Fill level measurement

Type:
Hydrocont® S50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system

Description

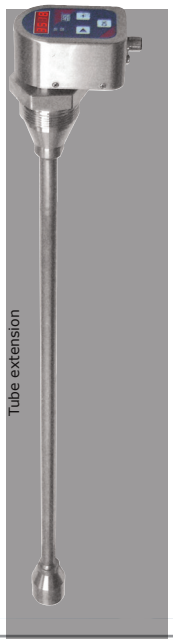
The devices of the series Hydrocont® S50 with integrated digital evaluation electronic are compact sensors for measuring and monitoring of fill levels.
The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.
The level measurement system Hydrocont® S50 is built in the wall of the medium container. The medium contacts directly the ceramic membrane of the sensor without using a pressure mediator liquid and causes there a deflection of the membrane because of the hydrostatic pressure of the medium.

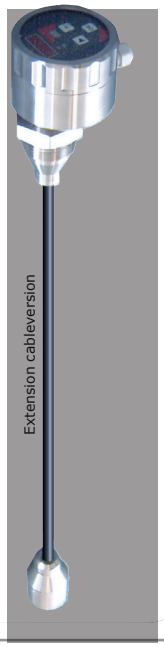
The fill level proportional pressure signal of the ceramic membrane is recorded from a processor with high resolution, adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V. By using 3 keys and an LED display the sensor measurement range, the display, the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set.











Application

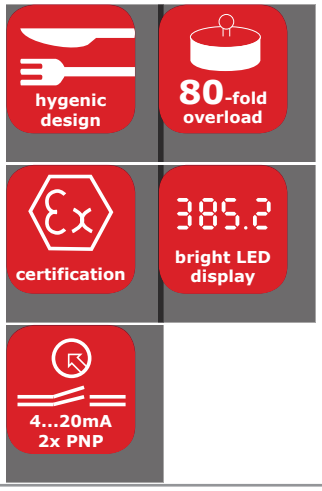
- Fill level measurement in basins, channels and tanks
- Housing versions in stainless steel and in various plastics with plug or clamp connection



- High-precision, dry capacitive ceramic measuring cell, high purity 99.9%
- For use in hazardous areas



Specials



Your benefits



- *Tube extension* and cable version for mounting from the top
- Measurement display on *high brightness LED display*
- Good readability
- *Easy commissioning*
- Measurement *independent of foam, dk-value and of tank internals*
- Variety of process connections to meet all requirements eg. thread or hygienic connections available



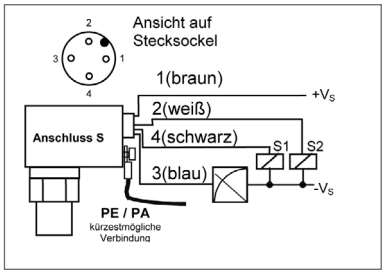
Order code. . . . . page |04|

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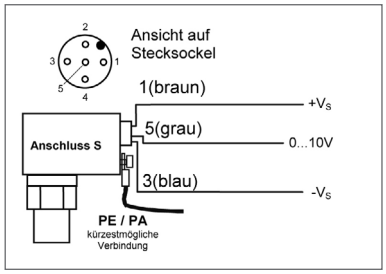
Technical data

Technical data	
Output variations A/B/C/D:	4..20 mA, 2-wire
Output variations E/F/G/H:	0...10 V, 3-wire
Permitted supply voltage:	Variation C/D: 10,5 V up to 45 V DC Variation A/B/E/F/G/H: 14,5 V up to 45 V DC
Residual ripple:	≤ 2 Vss
Switching outputs (S1 / S2):	2x PNP switching on +VS
Output current:	> 250 mA, current limited, short circuit predected
Measuring accuracy	
Temperature deviation:	≤ 0,1% / 10 K of the nominal range
Deviation in characteristics:	≤ 0,1% / 0,2% of the nominal range (depending on the order code)
Calibration deviation:	≤ 0,05% of the nominal range
Long term drift:	≤ 0,1% / year of the nominal range
Influence of supply voltage:	≤ 0,02% / 10 V of the nominal range
Resolution:	better 1 µA resp. 0,5 mV (16 Bit = 65536 steps)
Material	
Membrane:	Ceramic AL_2O_3 96% resp. 99,9%
Process connection:	Steel 1.4404 / others on request
Temperaturtrennstück:	Steel 1.4404 / others on request
Gaskets:	Viton® / EPDM Neoprene® / Perfluorelastomer
Connection housing:	Steel 1.4301 / PUM - Delrin® / PBT
Extension cable:	PE/FEP
Environmental conditions	
Medium temperature:	-40°C...+125°C (for 1h 140°C) with extension cable -20°C...+70°C
Ambient / storage temperature:	-40°C...+85°C; with extension cable -20°C...+70°C
Protection:	IP65 / IP67

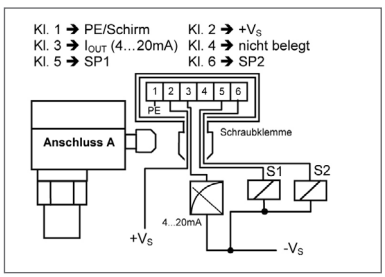
Connection



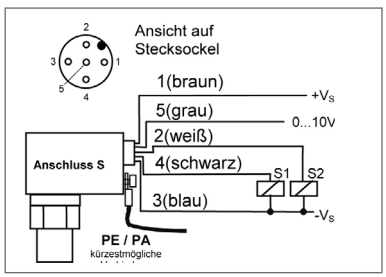
Connection Type A; plug M12



Connection Type E; plug M12



Connection Type A; terminal compartment

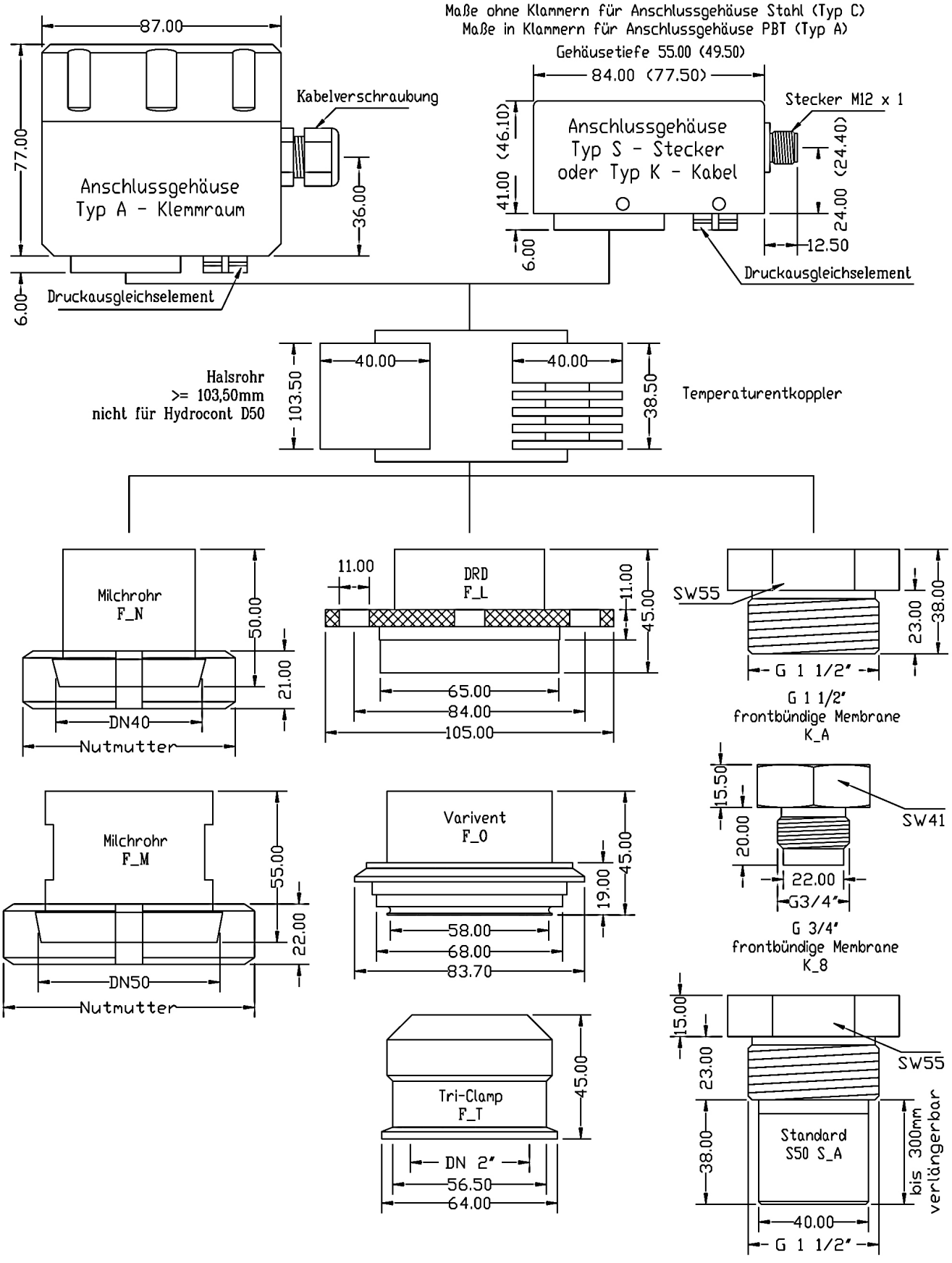


Connection Type E; terminal compartment

In use



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Order code

Type
S50 standard
ExS50 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb (not for construction form type W – extension cable probe)
XDS50 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb

Construction form

S	Standard – process connection type A / 6 – Probe extension type C
K	Short form flush-mounted – process connection type 8 / 9 / A / 6
T	Extension cable – Probe extension type A / E
R	Tube extension – Probe extension type D / F
F	Flush-mounted - process connection type N / M / O / L / R / F / G / H / J / T / B
H	High-Temperature –10..+200°C process diaphragm seal metallic membrane
W	Extension cable probe / Field enclosure
Y	Special construction

Measuring membrane – material / accuracy (medium contact)

H	Ceramic 99,9%, capacitive / 0,2% (Probe extension type F >> membrane ceramic 96%)
L	Ceramic 99,9%, capacitive / 0,1%, linearization protocol; Measuring span ≥ 0,1 bar (Probe extension type F >> membrane ceramic 96%)
M	Xcellence - ceramic 99,9%, capacitive / 0,05%, linearization protocol (Measuring span ≥ 0,2 bar; not for process connection type 9; Construction form short form type K – Process connection type 8 >> membrane ceramic 96%; Construction form tube extension type R – Probe extension type F >> membrane ceramic 96%)

Process connection

8	G¾" A, ISO228-1
9	G½" A, ISO 228-1
A	G1½" A, ISO 228-1
6	G1½" A, ISO 228-1, PEEK
M	Milk tube DN 50, PN40 DIN 11851
N	Milk tube DN 40, PN40 DIN 11851
O	Varivent® N, Ø68 mm, DN40-125 (1½"-6"), PN 40
L	DRD 65 mm DN 50, PN 40
T	Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40
R	Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40
F	Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
G	Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
H	Flange DIN EN 1092-1, A (B - DIN 2527), DN80, PN10-40
B	Nut groove adapter Ø44mm
W	Extension cable probe Ø40mm

Electronic - output

A	2-wire, signal 4...20mA, 2x PNP, LED display, keypad
B	2-wire, signal 4...20mA, LED display, keypad
C	2-wire, signal 4...20mA, keypad
D	2-wire, signal 4...20mA
E	3-wire, signal 0...10V, 2x PNP, LED display, keypad
F	3-wire, signal 0...10V, LED display, keypad
G	3-wire, signal 0...10V, keypad
H	3-wire, signal 0...10V

Measuring range

0	0...200 mbar	5	0...10 bar
1	0...400 mbar	6	0...20 bar
2	0...1 bar	7	-1...+1 bar
3	0...2 bar	8	0...50 mbar
4	0...4 bar	9	0...100 mbar
		Y	Special measuring range

Material terminal enclosure

A	PBT – polybutyleneterephtalat, not for electrical connection type A
C	CrNi-steel
D	POM - polyoxymethylene (Delrin®), only for electrical connection type A
W	PC – polycarbonate or PS – polystyrene, only for construction form type W

Electrical connection

S	Plug M12
K	Cable, L = 2m
A	Terminal box

Material process connection / process temperature

1	Steel 1.4404/316L / -40°C...+100°C
2	Steel 1.4404/316L / -40°C...+125°C, Temperature decoupler
6	PEEK / standard, -40°C...+100°C
Y	Others

Material gaskets (process wetted)

1	FPM – fluorelastomere (Viton®)
2	CR – chloroprene-rubber (Neopren®)
3	EPDM – ethylene-propylene-dienmonomere – food applications
4	FFKM – perfluorelastomere (Kalrez®)
5	welded – construction form type H
6	FFKM hd – perfluorelastomere high density – gas applications
7	FFKM – perfluorelastomere (Kalrez®) – type R / T / S / B
8	FFKM hd – perfluorelastomere high density – type R / T / S / B

Probe extension
(Price per started 100 mm)

A	Extension cable PE / -20°C..+70°C (not for XDS50)
C	Tube Ø40 mm / probe Ø40 mm
D	Tube Ø16 mm / probe Ø40 mm
E	Extension cable FEP / -20°C..+70°C
F	Tube Ø16 mm / probe Ø22 mm
Y	Special construction
0	No probe extension

Order code

Hydrocont® mm **Length L1 / mm (probe)**

Stand 01/2018

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