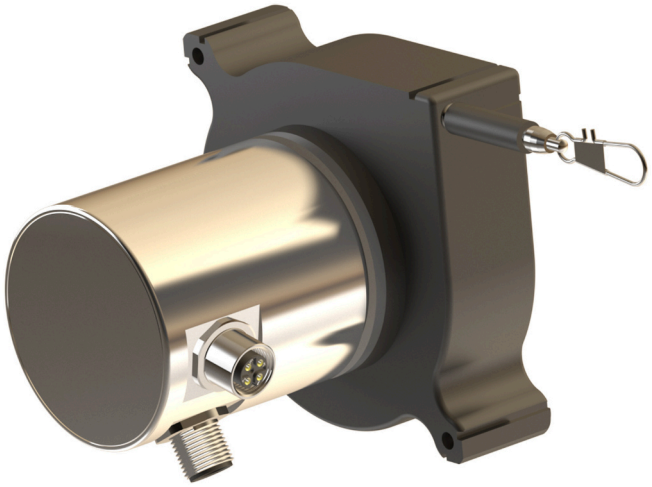
SUPREME SENSORING

Cable-type displacement converter Model SWEK

Document no.:
SWEK 17010 CE
18.09.2024



- **For converting linear displacements of up to 5 m into a rotary movement**
- **Directly mounted on the encoder as option or for mounting onto an absolut or incremental encoder**
- **Very tight design**
- **Durable plastic housing for lower costs**

KEY INFORMATION OVERVIEW

DESIGN & FUNCTION

The linear movement of a flexible steel cable with a length of up to 5 m is converted into a rotary movement with the aid of a measuring drum. The measuring drum is connected to the shaft of an encoder. In this way a change in displacement of the measuring cable causes the shaft of the encoder to rotate by a directly proportional amount which can be recorded.

The restoring force of the spring drive holds the measuring cable tight at all times and prevents any sagging which would otherwise induce an error. Inclined winding ensures that the cable is wound up precisely wrap by wrap in the first layer. For the measuring stroke 2.3 m single-layer winding leads to a better linearity. For longer measuring strokes multiple-layer winding is realized.

The SWEK is designed for the measurement with different encoders of the T-series. Normally the encoder can be removed by the customer. The shaft of the encoder is connected via a coupling to the drum of the cable-type displacement converter and an adapter flange is used to adapt the encoder flange. It also protects the device against dust and water.

For large series the cable-type displacement converter can be mounted directly onto the encoder for smaller dimensions and lower prices. Here the shaft of the encoder is mounted directly onto the drum of the cable-type displacement converter and the flange of the encoder is mounted directly onto its housing. This compact construction protects against dust and water. The encoder can not be removed.

FEATURES AND INTERFACES OF ENCODERS

- Encoders with different interfaces can be used
- Different orientations of the plugs of the encoder to the cable entry are possible.
- For versions with removable encoder the standard device is designed for synchro flange design 58 (e.g. TRX58-S), adapters for other encoder flanges as option
- For large series the cable-type displacement converter can be mounted fix directly onto the encoder (for encoders with clamping flange, e.g. TRX58-K)
- Measuring stroke 2.3 m, 3.5 m and 5 m

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TECHNICAL DATA

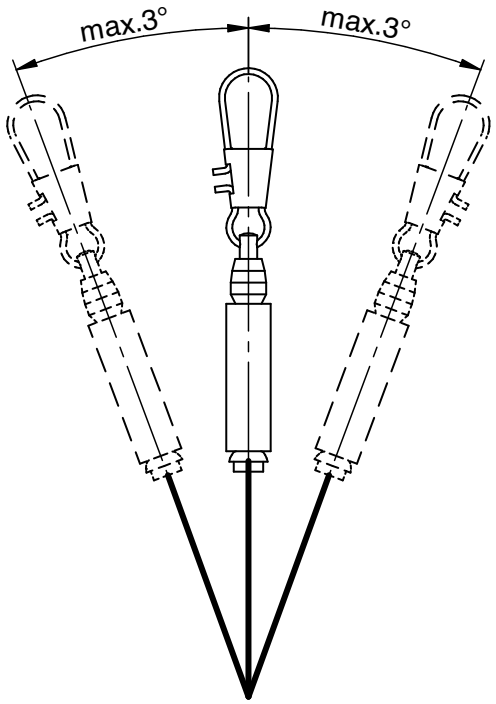
MECHANICAL DATA

Measuring ranges	2.3 m, 3.5 m, 5 m
Drum circumference	238 mm
Permissible cable acceleration	ca. 70 m/s²
Force required to draw out the cable	ca. 8 N
Cable material	stainless steel (covered with polyamide)
Cable diameter	0.45 mm
Housing material	plastic (PA6)
Linearity	≤ ±0.4 % (measuring stroke 2.3 m: ≤ ±0.1 %)
Deviation from straight pull-off	max. ± 3° in any direction (refer to drawing below)

ENVIRONMENTAL DATA

Operating temperature range	-20 °C to +80 °C
Storage temperature range	-20 °C to +80 °C
Resistance against shock	500 m/s² / 10 ms, in 3 axis (2 directions and per 1.000 shocks each)
Resistance against vibration	200 m/s² / 20 Hz to 2.000 Hz in 3 axis and 10 cycles each
Mass	ca. 0.4 kg (only cable-type displacement converter)

Note: The cable exit should be downwards or sideways. The cable must be extracted rectilinearly with reference to the housing (deflection max. 3° in any direction admitted).



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ORDER CODE FORMAT

SWEK	- 5 -	R -	30 -	01	STANDARD

SWEK	Cable-type displacement converter SWEK		
5	Measuring range	2,3 3,5 5	2.3 m 3.5 m 5 m
R	Mounting type	D R	Directly mounted - encoder fix (encoder with clamping flange 58) Encoder removable (encoder with synchro flange 58)
140	Orientation plugs of encoder to cable entry (see installation drawing page 4 and page 6)	 20 56 140 176 260 296 30 150 270 0	Mounting type D: 20° 56° 140° 176° 260° 296° Mounting type R: 30° 150° 270° Without encoder
01	Electrical and mechanical variants*	01	Standard

DOCUMENTATION

DOCUMENTATION

The following documents are available on request:

Data sheet cable-type dispalcement converter SWEK17010
Declaration of Conformity CE ZE12467
Declaration of Conformity UKCA ZE16569
Reach compliant QS15286
RoHS compliant QS13284

Encoder with different interfaces can be used. They are described in the corresponding data sheets, e.g.

Data sheet of an encoder with CANopen / CANopen Safety interface TBN/TRN14271
Data sheet of an encoder with PROFINET interface TRT12886
Data sheet of an encoder with PROFIsafe over PROFINET. TRT12845
(Also other encoders can be used. Please contact our specialists)

* The basic versions according to the data sheet bear the number 01. Deviations are identified with a variant number and are documented at TWK.

Cable-type displacement converter Model SWEK

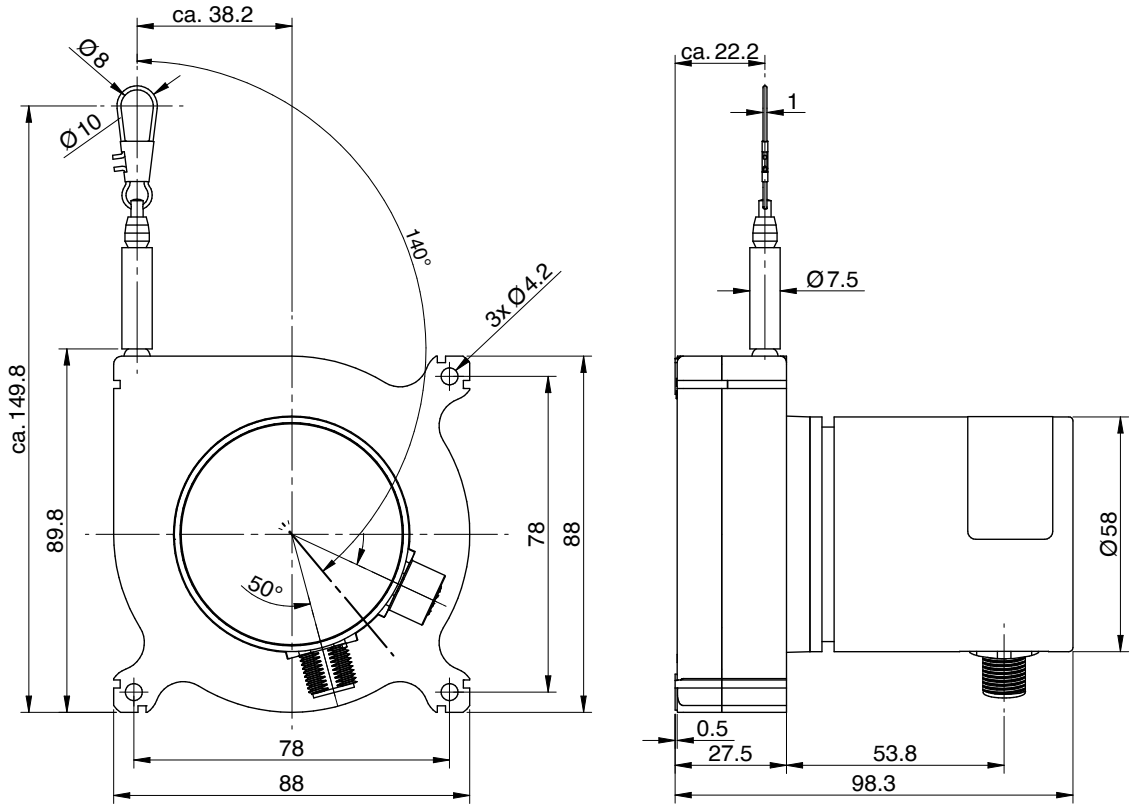
INSTALLATION DRAWINGS

SWEK-X-D-140-02 (ENCODER DIRECTLY MOUNTED)

(X: measuring stroke in meters)

Here shown is the cable-type displacement converter SWEK directly mounted to an encoder TRN58-KA…S2VxNxx with clamping flange (other encoders on request, e.g. see data sheets on page 3). The orientation of the plugs of the encoder to the cable entry has an angle of 140°.

Dimensions in mm



MATERIALS USED AT CONVERTER

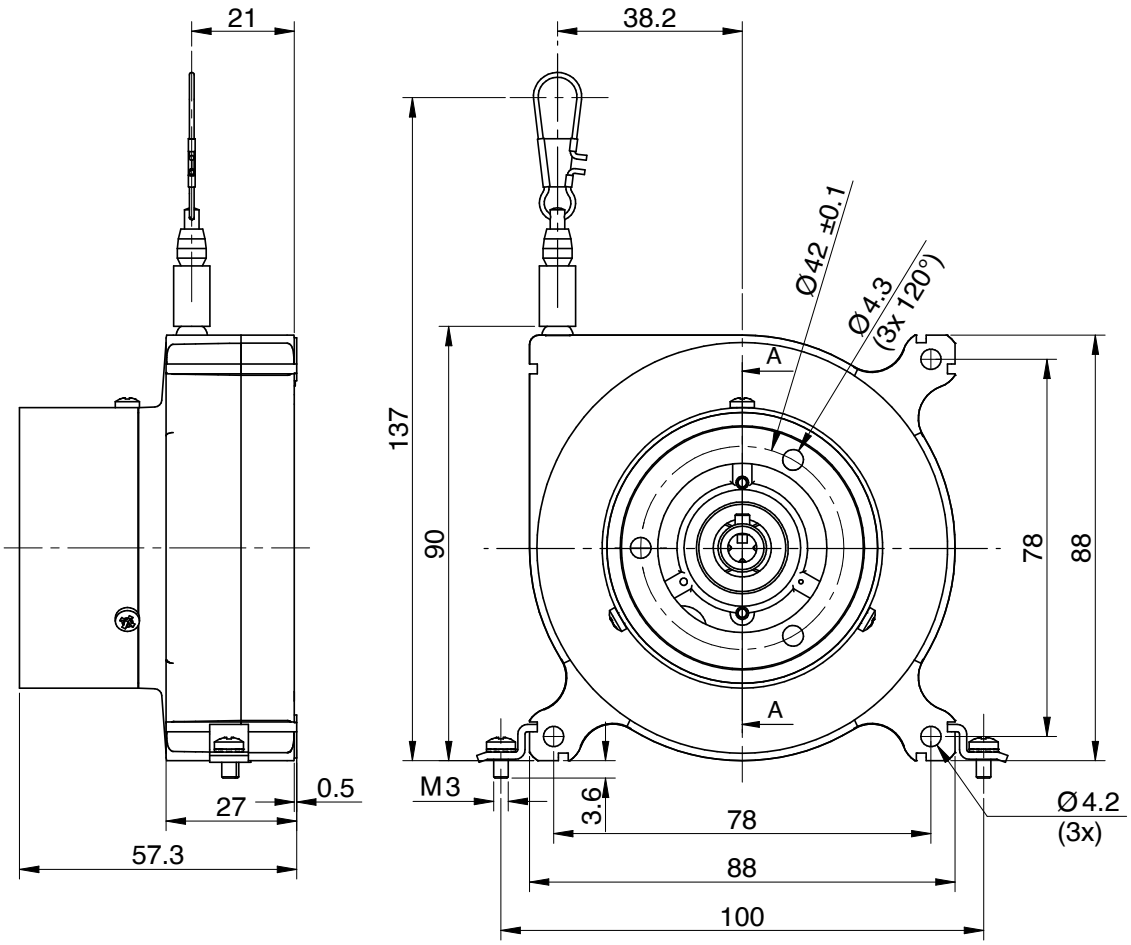
Housing . . . . . PA 6

INSTALLATION DRAWINGS

SWEK-X-R-0-01 (FOR REMOVABLE ENCODERS)

(X: measuring stroke in metres, Y orientation plugs of encoder to cable entry)
Cable-type displacement converter with removable encoder for encoders with synchro flange
Here shown is just the cable-type displacement converter (without encoder)
Possible values for the orientation of the encoders Y: see drawing SWEK-X-R-30-01 page 6

Dimensions in mm



MATERIALS USED AT CONVERTER

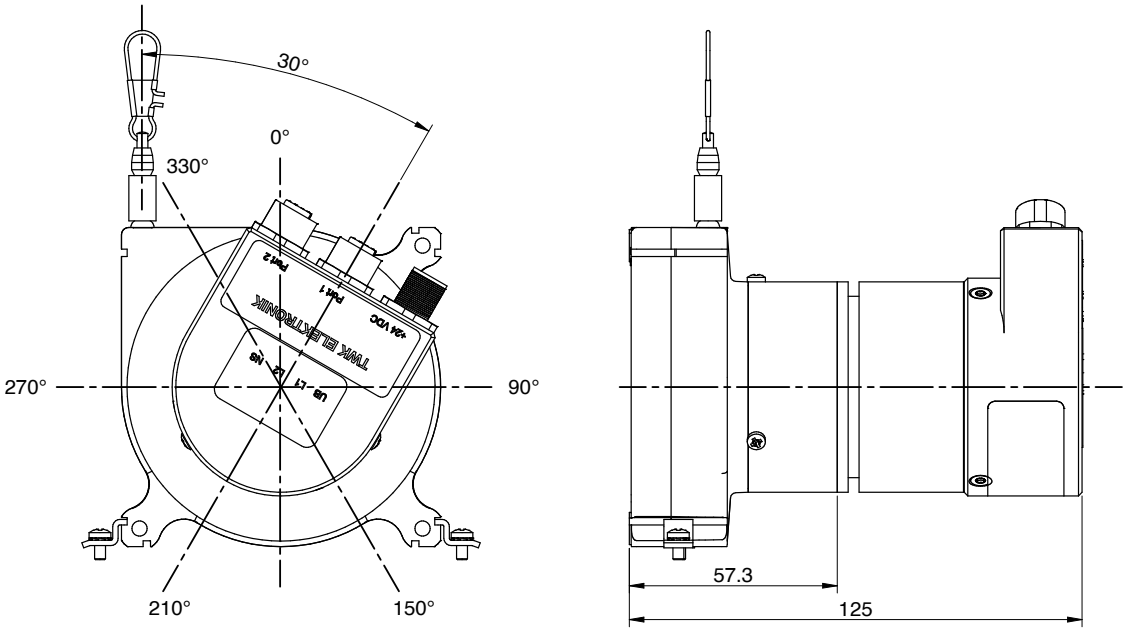
Housing . . . . . PA 6

INSTALLATION DRAWINGS

SWEK-X-R-30-01 with TRT58-SA…MT01 (ENCODER REMOVABLE)

(X: measuring stroke in metres)
Example for combination of a removable encoder and the cable-type displacement converter, orientation of the encoder: 30°
The cable-type displacement converter is mounted to the encoder via the mounting holes in the flange of the encoder.
TWK standard encoders have three mounting holes in the flange, one of them is in the direction of the plugs. Therefore the possible values for the orientation of the encoder are 30°, 150° and 270°.
Some encoders have six mounting holes in the flange, then 90°, 210° and 330° are also possible.
For converters without encoder the order code is SWEK-X-R-0-01.

Dimensions in mm



MATERIALS USED AT CONVERTER

Housing . . . . . PA 6