

TTK70-HXA0-K02

TTK70

MAGNETIC LINEAR ENCODERS

SICK
Sensor Intelligence.

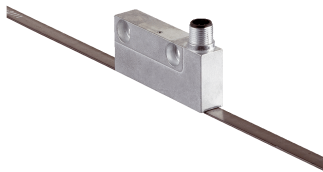


Illustration may differ



Ordering information

Type	part no.
TTK70-HXA0-K02	1037434

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

MTTF _D (mean time to dangerous failure)	73 years (EN ISO 13849) ¹⁾
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¹⁾ This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 60 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

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	1.3 m/s, ≤ 10 m/s up to which the absolute position can be reliably produced, dynamic operation (Sin/Cos)
Repeatability	< 5 µm
System accuracy	+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⁾ SSIIinterface described in publication 8013375.

Electronics

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.

²⁾ This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 60 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

MTTFd: mean time to dangerous failure	73 years (EN ISO 13849) ²⁾
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Mechanics

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.

Certificates

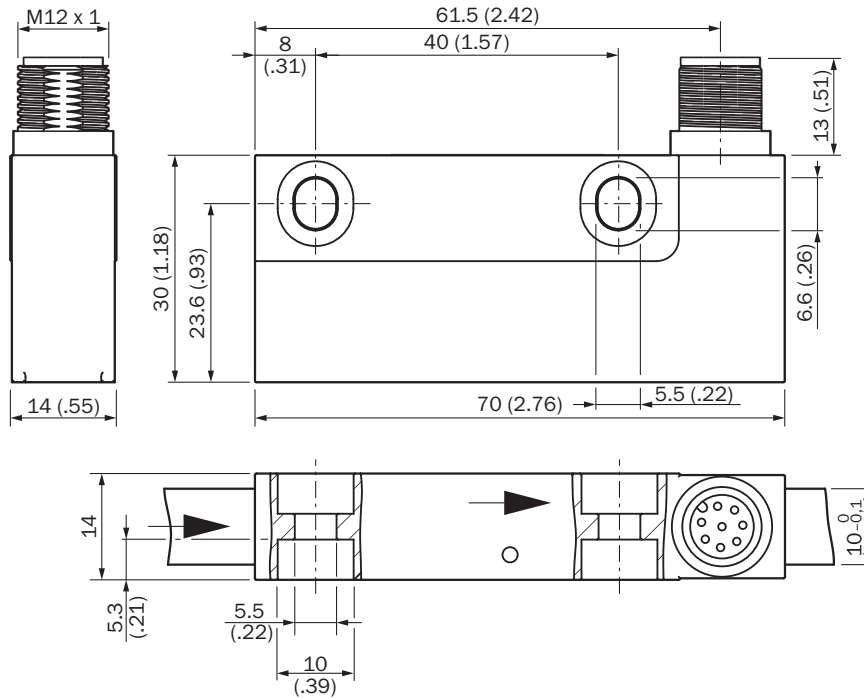
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China-RoHS	✓

Classifications

ECLASS 5.0	27270705
ECLASS 5.1.4	27270705
ECLASS 6.0	27270705
ECLASS 6.2	27270705
ECLASS 7.0	27270705
ECLASS 8.0	27270705
ECLASS 8.1	27270705
ECLASS 9.0	27270705
ECLASS 10.0	27270705
ECLASS 11.0	27270705
ECLASS 12.0	27274304

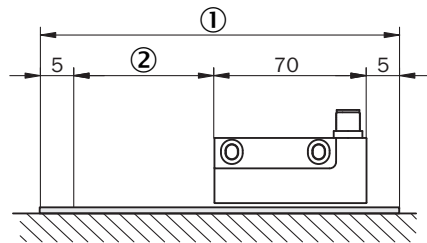
ETIM 5.0	EC002544
ETIM 6.0	EC002544
ETIM 7.0	EC002544
ETIM 8.0	EC002544
UNSPSC 16.0901	41111613

Dimensional drawing Read head, male connector

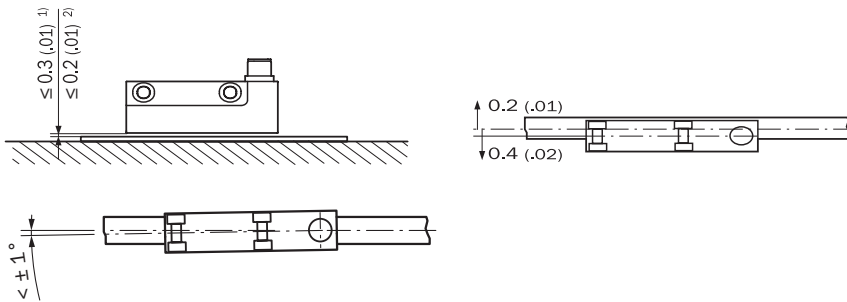


Dimensions in mm (inch)

Bedienhinweis



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			
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-0M5-2MC-MKLB	6037415
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-01M-2MC-MKLB	6037417
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-02M-2MC-MKLB	6037419
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-03M-2MC-MKLB	6037421
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-04M-2MC-MKLB	6037423
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: 17410 Hard ferrite 9/28 P 	MVM-1M5-2MC-MKLB	6037418
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: 17410 Hard ferrite 9/28 P 	MVM-2M5-2MC-MKLB	6037420
	<ul style="list-style-type: none"> Product segment: Magnets Product: Magnetic tapes Description: 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 Material: Covering tape: V2A, magnetic tape: 17410 hard ferrite 9/28 P, substrate tape: spring steel (11± 1) µm/K/m 	MVM-3M5-2MC-MKLB	6037422

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 8-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.5 mm² 	STE-1208-GA	6028370
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight, A-coded Description: Shielded Connection systems: Screw-type terminals Permitted cross-section: 0.25 mm² ... 0.5 mm² 	DOS-1208-GA	6028369
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled, A-coded Signal type: Ethernet Cable: CAT5, CAT5e Description: Ethernet, shielded, M12 female connector, A-coded Connection systems: QUICKON connection Permitted cross-section: 0.14 mm² ... 0.34 mm² 	DOS-1208-WA	6043358
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled Connection type head B: Flying leads Signal type: HIPERFACE®, Incremental Cable: 2 m, 8-wire, PUR, halogen-free Description: HIPERFACE®, shieldedIncremental 	DOL-1208-W02MAC1	6037724
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled Connection type head B: Flying leads Signal type: HIPERFACE®, Incremental Cable: 10 m, 8-wire, PUR, halogen-free Description: HIPERFACE®, shieldedIncremental 	DOL-1208-W10MAC1	6037726
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled Connection type head B: Flying leads Signal type: HIPERFACE®, Incremental Cable: 20 m, 8-wire, PUR Description: HIPERFACE®, shieldedIncremental 	DOL-1208-W20MAC1	6037727
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 2 m, 8-wire, PUR, halogen-free Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mmSSI Connection systems: Flying leads 	DOL-1208-G02MAC1	6032866
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 5 m, 8-wire, PUR, halogen-free Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mmSSI Connection systems: Flying leads 	DOL-1208-G05MAC1	6032867
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 10 m, 8-wire, PUR, halogen-free Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mmSSI Connection systems: Flying leads 	DOL-1208-G10MAC1	6032868
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 20 m, 8-wire, PUR, halogen-free Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mmSSI Connection systems: Flying leads 	DOL-1208-G20MAC1	6032869
	<ul style="list-style-type: none"> Connection type head A: Flying leads Connection type head B: Flying leads Signal type: HIPERFACE®, HIPERFACE® Items supplied: By the meter Cable: 8-wire, PUR, halogen-free 	LTG-2708-MW	6028361

	Brief description	Type	part no.
	<ul style="list-style-type: none"> Description: HIPERFACE[®], shieldedHIPERFACE[®] 		
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight Connection type head B: Flying leads Signal type: Incremental, SSI Cable: 25 m, 8-wire, PUR, halogen-free Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm², Ø 7.0 mmSSI Connection systems: Flying leads 	DOL-1208-G25MAC1	6067859
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, straight, A-coded Signal type: Incremental, SSI Cable: CAT5, CAT5e Description: Incremental, shielded, Head A: female connector, M12, 8-pin, straight, A encoded, shielded, for cable diameter 4 mm ... 8 mm Head B: - Operating temperature: -40 °C ... +85 °CSSI Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² ... 0.34 mm² 	DOS-1208-GA01	6045001
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 8-pin, straight, A-coded Signal type: Incremental Cable: CAT5, CAT5e Description: Incremental, shielded, Head A: male connector, M12, 8-pin, straight, A coded, shielded, for cable diameter 4 mm ... 8 mm Head B: - Operating temperature: -40 °C ... +85 °C Connection systems: IDC quick connection Permitted cross-section: 0.14 mm² ... 0.34 mm² 	STE-1208-GA01	6044892
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled Connection type head B: Flying leads Signal type: HIPERFACE[®], Incremental Cable: 5 m, 8-wire, PUR, halogen-free Description: HIPERFACE[®], shieldedIncremental 	DOL-1208-W05MAC1	6037725
programming devices			
	<ul style="list-style-type: none"> Product segment: Programming devices Product family: PGT-11-S Description: SVip[®] LAN programming tool for all motor feedback systems Items supplied: 1x programming tool PGT-11-S LAN, 1x power supply unit 100-240 V AC / 12 V DC, primary adapter (Europe, UK, USA/Japan, Australia), Ethernet cable 3 m 	PGT-11-S LAN	1057324

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.”

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