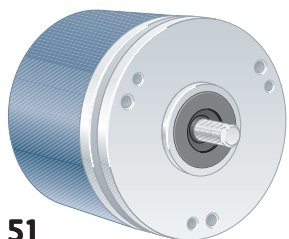


# 501 — Ruggedized Shaft encoder, Incremental



51

## Short description:

- >> 2 short-circuit protected outputs
- >> IP 67 at housing, IP 66 at shaft inlet
- >> 9...36 Vdc
- >> Robust housing for harsh environment
- >> Shock and vibration protected

## Suitable applications:

- >> Standard to demanding industrial applications
- >> Extra rugged design for harsh environments

## General information

| Encoder data             |                                                                  |
|--------------------------|------------------------------------------------------------------|
| Type                     | RSI 501                                                          |
| Operating temperature    | -40°C .. +70°C                                                   |
| Storage temperature      | -40°C .. +85°C                                                   |
| Ingress protection class | IP-67 according to IEC 60529                                     |
| At shaft inlet           | IP-66 according to IEC 60529                                     |
| Vibration (55 to 2000Hz) | < 300 m/s <sup>2</sup> according to IEC 60068-2-6 <sup>(1)</sup> |
| Shock (6ms)              | < 2000 m/s <sup>2</sup> according to IEC 60068-2-27              |
| Cover material           | Aluminium                                                        |
| Cover surface treatment  | Coated and cromated or anodized                                  |
| Weight                   | Approx. 300g                                                     |
| Accuracy and resolution  |                                                                  |
| Line count               | 1..5 000 ppr                                                     |
| Dividing error           | ± 50 °el                                                         |
| Channel separation       | 90 ± 25 °el                                                      |
| Measuring steps          | 4 x Line count                                                   |

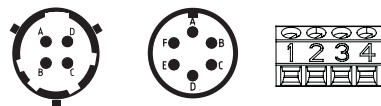
## Flange option

| Flange type       | 51, LL58        |
|-------------------|-----------------|
| Outer diameter    | ø58 mm          |
| Mounting holes    | 3 x M3 & 3 x M4 |
| Flange material   | Aluminium       |
| Surface treatment | Anodized        |

## Shaft option

| Shaft type              | Ø6 round                                | Ø6 with face                            | Ø10 round                               | Ø10 with face                           |
|-------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Axial shaft load        | 100 N                                   | 100 N                                   | 100 N                                   | 100 N                                   |
| Radial shaft load       | 120 N                                   | 120 N                                   | 120 N                                   | 120 N                                   |
| Mech. permissible speed | 3000 rpm (6000)                         | 3000 rpm (6000)                         | 3000 rpm (6000)                         | 3000 rpm (6000)                         |
| Shaft material          | Stainless steel                         | Stainless steel                         | Stainless steel                         | Stainless steel                         |
| Moment of inertia       | 1,9 x 10 <sup>-6</sup> kgm <sup>2</sup> | 1,9 x 10 <sup>-6</sup> kgm <sup>2</sup> | 2,0 x 10 <sup>-6</sup> kgm <sup>2</sup> | 2,0 x 10 <sup>-6</sup> kgm <sup>2</sup> |

<sup>(1)</sup><150m/s<sup>2</sup> on encoders with connectors



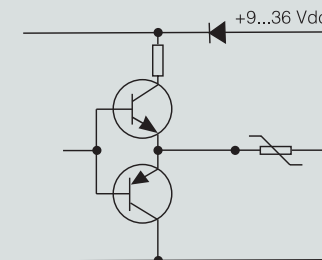
### Connection option

| Connector type              | Cable         | 4 pin PT   | 6 pin MS   | Terminal   |
|-----------------------------|---------------|------------|------------|------------|
| <b>Function</b>             | <b>Colour</b> | <b>PIN</b> | <b>PIN</b> | <b>PIN</b> |
| S00                         | Yellow        | B          | D          | 3          |
| S90                         | Green         | A          | A          | 4          |
| +E Volt                     | Red           | C          | E          | 1          |
| 0 Volt                      | Blue          | D          | F          | 2          |
| Case                        | Shield        |            |            |            |
| <b>Connecting direction</b> |               |            |            |            |
| Axial                       | Yes           | No         | Yes        | Yes        |
| Radial                      | Yes           | Yes        | No         | No         |

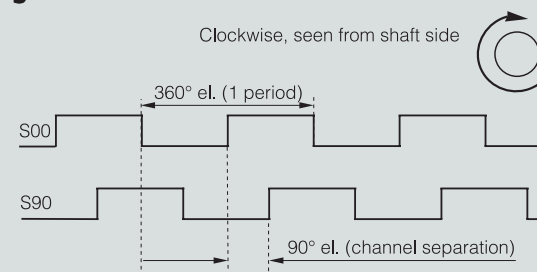
### Electrical option

|                                |                |
|--------------------------------|----------------|
| <b>Power supply</b>            | <b>9-36 V</b>  |
| Polarity protected             | Yes            |
| <b>Output signals</b>          | <b>HC-HTL</b>  |
| Short circuit protected        | Yes            |
| Current consumption            | 55 mA at 24Vdc |
| Max consumption                | Max 80 mA      |
| Output load (max)              | ±40 mA         |
| Output frequency (max)         | 100 kHz        |
| U <sub>high</sub> at 10mA load | > +EV - 4.0 V  |
| U <sub>low</sub> at 10mA load  | < 2.5 V        |
| Cable length (max)             | 350 m @ 100kHz |

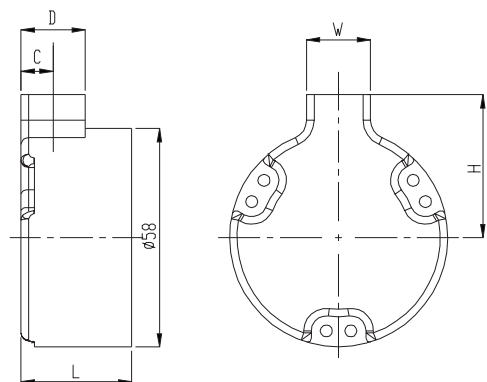
### Output circuit



### Output signals



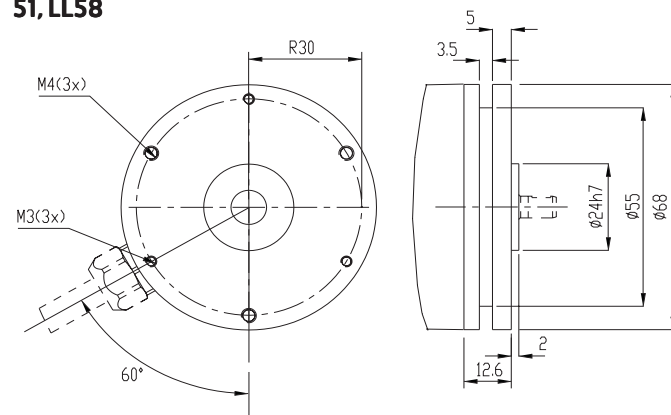
## Dimensions



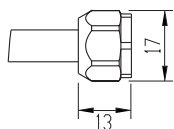
| Connector | Orientation | L    | H    | W  | D  | C    |
|-----------|-------------|------|------|----|----|------|
| Cable     | Radial      | 29.4 | 34   | 17 | 17 | 8.5  |
|           | Axial       | 38.9 | —    | —  | —  | —    |
| PT 4p     | Radial      | 39.9 | 34.9 | 21 | 21 | 10.5 |
| MS 6p     | Axial       | 38.9 | —    | —  | —  | —    |
| Terminal  | Axial       | 29.4 | —    | —  | —  | —    |

## Flanges

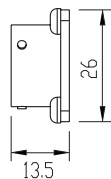
## 51, LL58



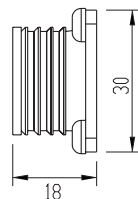
## Connectors

Cable  
5x2x0,25 shielded

4pin PT



6pin MS

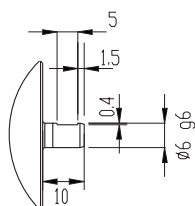


Terminal

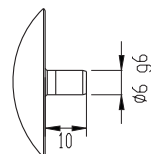


## Shafts

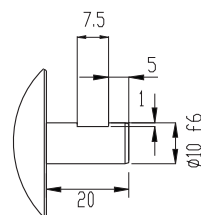
6 mm with face



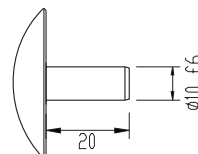
6 mm round



10 mm with face



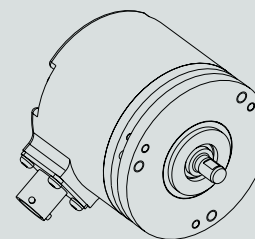
10 mm round



## Various combinations/example

RSI 501 51

6 mm with face, radial PT



## Ordering information Tick your choice

|                      |                |              |           |               |  |
|----------------------|----------------|--------------|-----------|---------------|--|
| Type                 | RSI 501        |              |           |               |  |
| Flange               | 51, LL58       |              |           |               |  |
| Shaft                | Ø6 round       | Ø6 with face | Ø10 round | Ø10 with face |  |
| Electronics          | Supply 9-36Vdc |              |           |               |  |
|                      | Output HC-HTL  |              |           |               |  |
| Connection           | Cable          | 4 pin PT     | 6 pin MS  | Terminal      |  |
| Connecting direction | Axial/Radial   | Radial       | Axial     | Axial         |  |
| Line count           | 1..5000        |              |           |               |  |

## Please, specify line count and cable length when ordering

Ordering example: RSI 501 51 Ø6ro 9-36Vdc 1024ppr HC-HTL Terminal Axial