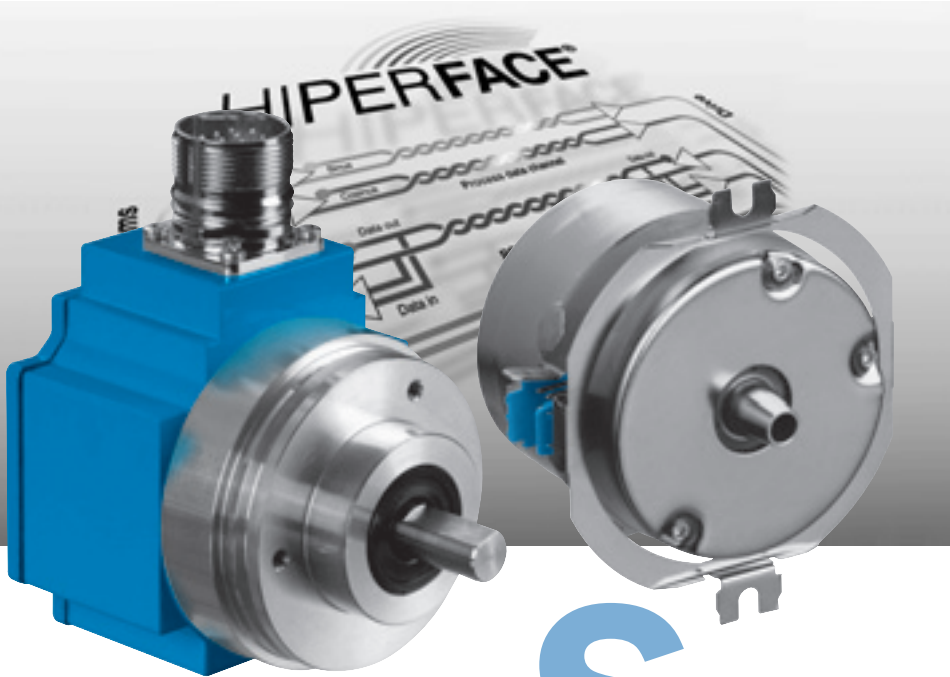


SinCos® SRS50, SRM50, SRS60, SRM60 SRS50 Standalone, SRM50 Standalone: Motor Feedback Systems with HIPERFACE®- Interface for Servo Motors




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

	1,024 sine/ cosine periods
Motor Feedback Systems	



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.



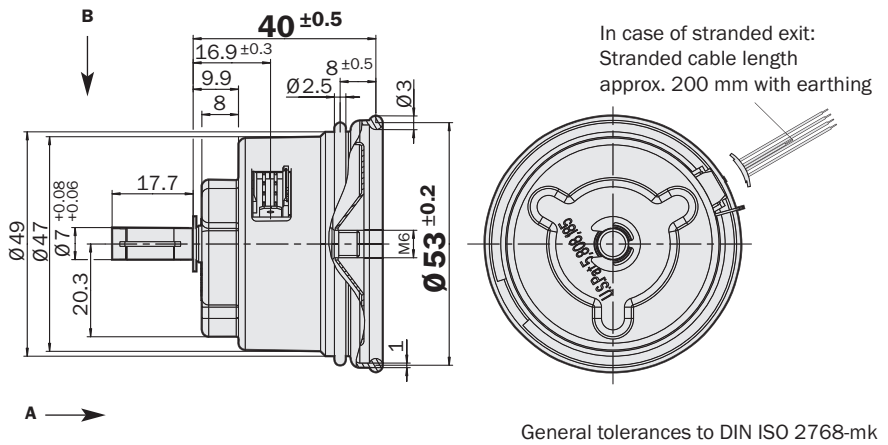
SICK | STEGMANN

1,024 sine/cosine periods

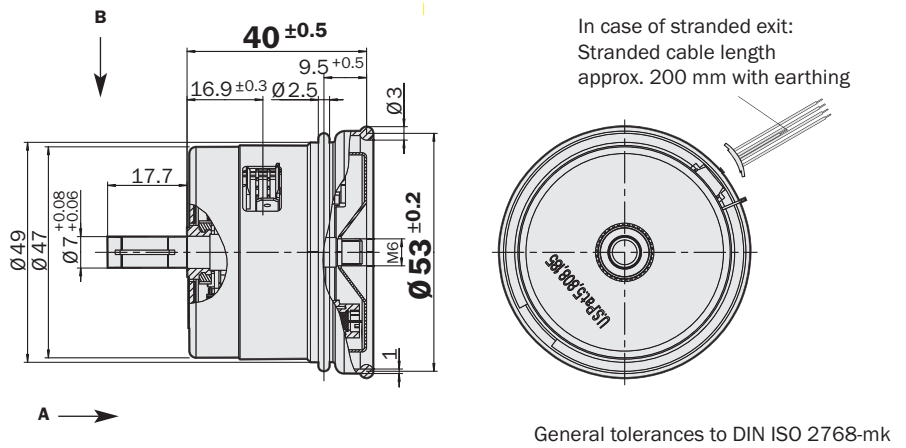
Motor Feedback Systems

- 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 \varnothing 50



Dimensional drawing SRM50, rubber support \varnothing 50

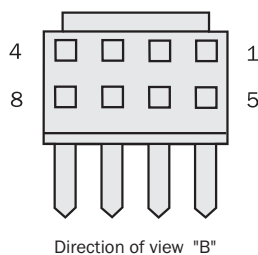


PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	U _s	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

Technical Data acc. to DIN 32878		Plug-in Shaft SRS/SRM50	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, 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 electronic 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; plug-in shaft Ø 7mm; rubber support		
Type	Part no.	Description
SRS50-HAA0-K01	1034170	Single, 512 EEPROM, connector
SRS50-HAV0-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

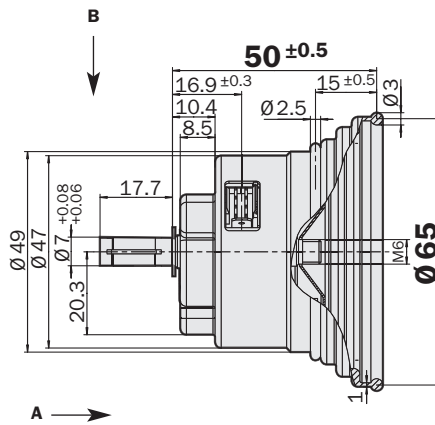
1,024 sine/cosine periods

Motor Feedback Systems

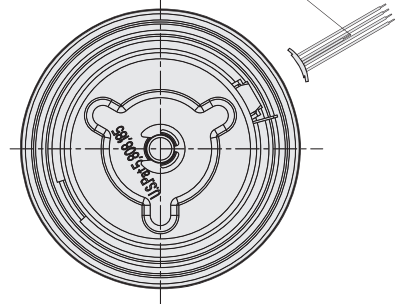
- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value
- Electronic type label



Dimensional drawing SRS60, rubber support Ø 60

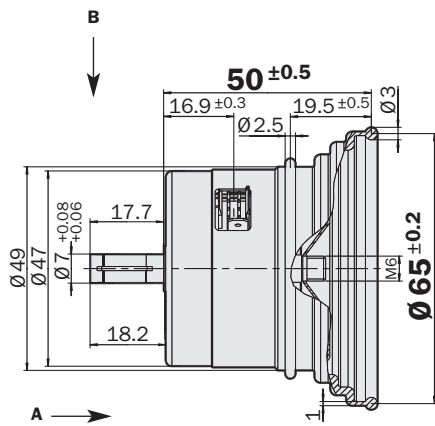


In case of stranded exit:
Stranded cable length
approx. 200 mm with earthing

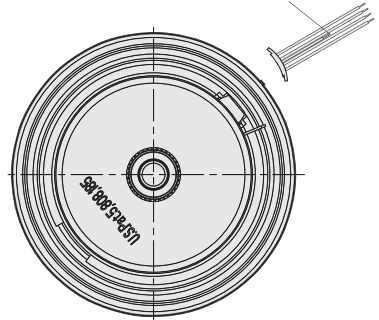


General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM60, rubber support Ø 60



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



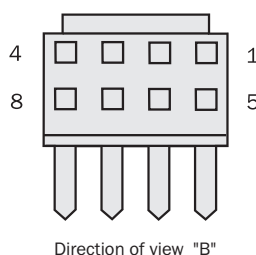
General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	U _s	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

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, looking in direction "A" (see dimensional drawing)											
direction "A"	Increasing										
Measurement step after generating arctan with 12 bit resolution											
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											
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 electronic 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.

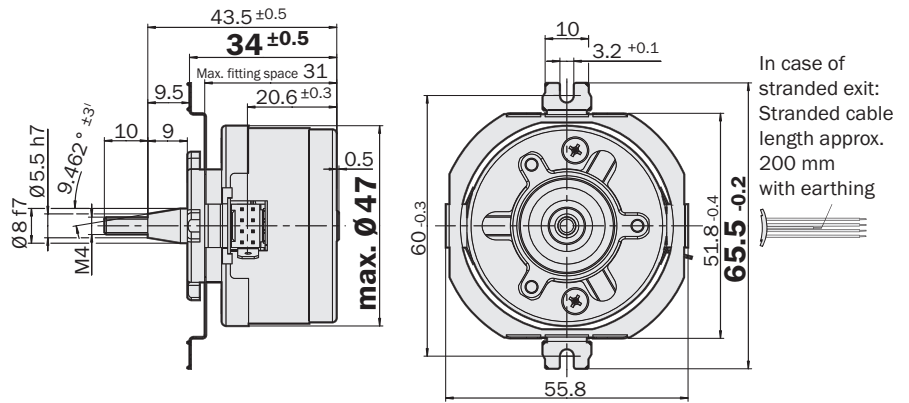
Ordering information		
SRS/SRM60; plug-in shaft Ø 7mm; rubber support		
Type	Part no.	Description
SRS60-HAA0-K01	1034213	Single, 512 EEPROM, connector
SRS60-HAV0-K01	1034215	Single, 512 EEPROM, stranded cable
SRS60-HAA0-K02	1034214	Single, 2048 EEPROM, connector
SRS60-HAV0-K02	1034216	Single, 2048 EEPROM, 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

1,024 sine/cosine periods

Motor Feedback Systems

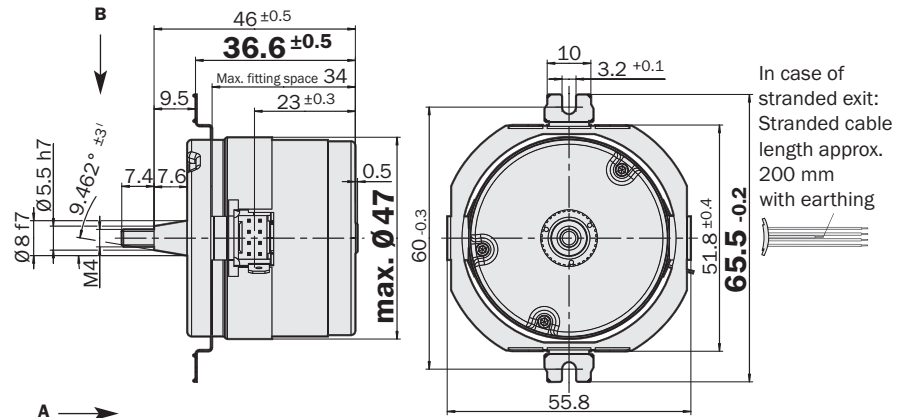
- 1,024 sine/cosine periods per revolution
- Absolute position with a resolution of 32,768 steps per revolution
- 4,096 revolutions can be measured (Multiturn)
- Programming of the positional value
- Electronic type label

Dimensional drawing SRS50, spring mounting plate Ø 66

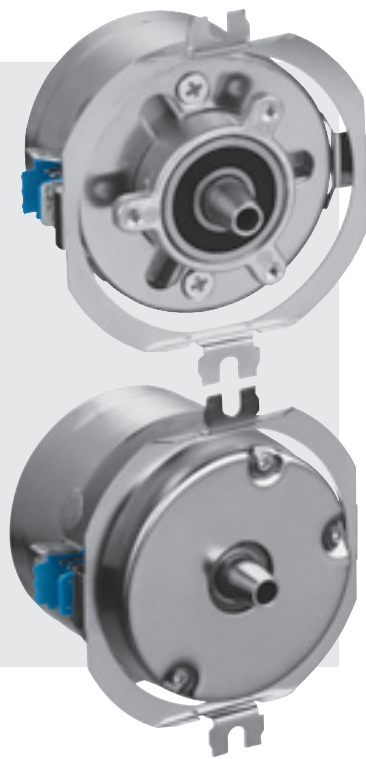


General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, spring mounting plate Ø 66



General tolerances to DIN ISO 2768-mk



PIN and wire allocation

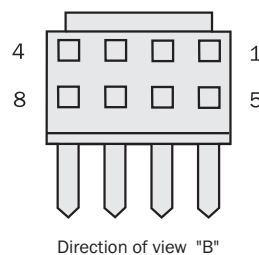
PIN	Signal	Colour of Wires	Explanation
1	U _s	red	Supply voltage 7 ... 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data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



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.

Technical Data acc. to DIN 32878		Tapered Shaft SRS/SRM50	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, 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 electronic 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.

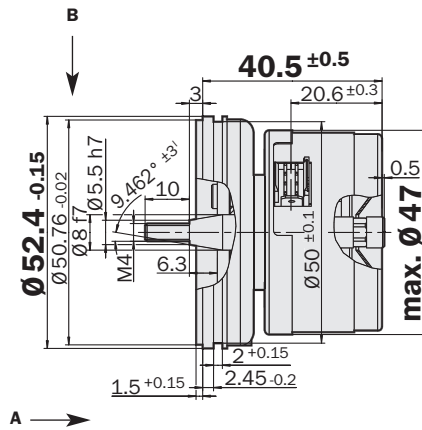
Ordering information		
SRS/SRM50; tapered shaft; spring mounting plate		
Type	Part no.	Description
SRS50-HFA0-K01	1034222	Single, 512 EEPROM, connector
SRS50-HFV0-K01	1034185	Single, 512 EEPROM, stranded cable
SRS50-HFA0-K02	1034182	Single, 2048 EEPROM, connector
SRS50-HFV0-K02	1034186	Single, 2048 EEPROM, 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

1,024 sine/cosine periods

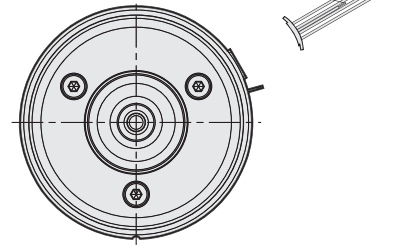
Motor Feedback Systems

- 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 $\varnothing 52$

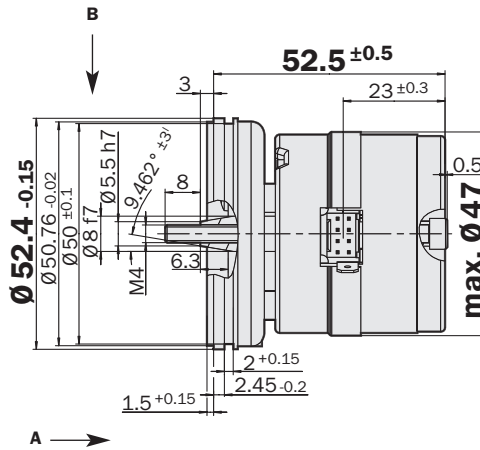


In case of stranded exit:
Stranded cable length
approx. 200 mm with earthing

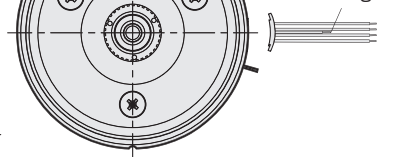


General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, resolver support $\varnothing 52$



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



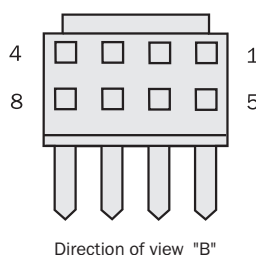
General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	U_s	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

Technical Data acc. to DIN 32878		Tapered Shaft SRS/SRM50	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, 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	± 0.25 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 electronic 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; tapered shaft; resolver support		
Type	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

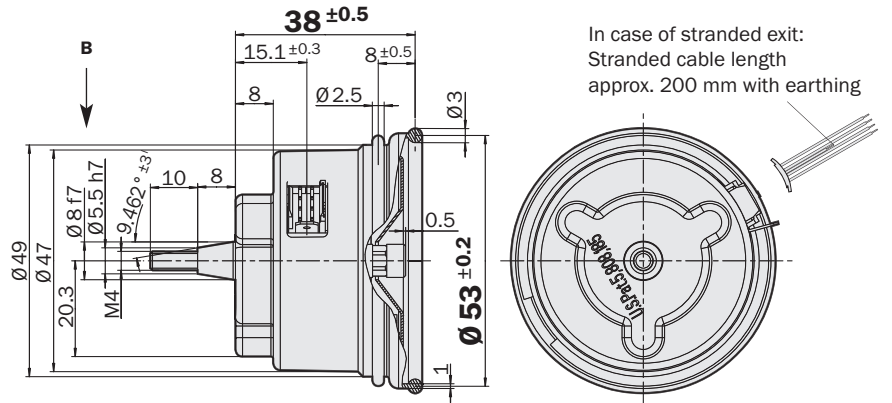
1,024 sine/cosine periods

Motor Feedback Systems

- 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

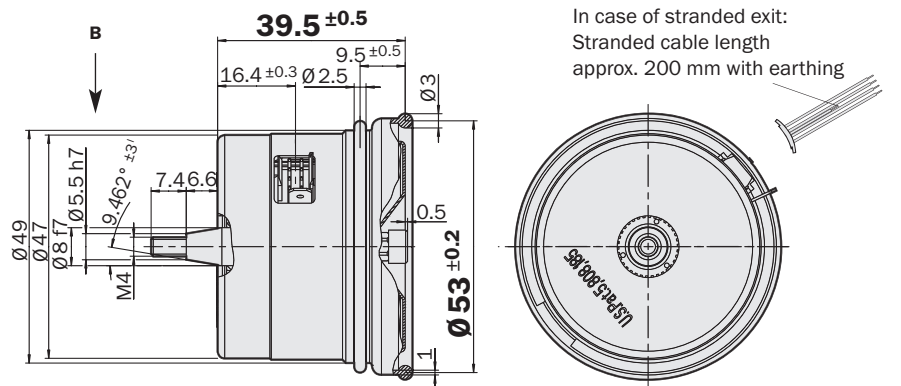


Dimensional drawing SRS50, rubber support Ø 50



General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM50, rubber support Ø 50



General tolerances to DIN ISO 2768-mk

PIN and wire allocation

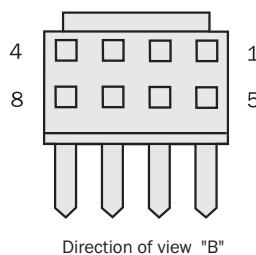
PIN	Signal	Colour of Wires	Explanation
1	U _s	red	Supply voltage 7 ... 12 V
2	GND	blue	Ground connection
3	REFSIN	brown	Process data channel
4	REFCOS	black	Process data channel
5	Data +	grey or yellow	RS-485-parameter channel
6	Data -	green or purple	RS-485-parameter channel
7	+ SIN	white	Process data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



Technical Data acc. to DIN 32878		Tapered Shaft SRS/SRM50	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, looking in direction "A" (see dimensional drawing)												
direction "A"	Increasing											
Measurement step after generating arctan with 12 bit resolution												
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												
Max. operating speed	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 electronic 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; tapered shaft; rubber support Ø 50 mm		
Type	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

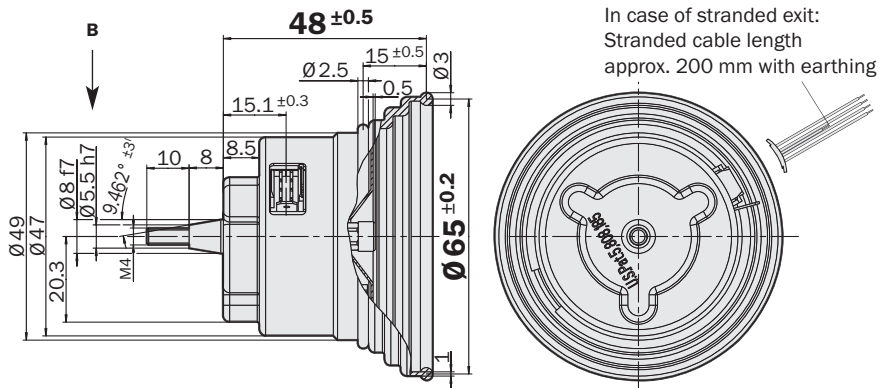
1,024 sine/cosine periods

Motor Feedback Systems

- 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

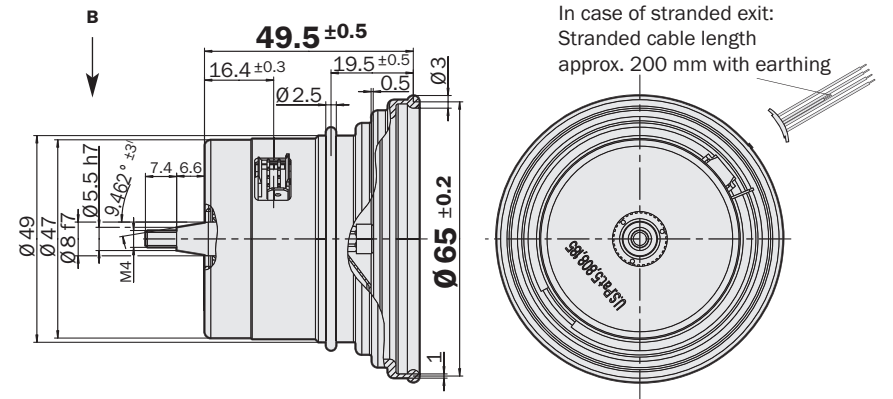


Dimensional drawing SRS60, rubber support Ø 60



General tolerances to DIN ISO 2768-mk

Dimensional drawing SRM60, rubber support Ø 60



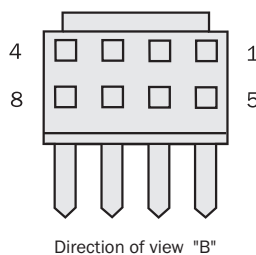
General tolerances to DIN ISO 2768-mk

PIN and wire allocation

PIN	Signal	Colour of Wires	Explanation
1	U _s	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

Technical Data acc. to DIN 32878		Tapered 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, 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 electronic 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.

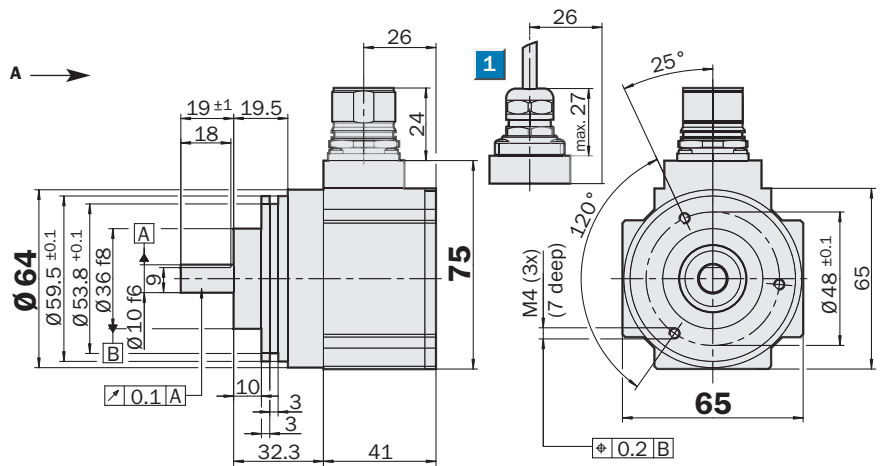
Ordering information		
SRS/SRM60; tapered shaft; rubber support Ø 60 mm		
Type	Part no.	Description
SRS60-HEA0-K01	1034217	Single, 512 EEprom, connector
SRS60-HEV0-K01	1034220	Single, 512 EEprom, stranded cable
SRS60-HEA0-K02	1034218	Single, 2048 EEprom, connector
SRS60-HEV0-K02	1034221	Single, 2048 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

1,024 sine/cosine periods

Motor Feedback Systems

- 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 standalone, rectangular housing, face mount flange

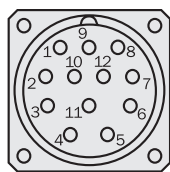
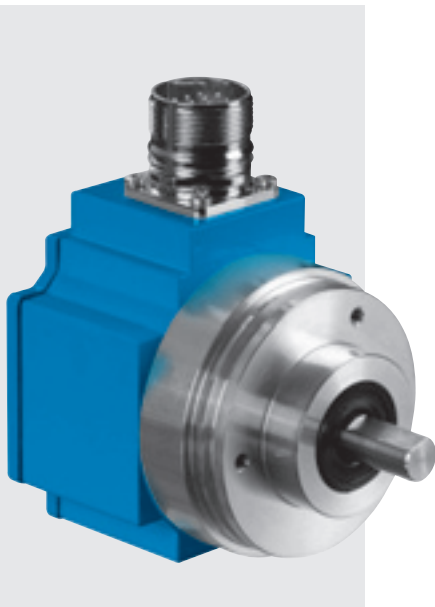


1 R = min. bending radius 40 mm

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	U _s	red	7 ... 12 V Supply voltage



View of the plug-in face

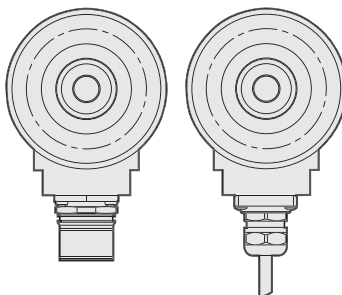
Screen connection on connector housing

N. C. = Not connected

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

Type of connection

- M23 Connector radial | Cable radial



Accessories
Connection technology
Fixing technology
Programming tool

Technical Data acc. to DIN 32878 Standalone, Face Mount 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 value	Binary									
Code sequence for clockwise shaft rotation, looking in direction "A" (see dimensional drawing)										
direction "A" (see dimensional drawing)	Increasing									
Measurement step after generating arctan with 12 bit resolution										
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										
Output frequency for sine/cosine signals	0 ... 200 kHz									
Working speed up to which the absolute position can be reliably produced										
can be reliably produced	6,000 min ⁻¹									
Max. operating speed										
Max. operating speed	6,000 min ⁻¹									
Max. angular acceleration										
Max. angular acceleration	0.2 x 10 ⁶ rad/s ²									
Operating torque with shaft sealing ring										
Operating torque with shaft sealing ring	1 Ncm									
Starting torque with shaft sealing ring										
Starting torque with shaft sealing ring	1,5 Ncm									
Load capacity of shaft radial/axial										
Load capacity of shaft radial/axial	40 N/20 N									
Life of ball bearings										
Life of ball bearings	3.6 x 10 ⁹ rotations									
Working temperature range										
Working temperature range	- 20 ... + 85 °C									
Storage temperature range										
Storage temperature range	- 30 ... + 90 °C									
Permissible relative humidity ¹⁾										
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⁾										
Protection to IEC 60529 ⁴⁾	IP 65									
EMC ⁵⁾										
Operating voltage range										
Operating voltage range	7 ... 12 V									
Recommended supply voltage										
Recommended supply voltage	8 V									
Max. operating current, no load										
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

⁶⁾ If applying the electronic 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 shaft Ø 10 mm; clamping flange

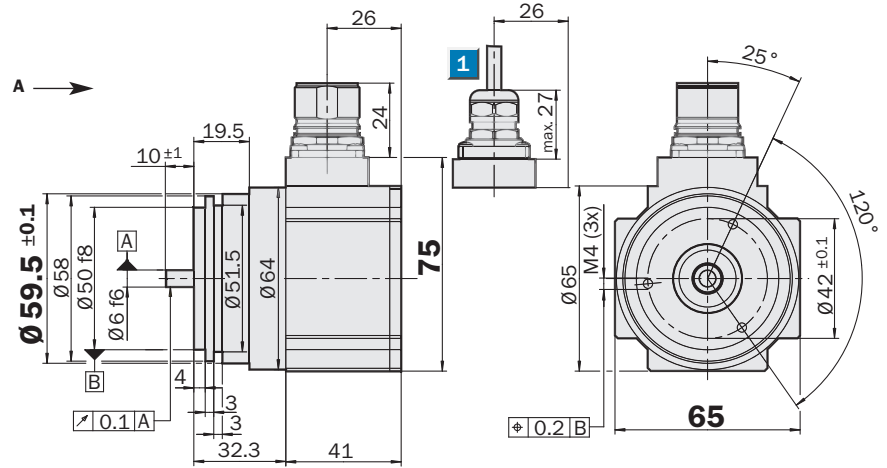
Type	Part no.	Description
SRS50-HWA0-K01	1034192	Single, 512 EEprom, connector M23
SRS50-HWV0-K01	1034194	Single, 512 EEprom, cable 1.5 m
SRS50-HWA0-K02	1034193	Single, 2048 EEprom, connector M23
SRS50-HWV0-K02	1034195	Single, 2048 EEprom, cable 1.5 m
SRM50-HWA0-K01	1034130	Multi, 512 EEprom, connector 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

1,024 sine/cosine periods

Motor Feedback Systems

- 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 standalone, rectangular housing, servo flange

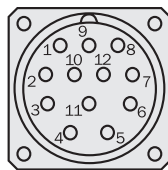
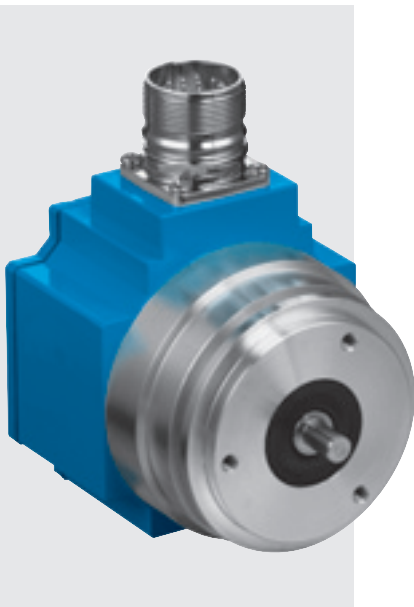


1 R = min. bending radius 40 mm

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	U _s	red	7 ... 12 V Supply voltage



View of the plug-in face

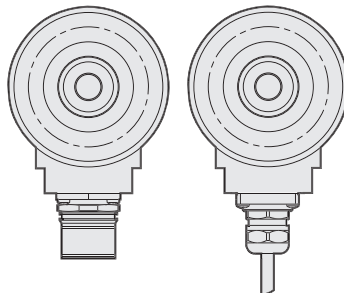
Screen connection on connector housing

N. C. = Not connected

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

Type of connection

- M23 Connector radial Cable radial



Accessories
Connection technology
Fixing technology
Programming tool

Technical Data acc. to DIN 32878		Standalone, 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 value	Binary										
Code sequence for clockwise shaft rotation, looking in direction "A" (see dimensional drawing)											
direction "A" (see dimensional drawing)	Increasing										
Measurement step after generating arctan with 12 bit resolution											
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											
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										

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

⁶⁾ If applying the electronic 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

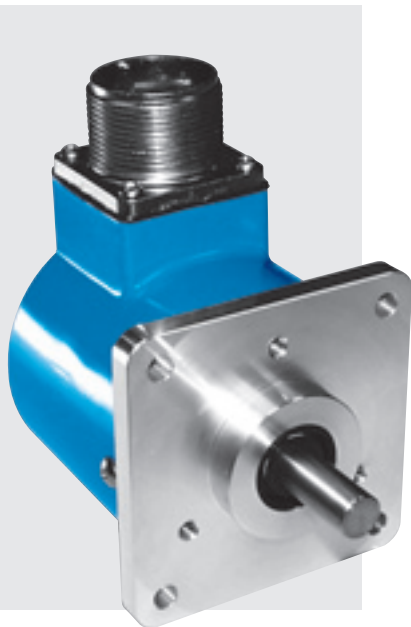
SRS/SRM50 standalone; solid shaft Ø 6 mm; servo flange

Type	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

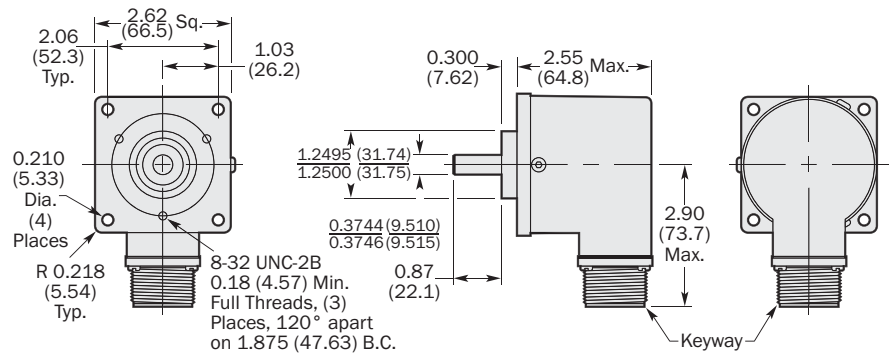
1,024 sine/cosine periods

Motor Feedback Systems

- 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

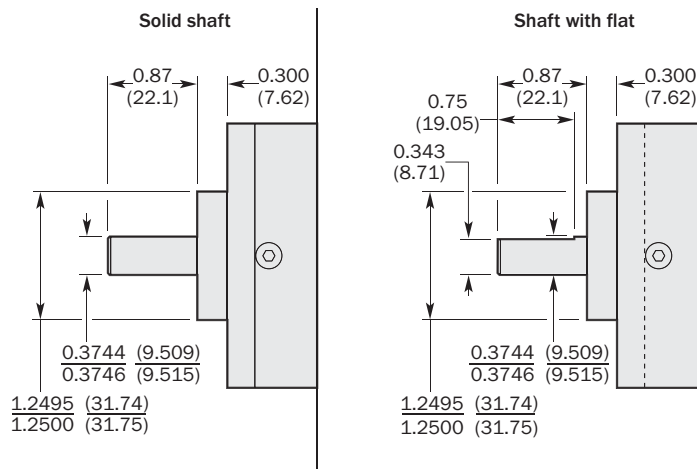


Dimensional drawing SRS/M50 Standalone, square flange mount



All dimensions in inch, dimensions within brackets in mm.

Dimensional Drawing Shaft Options



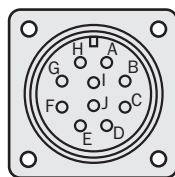
All dimensions in inch, dimensions within brackets in mm.

PIN and wire allocation

PIN	Wire colour	Signal	Explanation
A	Red	+ U _s	7 ... 12 V Supply voltage
B	Blue	GND	Ground connection
C	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
H	Pink	COS	Process data channel
I	N. C.		
J	Case	Case	

Accessories

Connection technology
Fixing technology
Programming tool



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.

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, looking in direction "A" (see dimensional drawing)										
direction "A" (see dimensional drawing)	Increasing									
Measurement step after generating arctan with 12 bit resolution										
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										
Output frequency for sine/cosine signals	0 ... 200 kHz									
Working speed up to which the absolute position can be reliably produced										
can be reliably produced	6,000 min ⁻¹									
Max. operating speed without shaft seal										
Max. operating speed without shaft seal	6,000 min ⁻¹									
Max. operating speed with shaft seal										
Max. operating speed with shaft seal	3,000 min ⁻¹									
Max. angular acceleration										
Max. angular acceleration	5 x 10 ⁵ rad/s ²									
Max. Operating torque										
Max. Operating torque	1 Ncm									
Starting torque with shaft sealing ring										
Starting torque with shaft sealing ring	1.5 Ncm									
Load capacity of shaft radial/axial										
Load capacity of shaft radial/axial	155 N/88 N									
Life of ball bearings										
Life of ball bearings	3.6 x 10 ⁹ rotations									
Working temperature range										
Working temperature range	- 20 ... + 85 °C									
Storage temperature range										
Storage temperature range	- 30 ... + 90 °C									
Permissible relative humidity ¹⁾										
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⁾										
Protection to IEC 60529 ⁴⁾	IP 66									
EMC ⁵⁾										
Operating voltage range										
Operating voltage range	7 ... 12 V									
Recommended supply voltage										
Recommended supply voltage	8 V									
Max. operating current, no load										
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									

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

⁶⁾ If applying the electronic 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 shaft Ø 3/8"; square flange 2.5"

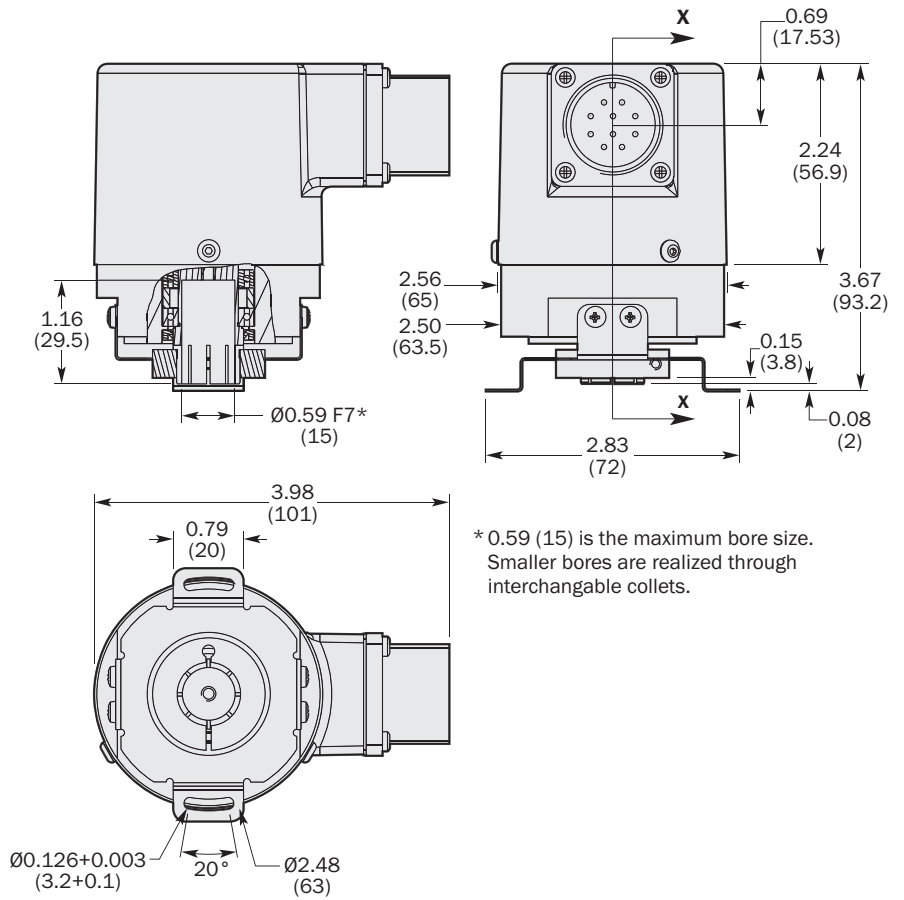
Type	Part no.	Description
SRS50-HTA0-K01	1035765	Single, solid shaft, connector MS/10
SRS50-HUA0-K01	1035766	Single, solid shaft with flat, connector MS/10
SRM50-HTA0-K01	1035762	Multi, solid shaft, connector MS/10
SRM50-HUA0-K01	1035763	Multi, solid shaft with flat, connector MS/10

	1,024 sine/cosine periods
Motor Feedback Systems	

- 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



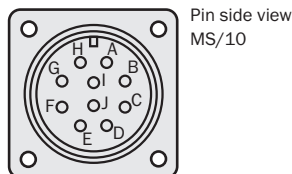
Dimensional drawing SRS/M50 Standalone, blind hollow shaft



All dimensions in inch, dimensions within brackets in mm.



Accessories
Connection technology
Fixing technology
Programming tool



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.

Technical Data acc. to DIN 32878 Standalone, blind hollow shaft, 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	50 gcm ² max.									
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									
Max. operating speed with shaft seal	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									

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 DIN 61000-6-3

⁶⁾ If applying the electronic 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

Type	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

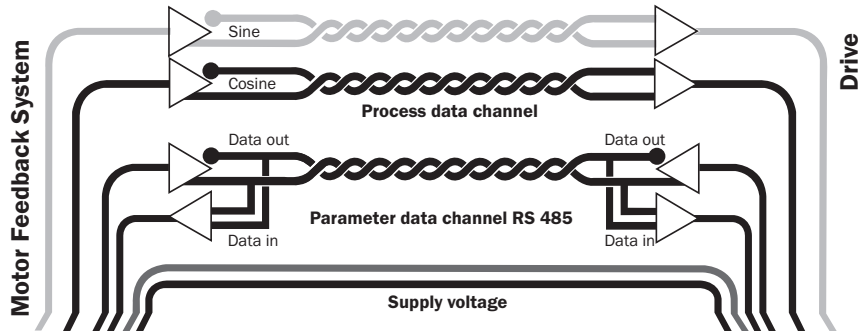
Type	Part no.	Size
SPZ-006-AD-A	2029174	6 mm
SPZ-1E4-AD-A	2029175	1/4"
SPZ-008-AD-A	2029176	8 mm
SPZ-3E8-AD-A	2029177	3/8"
SPZ-010-AD-A	2029178	10 mm
SPZ-012-AD-A	2029179	12 mm
SPZ-1E2-AD-A	2029180	1/2"

Attention: Please order the Collet with required diameter separately



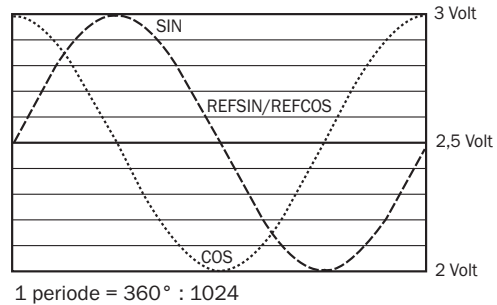
Electrical interface

- Safe data transmission
- High information content
- Electronic type label
- Only 8 leads
- Bus-enabled parameter channel
- Process data channel in real time



Signal specification of the process data channel

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

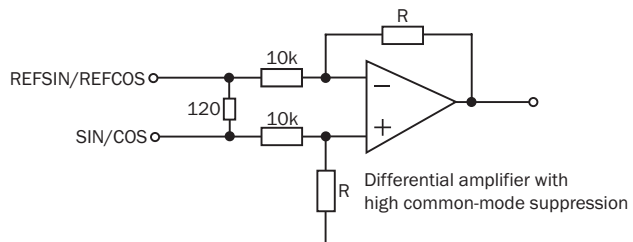


Access to the process data used for speed control, i.e. to the sine and cosine signals, is practically always "online". When the supply voltage is applied, the speed controller has access to this information at any time.

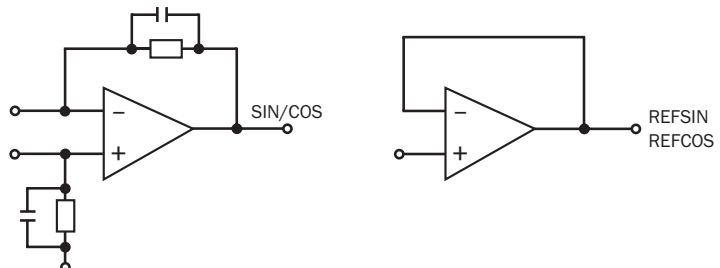
Sophisticated technology guarantees stable amplitudes of the analogue signals across all specified environmental conditions, with a maximum variation of only 20%.

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





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 commands supported			SRS	SRM
Command byte	Function	Code 0 ¹⁾	Comments	Comments
42h	Read position			
43h	Set position	•		
44h	Read analogue value		Channel number 48h Temperature [°C]	Channel number 48h 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	•		

¹⁾ 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

Overview of status messages				
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	•	•
	0Ah	Checksum of the data transmitted is incorrect	•	•
	0Bh	Unknown command code	•	•
	0Ch	Number of data transmitted is incorrect	•	•
	0Dh	Command argument transmitted is not allowed	•	•
Data	0Eh	The selected data field must not be written to	•	•
	0Fh	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	•	•

Dimensional drawings and ordering information

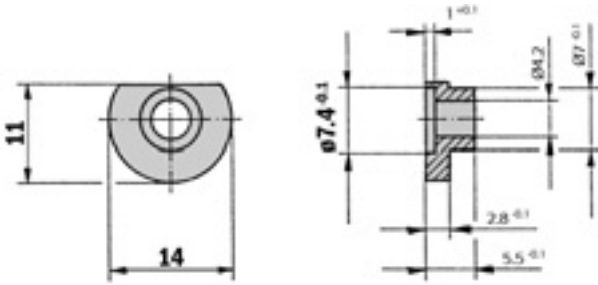
Accessories for SRS/M 50 Standalone

Programming tool for HIPERFACE®-devices

Type	Part no.	Motor Feedback System
PGT-03-S	1034252	SRS/SRM50 standalone

Servo clamp small, set (contents 3 off) for servo flanges

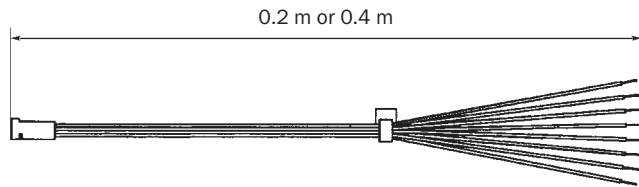
Type	Part no.
BEF-WK-SF	2029166



General tolerances to DIN ISO 2768-mk

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

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

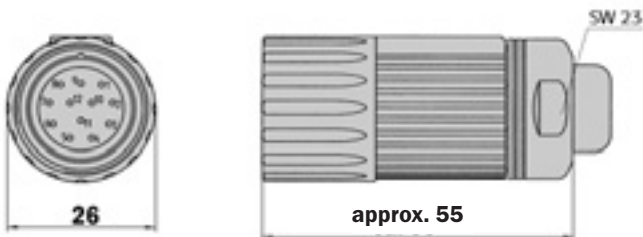


HIPERFACE® cable, 8 wires, supplied by the metre 4 x 2 x 0.15 mm², screened, flexible

Type	Part no.	Cores
LTG-2708-MW	6028361	8

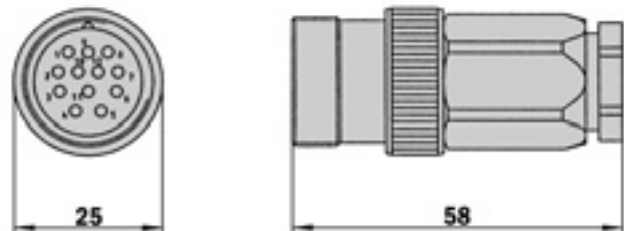
Connector M23 female, 12 pin, straight, screened

Type	Part no.	Contacts
DOS-2312-G	6027538	12



Connector M23 male, 12 pin, straight, screened

Type	Part no.	Contacts
STE-2312-G	6027537	12



Dimensional drawings and ordering information

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

Type	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

Connection Systems

Mating Connectors fit in for MS/10

Type	Part no.	PIN
DOS-MS10-G	7102129	10 Pin

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

Type	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 for Hub Shaft Mounting

Collets

Type	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



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