



perfect in sensors.

POSIWIRE®

Cable Extension Position Sensors

WS31C
Position Sensor

Datasheet



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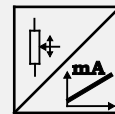
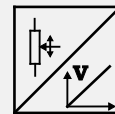
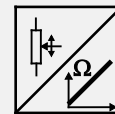
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Analog output



Sensor features

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



Specifications

Output	R1K = Potentiometer 1 kΩ 10V5 = Voltage 0.5 ... 10 V 420A = Current 4 ... 20 mA, 2 wire
Resolution	Analog: quasi infinite
Linearity	±0.35% f.s., other values on request
Sensing device	Precision potentiometer
Housing material	Plastic measuring cable: stainless steel
Protection class	IP50
Connection	Cable output, standard length 2 m, Connector M8, 4-pin (only for output R1K)
Temperature range	-15 ... +60 °C, max. 85 % RH, non condensing
Weight	Approx. 130 g
Pull-out force	250 mm: 1.5 N 500 mm: 1.7 N 750 mm: 1.2 N
EMC	DIN 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
10V5 = Voltage 0.5 ... 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

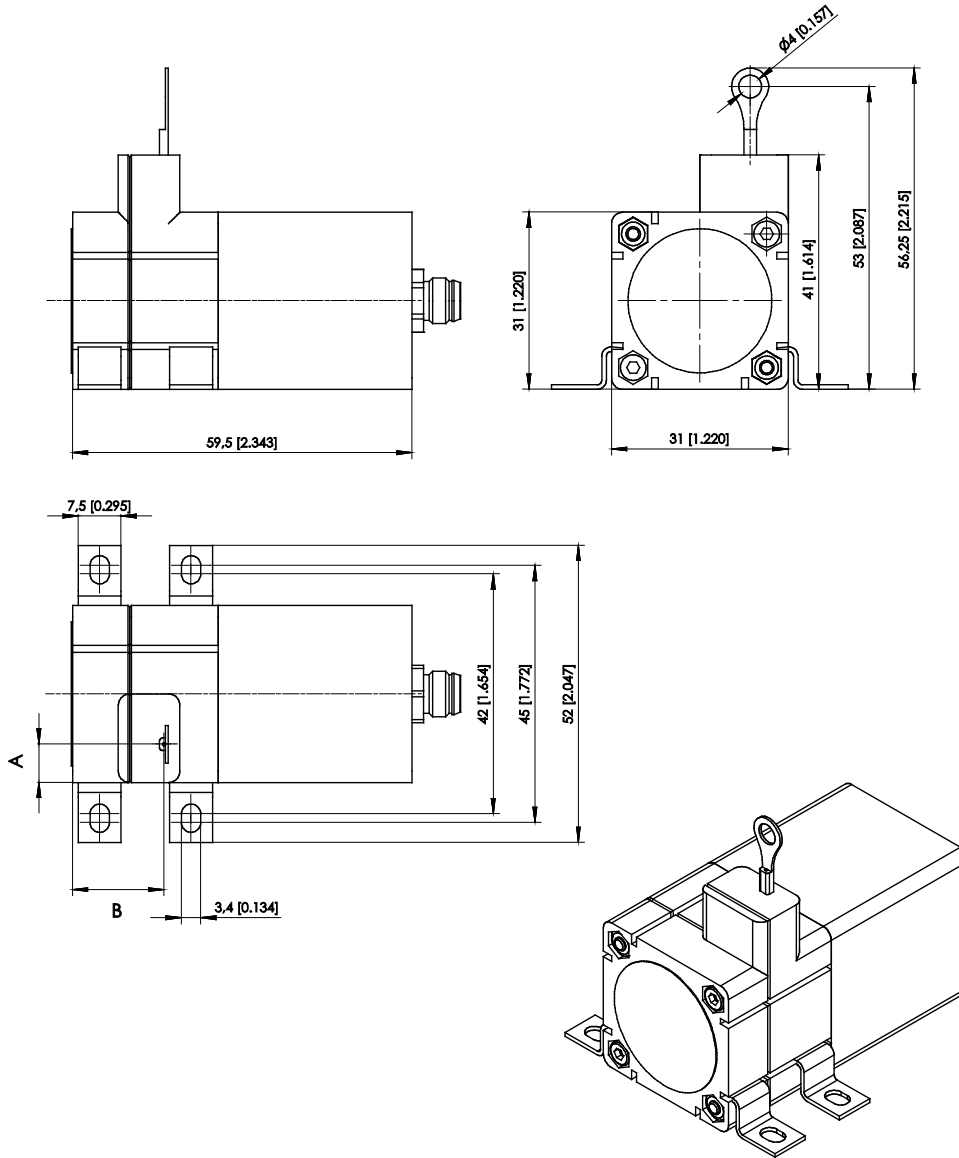
KAB2M = Cable output, standard length 2 m
M8 = Connector M8, 4 pin (only for output R1K)

Order example

WS31C - 250 - 420A - L35 - 1 - KAB2M

Dimensions

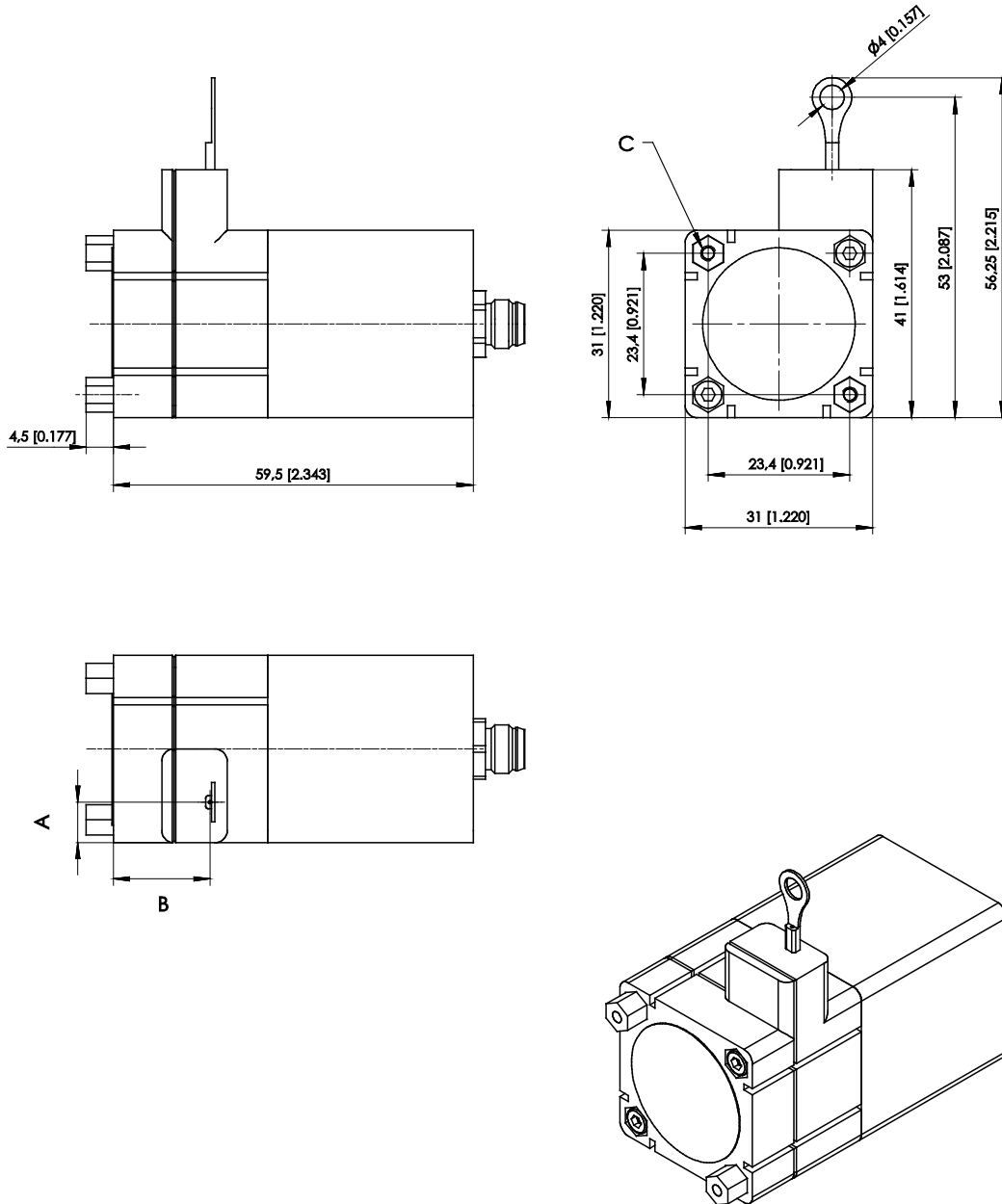
Measurement range 250 ... 500 ... 750 mm, R1K, 10V5, 420A, mounting brackets



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

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	

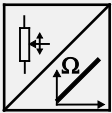
C – M2,5 – 4 [.157] deep

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

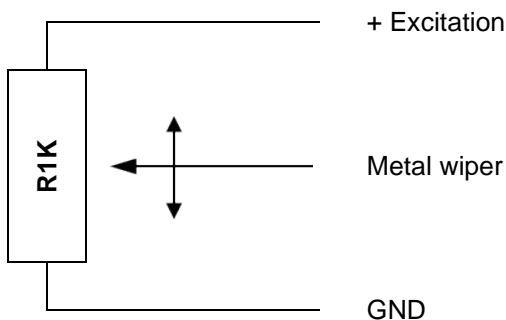
Output specifications

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	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

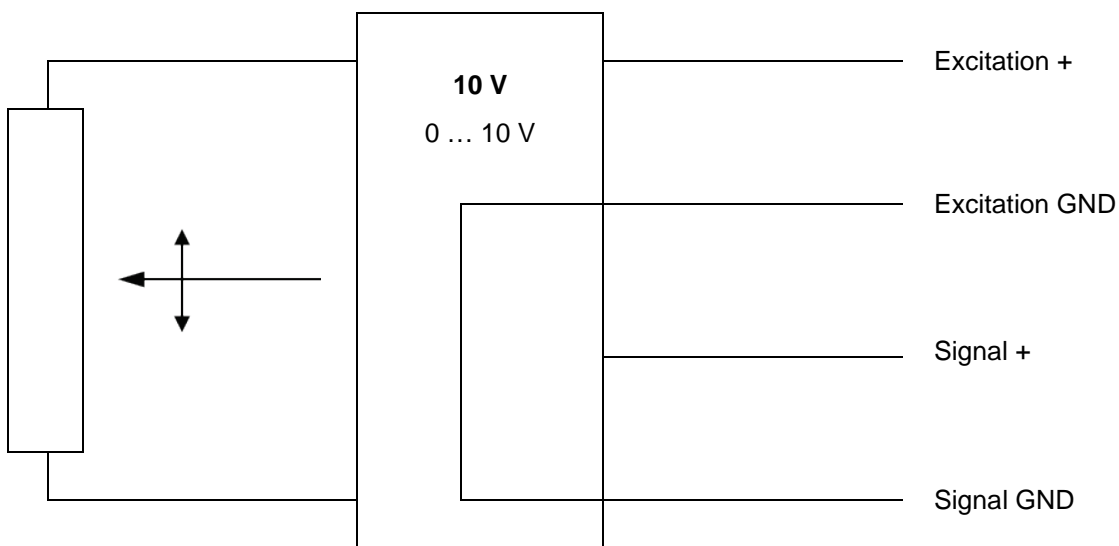


CONN-M8-4F
(only WS31C, WS42C)

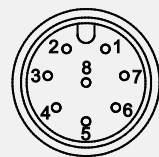
Signal conditioner 10V and 10V5

Voltage output	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	10V: 0 ... 10 V DC; 10V5: 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 mV _{RMS}
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

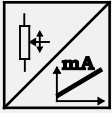
Output signals



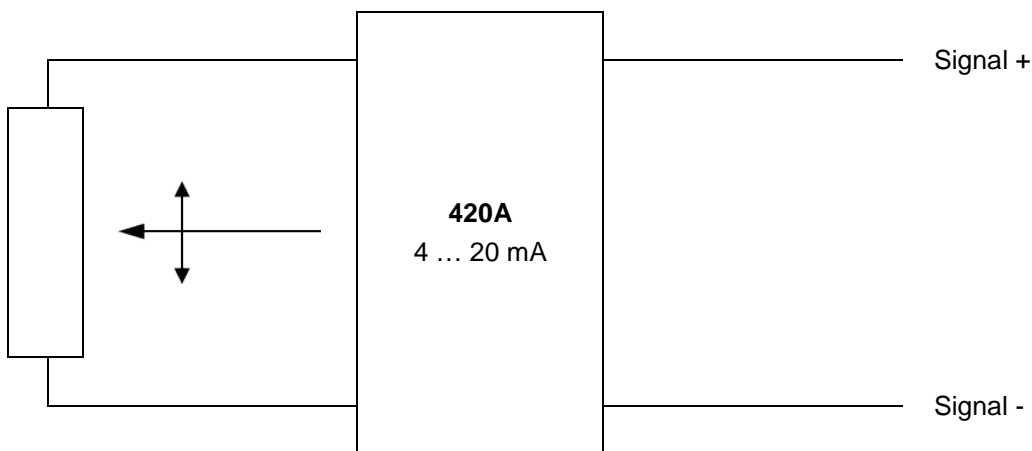
Signal wiring

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

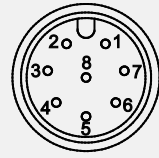
Signal conditioner 420A

Current output (2 wire) 	Excitation voltage	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 _{eff}
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

Output signals



Signal wiring

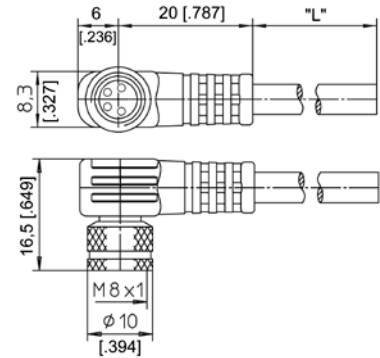
Signal	Connector pin no.	Cable color	View to sensor connector
Signal +	1	white	 CONN-M12-8F
Signal -	2	brown	
Not connected	3	green	
Not connected	4	yellow	
Not connected	5	grey	
Not connected	6	pink	
Not connected	7	blue	
Not connected	8	red	

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 mm²



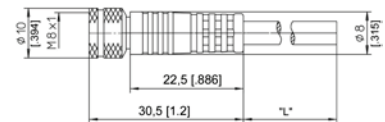
Order code

	KAB - xM – M8/4F/W - LITZE
IP69:	KAB - xM – M8/4F/W/69K - LITZE
	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 mm²



Order code

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

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

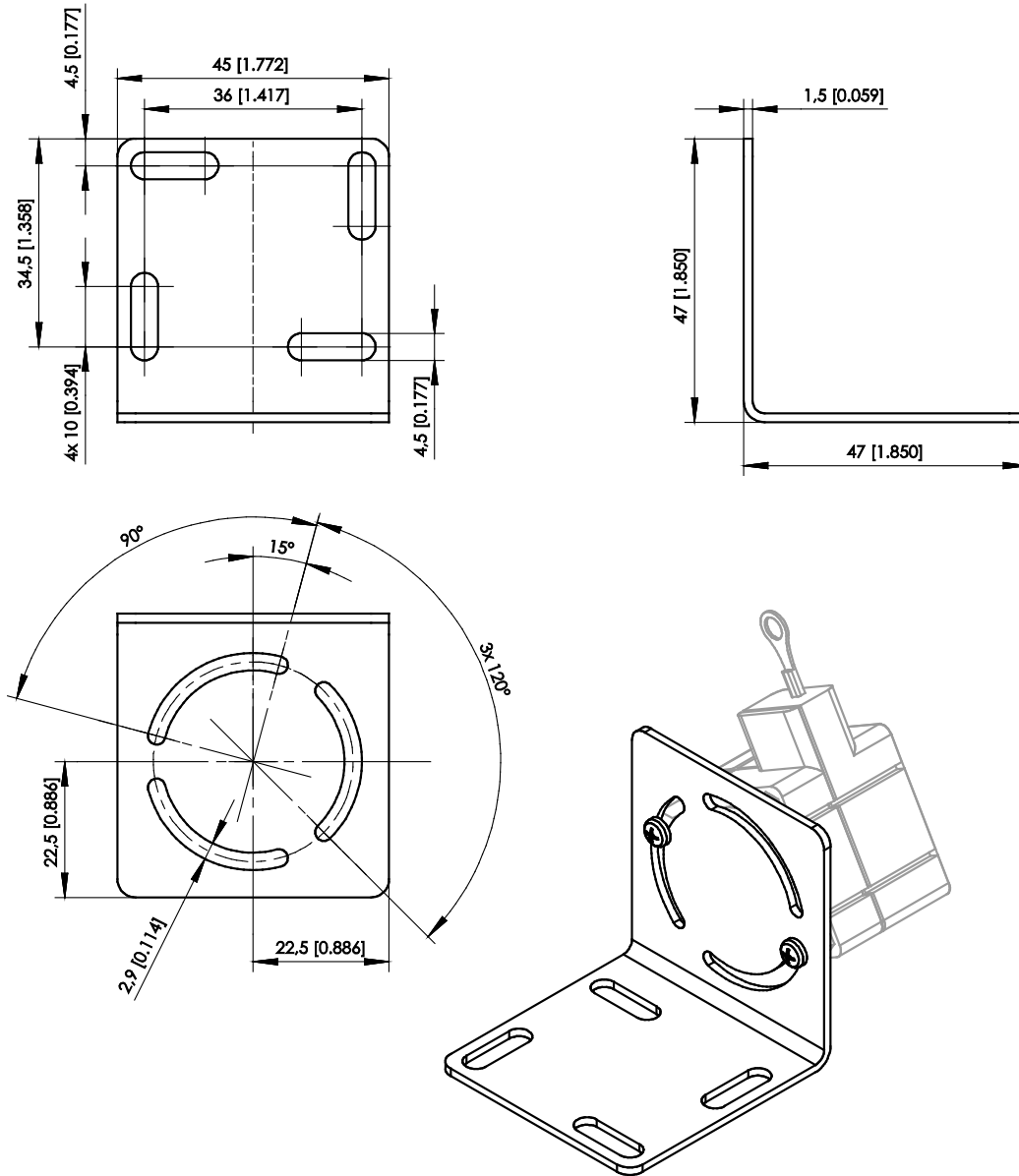
Applicable for cable carriers

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

Mounting bracket WS31 / WS31C

(only for sensors with spacer nuts)

Order code **WS31-BFW1**



POSIWIRE[®]

Cable Extension Position Sensors

WS42C
Position Sensor

Datasheet



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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.

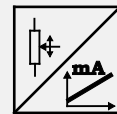
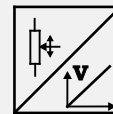
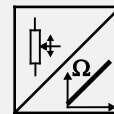
Analog output	4
Specifications	4
Order code	5
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Measurement range 750 ... 1000 mm, R1K, 10V5, 420A, spacer nuts	7
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Signal conditioner 420A	10
Accessories	11
Connector cable M8, 4 pin	11
Mounting bracket WS42 / WS42C	12

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 kΩ 10V5 = Voltage 0.5 ... 10 V 420A = Current 4 ... 20 mA, 2 wire
Resolution	Analog: quasi infinite
Linearity	±0.35% f.s., other values on request
Sensing device	Precision potentiometer
Housing material	Plastic measuring cable: stainless steel
Protection class	IP50
Connection	Cable output, standard length 2 m, Connector M8, 4-pin (only for output R1K)
Temperature range	-15 ... +60 °C, max. 85 % RH, non condensing
Weight	Approx. 175 g
Pull-out force	750 mm: 2.5 N 1000 mm: 1.7 N
EMC	DIN 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
10V5 = Voltage 0.5 ... 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

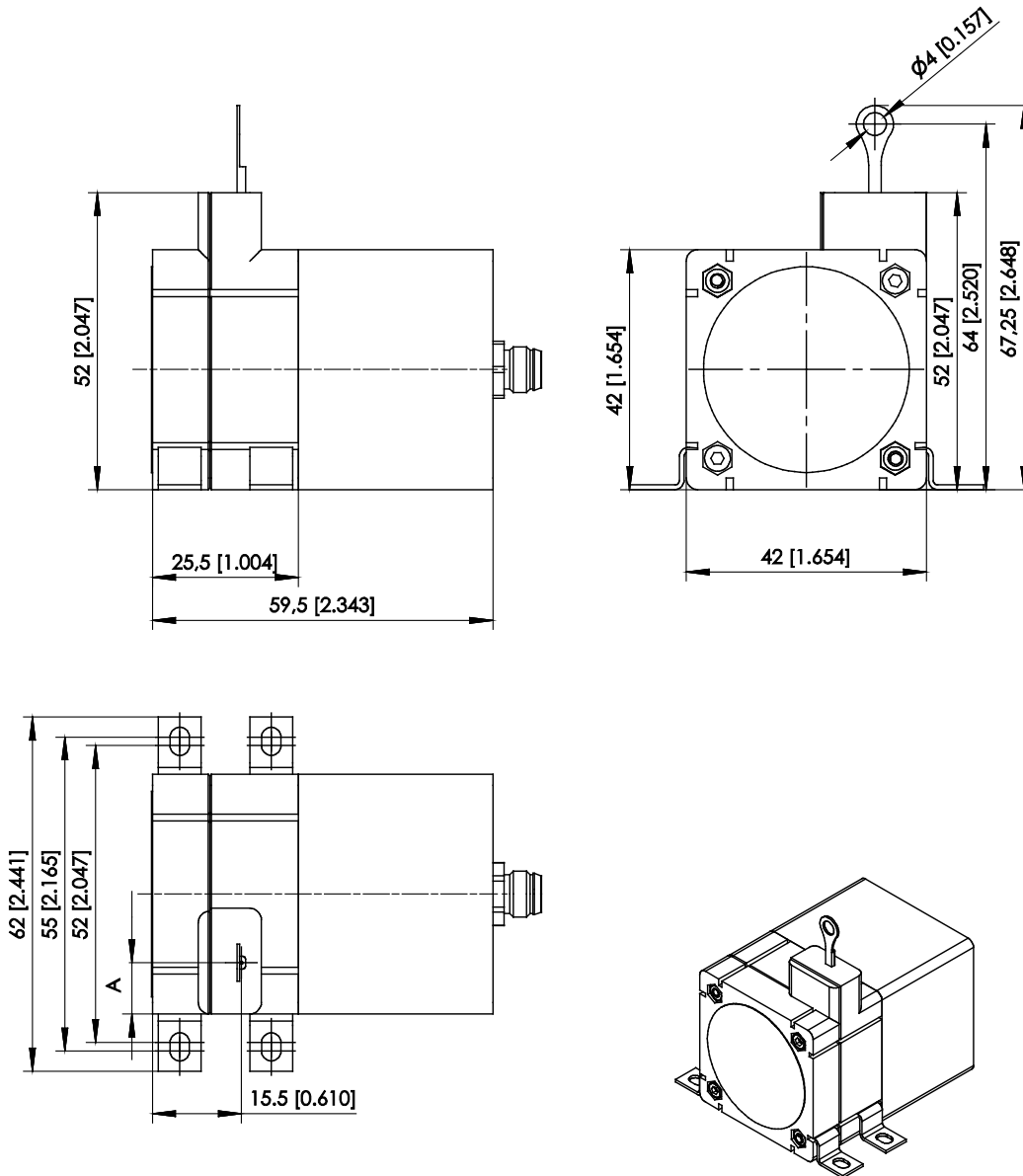
KAB2M = Cable output, standard length 2 m
M8 = Connector M8, 4 pin (only for output R1K)

Order example

WS42C - 750 - 420A - L35 - 1 - KAB2M

Dimensions

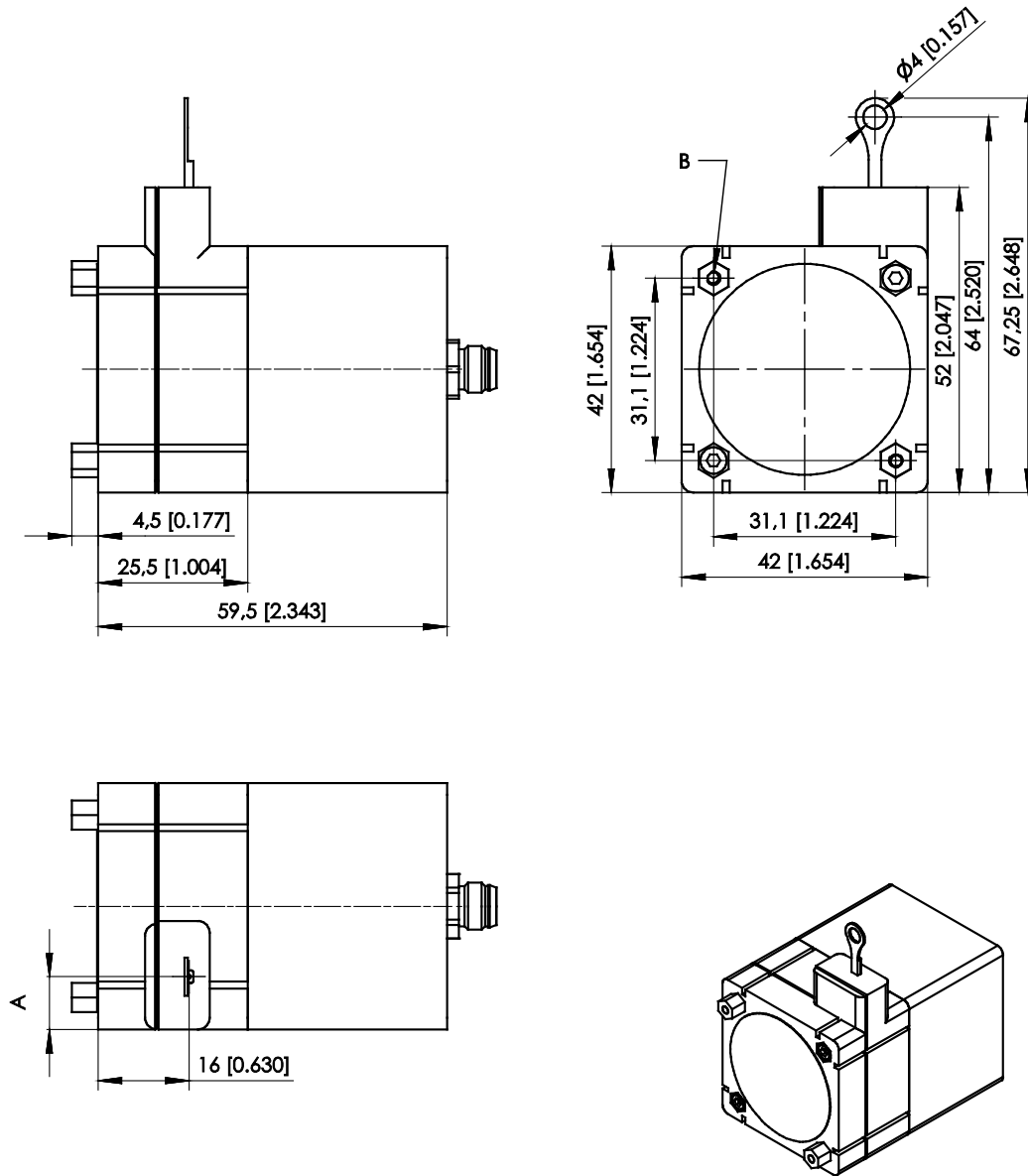
Measurement range 750 ... 1000 mm, R1K, 10V5, 420A, mounting brackets



Dimensions in mm	Measurement range	A
	750	9
1000	3.3	

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

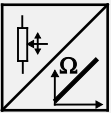
B – 2 x M2,5 – 4,5 [1.177] deep

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

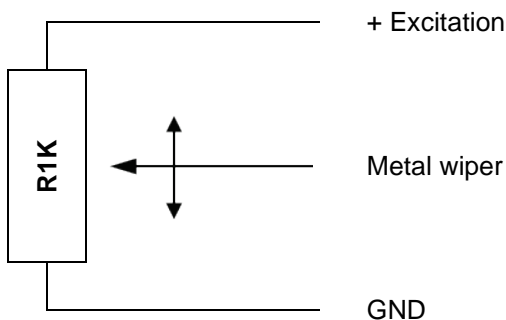
Output specifications

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	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

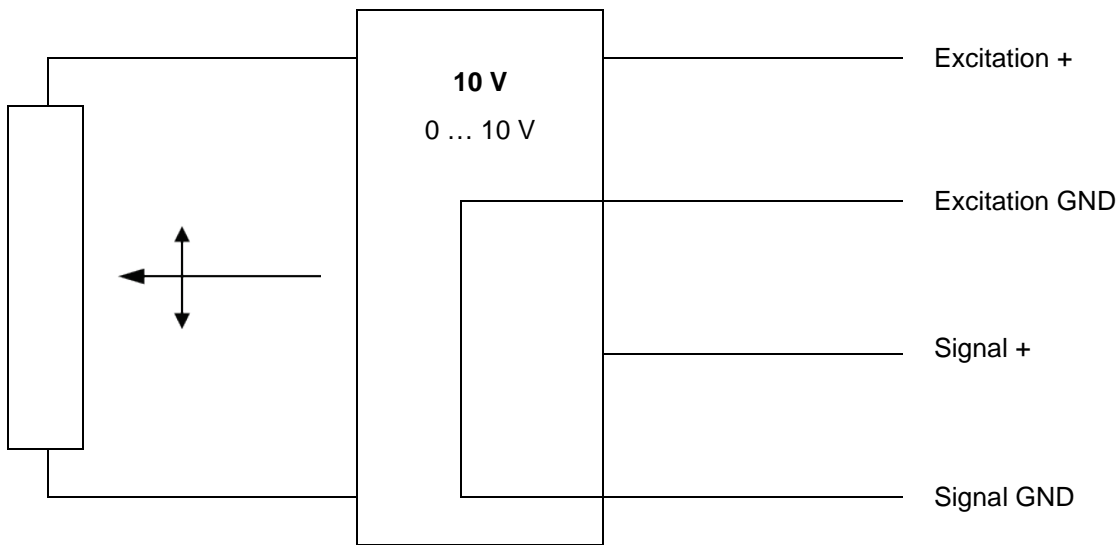


CONN-M8-4F
(only WS31C, WS42C)

Signal conditioner 10V and 10V5

Voltage output	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	10V: 0 ... 10 V DC; 10V5: 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 mV _{RMS}
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

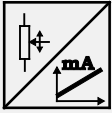
Output signals



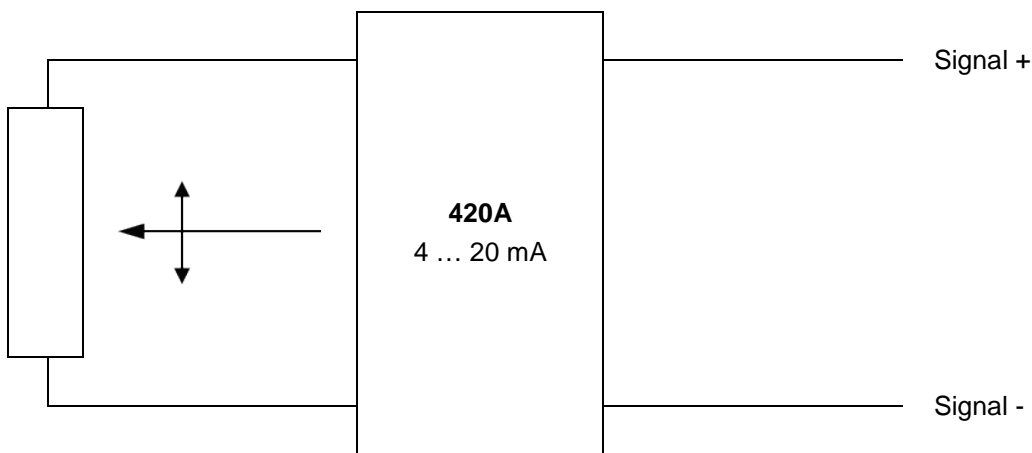
Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	white	 <p>CONN-M12-8F</p>
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	

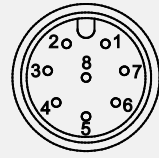
Signal conditioner 420A

Current output (2 wire) 	Excitation voltage	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 _{eff}
	Operating temperature	Refer to output specification
	EMC	DIN EN 61326-1:2013

Output signals



Signal wiring

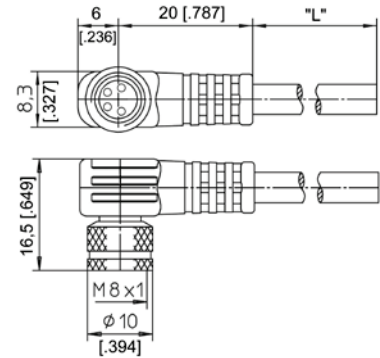
Signal	Connector pin no.	Cable color	View to sensor connector
Signal +	1	white	 CONN-M12-8F
Signal -	2	brown	
Not connected	3	green	
Not connected	4	yellow	
Not connected	5	grey	
Not connected	6	pink	
Not connected	7	blue	
Not connected	8	red	

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 mm²



Order code

KAB - xM – M8/4F/W - LITZE

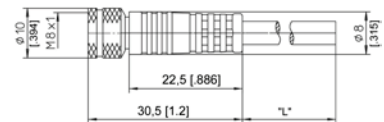
IP69: **KAB - xM – M8/4F/W/69K - LITZE**

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 mm²



Order code

KAB - xM – M8/4F/G - LITZE

IP69: **KAB - xM – M8/4F/G/69K - LITZE**

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 ²
Minimum bending radius	10 x cable diameter

Mounting bracket WS42 / WS42C

(only for sensors with spacer nuts)

Order code **WS42-BFW1**

