



## Motor feedback systems rotary HIPERFACE® SRS/SRM50

SRM50S-HEA0-K22

im0050704

**Model Name** > SRM50S-HEA0-K22  
**Part No.** > 1051810



im0050704

*Illustration may differ*

#### At a glance

- Motor feedback systems for the top performance range
- 1,024 sine/ cosine periods per revolution
- Absolute position with a resolution of 32,768 increments per revolution and 4,096 revolutions with the multiturn system
- HIPERFACE® interface: Programming of the position value and electronic type label
- Insert shaft or tapered shaft with various torque supports
- Integrated version, mounted version or stand-alone design
- Certified according to SIL2/PL d (only valid for SRS50S/SRM50S...)
- Conforms to RoHs

#### Your benefits

- Motor feedback system with HIPERFACE® interface
- High shock/vibration resistance thanks to built-in metal code disk
- Consistent motor design due to identical size of single and multiturn design
- Compliance with the new machine directive thanks to use of a motor feedback system certified according to SIL2/PL d
- Very smooth running thanks to maximum ball bearing distance



#### Safety-related parameters

|                                                  |                                      |
|--------------------------------------------------|--------------------------------------|
| Safety integrity level:                          | SIL2 (IEC 61508), SILCL2 (IEC 62061) |
| Category:                                        | 3 (EN ISO 13849)                     |
| Performance level:                               | PL d EN ISO 13849 <sup>1)</sup>      |
| TM (mission time):                               | 20 a (EN ISO 13849)                  |
| Maximum demand rate:                             | Continuous (analog signals)          |
| PFHD: probability of dangerous failure per hour: | 1.0 * 1E-08 <sup>2)</sup>            |
| MTTFd: mean time to dangerous failure:           | 1,073 a (EN ISO 13849)               |

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

#### Performance

|                                                   |                                                                                  |
|---------------------------------------------------|----------------------------------------------------------------------------------|
| Number of sine/cosine periods per revolution:     | 1,024                                                                            |
| Number of the absolute ascertainable revolutions: | 4,096 (Multiturn)                                                                |
| Total number of steps:                            | 134,217,728                                                                      |
| Measuring step:                                   | 0.3 angular seconds at interpolation of the sine/cosine signals with e.g. 12 Bit |

|                              |                                                                                                                         |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Integral non-linearity typ.: | ± 45 angular seconds (Error limits for evaluating sine/cosine period) without mechanical tension of the stator coupling |
| Differential non-linearity:  | ± 7 angular seconds (Non-linearity within a sine/cosine period)                                                         |
| Operating speed:             | 6,000 /min, up to which the absolute position can be reliably produced                                                  |
| Available memory area:       | 1,792 Byte (EEPROM 2048)                                                                                                |

#### Mechanical data

|                                                               |                                   |
|---------------------------------------------------------------|-----------------------------------|
| Flange type/stator coupling:                                  | Rubber support                    |
| Dimensions:                                                   | See dimensional drawing           |
| Moment of inertia of the rotor:                               | 10 gcm <sup>2</sup>               |
| Maximum operating speed:                                      | 12,000 /min                       |
| Maximum angular acceleration:                                 | 200,000 rad/s <sup>2</sup>        |
| Operating torque:                                             | 0.2 Ncm                           |
| Start up torque:                                              | 0.4 Ncm                           |
| Permissible shaft movement, radial, static:                   | ± 0.5 mm                          |
| Permissible shaft movement, radial, dynamic:                  | ± 0.1 mm                          |
| Permissible shaft movement, axial, static:                    | ± 0.75 mm                         |
| Permissible shaft movement, axial, dynamic:                   | ± 0.2 mm                          |
| Life of ball bearings:                                        | 3.6 x 10 <sup>9</sup> revolutions |
| Connection type:                                              | Connector, 8-pin                  |
| Shaft version:                                                | Tapered shaft                     |
| Angular motion perpendicular to the rotational axis, static:  | ± 0.005 mm/mm                     |
| Angular motion perpendicular to the rotational axis, dynamic: | ± 0.002 mm/mm                     |

#### Electrical data

|                                           |                     |
|-------------------------------------------|---------------------|
| Electrical interface:                     | HIPERFACE           |
| Operating voltage range/supply Voltage:   | 7 V DC ... 12 V DC  |
| Recommended supply voltage:               | 8 V DC              |
| Output frequency for sine/cosine signals: | 0 kHz ... 200 kHz   |
| Operating power consumption (no load):    | 80 mA <sup>1)</sup> |

<sup>1)</sup> Without load

#### Interfaces

|                                      |                                                                                                        |
|--------------------------------------|--------------------------------------------------------------------------------------------------------|
| Type of code for the absolute value: | Binary                                                                                                 |
| Code sequence:                       | Increasing, for clockwise shaft rotation, looking in direction "A" (see dimensional drawing)           |
| Interface signals:                   | Parameter channel RS 485: digital, Process data channel SIN, REFSIN, COS, REFCOS: analog, differential |

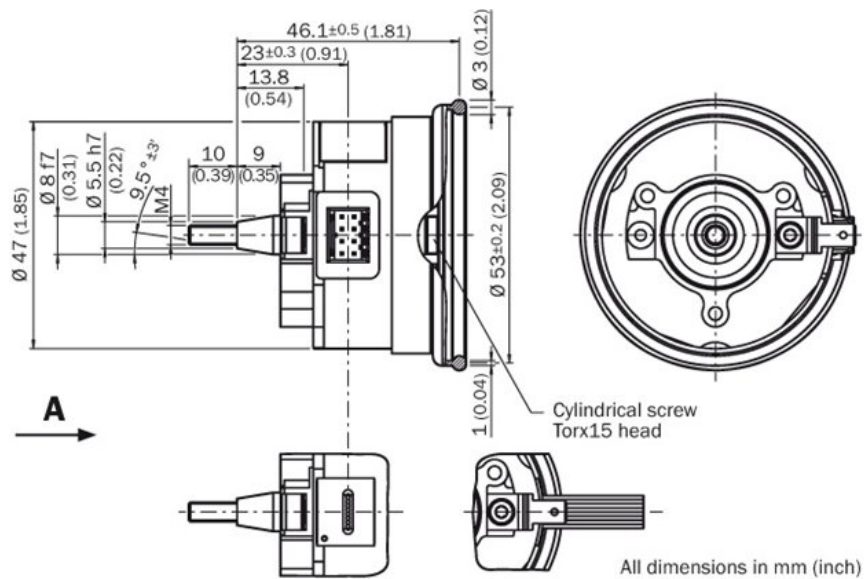
#### Ambient data

|                                 |                                                               |
|---------------------------------|---------------------------------------------------------------|
| Working temperature range:      | -30 °C ... 115 °C                                             |
| Storage temperature range:      | -40 °C ... 125 °C, without package                            |
| Relative humidity/Condensation: | 90 %, Condensation not permitted                              |
| Resistance to shocks:           | 100 g, 6 ms (according to EN 60068-2-27)                      |
| Resistance to vibration:        | 20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)          |
| EMC:                            | According to EN 61000-6-2 and EN 61000-6-3 <sup>1)</sup>      |
| Enclosure rating:               | IP 40, according to IEC 60529, with mating connector inserted |

<sup>1)</sup> 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 power supply voltage is linked to earth. Users must

perform their own tests when other screen designs are used.

## Dimensional drawing



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