

TTK70S-HXA0-K02

TTK70

MAGNETIC LINEAR ENCODERS

SICK
Sensor Intelligence.

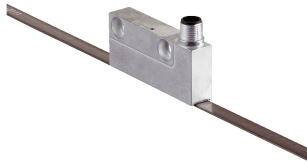


Illustration may differ

Ordering information

Type	Part no.
TTK70S-HXA0-K02	1099700

Magnetic tape not included with delivery

Other models and accessories → www.sick.com/TTK70



Detailed technical data

Features

Items supplied	Magnetic tape not included with delivery
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Safety-related parameters

Safety integrity level	SIL2 (IEC 61508), SILCL2 (EN 62061) ¹⁾
Category	3 (EN ISO 13849)
Maximum demand rate	Continuous (analog signals)
Performance level	PL d (EN ISO 13849)
PFH_D: Probability of dangerous failure per hour	2.02×10^{-8} ²⁾
T_M (mission time)	20 years (EN ISO 13849)
Safety-related accuracy	± 25 mm, = ± 1/4 pin length
Safety-related measuring step	0.25 mm

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

²⁾ The specified values apply to a diagnostic coverage rate of 90%, which must be achieved by the external drive system.

Performance

Measuring step	0.244 μm For interpolation of the sine/cosine signals with, e. g., 12 bits
Measuring range	0 mm ... 3,920 mm
Resolution	1 μm
Length of period	1 mm
Traversing speed	≤ 10 m/s up to which the absolute position can be reliably produced 1.3 m/s
Repeatability	< 5 μm
System accuracy	± 10 μm (+20 °C)
Measured value backlash	< 10 μm

Interfaces

Communication interface	HIPERFACE® ¹⁾
Code type	Binary
Available memory area	1,792 Byte (E ² PROM 2048)

¹⁾ SSInterface described in publication 8013375.

Electrical data

Supply voltage	7 V DC ... 12 V DC
Recommended supply voltage	8 V DC
Operating current	≤ 65 mA (without load) ¹⁾
Connection type	Male connector, M12, 8-pin

¹⁾ 100 mA approx. during adjustment.

Mechanical data

Dimensions	See dimensional drawing
Scope of delivery	Magnetic tape not included with delivery
Weight	0.08 kg
Read head material	Zinc diecast

Ambient data

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

¹⁾ According to the listed standards, EMC is guaranteed if the motor feedback system is connected to the central grounding point of the motor controller via a cable shield and the encoder housing lays over a large area of the motor potential. If other shielding concepts are used, users must perform their own test.

²⁾ 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.

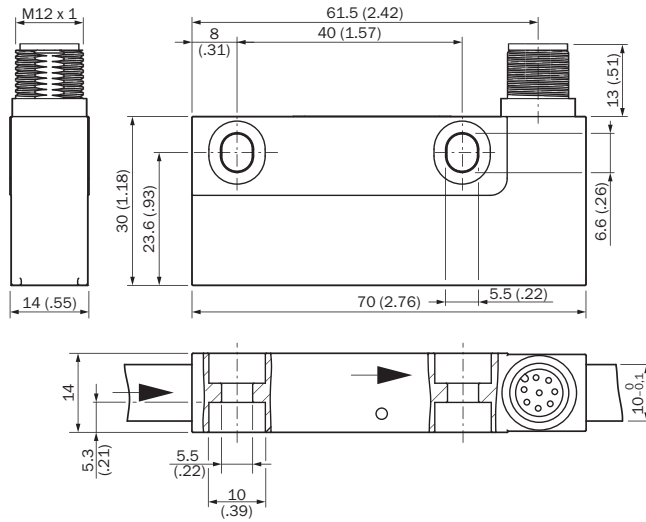
Classifications

eCI@ss 5.0	27270705
eCI@ss 5.1.4	27270705
eCI@ss 6.0	27270705
eCI@ss 6.2	27270705
eCI@ss 7.0	27270705
eCI@ss 8.0	27270705
eCI@ss 8.1	27270705
eCI@ss 9.0	27270705
eCI@ss 10.0	27270705
eCI@ss 11.0	27270705
eCI@ss 12.0	27274304
ETIM 5.0	EC002544
ETIM 6.0	EC002544
ETIM 7.0	EC002544

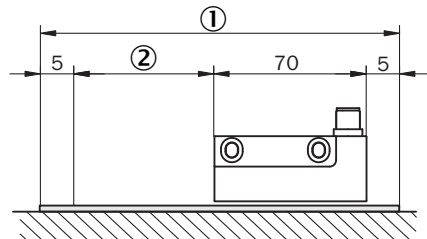
ETIM 8.0	EC002544
UNSPSC 16.0901	41111613

Dimensional drawing (Dimensions in mm (inch))

Read head, male connector

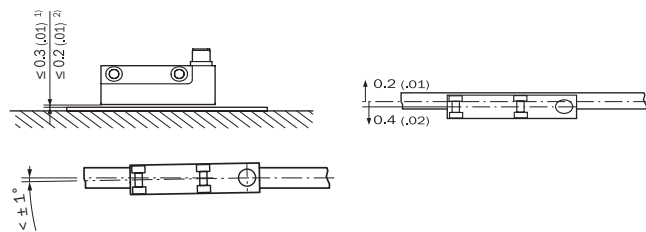


Bedienhinweis



- ① Required band length = measurement path + 80 mm
- ② Measurement path

Position tolerance







General tolerances according to DIN ISO 2768-mk

- ① Without cover strip
- ② With cover strip

Recommended accessories

Other models and accessories → www.sick.com/TTK70

	Brief description	Type	Part no.
Magnets			
	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: 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-01M-2MC-MKLB	6037417
	Magnetic tape length: 2 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-02M-2MC-MKLB	6037419
	Magnetic tape length: 3 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-03M-2MC-MKLB	6037421
	Magnetic tape length: 4 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-04M-2MC-MKLB	6037423
	Magnetic tape length: 0.5 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-0M5-2MC-MKLB	6037415
	Magnetic tape length: 1.5 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-1M5-2MC-MKLB	6037418
	Magnetic tape length: 2.5 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-2M5-2MC-MKLB	6037420
	Magnetic tape length: 3.5 m, magnetic tape width: 10 mm, weight: 0.18 kg/m, magnetic tape material: 17410 hard ferrite 9/28 P, substrate tape material: 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-3M5-2MC-MKLB	6037422
Nuts and screws			
	Mounting kit for SIL2 applications for safe and easy mounting of the TTK70S; 2x titan cylinder screws, 2x galvanized steel lock washers, 2x washers, 2x female connectors	BEF-MK-S12	2105618
Plug connectors and cables			
	LTG-2708-MW	LTG-2708-MW	6028361
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868

	Brief description	Type	Part no.
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: Incremental, SSI, PUR, halogen-free, shielded, 25 m	DOL-1208-G25MAC1	6067859
	Head A: female connector, M12, 8-pin, angled Head B: Flying leads Cable: HIPERFACE [®] , Incremental, PUR, halogen-free, shielded, 2 m	DOL-1208-W02MAC1	6037724
	Head A: female connector, M12, 8-pin, angled Head B: Flying leads Cable: HIPERFACE [®] , Incremental, PUR, halogen-free, shielded, 5 m	DOL-1208-W05MAC1	6037725
	Head A: female connector, M12, 8-pin, angled Head B: Flying leads Cable: HIPERFACE [®] , Incremental, PUR, halogen-free, shielded, 10 m	DOL-1208-W10MAC1	6037726
	Head A: female connector, M12, 8-pin, angled Head B: Flying leads Cable: HIPERFACE [®] , Incremental, PUR, shielded, 20 m	DOL-1208-W20MAC1	6037727
	Head A: female connector, M12, 8-pin, straight Cable: shielded	DOS-1208-GA	6028369
	Head A: female connector, M12, 8-pin, straight, A-coded Cable: Incremental, SSI, shielded	DOS-1208-GA01	6045001
	Head A: female connector, M12, 8-pin, angled, A-coded Cable: Ethernet, shielded	DOS-1208-WA	6043358
	Head A: male connector, M12, 8-pin, straight Cable: shielded	STE-1208-GA	6028370
	Head A: male connector, M12, 8-pin, straight, A-coded Cable: Incremental, shielded	STE-1208-GA01	6044892
Others			
	SVip [®] LAN programming tool for all motor feedback systems		On request

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:

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