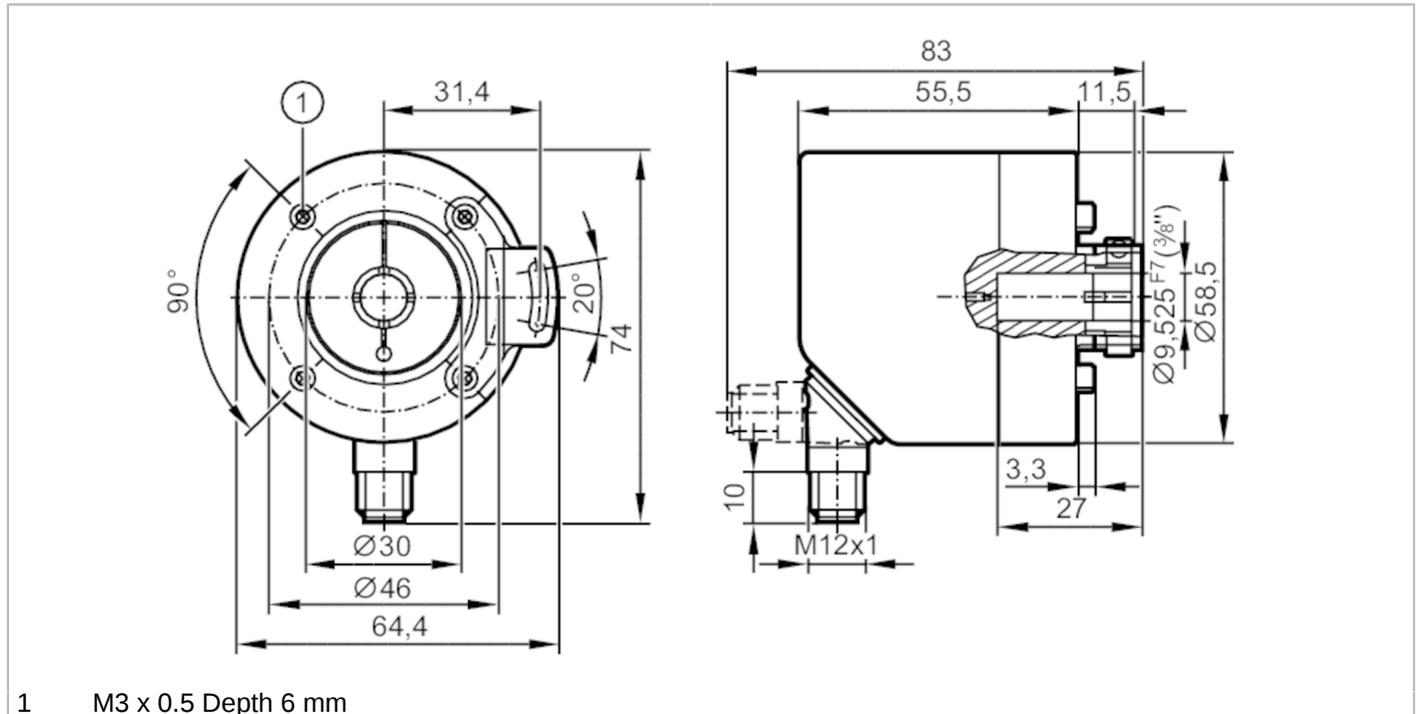


# RO3103



## Incremental encoder with hollow shaft

INCREMENTAL ENCODER BASIC LINE



1 M3 x 0.5 Depth 6 mm



| Product characteristics            |                                                                |
|------------------------------------|----------------------------------------------------------------|
| Resolution                         | 1...10000; (parameterisable; Factory setting: 1024) resolution |
| Communication interface            | IO-Link                                                        |
| Shaft design                       | hollow shaft open to one side                                  |
| Shaft diameter [mm]                | 9.525                                                          |
| Application                        |                                                                |
| Function principle                 | incremental                                                    |
| Detection system                   | magnetic                                                       |
| Electrical data                    |                                                                |
| Operating voltage [V]              | 4.75...30 DC                                                   |
| Current consumption [mA]           | < 150                                                          |
| Protection class                   | III                                                            |
| Reverse polarity protection        | yes                                                            |
| Power-on delay time [s]            | 0.5                                                            |
| Max. revolution electrical [U/min] | 12000                                                          |
| Outputs                            |                                                                |
| Electrical design                  | HTL/TTL                                                        |
| Switching frequency [kHz]          | 1000                                                           |
| Factory setting                    | Output function: HTL (50 mA)                                   |
| Short-circuit protection           | yes                                                            |
| Phase difference A and B [°]       | 90                                                             |
| Measuring/setting range            |                                                                |
| Resolution                         | 1...10000; (parameterisable; Factory setting: 1024) resolution |

# RO3103

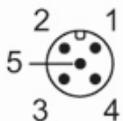


## Incremental encoder with hollow shaft

INCREMENTAL ENCODER BASIC LINE

| Accuracy / deviations         |                                                            |
|-------------------------------|------------------------------------------------------------|
| Accuracy                      | [°] 0.1                                                    |
| Software / programming        |                                                            |
| Parameter setting options     | Resolution; direction of rotation; HTL; TTL                |
| Interfaces                    |                                                            |
| Communication interface       | IO-Link                                                    |
| Transmission type             | COM2 (38,4 kBaud)                                          |
| IO-Link revision              | 1.1                                                        |
| SIO mode                      | yes                                                        |
| Min. process cycle time       | [ms] 2.3                                                   |
| Operating conditions          |                                                            |
| Ambient temperature           | [°C] -40...85                                              |
| Storage temperature           | [°C] -40...85                                              |
| Max. relative air humidity    | [%] 95; (condensation not permissible)                     |
| Protection                    | IP 65; IP 66; (on the housing: IP 67; on the shaft: IP 65) |
| Tests / approvals             |                                                            |
| Shock resistance              | 100 g                                                      |
| Vibration resistance          | 20 g                                                       |
| MTTF                          | [years] 292                                                |
| Mechanical data               |                                                            |
| Weight                        | [g] 435                                                    |
| Dimensions                    | [mm] Ø 58.5 / L = 69                                       |
| Materials                     | flange: aluminium; housing: stainless steel (1.4521 / 444) |
| Tightening torque             | [Nm] < 0.7; (Mounting screw)                               |
| Max. revolution, mechanical   | [U/min] 12000                                              |
| Max. starting torque          | [Nm] 2                                                     |
| Reference temperature torque  | [°C] 20                                                    |
| Shaft design                  | hollow shaft open to one side                              |
| Shaft diameter                | [mm] 9.525                                                 |
| Shaft material                | stainless steel                                            |
| Installation depth of shaft   | [mm] 27                                                    |
| Max. axial shaft misalignment | [mm] 0,5                                                   |

**Electrical connection**  
Connector: 1 x M12, radial, can also be used axially; Moulded body: stainless steel (1.4401 / 316); Maximum cable length: 100 m; (IO-Link: max. 20 m)



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### IO-Link

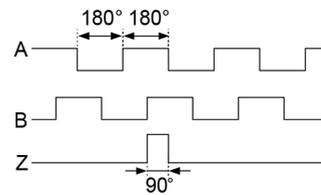
|        |                |
|--------|----------------|
| 1      | L+             |
| 2      | not to be used |
| 3      | L-             |
| 4      | IO-Link        |
| 5      | not to be used |
| Screen | plug           |

### encoder

|        |                    |
|--------|--------------------|
| 1      | UB                 |
| 2      | A                  |
| 3      | GND                |
| 4      | Z/0-Pulse (90 deg) |
| 5      | B                  |
| Screen | plug               |

### Diagrams and graphs

Pulse diagram



direction of rotation clockwise (looking at the shaft)