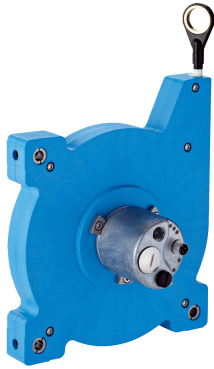


# BCG19-E1BM1099

EcoLine

WIRE DRAW ENCODERS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
BCG19-E1BM1099	1061045

**Included in delivery:** MRA-G190-110D3 (1), AFM60A-S1EB018x12 (1)

Product is supplied fully assembled. See individual components for further technical data

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



### Detailed technical data

#### Performance

<b>Measurement range</b>	0 m ... 10 m
<b>Encoder</b>	Absolute encoders
<b>Resolution (wire draw + encoder)</b>	0.002 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>	EtherCAT <sup>®</sup>
<b>Programmable/configurable</b>	✓

#### Electrical data

<b>Connection type</b>	Male connector, 1x, M12, 4-pin, axial Female connector, 2x, M12, 4-pin, axial
<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Power consumption</b>	≤ 3 W (without load)
<b>MTTFd: mean time to dangerous failure</b>	80 years (EN ISO 13849-1) <sup>1)</sup>

<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.

## Mechanical data

<b>Weight</b>	2.1 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>	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 EtherCAT®, AFM60A-S1EB018x12, 1059061
<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

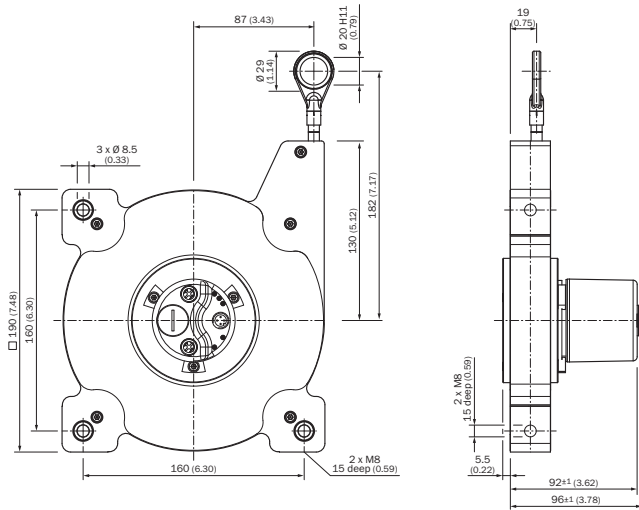
<sup>1)</sup> EMC according to the standards quoted is achieved if shielded cables are used.

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

## Classifications

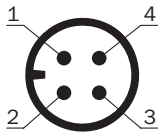
<b>eCl@ss 5.0</b>	27270590
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<b>eCl@ss 11.0</b>	27270503
<b>eCl@ss 12.0</b>	27270503
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>ETIM 8.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

### Dimensional drawing (Dimensions in mm (inch))



### PIN assignment

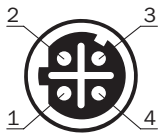
Male connector



Supply voltage

PIN	Wire color	Signal
1	Brown	U <sub>S</sub> 10 V ... 30 V
2	White	Not assigned
3	Blue	GND
4	Black	Not assigned

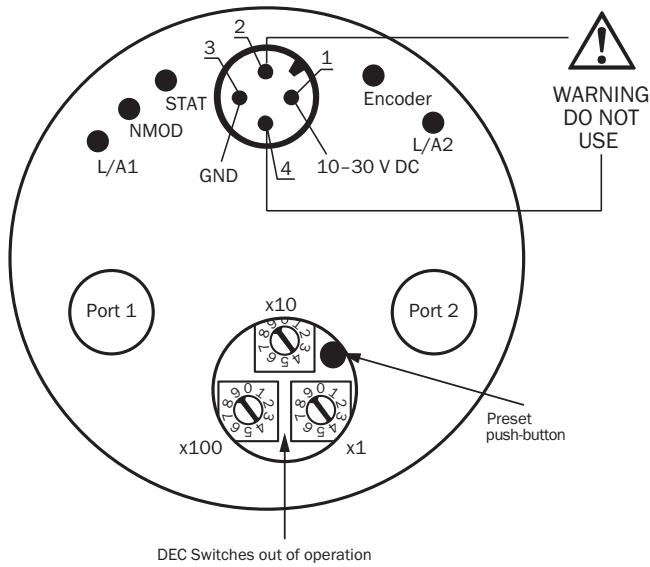
Female connector



Port 1, Port 2

PIN	Wire color	Signal
1	Yellow	T x D+
2	White	R x D+
3	Orange	T x D-
4	Blue	R x D-

Connection diagram












Recommended accessories

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

	Brief description	Type	Part no.
<b>Flanges</b>			
	Flange adapter for EcoLine wire draw mechanisms, adaption of face mount flange with centering hub 20 mm to 50 mm servo flange, Aluminum, including 3 countersunk screws M3 x 10	BEF-FA-020-050-007	2073774
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m	YF2A14-020UB3XLEAX	2095607
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m	YF2A14-050UB3XLEAX	2095608
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YF2A14-100UB3XLEAX	2095609
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m	YF2A14-250UB3XLEAX	2095615
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m	YG2A14-020UB3XLEAX	2095766
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m	YG2A14-050UB3XLEAX	2095767
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YG2A14-100UB3XLEAX	2095768

	<b>Brief description</b>	<b>Type</b>	<b>Part no.</b>
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m	YG2A14-250UB3XLEAX	2095771
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YM2D24-020PN1XLEAX	2106171
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 5 m	YM2D24-050PN1XLEAX	2106172
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YM2D24-100PN1XLEAX	2106173
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 5 m	YN2D24-050PN1XLEAX	2106175
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YN2D24-100PN1XLEAX	2106176
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: Flying leads Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 25 m	YN2D24-250PN1XLEAX	2106180
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, PUR, halogen-free, shielded, 5 m	SSL-1204-W05MZ	6050636
		Head A: male connector, RJ45, 4-pin, straight Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT®, PVC, shielded, 30 m	SSL-2J04-F30MZ
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: PROFINET, PVC, shielded, 5 m	SSL-2J04-G05MZ60	6048245
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, M12, 4-pin, straight, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YM2D24-020PN1M2D24	2106159
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YM2D24-020PN1MRJA4	2106182
		Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, M12, 4-pin, straight, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 5 m	YM2D24-050PN1M2D24
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, M12, 4-pin, straight, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YM2D24-100PN1M2D24	2106161
		Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YM2D24-100PN1MRJA4
	Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YM2D24-100PN1N2D24	2106167
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YN2D24-020PN1MRJA4	2106162
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m	YN2D24-020PN1N2D24	2106168

	Brief description	Type	Part no.
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 5 m	YN2D24-050PN1MRJA4	2106163
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YN2D24-100PN1MRJA4	2106164
	Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 10 m	YN2D24-100PN1N2D24	2106170
	Head A: female connector, M12, 4-pin, straight, D-coded Cable: PROFINET, shielded	D0S-1204-GZ	6048263
	Head A: female connector, M12, 4-pin, angled Cable: unshielded	D0S-1204-W	6007303
	Head A: female connector, M12, 4-pin, angled, D-coded Cable: PROFINET, shielded	D0S-1204-WZ	6048264
	Head A: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, EtherCAT®, shielded	STE-0J04-GZ	6048260
	Head A: male connector, M12, 4-pin, straight, D-coded Cable: PROFINET, shielded	STE-1204-GZ	6048261
	Head A: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, shielded	STE-1204-WZ	6048262
	Head A: female connector, M12, 4-pin, D-coded Head B: female connector, RJ45, 8-pin Cable: Ethernet, shielded Cabinet through	Feedthrough female connector Ethernet RJ45	6048180

## 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.

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