

Linear Measuring Technology

Draw wire mechanics with encoder or analogue sensor

Draw wire encoder A50

**Measuring length max. 1.25 m
Traverse speed max. 10 m/s**



The draw wire mechanics A50 boast both a compact design and high dynamics.

The draw wire mechanics may be equipped with encoders with an analogue, incremental or absolute output. The maximum measuring length is 1.25 m.



Max. acceleration
300 m/s²



Long service life



Wide temperature range



High protection level



Reverse polarity protection

Robust

- The titanium-anodised aluminium housing and the stainless steel wires allow for using the mechanics even in harsh conditions
- Wear-free wire exit thanks to special plain bearing guide

Versatile

- High traverse speed, up to 10 m/s
- High acceleration, up to 300 m/s²
- Quick fastening by means of 2 screws
- Various connection possibilities available

Order code with encoder

D8.6A1 . XXXX . XX XX . XXXX
Type **a** **b** **c** **d** **e**

a *Measuring range*
0025 = 250 mm
0050 = 500 mm
0125 = 1250 mm
other measuring ranges on request

b *Encoder used*
36 = Sendix incremental 3610
F3 = Sendix absolute F3663, SSI
F8 = Sendix absolute F3668, CANopen

c *Output circuit*
depends on the encoder used

e *Resolution / Protocol / Options*
depends on the encoder used

d *Type of connection*
depends on the encoder used

Standard resolutions for draw wire with incremental encoder Sendix 3610, drum circumference 125 mm

	125	1250	2500
Pulses / revolution			
Pulses / mm	1	10	20
Resolution (mm)	1	0.1	0.05

Standard resolutions for draw wire with absolute encoder Sendix F3663 or F3668 CANopen, drum circumference 125 mm

Absolute encoder	F3663	F3668 CANopen
Pulses / revolution	4096 / 12 bit	4096, programmable via the bus / 12 bit
Pulses / mm	32.8	32.8
Resolution (mm)	~ 0.03	~ 0.03

Recommended standard devices

Order No. draw wire encoder	Mounted encoder	Interface	Power supply	Type of connection	Resolution / Protocol
D8.6A1.XXXX.3642.1250	3610 (8.3610.2342.1250)	PushPull with inv. signal	8...30 V DC	cable radial 2 m [6.56']	1250 ppr
D8.6A1.XXXX.F321.G222	Sendix F3663 (8.F3663.4121.G222)	SSI	10...30 V DC	cable tangential 1 m [3.28']	4096 ppr / SSI-Gray code
D8.6A1.XXXX.F821.2122	Sendix F3668 (8.F3663.4121.2122)	CANopen	10...30 V DC	cable tangential 1 m [3.28']	CANopen encoder profile V3.2

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Draw wire mechanics with encoder or analogue sensor	Draw wire encoder A50	Measuring length max. 1.25 m Traverse speed max. 10 m/s
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Order code with analogue sensor	D8.3A1 . XXXX . XXX X . 0000 <small>Type a b c</small>
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a <i>Measuring range</i> 0025 = 250 mm 0050 = 500 mm 0125 = 1250 mm other measuring ranges on request	b <i>Analogue sensor output / Power supply</i> A11 = 4 ... 20 mA / 12 ... 30 V DC A22 = 0 ... 10 V / 12 ... 30 V DC A33 = Potentiometer 1 kΩ / max. 30 V DC	c <i>Type of connection</i> 1 = cable axial, 2 m [6.56'] PVC cable 3 = M12 connector, 4-pin, axial
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Guide pulley for draw wire encoder	Order No.
<div style="float: left; width: 300px;"> <p>Order code for the set:</p> <ul style="list-style-type: none"> - Guide pulley (anodised aluminium) - 2 x countersunk screws for lateral fixing - 2 x hexagonal screws for fixing on a flat surface </div>	8.0000.7000.0045

Connection technology for analogue sensor		
Connector, self-assembly (straight)	M12 female connector with coupling nut	8.0000.5116.0000
Cordset, pre-assembled	M12 female connector with coupling nut, 2 m [6.56'] PVC cable	05.00.6081.2211.002M

Technical data

Mechanical characteristics (draw wire mechanics)											
Measuring range	250 mm	500 mm	1250 mm								
Extension force	F_{min} 6.8 N F_{max} 7.9 N	3.4 N 4.0 N	4.1 N 5.4 N								
Max. speed	8 m/s	8 m/s	10 m/s								
Max. acceleration	200 m/s ²	200 m/s ²	300 m/s ²								
Linearity (of the measuring range)	<table border="0" style="width: 100%;"> <tr> <td style="padding: 0 10px;">analogue output</td> <td style="padding: 0 10px;">±0.15 %</td> <td style="padding: 0 10px;">±0.1 %</td> <td style="padding: 0 10px;">±0.1 %</td> </tr> <tr> <td style="padding: 0 10px;">with encoder</td> <td style="padding: 0 10px;">±0.05 %</td> <td style="padding: 0 10px;">±0.05 %</td> <td style="padding: 0 10px;">±0.05 %</td> </tr> </table>			analogue output	±0.15 %	±0.1 %	±0.1 %	with encoder	±0.05 %	±0.05 %	±0.05 %
analogue output	±0.15 %	±0.1 %	±0.1 %								
with encoder	±0.05 %	±0.05 %	±0.05 %								
Weight	approx. 330 g [11.64 oz] (depending on the sensor / encoder used)										
Material	housing: titanium-anodised aluminium wire: stainless steel \varnothing 0.5 mm										
Protection (sensor)	IP65 (IP67 on request for encoders)										

Electrical characteristics (digital output)
The electrical characteristics of the draw wire mechanics with digital output can be found in the data sheets of the encoders

Operating principle

Construction
The core of a draw wire device is a drum mounted on bearings, onto which a wire is wound. Winding takes place via a spring-loaded device.

Note
Exceeding the maximum extension length of the draw wire will lead to damage to the wire and the mechanics.

Electrical characteristics (analogue output)			
Analogue output	0 ... 10 V	4 ... 20 mA	Potentiometer
Output	0 ... 10 V / galv. isolated, 4 conductors	4 ... 20 mA / 2 conductors	1 kΩ
Power supply	12 ... 30 V DC	12 ... 30 V DC	max. 30 V DC
Recommended slider current	-	-	< 1 μ A
Max. current consumption	22.5 mA (no load)	50 mA	-
Reverse polarity protection	yes	yes	-
Working temperature	-20°C ... +60°C [-4°F ... +140°F]	-20°C ... +60°C [-4°F ... +140°F]	-20°C ... +85°C [-4°F ... +185°F]
Connection diagrams			
CE-compliant acc. to	EMC guideline 2004/108/EC		
RoHS-compliant acc. to	guideline 2002/95/EC		

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Terminal assignment (analogue output)

Pin	1	2	3	4
Cable colour	BN	WH	BU	BK
0 ... 10 V	+V	Signal	0 V	0 V Sig.
4 ... 20 mA	+V	n. c.	Signal	n. c.
1 kΩ	+V	Slider	0 V	n. c.

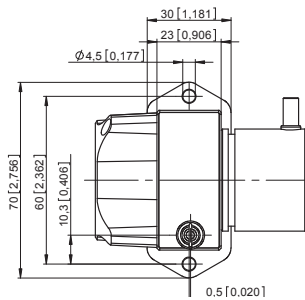
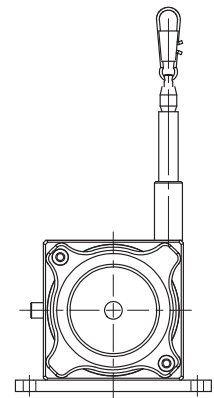
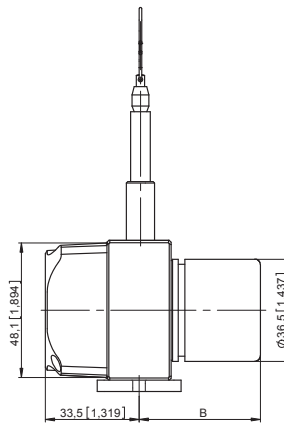
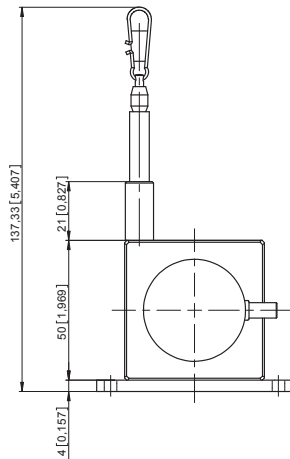
Connector (analogue output)



Dimensions

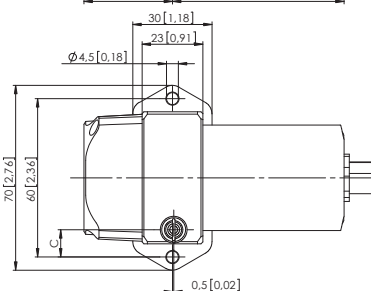
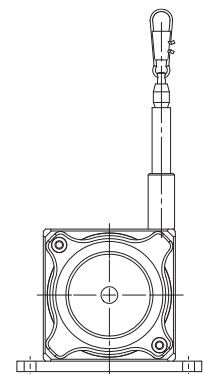
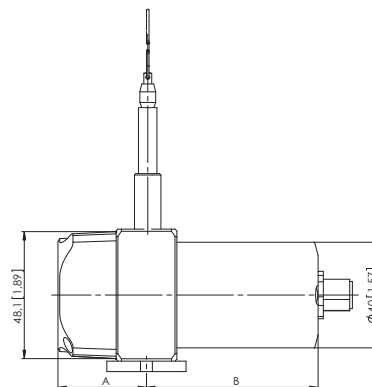
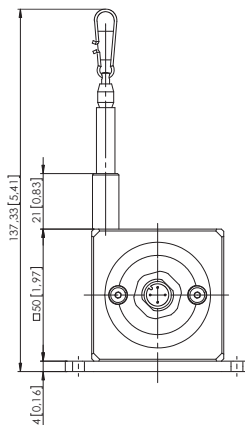
Dimensions in mm [inch]

Draw wire mechanics with encoder



Encoder type	Measuring length	B
Incremental	250 ... 1250 mm	43.0 [1.69]
Absolute	250 ... 1250 mm	53.7 [2.11]

Draw wire mechanics with analogue sensor



Sensor type	Measuring length	A	B	C
Potentiometer	250 mm	26.5 [1.04]	65 [2.56]	21.3 [0.84]
	500 mm	26.5 [1.04]	65 [2.56]	21.3 [0.84]
	1250 mm	33.5 [1.32]	65 [2.56]	10.3 [0.41]
4 ... 20 mA	250 mm	26.5 [1.04]	78.5 [3.09]	21.3 [0.84]
	500 mm	26.5 [1.04]	78.5 [3.09]	21.3 [0.84]
	1250 mm	33.5 [1.32]	78.5 [3.09]	10.3 [0.41]