

ONLINE DATA SHEET
www.mysick.com

Absolute encoders
ATM60 SSI

ATM60-A4A12X12



SICK
Sensor Intelligence.

SICK
Sensor Intelligence.

Absolute encoders
ATM60 SSI

Model Name > ATM60-A4A12X12
Part No. > 1030001





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 [1)]

[1)] Valid positional data can be read once this time has elapsed

© SICK AG. Subject to change without notice.

Mechanical data

Mechanical interface:	Solid shaft, Face mount flange
Shaft diameter:	10 mm
Mass:	0.5 kg
Permissible Load capacity of shaft:	300 N (radial), 50 N (axial)
Moment of inertia of the rotor:	35 gcm²
Bearing lifetime:	3.6 x 10^9 revolutions
Max. angular acceleration:	500,000 rad/s²
Shaft material:	Stainless steel
Flange material:	Aluminum
Housing material:	Die-cast aluminum
Start up torque with shaft seal:	2.5 Ncm
Start up torque without shaft seal:	0.5 Ncm
Operating torque with shaft seal:	1.8 Ncm
Operating torque without shaft seal:	0.3 Ncm [1)]
Shaft length:	19 mm

[1)] If the shaft seal has been removed by the customer

Electrical data

Operating voltage range:	10 V ... 32 V
MTTFd: mean time to dangerous failure:	150 a (EN ISO 13849-1) [1)]
Connection type:	Connector M23, 12-pin, radial
Code type:	Binary, Gray
Code sequence:	CW/CCW
Power consumption max. without load:	0.8 W

[1)] 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

Electrical interface:	SSI
Interface signals:	Clock +, Clock -, Data +, Data-, Programming interface: RS-422 [1)]
Clock frequency:	1 MHz [2)]
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

[1)] For higher clock frequencies, choose synchronous SSI [2)]

Ambient data

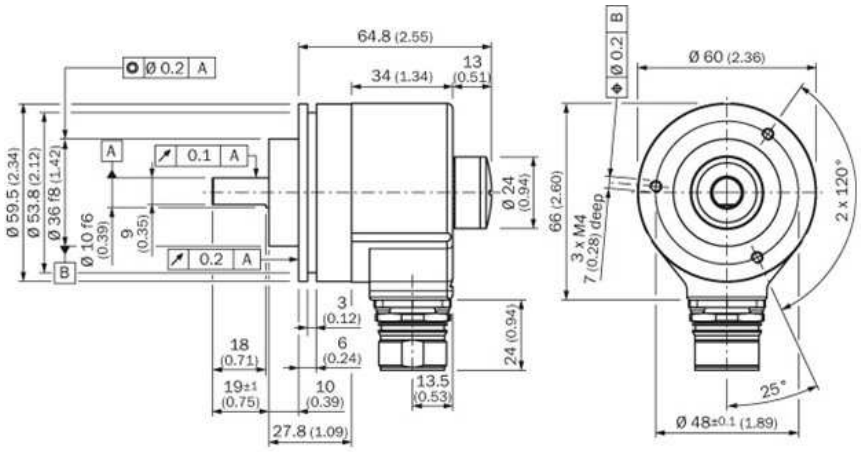
EMC:	(according to EN 61000-6-2 and EN 61000-6-3)

© SICK AG. Subject to change without notice.

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 [1) 2) 3)]
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



© SICK AG. Subject to change without notice.

PIN assignment

PIN	Signal	Color of wires (cable outlet)	Description
1	GND	Blue	Earth connection
2	Data +	White	Signal line
3	Clock +	Yellow	Signal line
4	R x D +	Gray	RS 422 programming line
5	R x D –	Green	RS 422 programming line
6	T x D +	Pink	RS 422 programming line
7	T x D –	Black	RS 422 programming line
8	U_s	Red	Supply voltage
9	SET [1]	Orange	Electronical adjustment
10	Data –	Brown	Signal line
11	Clock –	Lilac	Signal line
12	CW/CCW [2]	Orange/black	Counting sequence when turning
–	Screen	–	Housing potential

[1] SET =This input activates the electronic zero set. When the SET line is connected to Us for more than 100 ms, the current mechanical position is assigned the value 0 or the pre-programmed SET-value.

[2] CW/CCW = Foreward/reverse: This input programs the counting direction ot the encoder. If not connected, this input is "HIGH". If the encoder shaft, as viewed on the drive shaft, rotates in the clockwise direction, it counts in an increasing sequence. If it should count upwards when the shaft rotates in the anti-clockwise direction, this connection must be connected permanently to "LOW" level (zero volts).



View of the connector M23 fitted to the encoder body

© SICK AG. Subject to change without notice.

A4 4c int43

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**

SICK
Sensor Intelligence.