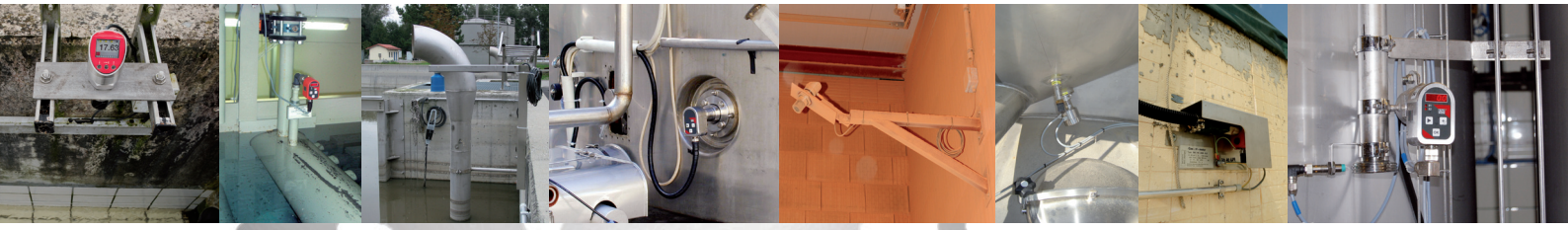
Your partner for measurement technology and automation

fill level | water level | pressure | temperature | flow | visualization | signal converter | sensoric

Continuous level measurement and point level detection

Fill level sensors



Hydrostatic level measurement
Ultrasonic fill level
Conductive liwith value probes
Vibration liwith switchs for liquids and solids
Rotary wing liwith switches
Capacitive liwith switches

ISO 9001 zertifiziert

TÜV SÜD

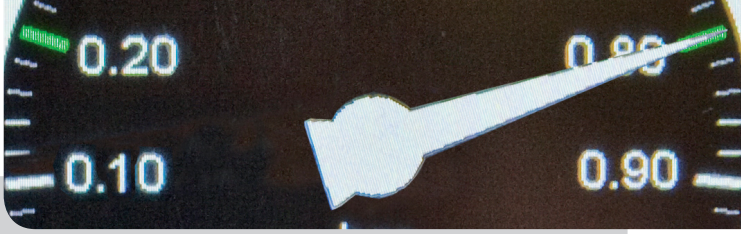
WE'VE GOT HART ABILITY

EHEDG HYGIENIC ENGINEERING & DESIGN GROUP EUROPEAN

Qualitätsmanagement ISO 9001:2000
▸ Regelmäßige freiwillige Überwachung
DEKRA Certification DEKRA zertifiziert

ACS-CONTROL-SYSTEM
knowhow with system
Your partner for measuring technology and automation

Fill level measurement in liquids and solids



What to use where

Measuring principle	Hydrocont® HN4	Hydrocont® S50	Hydrocont® D50	Hydrocont® M/B	Sonicont USN	Sonicont USG/2USF2	Sonicont USD	SAT, STK, SST, SHT, SNT, SBS, KAK, PUK	SLK, KLK	Vibrocont SCM-300, VCL	Vibrocont SHM-300	Silocont SIC-350	SRK	Capcont L, M
Hydrostatic	●	●	●	●										
Ultrasonic					●	●	●							
Conductive								●	●				●	
Mechanically												●		
vibration										●	●			
Capacitive														●
Function														
Level detection	●	●	●		●	●		●	●	●	●	●	●	●
Continuous measurement	●	●	●	●	●	●	●							
Media														
Liquids	●	●	●	●	●	●	●	●	●	●	●		●	●
Solids					●	●	●					●		●
Operating conditions														
Hazardous area		Ex	Ex	Ex		Ex	Ex	Ex	Ex			Ex		Ex
WHG area										●	●			
Aggressive media				●	●	●	●							
Coat forming media	●	●	●	●	●	●	●			●	●		●	
High dust												●		●
Non conductive media	●	●	●	●	●	●	●			●	●	●		●
Foaming	●	●	●	●				●	●	●	●			
Vacuum or Druckbeaufschl. container								●	●	●	●	●	●	●
Extreme climatic conditions			●		●	●	●	●	●	●	●	●	●	●
Hygienic sector	●	●	●	●					●		●		●	●

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Type Principle of operation	Hydrocont® HN4 Hydrostatic measurment 	Hydrocont® S50 Hydrostatic measurment 	Hydrocont® D50 Hydrostatic measurment 	Hydrocont® B and ExB Hydrostatic measurment  ø 40 mm	Hydrocont® M and ExM Hydrostatic measurment  ø 22 mm	Hydrocont® LK Hydrostatic measurment 
Page	**10**	**14**	**18**	**22**	**26**	**30**
Design	cable extension, tube extension	compact version, cable-, tube extension	compact version, cable-, tube extension	slope probe	slope probe	slope probe, screw-in probe
Application areas	liquids, standard measurements	liquids, standard- measurements, hygienic applications	liquids, climatic extreme conditions, hygienic applications	liquids water level measurement	liquids water level measurement	liquids water level measurement
Measuring ranges	-1...20 bar relative, depending on type	-1...20 bar relative	0,2...10 bar relative	0,05...20 bar 1...100 mWs	0,1...20 bar 1...100 mWs	0...1 bar
Process connections	thread G1½", thread G¾"	thread G½" G1½", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	thread G½" G1½", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	rope clamps screw plug , G1", G1½", Connection housing G1½", screw-in thread, G½", G1½"	rope clamps screw plug G1", G1½" Connection housing G1½"	rope clamps G½"
Process temperature / Operating temperature	-40...+100°C, with temperature decoupler:up to 125°C	-40...+100°C, with temperature decoupler: up to 125°C	-40...+125°C	-20...+70°C	-20...+70°C	-20...+70°C
Process pressure	-	-	-	-	-	-
Sensor voltage / Power supply	(0)4...20 mA: 9...30V DC 0...10V: 14...30V DC	10,5...45 V DC	10,5...45 V DC	4...20mA: 11,5...45 V DC PFM: 13...30 V DC	4...20mA: 11...45 V DC ATEX: 12,5...25,2 V DC 0...10V: 14...30 V DC	4...20mA: 10...36 V DC 0...10V: 14...30 V DC
Output	(0)4...20 mA / 0...10V, adjustable	4...20 mA 2-wire, 0...10 V 3-wire, adjustable via keypad	4...20 mA 2-wire, 0...10 V 3-wire, adjustable via keypad	PFM-signal or 4...20 mA 2-wire non-adjustable	4...20 mA 2-wire non-adjustable	4...20 mA 2-wire 0...10 V 3-wire
Switching points	0/2/4 depending on device version	0 / 2x PNP	0 / 2x PNP	-	-	-
Display	color display TFT	4-digit 7-Segment- LED-display	4-digit 7-Segment- LED- display	-	-	-
Certificates	-	ATEX	ATEX	ATEX	ATEX	-
Accuracy	≤ ±0,05% / 0,1% / 0,2%	0,05% / 0,20%	0,10% / 0,20%	0,10% / 0,20%	0,10% / 0,25%	0,10% / 0,25%
Long term stability	≤ ±0,1% year	0,1% / year	0,1% / year	0,1% / year	0,15% / year	0,15% / year
Block distance	-	-	-	-	-	-
Wetted materials	1.4404 (316L) / 1.4571/316Ti, Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), marine bronze, Hastelloy, PEEK, Titan, Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice
Measurement cell	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic
Min DK	-	-	-	-	-	-
Max. viscosity	-	-	-	-	-	-
Operating limits	-	-	-	-	-	-

Type Principle of operation	Sonicont® USN4 Ultrasonic measurement 	Sonicont® USG2 / USF Ultrasonic measurement seperated 	Sonicont® USD-050 / USD-080 Ultrasonic measurement 	Sonicont® USD-100/USD-150 Ultrasonic measurement 	SAT Conductive probe 	STK Conductive probe 	SLK Conductive probe 
Page	**34**	**38**	**47 / 48**	**49 / 50**	**52**	**54**	**56**
Design	compact version	seperated version	compact version	compact version	rod probe with plastic screw-in thread, up to 7 rods	rod probe with metal screw-in thread, up to 5 rods	rod probe with hygienic connection, up to 5 rods
Application areas	ultrasonic fill level sensor for solids and liquids	ultrasonic fill level sensor for solids and liquids	liquids or coarse-grained-solids	liquids or coarse-grained solids	conductive liquids standard measurments	conductive liquids standard measurments, aggressive liquids	conductive liquids hygienic applications in breweries and dairies
Measuring ranges	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 5 m / 8 m solids: 2 m / 3,5 m	liquids: 10 m/15 m solids: 7 m	-	-	-
Process connections	G1", G1½", G2"	G1", G1½", G2"	G1½" / G2"	DN80 / DN 100 or / 4" / DN 100 flange or mounting bracket	thread G½", G1" thread G1½", G2"	thread G½", G1" thread G1½", G2" DIN-flange DN 50	thread G½", G1", thread G1½", with front-flush gasket, Milk tube connection DIN 11851
Process temperature / Operating temperature	-40...+80°C	-40...+80°C	-40...+80°C	-40...+80°C	-15...+150°C	-15...+150°C	-40...+130°C
Process pressure	-0,3 up to +2 bar	-0,3 up to +2 bar	0,7 up to 3 bar	0,7 up to 2,5 bar	-1...10 bar	-1...20 bar	-1...20 bar
Sensor voltage / Power supply	Output 0/4...20mA: 9...30 VDC Output 0...10 V: 14...30 VDC	Output 0/4...20mA: 9...30 VDC Output 0...10 V: 14...30 VDC	2-wire: optional, 14...36 V DC 4-wire: 10,5...32 V DC, 90...253 V AC	42-wire: 14...36 V DC 4-wire: 10,5...32 V DC, 90...253 V AC, 10...32 V DC	-	-	-
Output	(0)4...20 mA / 0...10V, adjustable	(0)4...20 mA / 0...10V, adjustable	4...20 mA HART, Profibus PA Foundation Fieldbus	4...20 mA HART, Profibus PA Foundation Fieldbus	-	-	-
Switching points	0 / 2 / 4 depending on device version	0 / 2 / 4 depending on device version	-	-	max. 7	max. 5	max. 4
Display	color display TFT	color display TFT	LCD-display	LCD-display	-	-	-
Certificates	-	ATEX	ATEX	ATEX	ATEX	ATEX	ATEX
Accuracy	0,2%	0,2%	0,2%	0,2%	-	-	-
Long term stability	-	-	-	-	-	-	-
Block distance	< 0,2m / < 0,25m / <0,35 m	< 0,2m / < 0,25m / <0,35 m	0,25 m / 0,35 m	0,4 m / 0,6 m	-	-	-
Wetted materials	steel 1.4404 / PVDF / EPDM	steel 1.4404 / PVDF	-	-	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PP, POM, PTFE, NBR, FPM	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM
Measurement cell	-	-	-	-	-	-	-
Min DK	-	-	-	-	-	-	-
Max. viscosity	-	-	-	-	-	-	-
Operating limits	-	-	-	-	-	-	-

Type Principle of operation	SST Conductive probe	SHT Conductive probe	SNT Conductive probe	SBS Conductive probe	PUK | PUKK Electrode probe	KAK/KLK Conductive compact probe
Page	**58**	**60**	**62**	**64**	**66**	**68**
Design	rope probe with plastic screw-in nut, up to 7 probes	cable probe to hang, up to 2 probes	rod probe with plug connection, up to 4 rods	rod probe with sealed cable, up to 5 rods	electrode probe for floor mounting; seperated or compact electronics	rod probe with compact electronics, up to 3 rods universal voltage
Application areas	conductive liquids standard measurments in wells and pools	conductive liquids submersible sensor	conductive liquids standard measurments	conductive liquids standard measurments	leakage detection	conductive liquids limit switch two-point controller
Measuring ranges	-	-	-	-	-	0...200 kOhm
Process connections	thread G½", G1" thread G1½", G¾"	to slope on cable	thread G½", G1" thread G1½"	thread G½", G1" thread G1½"	-	thread G½", G1" thread G1½" Milk tube connection DIN 11851
Process temperature / Operating temperature	-10...+120°C	-20...+100°C	-20...+100°C	-20...+100°C	-20...+60°C	-40...+100°C
Process pressure	pressureless	pressureless	0...10 bar	0...10 bar	-	0...20 bar
Sensor voltage / Power supply	-	-	-	-	AC voltage 24 V DC +/- 10% universal voltage 20...30 V AC, DC	AC voltage 24 V DC +/- 10% universal voltage 20...253 V AC, DC
Output	-	-	-	-	1 PNP 1 relay	1 PNP 1 relay
Switching points	max. 7	max. 1	max. 4	max. 5	1 switching point	max. 2
Display	-	-	-	-	-	-
Certificates	-	-	-	-	-	-
Accuracy	-	-	-	-	-	-
Long term stability	-	-	-	-	-	-
Block distance	-	-	-	-	-	-
Wetted materials	1.4404 (316L), PTFE, POM, polypropylene, NBR	1.4404 (316L), PE, E-CTFE (Halar), polypropylene	1.4404 (316L), 1.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan	1.4404 (316L), 1.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan	1.4404 (316L), POM, FPM, PA, NBR	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), FPM, EPDM
Measurement cell	-	-	-	-	-	-
Min DK	-	-	-	-	-	-
Max. viscosity	-	-	-	-	-	-
Operating limits	-	-	-	-	-	-

Type Principle of operation	SRA/ExSRA-100-U0 Electrode relay conductive	SRA-102 Electrode relay conductive	SRK-600 Conductive limit switch	Vibrocont SCM-300 Vibration limit switch	Vibrocont SHM-300 Vibration limit switch
					
Page	**70**	**72**	**86**	**74**	**78**
Design	B/H/T 22,5x114x99 mm	B/H/T 22,5x75x99 mm	compact tube extension	compact smallest dimensions	compact hygienic connections
Application areas	for conductive liquids	for conductive liquids	conductive liquids standard measurement coat forming media, hygienic applications	liquids of all sorts standard measurments	liquids of all sorts hygienic applications
Measuring ranges	0...10 kOhm 0...1 kOhm, 0...200 kOhm	0...100 kOhm 0...1 MOhm, 0...8 MOhm	-	-	-
Process connections	-	-	thread G½", G1", G¾, Hygieneadapter Varivent	thread G½", G¾", G1"	thread G¾", G1" front-flush DIN 11851, DN25/32, Tri-Clamp
Process temperature / Operating temperature	-40...+85°C	0...+60°C	-40...+100°C with temperature decoupler up to 150°C	-40...+100°C or -40...+150°C	-40...+150°C
Process pressure	-	-	0...25 bar	-1...40 bar	-1...40 bar
Sensor voltage / Power supply	universal voltage 20...253 V AC/DC	230 V AC, 115 V AC 24 V DC	16...45V DC PNP 3-wire 20...253V AC/DC relay output	20...253 V AC 2-wire; 10...30 V DC PNP 3-wire	19...253 V AC 2-wire; 10...55 V DC PNP 3-wire
Output	1 / 2 relay	1 relay	1x PNP 1x Relay	1x PNP 1x Relay	1x PNP 1x Relay
Switching points	max 2	1	1	1	1
Display	-	-	LED	LED	LED
Certificates	ATEX	-	-	WHG	EHEDG-certificate, 3-A, WHG
Accuracy	-	-	-	-	-
Long term stability	-	-	-	-	-
Block distance	-	-	-	-	-
Wetted materials	-	-	1.4404 (316L), 1.4571 (316Ti), PEEK; SRK-601, gasket FPM	1.4404 (316L)	1.4404 (316L)
Measurement cell	-	-	-	-	-
Min DK	-	-	-	-	-
Max. viscosity	-	-	-	-	-
Operating limits	isolating liquids	isolating liquids	not conductive media	very viscous media (viscosity max. 10.000 cSt)	very viscous media (viscosity max. 10.000 cSt)

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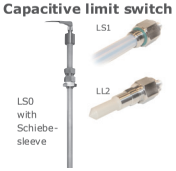
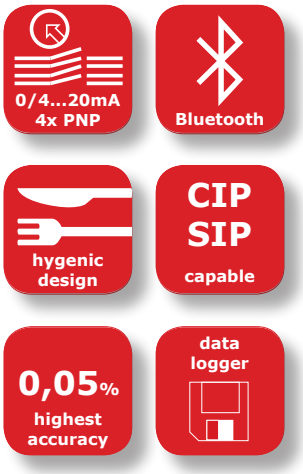
Type Principle of operation	Silocont SIC-350 Redary paddle switch 	Capcont M Capacitive limit switch 	Capcont L Capacitive limit switch 	Mycrocont MCN4 capacitive level controller 
Page	**86**	**90**	**94**	**98**
Design	Cable extension compact	compact	compact tube extension	compact
Application areas	solids of all sorts	liquids and solids of all sorts	liquids and solids of all sorts	conductive liquids standard measurement, coat forming media, hygienic applications
Measuring ranges	-	-	-	-
Process connections	thread PBT/303 NPT 1-½"; NPT 1-¼"; G 1-½"	thread M18, G½"	sliding sleeve G½" or thread G½"	standard thread G½" elastomerfrei PEEK Spitze
Process temperature / Operating temperature	-20...+80°C	-30...+125°C	LS -40...+100°C LL -40...+140°C	0... +100°C
Process pressure	0,5...2,5 bar abs. / ≤ 1,5 bar Überdruck	-1...10 bar	LS -1...+1 bar LL -1...+10 bar	max. 10 bar
Sensor voltage / Power supply	20-28VDC; 24VAC; 115VAC; 230VAC	10...35 V DC	10...35 V DC	Ub = 24V +/-20% (18...32VDC)
Output	micro switch with switch contact max. 6 A/250 VAC 100 mA	PNP (NO/NC)	PNP (NO/NC)	1x PNP
Switching points	1	1	1	-
Display	-	LED	LED	-
Certificates	ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (applied for!); FM DIP/ II, III/1/E-G	-	ATEX	EHDEG
Accuracy	-	-	-	-
Long term stability	-	-	-	-
Block distance	-	-	-	-
Wetted materials	1.4305	1.4404 (316L), 1.4571 (316Ti), PTFE, gasket per choice	1.4404 (316L), 1.4571 (316Ti), PTFE-TFM / PEEK LS -> gasket EPDM, FPM	Stainless steel PEEK
Measurement cell	-	-	-	-
Min DK	-	> 1,8	> 1,8	> 2,0
Max. viscosity	-	-	-	-
Operating limits	-	-	-	-

Type:

Hydrocont® HN4

Hydrostatic level transmitter / level switch with data memory for general applications
Monitoring of levels in liquids

Specials



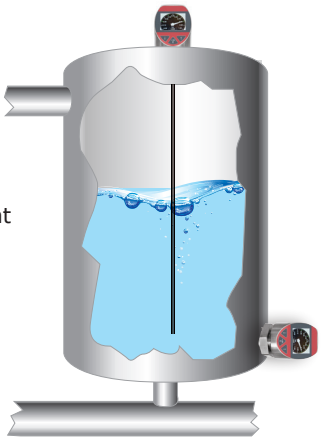
Order code .....page | 13 |

Description

The device is an electronic level transmitter / level switch for monitoring, control as well as continuous measurement of levels in liquids.
Due to the device construction with measuring ranges from -1 bar to 20 bar, measuring spans from 50 mbar to 20 bar, process temperatures from –40°C to +125°C and process materials Al2O3-ceramic / CrNi-steel as well as the availability of the two construction types extension cable (e.g. at limited installation situations, long sensor length) or extension tube (e.g. at strong turbulences, aggressive media, high temperatures) and the availability of industrial standard process connections like thread connection ISO 228-1 the device is especially suitable for the use for level and volume measurement, flow measurement at open channels and measuring weirs and for general applications in water and waste water sector machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry and environmental technology.
The device is suitable for demanding measuring requirements.
Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.
A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Application

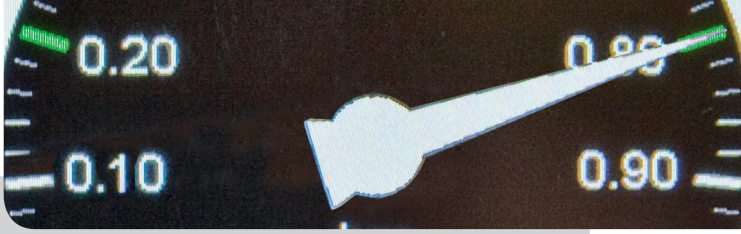
- General applications in
  - Machinery and plant engineering
  - Air-conditioning and refrigeration plant engineering
  - Hydraulic and pneumatic systems
  - Process industry
  - Environmental technology



Your benefits

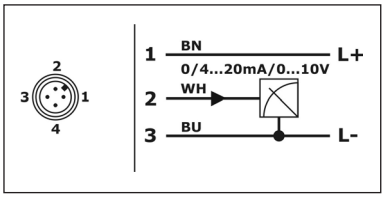
- *Wide range of applications*
- Finely graded measuring ranges from 50 mbar up to 20 bar
- Wide process temperature range –40°C to +125°C
- Construction types extension cable and extension tube
- Wide variety of process connections and high protection class IP65 / IP67
- Wide environmental temperature range –20°C to +70°C
- Ceramic *front-flush diaphragm*
- Increased accuracy – characteristic deviation ≤ 0,05% of measuring range
- Integrated evaluation electronic: 4x PNP switch output / 1x current output 0/4...20mA – voltage output 0...10V / Measure data memory for more than 500.000 measuring values / Battery powered data logger function / Bluetooth
- *High operating comfort*: enclosure and display rotatable for *optimal operability* in each installation position
- Robust high brightness LED display for *best readability*
- 3-key operation without additional assistance with tactile feedback

Technical data

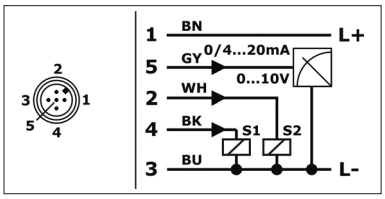


Technical Data	
Supply voltage:	Setting output 0/4...20 mA: 9..30 VDC, reverse polarity protected Setting output 0…10 V: 14..30 VDC, reverse polarity protected
Supply current:	≤ 50mA up to ≤ 100mA (depending on output, bluetooth ON/Off, US)
Start-up time:	≤ 1s
Step response time:	≤ 15 ms (td = 0s)
Operating range:	Analogue output – current 0…20mA IOut: 0…20,5mA, max. 22mA Analogue output – current 4…20mA IOut: 3,8…20,5mA, min. 3,6mA, max. 22mA Analogue output – voltage 0…10V UOut: 0 ... 10,5 V, max. 11 V
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	0… ≤ 200mA current limited, short circuit protected
Measuring accuracy	
Characteristic deviation:	≤ ±0,05% / ±0,1% / ±0,2% FS
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	Zero: ≤ ±0,015% FS 2) / K, max. ±0,75 % (-20°C…+80°C) Span: ≤ ±0,015% FS 2) / K, max. ±0,5 % (-20°C…+80°C / > 0,4 bar), max. ±0,8 % (-20°C…+80°C / ≤ 0,4 bar)
Materials	
Diaphragm: (process wetted)	Process connection Type 7 – G1½" / Sensor Ø40mm: Ceramic Al_2O_3 – 99,9% Process connection Type 8 – G¾" / Sensor Ø22mm Measuring range ≤ 1bar: Ceramic Al_2O_3 – 99,9% Process connection Type 8 – G¾" / Sensor Ø22mm Measuring range ≥ 1,6bar: Ceramic Al_2O_3 – 96%
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed FFKM – perfluorelastomere (e.g. Kalrez®) FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	– 20°C...+70°C
Process temperature:	-40...+100°C (extended -40...+125°C)
Process pressure:	– 1 bar ...20 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

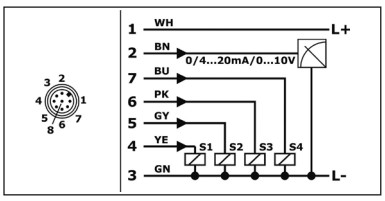
Electrical connection



Electronic output type M
1x signal 0/4…20mA-0…10V, supply 24VDC



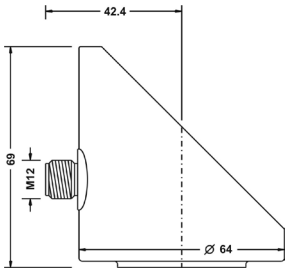
Electronic output type K
1x signal 0/4…20mA-0…10V, 2x switch PNP, supply 24VDC



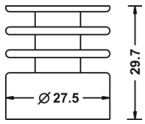
Electronic output type R
1x signal 0/4…20mA-0…10V, 4x switch PNP, supply 24VDC

Dimension drawings

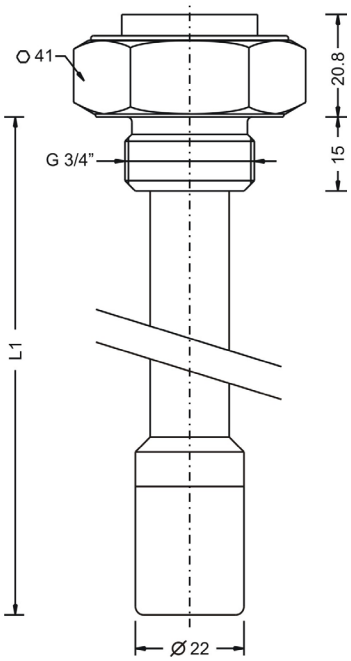
Terminal enclosure



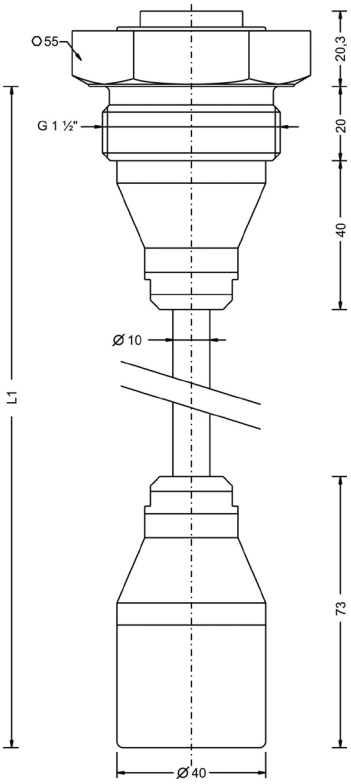
Temperature decoupler



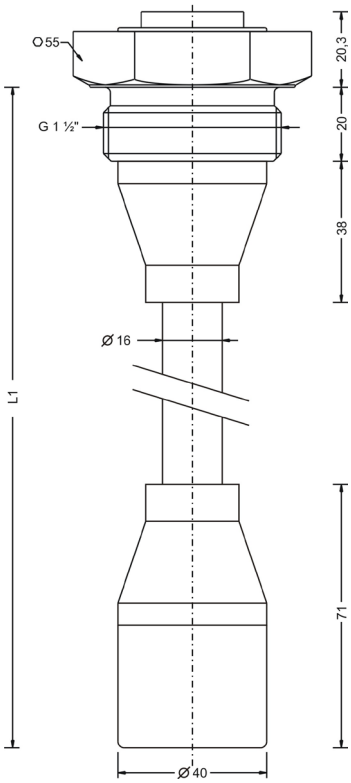
Type 8 – Thread ISO 228-1 – G¾"A Probe extension type F – Tube Ø16mm / Probe Ø22mm Length L1 ≤ 2000 mm



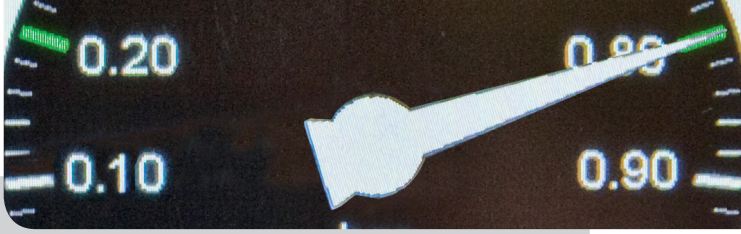
Type 7 – Thread ISO 228-1 – G1½"A Probe extension type A / E – Extension cable / Probe Ø40mm Length L1 ≤ 100 000 mm



Type 7 – Thread ISO 228-1 – G1½"A Probe extension type D – Tube Ø16mm / Probe Ø40mm Length L1 ≤ 3000 mm



Order code



Type
HN4R Probe extension tube
HN4T Probe extension cable

Measuring system – material diaphragm (process wetted) **/ sensor type**
C Ceramic Al2O3 96%/99,7%/99,9% / capacitive

Approval
S Standard

Process connection
7 Thread ISO 228-1 – G1½"A
8 Thread ISO 228-1 – G¾"A
Y others

Material process gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
4 FFKM - perfluorelastomere (e.g. Kalrez®)
6 FFKM hd - perfluorelastomere high density - gas applications
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
26 0...50 mbar
01 0...100 mbar
02 0...200 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...20 bar
15 -100...0 mbar
16 -1...0 bar
17 -1...+1 bar
18 -100...+100 mbar
YY Special measuring range

Electronic – output
M 1x signal 0/4...20mA-0...10V, supply 24VDC
K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC
R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Electronic – function
0 without
1 Bluetooth-Interface
2 Data logger with time stamp, battery powered
3 Bluetooth-Interface / Data logger with time stamp, battery powered
Y others

Process temperature
0 Standard -40°C...+100°C
1 Extended -40°C...+125°C, temperature decoupler
5 Reduced -20°C...+70°C, probe extension – extension cable

Pressure type
R Gauge pressure

Measuring system – accuracy
1 0,2%
3 0,1% (FS ≥ 100mbar), linearization protocol
6 Xcellence – 0,05% (FS ≥ 200mbar), linearization protocol

Electrical connection
S Plug M12

Probe extension
A Extension cable PE / Probe Ø40mm
E Extension cable FEP / Probe Ø40mm
D Tube Ø16mm / Probe Ø40mm
F Tube Ø16mm / Probe Ø22mm
Y others

Length L1 / mm

Order code

Hydrocont®	HN4R/ HN4T	C	S			V	C					R		S		

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.
At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of e.g. 80-times of nominal load at a sensor with a pressure range of 0...50 mbar without damage. 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.

Specials

Order code .....page | 17 |

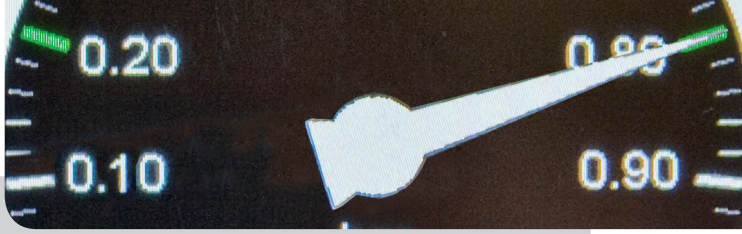
Application

- Fill level measurement in basins, channels and tanks
- Variety of process connections to meet all requirements eg. thread or hygienic connections available
- High-precision, dry capacitive ceramic measuring cell, high purity 99.9%
- Housing versions in stainless steel and in various plastics with plug or clamp connection
- For use in hazardous areas

Your benefits

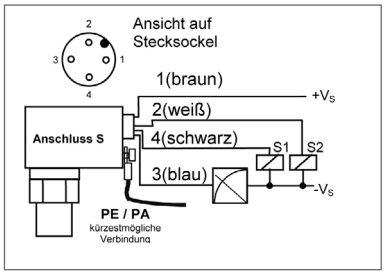
- *Tube extension* and cable version for mounting from the top
- Measurement display on *high brightness LED display*
- Good readability
- *Easy commissioning*
- Measurement *independent of foam, dk-value and of tank internals*

Technical data

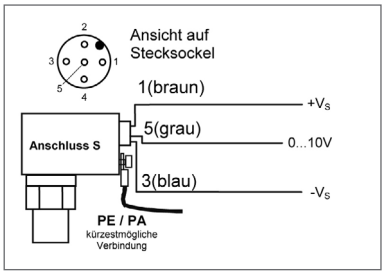


Technical data	
Output variations A/B/C/D:	4..20 mA, 2-wire
Output variations E/F/G/H:	0...10 V, 3-wire
Permitted supply voltage:	Variation C/D: 10,5 V up to 45 V DC Variation A/B/E/F/G/H: 14,5 V up to 45 V DC
Residual ripple:	≤ 2 Vss
Switching outputs (S1 / S2):	2x PNP switching on +VS
Output current:	> 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

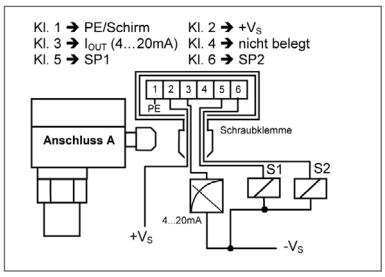
Connection



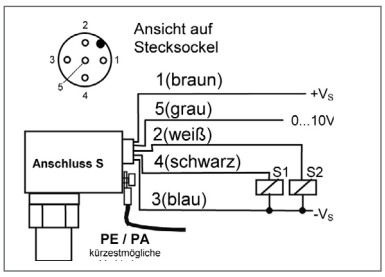
Connection Type A; plug M12



Connection Type E; plug M12



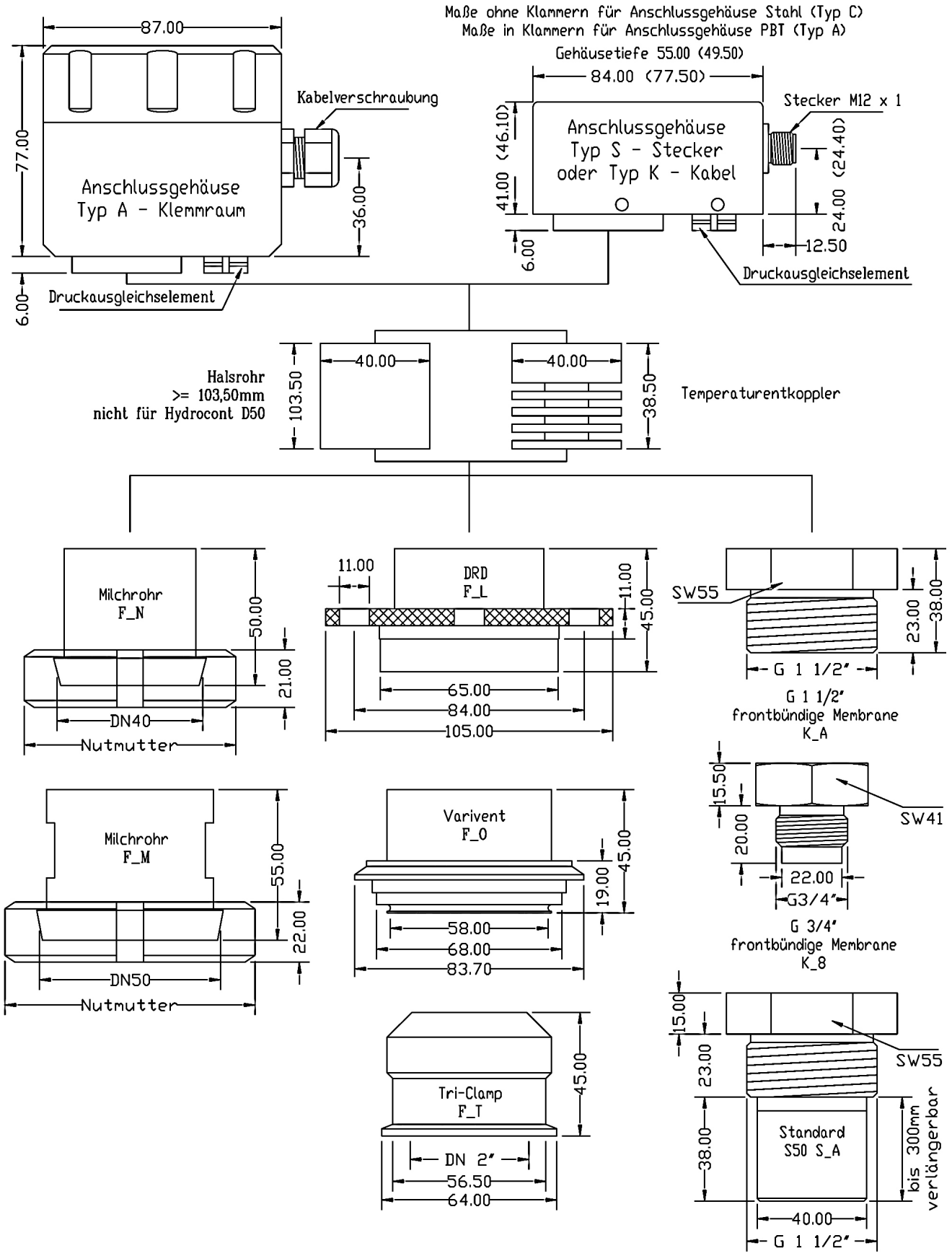
Connection Type A; terminal compartment



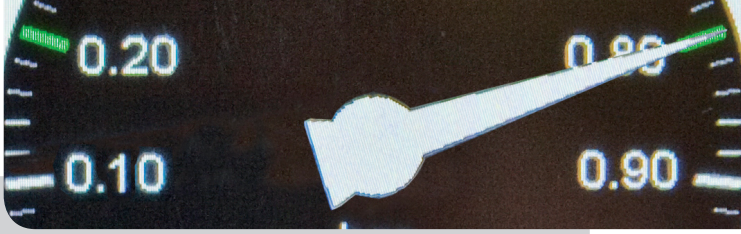
Connection Type E; terminal compartment

In use

Dimension drawings



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)

Type:

Hydrocont® D50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

Description

The devices of the series Hydrocont® D50 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.
Because of the special construction of the device Hydrocont® D50, this sensor is especially suitable for the use in areas with high air humidity and condensed water formation, where conventional devices can not be used or can only be used by applying an expensive leaded pressure compensation capillary.
The level measurement system Hydrocont® D50 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. At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of up to 80-times of nominal load without damage. 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.

Specials

Order code .....page | 21 |

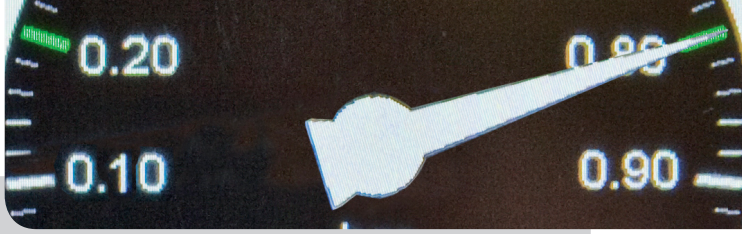
Application

- Particularly suitable for tanks with high condensation
- Fill level measurement in tanks, flumes and tanks
- Housing versions in stainless steel with plug or clamp connection
- Hermetically sealed completely to the outside, no air filtration required
- Areas with very aggressive atmosphere

Your benefits

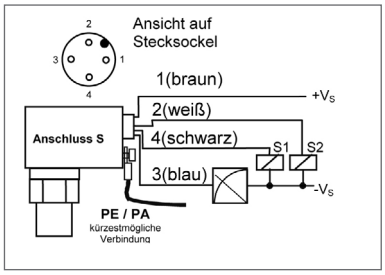
- *Tube extension* and cable version for mounting from the top
- Measurement display on *high brightness LED display*
- Good readability
- *Easy commissioning*
- No failures resp. drift problems caused by condensation
- Very high accuracy and long term stability

Technical data

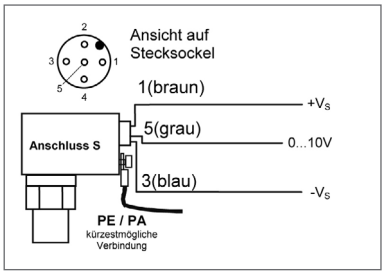


Technical data	
Output variations A/B/C/D:	4..20 mA, 2-wire
Output variations E/F/G/H:	0...10 V, 3-wire
Permitted supply voltage:	Variation C/D: 12,5 V up to 45 V DC Variation A/B/E/F/G/H: 16,5 V up to 45 V DC
Residual ripple:	≤ 2 Vss
Switching outputs (S1 / S2):	2x PNP switching on +VS
Output current:	> 250 mA, current limited, short circuit predected
Measuring accuracy	
Temperature deviation:	≤ 0,2% / 10 K of the nominal range
Deviation in characteristics:	≤ ±0,1% / ±0,2% FS; Measuring range 0,2bar/0,4bar: ±0,35% FS
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
Extension cable:	PE/FEP
Environmental conditions	
Medium temperature:	-40°C...+125°C (for 1h 140°C) at Extension cable -20°C...+70°C
Ambient / storage temperature:	-40°C...+85°C; at Extension cable -20°C...+70°C
Protection:	IP65 / IP67

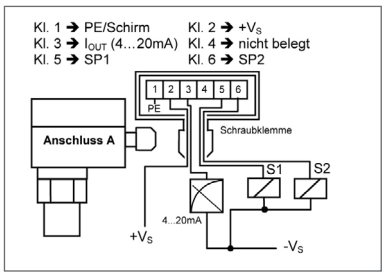
Connection



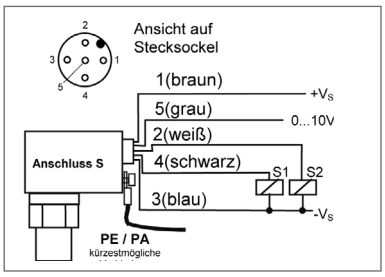
Connection Type A; plug M12



Connection Type E; plug M12



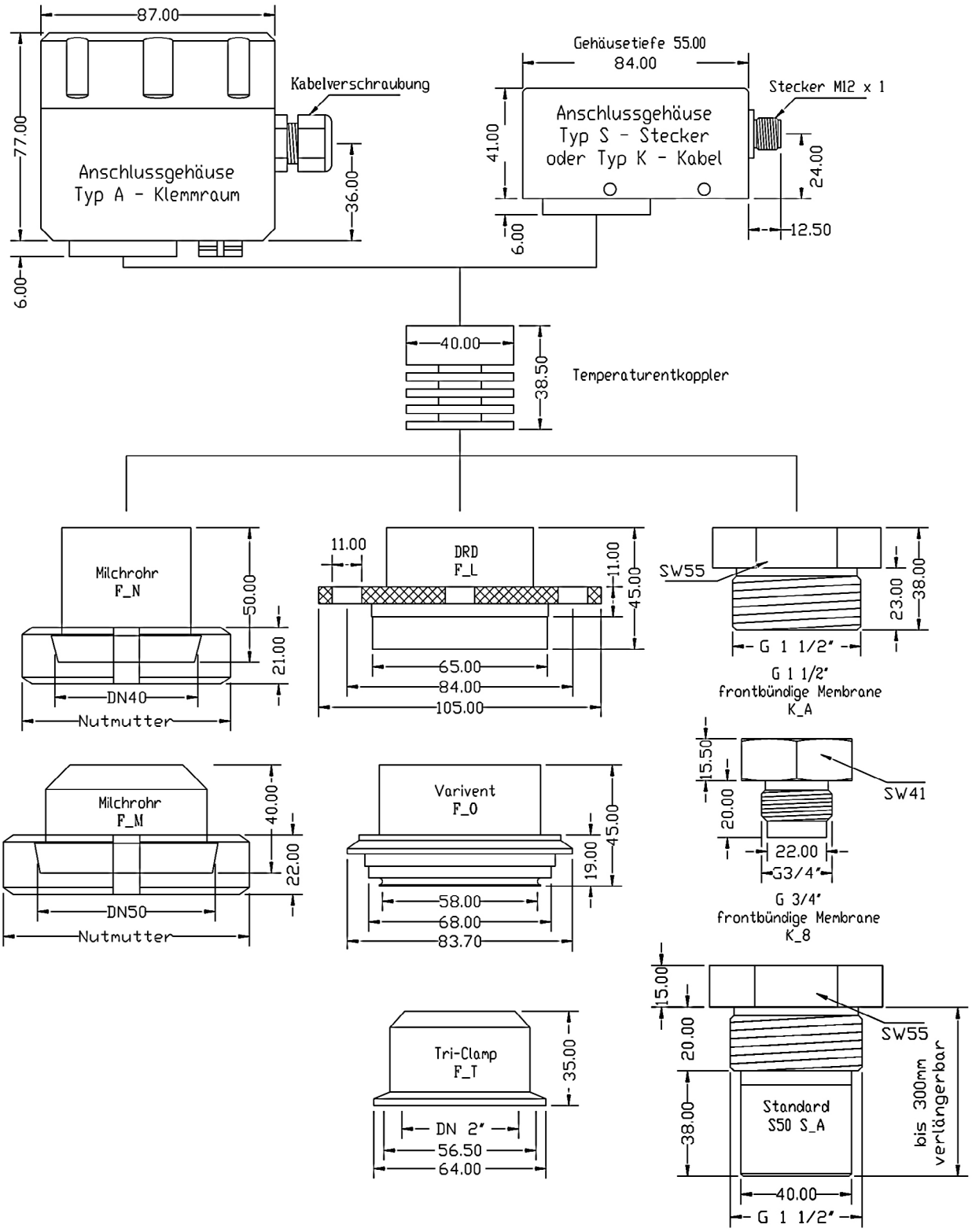
Connection Type A; terminal compartment



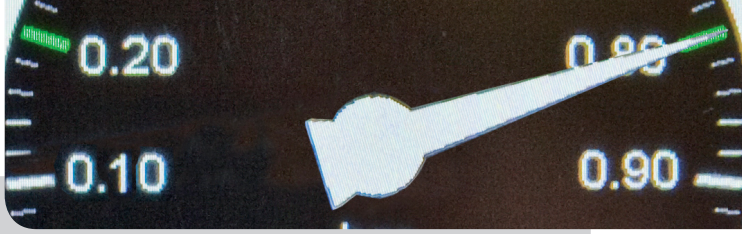
Connection Type E; terminal compartment

In use

Dimension drawings



Order code



Type

D50	Standard
ExD50	ATEX II 1/2 G Ex ia IIC T4
XDD50	ATEX II 1/2 D Ex iaD 20/21 T60°C/T102°C

Version

S	Standard for process connection A – G 1½" A
K	Short form front flush for process connection 8 – G ¾" A resp. A – G 1½" A
T	Carrying cable for version prolongation A – carrying cable PE resp. E – carrying cable FEP
R	Tube prolongation for version prolongation C – tube Ø40mm resp. D – tube Ø16mm
F	Front flush membrane for process connection N, M, O, L, R, F, G, H, T
H	High temperature –10..+200°C diaphragm seal with metallic membrane, welded
Y	Others on request

Accuracy measuring system *) – material measuring membrane (medium contact)

H	0,2% ceramic AL_2O_3 99,9% (highly clean)
L	0,1% Linearization protocol ceramic AL_2O_3 99,9% (highly clean)

Process connection

8	G ¾" A ISO228-1 front flush membrane not for variant membrane H / K 99,9%
A	G 1½" A ISO228-1
M	Milk tube DN 50, PN 40 DIN 11851
N	Milk tube DN 40, PN 40 DIN 11851
O	Varivent 68 mm DN40-80/DN1½"..6", PN25 DN100/DN4", PN20 DN125/DN6", PN10
L	DRD 65 mm DN 50, PN 40
R	Flange DN 25, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
F	Flange DN 40, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
G	Flange DN 50, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
H	Flange DN 80, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
T	Tri-clamp® DN 2", PN 16 ISO 2852
B	Nut groove adapter

Electronic - output

A	2-wire-technology signal 4...20 mA 2x PNP switching output LED display, 3 key's
B	2-wire-technology signal 4...20 mA LED display, 3 key's
C	2-wire-technology signal 4...20 mA 3 key's
D	2-wire-technology signal 4...20 mA fix adjusted
E	3-wire-technology signal 0...10 V 2x PNP switching output LED display, 3 key's
F	3-wire-technology signal 0...10 V LED display, 3 key's
G	3-wire-technology signal 0...10 V 3 key's
H	3-wire-technology signal 0...10 V fix adjusted

Measuring range

0	0...200 mbar	3	0...2 bar
1	0...400 mbar	4	0...4 bar
2	0...1 bar	5	0..10 bar
		Y	Special measuring range

Material Connection housing

C	CrNi-steel

Electrical connection

S	Plug M12x1
K	Cable 2m (not for Profibus PA)
A	Terminal box

Process temperature /material process connection

2	Steel 1.4404/ -40°C..+125°C Temperature decoupler
Y	Others on request

Gaskets (medium contact)

1	FPM fluorelastomere (Viton®)
2	CR chloroprene-rubber (Neopren®)
3	EPDM etylene-propylene-dienmonomere for food applications
4	FFKM perfluorelastomere (Kalrez®) * for type „R",„T" and „S"
5	welded at high temperature version type H
6	FFKM perfluorelastomere high density for gas applications * for type „R",„T" and „S"
7	FFKM – perfluorelastomere (Kalrez®) – construction form type R / T / S / B
8	FFKM hd – perfluorelastomere high density – construction form type R / T / S /B

Probe prolongation (price per 100mm)

A	Carrying cable PE -20...+70°C not for type XDD50
C	Tube Ø 40mm / steel 1.4404
D	Tube Ø 16mm / steel 1.4404
E	Carrying cable FEP -20...+70°C not for type XDD50
Y	Others on request
0	No prolongation

Probe length
incl. Process connection: measure in mm

Order code

Hydrocont® C mm

Type:

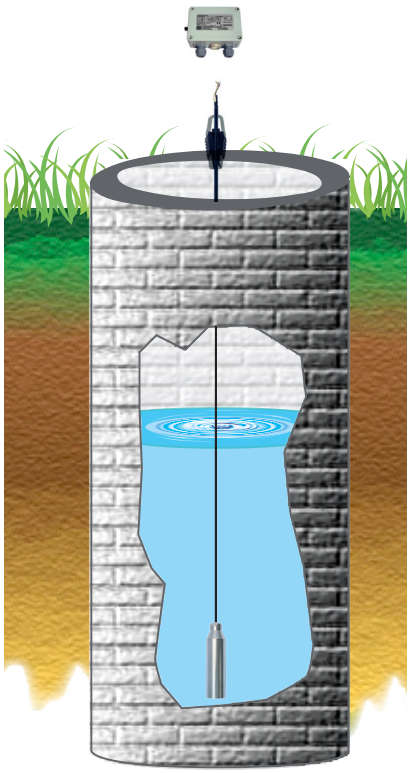
Hydrocont® B / ExB

Hydrostatic filling level sensor – Ø 40mm for continuous measurement of filling levels and temperatures in liquids, level probe

Description

The device Hydrocont® B with integrated analogue evaluation electronic is a compact sensor for continuous measurement of fill levels in liquid media.
This includes e.g. the registration of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers.
For applications, where food or drink water suitability is necessary, a corresponding put in variant can be ordered.

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 containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.
In addition to the level measurement the temperature of the medium can be measured by a Pt100 resistor, that is integrated in the sensor.



Specials

- integrated temperature measuring °C
- 40-fold overload
- certification
- 0,1% high accuracy
- 4...20mA 2-wire
- lightning protection

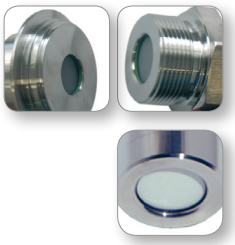
Order code .....page | 25 |

Application

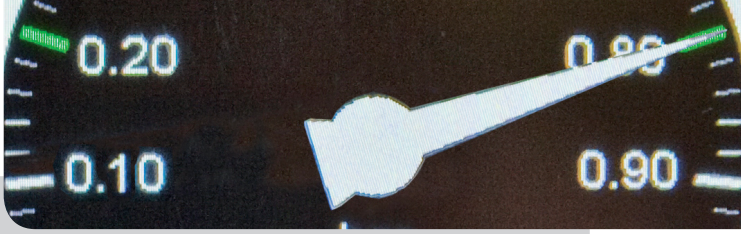
- Continuous fill level measurement in reservoirs, clarification basins, deep wells and boreholes
- Various materials selectable for sensor, cable and gaskets, therefore the use in various media is possible
- Fill level measurement at containers that are outside and can be flooded

Your benefits

- *Very stable special cable* with steel mesh and pressure compensation capillary
- Double *insulation* prevents water getting inside even with external damage
- Food and drinking water suitable materials
- High-precision dry capacitive ceramic measuring cell
- Process connection for hygiene applications available
- *Easy setup* and connection to existing control systems



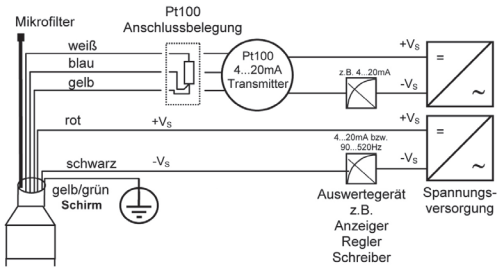
Technical data



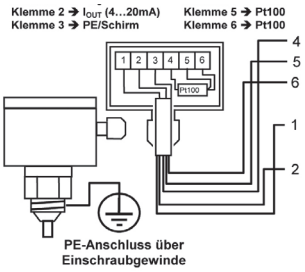
Technical data	
Output:	4..20 mA, 2-wire
Residual ripple:	≤ 2 Vss (cCondition: within the permitted supply voltage range)
Permitted supply voltage:	11,5 V up to 45 V DC at Ex-version 11,5 V up to 30 V DC
Measuring accuracy	
Temperature deviation:	≤ 0,1% / 10 K of the nominal range
Deviation in characteristics:	≤ 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:	infinite, because analog measurement electronics
Material	
Membrane:	Ceramic AL_2O_3 99,9%
Material slopes sensor:	Steel 1.4404
Sealing screw:	Steel 1.4404
Gaskets:	FPM (Viton®) / EPDM / Neoprene® / Kalrez®
Connection housing:	Polyacetal POM (Delrin), screw-in thread out of Steel 1.4404
Wall-mounted casing:	PC / PC
Extension cable:	PE / PUR / FEP
Environmental conditions	
Permitted filling temperature:	-20°C...+70°C
Protection:	Material slopes sensor IP68 Sealing screw / Connection housing IP67 Wall-mounted casing IP65

Connection

Connection im Non-Ex-Area

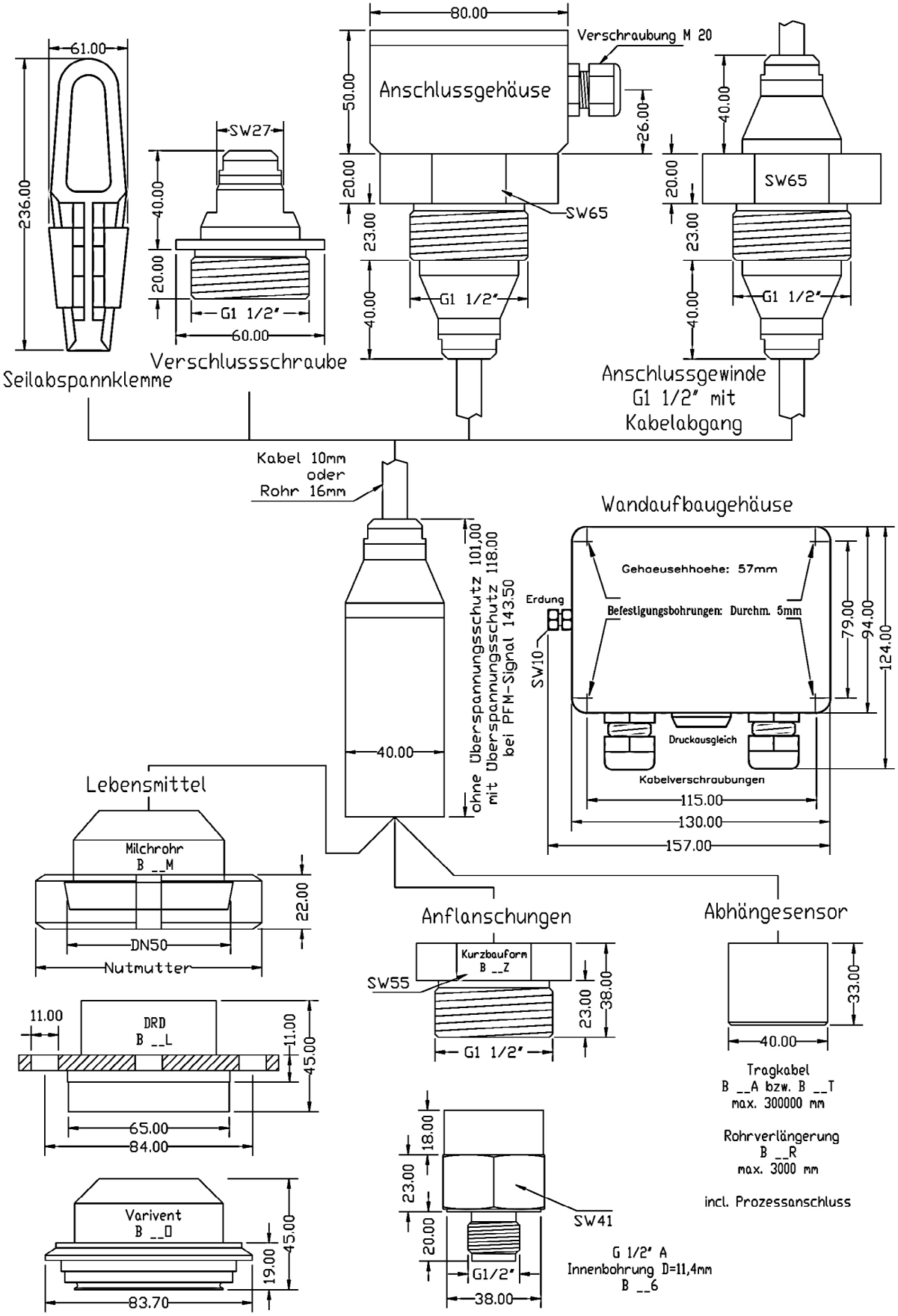


Connection Type A Terminal housing

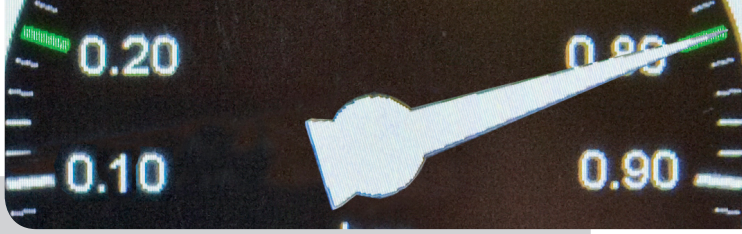


In use

Dimension drawings



Order code



Type
B Standard
Ex1B ATEX II 2 G Ex ib IIC T4
Ex0B ATEX II 1/2 G Ex ia IIC T4

Wall installation housing
W Wall installation housing
0 Without wall installation housing

Put-in device – process connection
0 Without put-in device
S Cable clamp fixing steel, hot galvanized
U Cable clamp fixing CrNi-steel
V Screw plug G 1½" DIN EN ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
G Connection housing G 1½" DIN EN ISO228-1 material like material – probe
H Connection thread G 1½" DIN EN ISO228-1 material like material – probe cable connection specify cable length

Variant sensor – process connection
A Standard
T Food and drink water suitability of all medium contacting materials
R Tube prolongation Ø 16mm (only for ype G or type H)
Z G 1½" B DIN EN ISO228-1
6 G ½" B DIN EN ISO228-1 inside drill 11,4 mm
M Milk tube DN 50, PN 40 DIN 11851
L DRD 65 mm DN 50, PN 40
O Varivent 68 mm DN40-80/DN1½"..6", PN25 DN100/DN4", PN20 DN125/DN6", PN10

Electronic – output
0 2-wire-technology 4...20 mA
P 2-wire-technology PFM 90...520 Hz (not for Ex)

Meausure range in bar
8 0...100 mbar
0 0...200 mbar
1 0...400 mbar
6 0...600 mbar
2 0...1000 mbar
3 0...2000 mbar
4 0...4000 mbar
7 0...6000 mbar
9 0...5000 mbar
5 0...10000 mbar
P 0...50 mbar
Z 0...20 bar

Meausure range in m water column
A 0...1 m water column
B 0...2 m water column
C 0...4 m water column
M 0...5 m water column
D 0...6 m water column
E 0...10 m water column
F 0...20 m water column
L 0...25 m water column
G 0...40 m water column
J 0...50 m water column
K 0....60 m water column
H 0...100 m water column
Y Special measuring range

Accuracy measuring system
H 0,2% ceramic AL_2O_3 99,9% (highly clean)
L 0,1% Linearization protocol ceramic AL_2O_3 99,9% (highly clean)

Over voltage protection
0 Without over voltage protection
P Integrated over voltage protection not for variant type Ex0B

Temperature sensor
0 Without temperature sensor
1 Integrated temperature sensor Pt100
2 Integrated temperature sensor Pt100 with an installed Pt100 . . . . . transmitter in the wall installation housing specify temperature measurement range separately

Material probe (medium contact)
1 Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
3 Navy bronze CU SN 12
4 Hastelloy C
6 PEEK
7 Titan

Material gaskets (medium contact)
1 FPM fluorelastomere (Viton®)
2 CR chloroprene-rubber (Neopren®)
3 EPDM etylene-propylene-dienmonomere for food applications
4 FFKM perfluorelastomere (Kalrez®)
6 FFKM perfluorelastomere high density for gas application
7 FFKM – perfluorelastomere (Kalrez®) – construction form type R / T / S
8 FFKM hd – perfluorelastomere high density – construction form type R / T / S

Material probe prolongation
(medium contact, price per 100mm)
A PE Polyethylene
E FEP Fluorinated Ethylene Propylene
D Tube Ø 16mm steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

sensor length
incl. Process connection:
measure in mm

Order code

Hydrocont® mm

Type:

Hydrocont® M / ExM

Hydrostatic filling level sensor – Ø 22mm for continuous measurement of filling levels and temperatures in liquids

Description

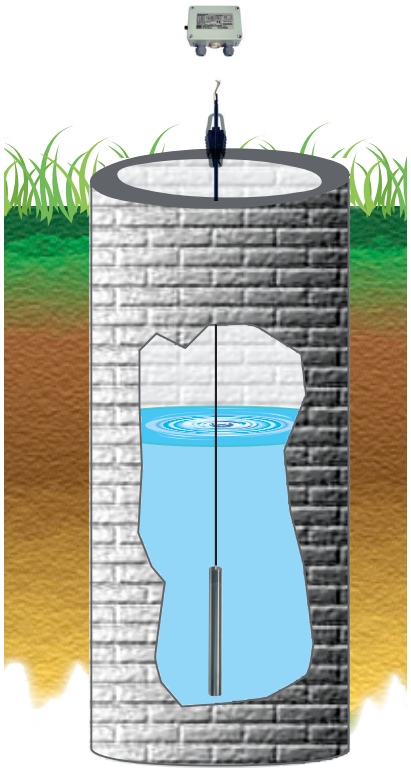
The filling level sensor Hydrocont® M with integrated analogue evaluation electronic is a compact transmitter for continuous measuring of fill levels and temperatures in liquid media.

This includes e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers.

For applications, where food or drink water suitability is necessary, a corresponding variant can be ordered.

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 various applications with liquid media like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

Besides the level measurement it is possible to get the temperature of the medium by an integrated Pt100 resistor in parallel with this sensor.



Specials

- integrated temperature measuring °C
- lightning protection
- certification
- 0,1% high accuracy
- 4...20mA 2-wire
- slim design

Order code .....page | 29 |

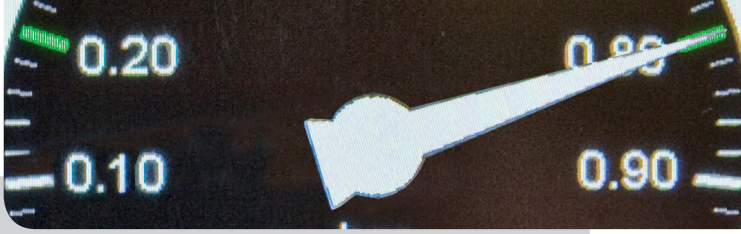
Application

- Continuous fill level measurement in reservoirs, clarification basins, deep wells and boreholes
- Various materials selectable for sensor, cable and gaskets, therefore the use in various media is possible

Your benefits

- Slim construction design, 22mm diameter
- *Very stable special cable* with steel mesh and pressure compensation capillary
- No elongation of the cable also at high depths slopes
- Food and drinking water suitable materials
- High-precision dry capacitive ceramic measuring cell

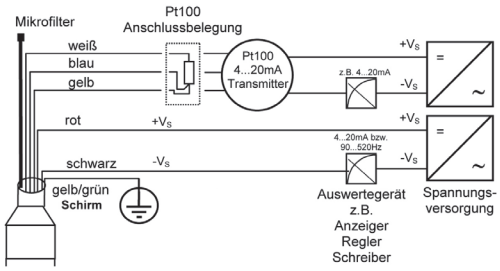
Technical data



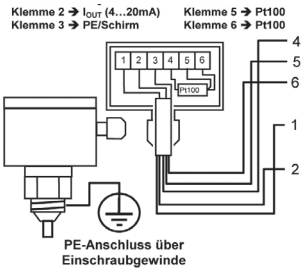
Technical data	
Output:	Signal 4...20 mA, 2-wire
Residual ripple:	≤ 2 Vss (Condition: within the permitted supply voltage range)
Permitted supply voltage:	Output signal 4...20mA: 11 V up to 45 V DC Output signal 10...10 V: 14...30 V DC at Ex-Variation 12,5 V up to 25,2 V DC
Temperaturmesswiderstand:	Pt100 Class B 3-wire Connection 0°C - Abweichung +/- 0,30 K Endpunktabweichung +/- (0,30 K + 0,005 K je K DT0°C) (optional im Wall-mounted casing integrierter Pt100 - Transwithter Type e.g. KTM, der gemäß Kandenspezifikation abgeglichen ist)
Measuring accuracy	
Temperature deviation:	≤ 0,15% / 10 K of the nominal range
Deviation in characteristics:	≤ 0,1% / 0,25% of the nominal range (depending on the order code)
Calibration deviation:	≤ 0,05% of the nominal range
Long term drift:	≤ 0,15% / year of the nominal range
Influence of supply voltage:	≤ 0,02% / 10 V of the nominal range
Resolution:	infinite, because analog measurement electronics
Material	
Membrane:	Ceramic AL_2O_3 96%
Material slopes sensor:	Steel 1.4404
Sealing screw:	Steel 1.4404
Gaskets:	FPM (Viton®) / EPDM / Neoprene®
Connection housing:	Polyacetal POM (Delrin), screw-in thread aus Steel 1.4404
Wall-mounted casing:	PC / PS
Extension cable:	PE / PUR
Environmental conditions	
Permitted filling temperature:	-20°C...+70°C
Protection:	Material slopes sensor IP68 Sealing screw / Connection housing IP67 Wall-mounted casing IP65

Connection

Connection im Non-Ex-Area

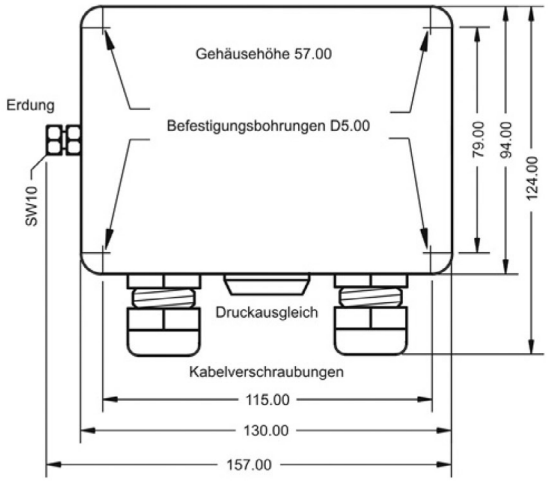


Connection Type A Terminal housing

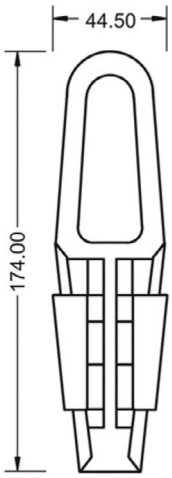


In use

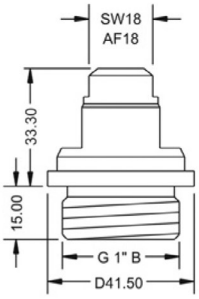
Wandaufbaugehäuse 130 x 98mm



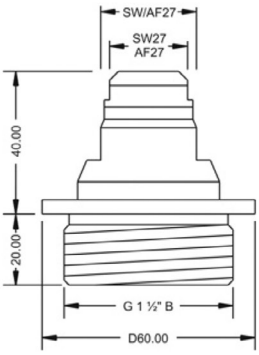
Seilspannklemme D8mm

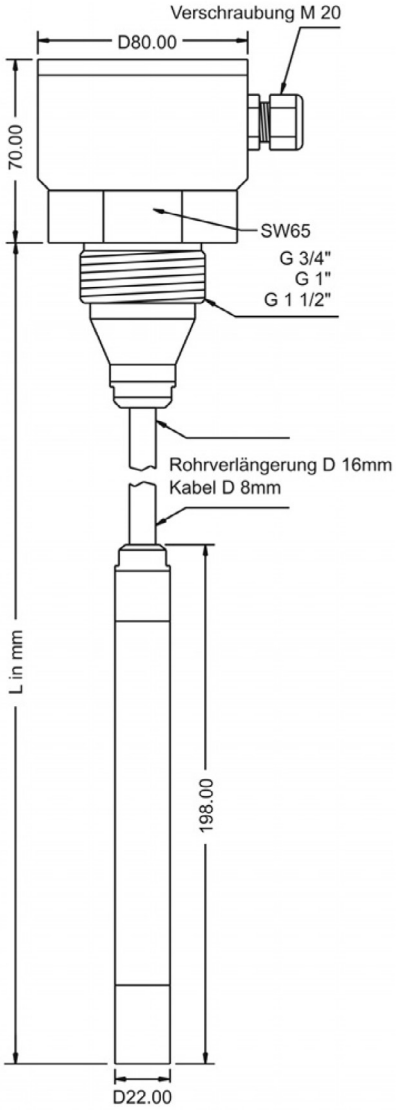


Verschlussschraube G 1“

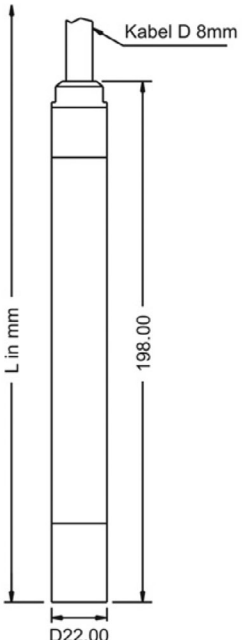


Verschlussschraube G 1 ½“

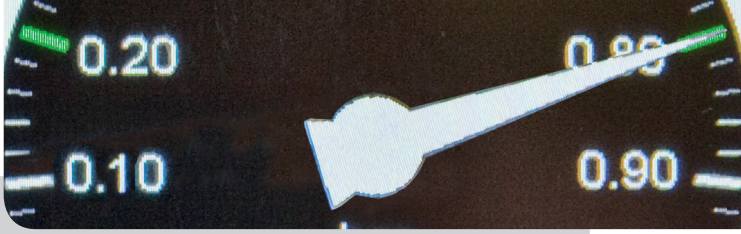




Sensor – ohne Anschlussgehäuse



Order code



Type

M Standard
Ex0M II 1/2 G Ex ia IIC T4 for Ex zone 0
Ex1M II 2 G Ex ib IIC T4 for Ex zone 1

Variant wall installation housing

W Wall installation housing
0 Without wall installation housing

Put-in device / process connection

0 Without put-in device
S Cable clamp fixing steel, hot galvanized
U Cable clamp fixing CrNi-steel
W Screw plug G 1" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
T Screw plug G 1½" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
G Connection housing G 1½" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
8 Connection housing G ¾" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
9 Connection housing G 1" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Variant sensor

S Standard
T Food and drink water suitability of all medium contacting materials
R Tube prolongation Ø 16mm only for connection housing – type G / 8 / 9

Transmitter electronic

0 2-wire-technology 4...20mA
B 3-wire-technology 0...10 VDC

Measure range in bar

8 0...100 mbar
0 0...200 mbar
1 0...400 mbar
6 0...600 mbar
2 0...1000 mbar
3 0...2000 mbar
4 0...4000 mbar
9 0...5000 mbar
7 0...6000 mbar
5 0...10000 mbar
Z 0...20 bar

Measure range in m water column

A 0...1 m water column
B 0...2 m water column
C 0...4 m water column
M 0...5 m water column
D 0...6 m water column
E 0...10 m water column
F 0...20 m water column
L 0...25 m water column
G 0...40 m water column
J 0...50 m water column
K 0...60 m water column
H 0...100 m water column
Y Special measuring range

Accuracy measuring system

0 0,25% ceramic AL2O3 96%
K 0,1% Linearization protocol ceramic AL2O3 96%

Over voltage protection

0 Without over voltage protection
P Integrated over voltage protection not for Ex zone 0 – type Ex0M

Temperature sensor

0 Without temperature sensor
1 Integrated temperature sensor Pt100 not for Ex0M / Ex1M
2 Integrated temperature sensor Pt100 not for Ex0M / Ex1M
With an installed Pt100 transmitter in the wall installation housing

Material probe (medium contact)

1 Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Material gaskets (medium contact)

1 FPM fluorelastomere (Viton®)
2 CR chloroprene-rubber (Neopren®)
3 EPDM etylene-propylene-dienmonomere for food applications

Materials probe prolongation

A PE polyethylene
B PUR polyurethane
D Tube Ø 16mm

Sensor length

measure in mm (inclusive process connection)

Order code

Hydrocont® 1 mm

Type:

Hydrocont® LK

Level probe as a probe or suspension suitable for outdoor installation; Low Cost Version

Description

The device Hydrocont® LK with integrated analogue evaluation electronic is a compact hydrostatic transmitter for continuous measuring of filling levels in liquids at hydrostatic pressures from 0 up to 1 bar within pressure less container, at process temperatures from – 40°C to +100°C.

The use of a capacitive measuring sensor with ceramic membrane, allows the use in nearly all fields of industry.

Application fields are e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the filling level measurement in closed containers at liquids, like e.g. water, waste water, solvents, oil, sludge, fat, cleaning liquids, etc.

Specials

- 4...20mA 2-wire
- lightning protection
- capacitive ceramic sensor
- 0,1% high accuracy
- 0...10 V 3-wire
- flush mounted

Order code .....page | 33 |

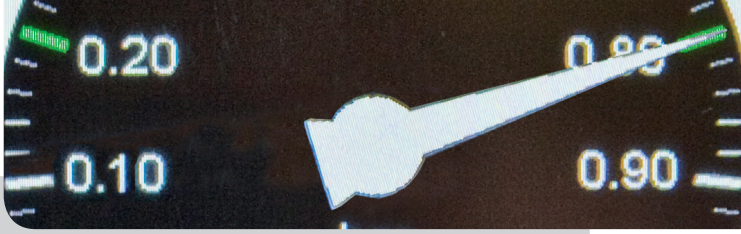
Application

- Continuous fill level measurement in reservoirs, clarification basins, deep wells and boreholes
- Recording screw-in pressure with flood-proof cable outlet

Your benefits

- *Price-optimized* model
- *Easy commissioning*
- High-precision dry capacitive ceramic measuring cell

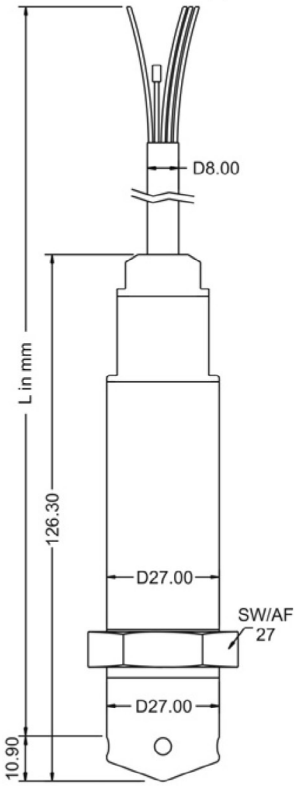
Technical data



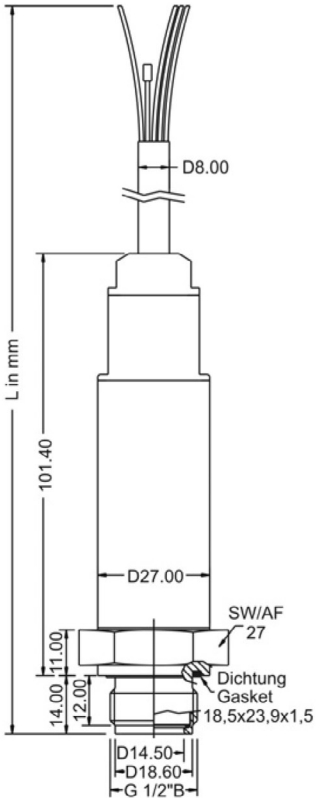
Technical data		
Output:	2-wire 4...20 mA 3-wire 0...10 V	10..30 V DC 14..30 V DC
Supply current:	2-wire 4...20 mA ≤ 30 mA 3-wire 0...10 V ≤ 6 mA	
Measuring accuracy		
Deviation in characteristics:	≤± 0,1% / 0,25% FS	
Temperature deviation:	≤± 0,15% FS / 10 K	
Long term drift:	≤± 0,15% FS / year not cumulative	
Influence of supply voltage:	≤ 0,02% / 10 V of the nominal range	
Resolution:	infinite, because analog measurement electronics	
Material		
Membrane:	AL_2O_3 96% (medium contact)	
Process connection:	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) (medium contact)	
Housing rope:	CrNi-Steel	
gasketen (medium contact):	FPM – Fluoroelastomer (Viton®) EPDM – ethylene-propylene-diene monomer NBR – Nitrile Butadiene Rubber	
Connection cable:	Coated cable PE Polyethylen	
Wall-mounted casing:	PC / PS	
Extension cable:	PE / PUR	
Environmental conditions		
Ambient temperature:	-20°C...+70°C	
Process temperature:	– 20°C...+70°C outdoor installation via process connection – 40°C...+100°	
Process pressure ranges:	0...100 mbar up to 0...1 bar	
Protection:	IP68	DIN EN 60529

Dimension drawings

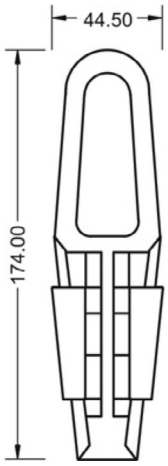
Abhängesensor mit Schutzkappe



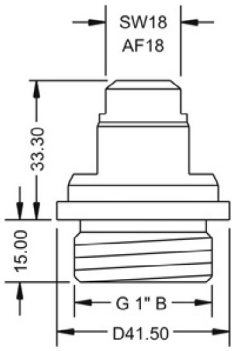
Einschraubsensor Prozessanschluss G 1/2“



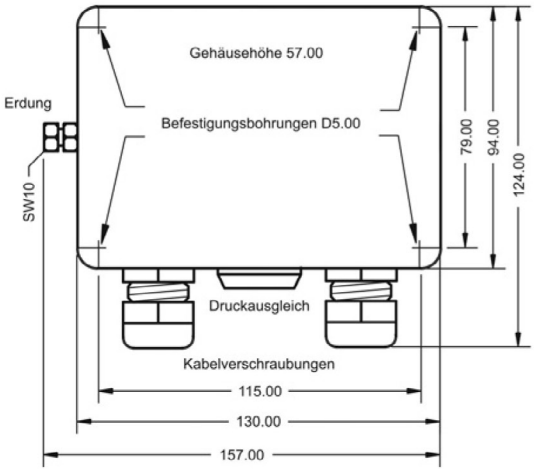
Seilspannklemme D8mm



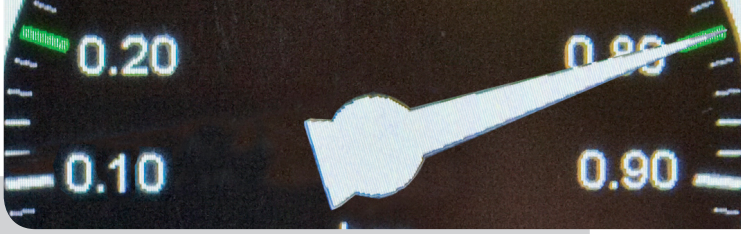
Verschlussschraube G 1“



Wandaufbaugehäuse 130 x 94mm



Order code



Type
0 Standard

Measuring membrane (medium contact)
LK Ceramic capacitive membrane ceramic AL2O3 96%

Process connection
0 G ½" B DIN EN ISO228-1 slopes probe with flush measuring cell and cap, suitable by G- „connection for outdoor installation
Y Others on request

Gaskets (medium contact)
1 FPM fluorelastomere (Viton®)
3 EPDM etylene-propylene-dienmonomere for food applications

Material process connection (medium contact)
V Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Material Connection housing
C CrNi-steel

Measuring range
01 0...0,1 bar
02 0...0,2 bar
03 0...0,4 bar
04 0...0,6 bar
05 0...1 bar
YY Special measuring range separate spec. necessary

Electronic – output
A 2-wire-technology signal 4...20 mA
B 3-wire-technology signal 0...10 V

Process temperature
0 Standard -40°C to 100°C outside installation, -20°C to +70°C as slope version

Pressure type
R Relative pressure

Accuracy measuring system *):
0 0,1 %, with Linearization protocol
2 0,25 %

Probe prolongation
(price per 100mm)
A Carrying cable PE

Probe length L
incl. process connection measure in mm

Order code

Hydrocont®	0	LK			V	C			0	R		A	mm

Equipment

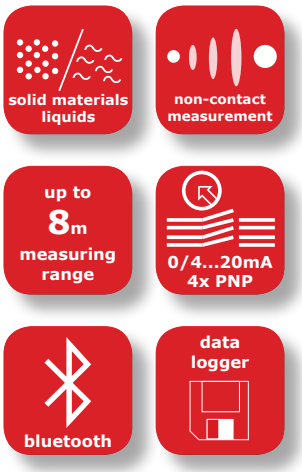
Sealing screw VS-1000 G1"
Sealing screw VSM-1500 G1 1/2"
Straining clamp verzinkt
Wall-mounted casing with laser marking
Wall-mounted casing without laser marking

Type:

Sonicont USN4

Ultrasonic level transmitter / level switch
Non-contact measurement of filling levels
in liquids, pastes and coarse bulk materials

Specials



Order code .....page | 37 |

Description

The device is an electronic level transmitter / level switch for monitoring, control as well as continuous measurement of filling levels in liquids, pastes and coarse bulk materials.
Additional application fields are volume or flow measurement.
The software was optimized and extended by a new algorithm. The Sonictrack is a better algorithm for the detection of ultrasonic signals, so that interference signals e.g. agitators etc. can be recognized even better and thus a safe operation can be ensured.
Due to the device construction with measuring ranges of 2m / 5m / 8m, process temperatures from –40°C to +85°C and process materials PVDF / CrNi-steel / EPDM as well as the availability of extensive equipment and functionality predefined vessel types for fast commissioning, predefined linearization curves for volume and flow measurement, integrated error signal suppression for adaption the installation situation, integrated compensation of the process temperature, limit value function for two-point control, pump control function, impulse output function for quantity counter and error indication function for error monitoring the device is especially suitable for the use for level and volume measurement and flow measurement at open channels and measuring weirs for water and waste water sector, process industry, environmental technology, storage tanks, storage bunkers, silos.
The device is suitable for demanding measuring requirements.
Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

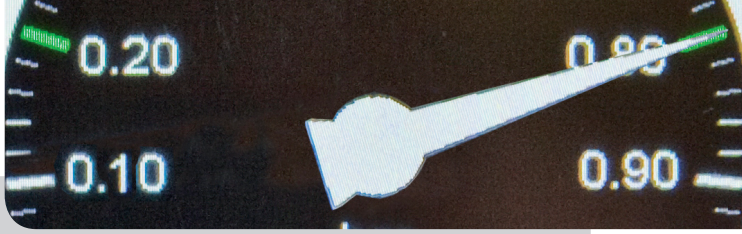
Application

- Non-contact level and volume measurement or flow measurement at open channels and measuring weirs for
  - Water and waste water sector
  - Process industry
  - Environmental technology
  - Storage tanks, storage bunkers, silos

Your benefits

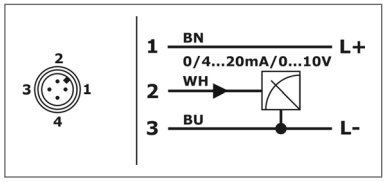
- *Wide range of applications*
- Measuring ranges up to 8m in liquids and bulk materials
- Wide process temperature range –40°C to +85°C
- High protection class IP65 / IP67
- Wide environmental temperature range –20°C to +70°C
- Ceramic *front-flush diaphragm*
- Increased accuracy – characteristic deviation ≤ 0,2% of measuring range
- Integrated evaluation electronic: Graphic display, keyboard / 4x PNP switch output / 1x current output 0/4...20mA – voltage output 0...10V / Measure data memory for more than 500.000 measuring values / Battery powered data logger function / Bluetooth / Connector plug M12
- *High operating comfort*: enclosure and display rotatable for *optimal operability* in each installation position
- High contrast high brightness TFT-LCD display for *best readability*
- 3-key operation without additional assistance with tactile feedback

Technical data

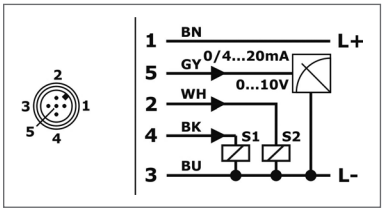


Technical Data	
Supply voltage:	Setting output 0/4...20 mA: 9..30 VDC, reverse polarity protected Setting output 0…10 V: 14..30 VDC, reverse polarity protected
Supply current:	≤ 50mA up to ≤ 100mA (depending on output, bluetooth ON/Off, US)
Start-up time:	≤ 1s
Operating range:	Analogue output – current 0…20mA IOut: 0…20,5mA, max. 22mA Analogue output – current 4…20mA IOut: 3,8…20,5mA, min. 3,6mA, max. 22mA Analogue output – voltage 0…10V UOut: 0 ... 10,5 V, max. 11 V
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	0… ≤ 200mA current limited, short circuit protected
Measuring accuracy	
Characteristic deviation:	≤ ±2mm or ±0,2% of set measuring range
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	≤ ±0,006% FS / K
Materials	
Sensor	PVDF
Process connection	Steel 1.4404/316L / Steel 1.4571/316Ti
Gaskets	EPDM – ethylene-propylene-dienmonomere
Terminal enclosure	CrNi-steel
Control panel surface	PES
Electrical connection part	Device plug PUR
Pressure compensation element	Acrylic copolymer
Gaskets	FPM – fluorelastomere (e.g. Viton®)
Environmental conditions	
Environmental temperature:	– 20°C...+70°C
Process temperature:	-40...+85°C
Process pressure:	-0,3…2 bar
Protection:	IP65/IP67 EN/IEC 60529

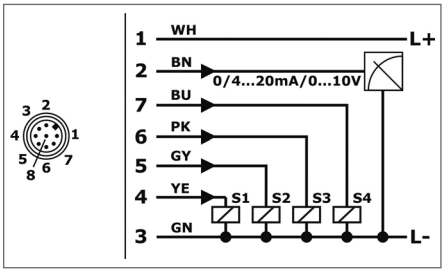
Connection



Signal 0/4…20 mA / 0…10 V
Conductor color standard connection cable M12:
BN = brown, WH = white, BU = blue



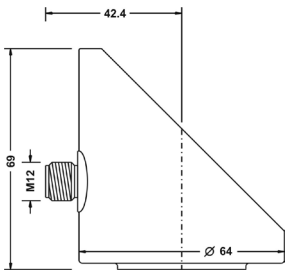
Signal 0/4…20 mA / 0…10 V / 2x PNP switch output
Conductor color standard connection cable M12:
BN = brown, WH = white, BU = blue,
BK = black, GY = grey



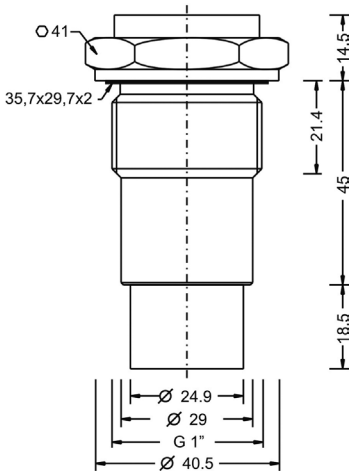
Signal 0/4…20 mA / 0…10 V / 4x PNP switch output
Conductor color standard connection cable M12:
WH = white, BN = brown, GN = green, YE = yellow,
GY = grey, PK = pink, BU = blue, RD = red

Dimension drawings

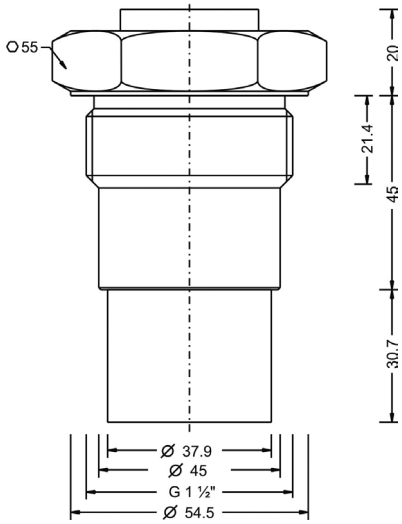
Terminal enclosure



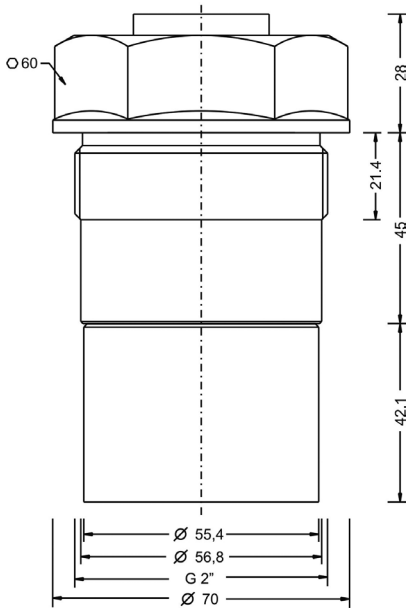
Type 5 – Thread ISO 228-1 – G1"B / Measuring range type 02 – 2m



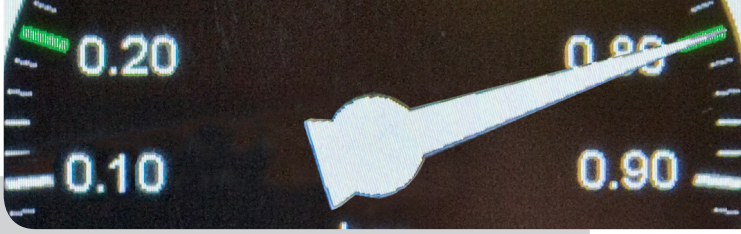
Type 7 – Thread ISO 228-1 – G1½"B / Measuring range type 05 – 5m

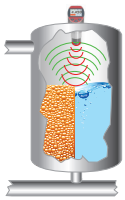


Type D – Thread ISO 228-1 – G2"B / Measuring range type 08 – 8m

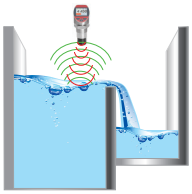


Order code



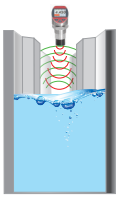


Volume measurement/
Empty space measurement

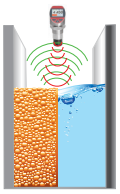


Measurement of rain overflow basins

Differential measurement at the rake



Amount measurement Venturi



Fill level measurement

Pump Control/
Slider control

Order code

Type
USN4S Standard

Measuring system – material diaphragm (process wetted) **/ sensor type**
P PVDF / Piezo

Approval
S Standard

Process connection
5 Thread ISO 228-1 – G1"B *(only at measuring range 2m)*
7 Thread ISO 228-1 – G1½"B *(only at measuring range 5m)*
D Thread ISO 228-1 – G2"B *(only at measuring range 8m)*
Y others

Material process gaskets (process wetted)
3 EPDM – ethylene-propylene-dienmonomere

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
02 2 m
05 5 m
08 8 m

Electronic – output
M 1x signal 0/4...20mA-0...10V, supply 24VDC
K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC
R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Electronic – function
0 without
1 Bluetooth-Interface
2 Data logger with time stamp, battery powered
3 Bluetooth-Interface / Data logger with time stamp, battery powered
Y others

Process temperature
0 Standard -40°C...+85°C

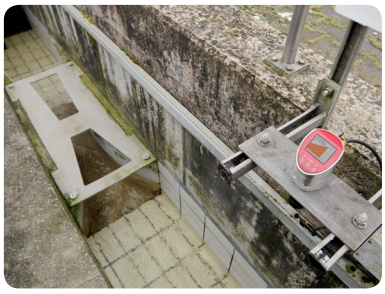
0

0

Electrical connection
S Plug M12

Sonicont®	USN4	P	S			V	C				0	0	0	S

In use



Equipment

Order information	*Model*
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded
LKZ0510PUR-AS	Connection cable 10 m, 5-pole, shielded
LKZ0805PUR-AS	Connection cable 5 m, 8-pole, shielded
BKZ0412-VA	Matching cable socket, VA-nut
BKZ0512-VA	Matching cable socket, VA-nut (at 0...10 V)

Type: Sonicont USG2/USF2

Ultrasonic fill level sensor for liquids and solid materials - separate version

Description

With the Sonicont® USF2 and USG2 provides ACS-CONTROL-SYSTEM GmbH an ultrasonic level transmitter remote version for non-contact level measurement of fluids, pastes and coarse bulk materials before. By long life, easy installation and less maintenance, the ultrasonic measuring system is a proven and cost-effective solution.

Combined with up to 4 freely adjustable switching points and suitable for measuring ranges up to 8m in liquids and up to 3.5 m in bulk materials (on request up to 25m in liquids and up to 12m in solids), this sensor can be used for various measuring tasks for volume linear display in all container types - and with an accuracy of 0.2% and ≤ 2 mm. In addition, the analog output 0 (4) ... 20 mA and 0 .. 10V is switchable. The morn transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation by clear menu guidance.

Besides level measurements the Sonicont® USG2 and USF2 is able for measurement of flow rates and currents. The mathematical formulas are already stored in the device. The sensor Sonicont® USG2 can be installed up to 300m from the transmitter Sonicont® USF2 and has IP65/IP68 protection. The 2 „TFT color display of the Sonicont® USF2 provides an excellent representation of the measured values and easy readability. Intelligent data management enables the Sonicont® USF2 to record measured values through the Bluetooth interface and a built-in data logger function.

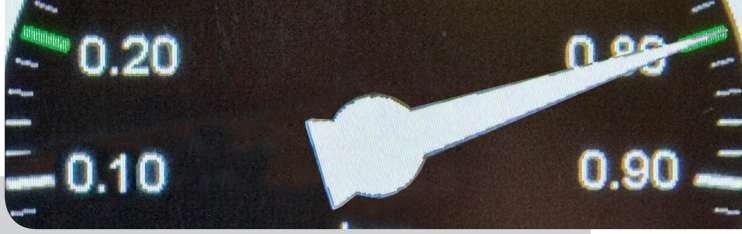
Signal converter

Sensors

Specials

Order code .....page | 43 |

Technical data



Sensor Sonicont® USG2

Technical data	
Supply voltage:	Supplied by signal converter Sonicont USF
Output	
Distance signal:	Analog voltage / pulse signal
Temperature signal:	Resistance – NTC 10 kΩ
Measurement range	
Liquids:	USG2 020: 2 m; USG2 050: 5 m; USG2 080: 8 m USG2 150: 15 m; USG2 250: 25 m
Solids:	USG2 020: 1 m; USG2 050: 2 m; USG2 080: 3,5 m USG2 150: 7 m; USG2 250: 12 m
Process conditions	
Process temperature:	-40°C…+85°C
Process pressure:	-0,3…2 bar
Material	
Sensor(medium contact):	PVDF
Process connection (medium contact):	Measuring range 020/050/080/150: PVDF; Measuring range 250: PVDF, PBT Valox
Sensor back (casting):	PVDF
Connection cable:	TPE-U
Environmental conditions	
Ambient temperature:	-40°C...+85°C
Protection:	Electrical connection type B – cable: IP65 / IP68 [≤ 1 mWs-1h] (EN/IEC 60529) Electrical connection type S – cable/plug connection M12: IP67 (EN/IEC 60529)
Climate Class:	4K4H [-20…+55°C / 4…100%] (EN/IEC 60721-3-4)
Shock resistance:	15 g [11ms] (EN/IEC 60068-2-27)
Vibration resistance:	4g [10…2000 Hz] (EN/IEC 60068-2-6)
EM – compatibility:	Equipment Class B / industrial sector (EN/IEC 61326)
Weight sensor:	USG2 020/050/080: 0,3 kg ; USG2 150: 0,6 kg; USG2 250: 0,9 kg

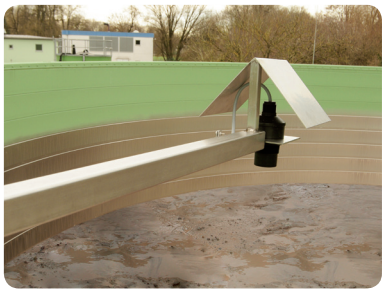
Your benefits

- Hermetically sealed sensor made of PVDF, for *highest chemical resistance*, no gaskets with medium contact
- *Integrated temperature sensor* for time correction
- The sensor can be *installed up to 300m away from the signal converter*
- Weather resistant and safe from flooding

Application

- Contactless fill level measurement in liquids pastes, slurries and solids
- Flow measurement in flumes and weirs
- Use in harsh Environmental conditions by separate signal converter
- Fill level measurement in high tanks and silos
- For Connection to signal converter Sonicont USF2

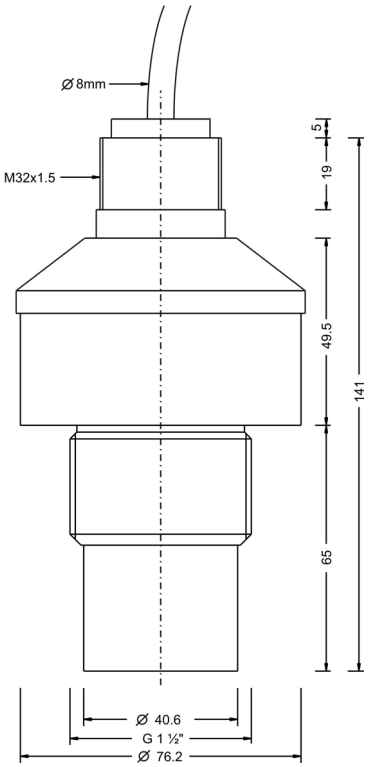
In use



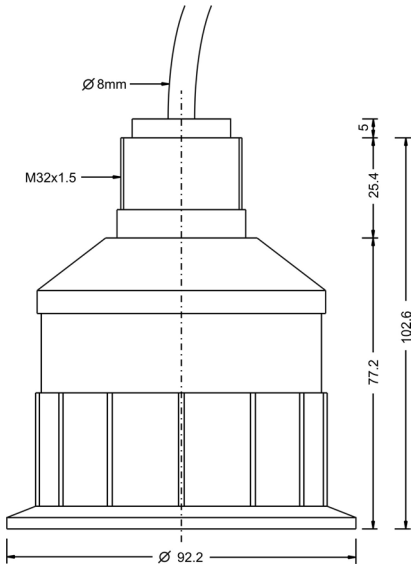
Dimension drawings

Sensor Sonicont® USG2

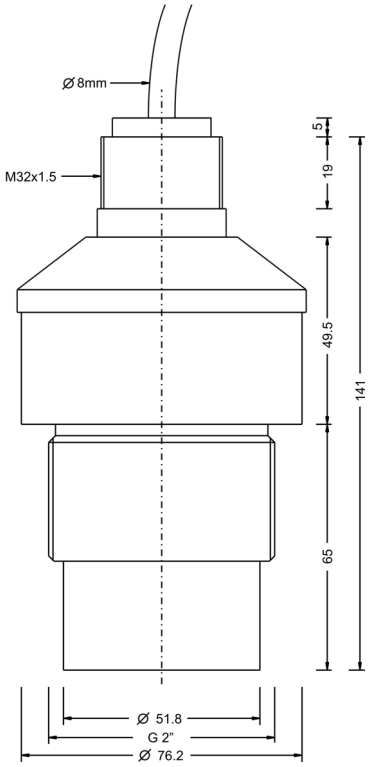
Process connection
Type USG2 020 G15 - G 1½" ISO 228-1
Type USG2 050 G15 - G 1½" ISO 228-1



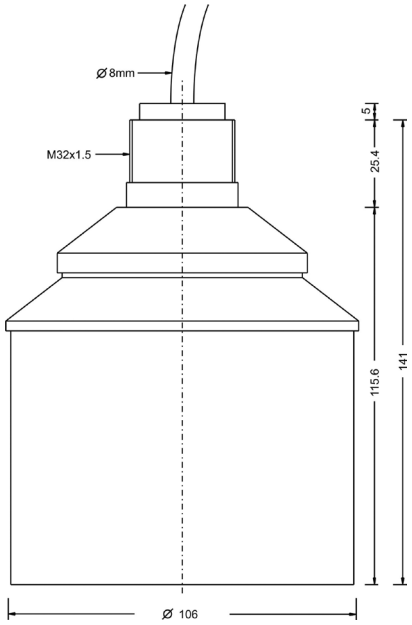
Process connection
Type USG2 150



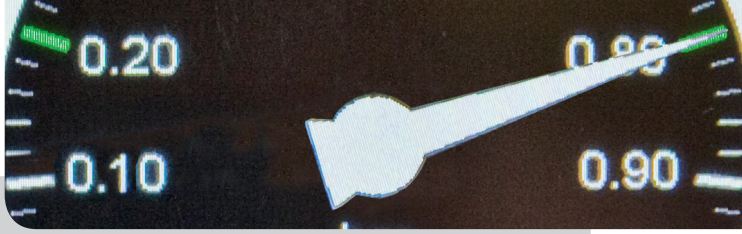
Process connection
Type USG2 080 G20 - G 2" ISO 228-1



Process connection
Type USG2 250



Technical data



Signal converter Sonicont® USF2

Technical data		
Supply voltage Type A/B/C:	18...30 V	
Power consumption Type A/B/C:	≤ 5W	
Supply voltage Type S/T/U:	186...253V AC	
Power consumption Type S/T/U:	≤ 20 VA	
Output Signal U/I		
Work area:	(0)4...20mA / 0...10 V, adjustable	
Sprungantwortzeit:	≤ 35 ms	
Measurement range		
Liquids:	USG2 020: 2 m; USG2 050: 5 m; USG2 080: 8 m USG2 150: 15 m; USG2 250: 25 m	
Solids:	USG2 020: 1 m; USG2 050: 2 m; USG2 080: 3,5 m USG2 150: 7 m; USG2 250: 12 m	
Switching outputs		
Amount:	0/2/4 depending on device version	
Function:	potential-free changeover contact	
Output current:	6A at 253 V AC (resistive load)	
Response time:	≤ 20 ms	
USB Interface		
Version:	2.0 FS	
Function:	Host	
Connection:	Micro-USB AB	
Bluetooth Interface		
Version	2.0 Full Speed	
Function	Host	
Jack socket	USB 2.0-A	
Data storage		
Size:	≥ 500.000 measurement values	
Measuring accuracy		
Deviation in characteristics:	≤ ± 2 mm or ±0,2 % of the measuring ranges (whichever is greater) (td ≥ 5s)	
Temperature deviation:	≤ ±0,06% FS / 10 K (Zero / Span)	
Material		
Connection housing wall-mounted casing / DIN rail housing :	PC / PES / CrNi-Steel / PA / CR-NBR	
Connection housing front panel housing:	PPE / PES / Steel verzinkt / CrNi-Steel / PA / NBR-EPDM	
Environmental conditions		
Ambient temperature:	-20°C...+70°C	
Protection: wall-mounted casing / DIN rail housing:	IP65	EN/IEC 60529
Protection: front panel housing:	Front side IP54 / IP65 Back side IP20	EN/IEC 60529 EN/IEC 60529

Application

- Contactless fill level measurement in liquids pastes, slurries and solids
- Flow measurement in flumes and weirs
- Use in harsh Environmental conditions by separate signal converter
- Fill level measurement in high tanks and silos

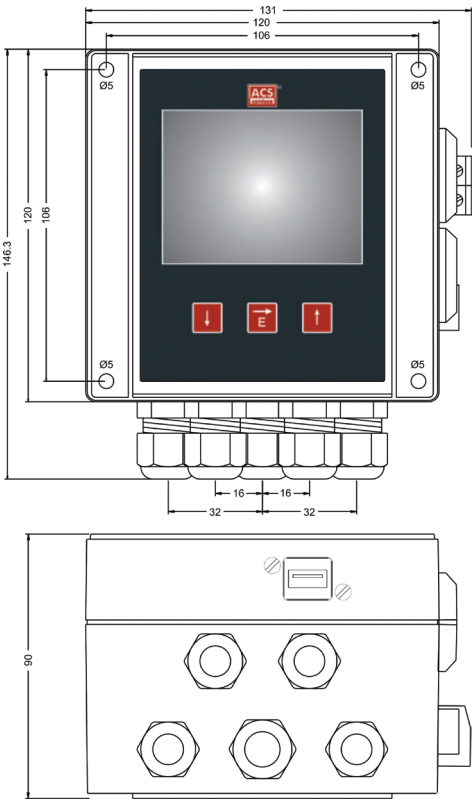
Your benefits

- Easy installation and operation setup due to *well-arranged menu*
- Large Display - values of far distance readable
- *Data logger* for recording of measured values
- *Klartextbedienführung*
- High range
- Low blocking distance
- Extensive diagnostic functions for system analysis

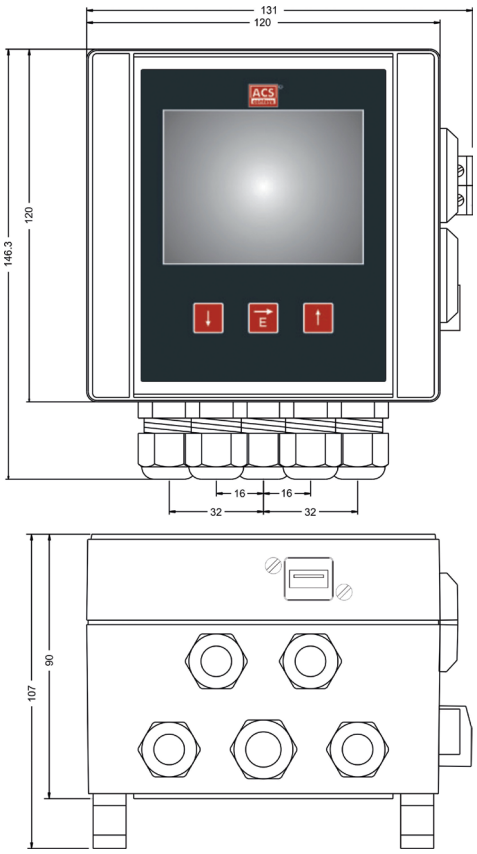
Dimension drawings

Signal converter Sonicont® USF2

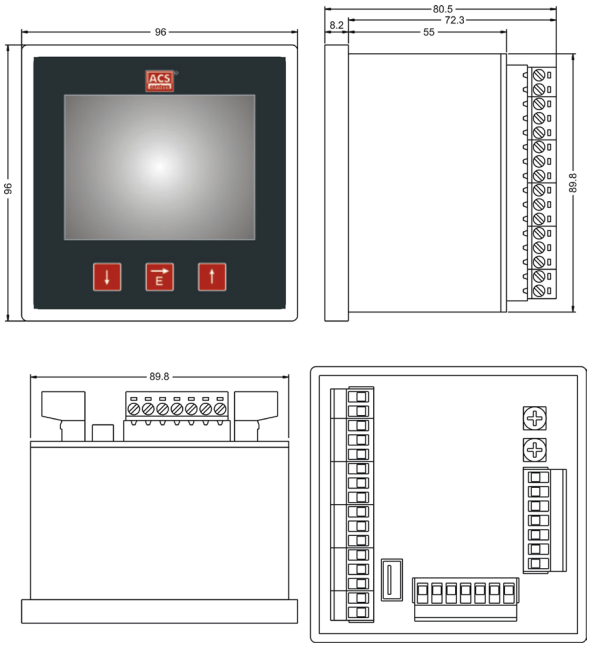
Connection housing
Wall mounted housing
Type F



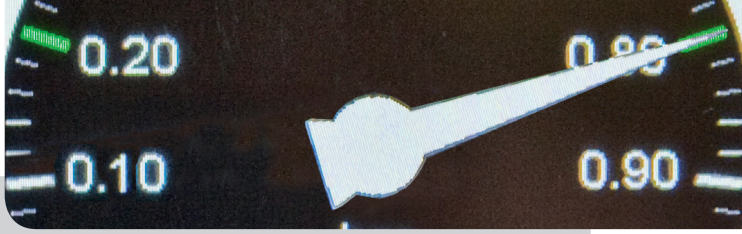
Connection housing
DIN rail housing
Type P



Connection housing
Front panel enclosure
Type M



Order code



Sonicont® USG2 and USF2

Sensor

Type
USG2 Standard

Measuring range
020 2m
050 5m
080 8m
150 15m
250 25m

Approval
0 Standard
X ATEX II 1 G Ex ia IIC T6/T5 Ga / ATEX II 1 D Ex ia IIIC T95°C Da

Process connection
G15 Thread ISO 228-1 – G1½", Thread DIN 13 – M32x1,5 Measuring range 020 / 050
G20 Thread ISO 228-1 – G2", Thread DIN 13 – M32x1,5 Measuring range 080
M32 Thread DIN 13 – M32x1,5 Measuring range 150 / 250

0

0

Material process connection (medium contact)
P PVDF *(Measuring range 020/050/080/150)* resp. PVDF/PBT *(Measuring range 250)*

0

Electrical connection
B Connection cable TPE-U
S Cable TPE-U, plug connection M12

Length L1 - connection cable
1 5m
2 10m
3 15m
4 20m
5 25m
6 30m

0 Standard

Order code

Sonicont	USG2			0	0	P	0			0	

For the measurement you need the sensor Sonicont® USG2 and the transmitter Sonicont® USF2.

Signal converter

Approval
0 Standard
X ATEX II (1) G [Ex ia Ga] IIC / ATEX II (1) D [Ex ia Da] IIIC

Enclosure type
F Wall-mounted casing
M Front panel housing
P DIN rail housing

Electronic – supply / output
A 18...36V DC / 1x 0/4...20mA - 0...10V
B 18...36V DC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input
D 18...36V DC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input
S 186...253V AC / 1x 0/4...20mA - 0...10V
T 186...253V AC / 1x 0/4...20mA - 0...10V, 2x relay, 2x digital input
U 186...253V AC / 1x 0/4...20mA - 0...10V, 4x relay, 4x digital input

Electronic - function
0 USB-Interface
1 USB+Bluetooth-Interface
2 USB-Interface / Data logger with time stamp, battery powered
3 USB+Bluetooth-Interface / Data logger with time stamp, battery powered
Y Others

Electronic - extras
0 Standard
1 USB device jack – Enclosure type F / P
2 Increased protection class IP65 – Enclosure type M

S Standard

Order code

Sonicont	USF2							0			

For the measurement you need the sensor Sonicont® USG2 and the transmitter Sonicont® USF2.

Ultrasonic level measurement for non-contact continuous level measurement in liquids

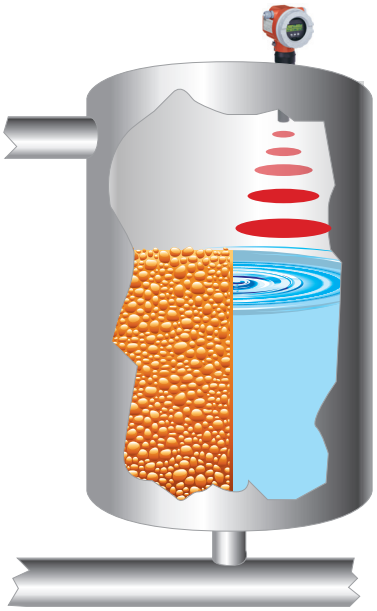
Description

The series Sonicont USD is non-contact level measurement devices based on ultrasound. The devices are suitable for all kinds of liquids and coarse-grained solids (grain size from 4 mm) in silos, tanks, on conveyor belt, heap and band transfer stations. The ranges go from 0.25m up to 15m in liquids and up to 7m in solids.

One can select between devices with analogue output in 2-wire technology (4-20mA) and versions with separate power supply (4-wire). The units are supplied with HART protocoll.

As an option, Profibus PA and FOUNDATION fieldbus outputs are available.
The settings can be performed by a simple menu-guided local operation with plain text display, or a PC via a free operating program.

Due to interference echo mapping, it is possible to hide unwanted reflections - caused by fixtures such as agitators, struts and flanges - and sowith to ensure a reliable measurement.



Specials

Order code ..... page |47-50|

Application

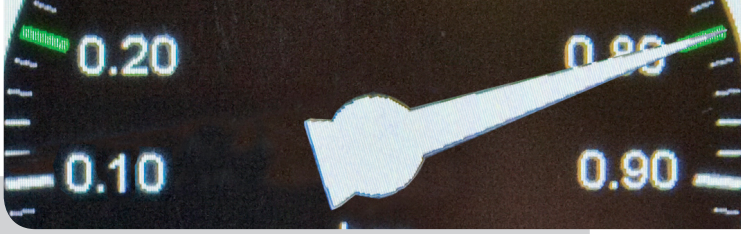
- Continuous non-contact fill level measurement of liquids, pastes, slurries and powdery, lumpy solids
- Flow measurement in open channels and weirs
- Fill level measurement in hazardous areas

Your benefits

- *Easy to use*: documentation and diagnostics via free operating program
- Setup possible without filling the container
- 2-wire technology, *reduced wiring*
- Simple menu-driven keypad control with plain text display
- Remote adjustment and indication possible via FHX40


FHX40

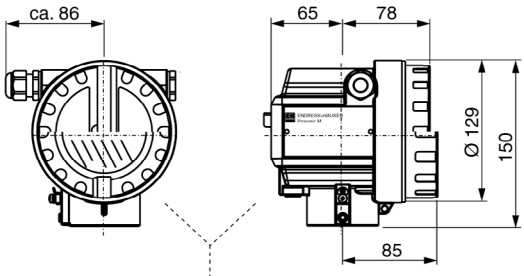
Technical data



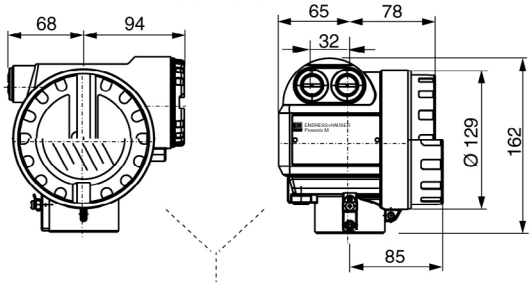
Technical data	
Block distance:	USD 050: 0,25m; USN 080: 3,5m; USN 100: 0,4m; USN 150: 0,6m
Resolution:	USD 050/USN 080: 1mm; USN 100/USN 150: 2mm
Frequency:	USD 050: ca. 70 kHz; USN 080: ca. 50 kHz USN 100: ca. 42 kHz; USN 150: ca. 35 kHz
Pulse Rate:	depending on sensor type (max. 0,5 Hz at 2-wire/max 2 Hz at 4-wire)
3dB Radiation angle:	USD 050/USN 080/USN 100: 11°; USN 150: 6°
Output signal:	4...20 mA with HART-protocoll (Standard), PROFIBUS PA, FOUNDATION FIELDBUS (Option)
Load:	for HART-communication minimal 250 Ohm
Mounting position:	Perpendicular to the product surface
Supply voltage:	Two wire: 14-36V DC, Four wire: 10,5-32V DC, 90-253 V AC 50/60 Hz
CE-Approval:	Sonicont meets the requirements of the relevant EC directives.
Ex-approvals:	ATEX II 1/2 G Ex ia II C T6; ATEX II 1/2 G Ex d (ia) IIC T6; ATEX II 1/2 D, Alu Blinddeckel; ATEX II 1/3 D
Measurement range	
Liquids:	USD 050: 5m; USN 080: 8m; USN 100: 10m; USN 150: 15m
Solids:	USD 050: 2m; USN 080: 3,5m; USN 100: 5m; USN 150: 7m
Measuring accuracy	
Messabweichung:	USD 050/USN 080: ± 2 mm or 0,2 % des eingestellten Messbereichs (größerer Wert) USD 050/USN 080: ± 4 mm or 0,2 % des eingestellten Messbereichs (größerer Wert)
Material	
Process connection:	USD 050: G 1½" ISO 288; USN 080: G 2" ISO 288; USD 100: DN80/100 or mounting bracket; USD 150: D N100 Überwurfflansch or mounting bracket
Medium contact material USD 050/USD080:	screw-in thread and sensor: PVDF; between screw-in thread and internal sensor: EPDM-gasket
Medium contact material USD 100:	Sensor: PVDF; between sensor and flange: VITON® or EPDM; flange: PP
Medium contact material USD 150:	Swing case UP, gasket, EPDM; Membrane 1.4571/316Ti PVDF or 316L
Environmental conditions	
Ambient temperature:	USD 050/USN 080/USD 050/USN 080: -40...+80°C
Process temperature:	USD 050/USN 080/USD 050/USN 080: -40...+80°C
Process pressure: Pabs:	USD 050/USN 080: 0,7...3 bar USD 050/USN 080: 0,7...2,5 bar
Protection:	IP68, at open casing cover IP20

Dimension drawings

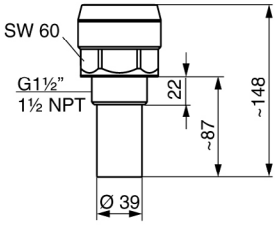
Gehäuse F12



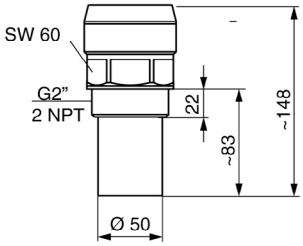
Gehäuse T12



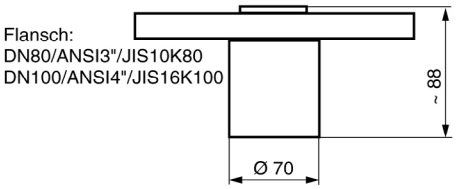
USD 050



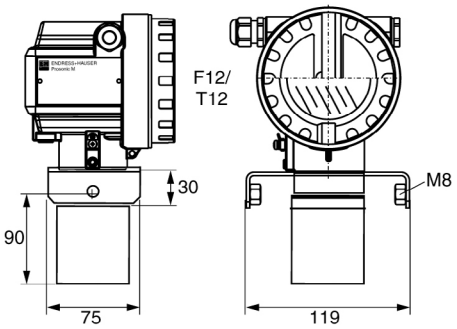
USD 080



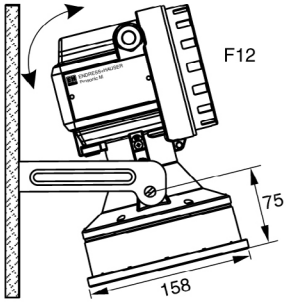
USD 100 mit Universalflansch



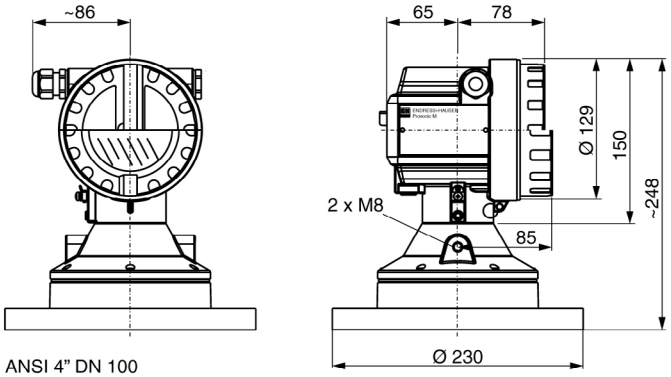
USD 100 mit Montagebügel



USD 150 mit Montagebügel

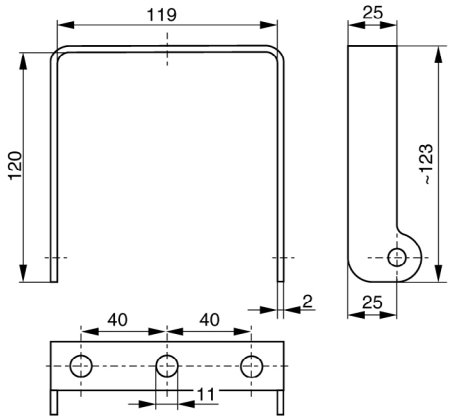


USD 150 mit Universalüberwurfflansch



ANSI 4" DN 100
Es kann auch ein getrennter Flansch verwendet werden.

Montagebügel für USD 100/150



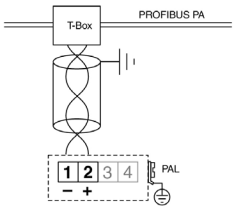
Order code

Compact transmitter for non-contact level measurement of fluids (5m), pastes and coarse bulk materials (2m)

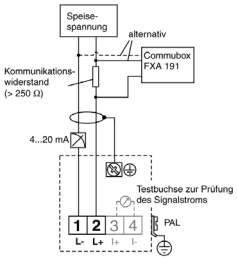
Type:
Sonicont® USD 050

Connection

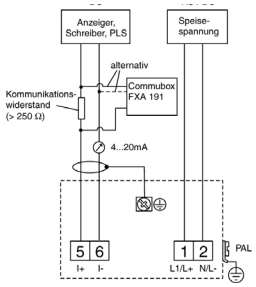
Profibus PA / FF



Two wire (Hart)



Four wire (Hart)



USD 050 - Sonicont® USD 050

Compact transmitter for non-contact level measurement with integrated temperature sensor
For automatic correction of the temperature dependent sound velocity

Application:	in liquids and bulk materials
Measure Range:	in liquids 5m and in bulk materials 2m
Temperature:	Process temperature –40...+80°C
Materials:	Thread and sensor: PVDF
Process conn..:	G1½" thread
Certificates:	ATEX II 1/2 G Ex ia II C T6; ATEX II 1/2 G Ex d (ia) IIC T6; ATEX II 1/2 D; ATEX II 1/3 D

Certificates

S	Non-hazardous area
N	CSA General Purpose
E1	ATEX II 1/2 G Ex ia II C T6
E4	ATEX II 1/2 G Ex d (ia) IIC T6
E2	ATEX II 1/2 D, aluminium blind cover
E5	ATEX II 1/3 D

Process connection

G	G1½" thread ISO 228, PVDF

Power supply, communication

A	2-wire, 4...20 mA - loop/HART
B	2-wire, PROFIBUS-PA
C	2-wire, Foundation Fieldbus
D	4-wire, 90...250VAC; 4...20 mA HART
E	4-wire, 10,5...32 VDC; 4...20 mA HART

Display, operation

0	Without display
D	With display VU331, 4-line plain text display menu-guided onsite operation
A	Prepared for FHX40, remote display mounting *(Equipment)*

Housing

0	Aluminium F12-housing coated IP68
C	T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

2	M20x1,5 screw connection
4	Thread NPT ½
5	M12 PROFIBUS-PA plug

Supplementary equipment

S	Standard

Order code

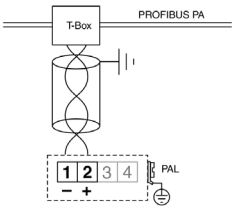
USD 050		G			0		S

Order code

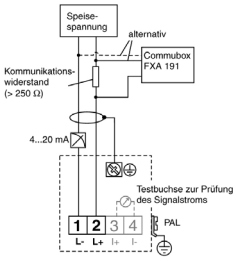
Compact transmitter for non-contact level measurement of fluids (8m), pastes and coarse bulk materials (3,5m)

Connection

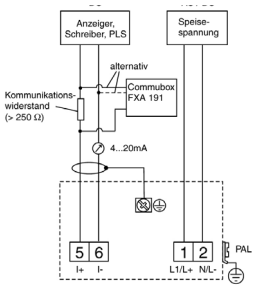
Profibus PA / FF



Two wire (Hart)



Four wire (Hart)



USD 080 - Sonicont® 080

Compact transmitter for non-contact level measurement with integrated temperature sensor
For automatic correction of the temperature dependent sound velocity

Application:	in liquids and bulk materials
Measure Range:	in liquids 8m and in bulk materials 3,5m
Temperature:	Process temperature –40...+80°C
Materials:	Thread and sensor: PVDF
Process conn..:	G2" thread
Certificates:	ATEX II 1/2 G Ex ia II C T6; ATEX II 1/2 G Ex d (ia) IIC T6; ATEX II 1/2 D; ATEX II 1/3 D

Certificates

S	Non-hazardous area
N	CSA General Purpose
E1	ATEX II 1/2 G Ex ia II C T6
E4	ATEX II 1/2 G Ex d (ia) IIC T6
E2	ATEX II 1/2 D, aluminium blind cover
E5	ATEX II 1/3 D

Process connection

G	G2" thread ISO 228, PVDF

Power supply, communication

A	2-wire, 4...20 mA - loop/HART
B	2-wire, PROFIBUS-PA
C	2-wire, Foundation Fieldbus
D	4-wire, 90...250 V AC; 4...20 mA HART
E	4-wire, 10,5...32 V DC; 4...20 mA HART

Display, operation

0	Without display
D	With display VU331, 4-line plain text display menu-guided onsite operation
A	Prepared for FHX40, remote display mounting *(Equipment)*

Housing

0	Aluminium F12-housing coated IP68
C	T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

2	M20x1,5 screw connection
5	M12 PROFIBUS-PA plug

Supplementary equipment

S	Standard

Order code

USD 080	G			0		S

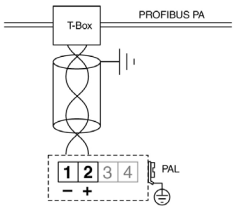
Order code

Compact transmitter for non-contact level measurement of fluids (10m), pastes and coarse bulk materials (5m)

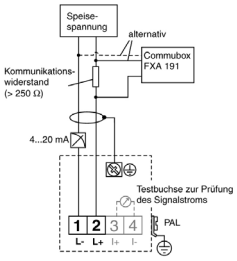
Type:
Sonicont® USD 100

Connection

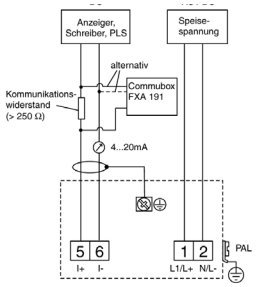
Profibus PA / FF



Two wire (Hart)



Four wire (Hart)



USD 100 - Sonicont® USD 100

Compact transmitter for non-contact level measurement with integrated temperature sensor
For automatic correction of the temperature dependent sound velocity

Application:	in liquids and bulk materials
Measure Range:	in liquids 10m and in bulk materials 5m
Temperature:	Process temperature –40...+80°C
Materials:	sensor: PVDF, gasket between sensor an d flange: Viton® or EPDM
Process conn..:	DN80/100 or mounting bracket
Certificates:	ATEX II 1/2 G Ex ia II C T6; ATEX II 1/2 G Ex d (ia) IIC T6; ATEX II 1/2 D; ATEX II 1/3 D

Certificates

S	Non-hazardous area
N	CSA General Purpose
E1	ATEX II 1/2 G Ex ia II C T6
E4	ATEX II 1/2 G Ex d (ia) IIC T6
E2	ATEX II 1/2 D, aluminium blind cover
E5	ATEX II 1/3 D

Process connection

M	Mounting bracket FAU20
P	DN80/ANSI 3"/JIS80A, PP universal flange max. 3 bar abs; Screw-hole circle: PN16/150LBS/10K

Power supply, communication

A	2-wire, 4...20 mA - loop/HART
B	2-wire, PROFIBUS-PA
C	2-wire, Foundation Fieldbus
D	4-wire, 90...250 V AC; 4...20 mA HART
E	4-wire, 10,5...32 V DC; 4...20 mA HART

Display, operation

0	Without display
D	With display VU331, 4-line plain text display menu-guided onsite operation
A	Prepared for FHX40, remote display mounting *(Equipment)*

Housing

0	Aluminium F12-housing coated IP68
C	T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

2	M20x1,5 screw connection
4	Thread NPT ½
5	M12 PROFIBUS-PA plug

Gasket sensor / flange

2	Viton® flat gasket
3	EPDM flat gasket

Supplementary equipment

S	Standard

Order code

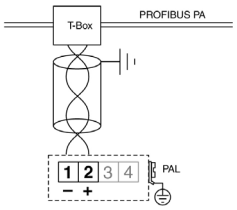
USD 100					0			S

Order code

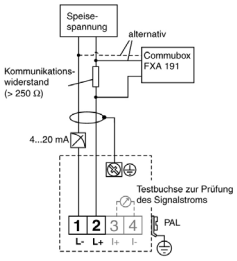
Compact transmitter for non-contact level measurement of fluids (15m), pastes and coarse bulk materials (7m)

Connection

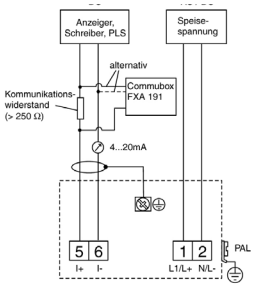
Profibus PA / FF



Two wire (Hart)



Four wire (Hart)



USD 150 - Sonicont® SD 150

Compact transmitter for non-contact level measurement with integrated temperature sensor
For automatic correction of the temperature dependent sound velocity

Application:	in liquids and bulk materials
Measure Range:	in liquids 15m and in bulk materials 7m
Temperature:	Process temperature –40...+80°C
Materials:	Thread and sensor: PVDF
Process conn..:	DN100 flange or mounting bracket
Certificates:	ATEX II 1/2 D; ATEX II 1/3 D

Certificates

S	Non-hazardous area
N	CSA General Purpose
E2	ATEX II 1/2 D, aluminium blind cover
E5	ATEX II 1/3 D

Process connection

K	wthout flange or mounting bracket customer-supplied mounting
M	With mounting bracket FAU20
P	DN100 flange / ANSI 4"/JIS 16K100, PP>uhiversal slip-on flange

Power supply, communication

B	2-wire, PROFIBUS-PA
C	2-wire, Foundation Fieldbus
D	4-wire, 90...250 V AC; 4...20 mA HART
E	4-wire, 10,5...32 V DC; 4...20 mA HART

Display, operation

0	Without display
D	With display VU331, 4-line plain text display menu-guided onsite operation
A	Prepared for FHX40, remote display mounting *(Equipment)*

Housing

0	Aluminium F12-housing coated IP68

Screw connection, insertion

2	M20x1,5 screw connection
4	Thread NPT ½
5	M12 PROFIBUS-PA plug

Supplementary equipment

S	Standard

Order code

USD 150					0		S

Remote display and keypad control for Sonicont®

Remote display and keypad control for Sonicont® and Radarcont
Aluminum field housing IP65, 4-line LCD display
Menu-guided plaintext operation, easy adjustment,
Operator selectable language, envelope curve display on site

Certifications
A Variation for non-Ex-area
1 ATEX II 2 G Ex ia IIC T6
N CSA General Purpose

Cable length
1 20 m cable (> HART)

Additional equipment
A Standard
B Mounting bracket tube 1"/ 2"

Order code

FHX 40 1

Communication box

Certifications
G ATEX II (1) GD (EEx ia) IIC
P FM, AIS, CI.I, II, III Group A-G
S CSA, CI.I, II, III Group A-G
V Special version

Power supply
1 Supply via USB interface
9 Special version

Order code

FXA 195

Equipment

Order information	*Model*
52013874	Mounting bracket FHX40 1"/2" tube
52014131	Outrigger 500 mm, ST, 1,5"-sensor
52014137	Outrigger 1000 mm, ST, 2"-sensor
52014132	Outrigger 500 mm, VA, 1,5"-sensor
52014134	Outrigger 1000 mm, VA, 1,5"-sensor
52014136	Outrigger 500 mm, VA, 2"-sensor
52014138	Outrigger 1000 mm, VA, 2"-sensor
919792-0000	Wall bracket for outrigger, ST
919792-0001	Wall bracket for outrigger, VA
942669-0000	Angle montage- 250x400x120 + G1½" A2
942669-0001	Angle montage- 250x400x120 + G2" A2
543199-0001	Protection cover for housing F12 VA
942666-0000	Mounting bracket FAU20
919791-0000	Stand 700 mm, ST
919791-0002	Stand 1400 mm, ST
919791-0001	Stand 700 mm, VA
919791-0003	Stand 1400 mm, VA

Flange

Process connection
12 DN50 PN16 steel Flange EN1092-1
14 DN80 PN16 steel Flange EN1092-1
15 DN100 PN16 steel Flange EN1092-1

Sensor connection
3 G1½" ISO 228
4 G2" ISO 228

Order code

FAX 50

Conductive rod probe:
SAT

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to 7 electrode rods – plastic screwing thread; up to 6 measuring points; temperature: -40°C...+150°C; pressure: 10 bar

Description

The SAT rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.
Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.
Depending on model selected can include the container wall as a mass, to be implemented to 7 switch points.
The ground connection erflogt either directly to the container or conducting a probe rod.
In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.
In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Application

- Level detection in conductive liquids
- Up to seven limit levels simultaneously detectable
- As leakage or overflow protection in containers
- For minimum / maximum / resp. multi-point-detection in containers
- As pump protection, resp. dry run protection in pipelines
- For two-point control of pumps
- For conductivities from 1 µS/ cm
- For process temperatures from -15 ° C up to +150 ° C
- For process pressures from -1 bar up to +10 bar
- Material also for corrosive and aggressive products
- ATEX II 1G Ex ia IIB / IIC T6 ... T1 Ga
- Approved for use in hazardous areas
- Integrated line break monitoring

Specials

certification

process temperature 150°C

up to 10 bar pressure

no moving parts in the tank

up to 7 measuring points

corrosion resistant

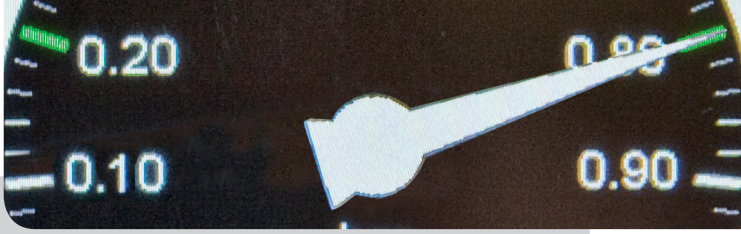
Your benefits

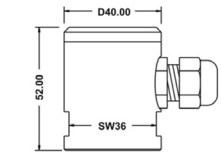
- Suitable for *aggressive media* due to the use of special material such as. Hastelloy; PTFE; ETFE resp. E-CTFE etc.
- High-quality, coated probe insulation
- *No infiltration by liquids possible*
- Simple switching point adjustment by probe rods that can be shortened

Technical data

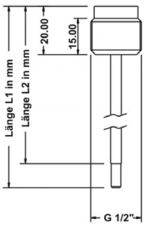
Technical data	
Process pressure:	-1...10 bar
Process temperature:	-40°C...+150°C, observe limitations (see operating instructions)
Protection classification:	IP65 EN/IEC 60529
Material Process connection:	POM / PP / PTFE
Material Electrode rod:	Stahl 1.4404 (AISI316L) bzw. 1.4571 (AISI316Ti) / Hastelloy C22
Isolation Electrode rod isolation:	PA / ETFE bzw. E-CTFE
Gaskets (medium contact)	Electrode isolation PA: NBR / Electrode isolation ETFE bzw. E-CTFE: FPM

Order code

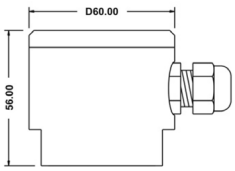




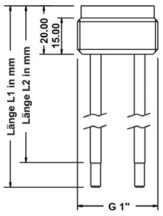
Anschlussgehäuse
∅ 40mm



Prozessanschluss
G12 – G ½"



Anschlussgehäuse
∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G10 – G 1"

Model
0 Standard
Ex ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga

Electrode rods
1 1 electrode rod
2 2 electrode rods
3 3 electrode rods
4 4 electrode rods
5 5 electrode rods
7 7 electrode rods

Process connection
G12 Thread ISO 228-1 – G½" only with one electrode rod possible
G10 Thread ISO 228-1 – G1" up to three electrode rods possible
G15 Thread ISO 228-1 – G1½" up to five electrode rods possible
G20 Thread ISO 228-1 – G2"" up to seven electrode rods possible

Material probe rod
(price per 100mm)
A4 CrNi-steel, rod diameter 4mm
A8 CrNi-steel, rod diameter 8mm
D Hastelloy® C22, rod diameter 4mm
Y Others

Material Connection housing
D POM – polyoxymethylenee Delrin®,
Ø 40 mm for G½" / G1" resp. Ø 80 mm for G1½" / G2"
E POM – polyoxymethylenee Delrin®, Ø 60 mm for G½" / G1"
P PP – polypropylenee, Ø 40 mm for G½" / G1"
M PP – polypropylenee, Ø 80 mm for G1½" / G2"
T PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G½" / G1"
L PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G1½" / G2"

Material probe insulation
(price per 100mm)
R PA – Polyamid (standard). *not for material process connection T / L – PFTE*
H4 E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 4mm
H8 E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 8mm

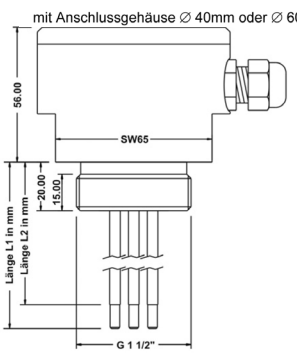
Circuit monitoring
A Without circuit monitoring
B Diode module LBM only for terminal enclosure Ø 60mm
(only at head Ø ≥60 mm, resp. thread ≥ 1½")

Diameter probe rod
0 4 mm (L1 max. 2000mm)
W 8 mm 8 mm (L1 max. 3000mm)

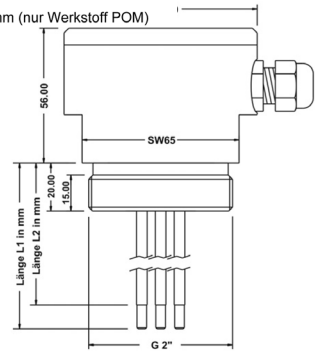
Length L1 probe rod in mm - up to max. 2500 mm

Length L2 insulation mm

mit Anschlussgehäuse ∅ 40mm oder ∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G15 – G 1 ½"



Prozessanschluss
G20 – G 2"

Order code

SAT		mm	mm

SAT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Equipment

Order information	*Model*
AH-2	Spacers for 2-rod probes
AH-3	Spacers for 3-rod probes
AH-4	Spacers for 4-rod probes
AH-5	Spacers for 5-rod probes

Conductive rod probe: STK

with metall thread; up to 5 measuring points, with 5 rods; medium temperature: -15°C...+150°C; pressure: 20 bar

Description

The STK rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.
Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.
Depending on model selected can include the container wall as a mass, to be implemented to 5 switch points.
The ground connection is made in the probe head and is transferred through the threads on the conductive container.
In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.
By stainless steel process connection, the probe is to 20bar pressure stable and in conjunction with the ETFE- resp. E-CTFE coating, process temperatures up to +150 ° C can be realized.

Application

- Level detection in conductive liquids
- Up to six limit levels simultaneously detectable
- As leakage or overflow protection in containers
- For minimum / maximum / resp. multi-point-detection in containers
- As pump protection, resp. dry run protection in pipelines
- For two-point control of pumps
- For conductivities from 1 µS/ cm
- For process temperatures from -15 ° C up to +150 ° C
- For process pressures from -1 bar up to +10 bar
- Material also for corrosive and aggressive products
- ATEX II 1G Ex ia IIB / IIC T6 ... T1 Ga
- Approved for use in hazardous areas
- Integrated line break monitoring

Specials

certification

process temperature 150°C

up to 20 bar pressure

ground electrode in the head

up to 5 measuring points

corrosion resistant

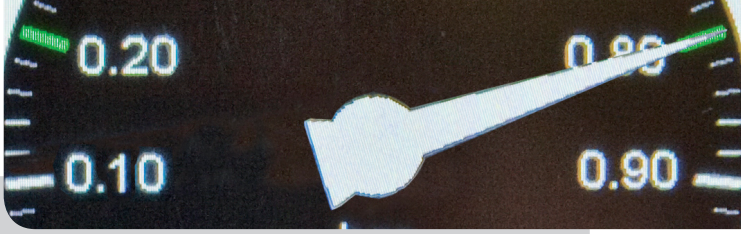
Your benefits

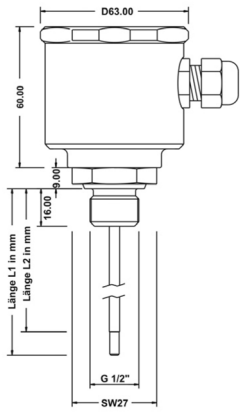
- Suitable for *aggressive media* due to the use of special material such as. Hastelloy; PTFE; ETFE- resp. E-CTFE etc.
- High-quality, coated probe insulation
- *No infiltration by liquids possible*
- Simple switching point adjustment by probe rods that can be shortened

Technical data

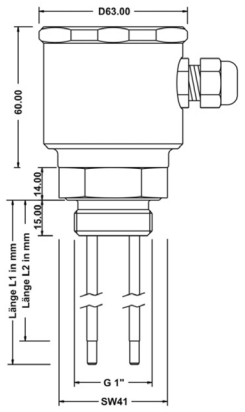
Technical data	
Process pressure max:	-1...+20 bar
Medium temperature:	-15°C...150°C
Protection:	IP65 EN/IEC 60529
Material connection housing:	CrNi-steel / POM / PP / PTFE
Material Process connection:	Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
Material probe rod:	Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti) / Hastelloy C22 / Titan (medium contact
Isolation probe rod:	PA / ETFE resp. E-CTFE
Gaskets:	Medium contact: Electrode isolation PA: NBR / Electrode isolation ETFE resp. E-CTFE: FPM, Others: NBR, FPM

Order code





Prozessanschluss
G12 – G ½"



Prozessanschluss
G10 – G 1"

Model
0 Standard
Ex ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga

Electrode rods
1 1 electrode rod
2 2 electrode rods
3 3 electrode rods
4 4 electrode rods
5 5 electrode rods

Process connection material steel 1.4404 *(AISI 316L)* / 1.4571 *(AISI 316Ti)*
G12 G½" only possible with one electrode rod
G10 G1" up to three electrode rods possible
G14 G1¼" up to four electrode rods possible
G15 G1½" up to five electrode rods possible
G20 G2" up to four electrode rods possible
F50 Flange EN 1092-1 – DN50, PN 10-40,sealing surface ASTM D 2527
YYY Others

Material electrode rod
(price per 100mm)
A4 CrNi-steel, rod diameter 4 mm
A8 CrNi-steel, rod diameter 8 mm
A10 CrNi-steel, rod diameter 10 mm
D Hastelloy C22, rod diameter 4 mm
T4 Titan not for Ex-version, 4 mm
T8 Titan not for Ex-version, 8 mm
T10 Titan not for Ex-version, 10 mm
E Steel 1.4404 *(AISI 316L)* / 1.4571 *(AISI 316Ti)* tantalum tips 20 mm
Y Others

Material Connection housing
D POM, Ø 60 mm
V CrNi-Steel, Ø 60 mm
M PP, Ø 60 mm
L PTFE, Ø 60 mm

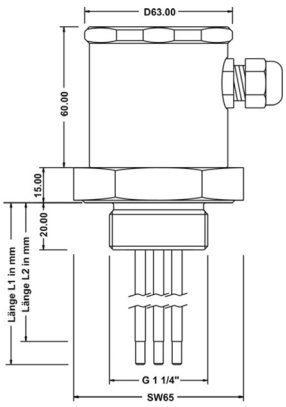
Material probe insulation
(price per 100mm)
R PA-Polyamid *(standard)*
H4 ETFE resp. E-CTFE, rod diameter 4 mm
H8 ETFE resp. E-CTFE, rod diameter 8 mm

Circuit monitoring
A Without circuit monitoring
B With circuit monitoring

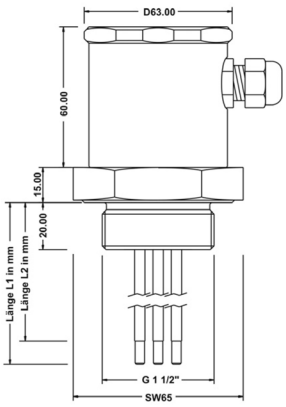
Diameter probe rod
0 4 mm (L1 max. 2000mm)
W 8 mm 8 mm (L1 max. 3000mm)
Z 10 mm

Length L1 probe rod in mm - up to max. 2500 mm

Length L2 insulation mm



Prozessanschluss
G14 – G 1 ¼ "



Prozessanschluss
G15 – G 1 ½"

Order code

STK		mm	mm

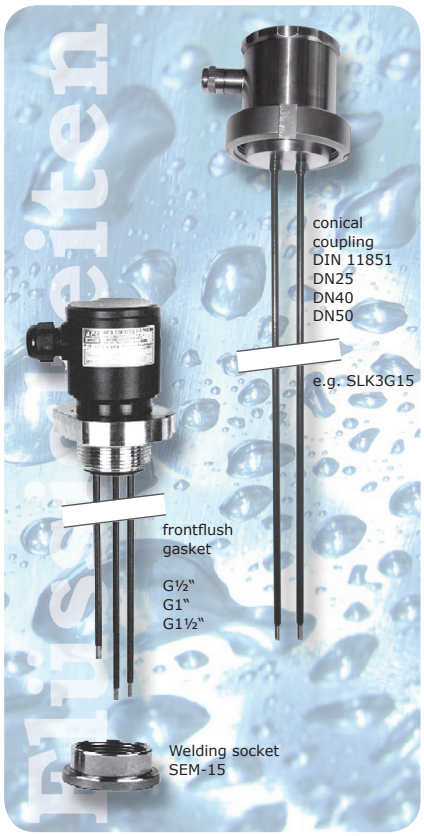
Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2
standard lengths in 500 mm increments. Others on request. Probe rods should be shortened by oneself!

Equipment

Order information	*Model*
AH-2	Spacers for 2-rod probes
AH-3	Spacers for 3-rod probes
AH-4	Spacers for 4-rod probes
AH-5	Spacers for 5-rod probes

Conductive rod probe:
SLK

for food aplications; up to 4 measuring points, with 4 rods; medium temperature: -40°C...+130°C; pressure: 20 bar



Specials

Description

The SLK rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) for level detection and level control in conductive liquids, especially in food and used in the pharmaceutical sector, where high hygiene requirements.
Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 4 set points.
The ground connection is made in the probe head and is transferred through the threads on the conductive container.
process connections, various hygienic connections are available, the seal gap, flush.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.
In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

By stainless steel process connection the probe is to 20bar pressure stable and in conjunction with the ETFE coating, process temperatures up to +130°C can be realized.

Application

- Level detection in conductive liquids
- Up to six limit levels simultaneously detectable
- As leakage or overflow protection in containers
- For minimum / maximum / resp. multi-point-detection in containers
- As pump protection, resp. dry run protection in pipelines
- For two-point control of pumps
- For conductivities from 1 µS/ cm
- For process temperatures from -15 ° C up to +130 ° C
- For process pressures from -1 bar up to +10 bar
- Material also for corrosive and aggressive products
- ATEX II 1G Ex ia IIB / IIC T6 ... T1 Ga
- Approved for use in hazardous areas
- Integrated line break monitoring
- Use in hygienic areas

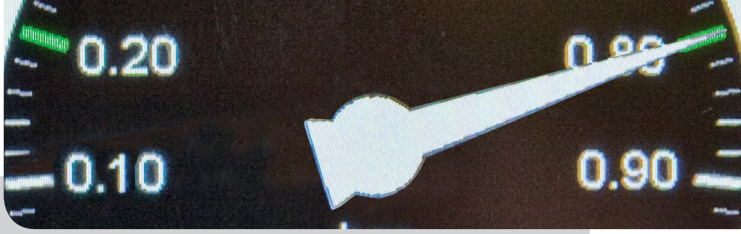
Your benefits

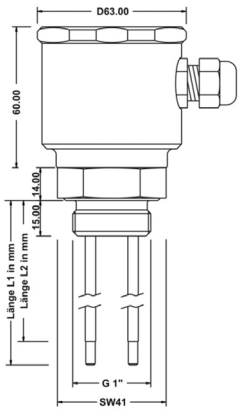
- Suitable for *aggressive media* due to the use of special material such as. Hastelloy; PTFE; ETFE etc.
- Simple switching point adjustment by probe rods that can be shortened

Technical data

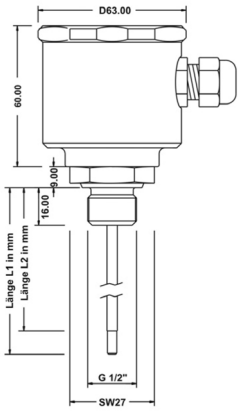
Technical data	
Process pressure max:	-1...+20 bar
Medium temperature:	-40°C...130°C
Protection:	IP65 EN/IEC 60529
Material connection housing:	CrNi-steel / POM / PP / PTFE
Material process connection :	Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
Material probe rod:	Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti) / Hastelloy B4, C22 / Titan
Isolation probe rod:	ETFE
Gaskets:	Medium contact: EPDM, FDA-listed / Others: NBR, FPM

Order code

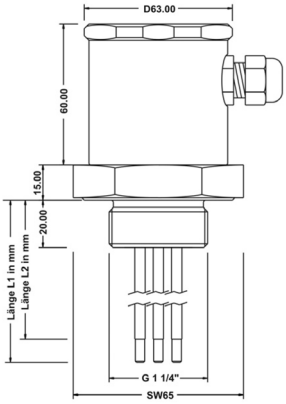




Prozessanschluss
G10 – G 1"



Prozessanschluss
G12 – G ½"



Prozessanschluss
G14 – G 1 ¼ "

Model
0 Standard
Ex ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga

Electrode rods
1 one-rod-probe
2 two-rod-probe
3 three-rod-probe
4 four-rod-probe

Process connection material steel 1.4404 *(AISI 316L)* / 1.4571 *(AISI 316Ti)*
D25 Milk tube DN25 DIN 11851 only with one electrode rod possible
D40 Milk tube DN40 DIN 11851 up to three electrode rods possible
D50 Milk tube DN50 DIN 11851 up to four electrode rods possible
G12 G½" O-ring flush mounted only with one electrode rod possible
G10 G1" O-ring flush mounted up to three electrode rods possible
G15 G1½" O-ring flush mounted up to four electrode rods possible
M12 G½" metal-seated only with electrode rod possible

Material probe rod
(price per 100mm)
A4 CrNi-steel, rod diameter 4 mm
A8 CrNi-steel, rod diameter 8 mm
C Hastelloy B4, rod diameter 4 mm
D Hastelloy C22, rod diameter 4 mm
T4 Titan not for Ex-version, 4 mm
T8 Titan not for Ex-version, 8 mm
E 1.4404 steel with 50 mm tantalum tips
Y Others

Material Connection housing
D POM, Ø 60 mm
V CrNi-Steel, Ø 60 mm
M PP, Ø 60 mm
L PTFE, Ø 60 mm
Y Others

Material probe insulation
(price per 100mm)
H4 ETFE, rod diameter 4 mm
H8 ETFE, rod diameter 8 mm
* at lengthn over 1 m

Circuit monitoring
A Without circuit monitoring
B Diode module LBM

Diameter probe rod
0 4 mm (L1 max. 2000mm)
W 8 mm 8 mm (L1 max. 3000mm)

Length L1 probe rod in mm - up to max. 2500 mm

Length L2 insulation mm

Order code

SLK					H			mm	mm

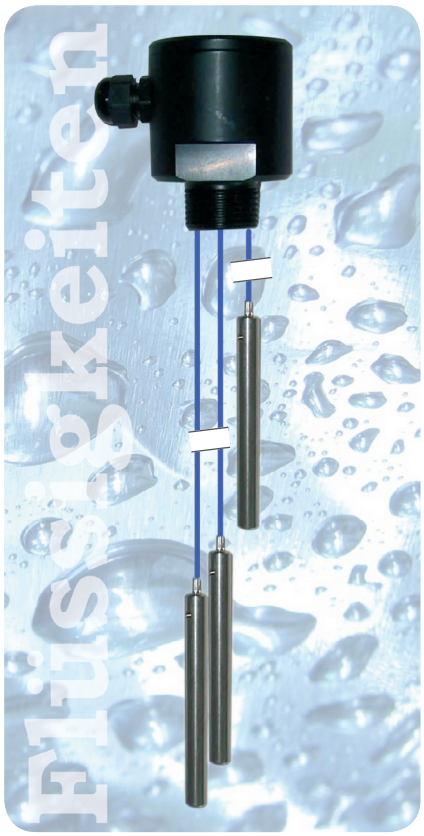
Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Equipment

Order information	*Model*
AH-2	Spacers for 2-rod probes
AH-3	Spacers for 3-rod probes
AH-4	Spacers for 4-rod probes
AH-5	Spacers for 5-rod probes

Conductive rope probe: SST

with plastic screwing thread; up to 7 ropes; medium temperature: -10°C...+120°C; pressure: pressureless



Description

The cable SST probes are related to the evaluators (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

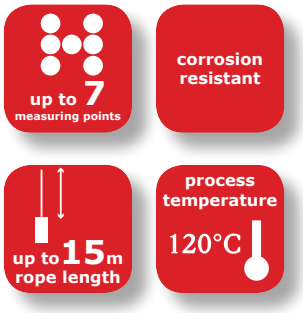
Depending on the number of cables used and the evaluation units, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on the selected version, can include the container wall as a mass, to be implemented to 7 switch points. The ground connection is made either directly to the conductive container or through a cable probe.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Specials



Application

- Level detection in conductive liquids
- Full resp. empty signal
- Overflow safety
- Dry run protection

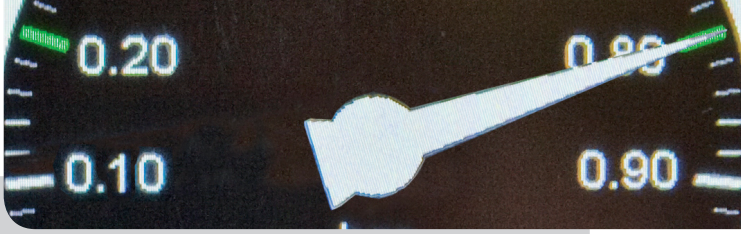
Your benefits

- Suitable for *aggressive media* due to the use of stainless steel and PTF
- Up to 7 switching points realizable
- Easy installation
- Up to 15 m probe length possible

Technical data

Technical data	
Process pressure max:	pressureless operation
Medium temperature:	-10°C...120°C
Material connection housing:	POM / PP / PTFE
Material process conncetion:	POM / PP / PTFE
Material probe rope:	Steel 1.4404 (AISI316L) resp. 1.4571 (AISI316Ti)
Isolation probe rope:	PTFE
Gaskets:	Medium contact : NBR; Others: NBR, FPM

Order code



Model

0 Standard

Number of electrodes

(Basic price incl. 3 m rope!)

1 1 electrode rope
2 2 electrode ropes
3 3 electrode ropes
4 4 electrode ropes
5 5 electrode ropes
6 6 electrode ropes
7 7 electrode ropes

Connection

G12 Thread ISO 228-1 – G½" only with one electrode rope possible
G34 Thread ISO 228-1 – G¾" up to two electrode ropes possible
G10 Thread ISO 228-1 – G1" up to three electrode ropes possible
G15 Thread ISO 228-1 – G1½" up to four electrode ropes possible
G20 Thread ISO 228-1 – G2" up to seven electrode ropes possible

Material probe rope

(Preis pro angefangene 1000 mm je Seil)

A CrNi-steel
Y Others

Material Connection housing

D POM, Ø 40 mm for G½" / G1" / G¾" resp. Ø 80 mm for G1½" / G2"
E POM, Ø 60 mm for G½" / G¾" / G1"
P PP, Ø 40 mm for G½" / G¾" / G1"
M PP, Ø 80 mm for process connection G1½" / G2"
T PTFE, Ø 40 mm for G½" / G1" / G¾"
L PTFE, Ø 80 mm for G1½" / G2"

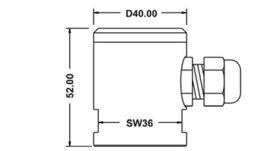
Material probe insulation

H PTFE

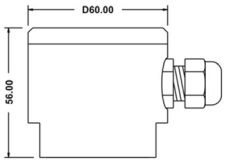
Circuit monitoring

A Without circuit monitoring
B With circuit monitoring
(only at head Ø ≥ 60 mm, resp. thread ≥ 1½")

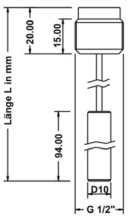
Length electrode rope in mm



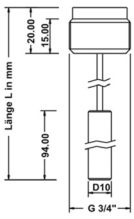
Anschlussgehäuse
∅ 40mm



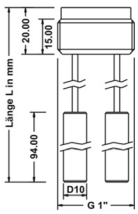
Anschlussgehäuse
∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G12 – G ½"

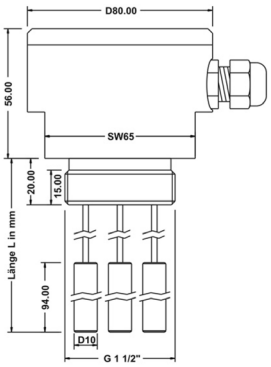


Prozessanschluss
G34 – G ¾

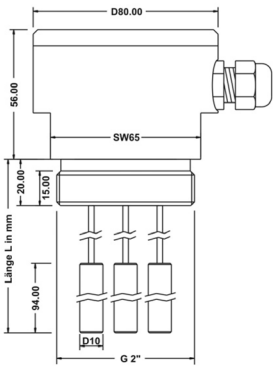


Prozessanschluss
G10 – G 1"

mit Anschlussgehäuse ∅ 40mm oder ∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G15 – G 1 ½"



Prozessanschluss
G20 – G 2"

Order code

SST	0			H		mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Conductive rope probe: SHT

with cable or terminal connection, 2-pole sensor for wells, 1 point level

Description

The cable electrode SHT is primarily used as a submersible sensor in conjunction with appropriate evaluation devices (eg SRA-100-U0) for limit detection and level control in conductive liquids.

The switch point is given by the length of the connecting cable, thus a simple switching point adjustment possible. With the 2-pole version no additional mass probe is required.
The SHT-1 probe can be equipped with a cable.

Specials

Application

- Level detection in conductive liquids
- Full resp. empty signal
- Hanging probe for wells and boreholes

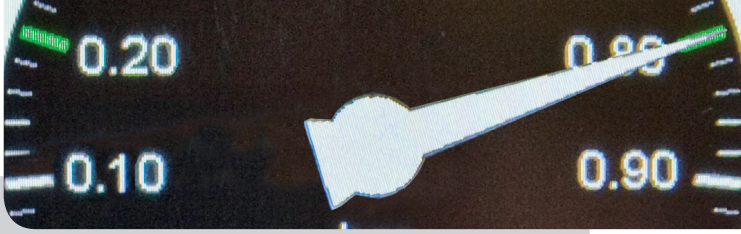
Your benefits

- Suitable for *aggressive media* due to the use of stainless steel and PVC
- Easy installation
- Cable assembly at version SHT-1 possible by oneself
- Firmly moulded cable at SHT-2000
- Up to 100m probe length possible

Technical data

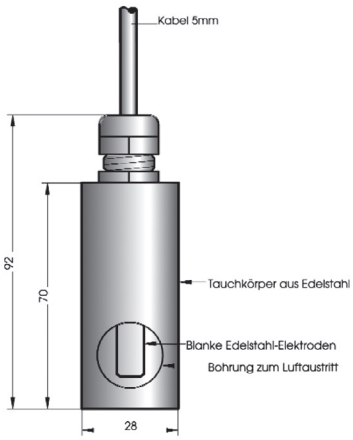
Technical data	
Process pressure max:	pressureless
Medium temperature:	-20°C...60°C
Material submersible element:	POM (Delrin®)/ Stainless steel 1.4571
Material probes:	Stainless steel 1.4571
Isolation probe cable:	PVC

Order code



SHT-2000

firmly moulded
2-pole



Circuit monitoring
A Without circuit monitoring
B With circuit monitoring

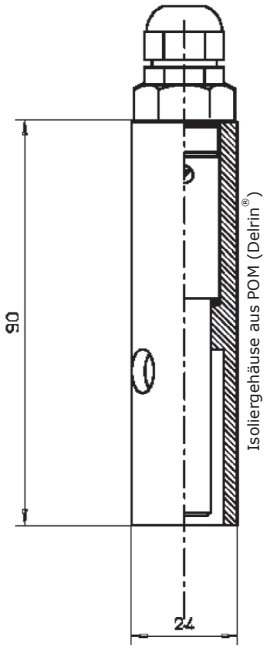
Length **probe cable** in m
price per meter

Order code

SHT-2000-ADH		m

SHT-1

with terminal connection
1-pole



Model
0 Standard

Number of electrodes
1 1 electrode contact

Material electrode contacts *(medium contact)*
A Steel 1.4404 *(AISI 316L)* / 1.4571 *(AISI 316Ti)*

Material Connection housing *(medium contact)*
D POM – polyoxymethylenee *(Delrin®)*

Order code

SHT	0	1	A	D

Conductive rod probe: SNT

with plastic screwing thread and plug connection;
up to zu 4 rods, medium temperature: -20°C...+100°C;
pressure: 10 bar

Description

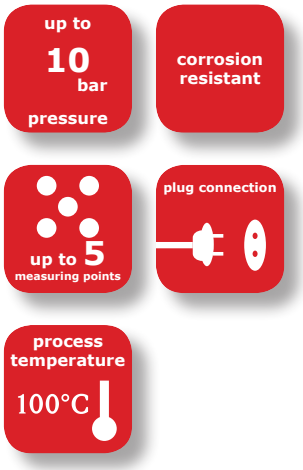
The SNT rod probes are used in conjunction withthe evaluation units(eg,SRA-100-U0) is used for leveldetection and levelc ontrol inc onductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run,two-step control,moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass,to be implemented to 5 switchpoints.The ground connection goes either directly to the container orconducting ap robe rod.

The electrical connection is made via a plugin type SNT content, thus a rapid assembly and disassembly of the probe or a repositioning of the indicatorto other probes possible.

Specials



Application

- Level detection in conductive liquids
- Up to five limit levels simultaneously detectable
- As leakage or overflow protection in containers
- For minimum / maximum / resp. multi-point-detection in containers
- As pump protection, resp. dry run protection in pipelines
- For two-point control of pumps
- For conductivities from 1 µS/cm
- For process temperatures from -15 °C up to +100 °C
- For process pressures from -1 bar up to +10 bar
- Material also for corrosive and aggressive products

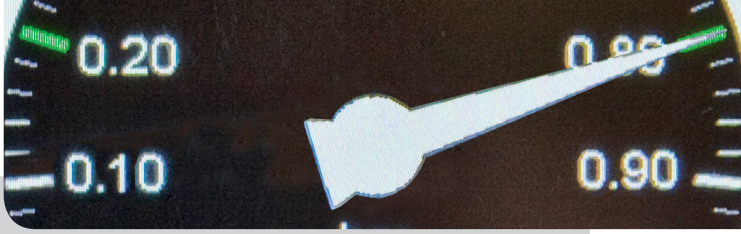
Your benefits

- Suitable for *aggressive media* due to the use of special material such as. Hastelloy; PTFE; ETFE resp. E-CTFE etc.
- Simple and quick installation via plug connection DIN EN 175-301-803-A (DIN 43 650 –A)
- Simple switching point adjustment by probe rods that can be shortened

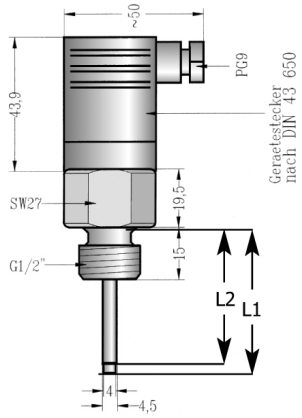
Technical data

Technical data	
Process pressure max:	10bar
Medium temperature:	-20°C...100°C
Material connection head:	POM / polypropylene (PP) / PTFE
Material probes:	Stainless steel 1.4571, 1.4404 / Hastelloy C
Isolation probe rod:	Polyamid / E-CTFE

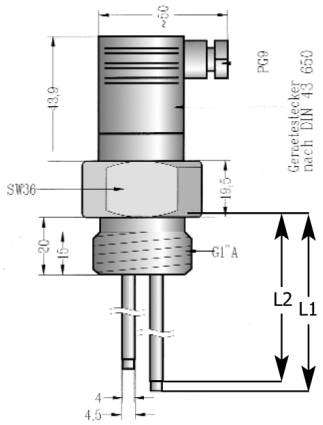
Technical data



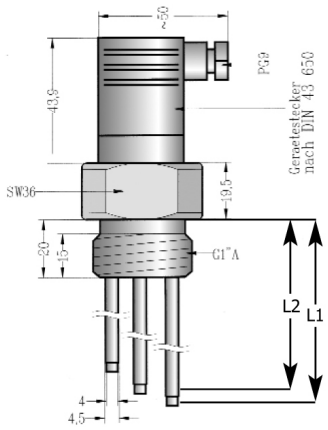
Typ: SNT 1



Typ: SNT 2



Typ: SNT 3



Electrode rods

1 One-rod-probe
2 Two-rod-probe
3 Three-rod-probe
4 Four-rod-probe

Connection

G12 G½" plastic connection *(only for 1-rod)*
G10 G1" plastic connection *(up to 3-rod)*
G15 G1½" plastic connection *(for alle probes possible)*

Material probe rod
(price per 100mm)

A 1.4404 steel 4 mm
D Hastelloy® C 4 mm
Y Others

Material process connection

D POM – polyoxymethylenee Delrin®
P PP – polypropylenee
T PTFE – Polytetrafluoroethylene Teflon®

Material probe insulation
(price per 100mm)

R PA-Polyamid *(standard)*
H E-CTFE – Ethylene-chlorotrifluoroethylene Halar® 4 mm

Diameter probe rod

0 4 mm

Length L1 probe rod in mm - up to max. 2500 mm

Length L2 insulation mm

Plug

0 Type: NKW04-0 (1x included with delivery)
1 Tadditional plug NKW04-0

Order code

SNT			0	mm	mm 0

SNT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Conductive rod probe: SBS

With fixed cable and potted probe head, up to 5 rods;
Fluid temperature: -20 ° C ... + 100 ° C; Pressure: 10 bar

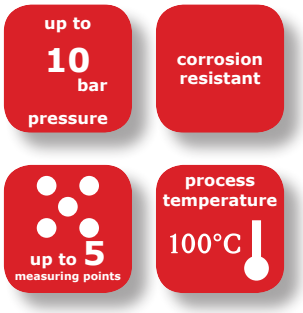
Description

The rod probe SBS is used in conjunction with the corresponding evaluation devices (for example, SRA-100-U0) for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measuring tasks such as Overflow, dry run protection, on-off control, moisture detection, etc. can be realized.
Depending on the selected version can with inclusion of the vessel wall as the ground can be realized up to 5 switching points. The ground terminal erflogt either directly to the conductive container or a probe rod.

When Type SBS the connecting cable is connected and sealed in the probe head. Through this encapsulation, the probe is fully submersible and outdoor use of the container.

Specials



Application

- Level detection in conductive liquids
- Up to five limit levels simultaneously detectable
- As leakage or overflow protection in containers
- For minimum / maximum / resp. multi-point-detection in containers
- As pump protection, resp. dry run protection in pipelines
- For two-point control of pumps
- For conductivities from 1 µS/cm
- For process temperatures from -20 °C up to +100 °C
- For process pressures from -1 bar up to +10 bar
- Material also for corrosive and aggressive products
- Integrated line break monitoring

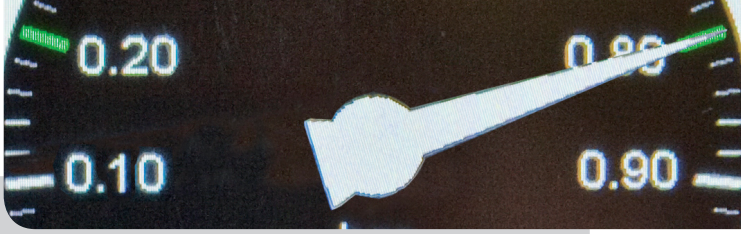
Your benefits

- Fixed connecting cable and firmly moulded probe head - thus floodable
- Suitable for *aggressive media* due to the use of special material as e.g. Hastelloy; PTFE; ETFE resp. E-CTFE etc.
- Simple switching point adjustment by probe rods that can be shortened

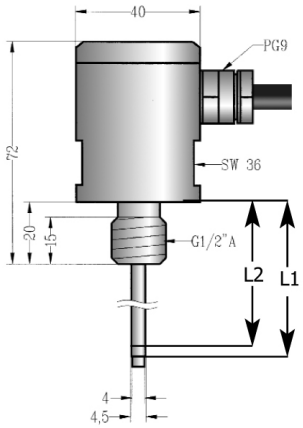
Technical data

Technische Daten	
Elektrode rod (medium contact):	Stahl 1.4404 (AISI316L) bzw. 1.4571 (AISI316Ti) / Hastelloy B bzw. C22 / Titan
Elektrode trod isolation (medium contact):	PA / ETFE bzw. E-CTFE
Connection housing:	POM / PP / PTFE
Cable screw:	Gehäuse PA / Dichtungen CR, NBR
Gaskets:	Mediumberührend: Elektrodenisolation PA: NBR / Elektrodenisolation ETFE bzw. E-CTFE: FPM; andere: NBR, FPM
Process temperature:	Max – 20°C...+100°C
Process pressure max:	10 bar
Protection:	IP65 EN/IEC 60529

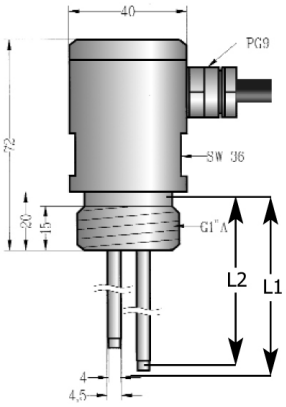
Order code



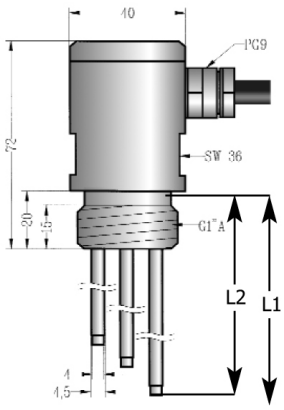
Typ: SBS 1



Typ: SBS 2



Typ: SBS 3



Electrode rods

1 One-rod-probe
2 Two-rod-probe
3 Three-rod-probe
4 Four-rod-probe
5 Five-rod-probe

Connection- plastic

G12 G½" *(only for 1-rod)*
G10 G1" *(only up to 3-rod)*
G15 G1½" *(for all probes possible)*

Material probe rod
(price per 100mm)

A4 CrNi-steel, rod diameter 4mm
A8 CrNi-steel, rod diameter 8mm
C Hastelloy® B 4 mm
D Hastelloy C22, rod diameter 4mm
T4 Titan not for Ex-version, 4 mm
T8 Titan not for Ex-version, 8 mm
E 1.4404 steel with 50 mm tantalum tips
Y Others

Material Connection housing sealed

D POM – polyoxymethylenee Delrin®, Ø 40 mm for G½" / G1" resp. Ø 80 mm for G1½" / G2"
E POM – polyoxymethylenee Delrin®, Ø 60 mm for G½" / G1"
P PP – polypropylenee, Ø 40 mm for G ½" / G 1"
M PP – polypropylenee, Ø 80 mm for process connection G1½" / G2"
T PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G½" / G1"
L PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G1½" / G2"

Material probe insulation
(price per 100mm)

R Polyamid *(standard) not for material process connection T / L – PFTE*
H4 ETFE resp. E-CTFE, rod diameter 4mm
H8 ETFE resp. E-CTFE, rod diameter 8mm
*at length over 1 m

Circuit monitoring

A Without circuit monitoring
B Diode module LBM only for terminal enclosure from Ø 60mm

Diameter probe rod

0 4 mm
W 8 mm

Length L1 probe rod in mm - up to max. 2500 mm

Length L2 insulation mm

Connection cable in m
(prive per 1000 mm)

Order code

SBS									mm	mm	m

SBS probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Conductive leakage electrode:

PUK / PUKK

for conductive leak detection of electrically conductive filling materials; with seperated or compact electronics

Description

The leakage probes of the series PUK / Pukk are used in conjunction with a suitable evaluation for conductive leakage monitoring of electrically conductive products.

The leak detector is designed for a wide range of applications. The conductivity, even of aggressive contents, from 1 µS/cm are recorded at process temperatures from -20 ° C to +60 ° C.

Once the electrically conductive filling material forms a connection between the electrodes, a measurable current is flowing, which causes a reaction of the connected evaluation unit.

By the use of an AC voltage the corrosion of the electrode and the electrolytic decomposition of the contents is avoided.

An additional module (diode module LBM) for line monitoring in the housing can be installed in the device. In the event of a line break between the leak probe and a suitable evaluation the evaluation may issue an alert.

Application

- Suitable for ground mounting
- Leakage monitoring in drip trays, raised floors, suspended ceilings, computer rooms with cooling channels

Specials

corrosion resistant

ground electrode in the head

easy installation

AC/DC

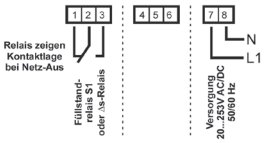
adjustable sensitivity

Your benefits

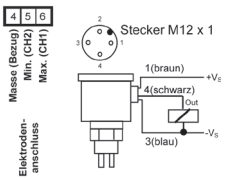
- Compact version with evaluation electronics in the head possible
- High protection against major water damage and system failures

Connection

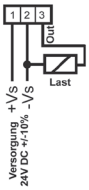
with relay output
terminal assignment



PNP-switch output
Plug M12x1



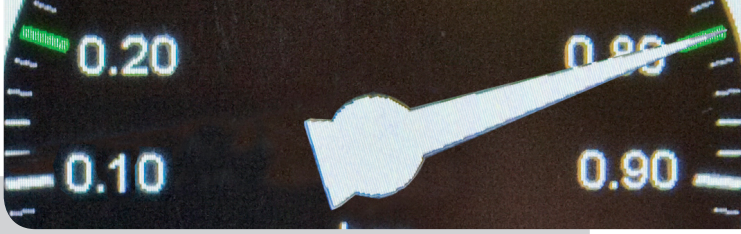
PNP-switch output
terminal assignment



Technical data

Technical data	
Process pressure max:	pressureless
Medium temperature:	-20°C...60°C
Material connection head:	POM / polypropylene (PP) / PTFE
Material probes:	Stainless steel 1.4571, 1.4404 / Hastelloy® C

Order code



Model
0 Standard

Number electrodes
2 2 electrodes

Material electrodes *(medium contact)*
A Steel 1.4404 (316L) / 1.4571 (316Ti)
Y Others

Material housing *(medium contact)*
D POM – polyoxymethylenee (Delrin®)
P PP – polypropylenee

Electrical connection
K Terminal box
V Cable 5 m - silicone
Y Cable others length

Circuit monitoring
A Without circuit monitoring
B With circuit monitoring (Diodenmodul LBM)

Order code

PUK	0	2				

Electrical connection
K Terminal box
V Cable 5 m - silicone
Y Cable others length

Auxiliary power
G DC voltage 24 V DC
U AC / DC voltage 20 ... 30V AC / DC

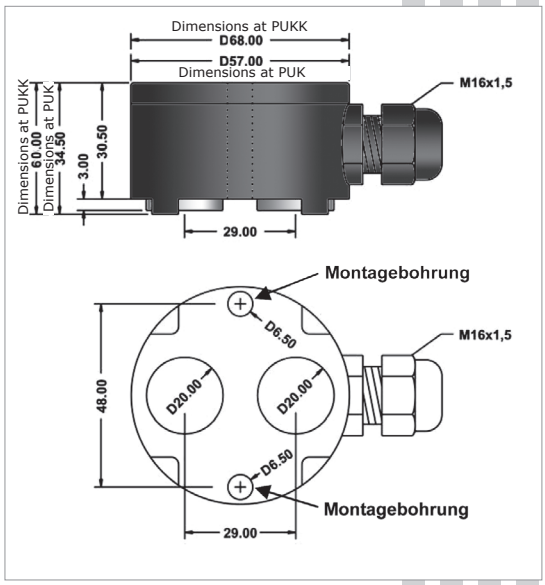
Electronic output
A 1x PNP switch output (only at electronic supply type G)
B 1x relay output (only at electronic supply type U)

Model
2 2-electrodes 1x limit

Process connection
A Screw fixing

Material electrodes *(medium contact)*
A Steel 1.4404 (316L) / 1.4571 (316Ti)
D Hastelloy® C 4
Y Others

Material housing *(medium contact)*
D POM – polyoxymethylenee (Delrin®)
P PP – polypropylenee
T PTFE – Polytetrafluoroethylene (Teflon®)



Order code

PUKK			2	A		

In use

Conductive compact probes

KAK / KLK

Limit switch or two-position controller
KAK for standard application
KLK for food application

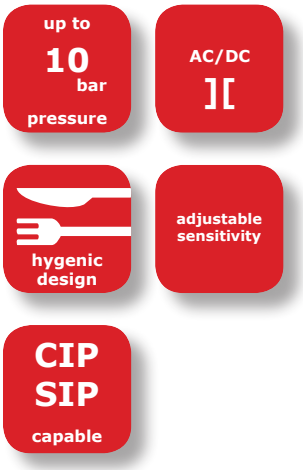
Description

The compact conductive fill level limit switch KAK | KLK with integrated evaluation device are reasonably priced devices for limit value detection and niveau control in electrically conductive liquids.
Using this device it is possible to control pumps, contactors and signal devices directly or to send informations by the PNP switching output to the SPS control.

Application

- Various hygienic applications
- Level detection in conductive liquids
- Full resp. empty signal
- Overflow safety and dry-run protection

Specials

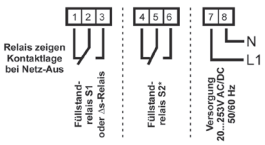


Your benefits

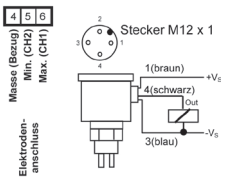
- Min / Max control or up to two limit levels
- Compact devices: no separate evaluation devices are required
- Easy commissioning
- Measuring range adjustable up to 200kOhm resp. 5µS/cm
- Wide range power supply from 20 to 253V AC and DC
- Relay output or PNP switching output

Connection

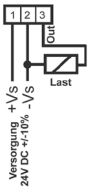
with relay output
terminal assignment



PNP-switch output
Plug M12x1



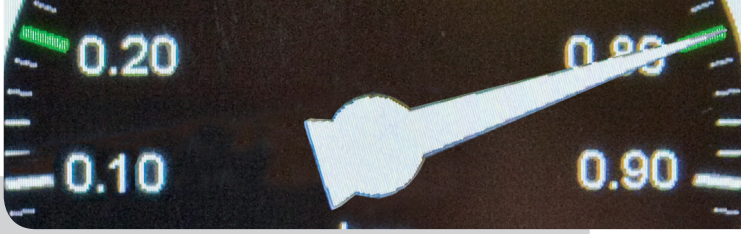
PNP-switch output
terminal assignment

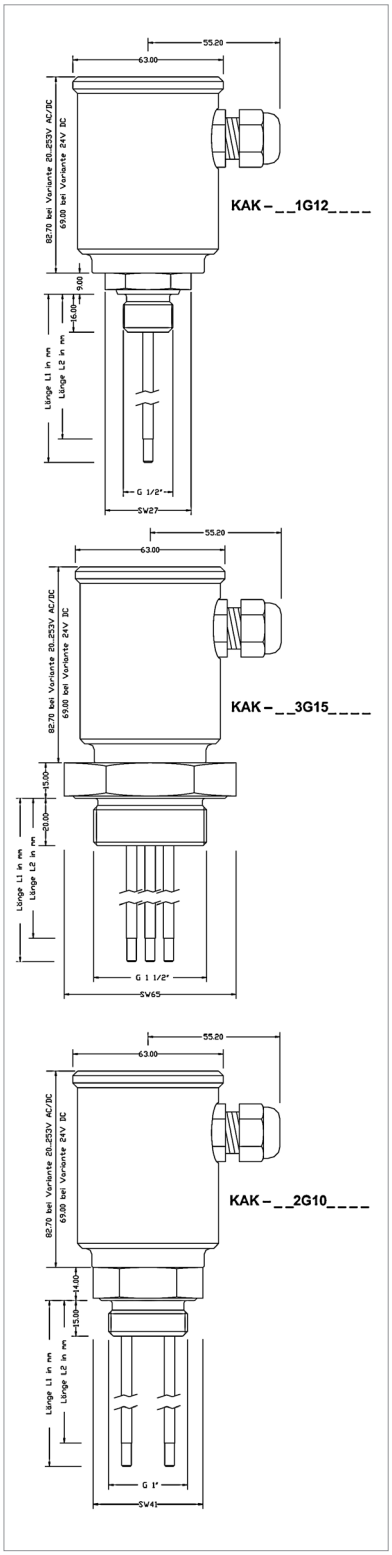


Technical data

Technical data	
Process pressure max:	-1...+10bar
Medium temperature:	-40°C...100°C
Protection:	IP65 DIN EN 60529
Material connection:	KAK: FPM / KLK: EPDM, FDA-listed
Material Process connection:	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
Material probe rod:	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) / Hastelloy B4, C22 / Titan
Isolation probe rod:	KAK: PA / ETFE bzw. E-CTFE / KLK: ETFE, FDA-listed

Order code





KAK - Standard application

KLK - Food resp. hygienic application

Electrical connection

0 Terminal box
V Plug M12x1 only at auxiliary power direct voltage 24 V DC

auxiliary power

G DC voltage 24 V DC (only with output „A" - PNP)
U Wide range power supply 20...253 V AC/DC

output

A 1 x PNP-switch output, only at auxiliary power DC voltage 24 V DC
B 1 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC
C 2 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC

Model measurement system

1 1-rod, 1x limit, reference electrode over process connection
2 2-rod, 1x limit, reference electrode over longest rod - number 2
3 3-rod, 2x limit, reference electrode over longest rod - number 3
4 2-rod, 2x limit, reference electrode over process connection

process connection material stainless steel 1.4404 *(medium contact)*

D25 Milk tube connection according to DIN 11851 *(only at KLK) (only for 1-rod)*
D40 Milk tube connection according to DIN 11851 *(only at KLK) (only up to 2-rod)*
D50 Milk tube connection according to DIN 11851 *(only at KLK) (only up to 3-rod)*
G12 G½" connecting thread*(only for 1-rod)*
G10 G1" connecting thread*(only up to 2-rod)*
G15 G1½" connecting thread*(only up to 3-rod)*
YYY Others

Material electrode rod
(price per 100mm)

A4 Steel 1.4404, 4 mm
A8 Steel 1.4404, 8 mm
C Hastelloy® B, rod diameter 4 mm
D Hastelloy® C22, rod diameter 4 mm
T4 Titan not for Ex-version, rod diameter 4 mm
T8 Titan not for Ex-version, rod diameter 8 mm
E CrNi-steel, tip tantalum 50mm, on request
Y Others

Material housing

D POM – polyoxymethylenee Delrin®, *(standard)*
P PP – polypropylenee
L PTFE – Polytetrafluoroethylene Teflon®
V CrNi-steel

Material probe insulation
(price per 100mm)

R PA-Polyamid *(standard) (not at KLK)*
H4 ETFE (KLK) resp. E-CTFE, rod diameter 4 mm
H8 ETFE (KLK) resp. E-CTFE, rod diameter 8mm
* at lengthn over 1 m

Diameter probe rod

0 4 mm
W 8 mm

Length *L1/L2/L3 electrode rod in mm, max. 2500 mm*

Order code

KAK | KLK mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Conductive electrode relay:

SRA-100-U0

Evaluation unit for fill level measurement to connect on conductive probes

Description

The electrode relay SRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output.
As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

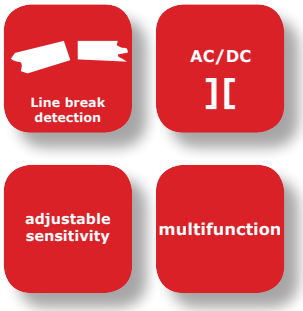
The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

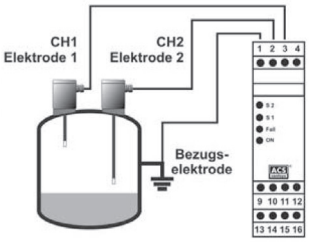
Via a coarse and fine tuning teh sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

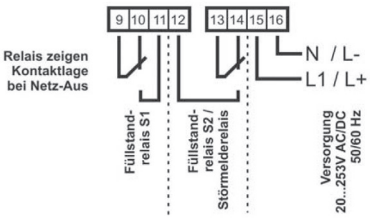
As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.

Specials



Connection





Order code

SRA-100-U0/20...253 V AC/DC Electrode relay, 22,5 mm

Special measuring range 0-1 MegaOhm
Special measuring range 0-8 MegaOhm

Technical data

Technical data	
Permitted supply voltage:	20...253 V AC / DC 48...62 Hz
Power consumption:	≤ 3,5 VA / 1,3 W
Isolation voltage:	4kV~ auxiliary power against relay outputs against signal inputs
Contact rating:	U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA
Level sensor:	one resp. two level electrodes with common reference electrode
Measurement Range:	≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm
Line monitoring:	only with level sensor with built-in modul LBM
Housing:	modular housing, 22,5mm wide

Amplifiers to connect on conductive probes for Ex-area

Description

The electrode relay ExSRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output.
As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

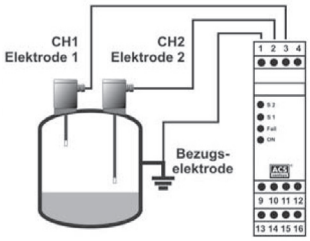
The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

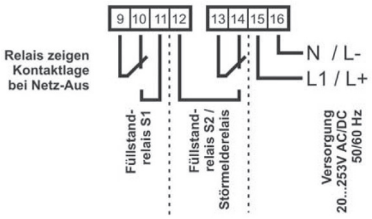
As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

Via a coarse and fine tuning teh sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.

Connection

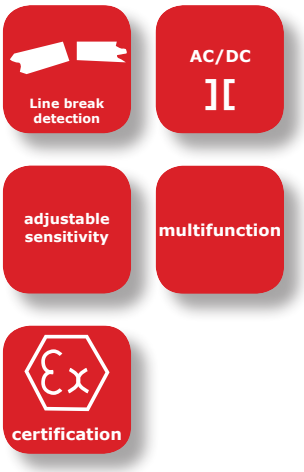




Order code

ExSRA-100-U0/20...253 V AC/DC	Electrode relay, 22,5 mm, 2 Wechsler, ATEX II (1) G [Ex ia Ga] IIB/IIC resp. ATEX II (1) D [Ex ia Da] IIIB/IIIC
Special measuring range	0-1 MegaOhm
Special measuring range	0-8 MegaOhm

Specials



Technical data

Technical data	
Permitted supply voltage:	20...253 V AC / 20...125V DC 48...62 Hz
Power consumption:	≤ 3,5 VA / 1,3 W
Isolation voltage:	4kV~ auxiliary power against relay outputs against signal inputs
Contact rating:	U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA
Level sensor:	one resp. two level electrodes with common reference electrode
Measurement Range:	≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm
Line monitoring:	only with level sensor with built-in modul LBM
Housing:	modular housing, 22,5mm wide

Conductive electrode relay:

SRA-102

Amplifiers with two seperated time delays and different measuring ranges, o connect on conductive probes

Description

The electrode relay SRA-102 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output.

As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container.

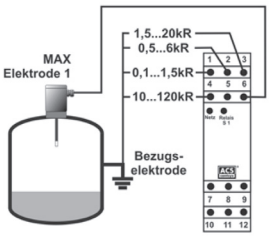
The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

The SRA-102 has four inputs with different ranges of sensitivity to adapt the measurement to the different conductivities.

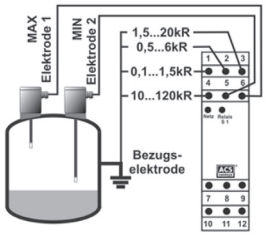
Through a separately adjustable switch-on and switch-off delay, in the range of 0.1-20 seconds, can be realized with the simple device timings.

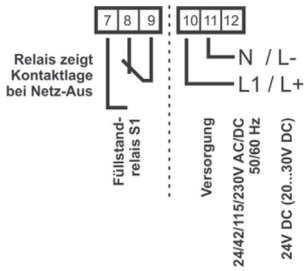
Connection

single-channel operation



dual channel operation





Order code

SRA-102 / 230 V AC	Electrode relay, 22,5 mm
SRA-102 / 115 V AC / 42 V / 24 V AC	Electrode relay, 22,5 mm
SRA-102 / 24 V DC	Electrode relay, 22,5 mm

Specials

- **4** measuring ranges for electrical conductivity
- **Min/ Max**
- adjustable setting time
- compact design

Technical data

Technical data	
Auxiliary power:	230V AC; 115V AC; 42V AC; 24V AC; 24V DC (20-30V)
Probe connection:	one resp. two electrodes with common mass connection
Probe voltage:	max. ca 10V AC, 100 Hz
Output:	1 potential-free changeover gold plated
Wide/height/depth:	22,5/75/99 mm
Fastening:	DIN rail mounting according to EN 50022-35x7,5

Equipment for Hydrocont®, probes and electrode relays

Welded flanges for container for installation of Hydrocont®, Precont®, Vibrocont etc.

Order information	*Model/material 1.4571 (gasket Viton®, others gaskets on request)*
BEFV-10	Welding socket G1"
BEFV-34	Welding socket G¾", gasket FMP-Viton®
BEFE-34	Welding socket G¾", gasket EPDM
BEFK12	Welding socket G½", sealing attachment in the back
BEFK60	Welding socket G1½" EG, sealing attachment in the back
BEFV-60	Welding flange Ø 65 mm with Viton® seal
BEFE-60	Welding flange Ø 65 mm with EPDM seal
BEF-61	Welding flange for DRD-connection 65 mm
BEFA-62	Welding flange milk tube connection DN50 n. DIN 11851 aus 1.4301
BEFB-62	Welding flange milk tube connection DN40 n. DIN 11851 aus 1.4301
BEFC-62	Welding flange milk tube connection DN25 n. DIN 11851 aus 1.4301
BEF-63	Welding flange Varivent® Ø 68 mm PN40
BEF-66	Welding flange for Coupling nut adapter

DIN-flanges with 1,5"-borehole

Order information	*Model/material 1.4571*
FL-4001	DN 40 / PN 16
FL-5001	DN 50 / PN 16
FL-8001	DN 80 / PN 16
FL-1001	DN 100 / PN 16
FL-2201	ANSI 2" / PSI 150
FL-3201	ANSI 3" / PSI 150
FL-4201	ANSI 4" / PSI 150

Reductions

Order information	*Model/material 1.4571*
RD-20Z15	Reduction G2" A auf G1½" I
RD-20Z10	Reduction G2" A auf G1" I
RD-15Z10	Reduction G1½" A auf G1" I
RD-15Z12	Reduction G1½" A auf G½" I

Tube nuts

Order information	*Model/material 1.4571*
RM-15GV	Tube nut DIN 431, G1½"
RM-10GV	Tube nut DIN 431, G1"
RM-20GV	Tube nut DIN 431, G2"
RM-38GV	Tube nut DIN G⅜"
RM-12GV	Tube nut DIN G½"

Weldinge sleeves for conductive probes in food applications

Order information	*Model/material 1.4571*
BEFA-62	Welding flange milk tube connection DN50 acc. to DIN 11851 from 1.4301
BEFB-62	Welding flange milk tube connection DN40 acc. to DIN 11851 from 1.4301
BEFC-62	Welding flange milk tube connection DN25 acc. to DIN 11851 from 1.4301
SEM-12	Food application welding sleeve for probe SLK/KLK with G½"
SEM-10	Food application welding sleeve for probe SLK/KLK with G1"
SEM-15	Food application welding sleeve for probe SLK/KLK with G1½"
SEM-22	Welding socket metal-seatedG½"
SEM-42	Ball welding sleeve metal-seated G½"

Spacers for conductive probes

Order information	*Model*
AH-2	Spacers for 2-rod probes
AH-3	Spacers for 3-rod probes
AH-4	Spacers for 4-rod probes
AH-5	Spacers for 5-rod probes

Line break module for installation in the probe head

Order information	*Model*
LBM	For installation in STK, SLK, ELT, SST
ExLBM	For installation in Ex-probes of type STK, SLK

Sealing screw for Hydrocont®-xtension cable montage

Order information	*Model*
VSM-1000	G1", cable strength 7,5 mm *(for Hydrocont® M + LK)*
VS-1500	G1½", cable strength 10 mm *(for Hydrocont® B)*
VSM-1500	G1½", cable strength 7,5 mm *(for Hydrocont® M + LK)*

Straining clamps

Order information	*Model*
Straining clamp	Galvanized, for Extension cable 7,5 - 10,5 mm
Straining clamp	CrNi-Steel, for Extension cable 7,5 - 10,5 mm

Wall-mounted casing with pressure equalization

Order information	*Model*
Wall-mounted casing	For Hydrocont® B, M + LK with inscription
Wall-mounted casing	For Hydrocont® B, M + LK without inscription

sliding sleeve for Capcont LS

Order information	*Model*
SAMV-63	Sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-Steel 1.4404 / 1.4571 / gasket PTFE . . . . .

Marking measuring point

AS-50	Hang tag of VA with laser inscription . . . . .

Type:

Vibrocont SCM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G½" und G¾"

Description

Vibrocont SCM-300 is a point level switch for liquids. The Vibrocont SCM-300 is designed for industrial applications in all industries, mainly the machinery industry. The Vibrocont SCM-300 is used for overfill prevention or pump dry-run protection in cleaning and filter systems as well as in cooling and lubrication vessels.

Specials

- up to 40 bar pressure
- WHG licence
- corrosion resistant
- compact design

Application

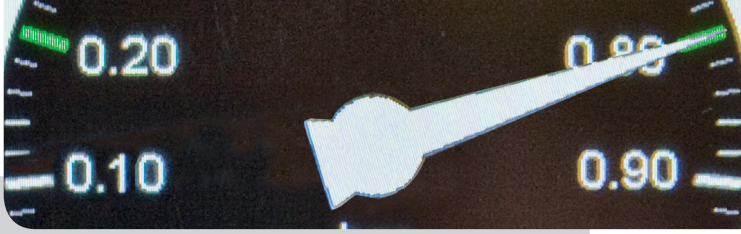
- External test option using test magnet
- On-site control using external LED display

Your benefits

- Compact: Smallest vibronic sensor
- Safe: Continuous self-monitoring and reliable switching independent of media properties
- Easy: no calibration or adjustment; plug & play
- Service-friendly plug-in connections
- For medium temperatures up to 150 °C

Order code .....page | 77 |

Technical data

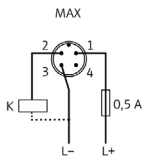


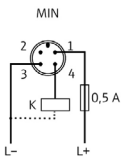
Technical data	
Measuring Principle:	Vibration Liquids
Characteristic / Application:	Level switch for liquids and is used in tanks, vessels and pipes.
Supply / Communication:	20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP 3-wire
Ambient temperature:	40 °C ... 70 °C (-40 °F ... 158 °F)
Process temperature: -	40 °C ... 150 °C (-40 °F ... 302 °F)
Process pressure absolute / max. over-pressure limit:	Vacuum ... 40 bar (Vacuum ... 580 psi)
Min. density of medium:	>0,7g/cm³ (>0,5g/cm³ optional)
Main wetted parts:	316L
Process connection Threads:	G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
Output:	AC/DC, DC-PNP
Certificates / Approvals:	WHG; EN10204-3.1 material; Final Inspection Report
Options:	Adjustment switching delay; Cleaned from oil+grease, PWIS free

Connection

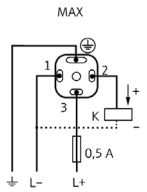
Electronic: 3-wire-DC-PNP

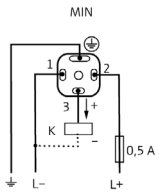
Valve plug





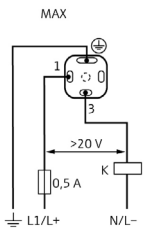
Valve plug

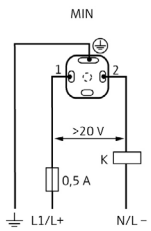




Electronic: 2-wire-AC/DC

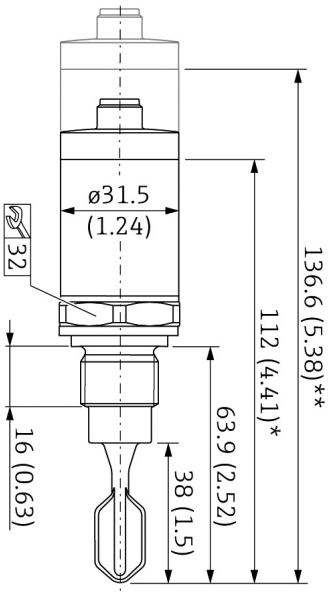
Valve plug



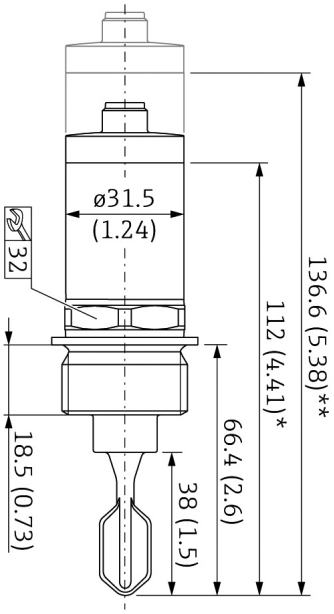


Dimension drawings

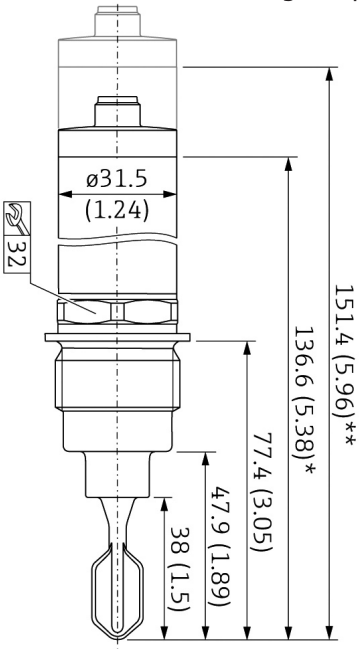
Compact version
Thread ISO 228 G1/2", G3/4"



Compact version
Thread ISO 228 G1"

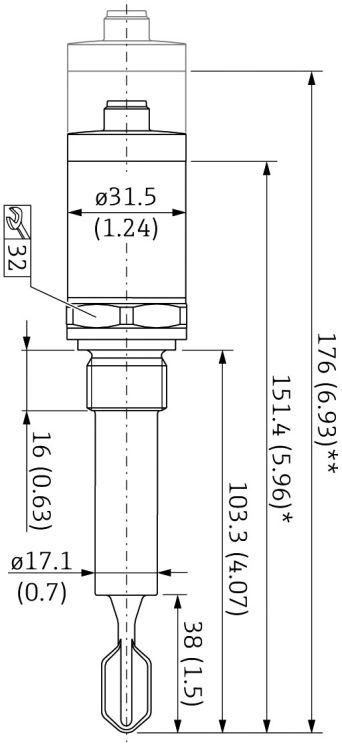


Compact version thread ISO 228 G1" for flush wall installation in welding adapter

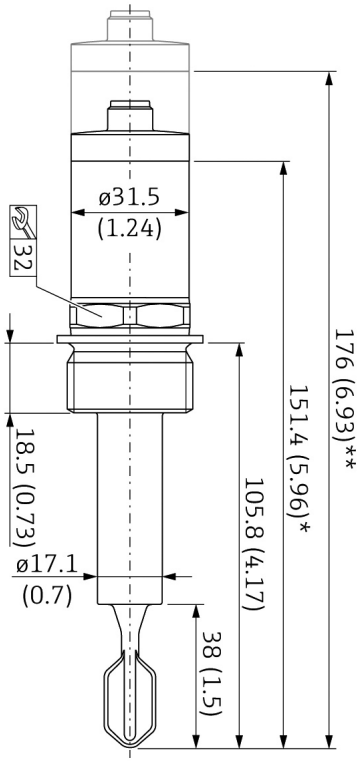


* Dimensions for process temperature max. 100 ° C
** Dimensions for process temperature max. 150 ° C

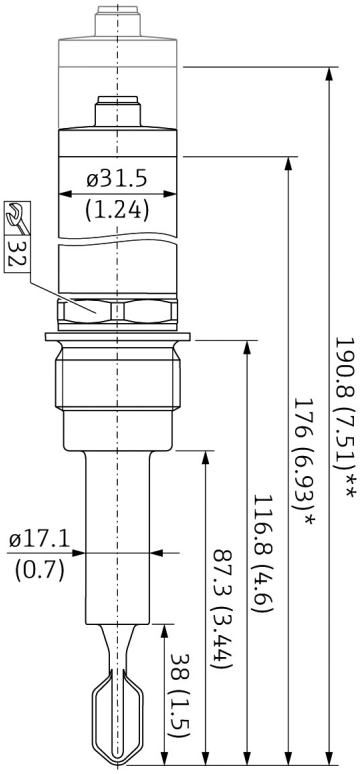
Short tube version
Thread ISO 228 G1/2", G3/4"



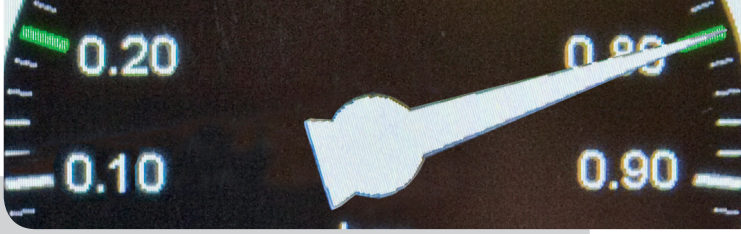
Short tube version
Thread ISO 228 G1"



Short tube version thread ISO 228 G1" for flush wall installation in welding adapter



Order code



300 Standard admission 100°C
302 Overfill saftety WHG + leakage detection 100°C process temperature
350 Standard admission 150°C
352 Overfill saftety WHG + leakage detection 150°C process temperature

Construction form
K Compact version
R Probe extension: tube (= Switching point as VCL 200/202)
Y Special version

Process connection
2 Screw-in piece G½"
1 Screw-in piece G¾"
6 G1" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-10 (= Process connection as VCL 200/202)
7 Screw-in piece G1"
Y Special version

Electronics
WA Electronic: 20...253V AC/DC
GA Electronic: 10...30V DC
Y Special version

Electrical connection
02 Model: valve plug
01 Model: plug M12 *(not for AC-Version)*
Y Special version

S Standard

Order code

Vibrocont SCM						S

Equipment

Ordering designation	*Type*
BEF-SCM34	Welding socket G¾"
LKW 0405 PUR	Connection cable 5 m
LKW P405 PUR	Connection cable LED 5 m
BKZ0412 VA	Cable socket

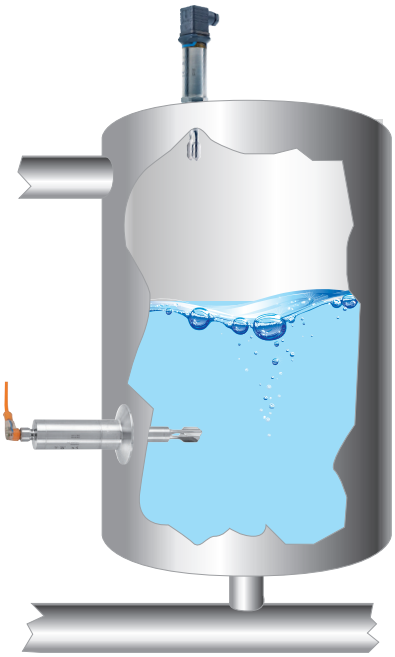
Type:

Vibrocont SHM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G½" und G¾"

Description

Vibrocont SHM-300 is a point level switch for liquids. The Vibrocont SHM-300 is especially designed for food & beverage applications where hygienic requirements are requested. The Vibrocont SHM-300 is used for overfill prevention or pump dry-run protection preferably in storage tanks, mixing vessels and pipes.



Specials

- up to 40 bar pressure
- WHG licence
- process temperature 150°C
- compact design
- CIP SIP capable
- EHEDG licence

Order code .....page | 81 |

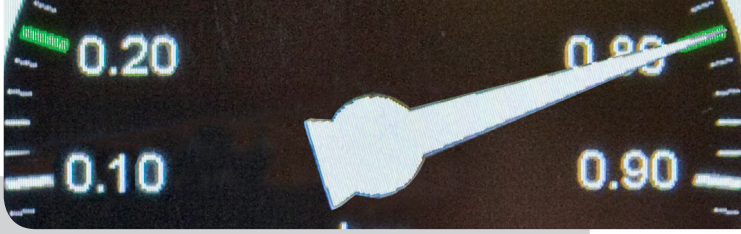
Application

- External test option using test magnet
- On-site control using external LED display
- Hygienic applications

Your benefits

- Compact: Smallest vibronic sensor
- Safe: Continuous self-monitoring and reliable switching independent of media properties
- Easy: no calibration or adjustment; plug & play
- Service-friendly plug-in connections
- For medium temperatures up to 150 °C

Technical data

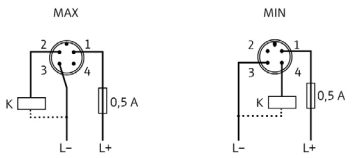


Technical data	
Measuring Principle:	Vibration Liquids
Characteristic / Application:	Point level switch for liquids in the food sector
Supply / Communication:	20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP, 3-wire
Ambient temperature:	40 °C ... 70 °C (-40 °F ... 158 °F)
Process temperature:	-40 °C ... 150 °C (-40 °F ... 302 °F)
Process pressure absolute / max. overpressure limit:	Vacuum ... 40 bar (Vacuum ... 580 psi)
Min. density of medium:	>0,7g/cm³ (>0,5g/cm³ optional)
Main wetted parts:	316L
Process connection: Threads:	G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
Process connection hygienic:	Flush mount by use of weld in adapter; DIN11851; Tri-Clamp
Output:	AC/DC, DC-PNP
Certificates / Approvals:	WHG; EN10204-3.1 material; EHEDG, 3A; Final inspection report
Options:	Switching delay; Cleaned from oil+grease, Surface finish measurement

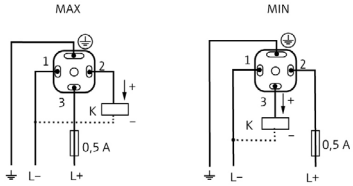
Connection

Electronic: 3-wire-DC-PNP

Valve plug

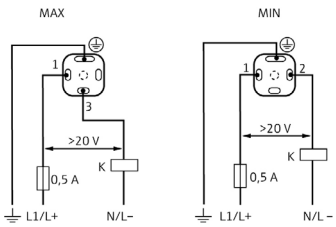


Ventilstecker



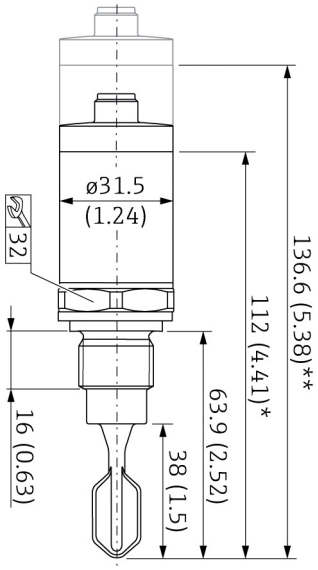
Electronic: 2-wire-AC/DC

Valve plug

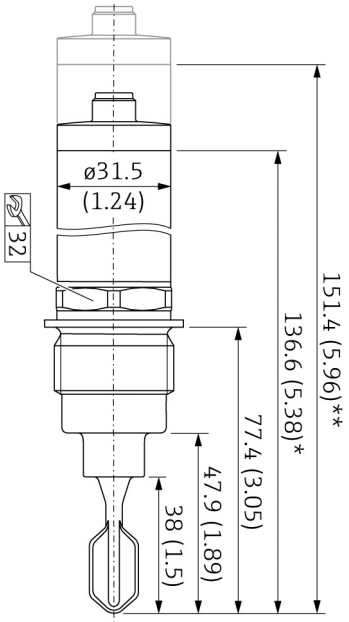


Dimension drawings

Compact version thread ISO 228 G3/4" for flush wall installation in welding adapter

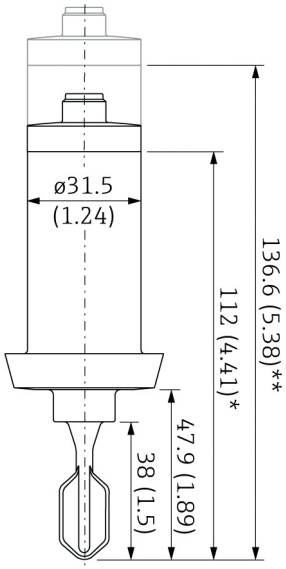


Compact version thread ISO 228 G1" for flush wall installation in welding adapter

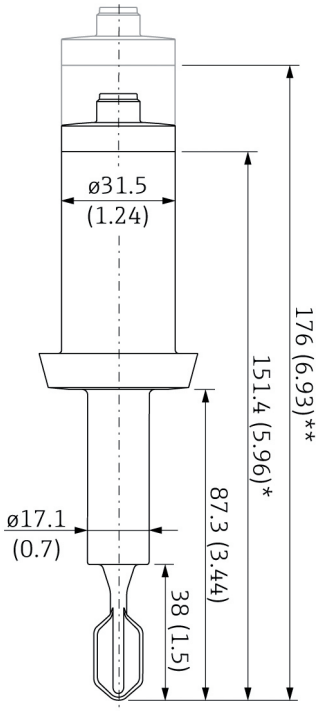


* Dimensions for process temperature max. 100 ° C
** Dimensions for process temperature max. 150 °
Installation according to the manual

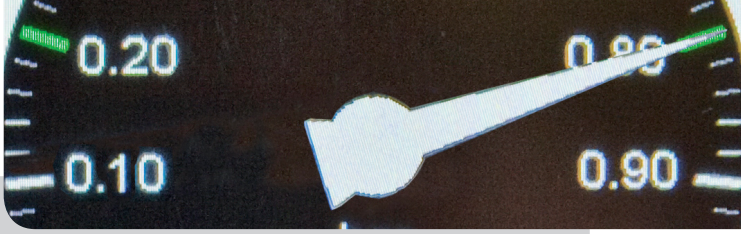
Compact version DIN11851 DN25; DN32; DN40



Compact version Tri-Clamp ISO2852 DN25-38; DN40-51



Order code



300 Standard admission 100°C
300 Overfill protection WHG+leakage 100°C
350 Standard admission 150°C
300 Overfill protection WHG+leakage 150°C
Y Special version

Process connection

GD Screw-in piece G¾" flush mounted
GE Screw-in piece G1" flush mounted
T1 Tri-Clamp ISO2852 DN25-38 (1..1-1/2"), 316L, DIN32676 DN25-40
TD Tri-Clamp ISO2852 DN40-51 (2"), 316L, DIN32676 DN50
MN DIN 11851 DN25 milk tube
MP DIN 11851 DN32 milk tube
M4 DIN 11851 DN40 milk tube
Y Special version

Electronics

WA Electronic: 20...253V AC/DC
GA Electronic: 10...30V DC
Y Special version

Electrical connection

02 Model: valve plug
01 Model: plug M12 *(not for AC-Version)*
Y Special version

Surface roughness

S Surface roughness <1,5µm
H Surface roughness <0,76µm
Y Special version

S Standard

Order code

Vibrocont SHM S

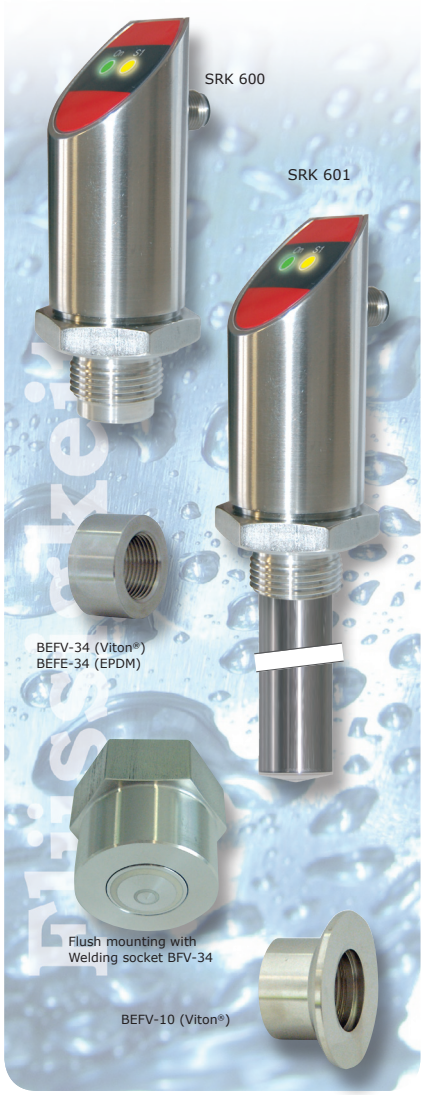
Equipment

Order information	*Model*
BEF-SCM34	Welding socket G¾" for process connection GD
BEFASCM10	Welding socket G1" for process connection GE
BEFBSCM10	Welding socket G1", ausrichtbar
LKW-0405 PUR	Connection cable 5 m
LKW P405 PUR	Connection cable LED 5 m
BKZ0412 VA	Cable socket

Type:

SRK 600 / 601

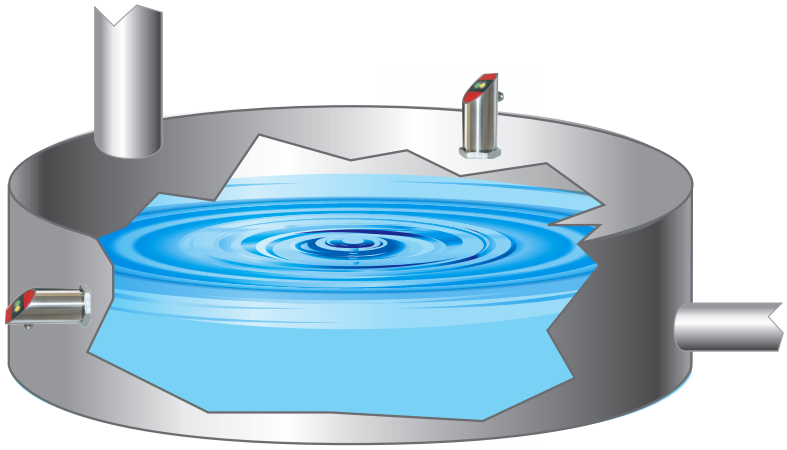
Fill level limit switch – compensated for fill level control in conductive liquids, sludge's and pastes; medium temperature: -40...+150°C; pressure: -1...25 bar



Description

The compact level switch works in all electrically conductive liquids which do not form an insulating rudiment. Adjustment is not necessary.
A compensation electrode automatically eliminates influences of solid coatings on the circuit.
The SRK provides a safe, uncomplicated problem solution for monitoring of levels and for dry run protection for pumps.

Possible process connections are thread connections, various hygienic connections that are seal gap-free and front flush.
With the SRK highest hygienic requirements can be met, because no mechanical parts such as e.g. electrode rods or forks protrude in the tank or the pipeline.
The SRK-601 with tube extension is inetended to be used in tanks where the limit switch only can be installed from above but the switching point should be below.



Specials

- flush mounted
- process temperature 150°C
- coat compensation
- hygenic design
- CIP SIP capable
- no calibration

Order code .....page | 85 |

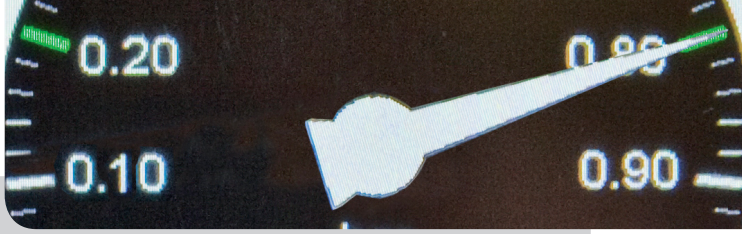
Application

- Full resp. empty signal in pipelines and tanks
- Dry run protection of pumps
- Optimal cleanability

Your benefits

- *High-temperature version* up to 150 ° C medium temperature
- Absolute frontflush installation
- Full flow in pipelines
- Active build-up compensation for sticky and viscous media
  easy commissioning without adjustment

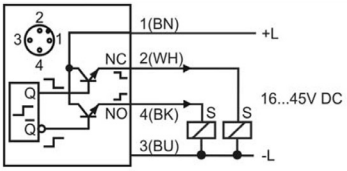
Technical data



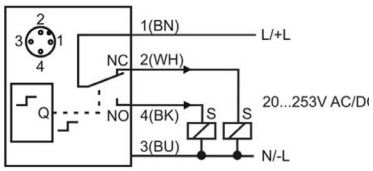
Technical data	
Supply:	Type GA: 16...45V DC Type WB: 20...253V AC/DC
Permitted supply voltage:	Type GA: 16 V up to 45 V DC reverse polarity protected Type WB: 20 V up to 253 V AC/DC 48...62 Hz reverse polarity protected
Power consumption:	Type GA: ≤ 1 W Switch output in idle mode Type WB: ≤ 1 VA / 1 W
Residual ripple:	Type GA: ≤ 2 VSS Condition: within the permitted supply voltage range
Overvoltage category:	II according to DIN EN 61010-1
Protection:	II double or reinforced insulation
Isolation voltage:	2kV~ Auxiliary power / switch output against electrode circuit
Type GA – PNP-switch output	
Function:	PNP transistor output, contact + L
Output voltage:	VOUT ≥ V+L – 2 V
Output current:	≤ 500 mA current limited, short circuit predected
Reverse current:	≤ 100 µA current limited, short circuit predected
Rise time:	< 30 µs RL < 3 kΩ resp. IL > 4,5 mA
Switching cycles:	≥ 100.000.000
Type WB – relay output	
Function:	Changeover, contact L / L +
Contact data:	≤ 2 A – 62,5 VA / 60 W (at resistive load) ≥ 100 µV
Switching cycles:	≥ 100.000 at maximum contact load
Electrode circuit – measuring circuit	
Output voltage:	potential free AC-voltage
Output data:	1 VSS ± 0,2 V / ≤ 5 kHz ± 200 Hz / ≤ 5 mA
Measurement Range:	≥ 7,5 µS/cm
Step response time:	1s ±0,4s

Connection SRK-600

Connection Type GA

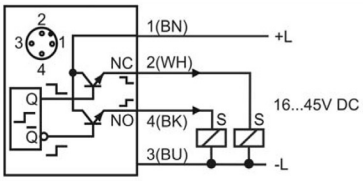


Connection Type WB

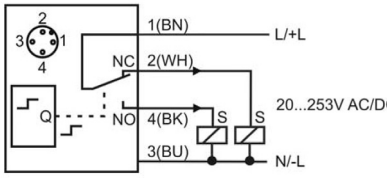


Connection SRK-601

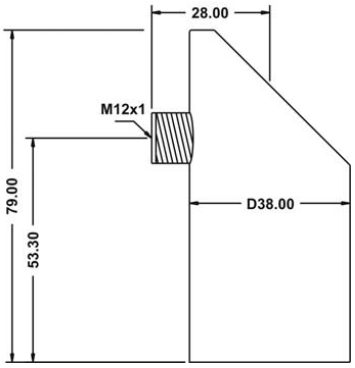
Connection Type GA



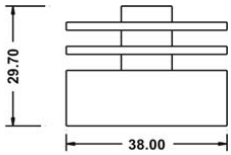
Connection Type WB



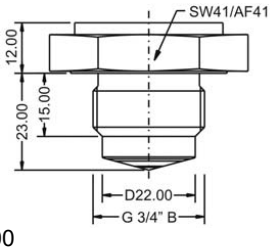
Anschlussgehäuse



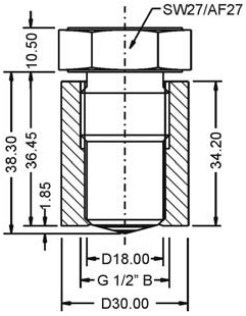
Temperaturentkoppler
für erweiterten Temperaturbereich
– 25/40°C...+150°C (optional)



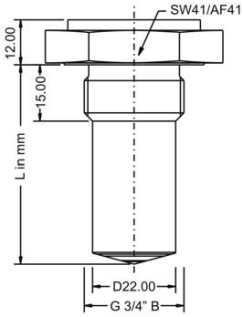
SRK – 600
Typ S 8
G ¾“
frontbündig



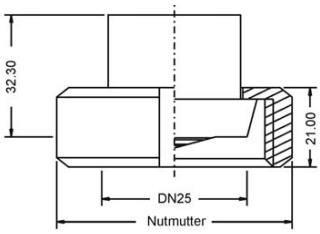
SRK – 600
Typ S 6
G ½"
metallisch dichtend
Einschweißmuffe SEM-22



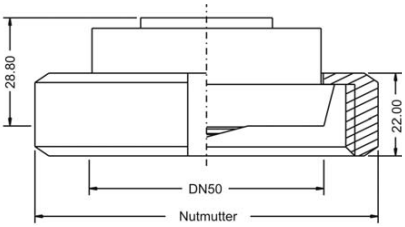
SRK – 601
Typ S 8
G ¾"
Rohrverlängerung



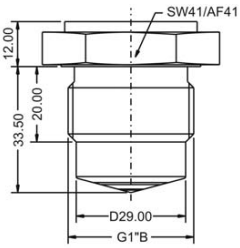
SRK – 600
Typ S R
Milchrohr
DN25



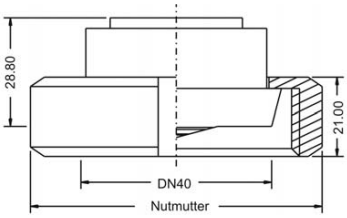
SRK – 600
Typ S M
Milchrohr
DN50



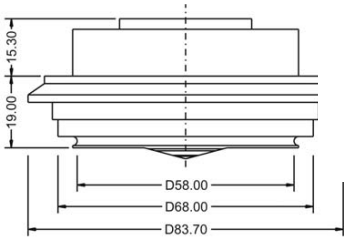
SRK – 600
Typ S 5
G 1“
frontbündig



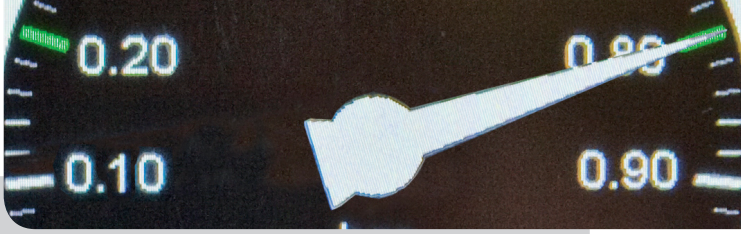
SRK – 600
Typ S N
Milchrohr
DN40



SRK – 600
Typ S O
Varivent
68mm



Order code



Model
S Standard

Process connection
8 G¾" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-34 / BEFE-34
6 G ½" B DIN EN ISO228-1 metal seated mounting in welding socket SEM-22 / SEM-42
5 G1" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-10
O Varivent® 68 mm DN40-80/DN1½"..6", PN25 DN100/DN4", PN20 DN125/DN6", PN10
R Milk tube DN 25 DIN 11851
N Milk tube DN 40 DIN 11851
M Milk tube DN 50 DIN 11851
Y Other process connection

Process temperature
0 Standard -40°C up to +100°C
1 Advanced -40°C up to +150°C, with Temperature decoupler

Electronic - output
GA DC voltage 16...45 V DC; PNP-switch output; 3-wire technology
WB Universal voltage 20...253 V AC/DC; relay output; 3-wire technology

Electrical connection
S Plug M12x1

Order code

SRK-600	S				S

Front-flush installation!

Therefore, no disturbing parts in containers and pipes

Model
S Standard

Process connection
8 G¾" B; DIN EN ISO228-1
Y Other process connection

Process temperature
0 Standard -25°C up to +100°C
1 Advanced -25°C up to +150°C with Temperature decoupler

Electronic - output
GA DC voltage; 16...45 V DC; PNP-switch output; 3-wire technology
WB Universal voltage; 20...253 V AC/DC; relay output; 3-wire technology

Electrical connection
S Plug M12x1

Length L in mm
(price per 100mm)

Order code

SRK-601	S				S	mm

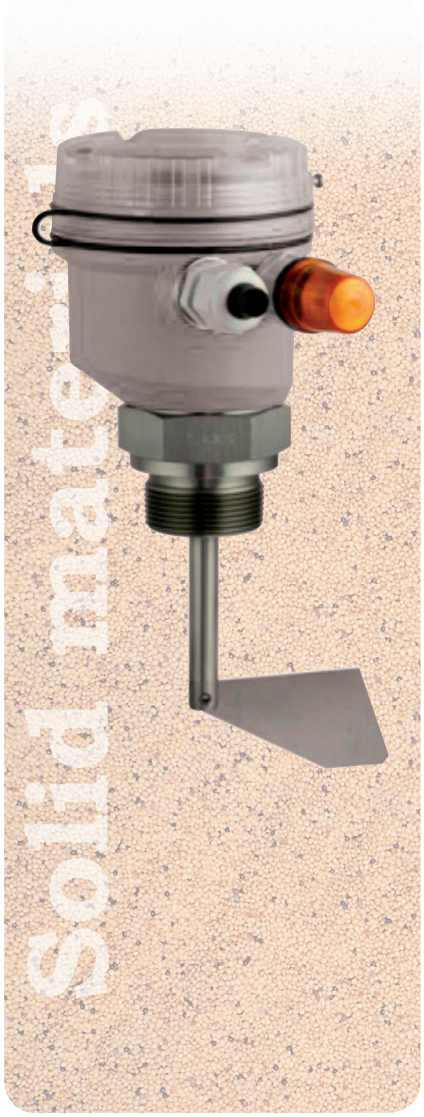
Equipment

Order information	*Model*
BEFV-34	Welding socket G¾" Viton®
BEFE-34	Welding socket G¾" EPDM
BEFV-10	Welding socket G1", ausrichtbar
LKZ0405 PUR-AS	Connection cable 5 m, 4-pole, shielded
BKZ0412 VA	Kabeldose

Type:

Silocont SIC-350

Rotary paddle switch for solids; simple mechanism, extremely robust and cost-effective; medium temperature: -20...+80°C; pressure: 0,5...2,5 bar abs.



Description

The economical Solicont SIC-350 is a paddle switch for point level detection in bulk materials. Its robust polymer housing and compact design makes it an ideal sensor for full, empty and demand alarm in applications with bulk solids. The optimized polymers make the unit outstandingly robust and therefore suitable for use in dust explosive areas according the latest standards.

Specials

robust

certification

for all solid materials

compact

low cost

Order code .....page | 89 |

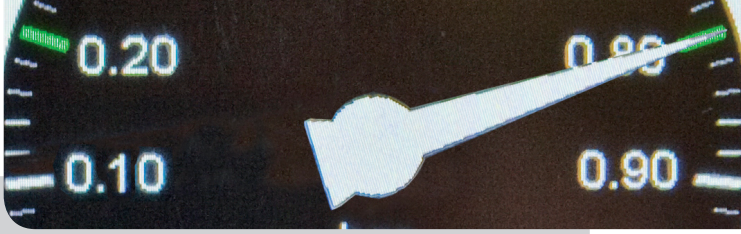
Application

- Safety comes first - Overfill prevention with an automatic rotation monitoring system
- Optical rotation control for a fast and easy check either for installation or for trouble shooting
- Extremely robust polymer housing with the latest dust Ex certification for ATEX, FM and CSA

Your benefits

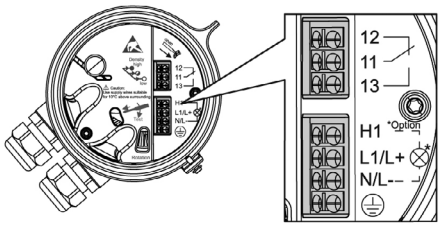
- Cost savings over the whole life cycle: quick installation; fast trouble shooting concept without the need of demounting; best price performance ratio in the market
- Adjustment to weight of solids without the need for tools
- Housing can be rotated 360° to enable optimal alignment following installation

Technical data

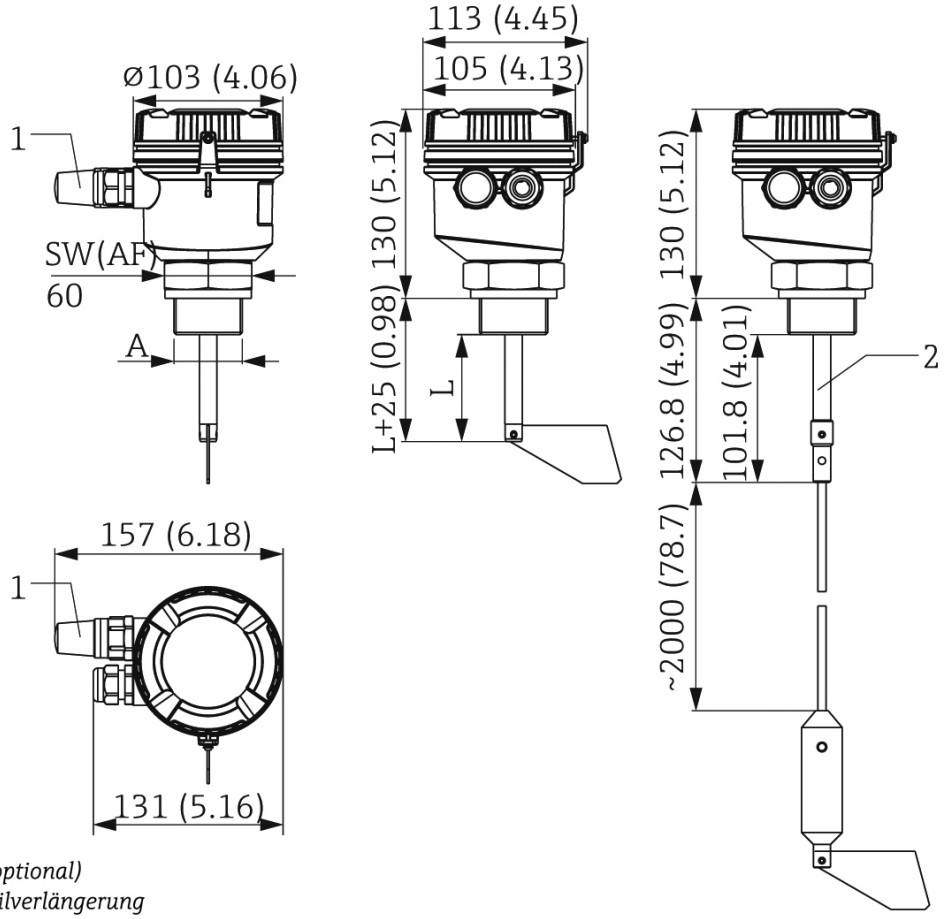


Techniscal data	
Measuring Principle:	Paddle
Characteristic / Application:	universally applicable as a full, empty and demand alarm on silos containing solids
Supply / Communication:	230 VAC 50/60 Hz; 115 VAC 50/60 Hz; 24 VAC 50/60 Hz; 20 bis 28 VDC
Ambient temperature:	-20 °C ... 60 °C (-4 °F ... 140 °F)
Process temperature:	-20 °C ... 80 °C (-4 °F ... 170 °F)
Process pressure absolute / max overpressure limit:	0.5 bar to 1.8 bar (7 psi ... 25 psi)
Min. density of medium:	>= 80 g/l
Main wetted parts:	1.4305
Max. tensile strength:	Rope version >1500N
Process connection:	NPT 1 1/2", PBT; NPT 1 1/4", PBT; G 1 1/2", PBT; NPT 1 1/2", 1.4305; NPT 1 1/4", 1.4305; G 1 1/2", 1.4305
Sensor length:	75 mm (3"); 100 mm (4"); 120 mm (4 3/4"); 200 mm (8"); 300 mm (12"); Rope length of approx 2000 mm (80"), can be shortened
Output:	Micro switch with changeover contact max. 10 A/250 VAC
Certificates / Approvals:	ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (requested!); FM DIP/ II, III/1/E-G
Options:	Rotation Monitoring System; Signal Lamp; Fold-away paddle; Weather protection cover
Specialities:	Rotation Monitoring System; Fold-away paddle
Components:	HAW569 Surge arrester

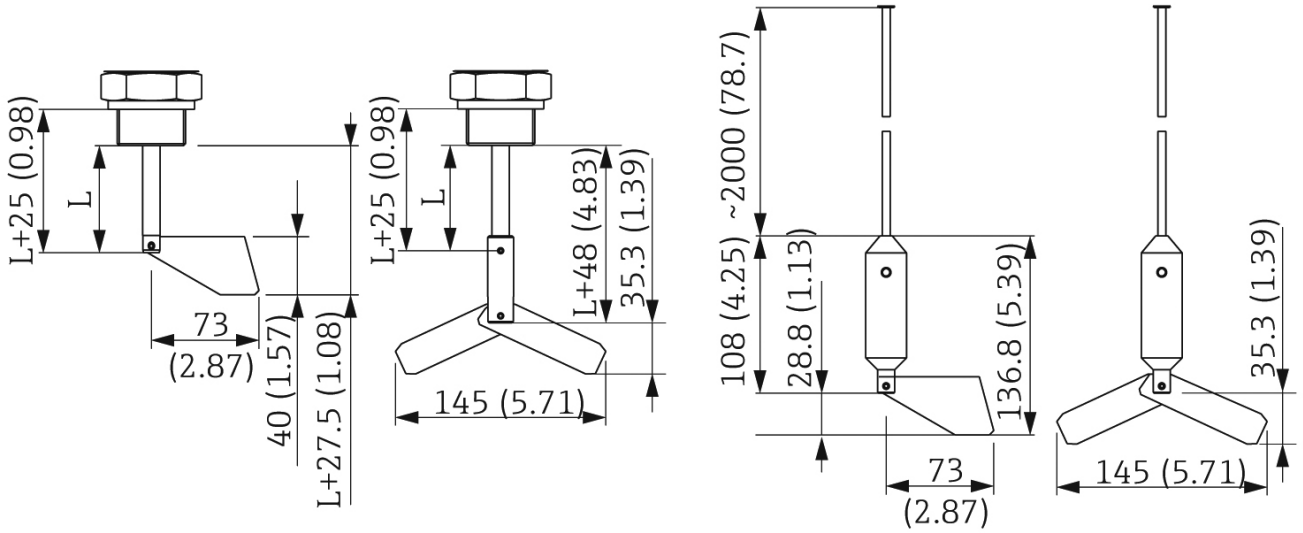
Connection



⏚	protective conductor
N (AC), L- (DC)	auxiliary power
L1 (AC), L+ (DC)	auxiliary power
H1 N/L-	Connection for signaling the e mpty / full message (optional)
11	changeover
12	break contact
13	work contact

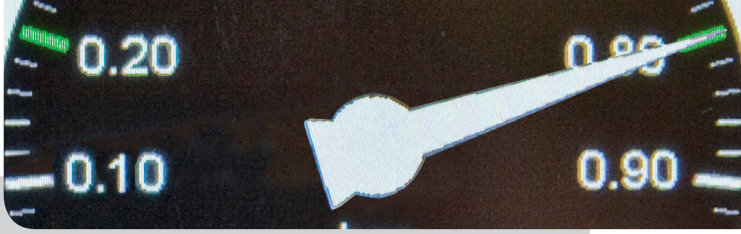


1 Signallampe (optional)
2 Version mit Seilverlängerung



Abmessungen je nach Variante		
A	Prozessanschluss	NPT 1¼", NPT 1½", G 1½"
L	Länge der Welle	75...300 mm (2,95...11,81 in)

Order code



Licence

AA	Non-Ex-area
BI	ATEX II 1/2D Ex ta/tb IIIC Da/Db (signal lamp not possible with Ex)
CC	CSA DIP/ II, III/1/E-G
FC	FM DIP/ II, III/1/E-G

Process connection; material

11	Thread NPT 1-½", PBT
12	Thread NPT 1-¼", PBT
13	Thread G 1-½", PBT
14	Thread NPT 1-½", 303
15	Thread NPT 1-¼", 303
16	Thread G 1-½", 303
99	Special version

Model; length

AA	Spindle, 75mm
AB	Spindle, 100mm
AC	Spindle, 120mm
AD	Spindle, 200mm
AE	Spindle, 300mm
AF	rope, 2000mm, can be shortened
AY	Special version

power supply

1	20-28VDC
2	24VAC
3	115VAC
4	230VAC
9	Special version

Measuring blade; material

1	Standard; 304
2	Foldable; 304
3	Special version.

NN

CA	Inklusive rotation monitoring (increased safety)
C0	Without rotation monitoring

Equipment mounted

NA	Signal lamp (NOT WITH EX)
N9	Special version.
00	Without equipment.

Order code

SIC-350 NN CA

Type:

Capcont M

for capacitive fill level supervision in liquids and solid materials; medium temperature: -30...+125°C; pressure: -1...10 bar

Description

The devices of the series Capcont M with integrated evaluation electronic are compact fill level limit switches for supervision of fill levels in liquids and solid materials in containers or pipelins at process temperatures from -30°C to +125°C and process pressures from -1 up to 10 bar.

The device is suitable for limit value detection or also as dry run protection in liquids and viscous substances but also in powdery and fine-grained materials, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum. It can be used in electrically conductive as well as non-conductive materials.

Specials

Order code .....page | 97 |

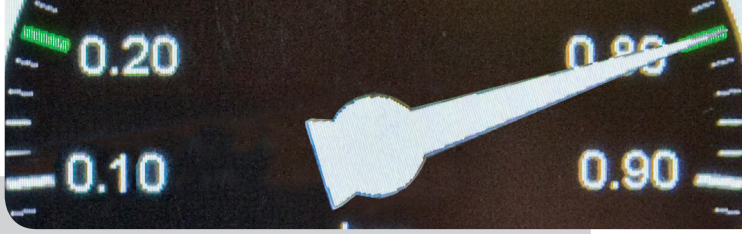
Application

- Fill level resp. limit value detection in container
- Dry run protection for pumps
- Useable in liquids, viscous substances, granular materials or powders
- Useable for electrically conductive and non-conductive substances

Your benefits

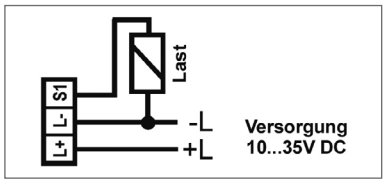
- Easy commissioning
- Suitable for a wide process temperature range from -30°C to +125 °C
- Useable at process pressures from -1 to 10 bar
- Fully isolated electrode rod with isolation 1mm in PTFE
- Integrated evaluation electronic with PNP switching output - invertable

Technical data



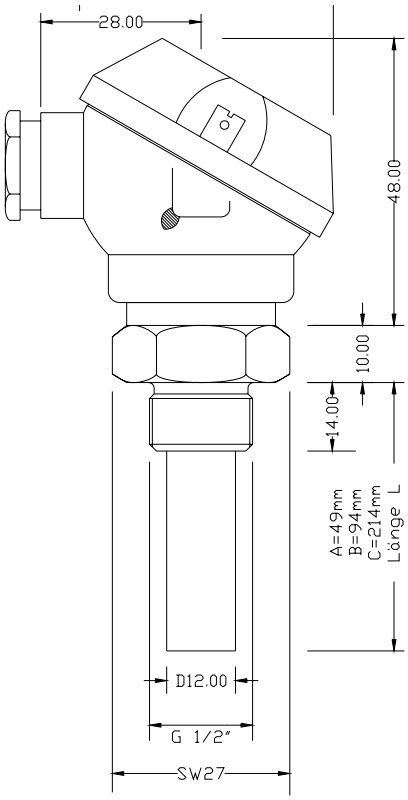
Power supply	
Voltage supply:	10 V up to 35 V DC reverse polarity protected
Residual ripple:	≤ 2 VSS Condition: within the permitted supply voltage range
Supply current:	≤ 10mA Switching outputs in idle mode
Isolation voltage:	75VDC
Switch output	
Function:	PNP-switching on +Vs, Principle (NO/NC) invertible via jumper
Output voltage:	VS1 ≥ +Vs – 2 V
Output current:	≤ 250 mA current limited, short circuit predected
Rise time:	≤ 30 µs RL ≤ 3 000 Ω resp. IL ≥ 4,5 mA
Step response time:	≤ 200 ms / ≥ 5 Hz
Switching cycles:	≥ 100.000.000
Switching hysteresis:	depends on the media
Sensitivity adjustment:	Multi-start trimmer
Material	
Rod isolation (medium contact):	PTFE – polytetrafluoroethylene (Teflon®)
Process connection (medium contact):	Steel 1.4404 (AISI 316L) resp. 1.4571 (AISI 316Ti)
Connection housing:	die-cast aluminium housing in powder-coated finish
Cable screw connection:	Brass nickel-plated screw, sealing CR / NBR
Gaskets:	medium contacte FPM – Fluoroelastomer (Viton®) EPDM – Etylen-P

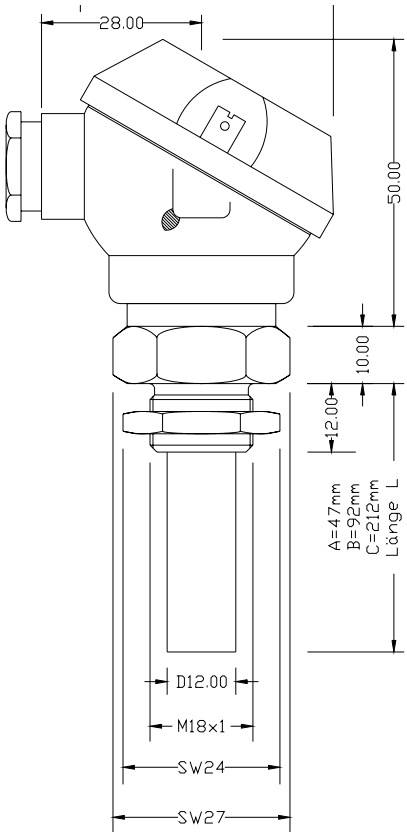
Connection



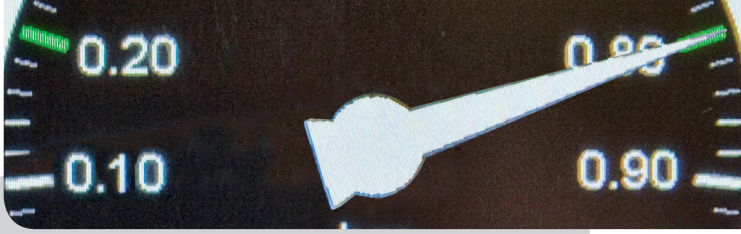
In use

Dimension drawings





Order code



Model
M Standard

Material electrode rodisolation / length L *(medium contact)*
A PTFE Polytetrafluoroethylene (Teflon®) L=49 mm *(-2 mm at process connection 0 – M18x1)*
B PTFE Polytetrafluoroethylene (Teflon®) L=94 mm *(-2 mm at process connection 0 – M18x1)*
C PTFE Polytetrafluoroethylene (Teflon®) L=214 mm *(-2 mm at process connection 0 – M18x1)*
Y Other isolation material / others length separate disclosure required

Process connection
0 M18 x 1 DIN ISO 724
1 G½" B DIN EN ISO 228-1
Y Others

Gaskets *(medium contact)*
1 FPM Fluoroelastomer *(Viton®)*
2 CR Chloroprene rubber *(Neoprene®)*
3 EPDM Ethylen-Propylen-Dinmonomer for food applications
4 FFKM Perfluoroelastomer *(Kalrez®)*

Material process connection (medium contact)
V Steel 1.4404 *(AISI 316L)* / 1.4571 *(AISI 316 Ti)*

Construction form / material Connection housing
3 Form F according to DIN 43729 Aluminium

electronic - output
A 1x PNP-switch output

Process temperature
0 -30°C up to +125°C

Electrical connection
K Terminal box

Length L in mm

Order code

Capcont	M				V	3	A	0	K	mm

Type:

Capcont LL / LS

for capacitive filling level supervision in liquids and solids

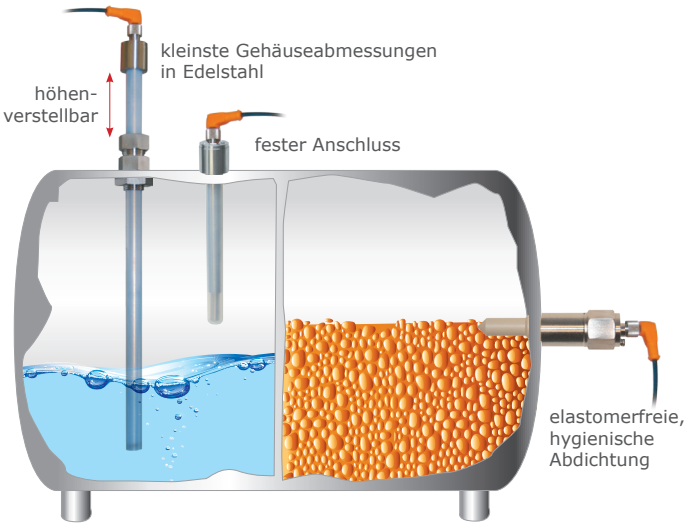
Description

The device is suitable for limit value detection of also as dry run protection in liquids and viscous substances and also in powdery and fine granular substances, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum.

It can be used in electrically conductive as well as in non-conductive materials.

The device is certificated for the use as overflow protection acc. to WHG.

Capcont L with integrated evaluation electronic is a compact filling level limit switch for supervision of filling levels in liquids and solids within container or pipes, also in explosive hazardous areas, at process temperatures from – 40°C to +140°C and process pressures from –1 up to 10 bar. Capcont LL with metallic gasket and rod isolation in PEEK is especially suitable for the use in hygienic applications



Specials

Order code .....page | 99 |

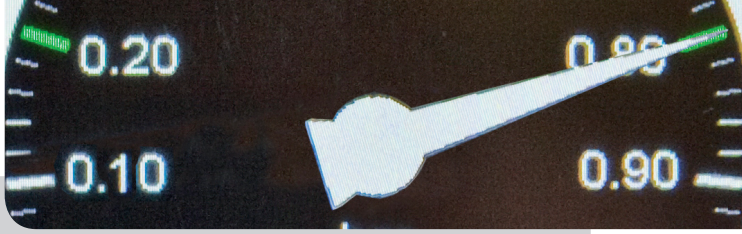
Application

- Fill level resp. limit value detection in container
- Dry run protection for pumps
- Useable in liquids, viscous substances, granular materials or powders
- Useable for electrically conductive and non-conductive substances
- Use in hygienic applications

Your benefits

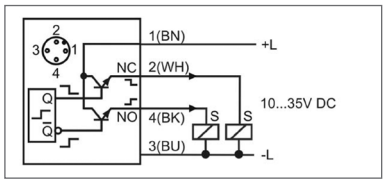
- Easy commissioning
- Suitable for a wide process temperature range from – 40°C to +140 °C
- Useable at process pressures from -1 to 10 bar
- Fully isolated electrode rod with isolation 1mm in PTFE
- Integrated evaluation electronic with PNP switching output - invertable
- Probe rod at 750 mm length
- By sliding sleeve a simple switch point adjustment is possible

Technical data

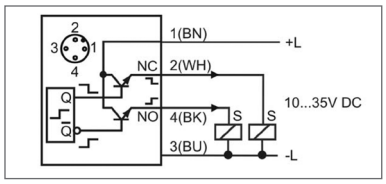


Power supply	
Voltage supply:	10 V up to 35 V DC reverse polarity protected
Supply current:	≤ 10mA Switching outputs in idle mode
Output	
Function:	PNP transistor output, contact + L
Output current:	≤ 500 mA current limited, short circuit predected
Reverse current:	≤ 100 µA current limited, short circuit predected
Step response time:	≤ 200 ms / ≥ 5 Hz
Switching cycles:	≥ 100.000.000
Switching hysteresis:	depends on the media
Sensitivity adjustment:	Multi-start trimmer
Material	
Electrode rod insulation:	Capcont LS PTFE – Polytetrafluoroethylene (Teflon®) Capcont LL PEEK
Process connection:	Steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
Device connector M12x1:	frame CrNi-steel, insert PUR, contacts gold plated
Gaskets:	medium contacte (LS) FPM – Fluoroelastomer (Viton®) EPDM – ethylene-propylene-diene monomer andere FPM – Fluoroelastomer (Viton®)
Environmental conditions	
Ambient temperature:	– 40°C...+100°C, Restriction at Ex-version
Process temperature:	Capcont LS – 40°C...+100°C, Restriction at Ex-version Capcont LL – 40°C...+140°C, Restriction at Ex-version
Process pressure::	Capcont LS – 1 bar ... 1 bar Capcont LL – 1 bar ... 10 bar
Protection:	IP68 / 3mH2O for 1h DIN EN 60529

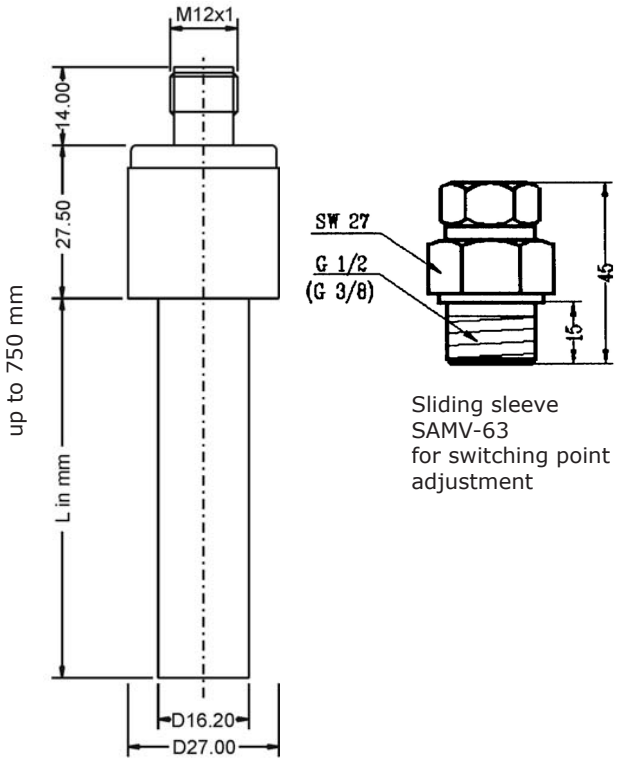
Connection LL



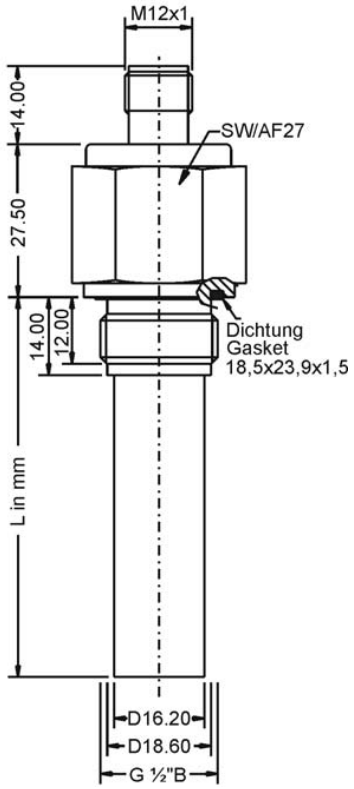
Connection LS

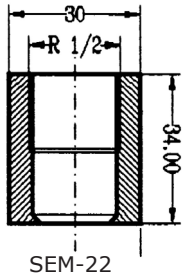


Capcont LS0

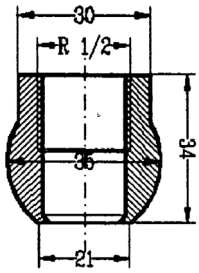


Capcont LS1



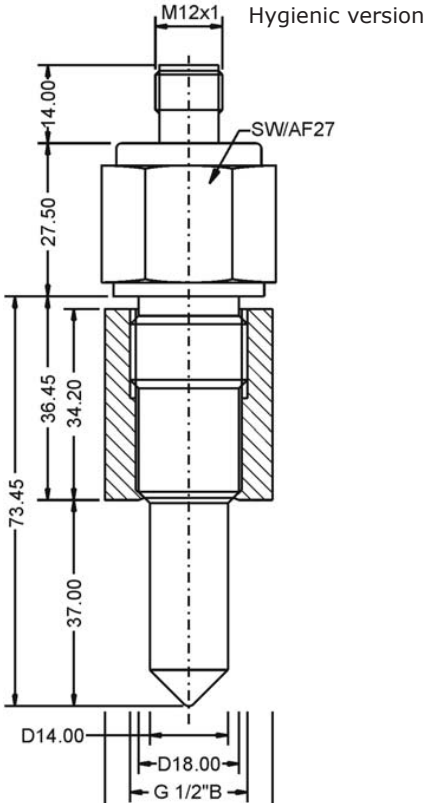


SEM-22

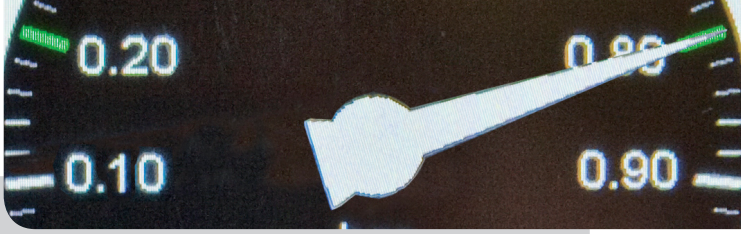


Welding socket
SEM-42

Capcont LL2



Order code



Model
L Standard
X2L ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc)

Material electrode rodisolation *(medium contact)*
S PTFE Polytetrafluoroethylene *(Teflon®)*

Process connection
0 Without – mounting with sliding sleeve SAMV-63
1 G½" B; DIN EN ISO228-1; DIN 3852-11-E
Y Others

Material gaskets *(medium contact)*
1 FPM Fluoroelastomer *(Viton®)*
3 EPDM Etylen-Propylen-Dienmonomer - for food applications

Material process connection *(medium contact)*
V Steel 1.4404/316L or 1.4571/316Ti

Material Connection housing
C CrNi-Steel

Electronic - output
A DC voltage $24V_{DC}$, 1x PNP switch output

Process temperature
0 Standard, -40°C ... +100°C

Electrical connection
S Plug M12x1

Length L
A Length L = 150 mm
B Length L = 300 mm
C Length L = 500 mm
D Length L = 750 mm

Order code

Capcont-		S			V	C	A	0	S	

Model
L Standard
X2L ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc

Material electrode rodisolation *(medium contact)*
L PEEK

Process connection
2 G ½" B, DIN EN ISO228-1 – mounting with welding socket SEM-22 / SEM-42

Material gaskets
0 Without

Material process connection *(medium contact)*
V Steel 1.4404/316L or 1.4571/316Ti

Material Connection housing
C CrNi-Steel

Electronic - output
A DC voltage $24V_{DC}$, 1x PNP switch output

Process temperature
1 Advanced, -40°C ... +140°C

Electrical connection
S Plug M12x1

0

Order code

Capcont-		L	2	0	V	C	A	1	S	0

Equipment

Order information	*Model*
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded
BKZ0412-VA	Matching cable socket, VA-nut
SAMV-63	Sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-Steel 1.4404 / 1.4571 / gasket PTFE
SEM-22	Welding socket metal-seatedG½"
SEM-42	Ball welding sleeve metal-seated G½"

Microwave level switch:

Mycrocont MCN4

Level Switch for level monitoring
with plug-in connection M12 or terminal connection
Option: Softwaretool

Description

The level monitor Mycrocont MCN is used for easy and reliable level monitoring of liquids or solids. In addition to aqueous media, also e.g. oils, honey, chocolate, Emulsions and various fine-grained materials such as grain, sugar, milk powder, etc. can be recorded. Because of the elastomer-free seal between the tip and sleeve the Mycrocont MCN can also be used for hygienic applications. The medium can be balanced via DIP switches or an optional software . The control software can detect differences in media and the switching characteristics of this situation can be matched exactly. Suitable in the appropriate configuration for media with εr> 2, including chocolate, honey, vegetable oil, etc., and all aqueous media.

Application

- Fill level resp. limit value detection in container
- Dry run protection for pumps
- Useable in liquids, viscous substances, granular materials or powders
- Useable for electrically conductive and non-conductive substances
- Use in hygienic applications

Your benefits

- Adjustable sensitivity
- Elastomer free, hygienic seal
- Precise switching point adjustment via software

Specials

hygenic design

CIP SIP capable

Min/ Max

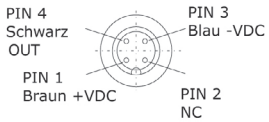
corrosion resistant

easy-to-use

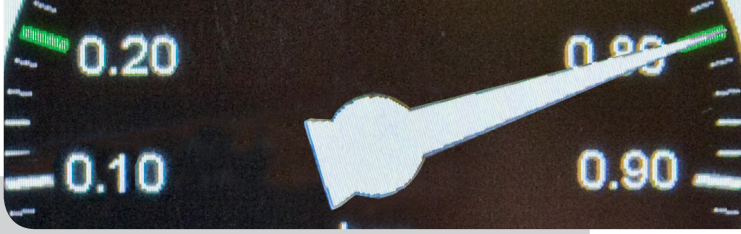
V4A

Order code .....page |101|

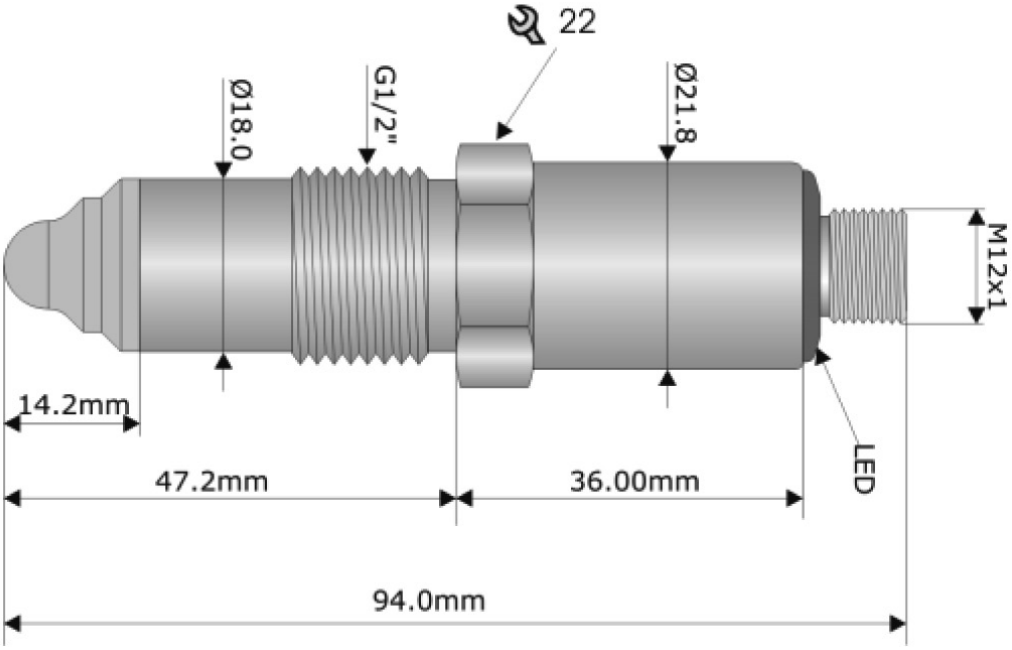
Connection

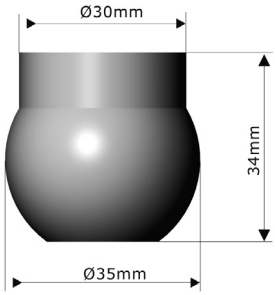


Technical data

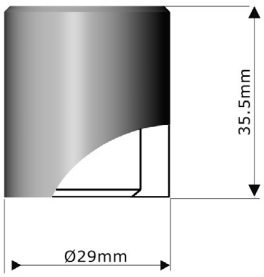


Technical data	
Process connection	G1 / 2 "hygienic
Output signal	PNP, NPN or push-pull switchable
Materials (in process PB)	PEEK * 1
Materials Housing parts	316L
Protection class	IP67 according to DIN EN 60529
Switch-on delay	<0.3 sec
Response dynamics	<0.2sec
Supply voltage	Ub = 24V (12 ... 32VDC)
Permissible load	0ohm, 24VDC, 100mA
Setting	by PC software "MCN SOFT"
Electrical connection	M12 plug 5-pin. Pin 2 + 5 milled, for data communication

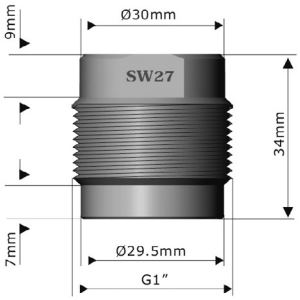




ball weld
BEFH-30

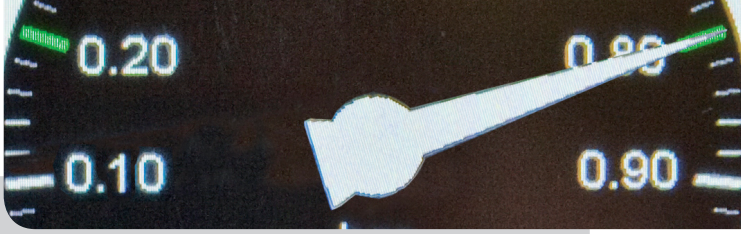


standard weld
BEFH-20



fork adapter 1"
HEM-10

Order code



Type
00 Standard

Process connection
22 Standard G½" *(hygienic installation with socket BEFH; 55mm)*
YY Special version

Electronics
GA 24 V DC *(12...32 V DC)*

Connection
01 M12

Option
S Standard
Y Special version

Order code

MCN4		GA	01

Equipment

Order information	*Model*
BEFH-20	Standard welding socket for hygienic installation (elastomer free) Ø 29 mm / L=36 mm
BEFH-20L	Welding socket for hygienic installation (elastomer free) with leakage hole Ø 29 mm / L=36 mm
BEFH-30	ball-welding socket for hygienic installation (elastomer free) Ø 35 mm
BVFH-20	Thread adapter ½" for BEFH-20
Software MCN-Soft	
USB-programming adapter connection cable MCN	
HEM-10	Liquiphant adapter G 1 for Mycrocont

others adapter, sleeves ect. on request!

Notes

Notes

Hydrocont®, Sonicont®, Hydrolog®, Flowcont®, Precont®, Thermocont®
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ACS-CONTROL-SYSTEM GmbH
Lauterbachstr. 57
D- 84307 Eggenfelden

Tel.: +49 (0) 8721/ 9668-0
Fax: +49 (0) 8721/ 9668-30

info@acs-controlsystem.de
www.acs-controlsystem.de

ACS-CONTROL-SYSTEM
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Ihr Partner für Messtechnik und Automation

Stand 12/2018
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