

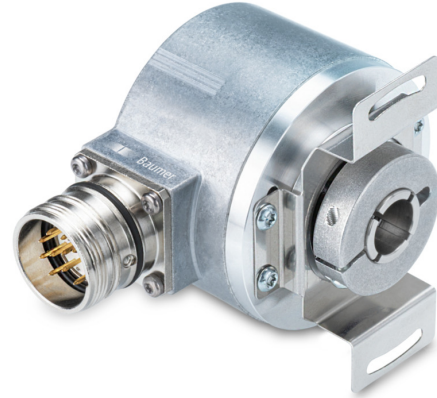
# EN580E.ML-TT12.GB11G.13120.H

Through hollow shaft, optical multiturn encoders 13 bit ST / 12 bit MT, SSI

Article number: 11246046

## Overview

- Absolute encoder multiturn
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 12 bit
- Maximum resistant against magnetic fields
- Connection: flange connector M23, 12-pin, CCW



## Technical data

### Technical data - electrical ratings

|                             |   |
|-----------------------------|---|
| Voltage supply              | 8...30 VDC  |
| Reverse polarity protection | Yes   |
| Short-circuit proof         | Yes   |
| Consumption w/o load        | ≤80 mA (24 VDC)   |
| Interface                   | SSI   |
| Function                    | Multiturn   |
| Steps per revolution        | 8192 / 13 bit   |
| Number of revolutions       | 4096 / 12 bit   |
| Absolute accuracy           | ±0.03 °   |
| Sensing method              | Optical   |
| Code                        | Gray  |
| Code sequence               | CW: ascending values with clockwise sense of rotation (looking at flange) |
| Input signals               | SSI clock<br>Zero setting input<br>Counting direction                     |
| Output stages               | SSI data: Linedriver RS422  |
| Output signals              | SSI data  |
| Interference immunity       | EN 61000-6-2  |
| Emitted interference        | EN 61000-6-4  |

### Technical data - electrical ratings

|   |  |
|---|--|
| Approval                                  | UL-Listing: E217823  |
| <b>Technical data - mechanical design</b> |  |
| Size (flange)                             | ø58 mm   |
| Shaft type                                | ø12 mm (through hollow shaft)  |
| Protection EN 60529                       | IP 54 (flange side)<br>IP 65 (housing side)  |
| Operating speed                           | ≤6000 rpm (+25 °C)   |
| Starting torque                           | ≤0.04 Nm   |
| Motor shaft tolerance                     | ± 0.2 mm (axial offset)<br>≤ 0.1 mm (radial offset)<br>≤ 0.1 mm (concentricity)                          |
| Material                                  | Housing: aluminium<br>Shaft: stainless steel   |
| Operating temperature                     | -25...+85 °C (see general information)   |
| Relative humidity                         | 95 % non-condensing  |
| Resistance                                | IEC 60068-2-6<br>Vibration ±0.75 mm - 10-58 Hz, 10 g - 58-2000 Hz<br>EN 60068-2-27<br>Shock 100 g, 11 ms |
| Weight approx.                            | 400 g  |
| Connection                                | Flange connector M23, 12-pin, CCW  |

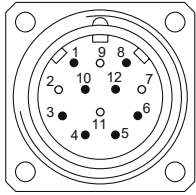
**General information**

Self-heating correlated to installation and ambient conditions as well as to electronics and supply voltage must be considered for precise thermal dimensioning. Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

**Terminal assignment**

**Flange socket M23, 12-pin, male contact, CCW**

| Pin | Assignment |
|-----|------------|
| 1   | Data-      |
| 2   | -          |
| 3   | SET        |
| 4   | DIR        |
| 5   | Clock+     |
| 6   | Clock-     |
| 7   | -          |
| 8   | Data+      |
| 9   | -          |
| 10  | 0 V        |
| 11  | -          |
| 12  | +Vs        |



**Terminal significance**

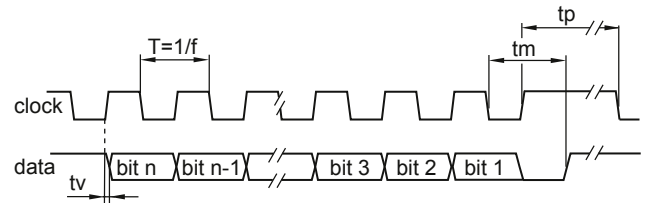
|     |   |
|-----|---|
| SET | Zero setting input.<br>Input for zero setting at any position.<br>The zero setting operation is triggered by a high pulse and has to be in line with the selected direction of rotation (DIR).<br>Impulse duration >100 ms.<br>Connect to 0 V after zero setting for maximum interference immunity.   |
| DIR | Counting direction input.<br>This input is standard on high.<br>DIR-High means ascending output data with clockwise shaft rotation when looking at flange.<br>DIR-Low means ascending values with counterclockwise shaft rotation when looking at flange.<br>For maximum interference immunity connect to +Vs respectively 0 V depending on counting direction. |

**Trigger level**

| SSI       | Circuit                               |
|-----------|---------------------------------------|
| SSI-Clock | RS422 with terminating resistor 120 Ω |
| SSI-Data  | RS422                                 |

| Control inputs   | Input circuit |
|------------------|---------------|
| Input level High | >0.7 UB       |
| Input level Low  | <0.3 UB       |
| Input resistance | 10 kΩ         |

**Data transfer**



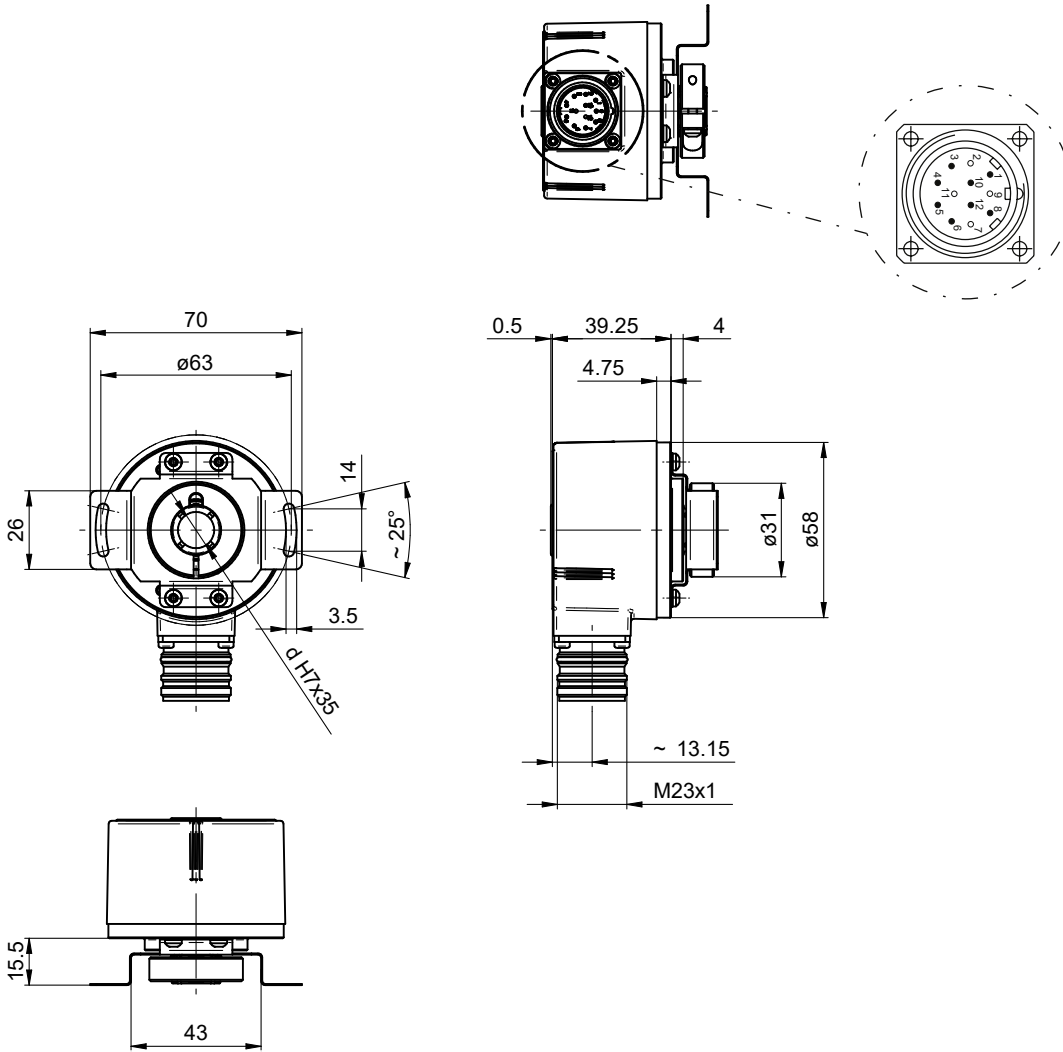
|                   |                      |
|-------------------|----------------------|
| Clock frequency f | 80...2000 kHz        |
| Delay time tv     | 70 ns (RL = 120 Ohm) |
| Monoflop time tm  | 16 ... 24 μs + T/2   |
| Clock interval tp | 30 μs                |

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## Dimensions



Through hollow shaft, flange socket M23

**Accessories****Mounting accessories**

|          |   |
|----------|---|
| 11066083 | Torque arm, 1-arm (mounting kit 006)                                  |
| 11073119 | Torque arm, 1-arm (mounting kit 021)                                  |
| 11067367 | Torque arm, 1-arm (mounting kit 028)                                  |
| 11113210 | Torque arm, 1-arm (mounting kit 047)                                  |
| 11124300 | Torque arm, 1-arm (mounting kit 048)                                  |
| 11106627 | Fan cover clip 8 mm   |
| 11116921 | Insulating sleeve $\varnothing$ 10 mm/ $\varnothing$ 12 mm/25 mm long |
| 11116923 | Insulating sleeve $\varnothing$ 12 mm/ $\varnothing$ 14 mm/25 mm long |
| 11730156 | Stator coupling, 2-arm - EN5xx / $\varnothing$ 68 mm / M3             |
| 11730157 | Stator coupling, 2-arm - EN5xx / $\varnothing$ 68 mm / M4             |
| 11730158 | Stator coupling, 2-arm - EN5xx / $\varnothing$ 73 mm / M3             |
| 11721627 | Stator coupling, 2-arm (mounting kit 207)                             |