



WS31C

Displacement sensor with
measurement length up to
750 mm



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

Product versions



Analog output



WS31C - Cable Extension Position Sensor
Version with analog output

Specifications

			Order options
Measurement range	250 / 500 / 750 mm	1	250 / 500 / 750
Resolution	Analog: quasi infinite		
Output	Potentiometer 1 kΩ Voltage 0.5 ... 10 V Current 4 ... 20 mA, 2 wire	2	R1K 10V5 420A
Linearity	±0.35%	3	L35
Mounting	Mounting brackets Spacer nuts	4	1 2
Sensing device	Precision potentiometer		
Material	POM measuring cable: stainless steel		
Protection class	IP50		
Connection	Cable output, standard length 2 m Connector M8, 4-pin (only for output R1K)	5	KAB2M M8
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		

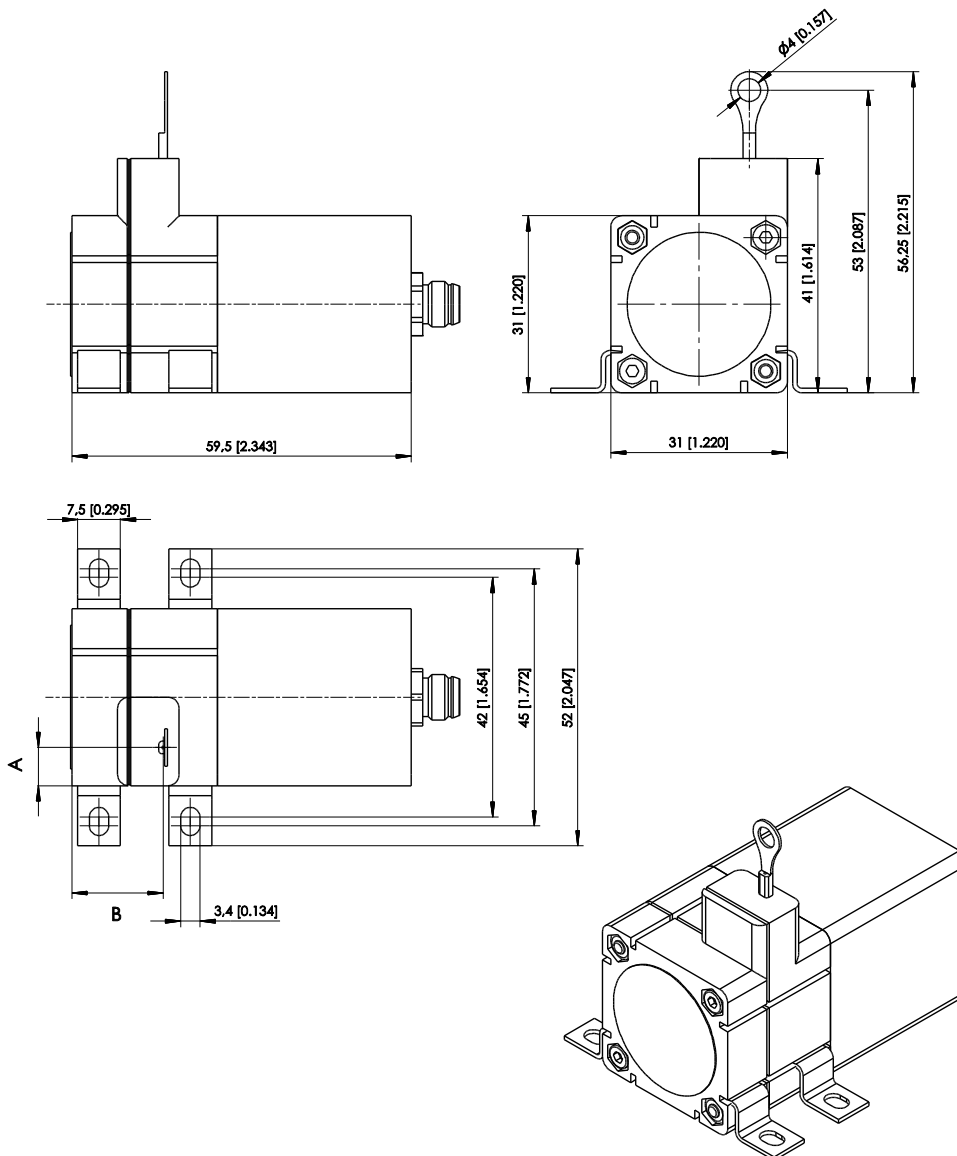
Order code

WS31C	-	1	-	2	-	3	-	4	-	5
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Order example: WS31C – 250 – 420A – L35 – 1 – KAB2M

Dimensions

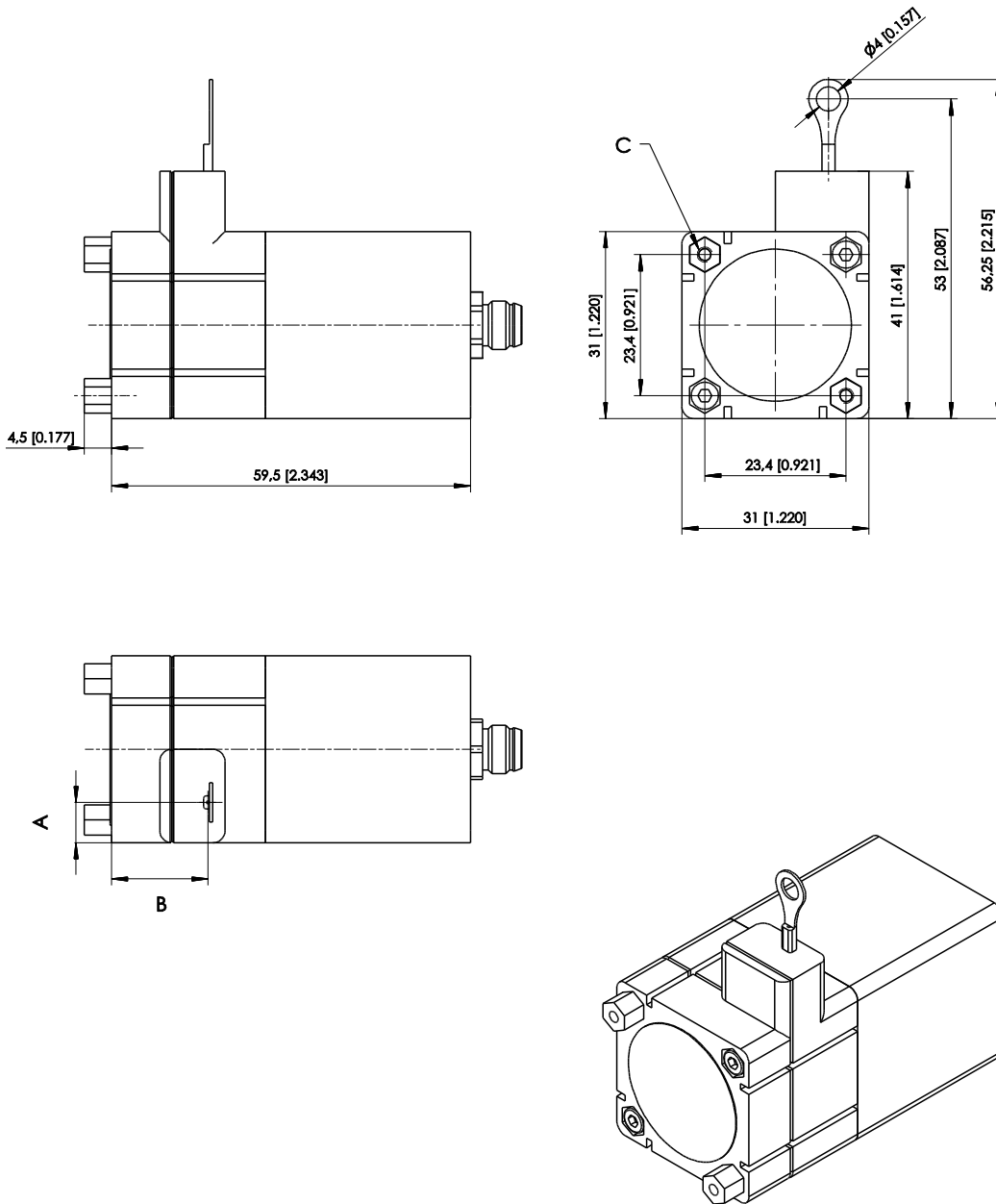
Measurement range 250 ... 500 ... 750 mm, R1K, 10V5, 420A, mounting brackets



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

NOTICE

The potentiometer must be connected as a voltage divider!


The following processing circuit has to be implemented according to the circuit scheme in the Appendix (see „Output information“)!


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/ws_poti_technote_en.pdf

Signal wiring	Signal	Connector pin no.	Cable color
Connector M8, 4 pin  View to sensor connector	Poti +	1	white
	Poti GND	2	brown
	Poti slider	3	green
	-	4	-

10V5 Voltage output 	Excitation voltage	18 ... 27 V DC non stabilized
	Excitation current	20 mA max.
	Output voltage	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

Signal wiring	Output signals	Cable color
	Excitation +	white
	Excitation GND*	brown
	Signal +	green
	Signal GND*	yellow

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

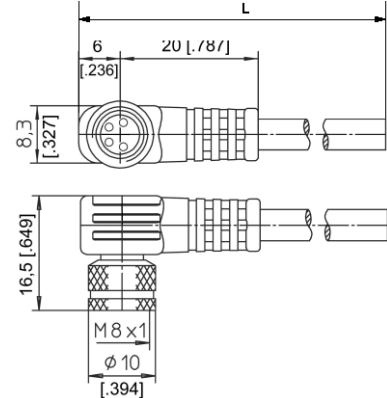
Signal wiring	Output signals	Cable color
	Signal +	white
	Signal -	brown

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

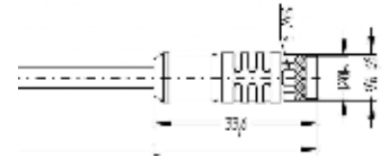
	KAB - xM – M8/4FW - LITZE
IP69:	KAB - xM – M8/4FW/69K - LITZE

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**

