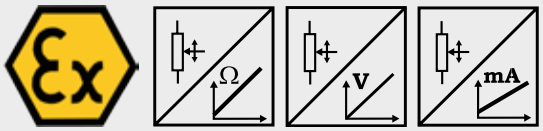
POSIWIRE®
WS10EX
Analog Output, Dust Explosion-Proof

Very compact sensor for dust explosive areas

- **Protection class IP65**
- **Measurement range 0 ... 100 mm to 0 ... 1250 mm**
- **Analog output**
- **Dust ex-proof, category 3, zone 22**
- **II 3D EEx T80°C IP65**



Specifications

Outputs	Potentiometer 1 kΩ Voltage 0 ... 10 V Current 4 ... 20 mA, 2 or 3 wire
Resolution	Essentially infinite
Linearity	Up to ±0.05% f.s.
Sensing device	Precision potentiometer
Material	Aluminum and stainless steel; cable: stainless steel
Connection	Cable output, standard length 2 m
Weight	Approx. 800 g max.
Temperature	-20 to +40 °C
Environmental	
Explosion-proof	EN 50281:1999, category 3, zone 22
EMC	EN 61326:2006
Protection class of housing	EN 60529:2000, IP65
Shock	EN 60068-2-27:1993, 50 g 11 ms, 100 shocks
Vibration	EN 60068-2-6:1995, 20 g, 10 Hz - 2 kHz, 10 cycles

Order code WS10EX

WS10EX – □ – □ – □ – □ – □

Model name

Measurement range (in mm)
100 / 125 / 375 / 500 / 750 / 1000 / 1250

Output
R1K = Potentiometer 1 kΩ
10V = 0 ... 10 V signal conditioner
420A = 4 ... 20 mA signal conditioner, 2 wire
420T = 4 ... 20 mA signal conditioner, 3 wire

Linearity
L10 = ±0.10 % option: L05 = ±0.05 % L25 = ±0.25 %

Cable fixing
M4 = M4 cable fixing
SB0 = Cable clip

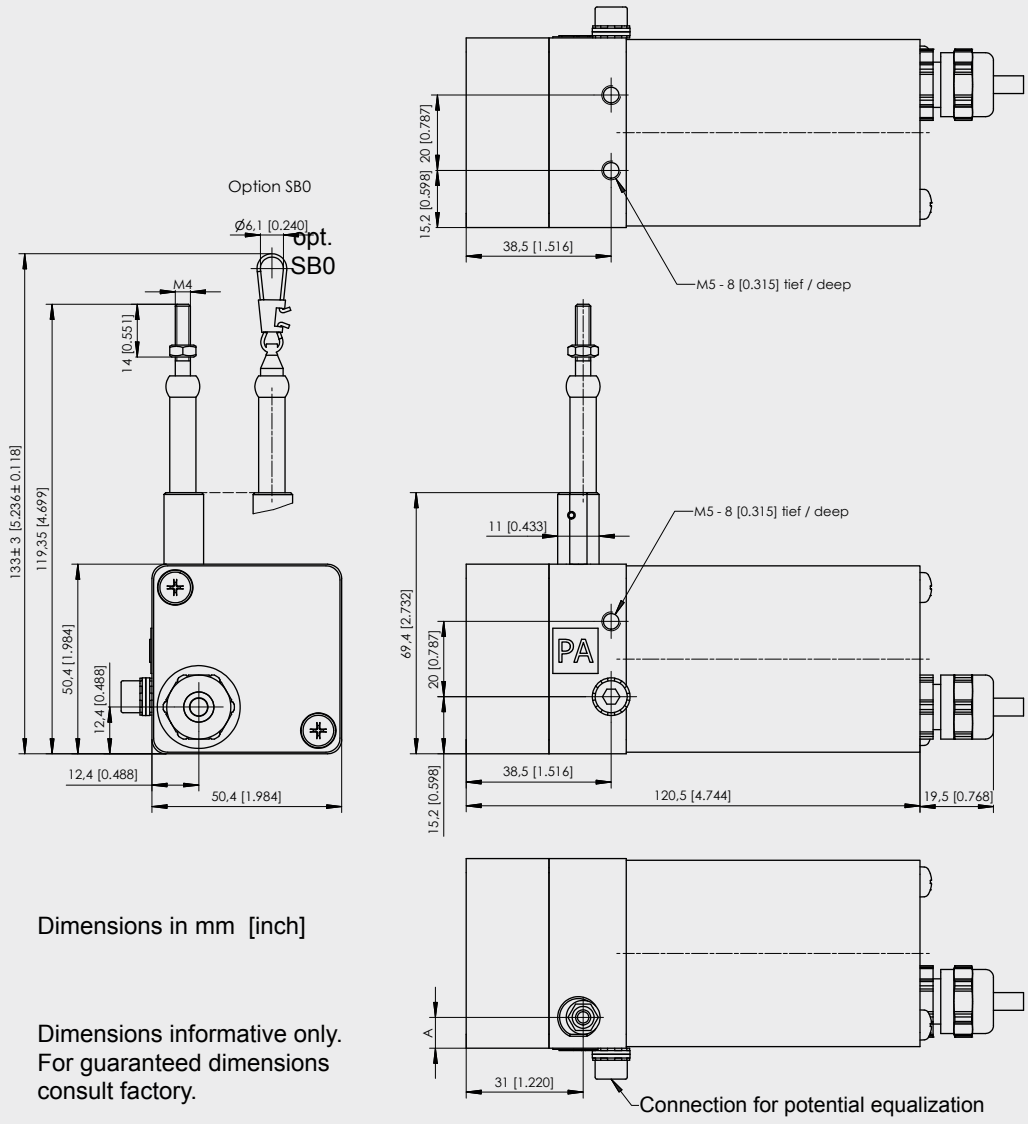
Connection
KAB2M = Cable output, standard length 2 m

Order example: WS10EX - 1250 - 420A - L10 - M4 - KAB2M

Cable forces, typical at 20 °C

Range	Max. pull-out force	Min. pull-in force
[mm]	[N]	[N]
100	4.7	3.0
125	4.6	2.4
375	7.4	3.9
500	5.5	2.8
750	7.6	3.8
1000	5.3	2.9
1250	4.6	2.4

Outline drawing



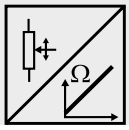
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

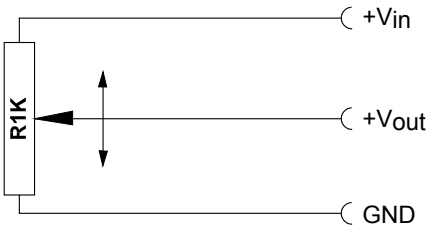
Dimensions in mm

Range	A
375; 750	12.4
100; 125; 500; 1000; 1250	8

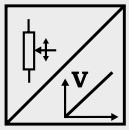
POSIWIRE®
R1K and 10V
Analog Output

Voltage divider R1K Potentiometer 	Excitation voltage	32 V DC max. at 1 kΩ (max. power 1 W)
	Potentiometer impedance	1 kΩ ±10 %
	Thermal coefficient	±25 x 10^{-6} / °C f.s.
	Sensitivity	Depends on the measuring range, individual sensitivity of the sensor is specified on the label
	Voltage divider utilization range	Approx. 3 % ... 97 %
	Operating temperature	-20 ... +85 °C

Output signals



Note: The Potentiometer must be connected as a voltage divider. The input impedance of the following processing circuit should be 10 MΩ min.

Signal conditioner 10V and 10V5 Voltage output 	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	**10V**: 0 ... 10 V DC; **10V5**: 0.5 ... 10 V DC
	Output current	2 mA max.
	Output load	> 5 kΩ
	Stability (temperature)	±50 x 10^{-6} / °C f.s.
	Protection	Reverse polarity, short circuit
	Output noise	0.5 mV_{RMS}
	Operating temperature	-20 ... +85 °C
	EMC	According EN 61326:2006

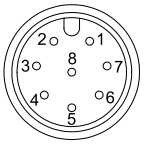
Output signals

Signal wiring

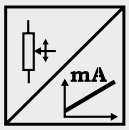
Signal name R1K	10V	Cable color	Connector pin no.
$+V_{in}$	Excitation + +	White	1
GND	Excitation GND	Brown	2
$+V_{out}$	Signal +	Green	3
	Signal GND	Yellow	4

Connection

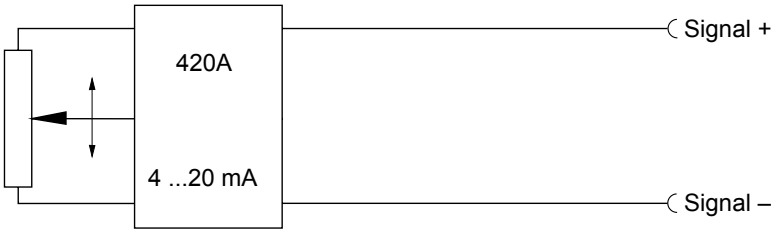
View to sensor connector

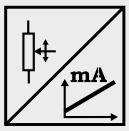


CONN-M12-8F

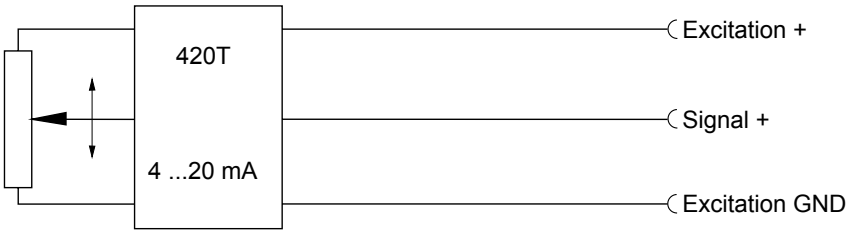
Signal conditioner 420A Current output (2 wire) 	Excitation voltage	12 ... 27 V DC non stabilized, measured at the sensor terminals
	Excitation current	35 mA max.
	Output current	4 ... 20 mA equivalent for 0 ... 100 % range
	Stability (temperature)	±100 x 10^{-6} / °C f.s.
	Protection	Reversed polarity, short circuit
	Output noise	0.5 mV_{RMS}
	Operating temperature	-20 ... +85 °C
	EMC	According to EN 61326:2006

Output signals



Signal conditioner 420T Current output (3 wire) 	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	40 mA max.
	Load resistor	350 Ω max.
	Output current	4 ... 20 mA equivalent for 0 ... 100 % range
	Stability (temperature)	±50 x 10^{-6} / °C f.s.
	Protection	Reverse polarity, short circuit
	Output noise	0.5 mV_{RMS}
	Operating temperature	-20 ... +85 °C
	EMC	According to EN 61326:2006

Output signals

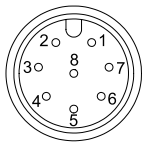


Signal wiring

Signal name 420A	420T	Cable color	Connector pin no.
Signal +	Excitation +	White	1
Signal –	Excitation GND	Brown	2
	Signal +	Green	3

Connection

View to sensor connector



CONN-M12-8F