

PFG08-P1AM03PP

EcoLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

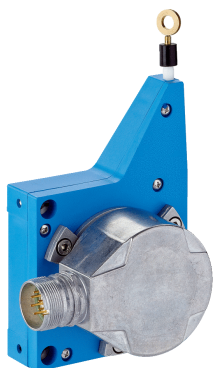


Illustration may differ



Ordering information

Type	Part no.
PFG08-P1AM03PP	1075495

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

Detailed technical data

Performance

Measurement range	0 m ... 3 m
Reproducibility	≤ 0.3 mm ^{1) 2)}
Linearity	≤ ± 2 mm ^{1) 3)}
Hysteresis	≤ 1.2 mm ^{1) 4)}
Resolution (wire draw + encoder)	0.014 mm ^{5) 6)}

¹⁾ Value applies to wire draw mechanism.

²⁾ Reproducibility, repetition accuracy, or even repeatability is defined as the maximum scatter from consecutive positioning operations from a single direction to a point, carried out under identical conditions.

³⁾ The accuracy of wire draw encoders is primarily described by the linearity. This indicates the maximum deviation for the measurement of a defined measuring path. In contrast to repeatability, this relates to the measuring range covered and not to a positioning point.

⁴⁾ The hysteresis is defined as the maximum scatter from consecutive positioning operations from different directions to a point, carried out under identical conditions.

⁵⁾ The values shown have been rounded.

⁶⁾ Example calculation based on the PFG08 with HTL Push Pull: 230 mm (wire draw length per revolution - see Mechanical data): 16,384 (pulses per revolution) = 0.014 mm (resolution of wire draw + encoder combination).

Interfaces

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

Electrical data

Maximum output frequency	≤ 800 kHz
Reference signal, position	90°, electronically, gated with A and B / Sinus and Cosinus
Reference signal, number	1, electronically, gated with A and B / Sinus and Cosinus
Initialization time	≤ 32 ms, 30 ms, with mechanical zero pulse width ^{1) 1)}

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.

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)	550 g
Weight (mechanics)	250 g
Measuring wire material	Highly flexible stranded steel 1.4401 stainless steel V4A
Weight (measuring wire)	1.2 g/m
Housing material, wire draw mechanism	Plastic, Noryl
Length of wire pulled out per revolution	230 mm
Spring return force	5 N ... 6.3 N ¹⁾
Life of wire draw mechanism	Typ. 1 million cycles ^{2) 3)}
Actual wire draw length	3.2 m
Measuring wire diameter	0.55 mm
Wire acceleration	10 m/s ²
Operating speed	4 m/s
Mounted encoder	DFS60
Pulses per revolution	65,536
Part number encoder	1036760
Mounted mechanic	MRA-G080-103D3
Part number mechanic	5322778

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

2) A cycle consists of the wire being pulled out and drawn in.

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.

Ambient data

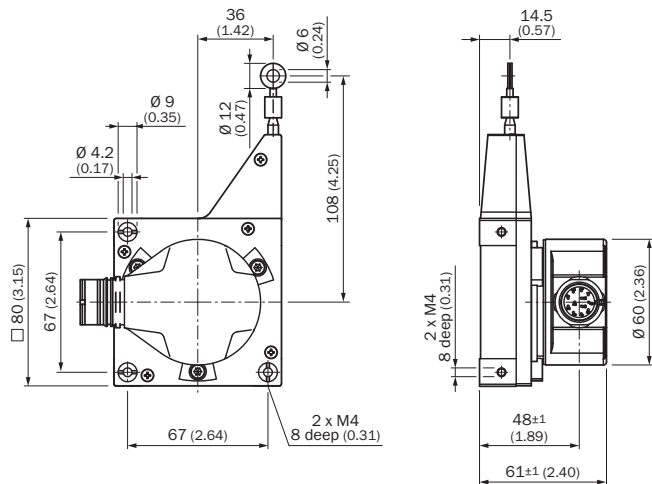
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating encoder	IP67
Enclosure rating mechanic	IP50
Resistance to shocks	60 g, 6 ms (DIN EN 60 068-2-27)
Frequency range of resistance to vibrations	20 g, 10 Hz ... 2,000 kHz (EN 60068-2-6)
Working temperature range (encoder)	-40 °C ... +100 °C
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

ECI@ss 5.0	27270590
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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))



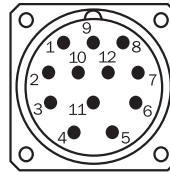
PIN assignment

Cable, 8-wire

View of M12 male device connector on encoder



View of M23 male device connector on encoder

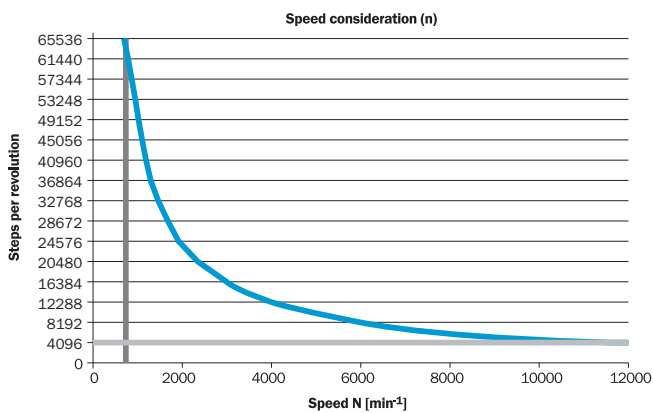


PIN, 8-pin, M12 male connector	PIN, 12-pin, M23 male connector	Color of the wires for encoders with cable outlet	TTL/HTL signal	Sin/cos 1.0 V _{ss}	Explanation
1	6	Brown	\bar{A}	COS-	Signal wire
2	5	White	A	COS+	Signal wire
3	1	Black	\bar{B}	SIN-	Signal wire
4	8	Pink	B	SIN+	Signal wire
5	4	Yellow	\bar{Z}	\bar{Z}	Signal wire
6	3	Violet	Z	Z	Signal wire
7	10	Blue	GND	GND	Ground connection of the encoder
8	12	Red	+U _s	+U _s	Supply voltage (volt-free to housing)
-	9	-	n.c.	n.c.	Not assigned
-	2	-	n.c.	n.c.	Not assigned
-	11	-	n.c.	n.c.	Not assigned
-	7 ¹⁾	-	0-SET ¹⁾	n.c.	Set zero pulse ¹⁾
Screen	Screen	Screen	Screen	Screen	Screen connected to housing on encoder side. Connected to ground on control side.

¹⁾ For electrical interfaces only: M, U, V, W with 0-SET function on PIN 7 on M23 male connector. The 0-SET input is used to set the zero pulse on the current shaft position. If the 0-SET input is connected to U_s for longer than 250 ms after it had previously been unassigned for at least 1,000 ms or had been connected to the GND, the current position of the shaft is assigned to the zero pulse signal "Z".


Maximum revolution range

Maximum revolution range



Recommended accessories

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

	Brief description	Type	Part no.
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

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