

# BTF19-P1HM5017

HighLine

WIRE DRAW ENCODERS

**SICK**  
Sensor Intelligence.

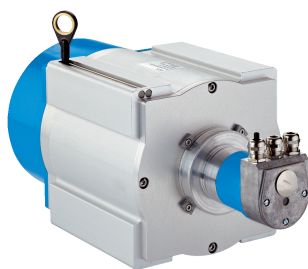


Illustration may differ



## Ordering information

Type	Part no.
BTF19-P1HM5017	1034310

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

## Detailed technical data

### Performance

<b>Measurement range</b>	0 m ... 50 m
<b>Repeatability</b>	≤ 5 mm <sup>1)</sup>
<b>Linearity</b>	≤ ± 2 mm <sup>2)</sup>
<b>Hysteresis</b>	≤ 10 mm <sup>1)</sup>
<b>Resolution (wire draw + encoder)</b>	0.06 mm <sup>3) 4)</sup>

<sup>1)</sup> Value applies to wire draw mechanism.

<sup>2)</sup> Value valid taking into account the exact length of the measuring wire per revolution (indicated on the label on the wire draw mechanism)

<sup>3)</sup> The values shown have been rounded.

<sup>4)</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)

### Interfaces

<b>Encoder</b>	Absolute encoders
<b>Connection type</b>	Bus adaptor, radial <sup>1)</sup>
<b>Address setting</b>	0 ... 127, DIP switch
<b>Protocol</b>	PROFIBUS DP V0 (A3M60), Profil für Encoder (07hex) - Class 2 (ATM60 PROFIBUS)
<b>Bus termination</b>	Via DIP switches
<b>Set (electronic adjustment)</b>	Via PRESET push button or protocol
<b>Encoder profile</b>	Encoder profile version 1.1 class 1 and class 2 (A3M60), Profil für Encoder (07hex) - Class 2 (ATM60 PROFIBUS)

<sup>1)</sup> Please order the bus adaptor separately.

### Electrical data

<b>Initialization time</b>	A3M60, ATM60 PROFIBUS <sup>1) 1)</sup>
<b>Supply voltage</b>	10 V ... 32 V
<b>Power consumption</b>	1.5 W, A3M60 2 W, ATM60 PROFIBUS

<sup>1)</sup> Valid positional data can be measured once this time has elapsed.

<sup>2)</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.

<sup>3)</sup> The value applies to the mounted encoder.

<b>MTTFd: mean time to dangerous failure</b>	60 years (A3M60) <sup>2) 3)</sup> 150 years (ATM60 PROFIBUS) <sup>2) 3)</sup>
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<sup>2)</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.

<sup>3)</sup> The value applies to the mounted encoder.

## Mechanical data

<b>Mass (including encoder)</b>	16.78 kg (A3M60) 17.09 kg (ATM60 PROFIBUS)
<b>Mass (mechanics)</b>	16.5 kg
<b>Measuring wire material</b>	Highly flexible stranded steel 1.4401 stainless steel V4A
<b>Mass (measuring wire)</b>	7.1 g/m
<b>Housing material, wire draw mechanism</b>	Aluminum (anodized), zinc die cast
<b>Length of wire pulled out per revolution</b>	491.5 mm <sup>1)</sup>
<b>Spring return force</b>	18 N ... 37 N <sup>2)</sup>
<b>Life of wire draw mechanism</b>	1 million cycles <sup>3)</sup>
<b>Actual wire draw length</b>	50.2 m
<b>Measuring wire diameter</b>	1.35 mm
<b>Wire acceleration</b>	18 m/s <sup>2</sup>
<b>Operating speed</b>	3 m/s
<b>Mounted encoder</b>	A3M60, ATM60 PROFIBUS
<b>Number of steps per revolution</b>	8,192
<b>Part number encoder</b>	1030014
<b>Mounted mechanic</b>	MRA-F190-150D2
<b>Part number mechanic</b>	6028630

<sup>1)</sup> The data shown is a mean value. The exact length is indicated on the label on the wire draw mechanism.

<sup>2)</sup> These values were measured at an ambient temperature of 25 °C. There may be variations at other temperatures.

<sup>3)</sup> A cycle consists of the wire being pulled out and drawn in.

## Ambient data

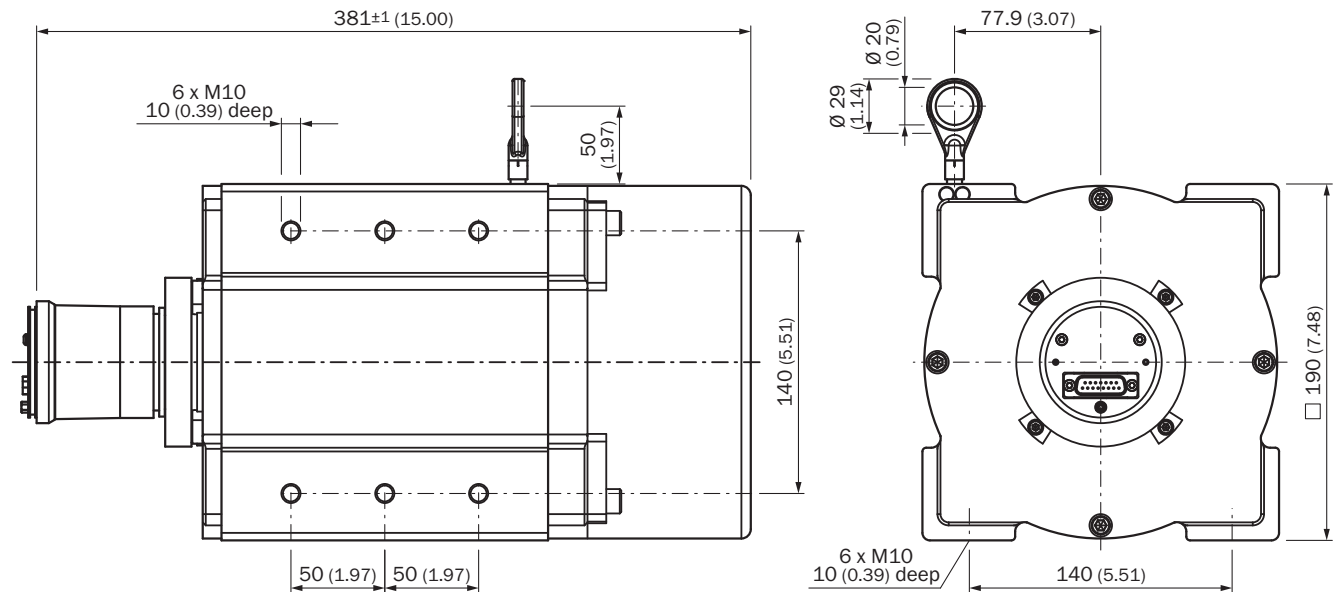
<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating encoder</b>	IP 67
<b>Enclosure rating mechanic</b>	IP 31
<b>Resistance to shocks</b>	100 g, 6 ms (according to EN 60068-2-27)
<b>Resistance to vibration</b>	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)
<b>Working temperature range (encoder)</b>	-10 °C ... +70 °C, A3M60 -20 °C ... +70 °C, ATM60 PROFIBUS
<b>Working temperature range (mechanics)</b>	-30 °C ... +70 °C
<b>Working temperature range (combination)</b>	Defined by the higher minimum and lower maximum value of the operating temperature of the encoder and the mechanism
<b>Relative humidity/condensation</b>	95 % (A3M60, condensation of the optical scanning not permitted) 98 % (ATM60 PROFIBUS, condensation of the optical scanning not permitted)

## Classifications

<b>ECl@ss 5.0</b>	27270590
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<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>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113






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



### Recommended accessories

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

	<b>Brief description</b>	<b>Type</b>	<b>Part no.</b>
<b>Other mounting accessories</b>			
	Spare joint ball for insertion in wire end ring	Joint protection for wire rope BTF/PRF/MRA	5318683
	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

	Brief description	Type	Part no.
	Wire draw deflection pulley for wire draw mechanism MRA-F130 (5 m, 10 m, 20 m and 30 m from HighLine series)	MRA-F130-R	6028631
Adapters and distributors			
	PROFIBUS DP, bus adaptor KR3, 3 x PG	AD-ATM60-KA3PR	2029225
	PROFIBUS DP, bus adaptor SR3, 3 x M12, 5-pin	AD-ATM60-SR3PR	2031985
Plug connectors and cables			
	Head A: cable Head B: cable Cable: PROFIBUS DP, drag chain use, PUR, shielded	LTG-2102-MW	6021355
Spare parts			
	Spare mounting set for HighLine wire draw mechanisms for fitting encoders with servo flange	MRA-F-K	6028633
Wire draw mechanism			
	Wire draw mechanism for servo flange with 6 mm shaft, diameter of measuring wire: 1.35 mm, service life: 1 million cycles	MRA-F190-150D2	6028630

## 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)