

SICK

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 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.

| | |
|---|---|
| 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/s ² |
| Operating speed | 6 m/s |
| Mounted encoder | SRM50, SRM50-HXA0-S02, 1130373 |
| Mounted mechanic | MRA-F130-120D1, 6028628 |

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

| | |
|------------------------------------|--|
| 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.

Classifications

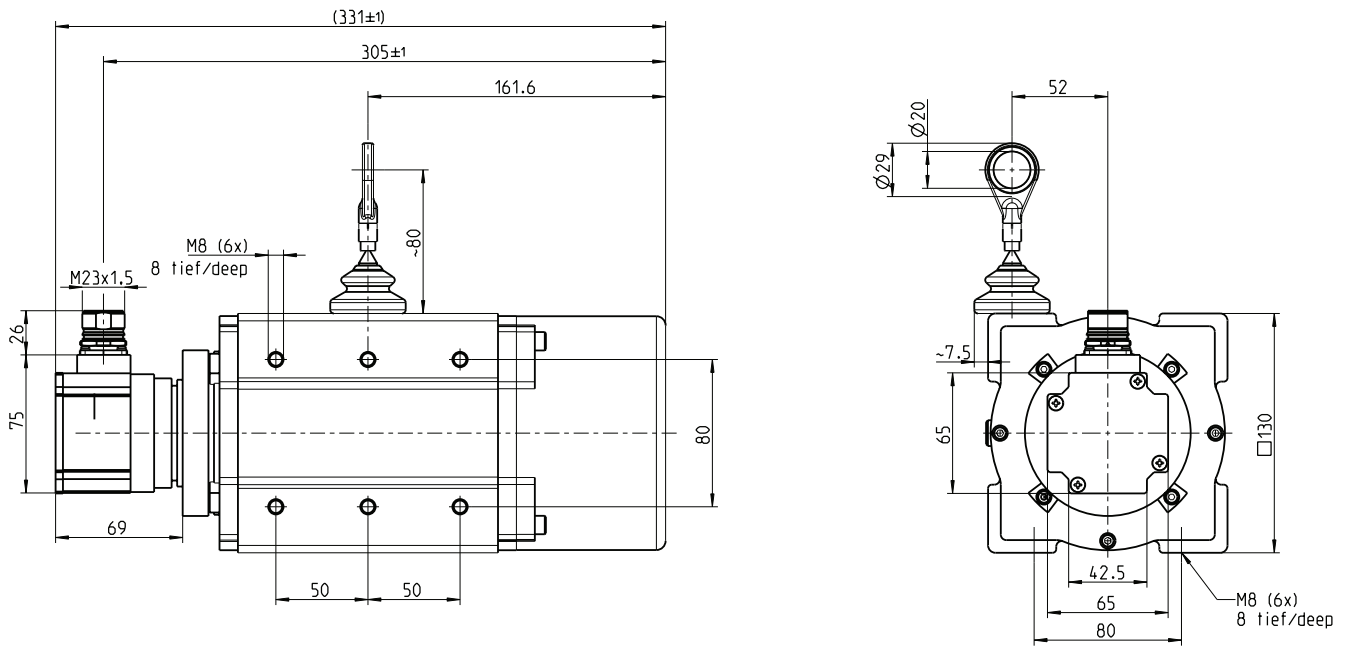
| | |
|-----------------------|----------|
| ECLASS 5.0 | 27270590 |
| ECLASS 5.1.4 | 27270590 |
| ECLASS 6.0 | 27270590 |
| ECLASS 6.2 | 27270590 |
| ECLASS 7.0 | 27270590 |
| ECLASS 8.0 | 27270590 |
| ECLASS 8.1 | 27270590 |
| ECLASS 9.0 | 27270590 |
| ECLASS 10.0 | 27270613 |
| ECLASS 11.0 | 27270503 |
| ECLASS 12.0 | 27270503 |
| ETIM 5.0 | EC001486 |
| ETIM 6.0 | EC001486 |
| ETIM 7.0 | EC001486 |
| ETIM 8.0 | EC001486 |
| UNSPSC 16.0901 | 41112113 |

Certificates

| | |
|-------------------------------------|---|
| EU declaration of conformity | ✓ |
|-------------------------------------|---|

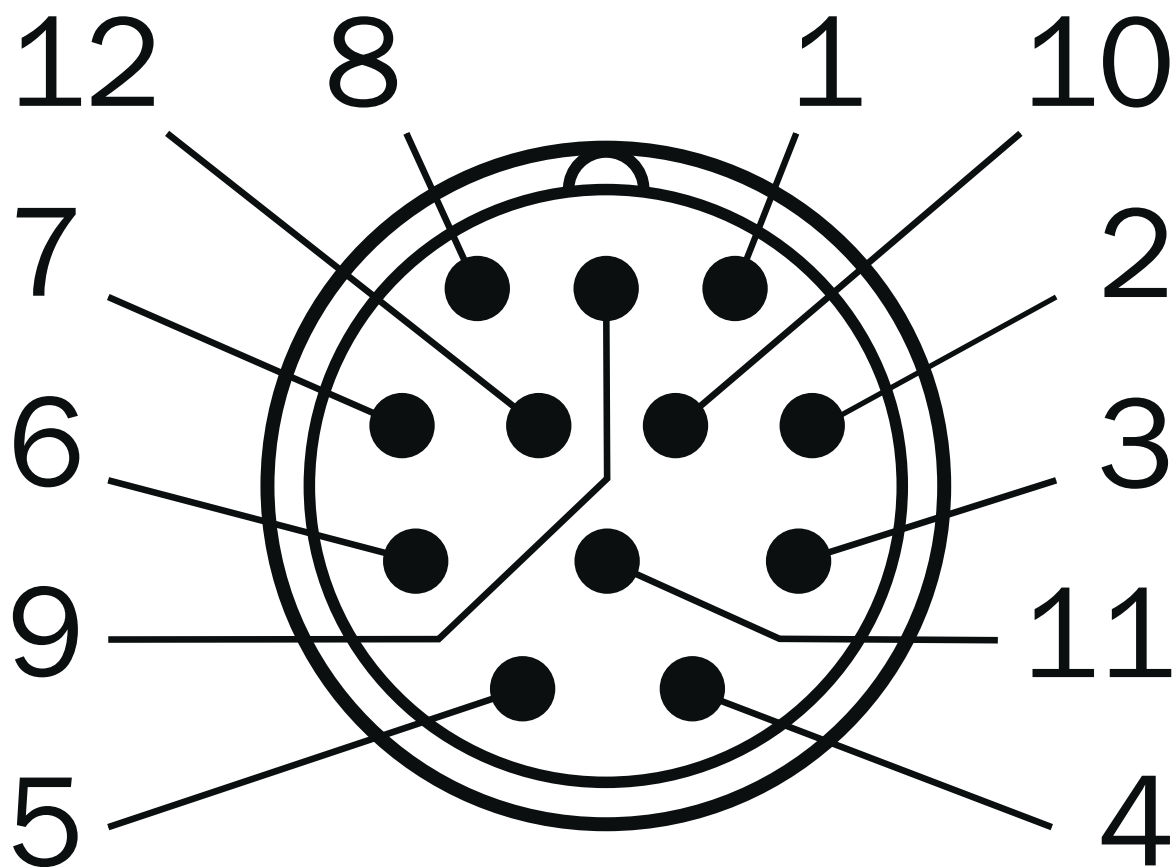
| | |
|---|---|
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |

Dimensional drawing



Dimensions in mm (inch)






Anschlussbelegung 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 | Shielding | Shielding connected to encoder housing |

Recommended accessories

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

| | Brief description | Type | part no. |
|---|---|--|----------|
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> 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 |
|  | <ul style="list-style-type: none"> Description: Spare mounting set for HighLine wire draw mechanisms for fitting encoders with servo flange | MRA-F-K | 6028633 |
|  | <ul style="list-style-type: none"> 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 |
|  | <ul style="list-style-type: none"> 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 | | | |
|  | <ul style="list-style-type: none"> 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 | | | |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422, TTL, HTL 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 Application: Zones with oils and lubricants | DOL-2312-G03MMA1 | 2029201 |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422, TTL, HTL 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 Application: Zones with oils and lubricants | DOL-2312-G05MMA1 | 2029202 |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422, TTL, HTL 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 Application: Zones with oils and lubricants | DOL-2312-G1M5MA1 | 2029200 |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422, TTL, HTL 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 Application: Zones with oils and lubricants | DOL-2312-G10MMA1 | 2029203 |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422 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 Application: Zones with oils and lubricants | DOL-2312-G20MMA1 | 2029204 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded 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 Application: Zones with oils and lubricants | DOL-2312-G30MLD1 | 2062208 |
|  | <ul style="list-style-type: none"> Description: SSI, shielded, RS-422 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 Application: Zones with oils and lubricants | DOL-2312-G30MMA1 | 2029205 |
|  | <ul style="list-style-type: none"> Description: Incremental, shielded 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 Application: Zones with oils and lubricants | DOL-2312-G30MMD1 | 2062247 |
|  | <ul style="list-style-type: none"> 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, shielded, TTL, HTL, Incremental | LTG-2612-MW | 6028516 |
|  | <ul style="list-style-type: none"> 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, shielded, RS-422, TTL, HTL | DOL-2312-G05MMA1 | 2059786 |

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.

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For us, that is “Sensor Intelligence.”

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