

POSIWIRE[®]

Cable Extension Position Sensors

WS42
Position Sensor

Datasheet



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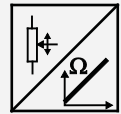
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Analog output



Sensor features

- Measurement range up to 1000 mm
- Protection class IP50
- Mounting with brackets or spacer nuts
- Analog output



Specifications

Output	R1K = Potentiometer 1 K Ω
Resolution	Analog: quasi infinite
Linearity	$\pm 0.35\%$ f.s., other values on request
Sensing device	Precision potentiometer
Housing material	Plastic measuring cable: stainless steel
Protection class	IP50
Connection	Potentiometer (soldering eye)
Temperature range	-15 ... +60 °C, max. 85 % RH, non condensing
Weight	Approx. 125 g
Pull-out force	750 mm: 2.5 N 1000 mm: 1.7 N
EMC	DIN EN 61326-1:2013

Order code

WS42 - 1 - 2 - 3 - 4

1 Measurement range (in mm)

750 / 1000

2 Output

R1K = Potentiometer 1 KΩ

3 Linearity

L35 = ±0.35%

4 Sensor mounting

1 = Mounting brackets
2 = Spacer nuts

Order example

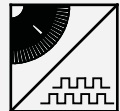
WS42 - 1000 - R1K - L35 - 1

Incremental encoder output



Sensor features

- Measurement range up to 1000 mm
- Protection class IP50
- Mounting selectable between mounting brackets or spacer nuts
- Incremental encoder output



Specifications

Output	IE24LI = Incremental encoder TTL compatible IE24HI = Incremental encoder HTL compatible
Resolution	6 pulses / mm (24 edges / mm)
Linearity	±0.20% f.s.
Sensing device	Incremental encoder
Housing material	Plastic measuring cable: stainless steel
Protection class	IP50
Connection	Cable output radial, length approx. 3 m
Temperature range	0 ... +60 °C, max. 85 % RH, non condensing
Weight	Approx. 130 g
Pull-out force	1.7 N
EMC	DIN EN 61326-1:2013

Order code

WS42 - 1 - 2 - 3 - 4

1 Measurement range (in mm)

1000

2 Resolution

6 = 6 pulses / mm

3 Output

IE24LI = Incremental encoder TTL compatible
IE24HI = Incremental encoder HTL compatible

4 Mounting

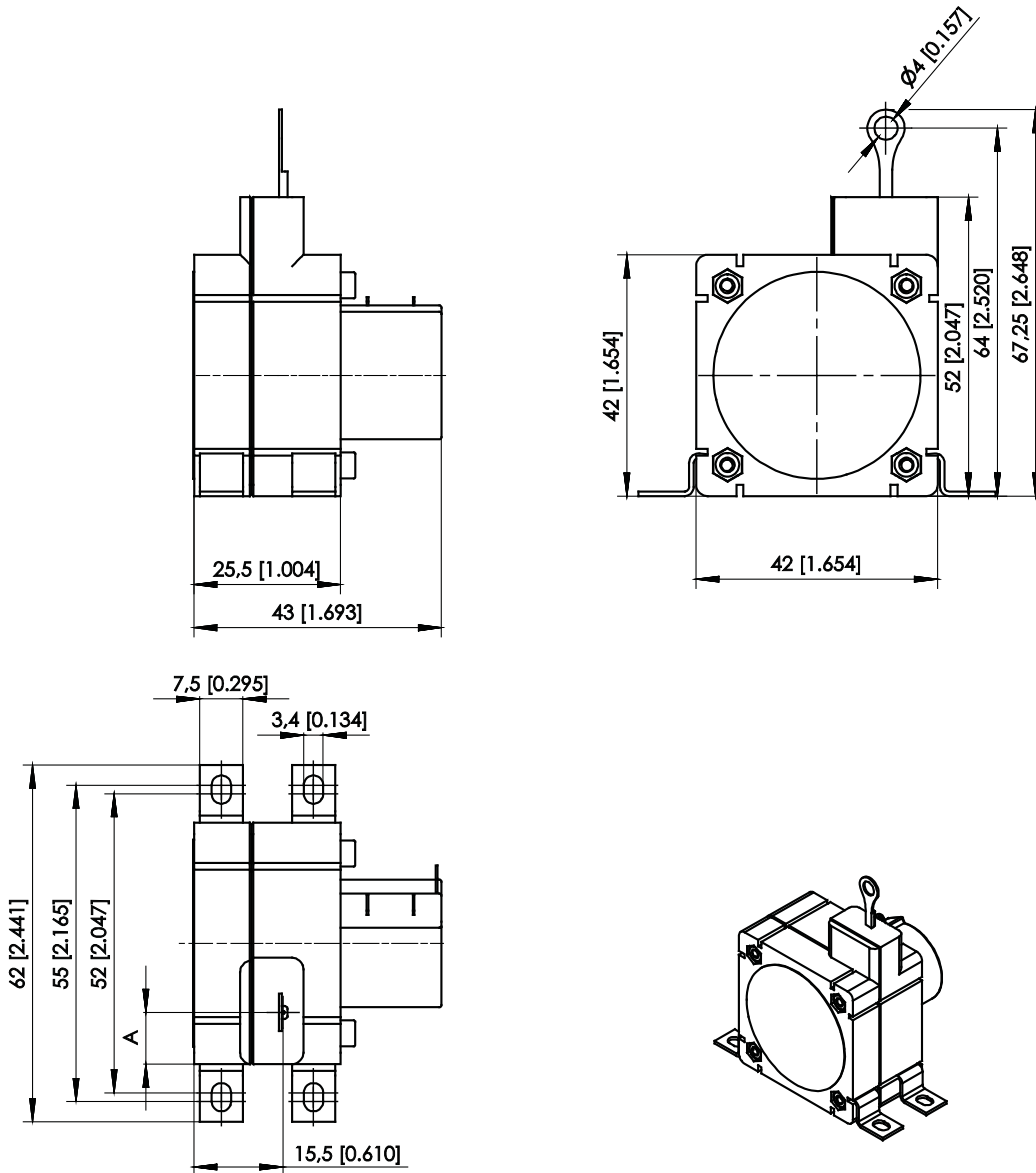
1 = Mounting brackets
2 = Spacer nuts

Order example

WS42 - 1000 - 6 - IE24HI - 1

Dimensions

Measurement range 750/1000 mm, R1K, mounting brackets



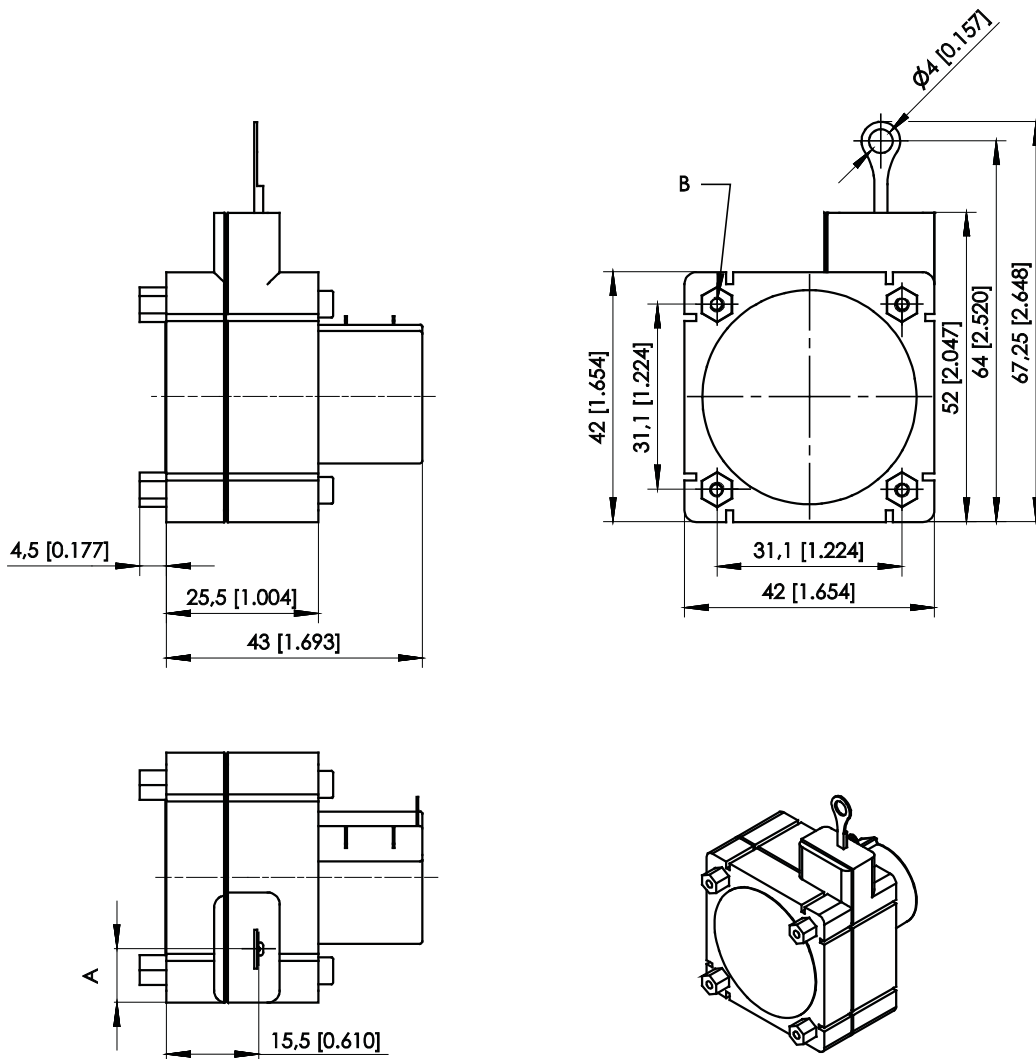
Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

Measurement range 750/1000 mm, R1K, spacer nuts

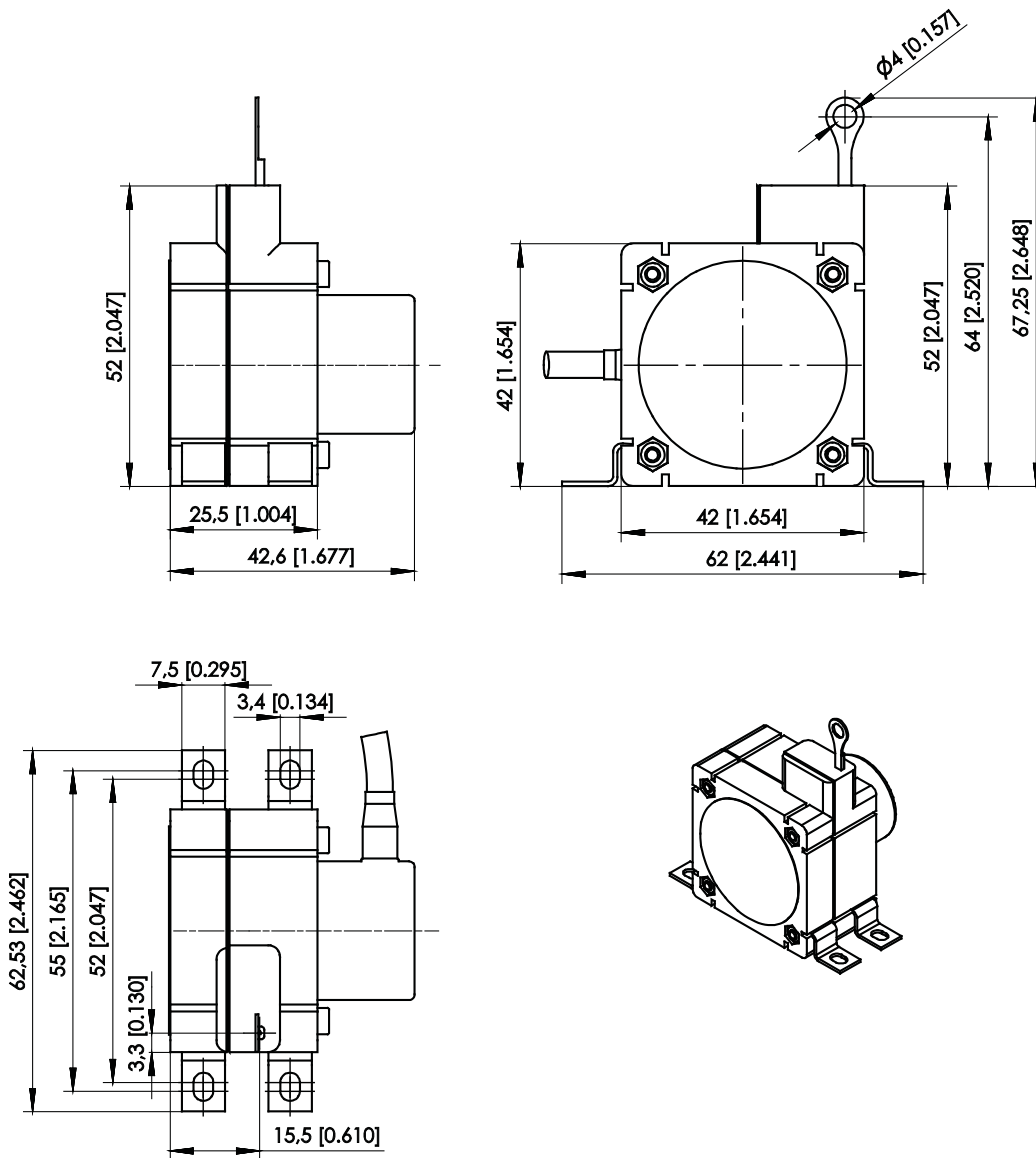


Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

B – M2,5 – 4.5 [.177] deep

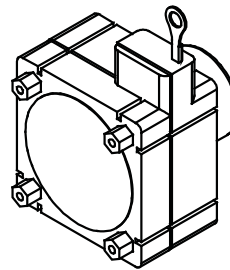
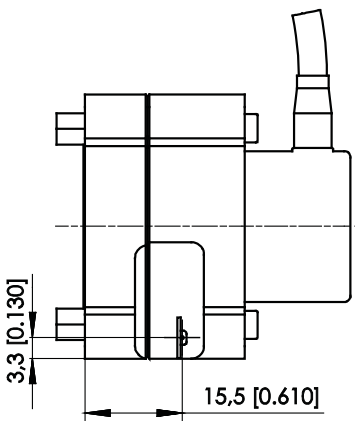
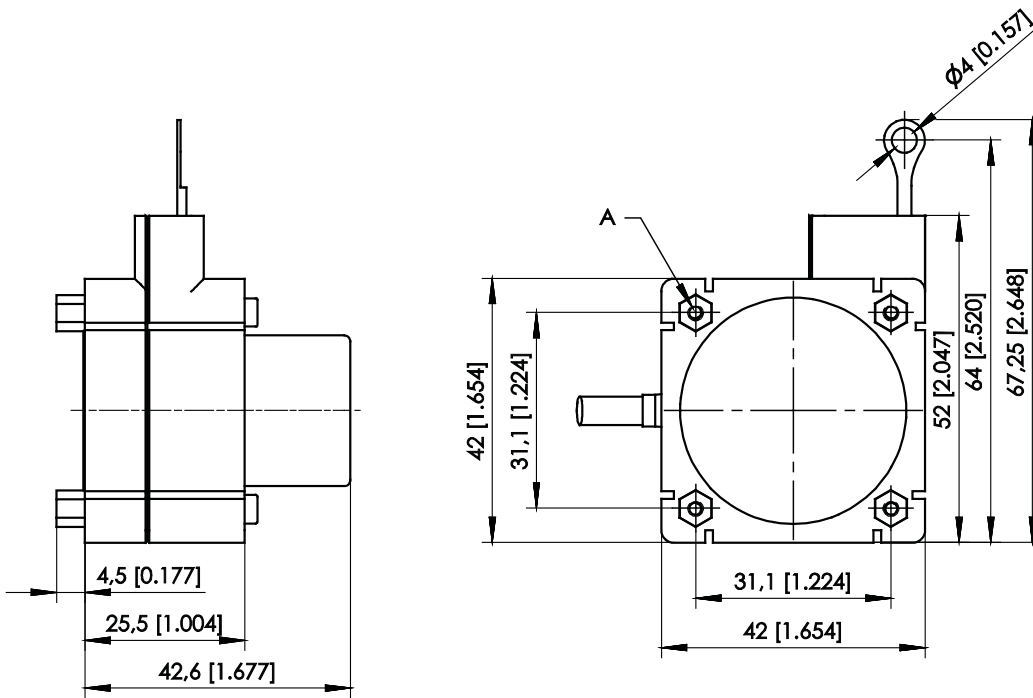
Dimensions in mm [inch]
 Dimensions informative only.
 For guaranteed dimensions consult factory.

Measurement range 1000 mm, IE24, mounting brackets



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

Measurement range 1000 mm, IE24, spacer nuts



A – M2,5 – 4 [.157] deep

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

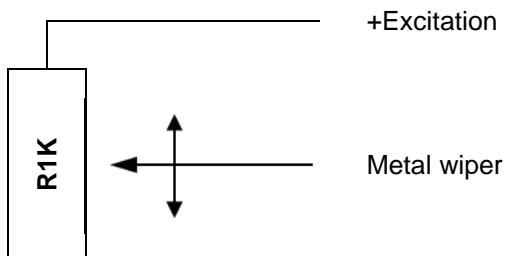
Output specifications

Analog outputs

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	Refer to output specification
	EMC	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.


See:

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

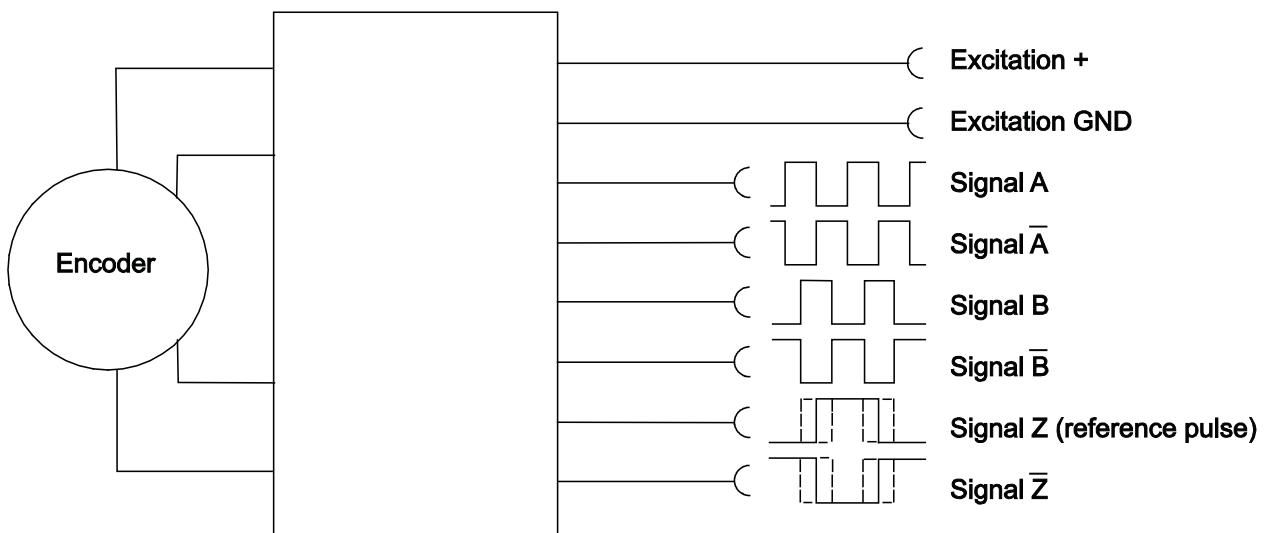
Signal wiring potentiometer WS31 / WS42

Signal	CT-Poti / 5-Turn WS31: 250 mm	Multi-Turn-Poti / 10-Turn WS31, WS42: 500 / 750 / 1000 mm
Poti +	M	CCW
Poti GND	CW	CW
Poti slider	S	S

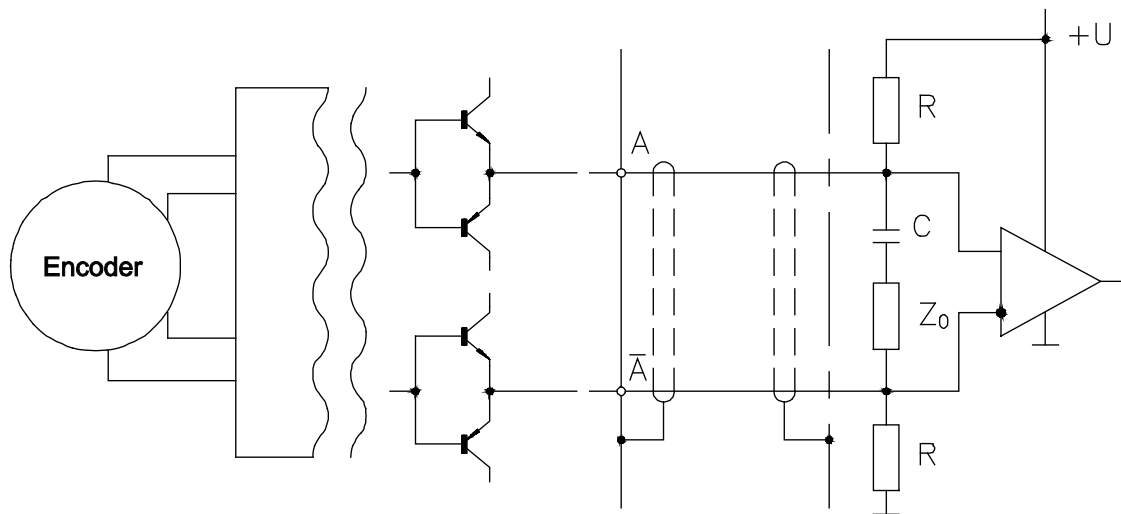
Signal conditioner IE24LI and IE24HI

Incremental		IE24LI	IE24HI
	Excitation voltage	5 V DC ±10 %	10 ... 30 V DC
	Excitation current	100 mA max.	
	Output frequency	200 kHz max.	
	Output	Push-Pull and inverted signals	
	Output current	10 mA max.	
	Output voltage	Depending on the excitation voltage	
	Stability (temperature)	±20 x 10 ⁻⁶ / °C f.s. (sensor mechanism)	
	Operating temperature	Refer to output specification of the sensor	
	Protection	Short circuit	
	EMC	DIN EN 61326-1:2013	

Output signals



Recommended processing circuit



Signal wiring

Signal	Cable color
Excitation +	brown
Excitation GND	white
Signal A	green
Signal \bar{A}	yellow
Signal B (A + 90°)	grey
Signal \bar{B}	pink
Signal Z (reference pulse)	blue
Signal \bar{Z}	red

Accessories

Mounting bracket WS42 / WS42C

(only for sensors with spacer nuts)

Order code **WS42-BFW1**

