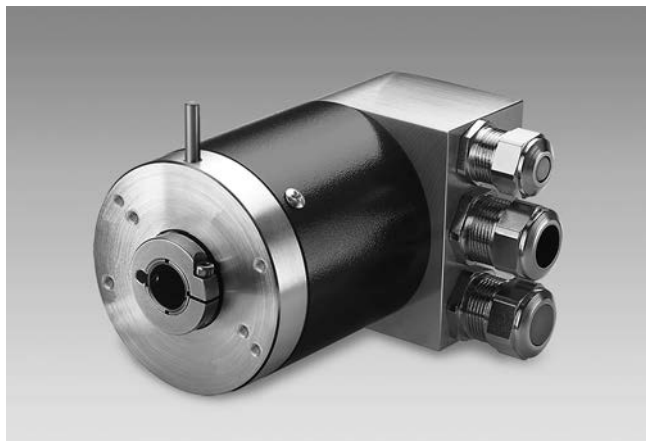


# Absolute encoders - modular bus covers

Blind hollow shaft up to  $\varnothing 15$  mm

Optical single and multiturn encoders 13 bit ST / 16 bit MT

## GXAMS, GXMMS



GXMMS with modular bus cover

### Features

- Encoder single- or multiturn / bus cover
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 16 bit
- Blind hollow shaft  $\varnothing 12... \varnothing 15$  mm
- Extreme compact design
- CANopen®/DeviceNet/EtherCAT/EtherNet-IP  
SAEJ1939/PROFINET/PoE/POWERLINK/Profibus/SSI
- Code continuity check optional by bus
- Maximum resistant against magnetic fields

### Technical data - electrical ratings

|                             |  |
|-----------------------------|--|
| Voltage supply              | 10...30 VDC  |
| Reverse polarity protection | Yes  |
| Consumption w/o load        | $\leq 100$ mA (24 VDC)   |
| Initializing time typ.      | 250 ms after power on  |
| Interfaces                  | CANopen®, DeviceNet,<br>EtherCAT, EtherNet/IP, PoE,<br>Profibus, PROFINET,<br>POWERLINK, SAEJ1939, SSI |
| Device address              | Rotary switch in bus cover<br>(type-specific)  |
| Steps per turn              | $\leq 8192$ / 13 bit   |
| Incremental output          | 2048 pulses A90°B (optional)   |
| Absolute accuracy           | $\pm 0.025^\circ$  |
| Sensing method              | Optical  |
| Code                        | Binary   |
| Code sequence               | CW/CCW programmable  |
| Interference immunity       | DIN EN 61000-6-2   |
| Emitted interference        | DIN EN 61000-6-4   |
| Programmable parameters     | Steps per revolution<br>Number of revolutions<br>Preset<br>Scaling<br>Rotating direction               |
| Diagnostic functions        | Position or parameter error<br>Multiturn sensing   |
| Status indicator            | DUO-LED integrated in bus cover  |
| Approval                    | UL approval / E63076   |
| <b>GXAMS</b>                |  |
| Function                    | Singleturn   |
| <b>GXMMS</b>                |  |
| Function                    | Multiturn  |
| Number of turns             | $\leq 65536$ / 16 bit  |

### Technical data - mechanical design

|                         |  |
|-------------------------|--|
| Size (flange)           | $\varnothing 58$ mm  |
| Shaft type              | $\varnothing 12$ mm (blind hollow shaft)<br>$\varnothing 14$ mm (blind hollow shaft)<br>$\varnothing 15$ mm (blind hollow shaft) |
| Protection DIN EN 60529 | IP 54, IP 65   |
| Operating speed         | $\leq 6000$ rpm (mechanical)<br>$\leq 6000$ rpm (electric)   |
| Starting acceleration   | $\leq 1000$ U/s <sup>2</sup>   |
| Starting torque         | $\leq 0.015$ Nm (+25 °C, IP 54)<br>$\leq 0.03$ Nm (+25 °C, IP 65)  |
| Rotor moment of inertia | 20 gcm <sup>2</sup>  |
| Materials               | Housing: steel<br>Flange: aluminium<br>Bus cover: zinc die-cast  |
| Operating temperature   | -25...+85 °C<br>-40...+85 °C (optional)  |
| 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.          | 500 g  |
| Connection              | Bus cover  |

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## Part number

### Singleturn

GXAMS.  20

|      | Interface                            |
|------|--------------------------------------|
| 3P32 | Profibus-DPV0 / cable gland          |
| 3PA2 | Profibus-DPV0 / connector M12        |
| 3V32 | Profibus-DPV2 / cable gland          |
| 3VA2 | Profibus-DPV2 / connector M12        |
| 3EA2 | PROFINET / connector M12             |
| EPA6 | EtherCAT / connector M12             |
| 8EA2 | EtherNet/IP / connector M12          |
| EEA2 | Power over EtherCAT / connector M12* |
| 5EA4 | POWERLINK / connector M12            |
| 5P32 | CANopen® / cable gland               |
| 5PA2 | CANopen® / connector M12             |
| 8P22 | DeviceNet / cable gland              |
| 8PA2 | DeviceNet / connector M12            |
| 2PA2 | SSI / connector M12                  |
| 5B32 | SAEJ1939 / cable gland               |
| 5BA2 | SAEJ1939 / connector M12             |

#### Blind hollow shaft

|   |  |
|---|--|
| 0 | $\varnothing 12$ mm, without pin / IP 54 |
| 2 | $\varnothing 12$ mm, without pin / IP 65 |
| 1 | $\varnothing 12$ mm, pin 15 mm / IP 54   |
| B | $\varnothing 12$ mm, pin 9.5 mm / IP 54  |
| 4 | $\varnothing 14$ mm, without pin / IP 54 |
| 5 | $\varnothing 14$ mm, pin 15 mm / IP 54   |
| F | $\varnothing 14$ mm, pin 9.5 mm / IP 54  |
| U | $\varnothing 15$ mm, pin 15 mm / IP 54   |
| W | $\varnothing 15$ mm, without pin / IP 65 |

### Multiturn

GXMMS.  20

|      | Interface                            |
|------|--------------------------------------|
| 3P32 | Profibus-DPV0 / cable gland          |
| 3PA2 | Profibus-DPV0 / connector M12        |
| 3V32 | Profibus-DPV2 / cable gland          |
| 3VA2 | Profibus-DPV2 / connector M12        |
| 3EA2 | PROFINET / connector M12             |
| EPA6 | EtherCAT / connector M12             |
| 8EA2 | EtherNet/IP / connector M12          |
| EEA2 | Power over EtherCAT / connector M12* |
| 5EA4 | POWERLINK / connector M12            |
| 5P32 | CANopen® / cable gland               |
| 5PA2 | CANopen® / connector M12             |
| 8P22 | DeviceNet / cable gland              |
| 8PA2 | DeviceNet / connector M12            |
| 2PA2 | SSI / connector M12                  |
| 5B32 | SAEJ1939 / cable gland               |
| 5BA2 | SAEJ1939 / connector M12             |

#### Blind hollow shaft

|   |  |
|---|--|
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| 2 | $\varnothing 12$ mm, without pin / IP 65 |
| 1 | $\varnothing 12$ mm, pin 15 mm / IP 54   |
| B | $\varnothing 12$ mm, pin 9.5 mm / IP 54  |
| 4 | $\varnothing 14$ mm, without pin / IP 54 |
| 5 | $\varnothing 14$ mm, pin 15 mm / IP 54   |
| F | $\varnothing 14$ mm, pin 9.5 mm / IP 54  |
| U | $\varnothing 15$ mm, pin 15 mm / IP 54   |
| W | $\varnothing 15$ mm, without pin / IP 65 |

CD with file descriptions is not included in the delivery.  
You may order them on CD as accessory under part number Z 150.022.

\* Power over EtherCAT on request

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## GXAMS, GXMMS

### Accessories

#### Mounting accessories

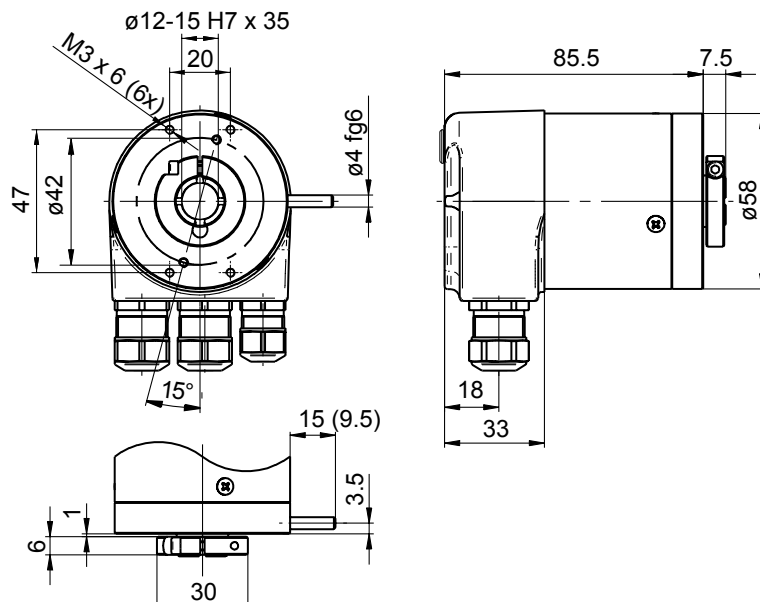
|           |  |
|-----------|--|
| Z 119.024 | Torque support and spring washer for encoders with 9.5 mm pin                      |
| Z 119.041 | Torque support by rubber buffer for encoders with 15 mm pin                        |
| Z 119.050 | Spring coupling for one-side attachment, length 35 mm                              |
| Z 119.053 | Spring coupling for motor's fan guard  |
| Z 119.072 | Spring coupling for encoders with $\varnothing 58$ mm housing, hole distance 73 mm |
| Z 119.073 | Spring coupling for encoders with $\varnothing 58$ mm housing, hole distance 68 mm |
| Z 119.076 | Spring coupling for one-side attachment, length 115 mm                             |
| Z 119.082 | Spring coupling for encoders with $\varnothing 58$ mm housing, hole distance 63 mm |

#### Programming accessories

|           |  |
|-----------|--|
| Z 150.022 | CD with describing files & manuals   |
| Z 139.008 | Programming cable for encoders with SSI bus cover, CD with software and manual |

### Dimensions

#### GXAMS, GXMMS



# Absolute encoders - modular bus covers

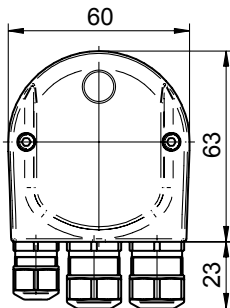
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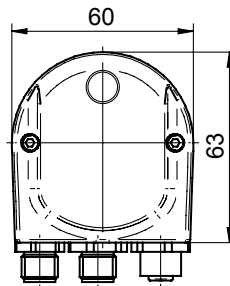
**GXAMS, GXMMS**

## Dimensions

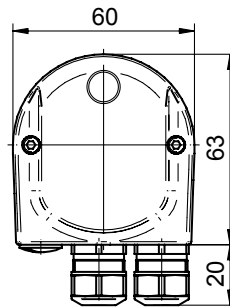
**Profibus-DP/CANopen®**



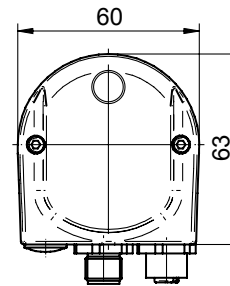
**Profibus-DP - M12**



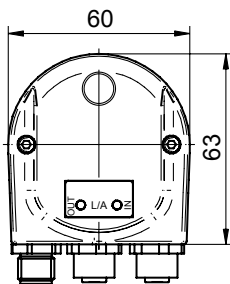
**DeviceNet**



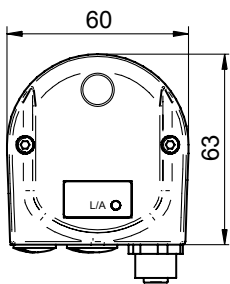
**CANopen®/DeviceNet M12**



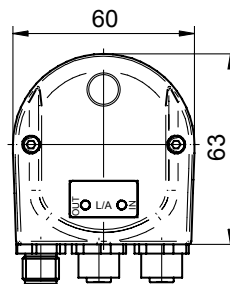
**EtherCAT/EtherNet-IP**



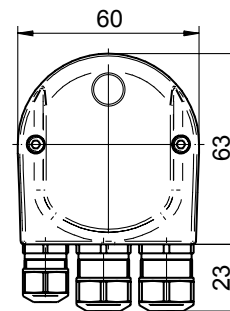
**Power over EtherCAT**



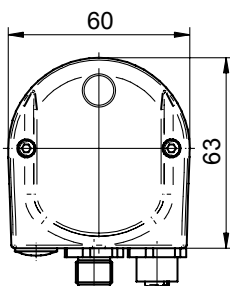
**PROFINET/POWERLINK**



**SAEJ1939**



**SAEJ1939 - M12**



**SSI**

