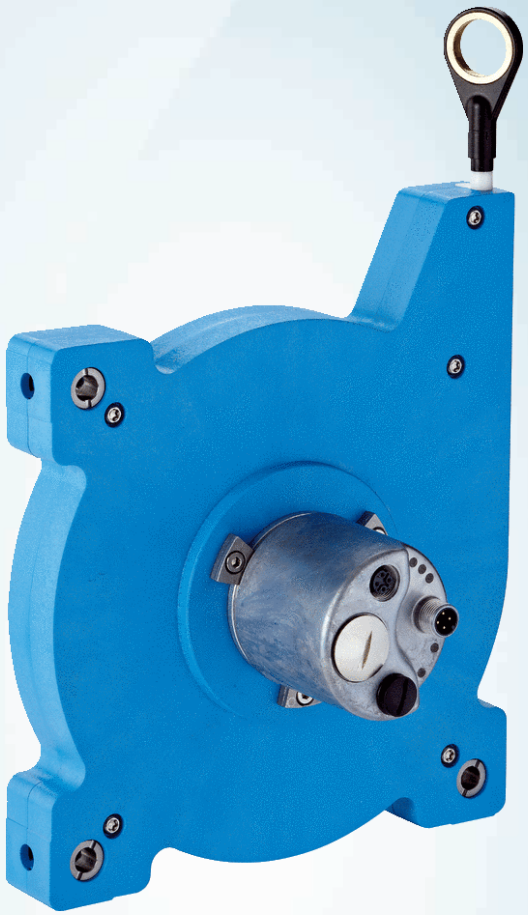
Product family overview

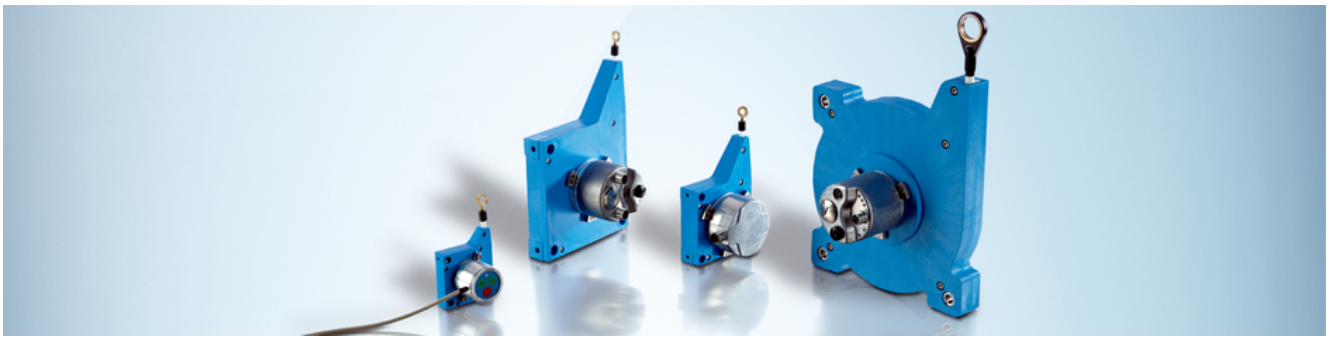


EcoLine

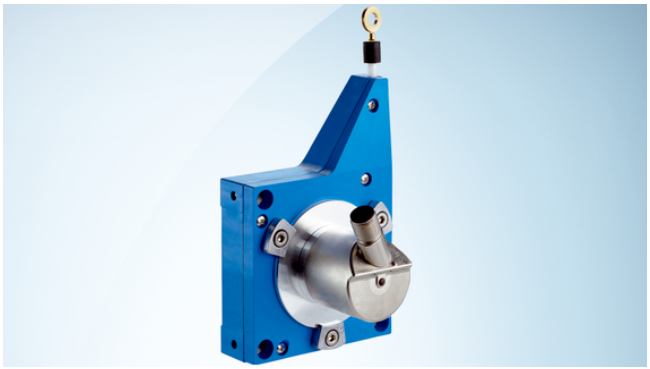
Modular wire draw encoder in miniature design

SICK
Sensor Intelligence.

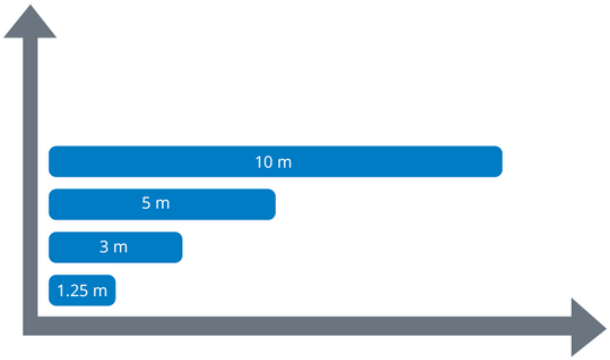
Advantages



With its strong performance, the EcoLine wire draw encoder is specially designed for applications where precision is important. Thanks to its slim housing, it is easy to integrate into the application even for installation situations where space is at a premium. The 0.55 cm thin, coated measuring wire combined with the tried-and-proven mechanics ensure an especially high linearity and repeatability. Thanks to the modular design of the EcoLine, if offers a large selection of communication interfaces. This makes it very compatible and enables the encoder to be adapted to the specific application.



Draw wires are a reliable mechanical solution for the exact measurement of linear movements.



Measuring lengths of 1.25 m to 10 m are available, depending on the variant.

Compact and economical: The EcoLine allows precise positioning in numerous applications and system environments.

Can be adapted to different interface environments

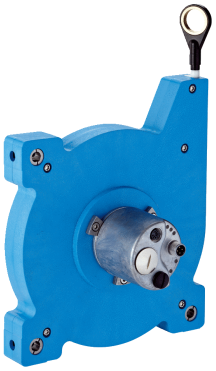
Thanks to their modular concept, wire draw encoders are available with many different communication interfaces: IO-Link, CANopen, PROFINET, SSI, analog communication interfaces etc. This allows the EcoLine to be very easily integrated into any control environment. It also makes it possible to utilize the individual encoder functions. For example, the diagnostic functions, parameterization via SOPAS, or using Smart Tasks to directly transmit speeds or the measuring distance covered.

The EcoLine delivers continuous diagnostic data. This provides the foundation for safe process monitoring and increases the plant availability. Any developing faults can be detected early.

Ensuring future security: Thanks to the decentralized intelligence of IO-Link, diagnostic data can be saved, Smart Tasks such as length measurements can be executed and production processes with Industry 4.0 concepts can be designed with high efficiency.

Detecting faults early on: Extensive diagnostic functions are available with the PROFINET standard which improve the reliability of the measurement process and therefore increase machine availability and productivity.

Thanks to its modular design and intelligent functions, the EcoLine can be precisely adapted to any system environment.



Technical data overview

Measuring range	0 m ... 10 m (depending on type)
Resolution	0.001 mm ... 0.14 mm (depending on type)
Communication interface	IO-Link / IO-Link V1.1 / COM3 (230,4 kBaud) CANopen SSI SAE J1939 PROFINET EtherCAT® EtherNet/IP™ DeviceNet™ PROFIBUS DP Analog / Current / 4...20 mA Analog / Voltage / 0...10 V HIPERFACE® Incremental / TTL / RS-422 Incremental / HTL / Push pull Incremental / TTL / HTL

Product description

The slim design of the EcoLine family is ideal for applications with limited space. Its modularity makes it suitable for a large selection of measuring lengths, interfaces and encoders. Due to the into the drum integrated spring as well as the adaption without coupling, it is possible to achieve high precision and stability. The special nozzle serves to protect the measuring wire from damage caused by vibration. The intuitive teach-in function provided in analog options also enables easy system integration.

At a glance

- Measuring lengths: 1.25 m ... 10 m
- Modular measuring system with a wide selection of interfaces/measuring lengths
- Very small, slim housing (55 mm ... 190 mm) with spring integrated in the measurement drum
- Light yet shock-proof and temperature-resistant plastic housing
- Analog interface with teach-in function on encoder

Your benefits

- Space- and cost-saving design thanks to slimline mechanics
- Numerous possible combinations of interfaces and measuring lengths
- Advanced programming options lead to a reduction in the amount of variants, save costs, and reduce storage
- Analog interface speeds up commissioning and cost-effective interface card can be used

Fields of application

- Measuring height and tilt of automated guided systems
- Height measurement in small warehouse systems
- Applications in medical technology (operating tables, MRT)
- Height measurement of scissors lifting platforms
- Height measurement of overhead conveyors in the automotive industry

Ordering information

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

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
–	Incremental / HTL / Push pull	Cable, 8-wire, universal, 1.5 m	0.06 mm [1) 2)]	DBS36 Core, DBS36E-SDEK02500, 1064246	MRA-G055-101D4, 5324019	PFG05-E1KM0160	1060971
		Cable, 8-wire, universal, 5 m	0.06 mm [1) 2)]	DBS36 Core, DBS36E-SDEM02500, 1072518	MRA-G055-101D4, 5324019	PFG05-E1MM0160	1072541

[1)] The values shown have been rounded.

[2)] Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

[3)] 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).

[4)] Order bus adapter separately.

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
		Male connector, M12, 8-pin, radial	0.01 mm [1) 2)]	DFS60, DFS60A-S1EC16384, 1037616	MRA-G080-103D3, 5322778	PFG08-E1CM0371	1060979
			0.02 mm [1) 2)]	DFS60, DFS60A-S1EC16384, 1037616	MRA-G130-105D3, 5322779	PFG13-E1CM0544	1061017
			0.03 mm [1) 2)]	DFS60, DFS60A-S1EC16384, 1037616	MRA-G190-110D3, 5326242	PFG19-E1CM1029	1061022
		Male connector, M23, 12-pin, radial	0.01 mm [1) 2)]	DFS60, DFS60A-S1EA16384, 1037615	MRA-G080-103D3, 5322778	PFG08-E1AM0371	1060981
			0.02 mm [1) 2)]	DFS60, DFS60A-S1EA16384, 1037615	MRA-G130-105D3, 5322779	PFG13-E1AM0544	1061018
			0.03 mm [1) 2)]	DFS60, DFS60A-S1EA16384, 1037615	MRA-G190-110D3, 5326242	PFG19-E1AM1029	1061023
	Incremental / TTL / HTL	Male connector, M12, 8-pin, radial	0.0035 mm [1) 2)]	DFS60, DFS60A-S1PC65536, 1036761	MRA-G080-103D3, 5322778	PFG08-P1CM03PP	1060984
			0.0058 mm [1) 2)]	DFS60, DFS60A-S1PC65536, 1036761	MRA-G130-105D3, 5322779	PFG13-P1CM05PP	1061019
			0.008 mm [1) 2)]	DFS60, DFS60A-S1PC65536, 1036761	MRA-G190-110D3, 5326242	PFG19-P1CM10PP	1061024
		Male connector, M23, 12-pin, radial	0.0035 mm [1) 2)]	DFS60, DFS60A-S1PA65536, 1036760	MRA-G080-103D3, 5322778	PFG08-P1AM03PP	1075495
			0.0058 mm [1) 2)]	DFS60, DFS60A-S1PA65536, 1036760	MRA-G130-105D3, 5322779	PFG13-P1AM05PP	1075498
			0.008 mm [1) 2)]	DFS60, DFS60A-S1PA65536, 1036760	MRA-G190-110D3, 5326242	PFG19-P1AM10PP	1075581
	Incremental / TTL / RS-422	Cable, 8-wire, universal, 1.5 m	0.06 mm [1) 2)]	DBS36 Core, DBS36E-SDAK02500, 1064245	MRA-G055-101D4, 5324019	PFG05-A1KM0160	1060972
		Cable, 8-wire, with male connector, M12, 8-pin, universal, 0.5 m	0.06 mm [1) 2)]	DBS36 Core, DBS36E-SDAP02500, 1095510	MRA-G055-101D4, 5324019	PFG05-A1PM0160	1102769
		Male connector, M12, 8-pin, radial	0.01 mm [1) 2)]	DFS60, DFS60A-S1AC16384, 1037566	MRA-G080-103D3, 5322778	PFG08-A1CM0371	1060974
			0.02 mm [1) 2)]	DFS60,	MRA-	PFG13-A1CM0544	1061015

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
				S1AA16384, 1037565			
0 m ... 1.25 m	Analog / Current / 4...20 mA	Cable, radial, 1.5 m	0.05 mm [1) 3)]	ACM36, ACM36-K1K0-K01, 6039751	MRA-G055-101D4, 5324019	BCG05-K1KM01PP	6039745
	Analog / Voltage / 0...10 V	Cable, radial, 1.5 m	0.04 mm [1) 3)]	ACM36, ACM36-L1K0-K01, 6039752	MRA-G055-101D4, 5324019	BCG05-L1KM01PP	6039746
	CANopen	Male connector, M12, 5-pin, universal	0.01 mm [1) 3)]	AHM36 CANopen, AHM36A-SD-CC014x12, 1067977	MRA-G055-101D4, 5324019	BCG05-C1QM0199	1068865
	IO-Link / IO-Link V1.1 / COM3 (230,4 kBaud)	Male connector, M12, 4-pin, universal	0.009 mm [1) 3)]	AHM36 IO-Link Advanced, AH-M36A-SDQC014X1: 1101538	MRA-G055-101D4, 5324019	BCG05-Q1PM0162	1110588
			0.04 mm [1) 3)]	AHM36 IO-Link Basic, AH-M36B-SDQC012X1: 1092035	MRA-G055-101D4, 5324019	BCG05-Q1PM0161	1097278
	SAE J1939	Male connector, M12, 5-pin, universal	0.01 mm [1) 3)]	AHM36 SAE J1939, AH-M36A-SD-JC014X12 , 1127130	MRA-G055-101D4, 5324019	BCG05-J1QM0164	1127302
	SSI	Male connector, M12, 8-pin, universal	0.02 mm [1) 3)]	AHM36 SSI, AHM36A-SD-PC013X12, 1068328	MRA-G055-101D4, 5324019	BCG05-A1NM0155	1068864

[1)] The values shown have been rounded.

[2)] Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

[3)] 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).

[4)] Order bus adapter separately.

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
0 m ... 10 m	Analog / Current / 4...20 mA	Male connector, M12, 5-pin, radial	0.05 mm [1) 3)]	ACM60, ACM60B-S1KE13X06, 6045312	MRA-G190-110D3, 5326242	BCG19-K1EM10PP	6048294
	Analog / Voltage / 0...10 V	Male connector, M12, 5-pin, radial	0.04 mm [1) 3)]	ACM60, ACM60B-S1LE13X06, 6045313	MRA-G190-110D3, 5326242	BCG19-L1EM10PP	6048295
	CANopen	Bus adapter for CANopen [4)]	0.07 mm [1) 3)]	ATM60 CANopen, ATM60-C1H13X13, 1030025	MRA-G190-110D3, 5326242	BCG19-C1HM1015	1061041
		Male connector, M12, 5-pin, universal	0.03 mm [1) 3)]	AHM36 CANopen, AHM36A-S3C-C014x12, 1065999	MRA-G190-110D3, 5326242	BCG19-C1QM1029	1068871
	DeviceNet™	Bus adapter for DeviceNet [4)]	0.07 mm [1) 3)]	ATM60 DeviceNet, ATM60-D1H13X13, 1030018	MRA-G190-110D3, 5326242	BCG19-D1HM1015	1061042
	EtherCAT®	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.002 mm [1) 3)]	AFM60 EtherCAT®, AFM60A-S1EB018x12, 1059061	MRA-G190-110D3, 5326242	BCG19-E1BM1099	1061045
	EtherNet/IP™		0.002 mm [1) 3)]	AFM60 EtherNet/IP, AFM60A-S1IB018x12, 1055331	MRA-G190-110D3, 5326242	BCG19-I1BM1099	1061044
	HIPERFACE®	Male connector, M23, 12-pin, radial	0.001 mm [1) 3)]	SRS/SRM50, SRM50-HXA0-S02, 1130373	MRA-G190-110D3, 5326242	BCG19-HXAM10S01	1135228
	IO-Link / IO-Link V1.1 / COM3 (230,4 kBaud)	Male connector, M12, 4-pin, universal	0.03 mm [1) 3)]	AHM36 IO-Link Advanced, AHM36A-S3QC014X1[illegible] 1101532	MRA-G190-110D3, 5326242	BCG19-Q1PM1062	1110591
			0.14 mm [1) 3)]	AHM36 IO-Link Basic, AHM36B-S3QC012X1[illegible] 1092014	MRA-G190-110D3, 5326242	BCG19-Q1PM1061	1097277
	PROFIBUS DP	Male connector, Female connector, 2x, 1x, M12, M12, 5-pin, 5-pin, axial, axial	0.07 mm [1) 3)]	A3M60, A3M60B-S1PB013X13, 1051018	MRA-G190-110D3, 5326242	BCG19-P1BM1015	1052620
	PROFINET	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.002 mm [1) 3)]	AFM60 PROFINET, AFM60A-S1NB018x12, 1059040	MRA-G190-110D3, 5326242	BCG19-N1BM1099	1061043
	SAE J1939	Male connector, M12, 5-pin, universal	0.03 mm [1) 3)]	AHM36 SAE J1939, AHM36A-S3JC014x12 1120251	MRA-G190-110D3, 5326242	BCG19-J1QM1064	1127305
	SSI	Male connector, M12, 8-pin, radial	0.07 mm [1) 3)]	AFM60 SSI, AFM60B-S1AC008192, 1037863	MRA-G190-110D3, 5326242	BCG19-A1CM1015	1061040

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
				S1AA004096, 1037868			

[1] The values shown have been rounded.

[2] Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

[3] 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).

[4] Order bus adapter separately.

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
0 m ... 3 m	Analog / Current / 4...20 mA	Cable, radial, 1.5 m	0.08 mm [1) 3)]	ACM36, ACM36-K1K0-K01, 6039751	MRA-G080-103D3, 5322778	BCG08-K1KM03PP	6039747
	Analog / Voltage / 0...10 V	Cable, radial, 1.5 m	0.06 mm [1) 3)]	ACM36, ACM36-L1K0-K01, 6039752	MRA-G080-103D3, 5322778	BCG08-L1KM03PP	6039748
	CANopen	Bus adapter for CANopen [4)]	0.03 mm [1) 3)]	ATM60 CANopen, ATM60-C1H13X13, 1030025	MRA-G080-103D3, 5322778	BCG08-C1HM0336	1061026
		Male connector, M12, 5-pin, universal	0.01 mm [1) 3)]	AHM36 CANopen, AHM36A-S3C-C014x12, 1065999	MRA-G080-103D3, 5322778	BCG08-C1QM0371	1068867
	DeviceNet™	Bus adapter for DeviceNet [4)]	0.03 mm [1) 3)]	ATM60 DeviceNet, ATM60-D1H13X13, 1030018	MRA-G080-103D3, 5322778	BCG08-D1HM0336	1061027
	EtherCAT®	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.001 mm [1) 3)]	AFM60 EtherCAT®, AFM60A-S1EB018x12, 1059061	MRA-G080-103D3, 5322778	BCG08-E1BM0399	1061030
	EtherNet/IP™		0.001 mm [1) 3)]	AFM60 EtherNet/IP, AFM60A-S1IB018x12, 1055331	MRA-G080-103D3, 5322778	BCG08-I1BM0399	1061029
	IO-Link / IO-Link V1.1 / COM3 (230,4 kBaud)	Male connector, M12, 4-pin, universal	0.014 mm [1) 3)]	AHM36 IO-Link Advanced, AHM36A-S3QC014X1[illegible] 1101532	MRA-G080-103D3, 5322778	BCG08-Q1PM0362	1110589
			0.06 mm [1) 3)]	AHM36 IO-Link Basic, AHM36B-S3QC012X1[illegible] 1092014	MRA-G080-103D3, 5322778	BCG08-Q1PM0361	1097274
	PROFIBUS DP	Male connector, Female connector, 2x, 1x, M12, M12, 5-pin, 5-pin, axial, axial	0.03 mm [1) 3)]	A3M60, A3M60B-S1PB013X13, 1051018	MRA-G080-103D3, 5322778	BCG08-P1BM0336	1052618
	PROFINET	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.001 mm [1) 3)]	AFM60 PROFINET, AFM60A-S1NB018x12, 1059040	MRA-G080-103D3, 5322778	BCG08-N1BM0399	1061028
	SAE J1939	Male connector, M12, 5-pin, universal	0.01 mm [1) 3)]	AHM36 SAE J1939, AHM36A-S3JC014x12 1120251	MRA-G080-103D3, 5322778	BCG08-J1QM0364	1127303
	SSI	Male connector, M12, 8-pin, radial	0.03 mm [1) 3)]	AFM60 SSI, AFM60B-S1AC008192, 1037863	MRA-G080-103D3, 5322778	BCG08-A1CM0336	1054131
			0.06 mm [1) 3)]	AFM60 SSI, AFM60E-S1AC004096, 1037649	MRA-G080-103D3, 5322778	BCG08-A1CM0318	1054129

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
				S1AA004096, 1037438			

[1] The values shown have been rounded.

[2] Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

[3] 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).

[4] Order bus adapter separately.

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
0 m ... 5 m	Analog / Current / 4...20 mA	Cable, radial, 1.5 m	0.1 mm [1) 3)]	ACM36, ACM36-K1K0-K01, 6039751	MRA-G130-105D3, 5322779	BCG13-K1KM05PP	6039749
	Analog / Voltage / 0...10 V	Cable, radial, 1.5 m	0.1 mm [1) 3)]	ACM36, ACM36-L1K0-K01, 6039752	MRA-G130-105D3, 5322779	BCG13-L1KM05PP	6039750
	CANopen	Bus adapter for CANopen [4)]	0.05 mm [1) 3)]	ATM60 CANopen, ATM60-C1H13X13, 1030025	MRA-G130-105D3, 5322779	BCG13-C1HM0521	1061034
		Male connector, M12, 5-pin, universal	0.02 mm [1) 3)]	AHM36 CANopen, AHM36A-S3C-C000S06, 1126561	MRA-G130-105D3, 5322779	BCG13-C1QM05S6	1126564
				AHM36 CANopen, AHM36A-S3C-C014x12, 1065999	MRA-G130-105D3, 5322779	BCG13-C1QM0543	1068869
	DeviceNet™	Bus adapter for DeviceNet [4)]	0.05 mm [1) 3)]	ATM60 DeviceNet, ATM60-D1H13X13, 1030018	MRA-G130-105D3, 5322779	BCG13-D1HM0521	1061035
	EtherCAT®	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.001 mm [1) 3)]	AFM60 EtherCAT®, AFM60A-S1EB018x12, 1059061	MRA-G130-105D3, 5322779	BCG13-E1BM0599	1061038
	EtherNet/IP™		0.001 mm [1) 3)]	AFM60 EtherNet/IP, AFM60A-S1IB018x12, 1055331	MRA-G130-105D3, 5322779	BCG13-I1BM0599	1061037
	IO-Link / IO-Link V1.1 / COM3 (230,4 kBaud)	Male connector, M12, 4-pin, universal	0.02 mm [1) 3)]	AHM36 IO-Link Advanced, AHM36A-S3QC014X1 1101532	MRA-G130-105D3, 5322779	BCG13-Q1PM0562	1110590
			0.09 mm [1) 3)]	AHM36 IO-Link Basic, AHM36B-S3QC012X1 1092014	MRA-G130-105D3, 5322779	BCG13-Q1PM0561	1097306
	PROFIBUS DP	Male connector, Female connector, 2x, 1x, M12, M12, 5-pin, 5-pin, axial, axial	0.05 mm [1) 3)]	A3M60, A3M60B-S1PB013X13, 1051018	MRA-G130-105D3, 5322779	BCG13-P1BM0521	1052619
	PROFINET	Male connector, Female connector, 1x, 2x, M12, M12, 4-pin, 4-pin, axial, axial	0.001 mm [1) 3)]	AFM60 PROFINET, AFM60A-S1NB018x12, 1059040	MRA-G130-105D3, 5322779	BCG13-N1BM0599	1061036
	SAE J1939	Male connector, M12, 5-pin, universal	0.02 mm [1) 3)]	AHM36 SAE J1939, AHM36A-S3JC014x12 1120251	MRA-G130-105D3, 5322779	BCG13-J1QM0564	1127304
	SSI	Male connector, M12, 8-pin, radial	0.05 mm [1) 3)]	AFM60 SSI, AFM60B-S1AC008192, 1037863	MRA-G130-105D3, 5322779	BCG13-A1CM0521	1061032

Measuring range	Communication interface	Connection type	Resolution (wire draw + encoder)	Mounted encoder	Mounted mechanic	Type	Part no.
				S1AA004096, 1037438			

[1] The values shown have been rounded.

[2] Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

[3] 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).

[4] Order bus adapter separately.

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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