

Linear measuring technology

Draw-wire mechanics with encoder or analog sensor

Draw-wire encoder B75

**Measuring length max. 3 m
Traverse speed max. 0.8 m/s**



The draw-wire mechanics B75 can be used up to a measuring length of 3 meters.

These draw-wire mechanics may be combined with the proven Kübler Sendix encoders with incremental or absolute interface, as well as with analog sensors.



Compact and versatile

- Compact housing.
- Variable mounting possibilities.
- Low-wear wire exit.
- Scalable analog interface with limit switch function.
- Various field bus interfaces.

Order code with encoder (incremental, absolute)

D8.15 | **03** | **. XX XX** | **. XXXX**
Type a b c d e

- a** *Measuring range*
03 = 3000 mm
- b** *Encoder used*
2Z = Sendix 5000, incremental
M3 = Sendix M5863, absolute
F3 = Sendix F5863, absolute
63 = Sendix 5863, absolute
M8 = Sendix M5868, absolute
F8 = Sendix F5868, absolute
68 = Sendix 5868, absolute
- c** *Output circuit*
depends on the encoder used
- d** *Type of connection*
depends on the encoder used
- e** *Resolution / Protocol / Options*
depends on the encoder used

Optional on request
- Other measuring ranges

Standard resolutions for draw-wire with incremental encoder Sendix 5000			
Drum circumference [mm]	200	200	200
Pulses / revolution [ppr]	200	2000	4000
Pulses / mm	1	10	20
Resolution [mm]	1	0.1	0.05

Standard resolutions for draw-wire with absolute encoder M5863 (12 bit ST) or M5868 (12 bit ST, programmable via bus)	
Drum circumference [mm]	200
Pulses / revolution [ppr]	4096
Pulses / mm	20.5
Resolution [mm]	0.05

Recommended standard variants (with incremental, absolute encoder)

Order no. draw-wire encoder	Mounted encoder	Interface	Power supply	Type of connection	Resolution / Protocol	Option
D8.1503.2254.2000	Sendix 5000 (8.5000.B154.2000)	Push-pull with inverted signal	10 ... 30 V DC	radial M12 connector	2000 ppr	-
D8.1503.M324.G222	Sendix M5863 (8.M5863.4124.G222)	SSI	10 ... 30 V DC	radial M12 connector	4096 ppr / SSI-Gray-Code	-
D8.1503.M824.2122	Sendix M5868 (8.M5868.4124.2122)	CANopen	10 ... 30 V DC	radial M12 connector	CANopen encoder profile DS406 V4.0	-

Other variants (with absolute encoder)

Order no. draw-wire encoder	Mounted encoder	Interface	Power supply	Type of connection	Resolution / Protocol	Option
D8.1503.F326.G223	Sendix F5863 (8.F5863.2126.G223)	SSI	10 ... 30 V DC	1 x radial M12 connector	4096 ppr / SSI-Gray-Code	SET button + status LED
D8.1503.6326.G223	Sendix 5863 (8.5863.2126.G223)	SSI	10 ... 30 V DC	1 x radial M12 connector	4096 ppr / SSI-Gray-Code	SET button + status LED
D8.1503.F82E.2123	Sendix F5868 (8.F5868.212E.2123)	CANopen	10 ... 30 V DC	1 x radial M12 connector	CANopen encoder profile DS406 V3.2	SET button
D8.1503.6822.2123	Sendix 5868 (8.5868.2122.2123)	CANopen	10 ... 30 V DC	2 x radial M12 connector	CANopen encoder profile DS406 V3.2	SET button
D8.1503.M834.3222	Sendix M5868 (8.M5868.4134.3222)	SAE J1939	10 ... 30 V DC	1 x radial M12 connector	SAE J1939	-
D8.1503.6832.3113	Sendix 5868 (8.5868.2132.3113)	PROFIBUS	10 ... 30 V DC	3 x radial M12 connector	Profibus-DP V0 encoder profile Class 2	SET button
D8.1503.68B2.B212	Sendix 5868 (8.5868.21B2.B212)	EtherCAT	10 ... 30 V DC	3 x radial M12 connector	EtherCAT with CoE 3.2.10	-
D8.1503.68C2.C212	Sendix 5868 (8.5868.21C2.C212)	PROFINET IO	10 ... 30 V DC	3 x radial M12 connector	PROFINET encoder profile version 4.1	-
D8.1503.F8AN.A222	Sendix F5868 (8.F5868.21AN.A222)	EtherNet/IP	10 ... 30 V DC	3 x axial M12 connector	EtherNet/IP	-

Draw-wire mechanics with encoder or analog sensor

Draw-wire encoder B75

**Measuring length max. 3 m
Traverse speed max. 0.8 m/s**

Order code with encoder (analog, scalable with limit switch function)

D8.15 **03** . **M1XX** . **XXXX**
Type **a** **b** **c** **d** **e**

- a** *Measuring range*
03 = 3000 mm
 - b** *Encoder used*
M1 = Sendix M5861, absolute ¹⁾
 - c** *Output circuit*
depends on the encoder used
 - d** *Type of connection*
depends on the encoder used
 - e** *Resolution / Protocol / Options*
depends on the encoder used
- Optional on request*
- Other measuring ranges

Recommended standard variants (with encoder analog, scalable with limit switch function)

Order no. draw-wire encoder	Mounted encoder	Interface	Power supply	Type of connection	Resolution / Protocol	Option
D8.1503.M134.3512	Sendix M5861 (8.M5861.4134.3512)	Analog, 4 ... 20 mA	10 ... 30 V DC	radial M12 connector	12 Bit / 4 ... 20 mA	scalable with limit switch function ²⁾
D8.1503.M144.4512	Sendix M5861 (8.M5861.4144.4512)	Analog, 0 ... 10 V	15 ... 30 V DC	radial M12 connector	12 Bit / 0 ... 10 V	scalable with limit switch function ²⁾
D8.1503.M134.3612	Sendix M5861 (8.M5861.4134.3612)	Analog, 4 ... 20 mA	10 ... 30 V DC	radial M12 connector	12 Bit / 4 ... 20 mA	scalable without limit switch function ²⁾
D8.1503.M144.4612	Sendix M5861 (8.M5861.4144.4612)	Analog, 0 ... 10 V	15 ... 30 V DC	radial M12 connector	12 Bit / 0 ... 10 V	scalable without limit switch function ²⁾

Order code with analog sensor (scaled to measuring range)

D8.35 **03** . **XXX** **2** . **0000**
Type **a** **b** **c**

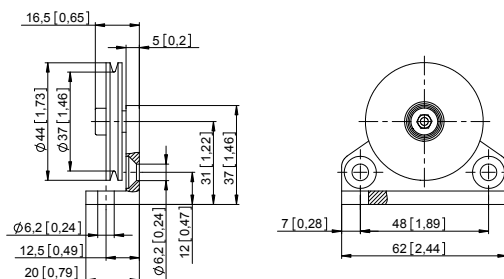
- a** *Measuring range*
03 = 3000 mm
 - b** *Analog sensor output / power supply*
A11 = 4 ... 20 mA / 12 ... 30 V DC
A22 = 0 ... 10 V DC / 12 ... 30 V DC
A33 = potentiometer 10 k Ω / max. 30 V DC
 - c** *Type of connection*
2 = radial M12 connector, 4-pin (wire outlet direction)
- Optional on request*
- Other measuring ranges

Accessories for draw-wire encoder

Dimensions in mm [inch]

Order no.

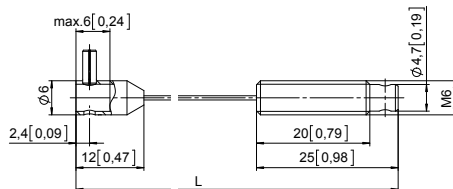
Guide pulley



- Technical data:**
 - mounting bracket (anodized alum.)
 - guide pulley (plastic POM)
 - ball bearing (type 696-2R5)
- Scope of delivery:**
 - 2 x countersunk screws for lateral fixing
 - 2 x hexagonal screws for fixing on a flat surface

8.0000.7000.0045

Extension cable



- Steel wire 2 m [6.56']
- Steel wire 5 m [16.40']
- Steel wire 10 m [32.81']
- Paraleine 2 m [6.56']

8.0000.7000.0033
8.0000.7000.0034
8.0000.7000.0035
8.0000.7000.0032

1) With ccw option.
 2) Delivery condition: unscaled.
 Description for scaling and limit switch function see data sheet M5861.

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Connection technology for analog sensor		Order no.
Cordset, pre-assembled	M12 female connector with coupling nut, 5-pin 2 m [6.56'] PVC cable	05.00.6081.2211.002M
	M12 male connector with external thread, 4-pin 2 m [6.56'] PVC cable	05.00.6031.4411.002M
Connector, self-assembly (straight)	M12 female connector with coupling nut, housing metal, 5-pin	8.0000.5116.0000
	M12 female connector with coupling nut, housing metal/plastic, 5-pin	05.B-8151-0/9
Connector, self-assembly (right-angle)	M12 female connector with coupling nut, housing plastic, 5-pin	05.B-8251-0/9

Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Technical data

Mechanical characteristics (draw-wire mechanics)	
Measuring range	3000 mm
Traversing speed	max. 0.8 m/s
Working temperature	-40°C ... +80°C [-40°F ... +176°F]
Protection acc. to EN 60529	IP65
Weight	approx. 500 g [17.67 oz]
Required force F_{min}	3 N
Linearity	±0.35 %
Repetition accuracy	±0.15 mm
Material	housing plastic / zinc die-cast wire stainless steel \varnothing 0.9 mm, plastic-coated

Electrical characteristics			
Analog output	0 ... 10 V DC	4 ... 20 mA	potentiometer 10 k Ω
Power supply	15 ... 28 V DC	–	–
Operating range	–	15 ... 28 V DC	max. 48 V DC
Load	max. 500 Ω	max. 500 Ω	–
Temperature range	-40°C ... +80°C [-40°F ... +176°F]		
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU		

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.

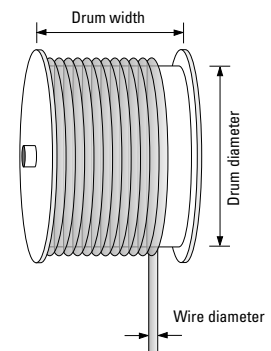
Operating principle

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

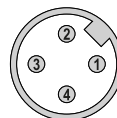
Exceeding the maximum extension length of the draw-wire will lead to damage to the wire and the mechanics.



Terminal assignment (analog output)

Core color	BN	WH	GN	
Pin M12	1	2	3	4
0 ... 10 V DC	+24 V DC	0 V	U_{out}	n.c.
4 ... 20 mA	+I	-I	n.c.	n.c.
Potentiometer 10 k Ω	Po	Pe	S	n.c.

Top view of mating side, male contact base



M12 connector, 4-pin

Terminal assignment (analog sensor A11, A22, A33)

Pin	1	2	3	4
Core color	BN	WH	BU	BK
0 ... 10 V	+V	Signal	0 V	0 V Sig.
4 ... 20 mA	+V	n. c.	Signal	n. c.
1 k Ω	+V	Slider	0 V	n. c.

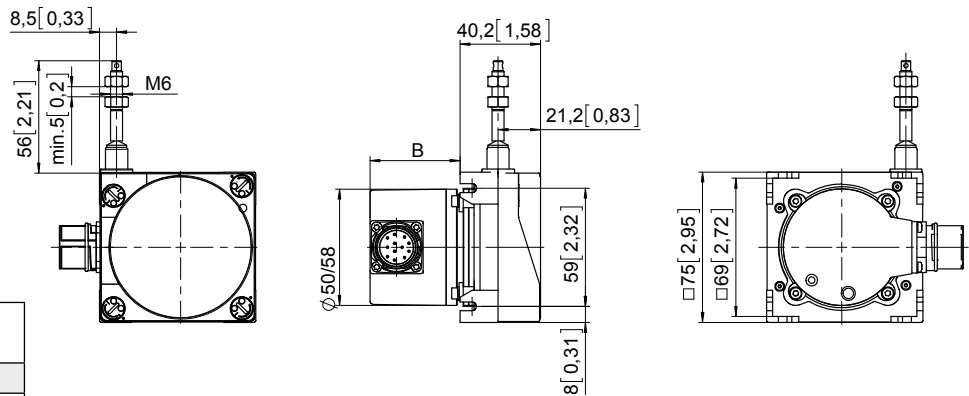
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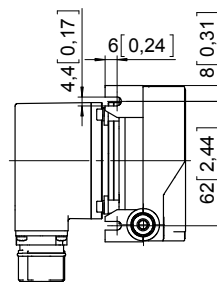
Dimensions

Dimensions in mm [inch]

Draw-wire mechanics with encoder



Dimension B depends on the encoder used	
Encoder	B
Sendix incremental (5000) D8.1503.xxx.2Zxx.xxx	43.00 [1.69]
Sendix absolute (F5863) D8.1503.xxx.F3xx.xxx	55.50 [2.19]
Sendix absolute (5863) D8.1503.xxx.63xx.xxx	55.50 [2.19]
Sendix absolute (F5868, CANopen) D8.1503.xxx.F8xx.21xx	65.50 [2.58]
Sendix absolute (F5868, EtherNet/IP) D8.1503.xxx.F8xx.A2xx	65.50 [2.58]
Sendix absolute (5868) D8.1503.xxx.68xx.xxx	83.20 [3.28]
Sendix absolute (M586x) D8.1503.xxx.Mxxx.xxx	50.55 [1.99]



Draw-wire mechanics with analog sensor (scalable on measuring range)

