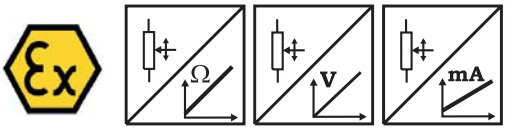
WS10EX Position Sensor with Analog output Dust explosion-proof

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
	Material	Aluminium and stainless steel. Cable: stainless steel
	Resolution	Essentially infinite
	Sensing Device	Precision potentiometer
	Connection	Cable output
	Linearity	Up to ±0.05 % full scale
	Weight	800 g max.
	Temperature	-20 to +70°C
	Conformity of standards	
	Explosion-proof	DIN EN 50281, category 3, zone 22
	Immunity to Interference (EMC)	DIN EN 61326
	Protection Class	DIN EN 60529, IP65
	Shock	DIN EN 60068-2-27, 50 g (20 ms)
	Vibration	DIN-EN 60068-2-6, 20 g (20 Hz … 2 kHz)

Order Code WS10EX Analog

WS10EX – □ – □ – □ – □ – □

Model Name

Measurement Range (in mm)

100 / 125 / 375 / 500 / 750 / 1000 / 1250

Outputs

R1K = Potentiometer 1 kΩ (other values on request, e.g. 500 Ω, 10 kΩ)
10V = with 0 ... 10 V Signal Conditioner
420A = with 4 ... 20 mA Signal Conditioner (2 wire)
420T = with 4 ... 20 mA Signal Conditioner (3 wire)

Linearity

L10 = ±0.10 % (L05 on request)
L25 = ±0.25 %

Connection

KAB1,5M = Cable output, standard length 1.5 m

Option

M4 = M4 cable fixing

Order Example: WS10EX - 1250 - 10V - L10 - KAB1,5M

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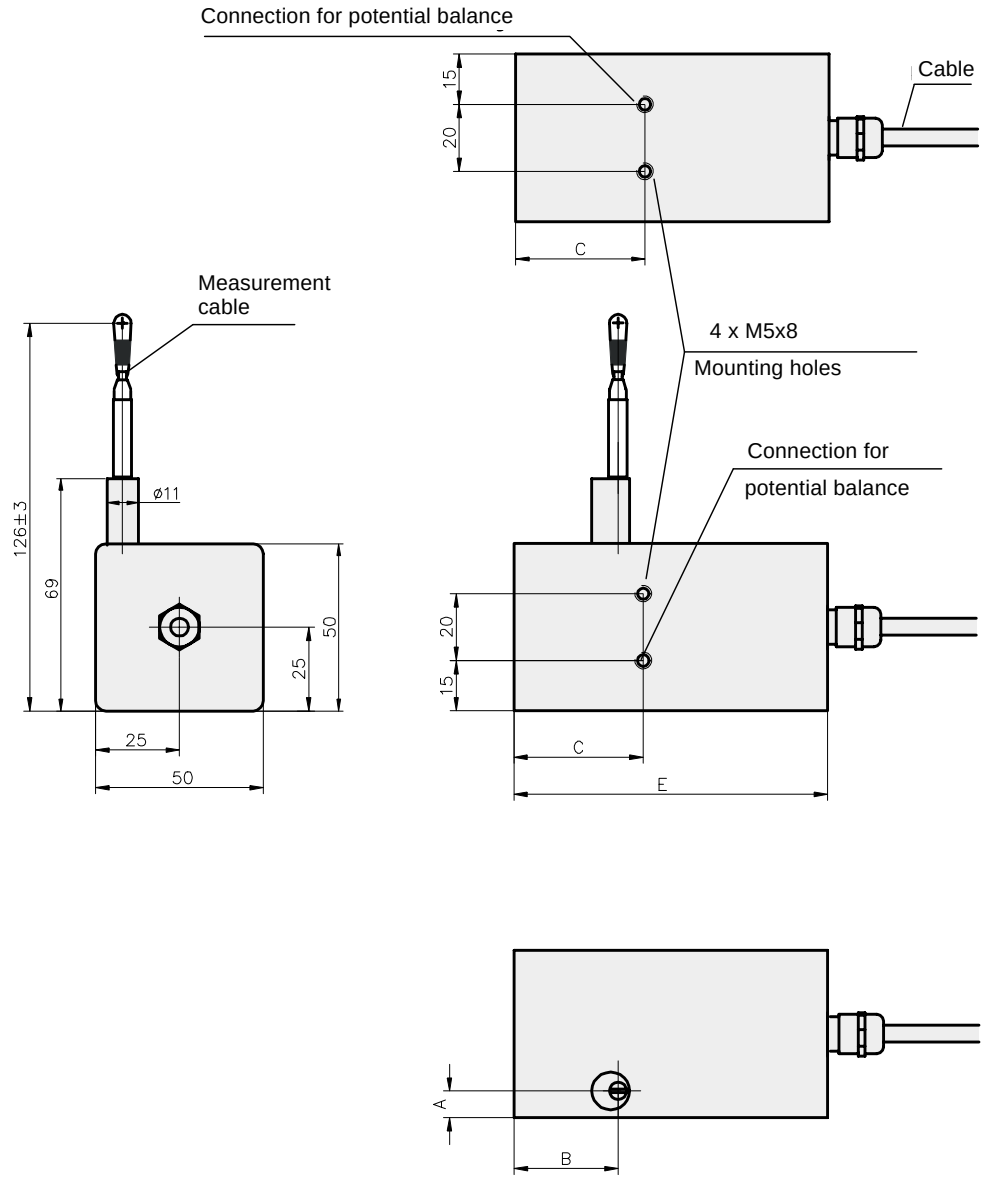
Cable Forces typical at 20 °C	Range	Maximum pull-out Force	Minimum pull-in Force
	mm	[N]	[N]
	100	4.7	3.0
	125	4.6	2.4
	375	7.4	3.9
	500	5.5	2.8
	750	7.6	3.8
	1000	5.3	2.9
	1250	4.6	2.4

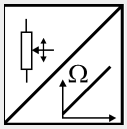
Outline drawing



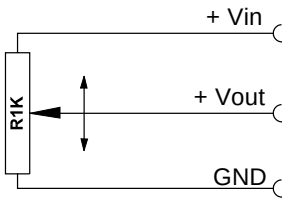
For guaranteed dimensions consult factory

Dimensions	Range [mm]	A	B, C	E
	375, 750	12,5	B=31; C=38,5	120,5
	100, 125, 500	8,0		
	1000, 1250	8,0		

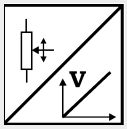
WS Position Sensors
Output Specifications R1K and 10V

Voltage divider R1K Potentiometer 	Excitation Voltage	32 VDC max. at 1 kΩ (Input Power 1 W max.)
	Potentiometer Impedance	1 kΩ ±10%
	Thermal coefficient	±0.0025% / K Full Scale
	Sensitivity	Depends on measurement range, individual sensitivity of sensor specified on label
	Voltage Divider Utilization Range	Approx. 3% ... 97% of Full Range
	Operating Temperature	-20 ... +85 °C

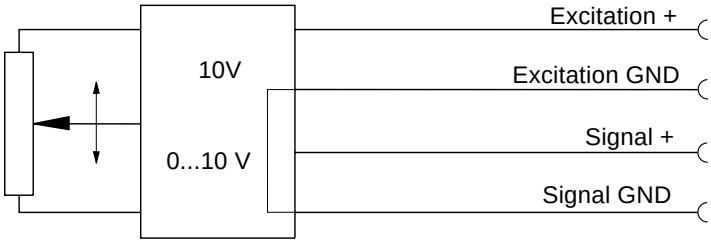
Signal diagram



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 Voltage output 	Excitation Voltage	+18 ... +27 V DC non stabilized
	Excitation Current	20 mA max.
	Output Voltage	0 ... +10 V DC
	Output Current	2 mA max.
	Output Load	> 5 kΩ
	Stability (Temperature)	±0.005% / K Full Scale
	Protection	Reverse Polarity, Permanent Short Circuit
	Output Noise	0,5 mV_{RMS}
	Operating Temperature	-20 ... +85 °C
	Immunity to interference (EMC)	According to EN 61326: 1998

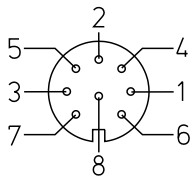
Signal diagram



Signal Wiring	Output Signals R1K	10V	Connector WS-CONN-D8
	+ Vin	Excitation +	1
	GND	Excitation GND	2
	+ Vout	Signal +	3
		Signal GND	4
			5
			6
			7
			8

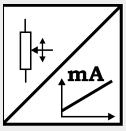
Connection
Mating Connector

View to solder terminals

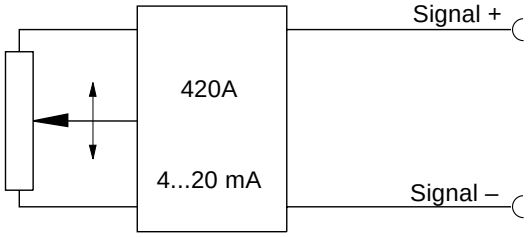


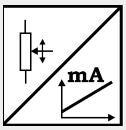
WS-CONN-D8

WS Position Sensors
Output Specifications 420A and 420T

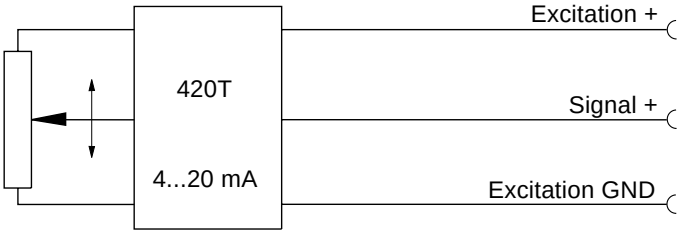
Signal conditioner 420A Current output (2 wire) 	Excitation Voltage	+12 ... 27 VDC non stabilized, measured at the sensor terminals
	Excitation Current	35 mA max.
	Output Current	4 ... 20 mA equivalent to 0 ... 100% Range
	Stability(Temperature)	±0.01% / K Full Scale
	Protection	Reverse Polarity, Permanent Short Circuit
	Output Noise	0.5 mV_{RMS}
	Operating Temperature	-20 ... +85 °C
	Immunity to Interference (EMC)	According to EN 61326: 1998

Signal Diagram



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 to 0 ... 100% Range
	Stability (Temperature)	±0.005% / K Full Scale
	Protection	Reverse Polarity, Permanent Short Circuit
	Output Noise	0.5 mV_{RMS}
	Operating Temperature	-20 ... +85 °C
	Immunity to Interference	According to EN 61326: 1998

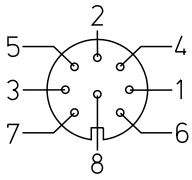
Signal diagram



Signal Wiring	Output Signals 420A	420T	Connector WS-CONN-D8
	Signal +	Excitation +	1
	Signal –	Excitation GND	2
		Signal +	3
			4
			5
			6
			7
			8

Connection
Mating Connector

View to solder terminals



WS-CONN-D8