Data sheet

BTF13-HXAM-S02

HighLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
BTF13-HXAM-S02	1036246

Included in delivery: MRA-F130-120D1 (1), SRM50-HXA0-S02 (1)

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

Detailed technical data

Features

Special device	✓
Specialty	Integrated encoder: SRM50-HXA0-S02, 1130373 No shaft sealing ring mounted in encoder

Performance

Measurement range	0 m ... 20 m
Encoder	Motor feedback systems rotary HIPERFACE
Resolution (wire draw + encoder)	0.32 mm [1) 2)]
Repeatability	≤ 2 mm [3)]
Linearity	≤ ± 2 mm [3)]
Hysteresis	≤ 5 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

Communication interface	HIPERFACE®
Programmable/configurable	✓

Electronics

Connection type	Male connector, M23, 12-pin, radial
Supply voltage	7 V DC ... 12 V DC
Operating current	≤ 80 mA (without load)

Mechanics

Weight	5.7 kg

[1)] These values were measred 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.

Measuring wire material	Highly flexible stranded steel 1,4401 stainless steel V4A
Measuring wire diameter	0.81 mm
Weight (measuring wire)	2.6 g/m
Housing material, wire draw mechanism	Aluminum (anodised), plastic
Spring return force	10 N ... 20 N [1]
Length of wire pulled out per revolution	332.4 mm
Life of wire draw mechanism	Typ. 1,000,000 cycles [2] [3]
Actual wire draw length	20.2 m
Wire acceleration	30 m/s²
Operating speed	6 m/s
Mounted encoder	SRM50, SRM50-HXA0-S02, 1130373
Mounted mechanic	MRA-F130-120D1, 6028628

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Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 [1]
Enclosure rating	IP64, mounted mechanic
Operating temperature range	–30 °C ... +70 °C

[1] The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. The GND-(0 V) connection of the supply voltage is also grounded here. If other shielding concepts are used, users must perform their own tests.

Certificates

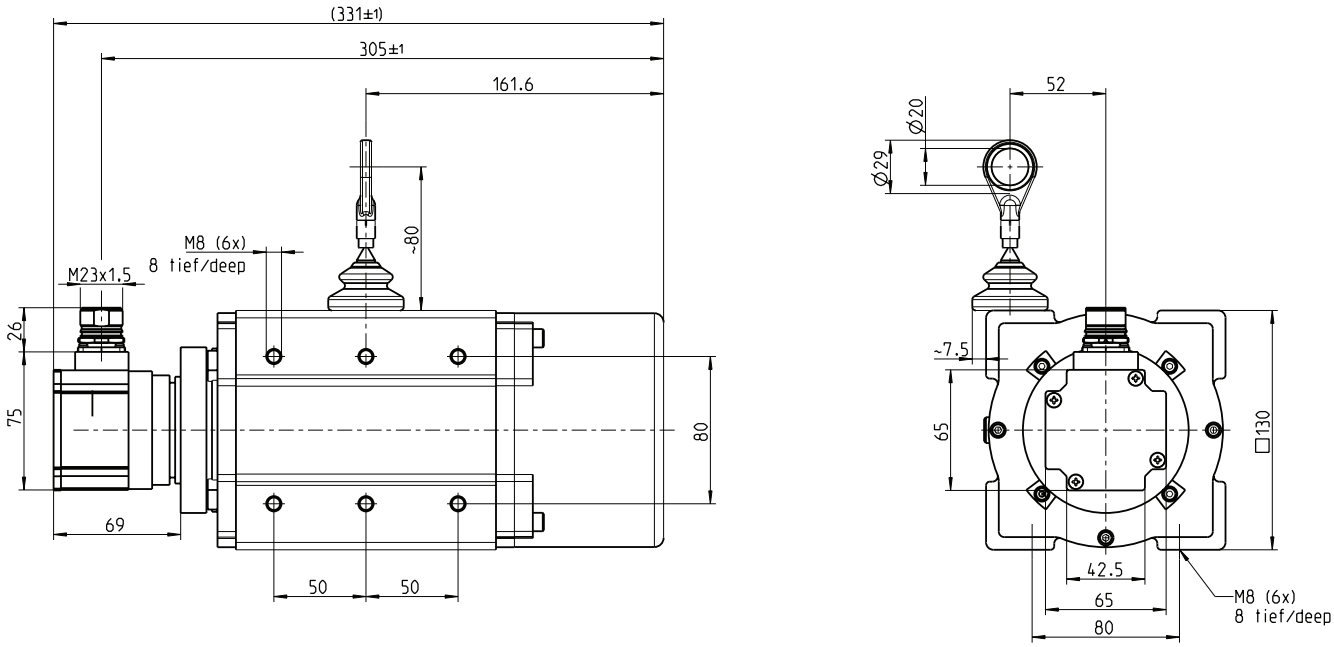
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓

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
ECLASS 10.0	27270613
ECLASS 11.0	27270503
ECLASS 12.0	27270503
ETIM 5.0	EC001486

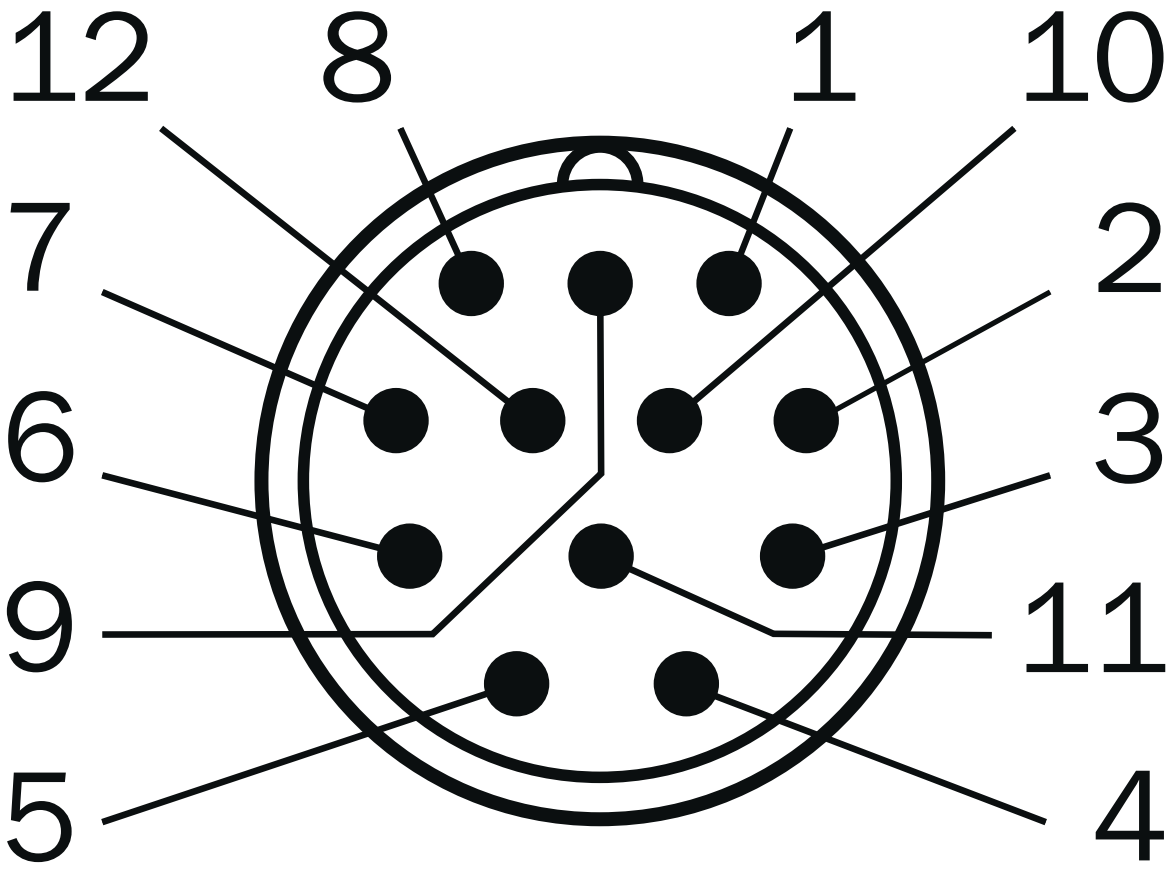
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing



Dimensions in mm (inch)

PIN assignment View of the M23 male connector plug-in face



PIN	Signal	Explanation
1	REFCOS	Process data channel
2	Data +	Parameter channel RS 485
3	N.C.	Not assigned
4	N.C.	Not assigned
5	+ SIN	Process data channel
6	REFSIN	Process data channel
7	Data -	Parameter channel RS 485
8	+ COS	Process data channel
9	N.C.	Not assigned
10	GND	Ground connection
11	N.C.	Not assigned
12	U_S	Supply voltage
Housing	Screen	Screen connected to encoder housing

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	• **Description:** 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
	• **Description:** Spare mounting set for HighLine wire draw mechanisms for fitting encoders with servo flange	MRA-F-K	6028633
	• **Description:** 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
	• **Description:** Wire draw deflection pulley for wire draw mechanism MRA-F130 (5m, 10m, 20m and 30m from HighLine series)	MRA-F130-R	6028631
Wire draw mechanism			
	• **Product segment:** Wire draw mechanism • **Product family:** Wire draw mechanism for wire draw encoders • **Description:** HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 20 m • **Items supplied:** Without encoder	MRA-F130-120D1	6028628

	Brief description	Type	part no.
connectors and cables			
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422, TTL, HTL • **Cable:** 3 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422TTLHTL	DOL-2312-G03MMA1	2029201
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422, TTL, HTL • **Cable:** 5 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422TTLHTL	DOL-2312-G05MMA1	2029202
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422, TTL, HTL • **Cable:** 1.5 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422TTLHTL	DOL-2312-G1M5MA1	2029200
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422, TTL, HTL • **Cable:** 10 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422TTLHTL	DOL-2312-G10MMA1	2029203
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422 • **Cable:** 20 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422	DOL-2312-G20MMA1	2029204
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Incremental • **Cable:** 30 m, 11-wire, PUR • **Description:** Incremental, shielded	DOL-2312-G30MLD1	2062208
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422 • **Cable:** 30 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422	DOL-2312-G30MMA1	2029205
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Incremental • **Cable:** 30 m, 12-wire, PUR, halogen-free • **Description:** Incremental, shielded	DOL-2312-G30MMD1	2062247
	• **Connection type head A:** Flying leads • **Connection type head B:** Flying leads • **Signal type:** SSI, TTL, HTL, Incremental • **Items supplied:** By the meter • **Cable:** 12-wire, UV and saltwater-resistant, PUR, halogen-free • **Description:** SSI, shieldedTTLHTLIncremental	LTG-2612-MW	6028516
	• **Connection type head A:** Female connector, M23, 12-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, RS-422, TTL, HTL • **Cable:** 5 m, 12-wire, PUR, halogen-free • **Description:** SSI, shieldedRS-422TTLHTL	DOL-2312-G05MHA1	2059786

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