



## Absolute encoders ATM60 SSI

ATM60-AAM12X12



**Model Name** > **ATM60-AAM12X12**  
**Part No.** > **1030012**



*Illustration may differ*

#### At a glance

- Extremely rugged, tried-and-tested absolute multiturn encoder with a resolution of up to 26 bits
- Mechanical interface: face mount flange, servo flange, blind hollow shaft and extensive adapter accessories
- 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
- Rotary axis function (optional) also for non-binary resolutions (per revolution) and decimal numbers (number of revolutions)
- Magnetic scanning

#### Your benefits

- Fewer variants are required since one freely programmable encoder offers all singleturn and multiturn resolutions
- Easy setup due to various connectivity options (cable, M23)
- Less maintenance and a long service life reduce overall costs
- 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

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Mechanical interface:	Blind hollow shaft
Shaft diameter:	6 mm, 1/4 " 8 mm, 3/8 " 10 mm, 1/2 " 12 mm 14 mm <sup>1)</sup> 15 mm
Mass:	0.4 kg
Moment of inertia of the rotor:	55 gcm <sup>2</sup>
Bearing lifetime:	3.6 x 10 <sup>9</sup> revolutions
Max. angular acceleration:	500,000 rad/s <sup>2</sup>
Permissible movement axial static/dynamic:	± 0.5 mm, ± 0.2 mm
Permissible movement radial static/dynamic:	± 0.3 mm, ± 0.1 mm
Shaft material:	Stainless steel
Flange material:	Aluminum
Housing material:	Die-cast aluminum
Start up torque with shaft seal:	1.2 Ncm
Operating torque with shaft seal:	0.8 Ncm

<sup>1)</sup> Collets for 6, 8, 10, 12, 14 mm and 1/4 ", 3/8 " and 1/2 " as accessories, separate order item. For 15 mm shaft diameter collet is not needed.

## 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, 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 - U <sub>s</sub> V)
CW/CCW (counting sequence when turning):	L-active (L ≡ 0 - 1,5 V, H ≡ 2,0 - U <sub>s</sub> 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

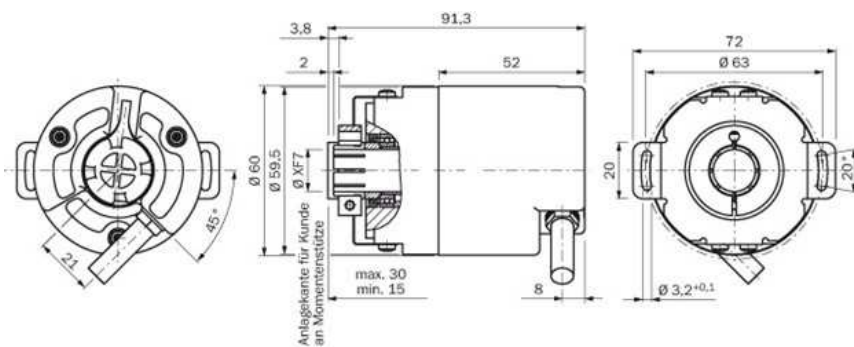
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EMC:	(according to EN 61000-6-2 and EN 61000-6-3)
Enclosure rating:::	IP 43 (according to IEC 60529), without shaft seal, on encoder flange not sealed, IP 65 (according to IEC 60529), without shaft seal, on encoder flange sealed, IP 67 (according to IEC 60529), with shaft seal <sup>1) 2) 3)</sup>
Permissible relative humidity:	98 %

Working temperature range: -20 °C ... +85 °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)

1) 2) 3) With mating connector fitted

### Dimensional drawing



**Australia**

Phone +61 3 9457 0600  
1800 33 48 02 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail marketing@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Česká republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail info@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6881000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 5309 2112  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederland**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail sick@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail sales.gsg@sick.com

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886 2 2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 88 65 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 (800) 325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)