

# EN580C.ML-B - Profibus-DPV0

Blind hollow shaft

Optical multiturn encoders up to 21 bit ST / 16 bit MT

## Overview

- Encoder multiturn / bus cover
- Optical sensing method
- Resolution: singleturn 21 bit (default: 13 bit), multiturn 16 bit (default: 16 bit)
- Total resolution up to 31 bit
- Blind hollow shaft
- Interface: Profibus-DPV0
- Internal continuity check with diagnostic information by bus
- Maximum resistant against magnetic fields
- Gear factor adjustable via numerator / denominator



Picture similar

## Technical data

### Technical data - electrical ratings

Voltage supply	8...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA (24 VDC)
Initializing time typ.	180 ms after power on
Interface	Profibus-DPV0
Function	Multiturn
Device adress	Rotary switches in bus cover
Steps per revolution	≤2097152 / 21 bit
Number of revolutions	≤65536 / 16 bit
Absolute accuracy	±0.01 °
Sensing method	Optical
Code	Binary
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Programmable parameters	Steps per revolution Number of revolutions Preset Scaling Rotating direction Gear factor
Diagnostic function	Position or parameter error Multiturn sensing Operating hour counter
Status indicator	DUO-LED integrated in bus cover
Approval	UL approval / E217823

### Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø12 mm (blind hollow shaft) ø14 mm (blind hollow shaft)
Protection EN 60529	IP 54 (without shaft seal) IP 65 / IP 67 (with shaft seal)
Operating speed	≤6000 rpm (+25 °C)
Starting acceleration	≤1000 U/s <sup>2</sup>
Starting torque	≤0.02 Nm (+25 °C, IP 54) ≤0.04 Nm (+25 °C, IP 65 / IP 67)
Motor shaft tolerance	± 0.2 mm (axial offset) ≤ 0.1 mm (radial offset) ≤ 0.1 mm (concentricity)
Material	Housing: aluminium Flange: aluminium Bus cover: zinc die-cast Shaft: stainless steel
Operating temperature	-40...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration ±0.75 mm - 10-58 Hz, 10 g - 58-2000 Hz EN 60068-2-27 Shock 200 g, 3 ms
Weight approx.	550 g
Connection	Cable gland Connector 3xM12
Instruction	Resonance frequency with stator coupling (11721627): 450...600 Hz

## Optional

- With torque pin (MTQ003)

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## 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

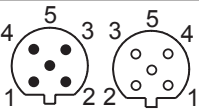
### Connector M12 (male), 4-pin, A-coded

1	+Vs	Voltage supply 8...30 VDC
3	0 V	Ground connection relating to +Vs



### Connector M12 (male / female), 5-pin, B-coded

2	A	Negative data line
4	B	Positive data line



Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections Vs-Vs and 0V-0 V is 1 A each.

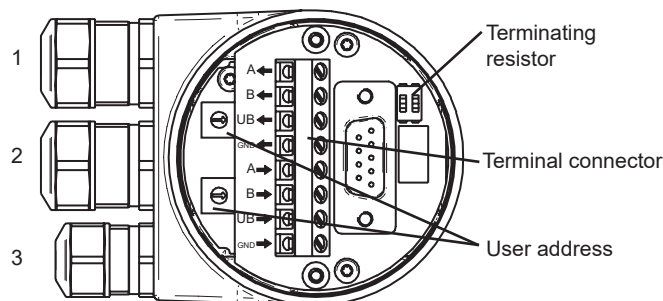
## Cable gland

+Vs	Voltage supply 8...30 VDC
0 V	Ground connection relating to +Vs
A	Negative data line
B	Positive data line

Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections Vs-Vs and 0V-0V is 1 A each.

## View inside bus cover

### Cable gland



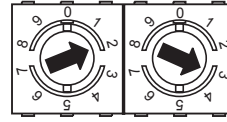
Cable: 1, 2 =  $\varnothing$ 8-10 mm (-40-85 °C) /  $\varnothing$ 5-9 mm (-25-85 °C)  
 Cable: 3 =  $\varnothing$ 4.5-6 mm (-40-85 °C) /  $\varnothing$ 3-6 mm (-25-85 °C)

## Terminating resistor



Both ON = final user  
 Both OFF = user X  
 Default: OFF

## User address



Defined by rotary switch.  
 Example: User address 23

Default: 00

## Profibus-DP features

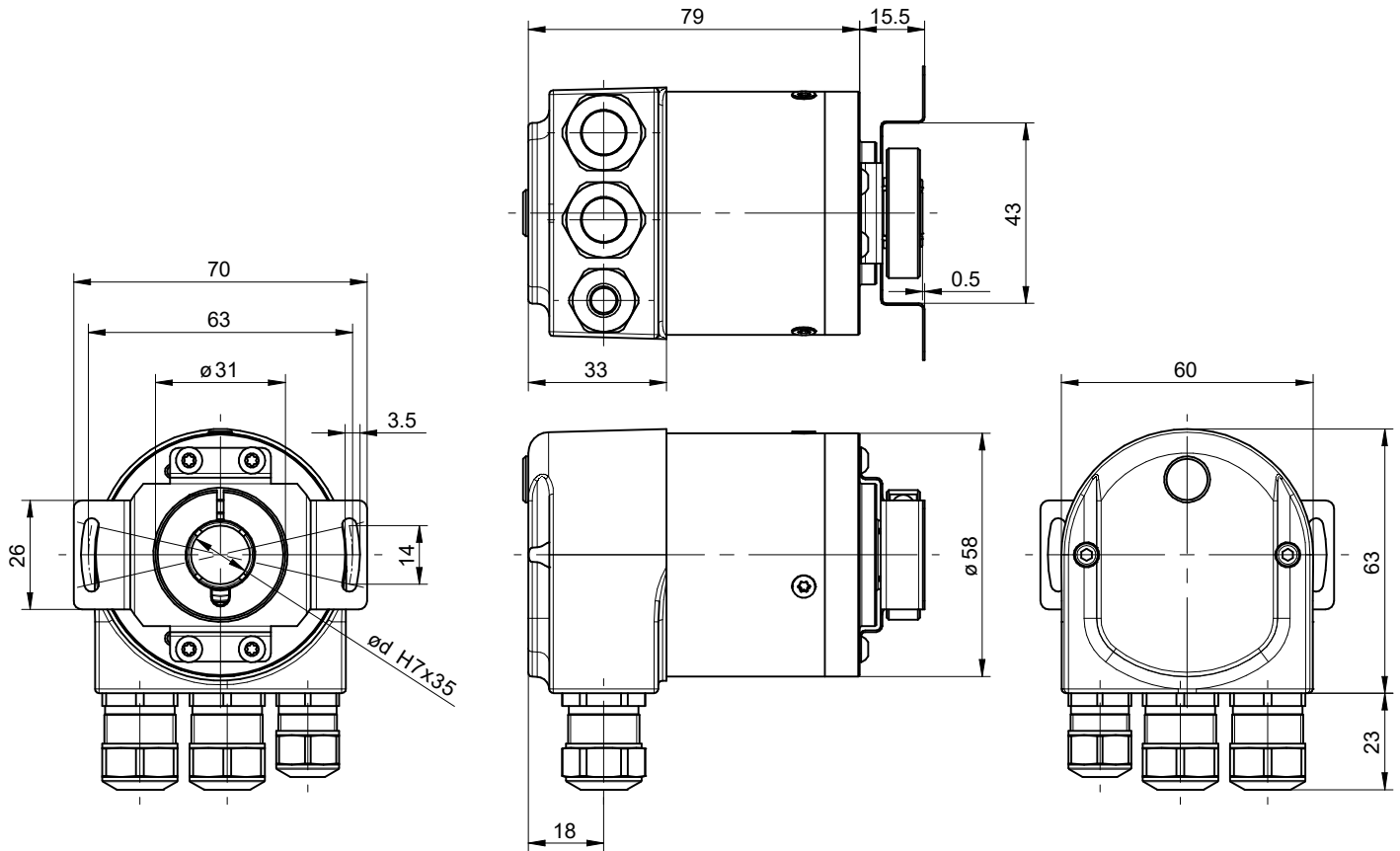
Bus protocol	Profibus-DPV0
Device profile	Device Class 1 and 2
Cyclic data exchange	Communication in line with DPV0
Input data	Position value. In addition optionally speed signal parametering.
Output data	Preset value
Preset	Parameter for setting the encoder to a requested position value assigned to a defined shaft position of the system. Storage non-volatile.
Rotating direction	Parameter for defining the rotating direction in which there have to be ascending or descending position values.
Scaling	Parameter defining the steps per turn as well as the total resolution.
Gear factor	Adjustable via numerator / denominator.
Diagnosis	Position and parameter error Multiturn sensing control Operating hour counter readable

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## Dimensions



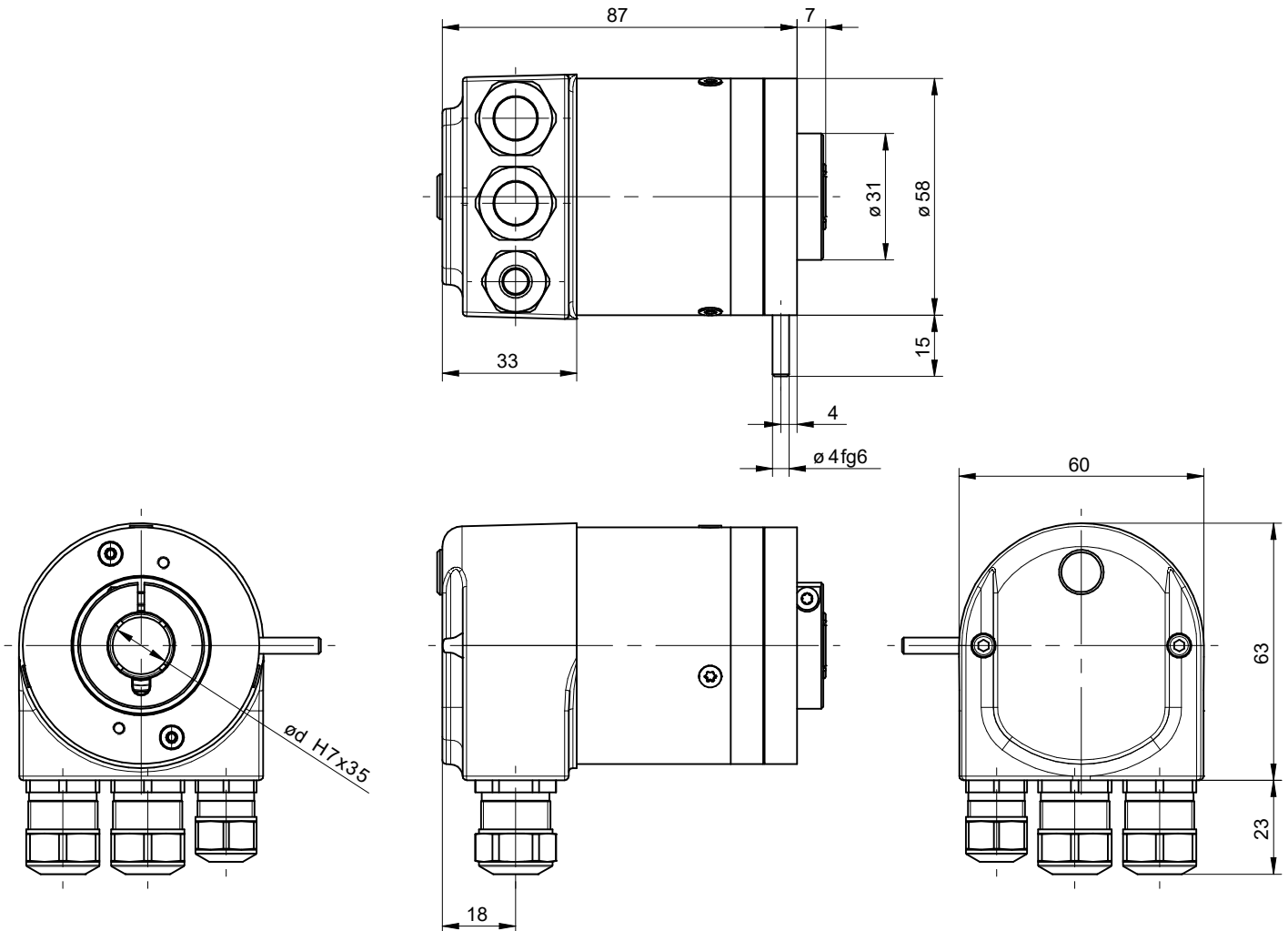
EN580C.ML-B - cable gland, stator coupling

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## Dimensions



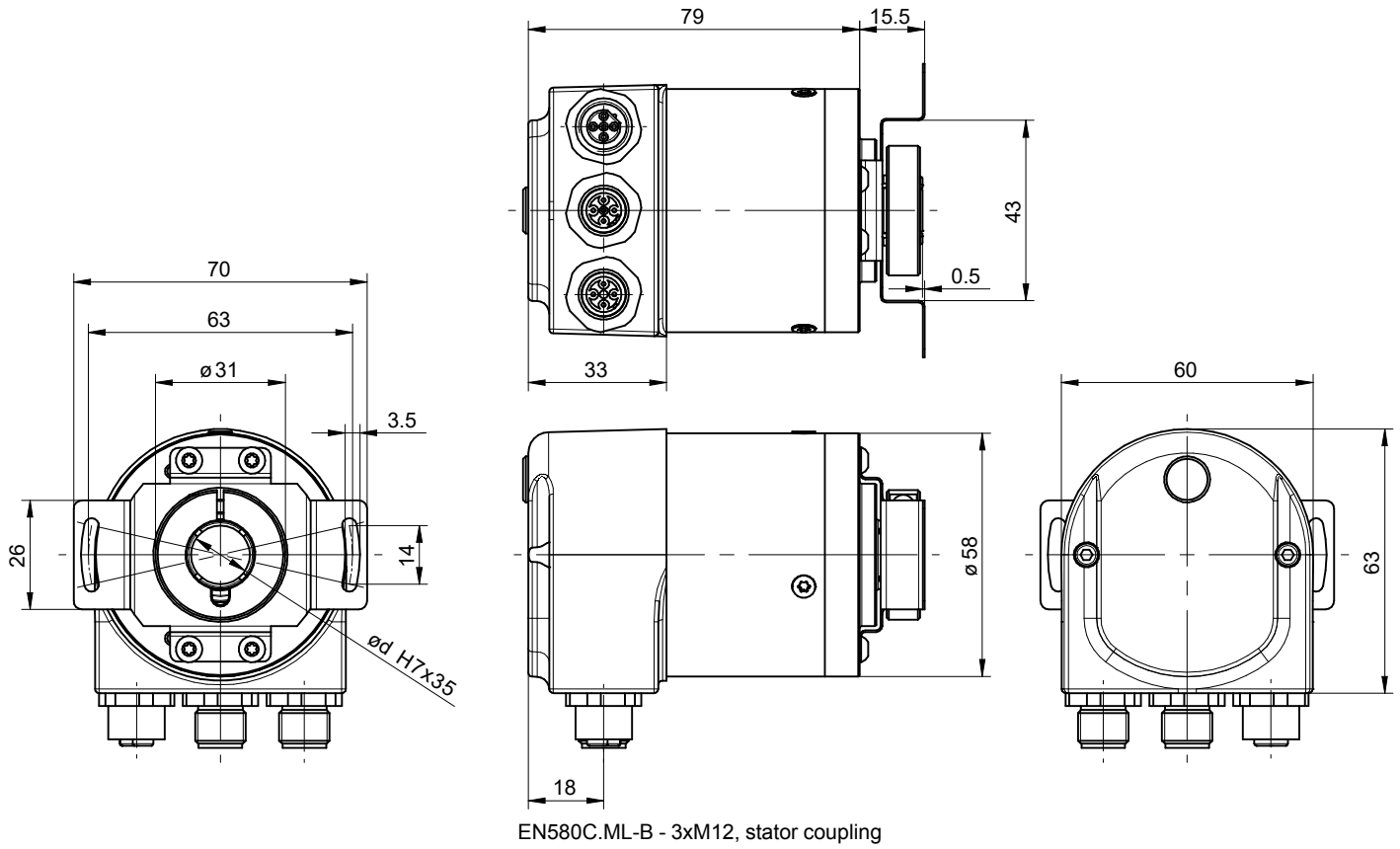
EN580C.ML-B - cable gland, option MTQ003: torque pin

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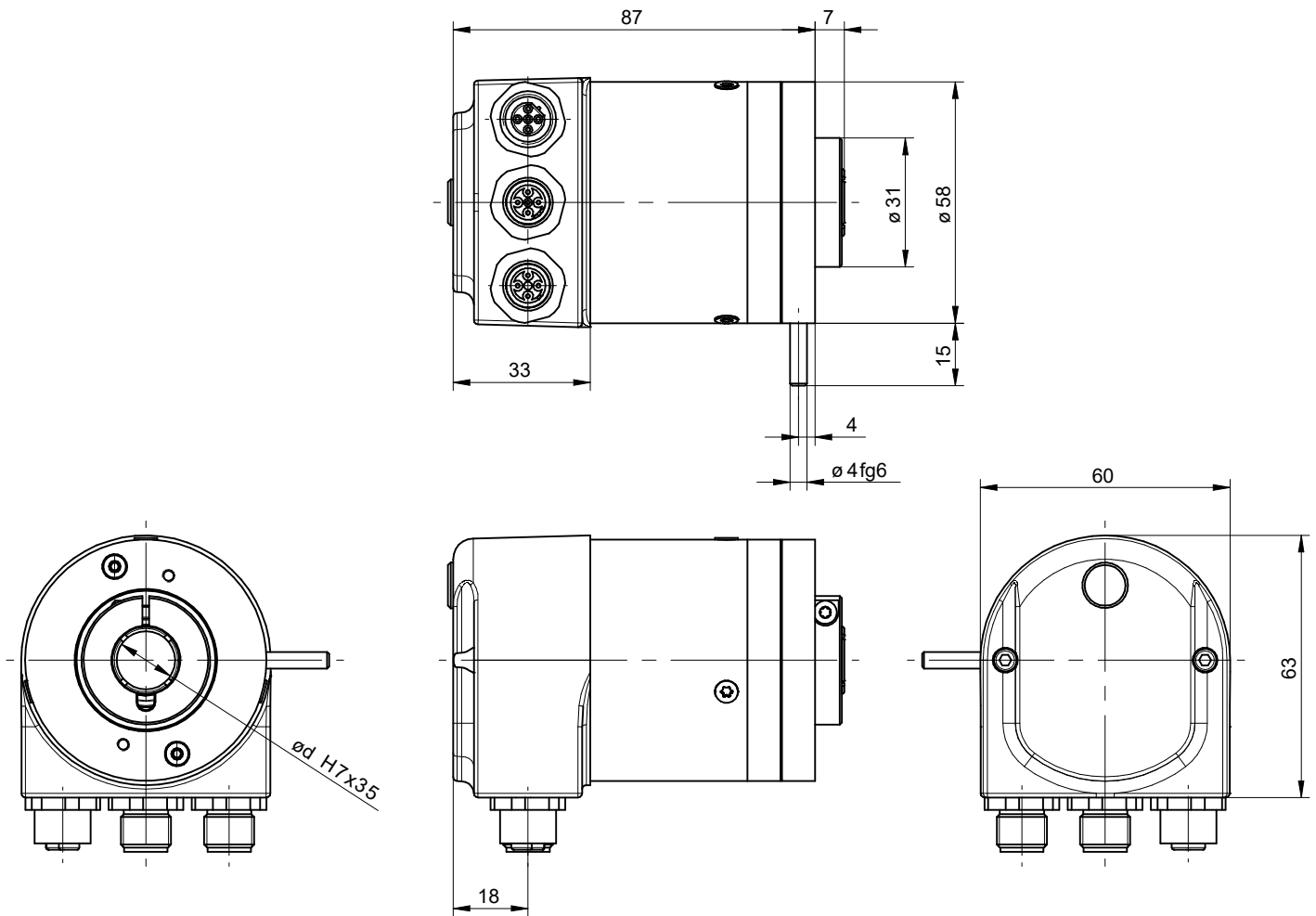


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## Dimensions



EN580C.ML-B - 3xM12, option MTQ003: torque pin

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**Ordering reference**

	EN	580	C	.	M	L	-	B	N	##	.	#	##	PB	.	21	16	0	.	#
<b>Product</b>	EN																			
Encoder	EN																			
<b>Series</b>		580																		
580		580																		
<b>Focus</b>			C																	
Bus cover			C																	
<b>Function</b>					M															
Multiturn					M															
<b>Sensing</b>						L														
Optical						L														
<b>Shaft type</b>								B												
Blind hollow shaft								B												
<b>Flange (Hollow shaft)</b>									N											
Without stator coupling									N											
<b>Blind hollow shaft</b>																				
ø12 mm, clamping ring, A-side										12										
ø14 mm, clamping ring, A-side										14										
<b>Protection class</b>																				
Flange: IP 54, Housing: IP 65														G						
IP 65, IP 67														H						
<b>Connection</b>																				
Bus cover, 3xM12 radial														H1						
Bus cover, 3x cable gland														H2						
<b>Voltage supply / interface</b>																				
8...30 VDC, PROFIBUS-DPV0														PB						
<b>Resolution Singleturn</b>																				
21 Bit																				21
<b>Resolution Multiturn</b>																				
16 Bit																				16
<b>Resolution supplement</b>																				
No option																				0
<b>Operating temperature</b>																				
-25...+85 °C																				H
-40...+85 °C																				A

**Accessories**
**Mounting accessories**

10139345	Torque support by rubber buffer for encoders with 15 mm pin (Z 119.041)
11721627	Stator coupling, 2-armed (mounting kit 207)