



## BCG19-A1AM1007

EcoLine

WIRE DRAW ENCODERS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
BCG19-A1AM1007	1056983

**Included in delivery:** AFM60B-S1AA004096 (1), MRA-G190-110D3 (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 ... 10 m
<b>Encoder</b>	Absolute encoders
<b>Resolution (wire draw + encoder)</b>	0.14 mm <sup>1)</sup> <sup>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>	2.2 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>	7.1 g/m
<b>Housing material, wire draw mechanism</b>	Plastic, Noryl
<b>Spring return force</b>	9 N ... 12 N <sup>1)</sup>
<b>Length of wire pulled out per revolution</b>	555 mm
<b>Life of wire draw mechanism</b>	Typ. 1,000,000 cycles <sup>2) 3)</sup>
<b>Actual wire draw length</b>	10.2 m
<b>Wire acceleration</b>	8 m/s <sup>2</sup>
<b>Operating speed</b>	3 m/s
<b>Mounted encoder</b>	AFM60 SSI, AFM60B-S1AA004096, 1037868
<b>Mounted mechanic</b>	MRA-G190-110D3, 5326242

<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>	-30 °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

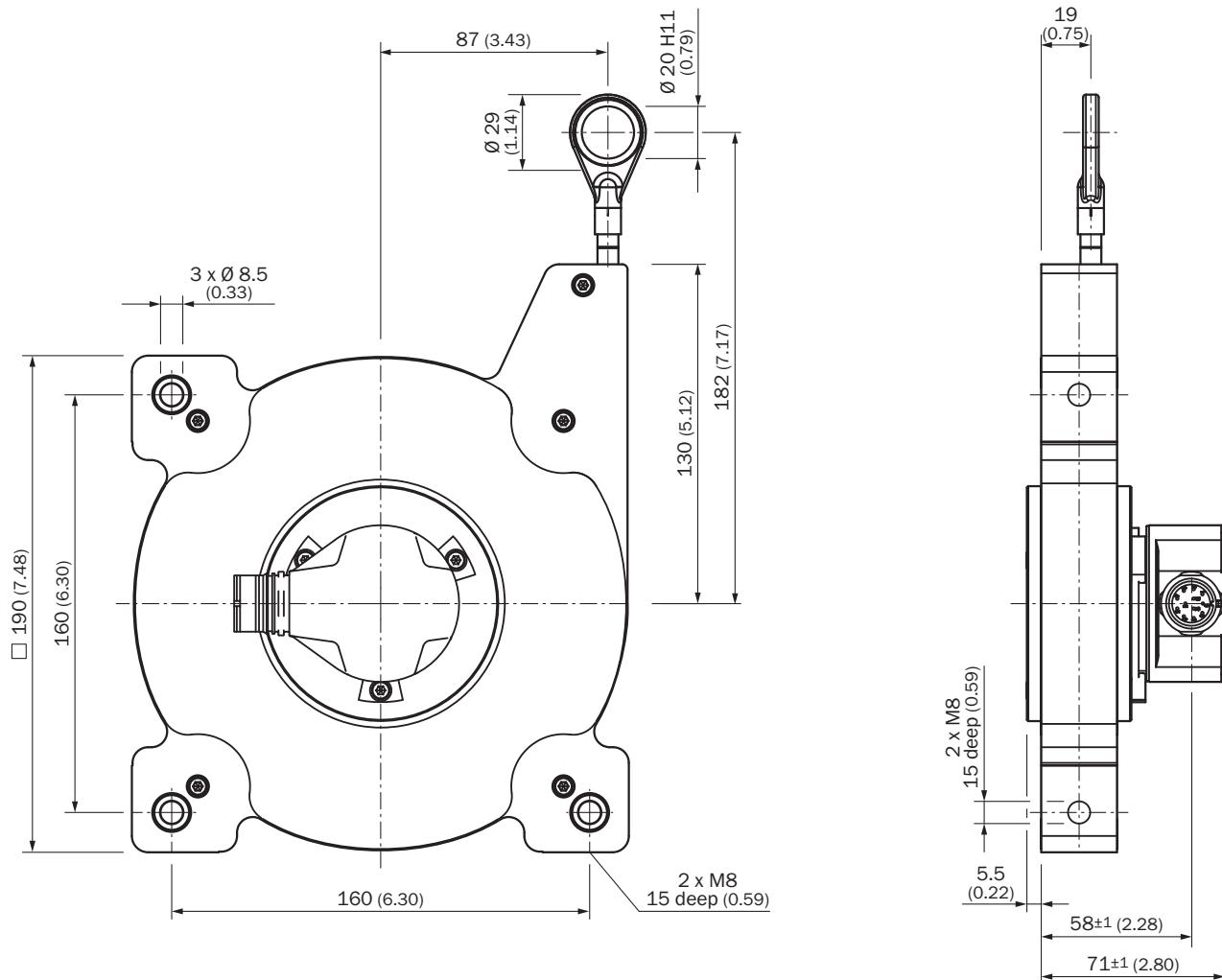
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓

## 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

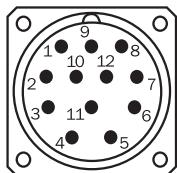
<b>ECLASS 11.0</b>	27270503
<b>ECLASS 12.0</b>	27270503
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>ETIM 8.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

## Dimensional drawing



Dimensions in mm (inch)

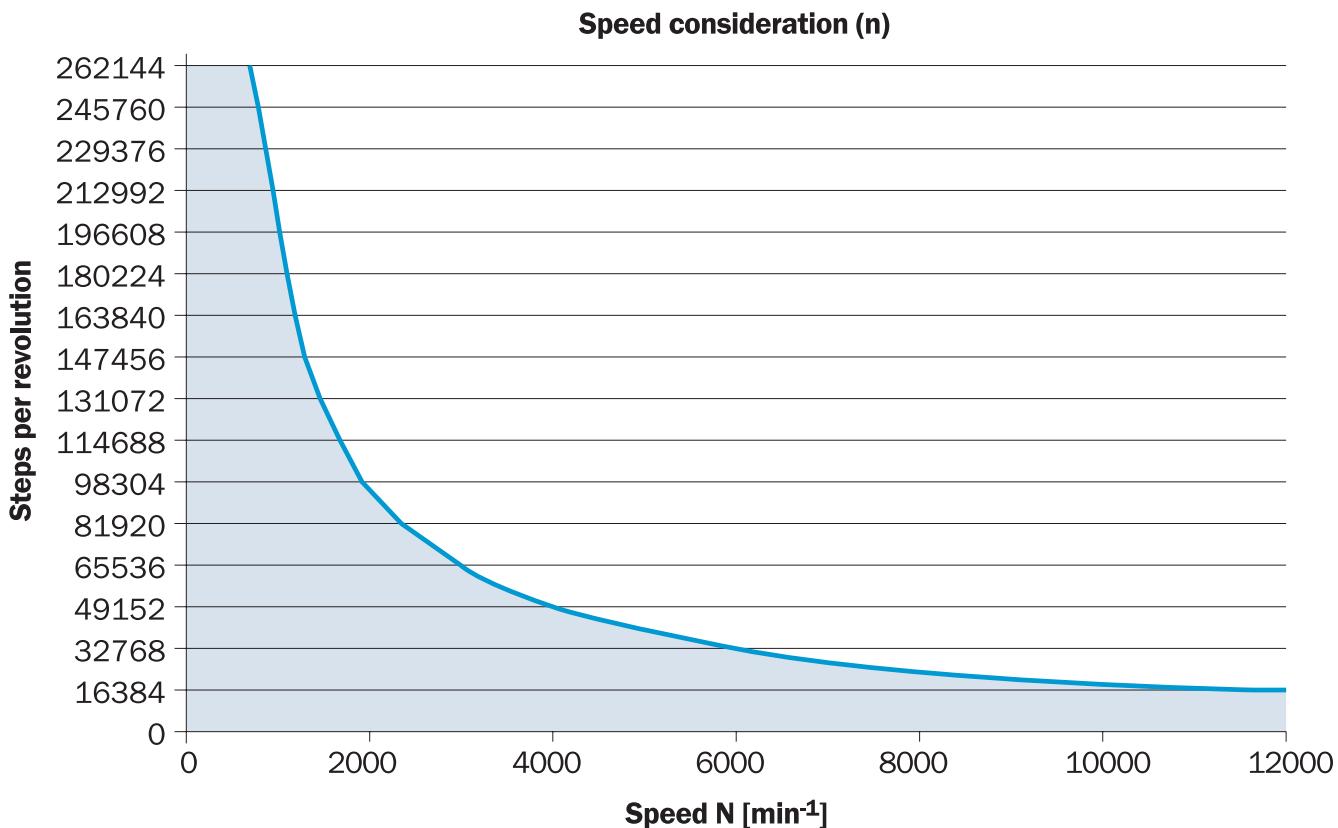
## PIN assignment M23 male connector, 12-pin, SSI/Gray



view of M23 male device connector on encoder

PIN	Signal	Explanation
1	GND	Ground connection
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
-	Screen	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)

	<b>Brief description</b>	<b>Type</b>	<b>part no.</b>
Mounting systems	<ul style="list-style-type: none"> <li><b>Description:</b> Spare mounting set for MRA-G190 (10 m EcoLine)</li> </ul>	BEF-MK-MRA-G01	5326294
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 ... 10 m</li> <li><b>Items supplied:</b> Without encoder</li> </ul>	MRA-G190-110D3	5326242

	Brief description	Type	part no.
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, shieldedIncrementalHIPERFACE®</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

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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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