Online data sheet

PRF13-A1AM1020

HighLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
PRF13-A1AM1020	1034325

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

Detailed technical data

Performance

Measurement range	0 m ... 10 m
Reproducibility	≤ 1 mm [1]
Linearity	≤ ± 6 mm [2]
Hysteresis	≤ 4 mm [1]
Resolution (wire draw + encoder)	0.2 mm [3] [4]

[1] Value applies to wire draw mechanism.
[2] Value valid taking into account the exact length of the measuring wire per revolution (indicated on the label on the wire draw mechanism).
[3] The values shown have been rounded.
[4] Example calculation based on the PRF08 with HTL Push Pull: 200 mm (wire draw length per revolution - see Mechanical data): 2,000 (pulses per revolution) = 0.1 mm (resolution of wire draw + encoder combination).

Interfaces

Encoder	Incremental encoders
Electrical interface	Incremental / TTL / RS-422
Connection type	Male connector M23, 12-pin, radial

Electrical data

Maximum output frequency	≤ 600 kHz
Reference signal, position	Electric, logically gated with A and B
Reference signal, number	1, electric, logically gated with A and B
Maximum load current	≤ 30 mA
Initialization time	≤ 32 ms, 30 ms, with mechanical zero pulse width [1] [1]
Supply voltage	4.5 V ... 32 V
Power consumption	0.7 W
MTTFd: mean time to dangerous failure	300 years [2] [3]

[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.

Mechanical data

Weight (including encoder)	3.8 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 (anodised), plastic
Length of wire pulled out per revolution	334.1 mm [1]
Spring return force	15 N ... 20 N [2]
Life of wire draw mechanism	Typ. 1 million cycles [3] [4]
Actual wire draw length	10.2 m
Measuring wire diameter	1.35 mm
Wire acceleration	40 m/s²
Operating speed	8 m/s
Mounted encoder	DFS60
Pulses per revolution	1,670 [5]
Part number encoder	-
Mounted mechanic	MRA-F130-110D2
Part number mechanic	6028627

[1] The data shown is a mean value. The exact length is indicated on the label on the wire draw mechanism.

[2] These values were measred at an ambient temperature of 25 °C. There may be variations at other temperatures.

[3] A cycle consists of the wire being pulled out and drawn in.

[4] 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.

[5] The built-on DFS60 encoders are programmed to the specified number of lines and interface prior to delivery. The electrical interface (TTL/HTL) and the number of lines (up to max. 10,000 lines) can be set in accordance with customer requirements with our programming devices for DFS60 encoders, which are available separately.

Ambient data

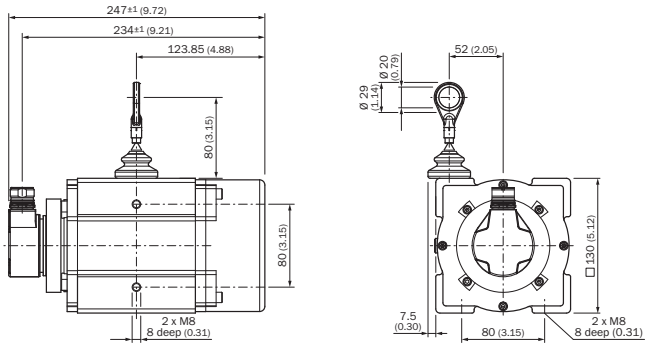
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating encoder	IP67
Enclosure rating mechanic	IP64
Resistance to shocks	60 g, 6 ms (according to EN 60068-2-27)
Frequency range of resistance to vibrations	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)
Working temperature range (encoder)	–30 °C ... +70 °C
Working temperature range (mechanics)	–30 °C ... +70 °C
Working temperature range (combination)	Defined by the higher minimum and lower maximum value of the operating temperature of the encoder and the mechanism
Relative humidity/condensation	90 % (condensation of the optical scanning not permitted)

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
ETIM 5.0	EC001486
ETIM 6.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

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

	Brief description	Type	Part no.
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
	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
	Wire draw deflection pulley for wire draw mechanism MRA-F130 (5m, 10m, 20m and 30m from HighLine series)	MRA-F130-R	6028631
Plug connectors and cables			
	Head A: cable Head B: Flying leads Cable: SSI, TTL, HTL, PUR, halogen-free, shielded	LTG-2612-MW	6028516
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, TTL, HTL, PUR, halogen-free, shielded, 3 m	DOL-2312-G03MMA1	2029201
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, TTL, HTL, PUR, halogen-free, shielded, 5 m	DOL-2312-G05MMA1	2029202
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, TTL, HTL, PUR, halogen-free, shielded, 10 m	DOL-2312-G10MMA1	2029203

	Brief description	Type	Part no.
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, TTL, HTL, PUR, halogen-free, shielded, 1.5 m	DOL-2312-G1M5MA1	2029200
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, PUR, halogen-free, shielded, 20 m	DOL-2312-G20MMA1	2029204
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: Incremental, PUR, shielded, 30 m	DOL-2312-G30MLD1	2062208
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: SSI, RS-422, PUR, halogen-free, shielded, 30 m	DOL-2312-G30MMA1	2029205
	Head A: female connector, M23, 12-pin, straight Head B: Flying leads Cable: Incremental, PUR, halogen-free, shielded, 30 m	DOL-2312-G30MMD1	2062247
	Head A: female connector, M23, 12-pin, straight Head B: male connector, D-Sub, 9-pin, straight Cable: Incremental, shielded, 0.5 m	DSL-3D08-G0M5AC3	2046580
Programming and configuration tools			
	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
Spare parts			
	Spare mounting set for HighLine wire draw mechanisms for fitting encoders with servo flange	MRA-F-K	6028633
Wire draw mechanism			
	HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 10 m	MRA-F130-110D2	6028627

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.”

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