

Product Catalogue

Humidity and temperature measurement technology - *high quality*

For precise monitoring and controlling



Galltec
+mela

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

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

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



Humidity and temperature transmitters

Transmitter with
0...1 V
0...10 V
4...20 mA
Modbus RTU

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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Types

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

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

L series

Applications

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

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)

Humidity sensor or humidity temperature sensor

Types	LP	LI	LW	LK
1 x output	Humidity and/or temperature, active or passive, as well as all hx-values.			
2 x outputs				
			MODBUS	MODBUS
			hx	hx
Operating temp.	80 °C	60 °C	80 °C	80 °C
Connector, 6-pole	option			
Protective basket	standard		standard	standard
With membrane	option		option	option
PTFE-Filter ZE05	option IP65		option IP65	option IP65

L series

In this series

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

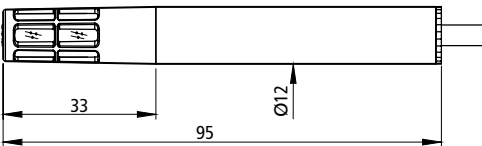
Options

- IP 65
- Modbus
- Vibration-resistant
- Sealing for increased requirements
- hx converter:
 - Dew point temperature
 - Wet bulb temperature
 - Absolute humidity
 - Mixing ratio
 - Enthalpy

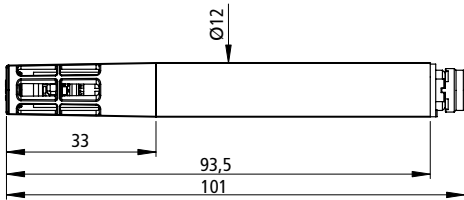
Probe LP



with cable connection

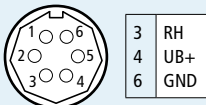
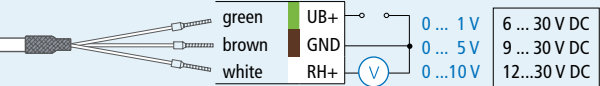


with plug-in connection

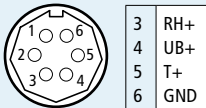
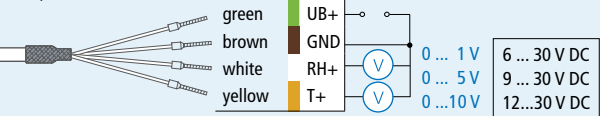


Connection diagrams

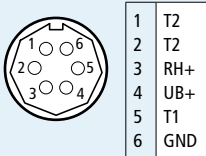
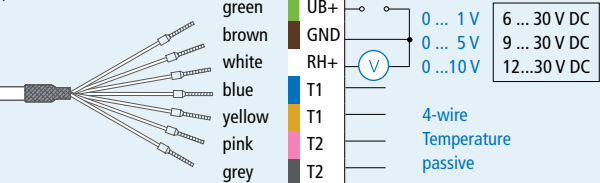
Humidity LPF



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	
active output	Semiconductor
passive output	Pt100, Pt1000, etc.
Output ranges	0 ... +50 °C 0 ... +100 °C -20 ... +80 °C -30 ... +70 °C -40 ... +60 °C
Accuracy at 10...40 °C	±0.8 K
Electrical specifications	
Signal output	Supply voltage
0...1 V	6 ... 30 V DC
0...5 V	9 ... 30 V DC
0...10 V	12 ... 30 V DC
General	
Housing	Material: PC, IP 65
Storage temperature	-40...+85 °C
Operating temperature	-30...+80 °C
Measuring head	Degree of protection
Plastic protective basket ZE07	IP 20
Plastic with membrane ZE08	IP 30
Sintered filter fine pore PTFE ZE05	IP 65
Special features	
Vibration-resistant	Optional
Sealing for increased requirements	Optional

L series LP

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

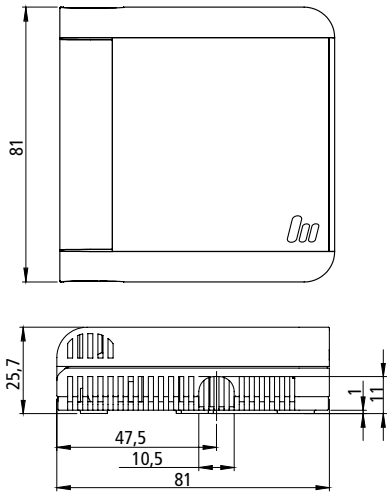
Options

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



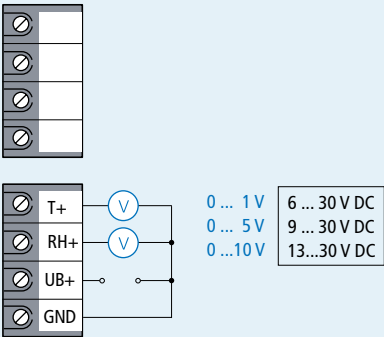
Type overview	Type		Standard	Options
Humidity	LPF	1 x U output	1.5 m cable and protective basket ZE07	Connector, 6-pole
Humidity + temperature	LPK	2 x U outputs		Membrane filters ZE08
Humidity + Pt100	LPC	1 x U output + (passive)		PTFE filter ZE05
Temperature	LPT			
Temperature passive	LPT5	1 x U output		

Indoor LI

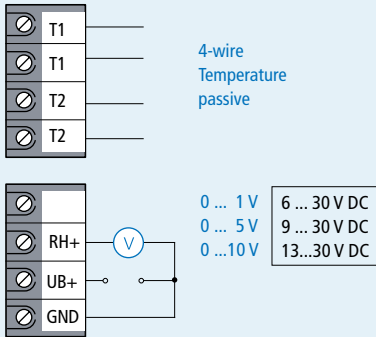


Connection diagrams

Humidity and temperature LIK



Humidity and temperature passive LIC



Type overview	Type	
Humidity	LIF	1 x U output
Humidity + temperature	LIK	2 x U outputs
Humidity + Pt100	LIC	1 x U output + (passive)
Temperature	LIT	1 x U output
Temperature passive	LIT5	

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

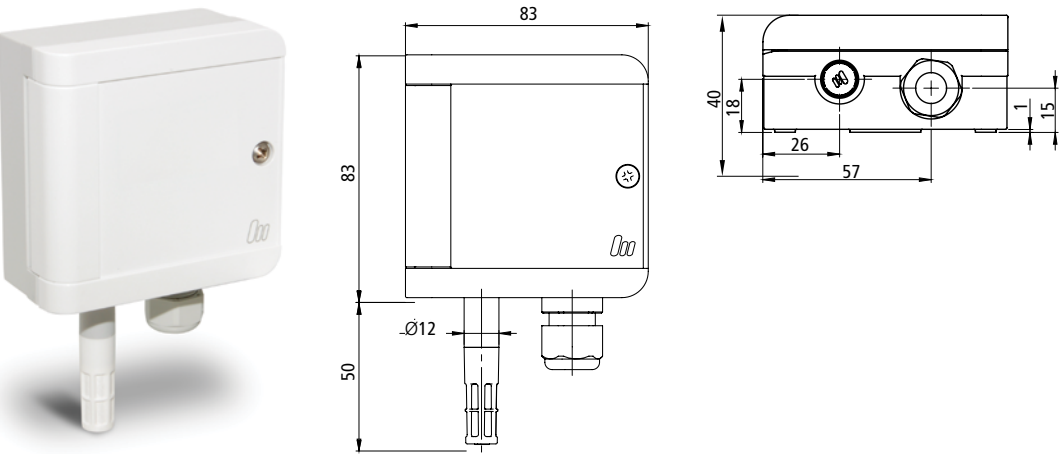


More information
on the analogue L series
datasheet online PDF



More information
on the digital L series
datasheet online PDF

Wall mounted LW



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

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

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

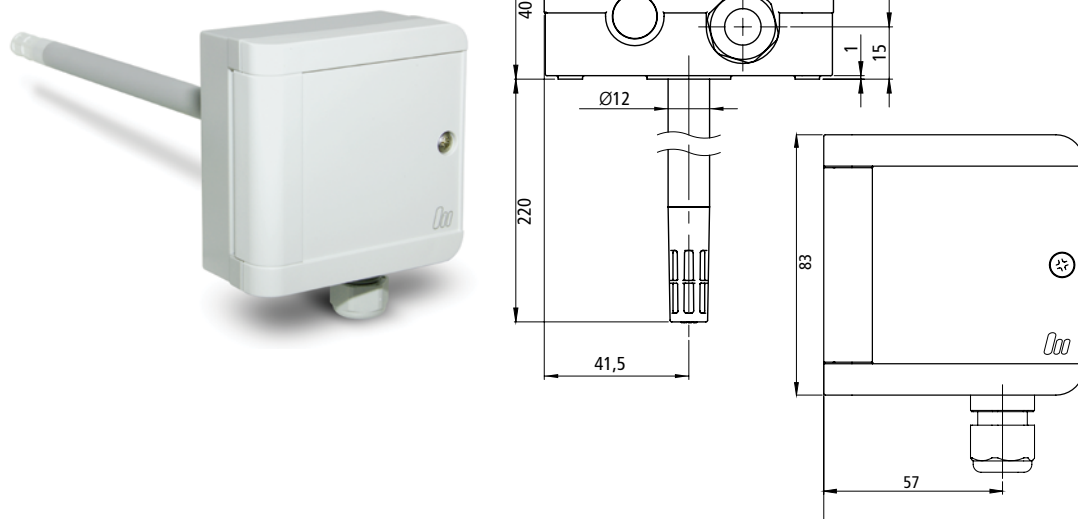


More information
on the analogue L series
datasheet online PDF



More information
on the digital L series
datasheet online PDF

Duct mounted LK



Type overview

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

Filter options

Filter options	Type	IP	
Plastic protective basket ZE07	ZE07	IP 20	standard
Plastic filter with membrane ZE08	ZE08	IP 40	option
Fine pore PTFE sintered filter ZE05	ZE05	IP 65	option

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



More information
on the analogue L series
datasheet online PDF

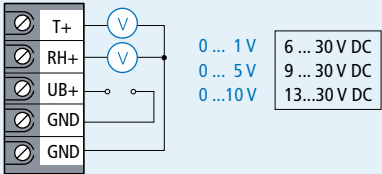


More information
on the digital L series
datasheet online PDF

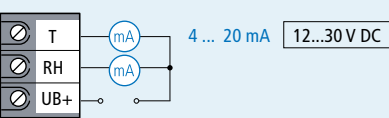
Wall mounted LW and
duct mounted LK

Connection diagrams

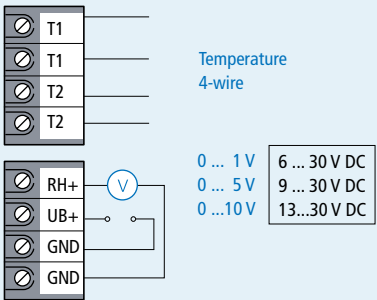
Humidity and temperature LWK



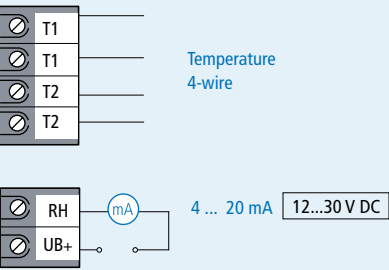
Humidity and temperature LWK



Humidity and temperature passive LWC



Humidity and temperature passive LWC

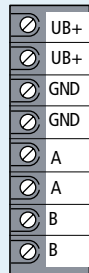


Optimised for HVAC

Wall mounted LW and
duct mounted LK digital

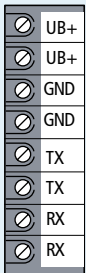
Connection diagrams digital

M RS485



Modbus RTU protocol

R RS232

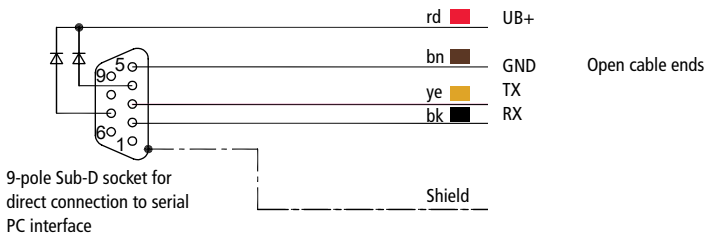


ASCII protocol



Pin assignment cable accessories

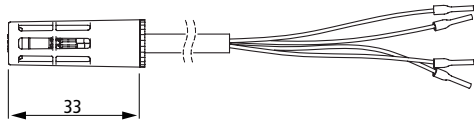
RS232



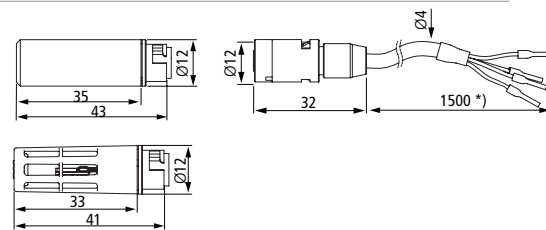
Miniature sensor MCK



with cable connection

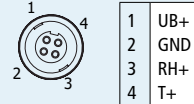
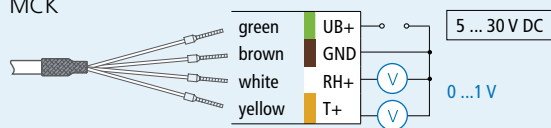


with plug-in connection

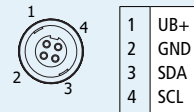
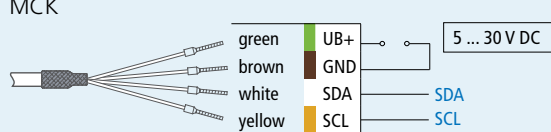


M series

Humidity and temperature analogue
MCK

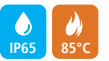


Humidity and temperature digital
MCK



	Type	Standard	Options
Humidity + temperature	MCK	2 x outputs	1.5 m cable and protective basket ZE07
Humidity + temperature	MCK	2 x outputs	Connector, 4-pole protective basket ZE07
			with membrane ZE08
			PTFE filter ZE05

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

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

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	Prices depend on the order volume. We gladly provide you with a personalized offer.		
2 x U outputs			
1 x I output	Prices depend on the order volume. We gladly provide you with a personalized offer.		
2 x I outputs			
			

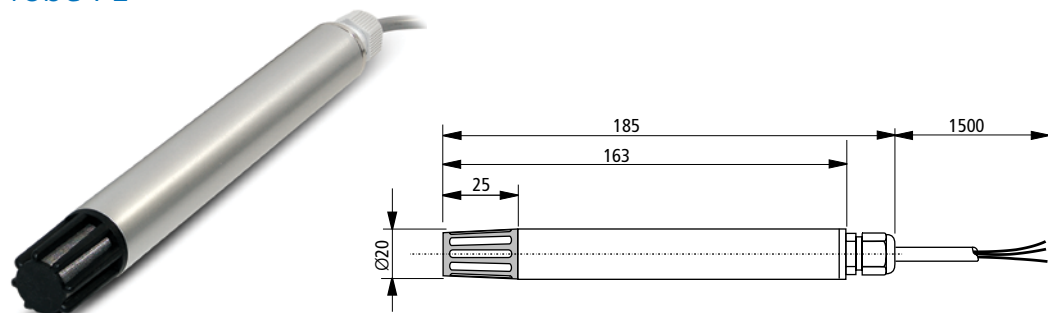
Temperature sensor

U output	Prices depend on the order volume. We gladly provide you with a personalized offer.
I output	



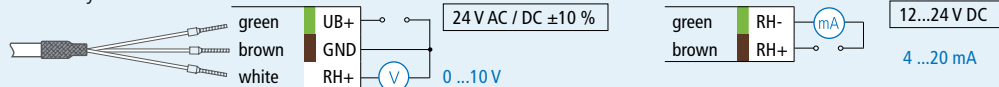
More information on
the C2.6 datasheet
online PDF

Probe PL

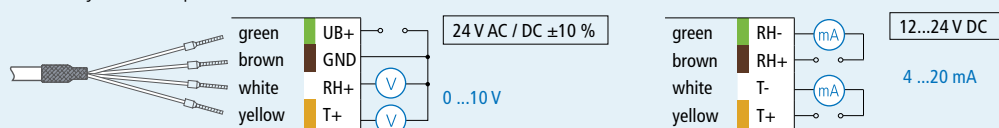


Connection diagrams

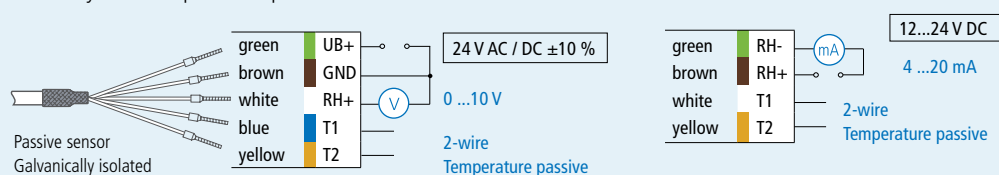
Humidity FPL



Humidity and temperature KPL



Humidity and temperature passive CPL



Type overview	Type		Standard
Humidity	FPL	1 x U output	PBT plastic filter, ZE17 light
Humidity + Temperature	KPL	2 x U outputs	
Humidity + Pt100	CPL	1 x U output + (passive)	
Temperature	TPL	1 x U output	
Humidity	FPL	1 x I output	PBT plastic filter, ZE17 light
Humidity + Temperature	KPL	2 x I outputs	
Humidity + Pt100	CPL	1 x I output + (passive)	
Temperature	TPL	1 x I output	

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

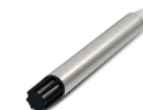
Signal output	Supply voltage
0...10 V	24 V AC / DC ±10 %
4...20 mA	12 ... 24 V DC

General

Sensor tube	Material: Aluminium, Ø 20 mm
Degree of protection	IP 30
Operating temperature	-20...+80 °C

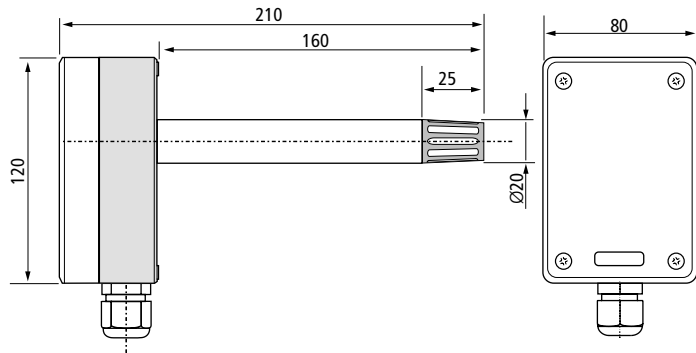
Light series PL

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



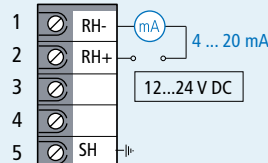
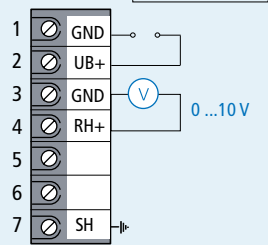
More information on
the C2.6 datasheet
online PDF

Duct mounted KL



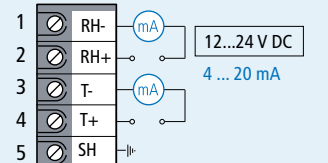
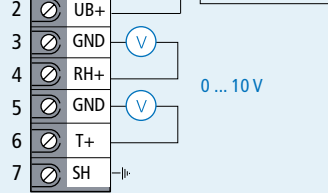
Connection diagrams

Humidity FKL 15...30 V DC
24 V AC $\pm 10\%$



Humidity + temperature KKL

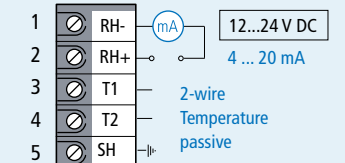
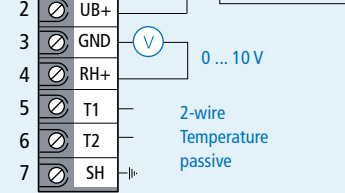
15...30 V DC
24 V AC $\pm 10\%$



Galvanically isolated

Humidity + temperature passive CKL

15...30 V DC
24 V AC $\pm 10\%$



Type overview	Type		Standard
Humidity	FKL	1 x U output	PBT plastic filter, ZE17 light
Humidity + Temperature	KKL	2 x U outputs	
Humidity + Pt100	CKL	1 x U output + (passive)	
Temperature	TKL	1 x U output	
Humidity	FKL	1 x I output	PBT plastic filter, ZE17 light
Humidity + Temperature	KKL	2 x I outputs	
Humidity + Pt100	CKL	1 x I output + (passive)	
Temperature	TKL	1 x I output	

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

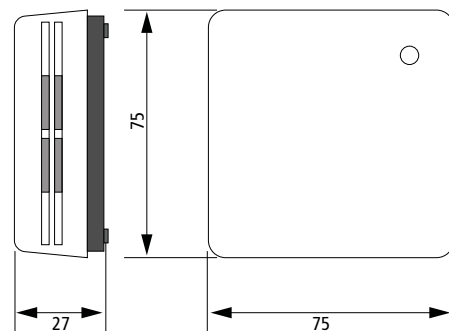
Light series KL

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



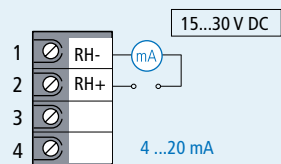
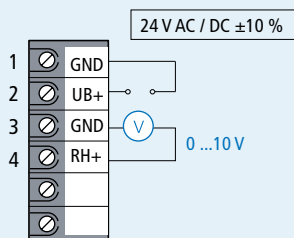
More information on
the C2.6 datasheet
online PDF

Indoor WL

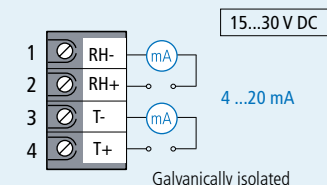
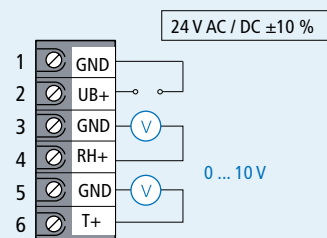


Connection diagrams

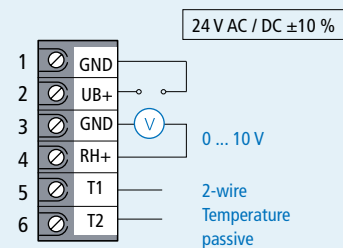
Humidity FWL



Humidity + temperature KWL



Humidity + temperature passive CWL



Type overview

Type overview	Type	
Humidity	FWL	1 x U output
Humidity + Temperature	KWL	2 x U outputs
Humidity + Pt100	CWL	1 x U output + (passive)
Temperature	TWL	1 x U output
Humidity	FWL	1 x I output
Humidity + Temperature	KWL	2 x I outputs
Temperature	TWL	1 x I output

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

Very accurate and easy to install



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

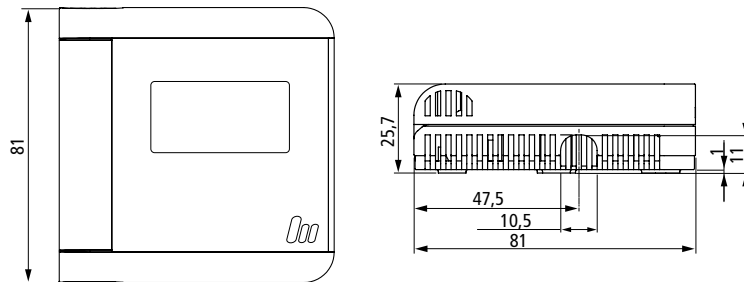
- Display
- IP 65
- Output variables can be freely configured via USB port
- hx converter:
 - Dew point temperature
 - Wet bulb temperature
 - Absolute humidity
 - Mixing ratio
 - Enthalpy

Humidity sensor or humidity temperature sensor



Types	DI	DW	DK
1 x output	Humidity and/or temperature, as well as all hx-values, voltage or current output signal		
2 x outputs			
PTFE filter ZE05		option IP65	option IP65
USB port		option USB	option USB
Display	option	option	option
Special length sensor tube 48 or 140 mm			option
Accuracy	±2.5 % RH	±2 % RH	±2 % RH
Operating temperature	60 °C	80 °C	80 °C
Hx converter		hx	hx

Indoor DI

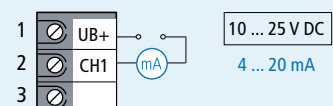
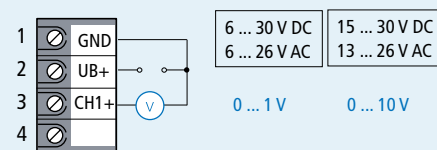


Applications

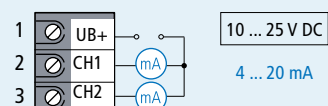
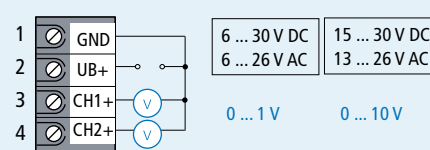
- HVAC & building automation
- Construction
- Offices & public buildings
- Private homes
- Museums
- Storage & transport
- Cooling & air conditioning in trains
- Ship containers
- Storage and transport of fruit, vegetables & meat
- Wine cabinets
- Drying of tea, grain & meat
- Energy & environment

Connection diagrams

Humidity DIF



Humidity and temperature DIK



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

Type overview

Type	Options
Humidity	DIF 1 x output
Humidity + temperature	DIK 2 x outputs

D series DI

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

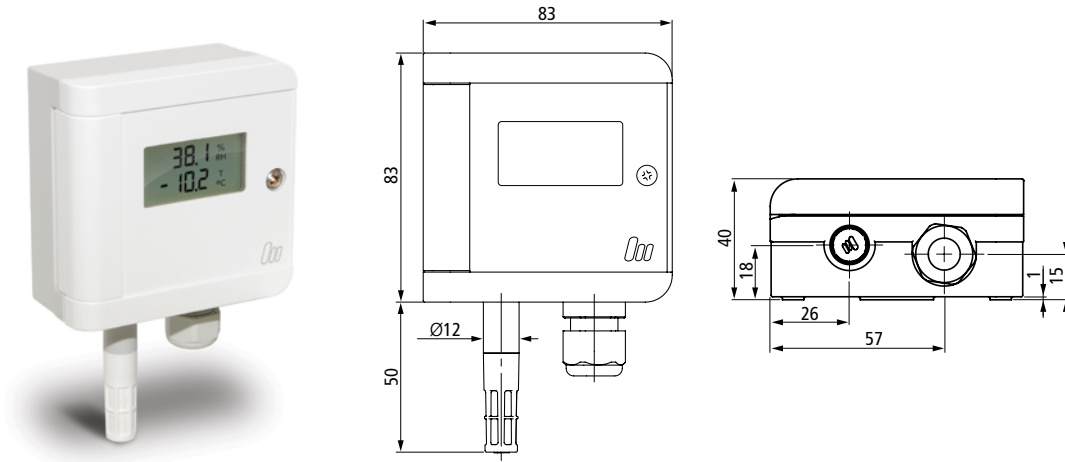
Options

- Display



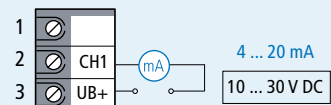
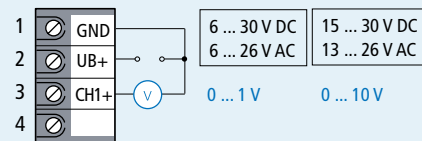
More information
on the DI datasheet
online PDF

Wall mounted DW

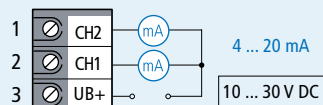
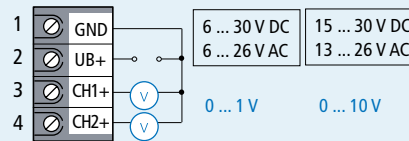


Connection diagrams

Humidity DWF



Humidity and temperature DWK



Type overview

Type overview	Type	Standard	Options
Humidity	DWF	1 x output	Membrane filter ZE08
Humidity + temperature	DWK	2 x outputs	PTFE filter ZE05

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

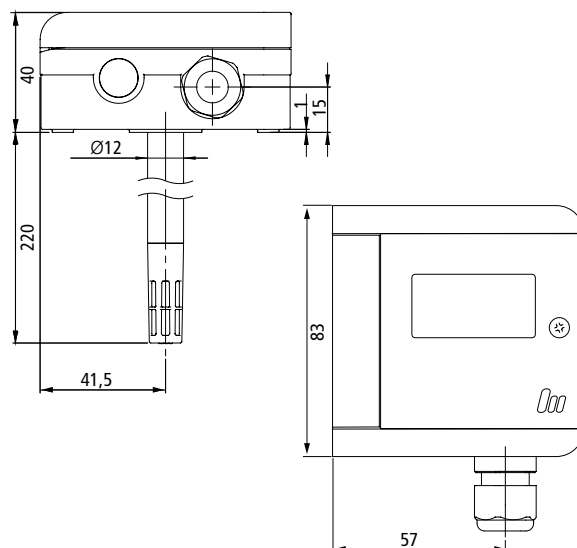
Options

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



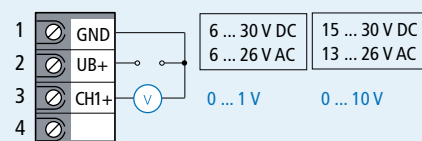
More information on the DW datasheet online PDF

Duct mounted DK

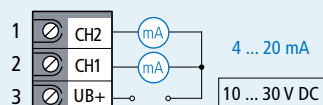
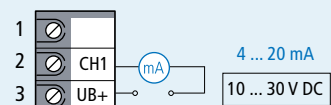
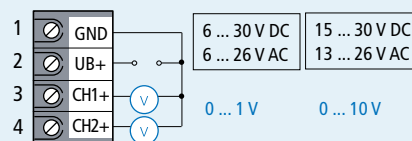


Connection diagrams

Humidity DKF



Humidity and temperature DKK



Type overview

Type overview	Type	Standard	Options
Humidity	DKF	1 x output	Membrane filter ZE08
Humidity + temperature	DKK	2 x outputs	PTFE filter ZE05

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



Transmitters

Probes up to 85 °C	
Probes up to 125 °C + PTFE filter	
PTFE filter	IP65
Display	
Cable connectable at both ends	
Operating temperature	85 °C 125 °C
Hx converter	hx
USB port	USB

DZK transmitters...

80°C IP65

with integrated connector

80°C

plug-in probe with female socket
4 probe lengths

85°C

probe with cable connected cable box
3 probe lengths

80°C

125°C

Standard:



Membrane filter IP 30

85°C

Option:



PTFE sintered filter IP 65

125°C IP65

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)

85°C IP65

Transmitter with remote probe with cable connectable at both ends

IP 30



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

85°C IP65

Transmitter with probe with cable connected cable box

IP 30



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

85°C IP65

Transmitter with probe with cable connected cable box

IP 65



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

125°C IP65

DZK

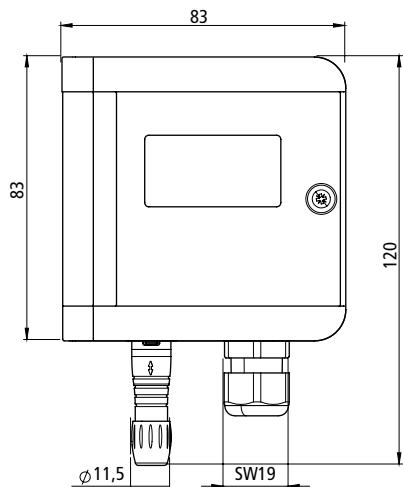
In this series

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

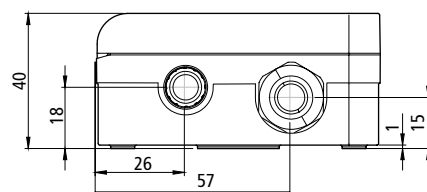
Options

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

DZK transmitters

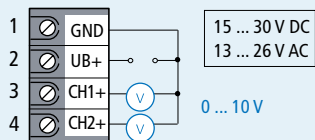


with plug-in connection

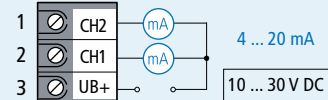


Connection diagrams

Humidity and temperature



Humidity and temperature



Optional: DZK transmitter with cable connected probe (firmly)

Standard version

IP 30



85 °C IP65

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

DZK in wall mounting enclosure without display
Choice of 3 probe lengths S, M, L
with membrane filter (ZE 08) IP 30
Option: PTFE sintered filter (ZE05) IP 65

High temperature version

IP 65



125 °C IP65

Cable -40...+125 °C 2 m (up to 25 m poss.)
Probe -40...+125 °C with PTFE sintered filter IP 65

DZK in wall mounting enclosure without display
Choice of 3 probe lengths S, M, L
Filter PTFE sintered filter (ZE05) IP 65

Easily customised modular design



DZK (remote) probe

Probe with cable

125 °C

S = 78
M = 150
L = 220
+ 4 mm for IP65 filter



Membrane filter (ZE08)
-40 ... + 85 °C 85 °C

IP 65 PTFE sintered filter (ZE05)
-40 ... +125 °C 125 °C IP65

S = 78 mm + 4 mm (for IP65 filter)

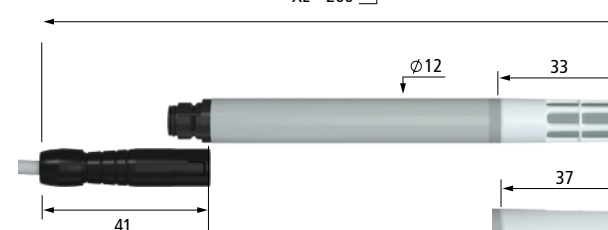
M = 150 mm + 4 mm (for IP65 filter)

L = 220 mm + 4 mm (for IP65 filter)

Probe with plug-in connection

85 °C

Probe lengths: S = 78
M = 150
L = 220
XL = 266
+ 4 mm for IP65 filter



Membrane filter (ZE08)
-40 ... + 85 °C 85 °C

IP 65 PTFE sintered filter (ZE05)
-40 ... +125 °C 125 °C IP65

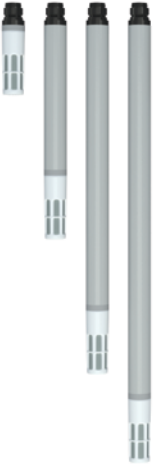
S

M

L

XL

DZK modules

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

Options	
Display	≥ -30 °C
USB port	Including PC software
Additional charge for cable (> 2 m)	-40 ... +125 °C
IP 65 with PTFE sintered filter ZE05	-40 ... +125 °C
Mounting flange with rubber gasket	

Easily customised modular design



Relative humidity measurement	
Output range	0...100 % RH
Accuracy at 25 °C	±2 % RH at 10...90 % RH ≤±0.2 % RH / % RH remaining operating range
Temperature measurement	
Output ranges	0 ... +50 °C -30 ... +70 °C 0 ... +100 °C -40 ... +125 °C
Accuracy at 5...60 °C	±0.35 K
hx converter for derived humidity variables	
Dew point temperature	-20 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/m3 0 ... 100 g/m3
Mixing ratio	0 ... 100 g/kg dry air
Enthalpy	0 ... 80 kJ/kg
Optional: USB interface: All output ranges can be freely configured. Temperature in °C or °F	
Electrical specifications	
Signal output 0...10 V 4...20 mA	Supply voltage 15 ... 30 V DC / 13 ... 26 V AC 10 ... 30 V DC
General	
Housing with display without display	Material: PC, IP 65 Operating temp: -30 ... +80 °C Operating temp: -40 ... +80 °C
Probe, plug-in Probe + cable	Operating temp: -40 ... +85 °C Operating temp: -40...+125 °C
Cable	2 m, max. 25 m
Measuring head with membrane filter ZE08 with PTFE sintered filter ZE05	Degree of protection IP 30 IP 65
Special features	
2-line digital display	Optional
Probes	Pluggable and interchangeable
Output variables can be freely configured via USB port	

DZK

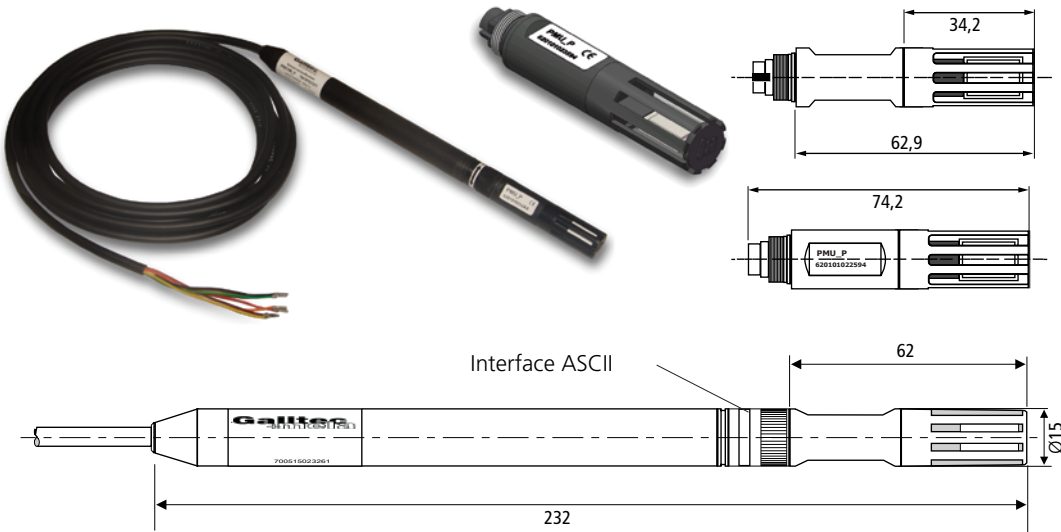
- In this series
- Operating temp. up to 125 °C
 - Accuracy H: ±2 % RH
 - Accuracy T: ≤±0.35 K
 - On-site calibration
 - Easy to install

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



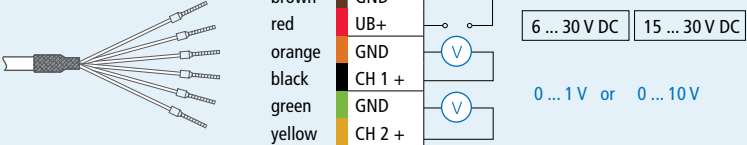
Probe PM15P

with measuring head PMU-P

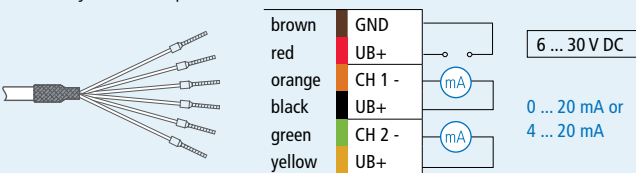


PM15P

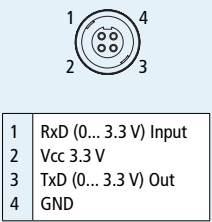
Humidity and temperature
PM15P



Humidity and temperature PM15P



PMU-P



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

Type overview	Type	Standard
Humidity + temperature	PM15P	2 x outputs
Humidity + temperature	PMU-P	Output (ASCII)

Plug 'n' Measure - digital sensor with exchangeable measuring head



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
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...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

PC / RC

In this series

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

Options

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

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

Humidity sensor or
humidity temperature sensor

	PC	PC-ME	PC.S	PC.S-ME	RC	RC-ME
1 x U output	cable connection, also in ME-version		plug-in connection, also in ME-version		robust head, also in ME-version	
2 x U outputs						
1 x U output + Pt100 (passive)						
1 x I output	✓	-	✓	-	robust head, also in ME-version	
2 x I outputs	✓	-	✓	-		
1 x I output + Pt100 (passive)	✓	-	✓	-		

Temperature sensor

U output	✓	✓	✓	✓	✓	✓
I output	✓	-	✓	-	✓	✓
Pt100	✓	-	✓	-	✓	-
Pt100 1/3 DIN (-ME versions)	-	✓	-	✓	-	✓



More information on
the C2.5 datasheet
online PDF



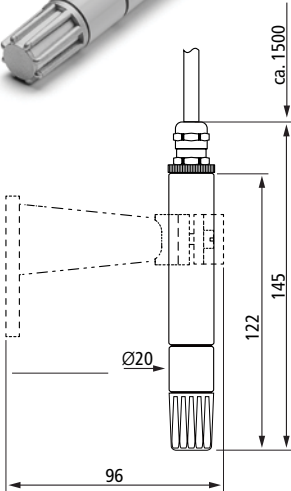
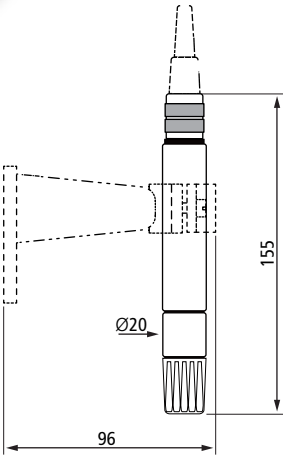
More information on
the C2.4 datasheet
online PDF



More information on
the C2.3 datasheet
online PDF

Probe PC.S
with plug-in connection
and coupling

PC with cable connection



Type overview		Type PC	Type PC.S	Standard
Humidity	1 x U output	FPC	FPC.S	ZE17 plastic filter, metallised with inserted stainless steel fine gauze
Humidity + temperature	2 x U outputs	KPC	KPC.S	
Humidity + Pt100	1 x U output + (passive)	CPC	CPC.S	
Temperature	1 x U output	TPC	TPC.S	
Humidity	1 x I output	FPC	FPC.S	
Humidity + temperature	2 x I outputs	KPC	KPC.S	
Humidity + Pt100	1 x I output + (passive)	CPC	CPC.S	
Temperature	1 x I output	TPC	TPC.S	
Temperature	Pt100 (passive)	TPC	TPC.S	

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
Output range	-30 ... +70 °C
Accuracy	with voltage output ±0.2 K with current output -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
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Degree of protection PC	IP 65
Degree of protection PC. S coupling	IP 40
Measuring head	IP 40 plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+80 °C
Special features	
Measuring element is dew-resistant, vibration-resistant	Optional
Variety of special versions	

PC
PC.S

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

Options

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



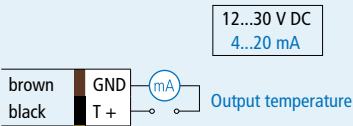
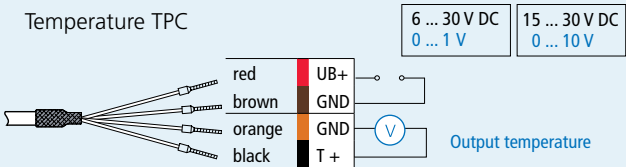
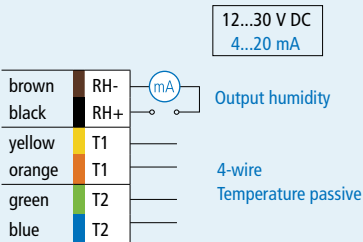
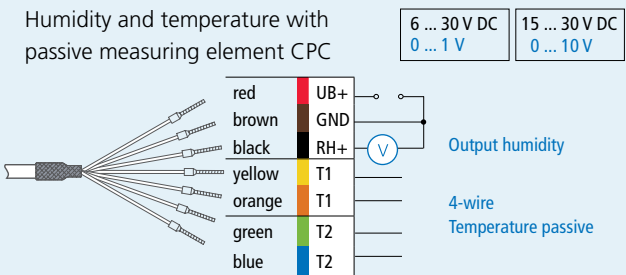
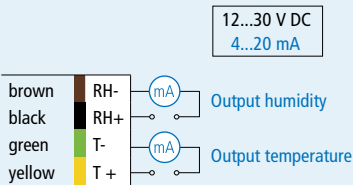
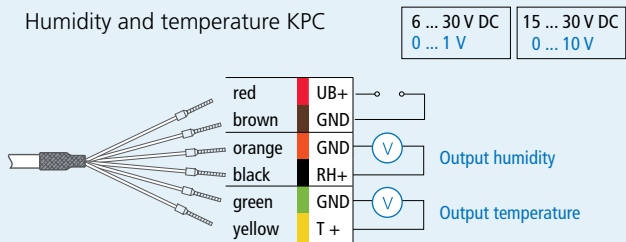
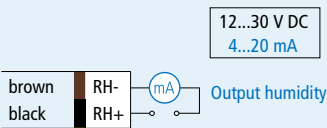
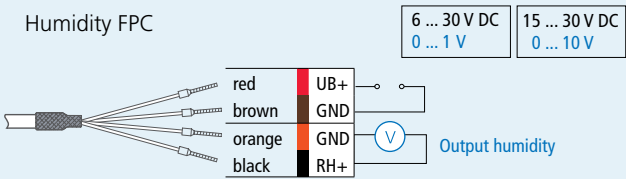
More information on the C2.3 datasheet online PDF



More information on the C2.5 datasheet online PDF

Probe PC
with cable connection

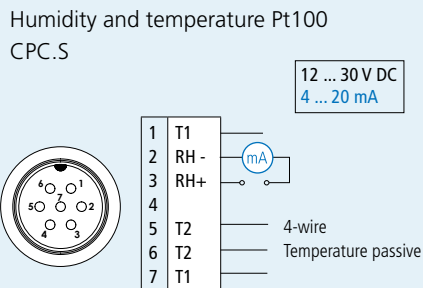
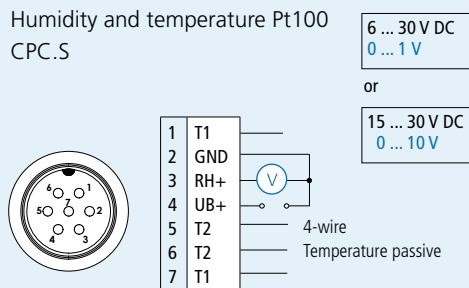
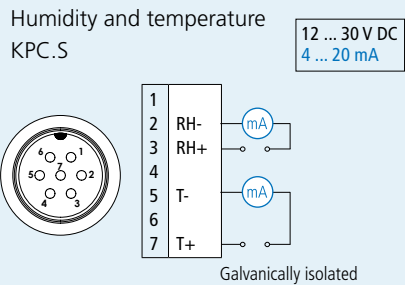
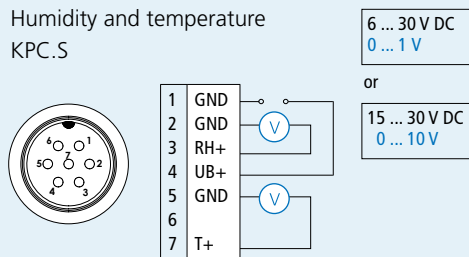
Connection diagrams



Analogue probes

Probe PC.S
with plug-in connection

Pin assignment



Cable accessories PC.S

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

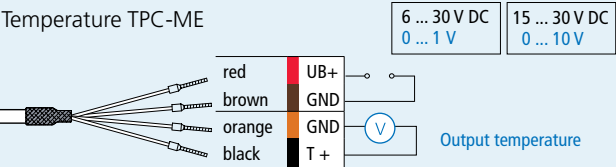
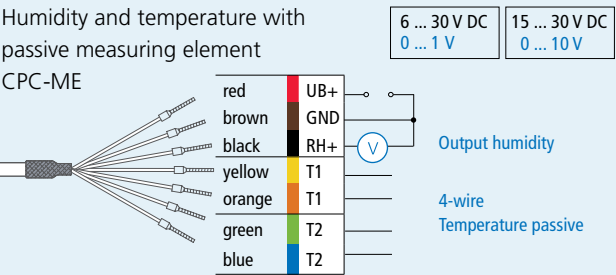
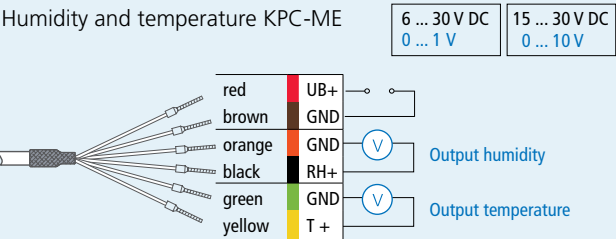
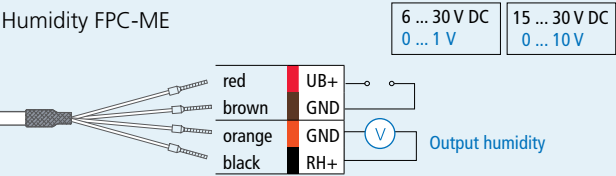


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Probe PC-ME
with cable connection



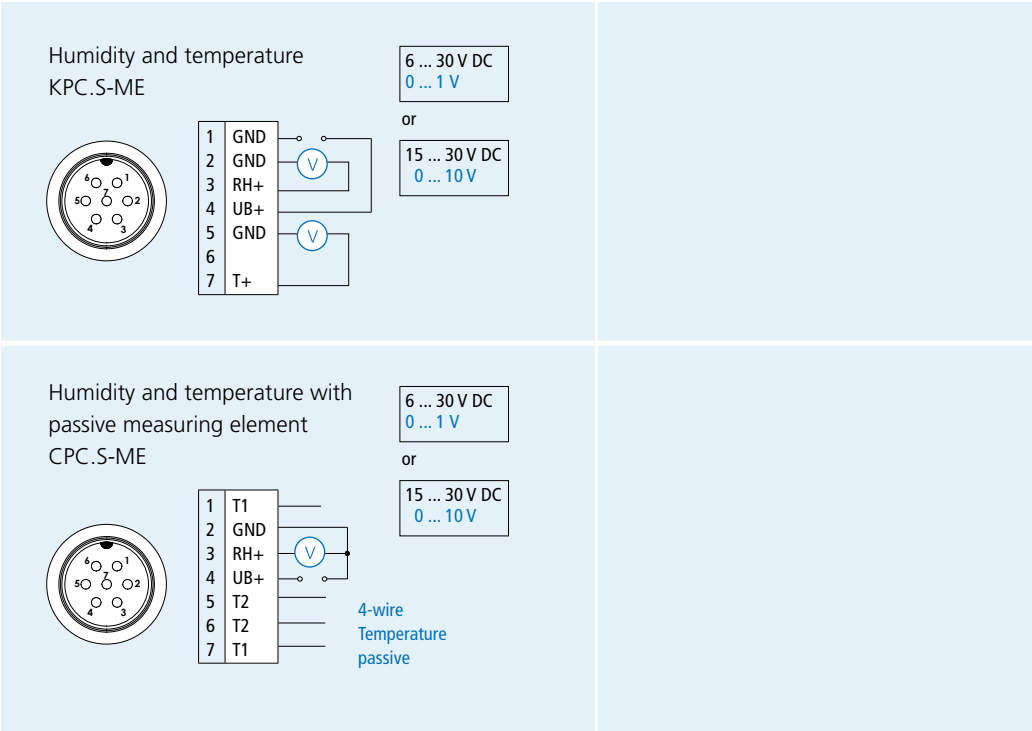
Connection diagrams



Probe PC.S-ME
with plug-in connection

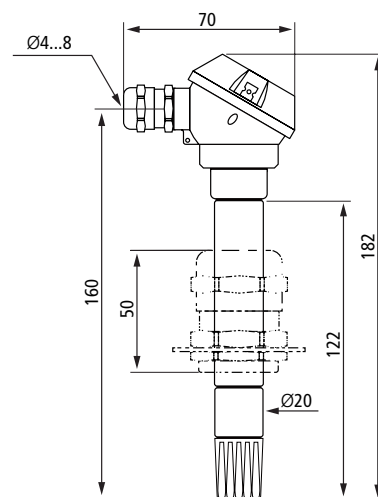


Pin assignment



More information on
the C2.4 datasheet
online PDF

Probe RC with robust head RC-ME meteorology



Type overview		Type RC	Type RC-ME	Standard
Humidity	1 x U output	FRC	FRC-ME	RC: plastic filter, metallised with stainless steel fine gauze ZE17 (IP 40)
Humidity + temperature	2 x U outputs	KRC	KRC-ME	
Humidity + Pt100	1 x U output + (passive)	CRC	CRC-ME	ME version: plastic filter, metallised with membrane ZE20 (IP 54)
Temperature	1 x U output	TRC	TRC-ME	
Humidity	1 x I output	FRC 3	FRC3-ME	
Humidity + temperature	2 x I outputs	KRC 3	KRC3-ME	
Humidity + Pt100	1 x I output + (passive)	CRC 3	CRC3-ME	
Temperature	1 x I output	TRC 3	TRC3-ME	
Temperature	Pt100 (passive)	TRC 5	TRC5-ME	

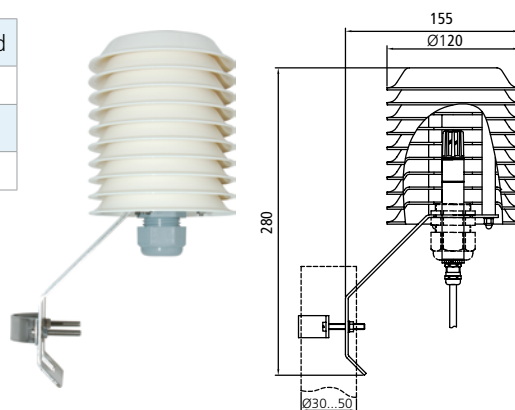
Filter options (ME version)

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

Weather protection accessories

For probes Ø 20 mm, ZA161/1

Recommended for outdoor use to protect against precipitation and insolation (with clamping sleeve 00.502 also suitable for probes Ø 15 mm)



Analogue probes meteorology version



Relative humidity measurement

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

Temperature measurement

Sensor element	Pt100 Class B
-ME version	Pt100 1/3 DIN Class B
Output range	-30 ... +70 °C
Accuracy at 10...40 °C	
with voltage output	±0.2 K
with current output	±0.3 K

Electrical specifications

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

General

Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Operating temperature range	-40...+80 °C
Measuring head	
	RC IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
	RC-ME IP 54, plastic filter, metallised with membrane ZE20

Special features

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

RC RC-ME

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

Options

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



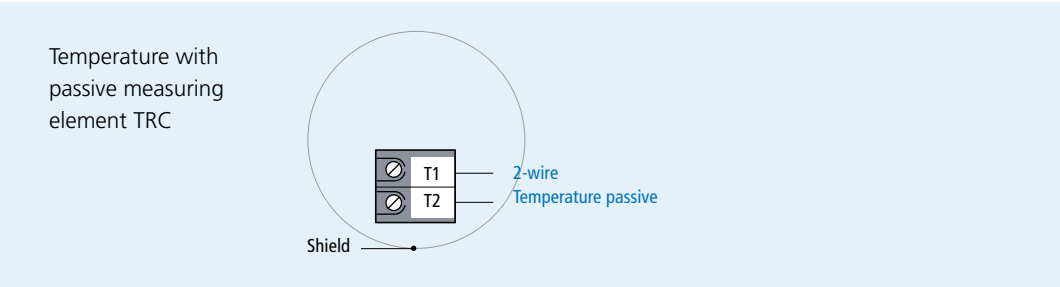
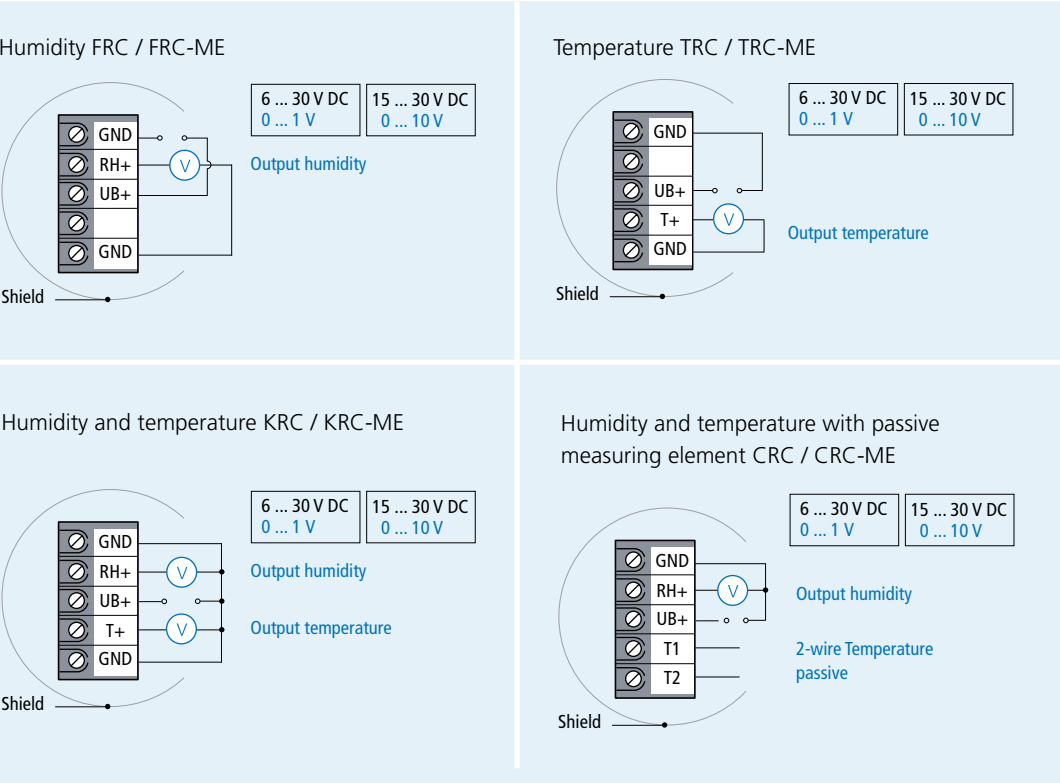
More information on the C2.3 datasheet online PDF



More information on the C2.4 datasheet online PDF

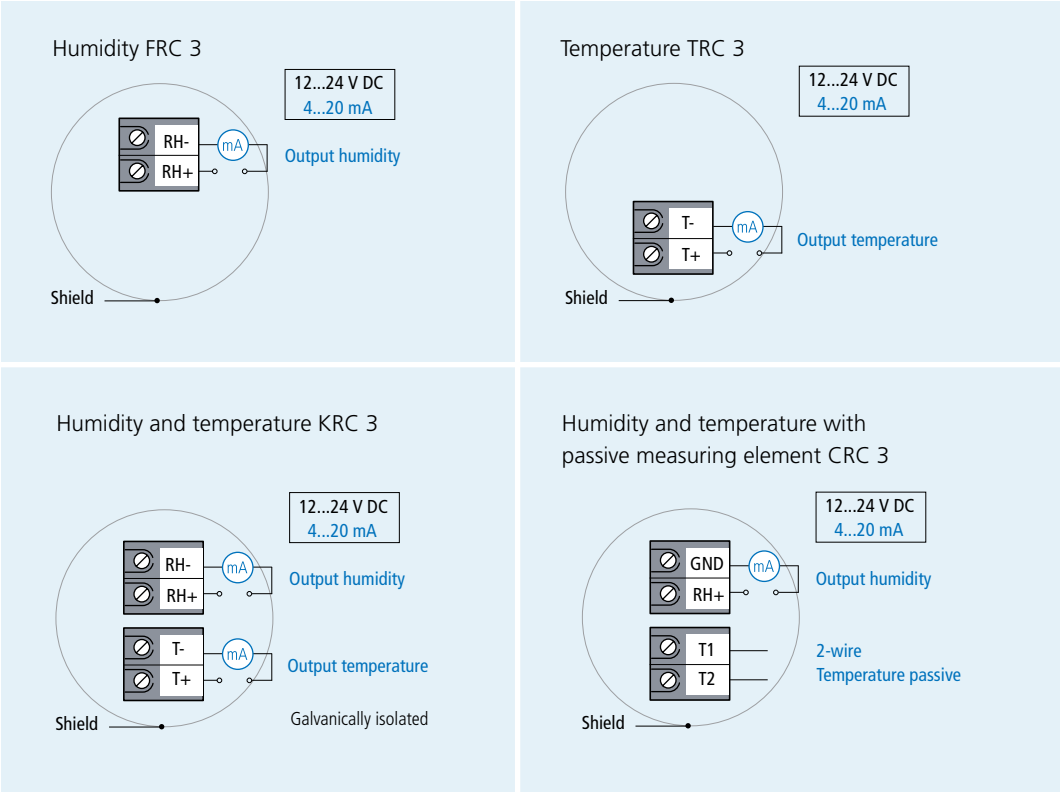
Probe RC with robust head
and RC-ME meteorology

Connection diagrams voltage



Probe
RC with robust head

Connection diagrams current



**Types**

with plug-in connection	IAK	p. 62
with robust head	IRK	p. 64

Stainless steel

with plug-in connection	IVK	p. 68
with robust head	ITK	p. 70

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

I series Modbus / RS232

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

Relative humidity measurement

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

Temperature measurement

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

hx converter for derived humidity variables (only Modbus)

Dew point temperature	0 ... +70 °C
Wet bulb temperature	-10 ... +50 °C
Absolute humidity	0 ... 20 g/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

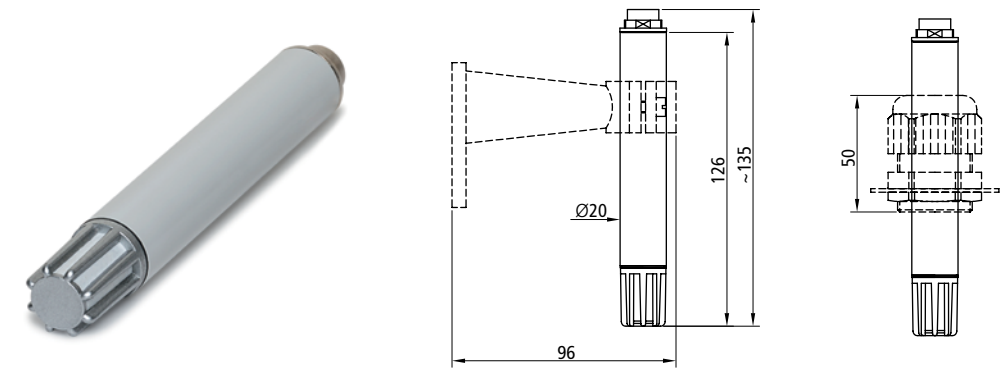
Options

- 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

	IA	IR	IV	IT
RS232	5-pole	with robust head	8-pole	with robust head
RS485 Modbus RTU	7-pole	with robust head	8-pole	with robust head

Probe IAK with plug-in connection



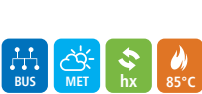
Type overview	Type		Standard
Humidity + temperature	IAK R	Output RS232	5-pole connector, filter ZE17 (IP 40)
Humidity + temperature	IAK M	Output RS485 Modbus RTU	7-pole connector, filter ZE17 (IP 40)

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

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

RS232 cable accessories	Accessories for	Length	Special length
SUB-D adaptor cable ready to use with cable box IP 67	IAK R (RS232)	2.5 m	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 RS232, RS485 Modbus	Supply voltage 5 ... 30 V DC
Max. transmission length	RS232 15 m RS485 Modbus 1000 m
General	
Sensor tube	IP 65, aluminium, painted, Ø 20 mm
Plug-in connection	IP 67
Measuring head	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital IAK

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

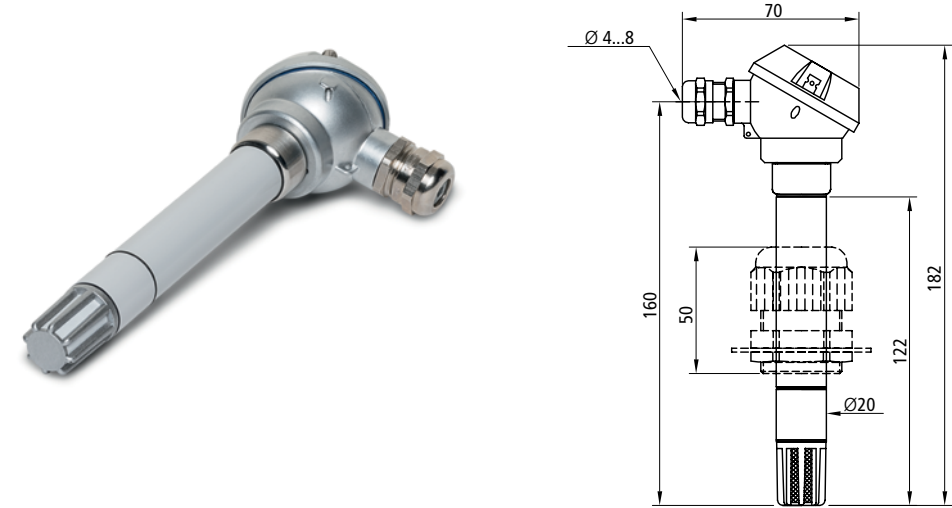
Options

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



More information on
the I series datasheet
online PDF

Probe IRK with robust head



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

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

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

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 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
Measuring head	IP 40, plastic filter, metallised with inserted stainless steel fine gauze ZE17
Operating temperature	-40...+85 °C
Special features	
Measuring element is dew-resistant	
Vibration-resistant	Optional
Variety of special versions	

I series digital IRK

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

Options

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

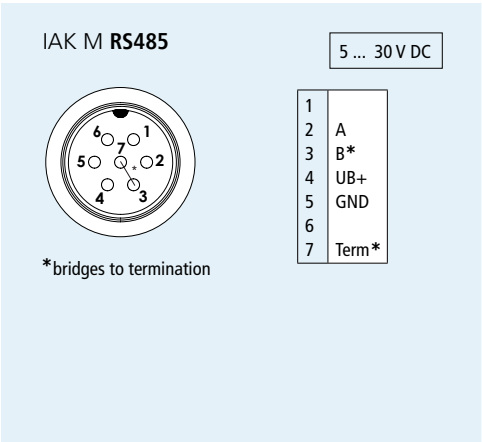


More information on
the I series datasheet
online PDF

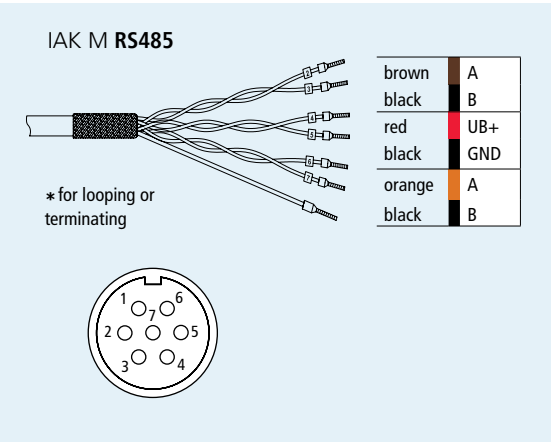
Probe IAK with plug-in connection



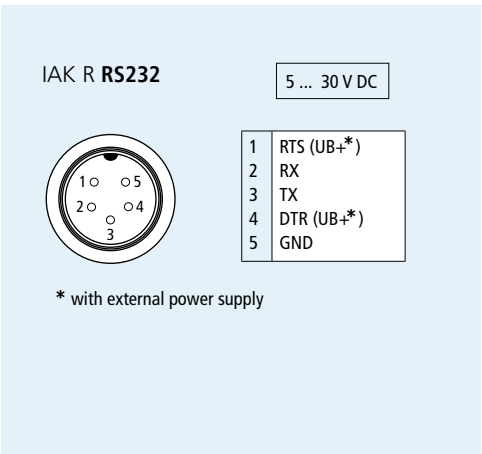
Pin assignment **Modbus**



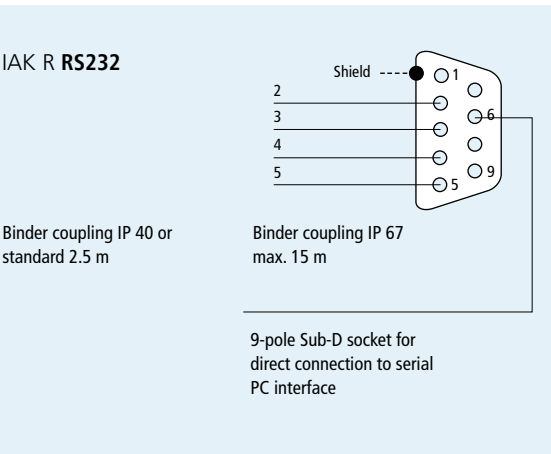
Pin assignment **Modbus** cable accessories



Pin assignment **RS232**



Pin assignment **RS232** cable accessories

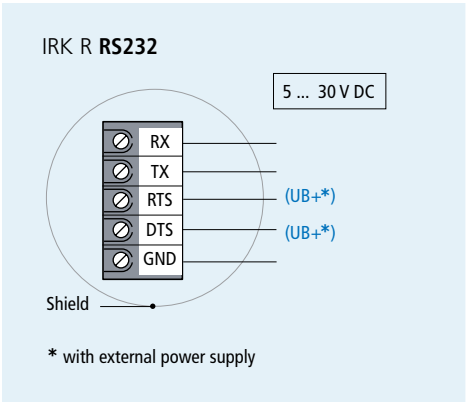


Probes with digital output

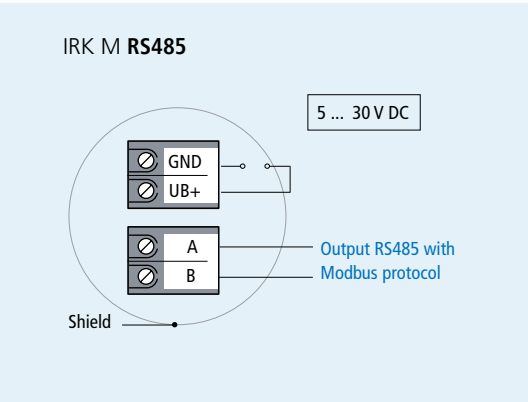
Probe IRK with robust head



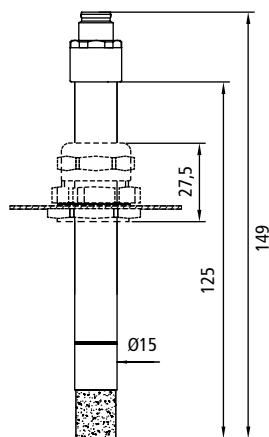
Connection diagram **RS232**



Connection diagram **Modbus**



Probe IVK stainless steel with plug-in connection



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

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

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

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

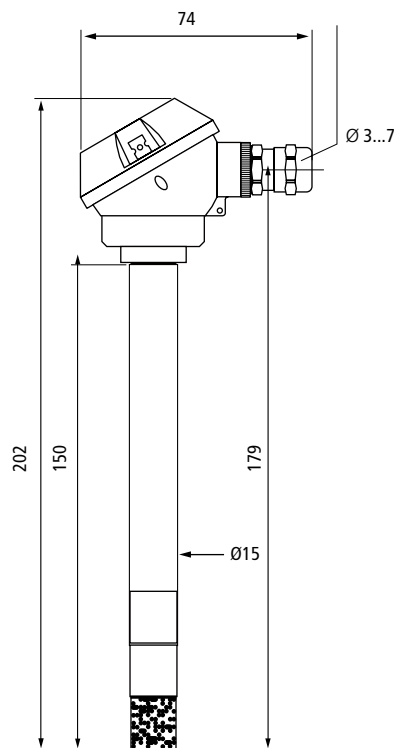
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- Robust
- Dew-resistant
- Stainless steel
- IP 65

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		Standard
Humidity + temperature	ITK R	Output RS232	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	ITK M	Output RS485 Modbus RTU	Stainless steel sintered metal filter ZE13 (IP 65)

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

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

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

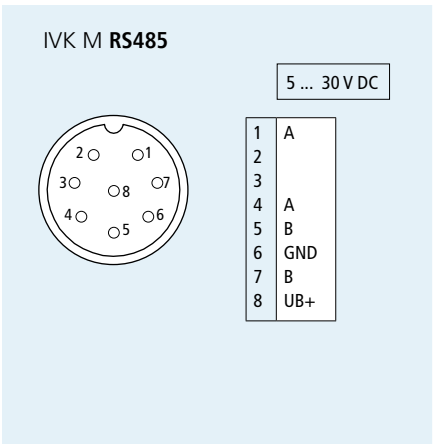


More information on
the I series datasheet
online PDF

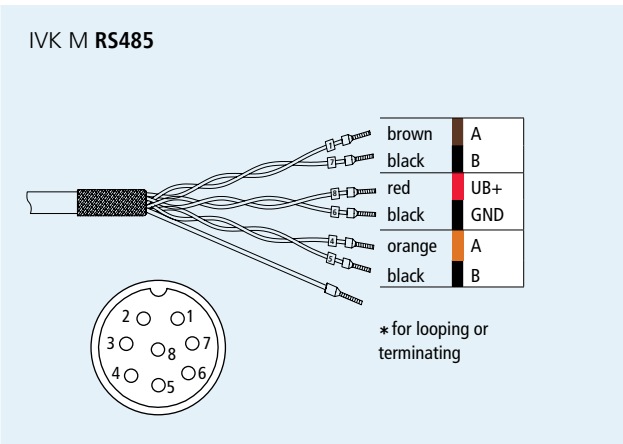
Probe IVK stainless steel
with plug-in connection



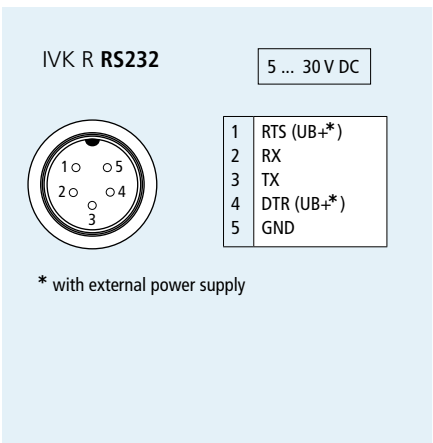
Pin assignment **Modbus**



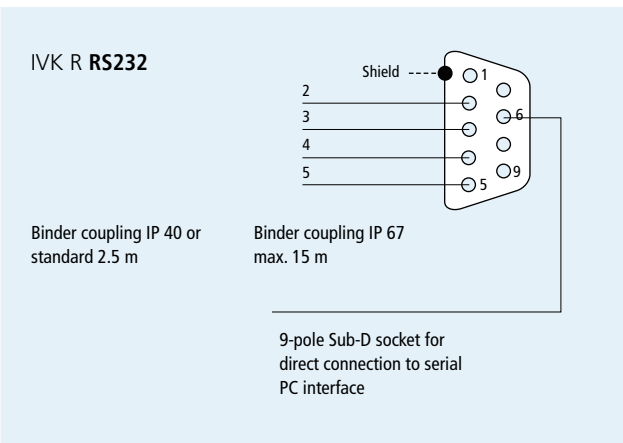
Pin assignment **Modbus** cable accessories



Pin assignment **RS232**



Pin assignment **RS232** cable accessories

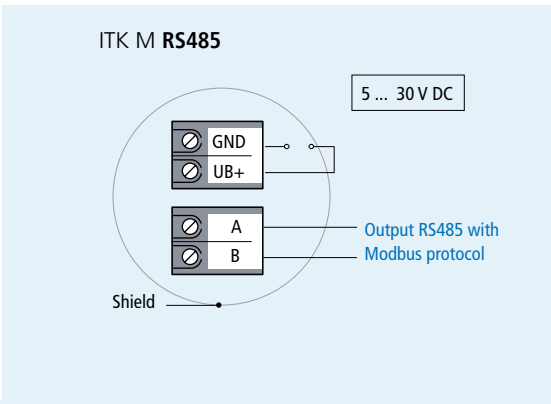
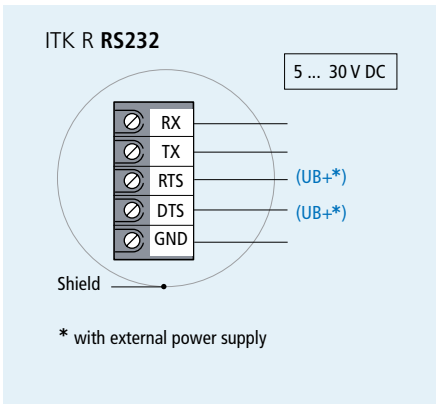


Probes with digital output, digital connection diagrams

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



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

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

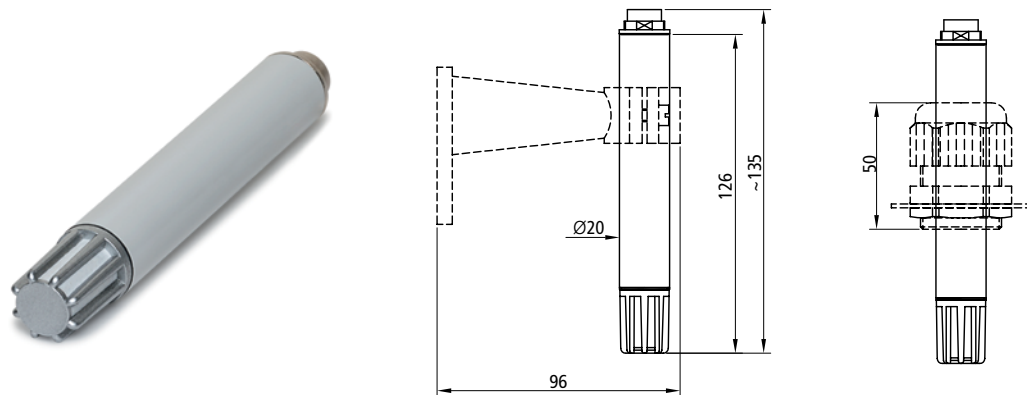
Humidity sensor or humidity temperature sensor

	IA 	IR 	IV 	IT 
1 x voltage output	✓	✓	-	-
2 x voltage outputs	✓	✓	✓	✓
1 x voltage output + Pt100 (passive)	✓	✓	-	-

Temperature sensor

Voltage output	✓	✓	-	-
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Probe IAK with plug-in connection



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

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

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

Probes with analogue 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	Pt100
Output range	-40 ... + 60 °C -30 ... + 70 °C -20 ... + 80 °C 0 ... +100 °C
Accuracy at 23 °C	±0.2 K

Electrical specifications

Signal output	Supply voltage
0...1 V	5 ... 30 V DC
0...2.5 V	4.5... 30 V DC
0...10 V	12 ... 30 V DC

General

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

Special features

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

I series IAK

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

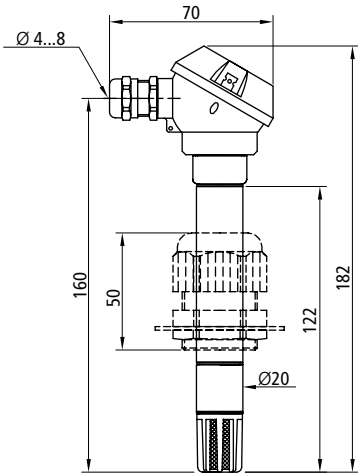
Options

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



More information on
the I series analogue
datasheet online PDF

Probe IRK with robust head



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

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

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



I series IRK

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

Options

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



More information on the I series analogue datasheet online PDF

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



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

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

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

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

I series IVK

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

Options

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

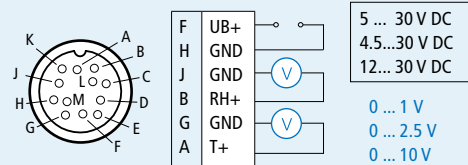


More information on
the I series analogue
datasheet online PDF

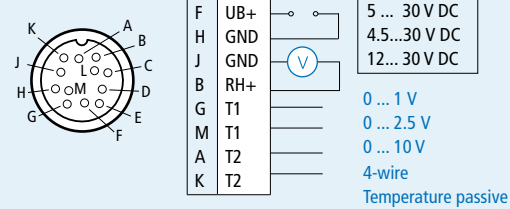
Probe IAK with plug-in connection - analogue

Pin assignment analogue output

Humidity and temperature IAK

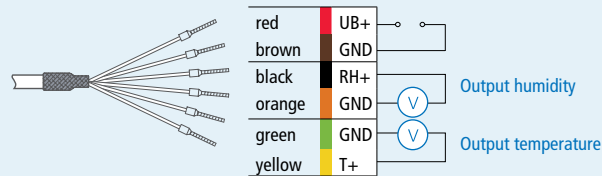


Humidity and temperature passive IAC

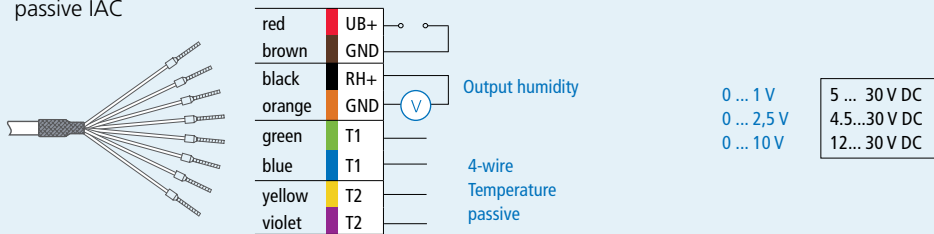


Pin assignment cable accessories

Humidity and temperature IAK



Humidity and temperature passive IAC



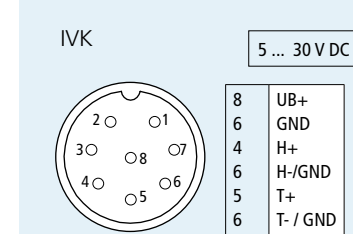
Cable accessories

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

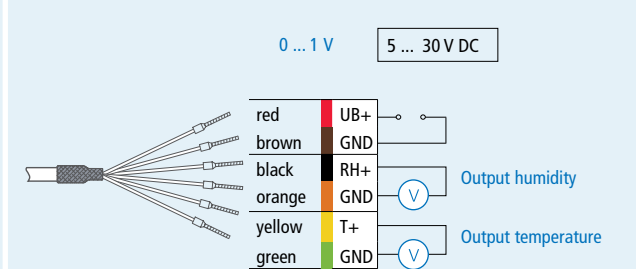
Probes with analogue output

Probe IVK - analogue

Pin assignment analogue output



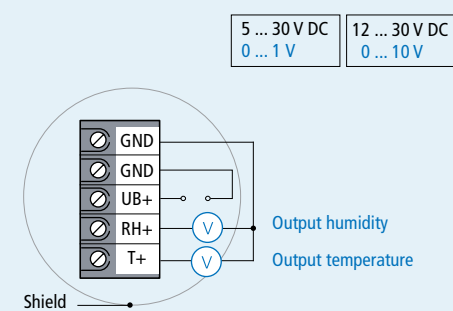
Pin assignment cable accessories



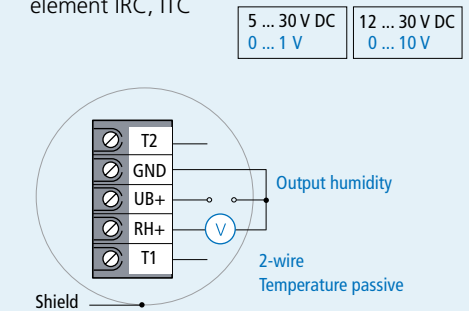
Probe IRK and ITK with robust head - analogue

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



FK

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

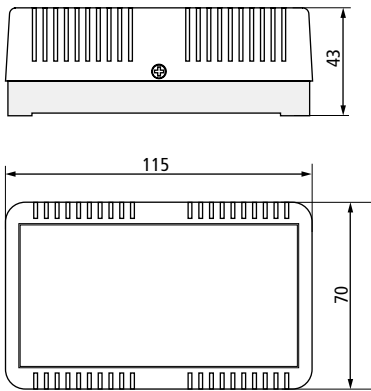
Relative humidity measurement		
Measuring/sensor element		Capacitive
Output range		0...100 % RH
Accuracy at 23 °C	FK80	±2 % RH / 40...60 % RH
	FK120	±3.5 % RH / 10...95 % RH
Temperature measurement		
Sensor element		Pt100
Output ranges	0 ... +50 °C	
	0 ... +100 °C	
	-10 ... +90 °C	
	-30 ... +60 °C	
Accuracy		
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

Humidity sensor or humidity temperature sensor



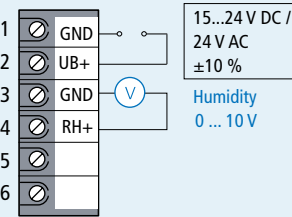
	(T)FK120J	(T)FK80J
1 x output	Humidity and/or temperature with current or voltage output signal	
2 x outputs		
Operating temperature	60 °C	80 °C
Accuracy	± 3.5 % RH	± 2 % RH

Indoor (T)FK120J

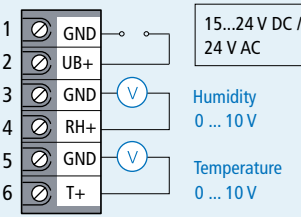


Connection diagrams

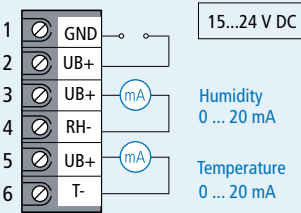
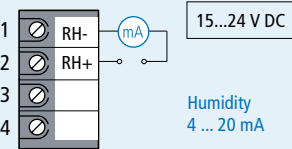
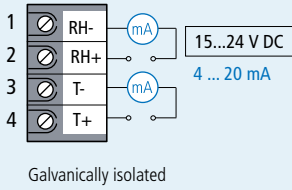
Humidity FK120J



Humidity + temperature TFK120J



Humidity (+ temperature) TFK120J



Type overview

Type overview	Type	
Humidity	FK120J	1 x output
Humidity + temperature	TFK120J	2 x outputs

Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy	±3.5 % RH / 5...95 % RH

Temperature measurement

Sensor element	Pt100
Output ranges	0 ... +50 °C 0 ... +100 °C -10 ... +90 °C -30 ... +60 °C
Accuracy	±0.8 K

Electrical specifications

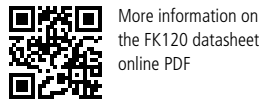
Signal output	Supply voltage
0...10 V	15 ... 24 V DC / 24 V AC
0...20 mA	15 ... 24 V DC / 24 V AC
4...20 mA	15 ... 24 V DC

General

Housing	Material: Impact-resistant plastic, light grey
Degree of protection	IP 20
Operating temperature	-10...+60 °C

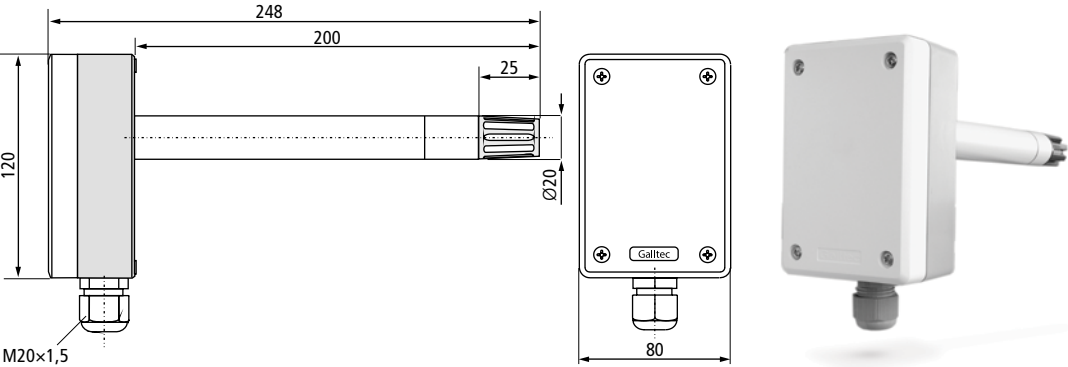
(T)FK120J

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



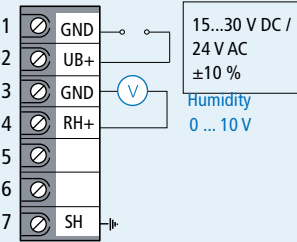
More information on the FK120 datasheet online PDF

Duct mounted (T)FK80J

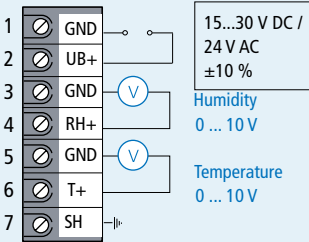


Connection diagrams

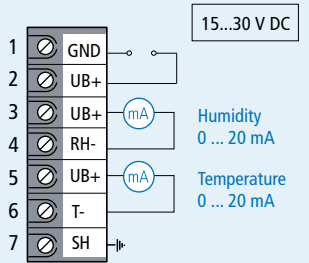
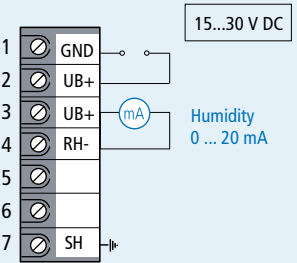
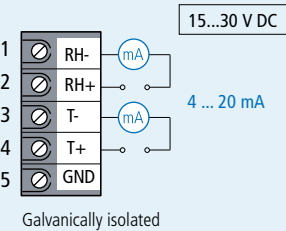
Humidity FK80J



Humidity + temperature TFK80J



Humidity (+ temperature) TFK80J

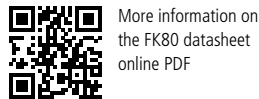


Type overview	Type	
Humidity	FK80J	1 x output
Humidity + temperature	TFK80J	2 x outputs
Humidity (AC)	FK80	1 x output
Humidity + temperature (AC)	TFK80	2 x outputs

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



Types

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

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

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

VC / VR

Applications

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

Relative humidity measurement

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

Temperature measurement

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

Electrical specifications

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

VC / VR

In this series

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

Options

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

Humidity sensor or humidity temperature sensor



	VC	VC/11	VR	VR.D
1 x voltage output	Prices depend on the order volume. We gladly provide you with an offer.			
2 x voltage outputs				
1 x voltage output + Pt100 (passive)				
1 x current output	Prices depend on the order volume. We gladly provide you with an offer.			
2 x current outputs				
1 x current output + Pt100 (passive)				
Standard: stainless steel sintered filter ZE13	✓	-	✓	✓
Standard: stainless steel with inserted fine gauze and membrane ZE26	-	✓	-	-
Element filter PTFE and ZE04	on request			
Accuracy	±2% RH	±3% RH	±2% RH	±2% RH
Measuring head IP 65	IP65		IP65	IP65
Pressure-resistant				25BAR
Resistant to ammonia		NH ₃		



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

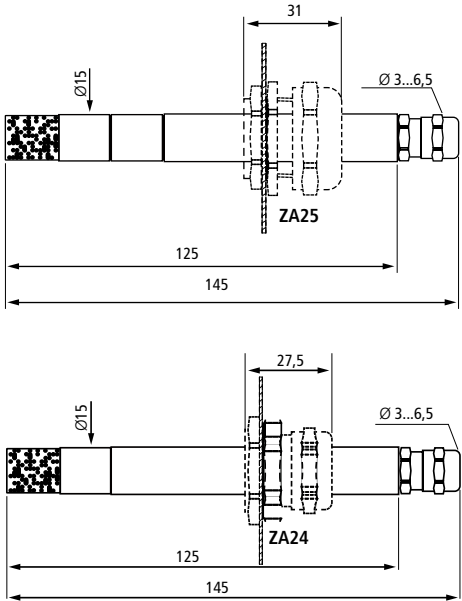


More information on the C4.3 datasheet online PDF VR.D



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

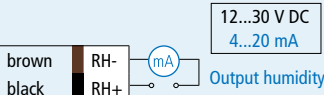
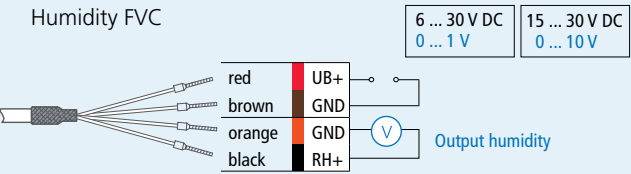
VC - Compactsensor



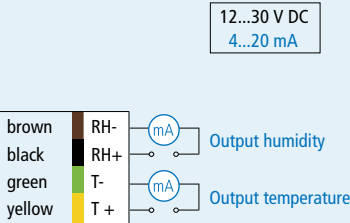
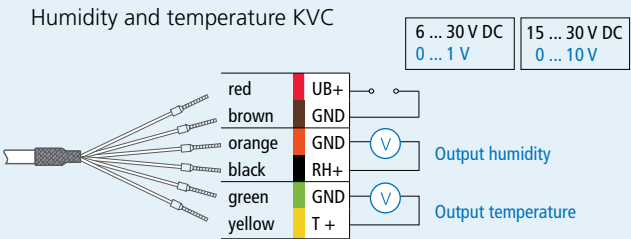
For duct mounting
ZA24 or ZA25
Accessories: page 188
(please order separately)

Connection diagrams

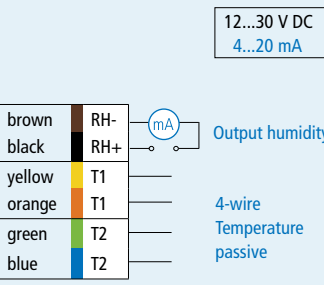
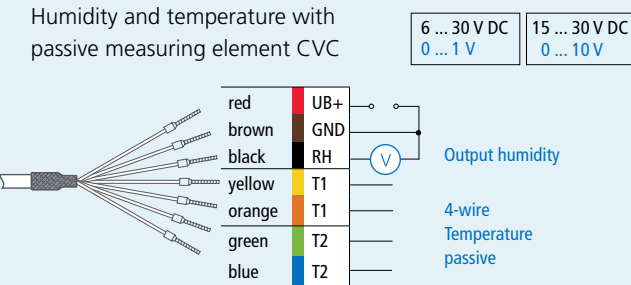
Humidity FVC



Humidity and temperature KVC



Humidity and temperature with passive measuring element CVC



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

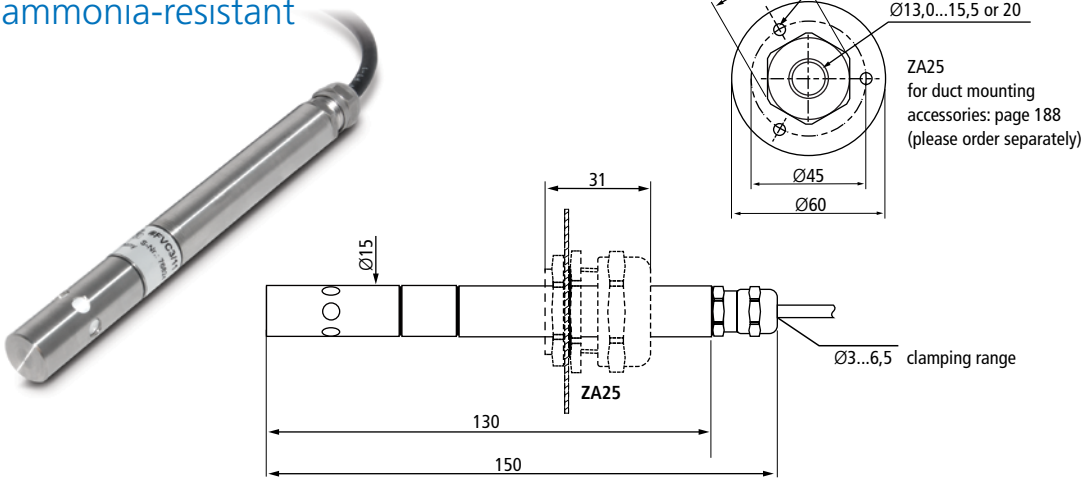
Type overview

		Type	Standard
Humidity	1 x U output	FVC	1.5 m cable,
Humidity + temperature	2 x U outputs	KVC	Stainless steel sintered
Humidity + Pt100	1 x U output + (passive)	CVC	filter ZE13
Humidity	1 x I output	FVC 3	
Humidity + temperature	2 x I outputs	KVC 3	
Humidity + Pt100	1 x I output + (passive)	CVC 3	

Filter options

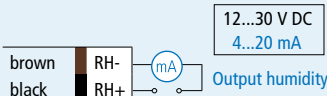
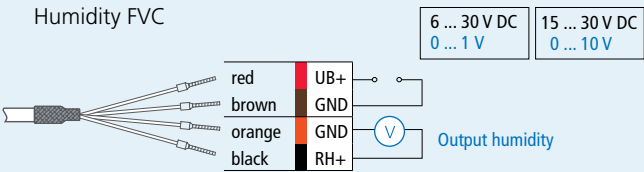
	Type	IP
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20

VC / 11 - ammonia-resistant

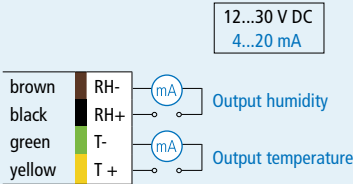
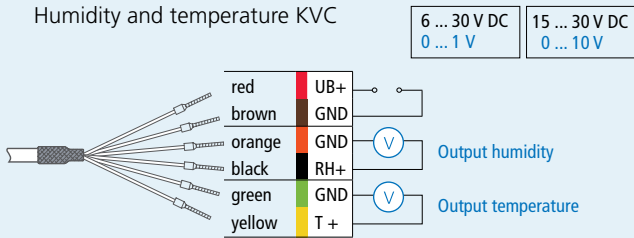


Connection diagrams

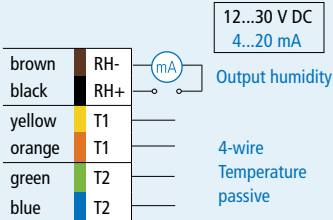
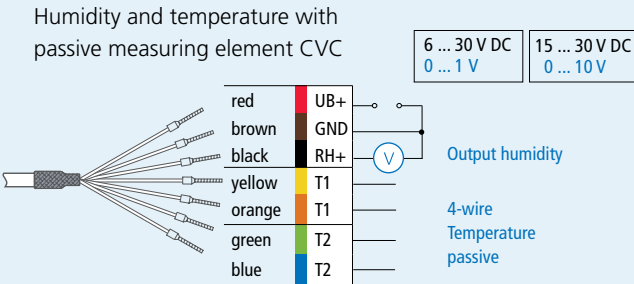
Humidity FVC



Humidity and temperature KVC



Humidity and temperature with passive measuring element CVC



Sensor with stainless steel sensor tube, ammonia-resistant



Relative humidity measurement

Measuring/sensor element	Capacitive
Output range	0...100 % RH
Accuracy at 15...40 °C	±3 % RH / 20...90 % RH ±5 % RH / remaining range

Temperature measurement

Sensor element	Pt100 Class B
Output range	-30 ... + 70 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K

Electrical specifications

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

General

Sensor tube	IP 65, stainless steel Ø 15 mm
Measuring head	IP 54, filter ZE26
Operating temperature	-40...+80 °C
Cable	1.5 m

VC / 11

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

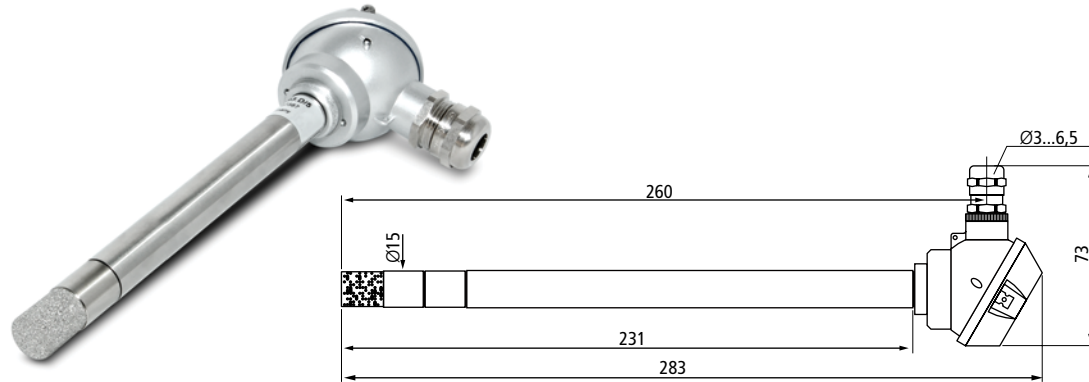


More information on the C4.4 datasheet online PDF

Type overview

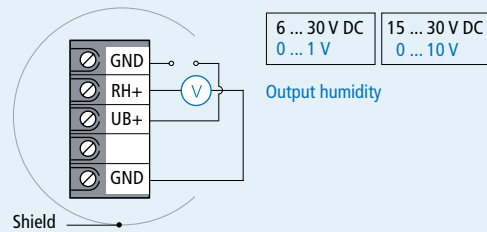
		Type VC/11	Standard
Humidity	1 x U output	FVC/11	1.5 m cable, stainless steel with inserted fine gauze and membrane ZE26
Humidity + temperature	2 x U outputs	KVC/11	
Humidity + Pt100	1 x U output + (passive)	CVC/11	
Humidity	1 x I output	FVC 3/11	
Humidity + temperature	2 x I outputs	KVC 3/11	
Humidity + Pt100	1 x I output + (passive)	CVC 3/11	

VR - transmitter with robust head

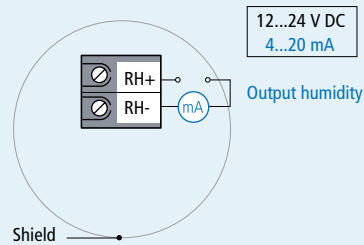


Connection diagrams

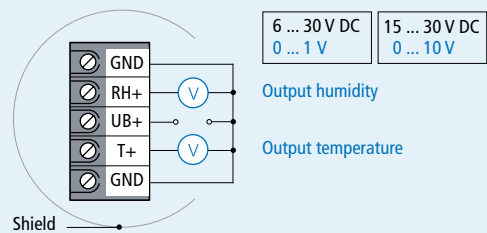
Humidity FVR



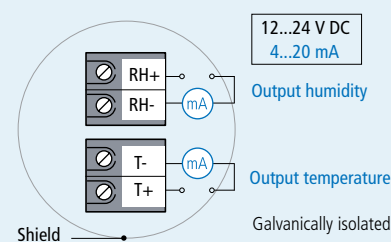
Humidity FVR 3/5



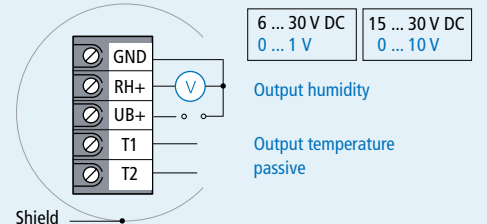
Humidity and temperature KVR



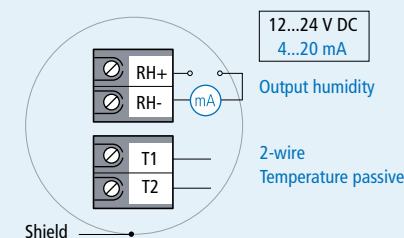
Humidity and temperature KVR 3/5



Humidity and temperature with passive measuring element CVR



Humidity and temperature with passive measuring element CVR 3/5



Sensor with stainless steel sensor tube, robust head



Relative humidity measurement

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

Temperature measurement

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

Electrical specifications

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

General

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

Special features

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

VR

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

Options

- Pressure-resistant up to 25 bar



More information on the C4.2 datasheet online PDF

Type overview		Type VR	Type VR.D	Standard
Humidity	1 x U output	FVR	FVR.D	Stainless steel
Humidity + temperature	2 x U outputs	KVR	KVR.D	sintered filter ZE13
Humidity + Pt100	1 x U output + (passive)	CVR	CVR.D	
Humidity	1 x I output	FVR	FVR.D	
Humidity + temperature	2 x I outputs	KVR	KVR.D	
Humidity + Pt100	1 x I output + (passive)	CVR	CVR.D	

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



Types

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

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

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

GC / KC / ZC

Applications

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

Relative humidity measurement

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

Temperature measurement

Sensor element	Pt100 Class B
Output range	-30 ... +70 °C (-ME) -20 ... + 80 °C -25 ... +125 °C 0 ... +200 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K

Electrical specifications

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

GC / KC / ZC

In this series

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

Options

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



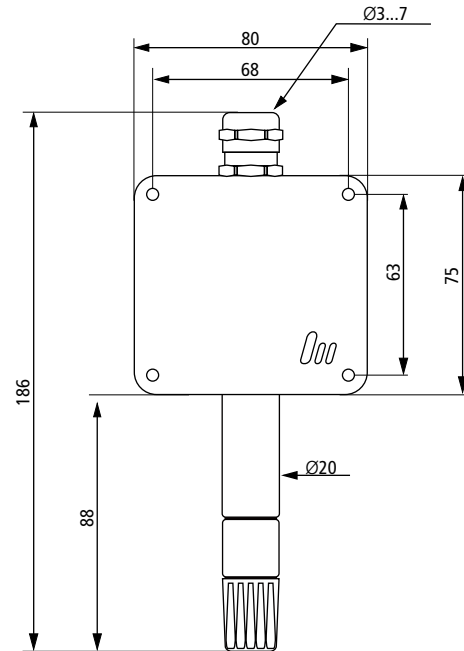
More information on the C4.7 datasheet online PDF

Humidity sensor or humidity temperature sensor



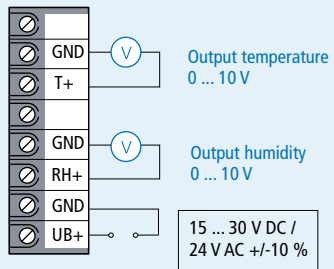
		GC	GC-ME	KC	ZC	ZC.H	ZC.D	ZC.HD
Humidity	1 x U output	Prices depend on the order volume. We gladly provide you with an offer.						
Humidity + temperature	2 x U outputs							
Humidity + (passive)	1 x U output + passive							
Temperature	1 x U output				-	-	-	-
Humidity	1 x I output	Prices depend on the order volume. We gladly provide you with an offer.						
Humidity + temperature	2 x I outputs							
Humidity + (passive)	1 x I output+passive							
Temperature	1 x I output				-	-	-	-
Pt100	Pt100				-	-	-	-
Operating temperature		80°C	80°C	125°C	125°C	200°C	125°C	160°C
Pressure-resistant							25BAR	25BAR
Degree of protection				IP65	IP65	IP65	IP65	IP65

Wall mounted GC

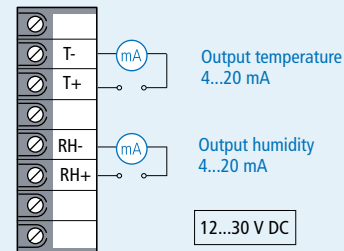


Connection diagrams

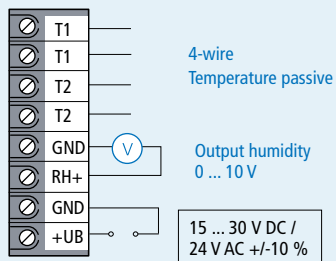
Humidity and/or temperature



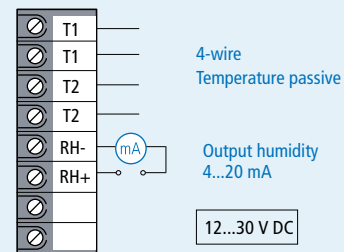
Humidity and/or temperature



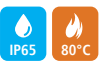
Humidity and temperature with passive measuring element



Humidity and/or temperature with passive measuring element



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

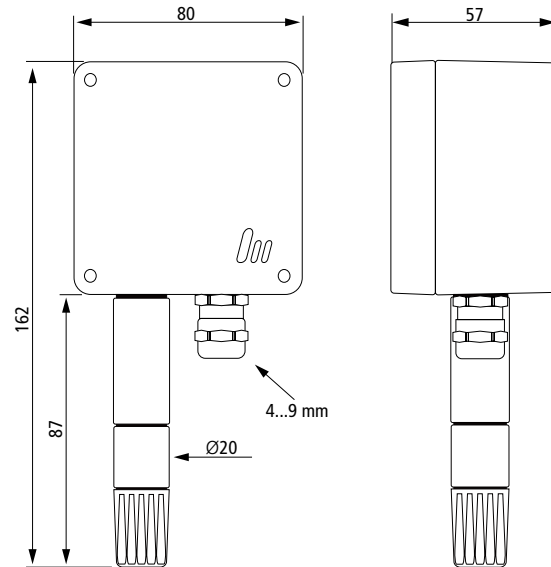
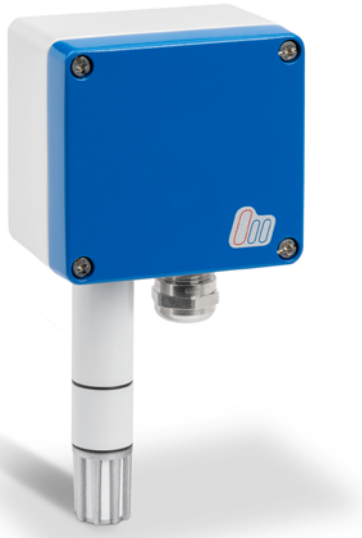
Type overview

		Type GC	Standard
Humidity	1 x U output	FGC	Plastic protective basket conductive metallised ZE 16 (IP20)
Humidity + temperature	2 x U outputs	KGC	
Humidity + Pt100	1 x U output + (passive)	CGC	
Temperature	1 x U output	TGC	
Humidity	1 x I output	FGC	
Humidity + temperature	2 x I outputs	KGC	
Humidity + Pt100	1 x I output + (passive)	CGC	
Temperature	1 x I output	TGC	
Temperature Pt100		TGC	

Filter options

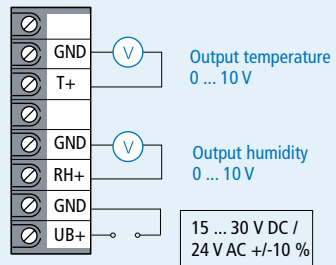
	Type	IP
Integr. element filter PTFE and ZE 16	Combi filter 9G	IP 00
Fine pore stainless steel sintered filter	ZE 21	IP 65

Wall mounted GC-ME meteorology

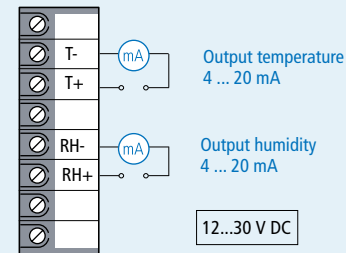


Connection diagrams

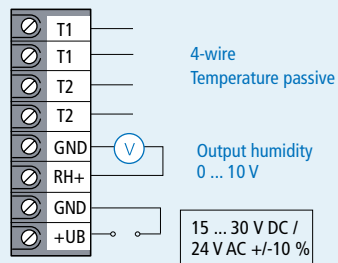
Humidity (and/or temperature)



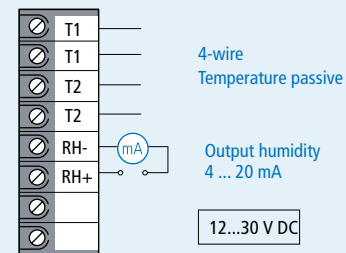
Humidity (and/or temperature)



Humidity and temperature with passive measuring element



Humidity (and/or temperature) with passive measuring element



Relative humidity measurement

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

Temperature measurement

Sensor element	Pt100 Class 1/3-DIN
Output range	-30 ... + 70 °C
Accuracy	with voltage output ±0.2 K with current output ±0.3 K

Electrical specifications

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

General

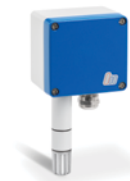
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 54, aluminium, Ø 20 mm
Operating temperature	-40...+80 °C

Special features

For outdoor use
Current outputs galvanically isolated

GC-ME

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



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

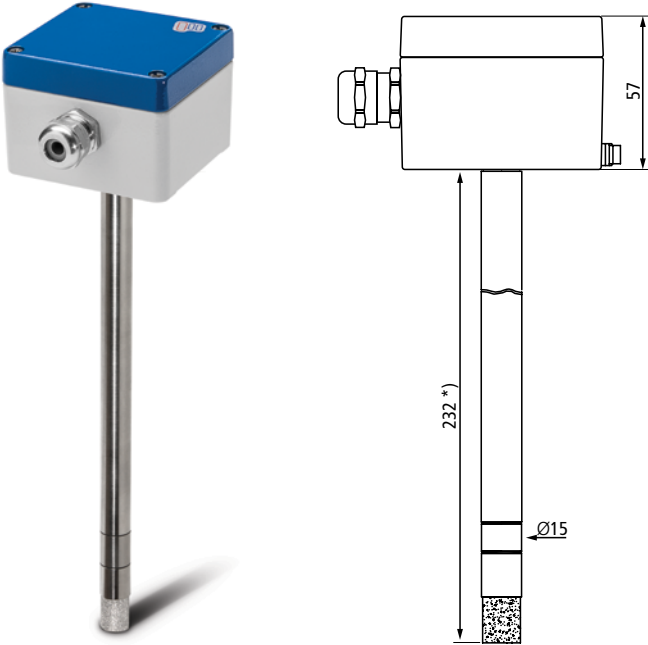
Type overview

		Type GC-ME	Standard
Humidity	1 x U output	FGC-ME	Plastic filter, metallised ZE20 (IP 54)
Humidity + temperature	2 x U outputs	KGC-ME	
Humidity + Pt100	1 x U output + (passive)	CGC-ME	
Temperature	1 x U output	TGC-ME	
Humidity	1 x I output	FGC-ME	
Humidity + temperature	2 x I outputs	KGC-ME	
Humidity + Pt100	1 x I output + (passive)	CGC-ME	
Temperature	1 x I output	TGC-ME	
Temperature Pt100	1 x passive	TGC-ME	

Filter options

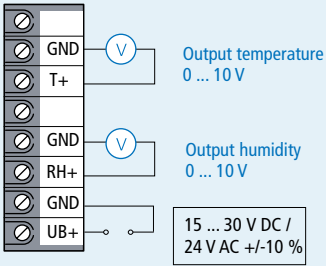
	Type	IP
Integr. element filter PTFE and ZE16	Combi filter 9G	IP 20
Fine pore stainless steel sintered filter	ZE 21	IP 65

Duct mounted KC

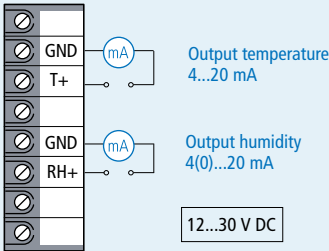


Connection diagrams

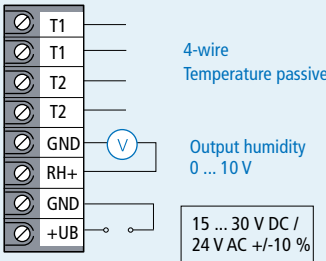
Humidity (and/or temperature)



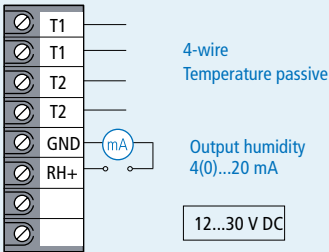
Humidity (and/or temperature)



Humidity and temperature passive Pt100



Humidity (and/or temperature) passive Pt100



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	-25 ... +125 °C
Accuracy	
with voltage output	±0.2 K
with current output	±0.3 K

Electrical specifications

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

General

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

Special features

Current outputs galvanically isolated	
Operating temp. up to 200 °C	Optional

KC

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



More information on
the C4.7 datasheet
online PDF

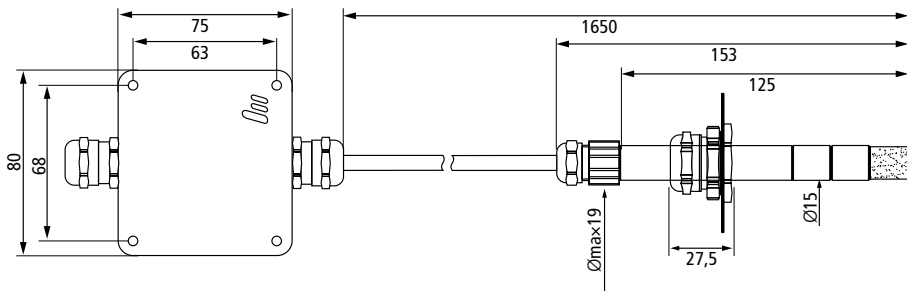
Type overview

		Type KC	Standard
Humidity	1 x U output	FKC	Stainless steel sintered filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	KKC	
Humidity + Pt100	1 x U output + (passive)	CKC	
Temperature	1 x U output	TKC	
Humidity	1 x I output	FKC	
Humidity + temperature	2 x I outputs	KKC	
Humidity + Pt100	1 x I output + (passive)	CKC	
Temperature	1 x I output	TKC	
Temperature Pt100		TKC	

Filter options

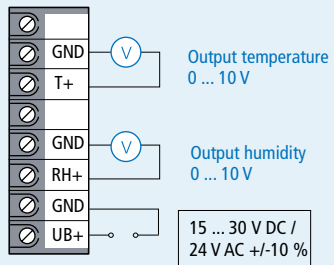
	Type	IP
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20

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

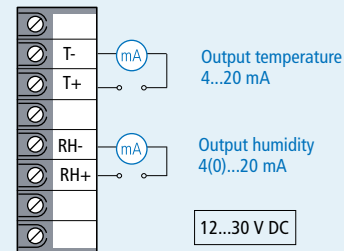


Connection diagrams

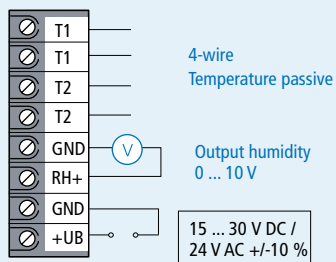
Humidity (and/or temperature)



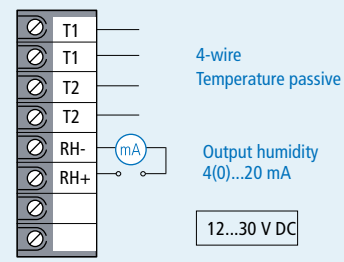
Humidity (and/or temperature)



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

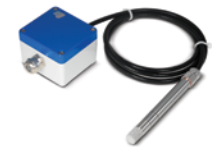
Housing	IP 65, pressure die-cast aluminium
Operating temperature	-40...+80 °C
Sensor tube	IP 65, stainless steel, Ø 15 mm
Operating temp. ZC	-40...+125 °C
Operating temp. ZC.H	-60...200 °C

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

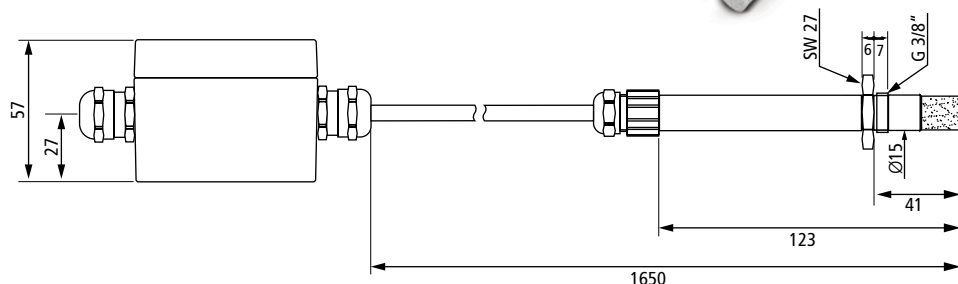
Type overview

		Type	Type H	Standard
Humidity	1 x U output	FZC	FZC.H	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	KZC	KZC.H	
Humidity + Pt100	1 x U output + (passive)	CZC	CZC.H	
Humidity	1 x I output	FZC	FZC.H	
Humidity + temperature	2 x I outputs	KZC	KZC.H	
Humidity + Pt100	1 x I output + (passive)	CZC	CZC.H	

Filter options

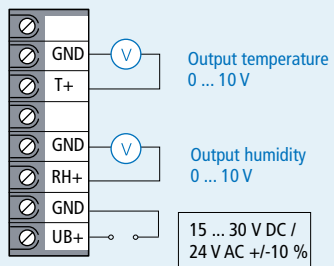
	Type	IP
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20

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

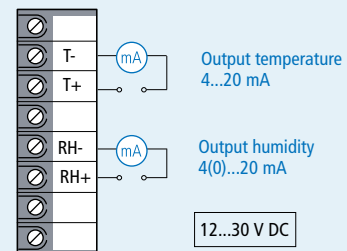


Connection diagrams

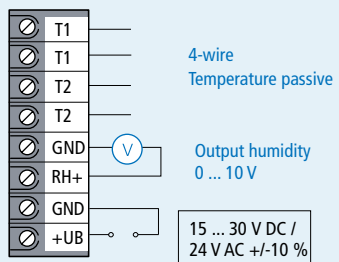
Humidity (and/or temperature)



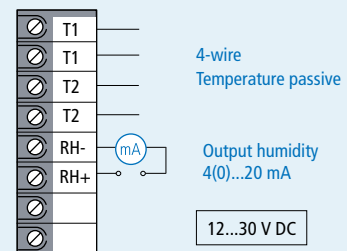
Humidity (and/or temperature)



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

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	ZC.HD	Standard
Humidity	1 x U output	FZC.D	FZC.HD	Stainless steel sintered metal filter ZE13 (IP 65)
Humidity + temperature	2 x U outputs	KZC.D	KZC.HD	
Humidity + Pt100	1 x U output + (passive)	CZC.D	CZC.HD	
Humidity	1 x I output	FZC.D	FZC.HD	
Humidity + temperature	2 x I outputs	KZC.D	KZC.HD	
Humidity + Pt100	1 x I output + (passive)	CZC.D	CZC.HD	

Filter options

	Type	IP
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20



ATEX

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

Applications

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

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)

Humidity sensor or humidity temperature sensor

	GC.Ex	KC.Ex
1 x output	Humidity and/or temperature with current output signal	
2 x outputs		

Accessories

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

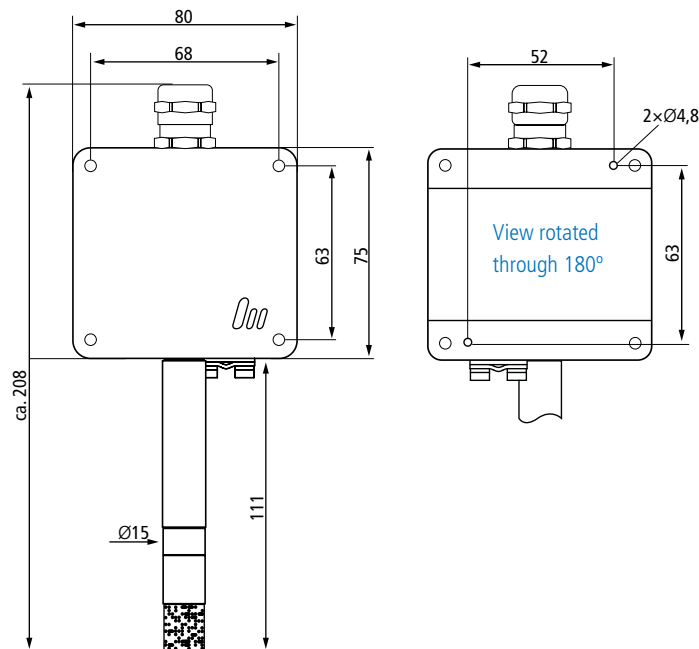
ATEX C.Ex

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

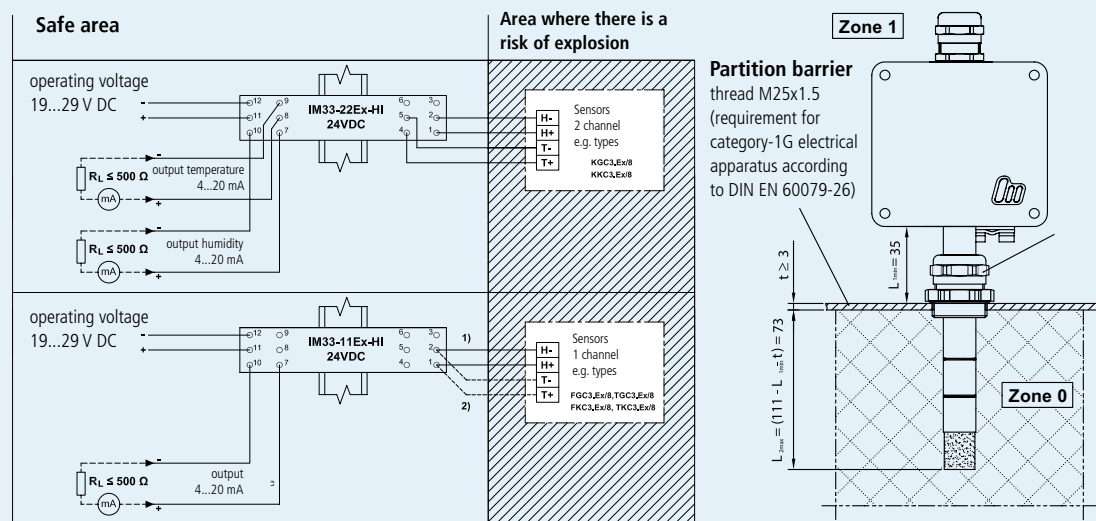


More information on the C4.8 datasheet online PDF

Wall mounted with ATEX approval



Connection diagrams



Type overview	Type	Standard
Humidity	FGC.Ex	1 x output
Humidity + temperature	KGC.Ex	2 x output
Temperature	TGC.Ex	1 x output

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

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

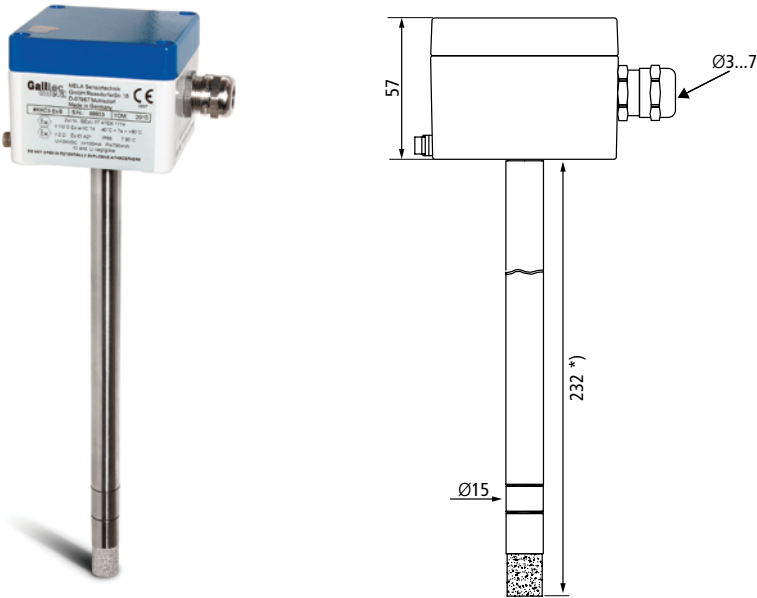
GC.Ex

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

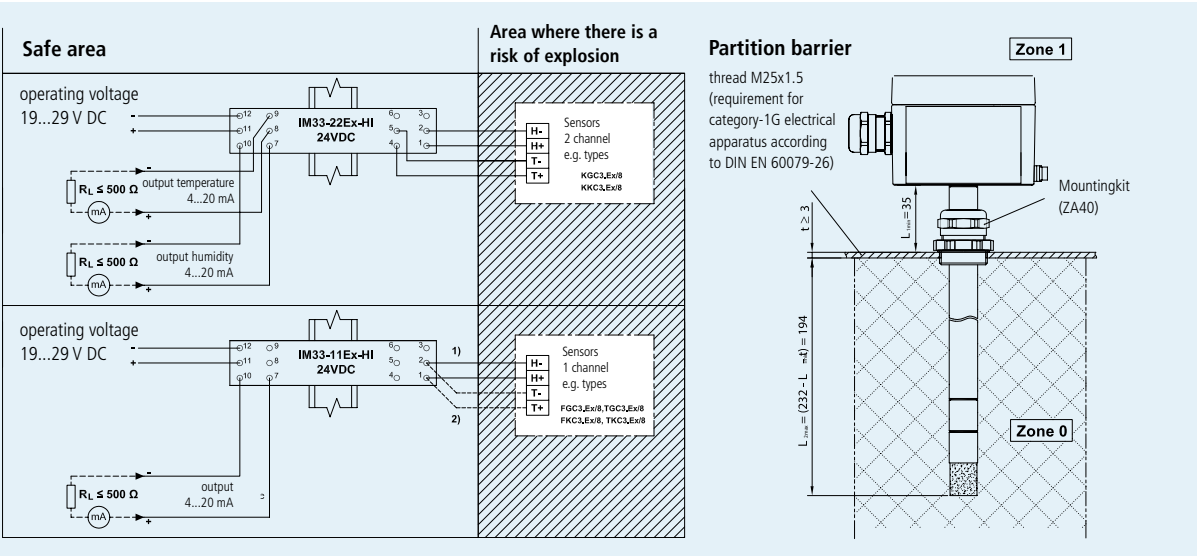


More information on
the C4.8 datasheet
online PDF

Duct mounted KC.Ex with ATEX approval



Connection diagrams



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

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

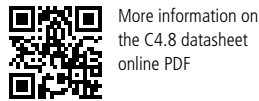
II 2D Ex ia IIIC T95 °C Db

-40 °C ≤ T_a ≤ +80 °C

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

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





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

Humidity sensor or humidity temperature sensor



	BW_00	BK_0E	BZ_0H
1 x output humidity	Humidity and/or temperature, active or passive, as well as all hx-values.		
2 x outputs humidity + temperature			
1 x output + Pt100 (passive)			
1 x output temperature			
Display	option	option	option
Operating temperature	85 °C	150 °C	200 °C
Ammonia-resistant on request		NH ₃	NH ₃
Pressure-resistant on request		10BAR	

B series

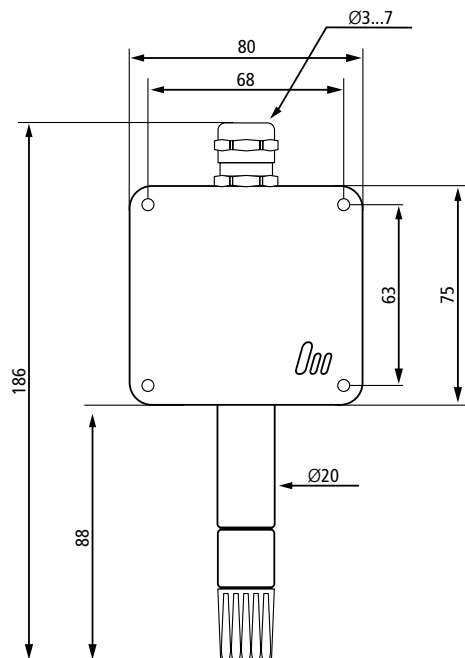
In this series

- 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

Wall mounted BW



Type overview

		Type	Standard
Humidity	1 x output	BWF_.00	Plastic protective basket, metallised ZE16
Humidity + temperature	2 x outputs	BWK_.00	
Humidity + Pt100	1 x output + (passive)	BWC_.00	
Temperature	1 x output	BWT_.00	
Output RS232		BWKR.00	Plastic protective basket, metallised ZE16
Output RS485 Modbus		BWKM.00	

Options

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

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

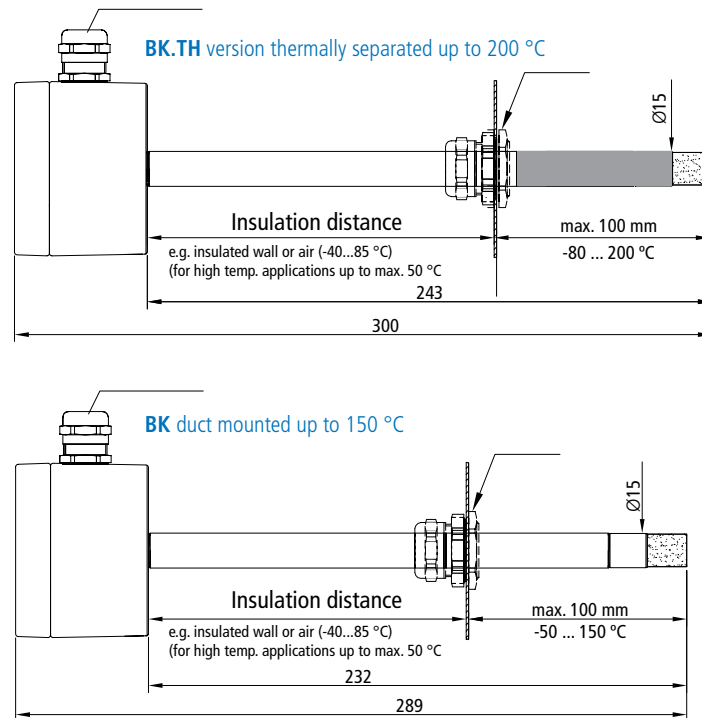
- Operating temp. up to 85 °C
- Accuracy: ±1.5 % RH
- On-site calibration
- IP 65

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

Duct mounted BK



Type overview		Type	Type TH	Standard
Humidity	1 x output	BKF_.OE	BKF_.TH	Stainless steel sintered filter, coarse ZE13 (IP 65)
Humidity + temperature	2 x outputs	BKK_.OE	BKK_.TH	
Humidity + Pt100	1 x output + (passive)	BKC_.OE	BKC_.TH	
Temperature	1 x output	BKT_.OE	BKT_.TH	
Output RS232		BKKR.OE	BKKR.TH	
Output RS485 Modbus		BKKM.OE	BKKM.TH	

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

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

Humidity

Humidity and temperature

For advanced requirements

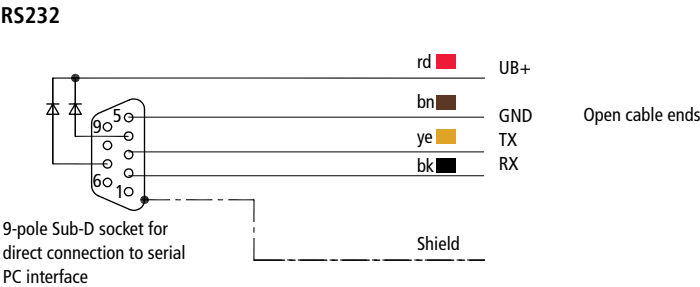


Connection diagrams digital

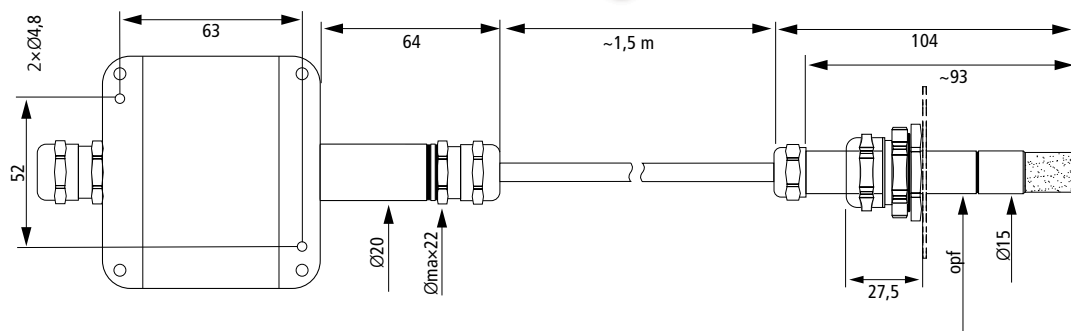
M RS485

R RS232

Pin assignment cable accessories



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

Two-part design BZ
with remote probe

Type overview

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

Display and filter options Ø 15 mm

	Type	IP
2-line display (except RS232)	-	-
Coarse pore stainless steel sintered filter	ZE13	IP 65
Stainless steel filter open	ZE04	IP 00
Stainless steel filter with stainless steel filter gauze	ZE15	IP 30
Stainless steel filter with inserted fine gauze and membrane	ZE26	IP 54
Stainless steel filter with fitted fine pore PTFE sintered filter	ZE28	IP 65
Fine pore stainless steel sintered filter	ZE29	IP 65
Integr. element filter PTFE and ZE04	Combi filter 94	IP 20/00

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



For advanced requirements

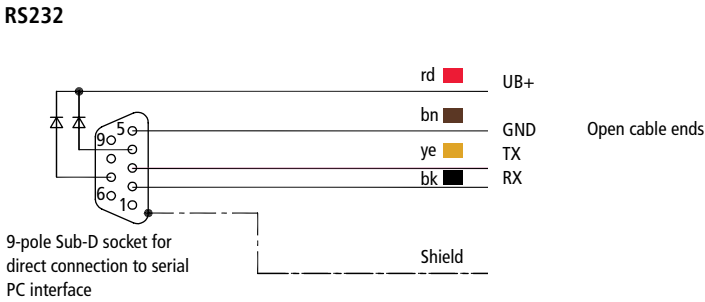
Connection diagrams digital

M RS485

R RS232



Pin assignment cable accessories



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



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



Operating temperature

85°C

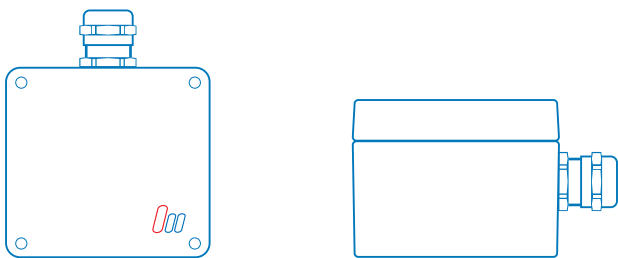
150°C

200°C

Other (special) versions can be combined

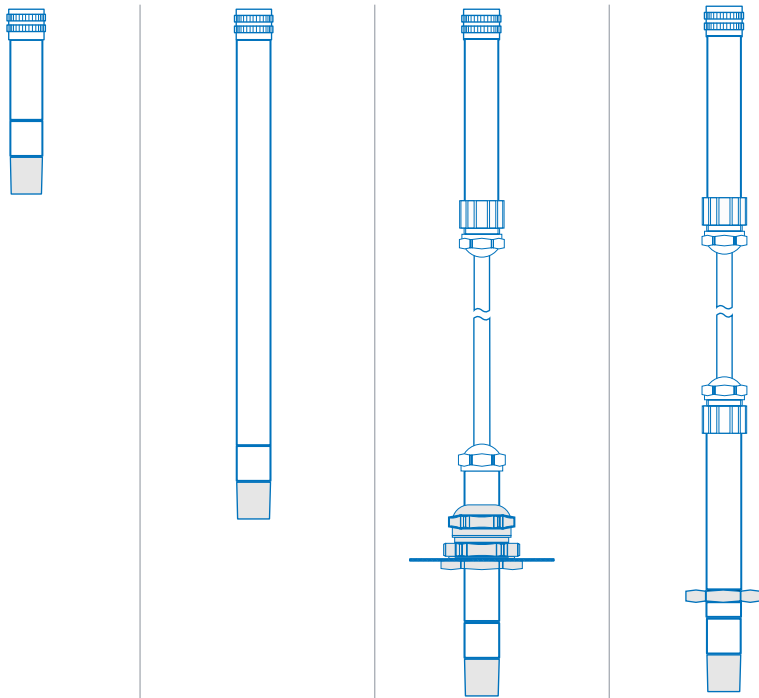
The probe and transmitter are exchangeable and can be optionally combined. This provides a lot of combinations. See page 134

A series



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

S series



SVKA.00

SVKA.0E

SZKA.0H

SZKA.HD

-40 ... + 85 °C	-50 ... +150 °C	-80 ... +200 °C	-60... + 160 °C
			pressure-resistant up to 25 bar

For advanced requirements, transmitters can be combined with probes



AW



AK



SVKA.00



SVKA.0E



SZKA.0H



SZKA.HD

	Type	Type		
Humidity	AWF	AKF	+	SVKA.00 -40... 85 °C
Humidity + temp.	AWK	AKK		SVKA.0E -50...150 °C
Output RS232	AWK R	AKK R		SZKA.0H -80...200 °C
Output RS485 Modbus	AWK M	AKK M		SZKA.HD -60...160 °C

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

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

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

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

85°C IP65

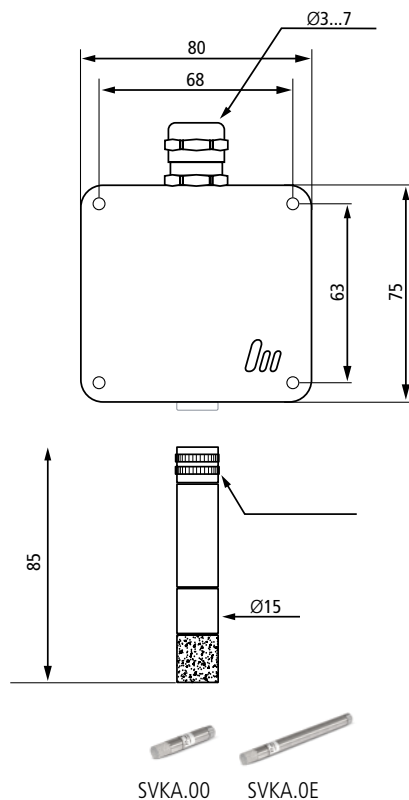


combined with

Probe SVKA.00

-40...+85 °C

85°C IP65



Transmitters

Type

Humidity	AWF
Humidity + temperature	AWK
Output RS232	AWK R
Output RS485 Modbus RTU	AWK M

+

Probes

SVKA.00	-40... 85 °C
SVKA.0E	-50...150 °C

Options

Type

IP

2-line display		-
Stainless steel sintered filter, coarse pore	ZE13	IP 65
Stainless steel filter with PTFE membrane	ZE26	IP 54
Sintered PTFE filters	ZE29	IP 65
Stainless steel filter with fitted PTFE filter	ZE28	IP 65
PTFE filter and ZE04 stainless steel filter open	Combi filter 94	IP 20

Cable accessories

Accessories for

Length

Modbus setup cable	A & B series Modbus	1.8 m
SUB-D adaptor cable for direct connection to serial interface (IP 30) with wire ferrules	A+B series RS232	4 m

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

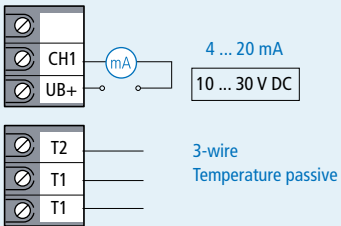
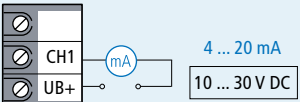
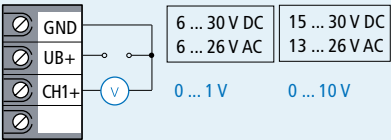
- Modbus
- Display
- Exchangeable probe
- Resistant to ammonia
- Pressure-resistant up to 10 bar
- hx converter
- Dew point temperature
- Wet bulb temperature
- Absolute humidity
- Mixing ratio
- Enthalpy

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

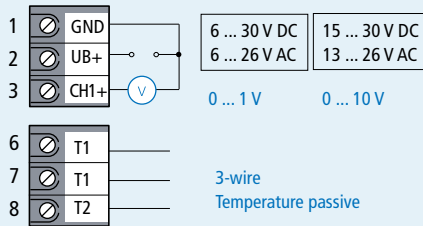
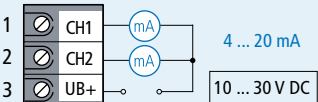
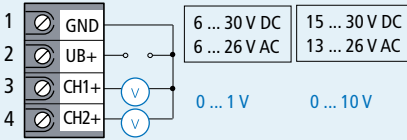
Wall mounted AW

Connection diagrams analogue

Humidity



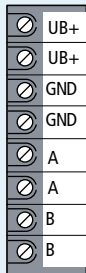
Humidity and temperature



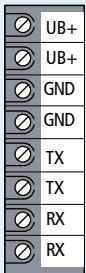
For advanced requirements, transmitters can be combined with probes

Connection diagrams digital

M RS485

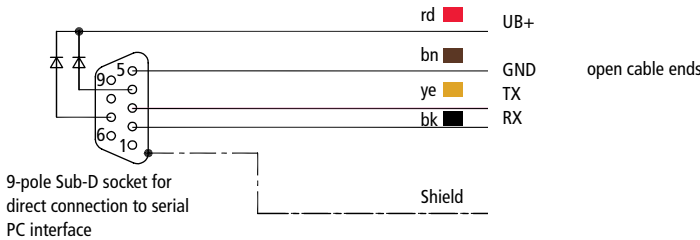


R RS232



Pin assignment cable accessories

RS232



Cable accessories

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

Transmitter for duct mounted AK

Display optional
-40...+85 °C

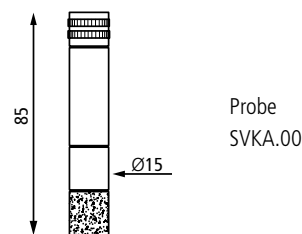
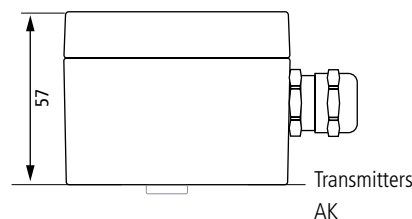
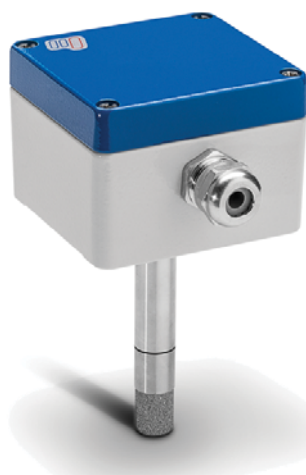
85°C IP65

combined with

Probe SVKA.00

-40...+85 °C

85°C IP65



Transmitter for duct mounted AK

Display optional
-40...+85 °C

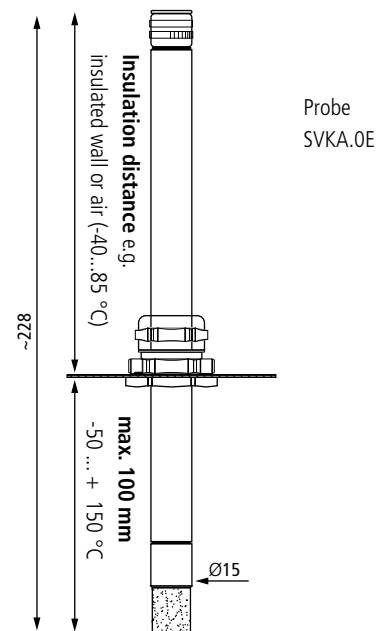
85°C IP65

combined with

Probe SVKA.0E

-50...+150 °C

150°C IP65



Transmitters



Type

Humidity	AKF
Humidity + temperature	AKK
Output RS232	AKK R
Output RS485 Modbus RTU	AKK M

+ Probes



SVKA.00	-40... 85 °C
SVKA.0E	-50...150 °C

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:

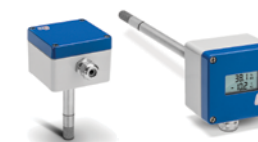
- Transmitter with analogue or digital output
- Choice of calibrated exchangeable probes for different measuring tasks

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



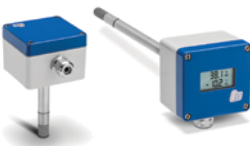
More information on the A+B series analogue datasheet online PDF

Duct mounted AK

Connection diagrams analogue

Humidity

Humidity and temperature

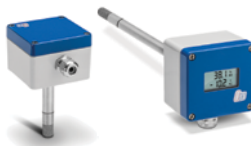


For advanced requirements, transmitters can be combined with probes

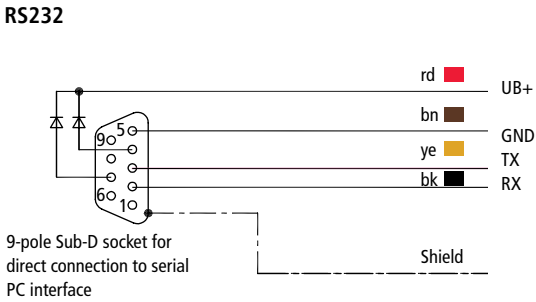
Connection diagrams digital

M RS485

R RS232



Pin assignment cable accessories



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

Transmitter for wall mounted AW

Display optional
-40...+85 °C

85°C IP65



combined with
remote probe

SZKA.0H

-80...+200 °C

200°C IP65



combined with

remote
probe **SZKA.HD**

-60...+160 °C

160°C IP65 25BAR

Transmitter



+

Sonden

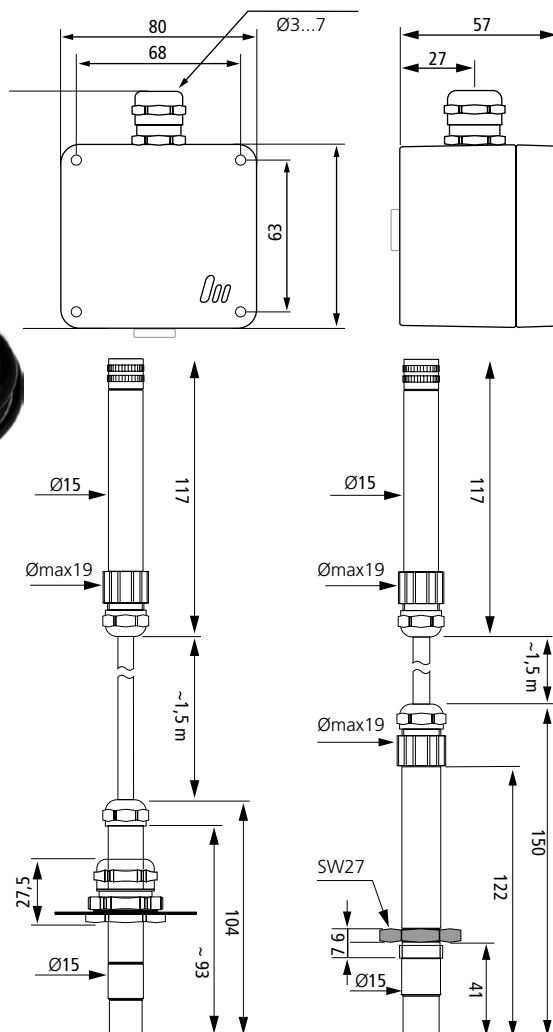


SZKA.0H

SZKA.HD

	Type
Humidity	AWF
Humidity + temperature	AWK
Output RS232	AWK R
Output RS485 Modbus RTU	AWK M

SZKA.0H	-80...+200 °C
SZKA.HD	-60...+160 °C



Probe **SZKA.0H**

-80...+200 °C

Probe **SZKA.HD**

-60...+160 °C, up to 25 bar

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

Diagram showing a 4-pin terminal block with GND, UB+, CH1+, and an empty pin. It is connected to a voltage source (0...1 V) and a current source (0...10 V). The output ranges are 6...30 V DC, 6...26 V AC, 15...30 V DC, and 13...26 V AC.

Humidity and temperature

Diagram showing a 4-pin terminal block with GND, UB+, CH1+, and CH2+. It is connected to two voltage sources (0...1 V and 0...10 V) and a current source (4...20 mA). The output ranges are 6...30 V DC, 6...26 V AC, 15...30 V DC, and 13...26 V AC.

Diagram showing a 3-pin terminal block with CH1, UB+, and an empty pin. It is connected to a current source (4...20 mA) and a voltage source (10...30 V DC).

Diagram showing a 3-pin terminal block with T2, T1, and T1. It is connected to a 3-wire temperature passive sensor.

Diagram showing a 4-pin terminal block with GND, UB+, CH1+, and an empty pin. It is connected to a voltage source (0...1 V) and a current source (4...20 mA). The output ranges are 6...30 V DC, 6...26 V AC, 15...30 V DC, and 13...26 V AC.

Diagram showing a 4-pin terminal block with T1, T1, and T2. It is connected to a 3-wire temperature passive sensor.



For advanced requirements, transmitters can be combined with probes

Connection diagrams digital

M RS485

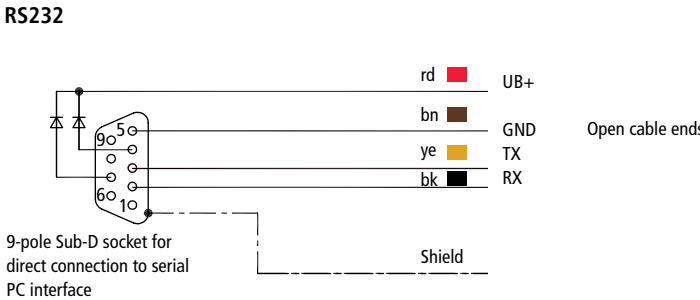
Diagram showing a 6-pin terminal block with UB+, UB+, GND, GND, A, and B. It is connected to a 5...30 V DC power source. The output ranges are 6...30 V DC, 6...26 V AC, 15...30 V DC, and 13...26 V AC. The Modbus RTU protocol is indicated.

R RS232

Diagram showing a 6-pin terminal block with UB+, UB+, GND, GND, TX, and RX. It is connected to a 5...30 V DC power source. The ASCII protocol is indicated.



Pin assignment cable accessories



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



FG

Types

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

Description

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

Applications

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

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

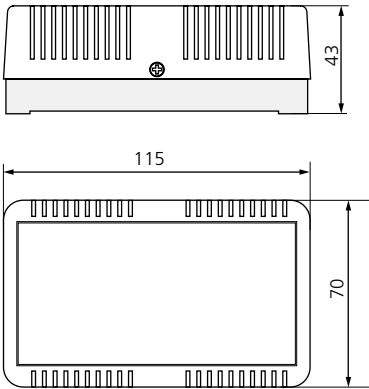
FG

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

Humidity sensor or humidity temperature sensor

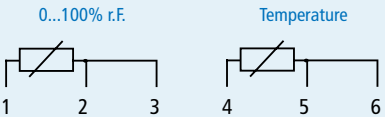
	FG120	FG80
1 x output active	-	✓
2 x outputs active	-	✓
1 x output active + Pt100	-	✓
1 x output passive	✓	✓
2 x outputs passive	✓	✓

Indoor (T)FG120



Connection diagram

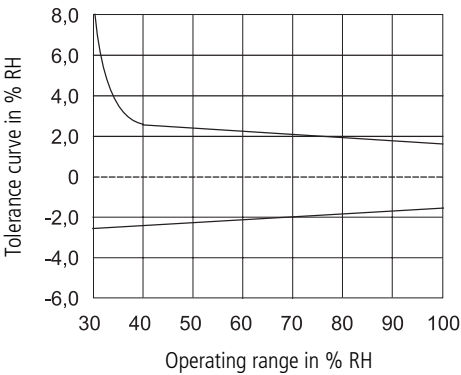
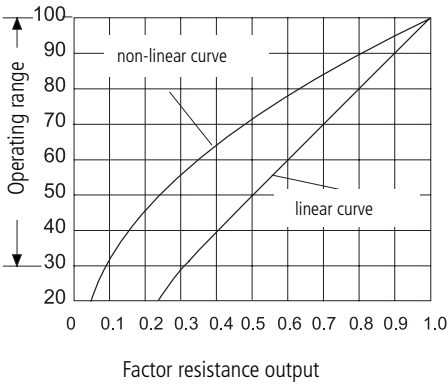
2-pole output linear



Potentiometer output non-linear



Humidity tolerance curve



Type overview

Type overview	Type	
Humidity	FG120	1 x output passive
Humidity + temperature	TFG120	2 x outputs passive

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

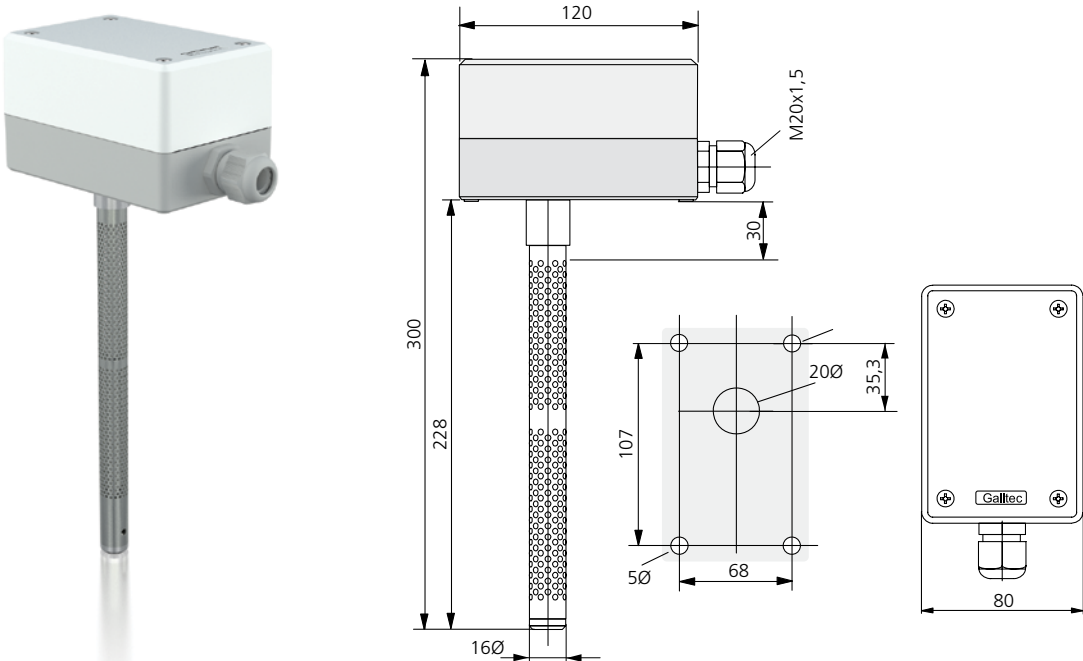
(T)FG120

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

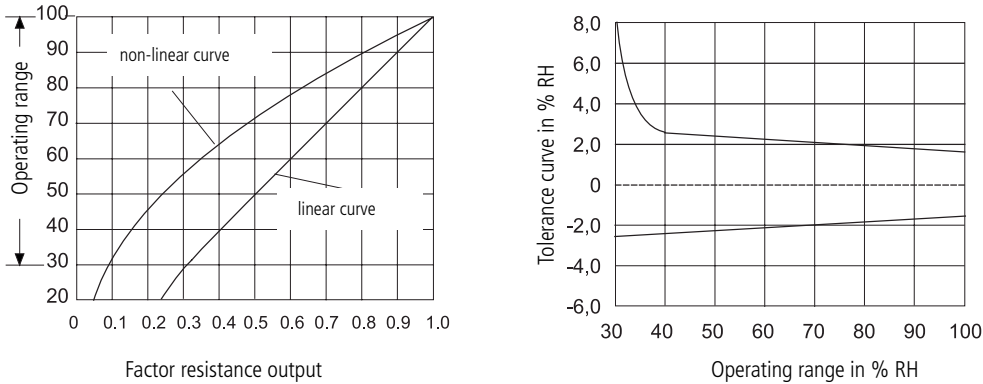


More information on
the FG120 datasheet
online PDF

Duct mounted (T)FG80



Humidity tolerance curve



Type overview			Type
Humidity	Active sensors	1 x output	FG80J
Humidity + temperature		2 x outputs	TFG80J
Humidity + Pt100		1 x output + (passive)	FG80J Pt100
Humidity	Passive sensors	1 x output	FG80H
Humidity + Pt100		2 x outputs	TFG80H

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

(T)FG80H
(T)FG80J

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



More information on the FG80 datasheet online PDF

Duct mounted (T)FG80

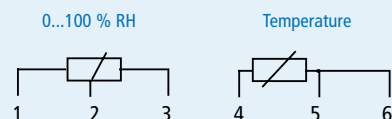


Connection diagram for passive sensors with resistance output

2-pole output linear

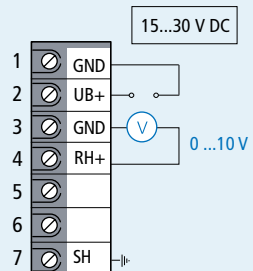


Potentiometer output non-linear

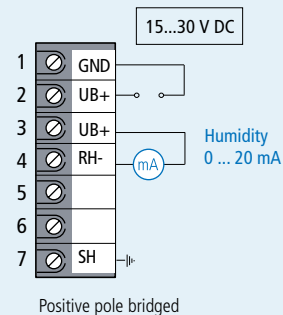


Connection diagrams for active sensors 15...30 V DC

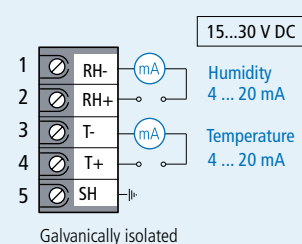
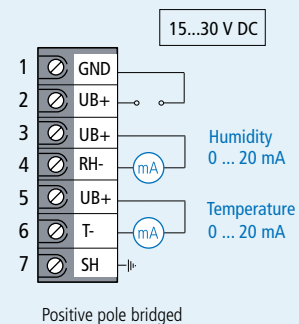
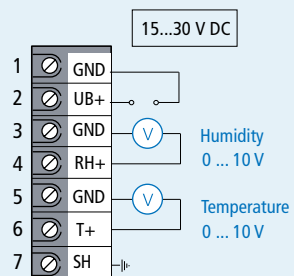
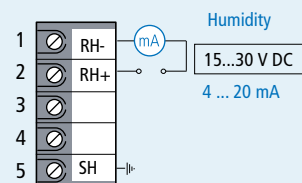
Voltage 3/4-wire system



Current 4-wire system



Current 2-wire system



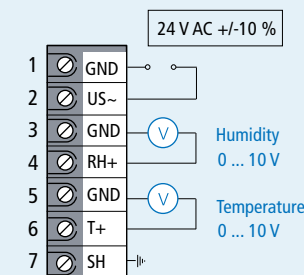
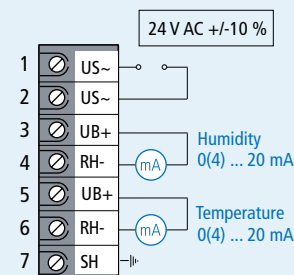
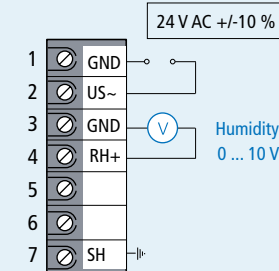
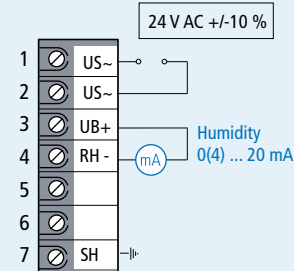
Sensors with active or resistance output

(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

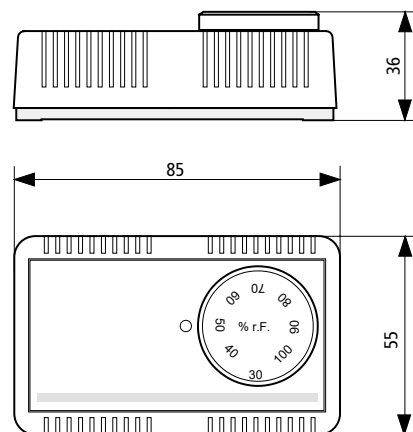
- Operating temp. up to 60 °C
- Accuracy: ±4 % RH
- High accuracy in the high humidity range
- Robust
- Long-term stability
- Washable measuring element
- No external power supply required

Humidistats

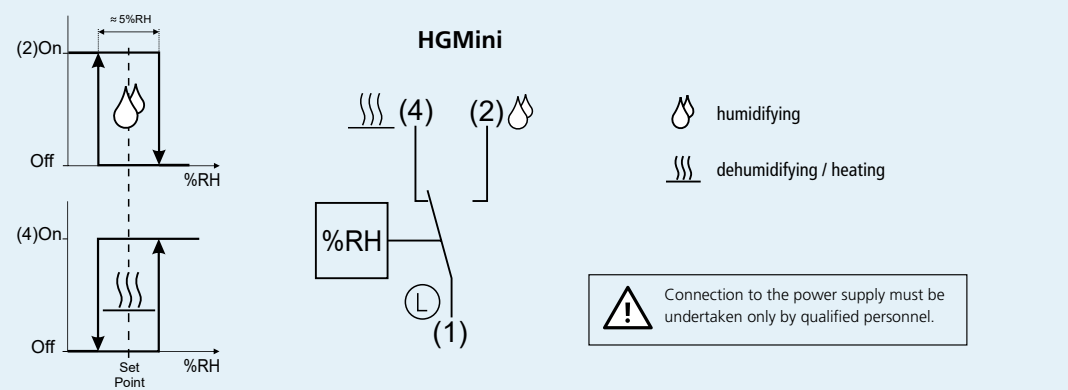


Price €	HGMini	Hygroswitch	HG120	HG80
1 x changeover contact	✓	✓	✓	✓
For currents <100 mA				
1 x gold contact	✓	✓	✓	-
1 x gold contact IP 67	✓	-	✓	-
1 x gold contact for 1A 125 V AC	-	✓	-	✓
1 x set point adjustment lock	-	-	-	✓
2 x changeover contacts	-	-	✓	✓
2 x set point adjustment lock	-	-	-	✓
with internal scale	No additional charge			

Indoor humidistat HGMini



Wiring diagram



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

Relative humidity measurement

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

Electrical specifications

Changeover contact max. 5 A

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

Gold contact max. 100 mA

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

General

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

Special features

Maintenance-free	The measuring element is maintenance-free in pure ambient air
------------------	---

Also available with internal scale

HGMini

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



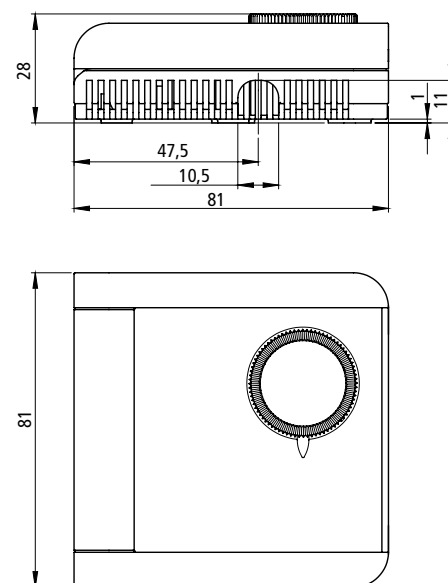
Typical humidity switching differential with typical tolerance

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

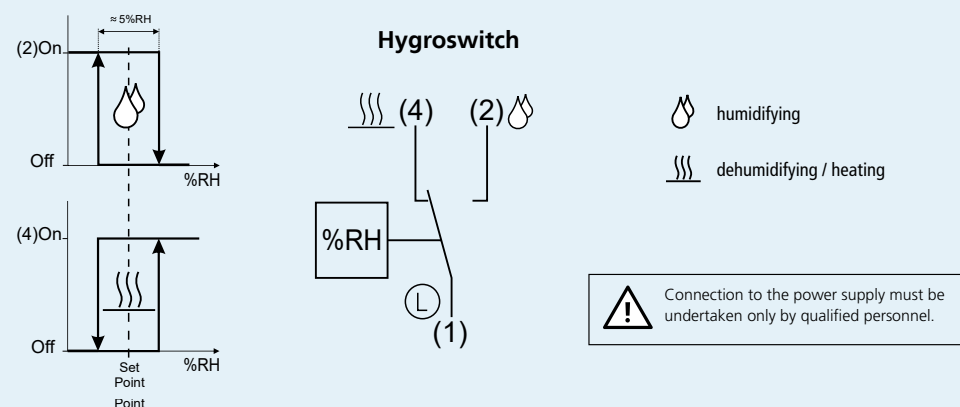


More information
on the HGMini datasheet
HGMini online PDF

Indoor humidistat Hygroswitch



Wiring diagram



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

Relative humidity measurement

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

Electrical specifications

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

Gold contact max. 100 mA

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

General

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

Special features

Maintenance-free	The measuring element is maintenance-free in pure ambient air
------------------	---

Also available with internal scale

Hygroswitch

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



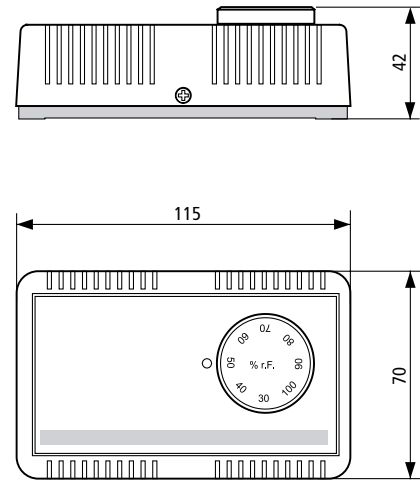
Typical humidity switching differential with typical tolerance

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

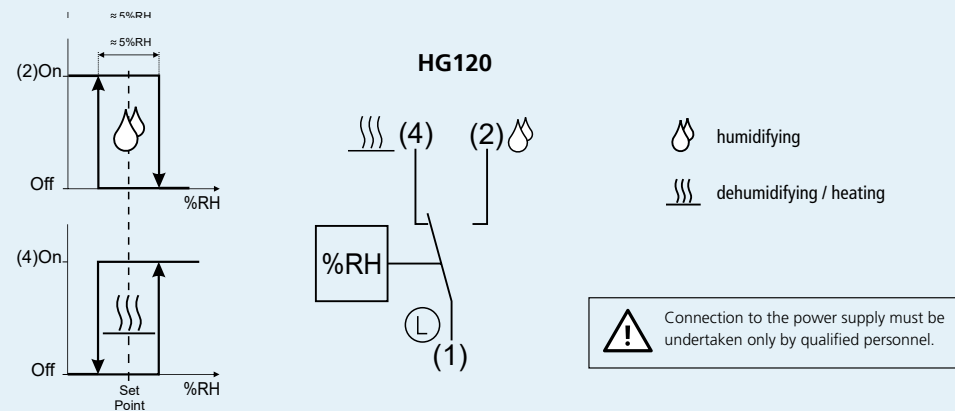


More information on the Hygroswitch datasheet online PDF

Indoor humidistat HG120



Wiring diagram



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

Relative humidity measurement

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

Electrical specifications

Changeover contact max. 5 A

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

Lifetime	> 6.000 breaking cycles
----------	-------------------------

Gold contact max. 100 mA

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

General

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

Special features

Maintenance-free	The measuring element is maintenance-free in pure ambient air
------------------	---

Also available with internal scale

HG120

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



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

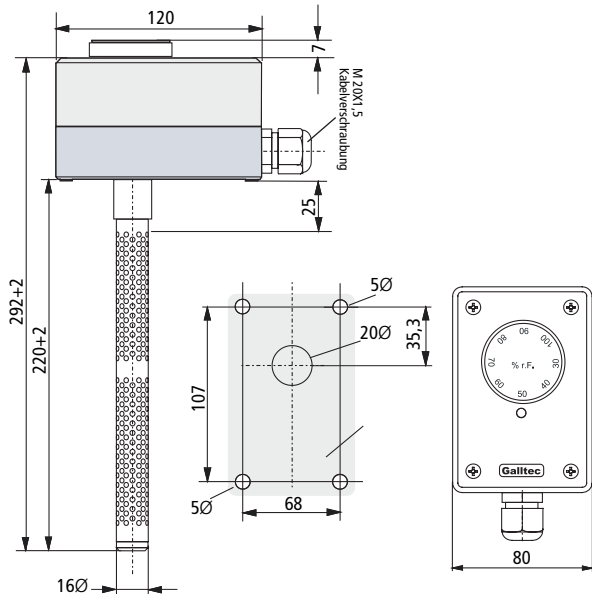


More information on the HG120 datasheet online PDF

Duct humidistat HG80



Wiring diagram



HG80

On 4...8%RH (NO) Off %RH

On (NC) Off Set Point %RH

250VAC 15A

1. Changeover switch based on set value adjuster

2. Changeover switch based on set screw

HG80-2

On 4...8%RH (NO) Off %RH

On 4...8%RH (NO) Off 0...15%RH (NC) Set Point %RH

250VAC 15A

1. Changeover switch based on set value adjuster

2. Changeover switch based on set screw

humidifying

dehumidifying / heating

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

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
External scale	HG80	Changeover contact: 1 x max. 15 A
Internal scale	HG80-i	
with set value adjustment lock	HG80vs	Changeover contact: 2 x max. 15 A
External scale	HG80-2	
Internal scale	HG80-2i	
with set value adjustment lock	HG80vs-2	changeover contact (gold plated): 1 x max. 100 mA
External scale	HG80	
Internal scale	HG80-i	



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	

Humidistat and
Hygro-Thermostat

Controller	✓	✓
Probes up to 85 °C	-	option
Probes up to 125 °C + PTFE filter	-	option
PTFE filter	-	option
Cable connectable at both ends	-	option
Operating temperature		

eStat (DUO)

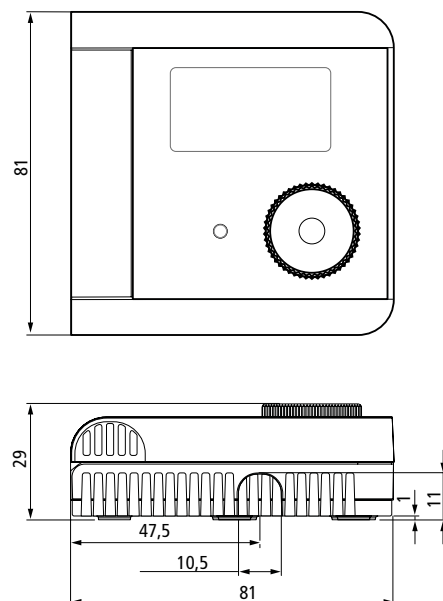
In this series

- 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

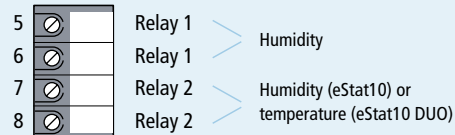
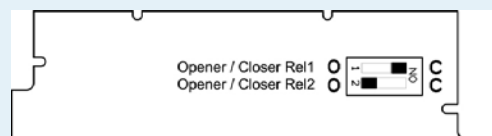
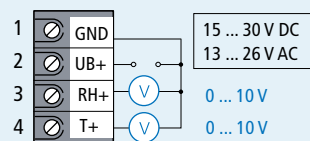
Options

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

Indoor humidistat eStat10 and hygro-thermostat eStat10 DUO



Connection diagrams



Relay outputs: potential-free, normally open

Type overview

		Type	Standard
Humidistat	2 relay contacts humidity	eStat10	with display
Hygro-Thermostat	2 x relay contacts humidity + temperature	eStat10-DUO	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
Switching current	≤ 2 A
Switching outputs	2 relay contacts (potential-free) Use DIP switch to select N/C or N/O contact

General

Housing	ABS, similar to RAL 9003 Signal white IP 30D
Operating temperature	-30...+60 °C
Degree of protection	III

Special features

Digital display	2 lines Alternates between % RH and °C Current relay switching states
-----------------	---

eStat10 (DUO)

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



More information on the eStat10 datasheet online PDF



More information on the eStat10 DUO datasheet online PDF

Electronic hygro-thermostat eStat20



Standardfilter:



Membranfilter IP30

85°C

Filteroption:



PTFE-Sinterfilter IP65

125°C IP65

Two switching outputs and two analogue outputs



Controller with integrated connector + plug-in probe



IP 30

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

85°C IP65

Controller with remote probe with cable connectable at both ends



IP 30

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

85°C IP65

Controller with remote probe with cable box



IP 30

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

85°C IP65



IP 65

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

125°C IP65

eStat20 (DUO)

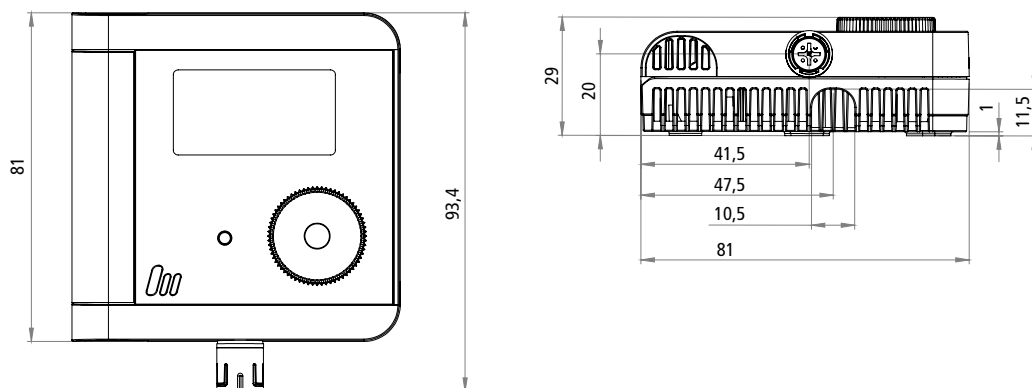
In this series

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

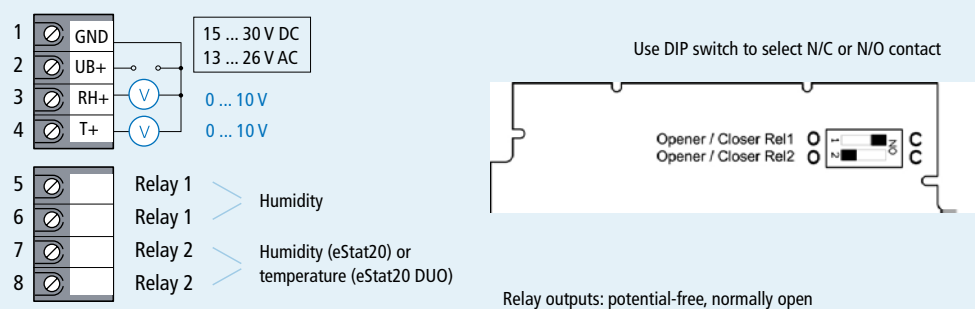
Options

- 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



eStat20 in indoor housing with ventilation slots and display
Housing -30...+60 °C, IP 30
Cable max. 80 °C, cable length 2 m
Probe -40... 85 °C,
Choice of 3 probe lengths

Filter Membrane filter IP 30
Option: IP 65 with PTFE sintered filter

60 °C 85 °C IP65

High temperature version



eStat20 in indoor housing with ventilation slots and display
Housing -30...+60 °C, IP 30
Cable -40...+125 °C, cable length 2 m
Probe -40...+125 °C
Choice of 3 probe lengths

Filter PTFE sintered filter IP 65

60 °C 125 °C IP65

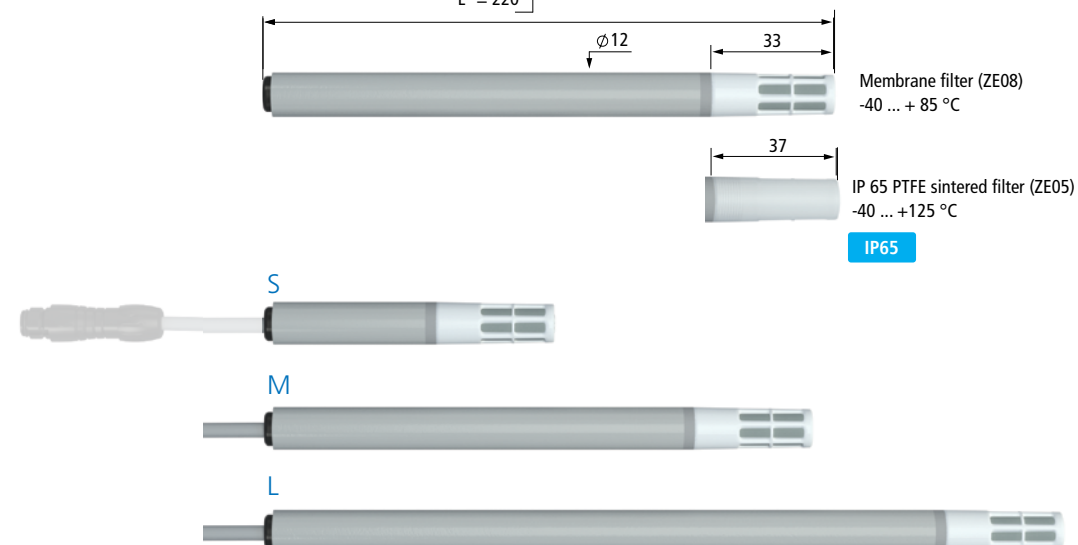
Two switching outputs and two analogue outputs

Remote probe

Probe with cable

85°C 125°C

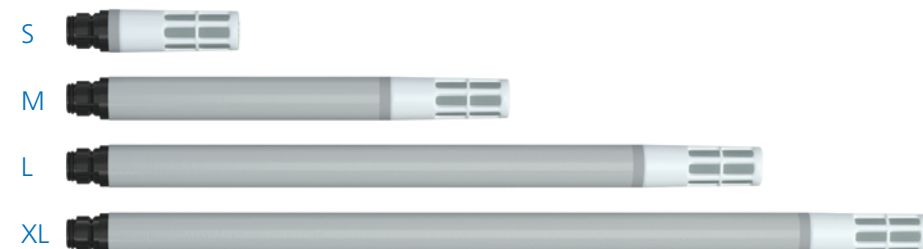
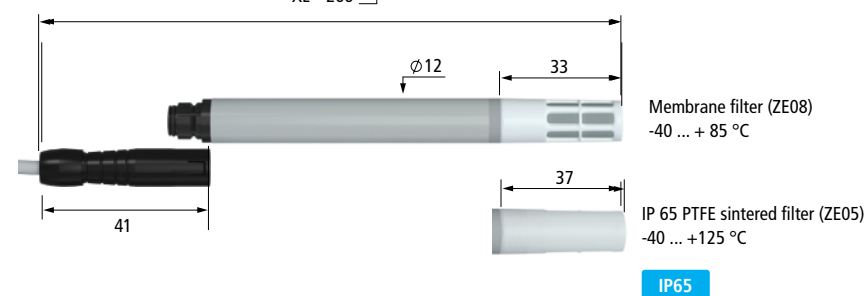
S = 78
M = 150
L = 220



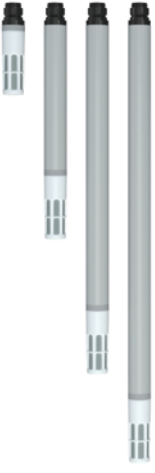
Probe with plug-in connection

85°C

S = 78
M = 150
L = 220
XL = 266



eStat20 (DUO) controller modules

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

Options

Additional charge for cable	-40 ... +125 °C
Additional charge for cable connectable at both ends	max. +80 °C
IP 65 with PTFE sintered filter ZE05	-40 ... +125 °C

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

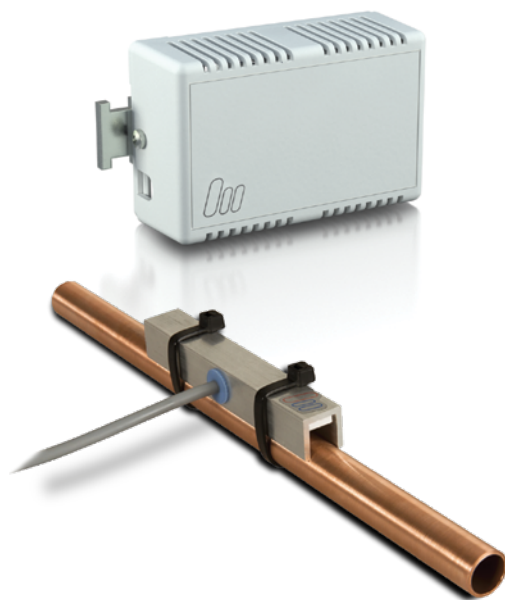
- IP 65
- Plug-in connection
- 4 probe lengths
- Cable up to 25 m



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

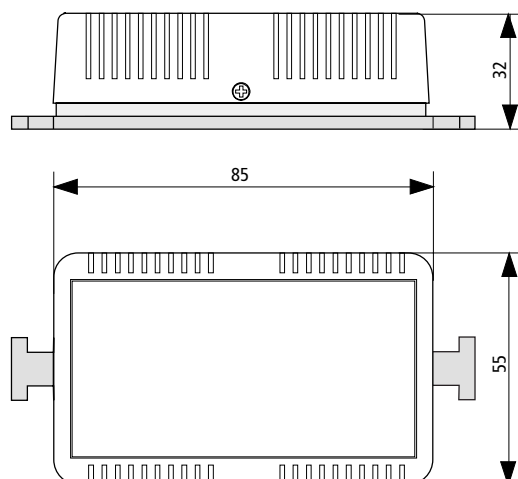
- Operating temp. up to 70 °C
- Accuracy: ±2 % RH
- Dynamic
- IP 65



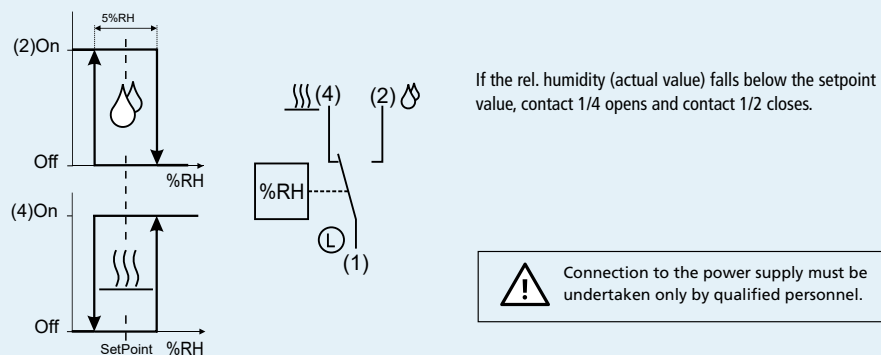
Condensation controllers

	FAS	HSF
Max. 48 V AC / silver contacts	✓	-
Max. 48 V AC / gold contacts	✓	-
Max. 250 V AC / silver contacts	✓	-
Analogue (0 ... 10 V) and switching output (changeover contact)	-	✓
Switching output (changeover contact)	-	✓

FAS condensation detector FAS and FAS 250 V AC



Wiring diagram



Type overview	Type	Output
Max. 48 V AC	FAS	with silver contacts
Max. 48 V AC and 1...100 mA	FAS	with gold contacts
Max. 250 V AC	FAS 250VAC	with silver contacts

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



Relative humidity measurement FAS

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

Electrical specifications

Changeover contact max. 48 V AC

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

Gold contact max. 100 mA

Breaking capacity max. 48 V AC and 1 ... 100 mA	
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Silver contacts max. 250 V AC

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

Service life	>6000 switching cycles
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General

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

Special features

Energy efficient	The FAS condensation detector does not require a supply voltage or auxiliary power
Maintenance-free	The measuring element is maintenance-free in pure ambient air

FAS FAS 250VAC

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

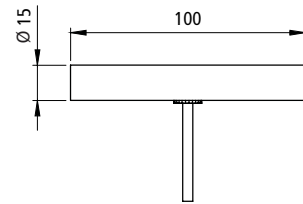
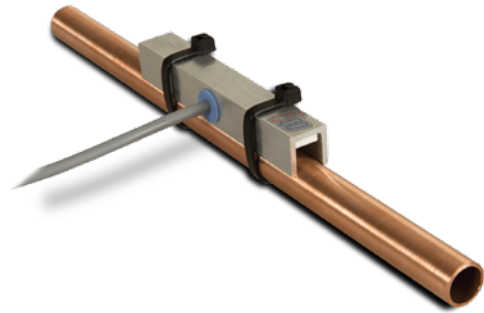


More information on the FAS datasheet online

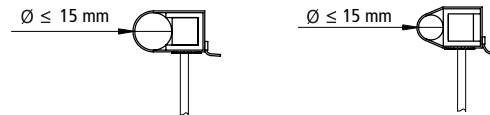


More information on the FAS250 VAG datasheet online

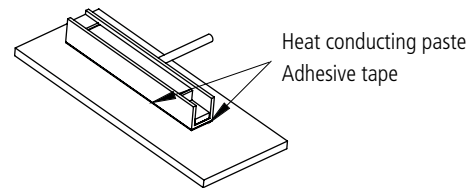
Condensation controller HSF



Mounting on a pipeline



Mounting on level surfaces

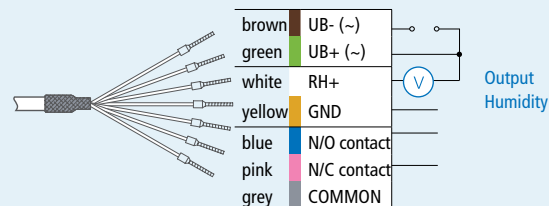


Heat conducting paste
Adhesive tape

Pin assignment

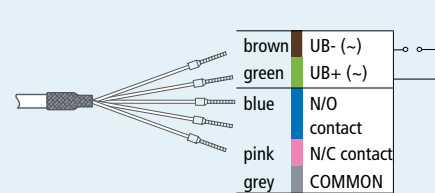
Switching and analogue output HSF2.KW.F3

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



Switching output HSFS.KW.00

15 ... 30 V DC /
24 V AC / DC
±10 %



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

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

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

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	Potential-free changeover contact
Voltage	Max. 48 V AC
Switching current	Max. 0.5 A
Breaking capacity	Max. 10 W
Signal output	0...10 V
Measuring range	50...100 % RH
Accuracy 50...95 % RH 23 °C	±2 % RH

Specifications Switching output HSFS.KW.00

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

General

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

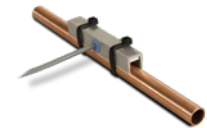
Special features

Degree of protection	IP 65
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Accessories	Type
Installation kit for FAS condensation detector, consisting of adhesive tape and heat conducting paste, for mounting on flat surfaces	ZA30

HSF

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



More information
on the HSF
datasheet online

Accessories

Controller

	Type	Description
	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
	EDJ-3-I	Digital combi-controller EDJ-3-I Inputs: 2 x 4 ... 20 mA
	EDJ-3-U	Digital combi-controller EDJ-3-U Inputs: 2 x 0 ... 10 V

Accessories for combi controllers EDJ3

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

Transmitter powersupply

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

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.		
< 20s	-40...85 °C	IP 20	ZE07		
20s	-80...200 °C	IP 10	ZE04		
< 20s	-40...85 °C	IP 20	ZE16		

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.
< 1 min	-80...200 °C	IP 40	ZE15
< 1 min	-40...85 °C	IP 40	ZE17

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.
	bis 80 °C		20.214
	bis 80 °C		23.063

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

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.		
< 1,5 min	-80...200 °C	IP 65	ZE13		
< 1,5 min	-50...150 °C	IP 65	ZE22		
< 1,5 min	-50...150 °C	IP 65	ZE21		

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		ZE28 Ø 15 mm Ø 20 mm (outside) stainless steel with fine pore PTFE		ZE18 Ø 20 mm made of sintered PTFE
	ZE29 Ø 15 mm				
Humidity response time	Operating temp.	Protection	Article no.		
< 3 min	-80...200 °C	IP 65	ZE05		
< 3 min	-80...200 °C	IP 65	ZE29		
< 3 min	-80...200 °C	IP 65	ZE18		
< 3 min	-50...200 °C	IP 65	ZE28		

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		✓	✓																		

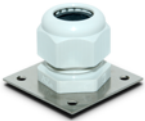
Outdoor

Heavy duty

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

Accessories

Installation aids

	Type	Description
	ZA20	Mounting plate, suitable for mounting sensors Ø 20 mm in ventilation ducts up to 80 °C
	ZA24	Mounting plate, stainless steel and brass, nickel-plated, suitable for mounting sensors Ø 15 mm in ventilation ducts up to 200 °C
	ZA24/28	Suitable for sensors Ø 15 mm and Ø 20 mm
	ZA25	Mounting plate, stainless steel, suitable for mounting sensors Ø 15 mm in ventilation ducts used for air containing ammonia, up to 100 °C
	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
	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
	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
	ZA40	Installation kit for Ex sensors with connection to Zone 0
	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

Accessories

Accessories for humidity/temperature sensors and humidistats

	Type	Description
	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
	00.502	Clamping sleeve for probes Ø 15 mm
	20.045	Mounting flange for D series and L series for sensors Ø 12 mm, with rubber gasket
	20.008	Mounting flange for HG80 and FG80
	20.011	Plastic protection tube for device types HG80 and FG80
	20.014	Gauze protection tube
	23.063	PTFE filter, remote probe for device types HG80 and FG80
	20.022	Ventilated sensor tube with fan 24 V DC for device types HG80 and FG80
	20.024	Rain canopy for outdoor installation

Accessories

Humidity standards

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

Sensor checks

	Type	Description
	20.027	33 % RH
	20.028	53 % RH
	20.029	76 % RH

Test reports

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

Accessories

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

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

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

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

Cable for digital probes with analogue output

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

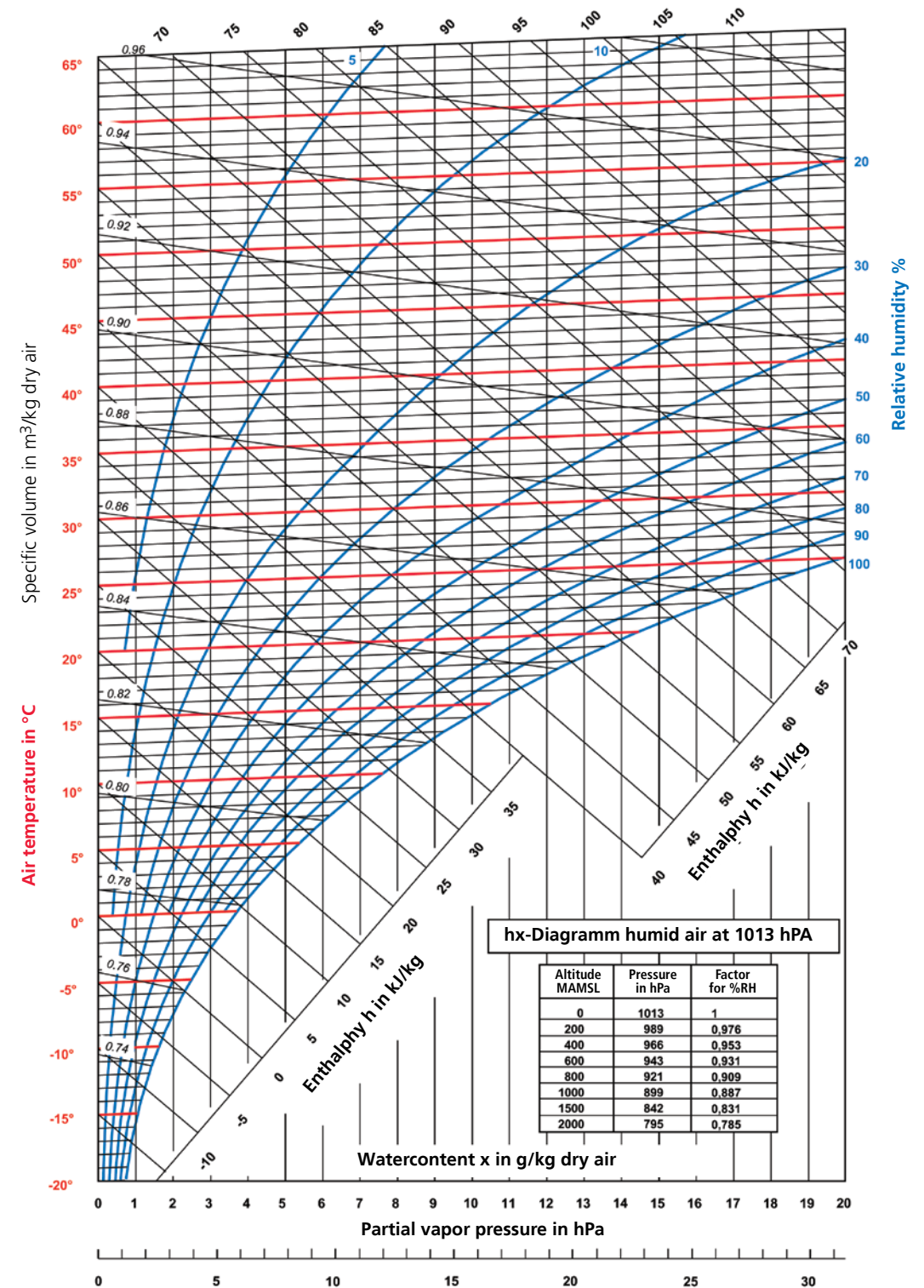
Relative humidity

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.

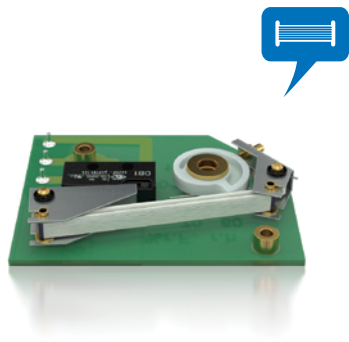


About humidity measurement technology

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

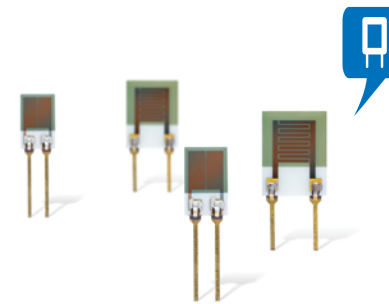
The changes in length of the POLYGA® fibres are transferred via a lever system to a microswitch, resulting in an on/off controller that needs no auxiliary power supply.

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.

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Polyga

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Condensation controllers

Accessories

Humidity measurement

Service

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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
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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.

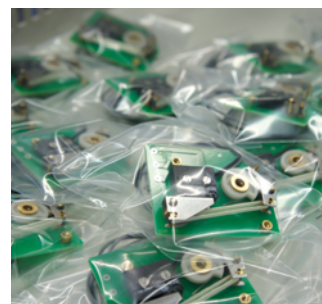
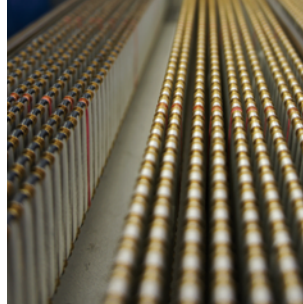
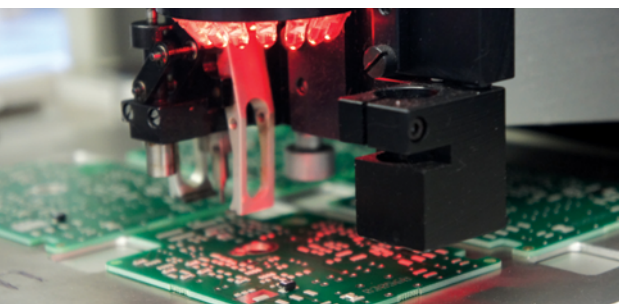
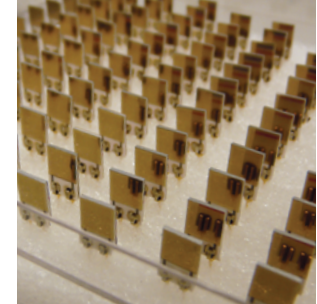
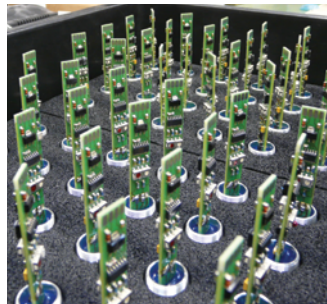
Our wide product range, comprising transmitters, humidistats and controllers is underpinned by our expertise in developing and manufacturing humidity sensors, and is based on two core measuring principles.

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!

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