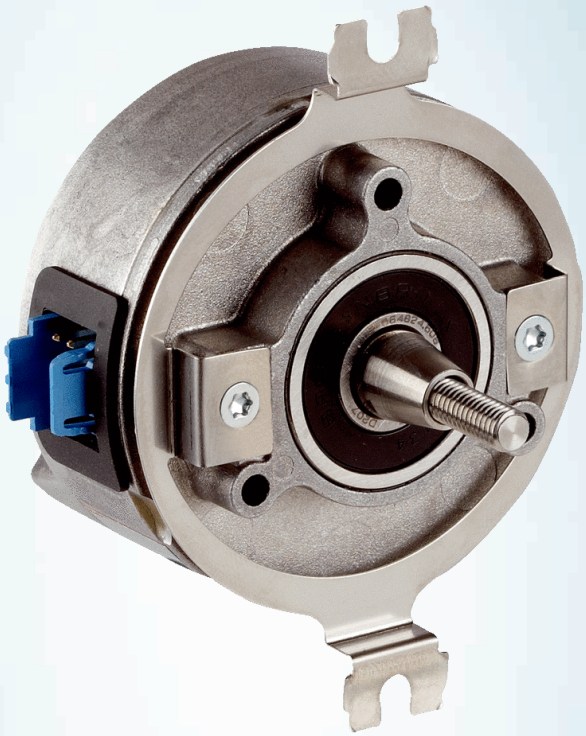
Online data sheet



SRM50S-HFA0-K21

SRS/SRM50

MOTOR FEEDBACK SYSTEMS ROTARY HIPERFACE®

SICK
Sensor Intelligence.

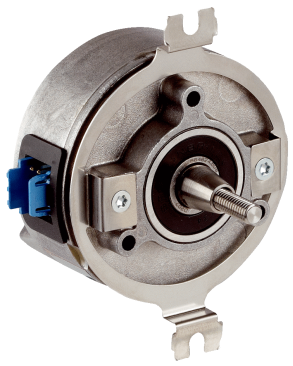


Illustration may differ

Ordering information

Type	Part no.
SRM50S-HFA0-K21	1051793

Other models and accessories ➜ www.sick.com/SRS_SRM50

Detailed technical data

Safety-related parameters

Safety integrity level	SIL2 (IEC 61508), SILCL2 (IEC 62061)
Category	3 (EN ISO 13849)
Maximum demand rate	Continuous (analog signals)
Performance level	PL d (EN ISO 13849) [1]
PFH_D: Probability of dangerous failure per hour	1.0×10^{-8} [2]
T_M (mission time)	20 years (EN ISO 13849)
MTTFd: mean time to dangerous failure	1,073 years (EN ISO 13849)

[1] For more detailed information on the exact configuration of your machine/unit, please consult your relevant SICK branch office.
[2] The values displayed apply to a diagnostic degree of coverage of 90%, which must be achieved by the external drive system.

Performance

Number of sine/cosine periods per revolution	1,024
Number of the absolute ascertainable revolutions	4,096
Total number of steps	134,217,728
Measuring step	0.3 Winkelsekunden For interpolation of the sine/cosine signals with, e. g., 12 bits
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)
Communication interface	HIPERFACE®
Available memory area	128 Byte

Electrical data

Supply voltage range	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	Tapered shaft
Flange type/stator coupling	Spring mounting plate / Spring mounting plate
Dimensions	See dimensional drawing
Weight	0.2 g
Moment of inertia of the rotor	10 gcm²
Operating speed	12,000 min^{-1}, 12,000 U/min
Angular acceleration	≤ 200,000 rad/s²
Operating torque	0.2 Ncm
Start up torque	0.4 Ncm
Permissible shaft movement, radial, static	± 0.5 mm
Permissible shaft movement, radial, dynamic	± 0.1 mm
Permissible shaft movement, axial, static	± 0.75 mm
Permissible shaft movement, axial, dynamic	± 0.2 mm
Angular motion perpendicular to the rotational axis, static	± 0.005 mm/mm
Angular motion perpendicular to the rotational axis, dynamic	± 0.0025 mm/mm
Life of ball bearings	3.6 x 10^9 revolutions
Connection type	Male connector M12, 8-pin

Ambient data

Operating temperature range	–30 °C ... +115 °C
Storage temperature range	–40 °C ... +125 °C, without package
Relative humidity/condensation	90 %, Condensation not permitted
Resistance to shocks	100 g, 10 ms, 10 ms (according to EN 60068-2-27)
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	IP40, 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.

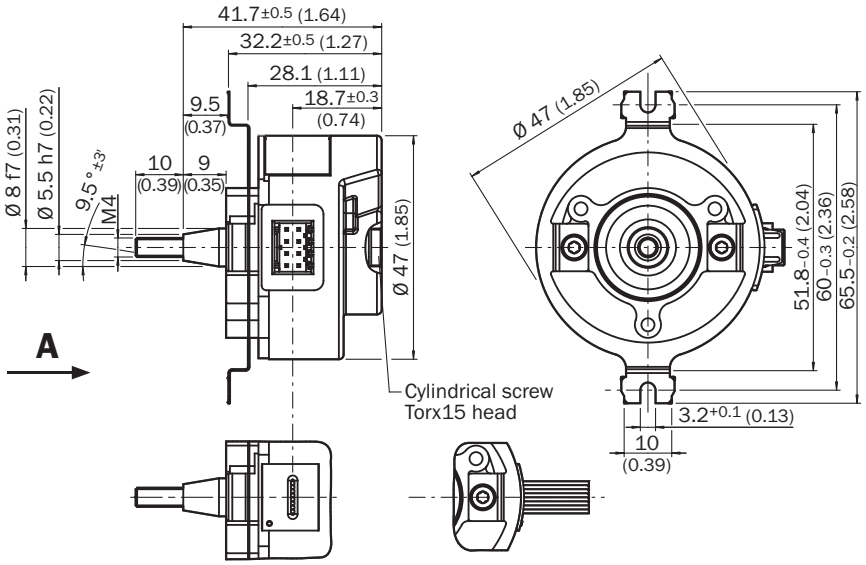
Classifications

ECl@ss 5.0	27270590
ECl@ss 5.1.4	27270590
ECl@ss 6.0	27270590

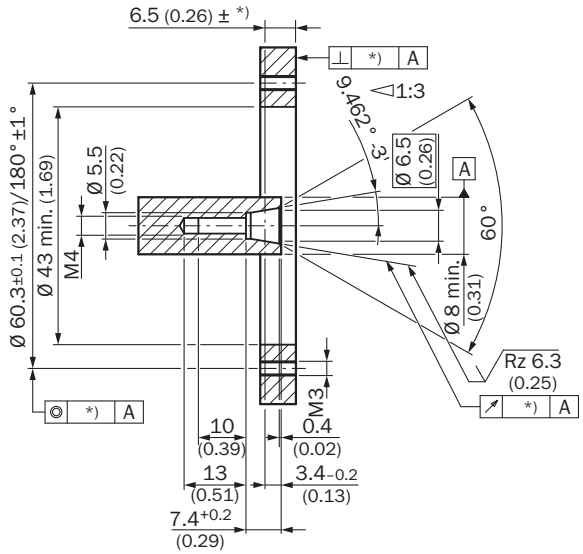
ECl@ss 6.2	27270590
ECl@ss 7.0	27270590
ECl@ss 8.0	27270590
ECl@ss 8.1	27270590
ECl@ss 9.0	27270590
ETIM 5.0	EC001486
ETIM 6.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

General tolerances according to DIN ISO 2768-mk



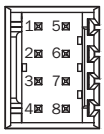
Proposed fitting



*) Size of tolerance reduce the allowed movement of the shaft see data sheet.

All dimensions in mm (inch)

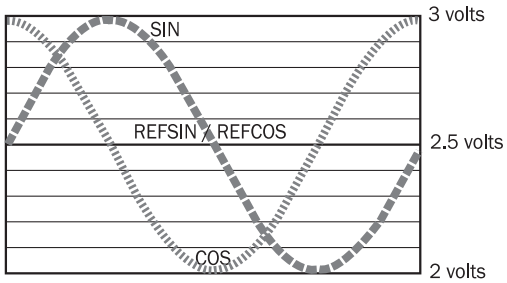
PIN assignment



PIN	Signal	Farbe der Adern	Erklärung
1	U_S	rot	7 ... 12 V Versorgungsspannung
2	GND	blau	Masseanschluss
3	REFSIN	braun	Prozessdatenkanal
4	REFCOS	schwarz	Prozessdatenkanal
5	Daten +	grau oder gelb	RS-485-Parameterkanal
6	Daten –	grün oder violett	RS-485-Parameterkanal
7	+ SIN	weiß	Prozessdatenkanal
8	+ COS	rosa	Prozessdatenkanal

Diagram

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/SRS_SRM50

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: cable Head B: cable Cable: HIPERFACE®, HIPERFACE®, drag chain use, PUR, halogen-free, shielded	LTG-2708-MW	6028361
	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

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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Contacts and other locations –www.sick.com