



## Wire draw encoders HighLine

BTF13-A1AM2020



**Model Name** > BTF13-A1AM2020  
**Part No.** > 1034302



Illustration may differ

**At a glance**

- Absolute wire draw encoders
- Modular measuring system with a wide selection of interfaces/measuring lengths
- Measuring lengths: 2 m ... 50 m
- Very rugged system (dirt wiper, integrated brushes), highly shock and vibration resistant
- High-quality winding mechanism and wire input
- Interfaces: - ANALOG, SSI, PROFIBUS, CANopen, DeviceNet, HIPERFACE®
- High enclosure rating
- High resolution possible

**Your benefits**

- Reliable solution in harsh environments
- Long service life due to rugged industrial housing
- Quick and easy installation without the need for precise linear guidance
- Low integration and maintenance costs
- Customization option reduces storage costs
- No reference run necessary thanks to the absolute measuring principle
- Teach-in function enables fast commissioning



**Performance**

Measurement range:	0 m ... 20 m
Repeatability:	≤ 2 mm <sup>1)</sup>
Linearity:	≤ ± 2 mm <sup>2)</sup>
Hysteresis:	≤ 5 mm <sup>3)</sup>
Resolution (wire draw + encoder)::	0.05 mm <sup>4) 5)</sup>

<sup>1) 3)</sup> Value refers to wire draw mechanism <sup>2) 4) 5)</sup>

**Mechanical data**

Mass (including encoder):	5.5 kg
Mass (mechanics):	5 kg
Measuring wire diameter:	0.81 mm
Measuring wire material:	Highly flexible stranded steel 1.4401 stainless steel V4A
Housing material, wire draw mechanism:	Aluminum (anodised), plastic
Spring return force:	10 N ... 20 N <sup>1)</sup>
Life of wire draw mechanism:	1 million cycles <sup>2)</sup>

Actual length of cable extension:	20.2 m
Wire acceleration:	30 m/s <sup>2</sup>
Operating speed:	4 m/s
Mounted encoder:	ATM60 SSI
Mounted mechanic:	MRA-F130-120D1
Part number mechanic:	6028628
Part number encoder:	1034295
Mass (measuring wire):	2.6 g/m
Length of wire pulled out per revolution:	332.4 mm <sup>3)</sup>
Number of steps per revolution:	6,680

1) These values were measured at an ambient temperature of 25 °C. There may be variations at other temperatures. 2) 3)

### Electrical data

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Initialization time:	Ca. 1,050 ms <sup>1)</sup>
Supply voltage:	10 V ... 32 V
Code type:	Gray
Power consumption:	0.8 W
MTTFd: mean time to dangerous failure::	150 a <sup>2) 3)</sup>

1) Valid positional data can be read once this time has elapsed. 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. 3) The value applies to the mounted encoder

### Interfaces

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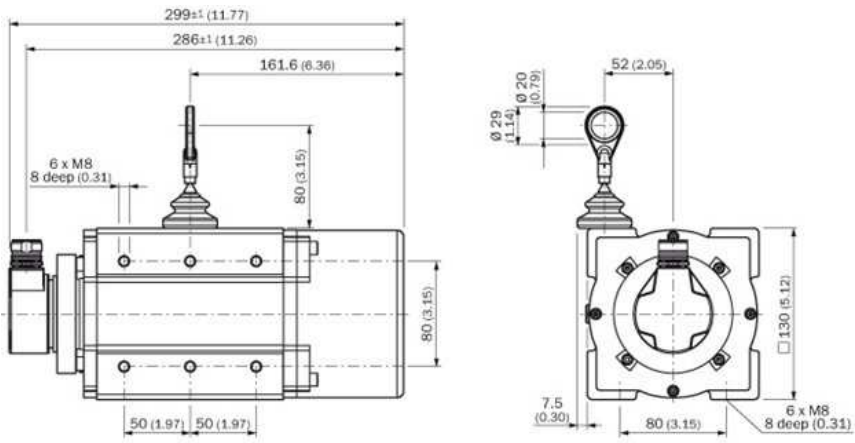
Electrical interface:	SSI
Connection type:	Connector M23, 12-pin, radial
Clock frequency:	1 MHz
SET (electronic adjustment):	Via SET cable
Encoder:	Absolute encoders

### Ambient data

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EMC:	(according to EN 61000-6-2 and EN 61000-6-3)
Enclosure rating encoder:	IP 67
Enclosure rating mechanic:	IP 64
Resistance to shocks:	10 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)
Relative humidity/Condensation:	90 % (condensation of the optical scanning not permitted)
Working temperature range (encoder):	-20 °C ... +70 °C
Working temperature range (mechanics):	-30 °C ... +70 °C
Working temperature range (combination):	Wird definiert durch den höheren minimalen und niedrigeren maximalen Wert des Arbeitstemperaturbereichs von Encoder und Mechanik

## Dimensional drawing



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