ONLINE DATA SHEET
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Motor feedback systems linear HIPERFACE®
TTK50

TTK50-HXJ0K02

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TTK50

Model Name > TTK50-HXJ0K02
Part No. > 1057791

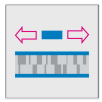

Illustration may differ

At a glance

- Absolute, non-contact, wear-free length measurement system for linear motors
- Measured lengths of up to 1 m
- Suitable for high traverse speeds of up to 10 m/s
- Reliable location positioning even in the event of condensation and contamination of the magnetic tape
- Electronic type label and programming of the position value
- Absolute location positioning, no reference run
- HIPERFACE® interface
- Conforms to RoHs

Your benefits

- Reference traverse no longer necessary due to absolute measuring system
- Maintenance-free thanks to non-contact measuring principle
- Simple integration of the system due to the HIPERFACE® interface
- Developed specifically for use in linear direct drives
- Also for use in rough ambient conditions

Performance

Measuring step:	0.244 µm at interpolation of the sine/cosine signals with e.g. 12 Bit
Length of period:	1 mm
Measuring length:	Max. 940 mm
Available memory area:	1,792 Byte (EEPROM 2048)
System accuary (ambient temperature):	± 10 µm (20 °C)
Repeatability (Ta not constant):	< 5 µm
Magnetic strip length:	Measurement length + 60 mm
System part:	Read head
Measured value backlash:	< 10 µm

Mechanical data

Dimensions:	See dimensional drawing
Mass:	Read head 0.06 kg without cable, magnetic tape 0.18 kg/m
Material:	Read head die-cast zinc, magnetic tape 17410 hard ferrite 9/28 P
Piston speed:	10 m/s
Operating speed up to which the absolute position can be rel:	1.3 m/s
Connection type:	0.5 m

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Electrical data

Electrical interface:	HIPERFACE
Operating voltage range/supply Voltage:	7 V DC ... 12 V DC
Recommended supply voltage:	8 V DC
Operating power consumption (no load):	≤ 55 mA [1]

[1] 100 mA approx. during adjustment

Interfaces

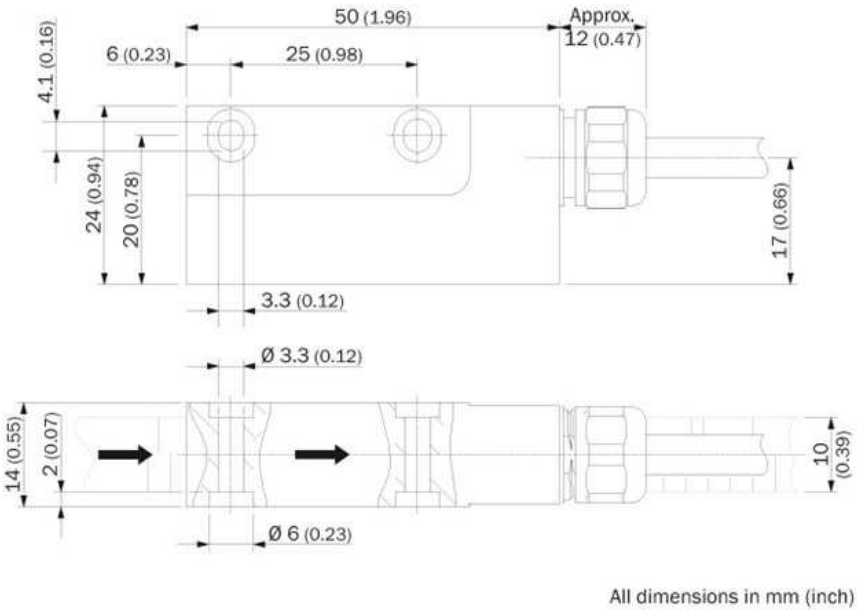
Type of code for the absolute value:	Binary
Interface signals:	Parameter channel RS 485: digital, Process data channel SIN, REFSIN, COS, REFCOS: analog, differential

Ambient data

Working temperature range:	-30 °C ... 80 °C
Storage temperature range:	-40 °C ... 85 °C, without package
Relative humidity/Condensation:	100 %, Condensation allowed
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)
EMC:	(EN 61000-6-2) [1] (EN 61000-6-3) [1]
Enclosure rating:	IP 65 (according to IEC 60529)
Temperature coefficient magnetic tape:	(11 ± 1) µm/K/m
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)

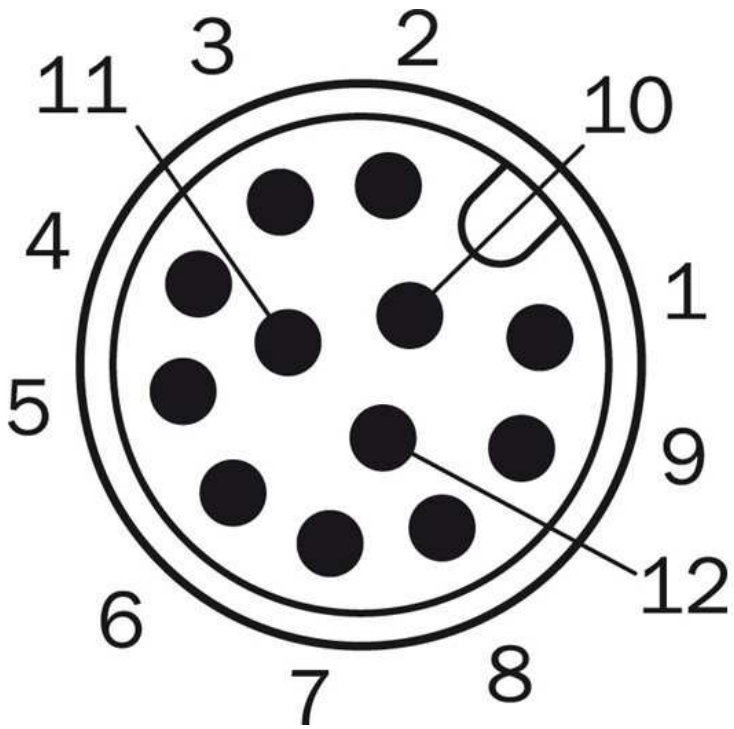
[1] The EMC according to the standards quoted is achieved when the motor feedback system which is connected to the central earthing point of the motor controller via a cable screen. Users must perform their own tests when other screen designs are used. [2] The maximum permitted external field influence 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.

Dimensional drawing

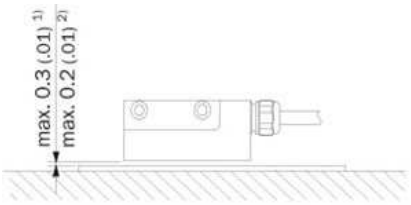


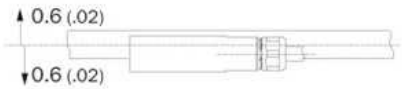
All dimensions in mm (inch)

Magnetic tape



General tolerances





All dimensions in mm (inch)

1) Without cover strip.

2) With cover strip.

General tolerances acc. to DIN ISO 2768-mk.

Wire allocation

Color of wires	Signal	Explanation
Brown	REFSIN	Process data channel
White	+ SIN	Process data channel
Black	REFCOS	Process data channel
Pink	+ COS	Process data channel
Gray or yellow	Data +	RS-485 parameter channel
Green or purple	Data –	RS-485 parameter channel
Blue	GND	Ground connection
Red	$+U_s$	Encoder supply voltage
Copper braid	Screen	Screen connected with encoder housing

Electronically adjustable via programming tool

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