



BTF13-P1HM0525

HighLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

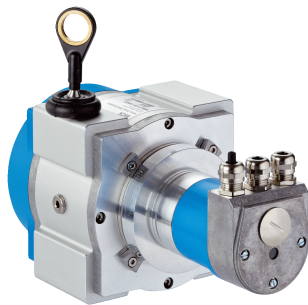


Illustration may differ



Ordering information

Type	Part no.
BTF13-P1HM0525	1034306

Included in delivery: ATM60-P1H13X13 (1), MRA-F130-105D2 (1)

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

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

Detailed technical data

Performance

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Measurement range	0 m ... 5 m
Encoder	Absolute encoders
Resolution (wire draw + encoder)	0.04 mm ^{1) 2)}
Repeatability	≤ 1 mm ³⁾
Linearity	≤ ± 2 mm ³⁾
Hysteresis	≤ 2 mm ³⁾

¹⁾ The values shown have been rounded.

²⁾ Example calculation based on the BTF08 with PROFINET: 200 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).

³⁾ Value applies to wire draw mechanism.

Interfaces

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Communication interface	PROFIBUS DP
Programmable/configurable	✓

Electrical data

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Connection type	Connection adapter for PROFIBUS ¹⁾
Supply voltage	10 V ... 32 V
Power consumption	≤ 2 W (without load)
MTTFd: mean time to dangerous failure	150 years (EN ISO 13849-1) ²⁾

¹⁾ Please order the bus adaptor separately.

²⁾ 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

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Measuring wire material	Highly flexible stranded steel 1,4401 stainless steel V4A
Weight (measuring wire)	7.1 g/m
Housing material, wire draw mechanism	Aluminum (anodised), plastic
Spring return force	15 N ... 20 N ¹⁾
Length of wire pulled out per revolution	334.1 mm
Life of wire draw mechanism	Typ. 1,000,000 cycles ^{2) 3)}
Actual wire draw length	5.2 m
Wire acceleration	70 m/s ²
Operating speed	8 m/s
Mounted encoder	ATM60 PROFIBUS, ATM60-P1H13X13, 1030014
Mounted mechanic	MRA-F130-105D2, 6028626

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

²⁾ Average values, which depend on the application.

³⁾ 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

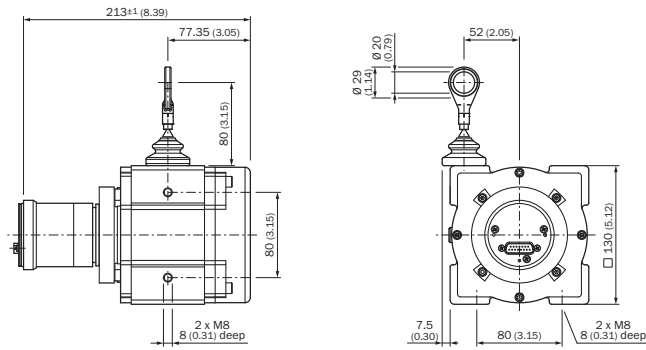
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EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP64
Operating temperature range	-20 °C ... +70 °C

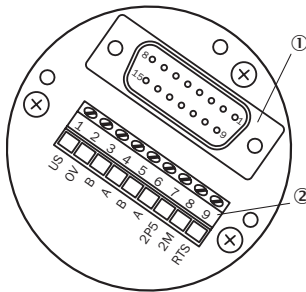
Classifications

ECl@ss 5.0	27270590
ECl@ss 5.1.4	27270590
ECl@ss 6.0	27270590
ECl@ss 6.2	27270590
ECl@ss 7.0	27270590
ECl@ss 8.0	27270590
ECl@ss 8.1	27270590
ECl@ss 9.0	27270590
ECl@ss 10.0	27270613
ECl@ss 11.0	27270503
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))



PIN assignment



- ① Internal plug connector to encoder
- ② External connection to the bus

Encoders with a PROFIBUS adapter are equipped with screws (metric/PG) for connecting bus and supply cables. The adapter is unscrewed from the full device to connect the cables. The following figure shows how the pins are assigned within the Adapter.

Terminal strip	Connector 4-pin	Connector 5-pin	Female connector 5 pin	Signal	Explanation
1	1	-	-	U _S (24 V)	Operating voltage 10 ... 32 V
2	3	-	-	0 V (GND)	Ground (0 V)
3	-	-	4	B	B-cable PROFIBUS DP (out)
4	-	-	2	A	A-cable PROFIBUS DP (out)
5	-	4	-	B	B-cable PROFIBUS DP (out)
6	-	2	-	A	A-cable PROFIBUS DP (out)
7	-	-	1	2P5 ¹⁾	+ 5 V (potential free)
8	-	-	3	2M ¹⁾	0 V (potential free)
-	2	1	-	N.C.	-
-	4	3	-	N.C.	-
-	-	5	5	Screen	Housing potential










1)






Encoders with a PROFIBUS adapter are equipped with screws (metric/PG) for connecting bus and supply cables. The adapter is unscrewed from the full device to connect the cables. The following figure shows how the pins are assigned within the Adapter.

Use for external bus terminations or to supply the sender/receiver with a optical fiber transmission

Recommended accessories

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

	Brief description	Type	Part no.
Flanges			
	Flange adapter for HighLine wire draw mechanisms, adaption of face mount flange with centering hub 20 mm to 50 mm servo flange, Aluminum, including 3 countersunk screws M4 x 10	BEF-FA-020-050WDE	2073776
Other mounting accessories			
	Joint ball for later insertion in wire end ring with 20 mm diameter. The use of this joint ball enables movement in multiple levels of freedom.	Joint protection for wire rope BTF/PRF/MRA	5318683
	Compressed air attachment for MRA-F080... and MRA-F130... HighLine wire draw mechanism	MRA-F-P	6073769
	Additional brush attachment for wire draw mechanism MRA-F130 (5 m, 10 m, 20 m and 30 m from HighLine series)	MRA-F130-B	6038562
	Wire draw deflection pulley for wire draw mechanism MRA-F130 (5m, 10m, 20m and 30m from HighLine series)	MRA-F130-R	6028631
Adapters and distributors			
	Bus adaptor KR3, 3 x PG	AD-ATM60-KA3PR	2029225
	Bus adaptor SR3, 3 x M12, 5-pin	AD-ATM60-SR3PR	2031985
Plug connectors and cables			
	Head A: Flying leads Head B: Flying leads Cable: PROFIBUS DP, PUR, shielded	LTG-2102-MW	6021355
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m	DOL-1205-G05MQ	6026006
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m	DOL-1205-G10MQ	6026008
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 12 m	DOL-1205-G12MQ	6032636
	Head A: male connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m Wire shield Al-Pt film, overall shield C-screen tin-plated	STL-1205-G05MQ	6026005

	Brief description	Type	Part no.
	Head A: male connector, M12, 5-pin, straight, B-coded Head B: Flying leads Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m Wire shield Al-Pt film, overall shield C-screen tin-plated	STL-1205-G10MQ	6026007
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: female connector, M12, 4-pin, straight Head B: - Cable: unshielded	DOS-1204-G	6007302
	Head A: female connector, M12, 5-pin, straight, B-coded Head B: - Cable: PROFIBUS DP, shielded	DOS-1205-GQ	6021353
	Head A: male connector, M12, 5-pin, straight, B-coded Head B: - Cable: PROFIBUS DP, shielded	STE-1205-GQ	6021354
Wire draw mechanism			
	HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 5 m	MRA-F130-105D2	6028626

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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