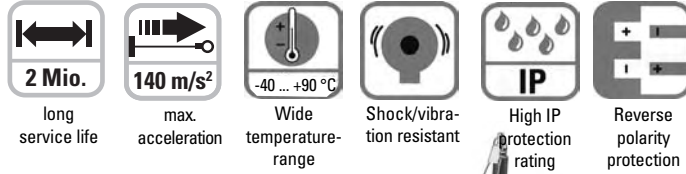


# Linear Measuring Technology

## Draw wire mechanics with encoder or analogue sensor



### Draw wire encoder C120



#### Robust

- **Insensitive to the environment**  
Titanium-anodised aluminium housing
- **High-resistance wire**  
Stainless steel wire
- **Wire exit free from wear**  
Diamond-polished ceramic guide
- **Can be used in a wide temperature range without extra charge**  
max. -40 ... +90 °C



#### Versatile

- **Suitable for various sensors/encoders**
  - Absolute
  - Fieldbus
  - Incremental
  - Analogue
- **Quick mounting**  
Fastening by means of 2 screws
- **Flexible connection possibilities**  
Cable, connector, radial, axial
- **Linearity up to 0.05 %**

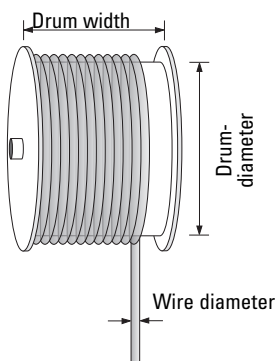
#### Dynamic

- **High traverse speed**
- **High acceleration**  
Dynamic spring traction by means of a constant force spring, long service life, approx. 2 million complete cycles

#### Mechanical characteristics (draw wire mechanics):

|                         |   |
|-------------------------|---|
| <b>Measuring range:</b> | <b>6000 mm</b>  |
| Extension force Fmin:   | 5.4 N   |
| Fmax:                   | 7.8 N   |
| Max. speed:             | 10 m/s  |
| Max. acceleration:      | 140 m/s <sup>2</sup>  |
| Linearity:              | analogue output: 0.1 % (of the measuring range)<br>encoder: 0.05 % (of the measuring range) |
| Weight:                 | approx. 1600 g (depending on the sensor/encoder used)                                       |
| Materials:              | housing: titanium-anodised aluminium<br>wire: stainless steel ø 0.5 mm                      |
| Protection (sensor):    | IP65 (IP67 on request for encoders)   |
| Lifetime                | > 2 million full cycles   |

#### 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.

# Linear Measuring Technology

## Draw wire mechanics with encoder or analogue sensor



### Draw wire encoder C120

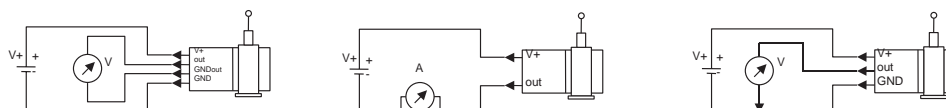
#### Electrical characteristics (digital output):

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

#### Electrical characteristics (analogue output):

| Analogue output:             | 0 ... 10 V                                     | 4 ... 20 mA                 | Potentiometer  |
|------------------------------|--|-----------------------------|----------------|
| Output:                      | 0 ... 10 V galvanically isolated, 4 conductors | 4 ... 20 mA<br>2 conductors | 1 kOhm         |
| Supply voltage:              | 12 ... 30 V DC                                 | 12 ... 30 V DC              | max. 30 V DC   |
| Recommended slider current:  | –  | –                           | < 1 µA         |
| Max. current consumption:    | 22.5 mA (no load)                              | 50 mA                       | –              |
| Reverse polarity protection: | yes  | yes                         | –              |
| Operating temperature:       | -20 ... +60 °C                                 | -20 ... +60 °C              | -20 ... +85 °C |

Connection diagrams:

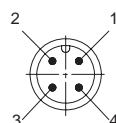


CE compliant according to: EN 61000-6-1, EN 61000-6-4, EN 61000-6-3

#### Terminal assignment (analogue output):

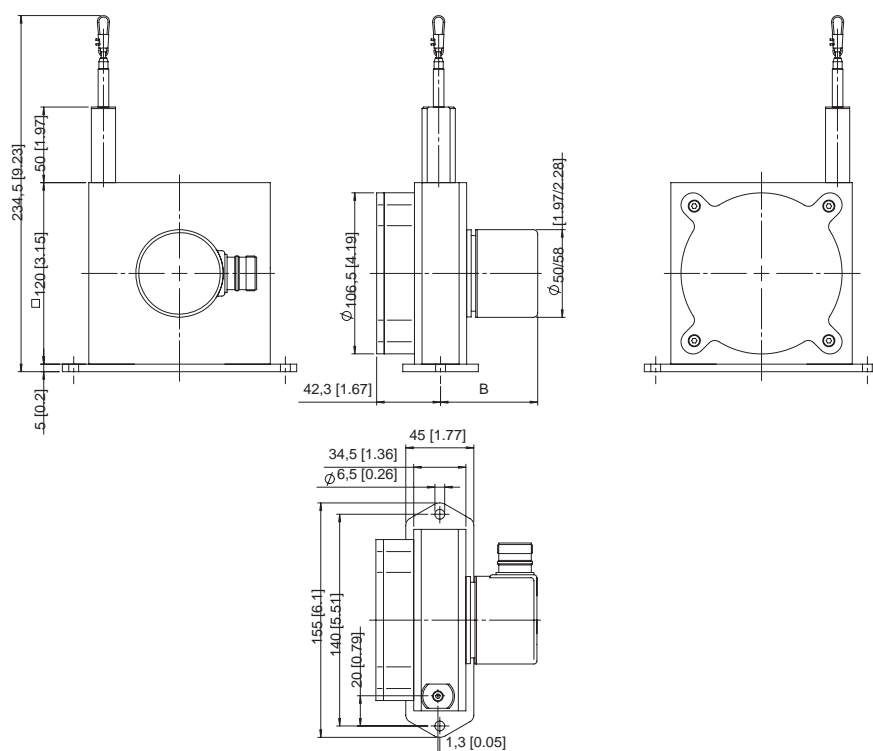
| Pin | Cable colour | 0 ... 10 V | 4 ... 20 mA | 1 kOhm |
|-----|--------------|------------|-------------|--------|
| 1   | brown        | V+         | V+          | V+     |
| 2   | white        | Signal     | n. c.       | Slider |
| 3   | blue         | GND        | Signal      | GND    |
| 4   | black        | GND Sig.   | n. c.       | n. c.  |

#### Connector (analogue output):



#### Dimensions:

Draw wire mechanics with encoder



| Dimension B depends on the encoder used            |       |
|--|-------|
| Encoder  | B     |
| Sendix incremental (5000)<br>D8.4B1.XXXX.00XX.XXXX | 54.25 |
| Sendix absolut (5863)<br>D8.4B1.XXXX.63XX.XXXX     | 66.75 |
| Sendix absolut (5868)<br>D8.4B1.XXXX.68XX.XXX      | 93.25 |

# Linear Measuring Technology

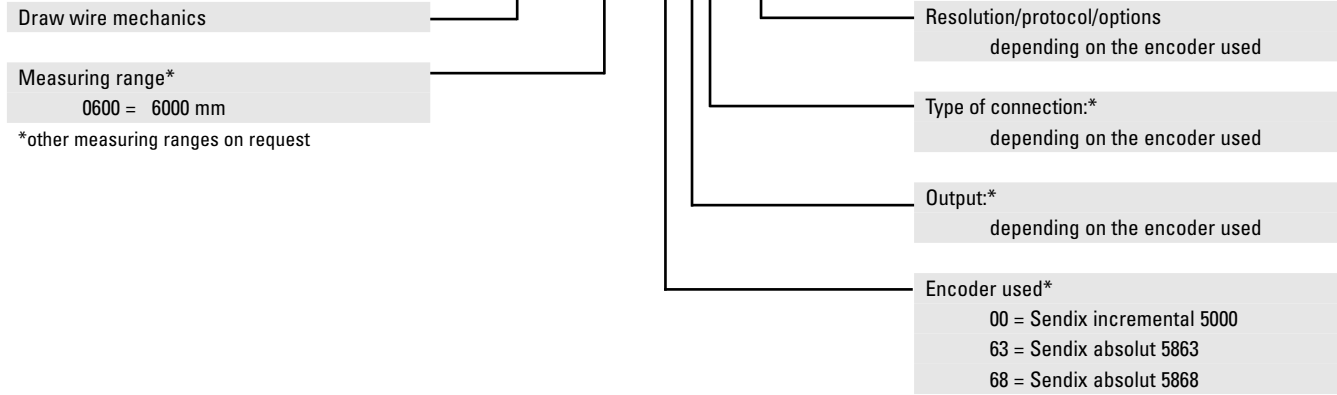
## Draw wire mechanics with encoder or analogue sensor



### Draw wire encoder C120

Order code with encoder:

**D8.4C1.XXXX.XXXX.XXXX**



\*You will find our recommended encoders below

| Standard resolutions for draw wire with <b>incremental</b> encoder<br>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 <b>absolute</b> encoder<br>Sendix 5863 or 5868, drum circumference 317.68 mm |               |   |
|--|---------------|---|
| Absolute encoder   | 5863          | 5868                                    |
| Pulses/revolution  | 2048/ 11 bits | 4096, programmable via the bus/ 12 bits |
| Pulses/mm  | 6.4           | 12.9                                    |
| Resolution [mm]  | ~0.16         | ~0.08                                   |

**Recommended standard device**  
with **incremental** encoder  
Sendix 5000:

**D8.4C1.XXXX.0053.2000**

The standard device is supplied mounted. The mounted encoder is the Sendix incremental 5000 encoder, Connector axial 8 pin M12, Push-pull with inverted signals, supply voltage 10 ... 30 V DC (8.5000.8353.2000)

**Recommended standard device**  
with **absolute** encoder  
Sendix 5863 or 5868:

**D8.4C1.XXXX.6324.G123**

Sendix absolut 5863 encoder with **SSI interface** (Gray code), 2048 pulses/rev., Set key, 10 ... 30 V DC, radial 12 pole M23 connector (8.5863.1224.G123)

**D8.4C1.XXXX.6822.2113**

Sendix absolut 5868 encoder with **CANopen interface**, 4096 pulses/rev. programmable via the bus, Set key, 10 ... 30 V DC, M12 connector (8.5868.1222.2113)

**D8.4C1.XXXX.6832.3113**

Sendix absolut 5868 encoder with **Profibus connection**, 4096 pulses/rev. programmable via the bus, Set key, 10 ... 30 V DC, M12 connector (8.5868.1232.3113)

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

# Linear Measuring Technology

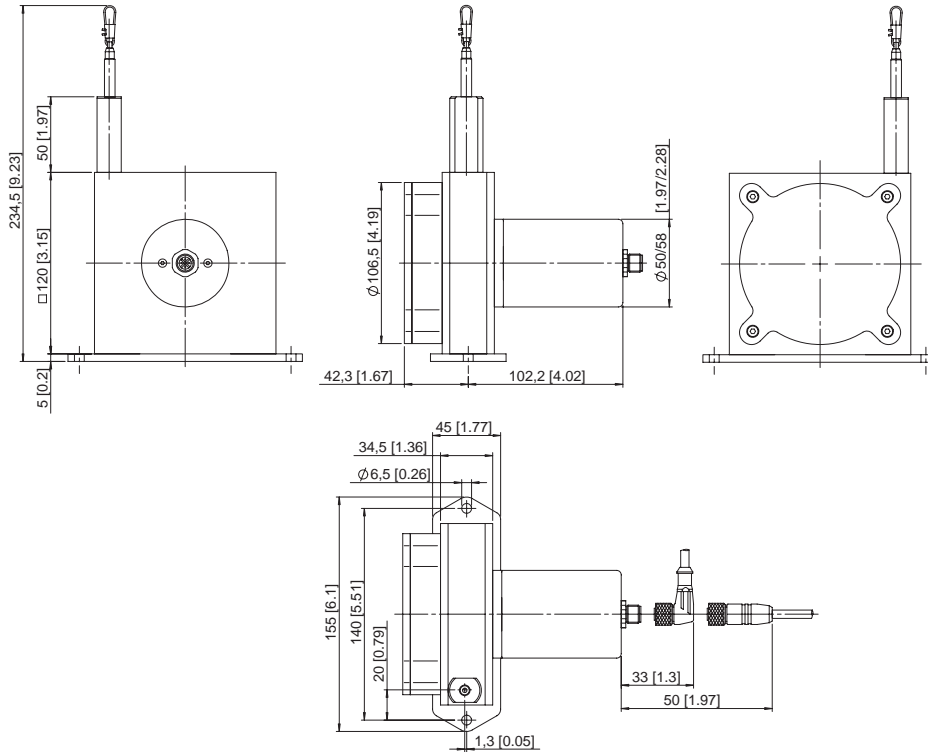
## Draw wire mechanics with encoder or analogue sensor



### Draw wire encoder C120

#### Dimensions:

Draw wire mechanics with analogue sensor



#### Order code with analogue sensor:

**D8.3C1.XXXX.XXXX.0000**

Draw wire mechanics

Measuring range\*

0600 = 6000 mm

\*other measuring ranges on request

Type of connection:

1 = Axial cable, length 2m

3 = 4-pole M12 connector

Analogue sensor output

A11 = 4 ... 20 mA

Supply voltage 12 ... 30 V DC

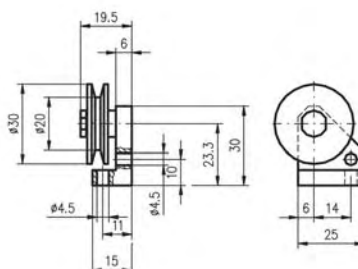
A22 = 0 ... 10 V

Supply voltage 12 ... 30 V DC

A33 = Potentiometer 1 kOhm

Max. supply voltage 30 V DC

#### Accessories



- Guide pulley for draw-wire encoder  
Order code 8.0000.7000.0031