

# Incremental encoders

Hollow or end shaft max.  $\varnothing 25$  mm  
Resolution 5...16384 pulses

## G110H, G110S



G110H with hollow shaft

### Features

- Encoder with end or hollow shaft max.  $\varnothing 25$  mm
- Resolution max. 16384 ppr
- Optical sensing
- Clamping ring on flange
- Robust design
- High resistance to shock and vibrations
- Top signal quality

### Technical data - electrical ratings

|                             |   |
|-----------------------------|---|
| Voltage supply              | 5 VDC $\pm 10$ %<br>4.75...30 VDC                 |
| Reverse polarity protection | Yes (4.75...30 VDC)                               |
| Consumption w/o load        | $\leq 30$ mA (24 VDC)<br>$\leq 60$ mA (5 VDC)     |
| Resolution (steps/turn)     | 5...16384   |
| Reference signal            | Zero pulse, width 90°                             |
| Sensing method              | Optical   |
| Output frequency            | $\leq 150$ kHz                                    |
| Output signals              | A 90° B, N + inverted                             |
| Output circuit              | Linedriver RS422<br>Push-pull short-circuit proof |
| Interference immunity       | DIN EN 61000-6-2                                  |
| Emitted interference        | DIN EN 61000-6-4                                  |
| Approval                    | UL approval / E63076                              |

### Technical data - mechanical design

|                         |  |
|-------------------------|--|
| Housing                 | $\varnothing 75$ mm  |
| Protection DIN EN 60529 | IP 54  |
| Operating speed         | $\leq 3800$ rpm  |
| Rotor moment of inertia | 2000 gcm <sup>2</sup>  |
| Materials               | Housing: aluminium<br>Flange: aluminium  |
| Operating temperature   | -25...+85 °C (24 VDC)  |
| Relative humidity       | 95 % non-condensing  |
| Resistance              | DIN EN 60068-2-6<br>Vibration 10 g, 16-2000 Hz<br>DIN EN 60068-2-27<br>Shock 200 g, 6 ms |
| Weight approx.          | 700 g  |
| E-connection            | Connector  |

### G110H

|       |  |
|-------|--|
| Shaft | $\varnothing 20$ mm hollow shaft<br>$\varnothing 25$ mm hollow shaft |
|-------|--|

### G110S

|       |  |
|-------|--|
| Shaft | $\varnothing 20$ mm end shaft<br>$\varnothing 25$ mm end shaft |
|-------|--|

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## Part number

### Hollow shaft

G110H.   C3

See part number (pulses)

E-connection

C3 Connector M23, 12-pin, radial

Voltage supply / signals

22 5 VDC / Linedriver RS422 ( $\leq 6000$  pulses)

25 5 VDC / linedriver RS422 ( $> 6000$  pulses)

70 4.75...30 VDC / push-pull ( $\leq 6000$  pulses)

75 4.75...30 VDC / push-pull ( $> 6000$  pulses)

Hollow shaft

G Hollow shaft  $\varnothing 25$  mm without pin

H Hollow shaft  $\varnothing 20$  mm without pin

### End shaft

G110S.   C3

See part number (pulses)

E-connection

C3 Connector M23, 12-pin, radial

Voltage supply / signals

22 5 VDC / linedriver RS422

70 4.75...30 VDC / push-pull

Hollow shaft

G End shaft  $\varnothing 25$  mm without pin

H End shaft  $\varnothing 20$  mm without pin

## Part number (pulses)

|          |           |           |            |
|----------|-----------|-----------|------------|
| 49 (5)   | 06 (200)  | 24 (1250) | 35 (5000)  |
| 36 (10)  | 09 (250)  | 26 (1500) | 48 (6000)  |
| 50 (25)  | 13 (360)  | 28 (2000) | 70 (8192)  |
| 39 (50)  | 14 (400)  | 29 (2048) | 73 (10000) |
| 40 (60)  | 15 (500)  | 30 (2500) | 71 (16384) |
| 41 (100) | 22 (1000) | 31 (3600) |            |
| 57 (128) | 23 (1024) | 34 (4096) |            |

Other pulse numbers upon request.

Example: ordering key 35 = 5000 pulses

## Accessories

### Connectors and cables (page %S)

Z 141.001 Female connector M23, 12-pin, less cable

Z 141.003 Female connector M23, 12-pin, 2 m cable

Z 141.005 Female connector M23, 12-pin, 5 m cable

Z 141.007 Female connector M23, 12-pin, 10 m cable

### Mounting accessories (page %S)

Z 119.050 Spring coupling

Z 119.053 Spring coupling height 19.1 mm

Z 119.070 Spring coupling height 29.1 mm

Z 119.076 Spring coupling for encoders with  $\varnothing 58$  mm housing

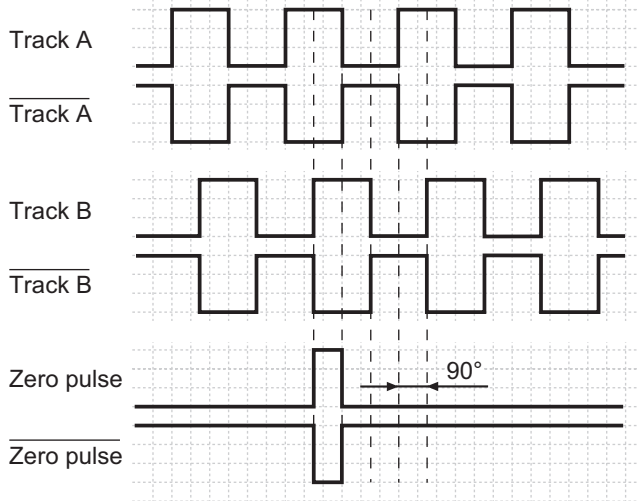
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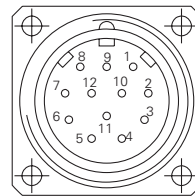
### Output signals

Clockwise rotating direction when looking at flange.



### Terminal assignment

| Connector | Assignment                     |
|-----------|--------------------------------|
| Pin 1     | Track B inv.                   |
| Pin 2     | UB-Sense                       |
| Pin 3     | Track N (zero pulse)           |
| Pin 4     | Track N inv. (zero pulse inv.) |
| Pin 5     | Track A                        |
| Pin 6     | Track A inv.                   |
| Pin 7     | –                              |
| Pin 8     | Track B                        |
| Pin 9     | –                              |
| Pin 10    | GND                            |
| Pin 11    | GND-Sense                      |
| Pin 12    | UB                             |



UB-Sense and GND-Sense are directly connected to UB resp. GND. Please use cores twisted in pairs (for example track A / track A inv.) for extension cables of more than 10 m length.

### Trigger level

| Outputs           | Linedriver RS422    |
|-------------------|---------------------|
| Output level High | >2.5 V (I = -20 mA) |
| Output level Low  | <0.5 V (I = 20 mA)  |
| Load High         | <20 mA              |
| Load Low          | <20 mA              |

| Outputs           | Push-pull short-circuit proof |
|-------------------|-------------------------------|
| Output level High | >UB -3 V (I = -20 mA)         |
| Output level Low  | <0.5 V (I = 20 mA)            |
| Load High         | <20 mA                        |
| Load Low          | <20 mA                        |

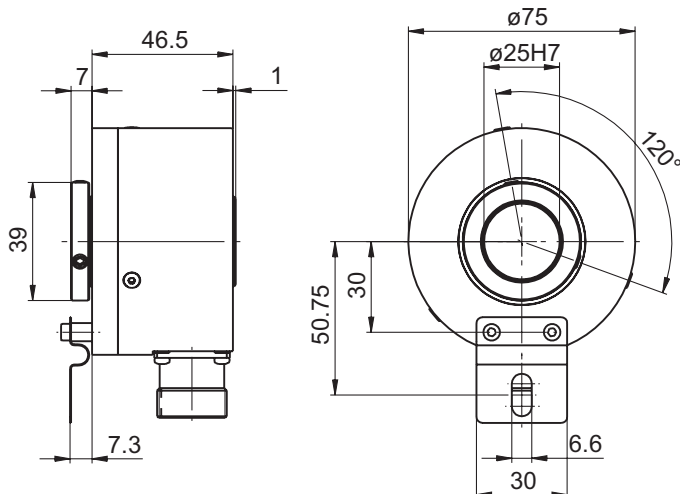
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## Dimensions

### G110H with hollow shaft



### G110S with end shaft

