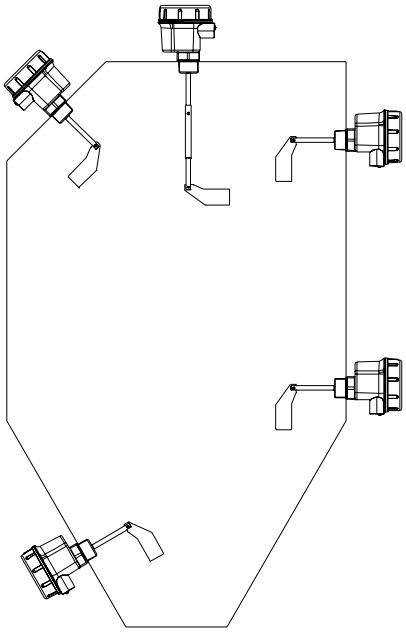
Solido® 500

Level Limit Switch for Solids
Technical Information

Applications / Principles of operation:

Applications

The Solido 500 is an electromechanical level limit sensor and is used for level monitoring of bulk materials. It can be used as a full, demand or empty detector.



Typical applications for bulk materials with a density from starting 100g/l (> 6 lb/ft³) are, for example:

- Plastic powders and granulars
- Building materials
- Food
- Wooden pellets
- and many others ...

The Solido 500 provides a budget–priced solution for reliable level limit measurement and offers the following features:

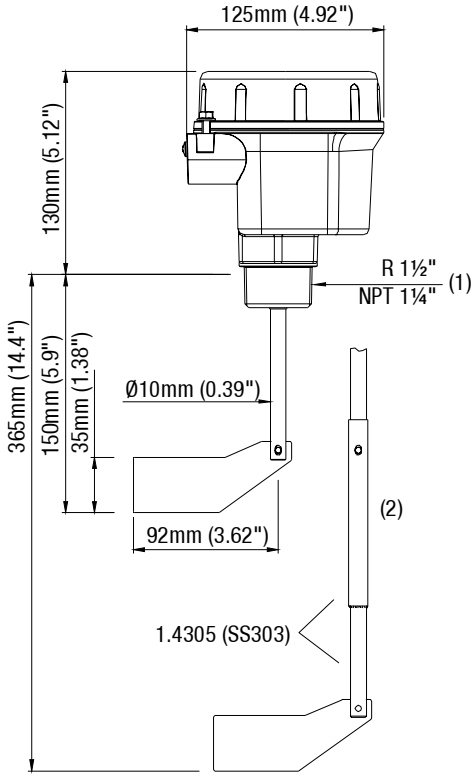
- ATEX and FM approvals for use in dust explosion areas
- High performance
- Robustness
- Wide range of applications

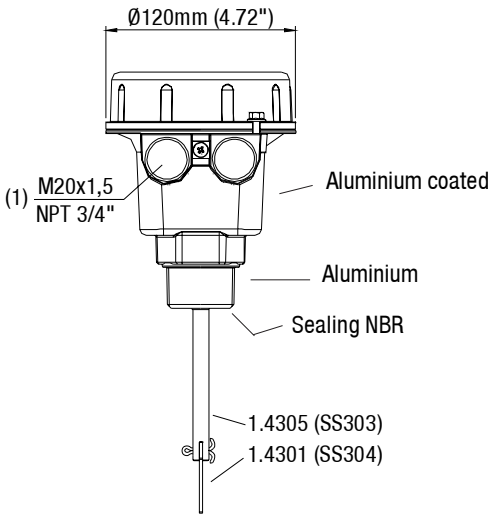
The Solido is mounted on the container (top or side) at the required measuring height.

Principles of Operation

The rotating measuring vane is driven by a brushless synchronous motor. Once the material level reaches the vane it arrest the vane rotation. This is registered by a micro switch which emits a signal and stops the motor. Once the material level begins to fall and the vane is free of material the vane will rotate again.

Dimensions / Construction material:





(1) Order dependant
R 1½" (DIN 2999) and M20x1.5
or
NPT 1¼" (ANSI B 1.20.1) and NPT 3/4"

(2) Option:
Rigid extension +215mm

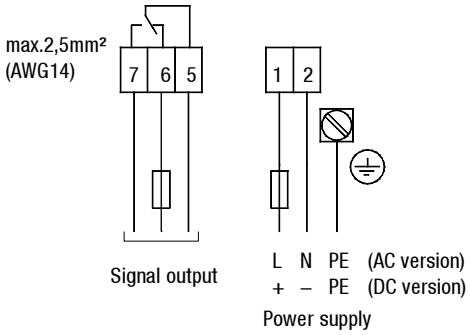
Mechanical data:

Degree of protection	IP 66 (EN 60529), NEMA 4
Bearing	High grade slide bearing with teflon coating
Sealing	Radial shaft sealing NBR (butadien–acrylnitrile rubber)
Friction clutch	Protects the gear against mechanical blows to the vane
Rotation speed of vane	1/min
Signal delay	Vane free –> covered appox. 1.3 sec Vane covered –> free approx. 0.2 sec
Weight	ca. 1.2kg (2.6lbs)

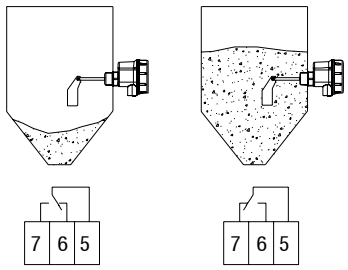
Electrical data:

Power supply	AC version: 115V or 230V 50/60Hz all voltages ±15% (including 10% from EN 61010) max. 4VA DC version: 24V DC ±15% (including 10% from EN 61010) max. 2.5W
Signal output	Micro switch SPDT max. 250V AC, 5A, non inductive max. 30V DC, 3A, non inductive
Permitted fuses	max. 5A
Protection class	I
Installation category	III
Pollution degree	2
Isolation	Power supply to signal output : 2225 Vrms

Electrical connection:



Switching logic:



Operating conditions:

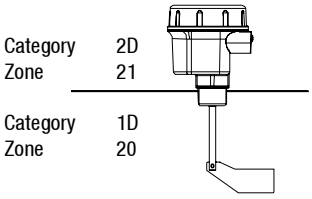
Ambient temperature housing	–20°C (–4°F) ..+ 60°C (140°F)
Process temperature	–25°C (–13°F) ..+ 80°C (176°F)
Max. process pressure	0.8 bar (11.6psi)
Min. powder densitiy	> 100 g/l (> 6 lb/ft³)
Bulk material properties	Grain size <50mm (2“)
Permitted mechanical loading	max. 300N (at L = 150mm (5.9“)) at the end of the shaft max. 100N (at L = 365mm (14.4“)) at the end of the shaft

EX relevant data:

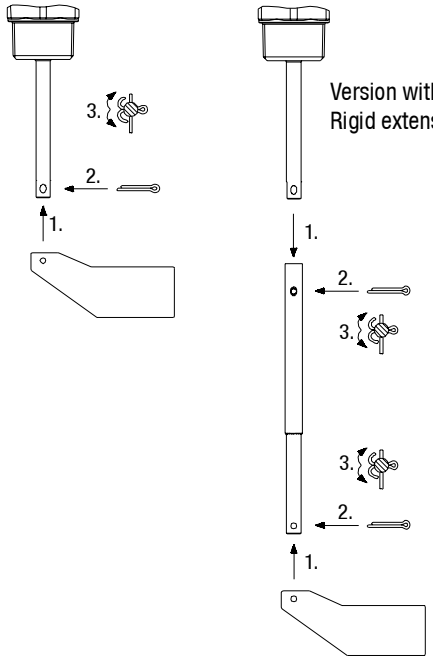
Approvals	ATEX II 1/2D Ex tD A20/21 and FM DIP Cl. II, III Div.1 Gr. E, F, G
Zone classification for ATEX	see figure right hand

Max. surface temperature

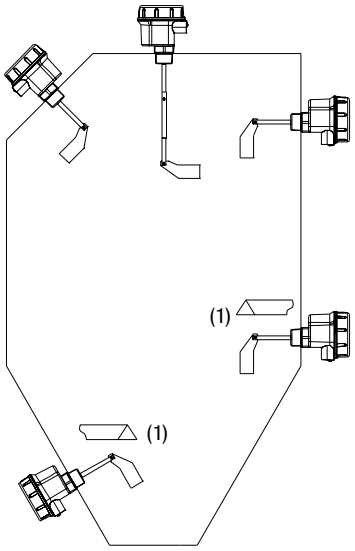
Ambient temperature		Max. surface temperature	Temperature class
Zone 21	Zone 20		
+ 40°C (104°F)	80°C (176°F)	85°C (185°F)	T6
+ 50°C (122°F)	80°C (176°F)	95°C (203°F)	T5
+ 60°C (140°F)	80°C (176°F)	105°C (221°F)	T4A



Assembly



Installation



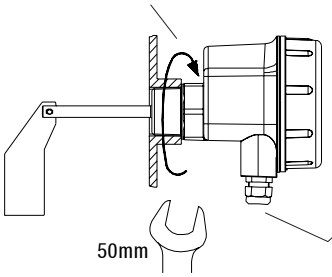
Observe max. permitted mechanical load.

(1) Protective angle (canopy) in case of high mechanical load.

Installation / Adjustment

Fixing / sealing

Use teflon tape



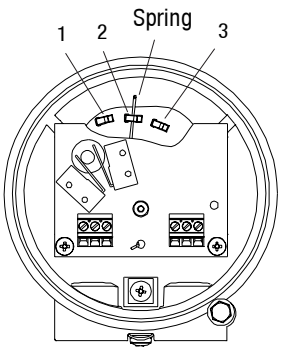
Alignment

Cable inlet points downwards:
Ingress protection IP66 ensured

Cable inlet

Use suitable cable glands or conduit system.
Unused entries must be tightly sealed.

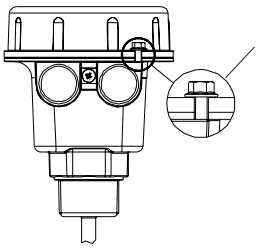
Spring force adjustment



1	light:	light material
2	central:	universal
3	strong:	very sticky material

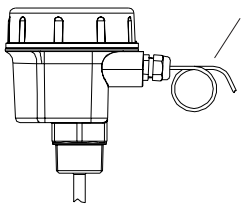
Installation: EX additional requirements

Lid safety lock



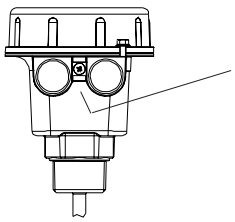
Remove before opening the lid. Screw in after closing the lid.

Cable grip



Cable grip:
If using the factory provided cable glands, a cable grip must be fitted on the electrical cable
(to provide strain relief).

Potential equalisation



Connect to potential equaliser