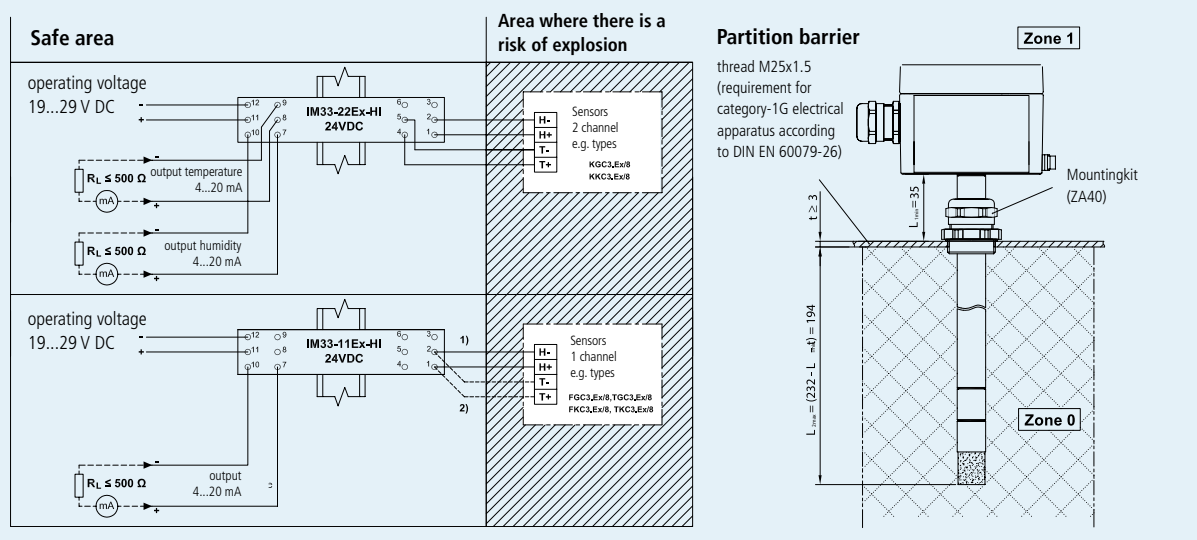


More information on
the C4.8 datasheet
online PDF

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	

With ATEX approval for potentially explosive atmospheres

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	Supply voltage
4...20 mA	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

Ex II 1/2G Ex ia IIC T4 Ga/Gb
Ex II 2D Ex ia IIIC T95 °C Db
-40 °C ≤ T_a ≤ +80 °C

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

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



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	$\leq \pm 1.5$ % 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/m ³
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

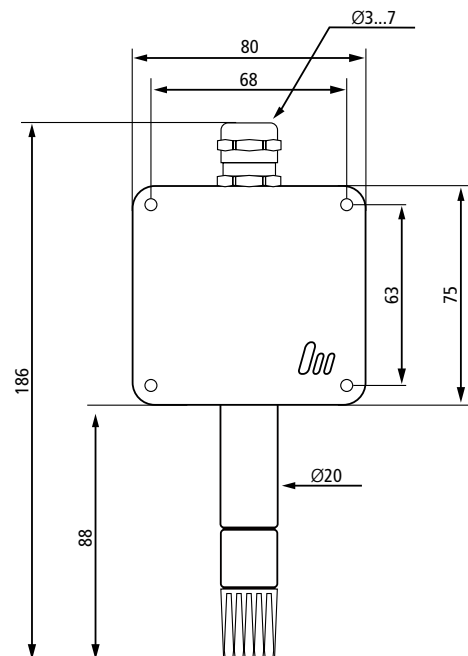
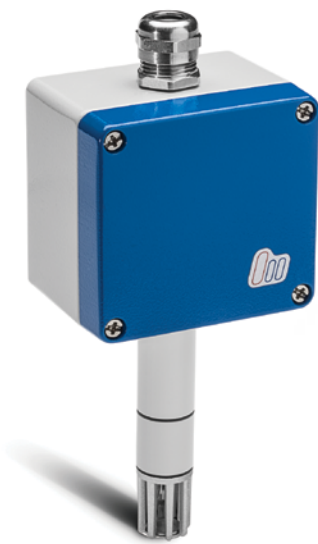
- Display
- Modbus
- Pressure-resistant up to 10 bar
- Resistant to ammonia
- hx converter
 - Dew point temperature
 - Wet bulb temperature
 - Absolute humidity
 - Mixing ratio
 - Enthalpy

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				
Ammonia-resistant on request				
Pressure-resistant on request				

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

For advanced requirements

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/m ³
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

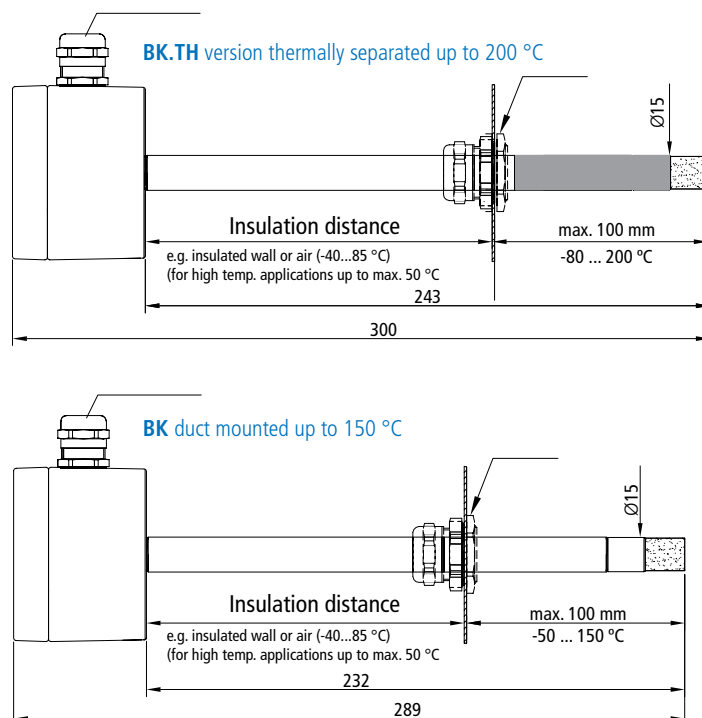
Pin assignment cable accessories

RS232

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

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_.OE	346.83	BKF_.TH	379.18	Stainless steel sintered filter, coarse ZE13 (IP 65)
Humidity + temperature	2 x outputs	BKK_.OE	411.24	BKK_.TH	443.53	
Humidity + Pt100	1 x output + (passive)	BKC_.OE	417.29	BKC_.TH	449.63	
Temperature	1 x output	BKT_.OE	307.17	BKT_.TH	339.46	
Output RS232		BKKR.OE	387.72	BKKR.TH	420.06	
Output RS485 Modbus		BKKM.OE	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/m ³
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
For use in high temperatures	Operating: -40...+85 °C Operating: -40...+50 °C
Sensor tube	Stainless steel, Ø 15 mm
Operating temperature BK_.OE	-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

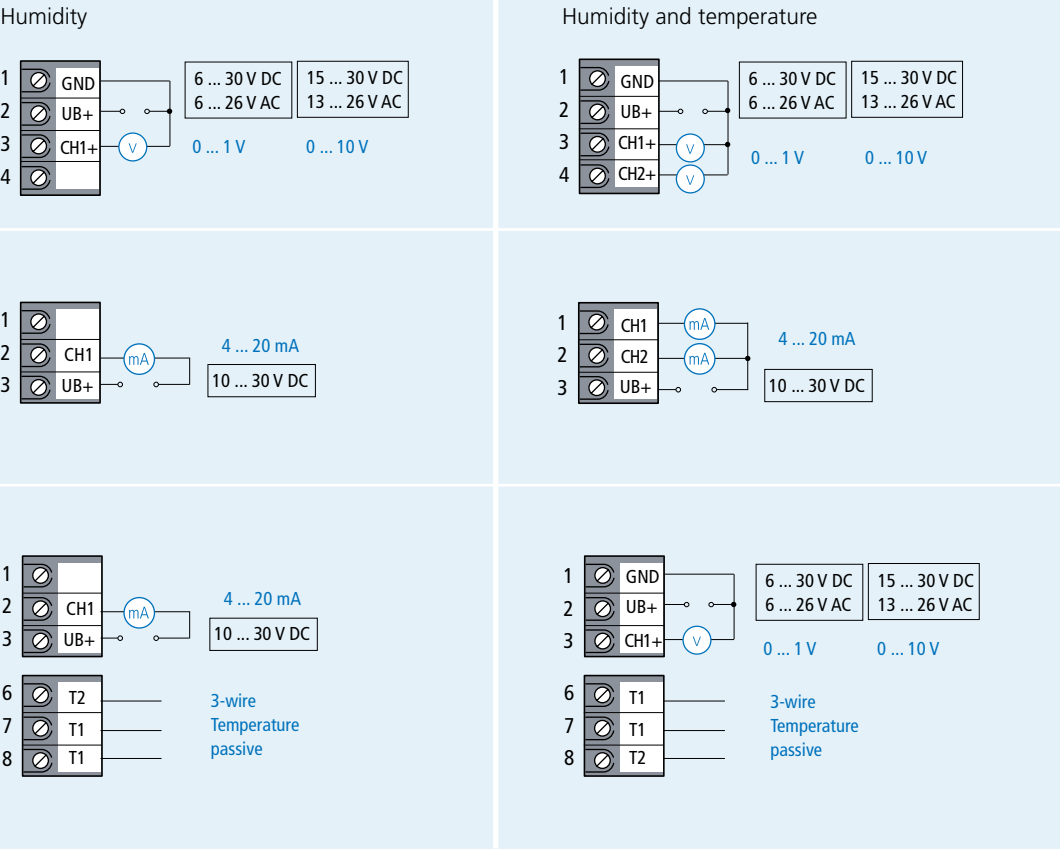


More information on the A+B series analogue datasheet online PDF

Duct mounted BK



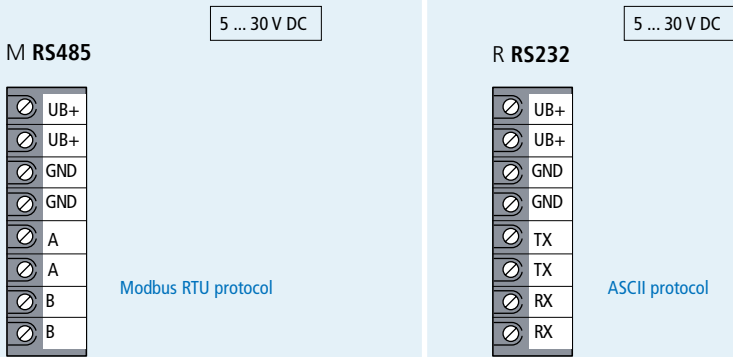
Connection diagrams analogue



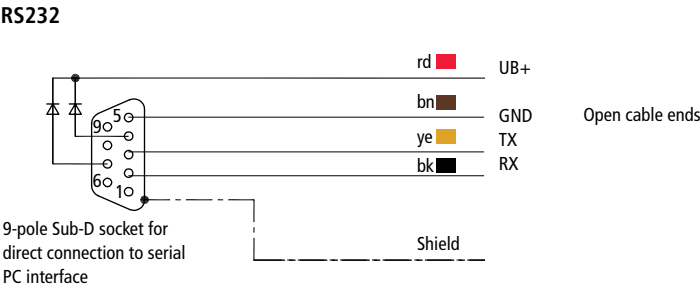
	Accessories for	Length	Price €
Modbus setup cable	A & B series Modbus	1.8 m	144.94
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m	54.67
USB adaptor, USB 2.0 to serial converter adaptor RS232 serial (9-pole Sub-D) on USB 2.0 (1.1)			32.51



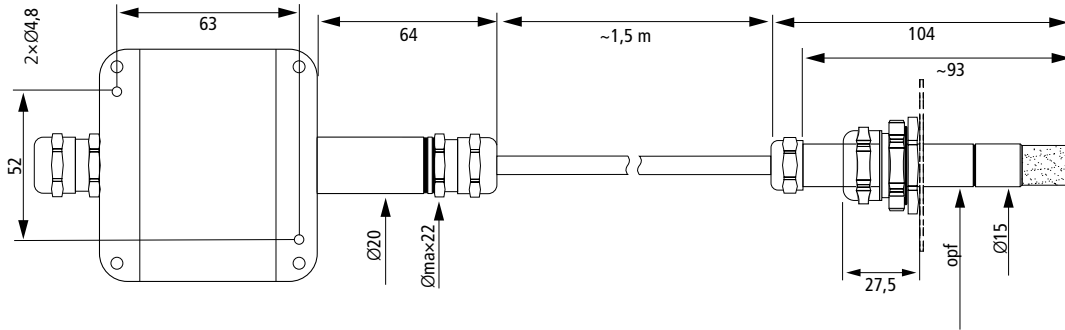
Connection diagrams digital



Pin assignment cable accessories



	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

For advanced requirements

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/m ³
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

4...20 mA

Humidity and temperature

Connection diagrams digital



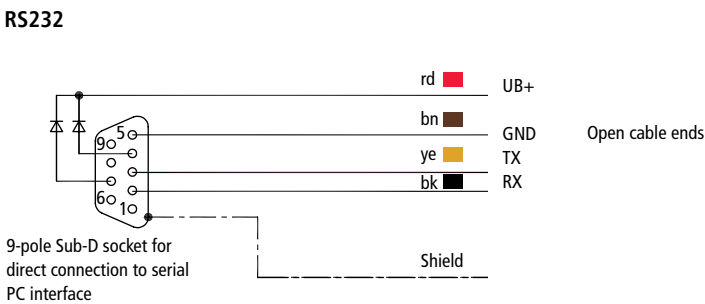
M RS485

Modbus RTU protocol

R RS232

ASCII protocol

Pin assignment cable accessories



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

For advanced requirements, transmitters can be combined with probes

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/m ³
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			
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

AW

AK

SVKA.00

SVKA.0E

SZKA.0H

SZKA.HD

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

Transmitters	Type	Price €	Type	Price €	Probes	Price €
Humidity	AWF	210.25	AKF	218.91	SVKA.00	-40... 85 °C 222.90
Humidity + temp.	AWK	210.25	AKK	218.91	SVKA.0E	-50...150 °C 245.65
Output RS232	AWK R	145.85	AKK R	154.50	SZKA.0H	-80...200 °C 473.10
Output RS485 Modbus	AWK M	157.50	AKK M	166.15	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

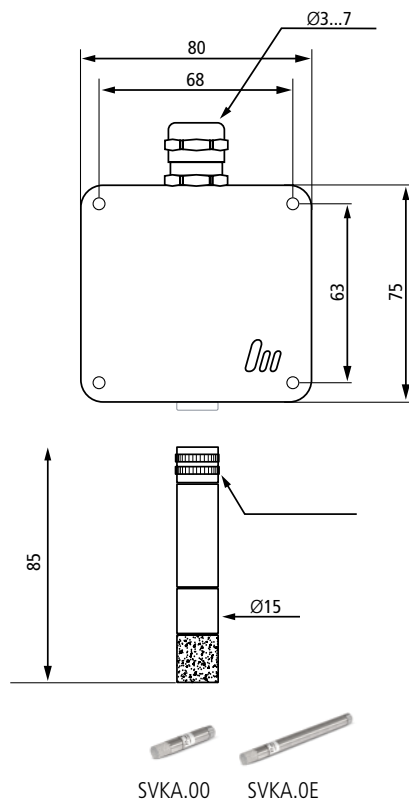
S series				
	SVKA.00 222.90	SVKA.0E 245.65	SZKA.0H 473.10	SZKA.HD 569.74
	-40 ... + 85 °C	-50 ... +150 °C	-80 ... +200 °C	-60... + 160 °C
				pressure-resistant up to 25 bar

Transmitter for
wall mounted AWDisplay optional
-40...+85 °C

combined with

Probe SVKA.00

-40...+85 °C



SVKA.00 SVKA.0E

&

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

Probes		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

For advanced requirements, transmitters can be combined with probes

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/m ³
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

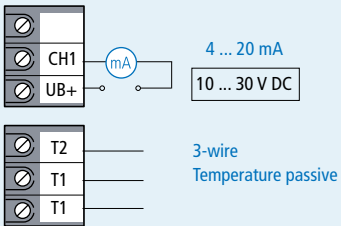
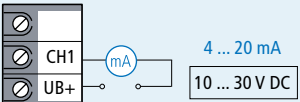
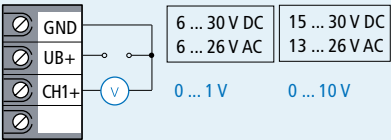
- Modbus
- Display
- Exchangeable probe
- Resistant to ammonia
- Pressure-resistant up to 10 bar
- hx converter
- Dew point temperature
- Wet bulb temperature
- Absolute humidity
- Mixing ratio
- Enthalpy

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

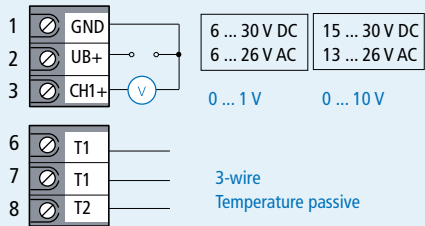
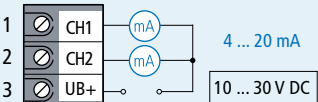
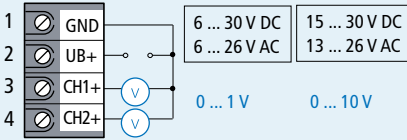
Wall mounted AW

Connection diagrams analogue

Humidity



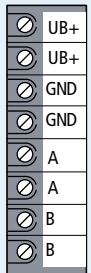
Humidity and temperature



For advanced requirements, transmitters can be combined with probes

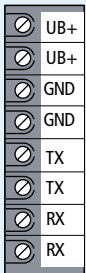
Connection diagrams digital

M RS485



Modbus RTU protocol

R RS232

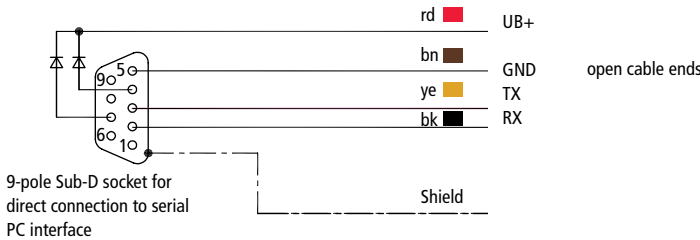


ASCII protocol



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

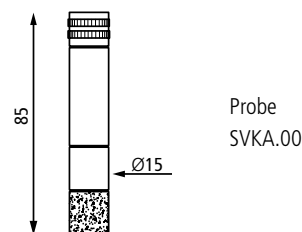
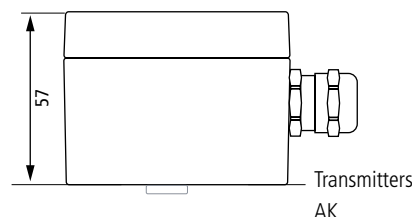
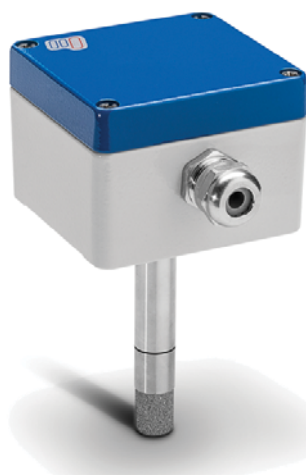
85 °C

combined with

Probe SVKA.00

-40...+85 °C

85 °C



Transmitter for duct mounted AK

Display optional
-40...+85 °C

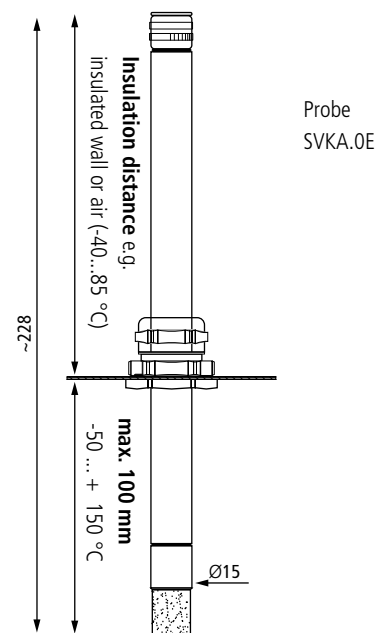
85 °C

combined with

Probe SVKA.0E

-50...+150 °C

150 °C



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

For advanced requirements, transmitters can be combined with probes

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/m ³
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

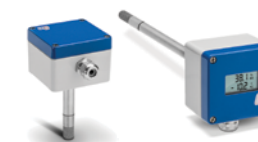
Read all hx values simultaneously	Modbus version
2-line display	Optional (except RS232)
Vibration-resistant	Optional
Ammonia-resistant (probe)	On request
Pressure-resistant up to 10 bar (probe)	On request
Combination of:	
- Transmitter with analogue or digital output	
- Choice of calibrated exchangeable 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



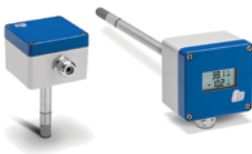
More information on the A+B series analogue datasheet online PDF

Duct mounted AK

Connection diagrams analogue

Humidity

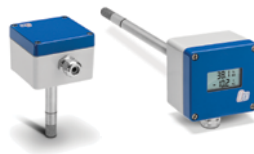
Humidity and temperature



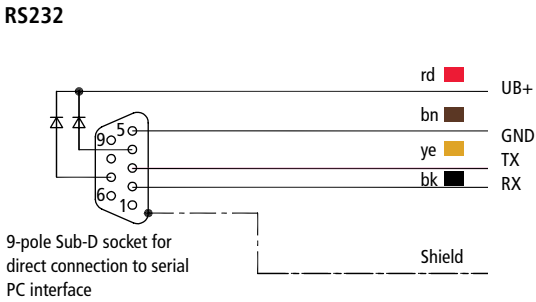
Connection diagrams digital

M RS485

R RS232



Pin assignment cable accessories



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



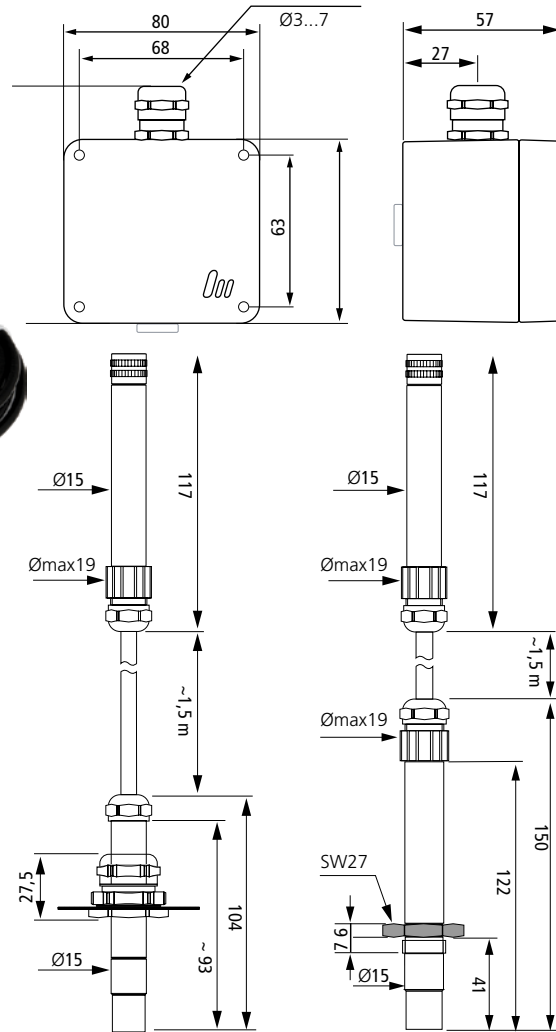
combined with
remote probe

SZKA.0H
-80...+200 °C



combined with
remote

probe SZKA.HD
-60...+160 °C



Probe SZKA.0H
-80...+200 °C

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

&

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



For advanced requirements, transmitters can be combined with probes

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/m ³
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

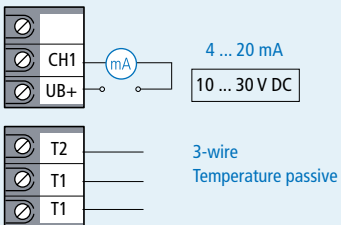
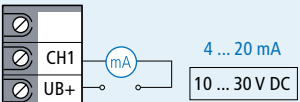
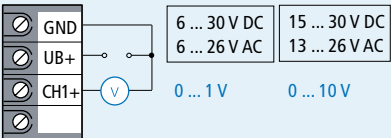


More information on the A+B series analogue datasheet online PDF

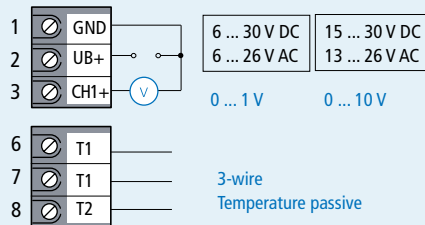
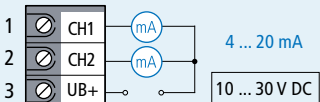
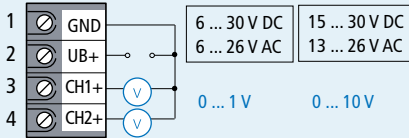
AW with remote probe

Connection diagrams analogue

Humidity



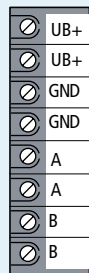
Humidity and temperature



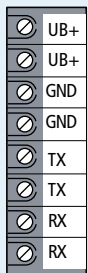
For advanced requirements, transmitters can be combined with probes

Connection diagrams digital

M RS485

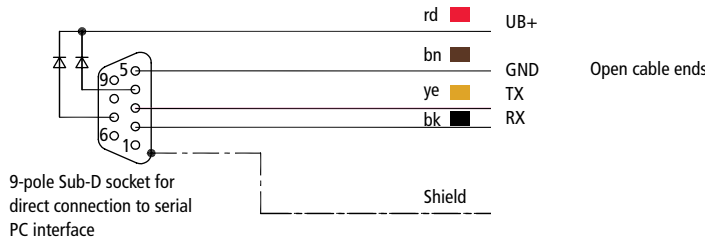


R RS232



Pin assignment cable accessories

RS232



Cable accessories

Modbus setup cable

Accessories for

A & B series Modbus

Length

1.8 m

Price €

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

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

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.

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

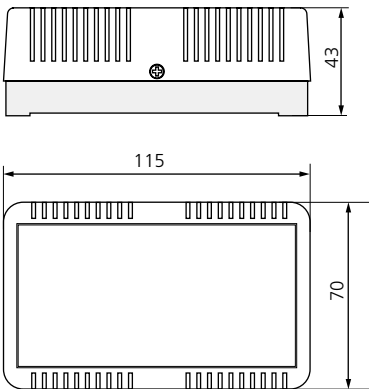
- Operating temp. up to 80 °C
- Accuracy: ±2.5 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element

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

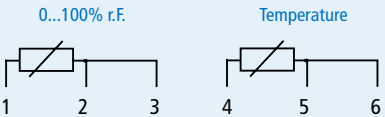


Indoor (T)FG120



Connection diagram

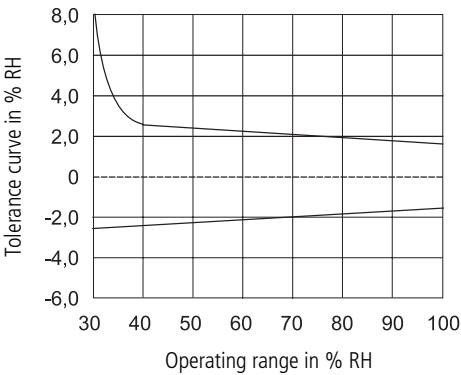
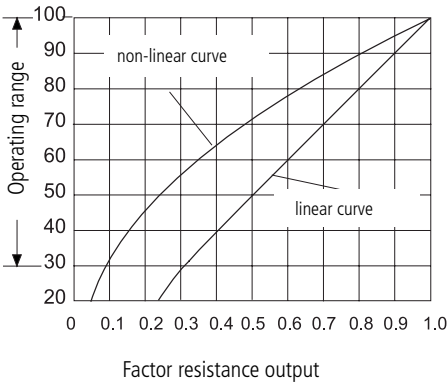
2-pole output linear



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

Passive sensors with resistance output

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

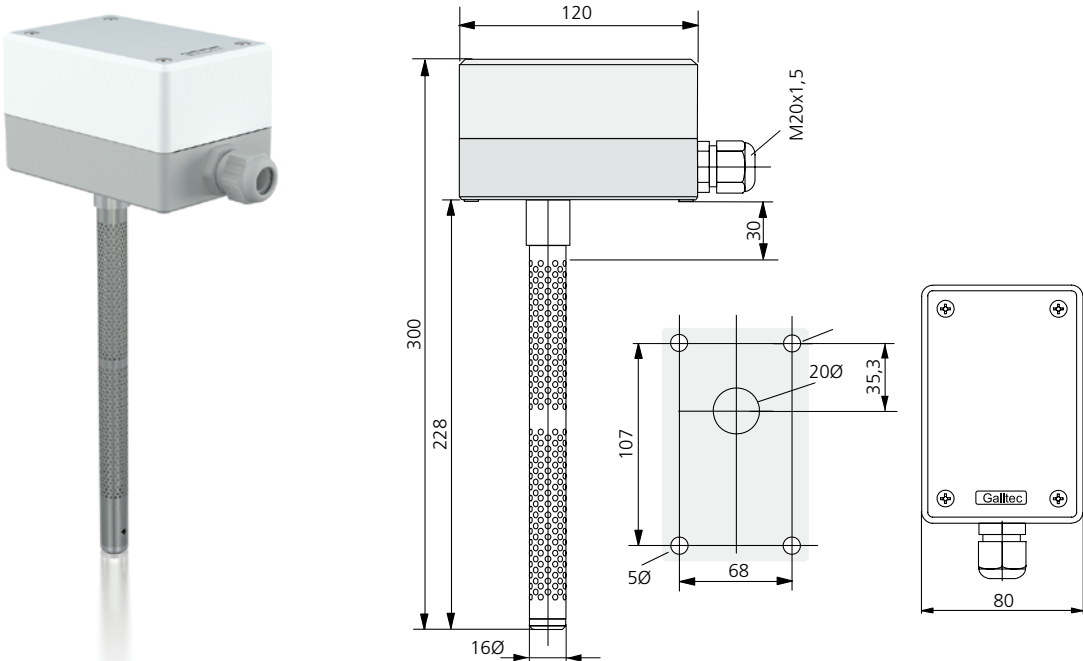
(T)FG120

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

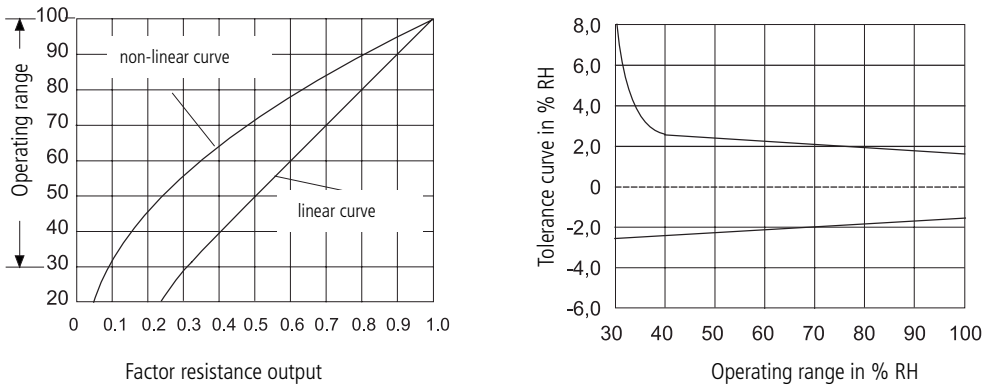


More information on
the FG120 datasheet
online PDF

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

Sensors with active or resistance output

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



Duct mounted (T)FG80

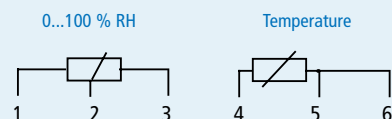


Connection diagram for passive sensors with resistance output

2-pole output linear

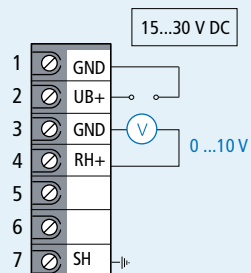


Potentiometer output non-linear

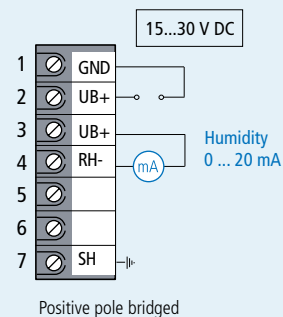


Connection diagrams for active sensors 15...30 V DC

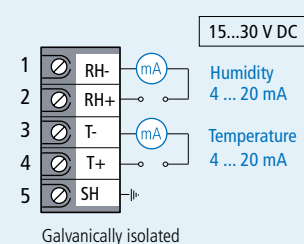
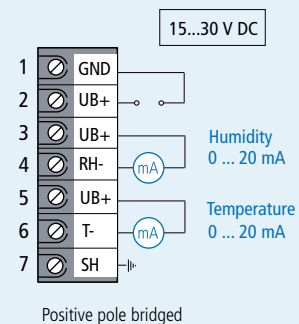
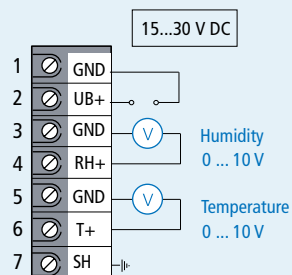
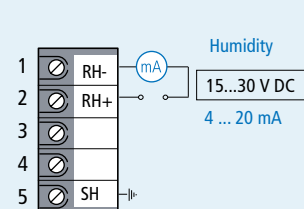
Voltage 3/4-wire system



Current 4-wire system



Current 2-wire system



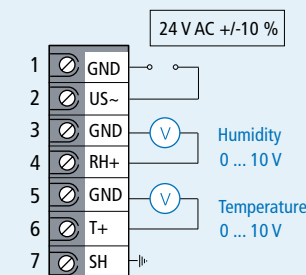
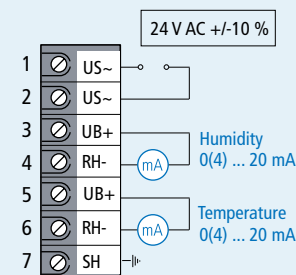
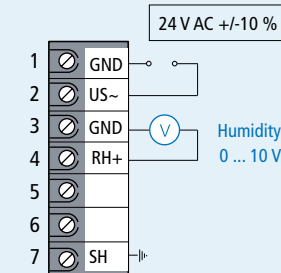
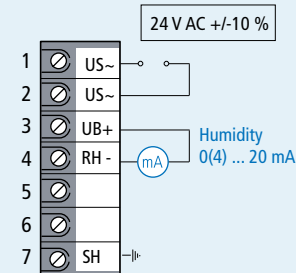
Sensors with active or resistance output

(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



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.

HG

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

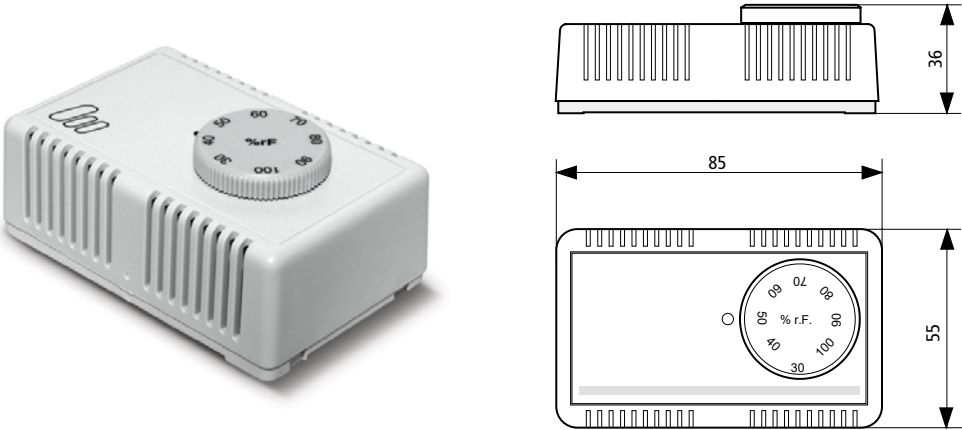
- Operating temp. up to 60 °C
- Accuracy: ±4 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

Humidistats

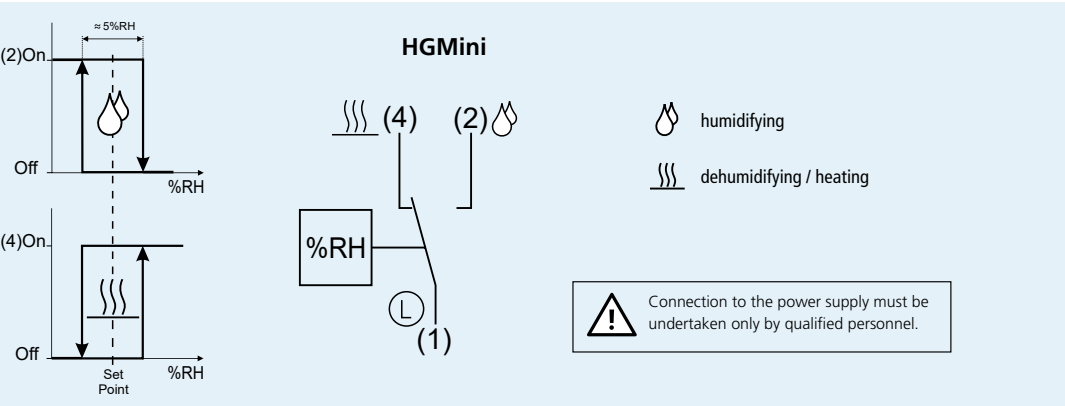


Price €	HGMini	Hygroswitch	HG120	HG80
1 x changeover contact	52.26	52.26	65.96	146.12
For currents <100 mA				
1 x gold contact	59.86	59.86	73.51	-
1 x gold contact IP 67	65.96	-	79.71	-
1 x gold contact for 1A 125 V AC				161.33
1 x set point adjustment lock	-	-	-	156.66
2 x changeover contacts	-	-	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

ON/OFF controller, water-resistant POLYGA® measuring element

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



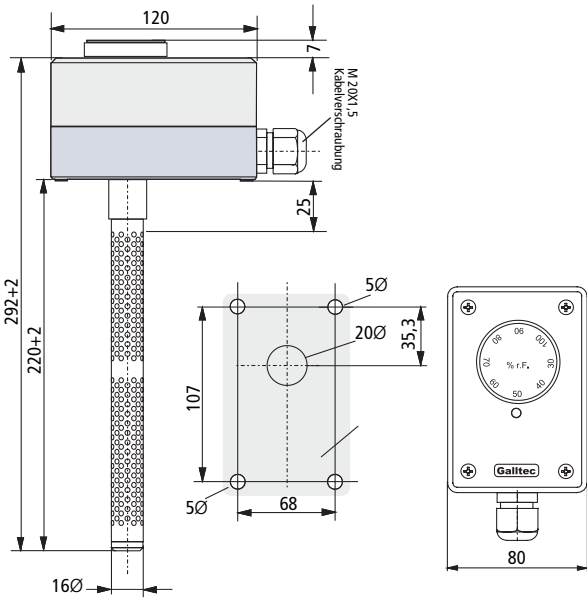
Typical humidity switching differential with typical tolerance

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

Duct humidistat HG80



Wiring diagram

HG80

On 4...8%RH

Off

On

Off

Set Point

%RH

NC

NO

COM

250VAC 15A

humidifying

dehumidifying / heating

HG80-2

On 4...8%RH

Off

On

Off

Set Point

%RH

NC

NO

COM

250VAC 15A

1. Changeover switch based on set value adjuster

2. Changeover switch based on set screw

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

ON/OFF controller, water-resistant, no external power supply required

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



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

Two switching outputs and two analogue outputs

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

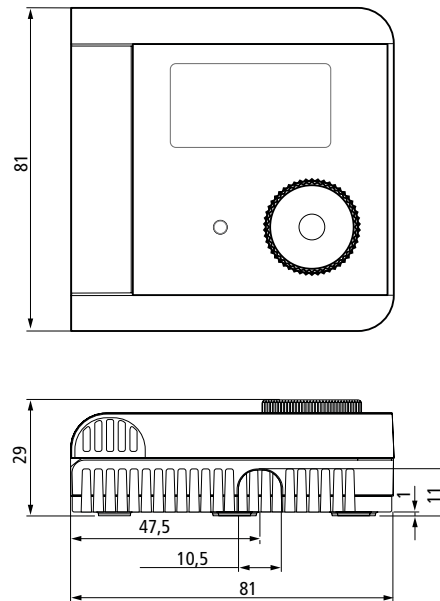
Options

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

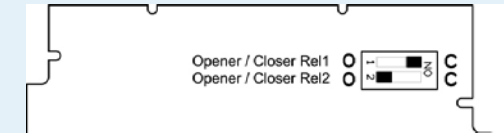
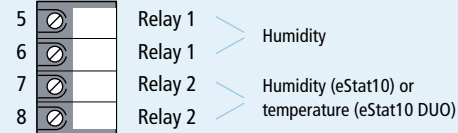
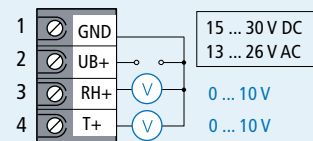
Humidistat and
Hygro-Thermostat

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
Cable connectable at both ends	-	-
Operating temperature		

Indoor humidistat eStat10 and hygro-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

Two switching outputs and two analogue outputs

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

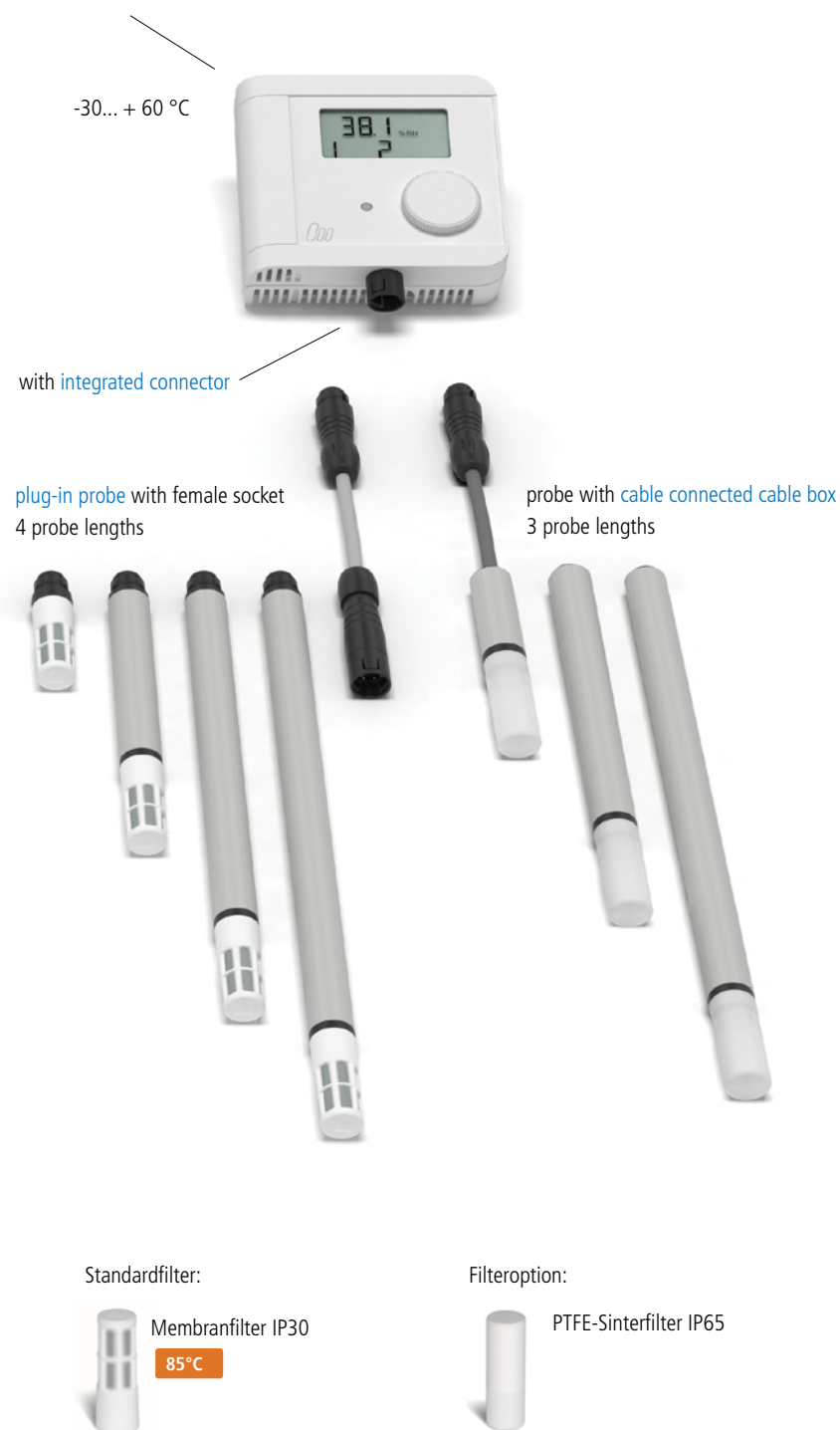


More information on the eStat10 datasheet online PDF



More information on the eStat10 DUO datasheet online PDF

Electronic hygro-thermostat eStat20



Two switching outputs and two analogue outputs

Controller with integrated connector + plug-in probe



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

Controller with remote probe with cable connectable at both ends



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

Controller with remote probe with cable box



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



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

eStat20 (DUO)

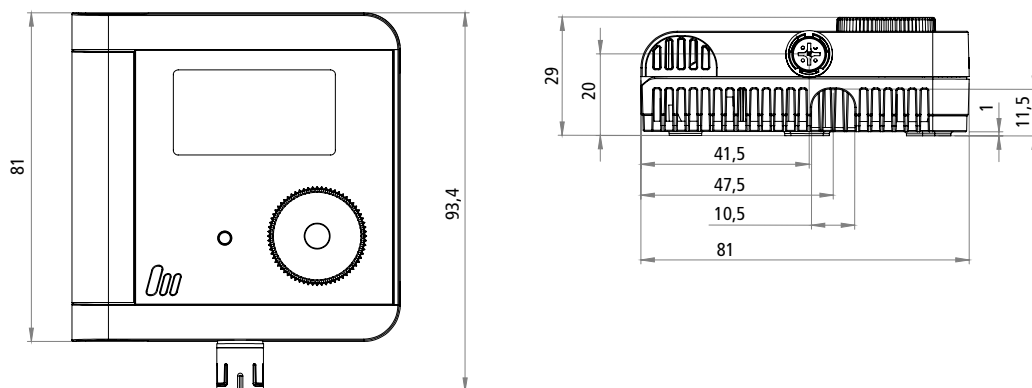
In this series

- 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

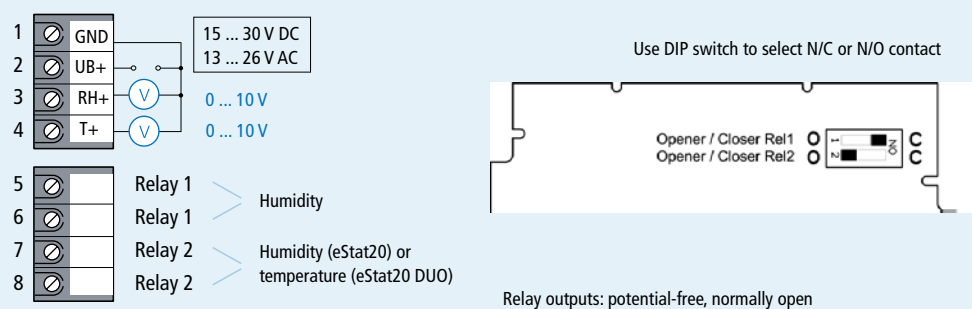
Options

- 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

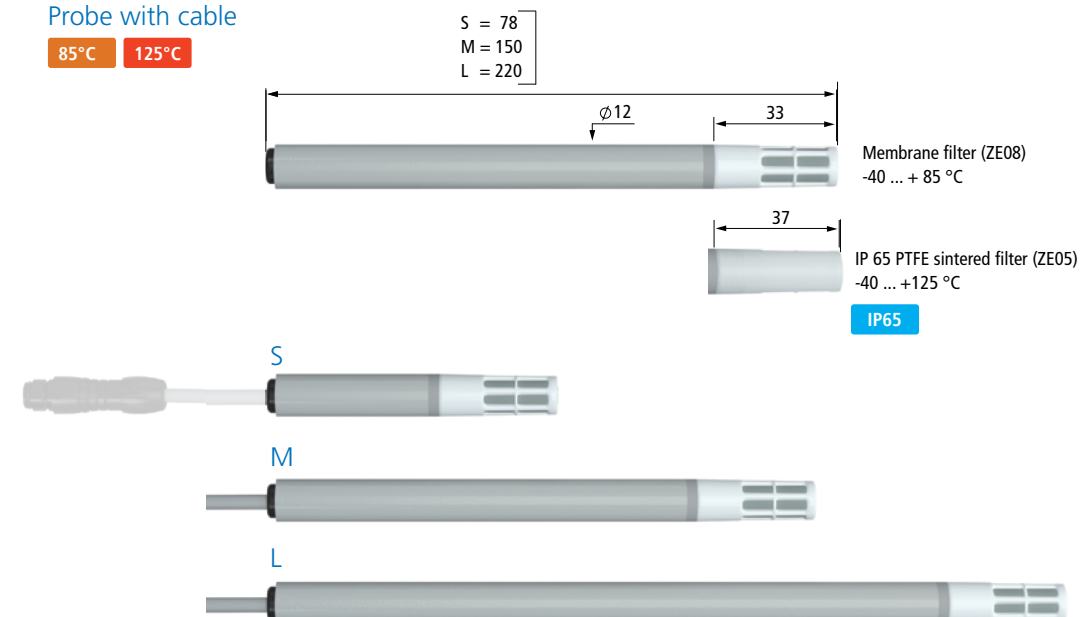
Standard version	High temperature version
214.91	239.94
 eStat20 in indoor housing with ventilation slots and display Housing -30...+60 °C, IP 30 Cable max. 80 °C, cable length 2 m Probe -40... 85 °C, Choice of 3 probe lengths Filter Membrane filter IP 30 Option: IP 65 with PTFE sintered filter	 eStat20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

Two switching outputs and two analogue outputs

Remote probe

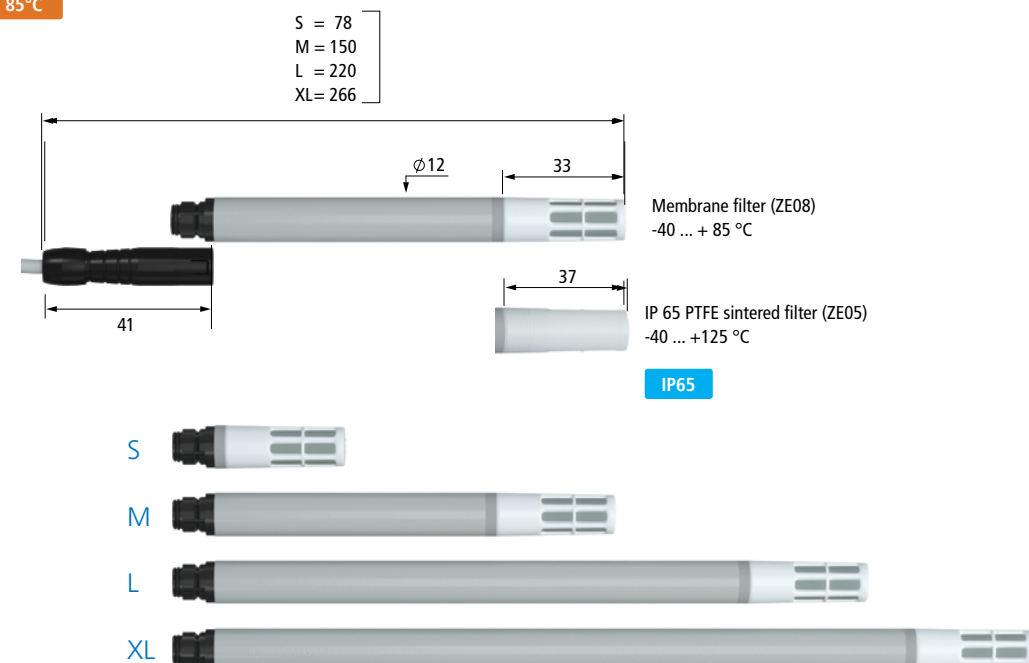
Probe with cable

85 °C 125 °C

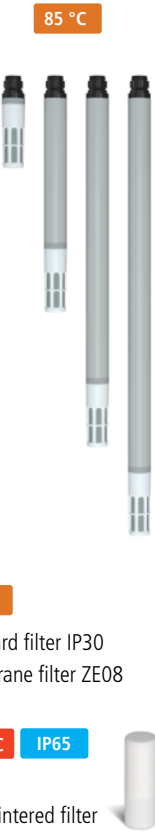


Probe with plug-in connection

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	4 probe lengths	3 probe lengths	Cable connectable at both ends
	 85 °C 125 °C 80 °C 85 °C Standard filter IP30 Membrane filter ZE08 125 °C IP65 Option PTFE sintered filter	 125 °C 125 °C IP65 PTFE sintered filter ZE05	 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

Two switching outputs and two analogue outputs

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	Supply voltage
0...10 V	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

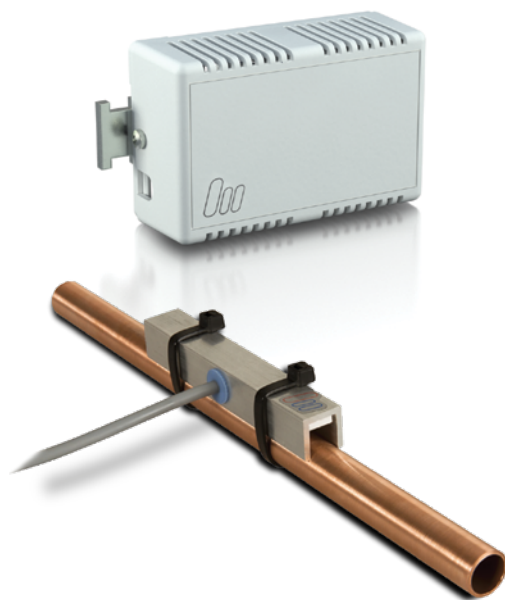
- IP 65
- Plug-in connection
- 4 probe lengths
- Cable up to 25 m



More information on the eStat20 datasheet online PDF



More information on the eStat20 DUO datasheet online PDF



FAS / HSF

Applications

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

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.

To monitor the formation of condensate

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

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

FAS

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



HSF

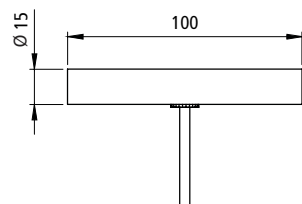
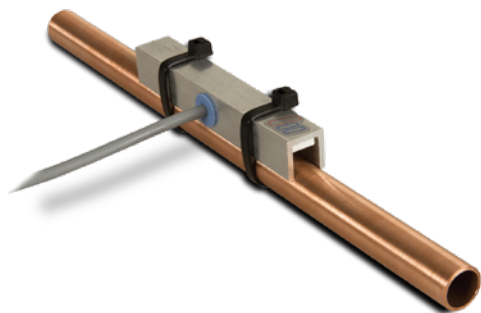
- Operating temp. up to 70 °C
- Accuracy: ±2 % RH
- Dynamic
- IP 65



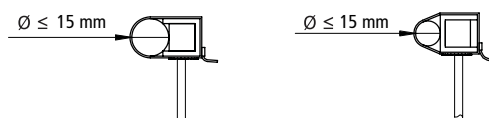
Condensation controllers

	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

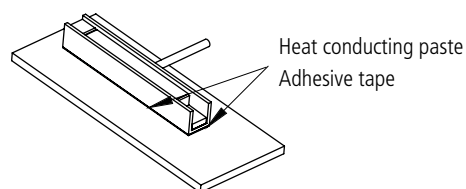
Condensation controller HSF



Mounting on a pipeline



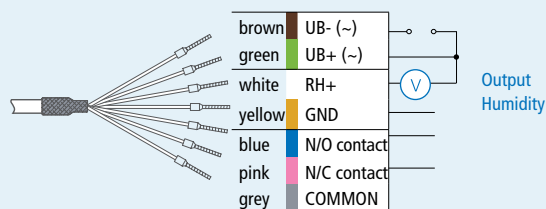
Mounting on level surfaces



Pin assignment

Switching and analogue output
HSF2.KW.F3

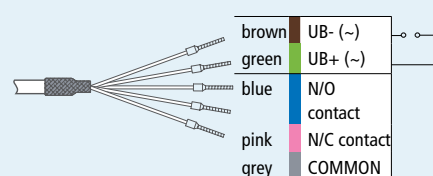
15 ... 30 V DC /
24 V AC / DC
±10 %
0 ... 10 V



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.

Switching output
HSF5.KW.00

15 ... 30 V DC /
24 V AC / DC
±10 %



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

Type overview

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)	HSF5.KW.00		112.56	

FAS condensation detector IP 65



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

Voltage	Max. 48 V AC
Switching current	Max. 0.5 A
Breaking capacity	Max. 10 W

Signal output

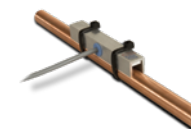
Measuring range	50...100 % RH
-----------------	---------------

Accuracy 50...95 % RH 23 °C

	±2 % RH
--	---------

HSF

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



Specifications Switching output HSF5.KW.00

Switching point

"Standby" (contact closed)	< 90 ±2 % RH
"On"	≥ 90 ±2 % RH
Hysteresis	3 % RH

Switching output

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
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Accessories

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 €
	Alle	Digital combi-controller for humidity and temperature with integr. power supply to the sensor Outputs: - 2 N/O contacts for humidity circuit, - 2 N/O contacts for temperature circuit Supply voltage 110...240 V AC	
	EDJ-3	Digital combi-controller EDJ3 Inputs: 2 x 0 ... 20 mA	614.95
	EDJ-3-I	Digital combi-controller EDJ-3-I Inputs: 2 x 4 ... 20 mA	614.95
	EDJ-3-U	Digital combi-controller EDJ-3-U Inputs: 2 x 0 ... 10 V	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

Possible applications

Laboratory and indoor applications

Recommended for

GC, DW, LW, BW

 ZE07 Ø 12 mm Plastic PC	 ZE04 Ø 15 mm Stainless steel, open	 ZE16 Ø 20 mm Plastic PBT conductive, metallised		
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

Possible applications

Climate chambers, ventilation systems

Recommended for

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



ZE15
 Ø 15 mm
 Stainless steel with stainless steel fine gauze



ZE17
 Ø 20 mm
 Plastic with stainless steel fine gauze

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

Recommended for

(T)FG80, HG80

	20.014 Ø 16 mm Gauze protection tube		23.063 Ø 16 mm PTFE filter for extreme conditions	
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

Possible applications

Meteorology
Industry

Recommended for

all capacitive sensors with filter
(depending on diameter)

	ZE08 Ø 12 mm Plastic PC with membrane		ZE26 Ø 15 mm Stainless steel with membrane		ZE20 Ø 20 mm Plastic, metallised, with membrane																				
<table><tr><th>Humidity response time</th><th>Operating temp.</th><th>Protection</th><th>Article no.</th><th>Price €</th></tr><tr><td>< 1,5 min</td><td>-40...85 °C</td><td>IP 30</td><td>ZE08</td><td>6.83</td></tr><tr><td>< 2 min</td><td>-50...150 °C</td><td>IP 54</td><td>ZE26</td><td>64.18</td></tr><tr><td>< 1,5 min</td><td>-40...85 °C</td><td>IP 54</td><td>ZE20</td><td>25.35</td></tr></table>						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
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

Possible applications

Sand particles
Heavy duty industry

Recommended for

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



ZE13
 Ø 15 mm
 Coarse pore



ZE22
 Ø 20 mm
 Coarse pore



ZE21
 Ø 20 mm
 Fine pore

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

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)



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

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		✓	✓																		

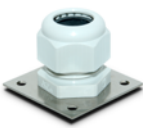
Outdoor

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	248,71

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	11.81
	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 desublimates 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

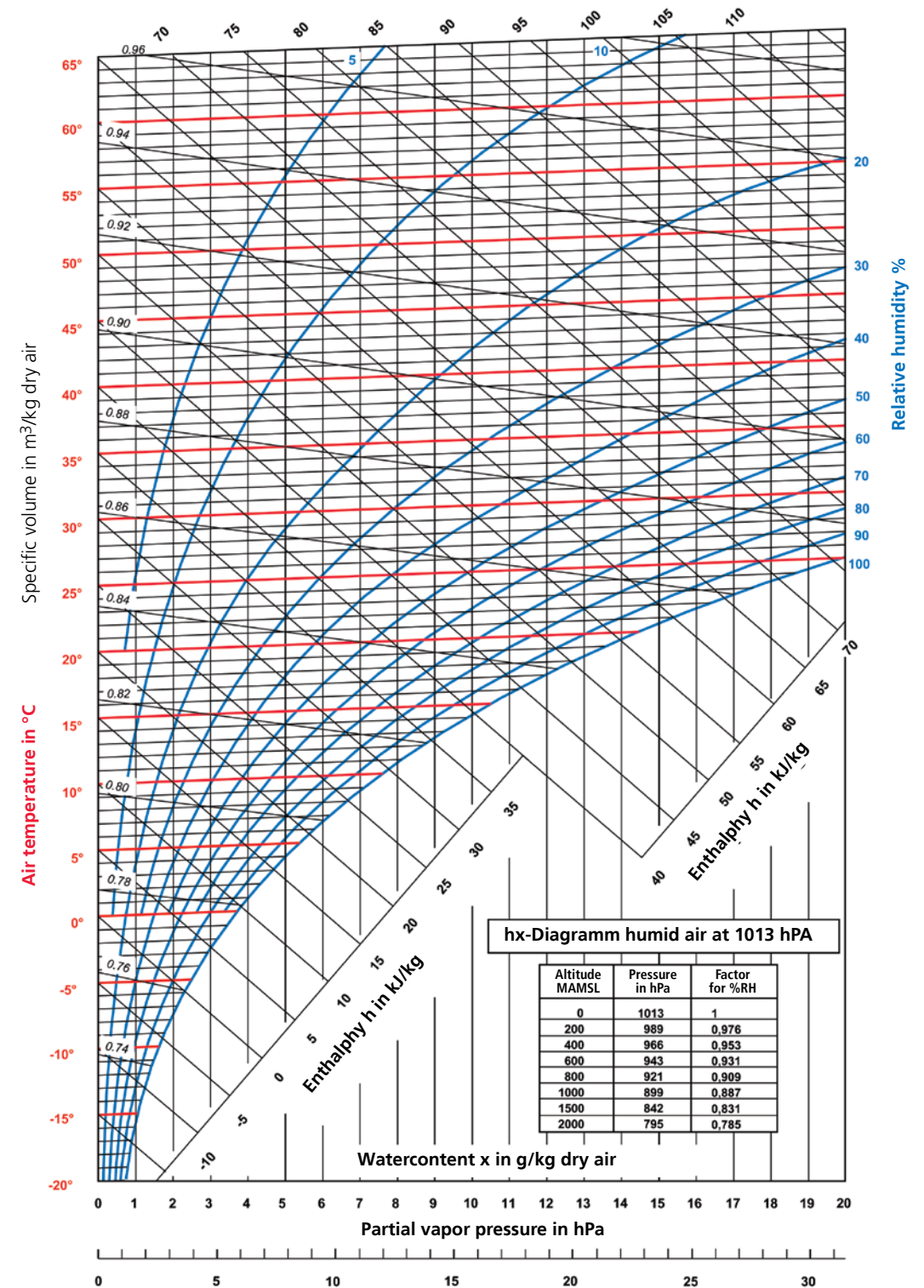
Relative humidity

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.



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 hygrosopic 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 hygrosopic fibre that also changes its length subject to humidity. It has unparalleled long-term stability and is 100 % waterproof.

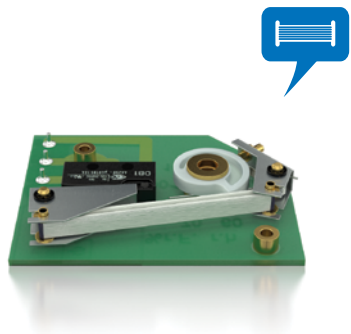
POLYGA® fibres are used for two types of instruments:

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).

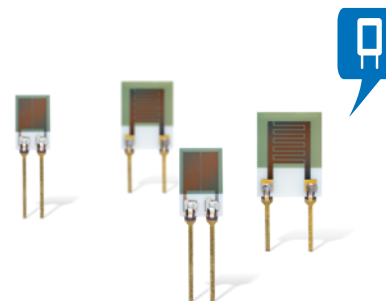


Capacitive MELA® sensor chip

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 hygrosopic 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.

**Galltec Mess- und
Regeltechnik GmbH**
Boschstraße 4
DE-71149 Bondorf
Tel. +49 7457 9453-0
Fax +49 7457 3758
Email sensoren@galltec.de
Website www.galltec-mela.de

**Mela
Sensortechnik GmbH**
Raasdorfer Str 18
DE-07987 Mohlsdorf -
Teichwolframsdorf
Tel. +49 3661 62704-0
Fax +49 3661 62704-20
Email sensoren@galltec.de
Website www.galltec-mela.de

Get in touch

Canada, USA, South America, Western Europe, Africa, Australia	Klaus Schwanke k.schwanke@galltec.de Phone +49 7457 9453-25
Asia, Turkey	Anja Gfrörer a.gfroerer@galltec.de Phone +49 7457 9453-26
Central and Eastern Europe, Russia	Stephan Marek s.marek@melasensor.de Phone +49 3661 62704-53
Germany, postcode areas: 01-53, 57-59, 80-81, 83-85 & 92-99	Ralf Freitag r.freitag@galltec.de Phone +49 3661 631 353
Germany, postcode areas: 54-56, 6, 7, 82 & 86-91, Austria, Switzerland, Benelux countries	Marvin Kiel m.kiel@galltec.de Phone +49 7457 9453-59



Global distributors

Europe

Benelux	B+B Thermotechniek B.V. Hoge Bunder 3 NL-6042 NM Roermond	Phone +31 (0) 475 320 778 Fax +31 (0) 475 321 358	info@bbthermotechniek.nl www.galltec-mela.com
Denmark	OEM Automatic KLITSØ A/S Engholm Parkvej 4 DK-3450 Allerød	Phone +45 (0)70 106 400	info@oemklitso.dk www.oemklitso.dk
Finland	Wexon Oy Turvekuja 6 FI-00700 Helsinki	Phone +358 (0)9 290 44-0 Fax +358 (0)9 290 44-100	wexon@wexon.fi www.wexon.com
Great Britain	Envin Scientific Ltd Technology House Chowley Oak, Tattenhall Chester, Cheshire GB-CH3 9GA	Phone +44 (0)1829 771 792 Fax +44 (0)1829 771 791	info@envinsci.co.uk www.envinsci.co.uk
Greece & Cyprus	U.T.E.C.O. ABEE 5, Mavrogenous Street GR-185 42 Piraeus	Phone +30 211 1206 900 Fax. +30 211 1206 999	uteco@uteco.gr www.uteco.gr
Italy	REPCOM s.r.l. Viale Risorgimento 32/G 20871 Vimercate (MB)	Phone +39 039 6093 756 Fax +39 039 6093 764	info@repcomsrl.com www.repcomsrl.com
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



Poland	DACPOL Sp. zo. o. ul. Pulawska 34 PL-05-500 Piaseczno	Phone +48 22 70 35 230 Fax +48 22 70 35 101	dacpol@dacpol.eu www.dacpol.eu
Portugal	Victor Santos LDA. Rua Clotilde Ferreira Cruz 57 Apartado 1135, PT 4470-163 Maia	Phone +351 (0) 229 486 105 Fax +351 (0) 229 488 793	geral@victorsantos.pt www.victorsantos.pt
Romania	ROM Devices SLR Str. Barbu Vacarescu 162, Etaj 1, Sector 2, Bucuresti, 020284, Romania	Phone +40 212 308 696 Phone +40 212 308 668 Fax +40 212 308 695	romdevices@romdevices.ro www.romdevices.com
Russian Federation	000 KIP-Servis 350000 Russia g. Krasnodar ul. Mitrofana Sedina 145/1	Phone +7 (861) 255 9754 Fax +7 (861) 255 9754	mela@kipservis.ru www.kipservis.ru
Russian Federation	000 KIP-Servis g. St. Petersburg ul. 12aya Krasnoarmeyskaya 12	Phone +7 (812) 575 48 15 Fax +7 (812) 575 48 17	spb@kipservis.ru
Switzerland	Badger Meter Swiss AG Instrumentation & control technology Mittelholzerstrasse 8 CH-3006 Bern	Phone +41 (0)31 93 20 111 Fax +41 (0)31 93 10 867	info@badgermeter.ch www.badgermeter.ch
Slovenia	MAterm d.o.o. Dobrava 4 2313 Fram	Phone +386 260 890 10 Fax +386 260 890 18	info@materm.si www.materm.si
Spain	Pertegaz, SA Josep Plà, 163. 2º – 7ª ES-08020 Barcelona	Phone +34 93 303 6980 Fax +34 93 308 1539	brb@pertegazsl.com www.pertegazsl.com
Czech Republic	Enthalpy s.r.o. Tiché údolí 81 CZ-25263 Roztoky u Prahy	Phone +420 602 128 955 Phone +420 602 519 680	info@enthalpy.cz www.enthalpy.cz

Asia

India	Sierra Instrumentation & Controls AB/14, Nandanvan Indl. Estate, Teen Hath Naka, L.B.S. Marg IN - Thane (W) 400604	Phone (+91) 22 258 383-98 Phone (+91) 22 258 383-97 Fax (+91) 22 258 24511	rathi@sierracontrol.com www.sierracontrol.com
Saudi Arabia	Washa Al Wisam Company Yousuf Bin Kanoo Co. Ltd. Building 8641 Nasr ibn Sayyar, Al Wizarat Riyadh 12622	Phone (+966) 55 10 39 253	mnkhan@washaalwisam.com www.washaalwisam.com
Israel	Zivan / RDT Equipment & Systems 34, Batzri St. IR-Ganim IL-Kiryat Ata 2810001	Phone (+972) 4 872 98 22 Fax (+972) 4 872 66 27	info@zivan.co.il www.zivan.co.il
Korea	Korins INC. Room 708,Suntechcity I, 474 Dunchondea-Ro, Jungwon-Gu KR-13229 Seongnam-City,Gyeonggi-Do	Phone (+82) 31 777 1588 Fax (+82) 31 777 1587	cyn@korins.kr www.korins.kr

Africa

South Africa	Switches International CC PO Box 2149 ZA-2162 Northriding	Phone (+27) 10 591 9920 Fax (+27) 86 518 2380	sales@switches.co.za www.switches.co.za
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North America

Canada	Regulvar Inc. 1985, Boulevard Industriel CA-Laval, Québec, H7L 4S3	Phone (+1) 450 629 0435 Fax (+1) 450 662 0043	laval@regulvar.com www.regulvar.com
USA	Intec Controls 12700 Stowe Drive, Suite 100 Poway, CA 92064	Phone (+1) 888 464 6832	sales@inteccontrols.com www.inteccontrols.com

South America

Colombia	C4 Control de Contaminacion Ltda Calle 13 # 27A – 05 Urb. Acopi Yumbo Cali Valle del Cauca / Colombia	Phone (+57) 266 500 80 Fax (+57) 266 582 71	info@grupoc4.co www.grupoc4.co
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Australia, New Zealand and Oceania

Australia, New Zealand and Oceania	Slentech Pty Ltd Melbourne Victoria 3152 Australia	Phone (+61) 3 9837 5203	sales@slentech.com.au www.slentech.com.au
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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!



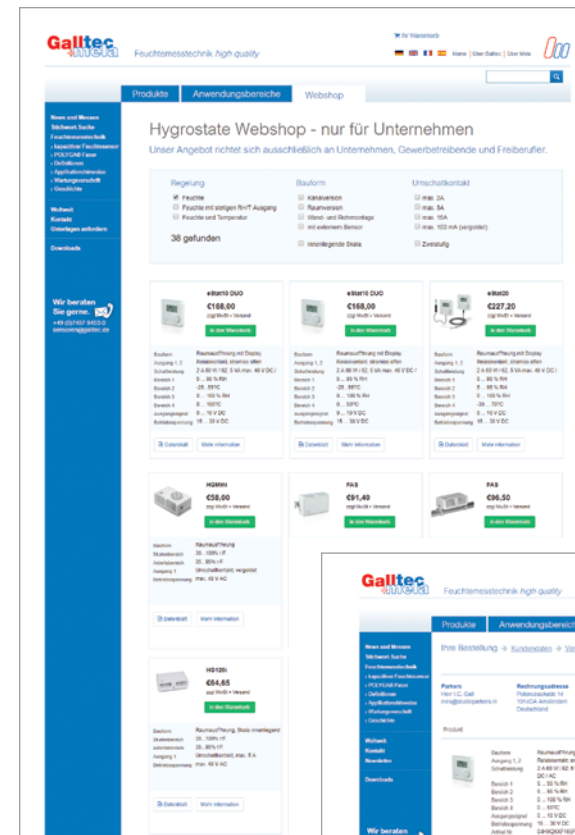
Humidistats web shop

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

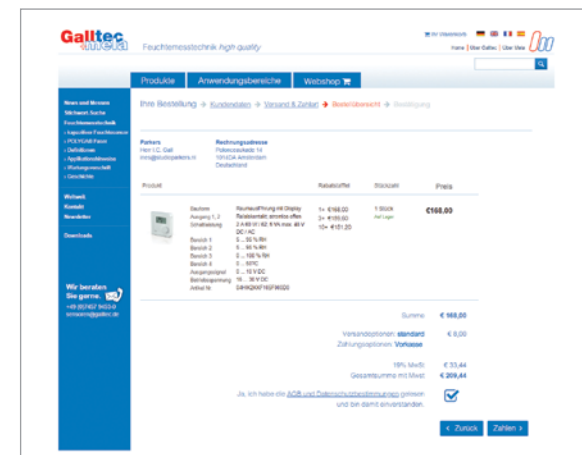
The humidistats offered in our web shop are almost always in stock and ready to ship to countries in the EU. You can even place your order as a guest without creating a customer account.



Buying a humidistat has never been so easy!



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



Experts in relative humidity measurement since 1972

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

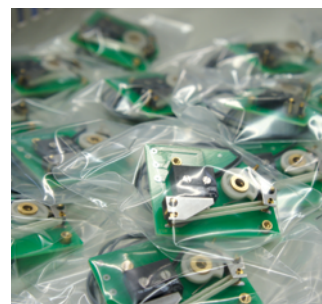
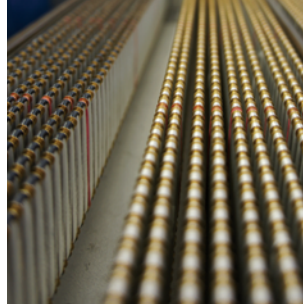
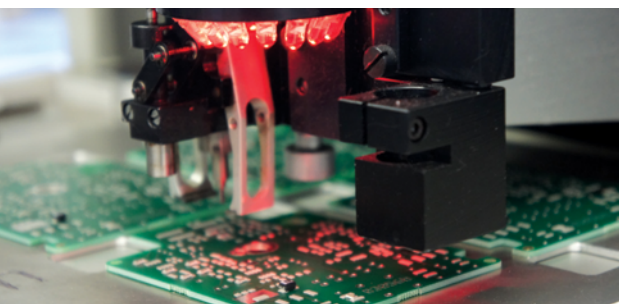
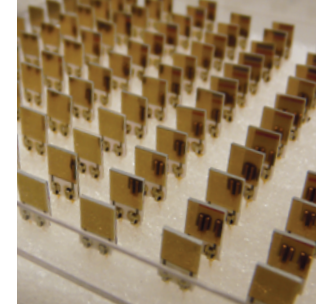
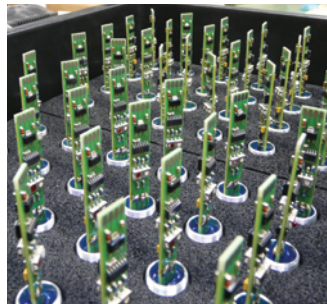
Our wide product range, comprising transmitters, humidistats and controllers is underpinned by our expertise in developing and manufacturing humidity sensors, and is based on two core measuring principles.

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!

Galltec Mess- und Regeltechnik GmbH
Boschstraße 4
Postfach 43
DE-71149 Bondorf
Tel. +49 7457 9453-0
Fax +49 7457 3758
Email sensoren@galltec.de
Website www.galltec-mela.de

Mela Sensortechnik GmbH
Raasdorfer Str 18
DE-07987 Mohlsdorf - Teichwolframsdorf
Tel. +49 3661 62704-0
Fax +49 3661 62704-20
Email sensoren@galltec.de
Website www.galltec-mela.de

