

WSP-1 SERIES VIBRATING FORK LEVEL SWITCH FOR SOLIDS



Working Principle

The WSP-1 series level switch is a universally applicable limit switch for powdery and fine-grained bulk materials. The WSP-1 signals the minimum and maximum limit states reliably and robustly, especially for bulk products with low bulk density.

The vibrations generated within the WSP-1 are applied to a stainless steel fork by a piezoelectric crystal. When the measured product comes into contact with the vibrating fork, this vibration is damped. This damping is detected by the electronic unit and converted into the desired digital signal according to the module's characteristics. The operation can be set for maximum or minimum safety by means of a selector switch (A and B). The relevant switching status of the relay is indicated by LEDs.



Decisive advantages of the level monitor WSP1

- No calibration necessary
- Suitable for low bulk density
- Insensitive against moisture
- Stainless steel sensor
- ATEX approval for hazardous areas
- Large output signal options
- Optional polymer coatings for abrasive and corrosive media

Application areas

- Grain
- Flour
- Food ingredients
- Sugar
- Seed
- Animal feed
- Cement
- Sand
- Calcite
- Pulverized coal dust
- Gypsum powder
- Plastic granulate

MODEL SELECTING TABLE

1 – SENSOR DESIGN: PROCESS LENGTH, TEMPERATURE AND PRESSURE

CODE	DESCRIPTION
A1	Short version, 140, 190, 240 mm (depends on the fork length), t< 150°C, P< 1 MPa
B1	Long version, 250...6000 mm, t<150°C, P< 1 MPa
C1	Temperature version, 140...6000 mm, t< 220°C, P< 1 MPa
C2	Temperature version, 140...6000 mm, t< 290°C, P< 1 MPa
D1	Version with a sliding sleeve, G 1 ½" male thread, t< 150°C, P< 0 MPa
D2	Version with a sliding sleeve, G 1 ½" male thread, t< 150°C, P< 0,8 MPa
E1	Remote electronics version, 250...6000 mm, max 10 m cable, t<150 ° C, p <1MPa
E2	Remote electronics version, 250...6000 mm, max 10 m cable, t <200 ° C, p <1MPa
E3	Remote electronics version, 250...6000 mm, max 10 m cable, t <290 ° C, p <1MPa
ER	Version for filling sleeves, 250...6000mm, t<120°C, p=0
YY	Special version

2 - CERTIFICATES

CODE	DESCRIPTION
CA	None
CB	ATEX II 1D Ex ia IIIC T85°C Da
CC	ATEX II 1D Ex ta IIIC T85°C Da

3 – ELEKTRONICS MODULE: TYPE, SUPPLY VOLTAGE AND OUTPUT

CODE	DESCRIPTION
P1	PSO1 module (AC/DC relay): power supply: 19...253VAC, 19...55VDC, output: DPDT relay
P2	PSO2 module (DC transistor): power supply: 10...55VDC, output: PNP+NPN transistor
P3	PSO3 module (AC/DC contactless electronic switch) : power supply: 19...253V AC/DC, output: external relay or contactor
P4	PSO4 module (two-wire 16/18mA): power supply: 11...36VDC, output: current loop 16/18mA

4 – LENGTH, MATERIAL AND SURFACE ROUGHNESS

CODE	DESCRIPTION
K1	Steel 316L, Ra<3,2, 140, 190, 240 mm (depending on the length of the forks)
W1[...]	Elongated L>250mm, (total of signal length as mm [...] thread, extension rod and fork length), SS 316L, Ra<3,2,
K2	Steel 316L, Ra<1,6, 140, 190, 240 mm (depending on the length of the forks)
W2[...]	Elongated L>250mm, (total of signal length as mm [...] thread, extension rod and fork length), SS 316L, Ra<1,6,
K3	Steel 316L, Ra<0,8, 140, 190, 240 mm (depending on the length of the forks)
W3[...]	Elongated L>250mm, (total of signal length as mm [...] thread, extension rod and fork length), SS 316L, Ra<1,6,

5 – FORK: LENGTH, BULK DENSITY OF MEDIUM

CODE	DESCRIPTION
L1	L=200mm, 10g/l < r < 50g/l
L2	L=150mm, 50g/l < r < 100g/l
L3	L=100mm, r > 100g/l

MODEL SELECTING TABLE

6 – PROCESS CONNECTION : TYPE OF THREAD, FLANGE OR OTHER

CODE	DESCRIPTION
G[...]	Thread 1,5": cylindrical [W], pipe [R] and NPT [N]
E050	Round flat flange EN, DN50, PN25/40 bar
E080	Round flat flange EN, DN80, PN10/16 bar
E100	Round flat flange EN, DN100, PN10/16 bar
A050	Round flat flange ANSI 2" RF=150 psi
A150	Round flat flange ANSI 2" RF=300 psi
A080	Round flat flange ANSI 3" RF=150 psi
A100	Round flat flange ANSI 4" RF=150 psi
T[...]	Tri-Clamp DN=[40...51] (2"), 316L, ISO2852

7 – HOUSING: HOUSING MATERIAL, IP

CODE	DESCRIPTION
OA	ABS housing, IP66
OB	Aluminum housing, IP66
OC	Housing 1.4404, 316L, IP66
OD	Exd cover AL, IP66
OE	Exd cover 1.4404, 316L, IP66

8 – CABLE GLANDS: QUANTITY AND SIZE

CODE	DESCRIPTION
D1	Gland M16x1,5
D2	Two glands M16x1,5
D3	Gland M20x1,5
D4	Gland M16x1,5 Exd
D5	Gland M20x1,5 Exd

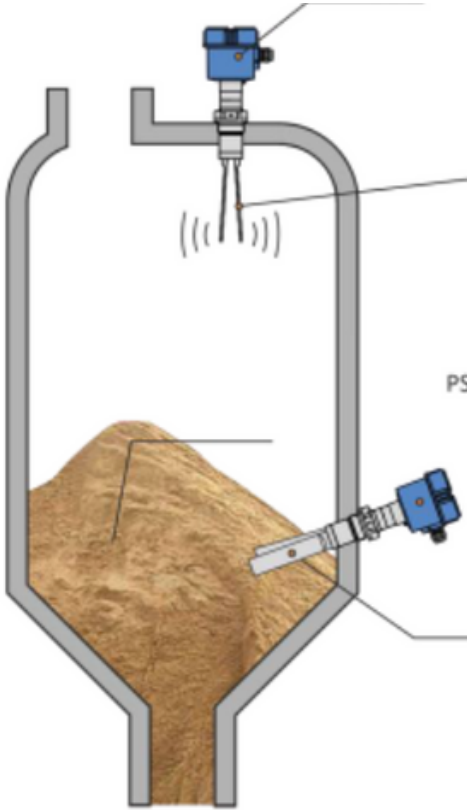
9 – SIGNALLING

CODE	DESCRIPTION
SW	Inside
SZ	Inside + outside

10– ADDITIONAL EQUIPMENT

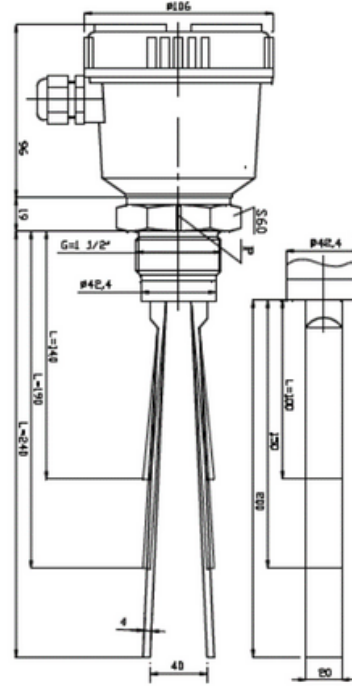
CODE	DESCRIPTION
BW	Without equipment
PG	Gas transit
PW[...]	Coatings [1] = PTFE, [2] = ECTFE, [3] = PFA or others
IW	Other equipment

INSTALLATION



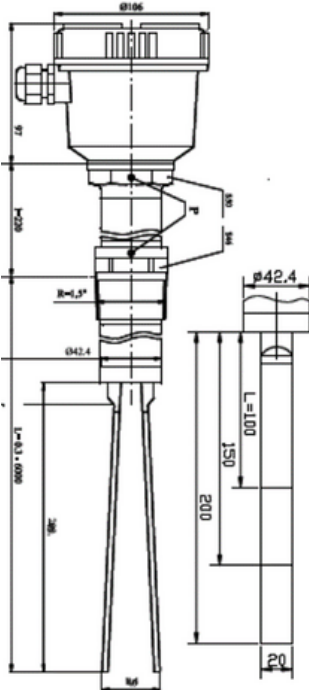
DIMENSIONS

WSP-1A

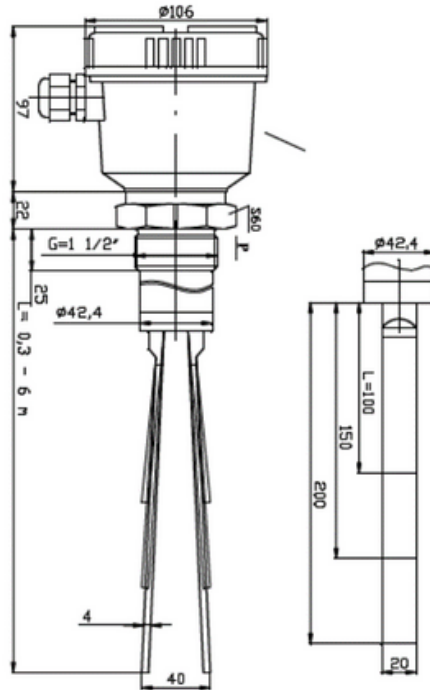


DIMENSIONS

WSP-1B



WSP-1C



WSP-1D

