



## Absolute encoders ATM90 SSI

ATM90-AXK12X12



**Model Name** > ATM90-AXK12X12  
**Part No.** > 1030039



*Illustration may differ*

**At a glance**

- Extremely rugged, tried-and-tested absolute multiturn encoder with a resolution of up to 26 bits
- Mechanical interface: through hollow shaft with shallow installation depth
- Zero-set and preset functions via hardware or software
- No battery required
- Electrical interface: SSI with gray or binary code type
- Electronically adjustable, configurable resolution
- Magnetic scanning

**Your benefits**

- Fewer variants are required since one freely programmable encoder offers all singleturn and multiturn resolutions
- Easy setup due to various electrical connection adapters (cable, M23)
- Application flexibility due to easily interchangeable collets for the blind hollow shaft
- Quick commissioning using the zero set/preset function either at the press of the button on the device or via software
- Increased productivity due to highly reliable shock and vibration resistance
- Worldwide availability and service ensure quick and reliable customer service



**Performance**

|                                      |                        |
|--------------------------------------|------------------------|
| Max. number of steps per revolution: | 4,096                  |
| Max. number of revolutions:          | 4,096                  |
| Resolution power:                    | 4,096 x 4,096          |
| Resolution:                          | 12 bit x 12 bit        |
| Error limits:                        | ± 0.25 °               |
| Repeatability (Ta not constant):     | 0.1 °                  |
| Measuring step:                      | 0.043 °                |
| Initialization time:                 | 1,050 ms <sup>1)</sup> |

<sup>1)</sup> Valid positional data can be read once this time has elapsed

**Mechanical data**

|                       |                      |
|-----------------------|----------------------|
| Mechanical interface: | Through hollow shaft |
| Shaft diameter:       | 16 mm                |
| Start up torque:      | 0.5 Ncm              |
| Operating torque:     | 0.4 Ncm              |

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Moment of inertia of the rotor: | 153.77 gcm <sup>2</sup>           |
| Bearing lifetime:               | 3.6 x 10 <sup>9</sup> revolutions |
| Max. angular acceleration:      | 600,000 rad/s <sup>2</sup>        |
| Shaft material:                 | Stainless steel                   |
| Flange material:                | Aluminum                          |
| Housing material:               | Die-cast aluminum                 |

### Electrical data

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|  |                                      |
|--|--------------------------------------|
| Operating voltage range:               | 10 V ... 32 V                        |
| MTTFd: mean time to dangerous failure: | 150 a (EN ISO 13849-1) <sup>1)</sup> |
| Connection type:                       | Cable, 12-pin, radial, 1.5 m         |
| Code type:                             | Binary, Gray                         |
| Code sequence:                         | CW/CCW                               |
| Power consumption max. without load:   | 0.8 W                                |

<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive.

Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All

electronic failures are considered hazardous. For more information, see document no. 8015532.

### Interfaces

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|  |   |
|--|---|
| Electrical interface:                    | SSI   |
| Interface signals:                       | Clock +, Clock -, Data +, Data-, Programming interface: RS-422 <sup>1)</sup>            |
| Clock frequency:                         | 1 MHz <sup>2)</sup>   |
| SET (electronic adjustment):             | H-active (L ≡ 0 - 4,7 V, H ≡ 10 - Us V)   |
| CW/CCW (counting sequence when turning): | L-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - Us V)  |
| Parameterising data:                     | Number of revolutions, Code type, Electronic adjustment, Number of steps per revolution |

<sup>1)</sup> For higher clock frequencies, choose synchronous SSI <sup>2)</sup>

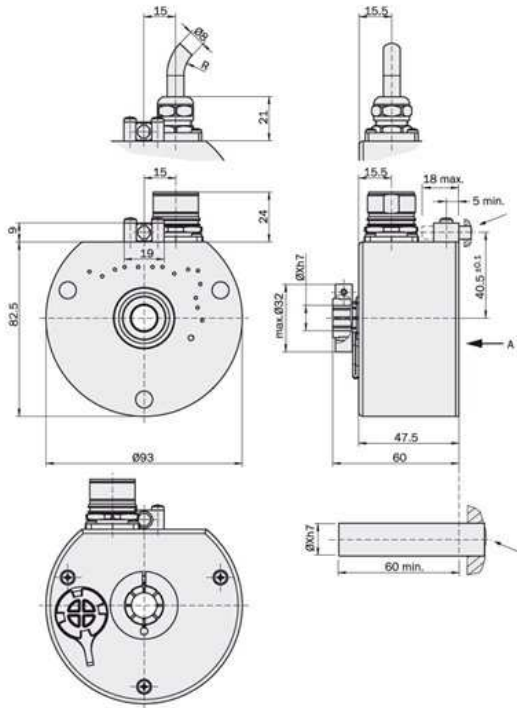
### Ambient data

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|                                |   |
|--------------------------------|---|
| EMC:                           | (according to EN 61000-6-2 and EN 61000-6-3)                  |
| Enclosure rating:              | IP 65 (according to IEC 60529), with shaft seal <sup>1)</sup> |
| Permissible relative humidity: | 98 %  |
| Working temperature range:     | -20 °C ... +70 °C   |
| Storage temperature range:     | -40 °C ... +100 °C, without package                           |
| Resistance to shocks:          | 100 g, 6 ms (according to EN 60068-2-27)                      |
| Resistance to vibration:       | 20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)          |

<sup>1)</sup> With mating connector fitted

Dimensional drawing



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