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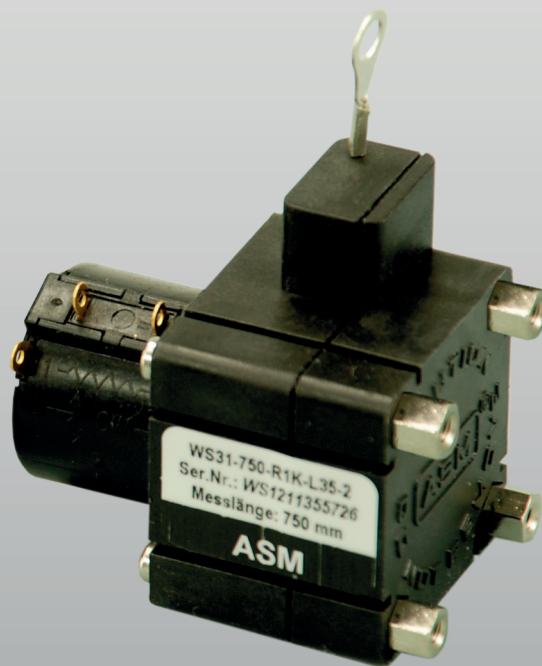
# POSIWIRE®

Cable Extension Position Sensors

**WS31**

Compact OEM sensors for large order volumes

Datasheet



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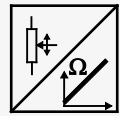
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## Analog output



### Compact OEM sensors for large order volumes

- Measurement range up to 750 mm
- Protection class IP50
- Mounting selectable between mounting brackets or spacer nuts
- Analog output



## Specifications

<b>Output</b>	<b>R1K</b> = Potentiometer 1 KΩ
<b>Resolution</b>	Analog: quasi infinite
<b>Linearity</b>	±0.35% f.s., other values on request
<b>Sensing device</b>	Precision potentiometer
<b>Housing material</b>	Plastic, aluminium measuring cable: stainless steel
<b>Protection class</b>	IP50
<b>Connection</b>	Potentiometer (soldering eye)
<b>Temperature range</b>	-15 ... +60 °C, max. 85 % RH, non condensing
<b>Weight</b>	Approx. 95 g
<b>Pull-out force</b>	250 mm: 1.5 N 500 mm: 1.7 N 750 mm: 1.2 N
<b>EMC</b>	EN 61326-1:2013

Order code

WS31 – 1 – 2 – 3 – 4

**1 Measurement range (in mm)**

250 / 500 / 750

**2 Output**

R1K = Potentiometer 1 KΩ

**3 Linearity**

L35 = ±0.35%

**4 Sensor mounting**

1 = Mounting brackets  
2 = Spacer nuts

Order example

WS31 – 250 – R1K – L35 – 1

## Incremental encoder output



### Compact OEM sensor for large order volumes

- Measurement range up to 500 mm
- Protection class IP50
- Mounting selectable between mounting brackets or spacer nuts
- Incremental encoder output



### Specifications

<b>Output</b>	<b>IE24LI</b> = Incremental encoder TTL compatible <b>IE24HI</b> = Incremental encoder HTL compatible
<b>Resolution</b>	10 pulses / mm (40 edges / mm)
<b>Linearity</b>	±0.20% f.s.
<b>Sensing device</b>	Incremental encoder
<b>Housing material</b>	Plastic, aluminium measuring cable: stainless steel
<b>Protection class</b>	IP50
<b>Connection</b>	Cable output radial, length approx. 3 m
<b>Temperature range</b>	0 ... +60 °C, max. 85 % RH, non condensing
<b>Weight</b>	Approx. 95 g
<b>Pull-out force</b>	1.7 N
<b>EMC</b>	EN 61326-1:2013

Order code

WS31 – 1 – 2 – 3 – 4

**1 Measurement range (in mm)**

500

**2 Resolution**

10 = 10 pulses / mm

**3 Output**

IE24LI = Incremental encoder TTL compatible

IE24HI = Incremental encoder HTL compatible

**4 Mounting**

1 = Mounting brackets

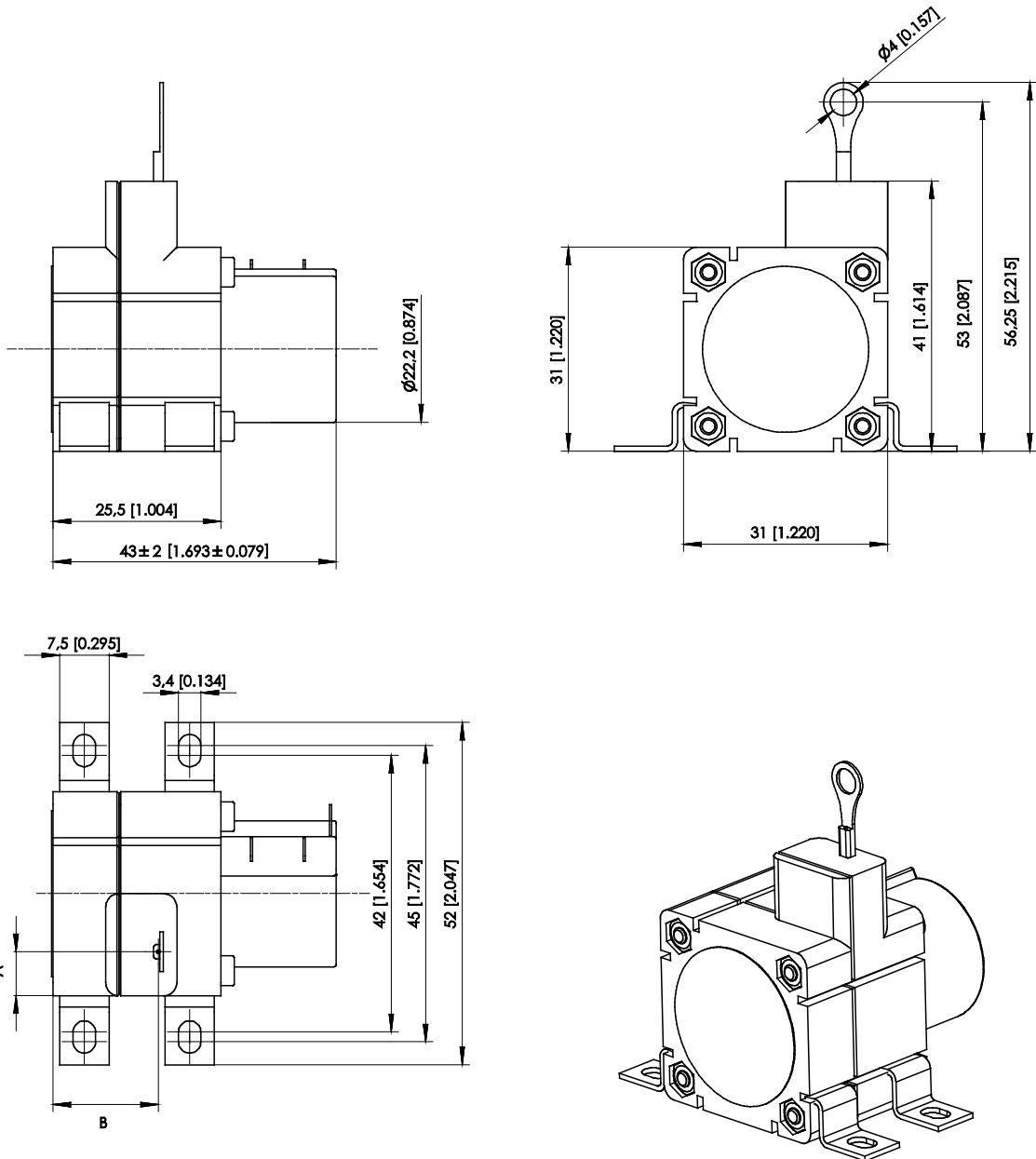
2 = Spacer nuts

Order example

WS31 – 500 – 10 – IE24HI – 1

## Dimensions

Measurement range 250/500/750 mm, R1K, mounting brackets

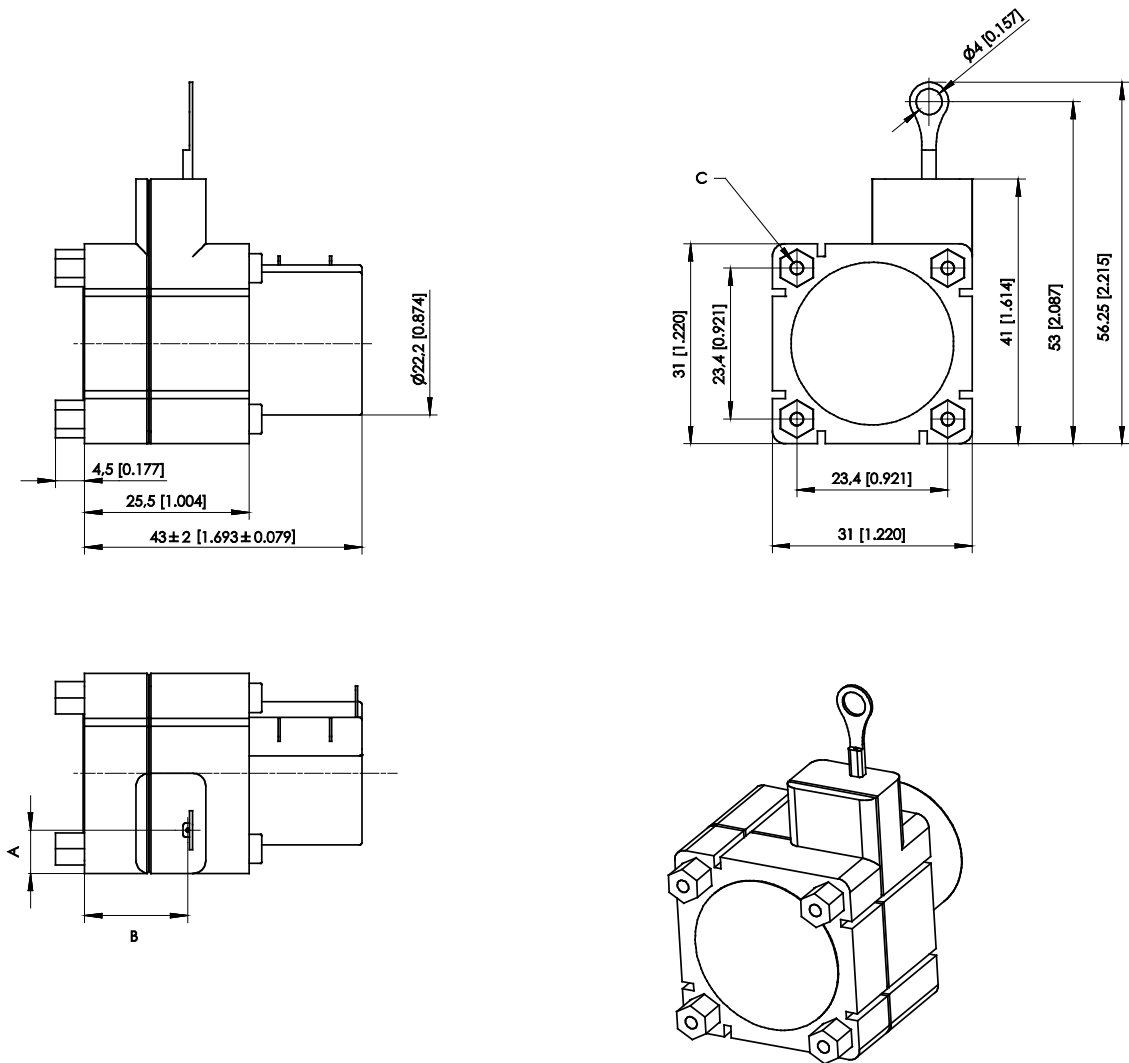


Dimensions in mm	Measurement range	A	B
	250; 500	6.7	16
	750	3.2	15.5

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



Measurement range 250/500/750 mm, R1K, spacer nuts

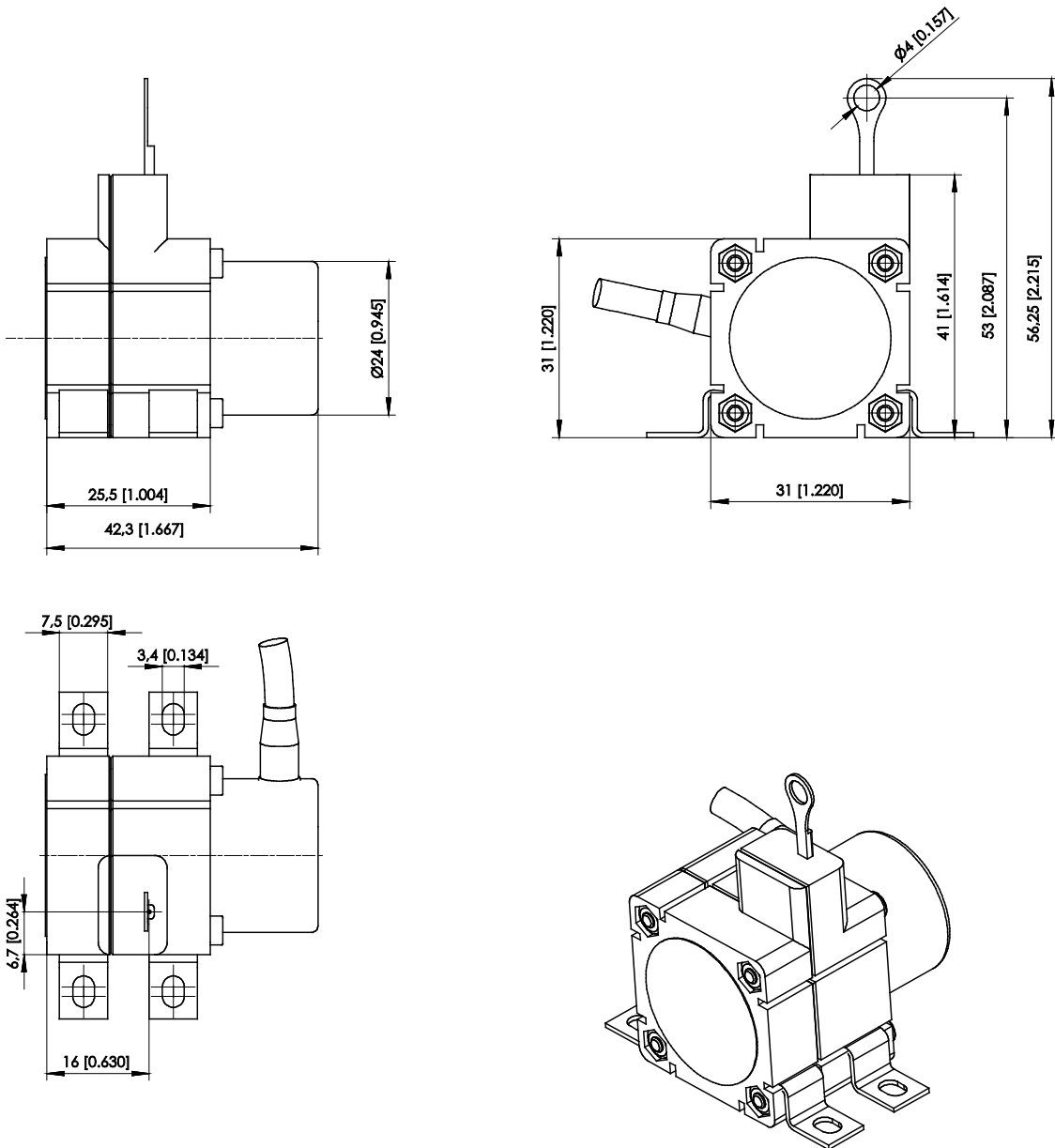


Dimensions in mm	Measurement range	A	B
	250; 500	6.7	16
	750	3.2	15.5

C – M2,5 – 4 [.157] deep

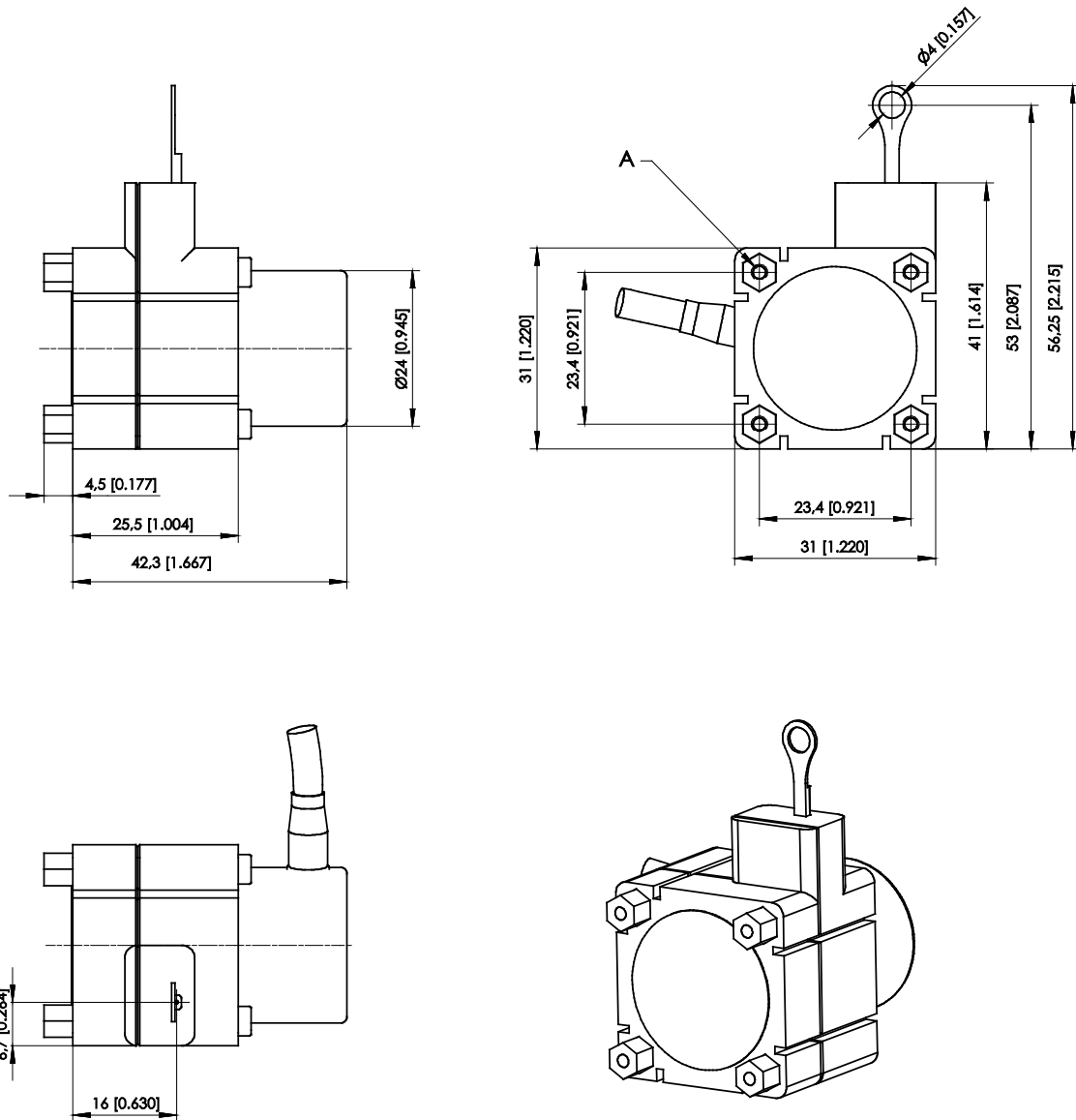
Dimensions in mm [inch].  
 Dimensions informative only.  
 For guaranteed dimensions consult factory.

Measurement range 500 mm, IE24, mounting brackets



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

Measurement range 500 mm, IE24, spacer nuts

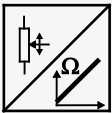


A - M2,5 – 4 [.157] deep  
 Dimensions in mm [inch]  
 Dimensions informative only.  
 For guaranteed dimensions consult factory.

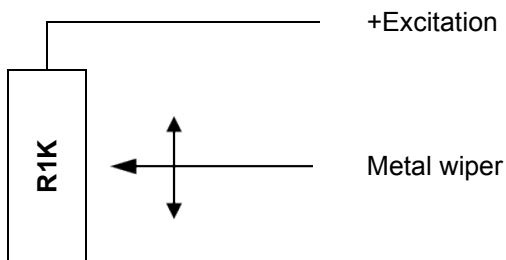
## Output specifications

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

#### Output signals



**Note:**

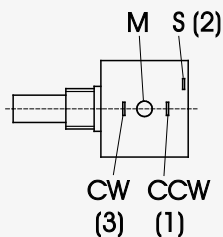
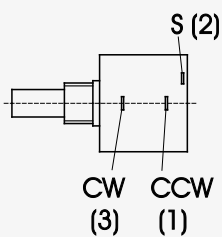
**The metal wiper of the potentiometer must be protected against current load!**

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

#### Signal wiring potentiometer WS31 / WS42

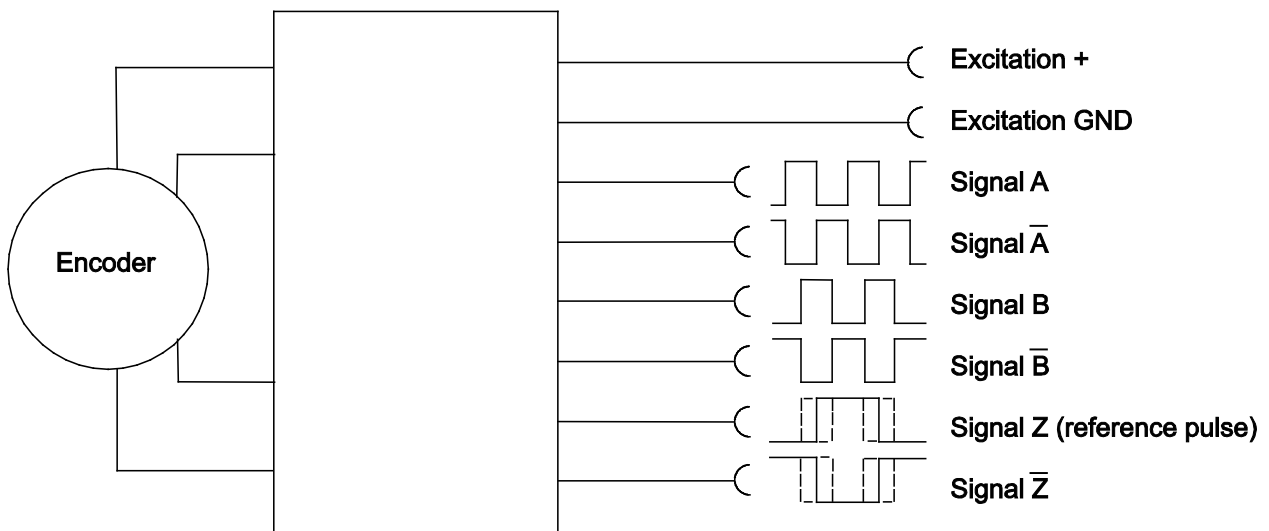
Signal	CT-Poti / 5-Turn WS31: 250 mm	Multi-Turn-Poti / 10-Turn WS31, WS42: 500 / 750 / 1000 mm
		
Poti +	M	CCW
Poti GND	CW	CW
Poti slider	S	S

## Incremental outputs

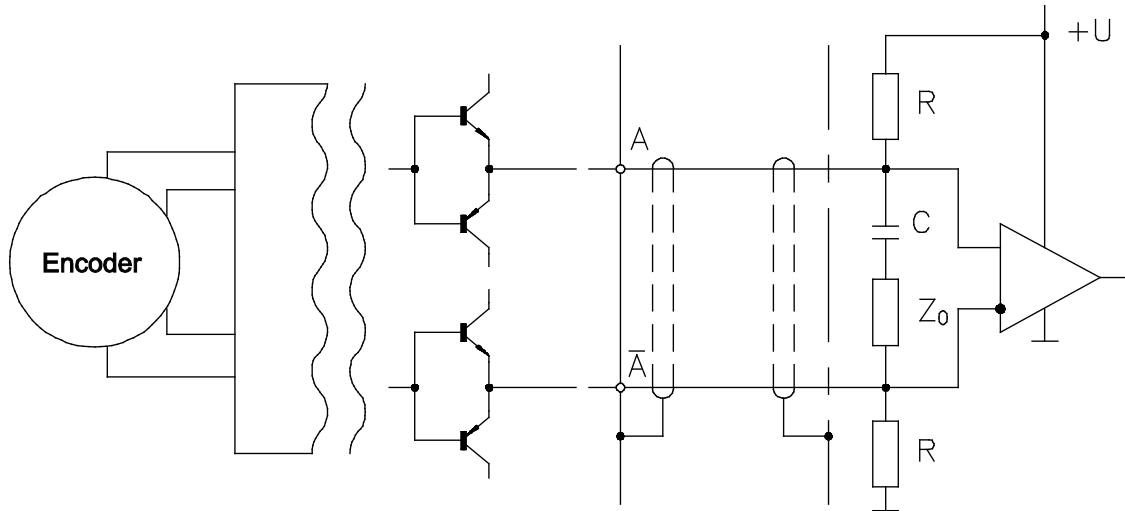
### Signal conditioner IE24LI and IE24HI

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 <sup>-6</sup> / °C f.s. (sensor mechanism)	
	Operating temperature	Refer to output specification of the sensor	
	Protection	Short circuit	
	EMC	EN 61326-1:2013	

### Output signals



Recommended processing circuit



Signal wiring

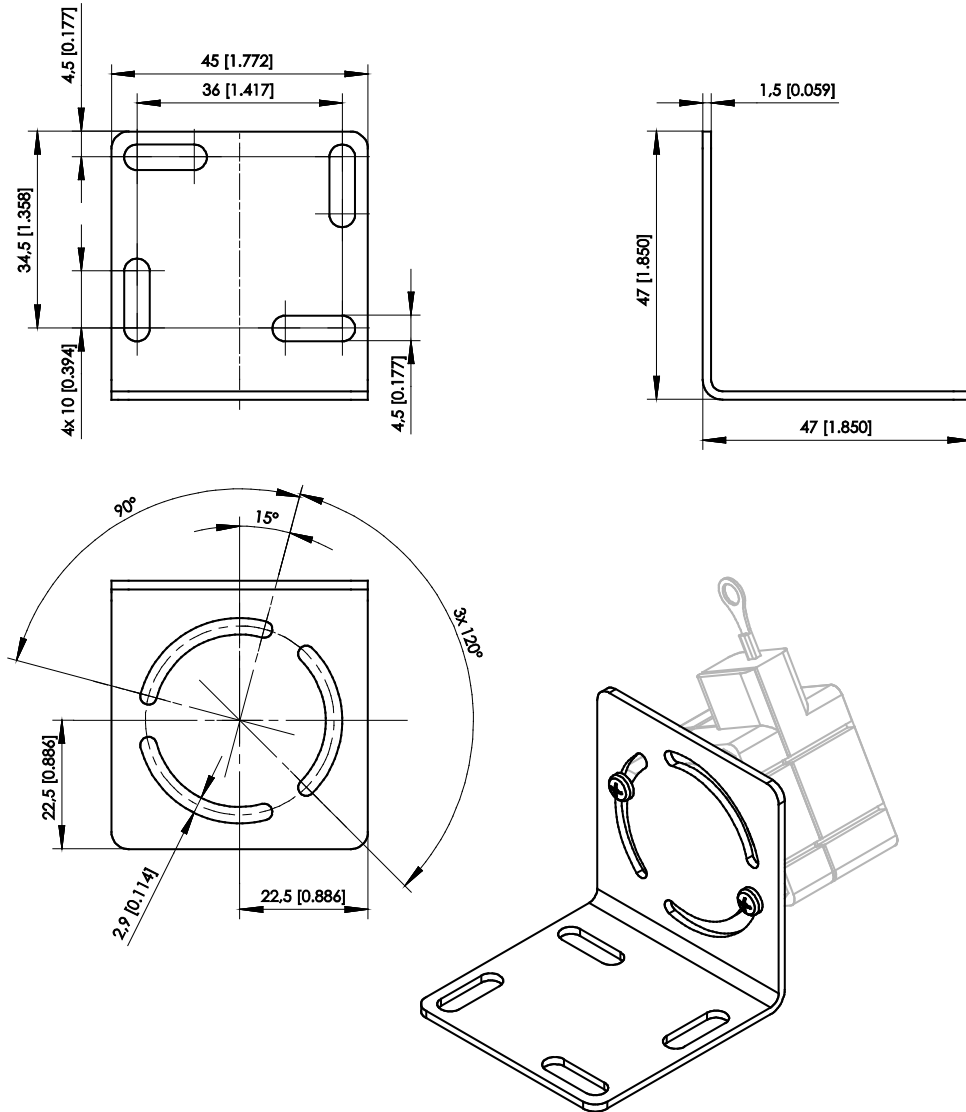
Signal	Cable color
Excitation +	brown
Excitation GND	white
Signal A	green
Signal $\bar{A}$	yellow
Signal B (A + 90°)	grey
Signal $\bar{B}$	pink
Signal Z (reference pulse)	blue
Signal $\bar{Z}$	red

## Accessories

### Mounting bracket WS31 / WS31C

(only for sensors with spacer nuts)

Order code **WS31-BFW1**





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# POSIWIRE®

Cable Extension Position Sensors

**WS42**

**Compact OEM sensor for large order volumes**

**Datasheet**





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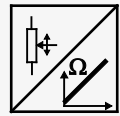
<b>Analog output</b> .....	<b>4</b>
Specifications .....	4
Order code .....	5
<b>Incremental encoder output</b> .....	<b>6</b>
Specifications .....	6
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Measurement range 750/1000 mm, R1K, mounting brackets .....	8
Measurement range 750/1000 mm, R1K, spacer nuts .....	9
Measurement range 1000 mm, IE24, mounting brackets .....	10
Measurement range 1000 mm, IE24, spacer nuts.....	11
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<b>Analog outputs</b> .....	<b>12</b>
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Signal conditioner IE24LI and IE24HI .....	13
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Mounting bracket WS42 / WS42C .....	15

## Analog output



### Compact OEM sensor for large order volumes

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



### Specifications

<b>Output</b>	<b>R1K</b> = Potentiometer 1 KΩ
<b>Resolution</b>	Analog: quasi infinite
<b>Linearity</b>	±0.35% f.s., other values on request
<b>Sensing device</b>	Precision potentiometer
<b>Housing material</b>	Plastic, aluminium measuring cable: stainless steel
<b>Protection class</b>	IP50
<b>Connection</b>	Potentiometer (soldering eye)
<b>Temperature range</b>	-15 ... +60 °C, max. 85 % RH, non condensing
<b>Weight</b>	Approx. 130 g
<b>Pull-out force</b>	750 mm: 2.5 N 1000 mm: 1.7 N
<b>EMC</b>	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

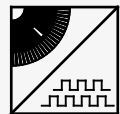
WS42 – 1000 – R1K – L35 – 1

## Incremental encoder output



### Compact OEM sensor for large order volumes

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



### Specifications

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

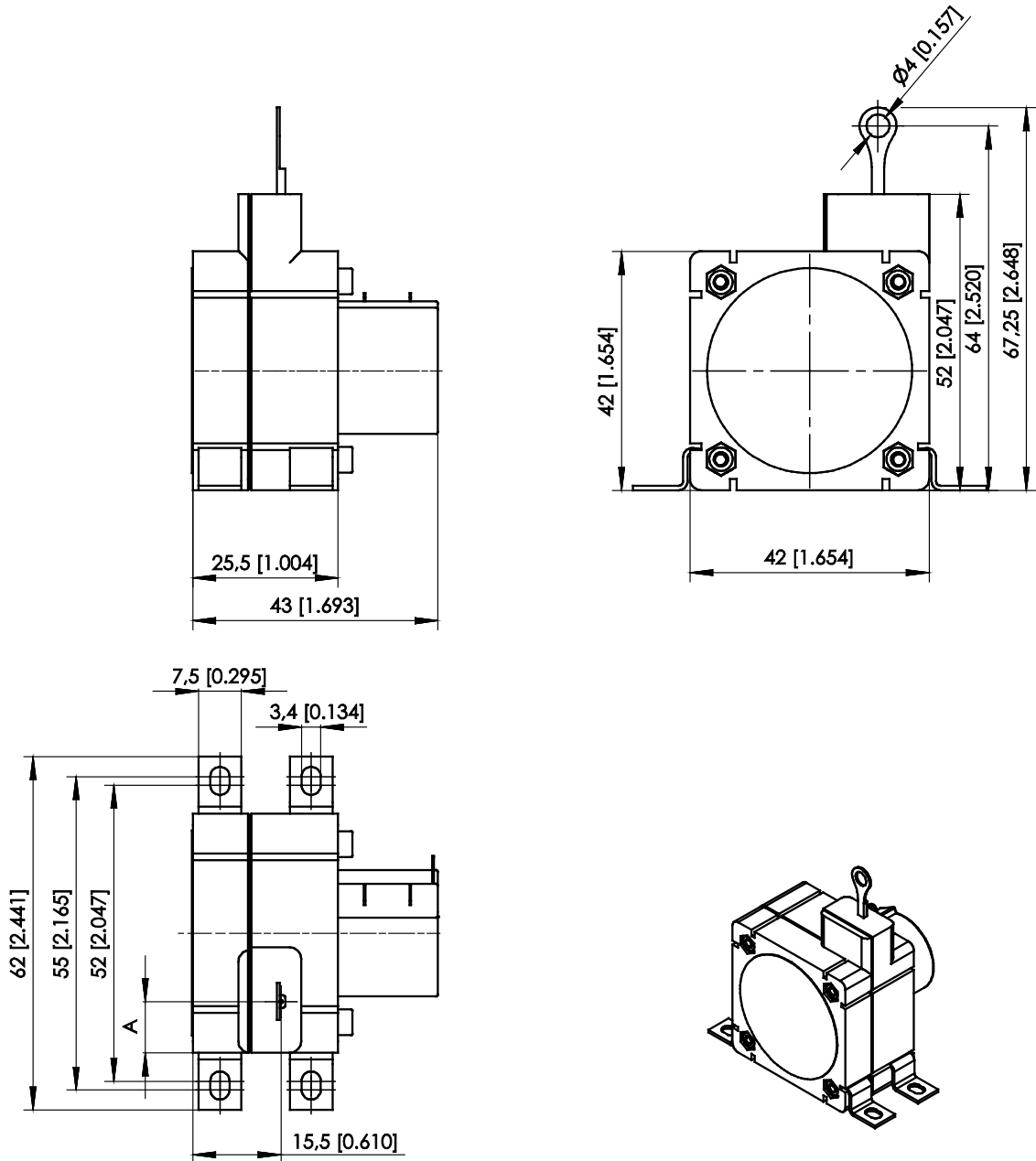
2 = Spacer nuts

Order example

WS42 – 1000 – 6 – IE24HI – 1

## Dimensions

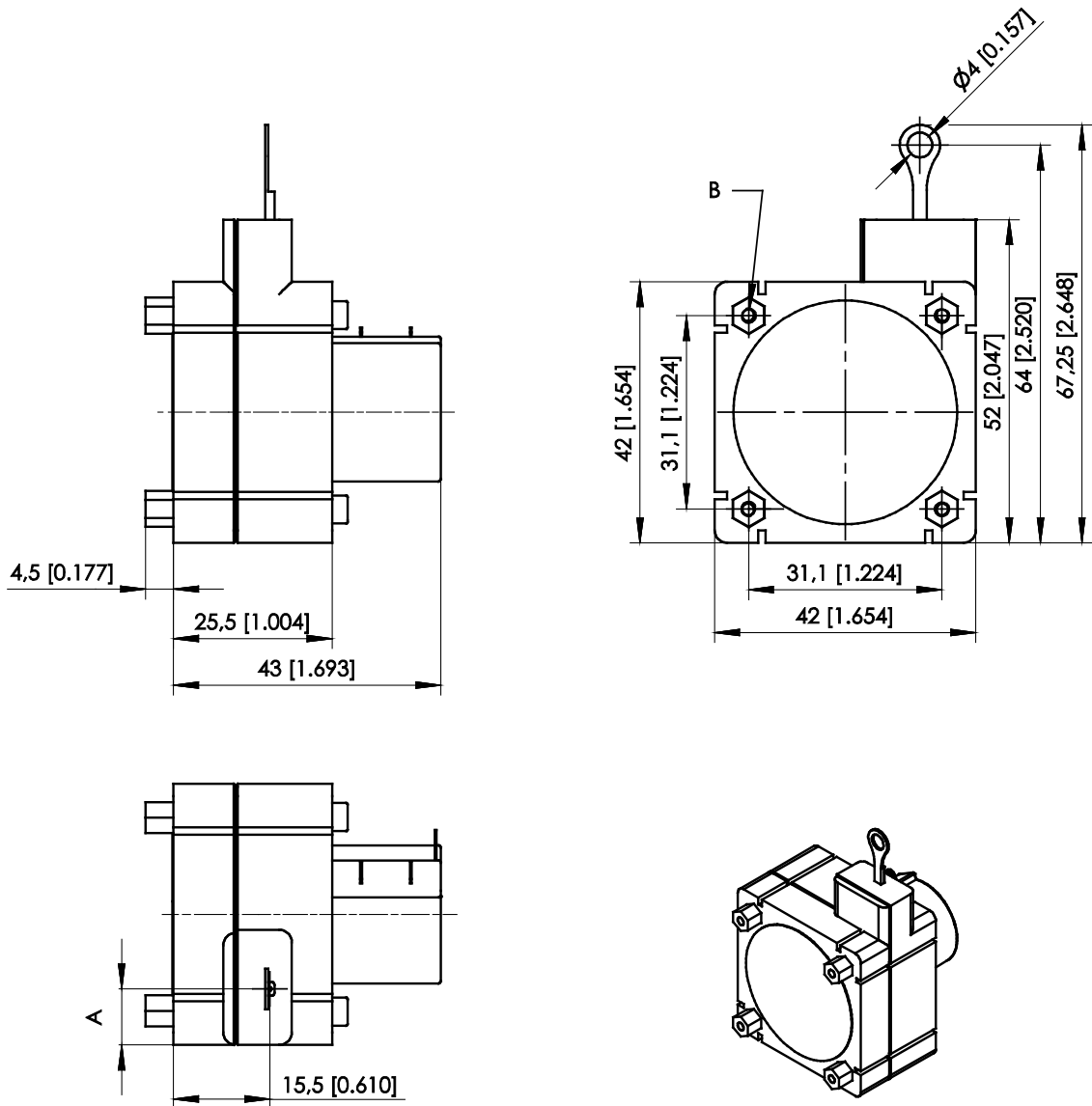
Measurement range 750/1000 mm, R1K, mounting brackets



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

Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

Measurement range 750/1000 mm, R1K, spacer nuts



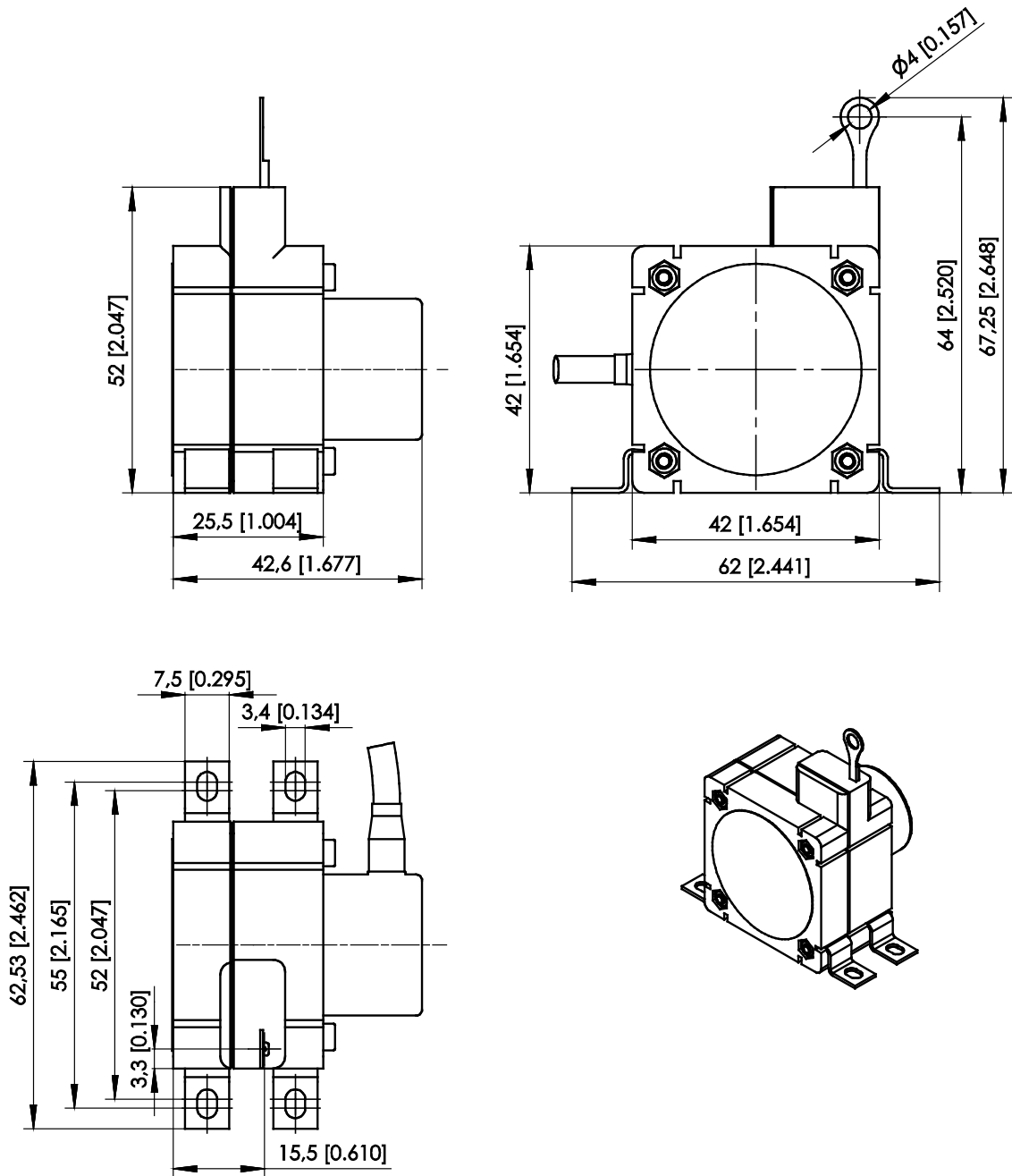
Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

B – M2,5 – 4.5 [.177] deep

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

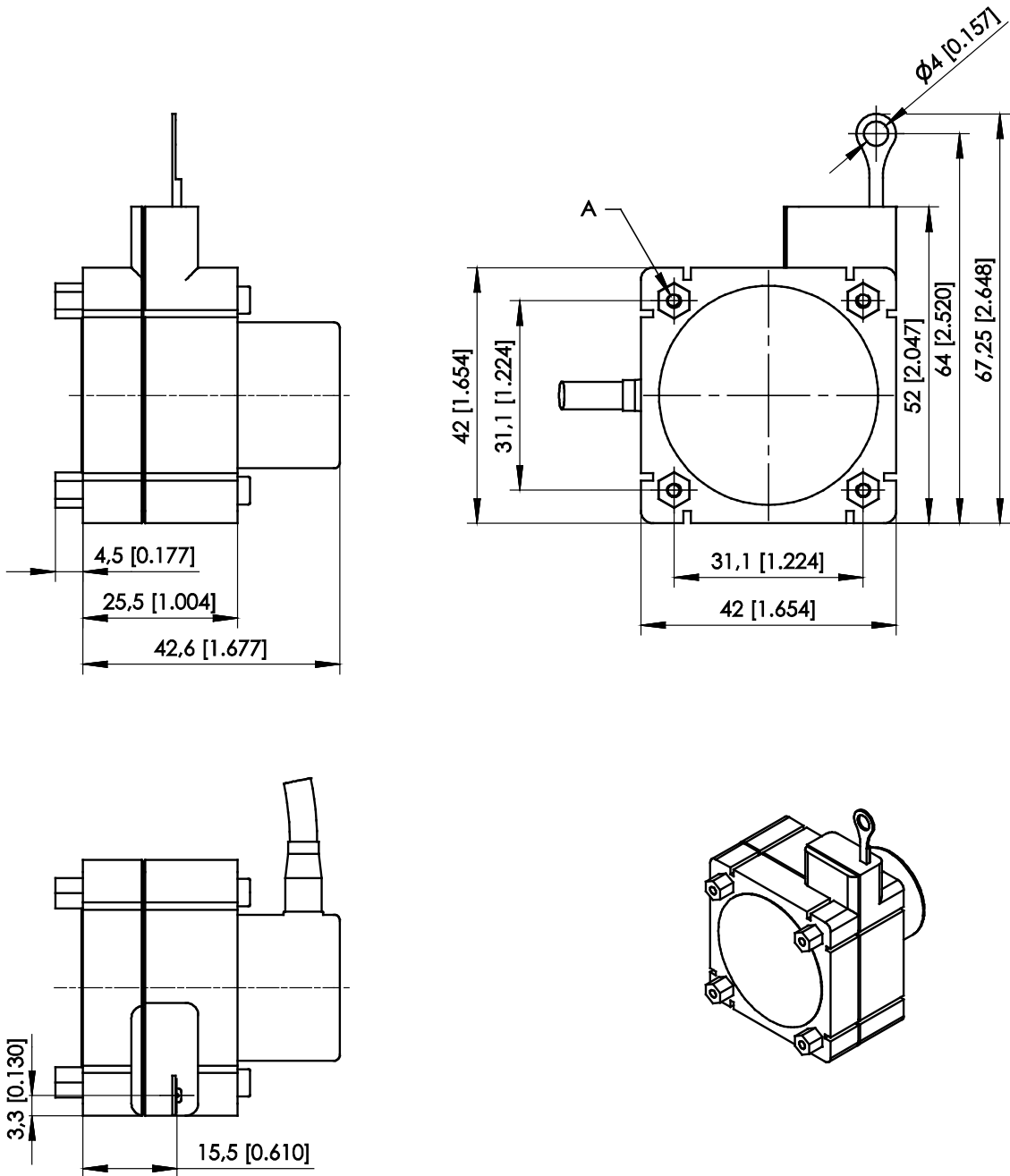


Measurement range 1000 mm, IE24, mounting brackets



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

Measurement range 1000 mm, IE24, spacer nuts



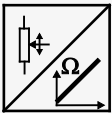
A – M2,5 – 4 [.157] deep

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

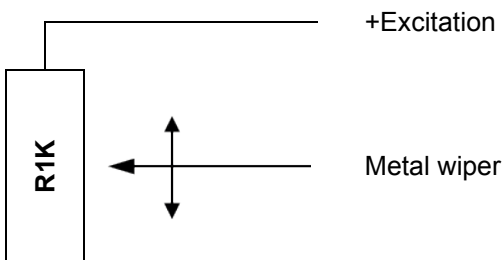
## Output specifications

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

#### Output signals



**Note:**

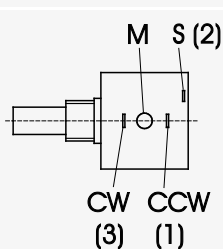
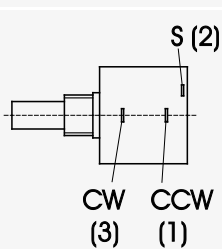
**The metal wiper of the potentiometer must be protected against current load!**

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

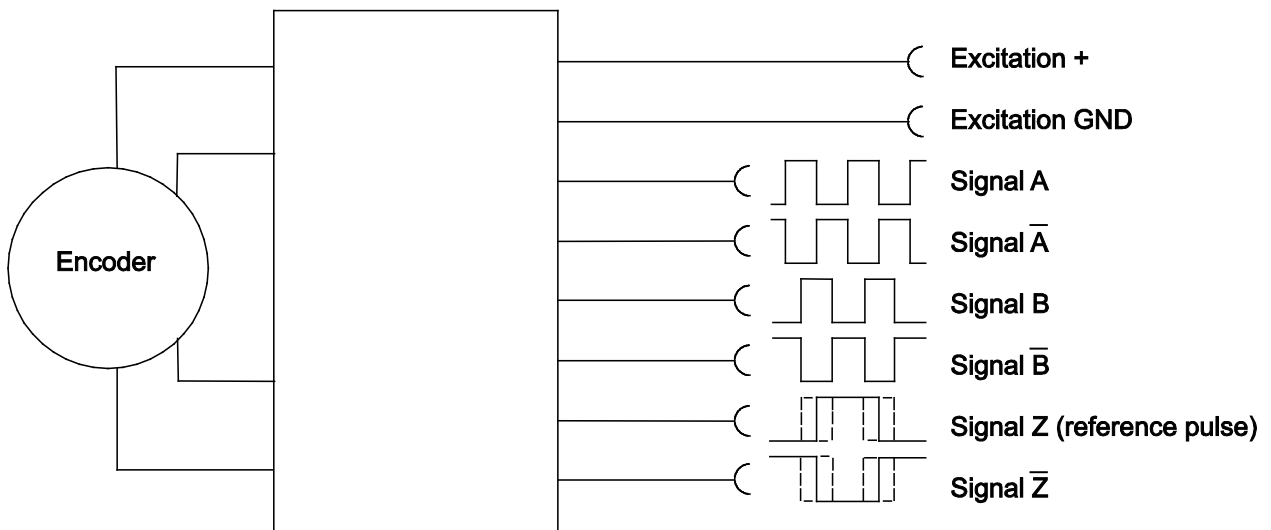
#### Signal wiring potentiometer WS31 / WS42

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

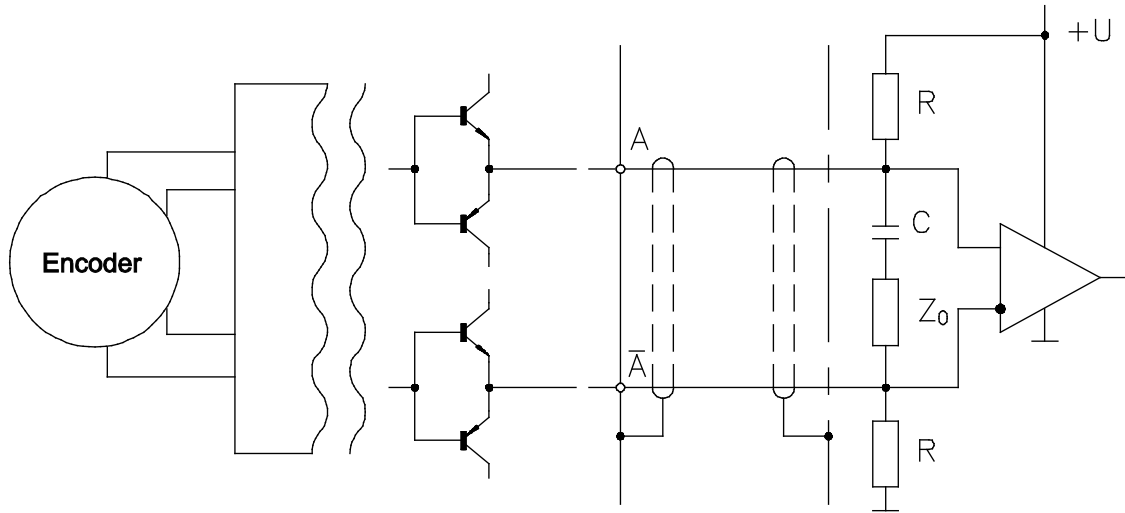
**Signal conditioner IE24LI and IE24HI**

Incremental	IE24LI		IE24HI
		Excitation voltage	5 V DC ±10 %
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 <sup>-6</sup> / °C f.s. (sensor mechanism)	
Operating temperature		Refer to output specification of the sensor	
Protection		Short circuit	
EMC		EN 61326-1:2013	

**Output signals**



Recommended processing circuit



Signal wiring

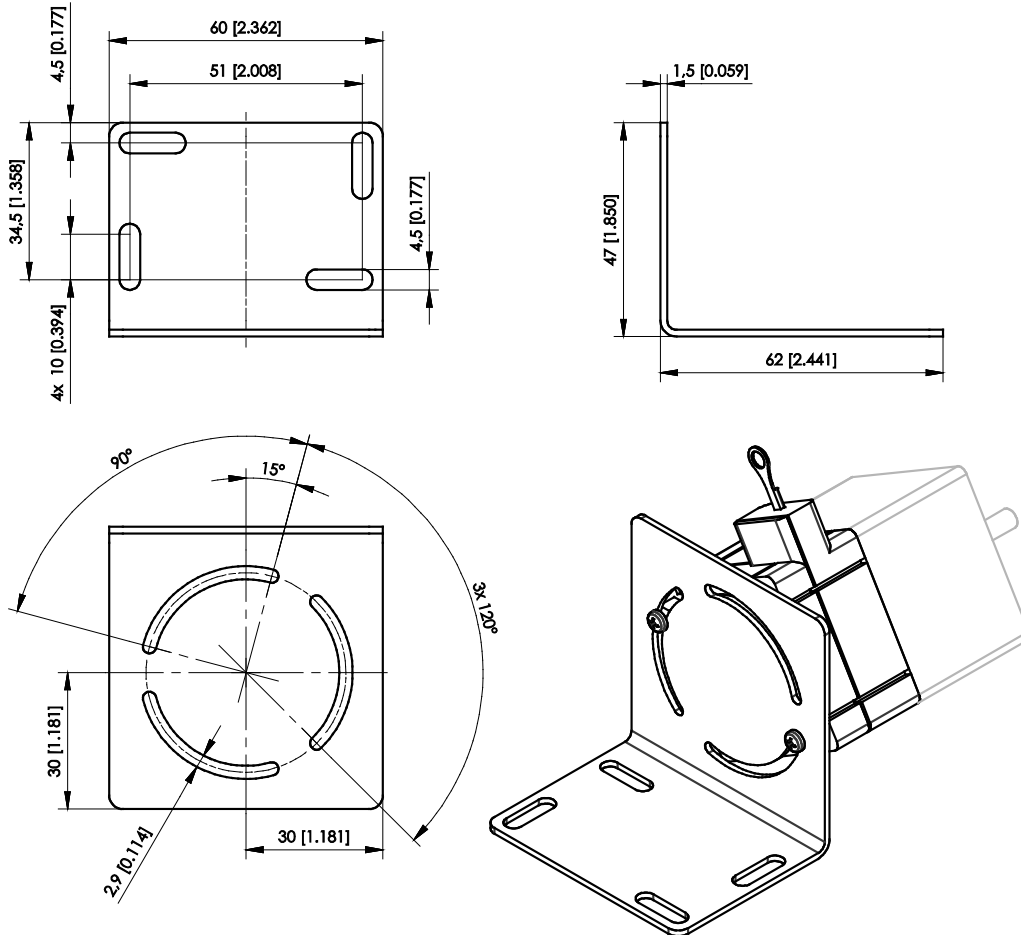
Signal	Cable color
Excitation +	brown
Excitation GND	white
Signal A	green
Signal $\bar{A}$	yellow
Signal B (A + 90°)	grey
Signal $\bar{B}$	pink
Signal Z (reference pulse)	blue
Signal $\bar{Z}$	red

## Accessories

### Mounting bracket WS42 / WS42C

(only for sensors with spacer nuts)

Order code **WS42-BFW1**





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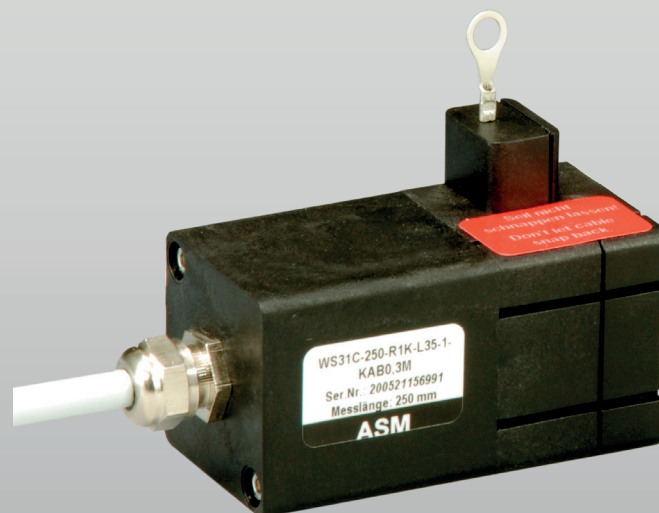
# POSIWIRE®

Cable Extension Position Sensors

**WS31C**

**Compact OEM sensor for large order volumes**

[Datasheet](#)



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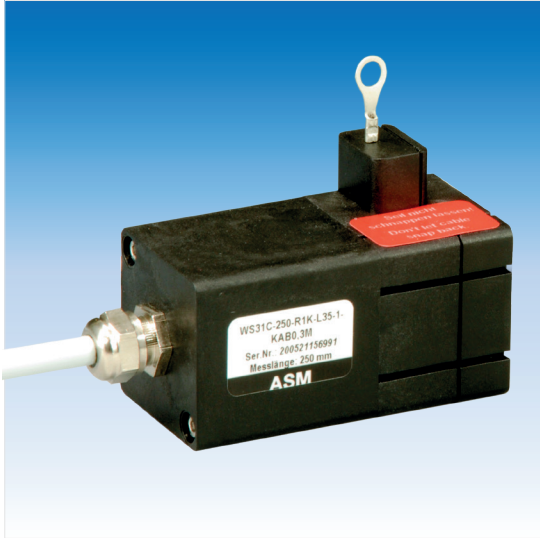
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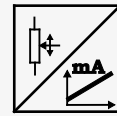
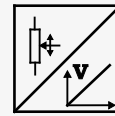
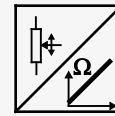
<b>Analog output</b> .....	<b>4</b>
Specifications .....	4
Order code .....	5
<b>Dimensions</b> .....	<b>6</b>
Measurement range 250/500/750 mm, R1K, 10V5, 420A, mounting brackets .....	6
Measurement range 250/500/750 mm, R1K, 10V5, 420A, spacer nuts .....	7
<b>Output specifications</b> .....	<b>8</b>
<b>Analog outputs</b> .....	<b>8</b>
Voltage divider R1K .....	8
Signal conditioner 10V and 10V5.....	9
Signal conditioner 420A .....	10
<b>Accessories</b> .....	<b>11</b>
Connector cable M8, 4 pin .....	11
Connector cable M8, 4 pin .....	11
Mounting bracket WS31 / WS31C .....	12

## Analog output



### Compact OEM sensor for large order volumes

- Measurement range up to 750 mm
- Protection class IP50
- Mounting selectable between mounting brackets or spacer nuts
- Analog output



## Specifications

<b>Output</b>	<b>R1K</b> <b>10V</b> <b>420A</b>	= Potentiometer 1 kΩ = Voltage 0 ... 10 V = Current 4 ... 20 mA, 2 wire
<b>Resolution</b>	Analog: quasi infinite	
<b>Linearity</b>	±0.35% f.s., other values on request	
<b>Sensing device</b>	Precision potentiometer	
<b>Housing material</b>	Plastic, aluminium measuring cable: stainless steel	
<b>Protection class</b>	IP50	
<b>Connection</b>	Cable output, standard length 2 m Connector M8, 4-pin (only for output R1K)	
<b>Temperature range</b>	-15 ... +60 °C, max. 85 % RH, non condensing	
<b>Weight</b>	Approx. 90 g	
<b>Pull-out force</b>	250 mm: 500 mm: 750 mm:	1.5 N 1.7 N 1.2 N
<b>EMC</b>	EN 61326-1:2013	

Order code

WS31C – 1 – 2 – 3 – 4 – 5

**1 Measurement range (in mm)**

250 / 500 / 750

**2 Output**

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

**3 Linearity**

**L35** = ±0.35%

**4 Sensor mounting**

**1** = Mounting brackets  
**2** = Spacer nuts

**5 Connection**

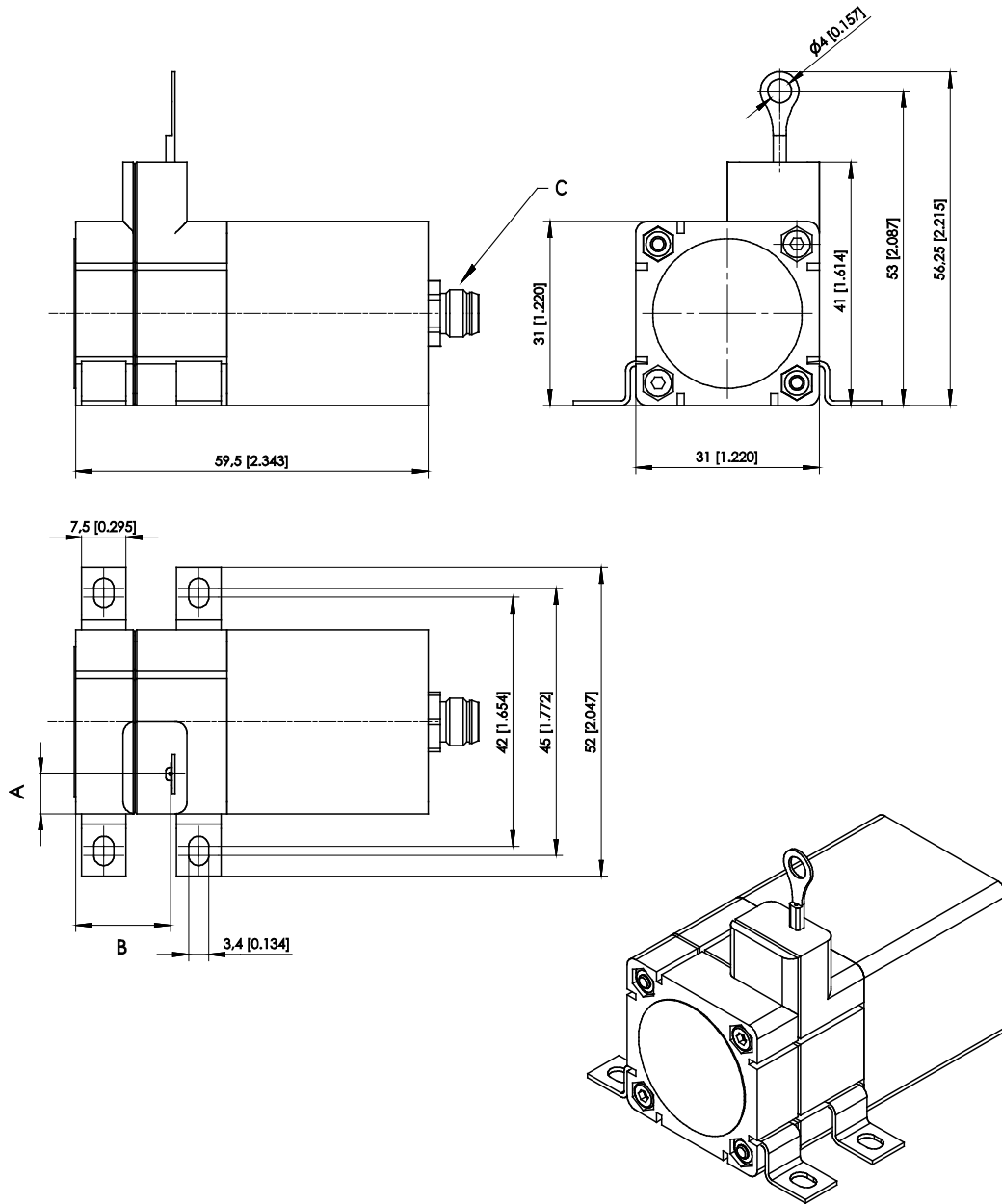
**KAB2M** = Cable output, standard length 2 m  
**M8** = Connector M8, 4 pin (only for output R1K)

Order example

WS31C – 250 – 420A – L35 – 1 – KAB2M

## Dimensions

Measurement range 250/500/750 mm, R1K, 10V5, 420A, mounting brackets

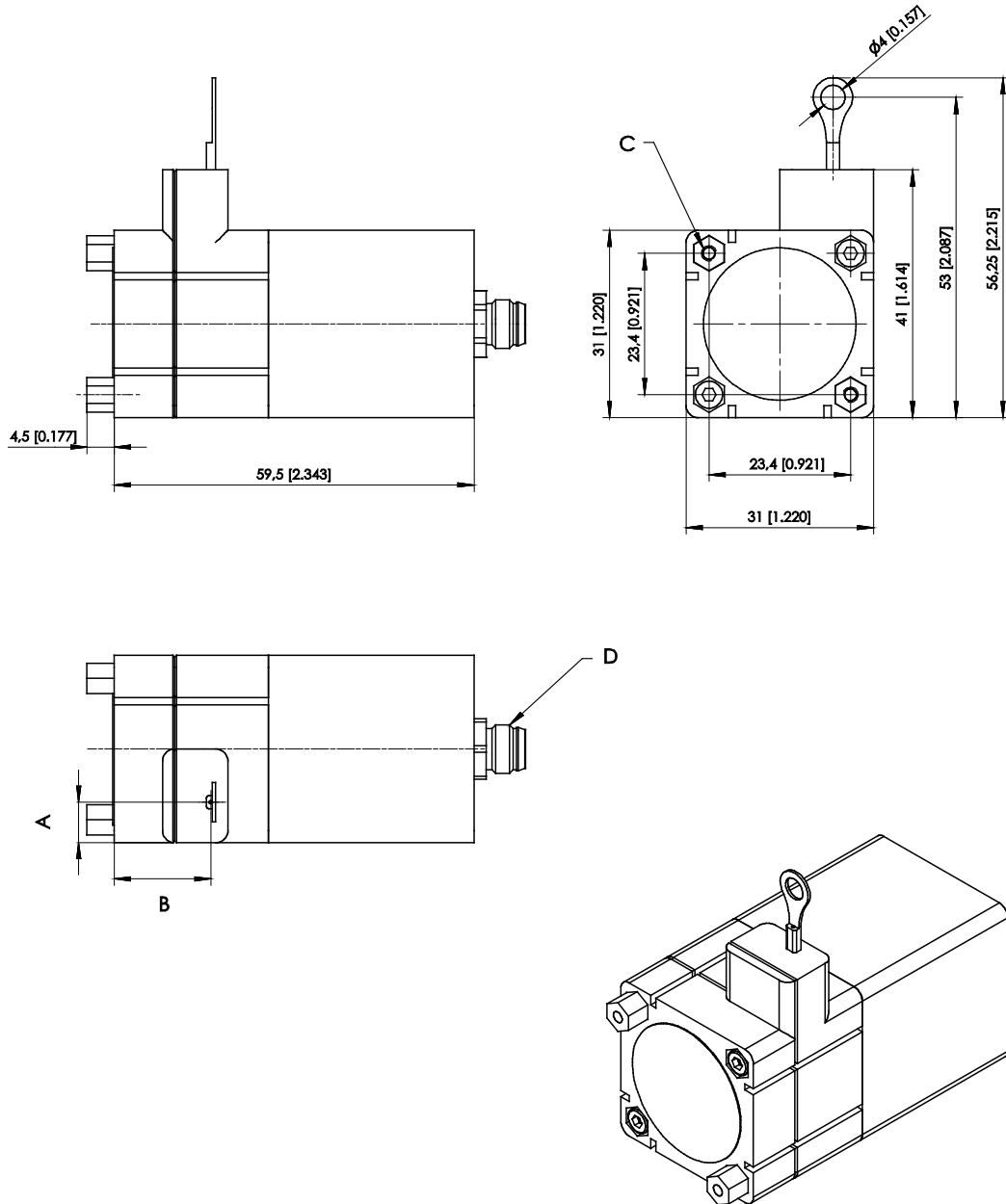


Dimensions in mm	Measurement range	A	B
	250; 500	6.7	16
	750	3.2	15.5

C – Connector M8

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

Measurement range 250/500/750 mm, R1K, 10V5, 420A, spacer nuts



Dimensions in mm	Measurement range	A	B
	250; 500	6.7	16
750	3.2	15.5	

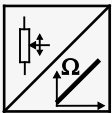
C – M2,5 – 4 [.157] deep  
 D – Connector M8

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

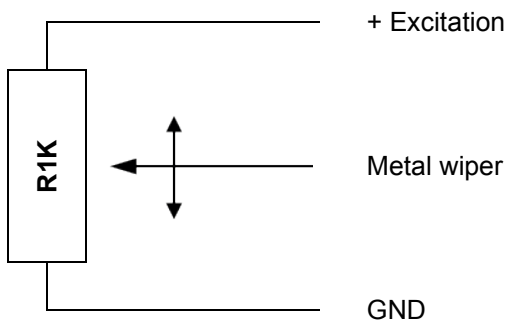
## Output specifications

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

#### Output signals



**Note:**

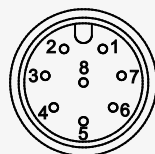
**The metal wiper of the potentiometer must be protected against current load!**

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

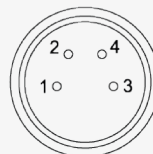
#### Signal wiring

Signal	Connector pin no.	Cable color [WH, BN, GN, YE]	Cable color [BN, WH, BU, BK, GY]
Poti +	1	white	brown
Poti GND	2	brown	white
Poti slider	3	green	blue
-	4	yellow	black
-	5	-	grey
-	6, 7, 8	-	-

#### View to sensor connector

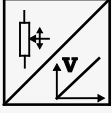


CONN-M12-8F

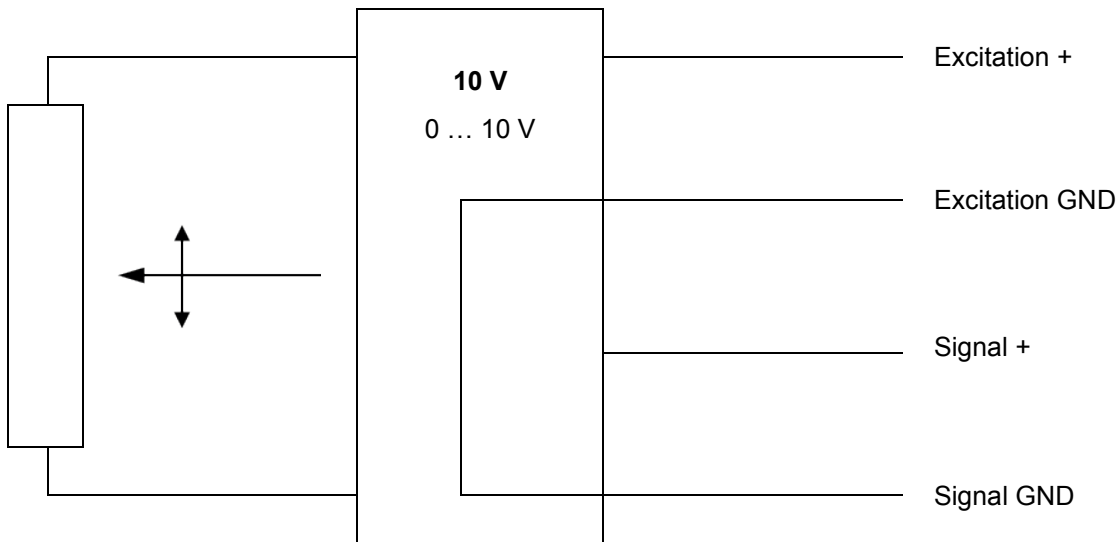


CONN-M8-4F  
(nur WS31C, WS42C)

**Signal conditioner 10V and 10V5**

Voltage output  	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	<b>10V:</b> 0 ... 10 V DC; <b>10V5:</b> 0.5 ... 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 mVRMS
	Operating temperature	Refer to output specification
	EMV	EN 61326-1:2013

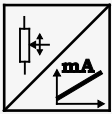
**Output signals**



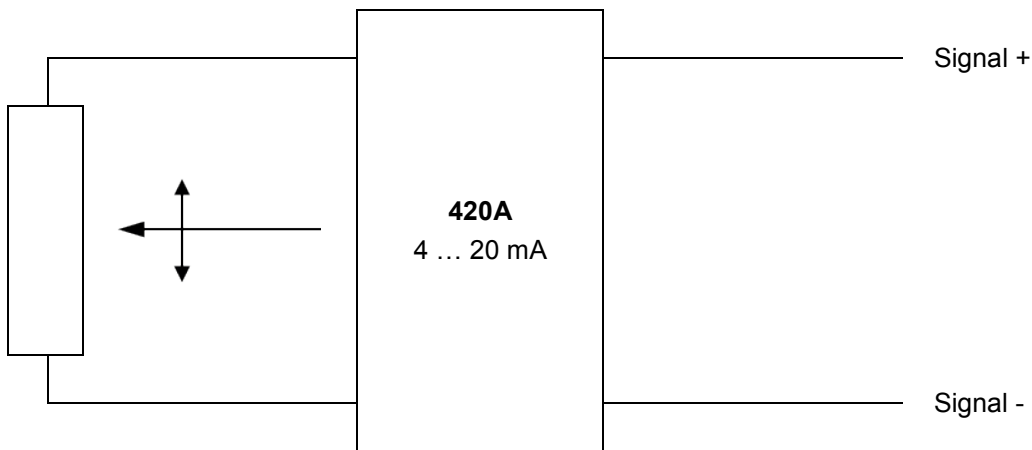
**Signal wiring**

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

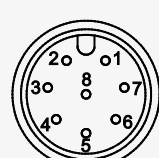
**Signal conditioner 420A**

Current output (2 wire)  	Excitation voltage	12 ... 27 V DC non stabilized, 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 <sub>eff</sub>
	Operating temperature	Refer to output specification
	EMC	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	-	
Not connected	4	-	
Not connected	5	-	
Not connected	6	-	
Not connected	7	-	
Not connected	8	-	

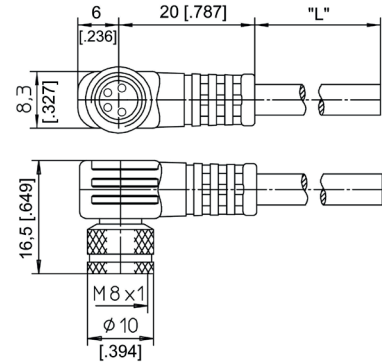


## Accessories

### Connector cable M8, 4 pin (angular coupling)

shielded

The 4-lead shielded cable is supplied with a mating 4-pin 90° M8 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire cross sectional area 0.14 mm<sup>2</sup>



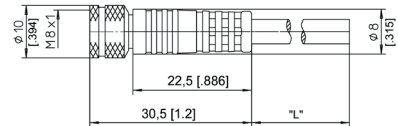
Order code:

	<b>KAB - xM – M8/4F/W - LITZE</b>
IP69:	<b>KAB - xM – M8/4F/W/69K - LITZE</b>
	xM = length in m

### Connector cable M8, 4 pin (straight coupling)

shielded

The 4-lead shielded cable is supplied with a mating 4-pin M8 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire cross sectional area 0.14 mm<sup>2</sup>



Order code:

	<b>KAB - xM – M8/4F/G - LITZE</b>
IP69:	<b>KAB - xM – M8/4F/G/69K - LITZE</b>
	xM = length in m

Signal wiring M8, 4 pin	Plug connection / Cable color			
	1	2	3	4
	brown	white	blue	black

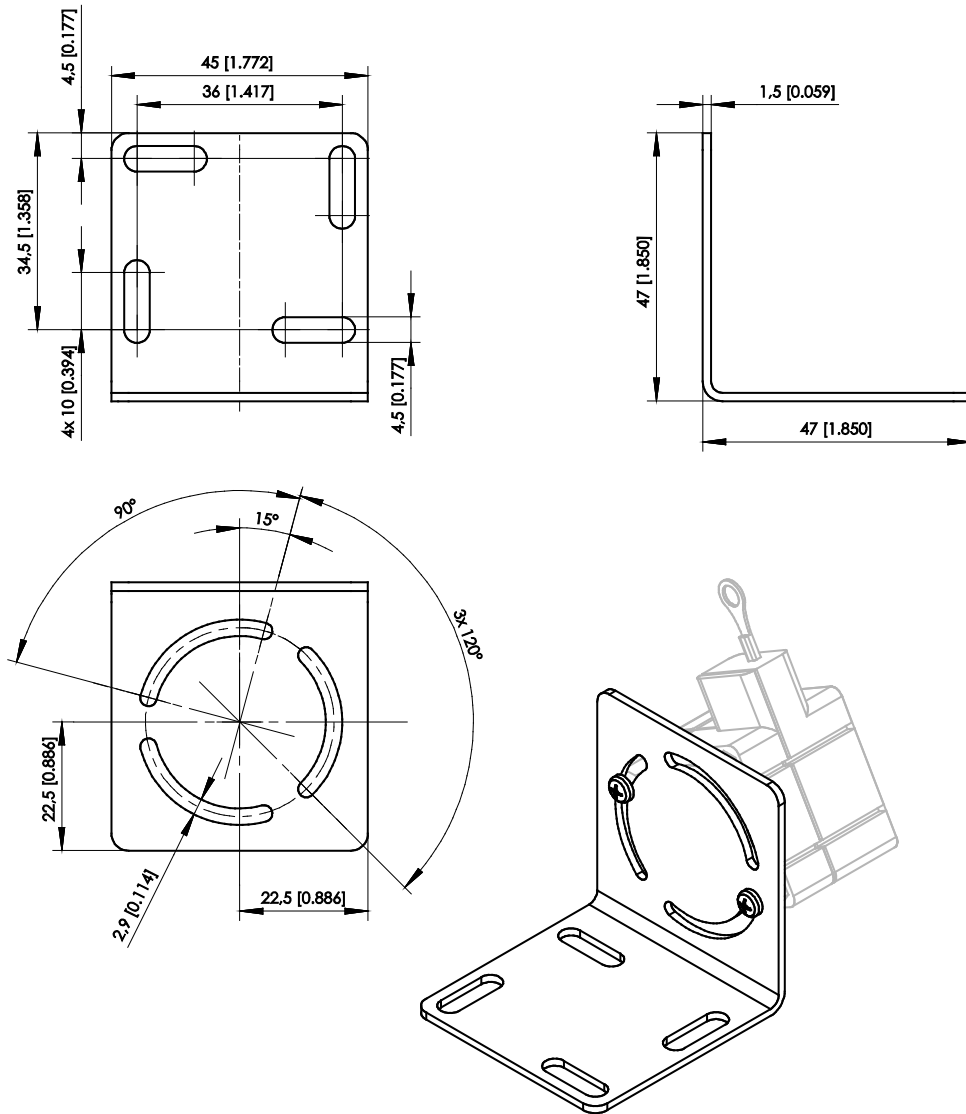
#### Applicable for cable carriers

Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter

**Mounting bracket WS31 / WS31C**

(only for sensors with spacer nuts)

Order code **WS31-BFW1**





perfect in sensors.

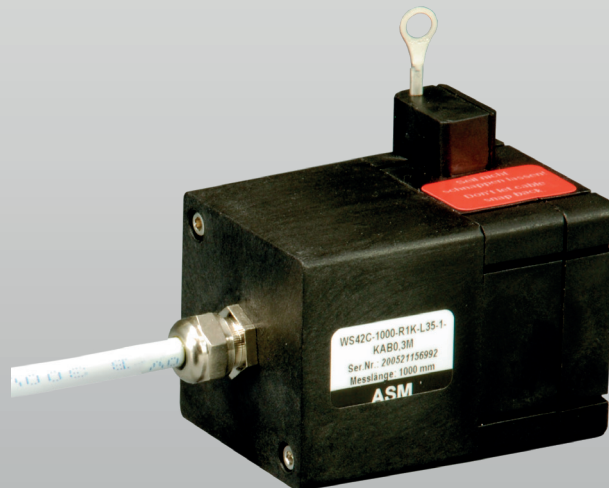
# POSIWIRE®

Cable Extension Position Sensors

**WS42C**

**Compact OEM sensor for large order volumes**

**Datasheet**



### **Copyright**

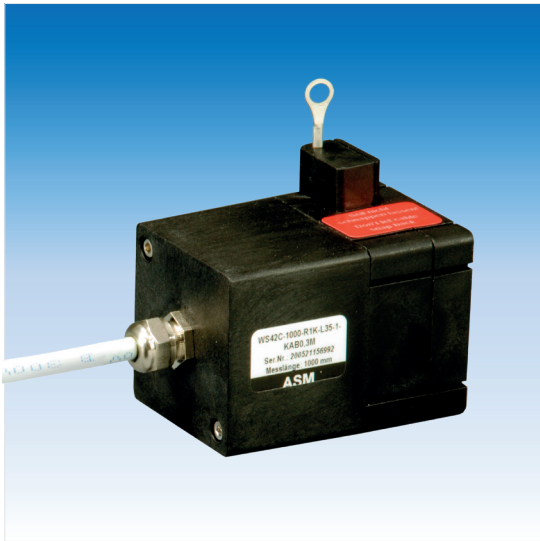
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ASM makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

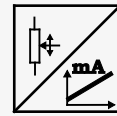
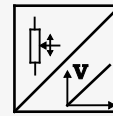
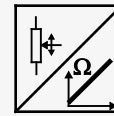
<b>Analog output .....</b>	<b>4</b>
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## Analog output



### Compact OEM sensor for large order volumes

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



## Specifications

<b>Output</b>	<b>R1K</b> = Potentiometer 1 kΩ <b>10V</b> = Voltage 0 ... 10 V <b>420A</b> = Current 4 ... 20 mA, 2 wire
<b>Resolution</b>	Analog: quasi infinite
<b>Linearity</b>	±0.35% f.s., other values on request
<b>Sensing device</b>	Precision potentiometer
<b>Housing material</b>	Plastic, aluminium measuring cable: stainless steel
<b>Protection class</b>	IP50
<b>Connection</b>	Cable output, standard length 2 m Connector M8, 4-pin (only for output R1K)
<b>Temperature range</b>	-15 ... +60 °C, max. 85 % RH, non condensing
<b>Weight</b>	Approx. 125 g
<b>Pull-out force</b>	750 mm: 2.5 N 1000 mm: 1.7 N
<b>EMC</b>	EN 61326-1:2013

Order code

WS42C – 1 – 2 – 3 – 4 – 5

**1 Measurement range (in mm)**

750 / 1000

**2 Output**

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

**3 Linearity**

**L35** = ±0.35%

**4 Sensor mounting**

**1** = Mounting brackets  
**2** = Spacer nuts

**5 Connection**

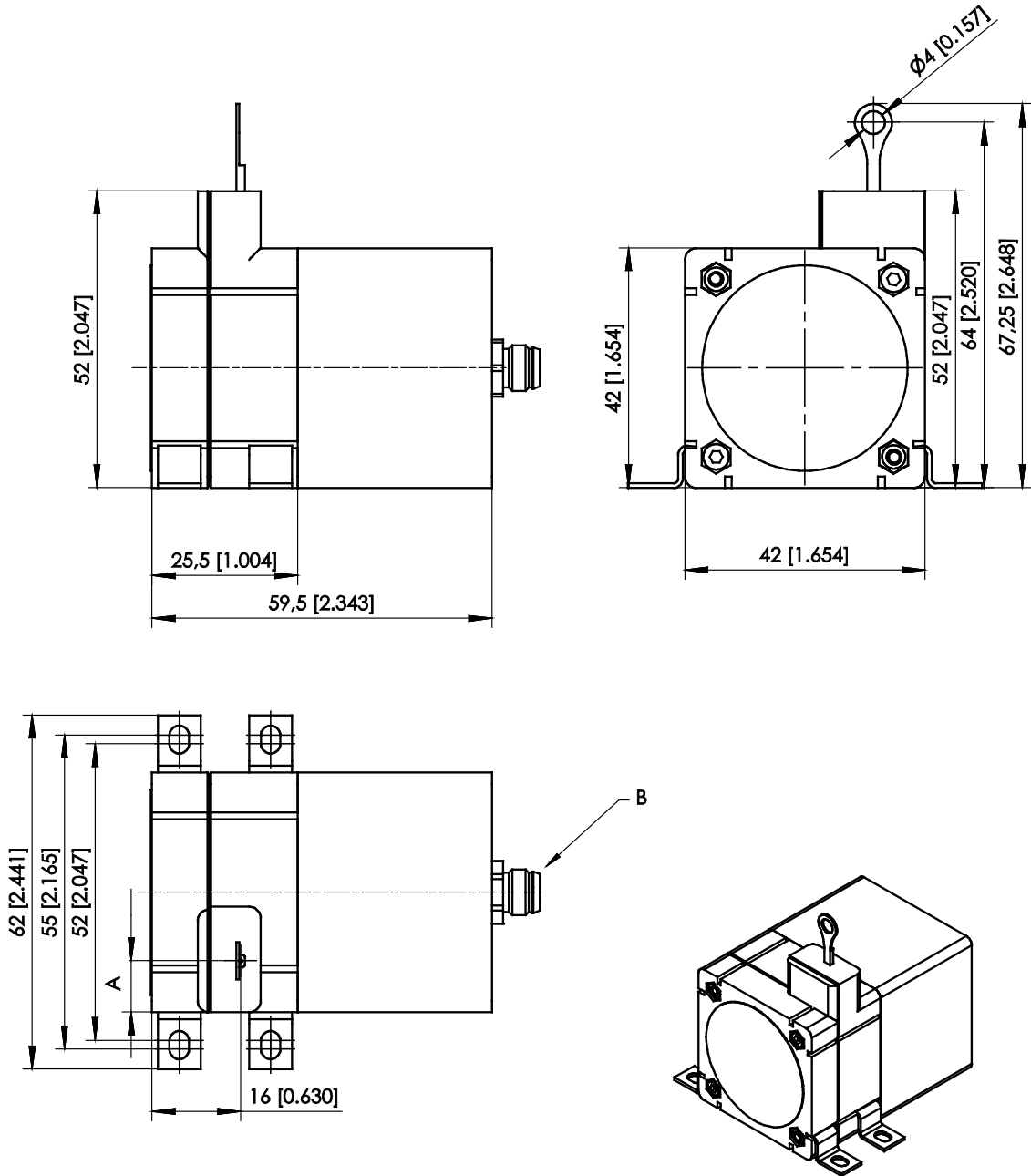
**KAB2M** = Cable output, standard length 2 m  
**M8** = Connector M8, 4 pin (only for output R1K)

Order example

WS42C – 750 – 420A – L35 – 1 – KAB2M

**Dimensions**

Measurement range 750/1000 mm, R1K, 10V5, 420A, mounting brackets



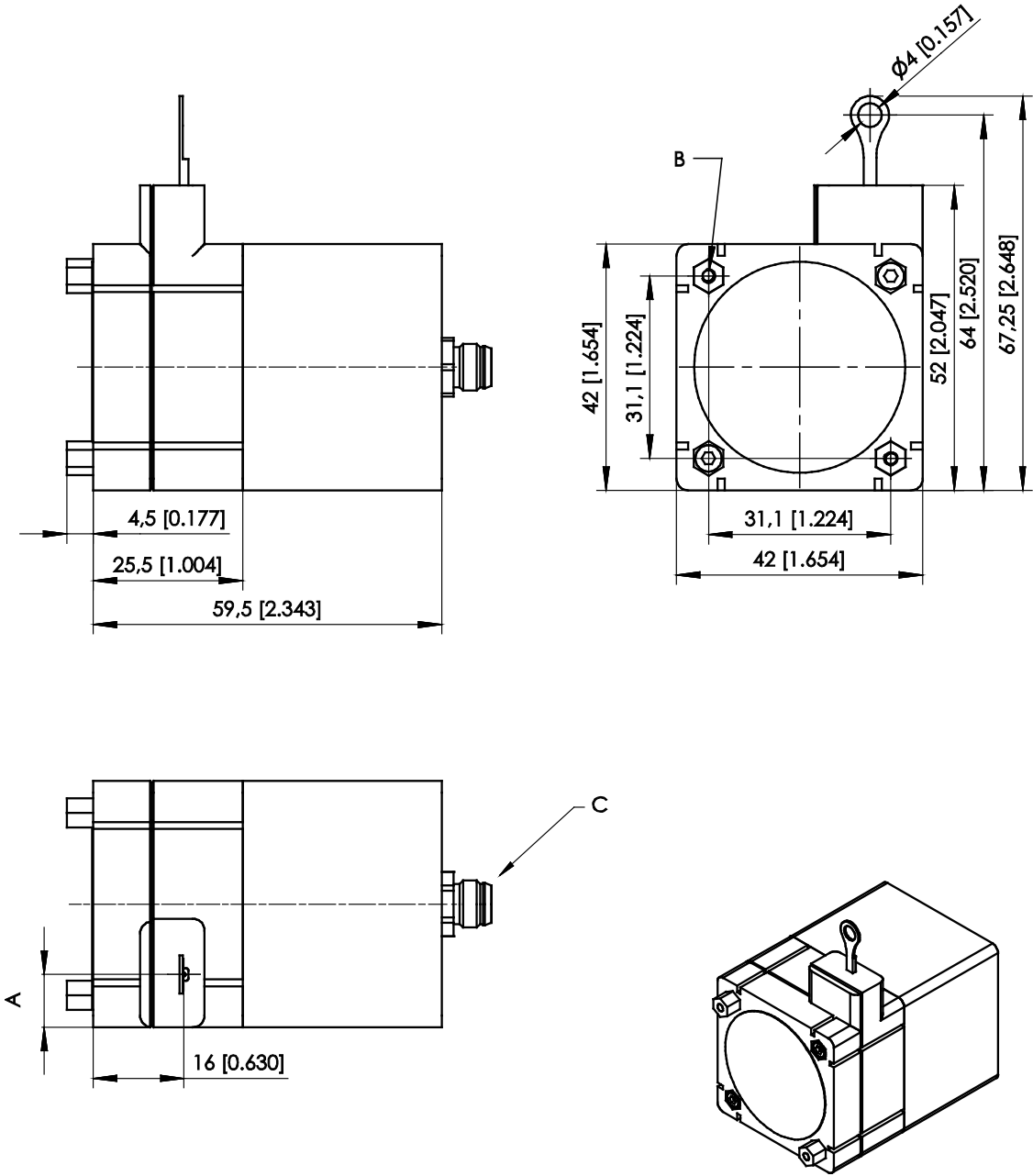
Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

B – Connector M8

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



Measurement range 750/1000 mm, R1K, 10V5, 420A, spacer nuts



Dimensions in mm	Measurement range	A
	750	9
	1000	3.3

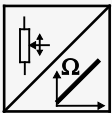
B – 2 x M2,5 – 4,5 [0.177] deep  
 C – Connector M8

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

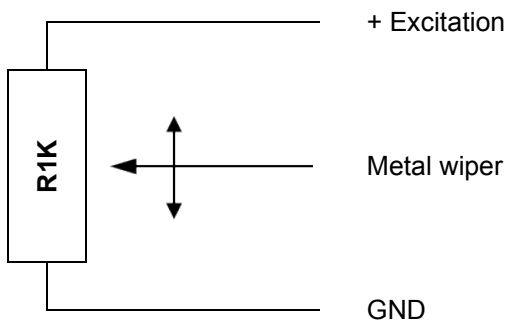
## Output specifications

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

#### Output signals



**Note:**

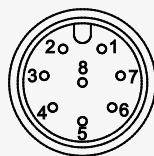
**The metal wiper of the potentiometer must be protected against current load!**

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

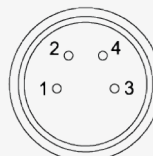
#### Signal wiring

Signal	Connector pin no.	Cable color [WH, BN, GN, YE]	Cable color [BN, WH, BU, BK, GY]
Poti +	1	white	brown
Poti GND	2	brown	white
Poti slider	3	green	blue
-	4	yellow	black
-	5	-	grey
-	6, 7, 8	-	-

#### View to sensor connector

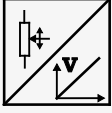


CONN-M12-8F

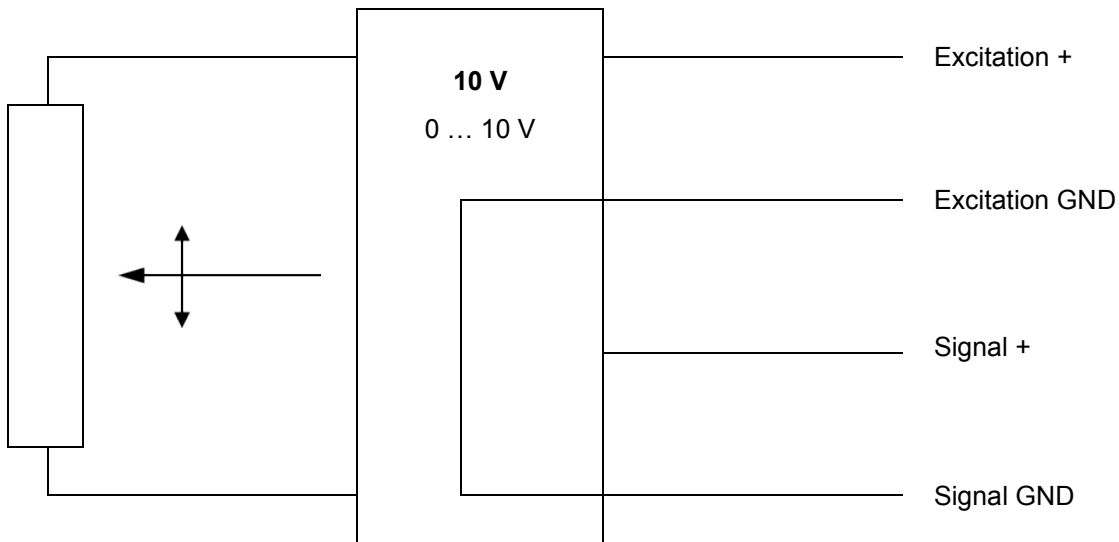


CONN-M8-4F  
(nur WS31C, WS42C)

**Signal conditioner 10V and 10V5**

Voltage output  	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	<b>10V:</b> 0 ... 10 V DC; <b>10V5:</b> 0.5 ... 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 mVRMS
	Operating temperature	Refer to output specification
	EMV	EN 61326-1:2013

**Output signals**

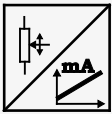


**Signal wiring**

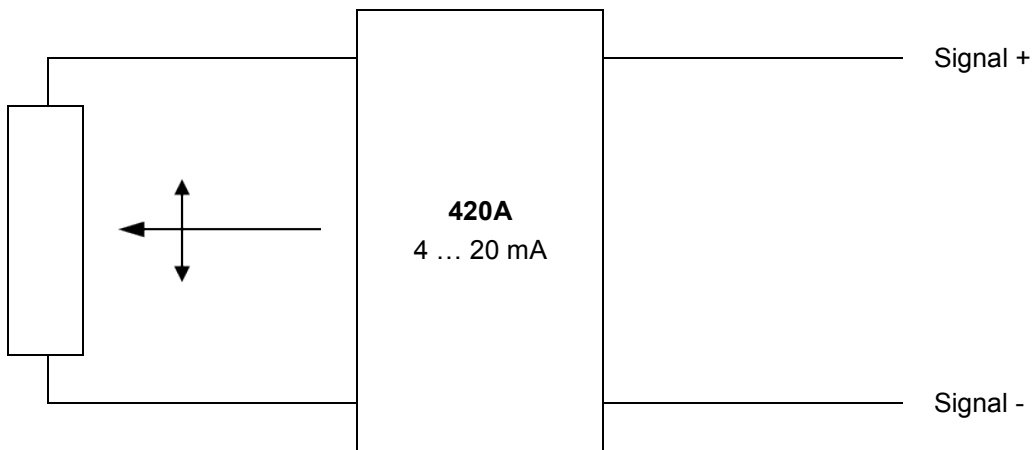
Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	white	
Excitation GND	2	brown	
Signal +	3	green	
Signal GND	4	yellow	
Not connected	5	-	
Not connected	6	-	
Not connected	7	-	
Not connected	8	-	

CONN-M12-8F

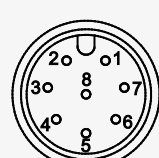
**Signal conditioner 420A**

Current output (2 wire)	Excitation voltage	12 ... 27 V DC non stabilized, 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 <sub>eff</sub>
	Operating temperature	Refer to output specification
	EMC	EN 61326-1:2013

**Output signals**



**Signal wiring**

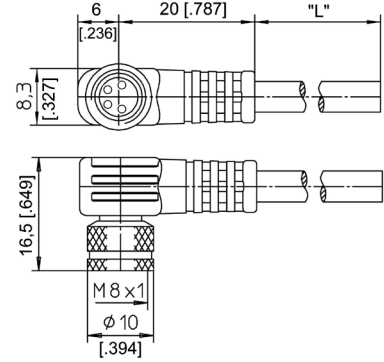
Signal	Connector pin no.	Cable color	View to sensor connector
Signal +	1	white	
Signal -	2	brown	
Not connected	3	-	
Not connected	4	-	
Not connected	5	-	
Not connected	6	-	
Not connected	7	-	
Not connected	8	-	

## Accessories

### Connector cable M8, 4 pin (angular coupling)

shielded

The 4-lead shielded cable is supplied with a mating 4-pin 90° M8 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire cross sectional area 0.14 mm<sup>2</sup>



Order code:

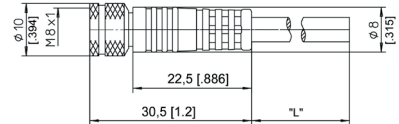
	<b>KAB - xM – M8/4F/W - LITZE</b>
IP69:	<b>KAB - xM – M8/4F/W/69K - LITZE</b>

xM = length in m

### Connector cable M8, 4 pin (straight coupling)

shielded

The 4-lead shielded cable is supplied with a mating 4-pin M8 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire cross sectional area 0.14 mm<sup>2</sup>



Order code:

	<b>KAB - xM – M8/4F/G - LITZE</b>
IP69:	<b>KAB - xM – M8/4F/G/69K - LITZE</b>

xM = length in m

Signal wiring M8, 4 pin	Plug connection / Cable color			
	1	2	3	4
	brown	white	blue	black

#### Applicable for cable carriers

Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter

**Mounting bracket WS42 / WS42C**

(only for sensors with spacer nuts)

Order code **WS42-BFW1**

