



# 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](http://www.sick.com/EcoLine)



## Detailed technical data

## Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	250 years (EN ISO 13849-1) <sup>1)</sup>
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<sup>1)</sup> 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

<b>Measurement range</b>	0 m ... 5 m
<b>Encoder</b>	Absolute encoders
<b>Resolution (wire draw + encoder)</b>	0.09 mm <sup>1) 2)</sup>
<b>Repeatability</b>	≤ 0.2 mm <sup>3)</sup>
<b>Linearity</b>	≤ ± 2 mm <sup>3)</sup>
<b>Hysteresis</b>	≤ 0.4 mm <sup>3)</sup>

<sup>1)</sup> The values shown have been rounded.

<sup>2)</sup> 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).

<sup>3)</sup> Value applies to wire draw mechanism.

## Interfaces

<b>Communication interface</b>	SSI
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## Electronics

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

## Mechanics

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

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

<sup>2)</sup> Average values, which depend on the application.

<sup>3)</sup> 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

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

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

<sup>2)</sup> For devices with male connector: with mounted mating connector.

## Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓

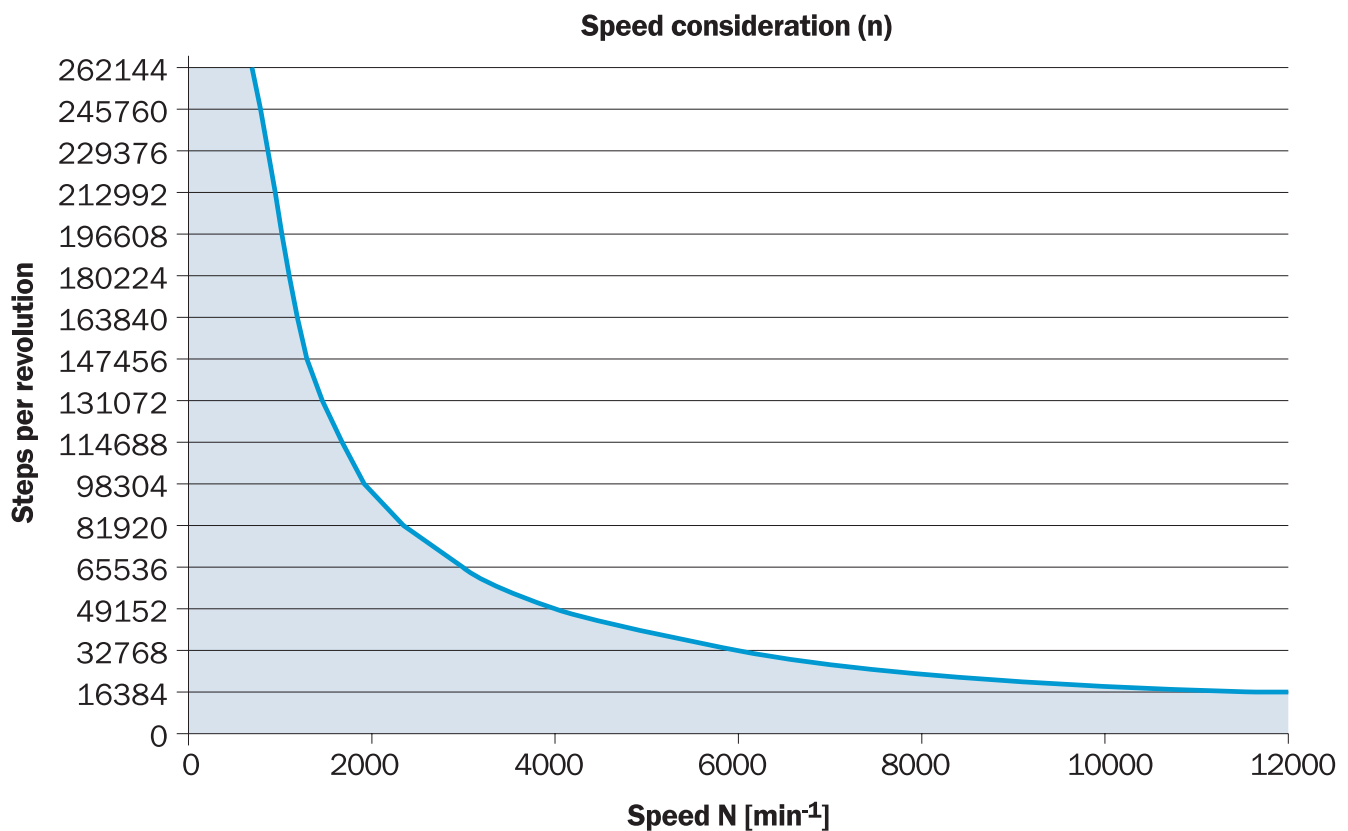
## Classifications

<b>ECLASS 5.0</b>	27270590
<b>ECLASS 5.1.4</b>	27270590
<b>ECLASS 6.0</b>	27270590
<b>ECLASS 6.2</b>	27270590
<b>ECLASS 7.0</b>	27270590
<b>ECLASS 8.0</b>	27270590
<b>ECLASS 8.1</b>	27270590
<b>ECLASS 9.0</b>	27270590
<b>ECLASS 10.0</b>	27270613

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Subject to change without notice

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 <sub>S</sub>	Operating voltage
9	SET	Electronic adjustment
10	Data -	Interface signals
11	Clock -	Interface signals
12	V/R	Sequence in direction of rotation
-	Shielding	Screen connected to housing on encoder side. Connected to ground on control side.

## Diagrams



The maximum speed is also dependent on the shaft type.

## Recommended accessories

Other models and accessories → [www.sick.com/EcoLine](http://www.sick.com/EcoLine)

	Brief description	Type	part no.
Wire draw mechanism			
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Wire draw mechanism</li> <li><b>Product family:</b> Wire draw mechanism for wire draw encoders</li> <li><b>Description:</b> EcoLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 5 m</li> <li><b>Items supplied:</b> Without encoder</li> </ul>	MRA-G130-105D3	5322779
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI</li> <li><b>Cable:</b> 0.5 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded</li> </ul>	DOL-2308-G0M5AA6	2048595
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI</li> <li><b>Cable:</b> 3 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded</li> </ul>	DOL-2308-G03MAA6	2048597
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded</li> </ul>	DOL-2308-G05MAA6	2048598
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI</li> <li><b>Cable:</b> 1.5 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded</li> </ul>	DOL-2308-G1M5AA6	2048596
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI</li> <li><b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded</li> </ul>	DOL-2308-G10MAA6	2048599
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI, Incremental, HIPERFACE®</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, shielded, Incremental, HIPERFACE®</li> </ul>	LTG-2308-MWENC	6027529
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE®, SSI, Incremental</li> <li><b>Description:</b> HIPERFACE®, shieldedSSIIncremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>	DOS-2312-G	6027538
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE®, SSI, Incremental</li> <li><b>Description:</b> HIPERFACE®, shieldedSSIIncremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>	DOS-2312-G02	2077057
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, angled, A-coded</li> <li><b>Signal type:</b> HIPERFACE®, SSI, Incremental</li> <li><b>Description:</b> HIPERFACE®, shieldedSSIIncremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>	DOS-2312-W01	2072580
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M23, 9-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE®, SSI, Incremental</li> <li><b>Description:</b> HIPERFACE®, shieldedSSIIncremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>	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.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)