

DFS60B-S4PZ00S69

DFS60

INCREMENTAL ENCODERS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
DFS60B-S4PZ00S69	1078778

Other models and accessories → www.sick.com/DFS60

Detailed technical data

Features

Special device	✓
Specialty	Customer-specific pin assignment 4.5 ... 32 V, TTL/HTL programmable, preset HTL Resolution programmable, preset 7,500 pulses BEF-MR10300AK measuring wheel premounted
Standard reference device	DFS60B-S4PC10000, 1036721

Performance

Pulses per revolution	7,500 ¹⁾
Measuring step	90°, electric/pulses per revolution
Measuring step deviation at non binary number of lines	± 0.01°
Error limits	± 0.05°

¹⁾ See maximum revolution range.

Interfaces

Communication interface	Incremental
Communication Interface detail	TTL / HTL
Factory setting	Factory setting output level HTL
Number of signal channels	6-channel
Programmable/configurable	✓
Initialization time	32 ms ¹⁾ 30 ms
Output frequency	≤ 600 kHz
Load current	≤ 30 mA
Power consumption	≤ 0.7 W (without load)

¹⁾ With mechanical zero pulse width.

Electrical data

Connection type	Male connector, M12, 8-pin, radial, Customer-specific pin assignment
Supply voltage	4.5 ... 32 V
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⁾

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.

Mechanical data

Mechanical design	Solid shaft, face mount flange
Shaft diameter	10 mm
Shaft length	19 mm
Weight	+ 0.3 kg
Shaft material	Stainless steel
Flange material	Aluminum
Housing material	Aluminum die cast
Start up torque	0.5 Ncm (+20 °C)
Operating torque	0.3 Ncm (+20 °C)
Permissible shaft loading	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 x 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, male connector (IEC 60529) ¹⁾ IP65, shaft side (IEC 60529)
Permissible relative humidity	90 % (Condensation not permitted)
Operating temperature range	-40 °C ... +100 °C ²⁾ -30 °C ... +100 °C ³⁾
Storage temperature range	-40 °C ... +100 °C, without package
Resistance to shocks	70 g, 6 ms (EN 60068-2-27)
Resistance to vibration	30 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

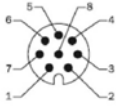
¹⁾ With mating connector fitted.

²⁾ Stationary position of the cable.

³⁾ Flexible position of the cable.

PIN assignment

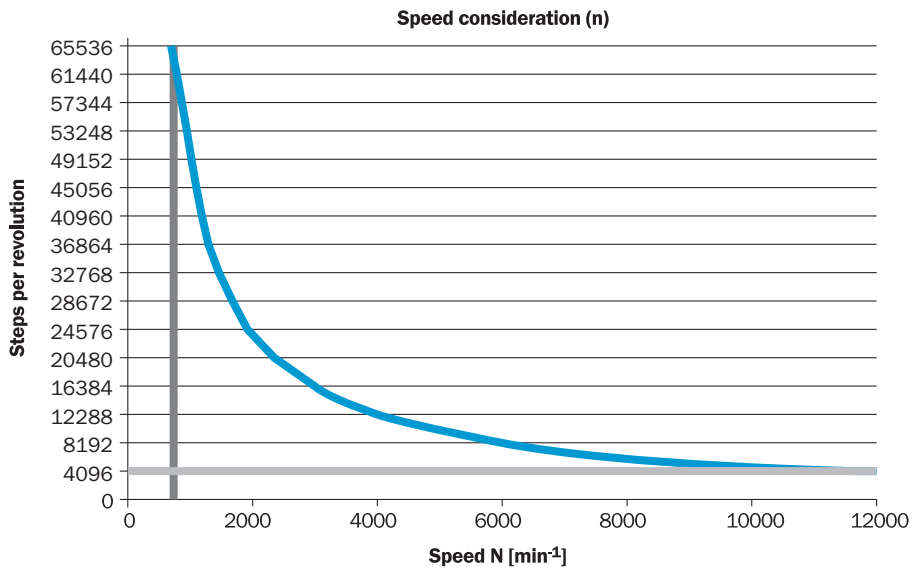
Ansicht Gerätestecker M12 am Encoder



Stecker M12, 8- polig,	TTL/HTL signal	Erklärung
1	GND	Massenanschluss des Encoders
2	+U _S	Versorgungsspannung (Potentialfrei zum Gehäuse)
3	Z	Signalleitung
4	B	Signalleitung
5	B̄	Signalleitung
6	A	Signalleitung
7	Ā	Signalleitung
8	Z̄	Signalleitung
Schirm	Schirm	Schirm encoderseitig mit Gehäuse verbunden. Steuerungsseitig mit Erde verbunden



Diagrams

Maximum revolution range



Recommended accessories

Other models and accessories → www.sick.com/DFS60

	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

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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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