

Flow switch for liquid and gas *t-switch*



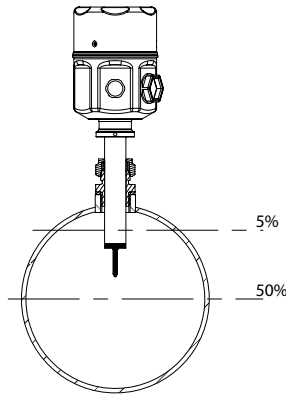
Features and Benefits

- Nominal diameters DN25 ... DN1000
- Suitable for Liquids and Gases
- No moving parts – reduced maintenance
- Wide selection of Process Connections
- Wide dynamic range
- EHEDG approved. Meets 3A requirements

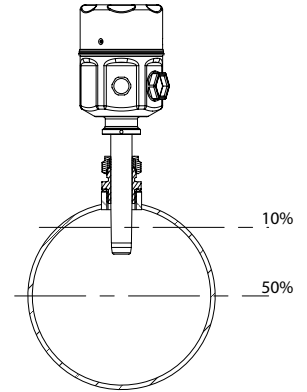
Mounting and Installation

Insertion Depth

For optimum measuring performance the active area should be positioned anywhere between 5% and 50% of the internal pipe diameter. The sensor tip should be in contact with the medium at all times.



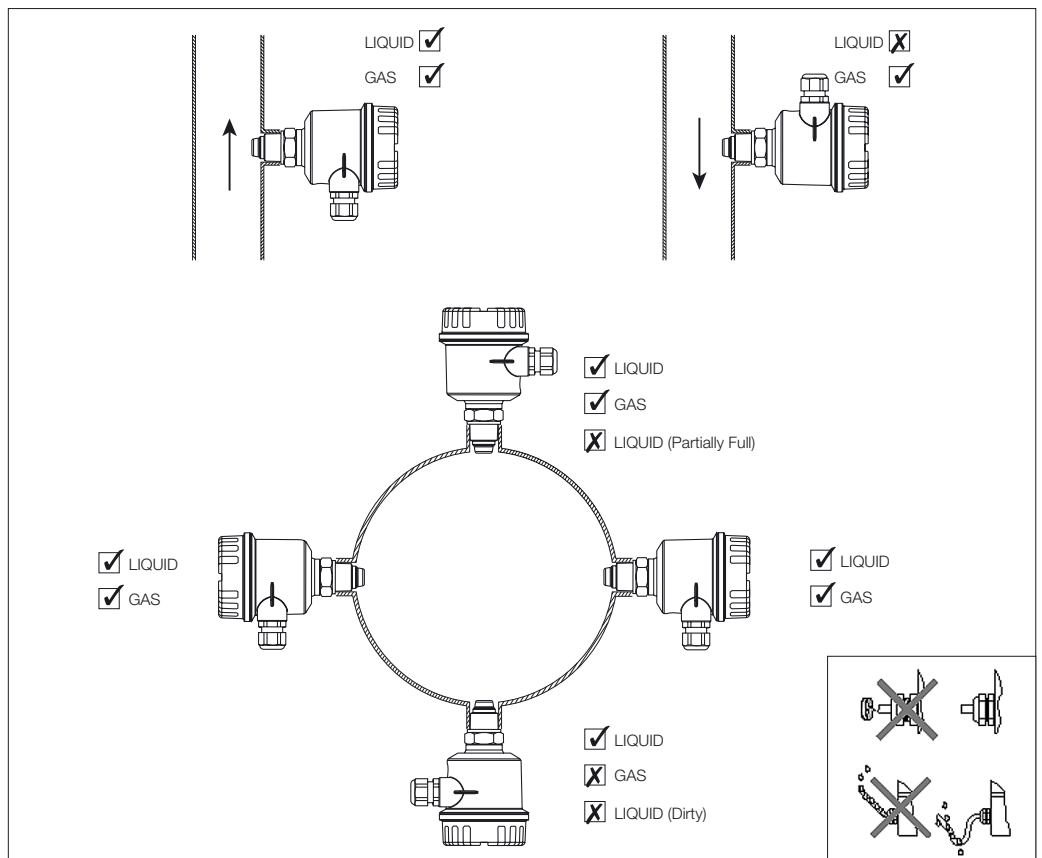
For pipe diameters <DN250



For pipe diameters ≥DN250

Planning and Installation Guidelines

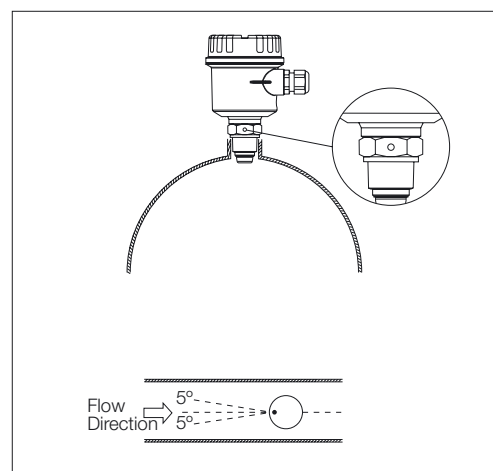
- Mount upstream of control valves, hand or isolation valves
- Ensure sensor is aligned with direction of flow (see manual)
- For liquids ensure full pipes
- Avoid areas of cavitation (liquids)
- For gases avoid areas where condensate collects
- Avoid applications with large process temperature changes
- Avoid mounting device where exposure to extreme ambient temperature changes occurs e.g. direct sunlight



Planning and Installation Guidelines

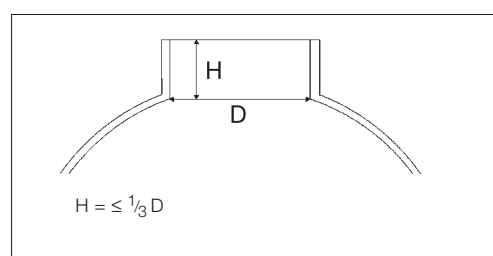
Sensor Orientation

- Each process connection has an orientation mark, this should be positioned in line facing the oncoming flow.
- Sensor should be installed such that the sensing surface is in contact with the flowing medium at all times.
- There is an allowed orientation tolerance of $\pm 5^\circ$ from centre.



Sanitary Sensor

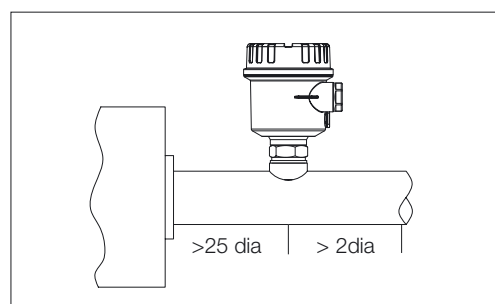
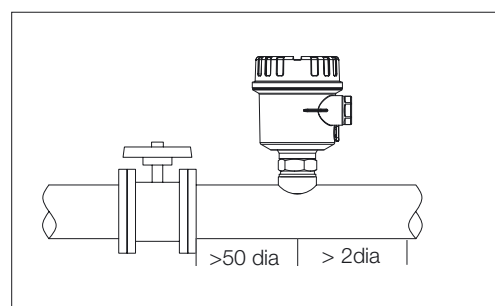
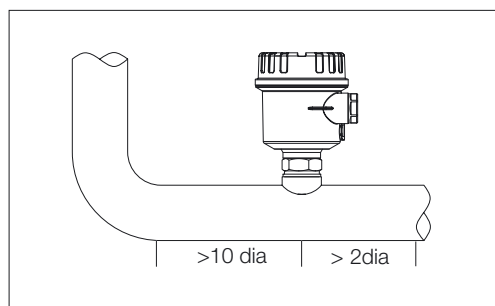
- It is the responsibility of the user to ensure that the volume enclosed by the mounting boss has sufficient dimensions to ensure adequate cleaning takes place.



Mounting and Installation

Avoid installing in areas of extreme flow turbulence. For example:

- Directly after bends or expansions/reductions.
- Directly downstream of isolation and control valves.
- Directly after pumps, fans and compressors.

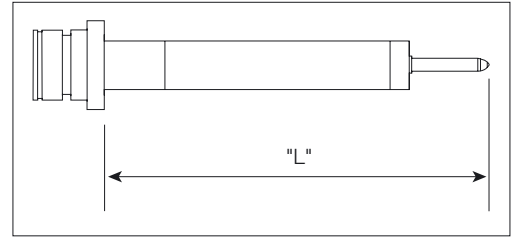


Note:

All downstream dimensions provided only as a guideline and wherever possible greater dimensions should be considered.

Insertion Sensor

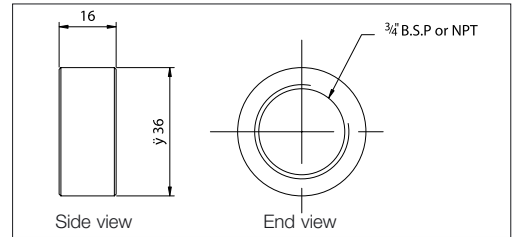
Process Connection
Extended Sensor



Dimensions of extended versions (L in mm)		
Sensor Option	Insertion 125mm	Insertion 235mm
Flat-Face	125	235
Probe	125	235

Mounting Boss

For BSP and NPT threads

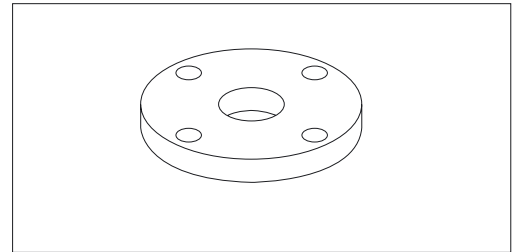


Accessories

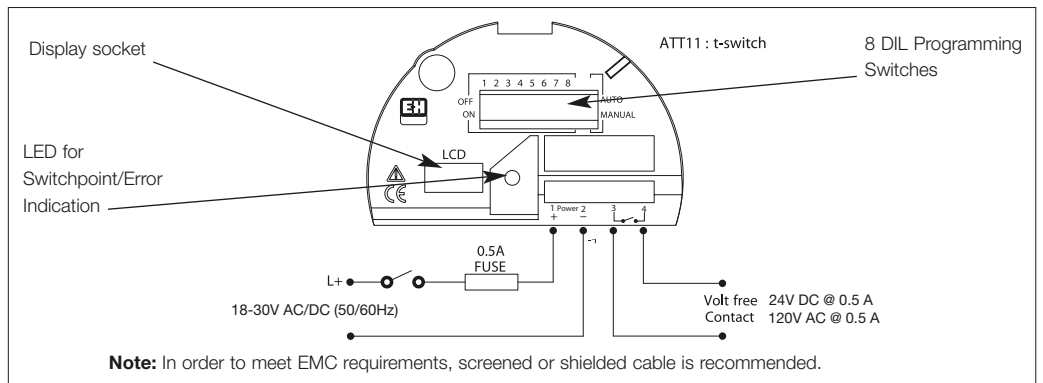
Threaded Flanges

with G 3/4" BSP or 3/4" NPT thread for mounting a t-switch.

- Available sizes:
- DN25 PN25
 - ANSI 1" 150lbs
 - DN40 PN25
 - ANSI 1 1/2" 150lbs
 - DN50 PN25
 - ANSI 2" 150lbs



Electrical Connection



Operation

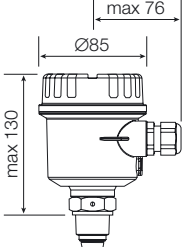
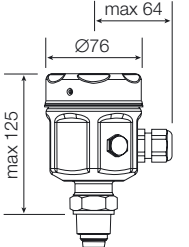
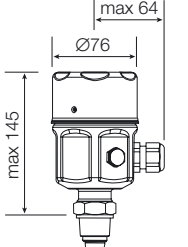
LED (Light Emitting Diode)

- Illuminates when measured flow above switchpoint.
- Off when measured flow below switchpoint.
- Flashes to indicate an error.

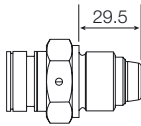
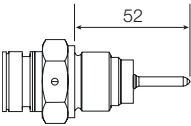
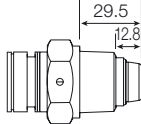
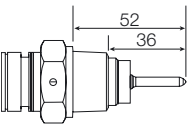
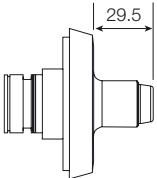
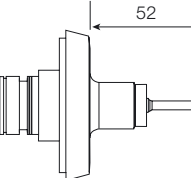
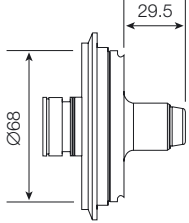
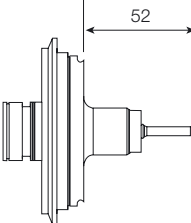
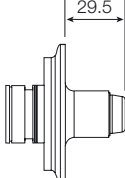
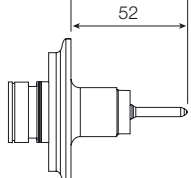
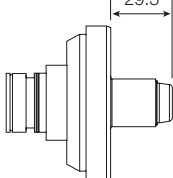
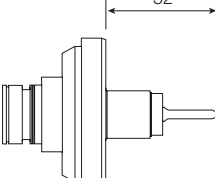
LCD (Liquid Crystal Display)

- Optional display used to indicate flow as a percentage of maximum. Also displays programming information and error codes (not essential for programming).

Housing and Sensor

Polyester Housing No display	Steel Housing No display	Steel Housing with Extended Lid With display
		

Process Connection

Process Connection	Dimensions with Flat-Face Sensor	Dimensions with Probe Sensor	Process Limits
BSP 3/4" (G)			max 25 bar A max 80°C
3/4" NPT			max 25 bar A max 80°C
Sanitary coupling DN40 DN50 to DIN 11851			max 25 bar A max 80°C
Varivent DN50			max 10 bar A max 80°C
Triclamp 1 1/2" 2" ISO 2852			max 16 bar A max 80°C
Aseptic coupling DN50 to DIN 11864			max 25 bar A max 80°C

All dimensions in mm

Technical Data

Process Conditions	<ul style="list-style-type: none"> Nominal Process Diameters: DN25 ... 1000 Process Pressure Range: 25 Bar g (Process fitting dependent) Process Temperature Range: -10 to +80°C (For temperatures in excess of 80°C please contact your local E+H representative)
Materials	<ul style="list-style-type: none"> Meter Body: 1.4404/1.4435/316L Transducers: 1.4404/1.4435/316L Polyester Housing: PBT-FR (polyester) with cover in PBT-FR or with transparent cover in PA 12, Seal of cover; EPDM Steel Housing: 1.4301 (AISI 304), seal of cover silicone Cable Gland: Polyamide
Process Connections	<ul style="list-style-type: none"> Parallel thread BSP $\frac{3}{4}$" (includes brass $\frac{3}{4}$" compression fitting for insertion sensors only) Tapered thread $\frac{3}{4}$" NPT (includes brass $\frac{3}{4}$" compression fitting for insertion sensors only) Sanitary coupling DN40, 50 to DIN 11851 Varivent DN50 to factory standard Tuchenhagen Triclamp 1 $\frac{1}{2}$", 2" to ISO 2852 Aseptic coupling DN50 to DIN 11864
Performance Limits	<ul style="list-style-type: none"> Accuracy: \pm 5% of full scale Repeatability: \pm 1% of full scale Time Response Flat Face: 5 sec rising, < 5 sec falling Time Response Probe: 15 sec rising, 10 sec falling Flow Ranges Liquid: 0-3m/sec ref. to water (see note) Flow Ranges Gas: 0-50Nm/sec ref. to air
Human Interface	<ul style="list-style-type: none"> Electronic Insert: 8 DIL switches for commissioning Red LED to indicate switching status, flashes under fault condition Optional Display: 4 numeric characters with bar graph
Electrical	<ul style="list-style-type: none"> Power Supply: 18-30V DC / AC (50/60 Hz) Power Consumption: <3W Relay Output: Selectable Normally Closed (NC) or Normally Open (NO) (NO as factory default)
Environment	<ul style="list-style-type: none"> Storage Temperature Range: -20 to +80°C (without LCD) Ambient Temperature Range: -10 to +65°C (without LCD) Degree of Protection: Polyester and steel housings: IP66 to EN 60529 Vibration Resistance: Up to 1g, 10....150Hz to IEC 60068-2-6 Shock Resistance: to IEC 60068-2-31 Electromagnetic Compatibility (EMC): IEC 801 part3: E = 10V/m (30MHz...1GHz)
Approvals	EHEDG, all wetted materials FDA listed. Meets the requirements of 3A.
Approvals Pending	CSA General Approval, FM General Approval.

Note: Standard meter rated 0-2m/sec ref to water.

Performance and Selection

Product Structure ATT11-

Approvals

- A** For use in non-hazardous areas
- B** FM General Approval (pending)
- C** CSA General Approval (pending)
- Y** Special – please specify

Sensor Form

- 11** Flat face sensor, 2m/sec (Liquid)
- 12** Flat face sensor, insertion 125mm, 2m/sec (Liquid)
- 13** Flat face sensor, insertion 235mm, 2m/sec (Liquid)
- 21** Probe sensor, 50Nm/sec (Gas)
- 22** Probe sensor, insertion 125mm, 50Nm/sec (Gas)
- 23** Probe sensor, insertion 235mm, 50Nm/sec (Gas)
- 31** Flat face sensor, 3m/sec (Liquid)
- 32** Flat face sensor, insertion 125mm, 3m/sec (Liquid)
- 33** Flat face sensor, insertion 235mm, 3m/sec (Liquid)
- 99** Special – please specify

Process Connection

(Material 1.4435/316L unless stated)

- D1** G 3/4" BSP, (Boss Included)
(Boss suitable for DN40 to DN1000)
- D2*** G 3/4" BSP, Brass (Boss Included) Brass
compression fitting for insertion sensor only
- D3** G 3/4" BSP
- F1** NPT 3/4" (Boss Included)
(Boss suitable for DN40 to DN1000)
- F2*** NPT 3/4", Brass (Boss Included) Brass
compression fitting for insertion sensor only
- F3** NPT 3/4"
- J1** DN40 Dairy coupling DIN 11851
- K1** DN50 Dairy coupling DIN 11851
- L1** Varivent >=DN50
- M1** Tri Clamp 1 1/2" ISO2852
- N1** Tri Clamp 2" ISO2852
- P1** DN50 Aseptic coupling DIN 11864-1
- Y9** Special – please specify
- *** Stainless steel available on request

Surface Finish, Wetted Parts

- 1** Standard Metal Finish
- 2** Ra<1.5 µm/120 grit
- 3** Ra<0.8 µm/150 grit (3A/EHEDG)
- 5** Ra<1.5 µm/120 grit, O₂ duty
- 6** Ra<0.8 µm/150 grit, O₂ duty (3A/EHEDG)
- 7** Standard Metal Finish, O₂ duty
- 9** Special – please specify

Electronics & Outputs

- A** Relay Output, No Display, power supply –
18-30V DC/AC (50/60Hz)
- B** Relay Output, 4 digit LCD, power supply –
18-30V DC/AC (50/60Hz)
St. St. Housing only
- Y** Special – please specify


Housing & Cable Entry

- 4D** Polyester Housing IP66 M20 Gland
- 4H** Polyester Housing NEMA4X NPT
1/2" entry
- 6D** SS304 Housing IP66 M20 Gland
- 6H** SS304 Housing NEMA4X NPT 1/2" entry
- 9Y** Special – please specify

Documentation

- 1** Standard Documentation
- 2** EN10204-2.3 Pressure test
1.5 x pressure rating for 3 minutes
- 9** Special – please specify

ATT11-

 Order Code

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