Online data sheet

SFM60-HRKT0K02

SFS/SFM60

MOTOR FEEDBACK SYSTEMS ROTARY HIPERFACE®

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	Part no.
SFM60-HRKT0K02	1050527

Other models and accessories → www.sick.com/SFS_SFM60

Detailed technical data

Performance

Number of sine/cosine periods per revolution	1,024
Number of the absolute ascertainable revolutions	4,096 (Multiturn)
Total number of steps	134,217,728
Measuring step	0.3 Winkelsekunden For interpolation of the sine/cosine signals with, e. g., 12 bits
Error limits for the digital absolute value	± 90 Winkelsekunden (via RS485)
Integral non-linearity typ.	± 45 Winkelsekunden (Error limits for evaluating sine/cosine period), without mechanical tension of the stator coupling
Differential non-linearity	± 7 Winkelsekunden (Non-linearity within a sine/cosine period)
Operating speed	6,000 min^{-1}, up to which the absolute position can be reliably produced

Interfaces

Type of code for the absolute value	Binary
Code sequence	Increasing, when turning the shaft. For clockwise rotation, looking in direction “A” (see dimensional drawing)., for clockwise shaft rotation, looking in direction "A" (see dimensional drawing)
Interface signals	Process data channel SIN, REFSIN, COS, REFCOS: analog, differential Parameter channel RS 485: digital
Available memory area	1,792 Byte

Electrical data

Electrical interface	HIPERFACE®
Operating voltage range/supply voltage	7 V DC ... 12 V DC
Recommended supply voltage	8 V DC
Operating power consumption (no load)	< 80 mA [1)]
Output frequency for sine/cosine signals	0 kHz ... 200 kHz

[1)] Without load.

Mechanical data

Shaft version	Through hollow shaft
Shaft plug-in length	≥ 15 mm
Flange type/stator coupling	Stator coupling
Dimensions	See dimensional drawing
Weight	0.2 kg
Moment of inertia of the rotor	40 gcm²
Maximum operating speed	9,000 min⁻¹ (9,000 U/min) [1]
Maximum angular acceleration	≤ 50,000 rad/s²
Operating torque	0.6 Ncm (+20 °C)
Start up torque	0.8 Ncm (+20 °C)
Permissible shaft movement, radial, static	± 0.3 mm
Permissible shaft movement, radial, dynamic	± 0.1 mm
Permissible shaft movement, axial, static	± 0.5 mm
Permissible shaft movement, axial, dynamic	± 0.2 mm
Life of ball bearings	3.6 x 10^9 revolutions
Connection type	Cable, radial, 1.5 m

[1] Self-warming 3.3 K per 1,000 rpm; when applying, note operating temperature range.

Ambient data

Working temperature range	–30 °C ... +115 °C
Storage temperature range	–40 °C ... +115 °C, without package
Relative humidity/condensation	90 %, Condensation not permitted
Resistance to shocks	100 g / 6 ms / according to EN 60068-2-27 / 6 ms
Frequency range of resistance to vibrations	20 g / 10 Hz / 2,000 Hz / according to EN 60068-2-6
EMC	According to EN 61000-6-2 and EN 61000-6-3 [1]
Enclosure rating	IP65, with mating connector inserted (according to IEC 60529)

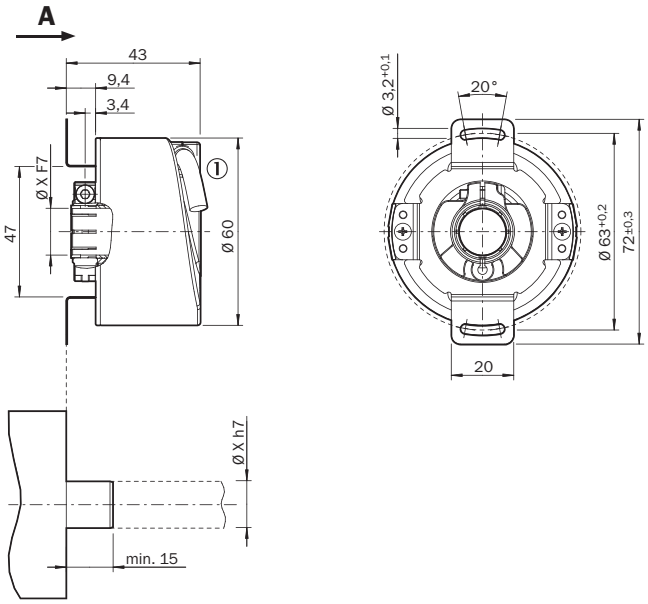
[1] The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. The GND (0V) connection of the supply voltage is also grounded here. If other screening concepts are used, users must perform their own tests.

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
ETIM 5.0	EC001486
ETIM 6.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

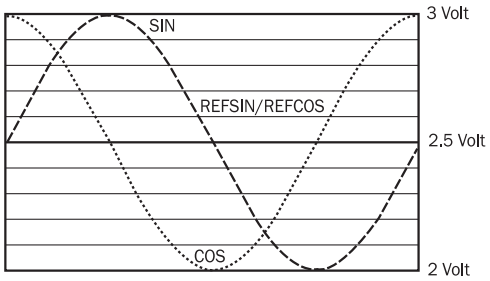
General tolerances according to DIN ISO 2768-mk



① Cable diameter = 5.6 mm +/- 0.2 mm bend radius = 30 mm

Signal outputs

Signal diagram for clockwise rotation of the shaft looking in direction "A" (see dimensional drawing)1 period = 360 ° : 1024



Recommended accessories

Other models and accessories ➜ www.sick.com/SFS_SFM60

	Brief description	Type	Part no.
Flanges			
	Stator coupling, 16.5 mm high	BEF-DS05XFX	2057423
	Stator coupling with hole circle diameter 63 mm	BEF-DS07XFX	2059368

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M23, 12-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJB2	2071328
	Head A: female connector, JST, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJB6	2071327
	Head A: female connector, M12, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJC1	2071329
	Head A: female connector, terminal box, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJC6	2071330
Programming and configuration tools			
	SVip® LAN programming tool for all motor feedback systems	PGT-11-S LAN	1057324
	SVip® WLAN programming tool for all motor feedback systems	PGT-11-S WLAN	1067474

SICK AT A GLANCE

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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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