

## Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

Document No.: 125-D 13794 HE  
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- **Compact and robust design for mechanical and plant engineering plus system technology**
- **Detection of a max. cable length of 10 m with an integrated rotary encoder**
- **Operating temperature range: - 20°C to + 70°C**
- **Protection type: IP65**
- **Simple handling and assembly**

### Function description

The linear movement of a flexible steel measuring cable with a length of up to 10 m is transformed into a rotary movement via a measuring drum. The measuring length is registered with an electromagnetic, integrated rotary encoder, with the result that no additional assembly effort is required.

The spring balancer's return force keeps the measuring cable taut and reduces cable sag. The measuring cable is reproducibly wound coil by coil.

Cable winding is guided internally and is carried out on one layer.

4 threaded holes M6x8 drilled in each of the three basic body surfaces enable flexible attachment of the cable linear transducer in terms of the cable outlet.

### Electrical interface

**Please refer to the integrated magnetic rotary encoder data sheet by using the link on the next page or the [TWK homepage](#)**

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## Technical data

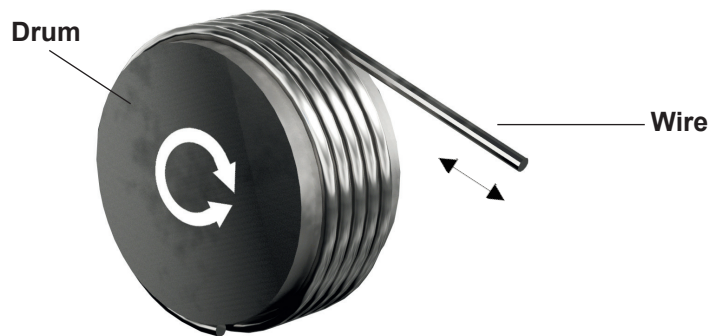
### Technical data

- Measuring range: Up to 10 m
- Measuring cable winding: Self-positioning
- Drum circumference: 249,53 mm nom. <sup>1)</sup>
- Cable outlet zero point: At approx. 10 mm
- Cable speed ( $V_{max}$ ): 1 m/s (at 20°C)
- Cable acceleration ( $a_{max}$ ): 4 m/s<sup>2</sup> (at 20°C)
- Required pull-out force start/end: Approx. 8 N / approx. 16 N
- Cable material: Stainless steel 1.4401, sheathed with plastic
- Cable diameter: Ø 0.95 mm (nom.)
- Code direction: Increasing by pulling wire (Decreasing optional)
- Service life: Approx. 1 million load cycles
- Shock resistance: 50 m/s<sup>2</sup>
- Max.Cable outlet angle: ≤ 5° in all directions
- Housing material: Aluminium AlMgSi1
- Operating and storage temperature range: - 20°C to + 70°C
- Protection type: IP 65
- Weight: Approx. 2 kg

<sup>1)</sup> The actual value is shown on the housing when supplied

## Relationship between rotary encoder resolution and distance resolution

### Schematic drawing of draw wire principle



### Calculation:

The drum rotation is measured by the integrated rotary encoder. A drum rotation of 360° corresponds to a wire traveling distance equal to the effective drum circumference. The effective drum circumference depends on the type of wire.

The standard VA wire sheathed with plastic has an effective drum circumference of 249,53 mm

Example of calculation for 12 Bit singletour resolution:

Rotary encoder resolution	Distance resolution
12 Bit / 360° or 4096 digit / 360°	16.415 digit / mm
2500 digit / 360°	10.02 digit / mm
X digit / 360°	X / 249.53 digit / mm

(different types of wire on demand)

# Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

**Order number**

**Order number:** Please refer to the integrated magnetic rotary encoder data sheet by using the following links or the [TWK homepage](#).

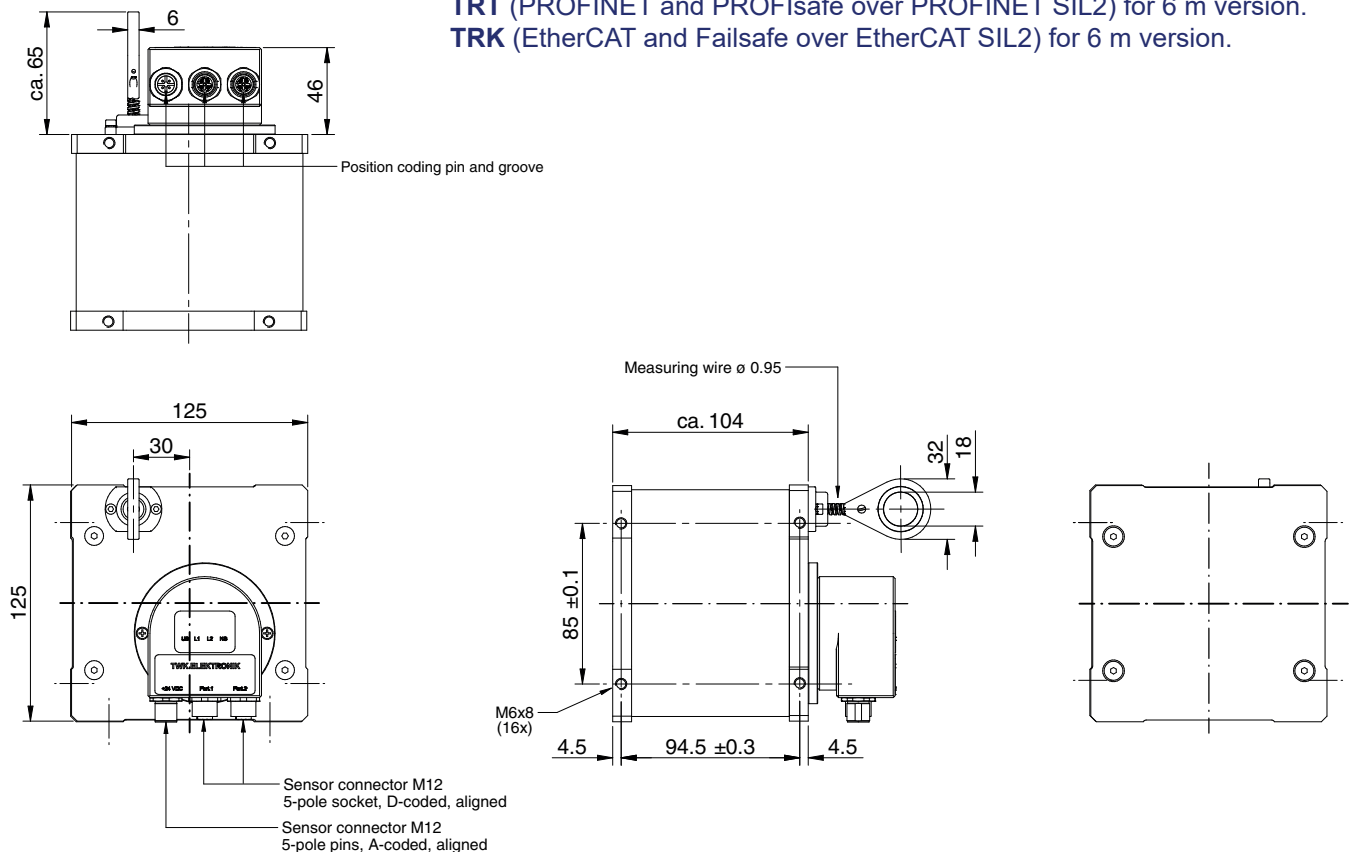
Interface	Rotary Encoder
Profinet	<a href="#">TRT 12886</a>
Profisafe over Profinet SIL2	<a href="#">TRT 12845</a>
EtherCAT	<a href="#">TRK 12825</a>
Fail safe over EtherCAT SIL2	<a href="#">TRK 13348</a>
Profibus	<a href="#">TRD 11868</a>
CANopen	<a href="#">TRN 14271</a> (Sensor with 14 Bit / revolution and 12 Bit revolutions)
CANopen redundant	<a href="#">TRN 13853</a>
CANopen safety SIL2	<a href="#">NOCN 13292</a>
Analogue	<a href="#">TRX 11820</a> (Sensor with 12 Bit / revolution and 12 Bit revolutions)
	<a href="#">TRN 14269</a> (Sensor with 14 Bit / revolution) and 12 Bit revolutions)
Analogue redundant	<a href="#">TRA 12665</a> (Sensor with 12 Bit / revolution and 12 Bit revolutions)
	<a href="#">TRX 14270</a> (Sensor with 14 Bit / revolution and 12 Bit revolutions)
SSI	

**Installation drawing**

**Dimensions in mm**

Design:

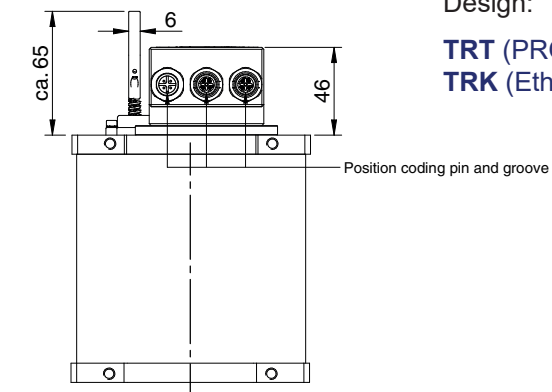
**TRT** (PROFINET and PROFIsafe over PROFINET SIL2) for 6 m version.  
**TRK** (EtherCAT and Failsafe over EtherCAT SIL2) for 6 m version.



# Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

## Installation drawing

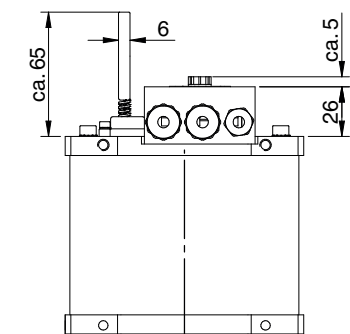
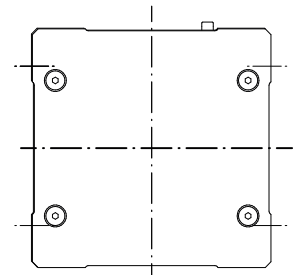
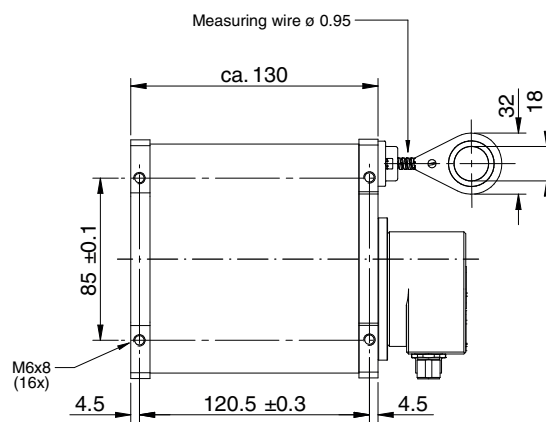
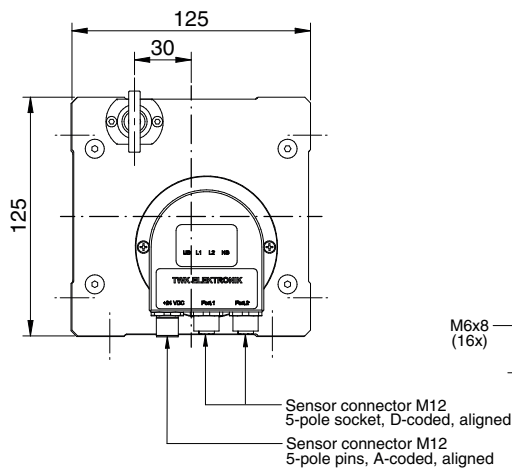
### Dimensions in mm



Design:

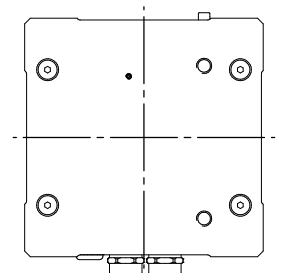
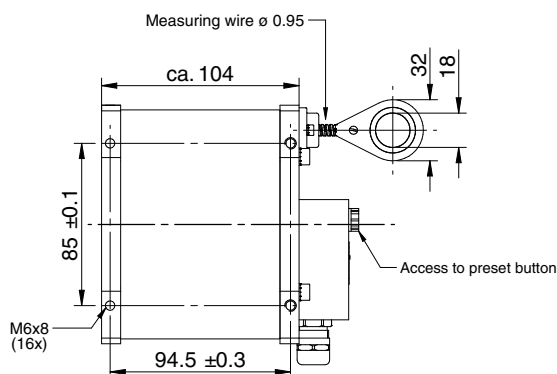
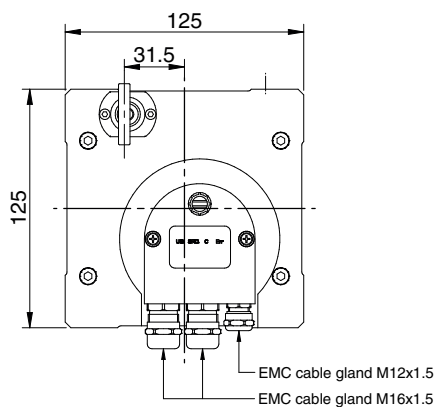
**TRT** (PROFINET and PROFIsafe over PROFINET SIL2) for 10 m version.

**TRK** (EtherCAT and Failsafe over EtherCAT SIL2) for 10 m version.



Design:

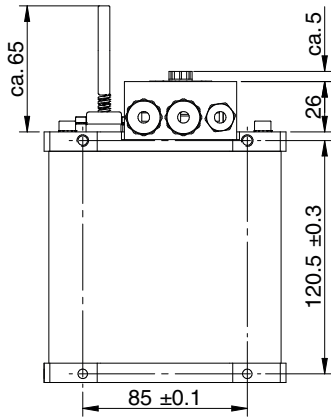
**TRD** (PROFIBUS) for 6 m version.



# Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

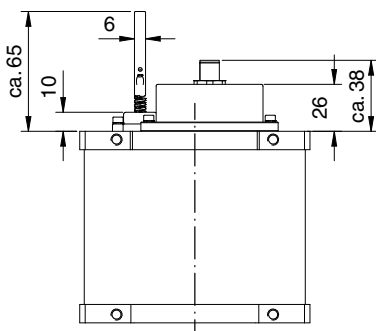
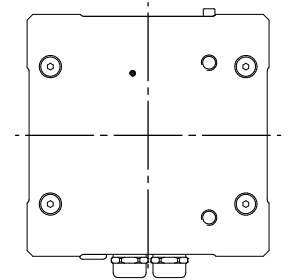
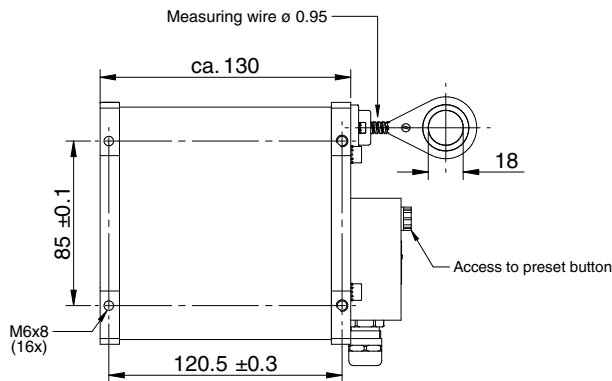
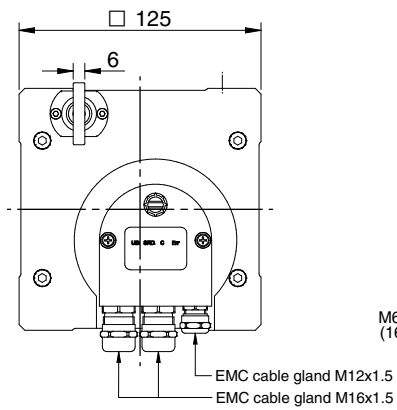
## Installation drawing

### Dimensions in mm



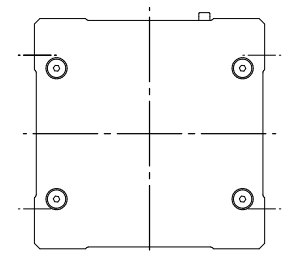
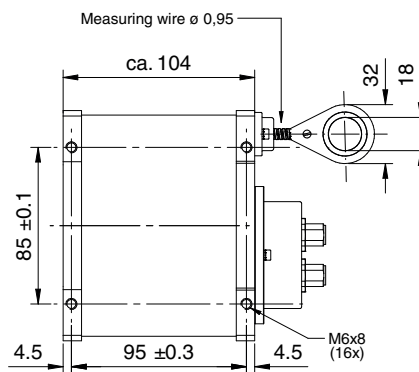
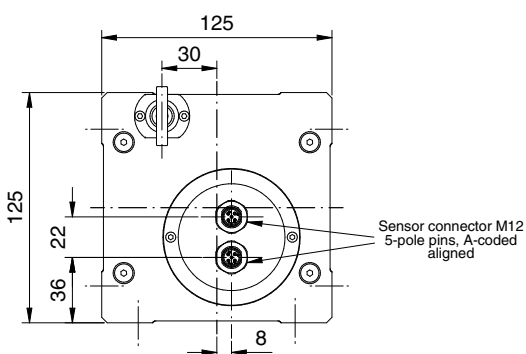
Design:

**TRD (PROFIBUS)** for 10 m version.



Design:

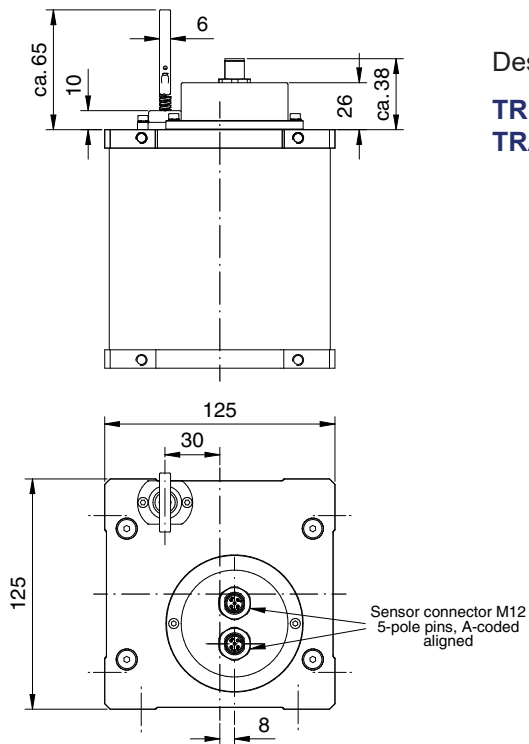
**TRN (CANopen redundant)** for 6 m version.  
**TRA (Analogue redundant)** for 6 m version.



# Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

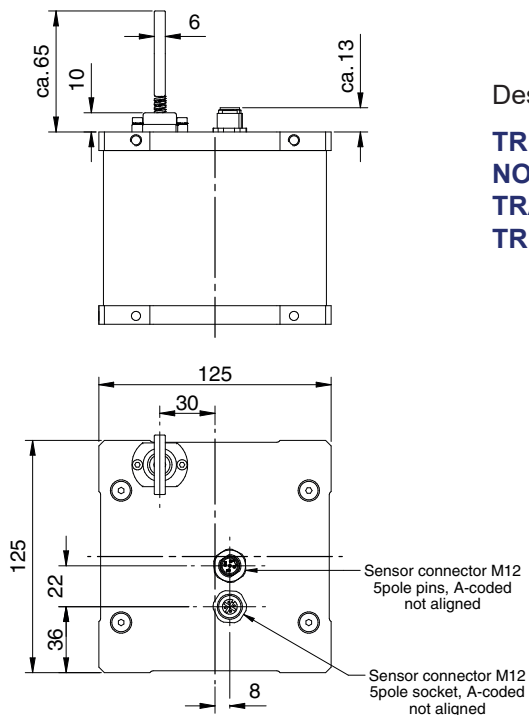
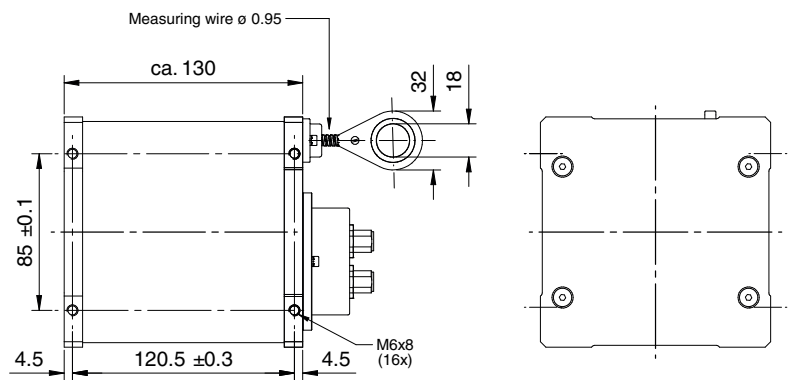
## Installation drawing

### Dimensions in mm



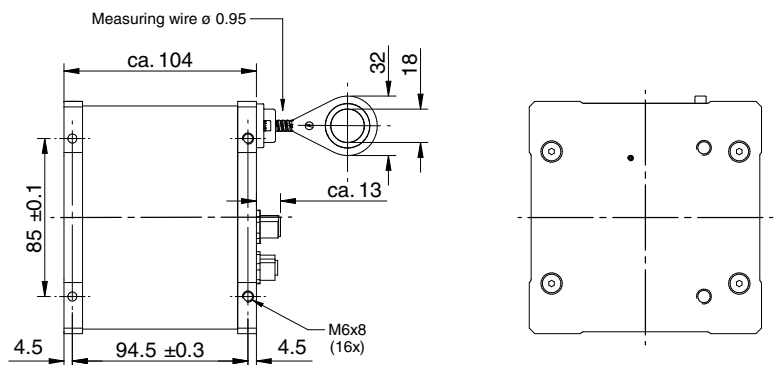
Design:

- TRN** (CANopen redundant) for 10 m version.
- TRA** (Analogue redundant) for 10 m version.



Design:

- TRN** (CANopen) for 6 m version.
- NOCN** (CANopen Safety SIL2) for 6 m version.
- TRA** (Analogue) for 6 m version.
- TRE** (SSI) for 6 m version.



# Draw Wire TXX125-D, NOCX125-D with integrated magnetic rotary encoder

Installation drawing

Dimensions in mm

