

# Linear Measuring Technology

<b>Draw wire mechanics with encoder or analogue sensor</b>	<b>Draw wire encoder C120</b>	<b>Measuring length max. 6 m Traverse speed max. 10 m/s</b>
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These draw wire mechanics C120 can be used up to a measuring length of 6 metres.

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



Max. acceleration 140 m/s <sup>2</sup>	Long service life	Wide temperature range	High protection level IP	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 140 m/s<sup>2</sup>
- Quick fastening by means of 2 screws
- Various connection possibilities available

Linear Measuring Technology

<b>Order code with encoder</b>	<b>D8.4C1</b> <small>Type</small>	<b>. 0600</b> <small>a</small>	<b>. XX XX</b> <small>b c d</small>	<b>. XXXX</b> <small>e</small>
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|---|--|---|--|
| <p><b>a</b> <i>Measuring range</i><br/>0600 = 6000 mm<br/>other measuring ranges on request</p> | <p><b>b</b> <i>Encoder used</i><br/>00 = Sendix incremental 5000<br/>F3 = Sendix absolute F5863<br/>63 = Sendix absolute 5863<br/>F8 = Sendix absolute F5868<br/>68 = Sendix absolute 5868</p> | <p><b>c</b> <i>Output circuit</i><br/>depends on the encoder used</p> | <p><b>e</b> <i>Resolution / Protocol / Options</i><br/>depends on the encoder used</p> |
| <p><b>d</b> <i>Type of connection</i><br/>depends on the encoder used</p>                       |  |   |  |

Standard resolutions for draw wire with incremental encoder Sendix 5000, drum circumference 317.68 mm		
Pulses / revolution	500	2000
Pulses / mm	1.6	6.3
Resolution (mm)	~ 0.63	~ 0.16

Standard resolutions for draw wire with absolute encoder Sendix F5863 or F5868 / 5863 or 5868, drum circumference 317.68 mm		
Absolute encoder	F5863 / 5863	F5868 / 5868
Pulses / revolution	2048 / 11 bit	4096, programmable via the bus / 12 bit
Pulses / mm	6.4	12.9
Resolution (mm)	~ 0.16	~ 0.08

## Recommended standard devices

Order No. draw wire encoder	Mounted encoder	Interface	Power supply	Type of connection	Resolution / Protocol	Options
D8.4C1.XXXX.0054.2000	Sendix 5000 (8.5000.8354.2000)	PushPull mit with inv. signal	10...30 V DC	1 x M12 connector radial	2000 ppr	no option
D8.4C1.XXXX.F324.G123	Sendix F5863 (8.F5863.1224.G123)	SSI	10...30 V DC	1 x M23 connector radial	SSI-Gray-Code	Set button + Status LED
D8.4C1.XXXX.6324.G123	Sendix 5863 (8.5863.1224.G123)	SSI	10...30 V DC	1 x M23 connector radial	SSI-Gray-Code	Set button + Status LED
D8.4C1.XXXX.F82E.2123	Sendix F5868 (8.F5868.122E.2123)	CANopen	10...30 V DC	1 x M12 connector radial	CANopen encoder profile DS406 V3.2	Set button
D8.4C1.XXXX.6822.2123	Sendix 5868 (8.5868.1222.2123)	CANopen	10...30 V DC	2 x M12 connector radial	CANopen encoder profile DS406 V3.2	Set button
D8.4C1.XXXX.6832.3113	Sendix 5868 (8.5868.1232.3113)	Profibus	10...30 V DC	3 x M12 connector radial	PROFIBUS DP V0 encoder profile Class 2	Set button
D8.4C1.XXXX.68B2.B212	Sendix 5868 (8.5868.12B2.B212)	EtherCAT	10...30 V DC	3 x M12 connector radial	EtherCAT with CoE 3.2.10	no option
D8.4C1.XXXX.68C2.C212	Sendix 5868 (8.5868.12C2.C212)	Profinet	10...30 V DC	3 x M12 connector radial	PROFINET encoder profile version 4.1	no option

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**Draw wire mechanics  
with encoder or analogue sensor**

**Draw wire encoder C120**

**Measuring length max. 6 m  
Traverse speed max. 10 m/s**

**Order code  
with analogue sensor**

**D8.3C1 . 0600 . XXX X . 0000**  
Type                      a                      b                      c

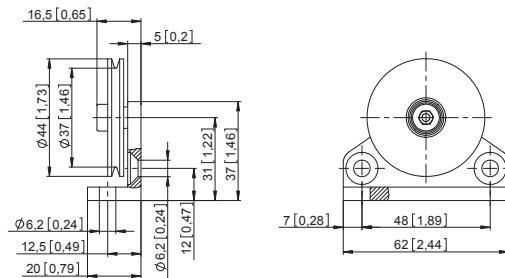
**a** *Measuring range*  
0600 = 6000 mm  
other measuring ranges  
on request

**b** *Analogue sensor output / Power supply*  
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** *Type of connection*  
1 = cable axial, 2 m [6.56'] PVC cable  
3 = M12 connector, 4-pin

## Guide pulley for draw wire encoder

Order No.



Order code for the set:  
- Guide pulley (anodised aluminium)  
- 2 x countersunk screws  
for lateral fixing  
- 2 x hexagonal screws  
for fixing on a flat surface

**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)

<b>Measuring range</b>	6000 mm
<b>Extension force</b>	$F_{min}$ 8.8 N $F_{max}$ 12.3 N
<b>Max. speed.</b>	10 m/s
<b>Max. acceleration</b>	140 m/s <sup>2</sup>
<b>Linearity</b>	analogue output ±0.1 % (of the measuring range) with encoder ±0.05 % (of the measuring range)
<b>Weight</b>	approx. 1600 g [56.44 oz] (depending on the sensor/encoder used)
<b>Material</b>	housing titanium-anodised aluminium wire stainless steel Ø 0.5 mm (Ø 1 mm can be supplied as a special up to measuring range 1500 mm)
<b>Protection (sensor)</b>	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

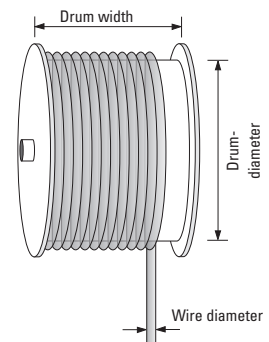
### Operating principle

#### 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

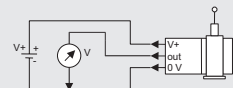
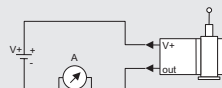
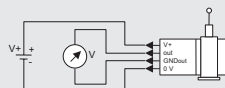
Exceeding the maximum extension length of the draw wire will lead to damage to the wire and the mechanics.



### Electrical characteristics (analogue output)

Analogue output	0 ... 10 V	4 ... 20 mA	Potentiometer
<b>Output</b>	0 ... 10 V / galv. isolated, 4 conductors	4 ... 20 mA / 2 conductors	1 kΩ
<b>Power supply</b>	12 ... 30 V DC	12 ... 30 V DC	max. 30 V DC
<b>Recommended slider current</b>	–	–	< 1 μA
<b>Max. current consumption</b>	22.5 mA (no load)	50 mA	–
<b>Reverse polarity protection</b>	yes	yes	–
<b>Working temperature</b>	-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 2011/65/EU

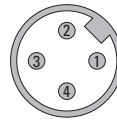
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### Terminal assignment (analogue output)

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.

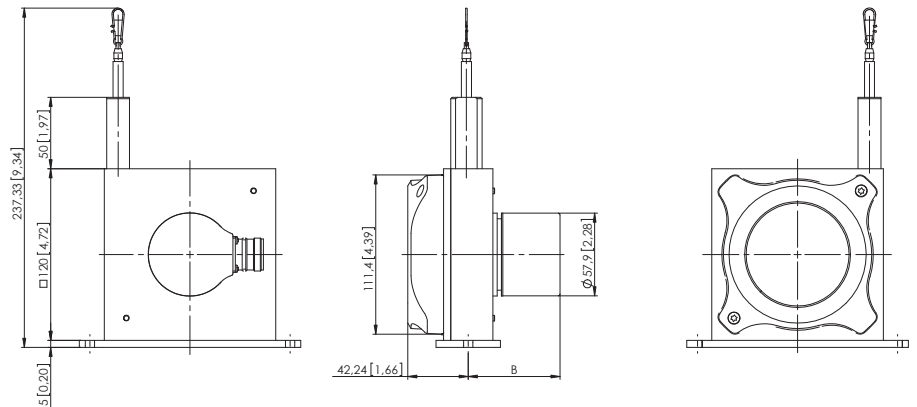
### Connector (analogue output)



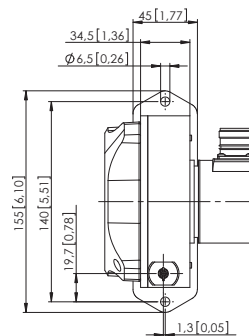
### Dimensions

Dimensions in mm [inch]

#### Draw wire mechanics with encoder



Dimension <b>B</b> depends on the encoder used	
Encoder	B
Sendix incremental (5000) D8.4C1.XXXX.00XX.XXXX	54.25 [2.12]
Sendix absolute (5863) D8.4C1.XXXX.63XX.XXXX	66.75 [2.63]
Sendix absolute (5868) D8.4C1.XXXX.68XX.XXXX	93.25 [3.67]



#### Draw wire mechanics with analogue sensor

