

# Solido<sup>®</sup> 500

Level Limit Switch for Solids  
Technical Information



Adpro-Instruments Ltd.  
ADVANCED PROCESS INSTRUMENTS

## 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/ft<sup>3</sup>) are, for example:

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

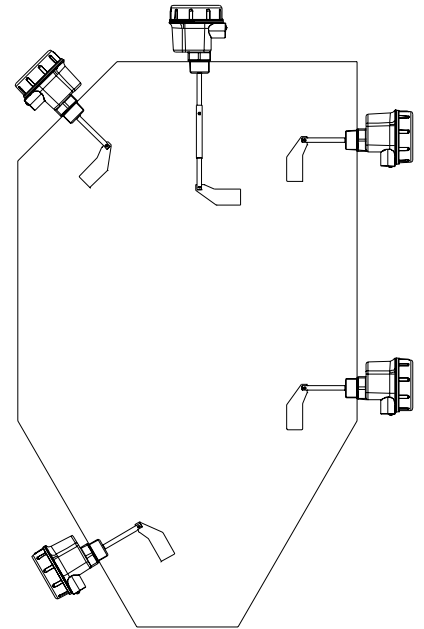
The Solido 500 provides a budget-priced solution for reliable level limit measurement and offers the following features:

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

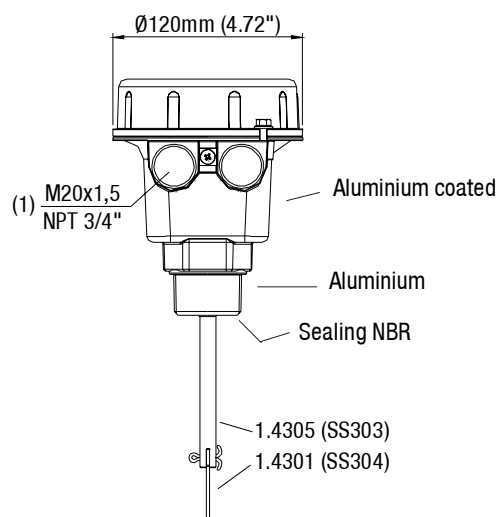
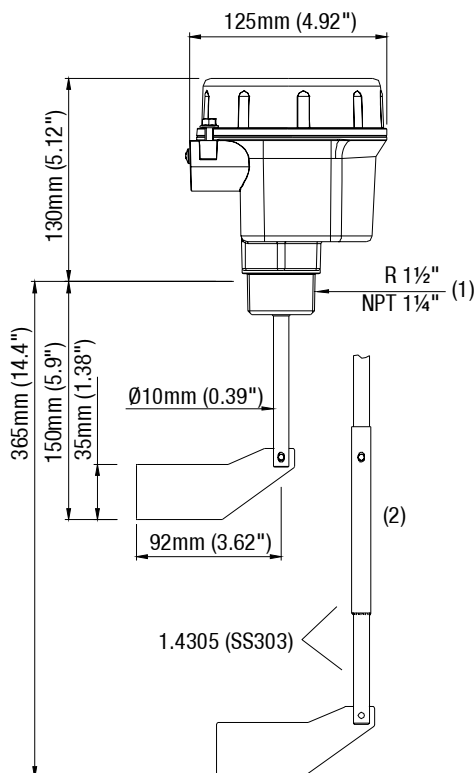
The Solido is mounted on the container (top or side) at the required measuring height.

### 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 1 1/2" (DIN 2999) and M20x1.5  
or  
NPT 1 1/4" (ANSI B 1.20.1) and NPT 3/4"

- (2) Option:  
Rigid extension +215mm

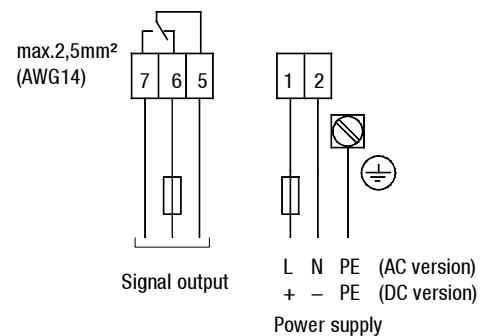
### Mechanical data:

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 approx. 1.3 sec Vane covered → free approx. 0.2 sec
Weight	ca. 1.2kg (2.6lbs)

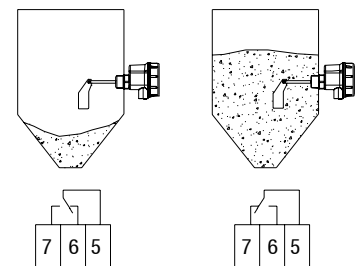
### Electrical data:

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:



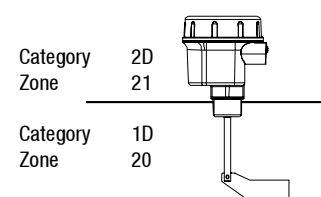
### Operating conditions:

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 density	> 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

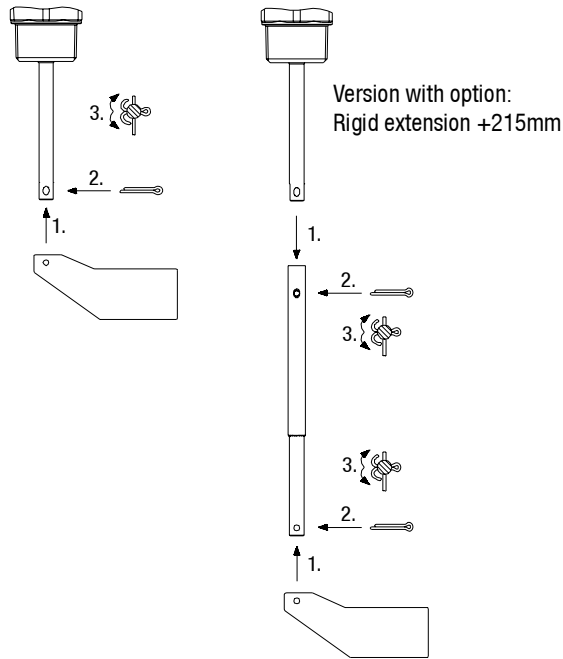
### EX relevant data:

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

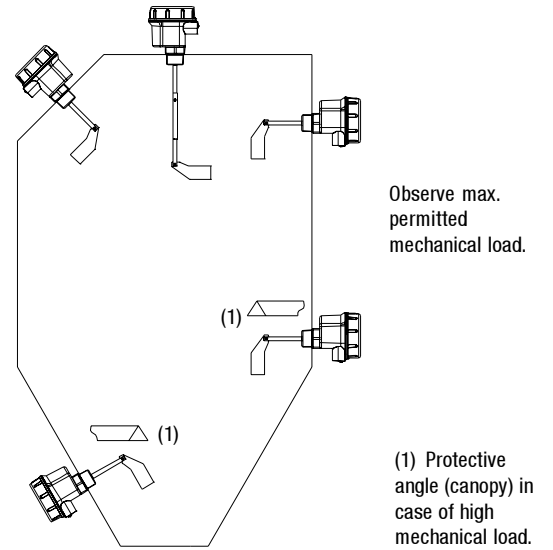
Ambient temperature		Max. surface temperature	Temperature class
Zone 21	Zone 20		
+ 40°C (104°F)	80°C (176°F)	85°C (185°F)	T6
+ 50°C (122°F)	80°C (176°F)	95°C (203°F)	T5
+ 60°C (140°F)	80°C (176°F)	105°C (221°F)	T4A



## Assembly



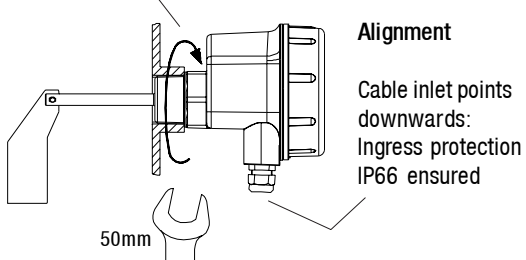
## Installation



## Installation / Adjustment

### Fixing / sealing

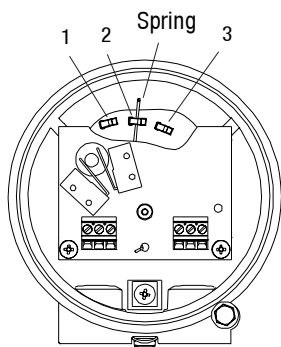
Use teflon tape



### Cable inlet

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

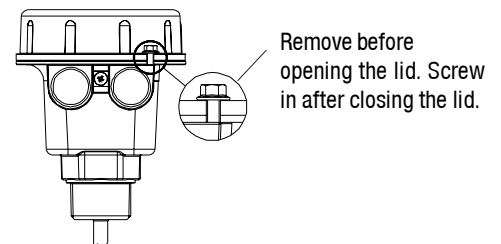
### Spring force adjustment



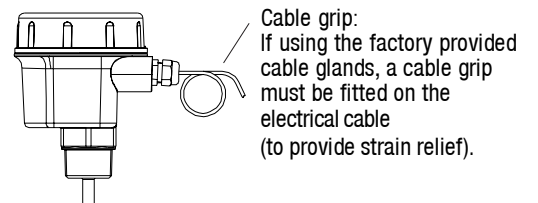
- 1 light: light material
- 2 central: universal
- 3 strong: very sticky material

## Installation: EX additional requirements

### Lid safety lock



### Cable grip



### Potential equalisation

