



A higher level of performance

Data Sheet/
Manual

Rotation Switch Series

- Point Level Switch -

Principle of Operation

The rotating measuring vane is driven by a brushless synchronous motor. Once the material level reaches the vane, it stops rotating, which is detected by a micro switch to stop the motor and switch the level output. Once the material level begins to fall and the vane is free of material the motor will restart and the vane will rotate again.

Typical Uses

For safe and multi-purpose solid level monitoring in all types of containers and silos, it can be used with all bulk materials with a density from starting 100g/l ($> 6 \text{ lb/ft}^3$).

Function

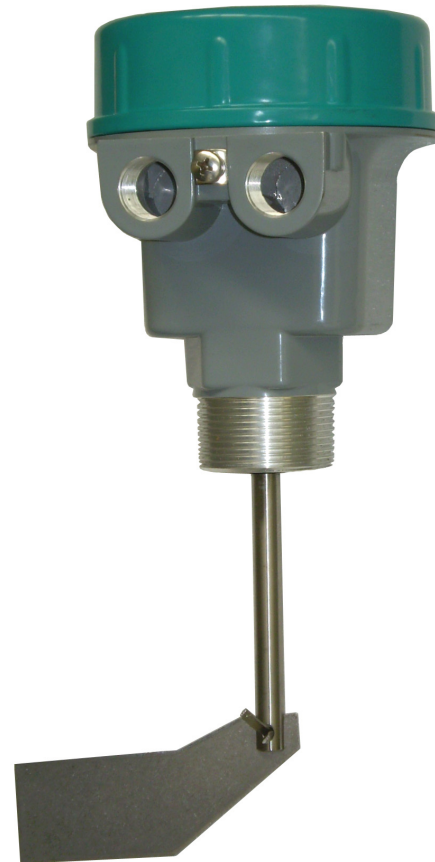
The slowly rotating measuring vane is stopped when covered by bulk material. The reaction torque thus generated is converted into an electrical signal.

Primary Areas of Applications

- Plastic Industry - powder, granular, pellets etc
- Building Industry - lime, Styrofoam, molding sand, urea, cement, gypsum, crushed rock
- Food Industry - milk powder, flour, salt, sugar, minerals, herbs, grain
- Paper & Pulp Industry - wood chips, saw dust etc
- Chemical Industry - rubber, coating, foam
- Steel Industry - iron ore, coal, coke, sand, fluxes

Certifications

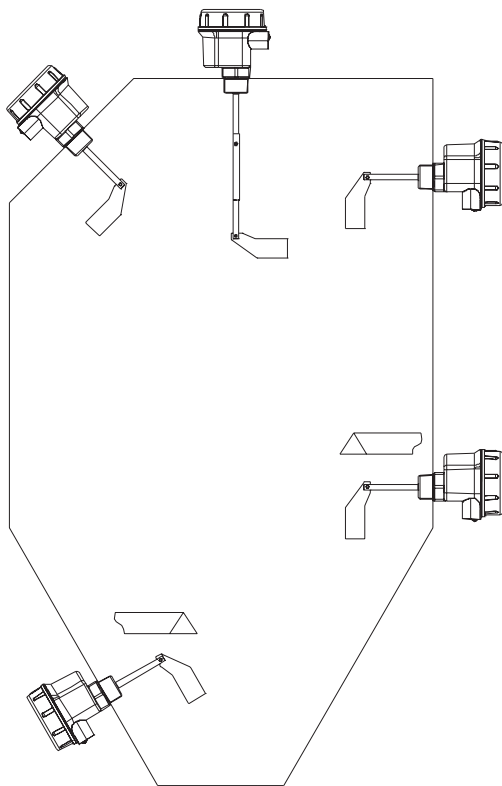
ATEX II 1/2D Ex tD A20/21 and FM DIP Cl. II, III
Div.1 Gr. E, F, G



Features:

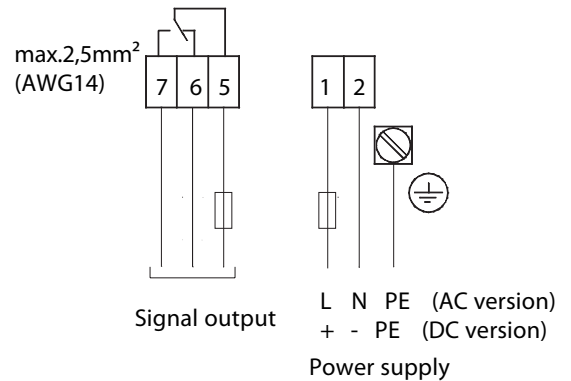
- ATEX and FM approvals for use in dust explosion areas
- No calibration
- High reliability
- Robust
- Wide range of applications
- Enclosure rating IP66/NEMA 4
- Friction clutch - protects gears against mechanical blows to the vane
- Two different probe lengths
- Selectable sensitivity for low density powders

High or low level detector in containers and silos.

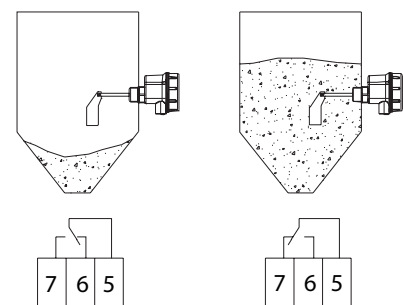


Wiring

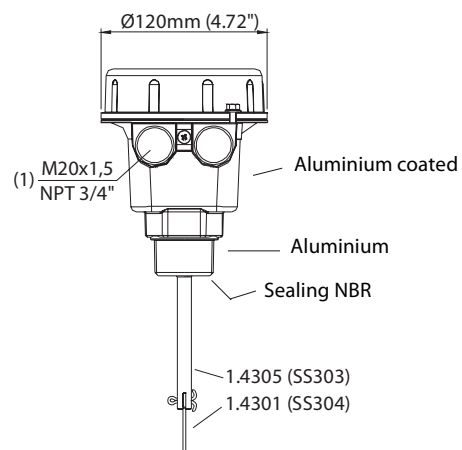
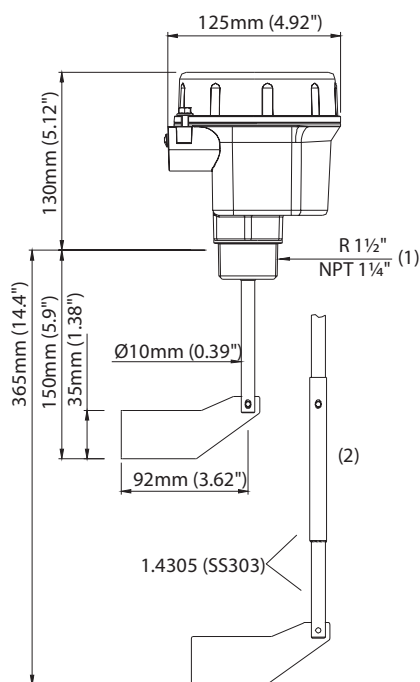
Electrical connection:



Switching logic:



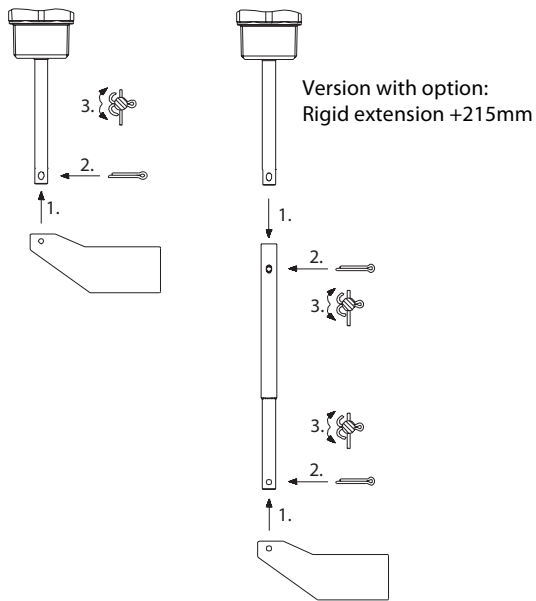
Dimensions



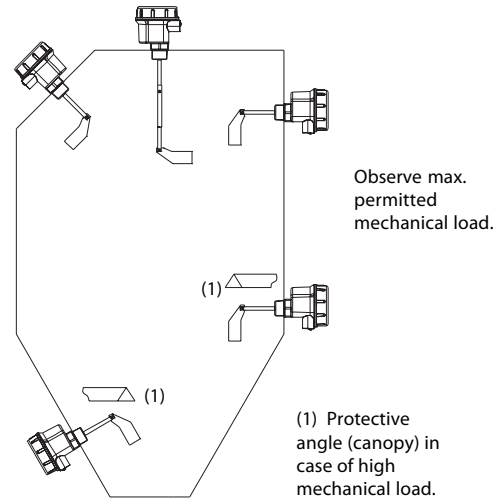
(1) Order dependant
R 1 1/2" (DIN 2999) and M20x1.5
or
NPT 1 1/4" (ANSI B 1.20.1) and NPT 3/4"

(2) Option:
Rigid extension +215mm

Assembly



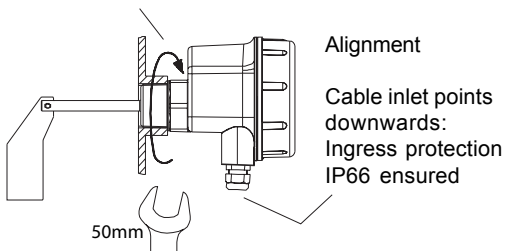
Installation



Installation / Adjustment

Fixing / sealing

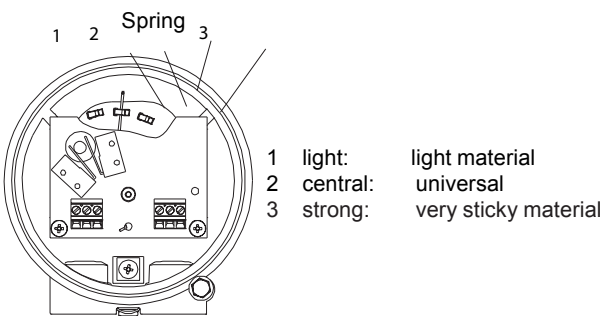
Use teflon tape



Cable inlet

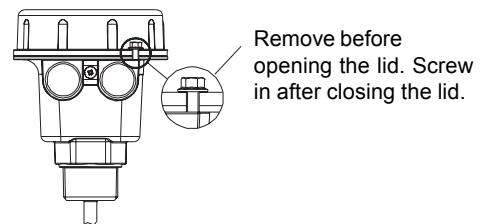
Use suitable cable glands or conduit system.
Unused entries must be tightly sealed.

Spring force adjustment

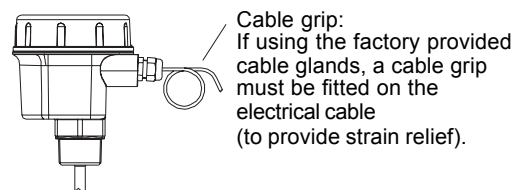


Installation: EX additional requirements

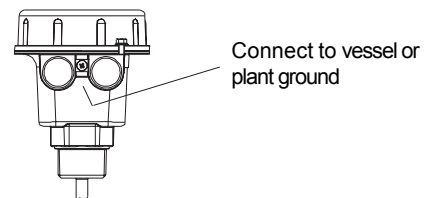
Lid safety lock



Cable grip



External grounding screw



Specifications / Part Numbering

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 rev/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 $\pm 15\%$
(including 10% from EN 61010) max. 4VA

DC version:

- 24V DC $\pm 15\%$ (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

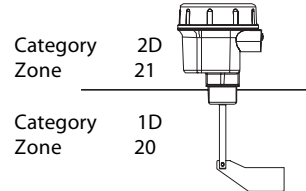
Operating Conditions

- Ambient temperature at housing $-20^{\circ}\text{C} (-4^{\circ}\text{F}) \dots +60^{\circ}\text{C} (140^{\circ}\text{F})$
- Process temperature $-25^{\circ}\text{C} (-13^{\circ}\text{F}) \dots +80^{\circ}\text{C} (176^{\circ}\text{F})$
- Max. process pressure 0.8 bar (11.6psi)
- Min. powder density $> 100 \text{ g/l} (> 6 \text{ lb/ft}^3)$
- Bulk material grain size $< 50\text{mm} (2\text{'})$
- Permitted mechanical loading
- max. 300N (at $L = 150\text{mm} (5.9\text{'})$) at the end of the shaft
- max. 100N (at $L = 365\text{mm} (14.4\text{'})$) at the end of the shaft

EX relevant data

Approvals ATEX II 1/2D Ex tD A20/21 and FM DIP Cl. II, III
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Zone classification for ATEX



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

Part Numbering

Model	RS4000	Rotation Switch Series
Power Supply	A	230 VAC 50-60 Hz, 1 rev/min
	B	115 VAC 50-60 Hz, 1 rev/min
	C	48 VAC 50-60 Hz, 1 rev/min
	D	24 VAC 50-60 Hz, 1 rev/min
	E	24 VDC, 1 rev/min
Output Options	S	Switch only, 1 relay
	Z	Special Request
Housing	S	Standard Aluminium Coated
Mounting	TR	Conical Thread 1.5" DIN 2999 (comes with M20x1.5 thread for conduit entry)
	TN125	1.25" NPT Thread (comes with 3/4" NPT thread for conduit entry)
	TN15	1.5" NPT Thread (comes with 3/4" NPT thread for conduit entry)
Approval Standard	X	Not Required
	A2021	ATEX Dust (Grp II Cat 1/2 D Ex tD A20/21 IP6X T)
Probe Length	P15	15 cm (5.9")
	P37	37 cm (14.6")

RS4000 A S S TR A2021 P15

Accessories

RS-ADP-002	Adapter socket, 1.5" NPT galvanized, (1.25" NPT mounting thread only)
RS-CA-GLA-M20-003	Cable gland M20x1.5
RS-PLUG-M20-004	Blind plug M20x1.5
RS-PLUG-NPT-005	Blind plug 3/4" NPT, brass

Additional product warranty and application guarantees upon request.

Technical data subject to change without notice.

Contact

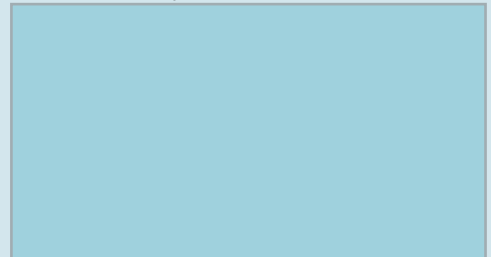
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