

A3M60B-S1PB-S01

A3M60

ABSOLUTE ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
A3M60B-S1PB-S01	1051775

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

Detailed technical data

Features

Special device	✓
Specialty	Operating temperature range -40 °C ... +70 °C Resolution: 14 x 17 bit
Standard reference device	A3M60B-S1PB013x13, 1051018

Safety-related parameters

MTTF_D (mean time to dangerous failure)	60 years (EN ISO 13849-1) ¹⁾
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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.

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	0.5° (at room temperature) ¹⁾
Repeatability standard deviation σ_r	0.25° (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
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
Bus termination	DIP switch

Electronics

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	✓

Mechanics

Mechanical design	Solid shaft, Servo flange
Shaft diameter	6 mm
Shaft length	10 mm
Characteristics of the shaft	With flat
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	≤ 9,000 min ⁻¹ ¹⁾
Bearing lifetime	3.0 x 10 ⁹ revolutions
Angular acceleration	≤ 500,000 rad/s ²

¹⁾ Self warming 15 K at maximum operating speed.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP65, shaft side (IEC 60529) IP67, housing side (IEC 60529) ¹⁾
Permissible relative humidity	95 % (Condensation not permitted)
Operating temperature range	-10 °C ... +70 °C
Storage temperature range	-40 °C ... +100 °C
Resistance to shocks	80 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.

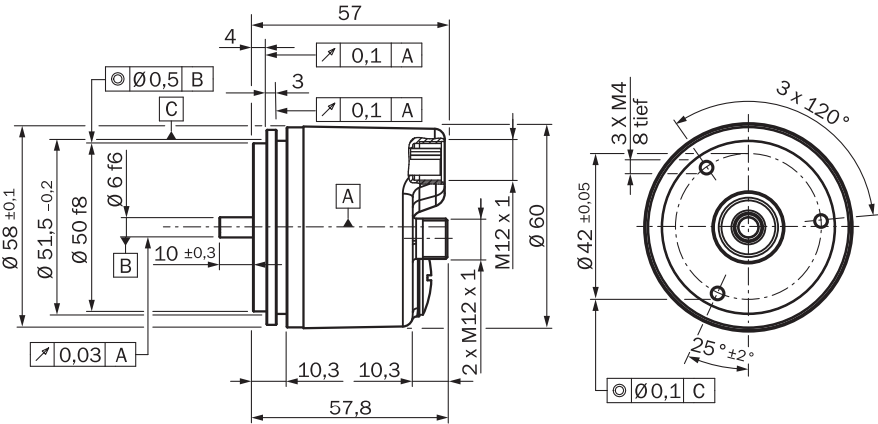
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

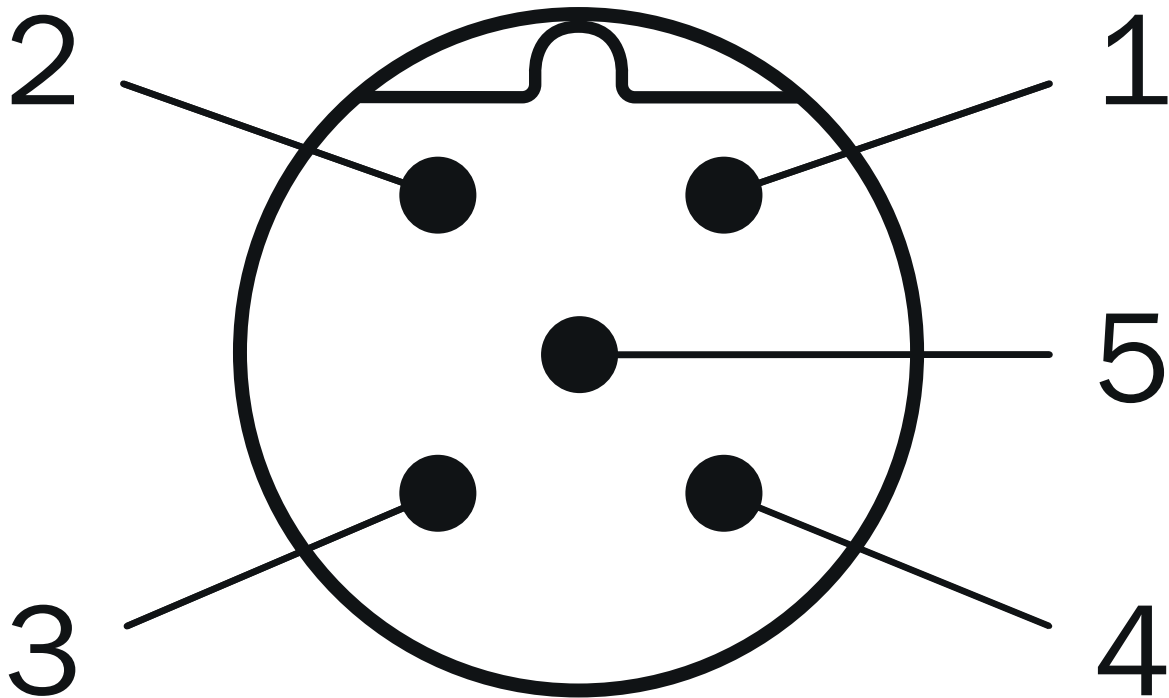
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ECLASS 5.1.4	27270502
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270502
ECLASS 8.0	27270502
ECLASS 8.1	27270502
ECLASS 9.0	27270502
ECLASS 10.0	27270502
ECLASS 11.0	27270502
ECLASS 12.0	27270502
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing



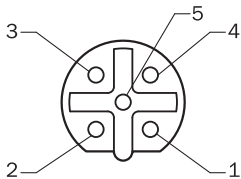
Dimensions in mm (inch)

PIN assignment



PIN	PROFIBUS IN	PROFIBUS OUT	Supply voltage
1	Not assigned	+5 V2P5 ¹⁾	Operating voltage
2	PROFIBUSDataA	PROFIBUSDataA	Not assigned
3	Not assigned	0 V (2M) ¹⁾	Ground (0 V)
4	PROFIBUSDataB	PROFIBUSDataB	Not assigned
5	Screen	Screen	Not assigned
¹⁾ External connection to the bus			
	-	-	-

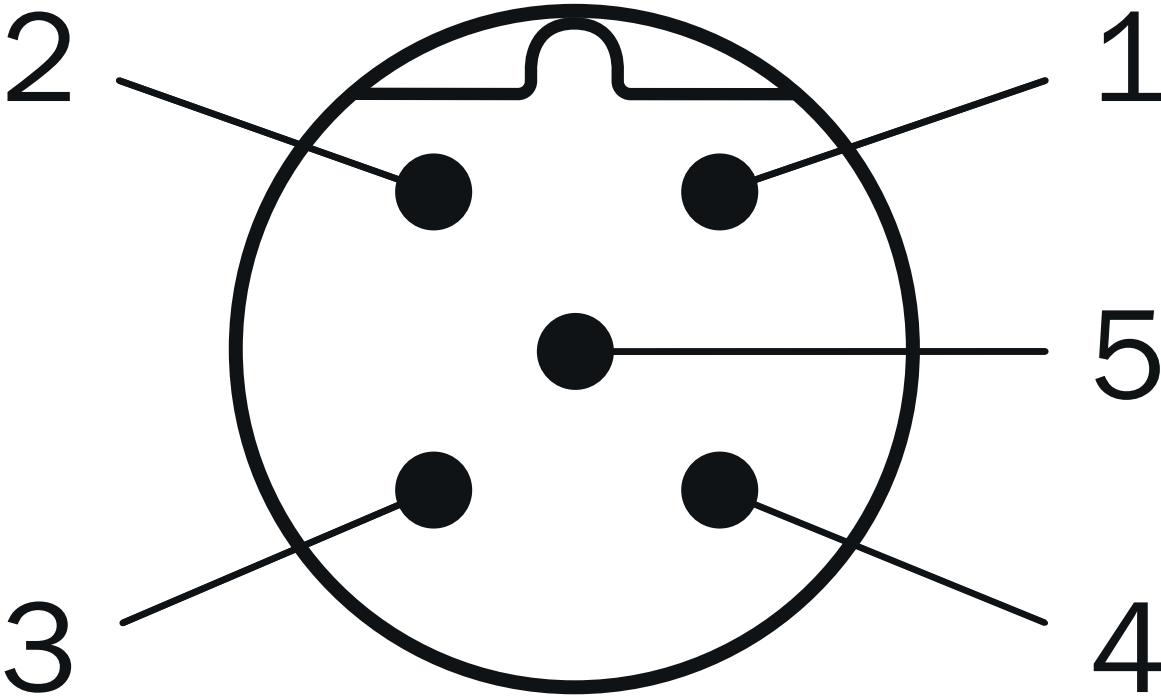
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4	PROFIBUSDataB	PROFIBUSDataB	Not assigned
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Recommended accessories

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

	Brief description	Type	part no.
shaft adaptation			
	Product segment: Shaft adaptation Product: Shaft couplings Description: Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub	KUP-0610-B	5312982
	Product segment: Shaft adaptation Product: Shaft couplings Description: Spring washer coupling, shaft diameter 6 mm / 10 mm, Maximum shaft offset: radial ± 0.3 mm, axial ± 0.4 mm, angular $\pm 2.5^\circ$; max. speed 12,000 rpm, -10° to $+80^\circ\text{C}$, max. torque 60 Ncm; material: aluminum flange, glass fiber-reinforced polyamide membrane and hardened steel coupling pin	KUP-0610-F	5312985
	Product segment: Shaft adaptation Product: Shaft couplings Description: Bellows coupling, shaft diameter 6 mm / 6 mm, maximum shaft offset: radial ± 0.25 mm, axial ± 0.4 mm, angular $\pm 4^\circ$; max. speed 10,000 rpm, -30°C to $+120^\circ\text{C}$, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub	KUP-0606-B	5312981
Mounting systems			
	Description: Mounting bell for encoder with servo flange, 50 mm spigot Items supplied: Mounting kit included	BEF-MG-50	5312987
	Description: Half-shell servo clamps (2 pcs.) for servo flanges with a 50 mm centering hub	BEF-WG-SF050	2029165
	Description: Servo clamps, large, for servo flange (clamps, eccentric fastener), 3 pcs, without mounting material Items supplied: Without mounting hardware	BEF-WK-SF	2029166

	Brief description	Type	part no.
connectors and cables			
	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: $\leq 0.75 \text{ mm}^2$	DOS-1204-G	6007302
	Connection type head A: Female connector, M12, 5-pin, straight, B-coded Connection type head B: Male connector, M12, 5-pin, straight, B-coded Signal type: Fieldbus, PROFIBUS DP Cable: 10 m, 2-wire, PUR, halogen-free Description: Fieldbus, twisted pair, shielded, PROFIBUS DP Note: Wire shield Al-Pt film, overall shield C-screen tin-plated Application: Zones with oils and lubricants, Drag chain operation	DSL-1205-G10MQ	6032640
	Connection type head A: Flying leads Connection type head B: Flying leads Signal type: PROFIBUS DP Items supplied: By the meter Cable: 2-wire, PUR Description: PROFIBUS DP, shielded	LTG-2102-MW	6021355
	Connection type head A: Male connector, M12, 4-pin, straight, B-coded Signal type: PROFIBUS DP Description: PROFIBUS DP, terminal resistor	STE-END-Q	6021156
	Connection type head A: Female connector, M12, 4-pin, angled, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: $\leq 0.75 \text{ mm}^2$	DOS-1204-W	6007303
	Connection type head A: Male connector, M12, 5-pin, straight, B-coded Signal type: PROFIBUS DP Description: PROFIBUS DP, shielded Connection systems: Screw-type terminals Permitted cross-section: $\leq 0.75 \text{ mm}^2$	STE-1205-GQ	6021354
	Connection type head A: Female connector, M12, 5-pin, straight, B-coded Signal type: PROFIBUS DP Description: PROFIBUS DP, shielded Connection systems: Screw-type terminals Permitted cross-section: $\leq 0.75 \text{ mm}^2$	DOS-1205-GQ	6021353
	Connection type head A: Female connector, M12, 5-pin, angled, B-coded Signal type: PROFIBUS DP Description: PROFIBUS DP, shielded Connection systems: Spring-cage connection Permitted cross-section: $0.14 \text{ mm}^2 \dots 0.5 \text{ mm}^2$	DOS-1205-WQ	6041429
	Connection type head A: Male connector, M12, 5-pin, angled, B-coded Signal type: PROFIBUS DP Description: PROFIBUS DP, shielded Connection systems: Spring-cage connection Permitted cross-section: $0.14 \text{ mm}^2 \dots 0.5 \text{ mm}^2$	STE-1205-WQ	6041428
	Connection type head A: Female connector, M12, 5-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 2-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Note: Voltage supply Application: Zones with oils and lubricants	DOL-1202-W05MC	6042067
	Connection type head A: Female connector, M12, 5-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 10 m, 2-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Note: Voltage supply Application: Zones with oils and lubricants	DOL-1202-W10MC	6042068
	Items supplied: 1 x female connector M12, 4-pin, angled, 1 x female connector M12, 5-pin, angled, male connector M12, 5-pin, angled, cable? Description: Unshielded	DOS-3XM12-W	2058177

	Brief description	Type	part no.
	Note: Set of connectors Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 5-wire, PUR, halogen-free Description: Sensor/actuator cable, shielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-050UB6XLEAX	2095733
	Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 10 m, 5-wire, PUR, halogen-free Description: Sensor/actuator cable, shielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-100UB6XLEAX	2095734
	Connection type head A: Female connector, M12, 5-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 20 m, 5-wire, PUR, halogen-free Description: Sensor/actuator cable, shielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-200UB6XLEAX	2095738
	Connection type head A: Male connector, M12, 2-pin, straight, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 15 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YM2B22-150P-B1XLEAX	2106276
	Connection type head A: Male connector, M12, 2-pin, angled, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 5 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YN2B22-050P-B1XLEAX	2106277
	Connection type head A: Female connector, M12, 2-pin, angled, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 5 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YG2B22-050P-B1XLEAX	2106274
	Connection type head A: Female connector, M12, 2-pin, angled, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 10 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YG2B22-100P-B1XLEAX	2106275
	Connection type head A: Male connector, M12, 2-pin, angled, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 10 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YN2B22-100P-B1XLEAX	2106278
	Connection type head A: Male connector, M12, 2-pin, straight, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 5 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YM2B22-050P-B1XLEAX	2106270
	Connection type head A: Male connector, M12, 2-pin, straight, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 10 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YM2B22-100P-B1XLEAX	2106271
	Connection type head A: Female connector, M12, 2-pin, straight, B-coded Connection type head B: Flying leads Signal type: Fieldbus, PROFIBUS DP Cable: 10 m, 2-wire, PUR, halogen-free Description: Fieldbus, shielded, PROFIBUS DP Application: Drag chain operation, Zones with oils and lubricants	YF2B22-100P-B1XLEAX	2106269
	Connection type head A: Female connector, M12, 2-pin, straight, B-coded Connection type head B: Flying leads	YF2B22-150P-B1XLEAX	2106272

	Brief description	Type	part no.
	• Signal type: Fieldbus, PROFIBUS DP • Cable: 15 m, 2-wire, PUR, halogen-free • Description: Fieldbus, shielded, PROFIBUS DP • Application: Drag chain operation, Zones with oils and lubricants		
	• Connection type head A: Female connector, M12, 2-pin, straight, B-coded • Connection type head B: Flying leads • Signal type: Fieldbus, PROFIBUS DP • Cable: 20 m, 2-wire, PUR, halogen-free • Description: Fieldbus, shielded, PROFIBUS DP • Application: Drag chain operation, Zones with oils and lubricants	YF2B22-200P-B1XLEAX	2106273
	• Connection type head A: Female connector, M12, 2-pin, straight, B-coded • Connection type head B: Flying leads • Signal type: Fieldbus, PROFIBUS DP • Cable: 5 m, 2-wire, PUR, halogen-free • Description: Fieldbus, shielded, PROFIBUS DP • Application: Drag chain operation, Zones with oils and lubricants	YF2B22-050P-B1XLEAX	2121936
	• Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-020UB6XLEAX	2145583
	• Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 1 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-010UB6XLEAX	2145582
	• Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 0.6 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A25-C60UB6XLEAX	2145581

SICK AT A GLANCE

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.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

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