



WS42

Displacement sensor with
measurement length up to 1,000 mm



- Protection class IP50
- High-performance POM housing
- With precision potentiometer or optical encoder

Product versions



Analog output



Incremental encoder output



WS42 - Cable Extension Position Sensor Version with analog output

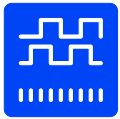
Specifications

			Order options
Measurement range	750 / 1000 mm	1	750 / 1000
Resolution	Analogue: quasi infinite		
Output	Potentiometer 1 K Ω	2	R1K
Linearity	$\pm 0.35\%$ f.s., other values on request	3	L35
Mounting	Mounting brackets Spacer nuts	4	1 2
Sensing device	Precision potentiometer		
Material	POM 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
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Order example: WS42 – 1000 – R1K – L35 – 1



WS42 - Cable Extension Position Sensor Version with incremental encoder output

Specifications

		Order options	
Measurement range	1000 mm	1	1000
Resolution	6 pulses / mm (24 edges / mm)	2	6
Output	Incremental encoder TTL compatible Incremental encoder HTL compatible	3	IE24LI IE24HI
Linearity	±0.20% f.s.		
Mounting	Mounting brackets Spacer nuts	4	1 2
Sensing device	Incremental encoder		
Material	POM, aluminum 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. 125 g		
Pull-out force	1.7 N		
EMC	DIN EN 61326-1:2013		

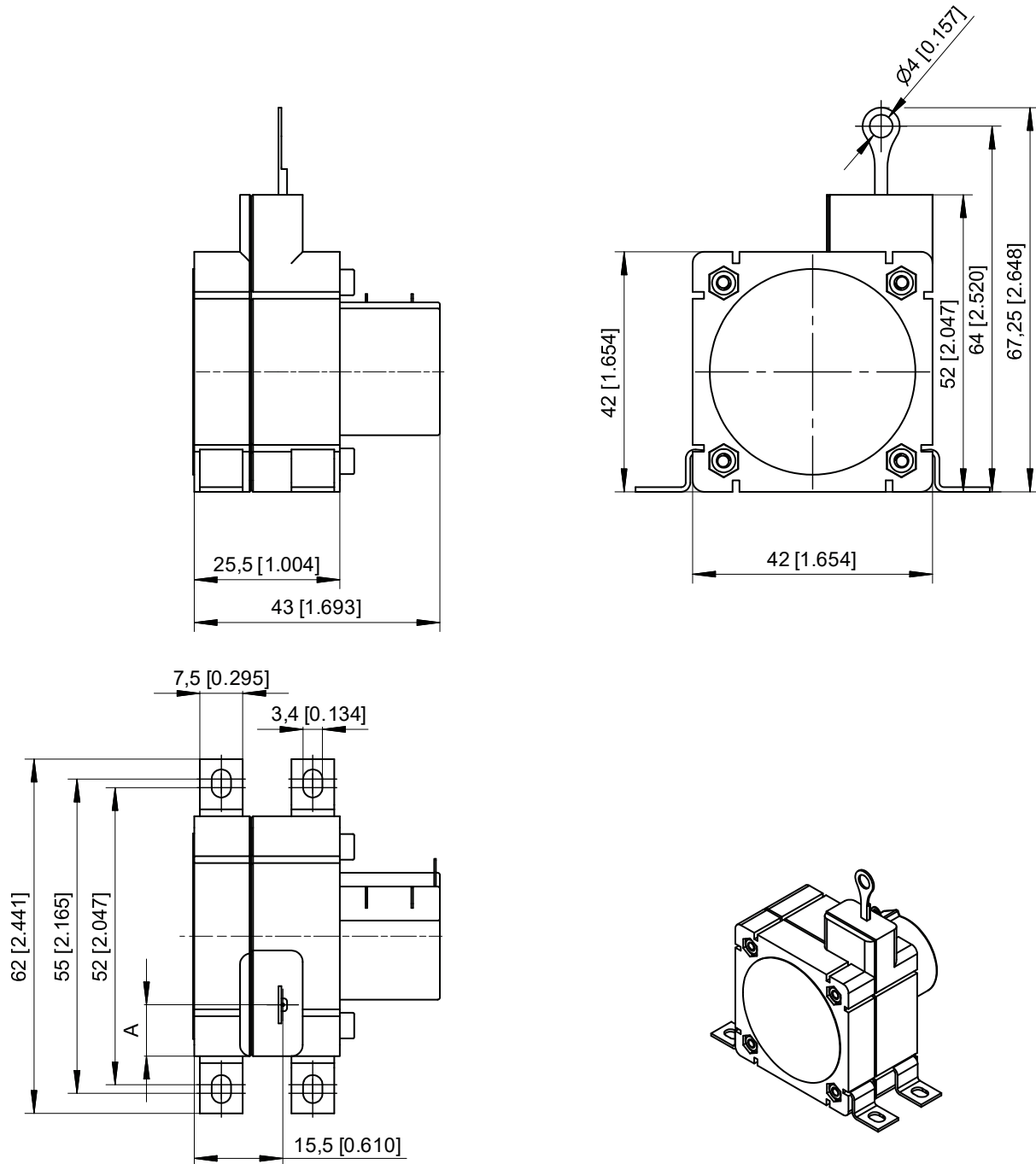
Order code

WS42 – **1** – **2** – **3** – **4**

Order example: WS42 – 1000 – 6 – IE24HI – 1

Dimensions

Measurement range 750/1000 mm, R1K, mounting brackets



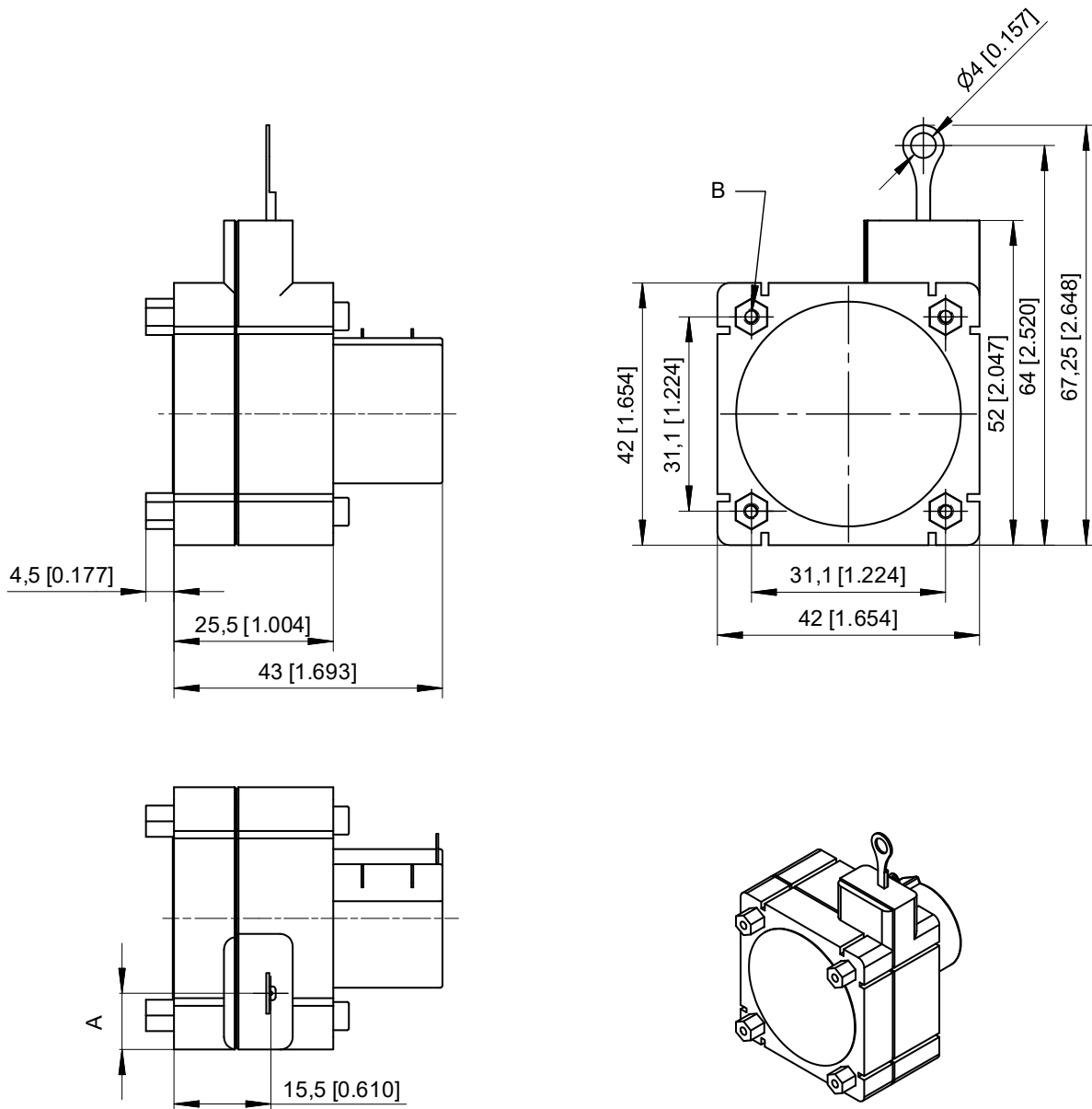
Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

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

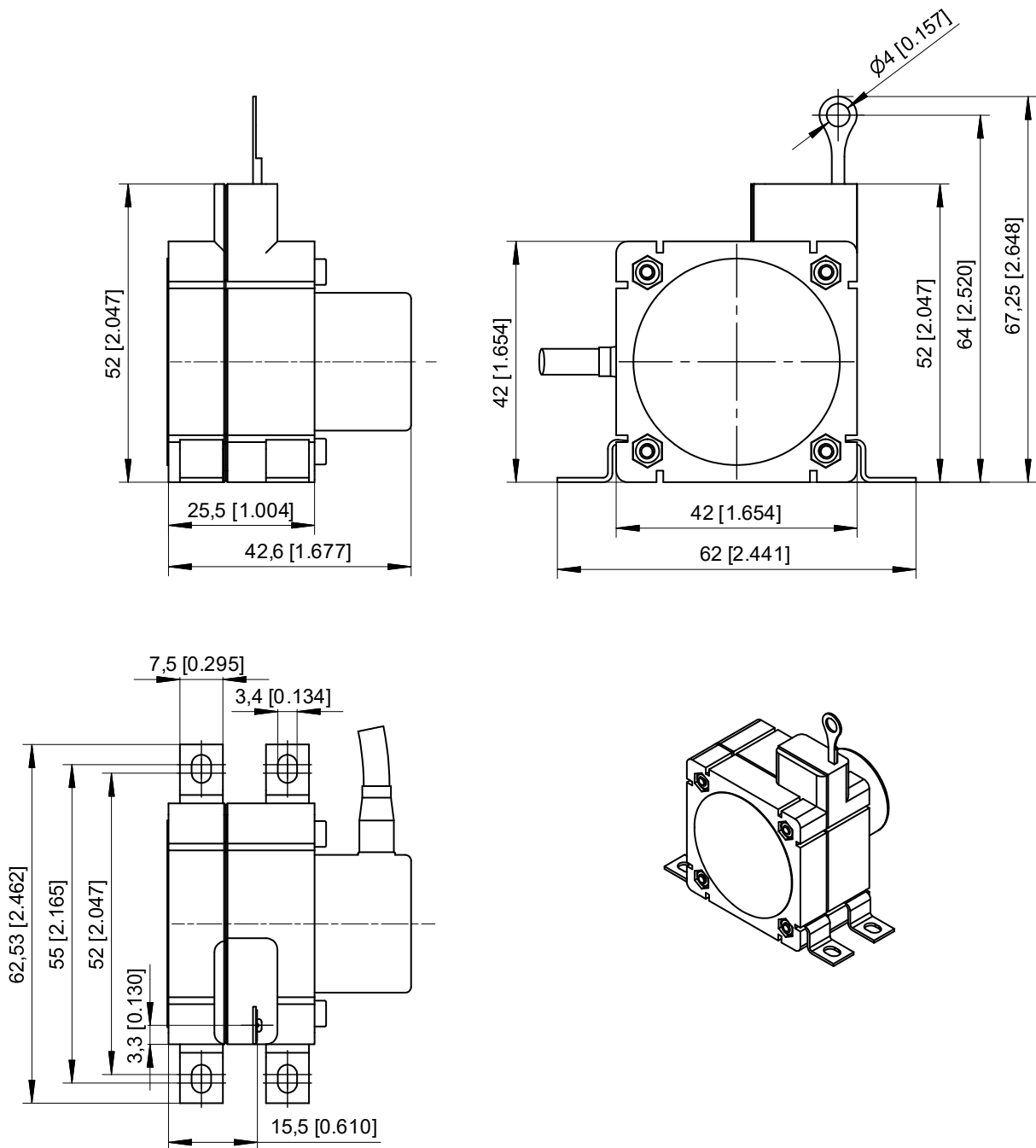
B – M2,5 – 4.5 [.177] deep

Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

Measurement range 1000 mm, IE24, mounting brackets

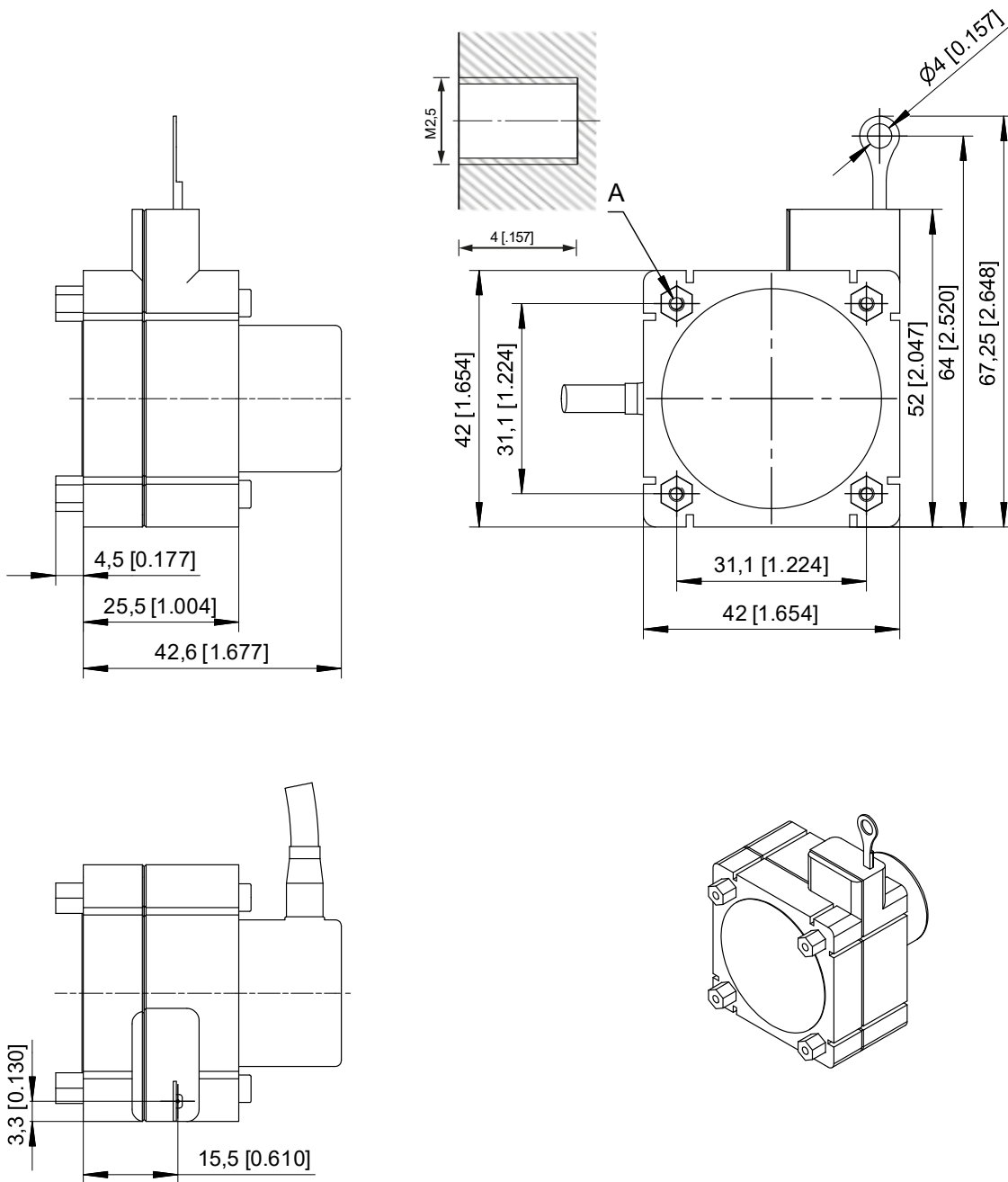


Dimensions in mm [inch]

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 % ... approx. 97 %
	Operating temperature	Refer to output specification
	EMC	EN 61326-1:2013

NOTICE

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

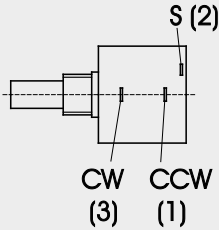
- The metal wiper of the potentiometer must be protected against current load

Additional information:

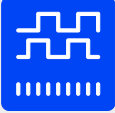
[https://www.asm-sensor.com/en/downloads.html?file=files/asmTheme/pdf/](https://www.asm-sensor.com/en/downloads.html?file=files/asmTheme/pdf/ws_poti_technote_en.pdf)

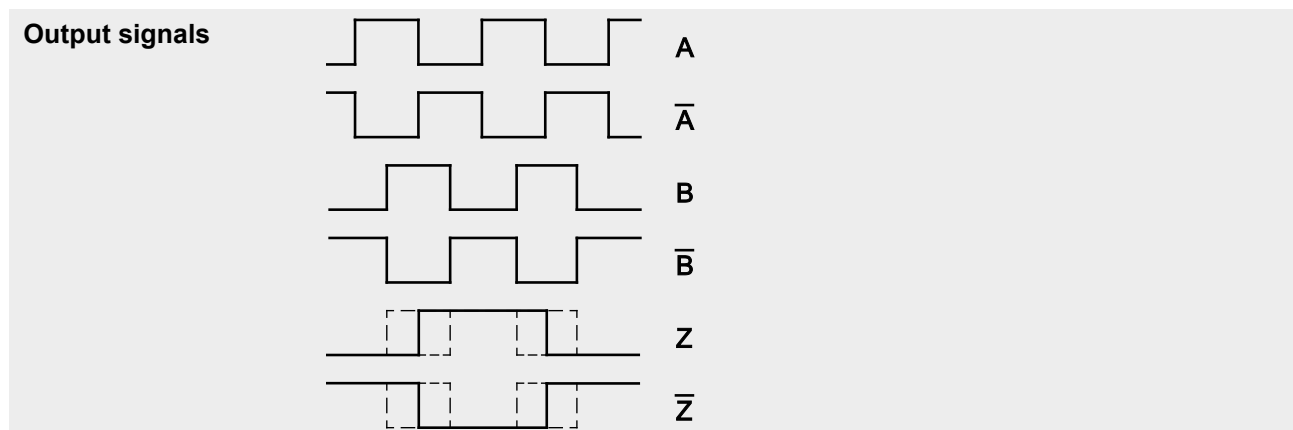
[ws_poti_technote_en.pdf](https://www.asm-sensor.com/en/downloads.html?file=files/asmTheme/pdf/ws_poti_technote_en.pdf)

Signal wiring potentiometer

Output signals	Multi-Turn-Poti / 10-Turn WS42: 750 / 1000 mm
	
Poti +	CCW
Poti GND	CW
Poti slider	S

Incremental output

IE24LI and IE24HI		IE24LI	IE24HI
Incremental interface			
	Excitation voltage	5 V DC $\pm 10\%$	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)	$\pm 20 \times 10^{-6}$ / °C f.s. (sensor mechanism)	
	Operating temperature	Refer to output specification of the sensor	
	Protection	Short circuit	
	EMC	DIN EN 61326-1:2013	



Signal wiring	Output signals	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**

