

# Flow Switch for Solids in Flexible Hoses

Relay / Analog Output  
Contactless Measurement  
Easy Installation

### Function

The flow switch DYNAguard 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.

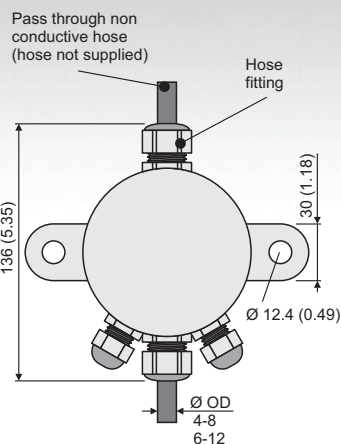
The device cannot be used if bulk solids build up an electrically conductive layer on the inner hose wall.

| Technical Data |                      |  |
|----------------|----------------------|--|
| material       | electronics 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 <sup>3</sup>                                    |
|                | temperature          | standard: max. 70°C (158°F)                              |
|                | pressure             | max. 10 bar (140 lbs)                                    |
| output         | DYNAguard S01        | relay: max. 48 V AC/DC, 1A                               |
|                | DYNAguard S02        | transistor: galvanically isolated<br>max. 31 V DC, 15 mA |
|                | DYNAguard S20        | 4-20 mA, galvanically isolated<br>load < 500 Ω           |
| Supply voltage | DYNAguard S01/02     | 17...31 V DC, max. 60 mA                                 |
|                | DYNAguard 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                                      |

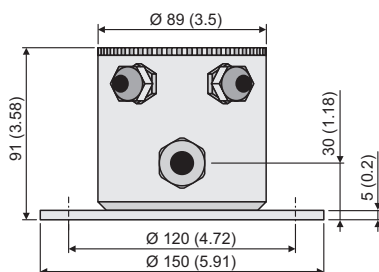
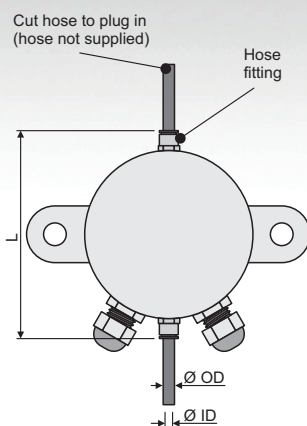


### Dimensions (non Ex Version) in mm (in)

DYNAguard\_S...T



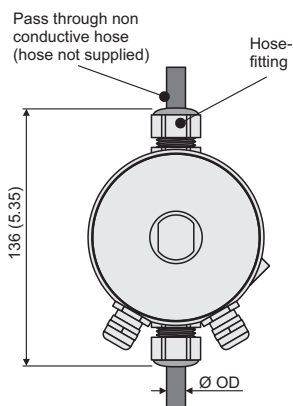
DYNAguard\_S...E



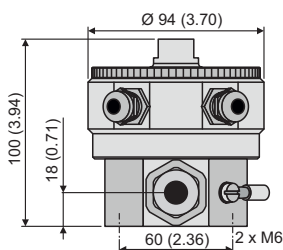
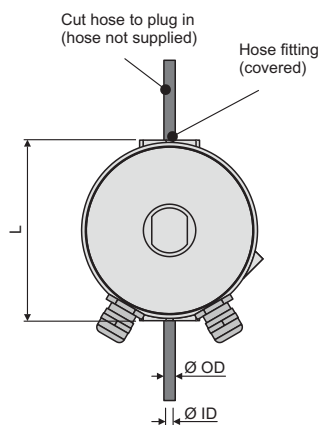
| Ø OD | Inlet ØID | L          |
|------|-----------|------------|
| 4    | 2,7       | 113 (4.45) |
| 6    | 4         | 116 (4.57) |
| 8    | 6         | 132 (5.20) |
| 10   | 8         | 129 (5.08) |
| 12   | 10        | 144 (5.67) |
| 14   | 12        | 146 (5.75) |
| 16   | 13        | 155 (6.10)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

### Dimensions (Ex Version) in mm (in)

DYNAguard\_S...T

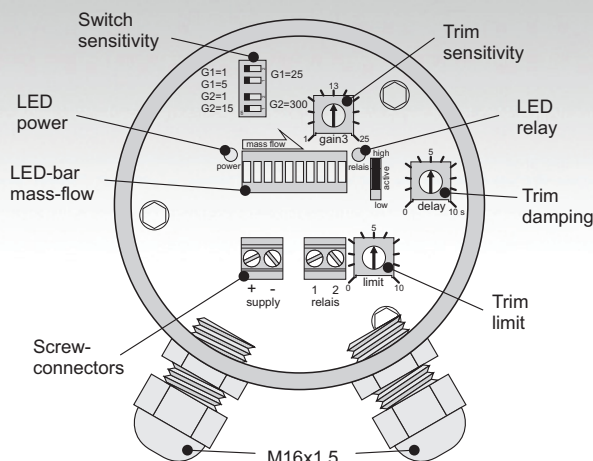


DYNAguard\_S...E

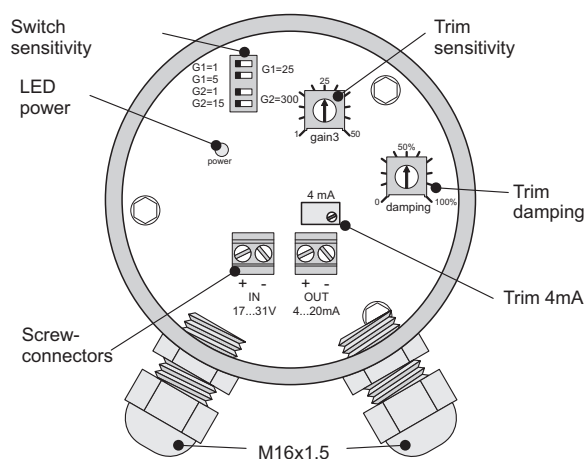


| Ø OD | Inlet ØDI | L          |
|------|-----------|------------|
| 4    | 2,7       | 90 (3.54)  |
| 6    | 4         | 90 (3.54)  |
| 8    | 6         | 106 (4.17) |
| 10   | 8         | 103 (4.06) |
| 12   | 10        | 118 (4.65) |
| 14   | 12        | 120 (4.72) |
| 16   | 13        | 129 (5.08)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

### Relay output: DYNAguard S01 and S02



### Analog output: DYNAguard S20



### Ordering key DYNAguard 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

##### DYNAguard 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)

##### DYNAguard 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)
- 11-21: 11...21 mm (0.43...0.83 in)

##### DYNAguard S...W

nozzle inner/outer diameter:

- 10-13: 10/13 mm (0.39/0.51 in)
- 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 DYNAguard 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

Please contact your regional sales agent