Flow-Guard S

Flow Switch for Solids in Flexible Hoses

Relay / Analog Output
Contactless Measurement
Easy Installation

Function

The flow switch Flow-Guard S is used to monitor the flow of solids in flexible hoses. It indicates through a relay output when a threshold is exceeded. The version with analogue output (4…20 mA) can additionally indicate a flow trend.

When granulates, powders, blasting material, dust or other solids are (pneumatically) transported, blockages, an empty hopper or a product-bridge at the bottom of a storage tank can immediately and securely be recognized.

The measurement principle is based on the detection of moving electrical charges which naturally adhere to the solids surface and are produced e.g. through friction on the hose-wall. Only moving particles generate a signal.

The hose is simply passed through the instrument (version T) and is tightened with the hose fittings.

In applications with conductive hoses, for larger diameters or in cases where the hose must be cut for installation, the versions E or W are used. Here the hose is plugged into hose fittings or fixed on nozzles from two sides.

The device cannot be used if bulk solids build up an electrically conductive layer on the inner hose wall.

Technical Data		
material	electonics housing	stainl. steel 1.4305 (AISI 303)
	sensorpipe	POM (standard)
	seal	NBR (standard)
		FPM (Ex-version)
ambient cond.	temperature	-20°C...+70°C (-4°F...158°F)
	degree of protection	IP 67 (EN 60529)
	EMC	according to EN 61326-1
Process	sensitivity	0,1 mg/m^3
	temperature	standard: max. 70°C (158°F)
	pressure	max. 10 bar (140 lbs)
output	D-guard S01	relay: max. 48 V AC/DC, 1A
	D-guard S02	transistor: galvanically isolated max. 31 V DC, 15 mA
	D-guard S20	4-20 mA, galvanically isolated load < 500 Ω Supply
voltage	D-guard S01/02	17...31 V DC, max. 60 mA
	D-guard S20	17...31 V DC, max. 90 mA
adjustment	sensitivity	1...180.000
	damping	0-10 s (S01/02), 0-180 s (S20)
	switchpoint	1...10 (DYNAguard S01/02)
	Zero set	4 mA (DYNAguard S20)
	output	high/low switchable

GTS, Inc.
PO BOX 799, Shalimar, FL 32579 USA
PH (850) 651-3388 FAX (850) 651-4777
EMAIL: info@onthelevel.com

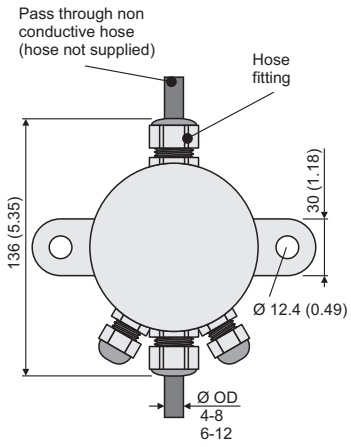
Flow-Guard S

compact reliable economical

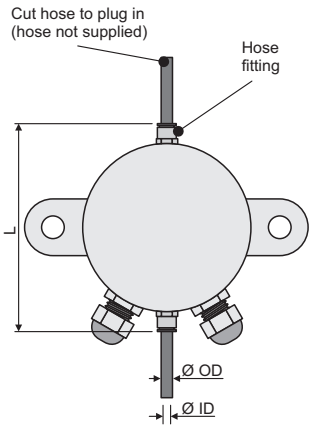
Datasheet

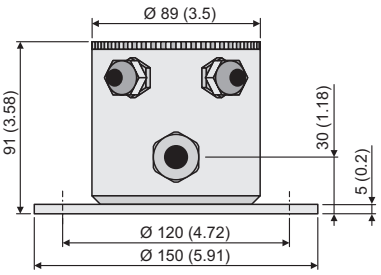
Dimensions (non Ex Version) in mm (in)

D-guard_S...T



D-guard_S...E

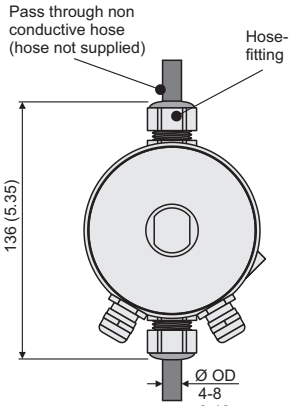




Ø OD	Inlet ØID	L
4	2,7	113 (4.45)
6	4	116 (4.57)
8	6	132 (5.20)
10	8	129 (5.08)
12	10	144 (5.67)
14	12	146 (5.75)
16	13	155 (6.10)

Dimensions (Ex Version) in mm (in)

Flow-Guard_S...T



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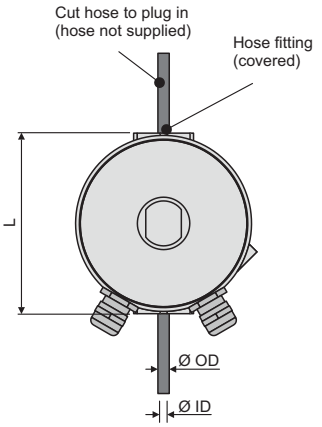
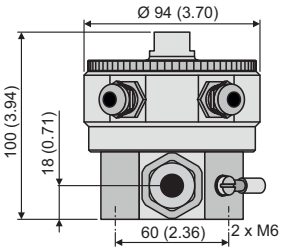
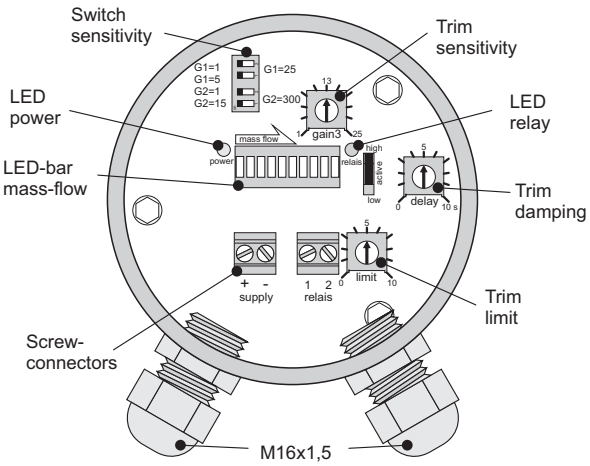


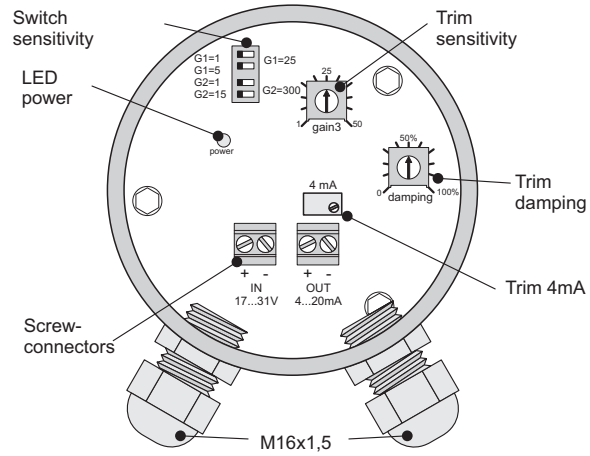


Ø OD	Inlet ØDI	L
4	2,7	90 (3.54)
6	4	90 (3.54)
8	6	106 (4.17)
10	8	103 (4.06)
12	10	118 (4.65)
14	12	120 (4.72)
16	13	129 (5.08)

Relay output: Flow-Guard S01 and



Analog output: Flow-Guard S20



Ordering key Flow-Guard S a/b/c/d/e/f

A: Output
01: Relay
02: Transistor
20: Analog output 4-20mA

b: Version
E: Plug-in hose fitting
T: Pass through hose fitting
W: Plug-on hose fitting

c: Hose diameter

D-guard S...E
hose outer diameter:
4: 4 mm (0.16 in)
6: 6 mm (0.24 in)
8: 8 mm (0.32 in)
10: 10 mm (0.39 in)
12: 12 mm (0.47 in)
14: 14 mm (0.55 in)
16: 16 mm (0.63 in)

D-guard S...T
hose outer diameter:
4-8: 4...8 mm (0.16...0.32 in)
6-12: 6...12 mm (0.24...0,47 in)

D-guard S...W
nozzle inner/outer diameter:
16-19: 16/19 mm (0.63/0.75 in)
34-38: 34/38 mm (1.34/1.5 in)

d: Material of sensor tube
51: PA (standard Ex-Vision)
56: POM (standard non Ex)

e: Material seals
00: NBR (standard non Ex)
10: FPM (standard Ex-version)

f: Certificates
without: Version for non EX area
Ex2: Version for the use in ATEX-Zone 2 and/or 22

II 3G Ex nA IIB T4 Gc
II 3D Ex tc IIIB T100°C Dc Ip65

Wear protection inlet for D-guard S...E or DYNAguard S...W (included)

Material:	PA	
Outer/inner dia.:	4 / 2,7	6 / 4
	8 / 6	10 / 8
	12 / 10	14/12
	16/13	

(in mm)

technical data subject to change without notice

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The flow direction does not affect the measurement.

1. Screw the device together with the mounting plate at the site of installation.
2. Loosen the nuts on the hose inlets.
3. Push the hose through the device:

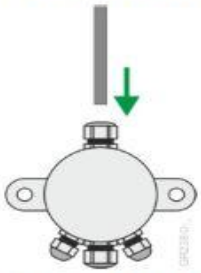

Fig. 20 Guide the hose through the device

4. Tighten the nuts at the hose inlets and establish grounding:

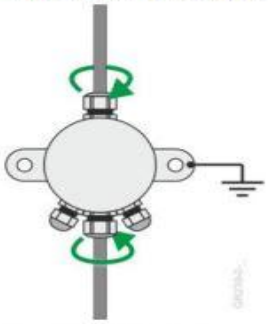

Fig. 21 Affix the hose

Operational and display elements of connection types 20 and 24

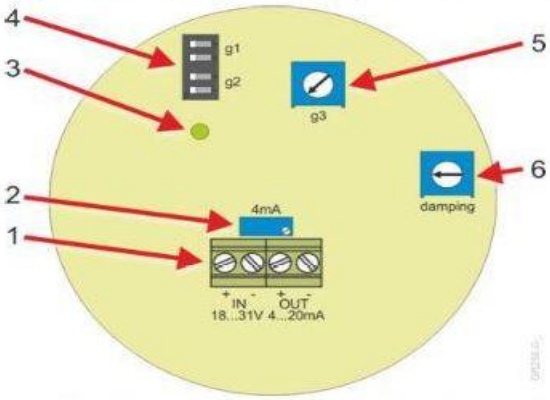

Fig. 29 Components on the circuit board (output types 20 and 24)

1 Connection terminals
2 Adjustment potentiometer of the current output
3 Operational display
4 Amplification setting levels 1 and 2
5 Amplification setting level 3
6 Delay setting

Connection terminals

You will find information on the use of the connection terminals in chapter 5.1.8.

Adjustment potentiometer of the current output

This potentiometer serves to adjust the output current when there is no material flow.

This potentiometer is adjusted in the factory. Please do not change the configuration.

Operational display

This LED lights up when the device is supplied with power.

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