perfect in sensors.

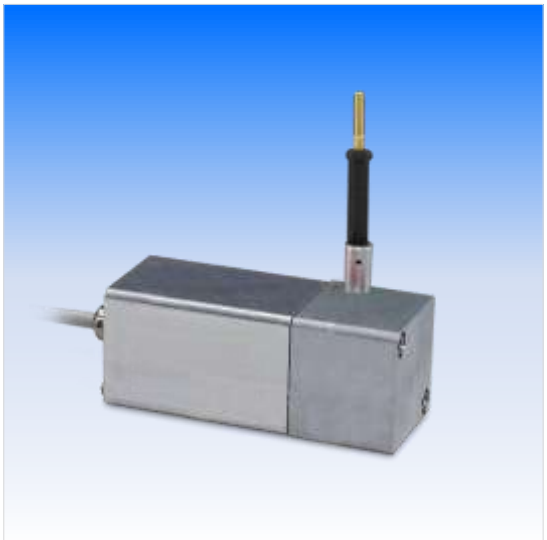
POSIWIRE®

Cable Extension Position Sensors

WS10EX
Position Sensor

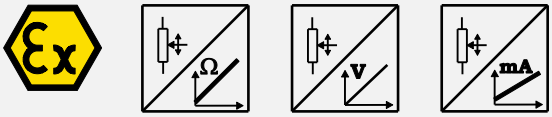
Datasheet

Analog output, Dust Explosion-Proof



Sensor features

- **Measurement range up to 1250 mm**
- **Analog output**
- **DIN EN 60079-0 (June 2014)**
  DIN EN 60079-31 (December 2014)
- **II 3D Ex tc IIIC T80°C Dc X**
  (X = examined with low impact energy of 4J)



Specifications

Output	**R1K** = Potentiometer 1 kΩ **10V** = Voltage 0 ... 10 V **420A** = Current 4 ... 20 mA, 2 wire **420T** = Current 4 ... 20 mA, 3 wire Excitation voltage WS-EX sensors: 24 V DC typical
Resolution	Quasi infinite
Linearity	±0.10% f.s. (standard) ±0.05% f.s. (optional)
Sensing device	Precision potentiometer
Housing material	Aluminium measuring cable: stainless steel
Protection class of the housing	IP65
Connection	Cable output, standard lenght 2 m
Weight	approx. 600 g
Temperature range	-20°C ... +40°C
Standards	
Dust-Ex Proof	DIN EN 60079-0 (June 2014) DIN EN 60079-31 (December 2014)
EMC	DIN EN 61326-1:2013
Shock	DIN EN 60068-2-27:2010, 50 g 11 ms, 100 shocks
Vibration	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles

Cable forces typical at = 20 °C	Measurement 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

Order code

WS10EX – [1] – [2] – [3] – [4] – [5]

1 Measurement range (in mm)

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

2 Output

R1K	= Potentiometer 1 kΩ
10V	= Voltage 0 ... 10 V
420A	= Current 4 ... 20 mA, 2 wire
420T	= Current 4 ... 20 mA, 3 wire

Excitation voltage WS-EX sensors: 24 V DC typical

3 Linearity

L10	= ±0.10% f.s. (standard)
L05	= ±0.05% f.s. (optional)

4 Cable fixing

M4	= M4 cable fixing
SB0	= cable clip

5 Connection

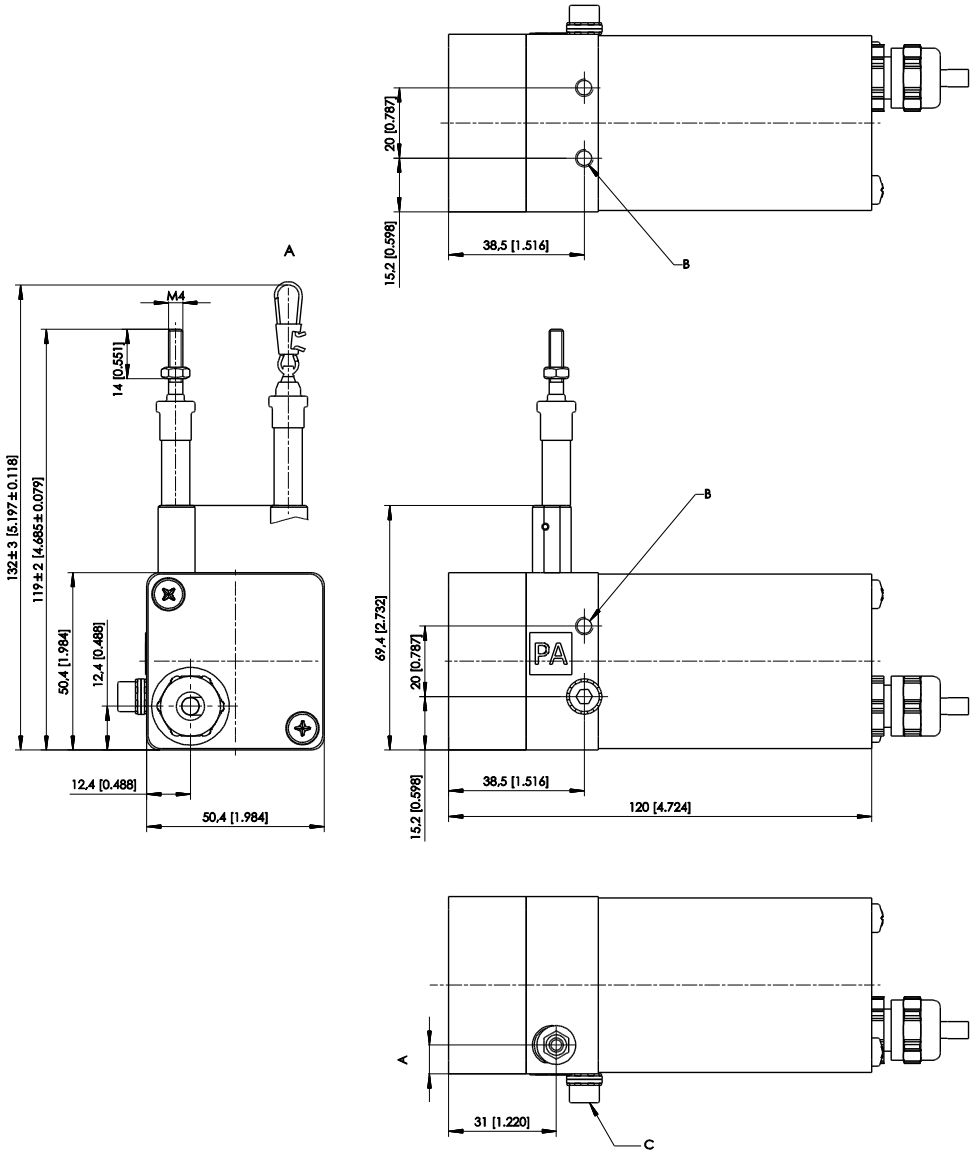
KAB2M = Cable output, standard lenght 2 m

Order example

WS10EX – 1250 – 10V – L10 – M4 – KAB2M

Dimensions

Measurement range 100 … 1250 mm, analog output, Dust-Explosion-Proof



Dimensions in mm	Measurement range	A
	375; 750	12.7
	100; 125; 500; 1000; 1250	8.2

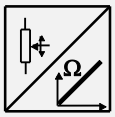
A – Option SB0
B – M5 - 8 [.315] deep
C – Connection for potential equalization

Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.

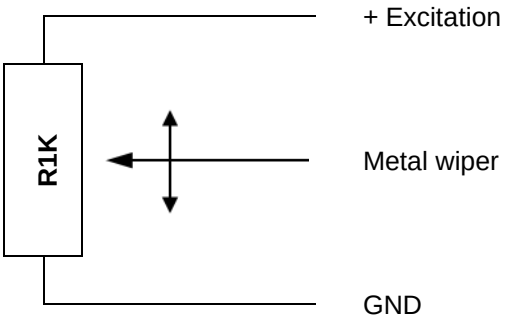
Output specifications

Analog outputs

Voltage divider R1K

Potentiometer 	Excitation voltage	24 V DC (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	Refer to output specification
	EMC	DIN EN 61326-1:2013

Output signals



Note:

The metal wiper of the potentiometer must be protected against current load!

Electrical current flow impact on the wiper causes linearity errors and shortens the lifetime of the potentiometer.

Additional information:

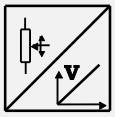
http://www.asm-sensor.com/asm/pdf/pro/ws_poti_technote_en.pdf

Signal wiring

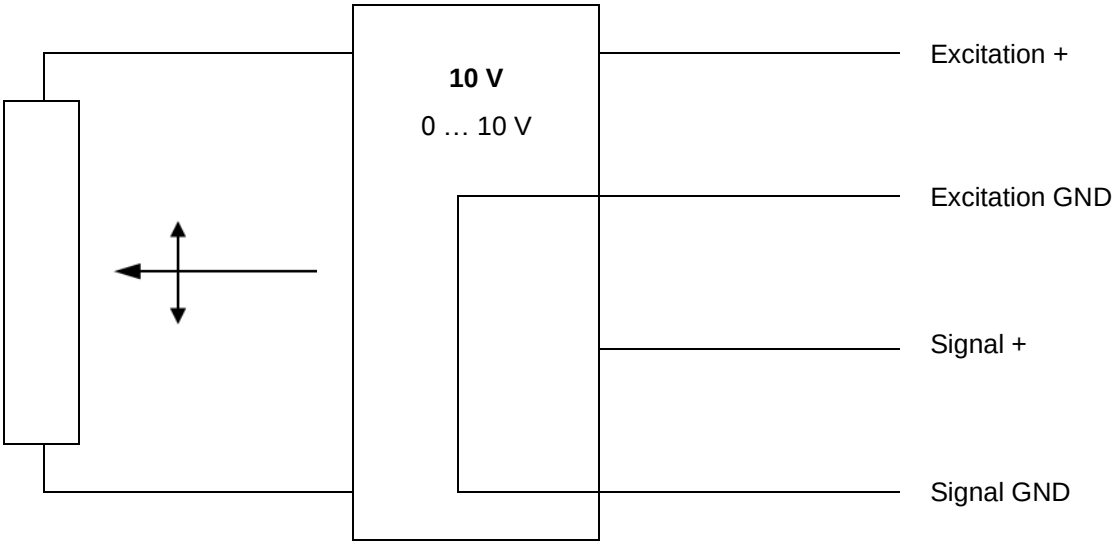
Signal	Connector pin no.	Cable color	Cable color
Poti +	1	white	brown
Poti GND	2	brown	white
Poti slider	3	green	blue
-	4	yellow	black
-	5	grey	-
-	6	pink	-
-	7	blue	-
-	8	red	-

View to sensor connector	 CONN-M12-8F

Signal conditioner 10V

Voltage output 	Excitation voltage	24 V DC non stabilized (18 ... 27 V DC)
	Excitation current	20 mA max.
	Output voltage	0 ... 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	Refer to output specification
	EMC	DIN EN 61326-1:2013

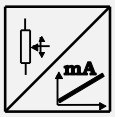
Output signals



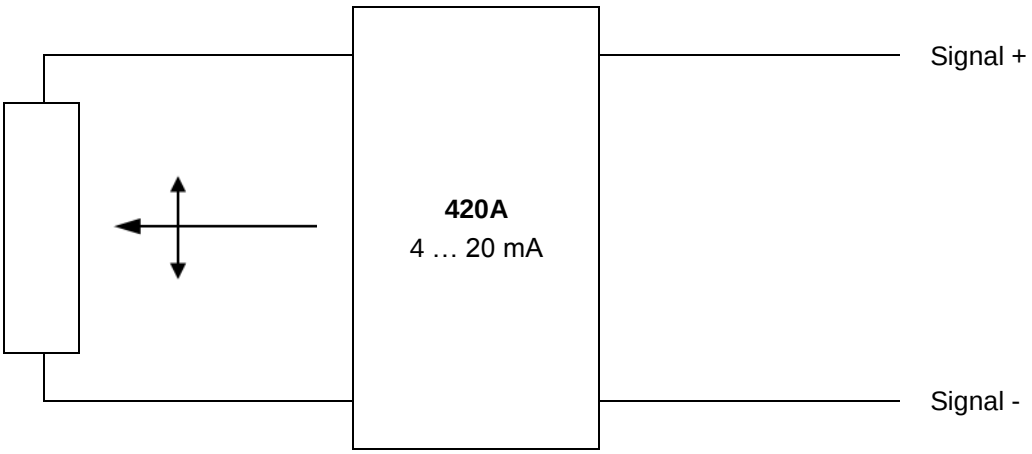
Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	white	
Excitation GND	2	brown	
Signal +	3	green	
Signal GND	4	yellow	
Not connected	5	grey	
Not connected	6	pink	
Not connected	7	blue	
Not connected	8	red	CONN-M12-8F

Signal conditioner 420A

Current output (2 wire) 	Excitation voltage	24 V DC non stabilized (12 ... 27 V DC), 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_{eff}
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

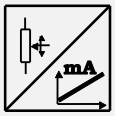
Output signals



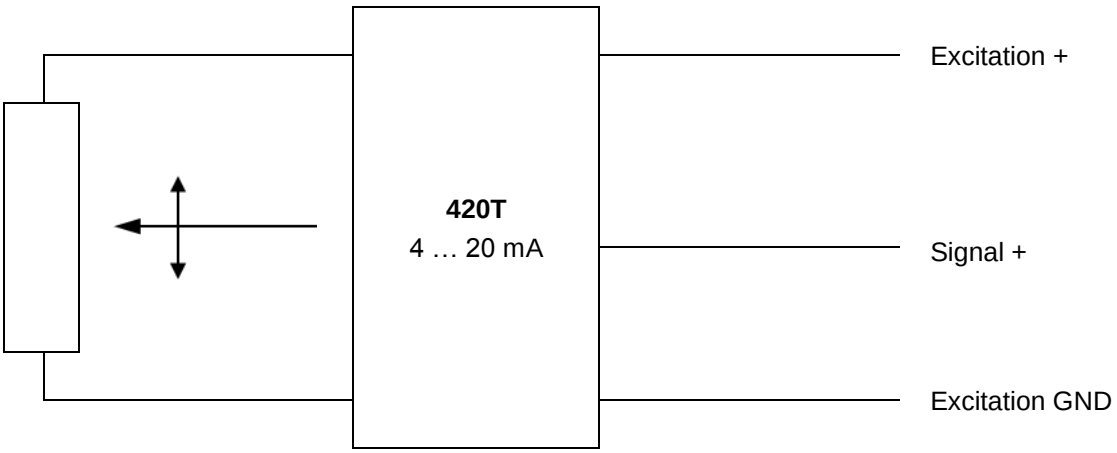
Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Signal +	1	white	
Signal -	2	brown	
Not connected	3	green	
Not connected	4	yellow	
Not connected	5	grey	
Not connected	6	pink	
Not connected	7	blue	
Not connected	8	red	CONN-M12-8F

Signal conditioner 420T

Current output (3 wire) 	Excitation voltage	24 V DC non stabilized (18 ... 27 V DC)
	Excitation curren	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	Refer to output specification
	EMC	DIN EN 61326-1:2013

Output signals



Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	white	
Excitation GND	2	brown	
Signal +	3	green	
Not connected	4	yellow	
Not connected	5	grey	
Not connected	6	pink	
Not connected	7	blue	
Not connected	8	red	CONN-M12-8F