



DFS60I-S4PM65536

DFS60 Inox

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
DFS60I-S4PM65536	1083969

Other models and accessories → www.sick.com/DFS60_Inox

Detailed technical data

Performance

Pulses per revolution	65,536 ¹⁾
Measuring step	90° electric/pulses per revolution
Measuring step deviation at binary number of lines	± 0.0015°
Error limits	± 0.03°

¹⁾ See maximum revolution range.

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / HTL
Factory setting	Factory setting: output level TTL
Number of signal channels	6-channel
Programmable/configurable	✓
Initialization time	32 ms ¹⁾ 30 ms
Output frequency	≤ 820 kHz
Load current	≤ 30 mA
Power consumption	≤ 0.7 W (without load)

¹⁾ With mechanical zero pulse width.

Electrical data

Connection type	Cable, 8-wire, radial, 5 m
Supply voltage	4.5 ... 32 V

¹⁾ Programming TTL with ≥ 5.5 V: short-circuit opposite to another channel or GND permissible for maximum 30 s.

²⁾ Programming HTL or TTL with < 5.5 V: short-circuit opposite to another channel, US or GND permissible for maximum 30 s.

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.

Reference signal, number	1
Reference signal, position	90 °, electric, logically gated with A and B
Reverse polarity protection	✓
Short-circuit protection of the outputs	✓ ^{1) 2)}
MTTFd: mean time to dangerous failure	300 years (EN ISO 13849-1) ³⁾

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Mechanical data

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 mm
Wavelength	19 mm
Weight	+ 0.5 kg
Shaft material	Stainless steel V2A
Flange material	Stainless steel V2A
Housing material	Stainless steel V2A
Start up torque	1 Ncm (+20 °C)
Operating torque	0.5 Ncm (+20 °C)
Permissible shaft loading radial/axial	80 N (radial) 40 N (axial)
Operating speed	$\leq 9,000 \text{ min}^{-1}$ ¹⁾
Moment of inertia of the rotor	6.2 gcm ²
Bearing lifetime	3.6×10^{10} revolutions
Angular acceleration	$\leq 500,000 \text{ rad/s}^2$

¹⁾ Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-3
Enclosure rating	IP67, housing side (according to IEC 60529) IP67, shaft side (according to IEC 60529)
Permissible relative humidity	90 % (condensation of the optical scanning not permitted)
Operating temperature range	-40 °C ... +100 °C ¹⁾ -30 °C ... +100 °C ²⁾
Storage temperature range	-40 °C ... +100 °C, without package
Resistance to shocks	100 g, 6 ms (according to EN 60068-2-27)
Resistance to vibration	10 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

¹⁾ Stationary position of the cable.

²⁾ Flexible position of the cable.

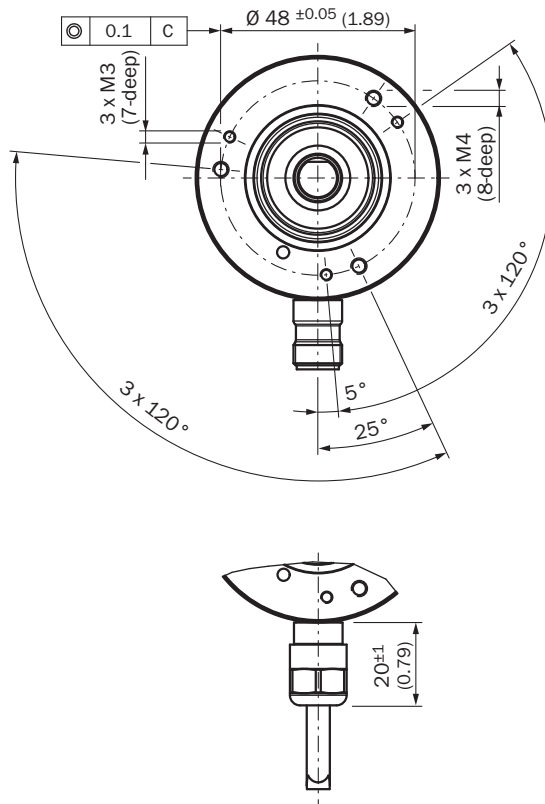
Classifications

ECI@ss 5.0	27270501
ECI@ss 5.1.4	27270501

Dimensional drawing (Dimensions in mm (inch))

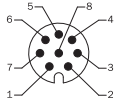
Technical drawing of a mechanical part with dimensions and tolerances. The drawing includes a top view and a side view. Key dimensions and tolerances are as follows:

- Top View Dimensions:**
 - Overall width: $43.6 \pm 1 (1.72)$
 - Distance from left edge to centerline: $19 \pm 0.3 (0.75)$
 - Distance from centerline to right edge: $18 (0.71)$
 - Distance from left edge to first hole: $10 (0.39)$
 - Distance between first and second holes: $10.17 \pm 0.013 \pm 0.028 (1.25)$
 - Distance from second hole to right edge: $11.5 (0.45)$
 - Distance from left edge to third hole: $31.75 \pm 0.009 \pm 0.034 (1.25)$
 - Distance from third hole to centerline: $36 \pm 0.025 \pm 0.064 (1.42)$
 - Distance from centerline to right edge: $60.3 \pm 0.75 (2.37)$
- Side View Dimensions:**
 - Overall height: $17.1 (0.67)$
 - Distance from bottom edge to centerline: $4.8 \pm 0.1 (0.19)$
 - Distance from centerline to top edge: $4.6 (0.18)$
- Surface Finish and Tolerances:**
 - Surface A: 0.1 (top view), 0.03 (side view)
 - Surface B: 0.05 (top view), 0.05 (side view)
 - Surface C: 0.05 (top view)
- Other Features:**
 - Threaded hole: $M12 \times 1$
 - Surface texture symbol: $\sqrt{}$

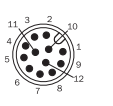


PIN assignment

View of M12, 8-pin male device connector on encoder



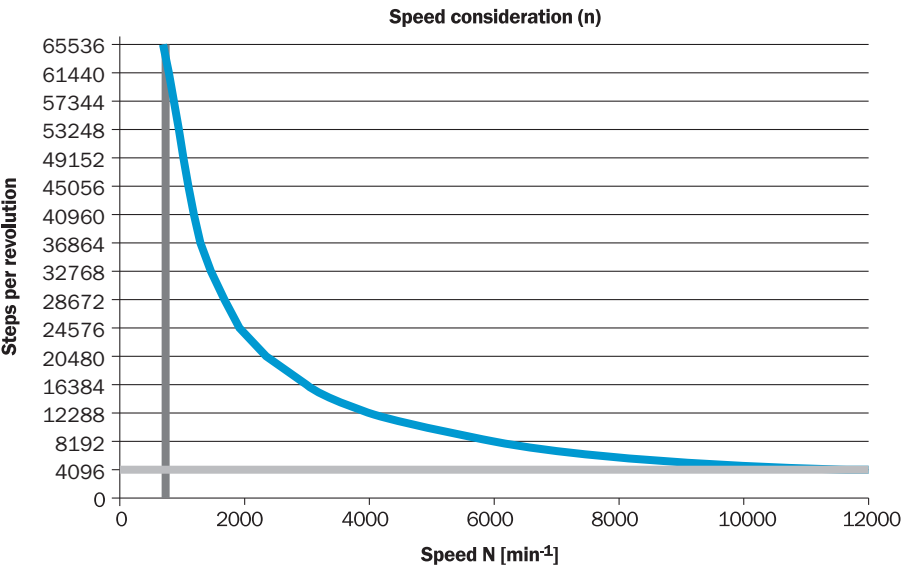
View of M12, 12-pin male device connector on encoder



¹⁾ For electrical interfaces only: M, V, W with O-SET function on PIN 10 on M12 male connector. The O-SET input is used to set the zero pulse on the current shaft position. If the O-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



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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