

# EN580E.ML-TT12.GA1B1.13120.H

Through hollow shaft, optical multiturn encoders 13 bit ST / 12 bit MT, BiSS C Certified

Article number: 11246045

## Overview

- Absolute encoder multiturn
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 12 bit
- Maximum resistant against magnetic fields
- High connection flexibility thanks to flexible connector M12



## 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	BiSS C Certified
Function	Multiturn
Steps per revolution	8192 / 13 bit
Number of revolutions	4096 / 12 bit
Absolute accuracy	±0.03 °
Sensing method	Optical
Code	Binary
Code sequence	CW: ascending values with clockwise sense of rotation; looking at flange
Input signals	BiSS clock (MA) Zero setting input Counting direction
Output stages	BiSS data: Linedriver RS422
Output signals	BiSS data (SLO)
Clock frequency	80...10000 kHz
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) IP 65 (housing side)
Operating speed	≤6000 rpm (+25 °C)
Starting torque	≤0.04 Nm
Motor shaft tolerance	± 0.2 mm (axial offset) ≤ 0.1 mm (radial offset) ≤ 0.1 mm (concentricity)
Material	Housing: aluminium Shaft: stainless steel
Operating temperature	-25...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	IEC 60068-2-6 Vibration ±0.75 mm - 10-58 Hz, 10 g - 58-2000 Hz EN 60068-2-27 Shock 100 g, 11 ms
Weight approx.	400 g
Connection	Connector M12, 8-pin, flexible

### 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

#### Connector M12, 8-pin

Pin	Assignment
1	0 V
2	+Vs
3	MA+
4	MA-
5	SLO+
6	SLO-
7	SET
8	DIR



### Terminal significance

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

### Trigger level

BiSS C	Circuit
BiSS C-Clock	RS422 with terminating resistor 120 Ω
BiSS C-Data	RS422

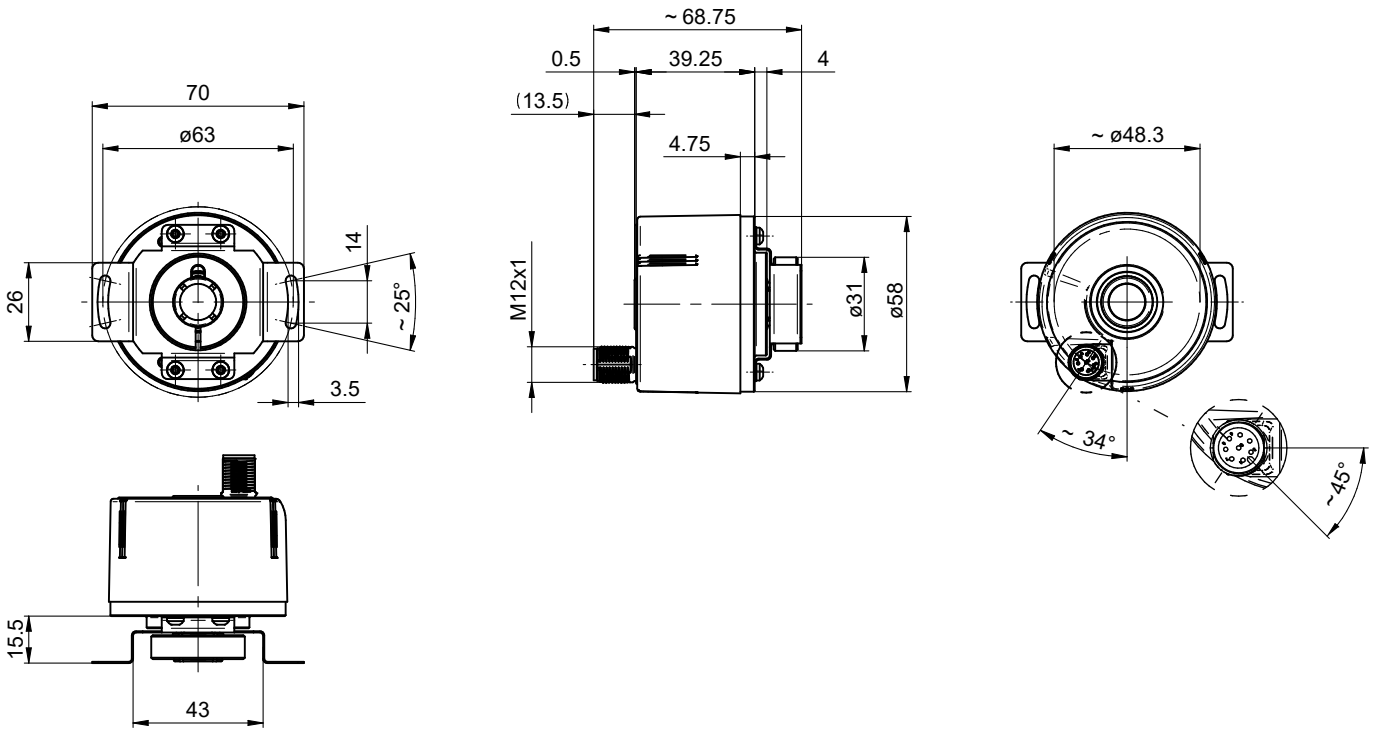
Control inputs	Input circuit
Input level High	>0.7 UB
Input level Low	<0.3 UB
Input resistance	10 kΩ

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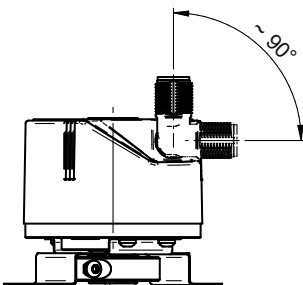
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## Dimensions



Through hollow shaft, connector M12



Through hollow shaft, flexible connector M12

**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)
11100198	Stator coupling, 2-armed (mounting kit 046)
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