



# DAXTON-2500R1130201300

DAX

MAGNETOSTRICTIVE LINEAR ENCODERS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

Type	part no.
DAXTON-2500R1130201300	1130578

Other models and accessories → [www.sick.com/DAX](http://www.sick.com/DAX)



### Detailed technical data

#### Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	123 years <sup>1)</sup>
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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

<b>Linearity</b>	≤ 0.02% F.S. (Minimum 250 µm) <sup>1) 2)</sup>
<b>Repeatability</b>	≤ ± 100 µm
<b>Measured values</b>	Positioning, speed
<b>Measuring range</b>	0 mm ... 2,500 mm
<b>Unusable range</b>	
Null zone	50 mm
Damping zone	63 mm
<b>Magnet type</b>	
Magnet shape	Ring magnet
Configured for number of magnets	1 piece
<b>Magnet travel speed</b>	Any
<b>Resolution</b>	100 µm
<b>Cycle time</b>	1 ms

<sup>1)</sup> Systematic position measurement deviation according to DIN ISO 1319-1 (value includes all systematic errors or deviations from the actual position value, e.g. repeatability and hysteresis).

<sup>2)</sup> In principle, the size of the measurement deviation is limited by the resolution of the interface.

#### Interfaces

<b>Communication interface</b>	CANopen
<b>Address setting</b>	
Data transmission rate	250 kbit/s
Node ID	7Fh (127)

#### Electronics

<b>Connection type</b>	Male connector, M12, 5-pin
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<b>Pinouts</b>	1=n.c.; 2=V DC; 3=GND; 4=CAN_H; 5=CAN_L
<b>Male connector coding</b>	A-coded
<b>Supply voltage</b>	24 V DC ( $\pm 20\%$ )
<b>Reverse polarity protection</b>	Up to $-30$ V DC
<b>Residual ripple</b>	$\leq 0.28$ V <sub>pp</sub>
<b>Dielectric strength</b>	500 V DC, 0 V against housing
<b>Over voltage protection</b>	$\leq 36$ V DC

## Mechanics

<b>Mechanical design</b>	DAX Threaded
<b>Thread</b>	
Thread shape	3/4"-16UNF
Thread offset	Without thread offset
<b>Material</b>	
Pressure pipe	Stainless steel 1.4404 (AISI 316L)
Housing	Aluminum (anodised), zinc, stainless steel, brass
Flange	Stainless steel 1.4305 (AISI 303)

## Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-4
<b>Enclosure rating</b>	IP65 / IP67 <sup>1)</sup>
<b>Temperature</b>	
Operating temperature range	$-40$ °C ... $+85$ °C
Storage temperature range	$-40$ °C ... $+65$ °C <sup>2)</sup>
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Resistance to shocks</b>	100 g, 6 ms (IEC 60068-2-27)
<b>Resistance to vibration</b>	15 g / 10...2,000 Hz according to IEC 60068-2-6
<b>Nominal operating pressure (P<sub>N</sub>)</b>	350 bar
<b>Max. overload pressure during operation (P<sub>N</sub> x 1.2)</b>	420 bar
<b>Max. test pressure in cylinder (P<sub>N</sub> x 1.5)</b>	530 bar

<sup>1)</sup> In correctly assembled mating connector.

<sup>2)</sup> Caused by dry storage of the O-ring in uninstalled state (no coating with oil).

## General notes

<b>Items supplied</b>	
	Accessories not included with delivery, please order separately. Delivery without position magnet.

## Certificates

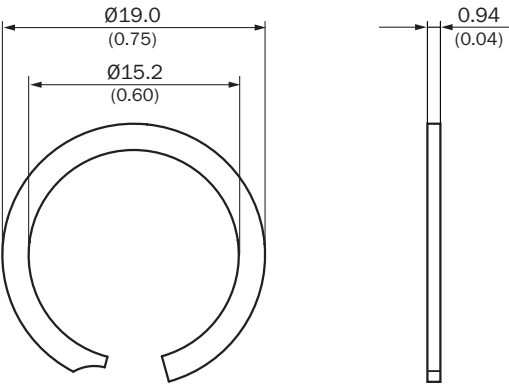
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓

cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

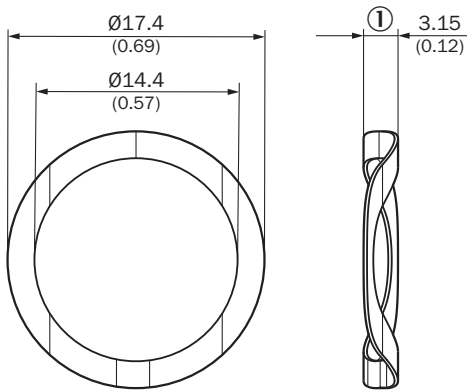
ECLASS 5.0	27270705
ECLASS 5.1.4	27270705
ECLASS 6.0	27270705
ECLASS 6.2	27270705
ECLASS 7.0	27270705
ECLASS 8.0	27270705
ECLASS 8.1	27270705
ECLASS 9.0	27270705
ECLASS 10.0	27270705
ECLASS 11.0	27270705
ECLASS 12.0	27274304
ETIM 5.0	EC002544
ETIM 6.0	EC002544
ETIM 7.0	EC002544
ETIM 8.0	EC002544
UNSPSC 16.0901	41111613

circlip



Dimensions in mm (inch)

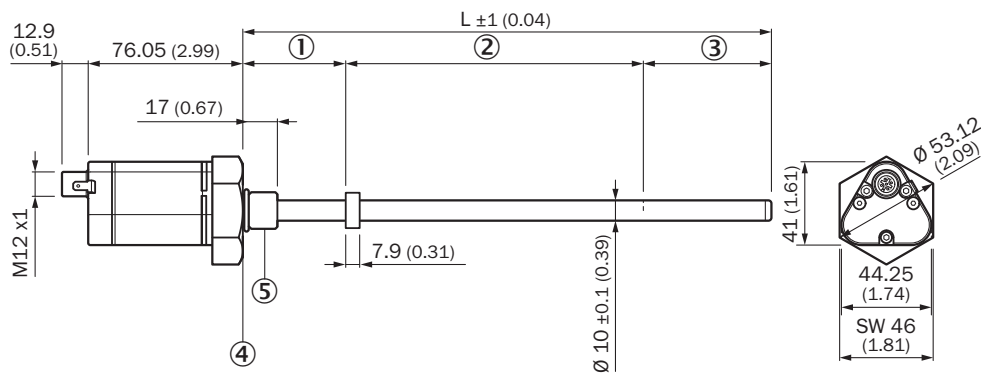
## corrugated spring washer



Dimensions in mm (inch)

① Free height

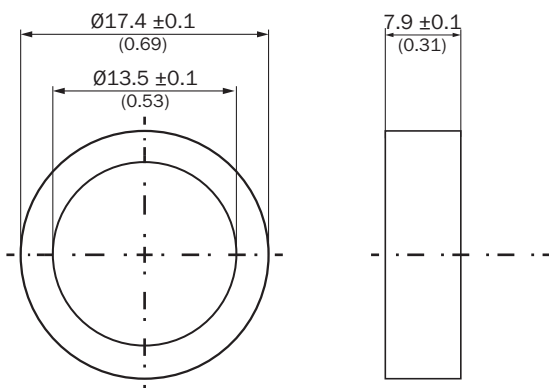
## DAX Threaded



Dimensions in mm (inch)

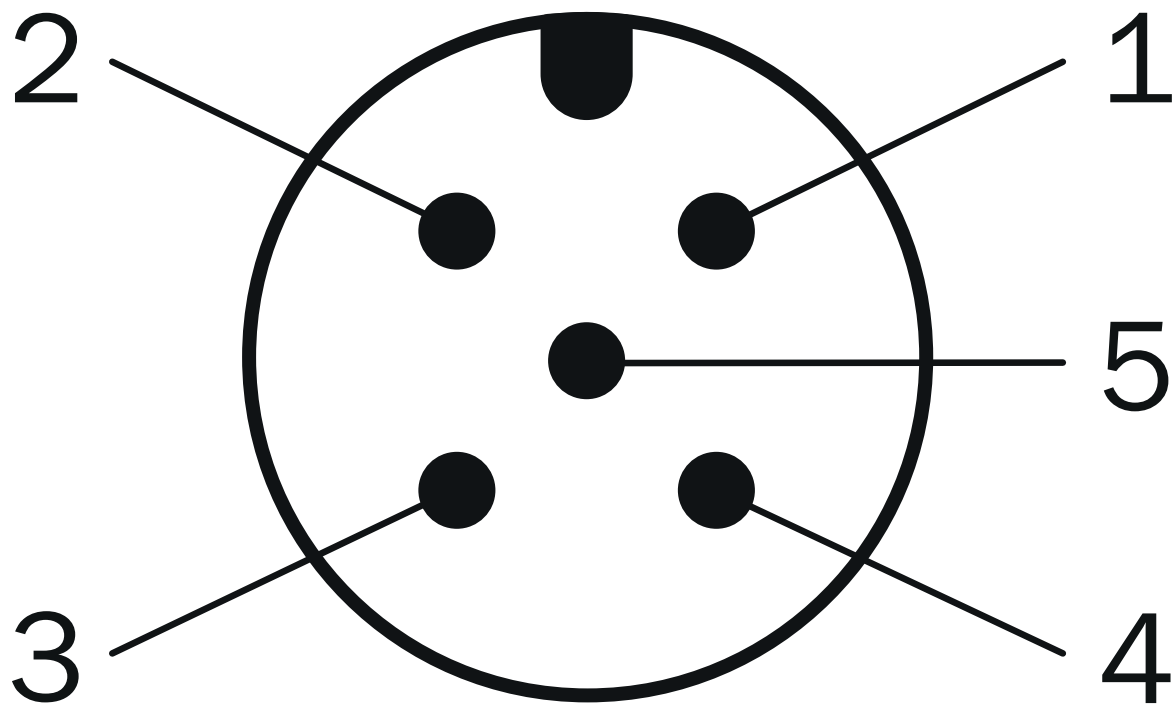
- ① null zone
- ② Measuring range
- ③ damping zone
- ④ Flat support surface
- ⑤ M18x1.5 / UNF 3/4"-16

## Position magnet



Dimensions in mm (inch)

Anschlussbelegung



M12 male connector, 5-pin	Signal
1	n.c.
2	V DC
3	GND
4	CAN_H
5	CAN_L





## Recommended accessories

Other models and accessories → [www.sick.com/DAX](http://www.sick.com/DAX)

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-100C1B-M2A15	2106282
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-100C1BXLEAX	2106286
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 5-pin, straight</li> <li><b>Signal type:</b> CANopen</li> <li><b>Description:</b> CANopen, unshielded</li> </ul>	CAN male connector	6021167
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> CANopen, DeviceNet™</li> <li><b>Description:</b> CANopen, shielded DeviceNet™</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>	DOS-1205-GA	6027534
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li> <li><b>Connection type head B:</b> Female connector, M12, 5-pin, A-coded</li> <li><b>Connection type head C:</b> Male connector, M12, 5-pin, A-coded</li> <li><b>Description:</b> Unshielded</li> </ul>	DSC-1205T000025KMC	6030664
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> CANopen, DeviceNet™</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 4-wire, twisted pair</li> <li><b>Description:</b> CANopen, shielded, DeviceNet™</li> <li><b>Note:</b> Wire shield Al-Pt film, overall shield C-screen tin-plated</li> </ul>	LTG-2804-MW	6028328
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> CANopen, DeviceNet™</li> <li><b>Description:</b> CANopen, shielded DeviceNet™</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>	STE-1205-GA	6027533
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-020C1B-M2A15	2106279
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-020C1BXLEAX	2106283
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-050C1B-M2A15	2106281
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li><b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> </ul>	YF2A15-050C1BXLEAX	2106284

	Brief description	Type	part no.
	<ul style="list-style-type: none"><li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li><li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li><li>• <b>Connection type head B:</b> Female connector, M12, 5-pin, A-coded</li><li>• <b>Connection type head C:</b> Male connector, M12, 5-pin, A-coded</li><li>• <b>Cable:</b> 0.5 m, TPU</li><li>• <b>Description:</b> Shielded</li></ul>	Y-CAN cable	6083185
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Retaining ring for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel 1.4319</li><li>• <b>Packing unit:</b> 1 piece</li></ul>	BEF-MK-SR-01	2116437
	<ul style="list-style-type: none"><li>• <b>Description:</b> Retaining ring for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel 1.4319</li><li>• <b>Packing unit:</b> 5 pieces</li></ul>	BEF-MK-SR-05	2116438
	<ul style="list-style-type: none"><li>• <b>Description:</b> Retaining ring for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel 1.4319</li><li>• <b>Packing unit:</b> 10 pieces</li></ul>	BEF-MK-SR-10	2116439
	<ul style="list-style-type: none"><li>• <b>Description:</b> Retaining ring for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel 1.4319</li><li>• <b>Packing unit:</b> 50 pieces</li></ul>	BEF-MK-SR-50	2116440
	<ul style="list-style-type: none"><li>• <b>Description:</b> Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> 1.4568 (17-7 PH Condition CH900)</li><li>• <b>Packing unit:</b> 1 piece</li></ul>	BEF-MK-WF-01	2116431
	<ul style="list-style-type: none"><li>• <b>Description:</b> Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> 1.4568 (17-7 PH Condition CH900)</li><li>• <b>Packing unit:</b> 5 pieces</li></ul>	BEF-MK-WF-05	2116432
	<ul style="list-style-type: none"><li>• <b>Description:</b> Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> 1.4568 (17-7 PH Condition CH900)</li><li>• <b>Packing unit:</b> 10 pieces</li></ul>	BEF-MK-WF-10	2116433
	<ul style="list-style-type: none"><li>• <b>Description:</b> Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> 1.4568 (17-7 PH Condition CH900)</li><li>• <b>Packing unit:</b> 50 pieces</li></ul>	BEF-MK-WF-50	2116435



	Brief description	Type	part no.
magnets			
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Magnets</li> <li>• <b>Product:</b> Position magnets</li> <li>• <b>Description:</b> Position magnet for magnetostrictive linear encoders. Installation: in hydraulic cylinder using corrugated spring washer SICK part no. 2116431. Temperature range: -40 °C ... +100 °C. Dimensions: 17.4x13.5x7.9 mm. Media: lubricants, hydraulic oils, no aggressive fluids (e.g., acids or bases)</li> </ul>	MAG-O-S174-01	2124594
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Magnets</li> <li>• <b>Product:</b> Position magnets</li> <li>• <b>Description:</b> Position magnet for magnetostrictive linear encoders. Installation: in hydraulic cylinder using corrugated spring washer SICK part no. 2116431. Temperature range: -40 °C ... +100 °C. Dimensions: 17.4x13.5x7.9 mm. Media: lubricants, hydraulic oils, no aggressive fluids (e.g., acids or bases)</li> </ul>	MAG-O-S174-05	2124595
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Magnets</li> <li>• <b>Product:</b> Position magnets</li> <li>• <b>Description:</b> Position magnet for magnetostrictive linear encoders. Installation: in hydraulic cylinder using corrugated spring washer SICK part no. 2116431. Temperature range: -40 °C ... +100 °C. Dimensions: 17.4x13.5x7.9 mm. Media: lubricants, hydraulic oils, no aggressive fluids (e.g., acids or bases)</li> </ul>	MAG-O-S174-10	2124596
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Magnets</li> <li>• <b>Product:</b> Position magnets</li> <li>• <b>Description:</b> Position magnet for magnetostrictive linear encoders. Installation: in hydraulic cylinder using corrugated spring washer SICK part no. 2116431. Temperature range: -40 °C ... +100 °C. Dimensions: 17.4x13.5x7.9 mm. Media: lubricants, hydraulic oils, no aggressive fluids (e.g., acids or bases)</li> </ul>	MAG-O-S174-50	2124597

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)