

# TTK70-HXA0-K02

TTK70

MOTOR FEEDBACK SYSTEMS LINEAR HIPERFACE®

**SICK**  
Sensor Intelligence.

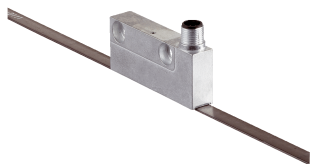


Illustration may differ



### Ordering information

Type	Part no.
TTK70-HXA0-K02	1037434

Other models and accessories → [www.sick.com/TTK70](http://www.sick.com/TTK70)

### Detailed technical data

#### Performance

<b>Measuring step</b>	0.244 µm For interpolation of the sine/cosine signals with, e. g., 12 bits
<b>Length of period</b>	1 mm
<b>Measuring length</b>	Max. 4,000 mm
<b>Magnetic strip length</b>	Measurement length + 80 mm
<b>System accuracy (ambient temperature)</b>	± 10 µm (+20 °C)
<b>Repeat accuracy</b>	< 5 µm
<b>Measured value backlash</b>	< 10 µm
<b>System part</b>	Read head

#### Interfaces

<b>Type of code for the absolute value</b>	Binary
<b>Communication interface</b>	HIPERFACE®
<b>Available memory area</b>	1,792 Byte

#### Electrical data

<b>Supply voltage range</b>	7 V DC ... 12 V DC
<b>Recommended supply voltage</b>	8 V DC
<b>Operating power consumption (no load)</b>	≤ 65 mA <sup>1)</sup>

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

#### Mechanical data

<b>Dimensions</b>	See dimensional drawing
<b>Magnetic strip length</b>	Measurement length + 80 mm
<b>Weight</b>	Read head 0.06 kg without cable, magnetic strip 0.18 kg/ m
<b>Material</b>	Read head die-cast zinc, magnetic tape 17410 hard ferrite 9/28 P
<b>Traversing speed</b>	≤ 10 m/s
<b>Operating speed up to which the absolute position can be reliably produced</b>	1.3 m/s
<b>Connection type</b>	Male connector M12

## Ambient data

<b>Operating temperature range</b>	-30 °C ... +80 °C
<b>Storage temperature range</b>	-40 °C ... +85 °C, without package
<b>Relative humidity/condensation</b>	100 %, Condensation allowed
<b>Resistance to shocks</b>	30 g, 6 ms (EN 60068-2-27)
<b>Frequency range of resistance to vibrations</b>	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)
<b>EMC</b>	EN 61000-6-2, EN 61000-6-3 <sup>1)</sup>
<b>Enclosure rating</b>	IP65, with mating connector inserted (according to IEC 60529)
<b>Temperature coefficient magnetic tape</b>	(11 ± 1) µm/K/m
<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> EMC according to the listed standards is guaranteed if the motor feedback system with mating plug inserted is connected to the central grounding point of the motor controller via a cable shield. If other screening concepts are used, users must perform their own tests. Class A device.

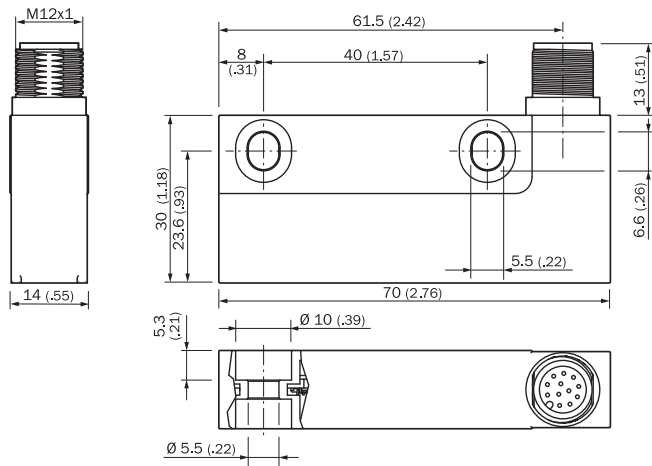
<sup>2)</sup> The maximum permitted external field influence is reached when the position value deviates from the original value (without external field influence) by more than 5 µm. This value is reached when, at the sensor location, a field strength of 3 kA/m to 4 kA/m (3.8 mT to 5 mT) occurs in addition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

## Classifications

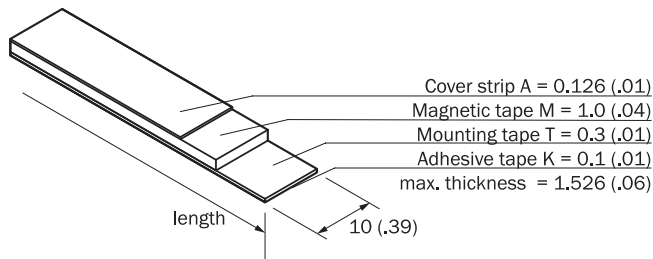
<b>ECl@ss 5.0</b>	27270590
<b>ECl@ss 5.1.4</b>	27270590
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270590
<b>ECl@ss 8.0</b>	27270590
<b>ECl@ss 8.1</b>	27270590
<b>ECl@ss 9.0</b>	27270590
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

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

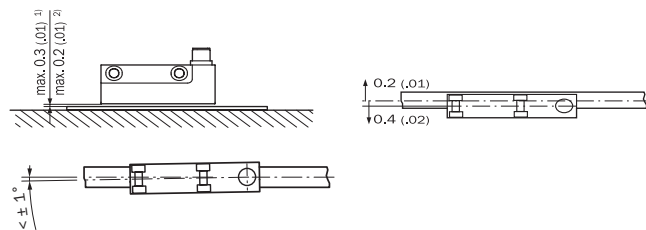
Length measuring system



### Magnetic tape



### Proposed fitting

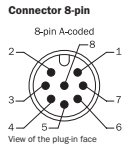


General tolerances according to DIN ISO 2768-mk

- ① Without cover strip
- ② With cover strip

## PIN assignment

View of the plug-in face

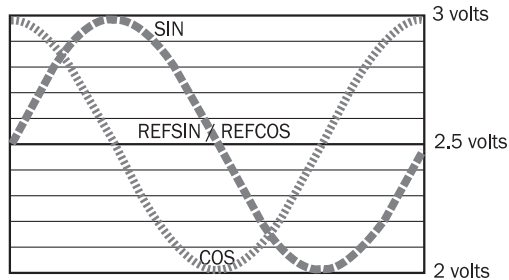


PIN	Color of wires	Signal	Explanation
1	Brown	REFSIN	Process data channel
2	White	+ SIN	Process data channel
3	Black	REFCOS	Process data channel
4	Pink	+ COS	Process data channel
5	Gray or yellow	Data +	RS-485 parameter channel
6	Green or purple	Data -	RS-485 parameter channel
7	Blue	GND	Ground connection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

Electronically adjustable via programming tool

## Diagram

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/TTK70](http://www.sick.com/TTK70)

	Brief description	Type	Part no.
<b>Plug connectors and cables</b>			
	Head A: cable Head B: cable Cable: HIPERFACE®, HIPERFACE®, drag chain use, PUR, halogen-free, shielded	LTG-2708-MW	6028361
	Head A: female connector, M12, 5-pin, angled, A-coding Head B: cable Cable: HIPERFACE®, drag chain use, PUR, halogen-free, shielded, 5 m Sensor/actuator cable	DOL-1205-W05MAC	6041751
	Head A: female connector, M12, 5-pin, angled, A-coding Head B: cable Cable: HIPERFACE®, drag chain use, PUR, halogen-free, shielded, 10 m Sensor/actuator cable	DOL-1205-W10MAC	6041752
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: drag chain use, PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866

	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: drag chain use, PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: drag chain use, PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868
	Head A: female connector, M12, 8-pin, straight Head B: cable Cable: drag chain use, PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869
	Head A: female connector, M12, 8-pin, angled Head B: cable Cable: HIPERFACE®, drag chain use, PUR, shielded, 2 m	DOL-1208-W02MAC1	6037724
	Head A: female connector, M12, 8-pin, angled Head B: cable Cable: HIPERFACE®, drag chain use, PUR, shielded, 10 m	DOL-1208-W10MAC1	6037726
	Head A: female connector, M12, 8-pin, angled Head B: cable Cable: HIPERFACE®, drag chain use, PUR, shielded, 20 m	DOL-1208-W20MAC1	6037727
	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	DOS-1208-GA	6028369
	Head A: female connector, M12, 8-pin, angled, A-coding Head B: - Cable: Ethernet, shielded	DOS-1208-WA	6043358
	Head A: male connector, M12, 8-pin, straight Head B: - Cable: shielded	STE-1208-GA	6028370
<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)