

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 ² |
| 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

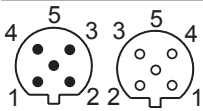
Connector M12 (male), 4-pin, A-coded

| | | |
|---|-----|-----------------------------------|
| 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.

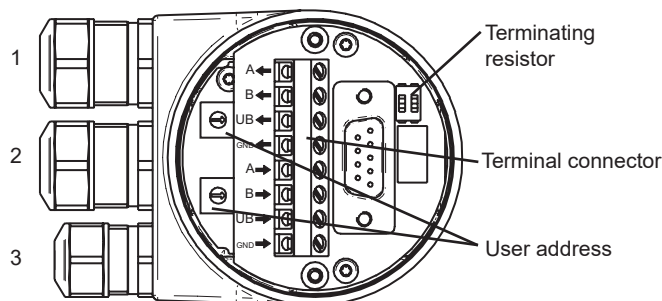
Cable gland

| | |
|-----|-----------------------------------|
| +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



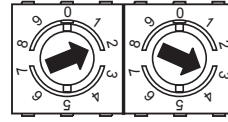
Cable: 1, 2 = \varnothing 8-10 mm (-40-85 °C) / \varnothing 5-9 mm (-25-85 °C)
 Cable: 3 = \varnothing 4.5-6 mm (-40-85 °C) / \varnothing 3-6 mm (-25-85 °C)

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

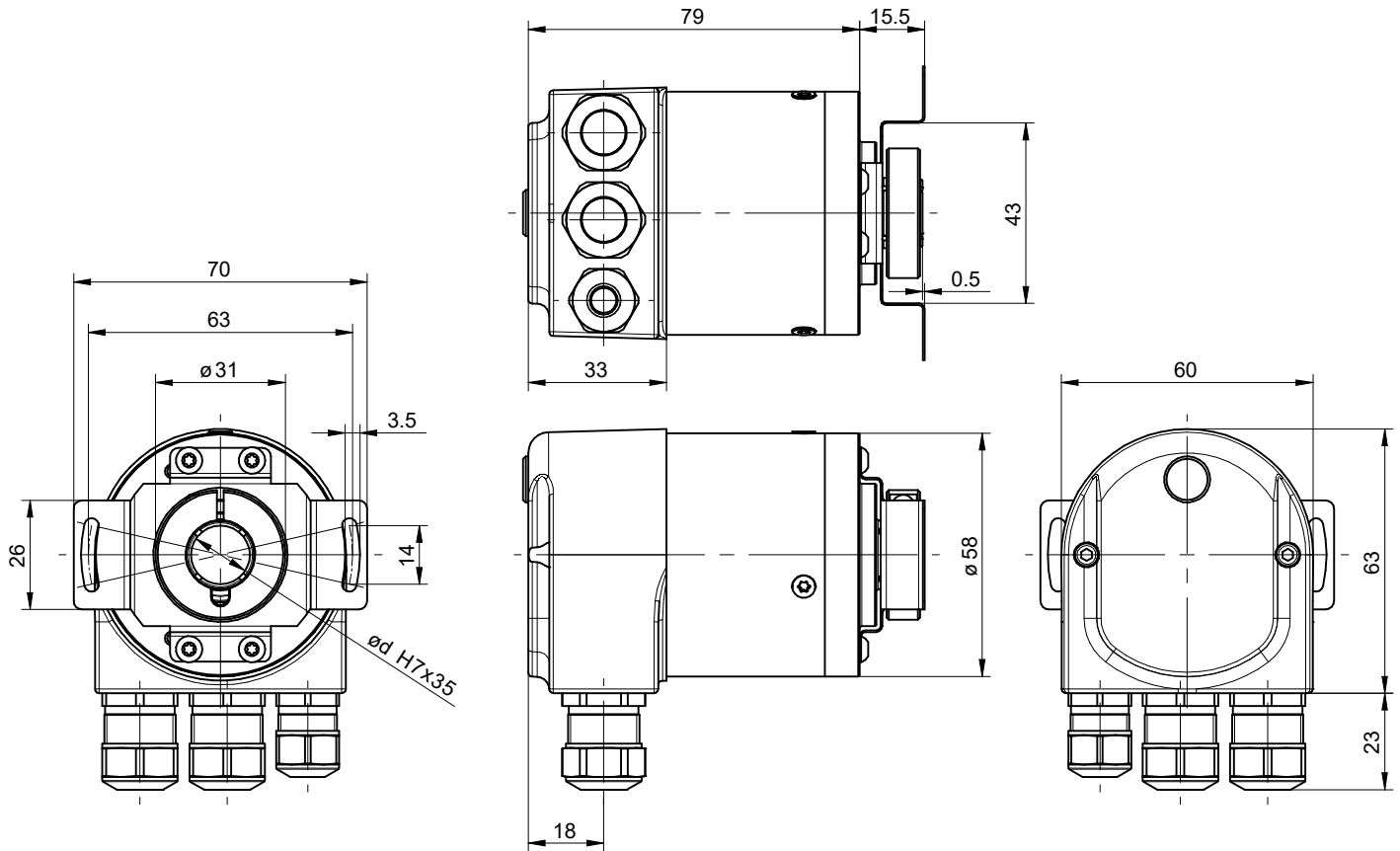
| | |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Bus protocol | Profibus-DPV0 |
| Device profile | Device Class 1 and 2 |
| Cyclic data exchange | Communication in line with DPV0 |
| 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



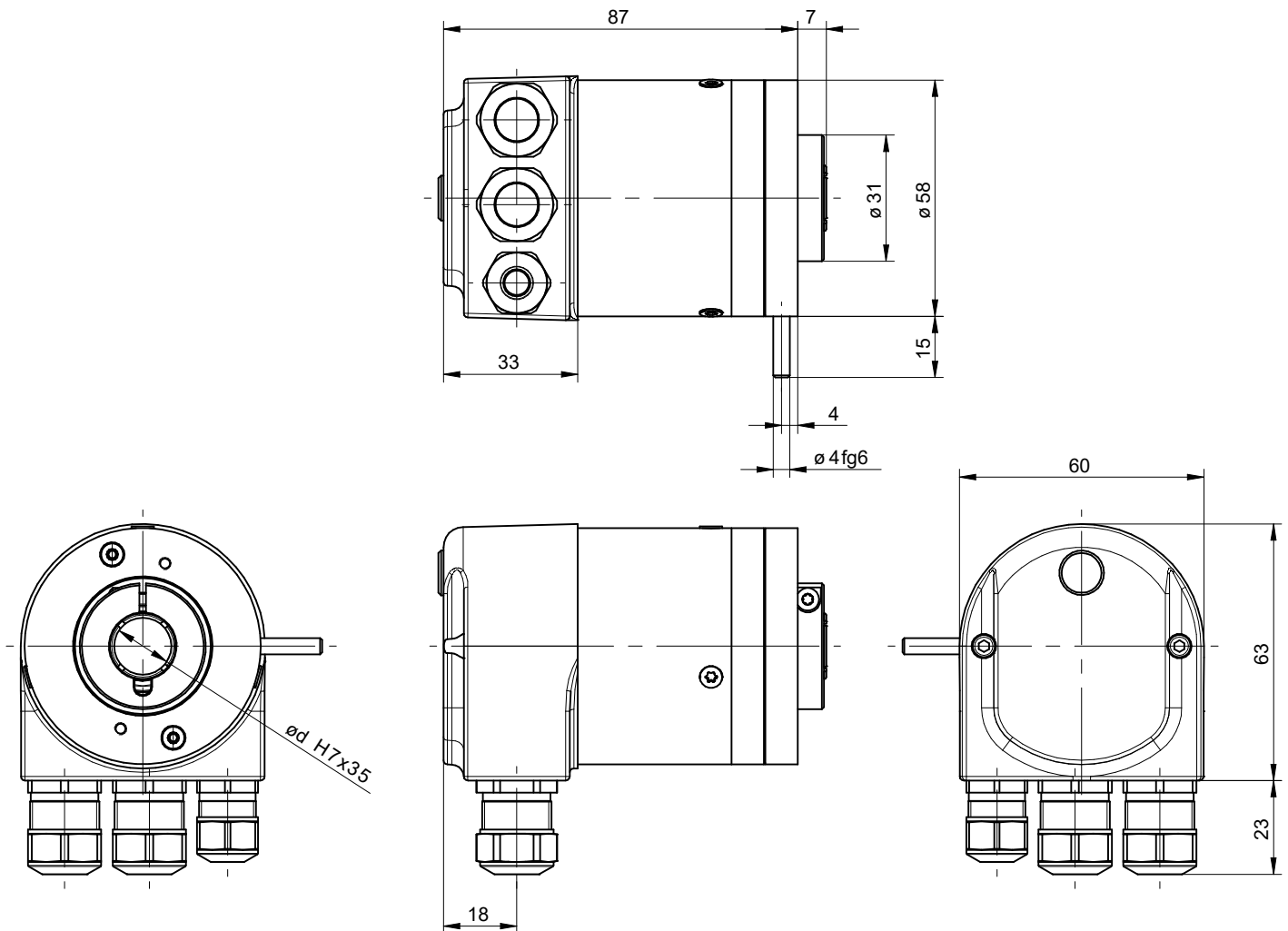
EN580C.ML-B - cable gland, stator coupling

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Dimensions



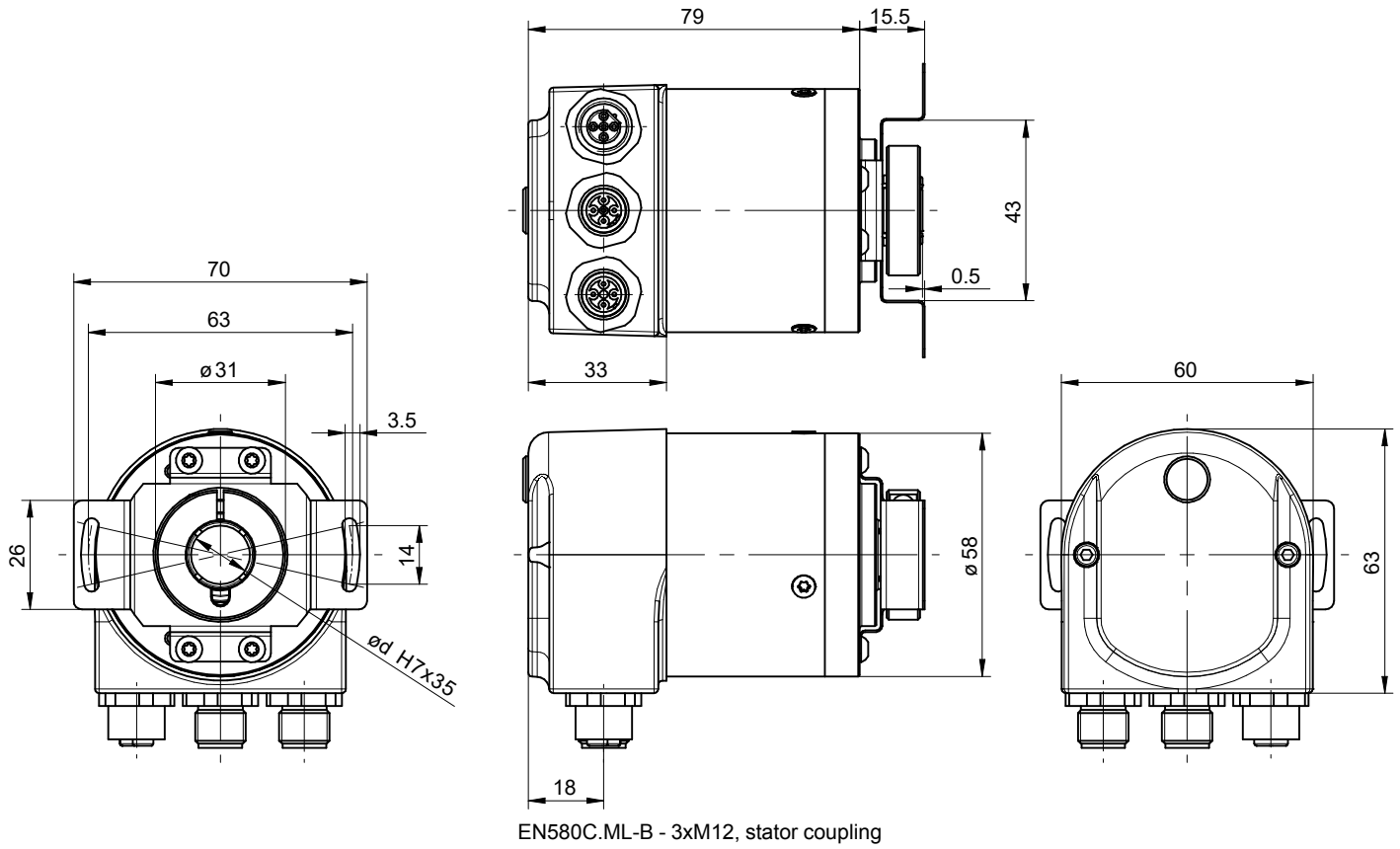
EN580C.ML-B - cable gland, option MTQ003: torque pin

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Dimensions

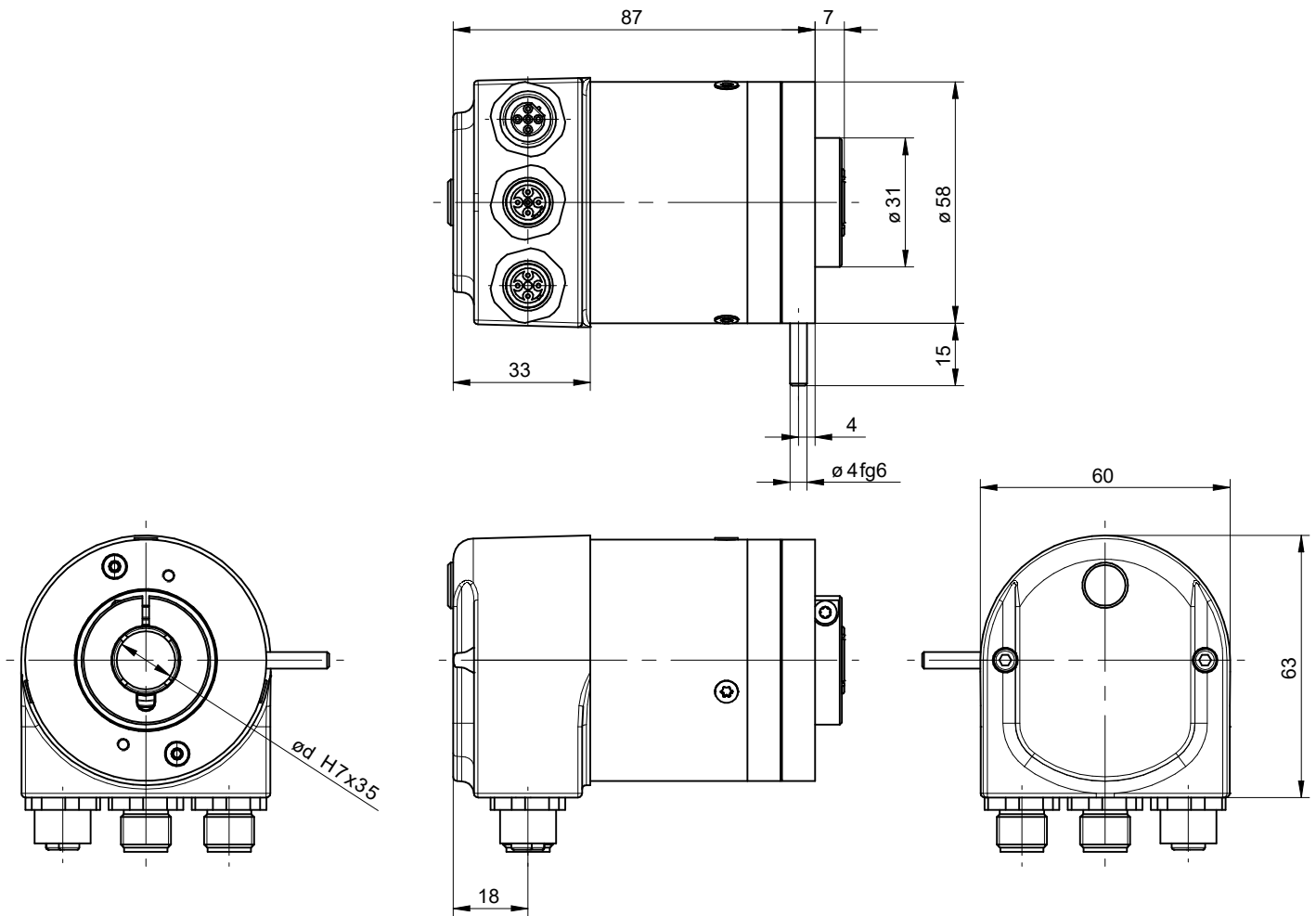


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Dimensions



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 | . | # |
|-----------------------------------|----|-----|---|---|---|---|---|---|---|----|---|---|----|----|---|----|----|---|---|----|
| Product | EN | | | | | | | | | | | | | | | | | | | |
| Encoder | EN | | | | | | | | | | | | | | | | | | | |
| Series | | 580 | | | | | | | | | | | | | | | | | | |
| 580 | | 580 | | | | | | | | | | | | | | | | | | |
| Focus | | | C | | | | | | | | | | | | | | | | | |
| Bus cover | | | C | | | | | | | | | | | | | | | | | |
| Function | | | | | M | | | | | | | | | | | | | | | |
| Multiturn | | | | | M | | | | | | | | | | | | | | | |
| Sensing | | | | | | L | | | | | | | | | | | | | | |
| Optical | | | | | | L | | | | | | | | | | | | | | |
| Shaft type | | | | | | | | B | | | | | | | | | | | | |
| Blind hollow shaft | | | | | | | | B | | | | | | | | | | | | |
| Flange (Hollow shaft) | | | | | | | | | N | | | | | | | | | | | |
| Without stator coupling | | | | | | | | | N | | | | | | | | | | | |
| Blind hollow shaft | | | | | | | | | | | | | | | | | | | | |
| ø12 mm, clamping ring, A-side | | | | | | | | | | 12 | | | | | | | | | | |
| ø14 mm, clamping ring, A-side | | | | | | | | | | 14 | | | | | | | | | | |
| Protection class | | | | | | | | | | | | | | | | | | | | |
| Flange: IP 54, Housing: IP 65 | | | | | | | | | | | | | | G | | | | | | |
| IP 65, IP 67 | | | | | | | | | | | | | | H | | | | | | |
| Connection | | | | | | | | | | | | | | | | | | | | |
| Bus cover, 3xM12 radial | | | | | | | | | | | | | | H1 | | | | | | |
| Bus cover, 3x cable gland | | | | | | | | | | | | | | H2 | | | | | | |
| Voltage supply / interface | | | | | | | | | | | | | | | | | | | | |
| 8...30 VDC, PROFIBUS-DPV0 | | | | | | | | | | | | | | PB | | | | | | |
| Resolution Singleturn | | | | | | | | | | | | | | | | | | | | |
| 21 Bit | | | | | | | | | | | | | | | | | | | | 21 |
| Resolution Multiturn | | | | | | | | | | | | | | | | | | | | |
| 16 Bit | | | | | | | | | | | | | | | | | | | | 16 |
| Resolution supplement | | | | | | | | | | | | | | | | | | | | |
| No option | | | | | | | | | | | | | | | | | | | | 0 |
| Operating temperature | | | | | | | | | | | | | | | | | | | | |
| -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-arm (mounting kit 207) |
| 11730156 | Stator coupling, 2-arm - EN5xx / ø68 mm / M3 |
| 11730157 | Stator coupling, 2-arm - EN5xx / ø68 mm / M4 |
| 11730158 | Stator coupling, 2-arm - EN5xx / ø73 mm / M3 |