

ONLINE DATA SHEET
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Absolute encoders
ATM60 PROFIBUS

ATM60-P1H13X13



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ATM60 PROFIBUS

Model Name > ATM60-P1H13X13
Part No. > 1030014



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: PROFIBUS DP as per IEC61158 / RS 485 , electrically isolated
- 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 connectivity options (3x PG, 3x M12)
- 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:	8,192
Max. number of revolutions:	8,192
Resolution power:	8,192 x 8,192
Resolution:	13 bit x 13 bit
Error limits:	± 0.25 °
Repeatability (Ta not constant):	0.1 °
Measuring step:	0.043 °
Initialization time:	1,250 ms [1)]

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

Mechanical data

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Mechanical interface:	Solid shaft, Servo flange
Shaft diameter:	6 mm
Mass:	0.59 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)]

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

Electrical data

Operating voltage range:	10 V ... 32 V
Power consumption max.:	2 W
MTTFd: mean time to dangerous failure:	150 a (EN ISO 13849-1) [1)]

[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:	Bus adaptor with cable screw fixings or connector [1)]
SET (electronic adjustment):	Via PRESET push button or protocol
Bus:	PROFIBUS DP
Bus interface:::	RS-485 [2) 3) 4)]
Data protocol:	Profile for encoders (07hex) - Class 2
Address setting:	0 ... 127, DIP-switches or protocol
Data transmission rate (baud rate):	9.6 kBaud／12 MBaud／automatic detection
Status information:	LED green (operation), LED red (bus activity)
Bus termination:	DIP switch

[1)] Please order the Profibus adaptor separately [2)] EN 50 170-2 [3)] DIN 19245 part 1-3 [4)] DC isolated via opto-couplers

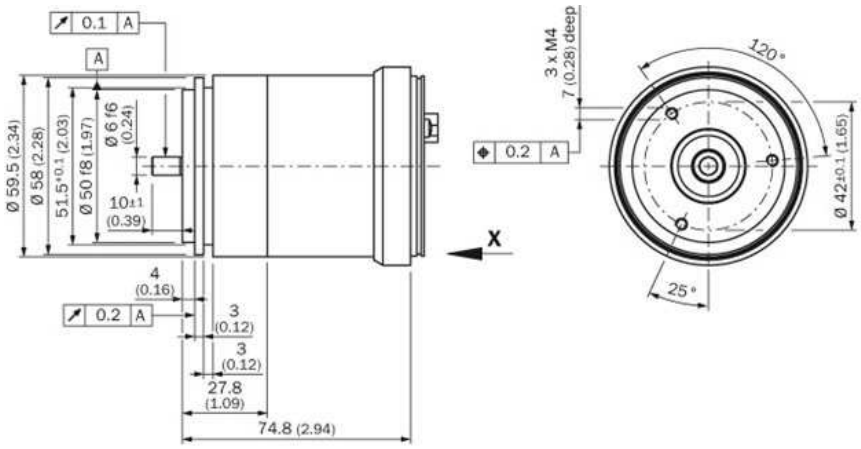
Ambient data

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 66 (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 ... 125 °C, without package
Resistance to shocks:	100 g (according to EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

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1) 2) 3) With mating connector fitted

Dimensional drawing



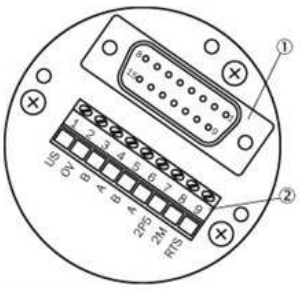
PIN assignment

Terminal strip	Connect. 4-pin (male)	Connect. 5-pin (male)	Connect. 5-pin (female)	Signal	Description
1	1	-	-	U_s (24 V)	Supply voltage 10 ... 32 V
2	3	-	-	0 V (GND)	Ground (0 V)
3	-	-	4	B	B line PROFIBUS DP (out)
4	-	-	2	A	A line PROFIBUS DP (out)
5	-	4	-	B	B line PROFIBUS DP (in)
6	-	2	-	A	A line PROFIBUS DP (in)
7	-	-	1	2P5 [2]	+ 5 V (potential free)
8	-	-	3	2M [2]	0 V (potential free)
9	-	-	-	RTS [3]	Request To Send
-	2	1	-	N. C.	-
-	4	3	-	N. C.	-
-	-	5	5	Screen	Housing potential

[1] Encoders with a PROFIBUS adapter have a terminal strip for connecting the bus and supply lines. In order to connect the lines, the PROFIBUS adapter is unscrewed from the complete device. The figure shows the pin allocation within the bus connection.

[2] Use for external bus termination or to supply the transmitter/receiver of an optical transmission link.

[3] Signal is optional, used to detect the direction of an optical connection.



① = Internal plug connection to the encoder
② = External connection to the bus

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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**

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