

A3M60A-S4PB014x17

A3M60

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
A3M60A-S4PB014x17	1053341

Other models and accessories → www.sick.com/A3M60

Detailed technical data

Performance

Number of steps per revolution (max. resolution)	16,384 (14 bit)
Number of revolutions	131,072 (17 bit)
Max. resolution (number of steps per revolution x number of revolutions)	14 bit x 17 bit (16,384 x 131,072)
Error limits G	0.35° (at room temperature) ¹⁾
Repeatability standard deviation σ_r	0.15° (at room temperature) ²⁾

¹⁾ In accordance with DIN ISO 1319-1, position of the upper and lower error limit depends on the installation situation, specified value refers to a symmetrical position, i.e. deviation in upper and lower direction is the same.

²⁾ In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

Interfaces

Communication interface	PROFIBUS DP
Communication Interface detail	DPV0 DPV1 DPV2
Data transmission rate (baud rate)	≤ 12 MBaud
Initialization time	Approx. 1 s
Parameterising data	Number of steps per revolution Number of revolutions PRESET Counting direction Unit for output of the speed value Round axis functionality
Available diagnostics data	Maximumspeed Power-on counter Operating hour counter Minimum andmaximum operating voltage
Bus termination	DIP switch

Electrical data

Connection type	Male connector, 2x, M12, 5-pin, axial Female connector, 1x, M12, 5-pin, axial
Supply voltage	10 ... 32 V
Power consumption	≤ 1.5 W
Reverse polarity protection	✓
MTTFd: mean time to dangerous failure	60 years (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.

Mechanical data

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 mm
Shaft length	19 mm
Weight	0.28 kg
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum
Start up torque	1 Ncm (+20 °C)
Operating torque	0.8 Ncm (+20 °C)
Permissible shaft loading	80 N / radial 40 N / axial
Operating speed	≤ 6,000 min ⁻¹ ¹⁾
Bearing lifetime	3.0 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

¹⁾ Self warming 30 K at maximum operating speed.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP67, shaft side (IEC 60529) IP67, housing side (IEC 60529) ¹⁾
Permissible relative humidity	95 % (Condensation not permitted)
Operating temperature range	-30 °C ... +80 °C
Storage temperature range	-40 °C ... +100 °C
Resistance to shocks	100 g, 6 ms (EN 60068-2-27)
Resistance to vibration	30 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

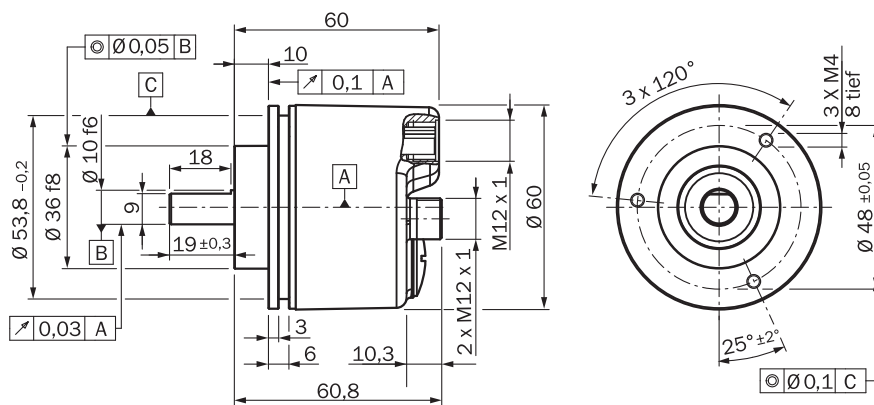
¹⁾ With mating connector fitted.

Classifications

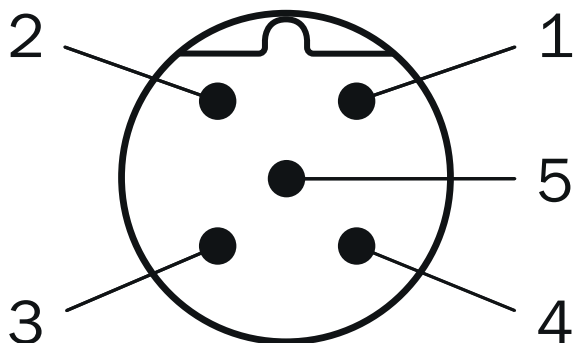
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eCI@ss 5.1.4	27270502
eCI@ss 6.0	27270590
eCI@ss 6.2	27270590
eCI@ss 7.0	27270502

eCl@ss 8.0	27270502
eCl@ss 8.1	27270502
eCl@ss 9.0	27270502
eCl@ss 10.0	27270502
eCl@ss 11.0	27270502
eCl@ss 12.0	27270502
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

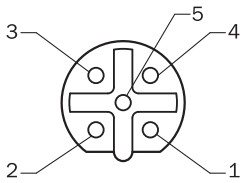


PIN assignment

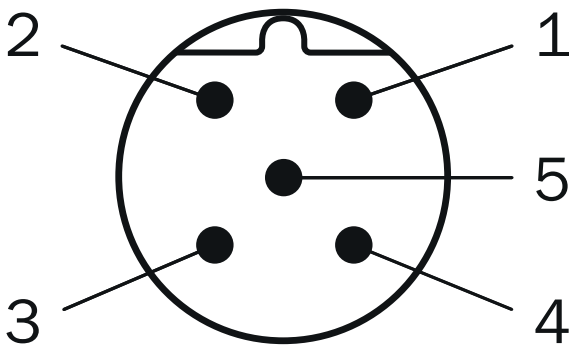


PIN	PROFIBUS IN	PROFIBUS OUT	Supply voltage
1	Not assigned	+5 V 2P5 1)	Operating voltage

PIN	PROFIBUS IN	PROFIBUS OUT	Supply voltage
2	PROFIBUS Data A	PROFIBUS Data A	Not assigned
3	Not assigned	0 V (2M) ¹⁾	Ground (0 V)
4	PROFIBUS Data B	PROFIBUS Data B	Not assigned
5	Screen	Screen	Not assigned
1) External connection to the bus			



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4	PROFIBUS Data B	PROFIBUS Data B	Not assigned
5	Screen	Screen	Not assigned
1) External connection to the bus			







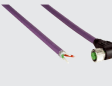















PIN	PROFIBUS IN	PROFIBUS OUT	Supply voltage
1	Not assigned	+5 V 2P5 1)	Operating voltage
2	PROFIBUS Data	PROFIBUS Data	Not assigned





PIN	PROFIBUS IN	PROFIBUS OUT	Supply voltage
3	A Not assigned	A 0 V (2M) ¹⁾	Ground (0 V)
4	PROFIBUS Data B	PROFIBUS Data B	Not assigned
5	Screen	Screen	Not assigned
1) External connection to the bus			

Recommended accessories

Other models and accessories → www.sick.com/A3M60

	Brief description	Type	Part no.
Flanges			
	Flange adapter, adaptation of face mount flange with 36 mm centering hub to 50 mm servo flange, aluminum, including 3 flat head screws M4 x 10, Aluminum, including 3 countersunk screws M3 x 10	BEF-FA-036-050	2029160
	Flange adapter, adaptation of face mount flange with 36 mm centering hub to 60 mm square mounting plate, aluminum, including 3 flat head screws M4 x 8, Aluminum, including 3 countersunk screws M4 x 8	BEF-FA-036-060REC	2029162
	Flange adapter, adaptation of face mount flange with 36 mm centering hub to 63 mm square mounting plate, aluminum, including 3 flat head screws M4 x 10, Aluminum, including 3 countersunk screws M3 x 10	BEF-FA-036-063REC	2034225
Plug connectors and cables			
	Head A: Flying leads Head B: Flying leads Cable: PROFIBUS DP, PUR, shielded	LTG-2102-MW	6021355
	Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m Voltage supply	DOL-1202-W05MC	6042067
	Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m Voltage supply	DOL-1202-W10MC	6042068
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m	DOL-1205-G05MQ	6026006
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m	DOL-1205-G10MQ	6026008
	Head A: female connector, M12, 5-pin, angled, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m	DOL-1205-W05MQ	6041423
	Head A: female connector, M12, 5-pin, angled, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m	DOL-1205-W10MQ	6041425

	Brief description	Type	Part no.
	Head A: male connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m Wire shield Al-Pt film, overall shield C-screen tin-plated	STL-1205-G05MQ	6026005
	Head A: male connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m Wire shield Al-Pt film, overall shield C-screen tin-plated	STL-1205-G10MQ	6026007
	Head A: male connector, M12, 5-pin, angled, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m	STL-1205-W05MQ	6041426
	Head A: male connector, M12, 5-pin, angled, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m	STL-1205-W10MQ	6041427
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 5 m	YF2A25-050UB6XLEAX	2095733
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 10 m	YF2A25-100UB6XLEAX	2095734
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 20 m	YF2A25-200UB6XLEAX	2095738
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: male connector, M12, 5-pin, straight, B-coded Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m Wire shield Al-Pt film, overall shield C-screen tin-plated	DSL-1205-G10MQ	6032640
	Head A: female connector, M12, 5-pin, straight Cable: unshielded	DOS-1205-G	6009719
	Head A: female connector, M12, 5-pin, straight, B-coded Cable: PROFIBUS DP, shielded	DOS-1205-GQ	6021353
	Head A: female connector, M12, 5-pin, angled Cable: unshielded	DOS-1205-W	6009720
	Head A: female connector, M12, 5-pin, angled, B-coded (B-inverse) Cable: PROFIBUS DP, PROFIBUS DP, shielded	DOS-1205-WQ	6041429
	Head A: male connector, M12, 5-pin, straight, B-coded Cable: PROFIBUS DP, shielded	STE-1205-GQ	6021354
	Head A: male connector, M12, 5-pin, angled, B-coded Cable: PROFIBUS DP, shielded	STE-1205-WQ	6041428
	Cable: unshielded, set of connectors	DOS-3XM12-W	2058177
	Head A: male connector, M12, 4-pin, straight, B-coded Cable: PROFIBUS DP, terminal resistor	STE-END-Q	6021156
Shaft adaptation			
	Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial \pm 0.25 mm, axial \pm 0.4 mm, angular \pm 4°; max. speed 10,000 rpm, -30 °C to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982

	Brief description	Type	Part no.
	Spring washer coupling, shaft diameter 6 mm / 10 mm, Maximum shaft offset: radial +/- 0.3 mm, axial +/- 0.4 mm, angular +/- 2.5°; max. speed 12,000 rpm, -10° to +80 °C, max. torque 60 Ncm; material: aluminum flange, glass fiber-reinforced polyamide membrane and hardened steel coupling pin	KUP-0610-F	5312985
	Bellows coupling, shaft diameter 10 mm/10 mm; maximum shaft offset: radial +/- 0.25 mm, axial +/- 0.4 mm, angular +/- 4°; max. revolutions 10,000 rpm, -30° to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum clamping hubs	KUP-1010-B	5312983
	Spring washer coupling, shaft diameter 10 mm / 10 mm, maximum shaft offset, radial ± 0.3 mm, axial ± 0.4 mm, angle ± 2.5°, torsion spring stiffness 30 Nm/rad; material: aluminum flange, glass-fiber reinforced polyamide membrane and hardened steel coupling pin	KUP-1010-F	5312986
	10 mm / 12 mm; maximum shaft offset: radial +/- 0.25 mm, axial +/- 0.4 mm, angular +/- 4°; max. revolutions 10,000 rpm, -30° to +120 °C, max. torque 120 Ncm; material: stainless steel bellows, aluminum clamping hubs	KUP-1012-B	5312984

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SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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