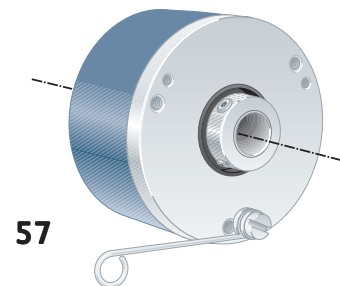
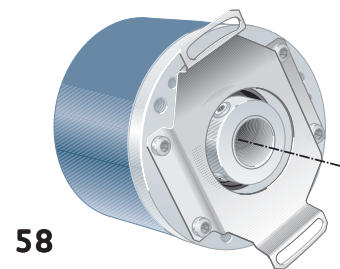


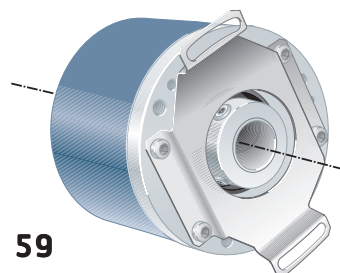
56



57



58



59

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 | RHI 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 ² according to IEC 60068-2-6 ⁽¹⁾ | |
| Shock (6ms) | < 2000 m/s ² 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 | |

Flange option

| Flange type | 56, hollow-shaft | 57, hollow-shaft | 58, hollow-shaft | 59, hollow-shaft |
|-------------------|------------------|------------------|------------------|------------------|
| Type | Standard | Through going | Standard | Through going |
| Diameter | ø58mm | ø58mm | ø58mm | ø58mm |
| Flange material | Aluminium | Aluminium | Aluminium | Aluminium |
| Surface treatment | Anodized | Anodized | Anodized | Anodized |
| Torque support | Torque arm | Torque arm | Stator coupling | Stator coupling |

Shaft option

| Hollow-shaft type | Ø8 mm | Ø10 mm | Ø12 mm | Ø14 mm |
|-------------------------|---|---|---|---|
| Axial shaft load | 10 N | 10 N | 10 N | 10 N |
| Radial shaft load | 20 N | 20 N | 20 N | 20 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 ⁻⁶ kgm ² | 1,9 x 10 ⁻⁶ kgm ² | 2,0 x 10 ⁻⁶ kgm ² | 2,0 x 10 ⁻⁶ kgm ² |

⁽¹⁾<150m/s² on encoders with connectors



Connection option

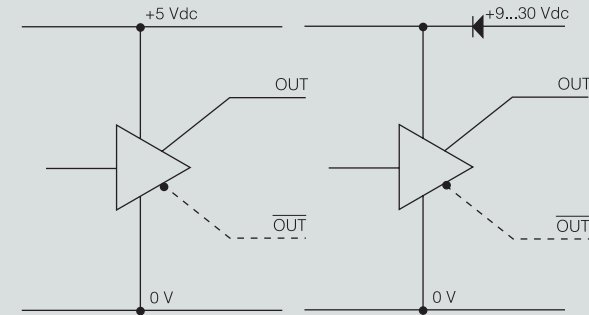
| Connector type | Cable | 8 pin M12 | 12 pin EML | 8 pin PT | 6 pin MS |
|--|--------|-----------|------------|----------|----------|
| Function | Colour | PIN | PIN | PIN | PIN |
| S00 | Yellow | 4 | 5 | D | D |
| S00 inverted | Black | 5 | 6 | C | C |
| S90 | Green | 3 | 8 | A | A |
| S90 inverted | White | 1 | 1 | B | B |
| Sref | Brown | 2 | 3 | G | NA |
| Sref inverted | Violet | 6 | 4 | H | NA |
| +E Volt | Red | 8 | 12 | E | E |
| 0 Volt | Blue | 7 | 10 | F | F |
| STATUS | Grey | NA | 7 | NA | NA |
| Housing | Shield | Chassis | Chassis | Chassis | Chassis |
| Connecting direction (flange option -56, -58) | | | | | |
| Axial | Yes | Yes | Yes | Yes | Yes |
| Radial | Yes | Yes | Yes | Yes | No |
| Connecting direction (flange option -57, -59) | | | | | |
| Axial | No | No | No | No | No |
| Radial | Yes | Yes | Yes | Yes | No |

Electrical option

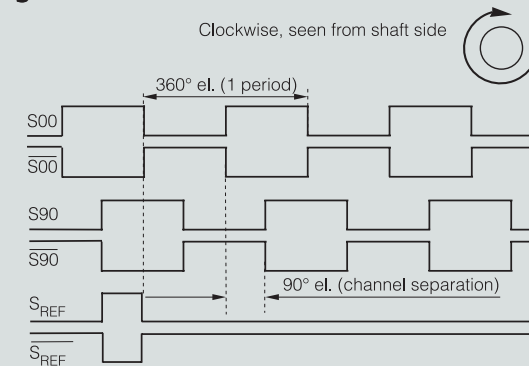
| Power supply | 5 V ±10% | 9-30 V | |
|--------------------------------|------------------|-----------------|----------------------|
| Polarity protected | No | Yes | |
| Output signals | TTL ¹ | HTL | RS-422 |
| Short circuit protected | Yes | Yes | Yes |
| Current consumption | 45 mA | 50 mA at 24Vdc | 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 _{high} at 10mA load | > 3.0 V | > +EV - 2.0 V | > 3.0 V |
| U _{low} 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 |

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

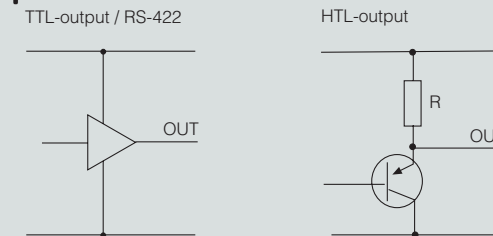
Output circuit



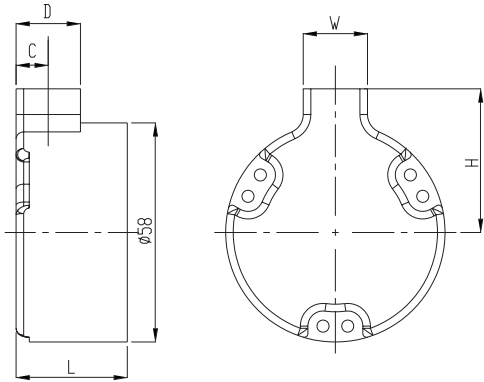
Output signals



Status outputs

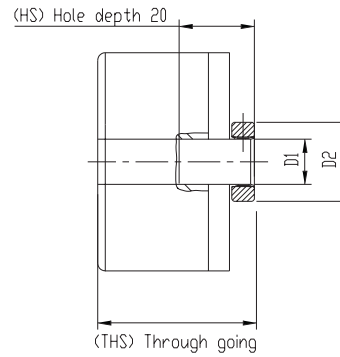


Dimensions



| Connector | Orientation | L | H | W | D | C |
|-----------|-------------------------|------|----|----|----|------|
| Cable | Radial $\varnothing 58$ | 29.4 | 34 | 17 | 17 | 8.5 |
| | 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 $\varnothing 58$ | 38.9 | - | - | - | - |
| MS 6p | Radial | - | - | - | - | - |
| | Axial | 38.9 | - | - | - | - |
| M12 8p | Radial | 29.4 | 38 | 27 | 27 | 9.5 |
| | Axial | 38.9 | - | - | - | - |

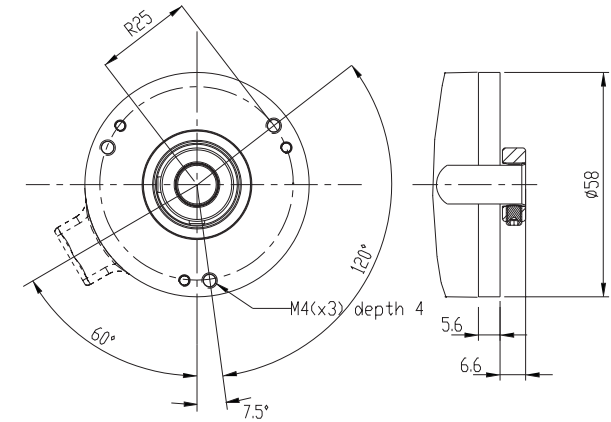
Shafts



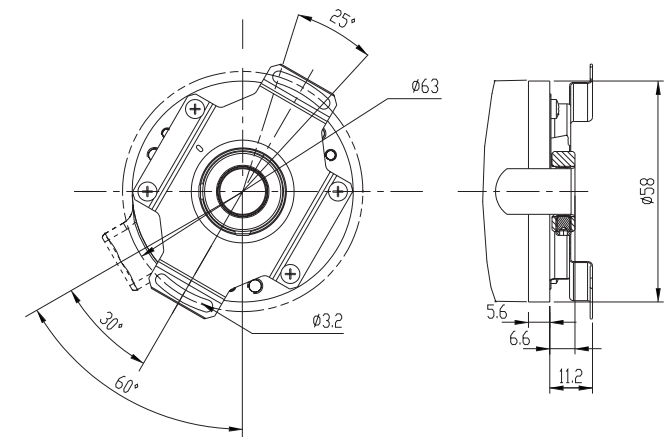
| | D1 | D2 |
|---------------------------|---------------------|------------------|
| $\varnothing 8\text{mm}$ | $\varnothing 8$ G7 | $\varnothing 19$ |
| $\varnothing 10\text{mm}$ | $\varnothing 10$ G7 | $\varnothing 19$ |
| $\varnothing 12\text{mm}$ | $\varnothing 12$ G7 | $\varnothing 21$ |
| $\varnothing 14\text{mm}$ | $\varnothing 14$ G7 | $\varnothing 23$ |

Flanges

56 and 57

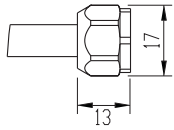


58 and 59

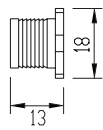


Connectors

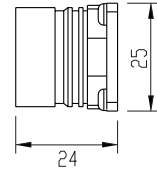
Cable 5x2x0,25 shielded



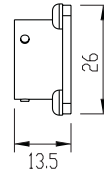
8pin M12



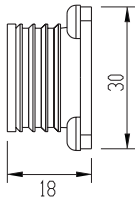
12pin EML



8pin PT

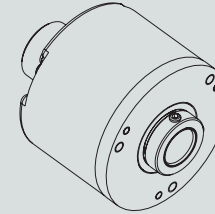


6pin MS

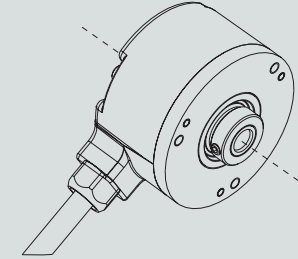


Various combinations/examples

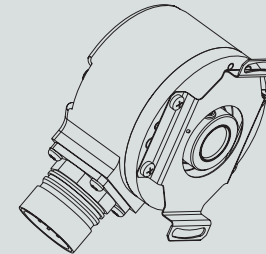
RHI 503 56 12 mm, axial MS



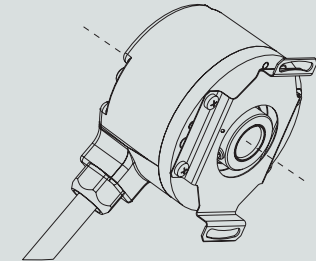
RHI 503 57 8 mm, radial cable



RHI 503 58 10 mm, radial EML



RHI 503 59 10 mm, radial cable



Ordering information Tick your choice

| Type | RHI 504 | | | | |
|----------------------------|---------|--------------|--------------|--------------|----------|
| Flange | 56, HS | 57, THS | 58, HS | 59, THS | |
| Shaft | Ø8mm | Ø10mm | Ø12mm | Ø14mm | |
| Electronics ⁽¹⁾ | Supply | 5Vdc 9-30Vdc | | | |
| | Output | TTL | HTL | RS-422 | |
| Connection | Cable | 8 pin M12 | 12 pin EML | 8 pin PT | 6 pin MS |
| Connecting direction | HS | Axial/Radial | Axial/Radial | Axial/Radial | Axial |
| | THS | Radial | Radial | Radial | Radial |
| Line count | 1..5000 | 5001..10 000 | | | |

⁽¹⁾ Possible combinations: 5Vdc/TTL, 9-30Vdc/HTL or 9-30Vdc/RS-422

HS Hollow-shaft THS Through going hollow-shaft

Please, specify line count and cable length when ordering

Ordering example: RHI 504 58 Ø10 5Vdc 1024ppr TTL 12 pin EML Radial