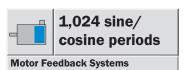
SinCos® SRS50, SRM50, SRS60, SRM60 SRS50 Standalone, SRM50 Standalone: Motor Feedback Systems with HIPERFACE®-Interface for Servo Motors



PERFACE



SRS/SRM series of motor feedback systems are used worldwide in many different applications and environments.

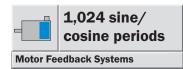
Absolute positioning with 32,768 steps per revolution and a maximum of 4,096 revolutions give a total resolution of 134,217,728 steps. Writing motor-specific data to the electronic type label and programming are important features of these series.

Select the motor feedback system to suit your individual requirements. Possible product variations:

- Plug-in shaft or tapered shaft with different stator supports
- 6 mm or 10 mm shaft with connector or cable exit
- Versions for integration, attachment, or standalone versions

SICK|STEGMANN

Motor Feedback System SRS50, SRM50, Plug-in Shaft Ø 7 mm

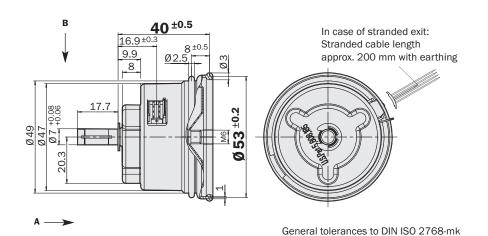


- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value

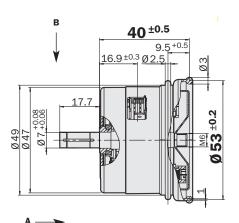
Electronic type label

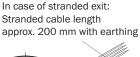


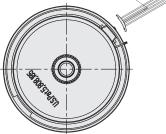
Dimensional drawing SRS50, rubber support Ø 50



Dimensional drawing SRM50, rubber support Ø 50







General tolerances to DIN ISO 2768-mk

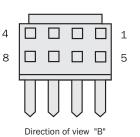
PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_s and GND are internally connected to the screen by capacitors of 2.2 nF.

Accessories
Connection technology
Fixing technology
Programming tool





Winter of sinc/cosine periods per revolution 1.024 Dimensions mm (see dimensional drawing)	Technical Data acc. to DIN 32878	Plug-in Shaft SRS/SRM50	SRS	SRM				
Dimensions mm (see dimensional drawing) Mass 0.2 kg Intertial rots moment 10 gcm ² Type of code for the absolute value Binary Code sequence for codexies shaft rotation, looking in Increasing Measurement step after generating arctan Increasing arctan Minits 2 ht resolution 0.3 angular seconds Increasing arctan Error limits for the digital absolute value ± 45 angular seconds Increasing arctan Maxing and position the absolute position Gandar arctan Increasing arctan Maxing angular acceleration position Gandar arctan Increasing arctan Maxing angular acceleration 0.					 	 	 	
Mass 0.2 kg 0.2 kg Inertial rotor for the absolute value Binary Code sequence for clockwise shaft rotation, looking in direction 'A' (reg dimension drawing) Increasing Measurement step after generating arctan	Number of sine/cosine periods per revolution	1,024						
Inertial rotor moment Type of code for the absolute value Binary	Dimensions	mm (see dimensional drawing)						
Type of code for the absolute value Binary Binary Code sequence for clockwise shaft rotation, looking in direction ''A' (read dimensional drawing) Increasing Measurement step after generating arctan 0.3 angular seconds Total number of steps Single SRS 32.768 Mult SRM 13.42.17.728 = 32.768 x 4.096 Increasing Total number of steps Single SRS 2.90 angular seconds Increasing For limits for the digital absolute value 445 angular seconds Increasing Vinit SRM 1.42.17.728 = 32.768 x 4.096 Increasing Mult SRM 1.42.17.728 = 32.768 x 4.096 Increasing Viniting after and innohime value 4.45 angular seconds Increasing Viniting after and innohimearity 4.14 angular seconds Increasing Output frequency for sine/cosine signals 0 200 kHz Increasing Working speed up to which the absolute position 0.20 kHz Increasing Max. aquar acceleration 0.2 k 10° rad/s² Increasing Increasing Oparating forque 0.2 Nom /in 1.4 Increasing Increasing	Mass	0.2 kg					 	
Code sequence for clockwise shaft rotation, looking in increasing	Inertial rotor moment	10 gcm ²					 	
lincreasing increasing increasin	Type of code for the absolute value	Binary					 	
Measurement step after generating arctan With 12 bit resolution 0.3 angular seconds With 12 bit resolution 0.3 angular seconds With 15 of the digital absolute value With 12 bit resolution With 12 bit resolu	Code sequence for clockwise shaft rotation, lo	oking in						
with 12 bit resolution 0.3 angular seconds Total number of steps Single SRS 32,768	direction "A" (see dimensional drawing)	Increasing					 	
Total number of steps Single SRS 32,768 Multi SRM 134,21,728 - 32,768 x 4.006 Fror limits for the digital absolute value 490 angular seconds Via RS 485 ± 90 angular seconds Error limits for evaluating the "1.024" signals. Integral non-linearity ± 45 angular seconds Output frequency for sine/cosine signals 0 200 KHz Working speed up to which the absolute position 0 200 KHz Max. angular acceleration 0.2 k 10° rad/s² Operating torque 0.2 Nom Starting torque 0.2 Nom Operating torque 0.4 Nom Angular motion, perpendicular to the totational axis 0 200 min ¹ Starting torque 0.2 Nom Angular motion, perpendicular to the totational axis 0.5 mm/± 0.75 mm Static r adial/axial ± 0.5 mm/± 0.75 mm dynamic r adial/axial ± 0.0005 mm/mm dynamic ± 0.0005 mm/mm 0.000 dynamic ± 0.0025 mm/mm 0.000 dynamic ± 0.0025 mm/mm 0.000 Static ± 0.0025 mm/mm 0.000 Opminsbib elatings 3.6 10° r	Measurement step after generating arctan							
Multi SRM 134.217.728 = 32.768 x 4.096 Error limits for the digital absolute value wirk RS 485 ± 90 angular seconds Error limits for evaluating the "1.024" signals. Integral non-linearity ± 45 angular seconds Output frequency for sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0200 kHz Working speed up to which the absolute position 0200 kHz Kax. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 N 00° min ⁴ Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.4 Ncm Permissible shaft movement 10.1 mm/± 0.2 mm statio radia/axial ± 0.5 mm/± 0.75 mm statio radia/axial ± 0.05 mm/± 0.75 mm statio ± 0.005 mm/± mm 10.1 mm/± 0.2 mm dynamic radia/axial ± 0.0 mm/± 0.2 mm Life of hall bearings 3.6 x 10° rotations 10.1 mm/± 0.2 mm Working temperature range - 20 + 115 ° C 10.1 mm/± 0.2 mm Perimsibile bearings 3.6 x 10° rotations 10.1 mm/± 0.2 mm	with 12 bit resolution	0.3 angular seconds						
Error limits for the digital absolute value via R5 485 ± 9 0 angular seconds via R5 485 ± 4 0 angular seconds via R5 485 ± 45 angular seconds via R5 485 ± 40 000 min 4 via operating speed 12.000 min 4 via operating speed 12.000 min 4 via operating speed 12.000 min 4 via operating speed 0.2 Ncm via color radia/axial ± 0.2 Ncm via C1 Ncm via C	Total number of stepsSingle SRS	32,768						
via RS 485 ± 90 angular seconds Fror limits for evaluating the "1.024" signals, integral non-linearity ± 45 angular seconds Non-linearity ± 45 angular seconds Non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position can be reliably produced 0.000 min ¹ Max. operating speed 12.000 min ² Operating torque 0.2 ktm Static 1.0.000 min ⁴ Angular acceleration 0.2 x 10 ⁶ radis/2 ² Operating torque 0.2 ktm Static 1.0.000 min ⁴ Angular motion, perpendicular to the rotational axis static 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to the rotational axis Statig 1.0.000 min/mm Angular motion, perpendicular to advection axis Statig 1.0.000 min/mm Angular motion, perpendicular to advection axis Statig 1.0.000 min/mm Angular motion, perpendicular to advection axis Statig 1.0.000 min/mm Angular motion, perpendicular to advection axis Statig 1.0.000 min/mm Angular motion, perpendicular to advection axis Statig 1.0.000 min/mm Angular motion packaging 1.000 min 1.10 ⁶ C Permissible relative humidity ^{an} 90 % Resistence Statig 2.0.000 min/me Angular motion axis Statig 2.0.000 min 1.10 ⁶ C Permissible relative humidity ^{an} 90 % Resistence Statig 2.0.000 min 1.10 ⁶ C Permissible relative humidity ^{an} 90 % Resistence Statig 2.0.00	Multi SRM	134,217,728 = 32,768 x 4,096						
Error limits for evaluating the "1,024" signals, integral non-linearity ± 45 angular seconds Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position can be reliably produced 6,000 min-1 Max. angular acceleration 0.2 x 10° rad/s ² Operating forque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static value/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static - 20.005 mm/mm dynamic ± 0.0025 mm/mm	Error limits for the digital absolute value							
integral non-linearity ± 45 angular seconds Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position can be reliably produced 6,000 min-1 Max. operating speed 12,000 min-1 Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm Angular motion, perpendicular to the rotational axis static ± 0.0005 mm/tm Angular motion, perpendicular to the rotational axis static ± 0.0005 mm/tm Angular motion, perpendicular to the rotational axis static ± 0.0005 mm/tm Angular motion, perpendicular to the rotational axis static ± 0.0025 mm/tm Angular seclerature range - 20+ 115 °C Storage tomperature range (without packaging) - 40+ 125 °C Permissible relative humidity ³¹ 90 % Resistance to shocks ² ³ 100/10 g/ms to shocks ² ³ 100/10 g/ms Kesistance Ke	via RS 485	± 90 angular seconds						
Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position 200 kHz can be reliably produced 6.000 min ⁻¹ Max. operating speed 12.000 min ⁻¹ Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 N cm Starting torque 0.4 N cm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static 10.005 mm/mm dynamic ± 0.0025 mm/mm Morking temperature range Working temperature range Vorking temperature range Maxingular acceleration Stating Angular motion, perpendicular to the rotational axis	Error limits for evaluating the "1,024" signals,							
differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position 6.000 min ⁻¹ Max. operating speed 12.000 min ⁻¹ Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement	integral non-linearity	± 45 angular seconds						
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Working speed up to which the absolute position can be reliably produced 6,000 min 1 Max. operating speed 12,000 min 1 Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement static static radia/axial ± 0.5 mm/± 0.75 mm dynamic radia/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm diadeplay Life of ball bearings 3.6 x 10° rotations diadeplay Working temperature range - 20 + 115 °C diadeplay Permissible relative humidity ¹⁰ 90 % diadeplay Resistance diadeplay diadeplay Us whort son 3 ³ 20/10 2000 g/Hz diadeplay Protection to IEC 60529 4 ¹ IP 40 diadeplay ENC 5 ³ 00/10 g/ms diadeplay Operating voltage range 7 12 V diadeplay Resource des upply voltage 8	differential non-linearity	± 7 angular seconds						
can be reliably produced 6,000 min ¹ Max. operating speed 12,000 min ¹ Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.2 Ncm Starting forque 0.4 Ncm Permissible shaft movement	Output frequency for sine/cosine signals	0 200 kHz						
Max. operating speed 12,000 min.1 Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement	Working speed up to which the absolute position	n						
Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.4 Ncm Starting torque 0.4 Ncm Permissible shaft movement static static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁰ 90 % Resistance - to vibration ³⁰ 20/10 2000 g/Hz Protection to IEC 60529 ⁴⁰ IP 40 EMC ⁵⁰ - Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area - within EEPROM 512 ⁶⁰ 128 bytes within EEPROM 512 ⁶⁰ 1,792 bytes	can be reliably produced	6,000 min ⁻¹						
Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm Utfe of ball bearings 3.6 x 10 ^o rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁰ 90 % Resistance - to shocks ²⁷ 100/10 g/ms to vibration ³¹ 20/10 2000 g/Hz Protection to IEC 60529 ⁴⁰ IP 40 ERC ⁵¹ - Operating voltage range 7 12 V Recommended supply voltage 8 V Max operating current, no load 80 mA Available memory area - within EEPROM 512 ⁶¹ 128 bytes within EEPROM 542 ⁶¹ 1,792 bytes Interface signals -	Max. operating speed	12,000 min ⁻¹						
Starting torque 0.4 Ncm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm Utfe of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁰ 90 % Resistance - to shocks ² 100/10 g/ms to shocks ² 100/10 g/ms eto K0 ⁵⁰ - Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area - within EEPROM 512 ⁶ 128 bytes within EEPROM 542 ⁶ 1,792 bytes	Max. angular acceleration	0.2 x 10 ⁶ rad/s ²						
Permissible shaft movement radial/axial ± 0.5 mm/± 0.75 mm static radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10 ⁹ rotations Working temperature range - 20 + 115 °C Pormissible relative humidity ¹ 90 % Resistance - to vibration ³ 20/10 2000 g/Hz Protection to IEC 60529 ⁴⁾ IP 40 EMC ⁵) IP 40 EMC ⁵) S0 mA Max. operating current, no load 80 mA Available memory area - within EEPROM 512 ° 128 bytes within EEPROM 528 1,792 bytes	Operating torque	0.2 Ncm						
static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.0005 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance to shocks ²) 100/10 g/ms to vibration 3° 20/10 2000 g/Hz Protection to IEC 60529 4°) IP 40 EMC 5° IP 40 Operating current, no load 80 wA Available memory area 128 bytes within EEPROM 512 °) 128 bytes within EEPROM 2048 °) 1,792 bytes	Starting torque	0.4 Ncm						
dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Permissible relative humidity ¹) 90 % Resistance to shocks ²) 100/10 g/ms to vibration 3 ¹ 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵ IP 40 Commended supply voltage 8 V Max. operating current, no load 80 mA Axallable memory area within EEPROM 512 ⁶) 128 bytes within EEPROM 2048 ⁶) 1,792 bytes	Permissible shaft movement							
Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance - to shocks ²) 100/10 g/ms 20/10 2000 g/Hz - Protection to IEC 60529 ⁴) IP 40 EMC ⁵) - Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area - within EEPROM 512 ⁶) 128 bytes within EEPROM 2048 ⁶) 1,792 bytes	static radial/axial	± 0.5 mm/± 0.75 mm						
static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance	dynamic radial/axial	± 0.1 mm/± 0.2 mm						
dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance - to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) - Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area - within EEPROM 512 °) 128 bytes within EEPROM 2048 °) 1,792 bytes	Angular motion, perpendicular to the rotational	axis						
Life of ball bearings 3.6 x 10 ⁹ rotations Working temperature range - 20 + 115 ° C Storage temperature range (without packaging) - 40 + 125 ° C Permissible relative humidity ¹) 90 % Resistance	static	± 0.005 mm/mm						
Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance	dynamic	± 0.0025 mm/mm						
Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance 100/10 g/ms to shocks ²) 100/10 g/ms 20/10 2000 g/Hz 100/10 g/ms Protection to IEC 60529 ⁴) IP 40 EMC ⁵) 100 Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 ⁶) 128 bytes within EEPROM 2048 ⁶) 1,792 bytes	Life of ball bearings							
Permissible relative humidity ¹) 90 % Resistance to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 ⁶) 128 bytes Interface signals	Working temperature range	- 20 + 115 °C						
Resistance to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) Image: Comparing voltage range Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area 128 bytes within EEPROM 512 ⁶) 1,792 bytes Interface signals Image: Comparing term	Storage temperature range (without packaging)	- 40 + 125 °C						
to shocks ²) 100/10 g/ms Image: constraint of the state of the	Permissible relative humidity ¹⁾	90 %						
to vibration 3) 20/10 2000 g/Hz Protection to IEC 60529 4) IP 40 EMC 5) IP 40 Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 6) 128 bytes 128 bytes Interface signals	Resistance							
Protection to IEC 60529 4) IP 40 EMC 5) Image: Similar Simila								
EMC ⁵) Image: Constraint of the second s								
Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 °) 128 bytes 1,792 bytes Interface signals		IP 40						
Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 °) 128 bytes interface signals								
Max. operating current, no load 80 mA Available memory area within EEPROM 512 ⁽⁶⁾ 128 bytes within EEPROM 2048 ⁽⁶⁾ 1,792 bytes								
Available memory area within EEPROM 512 °) 128 bytes within EEPROM 2048 °) 1,792 bytes Interface signals								
within EEPROM 512 ⁶) 128 bytes 128	Max. operating current, no load	80 mA						
within EEPROM 2048 ⁶) 1,792 bytes Interface signals	· · · · · · · · · · · · · · · · · · ·							
Interface signals	within EEPROM 512 ⁶⁾							
	within EEPROM 2048 ⁶⁾	1,792 bytes						
Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential			_					
	Process data channel = SIN, REFSIN, COS, REFCOS	-						
Parameter channel = RS 485 Digital Digital	Parameter channel = RS 485	Digital				 		

¹⁾ Condensation not permissible

²⁾ To EN 60068-2-27

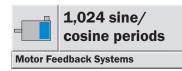
- 3) To EN 60068-2-6
- $^{\rm 4)}~$ With mating connector inserted
- ⁵⁾ To EN 61000-6-2 and 61000-6-3 The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

Users must perform their own tests when other screen designs are used.

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM50; plug-in shaft Ø 7mm; rubber support								
Туре	Part no.	Description						
SRS50-HAAO-K01	1034170	Single, 512 EEprom, connector						
SRS50-HAVO-K01	1034174	Single, 512 EEprom, stranded cable						
SRS50-HAA0-K02	1034171	Single, 2048 EEprom, connector						
SRS50-HAV0-K02	1034175	Single, 2048 EEprom, stranded cable						
SRM50-HAA0-K01	1034104	Multi, 512 EEprom, connector						
SRM50-HAV0-K01	1034109	Multi, 512 EEprom, stranded cable						
SRM50-HAA0-K02	1034105	Multi, 2048 EEprom, connector						
SRM50-HAV0-K02	1034110	Multi, 2048 EEprom, stranded cable						

Motor Feedback System SRS60, SRM60, Plug-in Shaft Ø 7 mm



revolution

1,024 sine/cosine periods per

Absolute position with a resolution

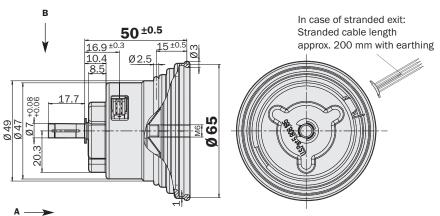
of 32,768 steps per revolution

■ 4,096 revolutions can be

measured (Multiturn)

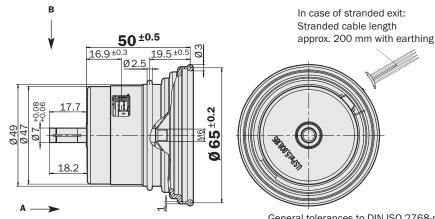
Programming of the positional value Electronic type label

Dimensional drawing SRS60, rubber support Ø 60



General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM60, rubber support Ø 60



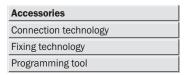
General tolerances to DIN ISO 2768-mk

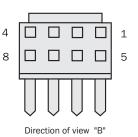
PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_{s} and GND are internally connected to the screen by capacitors of 2.2 nF.







4

Technical Data acc. to DIN 32878	Plug-in Shaft SRS/SRM60	SRS	SRM					
				 	 _	_	 	
Number of sine/cosine periods per revolution	1,024							
Dimensions	mm (see dimensional drawing)							
Mass	0.2 kg							
Inertial rotor moment	10 gcm ²							
Type of code for the absolute value	Binary							
Code sequence for clockwise shaft rotation, le	ooking in							
direction "A" (see dimensional drawing)	Increasing							
Measurement step after generating arctan								
with 12 bit resolution	0.3 angular seconds							
Total number of steps Single SRS	32,768							
Multi SRM	134,217,728 = 32,768 x 4,096							
Error limits for the digital absolute value								
via RS 485	± 90 angular seconds							
Error limits for evaluating the "1,024" signals,								
integral non-linearity	± 45 angular seconds							
Non-linearity within a sine/cosine period								
differential non-linearity	± 7 angular seconds							
Output frequency for sine/cosine signals	0 200 kHz							
Working speed up to which the absolute positi	on							
can be reliably produced	6,000 min ⁻¹							
Max. operating speed	12,000 min ⁻¹							
Max. angular acceleration	0.2 x 10 ⁶ rad/s ²							
Operating torque	0.2 Ncm							
Starting torque	0.4 Ncm							
Permissible shaft movement								
static radial/axial	± 0.5 mm/± 0.75 mm							
dynamic radial/axial	± 0.1 mm/± 0.2 mm							
Angular motion, perpendicular to the rotationa	l axis							
static	± 0.005 mm/mm							
dynamic	± 0.0025 mm/mm							
Life of ball bearings	3.6 x 10 ⁹ rotations							
Working temperature range	- 20 + 115 °C							
Storage temperature range (without packaging)	- 40 + 125 °C							
Permissible relative humidity ¹⁾	90 %							
Resistance								
to shocks ²)	100/10 g/ms							
to vibration ³⁾	20/10 2000 g/Hz							
Protection to IEC 60529 ⁴	IP 40							
EMC ⁵⁾								
Operating voltage range	7 12 V							
Recommended supply voltage	8 V							
Max. operating current, no load	80 mA							
Available memory area	4001							
within EEPROM 512 ⁶)	128 bytes							
within EEPROM 2048 ⁶⁾	1,792 bytes							
Interface signals								
Process data channel = SIN, REFSIN, COS, REFCOS	Analogue, differential							
Parameter channel = RS 485	Digital							

¹⁾ Condensation not permissible

²⁾ To EN 60068-2-27

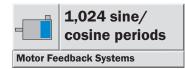
- 3) To EN 60068-2-6
- $^{\rm 4)}~$ With mating connector inserted
- ⁵⁾ To EN 61000-6-2 and 61000-6-3 The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

Users must perform their own tests when other screen designs are used.

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM60; plug-in shaft Ø 7mm; rubber support								
Туре	Part no.	Description						
SRS60-HAA0-K01	1034213	Single, 512 EEprom, connector						
SRS60-HAV0-K01	1034215	Single, 512 EEprom, stranded cable						
SRS60-HAA0-K02	1034214	Single, 2048 EEprom, connector						
SRS60-HAV0-K02	1034216	Single, 2048 EEprom, stranded cable						
SRM60-HAA0-K01	1034153	Multi, 512 EEprom, connector						
SRM60-HAV0-K01	1034155	Multi, 512 EEprom, stranded cable						
SRM60-HAA0-K02	1034154	Multi, 2048 EEprom, connector						
SRM60-HAV0-K02	1034156	Multi, 2048 EEprom, stranded cable						

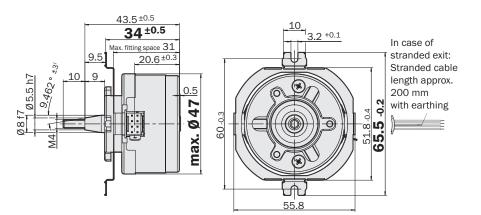
Motor Feedback System SRS50, SRM50, Tapered Shaft



- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value
- Electronic type label

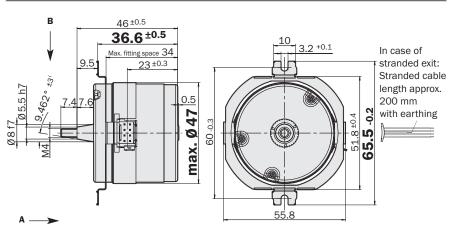


Dimensional drawing SRS50, spring mounting plate Ø 66



General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, spring mounting plate Ø 66



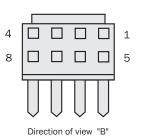
General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data –	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_{s} and GND are internally connected to the screen by capacitors of 2.2 nF.



Screening:

The encoder housing for the integrated encoder is connected to the motor, via the torque support. The connection space is thus screened via the motor housing such that, within the connection space, unscreened connection strands can be used.

Accessories
Connection technology
Fixing technology
Programming tool

Technical Data acc. to DIN 32878	Tapered Shaft SRS/SRM50	SRS	SRM				
	Tapered onart only on woo			 	 _		
Number of sine/cosine periods per revolution	1,024						
Dimensions	mm (see dimensional drawing)					 	
Mass	0.2 kg					 	
Inertial rotor moment	10 gcm ²					 	
Type of code for the absolute value	Binary					 	
Code sequence for clockwise shaft rotation, lo	ooking in						
direction "A" (see dimensional drawing)	Increasing					 	
Measurement step after generating arctan							
with 12 bit resolution	0.3 angular seconds						
Total number of stepsSingle SRS	32,768						
Multi SRM	134,217,728 = 32,768 x 4,096						
Error limits for the digital absolute value							
via RS 485	± 90 angular seconds						
Error limits for evaluating the "1,024" signals,							
integral non-linearity	± 45 angular seconds						
Non-linearity within a sine/cosine period							
differential non-linearity	± 7 angular seconds						
Output frequency for sine/cosine signals	0 200 kHz						
Working speed up to which the absolute position							
can be reliably produced	6,000 min ⁻¹						
Max. operating speed	12,000 min ⁻¹						
Max. angular acceleration	0.2 x 10 ⁶ rad/s ²						
Operating torque	0.2 Ncm						
Starting torque	0.4 Ncm						
Permissible shaft movement							
static radial/axial	± 0.5 mm/± 0.75 mm						
dynamic radial/axial	± 0.1 mm/± 0.2 mm						
Angular motion, perpendicular to the rotationa							
static	± 0.005 mm/mm						
dynamic	± 0.0025 mm/mm						
Life of ball bearings	3.6 x 10 ⁹ rotations						
Working temperature range	- 20 + 115 °C			 			
Storage temperature range (without packaging)	- 40 + 125 °C			 			
Permissible relative humidity ¹⁾	90 %						
Resistance	400/40 =/===						
to shocks ²)	100/10 g/ms						
to vibration ³⁾	20/10 2000 g/Hz						
Protection to IEC 60529 ⁴⁾ EMC ⁵⁾	IP 40						
	7 101/						
Operating voltage range	7 12 V						
Recommended supply voltage	8 V						
Max. operating current, no load	80 mA						
Available memory area	129 hytoc						
within EEPROM 512 ⁶)	128 bytes						
within EEPROM 2048 ⁶⁾	1,792 bytes						
Interface signals	Apploque differential						
Process data channel = SIN, REFSIN, COS, REFCOS	Analogue, differential						
Parameter channel = RS 485	Digital						

¹⁾ Condensation not permissible

²⁾ To EN 60068-2-27

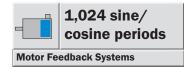
- 3) To EN 60068-2-6
- $^{\rm 4)}~$ With mating connector inserted
- ⁵⁾ To EN 61000-6-2 and 61000-6-3 The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

Users must perform their own tests when other screen designs are used.

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM50; tapered shaft; spring mounting plate								
Туре	Part no.	Description						
SRS50-HFA0-K01	1034222	Single, 512 EEprom, connector						
SRS50-HFV0-K01	1034185	Single, 512 EEprom, stranded cable						
SRS50-HFA0-K02	1034182	Single, 2048 EEprom, connector						
SRS50-HFV0-K02	1034186	Single, 2048 EEprom, stranded cable						
SRM50-HFA0-K01	1034118	Multi, 512 EEprom, connector						
SRM50-HFV0-K01	1034122	Multi, 512 EEprom, stranded cable						
SRM50-HFA0-K02	1034119	Multi, 2048 EEprom, connector						
SRM50-HFV0-K02	1034123	Multi, 2048 EEprom, stranded cable						

Motor Feedback System SRS50, SRM50, Tapered Shaft

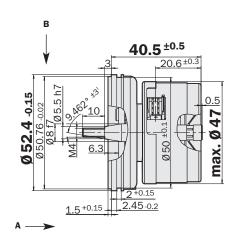


- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value

Electronic type label



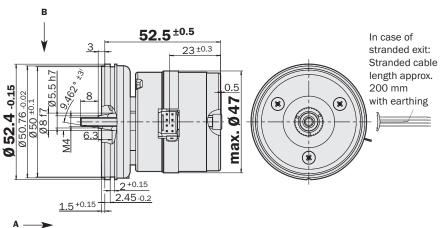
Dimensional drawing SRS50, resolver support \emptyset 52



In case of stranded exit: Stranded cable length approx. 200 mm with earthing

General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, resolver support Ø 52



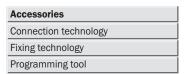
General tolerances to DIN ISO 2768-mk

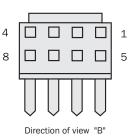
PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_s and GND are internally connected to the screen by capacitors of 2.2 nF.







Technical Data acc. to DIN 32878	Tapered Shaft SRS/SRM50	SRS	SRM					
			0.00		 	 	 	
Number of sine/cosine periods per revolution	1,024							
Dimensions	mm (see dimensional drawing)							
Mass	0.2 kg							
Inertial rotor moment	10 gcm ²							
Type of code for the absolute value	Binary							
Code sequence for clockwise shaft rotation, lo	ooking in							
direction "A" (see dimensional drawing)	Increasing							
Measurement step after generating arctan								
with 12 bit resolution	0.3 angular seconds							
Total number of steps Single SRS	32,768							
Multi SRM	134,217,728 = 32,768 x 4,096							
Error limits for the digital absolute value								
via RS 485	± 90 angular seconds							
Error limits for evaluating the "1,024" signals,								
integral non-linearity	± 45 angular seconds							
Non-linearity within a sine/cosine period								
differential non-linearity	± 7 angular seconds							
Output frequency for sine/cosine signals	0 200 kHz							
Working speed up to which the absolute position								
can be reliably produced	6,000 min ⁻¹							
Max. operating speed	12,000 min ⁻¹							
Max. angular acceleration	0.2 x 10 ⁶ rad/s ²							
Operating torque	0.2 Ncm							
Starting torque	0.4 Ncm							
Permissible shaft movement								
static radial/axial	± 0.25 mm/± 0.75 mm							
dynamic radial/axial	± 0.1 mm/± 0.2 mm							
Angular motion, perpendicular to the rotationa								
static	± 0.005 mm/mm				 			
dynamic	± 0.0025 mm/mm							
Life of ball bearings	3.6 x 10 ⁹ rotations							
Working temperature range	– 20 + 115 °C							
Storage temperature range (without packaging)	- 40 + 125 °C							
Permissible relative humidity ¹⁾	90 %							
Resistance			1					
to shocks ²⁾	100/10 g/ms							
to vibration ³⁾	20/10 2000 g/Hz							
Protection to IEC 60529 ⁴)	IP 40							
EMC ⁵)	7 40.1							
Operating voltage range	7 12 V							
Recommended supply voltage	8 V							
Max. operating current, no load	80 mA							
Available memory area	4001							
within EEPROM 512 ⁶⁾	128 bytes							
within EEPROM 2048 ⁶⁾	1,792 bytes							,
Interface signals	A 1 - 1100 - 11 - 1							,
Process data channel = SIN, REFSIN, COS, REFCOS	Analogue, differential							;
Parameter channel = RS 485	Digital							;

¹⁾ Condensation not permissible

²⁾ To EN 60068-2-27

3) To EN 60068-2-6

⁴⁾ With mating connector inserted

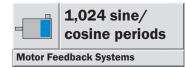
⁵⁾ To EN 61000-6-2 and 61000-6-3 The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

Users must perform their own tests when other screen designs are used.

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM50; tapered shaft; resolver support							
Туре	Part no.	Description					
SRS50-HGA0-K01	1034187	Single, 512 EEprom, connector					
SRS50-HGV0-K01	1034189	Single, 512 EEprom, stranded cable					
SRS50-HGA0-K02	1034188	Single, 2048 EEprom, connector					
SRS50-HGV0-K02	1034190	Single, 2048 EEprom, stranded cable					
SRM50-HGA0-K01	1034124	Multi, 512 EEprom, connector					
SRM50-HGV0-K01	1034127	Multi, 512 EEprom, stranded cable					
SRM50-HGA0-K02	1034125	Multi, 2048 EEprom, connector					
SRM50-HGV0-K02	1034128	Multi, 2048 EEprom, stranded cable					

Motor Feedback System SRS50, SRM50, Tapered Shaft

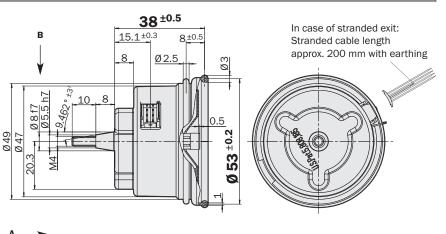


- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value

Electronic type label

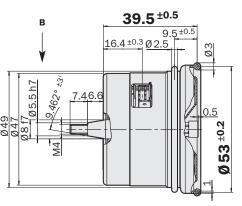


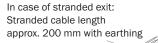
Dimensional drawing SRS50, rubber support Ø 50

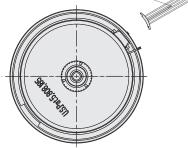


General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, rubber support Ø 50







A —

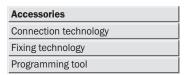
General tolerances to DIN ISO 2768-mk

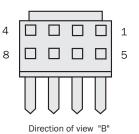
PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_{s} and GND are internally connected to the screen by capacitors of 2.2 nF.







Technical Data acc. to DIN 32878 Tapered Shaft SRS/SRM50 SRS SRM Image: SRM Number of sine/cosine periods per revolution 1,024 Image: SRM Image: SRM Image: SRM	
Dimensions mm (see dimensional drawing)	
Mass 0.2 kg	
Inertial rotor moment 10 gcm ²	
Type of code for the absolute value Binary	
Code sequence for clockwise shaft rotation, looking in	
direction "A" (see dimensional drawing) Increasing	
Measurement step after generating arctan	
with 12 bit resolution 0.3 angular seconds	
Total number of steps Single SRS 32,768	
Multi SRM 134,217,728 = 32,768 x 4,096	
Error limits for the digital absolute value	
via RS 485 ± 90 angular seconds	
Error limits for evaluating the "1,024" signals,	
integral non-linearity ± 45 angular seconds	
Non-linearity within a sine/cosine period	
differential non-linearity ± 7 angular seconds	
Output frequency for sine/cosine signals 0 200 kHz	
Working speed up to which the absolute position	
can be reliably produced 6,000 min ⁻¹	
Max. operating speed 12,000 min ⁻¹	
Max. angular acceleration 0.2 x 10 ⁶ rad/s ²	
Operating torque 0.2 Ncm	
Starting torque 0.4 Ncm	
Permissible shaft movement	
static radial/axial ± 0.5 mm/± 0.75 mm	
dynamic radial/axial ± 0.1 mm/± 0.2 mm	
Angular motion, perpendicular to the rotational axis	
static ± 0.005 mm/mm	
dynamic ± 0.0025 mm/mm	
Life of ball bearings 3.6 x 10 ⁹ rotations	
Working temperature range - 20 + 115 °C	
Storage temperature range (without packaging) - 40 + 125 °C	
Permissible relative humidity 1) 90 %	
Resistance	
to shocks ²⁾ 100/10 g/ms	
to vibration ³⁾ 20/10 2000 g/Hz	
Protection to IEC 60529 4) IP 40	
EMC ⁵)	
Operating voltage range 7 12 V	
Recommended supply voltage 8 V	
Max. operating current, no load 80 mA	
Available memory area	
within EEPROM 512 ⁶) 128 bytes	
within EEPROM 2048 ⁶⁾ 1,792 bytes	
Interface signals	
Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	
Parameter channel = RS 485 Digital	

¹⁾ Condensation not permissible

²⁾ To EN 60068-2-27

3) To EN 60068-2-6

⁴⁾ With mating connector inserted

⁵⁾ To EN 61000-6-2 and 61000-6-3 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. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

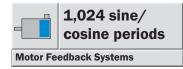
Users must perform their own tests when other screen designs are used.

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM50; tapered shaft; rubber support Ø 50 mm						
Туре	Part no.	Description				
SRS50-HEA0-K01	1034176	Single, 512 EEprom, connector				
SRS50-HEV0-K01	1034178	Single, 512 EEprom, stranded cable				
SRS50-HEA0-K02	1034177	Single, 2048 EEprom, connector				
SRS50-HEV0-K02	1034179	Single, 2048 EEprom, stranded cable				
SRM50-HEA0-K01	1034111	Multi, 512 EEprom, connector				
SRM50-HEV0-K01	1034114	Multi, 512 EEprom, stranded cable				
SRM50-HEA0-K02	1034112	Multi, 2048 EEprom, connector				
SRM50-HEV0-K02	1034115	Multi, 2048 EEprom, stranded cable				

Motor Feedback System SRS60, SRM60, Tapered Shaft

Dimensional drawing SRS60, rubber support Ø 60



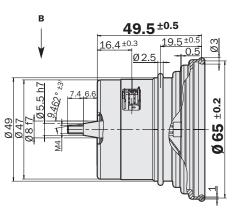
- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value

Electronic type label



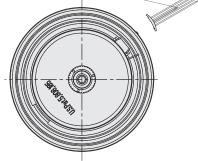
B ↓ ▼	48 ±0.5 <u>Ø2.5 15 ±0.5</u>	In case of stranded exit: Stranded cable length approx. 200 mm with earthing
049 047 047 047 047 05.5 h7 0 0462 +33	8.5 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	

Dimensional drawing SRM60, rubber support Ø 60



In case of stranded exit: Stranded cable length approx. 200 mm with earthing

General tolerances to DIN ISO 2768-mk



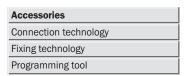
General tolerances to DIN ISO 2768-mk

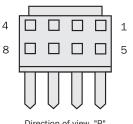
PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	Us	red	Supply voltage 7 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data channel
8	+ COS	pink	Process data channel

Caution: To ensure proper function, the screen connection strand (200 mm) MUST be connected. It is included in the supply.

 U_{s} and GND are internally connected to the screen by capacitors of 2.2 nF.





Direction of view "B'

Number of sine/cosine periods per revolution 1.024 Dimensions mm (see dimensional drawing) Mess 0.2 kg Dimensions 0.2 kg	Technical Data acc. to DIN 32	2272	Tapered Shaft SRS/SRM60	SRS	SRM					
Dimensions mm (see dimensional drawing) Immediate of the absolute value		2010					 	 	 	
Mess 0.2 kg Image: Control of the absolute value Binary Code sequence for clockwise shaft rotation, looking in direction ''A' (ee dimensional dawing) Image: Control of the disolute value Messurement step after generating arctan 0.3 angular seconds Image: Control of the disolute value Total number of step Single SRS 32, 768 Image: Control of the disolute value Yin SK 485 ± 90 angular seconds Image: Control of the disolute value Yin SK 485 ± 90 angular seconds Image: Control of the disolute value Yin SK 485 ± 90 angular seconds Image: Control of the disolute value Yin SK 485 ± 90 angular seconds Image: Control of the disolute value Yin SK 485 ± 90 angular seconds Image: Control of the disolute value Yin SK 485 ± 49 angular seconds Image: Control of the disolute value Working speed up to which the absolute position Image: Control of the absolute position Image: Control of the absolute position Max. angular accelaration 0.2 Nom Image: Control of the absolute position Image: Control of the absolute position Max. angular accelaration 0.2 Nom Image: Control of the absolute position Image: Control of the absolute position Max. angular accelaration 0.2 Nom Image: Control of the absolute position Image: Control of the absolute position <	Number of sine/cosine period	s per revolution	1,024							
Inertial rotor moment 10 gcm ² Type of code for the absolute value Binary Gode sequence for clockwise shaft rotation. Icoving in Increasing Measurement step after generalized ratum Increasing with 12 bit resolution 0.3 angular seconds Total number of steps Single SPS With 12 bit resolution 0.3 angular seconds Error limits for the digital absolute value Increasing With 18 steps 19 0 angular seconds Error limits for rotaluating the "1.024" signals. Integration Increasing ± 7 angular seconds Output frequency for sine/cosine signals 0.000 min 1 Max, angular acceleration 0.2 x 00 kir 2 Output frequency for sine/cosine signals 0.000 min 1 Max, angular acceleration 0.2 x 10° rad/s ² Operating torque 0.4 Ncm Parmissible absolue position Inmy 2.000 min 1 Max, angular acceleration 0.2 x 10° rad/s ² Operating torque 0.4 Ncm Parmissible absolue position Inmy 2.000 min 1 Max, angular acceleration 0.2 x 10° rad/s ² Operatin	Dimensions		mm (see dimensional drawing)							
Type of code for the absolute value Binary Binary Code sequence for clockwise shaft notation, looking in Indication X ² (see dimensional drawing) Increasing. Measurement step after generating arctam Indication X ² (see dimensional drawing) Increasing. Measurement step after generating arctam Indication X ² (see dimensional drawing) Increasing. Multi SRM 134,217,728 = 22,768 ± 0 Indication X ² (see dimensional drawing) Increasing. For limits for the digital absolute value ± 90 angular seconds Indication X ² (see dimensional drawing) Increasing. Forr limits for evaluating the "1,024" signals. Increasing. Increasing. Increasing. Monifieendin On-linearity ± 17 angular seconds Increasing. Increasing. Mority of the absolute poslubin 0,00	Mass		0.2 kg							
Code sequence for clockwise shaft rotation, looking in Increasing Increasing direction ** (see dimensional drawing) Increasing Increasing with 2 bit resolution 0.3 angular seconds Increasing Total number of stops Single SRS 22,768 Mutti< SRM 134,217,728 - 32,768 x 4,096 Increasing Error limits for the digital absolute value # 490 angular seconds Increasing Watti SRS 4S5 # 90 angular seconds Increasing Increasing Forre limits for evaluating the "1,024" signals. Increasing Increasing Increasing Working speed up to which the absolute position Increasing second Increasing Increasing Working speed up to which the absolute position Increasing second Increasing Increasing Starting torque 0.2 x 10° moly3° Increasing Increasing Increasing Operating torque 0.2 k nom /± 0.75 mm Increasing Increasing Increasing Vibrating torque 0.4 k cm Increasing Increasing Increasing Vibratin orgue 2.0 k mm/± 0.75 mm Incre	Inertial rotor moment		10 gcm ²							
direction "A" (ese dimessional drawing) increasing inc	Type of code for the absolute	value	Binary							
Messurent step after generating arctan with 12 bit resolution 0.3 angular seconds 0.3 angular seconds 0.4 angular seconds 0.5	Code sequence for clockwise	shaft rotation, lo	ooking in							
with 12 bit resolution 0.3 angular seconds Total number of steps Single SRS Multi SRM Multi SRM Fror limits for the digital absolute value via RS 485 ± 90 angular seconds Error limits for the digital absolute value integrat non-linearity ± 45 angular seconds Mon-linearity ± 7 angular seconds Output frequency for sinc/cosine period 1 differential non-linearity ± 7 angular seconds Output frequency for sinc/cosine signals 0 200 kHz Working speed up to which the absolute position 0.000 min ¹ ana reliably produced 6,000 min ¹ Max. angular acceleration 0.2 x 10 ⁶ raf/s ² Operating speed 12,000 min ⁴ Max. angular acceleration 0.2 x 10 ⁶ raf/s ² Operating torque 0.2 Ncm Starting torque 0.2 Ncm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm Working temperature range -20+ 115 °C Permissible relative humidity ³¹ 90 % Resistance 100/10 g/ms Disclas ³⁰ 100/10 g/ms	direction "A" (see dimensional d	rawing)	Increasing							
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Multi SRM 134.217.728 = 32,768 x 4,096 Error limits for the digital absolute value wirk R5 455 ± 90 angular seconds Error limits for evaluating the "1,024" signals, integral non-linearity ± 45 angular seconds Output frequency for sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0200 kHz Working speed 0.000 min ¹ Max. operating speed 12,000 min ¹ Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Operating torque 0.4 Ncm Starting torque 0.4 Ncm Permissible shaft movement 10.002 mm/m static radia/axial ± 0.5 mm/± 0.75 mm dynamic radia/axial ± 0.11 mm/± 0.275 mm dynamic radia/axial ± 0.11 mm/± 0.275 mm dynamic radia/axial ± 0.11 mm/± 0.275 mm dynamic 120/200 min/m 100/200 mm/m dynamic 120/200 mm/m 100/200 mm/m dynamic radia/axial ± 0.11 mm/± 0.275 mm dynamic 120/200 mm/m 100/200 mm/m Static	with 12 bit resolution		0.3 angular seconds							
Error limits for the digital absolute value via R3 485 ± 90 angular seconds Fror limits for evaluating the "1,024" signals, integral non-linearity within a sine/cosine period differential non-linearity within a sine/cosine period differential non-linearity within a sine/cosine signals 0 200 kHz Working speed up to which the absolute position can be reliably produced 6.000 min-1 Max. angular acceleration 0.2 x 10 ⁹ rad/s ²² Operating forque 0.2 Ncm 9 Can Partials View of the Vi	Total number of steps	Single SRS	32,768							
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Error limits for evaluating the "1,024" signals, ± 45 angular seconds integral non-linearity ± 45 angular seconds Output frequency for sine/cosine signals 0200 KHz Working speed up to which the absolute position 0200 KHz Gamma collection 0200 KHz Working speed up to which the absolute position 0200 min 1 Max. angular acceleration 0.2.x 10% rad/s² Operating torque 0.2.X 10% rad/s² Operating torque 0.2.X 10% rad/s² Permissible shaft movement 0	Error limits for the digital abso	olute value								
Integral non-linearity ± 45 angular seconds Non-linearity within a sin/cosine period differential non-linearity	via RS 485		± 90 angular seconds							
Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position an be reliably produced 6,000 min ¹ Max. operating speed 12,000 min ² Image: Speed 12,000 min ² Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Image: Speed 12,000 min ² Operating torque 0.4 Ncm Image: Speed 12,000 min ² Starting torque 0.4 Ncm Image: Speed 12,000 min ² Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Image: Speed 12,000 min ² Starting torque 0.4 Ncm Image: Speed 12,000 min ² Image: Speed 12,000 min ² Starting torque 0.4 Ncm Image: Speed 10,01 m/t 0.2 mm Image: Speed 12,000 min ² Image: Speed 12,000 min ² Image: Speed Image: Speed Image: Speed Image: Speed minit 1,000	Error limits for evaluating the	"1,024" signals,								
differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed 0.000 min-1 Max. operating speed 12.000 min-1 Max. angular acceleration 0.2 x 10 ^a rad/s ² Operating torque 0.2 N cm Starting torque 0.4 N cm Permissible shaft movement ************************************	integral non-linearity		± 45 angular seconds							
Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position can be reliably produced 6.000 min ¹ Max. operating speed 12,000 min ⁴ Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement	Non-linearity within a sine/co	sine period								
Working speed up to which the absolute position can be reliably produced 6,000 min ¹ Max. operating speed 12,000 min ¹ Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Operating torque 0.4 Ncm Permissible shaft movement	differential non-linearity		± 7 angular seconds							
can be reliably produced 6,000 min 1 Max. operating speed 12,000 min 1 Max. angular acceleration 0.2 x 10° rad/s² Operating forque 0.2 k Ncm Starting torque 0.4 Ncm Permissible shaft movement	Output frequency for sine/cos	sine signals	0 200 kHz							
Max. operating speed 12,000 min ⁻¹ Max. angular acceleration 0.2 x 10 ⁶ rad/s ² Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement	Working speed up to which th	e absolute positi	on			-				
Max. angular acceleration 0.2 x 10° rad/s² Operating torque 0.4 Ncm Starting torque 0.4 Ncm Permissible shaft movement	can be reliably produced		6,000 min ⁻¹							
Operating torque 0.2 Ncm Starting torque 0.4 Ncm Permissible shaft movement static static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm static ± 0.005 mm/mm dynamic ± 0.005 mm/mm dynamic ± 0.005 mm/mm dynamic dynamic ± 0.005 mm/mm Uffe of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁰ 90 % Resistance to shocks ²⁰ 100/10 g/ms Extended Extended to vibration ³⁰ 20/10 2000 g/Hz Protection to IEC 60529 ⁴⁾ IP 40 EMC ⁸	Max. operating speed		12,000 min ⁻¹							
Starting torque 0.4 Ncm Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm Uffe of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Permissible relative humidity ³ 90 % Resistance Permissible relative humidity ³ to shocks ² 100/10 g/ms to shocks ²⁰ 100/10 g/ms operating rotage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area	Max. angular acceleration		0.2 x 10 ⁶ rad/s ²							
Permissible shaft movement static radial/axial ± 0.5 mm/± 0.75 mm dynamic radial/axial ± 0.1 mm/± 0.2 mm Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm dynamic ± 0.0025 mm/mm Uff of ball bearings 3.6 x 10 ⁹ rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁰ 90 % Resistance to vibration ³¹ 20/10 2000 g/Hz Protection to IEC 60529 ⁴¹ IP 40 EMC ⁵⁰ Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA </th <th>Operating torque</th> <th></th> <th>0.2 Ncm</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Operating torque		0.2 Ncm							
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Angular motion, perpendicular to the rotational axis static ± 0.005 mm/mm dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance - to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) - Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area - within EEPROM 512 ⁶) 128 bytes within EEPROM 2048 ⁶) 1,792 bytes Interface signals - Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	static	radial/axial	± 0.5 mm/± 0.75 mm							
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dynamic ± 0.0025 mm/mm Life of ball bearings 3.6 x 10° rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹⁾ 90 % Resistance	Angular motion, perpendicula	r to the rotationa	l axis							
Life of ball bearings 3.6 x 10 ⁹ rotations Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹ 90 % Resistance	static		± 0.005 mm/mm							
Working temperature range - 20 + 115 °C Storage temperature range (without packaging) - 40 + 125 °C Permissible relative humidity ¹) 90 % Resistance 00/10 g/ms to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) 0 Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area 128 bytes within EEPROM 512 ⁶) 1,792 bytes Interface signals 1,792 bytes Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	dynamic		± 0.0025 mm/mm							
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Permissible relative humidity ¹) 90 % Resistance 100/10 g/ms to shocks ²) 100/10 g/ms to vibration ³) 20/10 2000 g/Hz Protection to IEC 60529 ⁴) IP 40 EMC ⁵) Image: Comparing the system of the system o	Working temperature range		- 20 + 115 °C							
Resistance to shocks 2) 100/10 g/ms to vibration 3) 20/10 2000 g/Hz Protection to IEC 60529 4) IP 40 EMC 5) IP 40 Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area 128 bytes within EEPROM 512 6) 1,792 bytes Interface signals Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	Storage temperature range (w	ithout packaging)	- 40 + 125 °C							
to shocks ²) 100/10 g/ms 20/10 2000 g/Hz	Permissible relative humidity	1)	90 %							
to vibration ³⁾ 20/10 2000 g/Hz Protection to IEC 60529 ⁴⁾ IP 40 EMC ⁵⁾ Operating voltage range 7 12 V Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 ⁶⁾ 128 bytes within EEPROM 2048 ⁶⁾ 1,792 bytes Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	Resistance									
Protection to IEC 60529 4) IP 40 EMC 5) Operating voltage range 7 12 V Recommended supply voltage 8 V Image: Constraint of the second secon										
EMC 5) Image: Constraint of the second s							 	 	 	
Operating voltage range 7 12 V Recommended supply voltage 8 V 8 V 80 mA Available memory area 128 bytes within EEPROM 512 ⁶) 128 bytes interface signals 1,792 bytes Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential			IP 40							
Recommended supply voltage 8 V Max. operating current, no load 80 mA Available memory area within EEPROM 512 ⁽⁶⁾ 128 bytes within EEPROM 2048 ⁽⁶⁾ 1,792 bytes Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential										
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Available memory area within EEPROM 512 ⁶) 128 bytes within EEPROM 2048 ⁶) 1,792 bytes Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential										
within EEPROM 512 ^(a) 128 bytes within EEPROM 2048 ^(a) 1,792 bytes Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential		ad	80 mA							
within EEPROM 2048 6) 1,792 bytes Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential Interface Int	Available memory area					· · · · ·				
Interface signals Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential			-							
Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential			1,792 bytes							
	Interface signals									
Parameter channel = RS 485 Digital		SIN, COS, REFCOS								
	Parameter channel = RS 485		Digital							

¹⁾ Condensation not permissible

2) To EN 60068-2-27

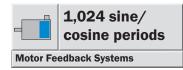
- 3) To EN 60068-2-6
- $^{\rm 4)}~$ With mating connector inserted
- ⁵⁾ To EN 61000-6-2 and 61000-6-3 The EMC according to the standards quoted is achieved when the motor feedback system is mounted in an electrically conductive housing, which is connected to the central earthing point of the motor controller via a cable screen. This is also where the GND (0 V) connection of the supply voltage is linked to earth.

Users must perform their own tests when other screen designs are used.

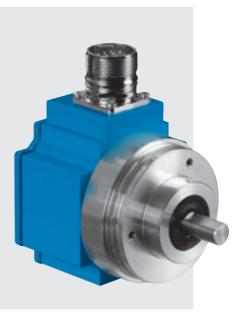
⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM60; tapered shaft; rubber support Ø 60 mm						
Туре	Part no.	Description				
SRS60-HEA0-K01	1034217	Single, 512 EEprom, connector				
SRS60-HEV0-K01	1034220	Single, 512 EEprom, stranded cable				
SRS60-HEA0-K02	1034218	Single, 2048 EEprom, connector				
SRS60-HEV0-K02	1034221	Single, 2048 EEprom, stranded cable				
SRM60-HEA0-K01	1034157	Multi, 512 EEprom, connector				
SRM60-HEV0-K01	1034160	Multi, 512 EEprom, stranded cable				
SRM60-HEA0-K02	1034158	Multi, 2048 EEprom, connector				
SRM60-HEV0-K02	1034161	Multi, 2048 EEprom, stranded cable				

Motor Feedback System SRS/M50, Standalone, Solid Shaft Ø 10 mm



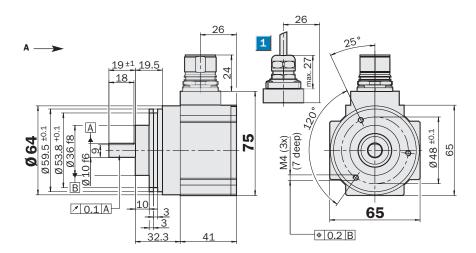
- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value
- Electronic type label



CE

Accessories	
Connection technology	
Fixing technology	
Programming tool	

Dimensional drawing SRS50 standalone, rectangular housing, face mount flange





General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	REFCOS	black	Process data channel
2	Data +	grey or yellow	RS-485-parameter channel
3	N. C.	-	N. C.
4	N. C.	-	N. C.
5	SIN	white	Process data channel
6	REFSIN	brown	Process data channel
7	Data -	green or purple	RS-485-parameter channel
8	COS	pink	Process data channel
9	N. C.	-	N. C.
10	GND	blue	Ground connection
11	N. C.	_	N. C.
12	Us	red	7 12 V Supply voltage



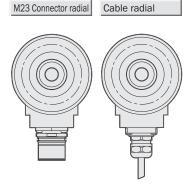
View of the plug-in face

Screen connection on connector housing

N. C. = Not connected

 ${\rm U}_{\rm S}$ and GND are internally connected to the screen by capacitors of 2.2 nF.

Type of connection





SRS/SRM50 Standalone

Number of sine/cosine periods per revolution 1,024 Dimensions mm (see dimensional drawing) Mass 0.550 kg Inertial rotor moment 25 gcm² Type of code for the absolute value Binary Code sequence for clockwise shaft rotation, looking in Increasing direction "A" (see dimensional drawing) Increasing Measurement step after generating arctan Increasing with 12 bit resolution 0.3 angular seconds Total number of steps Single SRS Single SRS 32,768 Multi SRM 134,217,728 = 32,768 x 4,096 Error limits for the digital absolute value via RS 485 ± 90 angular seconds Error limits for evaluating the "1,024" signals, integral non-linearity ± 45 angular seconds Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position Increasing can be reliably produced 6,000 min ⁻¹	
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Non-linearity within a sine/cosine period differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position	
differential non-linearity ± 7 angular seconds Output frequency for sine/cosine signals 0 200 kHz Working speed up to which the absolute position	
Working speed up to which the absolute position	
can be reliably produced 6.000 min ⁻¹	
Max. operating speed 6,000 min ⁻¹	
Max. angular acceleration 0.2 x 10 ⁶ rad/s ²	
Operating torque with shaft sealing ring 1 Ncm	
Starting torque with shaft sealing ring 1,5 Ncm	
Load capacity of shaft radial/axial 40 N/20 N	
Life of ball bearings 3.6 x 10 ⁹ rotations	
Working temperature range - 20 + 85 °C	
Storage temperature range - 30 + 90 °C	
Permissible relative humidity ¹) 90 %	
Resistance	
to shocks ²) 30/11 g/ms	
to vibration ³) 20/10 2000 g/Hz	
Protection to IEC 60529 4) IP 65	
EMC ⁵⁾	
Operating voltage range 7 12 V	
Recommended supply voltage 8 V	
Max. operating current, no load 80 mA	
Available memory area	
within EEPROM 512 ⁶) 128 bytes	
within EEPROM 2048 ⁶⁾ 1,792 bytes	
Interface signals	
Process data channel = SIN, REFSIN, COS, REFCOS Analogue, differential	
Parameter channel = RS 485 Digital	

 $^{\mbox{\scriptsize 1)}}$ Condensation not permissible

²⁾ To EN 60068-2-27

3) To EN 60068-2-6

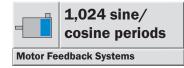
⁴⁾ With mating connector inserted

 $^{\rm 5)}~$ To EN 61000-6-2 and 61000-6-3 ~

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

ordering information		
SRS/SRM50 standalone; solid shaf	t Ø 10 mm; clampin	g flange
Туре	Part no.	Description
SRS50-HWA0-K01	1034192	Single, 512 EEprom, connector M23
SRS50-HWV0-K01	1034194	Single, 512 EEprom, cable 1.5 m
SRS50-HWA0-K02	1034193	Single, 2048 EEprom, connector M23
SRS50-HWV0-K02	1034195	Single, 2048 EEprom, cable 1.5 m
SRM50-HWA0-K01	1034130	Multi, 512 EEprom, connector M23
SRM50-HWV0-K01	1034133	Multi, 512 EEprom, cable 1.5 m
SRM50-HWA0-K02	1034131	Multi, 2048 EEprom, connector M23
SRM50-HWV0-K02	1034134	Multi, 2048 EEprom, cable 1.5 m

Motor Feedback System SRS/M50, Standalone, Solid Shaft Ø 6 mm



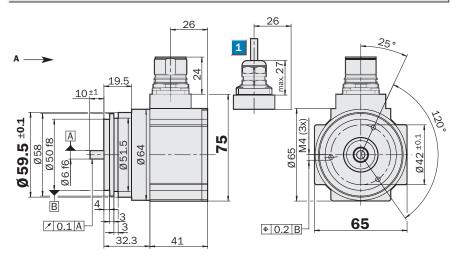
- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value
- Electronic type label

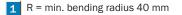


CE

Accessories
Connection technology
Fixing technology
Programming tool

Dimensional drawing SRS50 standalone, rectangular housing, servo flange





General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	REFCOS	black	Process data channel
2	Data +	grey or yellow	RS-485-parameter channel
3	N. C.	-	N. C.
4	N. C.	-	N. C.
5	SIN	white	Process data channel
6	REFSIN	brown	Process data channel
7	Data -	green or purple	RS-485-parameter channel
8	COS	pink	Process data channel
9	N. C.	-	N. C.
10	GND	blue	Ground connection
11	N. C.	-	N. C.
12	Us	red	7 12 V Supply voltage



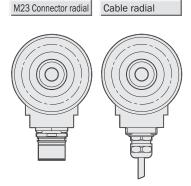
View of the plug-in face

Screen connection on connector housing

N. C. = Not connected

 ${\rm U}_{\rm S}$ and GND are internally connected to the screen by capacitors of 2.2 nF.

Type of connection





SRS/SRM50 Standalone

Technical Data acc. to DIN 328	378 Stand	alone, Servo Fl. SRS/SRM50	SRS	SRM					
						 _	 	_	
Number of sine/cosine periods	per revolution	1,024							
Dimensions		mm (see dimensional drawing)							
Mass		0.550 kg							
Inertial rotor moment		25 gcm ²							
Type of code for the absolute va	lue	Binary							
Code sequence for clockwise s	haft rotation, lo	oking in							
direction "A" (see dimensional of		Increasing							
Measurement step after genera	ating arctan								
with 12 bit resolution		0.3 angular seconds							
Total number of steps	Single SRS	32,768							
	Multi SRM	134,217,728 = 32,768 x 4,096							
Error limits for the digital absol	ute value								
via RS 485		± 90 angular seconds							
Error limits for evaluating the "	1,024" signals,								
integral non-linearity		± 45 angular seconds							
Non-linearity within a sine/cosi	ne period								
differential non-linearity		± 7 angular seconds							
Output frequency for sine/cosi	ne signals	0 200 kHz							
Working speed up to which the	absolute position	on							
can be reliably produced		6,000 min ⁻¹							
Max. operating speed		6,000 min ⁻¹							
Max. angular acceleration		0.2 x 10 ⁶ rad/s ²							
Operating torque with shaft sea	ling ring	1 Ncm							
Starting torque with shaft sealir	ng ring	1.5 Ncm							
Load capacity of shaft	radial/axial	40 N/20 N							
Life of ball bearings		3.6 x 10 ⁹ rotations							
Working temperature range		– 20 + 85 °C							
Storage temperature range		– 30 + 90 °C							
Permissible relative humidity 1)		90 %							
Resistance									
to shocks ²⁾		30/11 g/ms							
to vibration ³⁾		20/10 2000 g/Hz							
Protection to IEC 60529 ⁴⁾		IP 65							
EMC ⁵⁾									
Operating voltage range		7 12 V							
Recommended supply voltage		8 V							
Max. operating current, no load	l	80 mA							
Available memory area									
within EEPROM 512 ⁶⁾		128 bytes							
within EEPROM 2048 6)		1,792 bytes				 	 		
Interface signals									
Process data channel = SIN, REFSI	N, COS, REFCOS	Analogue, differential							
Parameter channel = RS 485		Digital							

 $^{\mbox{\scriptsize 1)}}$ Condensation not permissible

²⁾ To EN 60068-2-27

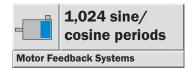
- 3) To EN 60068-2-6
- ⁴⁾ With mating connector inserted

 $^{\rm 5)}~$ To EN 61000-6-2 and 61000-6-3 ~

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

ordering information		
SRS/SRM50 standalone; solid sha	ft Ø 6 mm; servo flar	ıge
Туре	Part no.	Description
SRS50-HXA0-K01	1034197	Single, 512 EEprom, connector M23
SRS50-HXV0-K01	1034199	Single, 512 EEprom, cable 1.5 m
SRS50-HXA0-K02	1034198	Single, 2048 EEprom, connector M23
SRS50-HXV0-K02	1034200	Single, 2048 EEprom, cable 1.5 m
SRM50-HXA0-K01	1034136	Multi, 512 EEprom, connector M23
SRM50-HXV0-K01	1034138	Multi, 512 EEprom, cable 1.5 m
SRM50-HXA0-K02	1034137	Multi, 2048 EEprom, connector M23
SRM50-HXV0-K02	1034139	Multi, 2048 EEprom, cable 1.5 m

Motor Feedback System SRS/M50, Standalone, Solid Shaft Ø 3/8"



- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value

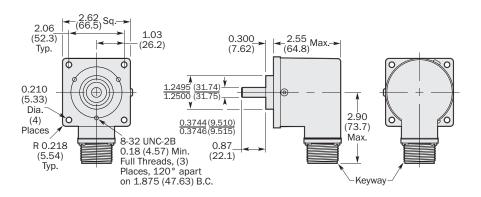
Electronic type label



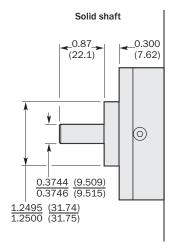
CE

Accessories	
Connection technology	
Fixing technology	
Programming tool	

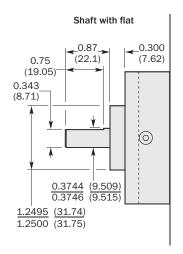
Dimensional drawing SRS/M50 Standalone, square flange mount



All dimensions in inch, dimensions within brackets in mm.



Dimensional Drawing Shaft Options



All dimensions in inch, dimensions within brackets in mm.

PIN and wire allocation

PIN	Wire colour	Signal	Explanation
A	Red	+ U _s	7 12 V Supply voltage
В	Blue	GND	Ground connection
С	Brown	Ref SIN	Process data channel
D	Black	Ref COS	Process data channel
E	Grey	Data +	RS 485 parameter channel
F	Green	Data -	RS 485 parameter channel
G	White	SIN	Process data channel
Н	Pink	COS	Process data channel
I	N. C.		
J	Case	Case	



Pin side view MS/10 Screen connection on connector housing

N. C. = Not connected

 ${\sf U}_{\sf S}$ and GND are internally connected to the screen by capacitors of 2.2 nF.

SRS/SRM50 Standalone

Technical Data acc. to DIN 32878 Standalone,	square mount fl. SRS/SRM50	SRS	SRM				
Number of sine/cosine periods per revolution	1,024						
Dimensions	mm (see dimensional drawing)						
Mass	0.482 kg						
Inertial rotor moment	28.8 gcm ²						
Type of code for the absolute value	Binary						
Code sequence for clockwise shaft rotation, lo	oking in						
direction "A" (see dimensional drawing)	Increasing						
Measurement step after generating arctan							
with 12 bit resolution	0.3 angular seconds						
Total number of steps Single SRS	32,768						
Multi SRM	134,217,728 = 32,768 x 4,096						
Error limits for the digital absolute value							
via RS 485	± 90 angular seconds						
Error limits for evaluating the "1,024" signals,							
integral non-linearity	± 45 angular seconds						
Non-linearity within a sine/cosine period							
differential non-linearity	± 7 angular seconds						
Output frequency for sine/cosine signals	0 200 kHz						
Working speed up to which the absolute position	on						
can be reliably produced	6,000 min ⁻¹						
Max. operating speed without shaft seal	6,000 min ⁻¹						
Max. operating speed with shaft seal	3,000 min ⁻¹						
Max. angular acceleration	5 x 10 ⁵ rad/s ²						
Max. Operating torque	1 Ncm						
Starting torque with shaft sealing ring	1.5 Ncm						
Load capacity of shaft radial/axial	155 N/88 N						
Life of ball bearings	3.6 x 10 ⁹ rotations						
Working temperature range	– 20 + 85 °C						
Storage temperature range	– 30 + 90 °C						
Permissible relative humidity ¹⁾	90 %						
Resistance			-				
to shocks ²⁾	100/10 g/ms						
to vibration ³⁾	20/10 2000 g/Hz						
Protection to IEC 60529 ⁴⁾	IP 66			 			
EMC ⁵⁾				 			
Operating voltage range	7 12 V			 			
Recommended supply voltage 8 V							
Max. operating current, no load	80 mA						
Available memory area							
within EEPROM 512 ⁶⁾	128 bytes			 		 	
Interface signals				 			
Process data channel = SIN, REFSIN, COS, REFCOS	Analogue, differential						
Parameter channel = RS 485	Digital						

 $^{\mbox{\tiny 1)}}$ Condensation not permissible

²⁾ To EN 60068-2-27

- 3) To EN 60068-2-6
- ⁴⁾ With mating connector inserted

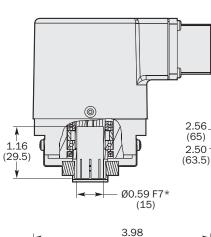
 $^{\rm 5)}~$ To EN 61000-6-2 and 61000-6-3 ~

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

SRS/SRM50 star	ndalone; solid shaft	Ø 3/8"; square flange 2.5"
Туре	Part no.	Description
SRS50-HTA0-K01	1035765	Single, solid shaft, connector MS/10
SRS50-HUA0-K01	1035766	Single, solid shaft with flat, connector MS/10
SRM50-HTA0-K01	1035762	Multi, solid shaft, connector MS/10
SRM50-HUA0-K01	1035763	Multi, solid shaft with flat, connector MS/10

Motor Feedback System SRS/M50, Standalone, Blind hollow shaft 15 mm

Dimensional drawing SRS/M50 Standalone, blind hollow shaft



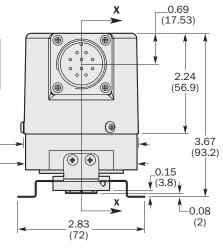
0.79 (20)

20

(101)

Ø2.48

(63)



* 0.59 (15) is the maximum bore size. Smaller bores are realized through interchangable collets.

All dimensions in inch, dimensions within brackets in mm.

CE

Accessories	
Connection technology	
Fixing technology	
Programming tool	



Ø0.126+0.003

(3.2+0.1)

Pin side view MS/10

Screen connection on connector housing

N. C. = Not connected

 U_S and GND are internally connected to the screen by capacitors of 2.2 nF.

Accessories
Connection technology
Fixing technology

1,024 sine/ cosine periods

1,024 sine/cosine periods per

■ 4,096 revolutions can be

measured (Multiturn)

Programming of the

Electronic type label

positional value

Absolute position with a resolution of 32,768 steps per revolution

Motor Feedback Systems

revolution

SRS/SRM50 Standalone

Technical Data acc. to DIN 32878	Standalone, b	lind hollow shaft, SRS/SRM50	SRS	SRM				
Number of sine/cosine periods pe	er revolution	1,024						
Dimensions		mm (see dimensional drawing)						
Mass		0.482 kg						
Inertial rotor moment		50 gcm ² max.						
Type of code for the absolute value	e	Binary						
Code sequence for clockwise sha	ft rotation, lo	oking in						
direction "A" (see dimensional dra	wing)	Increasing						
Measurement step after generati	ng arctan							
with 12 bit resolution		0.3 angular seconds						
Total number of steps S	ingle SRS	32,768						
N	Iulti SRM	134,217,728 = 32,768 x 4,096						
Error limits for the digital absolute	e value							
via RS 485		± 90 angular seconds						
Error limits for evaluating the "1,0	24" signals,							
integral non-linearity		± 45 angular seconds						
Non-linearity within a sine/cosine	period							
differential non-linearity		± 7 angular seconds						
Output frequency for sine/cosine	signals	0 200 kHz						
Max. operating speed with shaft s	eal	3,000 min ⁻¹						
Max. angular acceleration		5 x 10 ⁵ rad/s ²						
Max. Operating torque		1.8 Ncm						
Starting torque with shaft sealing	ring	2.6 Ncm						
Allowable runout								
static/dynamic radial movement		± 0.3/± 0.1 mm						
static/dynamic axial movement		± 0.5/± 0.2 mm						
Life of ball bearings		3.6 x 10 ⁹ rotations						
Working temperature range		– 20 + 85 °C						
Storage temperature range		– 30 + 90 °C						
Permissible relative humidity ¹⁾		90 %						
Resistance								
to shocks ²⁾		100/10 g/ms						
to vibration ³⁾		20/10 2000 g/Hz						
Protection to IEC 60529 ⁴⁾		IP 66						
EMC ⁵⁾								
Operating voltage range		7 12 V						
Recommended supply voltage		8 V						
Max. operating current, no load		80 mA						
Available memory area								
within EEPROM 512 ⁶⁾		128 bytes						
Interface signals					 			
Process data channel = SIN, REFSIN, (COS, REFCOS	Analogue, differential						
Parameter channel = RS 485		Digital						

 $^{\mbox{\scriptsize 1)}}$ Condensation not permissible

²⁾ To EN 60068-2-27

3) To EN 60068-2-6

⁴⁾ With mating connector inserted

 $^{\rm 5)}~$ To EN 61000-6-2 and DIN 61000-6-3 ~

⁶⁾ If applying the elctronic type label, in connection with numeric controllers, attention should be paid to Patent EP 425 912 B 2; Application of the electronic type label in connection with speed regulation is exempt.

Ordering information

SRS/SRM50 standalone; blind hollow shaft Ø 15 mm			
Туре	Part no.	Description	
SRS50-HPA0-K01	1035764	Single, blind hollow shaft, connector MS/10	
SRM50-HPA0-K01	1035761	Multi, blind hollow shaft, connector MS/10	

Collets					
Туре	Part no.	Size			
SPZ-006-AD-A	2029174	6 mm			
SPZ-1E4-AD-A	2029175	1/4"			
SPZ-008-AD-A	2029176	8 mm			
SPZ-3E8-AD-A	2029177	3/8"			
SPZ-010-AD-A	2029178	10 mm			
SPZ-012-AD-A	2029179	12 mm			
SPZ-1E2-AD-A	2029180	1/2"			
Attention: Diagon order the Collet with required diameter					

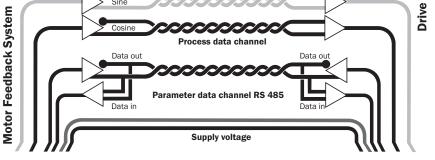
Attention: Please order the Collet with required diameter separately

SRS/SRM50/60

Electrical interface

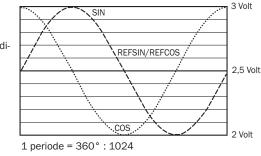


Safe data transmission
High information content
Electronic type label
Sine
Cosine



Signal specification of the process data channel

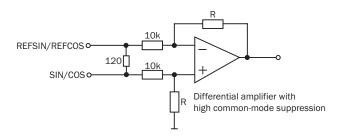
Signal diagram for clockwise rotation of the shaft, looking in direction "A"



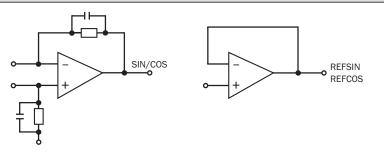
Access to the process data used for speed control, i.e. to the sine and cosine signals, is practically always "online". When the supply voltage is applied, the speed controller has access to this information at any time. Sophisticated technology guarantees stable amplitudes of the analogue signals across all specified environmental conditions, with a maximum variation of only 20%.

Characteristics applicable to all permissible environmental conditions signal			
Signal	Values/Units		
Signal peak, peak V _{ss} of SIN, COS	0.9 1.1 V		
Signal offset REFSIN, REFCOS	2.2 2.8 V		

Recommended receiver circuit for sine and cosine signals



The output circuit of the process data channel within the SinCos encoder



SRS/SRM50/60



Type-specific settings	SRS	SRM
Type ID (command 52h)	22h	27h
Free EEPROM [bytes]	128/1,792	128/1,792
Address	40h	40h
Mode_485	E4h	E4h
Codes 0 3	55h	55h
Counter	0	0

Overview of c	Overview of commands supported			SRM
Command byte	Function	Code 0 1)	Comments	Comments
42h	Read position			
43h	Set position	•		
44h	Read analogue value		Channel number 48h	Channel number 48h
			Temperature [°C]	Temperature [°C]
46h	Read counter			
47h	Increase counter			
49h	Reset counter	•		
4Ah	Read data			
4Bh	Save data			
4Ch	Determine status of a data field			
4Dh	Create data field			
4Eh	Determine available memory area			
4Fh	Change access code			
50h	Read encoder status			
52h	Read out name plate		Encoder type = 22h	Encoder type = 27h
53h	Encoder reset			
55h	Allocate encoder address	•		
56h	Read serial number and program version			
57h	Configure serial interface	•		

 The commands thus labelled include the parameter "Code 0".
 Code 0 is a byte inserted into the protocol, for additional safeguarding of vital system parameters against accidental overwriting.
 When shipped, "Code 0" = 55h

Error type	Status code	Description	SRS	SRM
	00h	The encoder has recognised no error	•	•
Initialisation	01h	Faulty compensating data	•	•
	02h	Faulty internal angular offset	•	•
	03h	Data field partitioning table damaged	•	•
	04h	Analogue limit values not available	•	•
	05h	Internal I ² C bus not operational	•	•
	06h	Internal checksum error	•	•
Protocol	07h	Encoder reset occurred as a result of program monitoring	•	•
	09h	Parity error	•	•
	OAh	Checksum of the data transmitted is incorrect	•	•
	OBh	Unknown command code	•	•
	OCh	Number of data transmitted is incorrect	•	•
	0Dh	Command argument transmitted is not allowed	•	•
Data	OEh	The selected data field must not be written to	•	•
	OFh	Incorrect access code	•	•
	10h	Size of data field stated cannot be changed	•	•
	11h	Word address stated, is outside data field	•	•
	12h	Access to non-existent data field	•	•
Position	01h	Analogue signals outside specification	•	•
	1Fh	Speed too high, no position formation possible	•	•
	20h	Singleturn position unreliable	•	•
	21h	Positional error Multiturn		•
	22h	Positional error Multiturn		•
	23h	Positional error Multiturn		•
Other	1Ch	Monitoring the value of the analogue signals (process data)		
	1Dh	Transmitter current critical (dirt, transmitter breakage)	•	•
	1Eh	Encoder temperature critical	•	•
	08h	Counter overflow	•	•

Accessories Connection Technology/Fixing Technology/Programming Tool

Dimensional drawings and ordering information

Accessories for SRS/M 50 Standalone

Programming tool for HIPERFACE®-devices			
Туре	Part no.	Motor Feedback System	
PGT-03-S	1034252	SRS/SRM50 standalone	

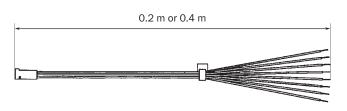
Servo clamp small, set (contents 3 off) for servo flanges Type Part no. BEF-WK-SF 2029166

General tolerances to DIN ISO 2768-mk

Stranded cable/connector, straight, 8 wires, 8 x 0.24 mm²

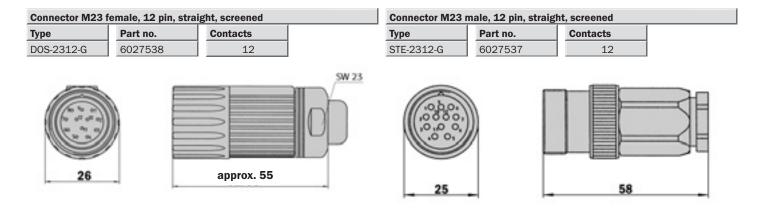
Туре	Part no.	Contacts	Wire length
DOL-OB08-GOM2XB1	2031081	8	0.2 m
DOL-OB08-GOM4XB1	2031083	8	0.4 m

8



HIPERFACE® cable, 8 wires, supplied by the metre 4 x 2 x 0.15 mm², screened, flexible Type Part no. Cores

Туре	Part no.	Cor
LTG-2708-MW	6028361	



Dimensional drawings and ordering information

Туре	Part no.	Contacts	Cable length
DOL-2308-G1M5JB2	2031069	12	1.5 m
DOL-2308-G03MJB2	2031070	12	3.0 m
DOL-2308-G05MJB2	2031071	12	5.0 m
DOL-2308-G10MJB2	2031072	12	10.0 m
DOL-2308-G15MJB2	2031073	12	15.0 m

Cable connector M23, 12 pin, straight, cable 8 core, HIPERFACE[®], screened

Connection Systems

Mating Connectors fit in for MS/10		
Туре	Part no.	PIN
DOS-MS10-G	7102129	10 Pin

Cable and Connector Assembly MS/10, 10 pin, straight, cable 8 core

Туре	Part no.	Length
DOL-MS10-G1M5MA3	7102160	1.5 m
DOL-MS10-G03MMA3	7102161	3 m
DOL-MS10-G05MMA3	7102162	5 m
DOL-MS10-G10MMA3	7102163	10 m
DOL-MS10-G20MMA3	7102164	20 m
DOL-MS10-G30MMA3	7102165	30 m

Interchangeable Collets fpr Hub Shaft Mounting

Collets		
Туре	Part no.	Size
SPZ-006-AD-A	2029174	6 mm
SPZ-1E4-AD-A	2029175	1/4"
SPZ-008-AD-A	2029176	8 mm
SPZ-3E8-AD-A	2029177	3/8"
SPZ-010-AD-A	2029178	10 mm
SPZ-012-AD-A	2029179	12 mm
SPZ-1E2-AD-A	2029180	1/2" mm

26 SICK-STEGMANN

Australia

Phone +61 3 9497 4100 1800 33 48 02 - tollfree E-Mail sales@sick.com.au

Belgium/Luxembourg Phone +32 (0)2 466 55 66 E-Mail info@sick.be

Brasil Phone +55 11 3215-4900 E-Mail sac@sick.com.br

Ceská Republika Phone +420 2 57 91 18 50 E-Mail sick@sick.cz

China Phone +852-2763 6966 E-Mail ghk@sick.com.hk

Danmark Phone +45 45 82 64 00 E-Mail sick@sick.dk

Deutschland Phone +49 211 5301-250 E-Mail info@sick.de

España Phone +34 93 480 31 00 E-Mail info@sick.es

France Phone +33 1 64 62 35 00 E-Mail info@sick.fr

Great Britain Phone +44 (0)1727 831121 E-Mail info@sick.co.uk

India

Phone +91-22-2822 7084 E-Mail info@sick-india.com

Italia Phone +39 022 743 41 E-Mail info@sick.it

Japan

Phone +81 (0)3 3358 1341 E-Mail support@sick.jp

Nederlands Phone +31 (0)30 229 25 44 E-Mail info@sick.nl

Norge

Phone +47 67 81 50 00 E-Mail austefjord@sick.no

Österreich

Phone +43 (0)22 36 62 28 8-0 E-Mail office@sick.at

Polska

Phone +48 22 837 40 50 E-Mail info@sick.pl

Republic of Korea

Phone +82-2 786 6321/4 E-Mail kang@sickkorea.net

Republika Slowenija Phone +386 (0)1-47 69 990 E-Mail office@sick.si

România

Phone +40 356 171 120 E-Mail office@sick.ro

Russia

Phone +7 495 775 05 34 E-Mail denis.kesaev@ sickautomation.ru

Schweiz

Phone +41 41 619 29 39 E-Mail contact@sick.ch

Singapore

Phone +65 6744 3732 E-Mail admin@sicksgp.com.sg Suomi

Phone +358-9-25 15 800 E-Mail sick@sick.fi

Sverige

Phone +46 10 110 10 00 E-Mail info@sick.se

Taiwan

Phone +886 2 2365-6292 E-Mail sickgrc@ms6.hinet.net Türkiye Phone +90 216 587 74 00 E-Mail info@sick.com.tr

USA

Phone +1 937-454-1956 E-Mail sales@stegmann.com

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