

posiwire®

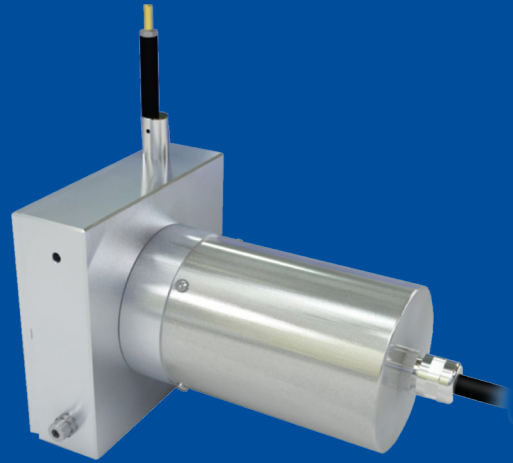
## Cable Extension Position Sensors, explosion protected



**WS12EX**



Displacement sensor with  
measurement length up to 3,000 mm,  
explosion protected (dust-EX)



- Protection class IP65
- Aluminum housing
- With explosion protection  
 II 3D Ex tc III C T80°C Dc

### Product versions




Analog output (dust-EX-proof)



WS12EX - Cable Extension Position Sensor  
Version with analog output (dust-EX-proof)

Specifications

		Order options
Measurement range	100 / 125 / 500 / 1000 / 1250 / 1500 / 2000 / 2500 / 3000 mm	<b>1</b> 100 / 125 / 500 / 1000 / 1250 / 1500 / 2000 / 2500 / 3000
Resolution	Quasi infinite	
Output	Potentiometer 1 kΩ Voltage 0 ... 10 V Current 4 ... 20 mA, 2 wire Current 4 ... 20 mA, 3 wire Excitation voltage WS-EX sensors: 24 V DC typical	<b>2</b> R1K 10V 420A 420T
Linearity	±0.10% f.s. (standard) ±0.05% f.s. (optional)	<b>3</b> L10 L05
Sensing device	Precision potentiometer	
Material	Aluminum measuring cable: stainless steel	
Protection class	Housing: IP65 Dust-EX-proof:  II 3D Ex tc IIIC T80°C Dc	
Cable fixing	M4 cable fixing Cable clip	<b>4</b> M4 SB0
Connection	Cable output, standard length 2 m	<b>5</b>
Temperature range	-20°C ... + 40°C	
Weight	Up to 1500 mm approx. 1 kg, from 2000 mm approx. 1,5 kg	
<b>Standards</b>		
Dust-EX-proof	DIN EN 60079-0 (June 2014) DIN EN 60079-31 (December 2014)	
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	
EMC	DIN EN 61326-1:2013	

Order code

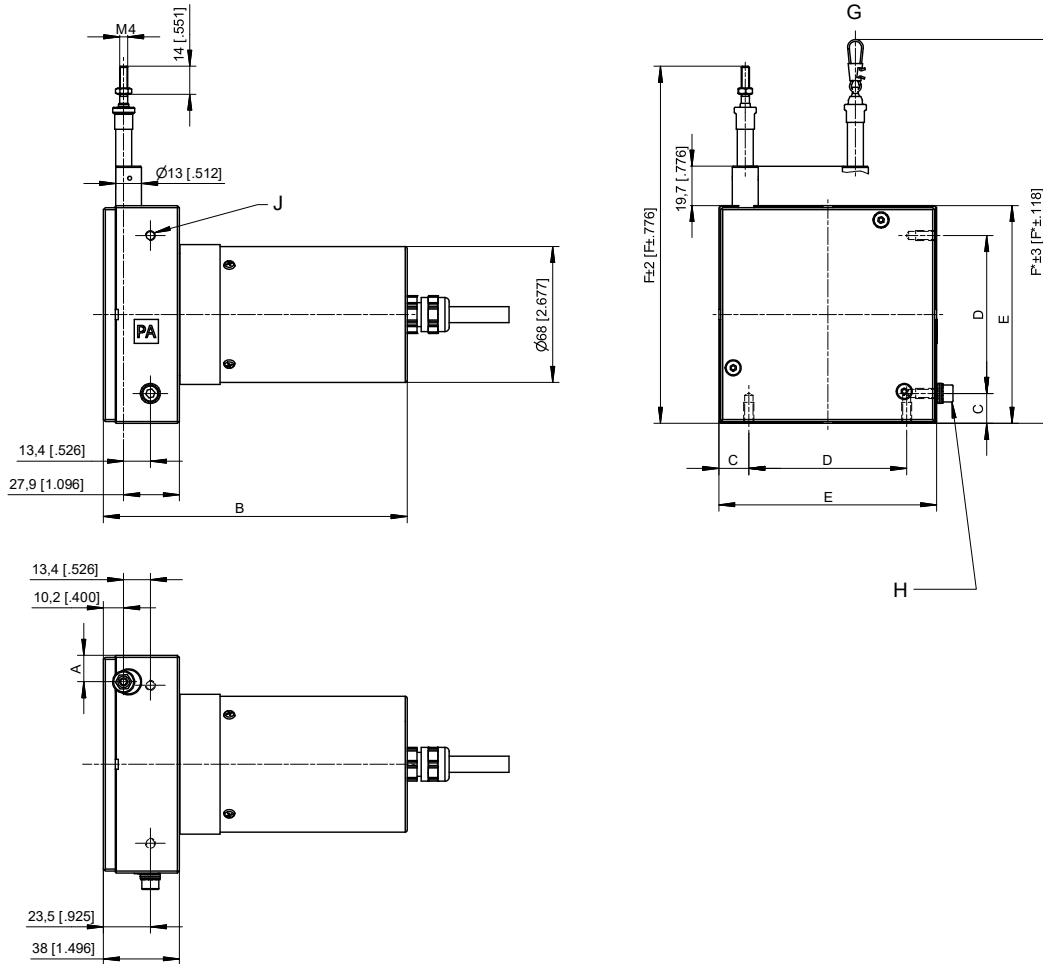
WS12EX – **1** – **2** – **3** – **4** – **5**

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

## Dimensions

Measurement range 100 ... 3000 mm, analog output, dust-EX-proof



Dimensions in mm	Measurement range	A	B	C	D	E	F	F*
	100; 500; 1000	18.3	137	14	43	71	141	154
	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

G – Option SB0

H – Connection for equipotential bonding

J – 4 x M5-10 [.394] deep

Dimensions in mm [inch]


Dimensions informative only.

For guaranteed dimensions consult factory.

## Output specifications

### Analog outputs

#### Voltage divider

<b>R1K</b> 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 <sup>-6</sup> / °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 % ... approx. 97 %
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

#### NOTICE

#### 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:

<https://www.asm-sensor.com/en/downloads.html?file=files/asmTheme/pdf/>


ws\_poti\_technote\_en.pdf

Signal wiring	Output signals	Cable color
	Poti +	white
	Poti GND	brown
	Poti slider	green
	Not connected	yellow
	Not connected	grey
	Not connected	pink
	Not connected	blue
	Not connected	red


<b>10V</b> 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 <sub>RMS</sub>
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

Signal wiring	Output signals	Cable color
	Excitation +	white
	Excitation GND*	brown
	Signal +	
	Signal GND*	yellow
	Not connected	grey
	Not connected	pink
	Not connected	blue
	Not connected	red

\*: internally connected

<b>420A</b> 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)	$\pm 100 \times 10^{-6}$ / °C f.s.
	Protection	Reversed polarity, short circuit
	Output noise	0.5 mV <sub>RMS</sub>
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

Signal wiring	Signal	Cable color
	Signal +	white
	Signal -	brown
	Not connected	green
	Not connected	yellow
	Not connected	grey
	Not connected	pink
	Not connected	blue
	Not connected	red

<b>420T</b> 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)	$\pm 50 \times 10^{-6}$ / °C f.s.
	Protection	Reverse polarity, short circuit
	Output noise	0.5 mV <sub>RMS</sub>
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

Signal wiring	Output signals	Cable color
	Excitation +	white
	Excitation GND	brown
	Signal +	green
	Not connected	yellow
	Not connected	grey
	Not connected	pink
	Not connected	blue
	Not connected	red