



# BTFO8-A1MM0341

HighLine

WIRE DRAW ENCODERS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type           | Part no. |
|----------------|----------|
| BTF08-A1MM0341 | 1097808  |

**Included in delivery:** MRA-F080-103D2 (1), AHM36A-S3PM013x12 (1)

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

Other models and accessories → [www.sick.com/HighLine](http://www.sick.com/HighLine)

## Detailed technical data

### Performance

BTF

|                                         |                          |
|-----------------------------------------|--------------------------|
| <b>Measurement range</b>                | 0 m ... 3 m              |
| <b>Encoder</b>                          | Absolute encoders        |
| <b>Resolution (wire draw + encoder)</b> | 0.04 mm <sup>1) 2)</sup> |
| <b>Repeatability</b>                    | ≤ 1 mm <sup>3)</sup>     |
| <b>Linearity</b>                        | ≤ ± 2 mm <sup>3)</sup>   |
| <b>Hysteresis</b>                       | ≤ 2 mm <sup>3)</sup>     |

<sup>1)</sup> The values shown have been rounded.

<sup>2)</sup> 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).

<sup>3)</sup> Value applies to wire draw mechanism.

### Interfaces

BTF

|                                  |     |
|----------------------------------|-----|
| <b>Communication interface</b>   | SSI |
| <b>Programmable/configurable</b> | ✓   |

### Electrical data

BTF

|                                              |                                          |
|----------------------------------------------|------------------------------------------|
| <b>Connection type</b>                       | Cable, 8-wire, universal, 5 m            |
| <b>Supply voltage</b>                        | 4.5 V DC ... 32 V DC                     |
| <b>Power consumption</b>                     | ≤ 1.5 W (without load)                   |
| <b>MTTFd: mean time to dangerous failure</b> | 230 years (EN ISO 13849-1) <sup>1)</sup> |

<sup>1)</sup> 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

|                                                 |                                                           |
|-------------------------------------------------|-----------------------------------------------------------|
| <b>Weight</b>                                   | 1.62 kg                                                   |
| <b>Measuring wire material</b>                  | Highly flexible stranded steel 1,4401 stainless steel V4A |
| <b>Weight (measuring wire)</b>                  | 7.1 g/m                                                   |
| <b>Housing material, wire draw mechanism</b>    | Aluminum (anodized), zinc die cast                        |
| <b>Spring return force</b>                      | 6 N ... 14 N <sup>1)</sup>                                |
| <b>Length of wire pulled out per revolution</b> | 200 mm                                                    |
| <b>Life of wire draw mechanism</b>              | Typ. 1,000,000 cycles <sup>2) 3)</sup>                    |
| <b>Actual wire draw length</b>                  | 3.2 m                                                     |
| <b>Wire acceleration</b>                        | 40 m/s <sup>2</sup>                                       |
| <b>Operating speed</b>                          | 8 m/s                                                     |
| <b>Mounted encoder</b>                          | AHM36 SSI, AHM36A-S3PM013X12, 1097369                     |
| <b>Mounted mechanic</b>                         | MRA-F080-103D2, 6030125                                   |

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

<sup>2)</sup> Average values, which depend on the application.

<sup>3)</sup> 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

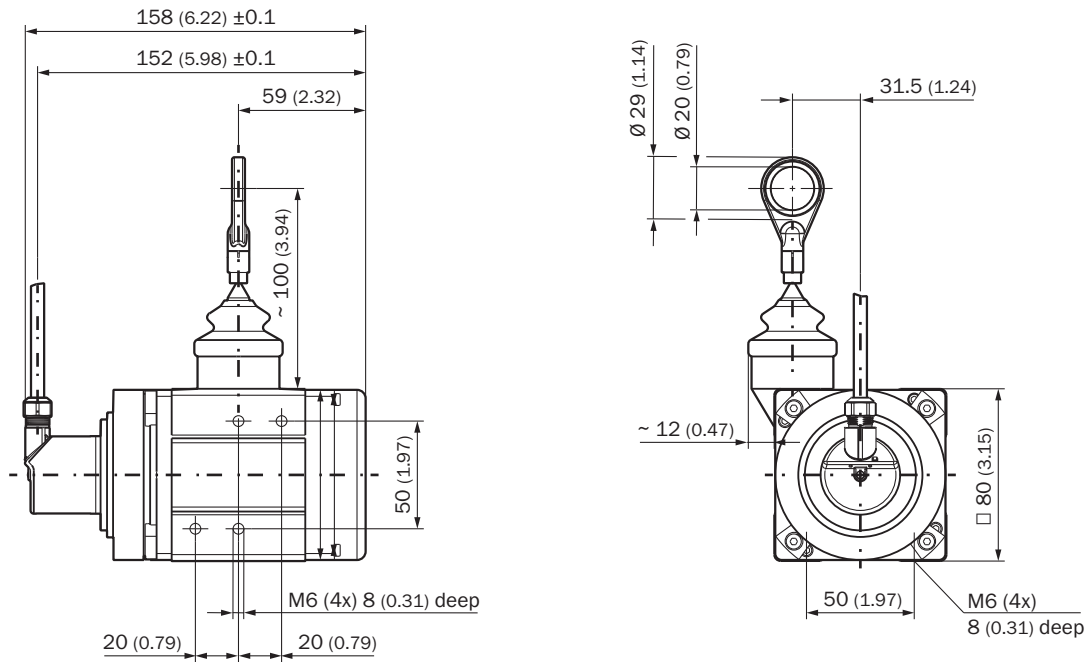
BTF

|                                    |                                            |
|------------------------------------|--------------------------------------------|
| <b>EMC</b>                         | According to EN 61000-6-2 and EN 61000-6-3 |
| <b>Enclosure rating</b>            | IP64                                       |
| <b>Operating temperature range</b> | -30 °C ... +70 °C                          |

## Classifications

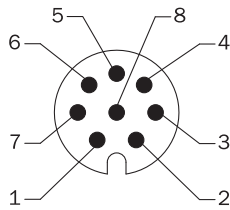
|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27270590 |
| <b>ECI@ss 5.1.4</b>   | 27270590 |
| <b>ECI@ss 6.0</b>     | 27270590 |
| <b>ECI@ss 6.2</b>     | 27270590 |
| <b>ECI@ss 7.0</b>     | 27270590 |
| <b>ECI@ss 8.0</b>     | 27270590 |
| <b>ECI@ss 8.1</b>     | 27270590 |
| <b>ECI@ss 9.0</b>     | 27270590 |
| <b>ECI@ss 10.0</b>    | 27270613 |
| <b>ECI@ss 11.0</b>    | 27270503 |
| <b>ETIM 5.0</b>       | EC001486 |
| <b>ETIM 6.0</b>       | EC001486 |
| <b>ETIM 7.0</b>       | EC001486 |
| <b>UNSPSC 16.0901</b> | 41112113 |

### Dimensional drawing (Dimensions in mm (inch))



### PIN assignment

M12 male connector, 8-pin and cable, 8-wire, SSI/Gray



View of M12 male device connector on encoder

### Recommended accessories

Other models and accessories → [www.sick.com/HighLine](http://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  |

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                           | Type             | Part no. |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
|  | Compressed air attachment for MRA-F080... and MRA-F130... HighLine wire draw mechanism                                                                                                                                                                                                                                                      | MRA-F-P          | 6073769  |
| Programming and configuration tools                                               |                                                                                                                                                                                                                                                                                                                                             |                  |          |
|  | USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders                                                                                                                                                                                                    | PGT-08-S         | 1036616  |
|  | Programming unit display for programmable SICK DFS60, DFV60, AFS/AFM60, AHS/AHM36 encoders, and wire draw encoder with DFS60, AFS/AFM60 and AHS/AHM36. Compact dimensions, low weight, and intuitive operation.                                                                                                                             | PGT-10-Pro       | 1072254  |
| Wire draw mechanism                                                               |                                                                                                                                                                                                                                                                                                                                             |                  |          |
|  | HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 3 m                                                                                                                                                                                                                                                  | MRA-F080-103D2   | 6030125  |
| Plug connectors and cables                                                        |                                                                                                                                                                                                                                                                                                                                             |                  |          |
|  | Head A: female connector, M12, 8-pin, straight<br>Head B: male connector, D-Sub, 9-pin, straight<br>Cable: SSI, PUR, halogen-free, shielded, 0.5 m<br>Suitable for use with SSI interfaces, not suitable for use with SSI + Incremental interface or SSI + Sin/Cos., programming adapter cable for programming tool PGT-10-Pro and PGT-08-S | DSL-2D08-G0M5AC2 | 2048439  |
|  | Head A: male connector, M12, 8-pin, straight, A-coded<br>Head B: -<br>Cable: Incremental, shielded                                                                                                                                                                                                                                          | STE-1208-GA01    | 6044892  |

## 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.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)