



BCG13-A1AM0511

EcoLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
BCG13-A1AM0511	1061033

Included in delivery: AFM60E-S1AA004096 (1), MRA-G130-105D3 (1)

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



Detailed technical data

Safety-related parameters

MTTF_D (mean time to dangerous failure)	250 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

Measurement range	0 m ... 5 m
Encoder	Absolute encoders
Resolution (wire draw + encoder)	0.09 mm ^{1) 2)}
Repeatability	≤ 0.2 mm ³⁾
Linearity	≤ ± 2 mm ³⁾
Hysteresis	≤ 0.4 mm ³⁾

¹⁾ The values shown have been rounded.

²⁾ Example calculation based on the BCG08 with PROFINET: 230 mm (wire draw length per revolution - see Mechanical data): 262,144 (number of steps per revolution) = 0.001 mm (resolution of wire draw + encoder combination).

³⁾ Value applies to wire draw mechanism.

Interfaces

Communication interface	SSI
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Electronics

Connection type	Male connector, M23, 12-pin, radial
Supply voltage	4.5 V DC ... 32 V DC
Power consumption	≤ 0.7 W (without load)

Mechanics

Weight	1.1 kg
Measuring wire material	Highly flexible stranded steel 1,4401 stainless steel V4A
Measuring wire diameter	0.55 mm
Weight (measuring wire)	1.2 g/m
Housing material, wire draw mechanism	Plastic, Noryl
Spring return force	4.5 N ... 7 N ¹⁾
Length of wire pulled out per revolution	385 mm
Life of wire draw mechanism	Typ. 1,000,000 cycles ^{2) 3)}
Actual wire draw length	5.2 m
Wire acceleration	4 m/s ²
Operating speed	3 m/s
Mounted encoder	AFM60 SSI, AFM60E-S1AA004096, 1037438
Mounted mechanic	MRA-G130-105D3, 5322779

¹⁾ These values were measured at an ambient temperature of 25 °C. There may be variations at other temperatures.

²⁾ Average values, which depend on the application.

³⁾ The service life depends on the type of load. This is influenced by environmental conditions, the installation location, the measuring range in use, the traversing speed, and acceleration.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 ¹⁾
Enclosure rating	IP50, mounted mechanic IP67, Encoder (IEC 60529) ²⁾
Operating temperature range	0 °C ... +70 °C

¹⁾ EMC according to the standards quoted is achieved if shielded cables are used.

²⁾ For devices with male connector: with mounted mating connector.

Certificates

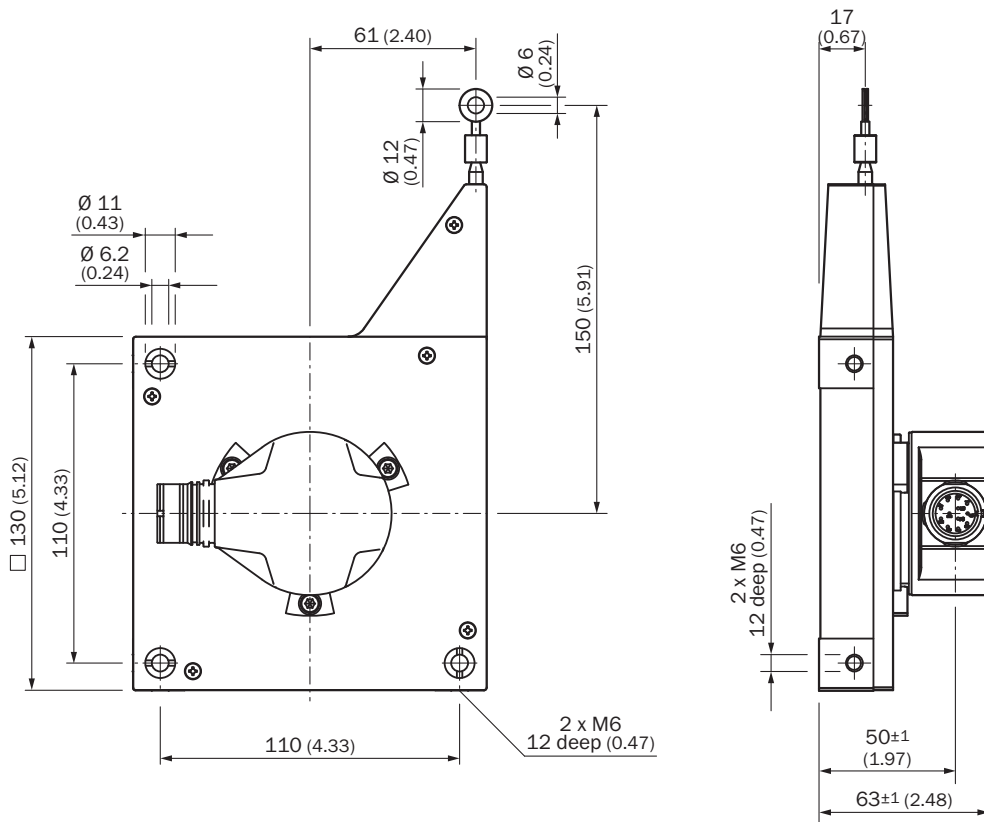
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

Classifications

ECLASS 5.0	27270590
ECLASS 5.1.4	27270590
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270590
ECLASS 8.0	27270590
ECLASS 8.1	27270590
ECLASS 9.0	27270590
ECLASS 10.0	27270613

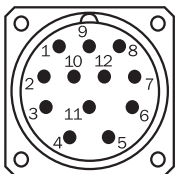
ECLASS 11.0	27270503
ECLASS 12.0	27270503
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing



Dimensions in mm (inch)

Anschlussbelegung M23 male connector, 12-pin, SSI/Gray



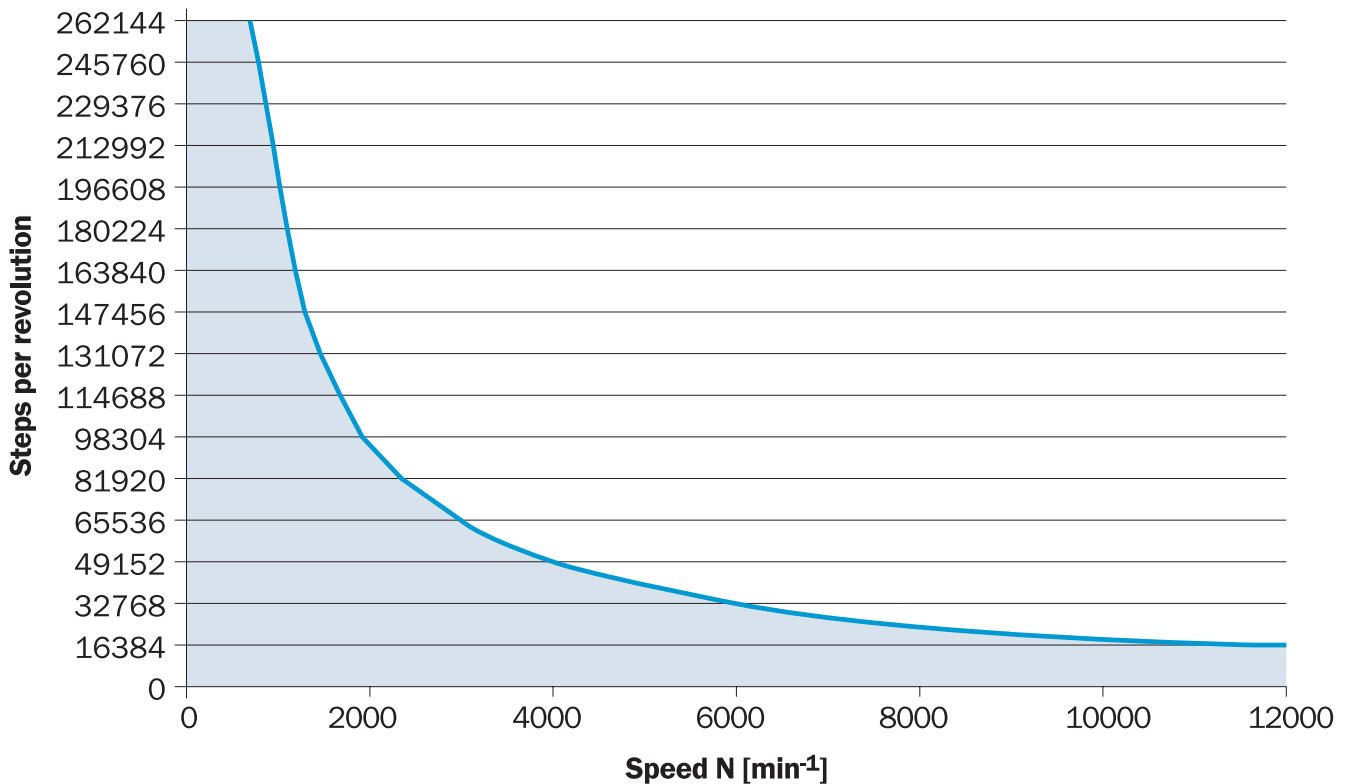
view of M23 male device connector on encoder

PIN	Signal	Explanation
1	GND	Ground connection

PIN	Signal	Explanation
2	Data +	Interface signals
3	Clock +	Interface signals
4	N.C.	Not assigned
5	N.C.	Not assigned
6	N.C.	Not assigned
7	N.C.	Not assigned
8	U _S	Operating voltage
9	SET	Electronic adjustment
10	Data -	Interface signals
11	Clock -	Interface signals
12	V/R	Sequence in direction of rotation
-	Shielding	Shielding connected to housing on encoder side. Connected to ground on control side.

Diagrams


Speed consideration (n)



The maximum speed is also dependent on the shaft type.

Recommended accessories

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

	Brief description	Type	part no.
Wire draw mechanism			
	<ul style="list-style-type: none">• Product segment: Wire draw mechanism• Product family: Wire draw mechanism for wire draw encoders• Description: EcoLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 5 m• Items supplied: Without encoder	MRA-G130-105D3	5322779

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Description: SSI, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: SSI Cable: 0.5 m, 8-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2308-G0M5AA6	2048595
	<ul style="list-style-type: none"> Description: SSI, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: SSI Cable: 3 m, 8-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2308-G03MAA6	2048597
	<ul style="list-style-type: none"> Description: SSI, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: SSI Cable: 5 m, 8-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2308-G05MAA6	2048598
	<ul style="list-style-type: none"> Description: SSI, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: SSI Cable: 1.5 m, 8-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2308-G1M5AA6	2048596
	<ul style="list-style-type: none"> Description: SSI, shielded Connection type head A: Female connector, M23, 12-pin, straight Connection type head B: Flying leads Signal type: SSI Cable: 10 m, 8-wire, PUR, halogen-free Application: Zones with oils and lubricants 	DOL-2308-G10MAA6	2048599
	<ul style="list-style-type: none"> Description: SSI, shielded, Incremental, HIPERFACE® Connection type head A: Flying leads Connection type head B: Flying leads Signal type: SSI, Incremental, HIPERFACE® Items supplied: By the meter Cable: 8-wire, PUR, halogen-free 	LTG-2308-MWENC	6027529
	<ul style="list-style-type: none"> Description: HIPERFACE®, shielded, SSI, Incremental Connection type head A: Female connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	DOS-2312-G	6027538
	<ul style="list-style-type: none"> Description: HIPERFACE®, shielded, SSI, Incremental Connection type head A: Female connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	DOS-2312-G02	2077057
	<ul style="list-style-type: none"> Description: HIPERFACE®, shielded, SSI, Incremental Connection type head A: Female connector, M23, 12-pin, angled, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	DOS-2312-W01	2072580
	<ul style="list-style-type: none"> Description: HIPERFACE®, shielded, SSI, Incremental Connection type head A: Female connector, M23, 9-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental Connection systems: Solder connection 	DOS-2309-G	6028533

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.”

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