

SeGMo-Assist

Rotary sensor for the position display
GEL SEPODL

GEL SEROT

Technical information

Version 2024-01-09

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
- Degree of protection IP 65
- Batteryless, magnetic multiturn encoder
Detection range:
129 revolutions, also in de-energized state
- Through hollow shaft 20 H7, stainless steel

Advantages

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

Fields of application

- Packaging machines
- Food and bottling lines
- Wood and plastic processing machines
- General mechanical and systems engineering



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Description of SeGMo system

SeGMo-System

The SeGMo-System is suitable for efficient integration of several positioning drives and positioning displays in a machine or a system. The system comprises the following components:

- SeGMo-Positioning:
Positioning drive for fully automatic format setting
- SeGMo-Motion:
Positioning drive for cyclic operation
- SeGMo-Box:
Decentral control unit for up to 5 positioning drives
- Modular SeGMo-Box:
decentral control unit for up to 17 positioning drives or up to 48 positioning displays
- SeGMo-Assist:
Position display for manual adjustment procedures
- SeGMo-Connect:
Single cable concept (hybrid cable suitable for drag chain)
- SeGMo-Lib:
Prefabricated function blocks for integration in the higher level control system
- SeGMo-Support Tool:
Software for extended commissioning and configuration
- SeGMo-Web:
Software for real-time transmission of the modular SeGMo-Box
- SeGMo-ImgConv Tool:
Tool for converting image files into pictograms for SeGMo-Assist

SeGMo-Positioning:

The positioning drives are complete mechatronic systems with a batteryless multiturn encoder, gear and motor as well as integrated power and control electronics. We also offer these items for standalone use. With nominal torques of up to 18 Nm, they cover the typical power range for secondary axes.

SeGMo-Motion:

The positioning drives are complete mechatronic systems with gear and motor as well as integrated power and control electronics for cyclic operation.

SeGMo-Box:

Up to 5 positioning drives can be connected to the SeGMo-Box. The connection of position displays is not provided. The SeGMo-Box supports all common fieldbus and Industrial Ethernet communication interfaces.

Modular SeGMo-Box:

Every modular SeGMo-Box comprises a basic housing with individually equippable plug-in modules. By combining basic housings, up to 17 positioning drives or up to 48 position displays can be connected. A combination of positioning drives and position displays on a modular SeGMo-Box is possible. The power supply can be provided separately for each equipped plug-in module. The modular SeGMo-Box supports all common Industrial Ethernet communication interfaces.

SeGMo-Assist:

The position displays facilitate manual adjustment procedures by displaying nominal and actual positions. Variants are available for rotary and linear applications. Another variant without a measuring system supports the operator, for example, when changing format parts or tools.

SeGMo-Connect:

By using the positioning drives with a SeGMo-Box the cabling effort is considerably reduced by SeGMo-Connect. Instead of the usual two separate cables for internal bus communication and a third cable for power supply to the positioning drives, only **ONE** hybrid cable is connected. In combination with the SeGMo-Box and 5 connected positioning drives, the SeGMo-Connect typically reduces the number of cables from 15 to 5.

The hybrid cable is designed for moveable use in drag chains. Its variants are food grade quality, halogen-free and available as a cULus recognized component.

SeGMo-Motion

6108



6109



SeGMo-Positioning

6110



6113



6129



SeGMo-Assist

SEPODR

SEPODL

SEHMI

SEROT

SELIN



SeGMo-Box

6505B

6505A



Modular(e) SeGMo-Box

65M0

65M5



Type code and accessories

The rotary sensors belong to the SeGMO-Assist product group and are a component of the SeGMO system.

Type code

SEROT	-	-	-	-	-	Measuring system
						R Rotary measuring system with hollow shaft
						Detection range in de-energized state
						1 129 revolutions
						Design
						N Standard
						Connection Technology
						ST 8-pin male connector M12, A-coded
						Position torque support for rotatory measuring systems
						A 22 mm ⁽¹⁾
						B 30 mm

Accessories

Mechanical accessories

Designation	Item number
ZB reducing sleeve di = 14 mm	ZBSGX08

Connection accessories

Designation	Item number
ZB cable sensor 1.5 m, M12, 8-pole	ZBSGX14
ZB cable sensor 3 m, M12, 8-pole	ZBSGX15

⁽¹⁾ upon request

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 status

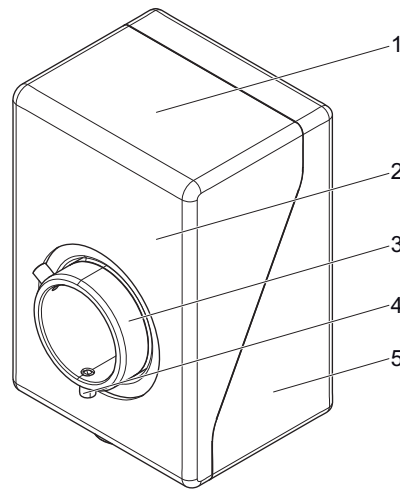
The position display requires a functional ground cable to be connected. Connection is via a 6.3 mm flat connector. We recommend a wire cross section of 4 mm² [12 AWG].

Magnetic-absolute multiturn encoder

A magnetic-absolute multiturn encoder makes reference search routines superfluous after a power failure or “emergency stop”. After the power supply is switched on, the sensor detects its position via the batteryless multiturn encoder and is ready for operation directly.

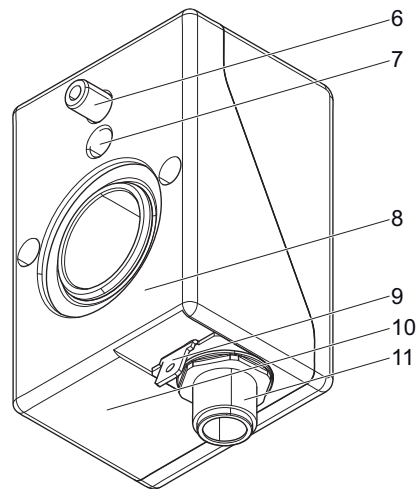
When switched off, the sensor shaft can be adjusted by ±64 revolutions without losing the absolute position. The multiturn encoder withstands high shock/vibration loads.

Parts named



Front

- 1 Top
- 2 Front
- 3 Sensor shaft
- 4 Setscrew
(fastening machine shaft – sensor shaft)
- 5 Housing

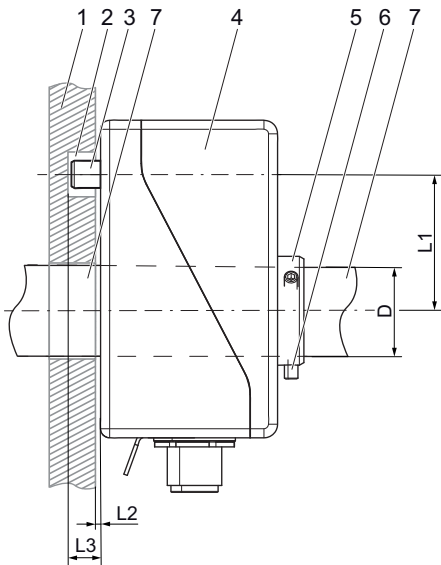


Rear side

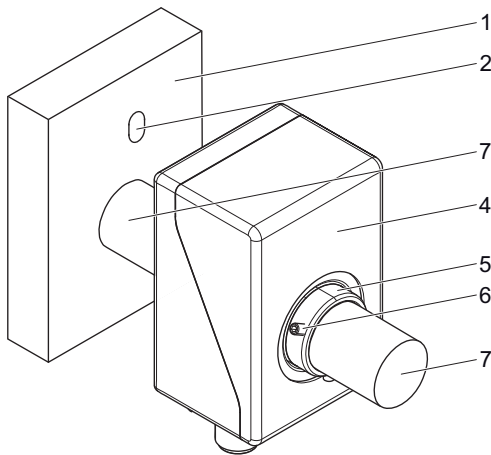
- 6 Position torque support GEL SEROT_....B
- 7 Position torque support GEL SEROT_....A
- 8 Rear side
- 9 Functional ground (flat connector 6.3 mm)
- 10 Underside
- 11 Communication interface and supply voltage

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.



Assembly example



Assembly example: Alignment slot

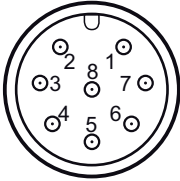
- 1 Machine housing
- 2 Mounting bore for torque support (slot recommended)
- 3 Torque support
- 4 Housing
- 5 Sensor shaft
- 6 Setscrew
- 7 Machine shaft
- D Machine shaft diameter
- L1 Spacing "center sensor shaft – center bore"
GEL SEROT____A: 22 mm
GEL SEROT____B: 30 mm
- L2 Spacing "machine housing – housing": 1 mm
- L3 Minimum bore depth: 7 mm

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	Power supply unit requirements: Maximum supply output: 100 VA
Communication interface	RS422, proprietary transmission protocol
Mechanical data	
Sensor shaft	Through hollow shaft: Stainless steel rustproof, diameter 20 H7
Maximum permissible rotational speed	100 min ⁻¹ at DC = 25 % (DC = duty cycle)
Housing material	PA 12 black
Housing dimensions (not including connectors, not including torque support)	48 mm × 44.8 mm × 70 mm
Weight	≈ 145 g
Encoder data	
Scanning	magnetic, absolute
Measuring system detection range	129 revolutions, also in de-energized state
Connections	
Communication interface and supply voltage	8-pin male connector M12, A-coded
Functional ground	Flat connector, 6.3 mm
Ambient data	
Operating temperature range	0 °C to +60 °C
Storage temperature range	-20 °C to +80 °C
Maximum relative air humidity	Condensation not permitted
Degree of protection	IP 65; as per DIN EN 60529:2014-09
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 (5 to 15 Hz); 100 m/s ² (15 to 159 Hz); as per DIN EN 60068-2-6:2008-10
Shock resistance	800 m/s ² , 6 ms, as per DIN EN 60068-2-27:2010-02
Approvals	
European Economic Area	Conformity in accordance with EMC Directive 2014/30/EU CE

⁽¹⁾ Use only screened cables.

Communication interface and supply voltage

Male connector, M12 A-coded (plug-in view)	Pin	Signal identifier
	1	GND
	2	$U_B^{(1)}$
	3	RXD+
	4	RXD-
	5	TXD-
	6	TXD+
	7	reserved
	8	reserved
	Connector housing	Functional ground

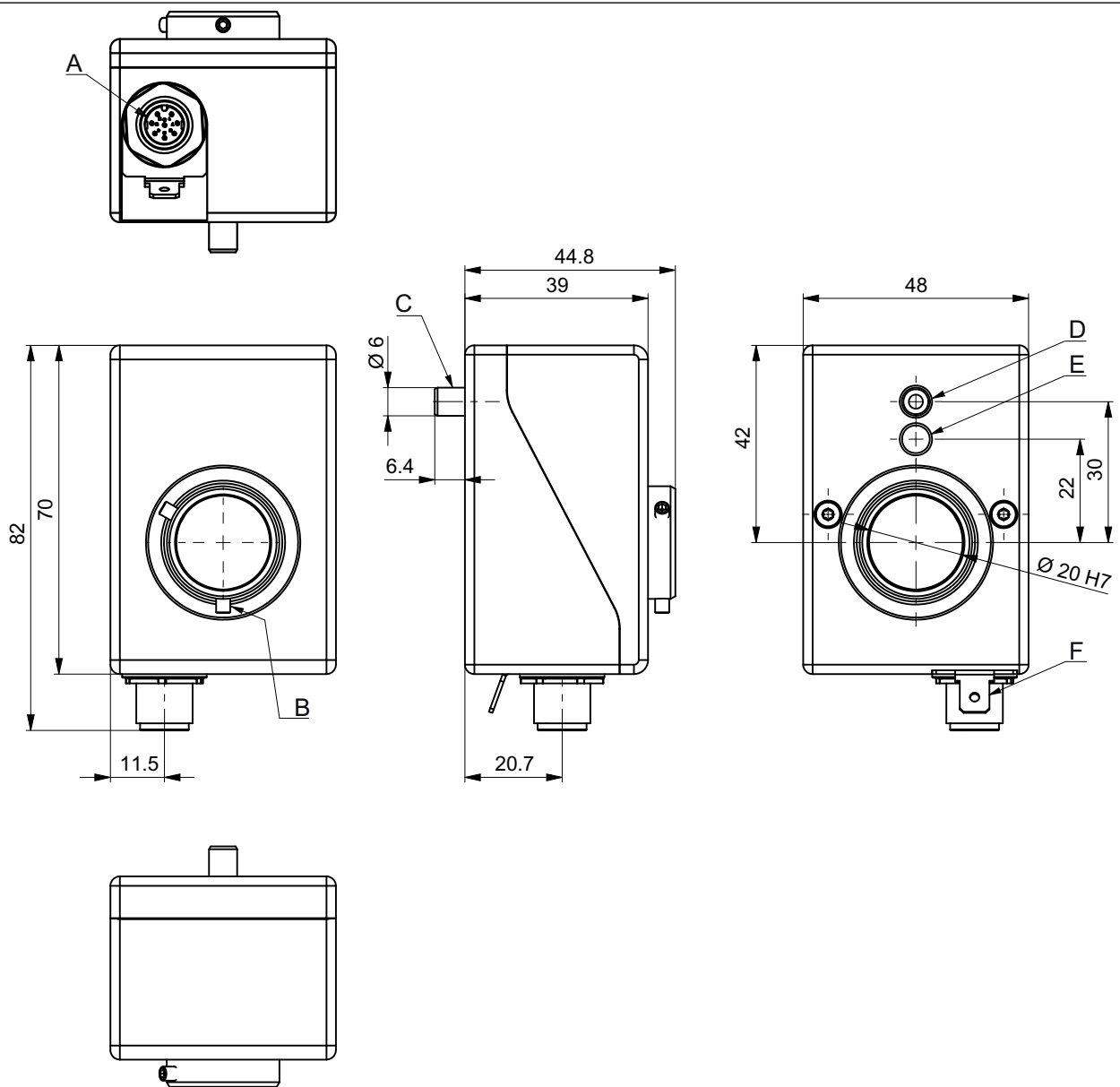
⁽¹⁾ Power supply device and power supply communication interface



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

Dimensional drawing



- A Communication interface and supply voltage
- B Setscrew DIN 916 M3x5 A2 for fastening the machine shaft (threadlocker recommended); tightening torque: 0.4 Nm
- C Torque support
- D Position torque support GEL SEROT_.....B
- E Position torque support GEL SEROT_.....A
- F Functional ground (flat connector 6.3 mm)

All dimensions in millimeters

Your notes

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