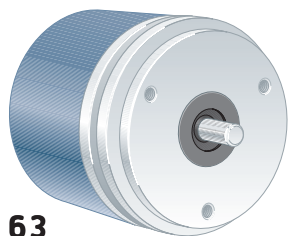
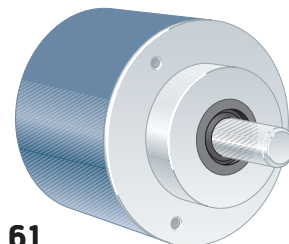


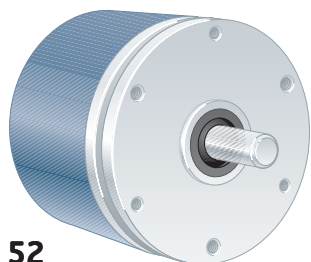
51



63



61



52

## Short description:

- >> 6 short-circuit protected outputs
- >> IP 67 at housing, IP 66 at shaft inlet
- >> 5 Vdc or 9...30 Vdc
- >> Robust housing for harsh environment
- >> Shock and vibration protected

## Suitable applications:

- >> Standard to demanding industrial applications
- >> High temperature applications

## General information

| Encoder data             |                                                                  |                  |
|--------------------------|------------------------------------------------------------------|------------------|
| Type                     | RSI 504                                                          |                  |
| Operating temperature    | -20°C .. +100°C                                                  |                  |
| Storage temperature      | -20°C .. +80°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..5000 ppr                                                      | 5001..10 000 ppr |
| Dividing error           | ± 50 °el                                                         | ± 90 °el         |
| Channel separation       | 90 ± 25 °el                                                      | 90 ± 45 °el      |
| Measuring steps          | 4 x Line count                                                   |                  |

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

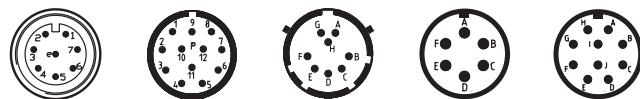
## Flange option

| Flange type       | 51, LL58        | 63, Synchro | 61, Clamping | 52, LL68        |
|-------------------|-----------------|-------------|--------------|-----------------|
| Outer diameter    | ø58 mm          | ø58 mm      | ø58 mm       | ø68 mm          |
| Mounting holes    | 3 x M3 & 3 x M4 | 3 x M4      | 3 x M3       | 3 x M3 & 3 x M4 |
| Flange material   | Aluminium       | Aluminium   | Aluminium    | Aluminium       |
| Surface treatment | Anodized        | Anodized    | Anodized     | Anodized        |

## Shaft option

| Shaft type              | Ø6 round                                | Ø6 with face                            | Ø10 round                               | Ø10 with face                           |
|-------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Axial shaft load        | 50 N                                    | 50 N                                    | 50 N                                    | 50 N                                    |
| Radial shaft load       | 60 N                                    | 60 N                                    | 60 N                                    | 60 N                                    |
| Mech. permissible speed | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       | 6000 rpm (12 000)                       |
| 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  | 8 pin M12 | 12 pin EML | 8 pin PT | 6 pin MS | 10 pin MS |
|------------------------------------------------------------------------|--------|-----------|------------|----------|----------|-----------|
| Function                                                               | Colour | PIN       | PIN        | PIN      | PIN      | PIN       |
| S00                                                                    | Yellow | 4         | 5          | D        | D        | D         |
| S00 inverted                                                           | Black  | 5         | 6          | C        | C        | C         |
| S90                                                                    | Green  | 3         | 8          | A        | A        | A         |
| S90 inverted                                                           | White  | 1         | 1          | B        | B        | B         |
| Sref                                                                   | Brown  | 2         | 3          | G        | NA       | G         |
| Sref inverted                                                          | Violet | 6         | 4          | H        | NA       | H         |
| +E Volt                                                                | Red    | 8         | 12         | E        | E        | E         |
| 0 Volt                                                                 | Blue   | 7         | 10         | F        | F        | F         |
| STATUS                                                                 | Grey   | NA        | 7          | NA       | NA       | I         |
| Case                                                                   | Shield | Chassis   | Chassis    | Chassis  | Chassis  | Chassis   |
| <b>Connecting direction (available on flange option -51, -63, -61)</b> |        |           |            |          |          |           |
| Axial                                                                  | Yes    | Yes       | Yes        | Yes      | Yes      | Yes       |
| Radial                                                                 | Yes    | Yes       | Yes        | Yes      | No       | Yes       |
| <b>Connecting direction (available on flange option -52)</b>           |        |           |            |          |          |           |
| Axial                                                                  | No     | No        | No         | Yes      | No       | Yes       |
| Radial                                                                 | Yes    | No        | No         | No       | No       | No        |

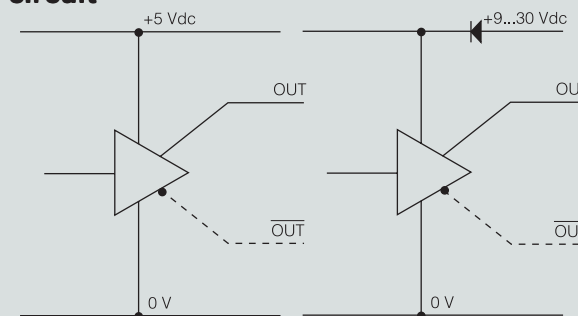
NA=Not Available

## Electrical option

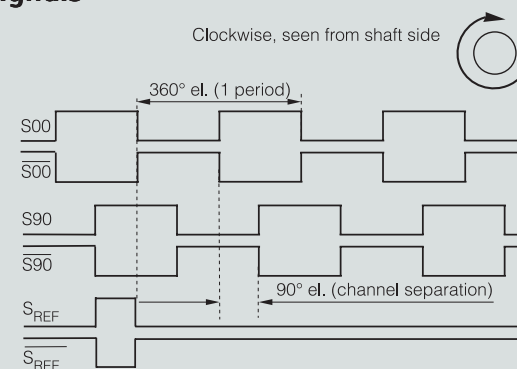
|                                |                  |                 |                      |
|--------------------------------|------------------|-----------------|----------------------|
| Power supply                   | 5 V ±10%         | 9-30 V          |                      |
| Polarity protected             | No               | Yes             |                      |
| Output signals                 | TTL <sup>1</sup> | HTL             | RS-422               |
| Short circuit protected        | Yes              | Yes             | Yes                  |
| Current consumption            | 45 mA            | 50 mA at 24Vdc  | 25 mA at 24Vdc       |
| Max consumption                | 75 mA            | 75 mA           | 40 mA                |
| Output load (max)              | ±20 mA           | ±40 mA          | ±20 mA               |
| Output frequency (max)         | 300 kHz          | 300 kHz         | 300 kHz              |
| U <sub>high</sub> at 10mA load | > 3.0 V          | > +EV - 2.0 V   | > 3.0 V              |
| U <sub>low</sub> at 10mA load  | < 0.4 V          | < 1.15 V        | < 0.4 V              |
| Cable length (max)             | 50 m             | 200 m @ 50 kHz  | 1 km (TIA/EIA-422-B) |
| STATUS output                  | Yes              | Yes             | Yes                  |
| High level                     | Encoder OK       | Encoder OK      | Encoder OK           |
| Low level                      | Warning/Failure  | Warning/Failure | Warning/Failure      |

<sup>1</sup>TTL output comply to the RS-422 standard when differential transmission is used NA=Not Available

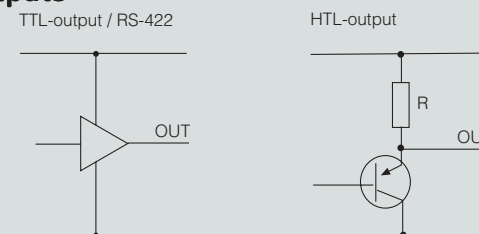
## Output circuit



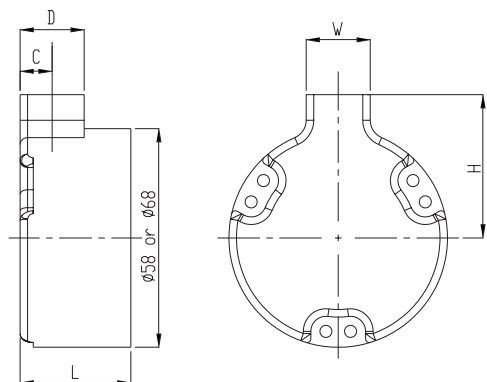
## Output signals



## Status outputs



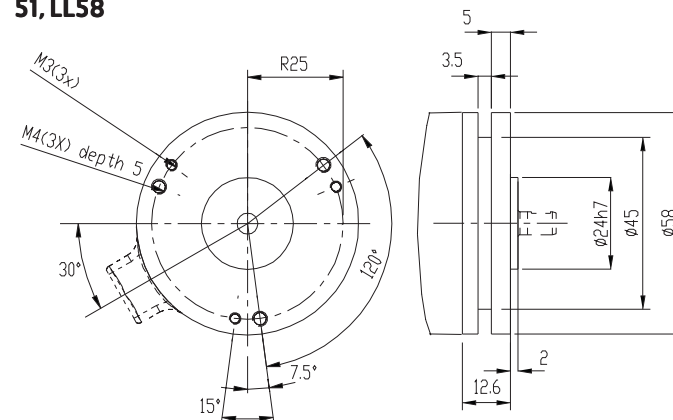
## Dimensions



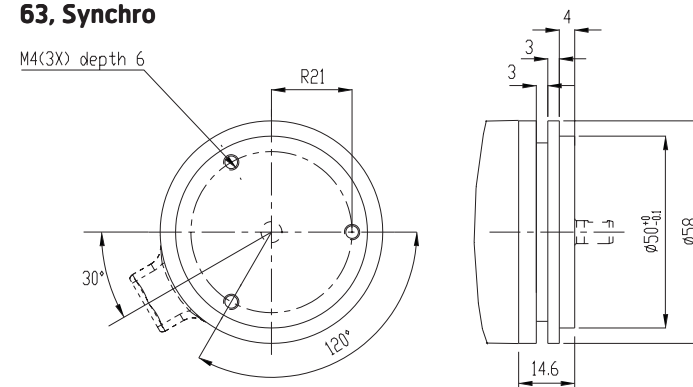
| Connector | Orientation | L    | H  | W  | D  | C    |
|-----------|-------------|------|----|----|----|------|
| Cable     | Radial Ø58  | 29.4 | 34 | 17 | 17 | 8.5  |
|           | Radial Ø68  | 44.7 | 34 | 0  | 0  | 14   |
|           | Axial       | 38.9 | -  | -  | -  | -    |
| EML       | Radial      | 29.4 | 32 | 27 | 27 | 13.5 |
|           | Axial       | 38.9 | -  | -  | -  | -    |
| PT 8p     | Radial      | 29.4 | 41 | 27 | 27 | 13.5 |
|           | Axial Ø58   | 38.9 | -  | -  | -  | -    |
|           | Axial Ø68   | 44.7 | -  | -  | -  | -    |
| MS 6p     | Radial      | -    | -  | -  | -  | -    |
|           | Axial       | 38.9 | -  | -  | -  | -    |
| MS 10p    | Radial      | -    | -  | -  | -  | -    |
|           | Axial Ø58   | 43.9 | -  | -  | -  | -    |
|           | Axial Ø68   | 44.7 | -  | -  | -  | -    |
| M12 8p    | Radial      | 29.4 | 38 | 27 | 27 | 9.5  |
|           | Axial       | 38.9 | -  | -  | -  | -    |

## Flanges

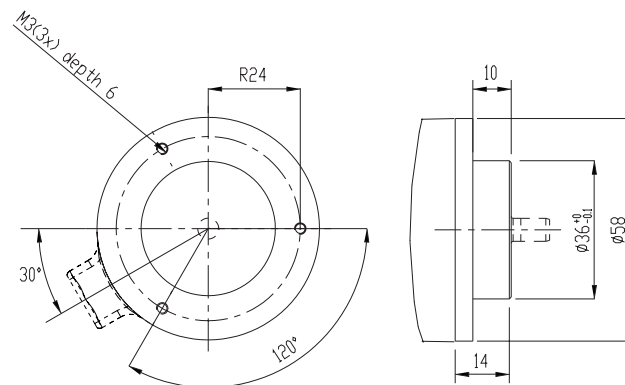
### 51, LL58



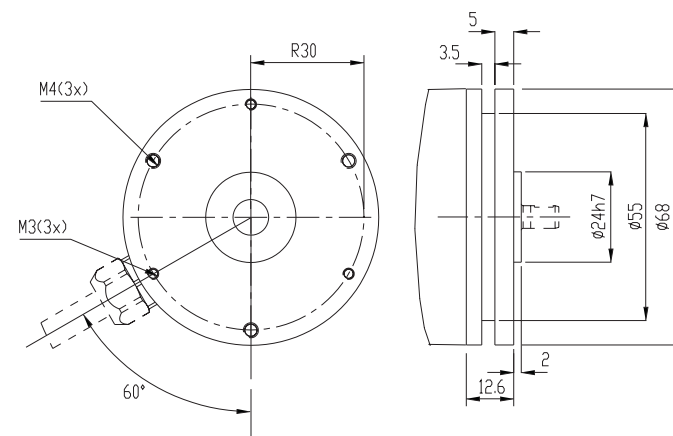
### 63, Synchro



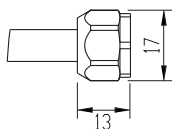
### 61, Clamping



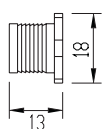
### 52, LL68



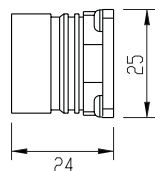
## Connectors

Cable  
5x2x0,25 shielded

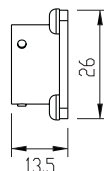
8pin M12



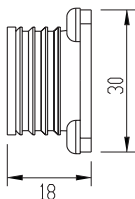
12pin EML



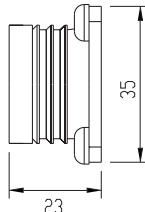
8pin PT



6pin MS

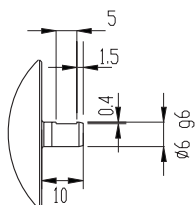


10pin MS

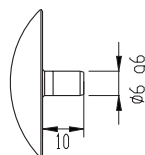


## Shafts

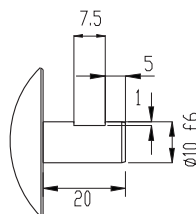
6 mm with face



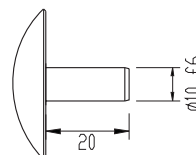
6 mm round



10 mm with face



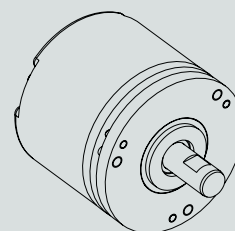
10 mm round



## Various combinations/examples

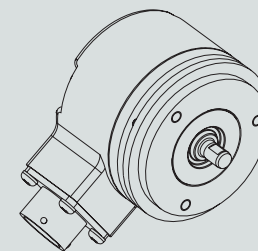
RSI 504 51

10 mm with face, axial cable



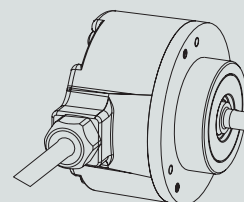
RSI 504 63

6 mm with face, radial PT



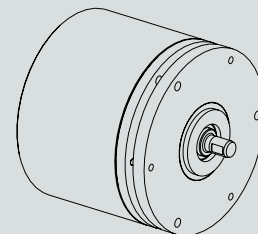
RSI 504 61

6 mm round, radial cable



RSI 504 52

6 mm with face, radial cable



## Ordering information Tick your choice

| Type                       | RSI 504                    |                                         |                                         |                           |                    |                           |
|----------------------------|----------------------------|-----------------------------------------|-----------------------------------------|---------------------------|--------------------|---------------------------|
| Flange                     | 51, LL58                   | 63, Synchro                             | 61, Clamping                            | 52, LL68                  |                    |                           |
| Shaft                      | Ø6 round                   | Ø6 with face                            | Ø10 round                               | Ø10 with face             |                    |                           |
| Electronics <sup>(1)</sup> | Supply                     | 5Vdc                                    | 9-30Vdc                                 |                           |                    |                           |
|                            | Output                     | TTL                                     | HTL                                     | RS-422                    |                    |                           |
| Connection                 | Cable                      | 8 pin M12                               | 12 pin EML                              | 8 pin PT                  | 6 pin MS           | 10 pin MS                 |
| Connecting direction       | Axial <sup>2</sup> /Radial | Axial <sup>2</sup> /Radial <sup>2</sup> | Axial <sup>2</sup> /Radial <sup>2</sup> | Axial/Radial <sup>2</sup> | Axial <sup>2</sup> | Axial/Radial <sup>2</sup> |
| Line count                 | 1..5000                    | 5001..10 000                            |                                         |                           |                    |                           |

<sup>(1)</sup> Possible combinations: 5Vdc/TTL, 9-30Vdc/HTL or 9-30Vdc/RS-422<sup>(2)</sup> Not available on flange option -52, LL68**Please, specify line count and cable length when ordering**

Ordering example: RSI 504 63 Ø6ro 5Vdc 1024ppr TTL 8 pin PT Axial