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Product info sheet no. C 2.6 - „Light Version“
Humidity/-temperature sensors

for use in air-conditioning systems, commercial building control and ventilation technology

Technichal Data

Humidity

measuring range ..... 0...100%rh
sensing element ..... capacitive FE09/4
accuracy at 23°C (73,4°F) ..... ±3%RH (40...60%rh)
at 23°C (73,4°F) ..... ±5%RH (otherwise)
working range ..... 15...90%rh
influence of temperature ..... typ. ± 0.2%RH per °C/°F
minimum air speed (only for PL,KL) 1m/sec, 3ft/sec
Calibration ..... 1 point
measuring medium ..... air, pressureless, non-aggressive
output ..... 0...10V or 4...20mA

Temperature with active output

measuring range ..... 0...50°C (32...122°F)[2)]
sensing element LM35
accuracy (10...40°C ; 50...104°F) ..... ±1 °C; ±1.8 °F
calibration ..... 1 point at 23°C
output ..... 0...10V or 4...20mA

Electrical Data

power supply:
current output (KL) (PL) ..... 12...24V
load .... $R_L(\Omega) = \frac{\text{supply - 10V DC}}{0{,}02\ \text{A}}$ ± 50 Ω

current output (WL) ..... 15...30V
max. load ..... $R_L(\Omega) = \frac{\text{supply - 14V DC}}{0{,}02\ \text{A}}$

voltage output (KL, WL) ..... 15...30V DC/24V AC ±10%
voltage output (PL) ..... 24V AC/DC ±10%
load (voltage output only) ..... >10kOhm
ambient temperature KL,PL ..... -20...+80°C (-4...176°F)
WL ..... -20...+60°C (-4...140°F)
Directive about electromagnetic compatibility **2014/30/EU**
DIN EN 61326-1 ..... issue 07/13
DIN EN 61326-2-3 ..... issue 07/13
sensor tube ..... Ø20mm (Ø 0,79“) aluminium
housing ..... ABS light grey
Schutzart
WL IP20
PL, KL sensor/electronics .....
..... depends on filter type used/IP54

Description

These sensors have been specially adapted to the needs of the ventilation and air-conditioning sector.
They come in three series (the WL series for wall mounting, the KL series for duct installation and the PL series with a cable for suspension from any location). The KL and PL series are equipped with gauze filters as standard. Other filters are available on request.
Use of capacitive humidity sensor elements is a guarantee of high long-term stability, resistance to dew formation, small hysteresis and good dynamic performance.

User instructions

Install these sensors at a place where characteristic climatic conditions occur. The wall-mounting sensors can be installed on flush-mounted sockets on installation systems and directly onto the wall. Avoid installing them close to heaters or windows or against outside walls.
The sensors with the connection cable can be suspended directly from the cable.
In principle, the sensors do not require any maintenance. However, the dynamic behaviour of the sensor may be affected if it is exposed to too much dust. In this case, clean the sensor element by blowing the dust off. In the case of the KL and PL series, clean the sensors by rinsing them carefully in distilled water. Never touch the highly sensitive sensor element.
Please consult the ***application instructions for the sensing elements*** (product info sheet no. A 1) or check with the manufacturer for further information which you need to bear in mind when using humidity sensors with capacitive sensing elements.

Temperature with passive output

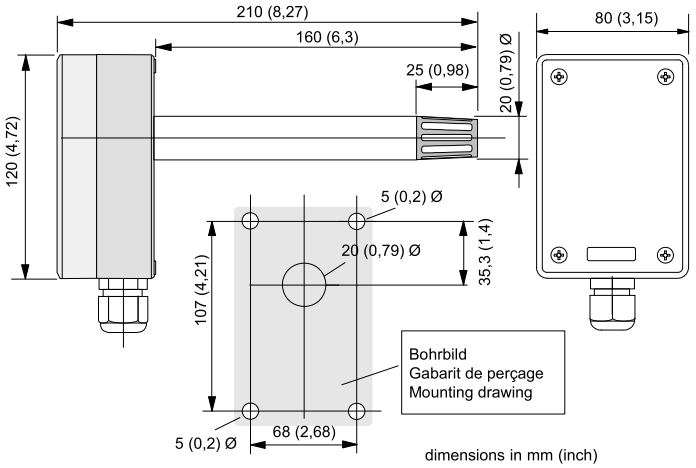
Measuring elements to be chosen: ..... NTC; PTC; KTY; LMx35; Pt100; Pt1000; Ni1000; AD592; LM34; BALKO 1kΩ; SILICON 2kΩ; SEMICONDUCTOR 559 mVDC @23°C (73,4°F)
Thermistors @ 25°C (77°F) 1,8kΩ; 2,252kΩ; 3kΩ; 5kΩ; 10kΩ; 1,8kΩ (Type II; III, CSI); 20kΩ; 100kΩ

2) special versions available on request

Type versions

Measured variable	Output	WL series wall	KL series duct	PL series rod-shaped
F rel. humidity	0..10 V	FWL2/5	FKL2/5	FPL2/5
	4...20 mA	FWL3/5	FKL3/5	FPL3/5
K r.h. + temp.	2 x 0..10 V	KWL2/5	KKL2/5	KPL2/5
	2 x 4..20 mA	KWL3/5	KKL3/5	KPL3/5
T temperature	0..10 V	TWL2/5	TKL2/5	TPL2/5
	4..20 mA	TWL3/5	TKL3/5	TPL3/5
C r.h. + temp. passive	0..10 V + T	CWL2/5-X	CKL2/5-X	CPL2/5-X
	4..20 mA + T	- -	CKL3/5-X	CPL3/5-X
Weight approx.		80g	330	120g

⚠ The electrical connection must only be carried out by properly qualified personnel.



Connection diagram series KL

version **0...10V DC**

	terminals	ranges
supply	(1-) (2+)	15...30V DC
	(1~) (2~)	24V AC ±10%
„humidity“	(3) (4+)	0...10V DC
„temperature“	(5) (6+)	0...10V DC
not galvanic disconnected negative pole (1-) (3) (5) = common		
„temperature“	(5) (6)	passive sensor galvanic disconnected
shield	(7)	

version **4...20mA,** 12...24V DC (heed load)

	terminals	ranges	
„humidity“	(1-) (2+)	4...20mA	outputs galvanic disconnected
„temperature“	(3-) (4)	4...20mA	
„temperature“	(3) (4)	passive sensor	
shield	(5)		

Connection diagram series WL

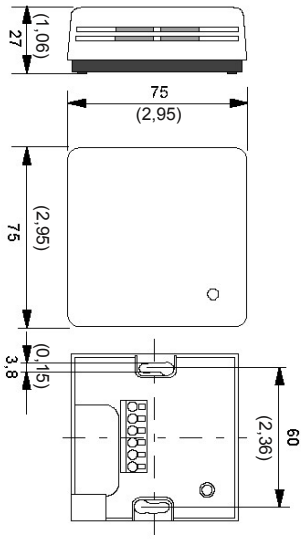
version **0...10V DC**

	terminals	ranges
supply	(1-) (2+)	24V DC ±10%
	(1~) (2~)	24V AC ±10%
„humidity“	(3) (4+)	0...10V DC
„temperature“	(5) (6+)	0...10V DC
not galvanic disconnected negative pole (1-) (3) (5) = common		
„temperature“	(5) (6)	passive sensor galvanic disconnected

version **4...20mA,** 15...30V DC (heed max. load)

	terminals	ranges	
„humidity“	(1-) (2+)	4...20mA	outputs galvanic disconnected
„temperature“	(3-) (4)	4...20mA	

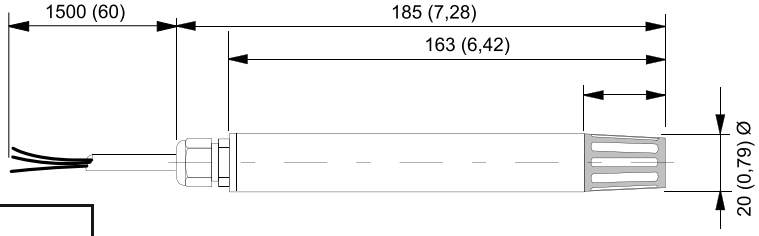
dimensions in mm (inch)



Connection diagram series PL

version **0...10V DC**

not galvanic disconnected
negative pole (-brown) = common



	wire colour	ranges
supply	*(-brown) (+green)	24V DC ±10%
	(~brown) (~green)	24V AC ±10%
„humidity“	*(-brown) (+white)	0...10V DC
„temperature“	*(-brown) (+yellow)	0...10V DC
„temperature“	(blue) (yellow)	passive sensor galvanic disconnected

version **4...20mA,** 12...24V DC (heed load)

	wire colour	ranges	
„humidity“	(-green) (+brown)	4...20mA	outputs galvanic discon- nected
„temperature“	(-white) (+yellow)	4...20mA	
„temperature“	(white) (yellow)	passive sensor	