Product family overview

DFS60S Pro

Safe, easy, flexible: Encoders for functional safety

SAFETY ENCODERS

SICK
Sensor Intelligence.

Advantages

Safe

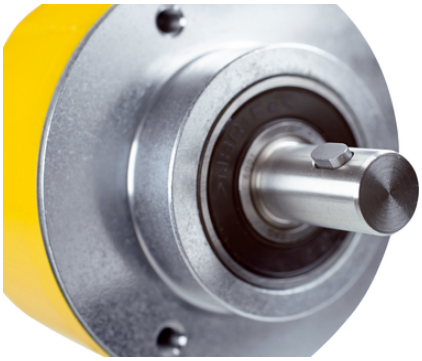
Mechanical safety and reliability are particularly important for safe encoders. The DFS60S Pro encoder fulfills the strictest test criteria and is a safety product certified up to SIL 2 or PL d. The DFS60S Pro supports the safety functions defined in IEC 61800-5-2 and guarantees first-class quality and absolute precision – in every detail. It boasts a precise optical scanning system and a high mechanical load capability.

SO SIMPLE YET SO SAFE

Mechanical reliability - thanks to safety clamping ring with positive and non-positive connections

DGUV Test
IFA 1503001
Sicherheit geprüft
tested safety

Successfully tested by the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA)



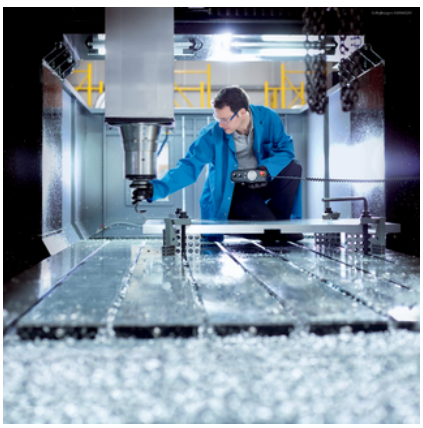
Mechanical reliability - solid shaft flattened or with feather key groove

Its electronic and mechanical design ensures certified safety levels, every time.

Easy

Implementation is easy because with the DFS60S Pro, safety functions for stationary and mobile safety applications can be made available in next to no time. The significantly reduces time and costs for implementation. Particularly when the encoder is combined with safety products from SICK (optional). This is very easy to set up using the plug and play principle and gives you the benefit of coordinated safety products. It's the ideal solution for ensuring the safety of people, machines, and systems.

Easy and practical handling of safety functions



Safe Motion Control complete solution from SICK

Easy safety engineering up to SIL2

Safety figures can be made available easily with SISTEMA, VDMA library for functional safety

Thanks to the safety encoder, its uncomplicated system implementation and easy approval process, the safety encoder can save you money.

Flexible

Flexible use: With the DFS60S Pro and the Drive Monitor FX3-MOC, SICK is offering complete solutions for challenging safety tasks. The Flexi Soft modules can be combined in a number of different ways, making it possible to perform a wide range of functions to ensure safe drive monitoring. The DFS60S Pro is very easy to install and offers numerous mechanical and electrical facilities for connection for different mounting situations.

Flexible in use

Countless facilities for connection for different mounting situations

The right thing for any application - the Flexi Soft safety controller offer flexible combinations

Flexible application: Large temperature range, high enclosure rating and low installation depth

The safety encoder can be integrated into different control worlds and offers different mounting options.

Technical data overview

Safety integrity level	SIL2 (IEC 61508), SILCL2 (IEC 62061) [1]
Performance level	PL d (EN ISO 13849) [1]
Category	3 (EN ISO 13849)
Communication interface	Incremental
Communication Interface detail	Sin/Cos [2]
Mechanical design	Blind hollow shaft with feather key groove Solid shaft, Servo flange Solid shaft, face mount flange Solid shaft with key, Servo flange Solid shaft with key, face mount flange Through hollow shaft with feather key groove
Operating temperature range	–30 °C ... +95 °C [3] (depending on type)
Enclosure rating	IP65 (according to IEC 60529) [4]

[1] For more detailed information on the exact configuration of your machine/unit, please consult your relevant SICK branch office.

[2] 1.0 V_{SS} (differential).

[3] At operating temperature measuring point.

[4] With male connector and mating connector fitted minimum IP65.

Product description

Safe electrical and mechanical design, easy system implementation and flexible application possibilities. The DFS60S Pro is an incremental encoder for functional safety. It supports safety functions conforming to IEC 61800-5-2. The high enclosure rating, wide temperature range and generous ball bearing clearance are the key to enhanced durability. They make the DFS60S Pro the universal motion control sensor for stationary and mobile safety applications.

At a glance

- Encoders for functional safety technology: SIL2 (IEC 61508), SILCL2 (EN 62061), PL d (EN ISO 13849)
- Electrical interface: 4.5 V ... 32 V; sine/cosine 1 V_{PP}; 1,024 periods
- Clamping flange or servo flange, blind hollow shaft or through hollow shaft (assembly options with feather key)
- Universal cable connection, M23 or M12 male connector, axial or radial
- Enclosure rating: IP65
- Operating temperature range: –30 °C ... +95 °C (depending on type)

Your benefits

- Certified safety solution that ensures the best possible protection for persons, machinery, and systems
- Easy and practical implementation of safety functions with complex solutions using an all-in-one solution, safety functions with the Flexi Soft FX3-MOC motion control modules from SICK: safe stop 1 (SS1), safe stop 2 (SS2), safe operating stop (SOS), safe speed monitoring (SSM), safely limited speed (SLS), safe direction (SDI), safe brake control (SBC)
- Positive and non-positive connections for mechanical reliability
- Certified safety products reduce the scope of safety engineering
- Versatile connection options for high levels of flexibility and straightforward implementation
- Compact size for compatibility with applications in which installation space is limited

Type code

Other models and accessories ➜ www.sick.com/DFS60S_Pro

Hollow shaft

Type
S Safety

Shaft type
B Blind hollow shaft
T Through hollow shaft

Shaft diameter
A 6 mm, with feather key groove
B 8 mm, with feather key groove
C 3/8", with feather key groove
D 10 mm, with feather key groove
E 12 mm, with feather key groove
F 1/2", with feather key groove
G 14 mm, with feather key groove
H 15 mm, with feather key groove
J 5/8", with feather key groove

Communication interface
0 4.5 V ... 32 V, SIN/COS

Connection type
A Male connector, M23, 12-pin, radial
C Male connector, M12, 8-pin, radial
J Cable, 8-wire, universal, 0.5 m [1)]
K Cable, 8-wire, universal, 1.5 m [1)]
L Cable, 8-wire, universal, 3 m [1)]
M Cable, 8-wire, universal, 5 m [1)]
N Cable, 8-wire, universal, 10 m [1)]

Resolution
1024 Periods per revolution

D	F	S	6	0		-					0	1	0	2	4

[1)] The universal cable outlet is positioned so that it is possible to lay it without bends in a radial and axial direction. UL approval not available.

Solid shaft

Type
S Safety

Mechanical design
S 1 Solid shaft, servo flange, M4 thread, 6 mm × 10 mm, with face
S D Solid shaft, servo flange, M4 thread, 6 mm × 10 mm, with feather key
S F Solid shaft, servo flange, M3 thread, 6 mm × 10 mm, with face
S G Solid shaft, servo flange, M3 thread, 6 mm × 10 mm, with feather key
S 4 Solid shaft, face mount flange, M4 thread, 10 mm × 19 mm, with face
S E Solid shaft, face mount flange, M4 thread, 10 mm × 19 mm, with feather key
S H Solid shaft, face mount flange, M3 thread, 10 mm × 19 mm, with face
S J Solid shaft, face mount flange, M3 thread, 10 mm × 19 mm, with feather key

Communication interface
0 4.5 V ... 32 V, SIN/COS

Connection type
A Male connector, M23, 12-pin, radial
C Male connector, M12, 8-pin, radial
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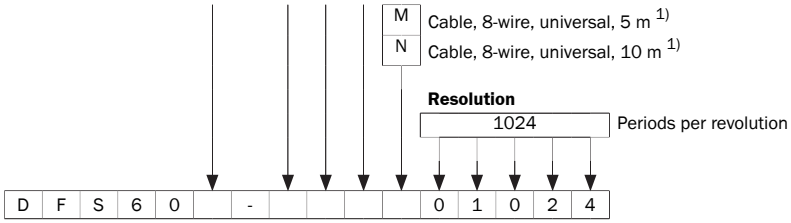

1) The universal cable outlet is positioned so that it is possible to lay it without bends in a radial and axial direction. UL approval not available.

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

SICK
Sensor Intelligence.