Linear encoders
KH53
KHK53-AXB00038
Linear encoders
KH53

Model Name  > KH53-AXB00038
Part No.  > 1030052

At a glance
- Non-contact length measurement - maintenance-free, rugged, long lifetime
- High reproducibility (0.3 mm / 1 mm), high system resolution (0.1 mm)
- SSI and PROFIBUS interfaces
- Determination of absolute position
- Measuring lengths of up to 1,700 m possible
- Can be used in harsh environments
- High travel speeds of up to 6.6 m/s
- Distance tolerance between read head and measuring element: up to 55 mm ± 20 mm possible

Your benefits
- After installation, the system is immediately available and completely maintenance-free, which leads to time and cost savings.
- Reliable determination of position under harshest environmental conditions such as influences of dirt, dust, fog, shocks and vibrations
- High efficiency and productivity
- Savings on time - no reference run necessary on initial operation due to absolute position measurement
- Accurate positioning even with high mounting tolerances

Performance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring length:</td>
<td>0 m ... 38 m</td>
</tr>
<tr>
<td>Measuring range:</td>
<td>38 m</td>
</tr>
<tr>
<td>Resolution:</td>
<td>0.1 mm</td>
</tr>
<tr>
<td>Piston speed:</td>
<td>6.6 m/s</td>
</tr>
<tr>
<td>Measurement accuracy:</td>
<td>± 1000 + ME (Tu-25°C) Tk μm</td>
</tr>
<tr>
<td>Repeatability:</td>
<td>0.3 mm</td>
</tr>
</tbody>
</table>

1) If the max. movement speed is exceeded or the read head cannot detect a measuring element the error message FF FF FE Hex is produced.  
2) If the read head and measuring element are mounted within ± 1 mm of the nominal mounting distance in the N and Y directions. The figures quoted related to the accuracy within a measuring element with reference to the start of that measuring element. ME = length measuring element Tu = Ambient temperature °C

Mechanical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection type:</td>
<td>Connector M23, 12-pin</td>
</tr>
<tr>
<td>Mass:</td>
<td>2.4 kg</td>
</tr>
<tr>
<td>Position tolerance:</td>
<td>± 10 mm</td>
</tr>
</tbody>
</table>
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 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

### Electrical data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Initialization time</td>
<td>2 s</td>
</tr>
<tr>
<td>Position forming time</td>
<td>0.8 ms</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>10 V ... 32 V</td>
</tr>
<tr>
<td>Power consumption</td>
<td>250 mA</td>
</tr>
<tr>
<td>MTTFd: mean time to dangerous failure</td>
<td>45 a (EN ISO 13849)</td>
</tr>
</tbody>
</table>

1) This product is a standard product and does not constitute a safety component as defined in the Machinery Directive.

### Interfaces

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical interface</td>
<td>SSI</td>
</tr>
<tr>
<td>Interface signals</td>
<td>Digital, serial</td>
</tr>
<tr>
<td>Interface for parametrization</td>
<td>Data format: 1 start bit, 8 data bits, 1 stop bit, no parity, Data protocol: ASCII, Baud rate 9600 RS-422, RS-422, Four wire transmission, asynchrony, full duplex</td>
</tr>
<tr>
<td>Data format</td>
<td>SSI 24 bits format</td>
</tr>
<tr>
<td>Standard (default setting SSI standard)</td>
<td>RS-422 off</td>
</tr>
</tbody>
</table>

### Ambient data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC</td>
<td>(according to EN 61000-6-2 and EN 61000-6-4)</td>
</tr>
<tr>
<td>Enclosure rating</td>
<td>IP 65 (IEC 60529), with mating connector inserted</td>
</tr>
<tr>
<td>Working temperature range</td>
<td>-20 °C ... +60 °C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-40 °C ... +85 °C</td>
</tr>
<tr>
<td>Resistance to shocks</td>
<td>30 g, 10 ms (DIN EN 60 068-2-27)</td>
</tr>
<tr>
<td>Resistance to vibration</td>
<td>10 g, 20 Hz ... 250 Hz (EN 60068-2-6)</td>
</tr>
</tbody>
</table>

1)
Dimensional drawing

All dimensions in mm (inch)
Australia
Phone +61 3 9457 0600
1800 33 48 02 – tollfree
E-Mail sales@sick.com.au
Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be
Brasil
Phone +55 11 3215-4900
E-Mail marketing@sick.com.br
Canada
Phone +1 905 771 14 44
E-Mail information@sick.com
Česká republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz
China
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852-2153 6300
E-Mail ghk@sick.com.hk
Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk
Deutschland
Phone +49 211 5301-301
E-Mail info@sick.de
España
Phone +34 93 480 31 00
E-Mail info@sick.es
France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr
Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk
India
Phone +91-22-4033 8333
E-Mail info@sick-india.com
Israel
Phone +972-4-6881000
E-Mail info@sick-sensors.com
Italia
Phone +39 02 27 43 41
E-Mail info@sick.it
Japan
Phone +81 (0)3 5309 2112
E-Mail support@sick.jp
Magyarország
Phone +36 1 371 2680
E-Mail office@sick.hu
Nederland
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl
Norge
Phone +47 67 81 50 00
E-Mail sick@sick.no
Österreich
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at
Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl
România
Phone +40 356 171 120
E-Mail office@sick.ro
Russia
Phone +7-495-775-05-30
E-Mail info@sick.ru
Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch
Singapore
Phone +65 6744 3732
E-Mail sales.gsg@sick.com
Slovenija
Phone +386 (0)1-47 69 990
E-Mail office@sick.si
South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za
South Korea
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net
Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi
Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se
Taiwan
Phone +886 2 2375-6288
E-Mail sales@sick.com.tw
Türkiye
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr
United Arab Emirates
Phone +971 (0) 4 88 65 878
E-Mail info@sick.ae
USA/México
Phone +1(952) 941-6780
1 (800) 325-7425 – tollfree
E-Mail info@sickusa.com

More representatives and agencies at www.sick.com