

BTF13-A1NM20S09

HighLine

WIRE DRAW ENCODERS





Ordering information

Туре	part no.
BTF13-A1NM20S09	1123198

Included in delivery: AHM36A-S3PC013x12 (1), MRA-F130-120D1 (1)

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



Detailed technical data

Features

Special device	✓
Specialty	Pre-programming
Standard reference device	BTF13-A1NM2025, 1068892

Safety-related parameters

MTTF _D (mean time to dangerous failure)	230 years (EN ISO 13849-1) 1)
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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.

Performance

Measurement range	0 m 20 m
Encoder	Absolute encoders
Resolution (wire draw + encoder)	0.04 mm ^{1) 2)}
Repeatability	≤ 2 mm ³⁾
Linearity	≤ ± 2 mm ³⁾
Hysteresis	\leq 5 mm $^{3)}$

 $^{^{1)}}$ The values shown have been rounded.

Interfaces

Communication interface	SSI
Programmable/configurable	√
Factory setting	AHM36A-S3PC013x12 Number of increments per revolution: 8,192 Number of revolutions: 4,096 SSI mode: Synchronous Direction of rotation: CCW

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.

	Preset position: 10 (when no wire out) Operating mode: Binary SSI code type: Binary Position bit: Beginning: 01 End: 25 Pre-programming of position error bit
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Electronics

Connection type	Male connector, M12, 8-pin, universal
Supply voltage	4.5 V DC 32 V DC
Power consumption	≤ 1.5 W (without load)

Mechanics

Weight	5.12 kg
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	AHM36 SSI, AHM36A-S3PC013x12, 1068330
Mounted mechanic	MRA-F130-120D1, 6028628

 $^{^{1)}}$ These values were measred at an ambient temperature of 25 $\,^{\circ}$ C. There may be variations at other temperatures.

Ambient data

ЕМС	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP64, mounted mechanic IP66, Encoder (IEC 60529) IP67, Encoder (IEC 60529)
Operating temperature range	-30 °C +70 °C

Certificates

EU declaration of conformity	1
UK declaration of conformity	1
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

Classifications

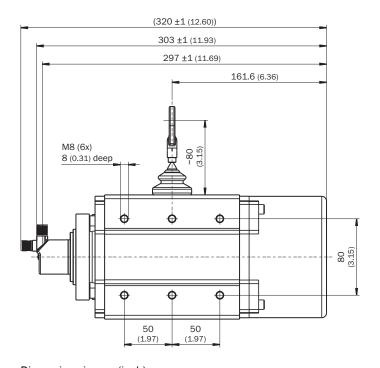
ECLASS 5.0	27270590
ECLASS 5.1.4	27270590

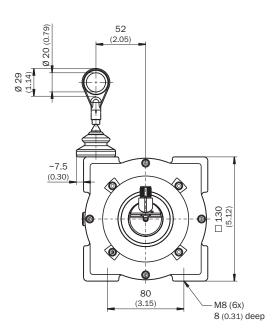
²⁾ Average values, which depend on the application.

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.

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

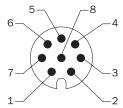
Dimensional drawing





Dimensions in mm (inch)

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



view of M12 male device connector on encoder

PIN	Wire colors (cable connection)	Signal	Explanation
1	Brown	Data -	Interface signals
2	White	Data +	Interface signals
3	Black	V/R	Sequence in direction of rotation
4	Pink	SET	Electronic adjustmen- tInterface signals
5	Yellow	Clock +	Interface signals
6	Purple	Clock -	Interface signals
7	Blue	GND	Ground connection
8	Red	U _S	Operating voltage
-	-	Shielding	Screen connected to hous- ing on encoder side. Connect- ed to ground on control side.

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