SRS50S-HFA0-K21

SRS/SRM50

MOTOR FEEDBACK SYSTEMS ROTARY HIPERFACE®

SICK
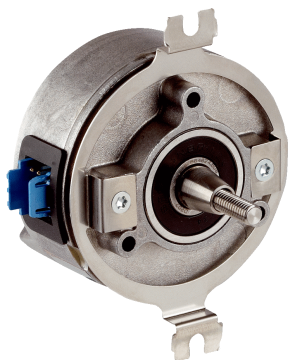Sensor Intelligence.

Ordering information

Type	Part no.
SRS50S-HFA0-K21	1051789

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

Illustration may differ

Detailed technical data

Safety-related parameters

Safety integrity level	SIL 2 (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

Sine/cosine periods per revolution	1,024
Number of the absolute ascertainable revolutions	1
Total number of steps	32,768
Measuring step	0.3 ″ For interpolation of the sine/cosine signals with, e. g., 12 bits
Integral non-linearity	Typ. ± 45 ″, Error limits for evaluating sine/cosine period, without mechanical tension of the stator coupling
Differential non-linearity	± 7 ″
Operating speed	≤ 6,000 min⁻¹, up to which the absolute position can be reliably produced
Available memory area	128 Byte
System accuracy	± 52 ″

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®

Electrical data

Connection type	Male connector, 8-pin, radial
Supply voltage	7 V DC ... 12 V DC
Recommended supply voltage	8 V DC
Current consumption	80 mA [1]
Output frequency for sine/cosine signals	≤ 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 kg
Moment of inertia of the rotor	10 gcm²
Operating speed	≤ 12,000 min^{-1}
Angular acceleration	≤ 200,000 rad/s²
Operating torque	0.2 Ncm
Start up torque	+ 0.4 Ncm
Permissible movement static	± 0.5 mm radial ± 0.75 mm axial
Permissible movement dynamic	± 0.1 mm radial ± 0.2 mm axial
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	3.6×10^9 revolutions

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 (EN 60068-2-6)
EMC	According to EN 61000-6-2 and EN 61000-6-3 [1]
Enclosure rating	IP40, with mating connector inserted (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-(0 V) connection of the supply voltage is also grounded here. If other shielding concepts are used, users must perform their own tests.

Classifications

ECLASS 5.0	27270590
ECLASS 5.1.4	27270590
ECLASS 6.0	27270590

|	
ECLASS 6.2	27270590
ECLASS 7.0	27270590
ECLASS 8.0	27270590
ECLASS 8.1	27270590
ECLASS 9.0	27270590
ECLASS 10.0	27273805
ECLASS 11.0	27273901
ECLASS 12.0	27273901
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

Dimensional drawing (Dimensions in mm (inch))

Spring mounting plate, tapered shaft
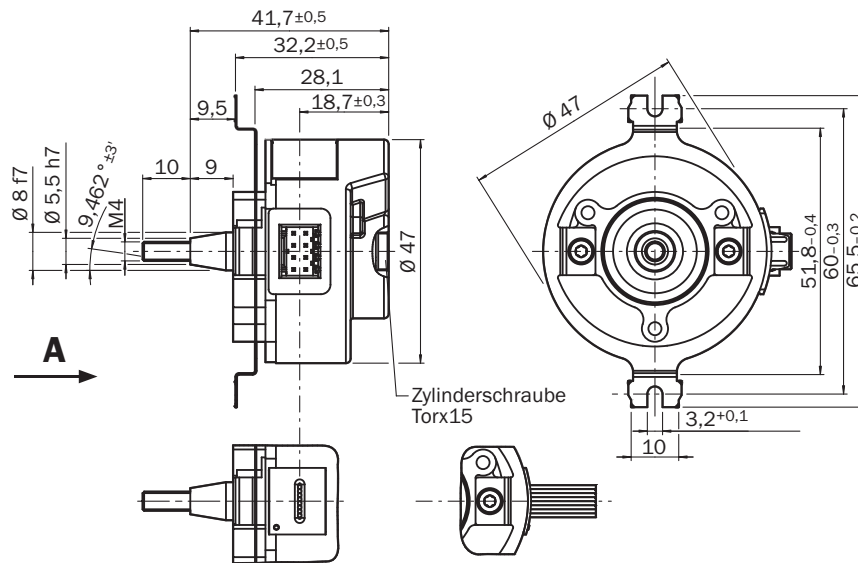
General tolerances according to ISO 2768-mk

PIN assignment
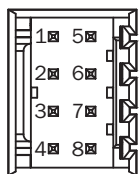
| PIN	Signal	Wire colors (cable connection)	Explanation
1	U_S	Red	Supply voltage

PIN	Signal	Wire colors (cable connection)	Explanation
2	GND	Blue	Ground connection
3	REFSIN	Brown	Process data channel
4	REFCOS	Black	Process data channel
5	Data +	Gray or yellow	Parameter channel RS 485
6	Data -	Green or purple	Parameter channel RS 485
7	+ SIN	White	Process data channel
8	+ COS	Pink	Process data channel

Diagrams

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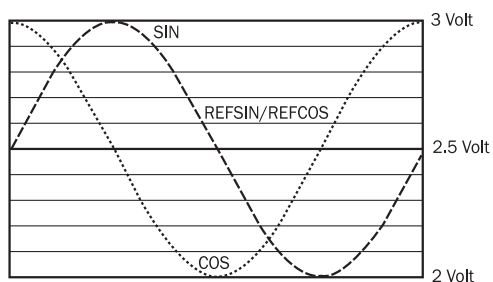
Signal diagram for clockwise rotation of the shaft looking in direction "A" (see dimensional drawing)1 period = 360 ° : 1024
Signal diagram for clockwise rotation of the shaft looking in direction "A" (see dimensional drawing)1 period = 360 ° : 1024
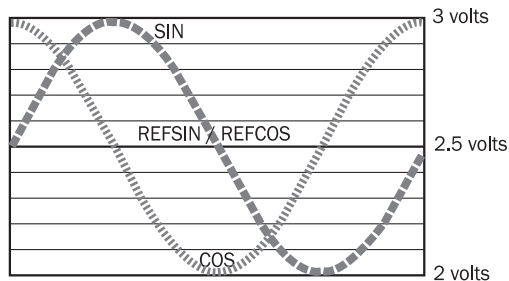
Recommended accessories

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

Brief description	Type	Part no.
Programming and configuration tools		
SVip® LAN programming tool for all motor feedback systems	PGT-11-S LAN	1057324
Spare parts		
BEF-MK-S02	BEF-MK-S02	2074582

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:

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