Online data sheet

# SKM36S-HVA0-K02

## SKS/SKM36

**MOTOR FEEDBACK SYSTEMS ROTARY HIPERFACE®**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| SKM36S-HVA0-K02 | 1036559 |

Other models and accessories ➜ www.sick.com/SKS_SKM36

## Detailed technical data

### Safety-related parameters

| | |
|---|---|
| **Safety integrity level** | SIL2 (IEC 61508), SILCL2 (IEC 62061) |
| **Category** | 3 (EN ISO 13849) |
| **Performance level** | PL d (EN ISO 13849) [1] |
| **$PFH_D$: Probability of dangerous failure per hour** | $1.3 \times 10^{-8}$ [2] |
| **$T_M$ (mission time)** | 20 years (EN ISO 13849) |
| **MTTFd: mean time to dangerous failure** | 874 years (EN ISO 13849) |

[1] For more detailed information on the exact configuration of your machine/unit, please consult your relevant SICK branch office.

[2] The values displayed apply to a diagnostic degree of coverage of 90%, which must be achieved by the external drive system.

### Performance

| | |
|---|---|
| **Sine/cosine periods per revolution** | 128 |
| **Number of the absolute ascertainable revolutions** | 4,096 |
| **Total number of steps** | 16,777,216 |
| **Measuring step** | 2.5 ″ For interpolation of the sine/cosine signals with, e. g., 12 bits |
| **Integral non-linearity** | ± 120 Winkelsekunden, Error limits for evaluating sine/cosine period |
| **Differential non-linearity** | Non-linearity within a sine/cosine period |
| **Operating speed** | ≤ 6,000 $min^{-1}$, up to which the absolute position can be reliably produced |
| **Available memory area** | 1,792 Byte |

### Interfaces

| | |
|---|---|
| **Type of code for the absolute value** | Binary |
| **Code sequence** | Increasing, when turning the shaft For clockwise rotation, looking in direction “A” (see dimensional drawing), For clockwise shaft rotation, looking in direction “A” (see dimensional drawing) |
| **Communication interface** | HIPERFACE® |

## Electrical data

| | |
|---|---|
| **Connection type** | Male connector, M12, 8-pin, radial |
| **Supply voltage** | 7 V DC ... 12 V DC |
| **Recommended supply voltage** | 8 V DC |
| **Power consumption** | 60 mA [1] |
| **Output frequency for sine/cosine signals** | ≤ 65 kHz |

[1] Without load.

## Mechanical data

| | |
|---|---|
| **Shaft version** | Solid shaft |
| **Flange type / stator coupling** | Servo-/face mount flange, stator coupling |
| **Dimensions** | See dimensional drawing |
| **Weight** | ≤ 0.07 kg |
| **Moment of inertia of the rotor** | 6 gcm² |
| **Operating speed** | 9,000 min⁻¹, 9,000 U/min |
| **Angular acceleration** | ≤ 500,000 rad/s² |
| **Operating torque** | 0.6 Ncm |
| **Start up torque** | + 0.9 Ncm |
| **Permissible radial shaft movement** | ± 0.15 mm |
| **Permissible axial shaft movement** | ± 0.3 mm |
| **Permissible Load capacity of shaft** | 10 N (radial)<br>5 N (axial) |
| **Life of ball bearings** | 2.0 x 10^9 revolutions |

## Ambient data

| | |
|---|---|
| **Operating temperature range** | –20 °C ... +100 °C |
| **Storage temperature range** | –40 °C ... +125 °C, without package |
| **Relative humidity/condensation** | 90 %, Condensation not permitted |
| **Resistance to shocks** | 100 g, 6 ms, 6 ms (according to EN 60068-2-27) |
| **Frequency range of resistance to vibrations** | 50 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6) |
| **EMC** | According to EN 61000-6-2 and EN 61000-6-3 |
| **Enclosure rating** | IP50, with mating connector inserted (according to IEC 60529) |

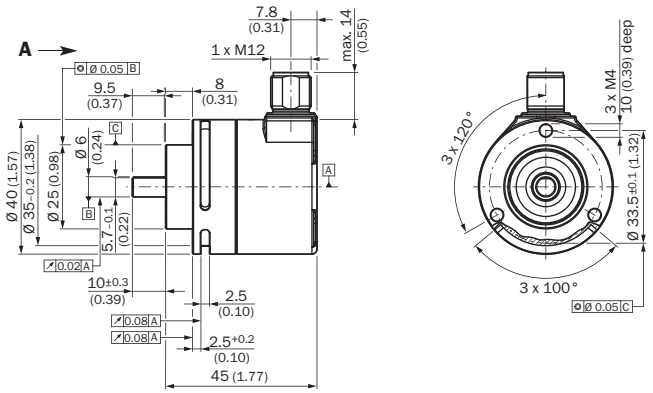
## Classifications

| | |
|---|---|
| **ECl@ss 5.0** | 27270590 |
| **ECl@ss 5.1.4** | 27270590 |
| **ECl@ss 6.0** | 27270590 |
| **ECl@ss 6.2** | 27270590 |
| **ECl@ss 7.0** | 27270590 |
| **ECl@ss 8.0** | 27270590 |
| **ECl@ss 8.1** | 27270590 |
| **ECl@ss 9.0** | 27270590 |
| **ETIM 5.0** | EC001486 |
| **ETIM 6.0** | EC001486 |

| | |
|---|---|
| **UNSPSC 16.0901** | 41112113 |

## Dimensional drawing (Dimensions in mm (inch))

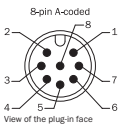
General tolerances according to DIN ISO 2768-mk




## PIN assignment

View of the plug-in face

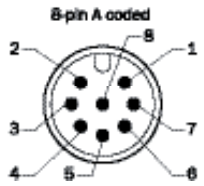
**Connector 8-pin**




View of the plug-in face

| PIN | Color of wires | Signal | Explanation |
|---|---|---|---|
| 1 | Brown | REFSIN | Process data channel |
| 2 | White | + SIN | Process data channel |
| 3 | Black | REFCOS | Process data channel |
| 4 | Pink | + COS | Process data channel |
| 5 | Gray or yellow | Data + | RS-485 parameter channel |
| 6 | Green or purple | Data – | RS-485 parameter channel |
| 7 | Blue | GND | Ground connection |
| 8 | Red | +$U_s$ | Encoder supply voltage |
| – | – | Screen | Housing potential. Screening via plug housing. |

Electronically adjustable via programming tool

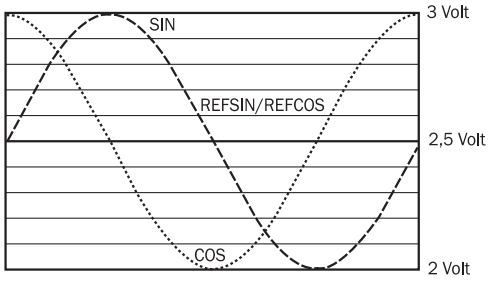



View of the plug-in face

| PIN | Colour of wires | Signal | Explanation |
|---|---|---|---|
| 1 | brown | REFSIN | Process data channel |
| 2 | white | + SIN | Process data channel |
| 3 | black | REFCOS | Process data channel |
| 4 | pink | + COS | Process data channel |
| 5 | grey or yellow | Daten + | RS-485 Parameter channel |
| 6 | green or purple | Daten – | RS-485 Parameter channel |
| 7 | blue | GND | Ground connection |
| 8 | red | + $U_s$ | Encoder Supply voltage |
| | Screen | | Housing potential |

## Diagrams

Signal diagram for clockwise shaft rotation, looking in direction “A” (see dimensional drawing) 1 period = 360° : 128




## Recommended accessories

Other models and accessories ➜ www.sick.com/SKS_SKM36

| | Brief description | Type | Part no. |
|---|---|---|---|
| Flanges | | | |
|  | Flange adapter, adaption of 25 mm spigot face mount flange to 60s face mount flange with 36 mm centering collar, Aluminum | BEF-FA-025-036 | 2034226 |
| | Flange adapter, adapts SKS/SKM36 servo/face mount flange encoder with 25 mm centering collar to size 60 mm face mount flange with 36 mm centering collar, Aluminum | BEF-FA-025-036-SK | 2083558 |
|  | Flange adapter, adaption of 25 mm spigot face mount flange to 50 mm servo flange, Aluminum | BEF-FA-025-050 | 2032622 |
| | Flange adapter, adapts SKS/SKM36 face mount flange encoder with 25 mm centering collar to 50 mm servo flange, Aluminum | BEF-FA-025-050-SK | 2083559 |
|  | Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate, Aluminum | BEF-FA-025-060RCA | 2032623 |
|  | Flange adapter, adaption of 25 mm spigot face mount flange to 60 mm square installation plate with shock-absorber, Aluminum | BEF-FA-025-060RSA | 2032624 |
|  | Flange adapter, adapts SKS/SKM36 servo/face mount flange encoder with 25 mm centering collar to 60 mm square mounting plate, Aluminum | BEF-FA025060R-CASK | 2083560 |
|  | Flange adapter, adapts SKS/SKM36 face mount flange encoder with 25 mm centering collar to 60 mm square mounting plate with shock absorbers, Aluminum | BEF-FA025060RSASK | 2083561 |
|  | Flange adapter, adapts SKS/SKM36 servo/face mount flange encoder with 25 mm centering collar to 63 mm square mounting plate, Aluminum | BEF-FA025063RECSK | 2083562 |
| Mounting brackets and plates | | | |
|  | Mounting brackets for encoders with a centering spigot 25 mm, mounting kit for face mount flange included | BEF-WF-25 | 2032621 |
| | Mounting bracket for SKS/SKM36 servo/face mount flange encoder with 25 mm centering collar, mounting kit for face mount flange included | BEF-WF-25-SK | 2083557 |

| | Brief description | Type | Part no. |
|---|---|---|---|
| Programming and configuration tools | | | |
|  | SVip® LAN programming tool for all motor feedback systems | PGT-11-S LAN | 1057324 |
| | SVip® WLAN programming tool for all motor feedback systems | PGT-11-S WLAN | 1067474 |

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

# WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com



SICK
Sensor Intelligence.