

# BCV08-I1BM03N200

VarioLine

**WIRE DRAW ENCODERS** 





#### Ordering information

Туре	part no.
BCV08-I1BM03N200	1133456

Included in delivery: AFM60A-S1IB018x12 (1), MRA-V080-103D3 (1)

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



#### Detailed technical data

#### Safety-related parameters

MTTF <sub>D</sub> (mean time to dangerous failure)	80 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

Measurement range	0 m 3 m
Encoder	Absolute encoders
Resolution (wire draw + encoder)	0.0009 mm <sup>1) 2)</sup>
Repeatability	≤ 0.3 mm <sup>3)</sup>
Linearity	≤ ± 2 mm <sup>3)</sup>
Hysteresis	≤ 1.2 mm <sup>3)</sup>

 $<sup>^{1)}</sup>$  The values shown have been rounded.

#### Interfaces

Communication interface	EtherNet/IP™
Programmable/configurable	✓

#### **Electronics**

Connection type	Male connector, 1x, M12, 4-pin, axial <sup>1)</sup> Female connector, 2x, M12, 4-pin, axial
	2)

<sup>1)</sup> A-coded.

<sup>2)</sup> Example calculation based on the BCV08 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>&</sup>lt;sup>3)</sup> Value applies to wire draw mechanism.

<sup>&</sup>lt;sup>2)</sup> D-coded.

Supply voltage	10 V DC 30 V DC
Power consumption	≤ 3 W (without load)

<sup>&</sup>lt;sup>1)</sup> A-coded.

#### Mechanics

Weight	0.8 kg
Measuring wire material	Stainless steel 1.4401
Measuring wire diameter	0.81 mm
Housing material, wire draw mechanism	Stainless steel 1.4301
Spring return force	8 N 10 N <sup>1)</sup>
Length of wire pulled out per revolution	230 mm
Life of wire draw mechanism	Typ. 1,000,000 cycles <sup>2) 3)</sup>
Actual wire draw length	3.2 m
Operating speed	4 m/s
Mounted encoder	AFM60 EtherNet/IP, AFM60A-S1IB018X12, 1055331
Mounted mechanic	MRA-V080-103D3, 5347779

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

#### Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3	
Enclosure rating	IP60, mounted mechanic IP67, Encoder (IEC 60529) <sup>1)</sup>	
Operating temperature range	-30 °C +70 °C	

 $<sup>^{1)}</sup>$  With mating connector fitted.

#### 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

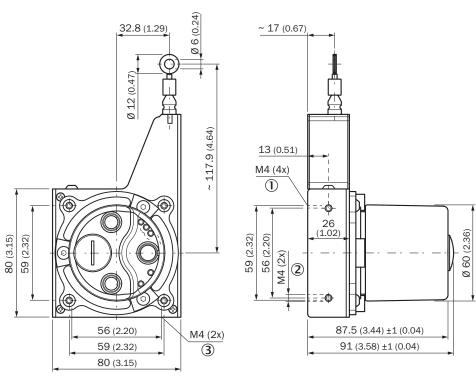
<sup>&</sup>lt;sup>2)</sup> D-coded.

 $<sup>^{2)}</sup>$  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.

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 Female connector

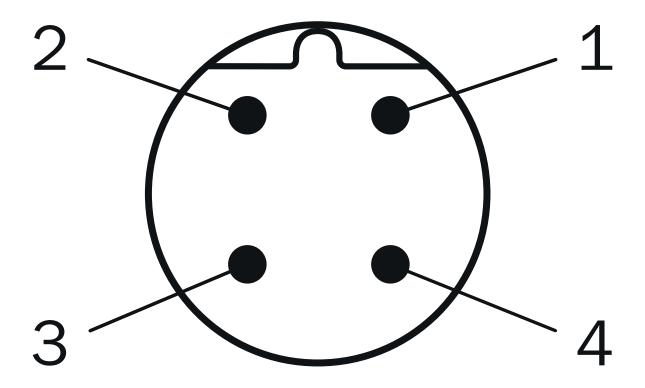


Port 1, Port 2

PIN	Signal
1	T x D+
2	R x D+
3	T x D-

PIN	Signal
4	R x D-

## Anschlussbelegung Male connector

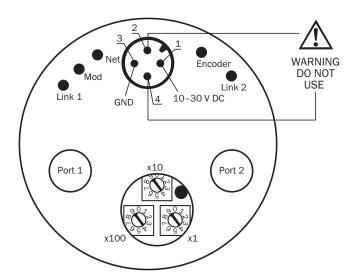


#### Supply voltage

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PIN	Signal
1	10 V 30 V
2	Not assigned
3	GND
4	Not assigned

WIRE DRAW ENCODERS

### Connection diagram



#### Recommended accessories

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

	Brief description	Туре	part no.
onnectors and cables			
A.C.	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 2 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-020UB3XLEAX	2095607
No.	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-050UB3XLEAX	2095608
No.	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 10 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-100UB3XLEAX	2095609
	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 25 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-250UB3XLEAX	2095615
	Connection type head A: Female connector, M12, 4-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 2 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YG2A14-020UB3XLEAX	2095766
3	Connection type head A: Female connector, M12, 4-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YG2A14-050UB3XLEAX	2095767
	Connection type head A: Female connector, M12, 4-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 10 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YG2A14-100UB3XLEAX	2095768
1	Connection type head A: Female connector, M12, 4-pin, angled, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 25 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YG2A14-250UB3XLEAX	2095771
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Male connector, M12, 4-pin, angled, D-coded</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 2 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-020P- N1N2D24	2106168
NO.	<ul> <li>Connection type head A: Female connector, M12, 4-pin, angled, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Screw-type terminals</li> <li>Permitted cross-section: ≤ 0.75 mm²</li> </ul>	DOS-1204-W	6007303
0	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, M12, 4-pin, straight, D-coded</li> <li>Signal type: Ethernet</li> <li>Cable: 5 m, 4-wire, CAT5, CAT5e, PUR, halogen-free</li> </ul>	SSL-1204-G05ME90	6045277

	Brief description	Туре	part no.
	Description: Ethernet, shielded		
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, M12, 4-pin, straight, D-coded</li> <li>Signal type: Ethernet</li> <li>Cable: 10 m, 4-wire, CAT5, CAT5e, PUR, halogen-free</li> <li>Description: Ethernet, shielded</li> </ul>	SSL-1204-G10ME90	6045279
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet</li> <li>Cable: 2 m, 4-wire, CAT5, CAT5e, PUR, halogen-free</li> <li>Description: Ethernet, shielded</li> </ul>	STL-1204-G02ME90	6045284
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet</li> <li>Cable: 5 m, 4-wire, CAT5, CAT5e, PUR, halogen-free</li> <li>Description: Ethernet, shielded</li> </ul>	STL-1204-G05ME90	6045285
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet</li> <li>Cable: 10 m, 4-wire, CAT5, CAT5e, PUR, halogen-free</li> <li>Description: Ethernet, shielded</li> </ul>	STL-1204-G10ME90	6045286
	Connection type head A: Female connector, M12, 4-pin, straight, D-coded Signal type: Ethernet Cable: CAT5, CAT5e Description: Ethernet, shielded Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² 0.34 mm²	DOS-1204-GE	6048153
	<ul> <li>Connection type head A: Female connector, M12, 4-pin, angled, D-coded</li> <li>Signal type: Ethernet</li> <li>Cable: CAT5, CAT5e</li> <li>Description: Ethernet, shielded</li> <li>Connection systems: IDC quick connection</li> <li>Permitted cross-section: 0.14 mm² 0.34 mm²</li> </ul>	DOS-1204-WE	6048154
Co	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Signal type: Ethernet</li> <li>Cable: CAT5, CAT5e</li> <li>Description: Ethernet, shielded</li> <li>Connection systems: IDC quick connection</li> <li>Permitted cross-section: 0.14 mm² 0.34 mm²</li> </ul>	STE-1204-GE01	6048151
	Connection type head A: Male connector, M12, 4-pin, angled, D-coded Signal type: Ethernet Cable: CAT5, CAT5e Description: Ethernet, shielded Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² 0.34 mm²	STE-1204-WE	6048152
	Connection type head A: Male connector, RJ45, 8-pin, straight Gignal type: Gigabit Ethernet Cable: CAT6A Description: Gigabit Ethernet, shielded Connection systems: IDC quick connection Permitted cross-section: 4.5 mm² 8 mm²	STE-0J08-GE	6048150
4 4	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, M12, 4-pin, straight, D-coded</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 2 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-020P- N1M2D24	2106159
96	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 2 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-020P- N1MRJA4	2106162
6 6	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 10 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> </ul>	YM2D24-100P- N1MRJA4	2106185

	Brief description	Туре	part no.
	Application: Drag chain operation, Zones with oils and lubricants		
10	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 5 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-050P- N1MRJA4	2106184
No.	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, RJ45, 8-pin, straight</li> <li>Signal type: Ethernet</li> <li>Cable: 5 m, 4-wire, AWG26, PUR, halogen-free</li> <li>Description: Ethernet, twisted pair, shielded</li> </ul>	YM2D24-050EA1M- RJA4	6034415
88	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 2 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-020P- N1MRJA4	2106182
9 6	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 10 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-100P- N1MRJA4	2106164
9 6	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 5 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-050P- N1MRJA4	2106163
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 5 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-050P- N1XLEAX	2106175
98	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Male connector, RJ45, 4-pin, straight</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 3 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-030P- N1MRJA4	2144265
No.	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 0.6 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14- C60UB3XLEAX	2145654
No.	<ul> <li>Connection type head A: Female connector, M12, 4-pin, straight, A-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 1 m, 4-wire, PUR, halogen-free</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A14-010UB3XLEAX	2145655
	Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 3 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-030UB3XLEAX	2145656
>	<ul> <li>Connection type head A: Female connector, M12, 4-pin, angled, A-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 0.6 m, 4-wire, PUR, halogen-free</li> <li>Description: Sensor/actuator cable, unshielded</li> </ul>	YG2A14- C60UB3XLEAX	2145657

	Brief description	Туре	part no.
	Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation		
3	<ul> <li>Connection type head A: Female connector, M12, 4-pin, angled, A-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 1 m, 4-wire, PUR, halogen-free</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YG2A14-010UB3XLEAX	2145658
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 20 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-200P- N1XLEAX	2122743
	<ul> <li>Connection type head A: Female connector, M12, 4-pin, angled, A-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 20 m, 4-wire, PUR, halogen-free</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YG2A14-200UB3XLEAX	2095770
	<ul> <li>Connection type head A: Female connector, M12, 4-pin, straight, A-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 20 m, 4-wire, PUR, halogen-free</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A14-200UB3XLEAX	2095611
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, angled, D-coded</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Ethernet, PROFINET</li> <li>Cable: 10 m, 4-wire, PUR, halogen-free</li> <li>Description: Ethernet, shielded, PROFINET</li> <li>Application: Drag chain operation, Zones with oils and lubricants</li> </ul>	YN2D24-100P- N1XLEAX	2106176

## SICK AT A GLANCE

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