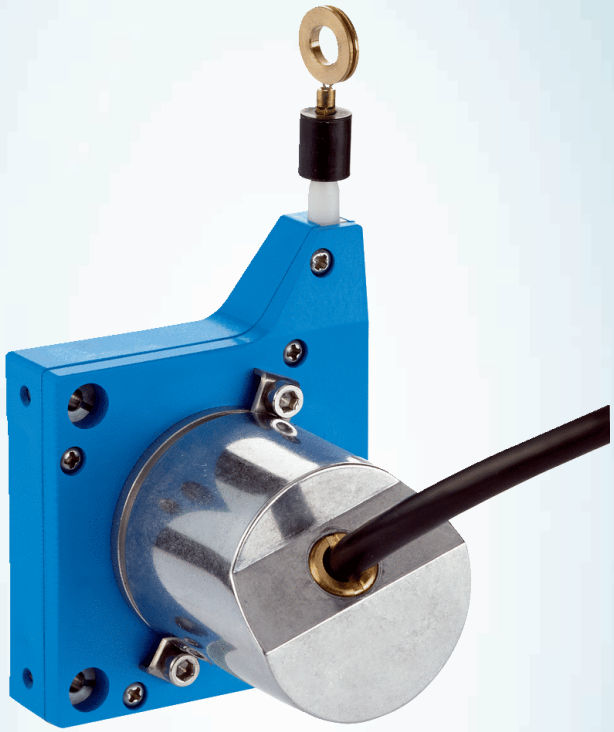
Online data sheet



PFG05-A1KM0160

EcoLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

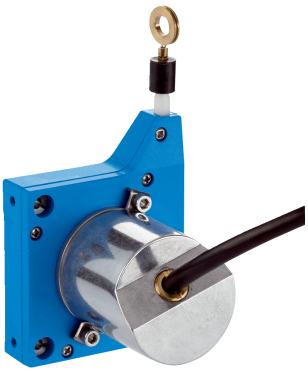


Illustration may differ

Ordering information

Type	Part no.
PFG05-A1KM0160	1060972

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

Detailed technical data

Performance

Measurement range	0 m ... 1.25 m
Repeatability	≤ 0.2 mm [1) 2)]
Linearity	≤ ± 2 mm [1) 3)]
Hysteresis	≤ 0.4 mm [1) 4)]
Resolution (wire draw + encoder)	0.06 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	4.5 V ... 5.5 V, TTL/RS422
Connection type	Cable, universal, 1.5 m

Electrical data

Maximum output frequency	≤ 300 kHz
Reference signal, position	90°, electric, logically gated with A and B
Reference signal, number	Electric, logically gated with A and B
Maximum load current	≤ 30 mA

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

Initialization time	≤ 3 ms [1) 2)]
Supply voltage	7 V ... 30 V
Power consumption	0.5 W
MTTFd: mean time to dangerous failure	600 years [3) 4)]

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

Mechanical data

Mass (including encoder)	230 g
Mass (mechanics)	80 g
Measuring wire material	Highly flexible stranded steel 1.4401 stainless steel V4A/PA sheathed
Mass (measuring wire)	0.58 g/m
Housing material, wire draw mechanism	Plastic, Noryl
Length of wire pulled out per revolution	150 mm
Spring return force	1 N ... 1.4 N [1)]
Life of wire draw mechanism	1 million cycles [2)]
Actual wire draw length	1.45 m
Measuring wire diameter	0.45 mm
Wire acceleration	10 m/s²
Operating speed	4 m/s
Mounted encoder	DBS36 Core
Pulses per revolution	2,500
Part number encoder	1064245
Mounted mechanic	MRA-G055-101D4
Part number mechanic	5324019

1) These values were measred 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.

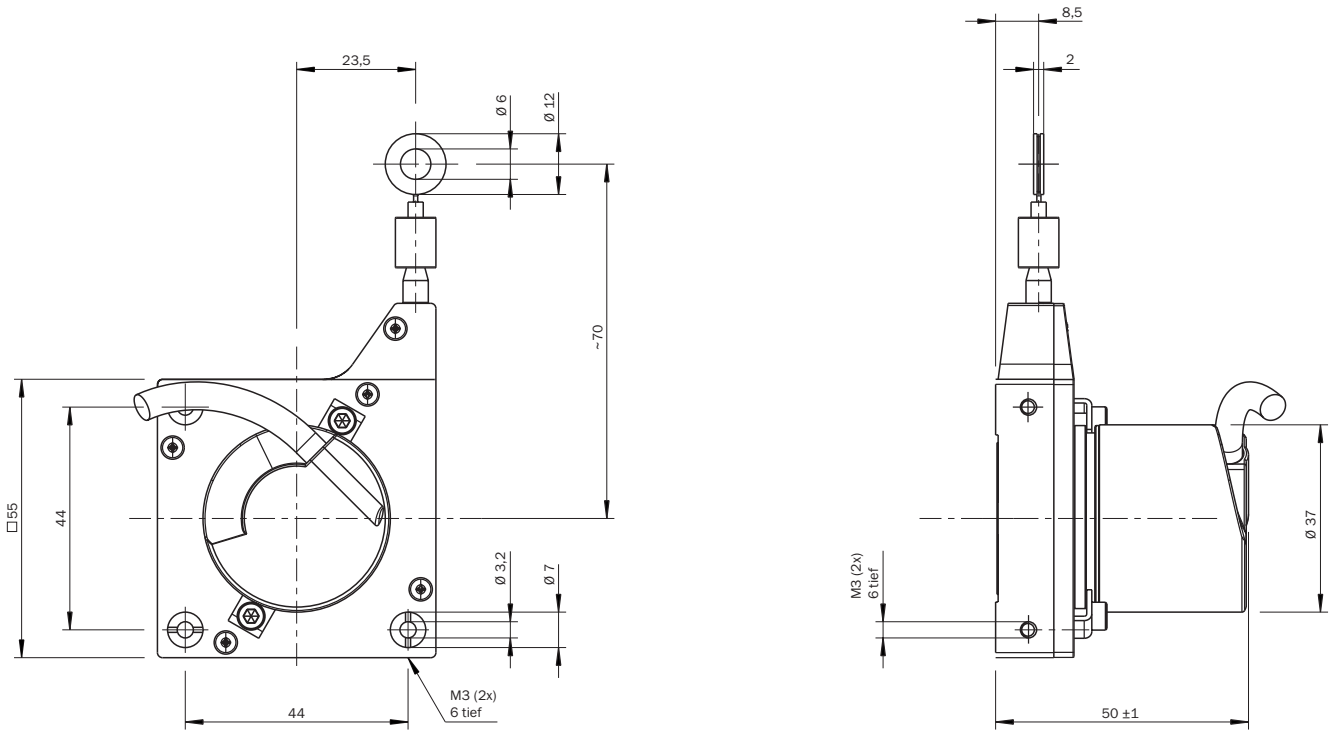
Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3 (class A)
Enclosure rating encoder	IP 65
Enclosure rating mechanic	IP 50
Resistance to shocks	100 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)
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/EcoLine

	Brief description	Type	Part no.
Other mounting accessories			

	Brief description	Type	Part no.
	Spare joint ball for insertion in wire end ring	Joint protection for wire rope BTF/PRF/MRA	5318683
Plug connectors and cables			
	Head A: cable Head B: cable Cable: SSI, drag chain use, PUR, halogen-free, shielded	LTG-2308-MWENC	6027529
	Head A: cable Head B: cable Cable: SSI, PUR, shielded	LTG-2411-MW	6027530
	Head A: cable Head B: cable Cable: SSI, drag chain use, PUR, halogen-free, shielded	LTG-2512-MW	6027531
		LTG-2612-MW	6028516
	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			
	Display Programming Tool for programmable SICK encoders DFS60, DFV60, AFS/AFM60, AHS/AHM36 and wire draw encoders with DFS60, AFS/AFM60 and AHS/AHM36. Compact dimensions, low weight and intuitive to use.	PGT-10-Pro	1072254
	Display Programming Tool for programmable SICK incremental encoders DFS60, VFS60, DFV60 and wire draw encoders with DFS60. Compact dimensions, low weight and intuitive to use.	PGT-10-S	1052967
Wire draw mechanism			
	Wire draw mechanism for 36 series servo flange with 6 mm shaft	MRA-G055-101D4	5324019

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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