

Linear Measuring Technology

Draw wire

Mini draw wire encoder, incremental



Introduction

Measuring length and position is one of the routine tasks in the manufacture of machinery and plant. Draw wire encoders offer proven cost-effective solutions in such applications. Linear motion is converted to rotary motion using a wire that is drawn out or in from the draw wire mechanism. This rotation is converted into corresponding electrical signals by an encoder or potentiometer connected to the mechanism.

The electrical signals can then be processed by remote displays, counters or controllers. The Kübler also provides an extensive range of displays, counters and controllers..

- Compact
- Measuring length up to 2000 mm
- Robust construction

Mechanical characteristics of the draw-wire encoders:

Measuring range:	up to 2000 mm
Absolute accuracy:	±0.1 % for the whole measuring range
Repetition accuracy	±0.15 mm per direction of travel
Resolution (incremental):	0.1 mm (standard encoder) with 1000 ppr.
Traversing speed:	max. 800 mm/s
Required force:	approx. 10 N (on wire)
Material:	Housing: reinforced plastic Wire: stainless steel ø 0.45 mm, plastic coated
Weight:	approx. 0.210 kg

Description of the incremental encoder (connected on load side)

- Compensation for temperature and ageing
- Short-circuit protected outputs
- Reverse polarity protected power-supply input
- Push-pull output

Mechanical characteristics:

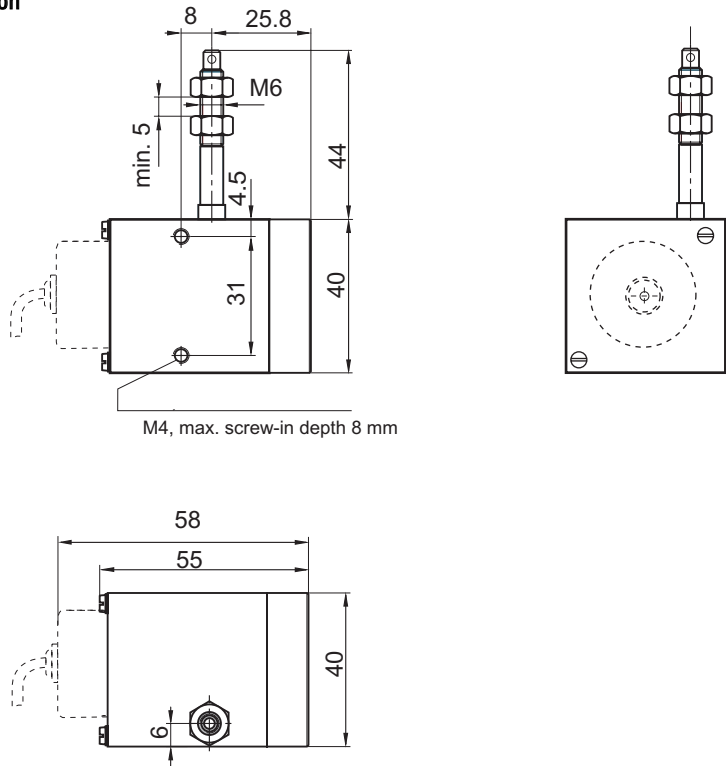
Protection acc. to EN 60529:	IP 64 from housing side
Working temperature:	-20° C ... +85 °C
Operating temperature:	-20° C ... +90 °C
Shock resistance acc. to DIN-IEC 68-2-27:	1000 m/s ² , 6 ms
Vibration resistance acc. to DIN-IEC 68-2-27:	100 m/s ² , 55 ... 2000 Hz

Electrical characteristics:

Output circuits:	Push-pull	Push-pull
Supply voltage:	5 ... 24 V DC	8 ... 30 V DC
Current consumption (without load):	max. 50 mA	max. 50 mA
Permitted load per channel:	max. 50 mA	max. 50 mA
Pulse rate:	max. 160 kHz	max. 160 kHz
Switching level high:	min. $U_B - 2.5 V$	min. $U_B - 3 V$
Switching level low:	max. 0.5 V	max. 2.5 V
Rise time t_r :	max. 1 µs	max. 1 µs
Fall time t_f :	max. 1 µs	max. 1 µs
Short-circuit protected outputs:	yes	yes
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3		

Mini draw wire encoder incremental

Dimension



M4, max. screw-in depth 8 mm

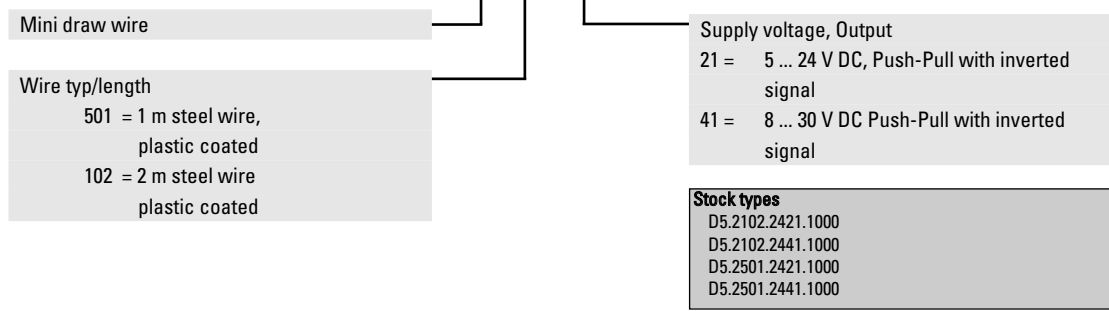
Terminal assignment of the encoder:

Signal:	0V	+U _B	A	\bar{A}
Cable colour:	WH	BN	GN	YE
Signal:	B	\bar{B}	0	$\bar{0}$
Cable colour:	GY	PK	BU	RD

Isolate unused outputs before start-up.

Order code:

D5.2XXX.24XX.1000



Mini draw wire encoder, analogue output



- Compact
- Measuring length up to 2000 mm
- Robust construction
- Simple processing of analogue signal by means of a digital panel meter
- Low-cost alternative to encoder version
- Voltage or current output

Mechanical characteristics of the draw-wire encoder:

Measuring range:	up to 2000 mm	
Absolute accuracy:	±0.35 % for the whole measuring range	
Repetition accuracy:	±0.15 mm per direction of travel	
Resolution:	analogue output signal	
	1 m ⇒ 0 ... 10 V DC	2 m ⇒ 0 ... 10 V DC
	1 m ⇒ 4 ... 20 mA	2 m ⇒ 4 ... 20 mA
	1 m ⇒ 0 ... 10 kΩ	2 m ⇒ 0 ... 10 kΩ
Traversing speed:	max. 800 mm/s	
Required force:	approx. 10 N (on wire)	
Material:	Housing: reinforced plastic	
	Wire: stainless steel ø 0.45 mm, plastic coated	
Weight:	approx. 0.210 kg	

Electrical characteristics:

Analogue output:	0 ... 10 V	4 ... 20 mA	Potentiometer 10 kΩ
Supply voltage:	15 ... 28 V DC	15 ... 28 V DC	–
Temperature range:	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C
Load:	max 500 Ω	max 500 Ω	–
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3			

Cable colour output 0 .. 10 V

Signal:	+ 24 V	GND	Uout
Colour:	BN	WH	GN

Cable colour output: 4 ... 20 mA

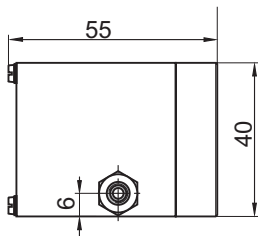
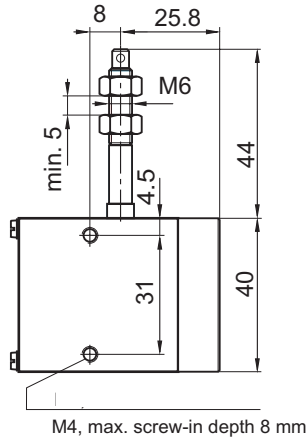
Signal:	+I	-I
Colour:	BN	WH

Cable colour output: Potentiometer

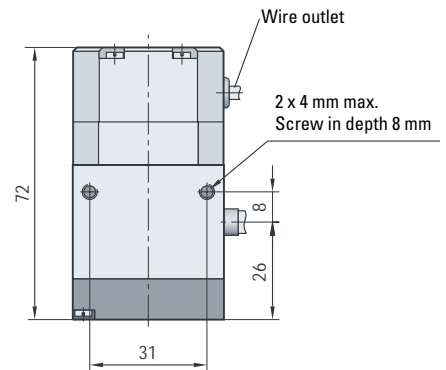
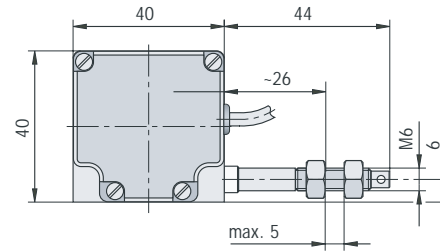
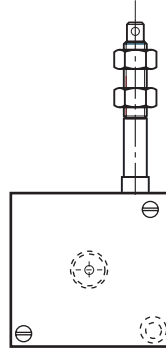
Sign	Po	Pe	S
Colour:	BN	WH	GN
	start	end	Wiper contact

Mini draw wire encoder, analogue output

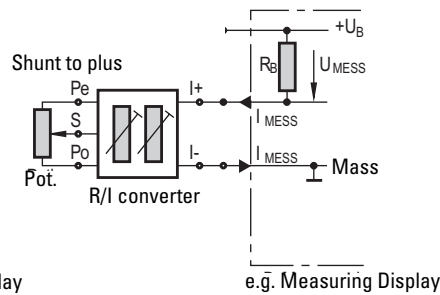
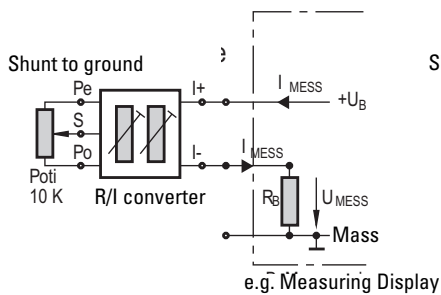
Dimensions:
length = 1 m



Dimensions:
length = 2 m



Electrical connections (4 ... 20 mA):



Order code:

D5.350X.AXX1

Mini draw wire

Wire typ/length

- 3501 = 1 m steel wire,
plastic coated
- 3502 = 2 m steel wire,
plastic coated

Supply voltage, Output

- 11 = Analogue output 4 ... 20 mA
Supply voltage 15 ... 28 V DC
- 22 = Analogue output 0 ... 10 V DC
Supply voltage 15 ... 28 V DC
- 33 = Potentiometer output 10 kΩ

Stock types

- D5.3501.A111.0000
- D5.3501.A221.0000
- D5.3501.A331.0000

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