

# TTK50S-HXM0-K02

TTK50

MOTOR FEEDBACK SYSTEMS LINEAR HIPERFACE®

**SICK**  
Sensor Intelligence.

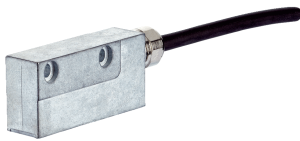


Illustration may differ

### Ordering information

Type	Part no.
TTK50S-HXM0-K02	1099699

Magnetic tape not included with delivery

Other models and accessories → [www.sick.com/TTK50](http://www.sick.com/TTK50)



### Detailed technical data

#### Safety-related parameters

<b>Safety integrity level</b>	SIL2 (IEC 61508), SILCL2 (EN 62061) <sup>1)</sup>
<b>Category</b>	3 (EN ISO 13849)
<b>Maximum demand rate</b>	Continuous (analog signals)
<b>Performance level</b>	PL d (EN ISO 13849)
<b>PFH<sub>D</sub>: Probability of dangerous failure per hour</b>	$2.02 \times 10^{-8}$ <sup>2)</sup>
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849)
<b>Safety-related accuracy</b>	± 25 mm, = ± 1/4 pin length
<b>Safety-related measuring step</b>	0.25 mm

<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

<b>Measuring step</b>	0.244 μm For interpolation of the sine/cosine signals with, e. g., 12 bits
<b>Measuring length</b>	≤ 940 mm
<b>Resolution</b>	1 μm
<b>Length of period</b>	1 mm
<b>Traversing speed</b>	≤ 10 m/s, up to which the absolute position can be reliably produced 1.3 m/s
<b>Repeatability</b>	< 5 μm
<b>System accuracy</b>	± 10 μm (+20 °C)
<b>Measured value backlash</b>	< 10 μm

#### Interfaces

<b>Communication interface</b>	HIPERFACE®
<b>Code type</b>	Binary
<b>Available memory area</b>	1,972 Byte (E <sup>2</sup> PROM 2048)

#### Electrical data

<b>Supply voltage</b>	7 V DC ... 12 V DC
<b>Recommended supply voltage</b>	8 V DC

<sup>1)</sup> 100 mA approx. during adjustment.

<b>Operating current</b>	≤ 55 mA (without load) <sup>1)</sup>
<b>Connection type</b>	Cable, 8-wire, 5 m

<sup>1)</sup> 100 mA approx. during adjustment.

### Mechanical data

<b>Dimensions</b>	See dimensional drawing
<b>Scope of delivery</b>	Magnetic tape not included with delivery
<b>Weight</b>	0.06 kg, without cable
<b>Read head material</b>	Zinc diecast

### Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3 <sup>1)</sup>
<b>Enclosure rating</b>	IP67, with mating connector inserted (according to IEC 60529)
<b>Operating temperature range</b>	-30 °C ... +80 °C
<b>Storage temperature range</b>	-40 °C ... +85 °C, without package
<b>Permissible relative humidity</b>	100 %, condensation permitted
<b>Resistance to shocks</b>	30 g, 6 ms (EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)
<b>Maximum permitted ambient field strength</b>	< 3 kA/m ... 4 kA/m (3.8 mT ... 5 mT), to guarantee compliance with the quoted accuracy values <sup>2)</sup>
<b>Maximum permitted field strength</b>	< 150 kA/m (< 190 mT), to ensure that the magnetic tape is not permanently damaged

<sup>1)</sup> The EMC according to the standards quoted is achieved when the motor feedback system with put-on mating connector is connected to the central earthing point of the motor controller via a cable screen and via the encoder housing extensive connected to the motor potential. Users must perform their own tests when other screening designs are used.

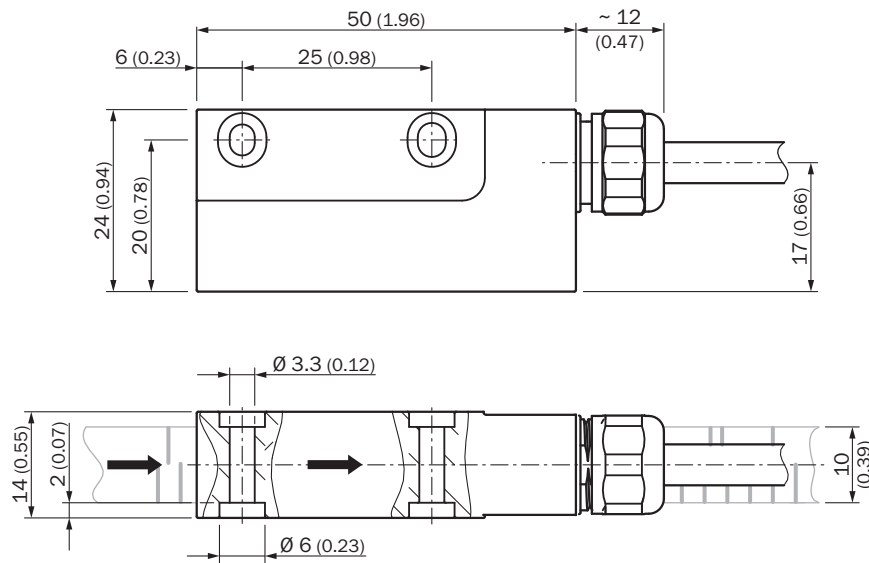
<sup>2)</sup> The maximum permitted external field influence is reached when the position value deviates from the original value (without external field influence) by more than 5 µm. This value is reached when, at the sensor location, a field strength of 3 kA/m to 4 kA/m (3.8 mT to 5 mT) occurs in addition to the field strength of the magnetic tape.

### Classifications

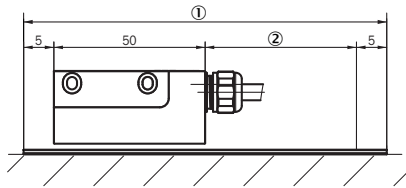
<b>ECl@ss 5.0</b>	27270590
<b>ECl@ss 5.1.4</b>	27270590
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270590
<b>ECl@ss 8.0</b>	27270590
<b>ECl@ss 8.1</b>	27270590
<b>ECl@ss 9.0</b>	27270590
<b>ECl@ss 10.0</b>	27273805
<b>ECl@ss 11.0</b>	27273902
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

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

Read head

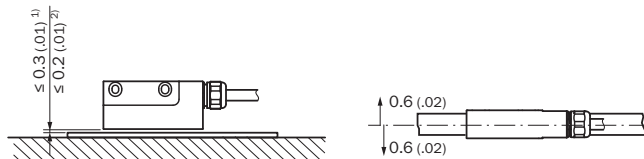


### Order note for magnetic tape length



- ① Required band length = measurement path + 60 mm
- ② Measurement path

### Position tolerance

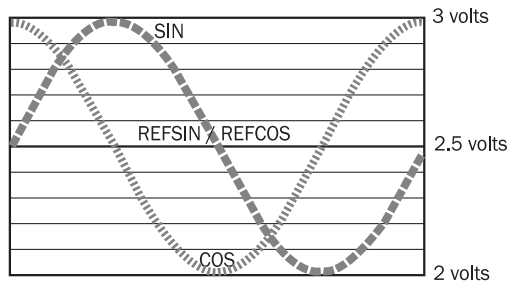


General tolerances according to DIN ISO 2768-mk

- ① Without cover strip
- ② With cover strip










## Diagrams




Signal diagram for clockwise shaft rotation, looking in direction "A" (see dimensional drawing) 1 period = 360° : 64/128/256



## Recommended accessories

Other models and accessories → [www.sick.com/TTK50](http://www.sick.com/TTK50)

	Brief description	Type	Part no.
<b>Nuts and screws</b>			
	Mounting kit for SIL2 applications for safe and easy mounting of the TTK50S; 2x countersunk head screws, 1x mounting plate	BEF-MK-S13	2109583
<b>Plug connectors and cables</b>			
	Head A: cable Head B: Flying leads Cable: HIPERFACE®, HIPERFACE®, PUR, halogen-free, shielded	LTG-2708-MW	6028361
	Head A: female connector, M23, 12-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJB2	2071328
	Head A: female connector, JST, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJB6	2071327
	Head A: female connector, M12, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJC1	2071329
	Head A: female connector, terminal box, 8-pin, straight Head B: male connector, M23, 17-pin, straight Cable: HIPERFACE®, unshielded, 1 m	DSL-2317-G01MJC6	2071330
	Head A: female connector, M12, 8-pin, straight Head B: - Cable: shielded	D0S-1208-GA	6028369
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, SSI, shielded	D0S-1208-GA01	6045001
	Head A: female connector, M12, 8-pin, angled, A-coded Head B: - Cable: Ethernet, shielded	D0S-1208-WA	6043358
	Head A: male connector, M12, 8-pin, straight Head B: - Cable: shielded	STE-1208-GA	6028370

	Brief description	Type	Part no.
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, shielded	STE-1208-GA01	6044892
<b>Magnets</b>			
	Magnetic tape length: 1 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: stainless steel, period length 1 mm, operating temperature range: -20 °C ... 100 °C, storage temperature range: -30 °C ... 100 °C, temperature coefficient: (11 ± 1) µm/K/m	MVM-1M0-2MC-MKLB	6049001
<b>Programming and configuration tools</b>			
	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](http://www.sick.com)