Product data sheet

PRF08-C1KM0240

HighLine

WIRE DRAW ENCODERS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
PRF08-C1KM0240	1084449

Included in delivery: DFS60E-S1CK02000 (1), MRA-F080-102D2 (1)

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

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

Detailed technical data

Performance

Measurement range	0 m ... 2 m
Encoder	Incremental encoders
Resolution (wire draw + encoder)	0.1 mm [1) 2)]
Repeatability	≤ 1 mm [3)]
Linearity	≤ ± 2 mm [3)]
Hysteresis	≤ 2 mm [3)]

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

Interfaces

Communication interface	Incremental / TTL / RS-422

Electrical data

Connection type	Cable, 8-wire, universal, 5 m
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

Weight	1.6 kg
Measuring wire material	Highly flexible stranded steel 1,4401 stainless steel V4A
Measuring wire diameter	1.35 mm
Weight (measuring wire)	7.1 g/m

[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.

Housing material, wire draw mechanism	Aluminum (anodized), aluminum die cast (nickel-plated)
Spring return force	6 N ... 14 N [1]
Length of wire pulled out per revolution	200 mm
Life of wire draw mechanism	Typ. 1,000,000 cycles [2] [3]
Actual wire draw length	2.2 m
Wire acceleration	40 m/s²
Operating speed	8 m/s
Mounted encoder	DFS60, DFS60E-S1CK02000, 1084353
Mounted mechanic	MRA-F080-102D2, 6028625

[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

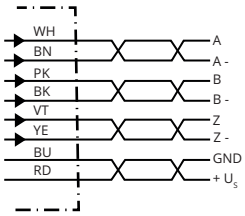
EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP64, mounted mechanic IP67, Encoder (IEC 60529) [1]
Operating temperature range	0 °C ... +70 °C

[1] With mating connector fitted.

Classifications

ECLASS 5.0	27270590
ECLASS 5.1.4	27270590
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

PIN assignment



PIN Male connector M12, 8-pin	PIN Male connector M23, 12-pin	Wire colors (cable connection)	TTL/HTL signal	Sin/Cos 1.0 V_{PP}	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	Purple	Z	Z	Signal wire
7	10	Blue	GND	GND	Ground connection
8	12	Red	$+U_S$	$+U_S$	Supply voltage
-	9	-	N.c.	N.c.	Not assigned
-	2	-	N.c.	N.c.	Not assigned
-	11	-	N.c.	N.c.	Not assigned
-	7 [1]	Orange	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.

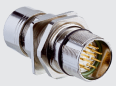
[1] For electrical interfaces only: M, U, V, W with 0-SET function on PIN 7 on M23 plug. The 0-SET input is used to set the zero pulse to the current shaft position. If the 0-SET input is applied to US for longer than 250 ms after it has previously been open or applied to GND for at least 1,000 ms, the current shaft position is assigned zero pulse signal “Z”.

Recommended accessories

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

	Brief description	Type	Part no.
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

	Brief description	Type	Part no.
Wire draw mechanism			
	HighLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 2 m	MRA-F080-102D2	6028625
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
	Compressed air attachment for MRA-F080... and MRA-F130... HighLine wire draw mechanism	MRA-F-P	6073769
	Additional brush attachment for wire draw mechanism MRA-F080 (2 m and 3 m from HighLine series)	MRA-F080-B	6045341
	Wire draw deflection pulley for wire draw mechanism MRA-F080 (2m and 3m from HighLine series)	MRA-F080-R	6028632
Plug connectors and cables			
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Incremental, SSI • **Cable:** 5 m, 8-wire, PUR, halogen-free • **Description:** Incremental, SSI, shielded, Head A: female connector, JST, 8-pin, straight Head B: cable Cable: incremental, suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	DOL-0J08-G05MAA3	2046876
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Incremental, SSI • **Cable:** 0.5 m, 8-wire, PUR, halogen-free • **Description:** Incremental, SSI, shielded, Head A: female connector, JST, 8-pin, straight Head B: cable Cable: incremental, suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	DOL-0J08-G0M5AA3	2046873
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Incremental, SSI • **Cable:** 10 m, 8-wire, PUR, halogen-free • **Description:** Incremental, SSI, shielded, Head A: female connector, JST, 8-pin, straight Head B: cable Cable: incremental, suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	DOL-0J08-G10MAA3	2046877
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, Incremental • **Cable:** 1.5 m, 8-wire, PUR, halogen-free • **Description:** SSI, Incremental, shielded	DOL-0J08-G1M5AA6	2048590
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** SSI, Incremental • **Cable:** 3 m, 8-wire, PUR, halogen-free • **Description:** SSI, Incremental, shielded	DOL-0J08-G3M0AA6	2048591
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Male connector, M23, 12-pin, straight • **Signal type:** Incremental • **Cable:** 1 m, 8-wire, PUR, halogen-free • **Description:** Incremental, shielded, Head A: female connector, JST, 8-pin, straight Head B: male connector, M23, 12-pin, straight Cable: suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	STL-2312-G01MAA3	2061622

	Brief description	Type	Part no.
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Male connector, M23, 12-pin, straight • **Signal type:** Incremental • **Cable:** 2 m, 8-wire, PUR, halogen-free • **Description:** Incremental, shielded, Head A: female connector, JST, 8-pin, straight Head B: male connector, M23, 12-pin, straight Cable: suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	STL-2312-G02MAA3	2061504
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Male connector, M23, 12-pin, straight • **Signal type:** Incremental • **Cable:** 0.35 m, 8-wire, PUR, halogen-free • **Description:** Incremental, shielded, Head A: female connector, JST, 8-pin, straight Head B: male connector, M23, 12-pin, straight Cable: suitable for drag chain, PUR, halogen-free, shielded, 4 x 2 x 0.15 mm², Ø 5.6 mm	STL-2312-GM35AA3	2061621
	• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Signal type:** Incremental • **Cable:** CAT5, CAT5e • **Description:** Incremental, shielded, Head A: male connector, M12, 8-pin, straight, A coded, shielded, for cable diameter 4 mm ... 8 mm Head B: - Operating temperature: –40 °C ... +85 °C • **Connection systems:** IDC quick connection • **Permitted cross-section:** 0.14 mm² ... 0.34 mm²	STE-1208-GA01	6044892
	• **Connection type head A:** Male connector, M23, 12-pin, straight • **Signal type:** HIPERFACE®, SSI, Incremental • **Description:** HIPERFACE®, SSI, Incremental, shielded, Head A: male connector, M23, 12-pin, straight, for cable diameter 5.5 mm ... 10.5 mm Head B: - Operating temperature: –40 °C ... +125 °C • **Connection systems:** Solder connection	STE-2312-G01	2077273
	• **Connection type head A:** Male connector, M23, 12-pin, straight • **Signal type:** HIPERFACE®, SSI, Incremental • **Description:** HIPERFACE®, SSI, Incremental, shielded, M23 female connector with central fixing (for cabinet bushing) • **Connection systems:** Solder connection	STE-2312-GX	6028548

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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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