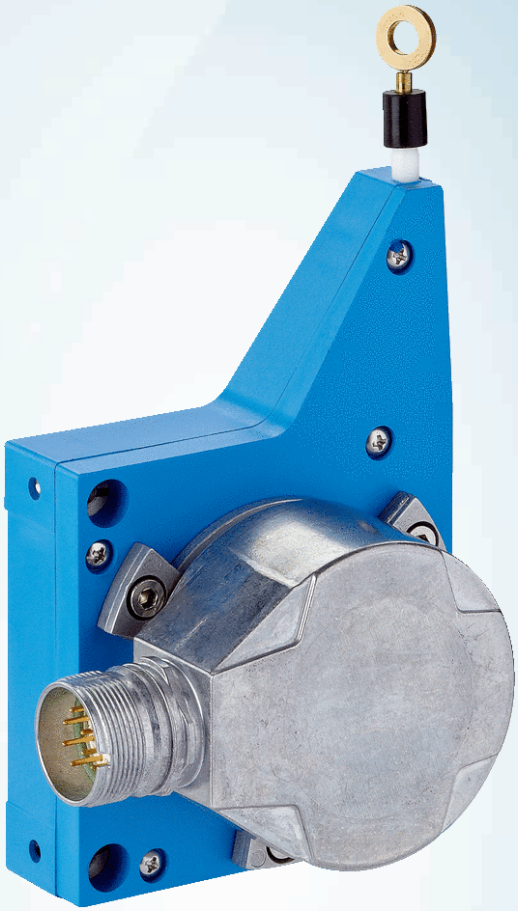
Product data sheet



# PFG08-E1AM0371

EcoLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

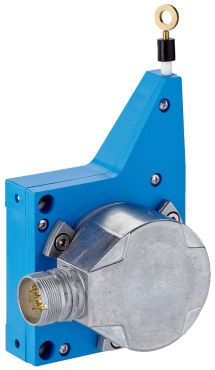


Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| PFG08-E1AM0371 | 1060981 |

**Included in delivery:** MRA-G080-103D3 (1), DFS60A-S1EA16384 (1)

Product is supplied fully assembled. See individual components for further technical data

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

## Detailed technical data

### Performance

PFG

| | |
|---|---|
| **Measurement range** | 0 m ... 3 m |
| **Encoder** | Incremental encoders |
| **Resolution (wire draw + encoder)** | 0.01 mm [1) 2)] |
| **Repeatability** | ≤ 0.2 mm [3)] |
| **Linearity** | ≤ ± 2 mm [3)] |
| **Hysteresis** | ≤ 0.4 mm [3)] |

[1)] The values shown have been rounded.
[2)] 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).
[3)] Value applies to wire draw mechanism.

### Interfaces

PFG

| | |
|---|---|
| **Communication interface** | Incremental / HTL / Push pull |

### Electrical data

PFG

| | |
|---|---|
| **Connection type** | Male connector, M23, 12-pin, radial |
| **Supply voltage** | 10 V ... 32 V |
| **Power consumption** | ≤ 0.5 W (without load) |
| **MTTFd: mean time to dangerous failure** | 300 years (EN ISO 13849-1) [1)] |

[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.

## Mechanical data

PFG

| | |
|---|---|
| **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 |
| **Spring return force** | 3.3 N ... 4.4 N [1] |
| **Length of wire pulled out per revolution** | 230 mm |
| **Life of wire draw mechanism** | Typ. 1,000,000 cycles [2] [3] |
| **Actual wire draw length** | 3.2 m |
| **Wire acceleration** | 10 m/s² |
| **Operating speed** | 6 m/s |
| **Mounted encoder** | DFS60, DFS60A-S1EA16384, 1037615 |
| **Mounted mechanic** | MRA-G080-103D3, 5322778 |

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

[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.

## Ambient data

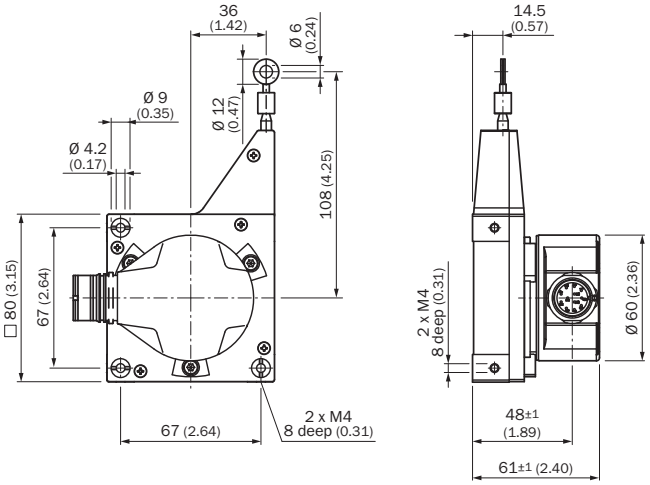
PFG

| | |
|---|---|
| **EMC** | According to EN 61000-6-2 and EN 61000-6-4 |
| **Enclosure rating** | IP50 |
| **Operating temperature range** | –30 °C ... +70 °C |

## 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 |
| **ECl@ss 10.0** | 27270613 |
| **ECl@ss 11.0** | 27270503 |
| **ETIM 5.0** | EC001486 |
| **ETIM 6.0** | EC001486 |
| **ETIM 7.0** | EC001486 |
| **UNSPSC 16.0901** | 41112113 |

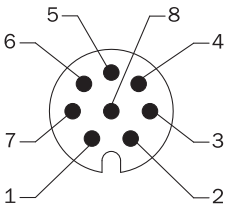
## Dimensional drawing (Dimensions in mm (inch))



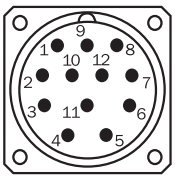

## PIN assignment

**Cable, 8-wire**

View of M12 male device connector on encoder




View of M23 male device connector on encoder

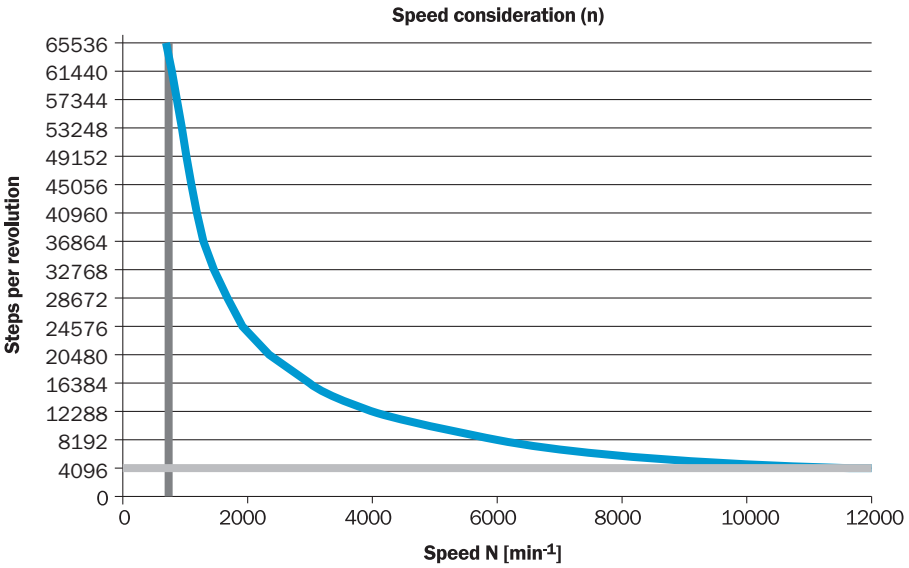



| PIN, 8-pin, M12 male connector | PIN, 12-pin, M23 male connector | Color of the wires for encoders with cable outlet | TTL/HTL signal | Sin/cos 1.0 $V_{ss}$ | Explanation |
|---|---|---|---|---|---|
| 1 | 6 | Brown | $\overline{A}$ | COS– | Signal wire |
| 2 | 5 | White | A | COS+ | Signal wire |
| 3 | 1 | Black | $\overline{B}$ | SIN– | Signal wire |
| 4 | 8 | Pink | B | SIN+ | Signal wire |
| 5 | 4 | Yellow | $\overline{Z}$ | $\overline{Z}$ | 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.<br>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. |
|---|---|---|---|
| Plug connectors and cables | | | |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 2 m | DOL-2312-G02MLA3 | 2030682 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 3 m | DOL-2312-G03MMA3 | 2029213 |
| | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 5 m | DOL-2312-G05MMA3 | 2029214 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 7 m | DOL-2312-G07MLA3 | 2030685 |
| | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 10 m | DOL-2312-G10MLA3 | 2030688 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 10 m | DOL-2312-G10MMA3 | 2029215 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 15 m | DOL-2312-G15MLA3 | 2030692 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 1.5 m | DOL-2312-G1M5MA3 | 2029212 |

| | Brief description | Type | Part no. |
|---|---|---|---|
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 20 m | DOL-2312-G20MLA3 | 2030695 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 20 m | DOL-2312-G20MMA3 | 2029216 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 25 m | DOL-2312-G25MLA3 | 2030699 |
| | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 30 m | DOL-2312-G30MLA3 | 2030702 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 30 m | DOL-2312-G30MMA3 | 2029217 |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: -<br>Cable: HIPERFACE®, SSI, Incremental, shielded | DOS-2312-G02 | 2077057 |
|  | Head A: female connector, M23, 12-pin, angled<br>Head B: -<br>Cable: HIPERFACE®, SSI, Incremental, shielded | DOS-2312-W01 | 2072580 |
| Programming and configuration tools | | | |
|  | USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders | PGT-08-S | 1036616 |
|  | 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 |
| Wire draw mechanism | | | |
|  | EcoLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 3 m | MRA-G080-103D3 | 5322778 |

# 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.

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