Made in Germany

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Technical Information

GEL SEROT

SeGMo-Assist

Rotary Sensor for the Position Display GEL SEPODL

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LENORD +BAUER

Finding solutions. Founding trust.

Motion sensors and integrated drive technology

SeGMo-System

The SeGMo-System is designed for the efficient integration of multiple positioning drives and position indicators into a machine or system.

The system consists of the following components:

- SeGMo-Positioning:
  Positioning drive for fully automatic format adjustment
- SeGMo-Assist:
  Position indicator for manual adjustment operations
- SeGMo-Lib:
  Pre-built function blocks for integration into the system control
- SeGMo-Support Tool:
  Software for advanced commissioning and configuration
- SeGMo-ImgConv Tool:
  Tool for converting image files into pictograms for SeGMo-Assist
- SeGMo-Service Tool:
  Software for advanced commissioning and configuration of Industrial Ethernet interfaces

SeGMo-Positioning

The positioning drives are complete mechatronic systems featuring a battery-free multiturn encoder, gearbox, and motor, as well as integrated power and control electronics. We also offer these for standalone use. With rated torques of up to 18 Nm [13.28 ft•lbf], they cover the performance range typical for secondary axes.

SeGMo-Assist

The position displays facilitate manual adjustment processes by showing target and actual positions. Products are available for rotary and linear applications. Another product without a Measuring system assists the operator, for example, during format or tool changes.

SeGMo-Positioning

6109 6110 6113



6008 6009 6013



SeGMo-Assist

SEPODR SEPODL SEHMI



SEROT SELIN



Overview Rotary Sensor

General

- Magnetic-absolute measuring system to facilitate manual adjustment procedures
- Intended for use with the GEL SEPODL position display.

Features

- Housing material: PA 12 black
- Operating temperature range: 0 °C to +60 °C [32 °F to 140 °F]
- Degree of protection: IP 65
- Batteryless , magnetic-absolute multiturn encoder
- Through hollow shaft: 20 mm H7 [0.79 in H7], stainless steel
- cULus Component Recognition



Advantages

- Not sensitive to EMC interference
- Simple cabling
- Extremely compact for confined installation situations
- Ready for use directly after switching on the power supply due to absolute position detection of the magnetic-absolute multiturn encoder
- Maintenance-free electrical parts

Applications

- Packaging Machinery
- Food and Filling Systems
- Wood and plastic processing machinery
- General machinery and plant engineering

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Type Code and Certification Information

Type Code

SEROT	Product type				
	R Measuring system Rotary measuring system with hollow shaft				
		1 Detection range of measuring system in de-energized state 129 revolutions			
			C Design cULus Recognized Component		
				LB Communication interface Internal communication interface Lenord+Bauer	
					A Position torque support for rotary measuring systems 22 mm [0.87 in] (1) **B** 30 mm [1.18 in]
▼	▼	▼	▼	▼	▼
SEROT	_	_	_	_ _	_ ◄ **Product code**

(1) upon request

Certification: cULus Recognized Component (Document E538098)

- The devices were tested as control devices without calibration tests.
- The device's housing does not provide protection against spilled liquids.
- Only connection cables certified to Category CYJV/7 or PVVA/7 may be used.
- Only flexible copper wires with a temperature rating of at least 75 °C [167.0 °F] may be used for the connection.
- The input and output connectors are suitable for field wiring.
- The devices are not intended for direct connection to the power grid. The power supply must ensure galvanic isolation from the main power supply. Class I and II power supplies:
  - A UL 248-compliant fuse must be installed in the supply line between the power supply unit and the device. Depending on the supply voltage, the fuse must have a rating of I = 100 W/UB (supply voltage UB: 20 V … 30 V DC)
- The following power supplies are permitted:
  - Class III (SELV, PELV, and limited energy in accordance with Section 9.4 of UL/CSA 61010-1, 3rd Edition)
  - Class II limited to 100 VA and a maximum of 30 V (meets the requirements of UL 1310, UL 60950-1, or UL 62368-1)
  - Class I in accordance with IEC 61010-2-201 and UL 61010-2-201, limited to 100 VA and a maximum of 30 V
- The devices have been tested only for use in Overvoltage Category II.
- Protective measures against surges must be provided in accordance with overvoltage category II.

Accessories and Spare Parts

Mechanical Accessories

Designation	Item number
ZB Reducing sleeve di = 14 mm [0.55 in]	ZBSGX08

Connection Accessories

Description	Item number
ZB Cable Sensor 1.5 m [59.06 in] M12 8-pin	ZBSGX14
ZB Sensor Cable 3 m [118.11 in] M12 8-pin	ZBSGX15

Spare Parts

Designation
Functional Ground Label: “Low-interference ground” pictogram, white-black, Ø 12.5 mm [0.49 in], in accordance with IEC 60417

Description

General Description

The measuring system comprises a GEL SEROT rotary sensor and a GEL SEPODL position display. The sensor detects changes in the position of a machine shaft or spindle. The recorded measured values and the operating states of the sensor are transmitted to the position display. The position display supplies power to the sensor, shows the sensor data on the display and communicates with the higher level system control system.

The following values are recorded for position measurement:
- Actual position
- Nominal position
- Direction of rotation
- Operating states

The position display requires a functional ground cable to be connected. Connection is via a flat connector. We recommend a wire cross section of 4 mm² [12 AWG].

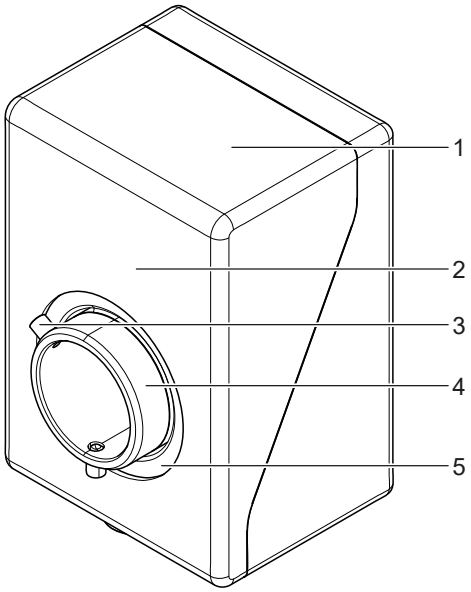
Magnetic Absolute Multiturn Encoder

A magnetic absolute multiturn encoder eliminates the need for reference runs after a power failure or an “EMERGENCY STOP.” Thanks to the battery-free multiturn encoder, the position indicator detects its position as soon as power is restored and is immediately ready for use.

When powered off, the sensor shaft can be adjusted by ±64 revolutions without losing its absolute position.

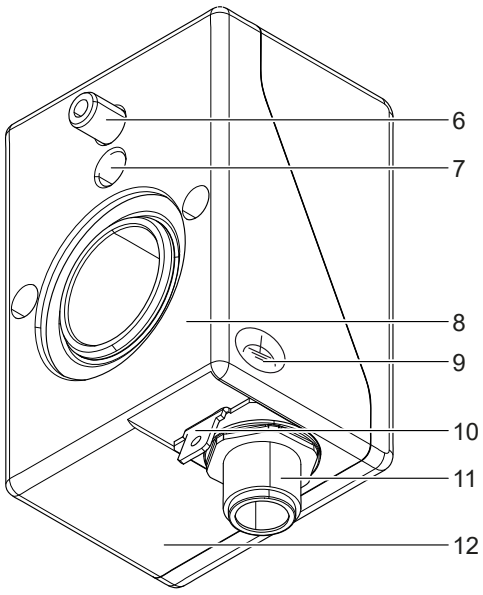
The multiturn encoder withstands high shock and vibration loads.

Parts named



Front

1 Housing: Top
2 Housing: Front
3 Setscrew (fastening machine shaft – sensor shaft)
4 Sensor shaft
5 Shaft sealing ring

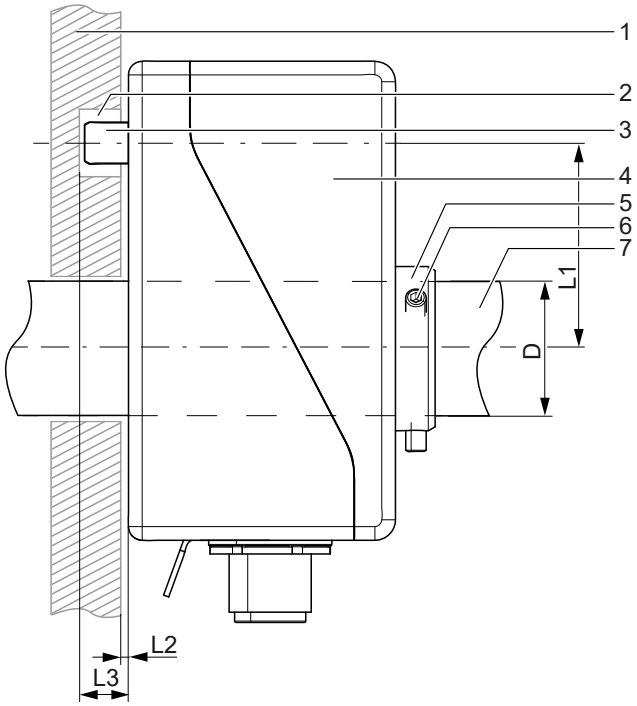


Rear side

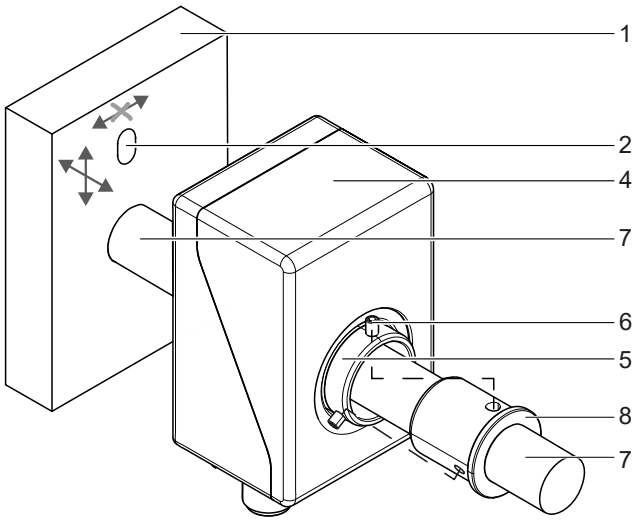
6 Position torque support GEL SEROT␣␣␣␣␣B
7 Position torque support GEL SEROT␣␣␣␣␣A
8 Housing: Rear side
9 “Functional Ground” label:
10 6.3 mm [0.25 in] flat connector: Functional ground
11 8-pin male connector, M12, A-coded: Communication interface and supply voltage
12 Housing: Underside

Assembly

The mounting concept provides for fixed-moving bearings. The machine shaft bears the weight of the sensor via the fixed bearing. The sensor is mounted directly onto the machine shaft via a force-fit connection. A torque support as moving bearing prevents the sensor from rotating.



Installation dimensions



Installation position

1 Machine housing
2 Mounting bore for torque support (Recommendation: slotted hole)
3 Torque support
4 Housing
5 Sensor shaft
6 Setscrew
7 Machine shaft
8 Reducing sleeve (optional)
D Machine shaft diameter
L1 Spacing “Center sensor shaft— Center bore”
- GEL SEROT␣␣␣␣␣A: 22 mm [0.87 in]
- GEL SEROT␣␣␣␣␣B: 30 mm [1.18 in]

L2 Spacing Machine housing – Housing: 1 mm [39.37 mil]
L3 Minimum bore depth: 7 mm [0.28 in]

Technical Data

Electrical data	
Supply voltage U_B (polarity reversal protection, overvoltage protection)	20 to 30 V DC
Current consumption	≈30 mA at 24 V DC
Power consumption	Requirements for the power supply unit: Maximum supply output: 100 VA
Communication interfaces	Internal communication interface Lenord+Bauer: RS422, proprietary transmission protocol
Mechanical data	
Sensor shaft	Through hollow shaft ▪ Diameter: 20 mm H7 [0.79 in H7] ▪ Material: stainless steel Shaft sealing ring ▪ Material: FKM
Maximum permissible rotational speed	100 min^{-1} at DuCy = 25 % (DuCy = duty cycle)
Housing material	PA 12 black
Housing dimensions (not including connection elements, not including torque support)	48 mm × 44.8 mm × 70 mm [1.89 in × 1.76 in × 2.76 in]
Weight	≈145 g [5.11 oz]
Encoder data	
Scanning	Magnetic, absolute
Measuring system detection range	▪ In energized state: unlimited ▪ In de-energized state: 129 revolutions
Connection elements	
Communication interface and supply voltage	8-pin male connector M12, A-coded
Functional ground	6.3 mm [0.25 in] flat connector
Ambient data	
Operating temperature range	0 °C to +60 °C [32 °F to 140 °F]
Storage temperature range	-20 °C to +80 °C [-4 °F to 176 °F]
Maximum relative air humidity	Condensation not permitted
Degree of protection	IP65; as per DIN EN 60529:2014-09 (Degree of protection not rated by UL!)
Dielectric strength	500 V AC; as per DIN EN 61439-1:2012-06
EMC(1)	DIN EN 61326-1:2013-07; Class B device with immunity requirements for industrial environments
Vibration resistance	1 to 100 m/s^2 [3.28. to 328.08 ft/s^2], 5 to 15 Hz; 100 m/s^2 [328.08 ft/s^2], 15 to 159 Hz; as per DIN EN 60068-2-6:2008-10
Shock resistance	800 m/s^2 [2624.67 ft/s^2], 6 ms, as per DIN EN 60068-2-27:2010-02
Data for "cULus Recognized Component"	
Housing type	Closed
Device function	Process control device
Connection to main power supply	No
Overvoltage category	II
Contamination level	2

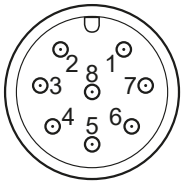
Guards	Class III (Class SELV or PELV and limited power or LPS)
Atmospheric humidity	Maximum 80 % at temperatures up to 31 °C [87.8 °F], linear decreasing to 50 % relative atmospheric humidity at 40 °C [104 °F]
Installation altitude	≤ 2000 m [1.24 mi]
Use in wet areas	No
Device mobility	Immovable
Operating conditions	Continuous
Classification according to UL61010-1	Type 1
Approvals	
European Economic Area	Conformity in accordance with EMC Directive 2014/30/EU CE
USA and Canada	Certification as cULus Recognized Component c UL us

(1) Use only screened cables.

Assignment

Communication interface and supply voltage

M12 A-coded



Male contact
(plug-in view)

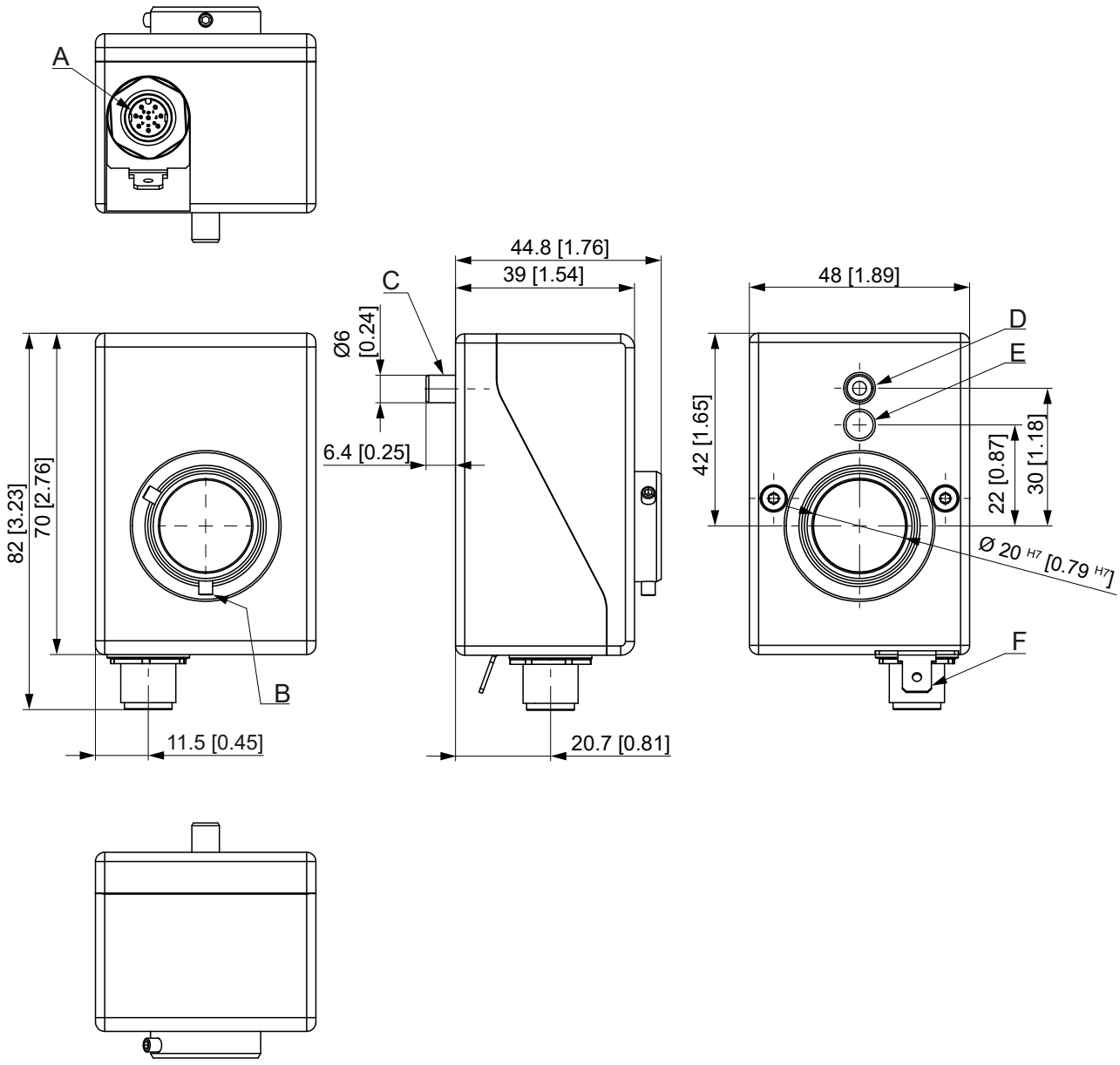
Pin designation	Signal identifier
1	GND
2	U_B(1)
3	RXD+
4	RXD-
5	TXD-
6	TXD+
7	Reserved
8	Reserved
Connector housing	Functional ground

(1) Power supply of product and communication interface

Notes when using customized cables:
- The reserved male contacts must not be connected.
- Screened cables: Connect the screen braid to both sides of the connector housing.
- Maximum cable length: 3.0 m [118.11 in]

Dimension Drawing

All dimensions in millimeters [inches]



A	Communication interface and supply voltage
B	2 setscrews DIN 916 M3x5 A2 for fastening the machine shaft (threadlocker recommended); tightening torque: 0.4 Nm [0.30 ft•lbf]
C	Torque support
D	Position torque support GEL SEROT␣␣␣␣B
E	Position torque support GEL SEROT␣␣␣␣A
F	6.3 mm [0.25 in] flat connector: Functional ground

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