



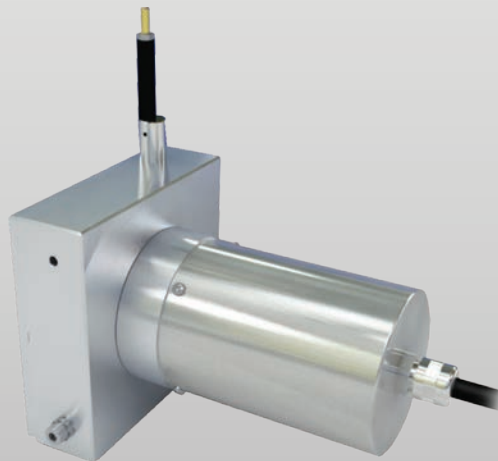
perfect in sensors.

POSIWIRE[®]

Cable Extension Position Sensors

WS12EX
Position Sensor

Datasheet



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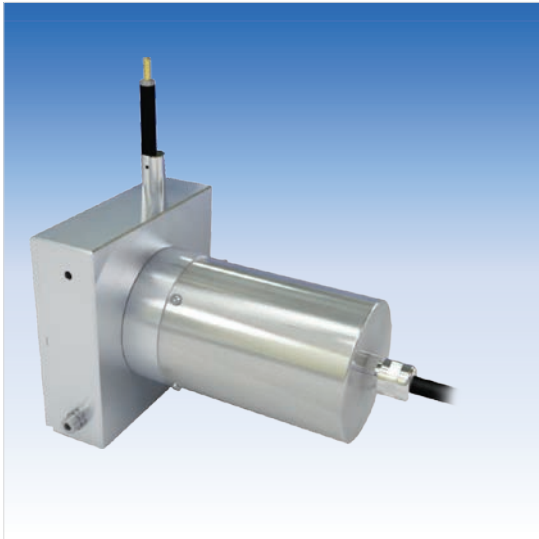
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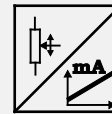
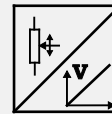
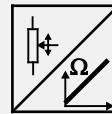
Analog output, Dust Explosion-Proof



Sensor features

- Measurement range up to 3000 mm
- Analog output
- DIN EN 60079-0 (June 2014)
DIN EN 60079-31 (December 2014)

-  II 3D Ex tc III C T80°C Dc



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: typ. 24 V DC
Resolution	Quasi infinite
Linearity	±0.10% f.s. (standard) ±0.05% f.s. (optional)
Sensing device	Precision potentiometer
Housing material	Aluminium, stainless steel and plastic measuring cable: stainless steel
Protection class of the housing	IP65
Connection	Cable output, standard length 2 m
Weight	Up to 1500 mm approx. 1 kg, from 2000 mm approx. 1.5 kg
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

Order code

WS12EX – 1 – 2 – 3 – 4 – 5

1 Measurement range (in mm)

100 / 125 / 500 / 1000 / 1250 / 1500 / 2000 / 2500 / 3000

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: typ. 24 V DC

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 length 2 m

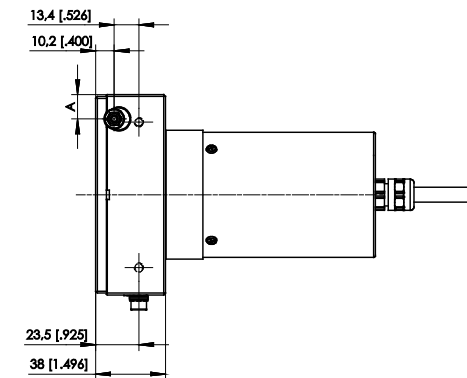
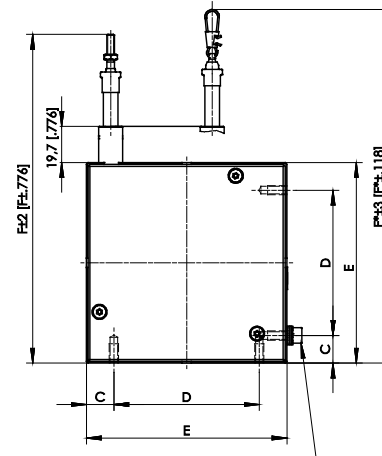
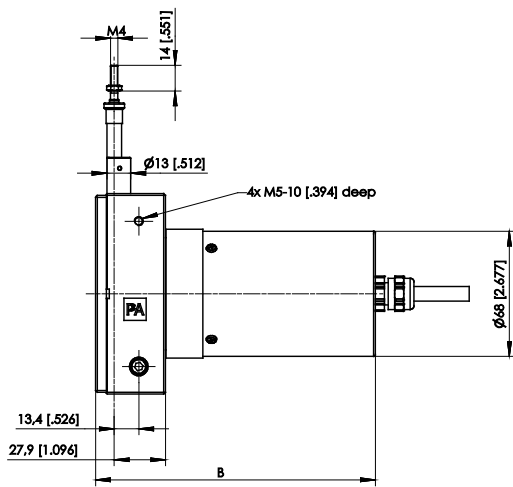
Order example

WS12EX – 3000 – 10V – L10 – M4 – KAB2M

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	100	5.2	2.8
	125	4.6	2.5
	500	5.9	2.6
	1000	5.5	2.4
	1250	4.8	2.1
	1500	10.4	6.4
	2000	8.1	5.0
	2500	6.7	4.0
	3000	6.2	3.0

Measurement range 100 ... 3000 mm, analog output, Dust-Explosion-proof

Option S80



Connection for equipotential bonding

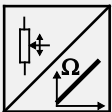
Dimensions in mm	Measurement range	A	B	C	D	E	F	F*
		100; 500; 1000	18.3	137	14	43	71	141
	125; 1250	14.5	137	14	43	71	141	154
	1500	10.7	152	14	43	71	141	154
	2000	21.5	152	15	79	109	179	192
	2500	13.3	152	15	79	109	179	192
	3000	9.2	152	15	79	109	179	192

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

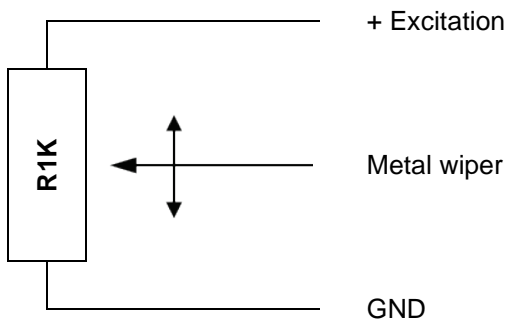
Output specifications

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

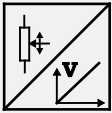
Signal	Connector pin no.	Cable color	Cable color
Poti +	1	white	brown
Poti GND	2	brown	white
Poti slider	3	green	blue
-	4	yellow	black
-	5	grey	-
-	6	pink	-
-	7	blue	-
-	8	red	-

View to sensor connector

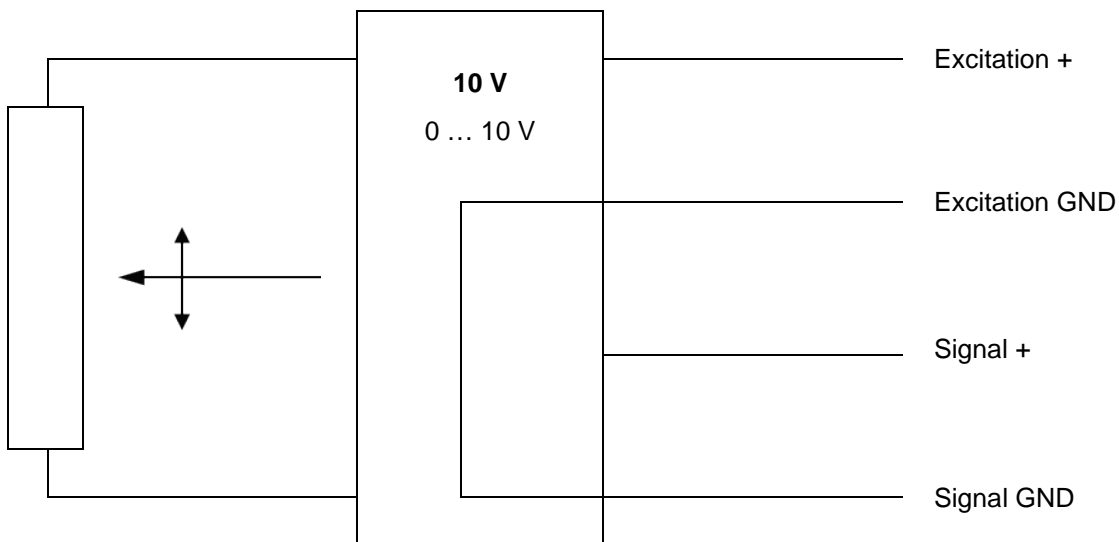


CONN-M12-8F

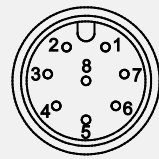
Signal conditioner 10V

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)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ f.s.
	Protection	Reverse polarity, short circuit
	Output noise	0.5 mV _{RMS}
	Operating temperature	Refer to output specification
	EMV	DIN EN 61326-1:2013

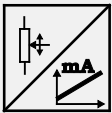
Output signals



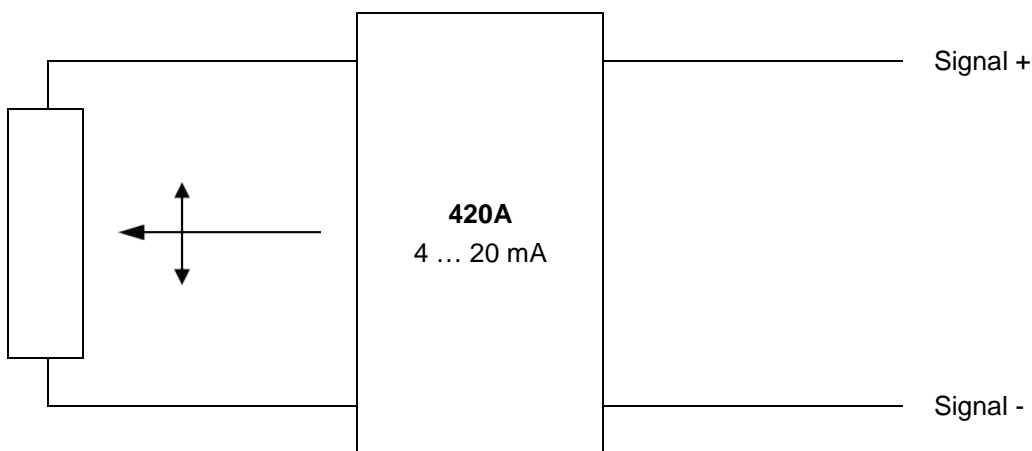
Signal wiring

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	

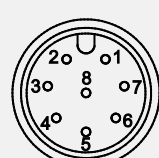
Signal conditioner 420A

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)	$\pm 100 \times 10^{-6} / ^\circ\text{C}$ 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

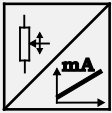
Output signals



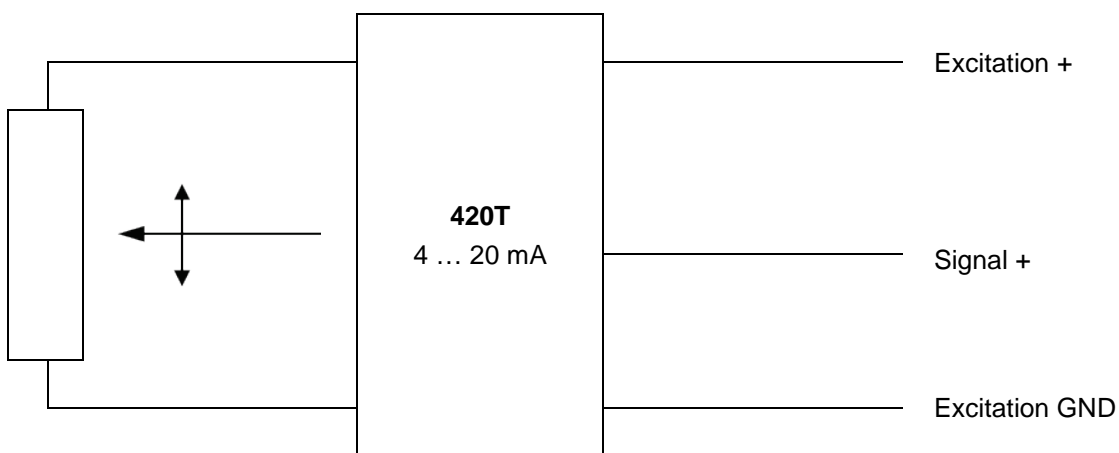
Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Signal +	1	white	 CONN-M12-8F
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	

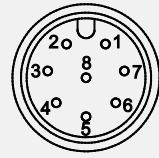
Signal conditioner 420T

Current output (3 wire)	Excitation voltage	24 V DC non stabilized (18 ... 27 V DC)
	Excitation current	40 mA max.
	Load resistor	350 Ω max.
	Output current	4 ... 20 mA equivalent for 0 ... 100 % range
	Stability (temperature)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ 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	 CONN-M12-8F
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	