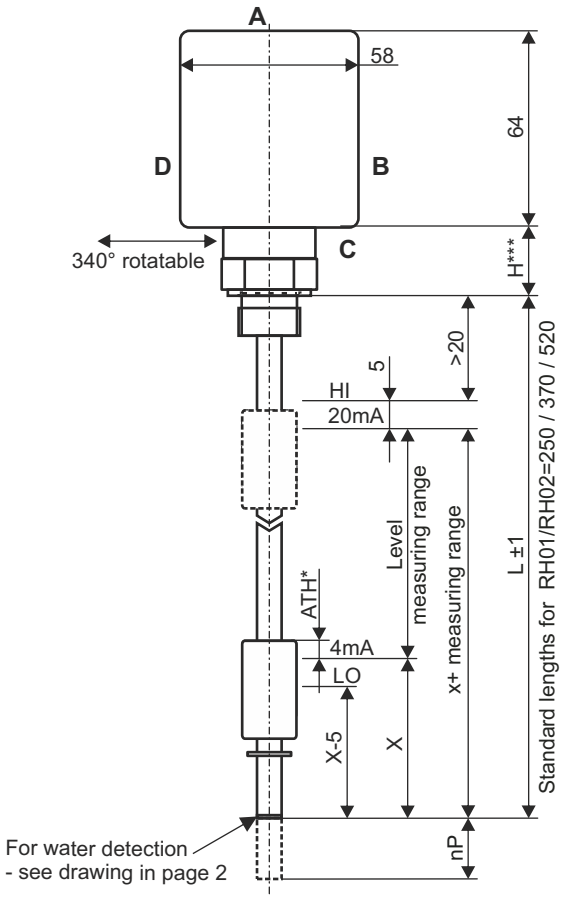
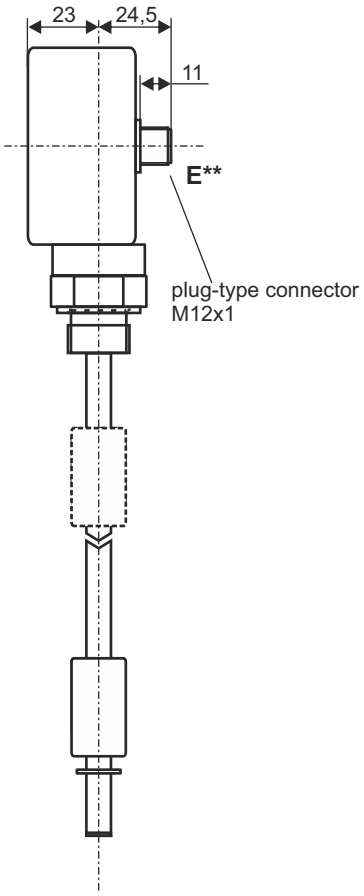
Data sheet
Temperature and level measurement
Type: PAN-1....

Housing with vertical display (GH01)



Electrical connection: without socket

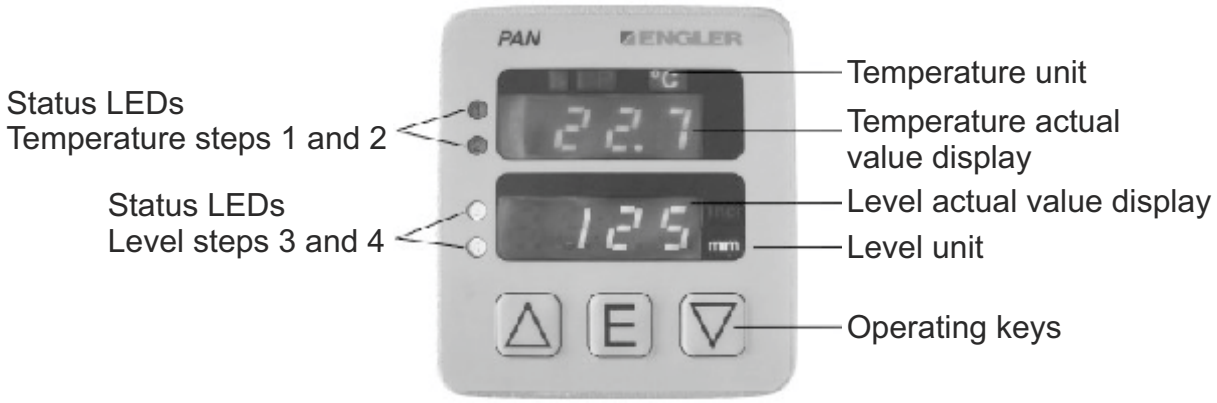


X	40±2 tube type RH01, RH02, RH03 + float type SW52, SW01
X	60±2 tube type RH03, RH09 + float type SW01

* ATH = Height above medium surface for float
- type SW04 = 11 mm at density of 0.87g/cm³
- Typ SW01 = 18 mm at density of0.99g/cm³
- Typ SW52 = 9 mm at density of 0.87g/cm³

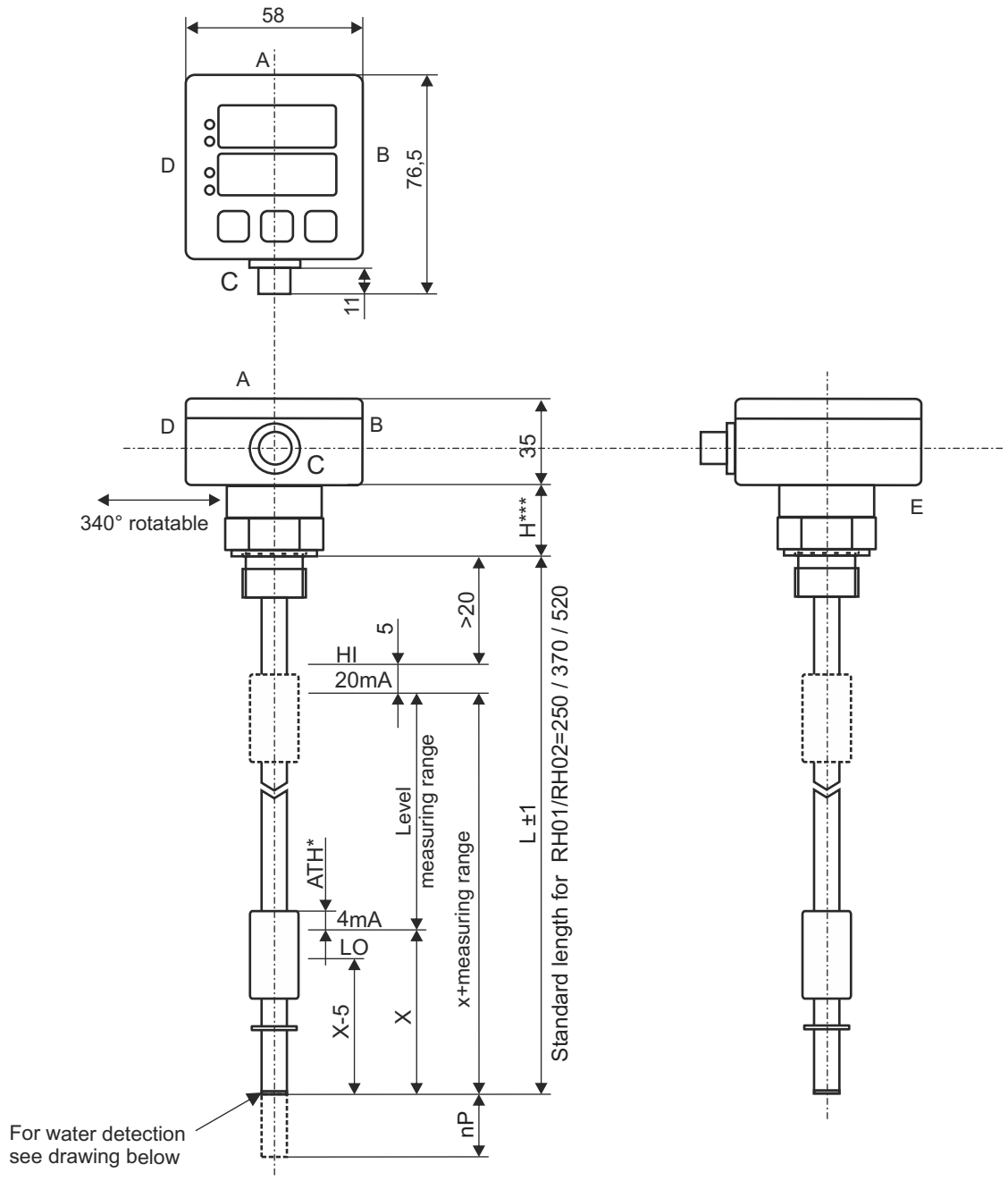
** Position of the electrical connection. See page 2 for horizontal display
*** H: Value dependent on the mounting

Dimensions in mm



Data sheet
Temperature and level measurement
Type: PAN-1....

Housing with horizontal display (GH05)

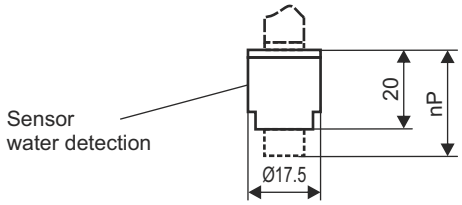


X	40±2 tube type RH01, RH02, RH03 + float type SW52, SW01
X	60±2 tube type RH03, RH09 + float type SW04

* ATH = Height above medium surface for float
- type SW04 = 11 mm at density of 0,87g/cm³
- Typ SW01 = 18 mm at density of0,99g/cm³
- Typ SW52 = 9 mm at density of 0,87g/cm³

*** H: Value dependent on the mounting

Water detection (WE01)



Dimensions in mm

Data sheet
Temperature and level measurement
Type: PAN-1....

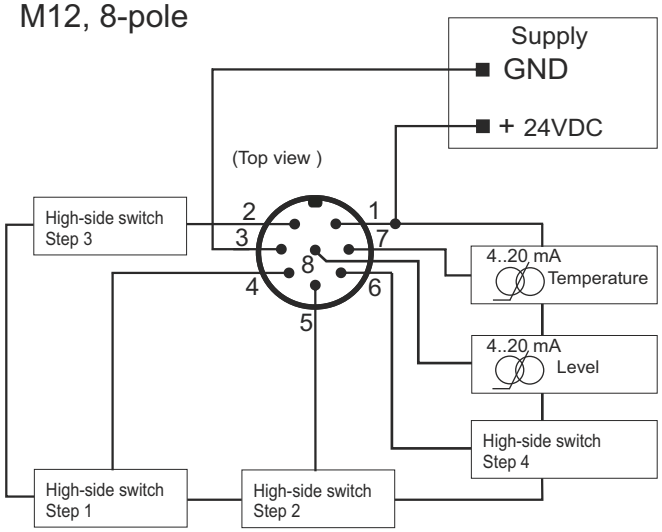
Technical data

Housing:	64x58x35mm hxwxd, material aluminium, colour grey RAL 7001
Connection:	M12x1 8-pole connector. *(The connector socket is not included in delivery. We recommend to produce the connection completed shielded)*. Other connectors on demand
Display:	Actual value displays: two 4-digit LEDs. Red: temperature, green: level. Unit indicators: switchable, two each for temperature and level Standard for temperature: °C + °F. Standard for level: mm + inch. Status indicator: Two yellow LEDs each for temperature and level or water detection.
Mounting:	thread 1/2”, 3/4"or 1 1/2" material aluminium or stainless steel. Other mountings on demand
Tube:	ø8mm or ø12mm, material brass or stainless steel. Other materials on demand Max. length at Ø8mm = 1200mm
Float:	ø17.8x32mm material NBR, type SW52; ø45x52mm material stainless steel 1.4571 - SW04; ø45x52mm material PP, type SW01.
Temp. measurement:	Temperature measuring element: PT1000 acc. to DIN EN 60751 Class B Precision ±0.3K; display resolution 0.1K
Level measurement:	Level measuring element: reed chain grid 5mm. Level switching point deviation ± 1mm Repeatability 100% standard sensor lengths L : 250mm; 370mm; 520mm. customised sensor length in 5mm resolution according to specification
Water detection:	conductive ³ 1mm lower edge, 4.5 µS
Menu:	Safe menu access (no unintentional adjustment). Safe query of main parameters. Easy menu prompting through indication of the menu point and value.
Operating indication:	Actual value displays: yellow status LEDs light up in the operating position.
Fault indication:	The relevant actual value display indicates "Err".
Setting range:	Temperature: SP / rP in the range of BTXX values, in 0.1°C steps. Level: SP / rP in 5mm steps - see sketch on page 1 The range between the tank floor and bottom edge of the measuring rod can be entered as a zero point value (nP). This causes the display and switching points to refer to the actual level.
Display range:	Temperature: display red: -20°C to 150°C in 0.1°C resolution. Level: display green in 5mm resolution - see sketch in page 1
Output:	2 high-side outputs per physical measuring variable The water detection can be activated on any output via the switching function "out.x" Output functions - hysteresis and window or water detection with Lno / Lnc selectable. Voltage drop is less than 2VDC. Constant current of 400mA, short circuit proof, clocked, reverse polarity protected thermal protection. Analogue output temperature: 4 - 20mA. Adjustable range. Analogue output level: 4 - 20mA. Adjustable range. Analogue output load: max. 500 Ohm
Supply voltage:	12...24 Volt DC -10% / -15%
Operating current:	<200mA
Pressure:	max. 1 bar
Operating temperature:	in medium: BTxx - see order key in page 5,above mounting -15°C to 70°C. Higher temperatures on demand
Protection rating:	IP 65

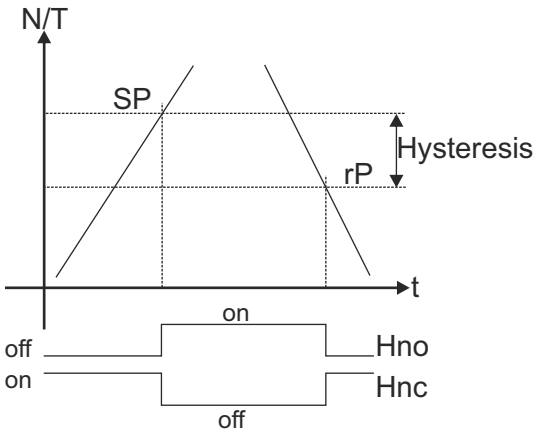
**see spare parts and accessories on our website www.engler-msr.de*

Data sheet
Temperature and level measurement
Type: PAN-1....

Terminal diagram M12, 8-pole

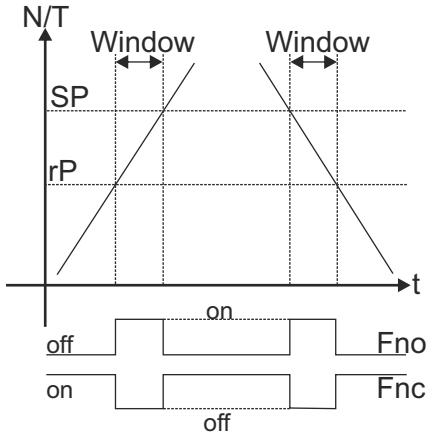


Hysteresis function



N/T = Level / Temperature
SP = Switching point
rP = Reset point
Hno = Hysteresis n.o. contact
Hnc = Hysteresis n.c. contact

Window function



N/T = Level / Temperature
SP = Switching point
rP = Reset point
Fno = Window function n.o. contact
Fnc = Window function n.c. contact

Water detection

L no = water detection normally open contact
L nc = water detection normally closed contact

Malfunction

Temperature sensor:	Temperature actual value display indicates “Err” and the status LED’s 1 + 2 flash. The temperature outputs get deactivated and set according to Fo 1 + Fo 2. The temperature source of current gets adjusted to the value <= 3.6 mA.
Level sensor:	Level actual value display indicates “Err” and the status LED’s 3 + 4 flash. The level outputs get deactivated and set according to Fo 3 + Fo 4. The level source of current gets adjusted to the value <= 3.6 mA.
Output short circuit:	The output gets deactivated and the corresponding status LED flashes. It gets cyclically examined whether the short-circuit is eliminated.

Data sheet
Temperature and level measurement
Type: PAN-1....

Order key

Example:PAN-1.GH01.AS05.BE04.RH01=250.SW52.SI05.BT01.WE01

Type PAN-1

Housing (GHxx)

GH01: Alu, 606030,
Vertical display
GH05: Alu, 606030,
Horizontal display

Electrical connection (ASxx)
standard - without socket
AS05: M12, 8-pole

Mounting (BExx) **See Table 1**

BE04: 1/2“ aluminium, rotatable,
BE05: 3/4“ aluminium, rotatable,
BE29: 1 1/2“ aluminium, rotatable,
BE36: 1 1/2“ stainless steel, rotatable,
BE62: 1/2" stainless steel, rotatable

- further mountings on request

Tube (RHxx) **See Table 2**

RH01: tube brass, dia. (Ø) 8mm
RH02: tube stainless steel, dia. (Ø) 8mm
RH03: tube brass, dia. (Ø) 12mm
RH09: tube stainless steel, dia. (Ø) 12mm
Standard length in mm RH01/RH02=250
Standard length in mm RH01/RH02=370
Standard length in mm RH01/RH02=520
Length in mm acc. to customer’s spec. in 5mm resolution RH01/02/03/09=…
Max. length at RH01/RH02 = 1200mm

with water detection
AD 17.5x13mm, material PVDF,

Operating temperature (BTxx) in medium
BT01: from -20°C to 100°C
BT04: from -15°C to 110°C
BT03: from -15°C to 80°C

Output function (SIxx)

SI05: 4x High side 400 mA
SI06: 4x High side 400 mA +
2x Analogue 4 - 20mA

Float (SWxx)

SW04: stainless steel 1.4571,ø45x52mm (S4)
SW01: PP, ø35x40mm (S1) - only with BT03
SW52: NBR, ø17.8x32mm (S52) -
only with BT01 and BT03

Tabele 1	Tube (RHXX)			
Mounting (BEXX)	RH01	RH02	RH03	RH09
BE04	✓	✓	–	–
BE05	✓	✓	–	–
BE29	✓	✓	✓	✓
BE36	–	✓	–	✓
BE62	–	✓	–	–

dependencies between mounting and tube

Tabele 2	Mounting (BEXX)				
Float (SWXX)	BE04	BE05	BE29	BE36	BE62
SW04	–	–	✓	✓	–
SW01	–	–	✓	✓	–
SW52	✓	✓	✓	✓	✓

dependencies between float and mounting

✓ compatibel
– not compatibel

Sockets can be ordered separately (also with pre-assembled cables)
- See Engler Website : "Spare Parts and accessories“

Subject to change