

# KHK53-AXT01700

KH53

**MAGNETIC LINEAR ENCODERS** 



#### MAGNETIC LINEAR ENCODERS

# SICK POAR

## Ordering information

Туре	part no.
KHK53-AXT01700	1030080

Illustration may differ

Other models and accessories → www.sick.com/KH53



#### Detailed technical data

#### Safety-related parameters

MTTF <sub>D</sub> (mean time to dangerous failure) 21 years (EN ISO 13849) 1)
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<sup>1)</sup> 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 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

#### Performance

Measuring range	0 m 1,700 m
Resolution	0.1 mm
Traversing speed	6.6 m/s <sup>1)</sup>
Repeatability	0.3 mm
Measurement accuracy	$\pm$ 1000 + ME (Tu-25 °C) Tk $\mu$ m $^{2)}$

<sup>1)</sup> If the max, traversing speed is exceeded or if the measuring elements are left, the corresponding error message is triggered (with SSI: FF FF FE hex).

#### Interfaces

Communication interface	SSI
Position forming time	+ 0.8 ms
Interface, digital serial	SSI, 24 Bit, gray
Interface for parametrization	RS-422 Default OFF Four wire transmission, asynchrony, full duplex Data format: 1 start bit, 8 data bits, 1 stop bit, no parity Data protocol: ASCII, Baud rate 9600 RS-422

#### Electronics

Initialization time	2 s
Supply voltage	10 V 32 V
Current consumption	250 mA
Connection type	Cable, 12-wire, 5 m

#### Mechanics

Weight	5.2 kg
Length of measuring element	See calculation example

 $<sup>^{2)}</sup>$  If a positional tolerance of  $\pm$  1 mm is observed relative to the nominal distance in the N and Y directions within a measuring element relative to the starting point of this element ME = length of measuring element Tu = ambient temperature in °C. Tk = coefficient of thermal expansion (28  $\mu$ m/°C/m).

Position tolerance	± 10 mm, see positional tolerances diagram
Read head material	AIMgSiPbF28

# Ambient data

EMC	According to EN 61000-6-2 and EN 61000-6-4 <sup>1)</sup>
Enclosure rating	IP66 (IEC 60529)
Operating temperature range	-20 °C +60 °C
Storage temperature range	-40 °C +85 °C
Resistance to shocks	30 g, 10 ms (DIN EN 60 068-2-27)
Resistance to vibration	10 g, 20 Hz 250 Hz (EN 60068-2-6)

 $<sup>^{1)}\,\</sup>mathrm{EMC}$  according to the standards quoted is achieved if shielded cables are used.

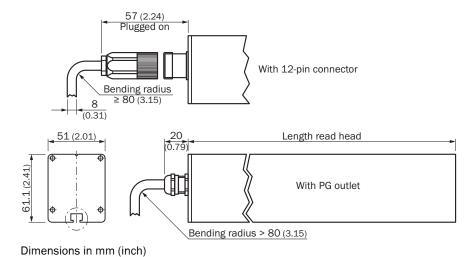
## Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

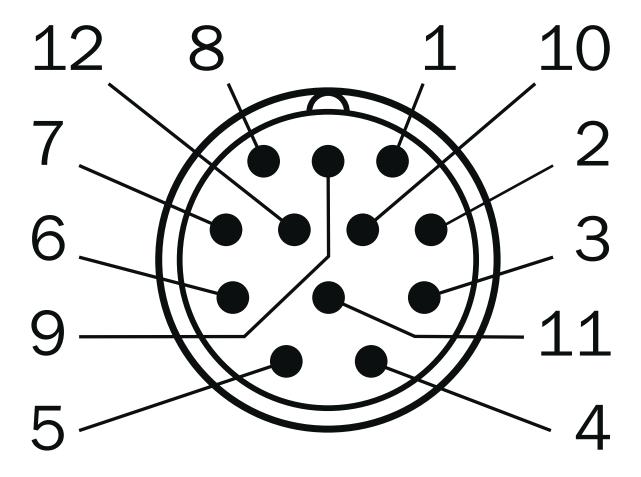
#### Classifications

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 SSI read head

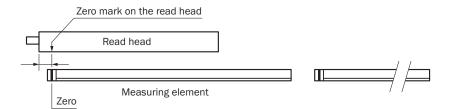


## PIN assignment SSI interface, view of M23 male device connector



PIN	Signal	Wire colors (cable connection)	Explanation	
1	GND	Blue	Ground connection	
2	Data +	White	Interface signals	
3	Clock +	Yellow	Interface signals	
4	R x D +	Gray	RS-422 programming lines	
5	R x D -	Green	RS-422 programming lines	
6	T x D +	Pink	RS-422 programming lines	
7	T x D -	Black	RS-422 programming lines	
8	U <sub>S</sub>	Red	Supply voltage	
9	N.C.	Orange	Not assigned	
10	Data -	Brown	Interface signals	
11	Clock -	Violet	Interface signals	
12	N.C.	-	Not assigned	

## Position tolerance Start of measuring path



#### Recommended accessories

Other models and accessories → www.sick.com/KH53

	Brief description	Туре	part no.		
Mounting syst	Mounting systems				
	<ul> <li>Description: Mounting bracket for KH53 measuring elements</li> <li>Items supplied: Without mounting hardware for the background</li> </ul>	BEF-WK-KHT53	2029159		
	Description: Spacer for KHT53     Items supplied: Without mounting hardware for the background	BEF-KHA-KHT53	2042468		

	Brief description	Туре	part no.	
connectors and cables				
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422, TTL, HTL</li> <li>Cable: 1.5 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422, TTL, HTL</li> </ul>	DOL-2312- G1M5MA1	2029200	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422, TTL, HTL</li> <li>Cable: 3 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422, TTL, HTL</li> </ul>	DOL-2312- G03MMA1	2029201	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422, TTL, HTL</li> <li>Cable: 5 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422, TTL, HTL</li> </ul>	DOL-2312- G05MMA1	2029202	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422</li> <li>Cable: 20 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422</li> </ul>	DOL-2312- G20MMA1	2029204	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422</li> <li>Cable: 30 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422</li> </ul>	DOL-2312- G30MMA1	2029205	
	<ul> <li>Connection type head A: Flying leads</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, Incremental</li> <li>Items supplied: By the meter</li> <li>Cable: 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, Incremental</li> </ul>	LTG-2512-MW	6027531	
	<ul> <li>Connection type head A: Flying leads</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, TTL, HTL, Incremental</li> <li>Items supplied: By the meter</li> <li>Cable: 12-wire, UV and saltwater-resistant, PUR, halogen-free</li> <li>Description: SSI, shielded, TTL, HTL, Incremental</li> </ul>	LTG-2612-MW	6028516	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight, A-coded</li> <li>Signal type: HIPERFACE<sup>®</sup>, SSI, Incremental</li> <li>Description: HIPERFACE<sup>®</sup>, shieldedSSIIncremental</li> <li>Connection systems: Solder connection</li> </ul>	DOS-2312-G	6027538	
	Connection type head A: Male connector, M23, 12-pin, straight, A-coded Signal type: HIPERFACE®, SSI, Incremental, RS-422 Description: HIPERFACE®, shieldedSSIIncrementalRS-422 Connection systems: Solder connection	STE-2312-G	6027537	
(H=0)	Connection type head A: Female connector, M23, 12-pin, angled, A-coded Signal type: HIPERFACE®, SSI, Incremental Description: HIPERFACE®, shieldedSSIIncremental Connection systems: Solder connection	DOS-2312-W01	2072580	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422, TTL, HTL</li> <li>Cable: 10 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422, TTL, HTL</li> </ul>	DOL-2312- G10MMA1	2029203	
	<ul> <li>Connection type head A: Female connector, M23, 9-pin, straight, A-coded</li> <li>Signal type: HIPERFACE<sup>®</sup>, SSI, Incremental</li> <li>Description: HIPERFACE<sup>®</sup>, shieldedSSIIncremental</li> <li>Connection systems: Solder connection</li> </ul>	DOS-2309-G	6028533	
	<ul> <li>Connection type head A: Female connector, M23, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: SSI, RS-422, TTL, HTL</li> <li>Cable: 5 m, 12-wire, PUR, halogen-free</li> <li>Description: SSI, shielded, RS-422, TTL, HTL</li> </ul>	DOL-2312-G05MHA1	2059786	

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# MAGNETIC LINEAR ENCODERS

	Brief description	Туре	part no.	
programming devices				
<b>E3</b> .	<ul> <li>Product segment: Programming devices</li> <li>Product family: PGT-01-S</li> <li>Description: Programming tool for ATM60, ATM90, and KH53</li> <li>Items supplied: Power supply, interface, link cable, encoder cable, and software</li> </ul>	PGT-01-S	1030111	
Linear encoders				
	System part: Measuring element     Measuring range: 0 m 1,700 m     Code type: Coded	KHT53-XXX01700	1030085	
	System part: Measuring element     Measuring range: 0 m 1,700 m     Code type: Universal configurable	KHU53-XXX01700	1030086	
	System part: Mounting gauge     Measuring range: 0 m 1,700 m	KHM53-XXX01700	1030087	

# 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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