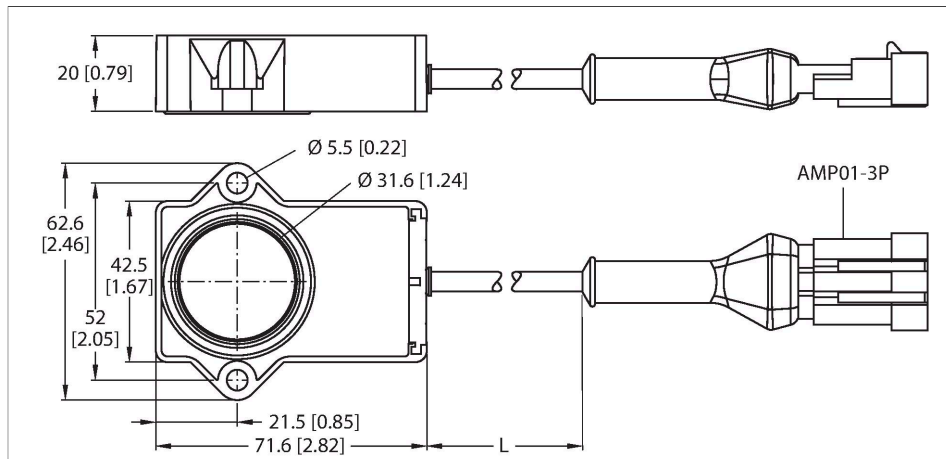


RI120P1-QR20-LU4X2-0.24-AMP01-3P

Miniature Encoder – With Analog Output

Premium Line



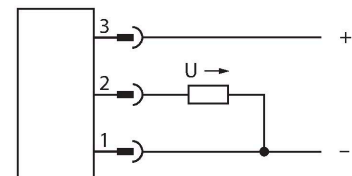
Technical data

| | |
|---|---|
| Type | RI120P1-QR20-LU4X2-0.24-AMP01-3P |
| Ident. no. | 100000199 |
| Measuring principle | Inductive |
| Starting torque shaft load (radial / axial) | Not applicable because of contactless measuring principle |
| Resolution | 0.09° |
| Measuring range | -60...+60 ° |
| Nominal distance | 1 mm |
| Repeat accuracy | ≤ 0.075 % of full scale |
| Linearity deviation | ≤ 1.25 %f.s. |
| Temperature drift | ≤ ± 0.01 % / K |
| Ambient temperature | -40...+85 °C |
| Storage temperature | -40...+125 °C |
| Temperature changes (EN60068-2-14) | -40... +85 °C; 20 cycles |
| Operating voltage | 8...30 VDC |
| Residual ripple | ≤ 10 % U _{ss} |
| Isolation test voltage | ≤ 0.5 kV |
| Short-circuit protection | yes |
| Wire breakage/Reverse polarity protection | no / yes (voltage supply) |
| Output type | Absolute singleturn |
| Output function | 3-wire, Analog output |
| Voltage output | 0.5...4.5 V |
| Diagnostic | Positioning element not detected: Output signal 5 V |

Features

- Rectangular, plastic
- Compact, rugged housing
- Many mounting possibilities
- For vehicle board nets, 12 V and 24 V
- Increased interference immunity 100 V/m following the e1 type approval
- Protection against conducted interference acc. to DIN ISO 7637-2 (SAE J 113-11)
- Extended temperature range
- High protection class IP68/IP69K
- Protection against salt spray and rapid temperature changes
- Measuring range displayed via LED
- Immune to electromagnetic interference
- Resolution: 0.09°
- 3-wire, 8...30 VDC
- Analog output 0.5...4.5 V
- Output 5 V (typ.) where there is no RLC coupling

Wiring diagram



Functional principle

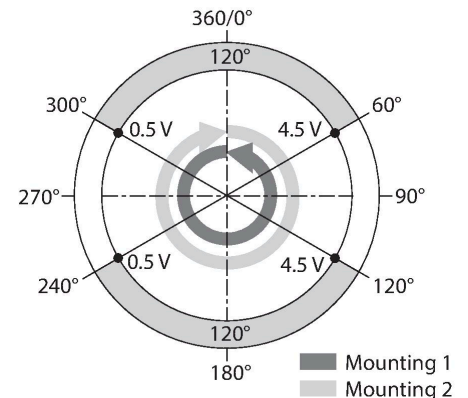
These sensors are extremely reliable even under the most extreme environmental

Technical data

| | |
|---|--|
| Load resistance voltage output | ≥ 4.7 kΩ |
| Sample rate | 800 Hz |
| Load-dump protection (DIN ISO 7637-2) | Severity degree IV/Level 4 |
| Current consumption | < 100 mA |
| Design | Rectangular, QR20 |
| Dimensions | 71.6 x 62.5 x 20 mm |
| Flange type | Flange without mounting element |
| Shaft Type | Blind hole shaft |
| Shaft diameter D [mm] | 6 6.35 |
| Housing material | Plastic, Ultem |
| Electrical connection | Cable with connector, AMP Superseal |
| Cable quality | Ø 5.2 mm, Lif32Y32Y, TPE, 0.24 m |
| Core cross-section | 3 x 0.5 mm ² |
| Vibration resistance | 55 Hz (1 mm) |
| Vibration resistance (EN 60068-2-6) | 20 g; 10...3000 Hz; 50 cycles; 3 axes |
| Shock resistance (EN 60068-2-27) | 100 g; 11 ms ½ sine; 3 × each; 3 axes |
| Continuous shock resistance (EN 60068-2-29) | 40 g; 6 ms ½ sinus; each 4000 x; 3 axes |
| Salt spray test (EN 60068-2-52) | Severity degree 5 (4 test cycles) |
| Protection class | IP68 / IP69K |
| MTTF | 423 years acc. to SN 29500 (Ed. 99) 40 °C |
| Power-on indication | LED, Green |
| Measuring range display | multifunction LED, green green flashing |

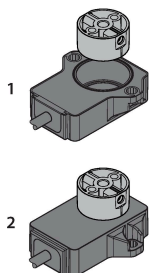
conditions. Their extremely robust design meets the requirements for the IP68 and IP69K protection ratings.

Thanks to their excellent resistance to constant shocks and thermal shock resistance, they are the ideal choice for mobile applications, such as road construction vehicles and agricultural machinery.



Mounting instructions

Mounting instructions/Description

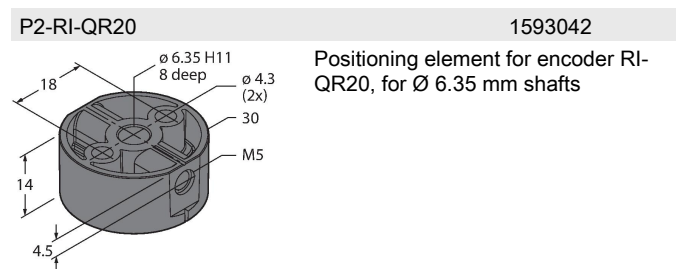
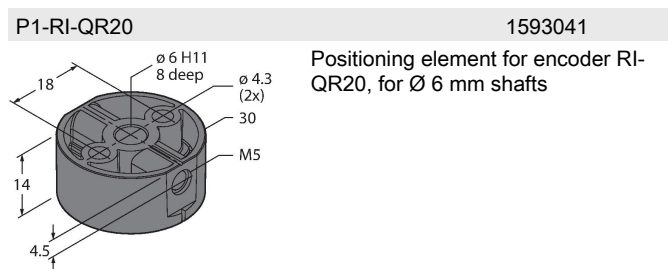


There are two different mounting options. One option is to position the positioning element above the sensor housing. However, it can also be mounted so that the sensor housing completely encloses the positioning element.

LED function
 Operating voltage
 Green: Power on
 Displayed measuring range
 Green: Positioning element is in the detection range
 Green flashing: Positioning element is within the measuring range, low signal intensity (e.g. distance too large)
 Off: Positioning element is outside the detection range

Inductive measuring principle provides more safety
 Due to the measuring principle, which is based on the functional principle of an RLC coupling, the sensor operates absolutely wear-free and is immune to magnetized ironware and other interferences. The amplitude of the signal can be changed by metal parts, which in turn affects the accuracy.
 Owing to the differential analysis, the output signal remains almost unchanged, even if the position of the positioning element deviates from the ideal axis of rotation. The distance between the sensor and the positioning element can be up to 5 mm, whereby the nominal distance is 1 mm.

Accessories



Wiring accessories

| Dimension drawing | Type | Ident. no. | |
|-------------------|----------------|------------|---|
| | TSS-3S-A-2/TXL | 6936796 | Valve connector connection cable, Superseal female connector, straight, 3-pin, cable length: 2 m, jacket material: TPE-U (PUR), black, housing: Deutsch DT06/black; other cable lengths and types available |

RI120P1-QR20-LU4X2-0-24-AMP01-3P | 12/03/2020 07-14 | technical changes reserved