

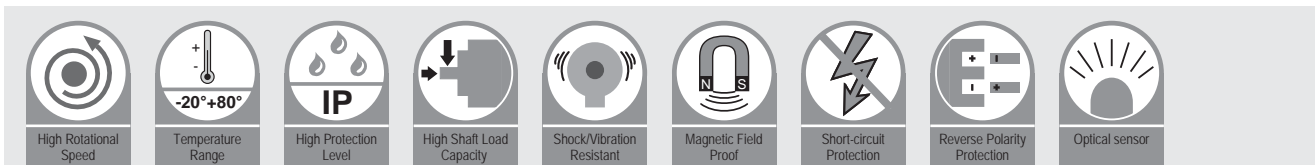
Incremental Encoders

Miniature

11-24SN / 24HN



- Outer diameter 24 mm, ideal for use in tight space
- Optical sensor technology offer a resolution of up to 1024 ppr
- High protection IP64



Highlight :

- Compact outer diameter
- RS422 or HTL output signal
- Can be supplied with radial or axial cable outlet
- Protection acc. to DIN 40050, up to IP 64
- Solid or hollow shaft version

Mechanical characteristics

| | |
|-------------------------------------------|-------------------------------------------------------------------------|
| Max. Speed | 6000 rpm |
| Starting torque | ≤ 0.1 Ncm (at 20 °C) |
| Moment of inertia | Shaft: ≤ 2 gcm ² ; hollow Shaft: ≤ 1 gcm ² |
| Shaft load capacity | Shaft: Radial 20 N; Axial 10 N hollow Shaft: Radial 10 N; Axial 10 N |
| Weight | approx. 0.06 kg |
| Protection acc. to DIN 40050 | IP 64 |
| Working temperature range | -20 °C ... 80 °C |
| Materials | Shaft/hollow Shaft: Stainless Steel/Brass; Housing/Flange: Aluminium |
| Shock resistance acc. to EN 60068-2-29 | 1000 m/s ² (6ms) |
| Vibration resistance acc. to EN 60068-2-6 | 100 m/s ² (10 Hz ... 2000 Hz) |

Electrical characteristics

| | | |
|-----------------------------|--------------------------------|---------------|
| Output circuit | RS422 | HTL |
| Power supply | 5 V DC ± 5% | 10...30 VDC |
| Power consumption (no load) | Max. 150 mA | Max. 150 mA |
| Permissible load/channel | Max. 20 mA | Max. 30 mA |
| Pulse frequency | Max. 300 kHz | Max. 200 kHz |
| Signal level | High Min. 2.5 V | Max. Ub - 3 V |
| | Low Max. 0.5 V | Max. 2.5 V |
| Rising edge time tr | Max. 200 ns | Max. 1 µs |
| Falling edge time tf | Max. 200 ns | Max. 1 µs |
| Short circuit protection | yes | yes |
| Reverse polarity protection | no | yes |
| CE compliant acc. to | EN 61000-6-2, EN 55011 Class B | |

Terminal assignment

| Signal | Ub | GND | A | \bar{A} | B | \bar{B} | Z | \bar{Z} | Shield |
|-------------------|----|-----|----|-----------|----|-----------|----|-----------|--------|
| Cable (Colour) * | BN | WH | GN | YW | GY | PK | BU | RD | Shield |
| Cable (Colour) ** | BN | WH | GN | - | YW | - | GY | - | Shield |

* for Output circuit / Power supply type 1 and type 5

** for Output circuit / Power supply type 3

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Miniature 11-24SN / 24HN

| Order Code Shaft Version | 11-24SN-X X X X - X X X X | | | | | |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
| | Type | a | b | c | d | e |
| a Flange 1 = \varnothing 24mm Flange | c Output circuit / Power supply 1 = RS422 (with inverted signal) / 5 VDC 3 = Push-pull (without inverted signal) / 10 ... 30VDC 5 = Push-pull (with inverted signal) / 10 ... 30VDC | e Pulse rate 4,9,10,15 ... 100,125,128 ... 200, 250 ... 300,360,400,500 ... 600,720 ... 1000,1024 Other pulse rates on request | | | | |
| b Shaft ($\varnothing \times L$) 1 = \varnothing 4 x 10 mm 2 = \varnothing 6 x 10 mm | d Type of connection 1 = Axial cable, 2m 2 = Radial cable, 2m | | | | | |

| Order Code Hollow Shaft | 11-24HN-X X X X - X X X X | | | | | |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
| | Type | a | b | c | d | e |
| a Flange 1 = \varnothing 24mm, with Torque stop slot | c Output circuit / Power supply 1 = RS422 (with inverted signal) / 5 VDC 3 = Push-pull (without inverted signal) / 10 ... 30VDC 5 = Push-pull (with inverted signal) / 10 ... 30VDC | e Pulse rate 4,9,10,15 ... 100,125,128 ... 200, 250 ... 300,360,400,500 ... 600,720 ... 1000,1024 Other pulse rates on request | | | | |
| b Blind hollow shaft(max.depth 14mm) 1 = \varnothing 4 mm 3 = \varnothing 6 mm | d Type of connection 1 = Axial cable, 2m 2 = Radial cable, 2m | | | | | |

Accessories

Mounting accessory for shaft version:

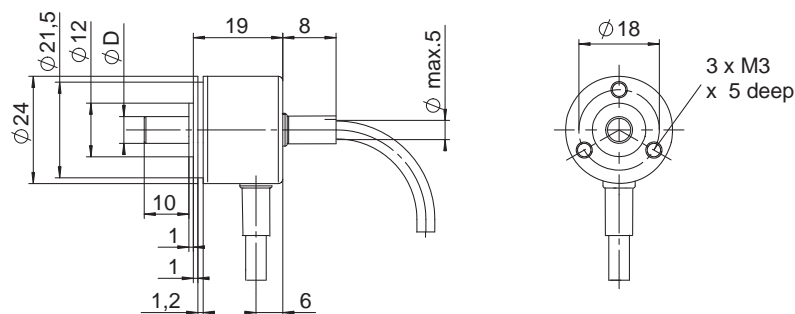
Coupling

Bellows coupling \varnothing 15mm , for shaft \varnothing 6 mm

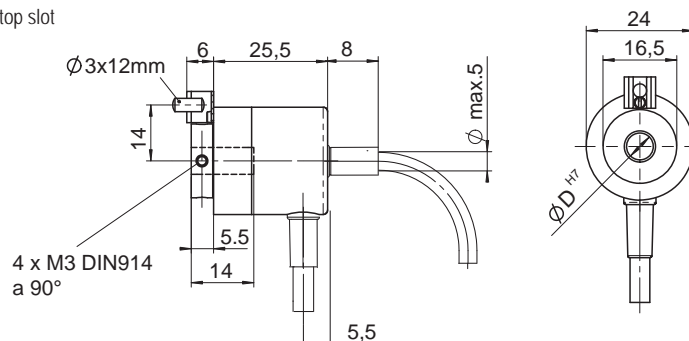
T1-1000-2215-0606

Dimensions

Shaft encoder
 \varnothing 24 mm Flange



Hollow Shaft encoder
 \varnothing 24 mm Flange With Torque stop slot



Incremental encoder