



DAXTVN-1000RA130100400

DAX

MAGNETOSTRICTIVE LINEAR ENCODERS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
DAXTVN-1000RA130100400	1130090

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



Detailed technical data

Safety-related parameters

MTTF_D (mean time to dangerous failure)	123 years 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 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

Performance

Linearity	≤ 0.02% F.S. (Minimum 60 μm) ^{1) 2)}
Repeatability	≤ ± 20 μm
Measured values	Positioning
Measuring range	0 mm ... 1,000 mm
Unusable range	
Null zone	50 mm
Damping zone	63 mm
Magnet type	
Magnet shape	Ring magnet
Configured for number of magnets	1 piece
Magnet travel speed	Any
Measuring frequency (internal)	< 2 ms

¹⁾ 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).

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

Interfaces

Communication interface	Analog
Communication Interface detail	Voltage
Output signal	0 V ... 10 V
Signals	
Number of signals	One output signal
Load resistance	> 10 kΩ

Electronics

Connection type	Male connector, M12, 5-pin
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Pinouts	1=+24 V DC; 2=Signal 1; 3=Power ground; 4=Signal 2; 5=Output signal ground (0 V)
Male connector coding	A-coded
Supply voltage	24 V DC ($\pm 20\%$)
Reverse polarity protection	Up to -30 V DC
Residual ripple	≤ 0.28 V _{pp}
Dielectric strength	500 V DC, 0 V against housing
Over voltage protection	≤ 36 V DC

Mechanics

Mechanical design	DAX Threaded
Thread	
Thread shape	M18 x 1.5
Thread offset	Without thread offset
Material	
Pressure pipe	Stainless steel 1.4404 (AISI 316L)
Housing	Aluminum (anodised), zinc, stainless steel, brass
Flange	Stainless steel 1.4305 (AISI 303)

Ambient data

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

¹⁾ In correctly assembled mating connector.

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

General notes

Items supplied	Accessories not included with delivery, please order separately. Delivery without position magnet.
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Certificates

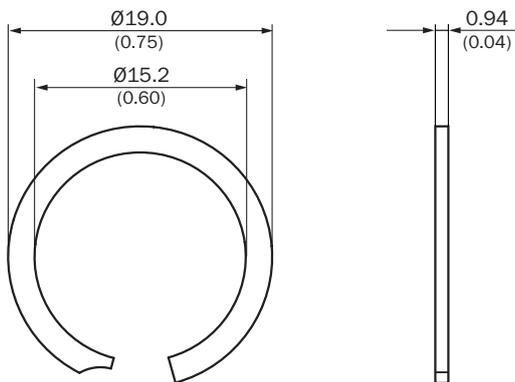
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

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

Classifications

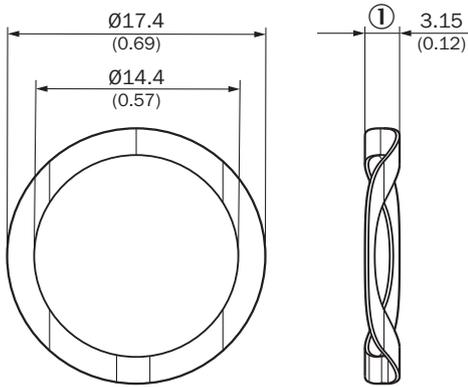
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ECLASS 5.1.4	27270705
ECLASS 6.0	27270705
ECLASS 6.2	27270705
ECLASS 7.0	27270705
ECLASS 8.0	27270705
ECLASS 8.1	27270705
ECLASS 9.0	27270705
ECLASS 10.0	27270705
ECLASS 11.0	27270705
ECLASS 12.0	27274304
ETIM 5.0	EC002544
ETIM 6.0	EC002544
ETIM 7.0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

circlip



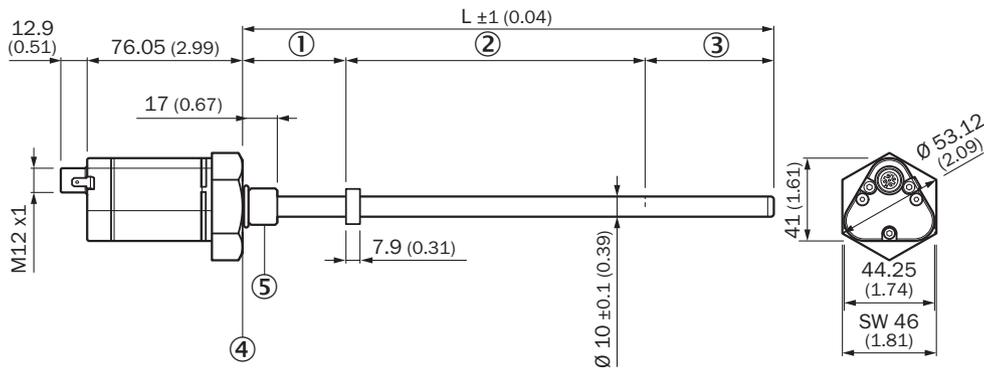
Dimensions in mm (inch)

corrugated spring washer



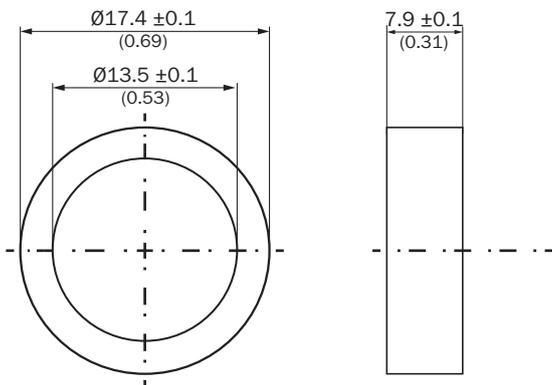
Dimensions in mm (inch)
 ① Free height

DAX Threaded



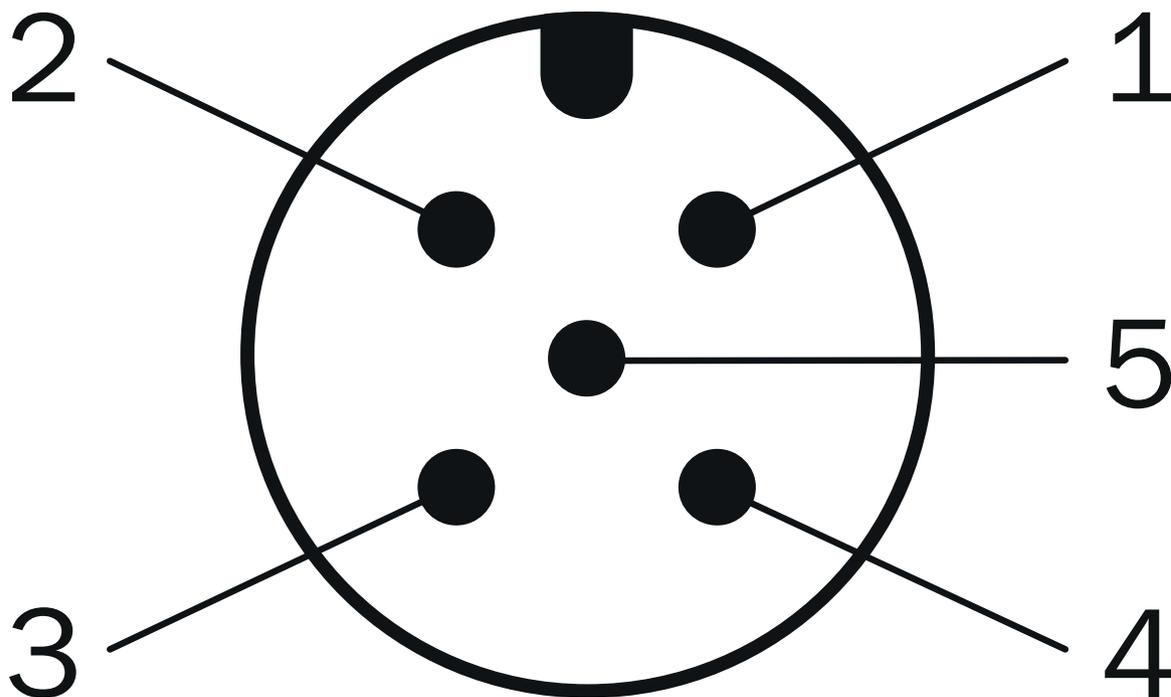
Dimensions in mm (inch)
 ① null zone
 ② Measuring range
 ③ damping zone
 ④ Flat support surface
 ⑤ M18x1.5 / UNF 3/4"-16

Position magnet



Dimensions in mm (inch)

Anschlussbelegung



Plug, M12, 5-pin	Signal
1	+24 V DC
2	Signal 1
3	Power Ground
4	Signal 2
5	Output signal ground (0 V)

Recommended accessories

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

	Brief description	Type	part no.
magnets			
	<ul style="list-style-type: none"> Product segment: Magnets Product: Position magnets Description: 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) 	MAG-O-S174-01	2124594
	<ul style="list-style-type: none"> Product segment: Magnets Product: Position magnets Description: 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) 	MAG-O-S174-05	2124595
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	<ul style="list-style-type: none"> Product segment: Magnets Product: Position magnets Description: 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) 	MAG-O-S174-50	2124597

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> • Description: Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: 1.4568 (17-7 PH Condition CH900) • Packing unit: 50 pieces 	BEF-MK-WF-50	2116435
	<ul style="list-style-type: none"> • Description: Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: 1.4568 (17-7 PH Condition CH900) • Packing unit: 10 pieces 	BEF-MK-WF-10	2116433
	<ul style="list-style-type: none"> • Description: Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: 1.4568 (17-7 PH Condition CH900) • Packing unit: 5 pieces 	BEF-MK-WF-05	2116432
	<ul style="list-style-type: none"> • Description: Corrugated spring washer for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: 1.4568 (17-7 PH Condition CH900) • Packing unit: 1 piece 	BEF-MK-WF-01	2116431
	<ul style="list-style-type: none"> • Description: Retaining ring for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: Stainless steel 1.4319 • Packing unit: 50 pieces 	BEF-MK-SR-50	2116440
	<ul style="list-style-type: none"> • Description: Retaining ring for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: Stainless steel 1.4319 • Packing unit: 10 pieces 	BEF-MK-SR-10	2116439
	<ul style="list-style-type: none"> • Description: Retaining ring for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: Stainless steel 1.4319 • Packing unit: 5 pieces 	BEF-MK-SR-05	2116438
	<ul style="list-style-type: none"> • Description: Retaining ring for installing the position magnets in the piston of the hydraulic cylinder • Material: Stainless steel • Details: Stainless steel 1.4319 • Packing unit: 1 piece 	BEF-MK-SR-01	2116437

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 5-pin, straight, A-coded • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² • Note: For field bus technology 	STE-1205-G	6022083
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 1.5 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A25-015UB6XLEAX	2095833
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 3 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A25-030UB6XLEAX	2095834
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 3 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-030UB6XLEAX	2095791
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-050UB6XLEAX	2095792
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 10 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-100UB6XLEAX	2095793
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² 	DOS-1205-G	6009719
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 0.6 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-C60UB6XLEAX	2145612
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 1 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-010UB6XLEAX	2145613
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, shielded • Application: Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation 	YG2A25-020UB6XLEAX	2145614

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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