



BTFO8-N1BM0299

HighLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|----------------|----------|
| BTF08-N1BM0299 | 1060967 |

Included in delivery: MRA-F080-102D2 (1), AFM60A-S1NB018x12 (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

BTF

| | |
|---|----------------------------|
| Measurement range | 0 m ... 2 m |
| Encoder | Absolute encoders |
| Resolution (wire draw + encoder) | 0.0008 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

BTF

| | |
|----------------------------------|----------|
| Communication interface | PROFINET |
| Programmable/configurable | ✓ |

Electrical data

BTF

| | |
|--|--|
| Connection type | Male connector, 1x, M12, 4-pin, axial Female connector, 2x, M12, 4-pin, axial |
| Supply voltage | 10 V DC ... 30 V DC |
| Power consumption | ≤ 3 W (without load) |
| MTTFd: mean time to dangerous failure | 80 years (EN ISO 13849-1) ¹⁾ |

¹⁾ 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

BTF

| | |
|---|---|
| Weight | 1.5 kg |
| 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 (anodized), aluminum die cast (nickel-plated) |
| Spring return force | 6 N ... 14 N ¹⁾ |
| Length of wire pulled out per revolution | 200 mm |
| Life of wire draw mechanism | Typ. 1,000,000 cycles ^{2) 3)} |
| Actual wire draw length | 2.2 m |
| Wire acceleration | 40 m/s ² |
| Operating speed | 8 m/s |
| Mounted encoder | AFM60 PROFINET, AFM60A-S1NB018X12, 1059040 |
| Mounted mechanic | MRA-F080-102D2, 6028625 |

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

BTF

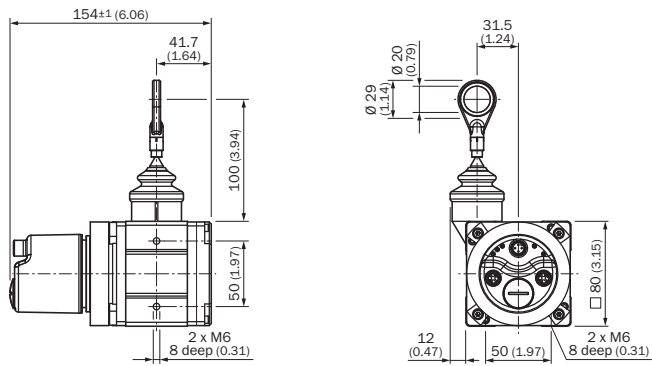
| | |
|------------------------------------|--|
| EMC | According to EN 61000-6-2 and EN 61000-6-3 ¹⁾ |
| Enclosure rating | IP64 |
| Operating temperature range | -30 °C ... +70 °C |

¹⁾ The EMC according to the standards quoted is achieved if screened cables are used.

Classifications

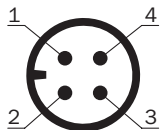
| | |
|-----------------------|----------|
| eCl@ss 5.0 | 27270590 |
| eCl@ss 5.1.4 | 27270590 |
| eCl@ss 6.0 | 27270590 |
| eCl@ss 6.2 | 27270590 |
| eCl@ss 7.0 | 27270590 |
| eCl@ss 8.0 | 27270590 |
| eCl@ss 8.1 | 27270590 |
| eCl@ss 9.0 | 27270590 |
| eCl@ss 10.0 | 27270613 |
| eCl@ss 11.0 | 27270503 |
| eCl@ss 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

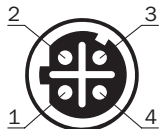
Male connector



Supply voltage

| PIN | Wire color | Signal |
|-----|------------|------------------------------|
| 1 | Brown | U _S 10 V ... 30 V |
| 2 | White | Not assigned |
| 3 | Blue | GND |
| 4 | Black | Not assigned |

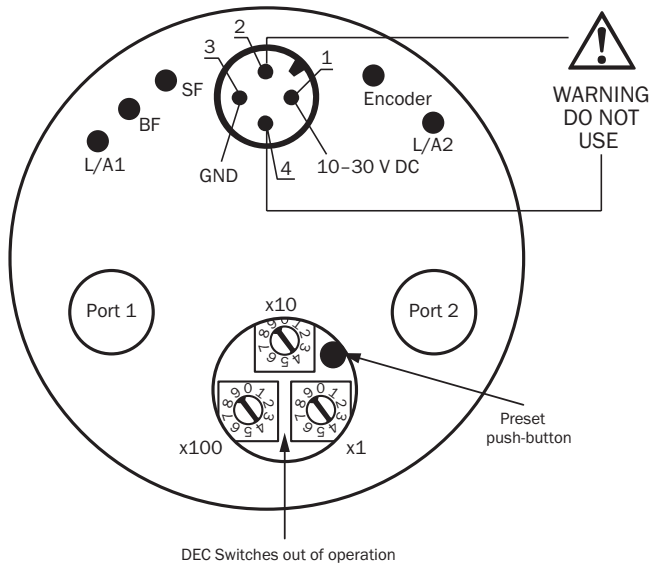
Female connector



Port 1, Port 2

| PIN | Wire color | Signal |
|-----|------------|--------|
| 1 | Yellow | T x D+ |
| 2 | White | R x D+ |
| 3 | Orange | T x D- |
| 4 | Blue | R x D- |

Connection diagram



Recommended accessories

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

| | Brief description | Type | Part no. |
|-----------------------------------|--|--|----------|
| Wire draw mechanism | | | |
| | HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 2 m | MRA-F080-102D2 | 6028625 |
| 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 M3 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-F080 (2 m and 3 m from HighLine series) | MRA-F080-B | 6045341 |
| | Wire draw deflection pulley for wire draw mechanism MRA-F080 (2m and 3m from HighLine series) | MRA-F080-R | 6028632 |

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
| Plug connectors and cables | | | |
|  | Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: PROFINET, PVC, shielded, 2 m | STL-1204-G02MZ90 | 6048247 |
| | Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: PROFINET, PVC, shielded, 5 m | STL-1204-G05MZ90 | 6048248 |
| | Head A: male connector, M12, 4-pin, straight, D-coded Head B: Flying leads Cable: PROFINET, PVC, shielded, 10 m | STL-1204-G10MZ90 | 6048249 |
|  | Head A: male connector, M12, 4-pin, angled, D-coded Head B: Flying leads Cable: PROFINET, PVC, shielded, 5 m | STL-1204-W05MZ90 | 6048257 |
| | Head A: male connector, M12, 4-pin, angled, D-coded Head B: Flying leads Cable: PROFINET, PVC, shielded, 25 m | STL-1204-W25MZ90 | 6048259 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A14-020UB3XLEAX | 2095607 |
| | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YF2A14-050UB3XLEAX | 2095608 |
| | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | YF2A14-100UB3XLEAX | 2095609 |
| | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m | YF2A14-250UB3XLEAX | 2095615 |
| | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YG2A14-020UB3XLEAX | 2095766 |
| | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YG2A14-050UB3XLEAX | 2095767 |
| | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | YG2A14-100UB3XLEAX | 2095768 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m | YG2A14-250UB3XLEAX | 2095771 |
| | Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, PUR, halogen-free, shielded, 2 m | SSL-1204-W02MZ | 6050635 |
| | Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, PUR, halogen-free, shielded, 5 m | SSL-1204-W05MZ | 6050636 |
| | Head A: male connector, M12, 4-pin, angled, D-coded Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT [®] , PUR, halogen-free, shielded, 10 m | SSL-1204-W10MZ | 6050637 |
| | Head A: male connector, RJ45, 4-pin, straight Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT [®] , PVC, shielded, 2 m | SSL-2J04-F02MZ | 6048253 |
|  | Head A: male connector, RJ45, 4-pin, straight Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT [®] , PVC, shielded, 5 m | SSL-2J04-F05MZ | 6048254 |

| | Brief description | Type | Part no. |
|---|---|--|-----------------|
|    | Head A: male connector, RJ45, 4-pin, straight Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT®, PVC, shielded, 10 m | SSL-2J04-F10MZ | 6048255 |
| | Head A: male connector, RJ45, 4-pin, straight Head B: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, EtherCAT®, PVC, shielded, 30 m | SSL-2J04-F30MZ | 6059450 |
| | Head A: female connector, M12, 4-pin, angled Cable: unshielded | DOS-1204-W | 6007303 |
| | Head A: male connector, M12, 4-pin, angled, D-coded Cable: PROFINET, shielded | STE-1204-WZ | 6048262 |
| | Head A: female connector, M12, 4-pin, D-coded Head B: female connector, RJ45, 8-pin Cable: Ethernet, shielded Cabinet through | Feedthrough female connector Ethernet RJ45 | 6048180 |

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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.

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