Made in Germany

www.lenord.com

Solution Catalog

SeGMo-System

Semi- and fully automated format adjustment

- Railroad rolling stock
- **Packaging machines**
- Machine tools
- General mechanical engineering
- Renewable energies
- E-mobility
- Maritime applications

LENORD +BAUER

Finding solutions. Founding trust.

Motion sensors and integrated drive technology

The SeGMo-System

Increased productivity due to reduced format change times

Automation as well as system productivity have now reached such a high level in many industries that the time required for format changes and subsequent restarts accounts for a significant decline in value. Optimizing format change time, is thus, an important way of increasing productivity.

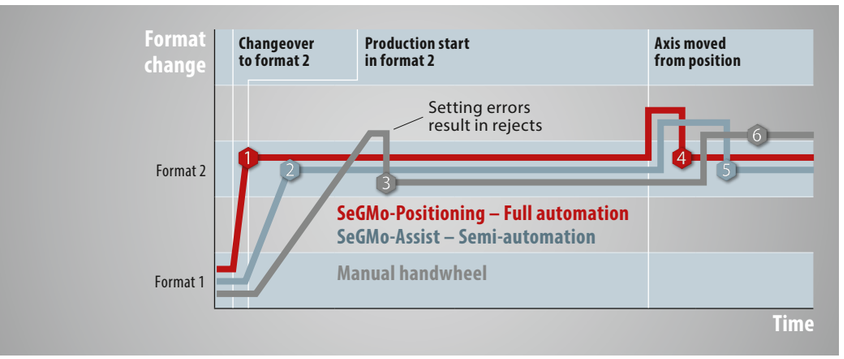
You, too, can automate your feed axes using our SeGMo-System! By simply incorporating it into your higher level control system, you increase system efficiency thus saving time and money.

Whether you have case erectors, carton closers, wrap-around systems, packers, piece goods feeders or labelers: We offer you the right solution for your application for semi- or full automation.

System advantages at a glance

- Reduced setup times: High flexibility and productivity
- Industrie 4.0: Intelligent Condition Monitoring
- High process reliability with a fast ROI
- Batteryless system: Reduced life cycle costs
- It meets UL requirements
- Very high electromagnetic compatibility (EMC)

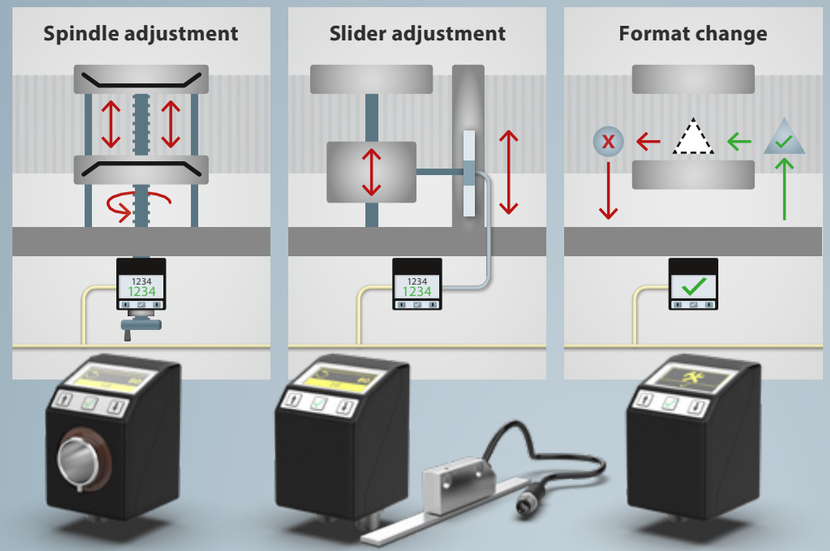
Time saving and error prevention using the SeGMo-System



1. Direct production start
2. Delay: Waiting for personnel, walking distances between adjustments
3. Lengthy delay: Waiting for personnel, walking distances between adjustments, consulting setting values in documents, greater risk of setting errors
4. Automatic error correction
5. Checkback signal stops system, personnel can correct the error
6. Incorrect position remains unnoticed until reject occurs

SeGMo-Assist

Entry into the digitization of manual adjustment



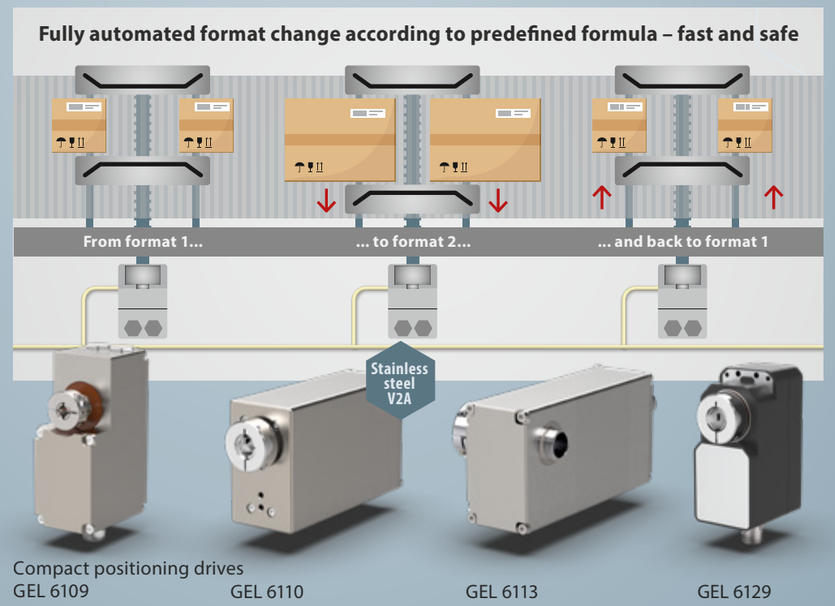
If personnel is available for other activities on the machine anyway, a fully automated solution can be dispensed with, depending on the frequency of format adjustment. Manual adjustment and position monitoring using the position display represents a simple technical and attractively priced solution, while at the same time offering high product quality and process reliability.

SeGMo-Positioning

For small batch sizes and high packaging variety

Short-term product changes require speed, reliability and flexibility. Reduce the setup times of your machine by setting the feed axes to fully automatic.

Full automation is also the solution if there is no personnel in the operating area of the feed axes or if systems in multi-shift mode are to be operated unstaffed at night.



SeGMo products

Ideal solutions for all requirements

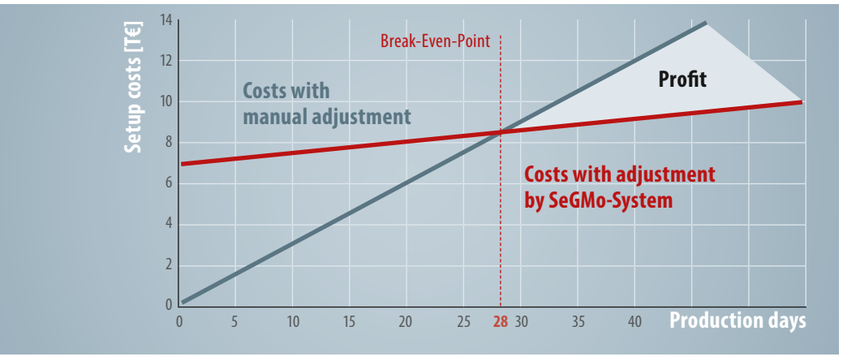
The SeGMo-System comprises the SeGMo-Assist digital position display, the SeGMo-Positioning drives and the SeGMo-Box decentral control unit for flexible fieldbus integration. This plug and play solution also includes the certified hybrid cables suitable for drag chains including their connectors.

The SeGMo-Assist position display facilitates manual adjustment procedures by displaying nominal and actual positions. Variants are available for rotary and linear applications. The pure nominal value display, without measuring system, supports when changing formats or tools, for example.

The SeGMo-Positioning drives are complete mechatronic systems with a batteryless absolute multiturn rotary encoder, gear and motor as well as integrated power and control electronics. With nominal torques of up to 15 Nm, they cover the typical power range for feed axes. The positioning drives can be integrated into the higher level control system with function blocks.

Alternatively, up to 17 feed axes can be automated via the decentral SeGMo-Box. The box controls power management for the connected positioning drives and concentrates interaction with the higher level control system. In addition, up to 48 position displays can be connected to the modular SeGMo-Box. Combined operation of positioning drives and position displays is possible.

High process reliability with a fast ROI



Due to the reduced setup times, the curve for the costs per automated format change is significantly flatter compared to the curve for manual adjustment. In the sample graph, the curves intersect after 28 days. At this point, the cost of manual format changes exceeds the total cost of the SeGMo-System. The investment has paid off.

Standalone operation using the PLC

System level
The function block library provided by Lenord+Bauer simplifies integration of the positioning drives and position displays in the PLC program.

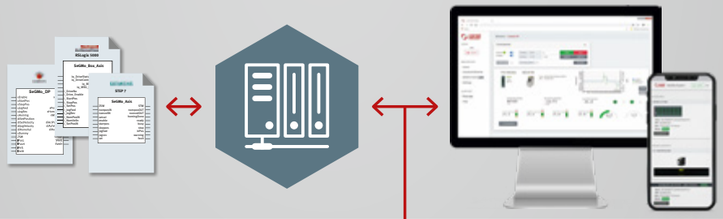
SeGMo-Lib

Sensor-actuator level
Standalone versions with integrated fieldbus enable direct PLC integration

SeGMo-Assist/-Positioning

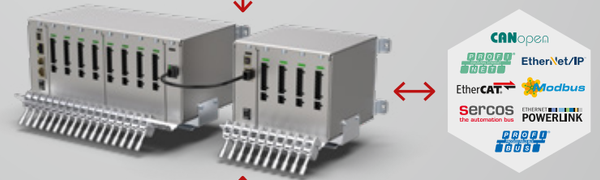
Industrie 4.0 using the SeGMo-Box – Single-cable technology

System level
The function block library provided by Lenord+Bauer simplifies integration of the positioning drives and position displays in the PLC program.



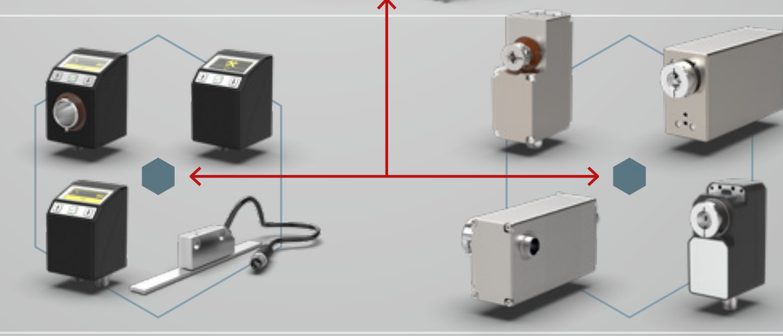
SeGMo-Tools

Integration level
Standard IE fieldbuses are available via the modular SeGMo-Box as a gateway. An optional and secure network connection enables remote maintenance and Industrie 4.0 applications, amongst others.



SeGMo-Box

Sensor-actuator level
The SeGMo products collect production data and execute commands enabling process digitization and thus Industrie 4.0 applications.



SeGMo-Assist/-Positioning

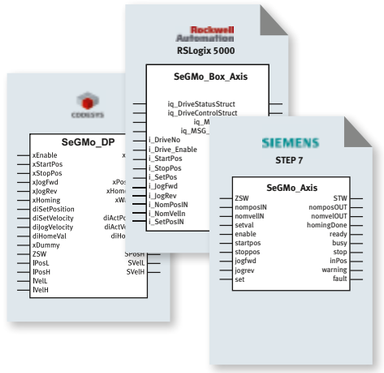
Plug & Play

Speedy installation and simple cabling

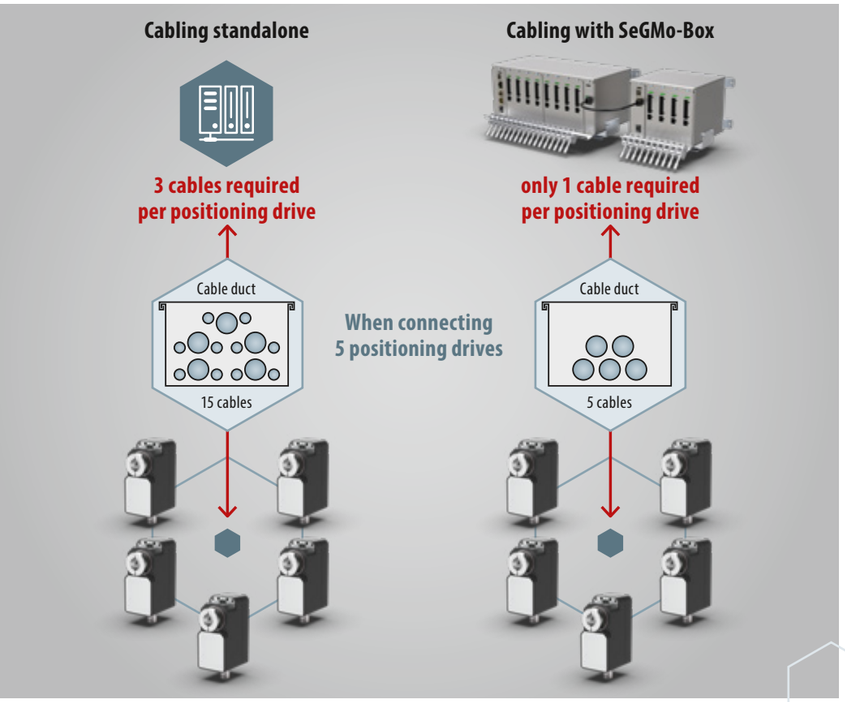
The quality of a positioning drive often becomes apparent during initial commissioning. Here, easy integration and convenient interaction are the keys to error-free and efficient engineering.

At Lenord+Bauer, the SeGMo-Support tool is used to configure the complete drive system: in addition to the necessary device files, executable function blocks are available for all standard automation platforms. It is also possible to move the positioning drives without activating the higher level control system.

After integrating the function blocks into the PLC program, the positioning drives can be activated rapidly via the higher level control system.



SeGMo-Connect – Modern connection technology



The high number of electrical components in the machines, such as sensors, limit switches, safety technology and the entire electrical drive technology mean that cabling costs are very high. To minimize these costs, Lenord+Bauer offers a single cable solution.

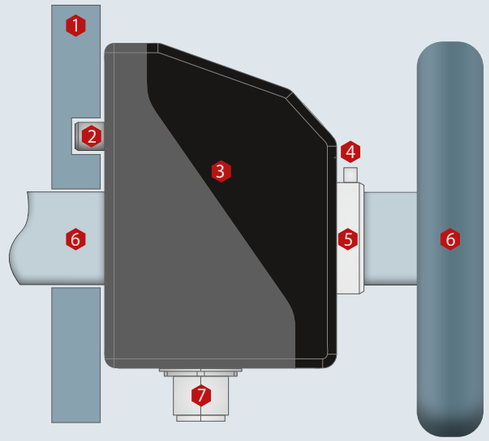
Instead of two cables for bus communication and a third cable for power supply to the positioning drives, only one hybrid cable is connected. For example, with five positioning drives connected to the SeGMo-Box, the number of cables is reduced from fifteen to five.

The ready-to-use hybrid cable not only minimizes the cabling effort, but also reduces the space required in cable ducts. It is designed for moving applications in drag chains and is available in food-grade and halogen-free variants and as a cULus Recognized Component.

SeMGo-Assist easy assembly

Assembly example

1. Machine housing
2. Torque support
3. SeGMo-Assist
4. Setscrew
5. Through hollow shaft
6. Machine shaft with handwheel
7. M12 connection



For rotatory position measurement, position displays are common. These are slid onto the machine shaft end of the feed axis, which serves as a fixed bearing in this instance. The position display is mounted directly onto the machine shaft using a force-fit connection. A torque support as moving bearing prevents the position display from rotating and also compensates even slight axial and radial movements of the machine shaft.

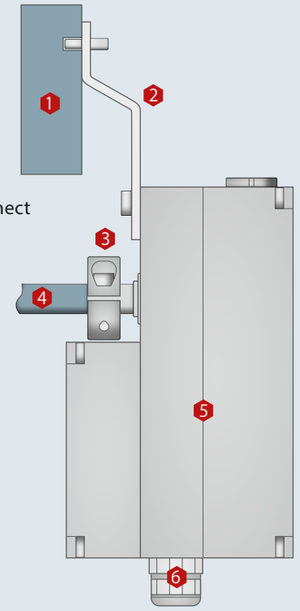
SeGMo-Positioning easy assembly

Positioning drives for feed axes are often equipped with a hollow shaft, which is slid directly onto the machine shaft and fastened using a clamping ring. It forms the fixed bearing. The positioning drive is prevented from rotating by means of a torque support.

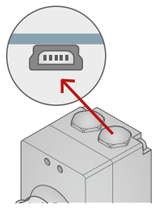
This moving bearing compensates for axial or radial backlash of the machine shaft. The positioning drive "rides" on the machine shaft and makes a minimum oscillating motion. The torque support can easily be adapted to the respective installation space.

Assembly example

1. Machine housing
2. Torque support
3. Clamping ring
4. Machine shaft
5. SeGMo-Positioning
6. Connection SeGMo-Connect

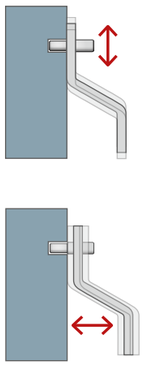


USB service access



A service connector (mini USB) is accessible behind one of the blanking plugs.

Torque support as moving bearing



The form and design of the torque support depend on the application.

Various accessories are available for mounting.

The SeGMo-System in operation

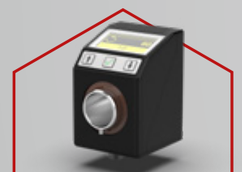
Error-free format change and process reliability

To ensure that different packaging sizes can be processed perfectly, some machine adjustments are required during setup. For example, the height and width settings may need to be changed. These changes can be done quickly and error-free using the SeGMo-System. You can choose between semi- and full automation of your system.

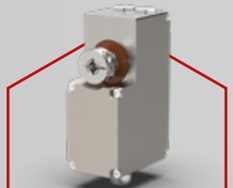
As an introduction to your process automation, the addition of the SeGMo-Assist digital position display to the previously purely manual format adjustments is a good way to reliably monitor the axes connected to the higher level control system.

Do you need fully automatic, reproducible format changes at the push of a button? If so, automate your machine using the SeGMo-Positioning system. This is a valid option especially for small batch sizes and high packaging variety.

The SeGMo-Assist digital position displays and the SeGMo-Positioning drives can both be connected to the modular SeGMo-Box, integrated combined into an Industrial Ethernet fieldbus network and managed centrally via the box. Using SeGMo-Connect hybrid cables in conjunction with the SeGMo-Box saves you time when wiring the drives, as only one cable is required per drive.

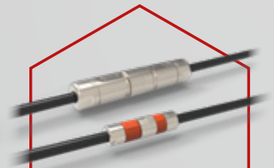


SeGMo-Assist
Page 10 – 19

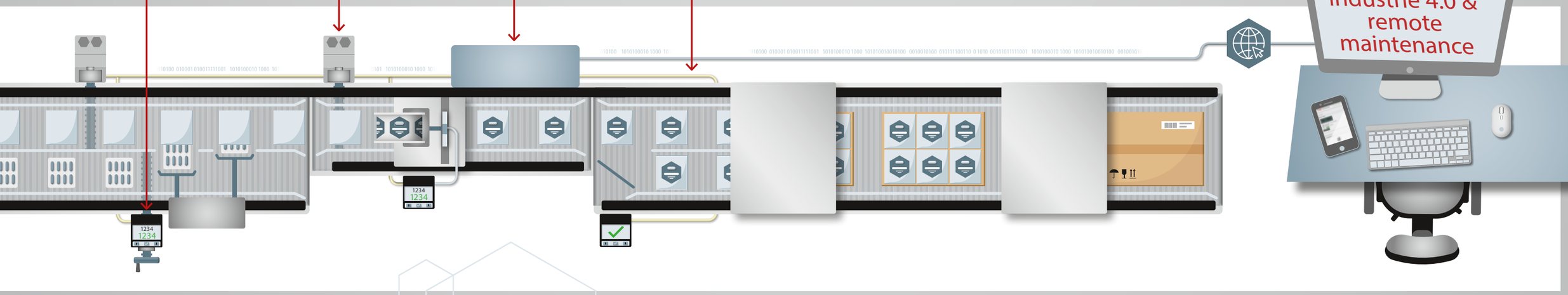


SeGMo-Positioning
Page 20 – 29

SeGMo-Box
Page 30 – 35



SeGMo-Connect
Page 36 – 39



Global solutions

Approval of machines and production facilities in the USA or Canada is similar to an obstacle course. Every component as well as the installed cables must meet UL requirements. Are you looking for a system to fully automate your machine that already meets these requirements? By relying on the UL-certified SeGMo-Positioning drives[1] from Lenord+Bauer you can save yourself time-consuming individual testing.

Our company undergoes regular UL audits and attests that the safety requirements and all specifications in the manufacturing process are met. Not only the positioning drives, but also the associated cables and the SeGMo-Box[1] meet UL requirements and bear the cURus or cULus approval mark. This demonstrates that the SeGMo components[1] meet the applicable standards as per UL 61800. Compliance with NFPA 79 and American Wire Gauge (AWG) wiring is also guaranteed.

i³SAAC: Ready for Industrie 4.0

Digitization and intelligent data evaluation are the technological drivers of Industrie 4.0. Both are implemented as part of i³SAAC to exploit future applications such as condition monitoring and system monitoring:

- Intelligent data processing enables axis condition monitoring thus preventing unplanned system downtime
- Fast integration thanks to available function blocks for the most common automation platforms, commissioning tools and decentral control units
- Easy interaction with system due to free configuration of the user interface, USB connection and web server

This system will offer you more support by means of active condition monitoring and, in addition to data on component condition, will also display changes in the initial torque, for example. This allows you to detect contamination and wear and tear of the axis. Tell us your requirements!

(1) UL certification is available for GEL 6109, GEL 6110, GEL 6113, GEL 6505 and SeGMo-Connect/ UL certification for GEL 6129, GEL 65M and SeGMo-Assist is in preparation.

SeGMo-Assist

Manually guided format adjustment

General

- Display of nominal and actual position to facilitate manual adjustment processes
- For rotatory and linear position measurements
- Display to assist with format or tool changes

Features

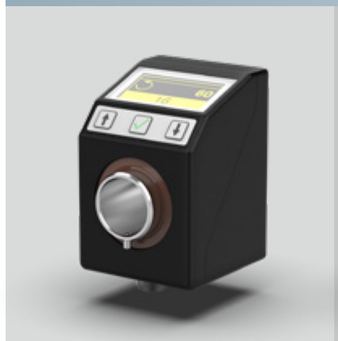
- Plastic housing, ABS
- Operating temperature range 0 °C to +60 °C
- Bright graphic display for displaying client-specific pictograms
- Degree of protection IP 65
- CAN bus with CANopen protocol, profile CiA 406 (1)

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
- Freely programmable pictograms for easy user navigation
- Maintenance-free electrical parts

Fields of application

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



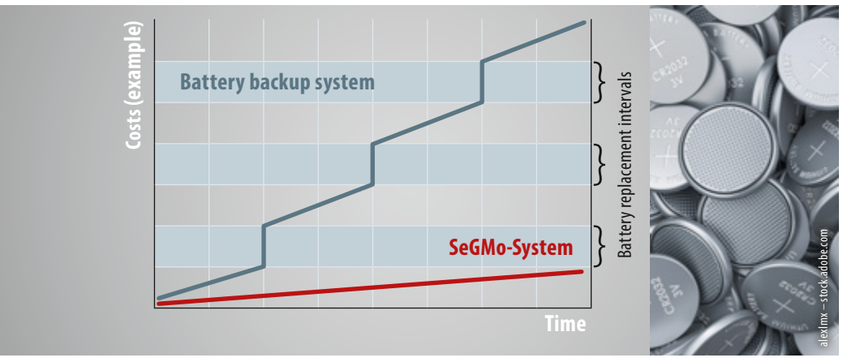
GEL SEPOD R

GEL SEPOD L GEL SELIN

GEL SEHMI

Add the digital SeGMo-Assist position display to your system to greatly simplify manual adjustment procedures.

Batteryless system – Good for both the environment and your budget



The electrical maintenance-free, digital position display with integrated absolute multiturn rotary encoder does not require a backup battery.

This saves you operating costs and at the same time protects the environment, as there is no need to change batteries.

(1) other communication interfaces via the modular SeGMo-Box

GEL SEPOD R

Rotatory measuring system

Description

The position display is designed for rotatory position measurement and is used for mounting on a machine shaft or spindle. It is connected to a higher level control system directly via the communication interface or indirectly via the modular SeGMo-Box. The use of the position display on the modular SeGMo-Box allows connection of all standard Industrial Ethernet communication interfaces.

Connection

The position display is operated with a supply voltage of 20 to 30 V DC. The communication interface handles the bus communication and the power supply. Y- or T-distributors, interface cables and terminating resistors are required to connect a higher level control system or the modular SeGMo-Box.

The position display requires a functional ground cable to be connected.

Integrated absolute rotary encoder

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

When switched off, the sensor shaft can be adjusted by 129 revolutions without losing the absolute position.

The absolute rotary encoder withstands high shock/vibration loads.

Displays and controls

The position display is equipped with a graphic display. The following values can be read for position measurement:

- Actual position
- Nominal position
- Direction of rotation
- Operating status

Diagnostic displays support the user in troubleshooting. Menu navigation is via three membrane buttons below the display.

Fieldbus interface

CANopen

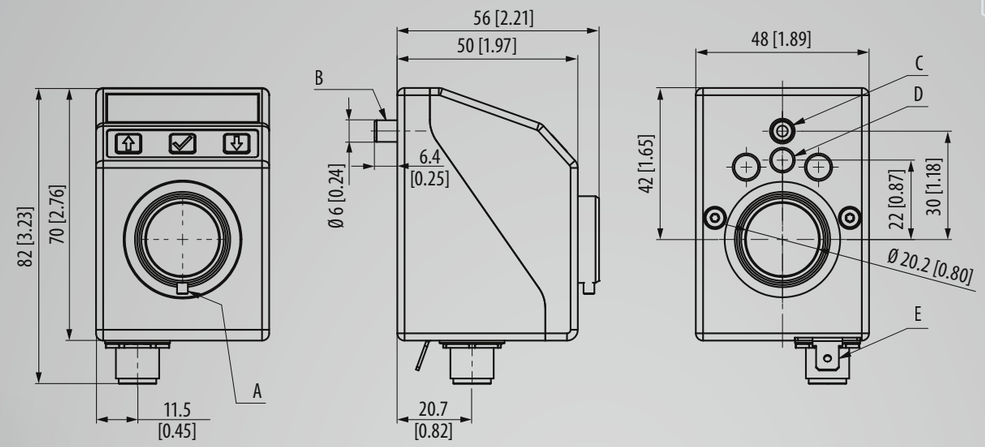
Additionally via the SeGMo-Box

PROFINET IO RT · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK

Soon available

cULus · IO-Link

Product information



A Setscrew for fixing the machine shaft or spindle
B Torque support
C Position torque support GEL SEPODRxxxxB
D Position torque support GEL SEPODRxxxxA
E Functional ground (flat connector 6.3 mm)
F Communication interface and supply voltage

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	20 V to 30 V DC
Max. power consumption	≈ 50 mA at 24 V DC
Communication interfaces: Fieldbus	CAN bus with CANopen protocol, profile CiA 406; no electrical isolation, IO-Link (1)
Communication interfaces: Industrial Ethernet (2)	sercos III (3); POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP (3)
Material	Housing: plastic ABS, anthracite, viewing window: Plastic, impact protection
Dimensions (not including connector)	≈ 48 × 50 × 70 mm / 1.89 x 1.97 x 2.76 inch
Weight	≈ 170 g / 6.0 oz
Display	OLED 1.54” monochrome, yellow (128 × 64 pixels, graphic), Language: English
Operating temperature range	0 °C to +60 °C / 32 °F to 140 °F
Degree of protection	IP 65

(1) Soon available, (2) in combination with GEL 65M, (3) upon request

GEL SEPOD L

Linear measuring system

Description

The position display is intended for linear position measurement with the external linear sensor GEL SELIN and is attached to the machine with two screws. It is connected to the external linear sensor and directly or indirectly via the modular SeGMo-Box to a higher level control system. The use of the position display on the modular SeGMo-Box allows connection of all standard Industrial Ethernet communication interfaces.

Connection

The position display is operated with a supply voltage of 20 to 30 V DC. The communication interface handles the bus communication and the power supply. Y- or T-distributors, interface cables and terminating resistors are required to connect the position display to a higher level control system or the modular SeGMo-Box. The external linear sensor is connected to the sensor port of the position display.

Displays and controls

The position display is equipped with a graphic display. The following values can be read for position measurement:

- Actual position
- Nominal position
- Direction of rotation
- Operating status

Diagnostic displays support the user in troubleshooting. Menu navigation is via three membrane buttons below the display.

Fieldbus interface

CANopen

Additionally via the SeGMo-Box

PROFINET
EtherNet/IP
EtherCAT
Modbus
sercos the automation bus
ETHERNET POWERLINK

Soon available

cULus
IO-Link

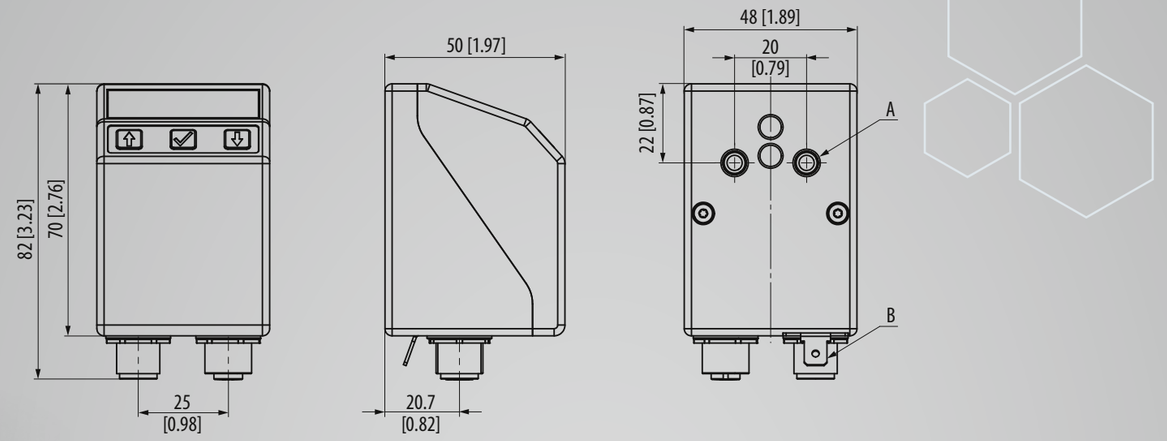
Combinations: SeGMo-Assist/Communication interfaces

Interfaces	GEL SEPOD R	GEL SEPOD L	GEL SEHMI
CANopen	■	■	■
IO-Link (Soon available)	■	■	■
PROFINET IO/RT	1	1	1
EtherCAT	1	1	1
EtherNet/IP	1	1	1
sercos III	1	1	1
POWERLINK	1	1	1
Modbus/TCP	1	1	1

Free to choose the interface:
The SeGMo range supports all standard fieldbus interfaces.

■ Standalone
1 in combination with GEL 65Mx

Product information



A 2 M5-thread bore, maximum screw-in depth: 7 mm
B Functional ground (flat connector 6.3 mm)
C Communication interface and supply voltage
D Sensor connection

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	20 V to 30 V DC
Max. power consumption	≈ 150 mA (with GEL SELIN linear sensor) at 24 V DC
Communication interfaces: Fieldbus	CAN bus with CANopen protocol, profile CiA 406; no electrical isolation, IO-Link (1)
Communication interfaces: Industrial Ethernet (2)	sercos III (3); POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP (3)
Material	Housing: Plastic ABS, anthracite, viewing window: Plastic, impact protection
Dimensions (not including connector)	≈ 48 × 50 × 70 mm / 1.89 x 1.97 x 2.76 inch
Weight	≈ 100 g / 3.53 oz
Display	OLED 1.54″ monochrome, yellow (128 × 64 pixels, graphic), Language: English
Operating temperature range	0 °C to +60 °C / 32 °F to 140 °F
Degree of protection	IP 65

(1) Soon available, (2) in combination with GEL 65M, (3) upon request

GEL SELIN

Linear, absolute measuring system for GEL SEPOD L

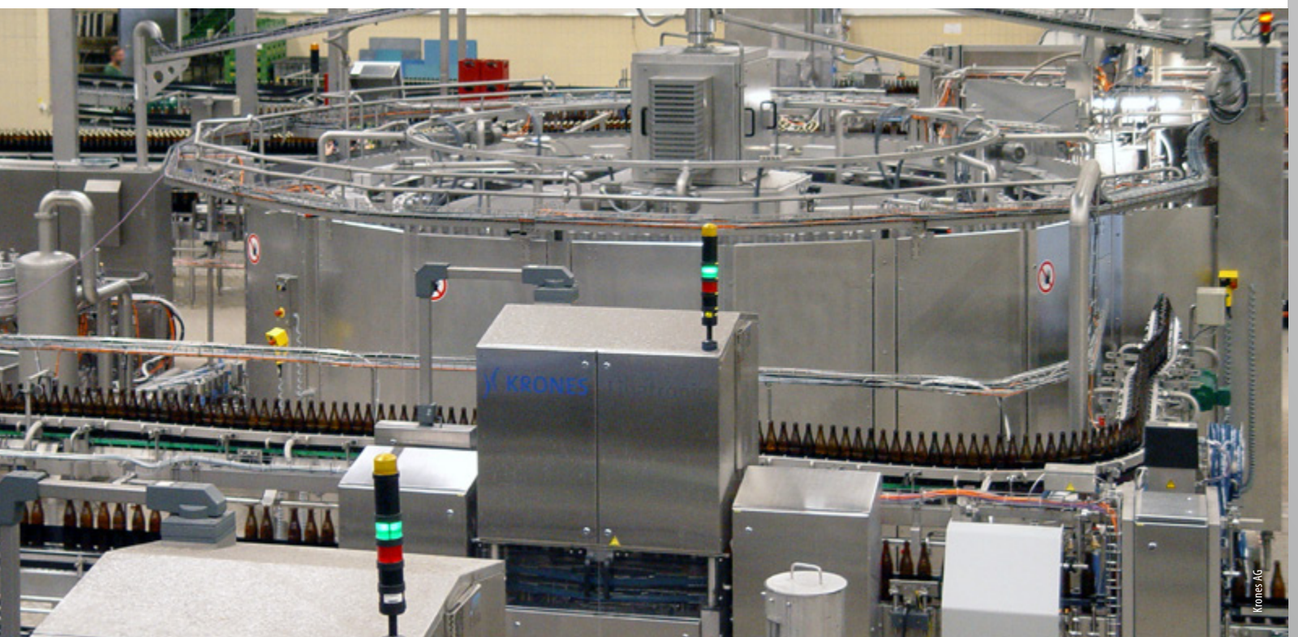
Description

The GEL SELIN linear sensor detects position changes of linear adjustment processes without contact. The position changes are transmitted from the GEL SEPOD L position display to a higher level control system. The communication interface is used for data transmission of the position values and power supply of the linear sensor. For contactless acquisition of the position values, a magnetic tape must be attached to the linear axis.

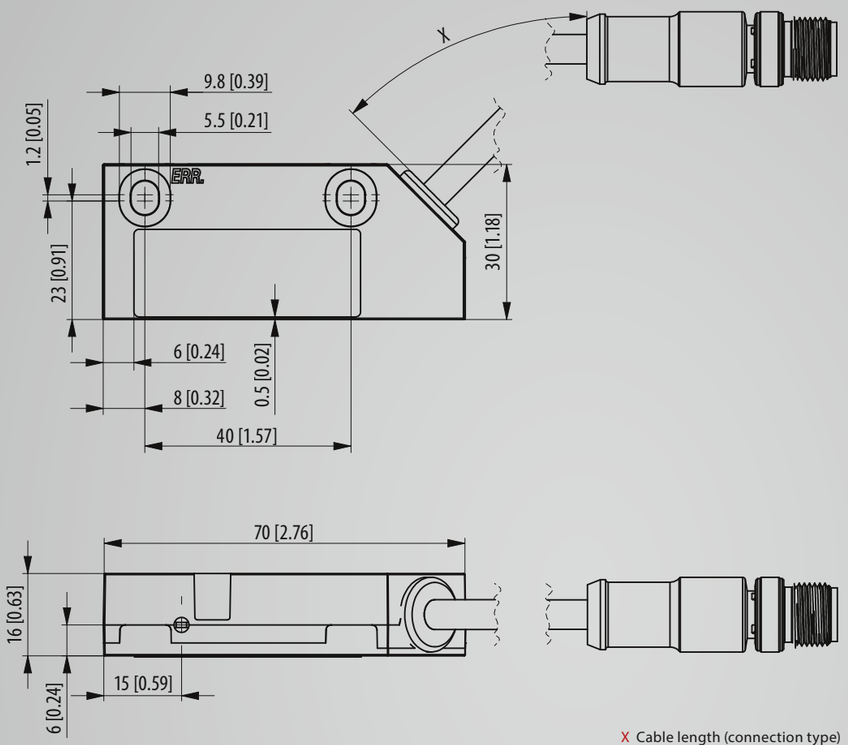
The linear sensor is mounted at a maximum distance of 1.5 mm from the magnetic tape and connected to the position display via the communication interface. At reduced measuring accuracy, a sensor distance of 2 mm to the magnetic tape is also possible. The linear sensor measures the distance between the linear sensor and the magnetic tape thus facilitating assembly of the measuring system. If the maximum distance is exceeded, the linear sensor transmits a status bit and also indicates this condition by means of an LED indicator.

Connection

Intended for use with the GEL SEPOD L linear position display.



Product information



X Cable length (connection type)

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	20 V to 30 V DC
Max. power consumption	≈ 100 mA at 24 V DC
Material	Housing: zinc die casting
Dimensions (not including connector)	≈ 70 × 16 × 30 mm / 2.76 x 0.63 x 1.18 inch
Weight	≈ 50 g / 1.76 oz
Measuring method	contactless, magnetic, absolute
Resolution	10 µm
Max. measuring range	10 m/32.81 foot
Max. positioning speed	4 m/s / 8.95 mph
Operating temperature range	-10 °C to +70 °C / 14 °F to 158 °F
Degree of protection	IP 65
Read distance (1)	1.5 mm/0.06 inch

(1) At reduced measuring accuracy, a sensor distance of 2 mm/0.08 inch to the magnetic tape is also possible.

GEL SEHMI

Nominal value display

Description

The nominal value display shows nominal positions or operating states and supports the operator when changing formats or tools. It is mounted to the machine with two screws and connected to a higher level control system directly via the communication interface or indirectly via the modular SeGMo-Box. The use of the nominal value display on the modular SeGMo-Box allows connection of all standard Industrial Ethernet communication interfaces.

Connection

The nominal value display is operated with a supply voltage of 20 to 30 V DC. The communication interface handles the bus communication and the power supply. Y- or T-distributors, interface cables and terminating resistors are required to connect to a higher level control system or the modular SeGMo-Box.

The nominal value display requires a functional ground cable to be connected.

Displays and controls

The nominal value display is equipped with a graphic display. The following values can be read:

- Nominal position
- Operating status

Menu navigation is via three membrane buttons below the display.

Fieldbus interface

CANopen

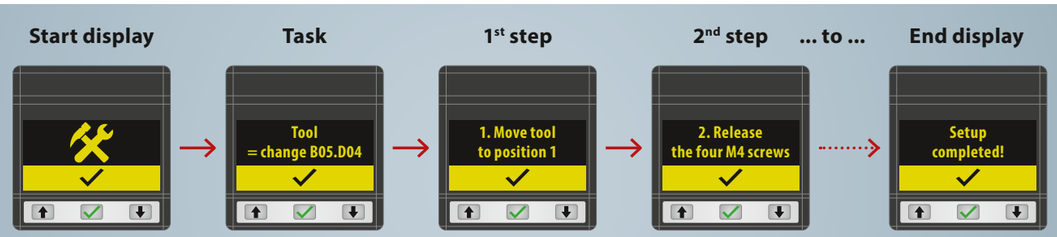
Additionally via the SeGMo-Box

PROFINET · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK

Soon available

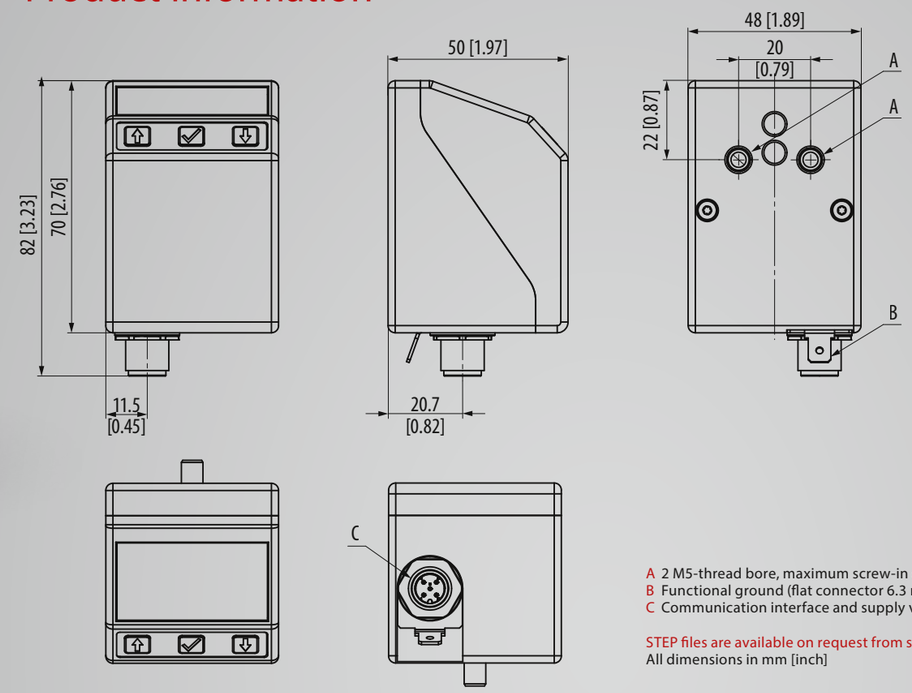
cULus · IO-Link

Paperless step-by-step instructions via the full graphic display



Operation is clear in all languages due to the use of a full graphic display. The SeGMo-ImgConv tool can be used to design your own pictograms and thus simplify user navigation. The nominal value display can store up to 40 customized pictograms.

Product information



A 2 M5-thread bore, maximum screw-in depth: 7 mm
B Functional ground (flat connector 6.3 mm)
C Communication interface and supply voltage

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	20 V to 30 V DC
Max. power consumption	≈ 50 mA at 24 V DC
Communication interfaces: Fieldbus	CAN bus with CANopen protocol, profile CiA 406; no electrical isolation, IO-Link (1)
Communication interfaces: Industrial Ethernet (2)	sercos III (3); POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP (3)
Material	Housing: Plastic ABS, anthracite, viewing window: Plastic, impact protection
Dimensions (not including connector)	≈ 48 × 50 × 70 mm / 1.89 x 1.97 x 2.76 inch
Weight	≈ 100 g / 3.53 oz
Display	OLED 1.54″ monochrome, yellow (128 × 64 pixels, graphic), Language: English
Operating temperature range	0 °C to +60 °C / 32 °F to 140 °F
Degree of protection	IP 65

(1) Soon available, (2) in combination with GEL 65M, (3) upon request

SeGMo-Positioning

Full automation

General

- Compact drive unit for fully automated adjustment tasks
- BLDC motor and gear with multiturn absolute rotary encoder
- Integrated power amplifier
- Intelligent adjustment unit for assembly on a machine shaft

Fields of application

- Packaging machines
- Food and bottling lines
- Wood and plastic processing machines
- Printing and bookbinding machines
- Large production facilities

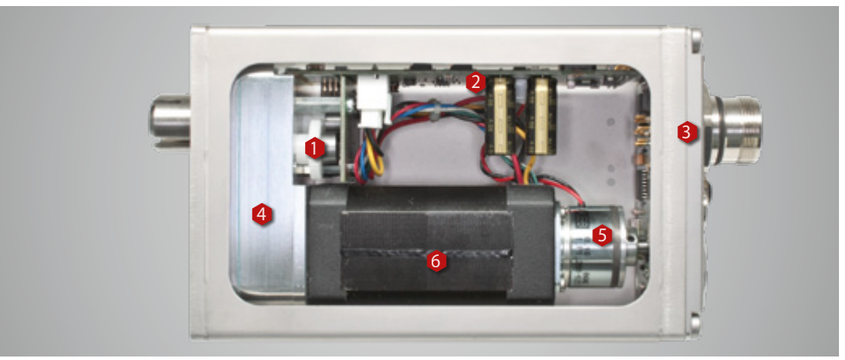
Features

- Nominal torques from 1.4 Nm to 15 Nm
- Housing made of stainless steel, aluminum or plastic
- Operating temperature range -10 °C to +60 °C
- Batteryless absolute multiturn encoder
- Degree of protection IP 65/IP 67
- Communication interfaces CANopen (CiA 402); PROFIBUS-DP (V0/V1); sercos III; POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP
- Optional with cULus Component Recognition

Advantages

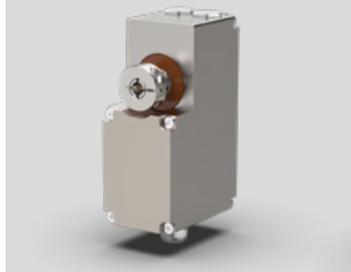
- Either hybrid cable or connector outlet
- Monitoring of important system parameters supports safe operation (overload protection)
- Ready for use directly after switching on the power supply due to absolute position detection of the batteryless multiturn magnetic-absolute rotary encoder
- Maintenance-free electrical parts
- Maintenance-free gear due to sealed-for-life lubrication

Sensor, **G**ear and **Mo**tor mean **SeGMo**



Sensor, gear and motor are integrated in a compact housing to save space.

1. Absolute position sensor
2. Power amplifier
3. Front end interface
4. Gear unit
5. Holding brake
6. Brushless DC motor

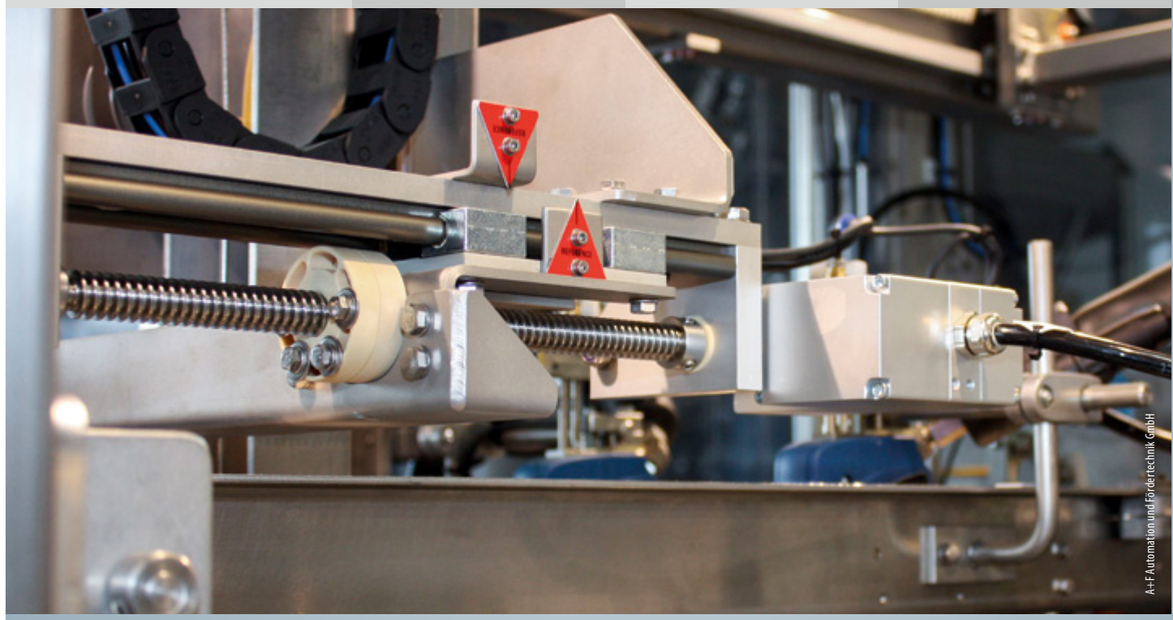


GEL 6109

GEL 6110

GEL 6113

GEL 6129



Perfectly integrated: The compact positioning drives automatically control height and width adjustment. Technical integration into the machine is particularly easy due to the wide range of interfaces.

GEL 6109

Compact positioning drive for confined installation situations

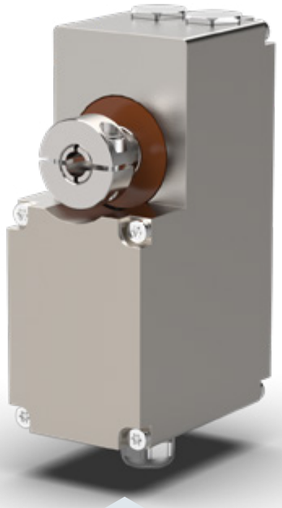
Description

The GEL 6109 positioning drive is a very compact positioning system. The graduated housing allows it to fit into almost any gap. This small power pack delivers up to 5 Nm at 70 r.p.m.

The hollow plug-in shaft, which eliminates the need for an additional coupling to connect to the machine shaft, simplifies assembly and saves installation space.

Connection

The positioning drive requires two supply voltages of 24 V to 30 V DC. The logic circuit supply voltage supplies the control electronics and the power circuit supply voltage supplies the power electronics for the motor. The positioning drive is connected to a SeGMo-Box using a hybrid cable (SeGMo-Connect). SeGMo-Connect handles bus communication and the power supply of the positioning drive.



Fieldbus interface

CANopen

Additionally via the SeGMo-Box

PROFINET · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK · PROFIBUS

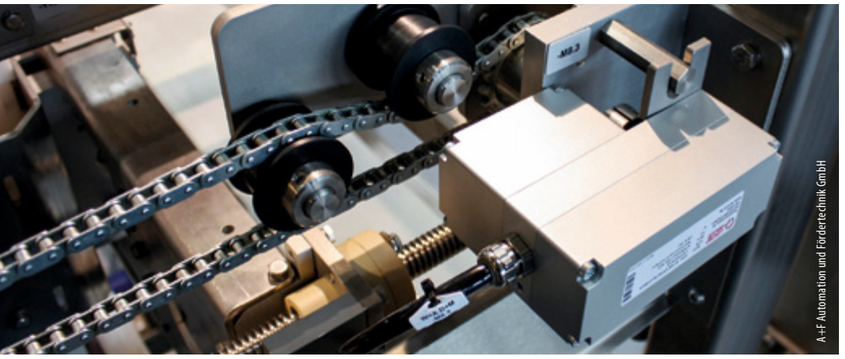
Certificate

cULus

Integrated absolute rotary encoder

A magnetic absolute multiturn encoder makes reference search routines superfluous after a power failure or “EMERGENCY STOP”. After the power is switched on, the positioning drive detects its position via the batteryless encoder and is ready for operation directly. The absolute rotary encoder withstands high shock/vibration loads.

A real space saver – fits in the smallest corner

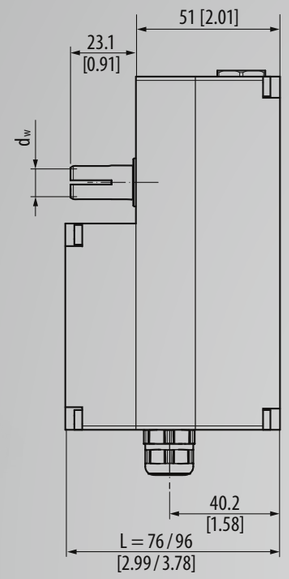


A+F Automation und Fördertechnik GmbH

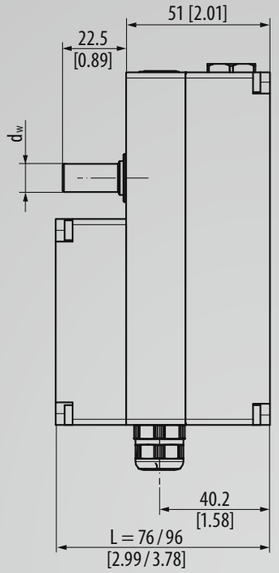
Thanks to its small dimensions, the GEL 6109 positioning drive offers more freedom in machine design.

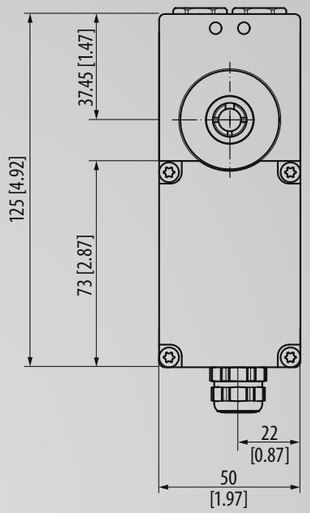
Product information

Semi-hollow shaft



Output shaft M





d_w diameter output shaft
L Length depends on construction type (see Technical Information)

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data

Supply voltage	24 V to 30 V DC
Nominal current consumption	2.6 A (max. 5 A) at 24 V DC
Duty cycle in % (load-dependent)	Duty cycle = 25 % at 100 % load torque Duty cycle ≤ 50 % at reduced load torque
Communication interfaces: Fieldbus	CANopen (CiA 402); PROFIBUS-DP (V0/V1) (1)
Communication interfaces: Industrial Ethernet (2)	sercos III; POWERLINK; PROFINET IO / RT; EtherCAT; EtherNet/IP; Modbus/TCP
Nominal torque output shaft	2.5 Nm and 5 Nm at 70 r.p.m.
Output shaft	Semi-hollow shaft, solid shaft, customized shafts upon request
Housing material	Aluminum
Weight	≈ 1.25 kg / 44.09 oz
Operating temperature range	-10 °C to +60 °C / 14 °F to 140 °F
Degree of protection	IP 67
cULus recognized Component, E196161	UL 61800-5-1 CSA C22.2 number 274-13
UL data: Degree of protection	Type 1
UL data: Ambient temperature	0 °C to +55 °C / 32 °F to 131 °F
UL data: Operating temperature range	-10 °C to +55 °C / 14 °F to 131 °F

(1) in combination with GEL 6505, (2) in combination with GEL 6505/GEL 65M

GEL 6110

Compact positioning drive with high torque

Description

The GEL 6110 series positioning drives are very compact and are available in either stainless steel or aluminum housings, both of which ensure degree of protection IP67. The positioning drive is assembled using a hollow plug-in shaft without an additional coupling – thus saving adapter materials and minimizing mounting depth. This means that it can also be easily integrated into the respective machine concept in environments with hygiene requirements and where space is limited.

Connection

The positioning drive requires two supply voltages of 24 V to 30 V DC. The logic circuit supply voltage supplies the control electronics and the power circuit supply voltage supplies the power electronics for the motor. The positioning drive is connected to a SeGMo-Box using a hybrid cable (SeGMo-Connect). SeGMo-Connect handles bus communication and the power supply of the positioning drive. As a standalone device with integrated fieldbus interface, the device is connected directly to the higher level control system. For this purpose, two fieldbus cables and a power supply cable are connected to the drive.

The drive can be configured with an integrated holding brake as an option.

Fieldbus interface

CANopen

PROFIBUS

Industrial Ethernet interface

PROFINET · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK

Certificate

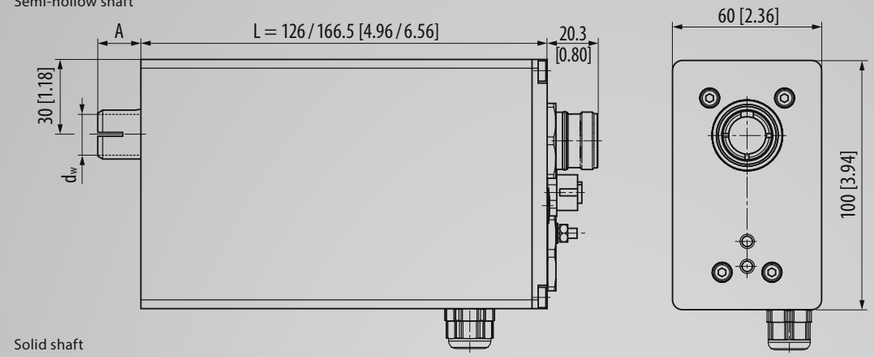
cULus

Integrated absolute rotary encoder

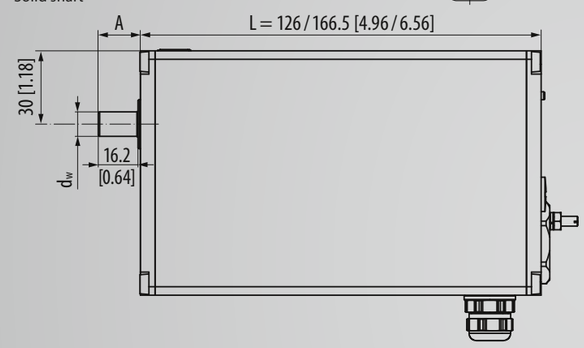
A magnetic absolute multiturn encoder makes reference search routines superfluous after a power failure or “EMERGENCY STOP”. After the power is switched on, the positioning drive detects its position via the batteryless encoder and is ready for operation directly. The absolute rotary encoder withstands high shock/vibration loads.

Product information

Semi-hollow shaft



Solid shaft



A/d_w Dimension depends on output shaft (see Technical Information)
L Length depends on construction type (see Technical Information)

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

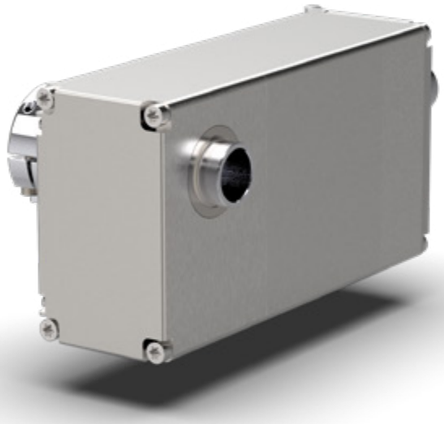
Technical data	
Supply voltage	24 V to 30 V DC
Nominal current consumption	3.6 A (max. 7.5 A) at 24 V DC
Duty cycle in % (load-dependent)	Duty cycle = 25 % at 100 % load torque Duty cycle ≤ 50 % at reduced load torque
Communication interfaces: Fieldbus	CANopen (CiA 402); PROFIBUS-DP (V0/V1)
Communication interfaces: Industrial Ethernet	sercos III; POWERLINK; PROFINET IO / RT; EtherCAT; EtherNet/IP; Modbus/TCP
Nominal torque output shaft	1.4 – 15 Nm at 230 – 30 r.p.m.
Output shaft	Semi-hollow shaft, solid shaft, customized shafts upon request
Housing material	Stainless steel, aluminum
Weight	≈ 1.60 kg – 3.50 kg / 56.44 oz – 123.46 oz
Operating temperature range	-10 °C to +60 °C / 14 °F to 140 °F
Degree of protection	IP 67
cULus recognized Component, E196161	UL 61800-5-1 CSA C22.2 number 274-13
UL data: Degree of protection	Type 1
UL data: Ambient temperature	0 °C to +55 °C / 32 °F to 131 °F

GEL 6113

Positioning drive with through hollow shaft

Description

The GEL 6113 positioning drive with through hollow shaft allows direct replacement of handwheels for format adjustment. The positioning drive requires only a little more space on the machine shaft than a standard handwheel. With a mounting depth of 90 mm in axial direction, this is an extremely compact positioning drive. This dimension already takes into account the clamping ring for connection to the machine shaft.



Connection

The positioning drive requires two supply voltages of 24 V to 30 V DC. The logic circuit supply voltage supplies the control electronics and the power circuit supply voltage supplies the power electronics for the motor.

The positioning drive is connected to a SeGMo-Box using a hybrid cable (SeGMo-Connect). SeGMo-Connect handles bus communication and the power supply of the positioning drive. As a standalone device with integrated fieldbus interface, the device is connected directly to the higher level control system. For this purpose, two fieldbus cables and a power supply cable are connected to the drive. The rigid aluminum housing has a degree of protection IP 67. The drive can be configured with an integrated holding brake as an option.

Integrated absolute rotary encoder

A magnetic absolute multiturn encoder makes reference search routines superfluous after a power failure or “EMERGENCY STOP”. After the power is switched on, the positioning drive detects its position via the batteryless encoder and is ready for operation directly. The absolute rotary encoder withstands high shock/vibration loads.

Fieldbus interface

CANopen

PROFIBUS

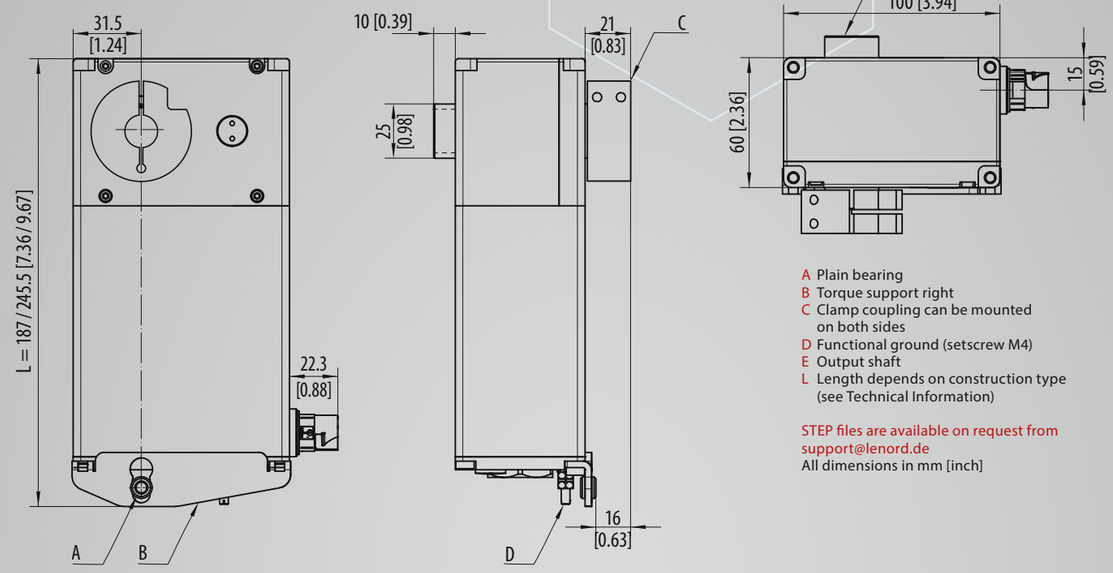
Industrial Ethernet interface

PROFINET · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK

Certificate

cULus

Product information



A Plain bearing
B Torque support right
C Clamp coupling can be mounted on both sides
D Functional ground (setscrew M4)
E Output shaft
L Length depends on construction type (see Technical Information)

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	24 V to 30 V DC
Nominal current consumption	4.1 A (max. 10 A) at 24 V DC
Duty cycle in % (load-dependent)	Duty cycle = 25 % at 100 % load torque Duty cycle ≤ 50 % at reduced load torque
Communication interfaces: Fieldbus	CANopen (CiA 402); PROFIBUS-DP (V0/V1)
Communication interfaces: Industrial Ethernet	sercos III; POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP
Nominal torque output shaft	5 Nm to 10 Nm at 55 r.p.m.
Output shaft	Through hollow shaft dw = 20 mm
Housing material	Aluminum
Weight	≈ 3.50 kg / 84.66 oz
Operating temperature range	-10 °C to +60 °C / 14 °F to 140 °F
Degree of protection	IP 67
cULus recognized Component, E196161	UL 61800-5-1 CSA C22.2 number 274-13
UL data: Degree of protection	Type 1
UL data: Ambient temperature	0 °C to +55 °C / 32 °F to 131 °F
UL data: Operating temperature range	-10 °C to +55 °C / 14 °F to 131 °F

GEL 6129

Compact positioning drive with integrated fieldbus interface

Description

The GEL 6129 positioning drive offers more freedom for system design thanks to various connection options with straight or angled connectors as well as small dimensions. Identical housing dimensions for the 2.5 Nm and 5 Nm variants facilitate integration into the system. GEL 6129 is available as a standalone device.

Connection

The positioning drive requires two supply voltages of 24 V to 30 V DC. The logic circuit supply voltage supplies the control electronics and the power circuit supply voltage supplies the power electronics for the motor.

The positioning drive is connected to a SeGMo-Box using a hybrid cable (SeGMo-Connect). SeGMo-Connect handles bus communication and the power supply of the positioning drive. As a standalone device with integrated fieldbus interface, the device is connected directly to the higher level control system.

For this purpose, two fieldbus cables and a power supply cable are connected to the drive. The rigid plastic housing has a degree of protection IP 65.

Integrated absolute rotary encoder

A magnetic absolute multiturn encoder makes reference search routines superfluous after a power failure or “EMERGENCY STOP”. After the power is switched on, the positioning drive detects its position via the batteryless encoder and is ready for operation directly. The absolute rotary encoder withstands high shock/vibration loads.

Fieldbus interface

CANopen

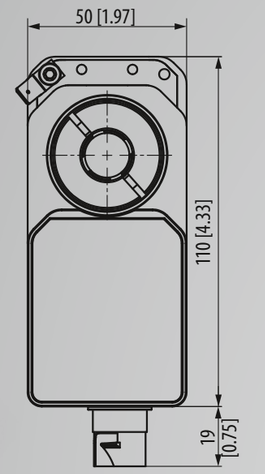
Industrial Ethernet interface

PROFINET IO, EtherNet/IP, EtherCAT, Modbus, sercos the automation bus, ETHERNET POWERLINK

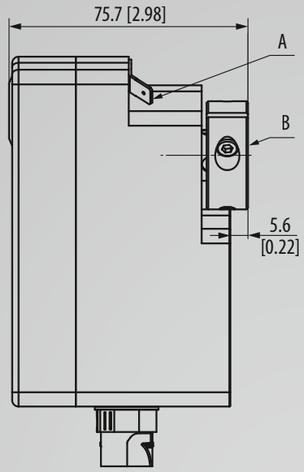
Soon available

cULus

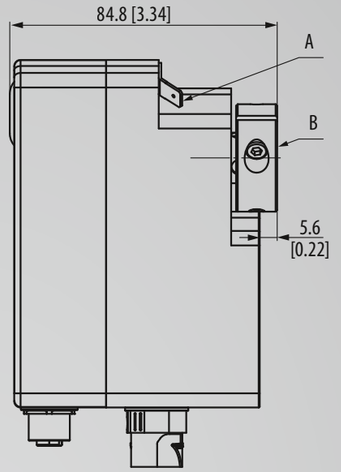
Product information



Connection technology HS



Connection technology ST



A Flat connector 6.3 mm (functional ground)
B Clamping ring

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	
Supply voltage	24 V to 30 V DC
Nominal current consumption	2.4 A (max. 5.2 A) at 24 V DC
Duty cycle in % (load-dependent)	Duty cycle = 25 % at 100 % load torque Duty cycle ≤ 50 % at reduced load torque
Communication interfaces: Fieldbus	CANopen (CiA 402)
Communication interfaces: Industrial Ethernet	sercos III; POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP
Nominal torque output shaft	2.5 Nm and 5 Nm at 70 r.p.m.
Output shaft	Semi-hollow shaft
Housing material	Plastic (ABS)
Weight	≈ 0.65 kg / 22.93 oz
Operating temperature range	-10 °C to +60 °C / 14 °F to 140 °F
Degree of protection	IP 65

SeGMo-Box

Central management of positioning drives and position indicators

General

The decentral control units for assembling in the switch cabinet or in the system facilitate simple and consistent system integration and reduce the number of bus participants. They ensure communication with the higher level control system and control the positioning drives. SeGMo-Boxes are available in the following versions:

- Compact device for up to five positioning drives (GEL 6505). It serves as a star distributor and handles power distribution for the connected drives.
- Modular SeGMo-Box for up to 17 positioning drives/48 position displays (GEL 65M). Two different basic housings offer the possibility of populating four or nine slots freely.

Features

- Temperature range 0 °C to +60 °C
- Degree of protection IP 20/IP 69K
- Integrated communication interfaces

Advantages

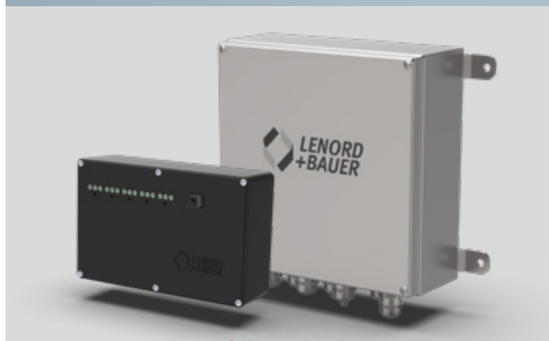
- Easy commissioning of SeGMo-Positioning/ SeGMo-Assist
- Easily configurable via SeGMo-Support Tool/ SeGMo-Web
- Power management of connected drives
- Optional network connection for Industrie 4.0 applications and remote maintenance (GEL 65M)

Fields of application

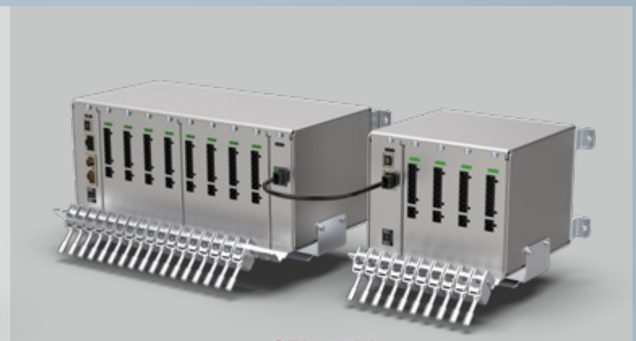
- Packaging machines
- Food and bottling lines
- Wood and plastic processing machines
- Printing and bookbinding machines
- Large production facilities

Process monitoring and quality assurance

Using the bus interface, it is not only possible to set target position values, but the actual position values can also be returned to the control system. This means that all connected manual feed axes can be monitored and traced. The control system does not give the start command until a correct checkback signal is received, thus avoiding rejects and damage to the items to be packaged.



GEL 6505



GEL 65M

Condition Monitoring also for your system thanks to separate and secure Industrie 4.0 interface

GEL 6505

Decentral control unit

Description

In general, the SeGMo-System is configured via the higher level control system. Plug-in modules for all standard fieldbus and Industrial Ethernet communication interfaces are available for communication of the intelligent SeGMo-Box with the higher level control system. The plug-in modules can be supplied pre-assembled according to the type code.

Function

Three LEDs per positioning drive indicate the status of power supply and communication. In the event of a malfunction or during an inspection, the power voltage and communication can be switched on or off using the buttons below the LEDs. Error acknowledgement and manual reset can also be performed using the pushbuttons. For service purposes, some parameters can be read out and set using the SeGMo-Support Tool via the USB port on the SeGMo-Box. The hybrid cables of the positioning drives are connected directly in the SeGMo-Box. Integrated electronic breakers ensure that the box can be operated safely.

The maximum power consumption of the positioning drives can be programmed using the power management system. After completing the connection work, the SeGMo-Box checks the system parameters. After that, the positioning drives are automatically configured even without a connection to the higher level control system.

Product construction

Power supply to the power circuits and logic circuits is either via a common connection or via two separate connections. In the case of separate power supply to the power circuits and logic circuits, the voltage for the positioning drive motors can be switched off without interrupting the internal communication, for example when “EMERGENCY STOP” is active. For requirements according to the Machinery Directive, the motor power of the positioning drives can be switched on the system side via certified safety relays. The condition monitoring of the drives remains guaranteed, as the internal communication between drive and box is not affected. This ensures that the drive can be switched off safely.

Fieldbus interface

CANopen

PROFIBUS

Industrial Ethernet interface

PROFINET

EtherNet/IP

EtherCAT

Modbus

sercos the automation bus

ETHERNET POWERLINK

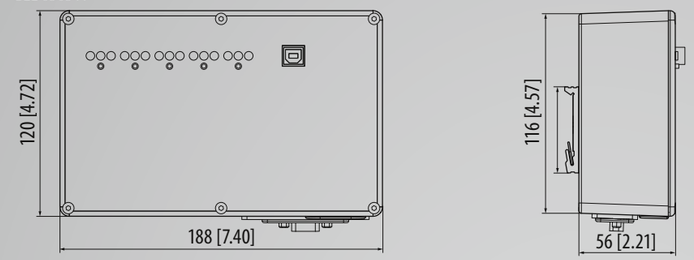
Certificates

c UL us

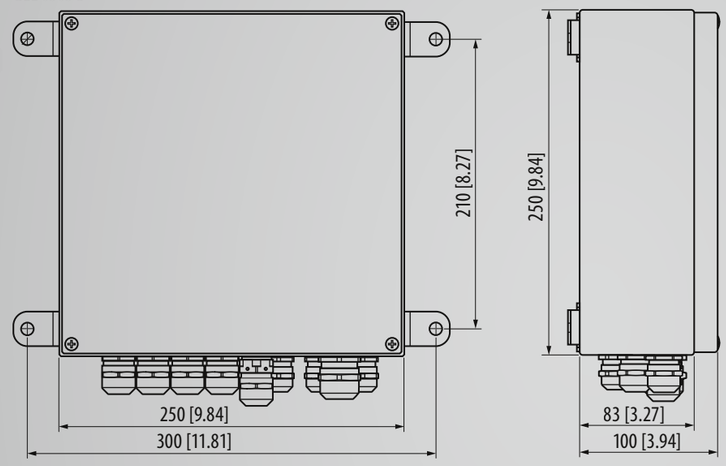
c UL us (1) LISTED

Product information

GEL 6505 A



GEL 6505 B



STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	GEL 6505 A	GEL 6505 B
Supply voltage (logic circuit)	20 V to 30 V DC, max. 1 A	
Supply voltage (power circuit)	24 V to 30 V DC	
Nominal current consumption (power circuit)	Depending on the number and load of the connected drives	
Communication interfaces: Fieldbus	CANopen; PROFIBUS-DP (V0/V1)	
Communication interfaces: Industrial Ethernet	sercos III; POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP	
Assembly location	Top hat rail	Wet area
Housing material	Cast aluminum	Stainless steel 1.4301
Weight	≈ 1.00 kg / 35.27 oz	≈ 4.50 kg / 158.73 oz
Operating temperature range	0 °C to +60 °C / 32 °F to 140 °F	
Degree of protection	IP 20	IP 69K
UL data: File number	E483619	
UL data: Ambient temperature	0 °C to +55 °C / 32 °F to 131 °F	0 °C to +60 °C / 32 °F to 140 °F
UL data: Degree of protection	IP 20	IP 68
UL data: Degree of protection		Type 1

GEL 65M

Modular, decentral control unit

Description

The modular SeGMo-Box GEL 65M is the decentral control unit of the SeGMo-System.

Industrial Ethernet interfaces are available to communicate with the central higher level control system (PLC). The modular design allows application-specific combinations. Two basic housing sizes are available. By combining two 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. With an additional optional network connection, the modular SeGMo-Box is ideally suited for Industrie 4.0 applications and enables remote maintenance of the system without affecting the Industrial Ethernet fieldbus.

Industrie 4.0

Web server

Industrial Ethernet interface

PROFINET · EtherNet/IP · EtherCAT · Modbus · sercos the automation bus · ETHERNET POWERLINK

Soon available

cULus

Function

Four LEDs per plug-in module indicate the status of power supply and communication. The devices are automatically detected, parameterized and configured at the box. Some parameters can be read out and set via the optional network interface or the USB port. A modern web interface is used for visualization. The cables of the connected devices are directly connected to the modular SeGMo-Box. Integrated electronic breakers ensure that the box can be operated safely.

The maximum power consumption of the positioning drives can be programmed using the power management system. After completion of the connection work, the modular SeGMo-Box checks the system parameters. After that, the positioning drives are automatically configured even without a connection to the higher level control system.

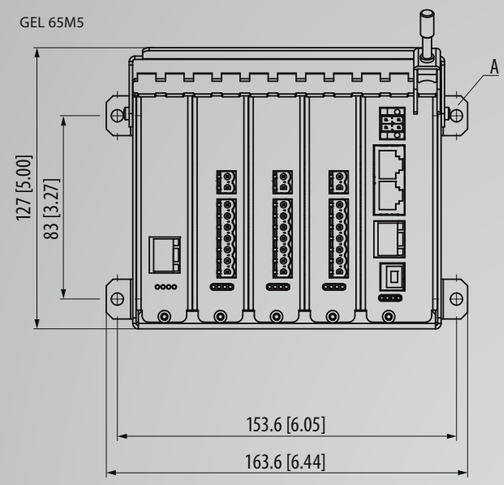
Product construction

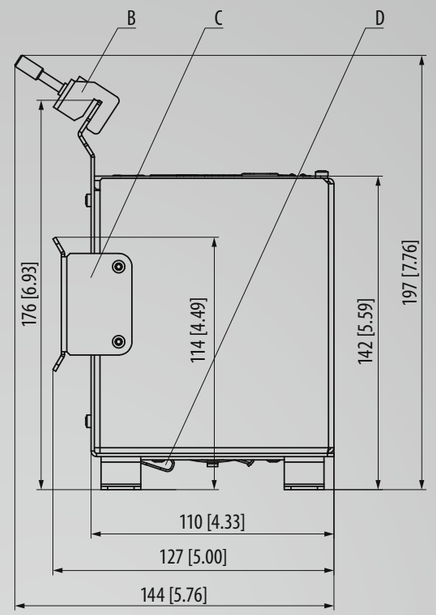
The power supply can be provided separately for each equipped plug-in module.

With a separate power supply to the power circuits and logic circuits, the voltage for each individual positioning drive can be switched off without interrupting the internal communication, for example when “EMERGENCY STOP” is active. For requirements according to the Machinery Directive, the motor power of the positioning drives can be switched on the system side via certified safety relays. The condition monitoring of the drives remains guaranteed, as the internal communication between drive and box is not affected. This ensures that the drive can be switched off safely.

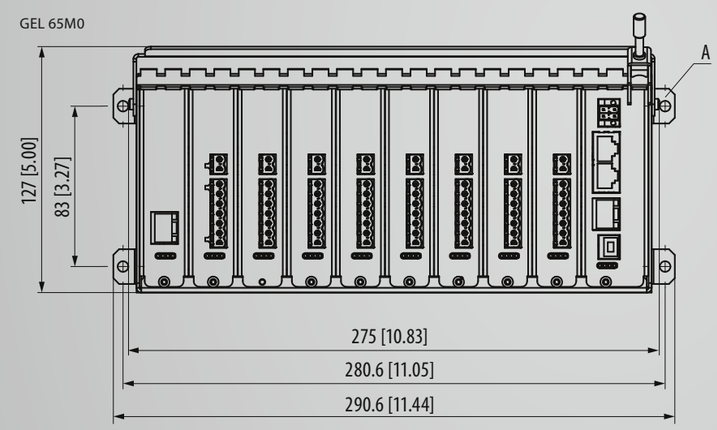
Product information

GEL 65M5





GEL 65M0



A Mounting method A (mounting bracket)
B Screen connection terminal
C Cable routing
D Mounting method B (top hat rail adapter)

STEP files are available on request from support@lenord.de
All dimensions in mm [inch]

Technical data	GEL 65M5	GEL 65M0
Supply voltage (logic circuit)	24 V to 30 V DC, max. 2.0 A	24 V to 30 V DC, max. 3.25 A
Supply voltage (power circuit)	24 V to 30 V DC	
Nominal current consumption (power circuit)	Depending on the number and load of the connected drives	
Communication interfaces: Industrial Ethernet	sercos III (1); POWERLINK; PROFINET IO/RT; EtherCAT; EtherNet/IP; Modbus/TCP (1)	
Housing material	Aluzinc sheet	
Weight	≈ 1.60 kg / 56.44 oz	≈ 2.70 kg / 95.24 oz
Operating temperature range	0 °C to +60 °C / 32 °F to 140 °F	
Degree of protection	IP 20	

(1) upon request

SeGMo-Connect

Connection cable for the SeGMo-System

General

- Configurable hybrid cable for easy connection of SeGMo positioning drives
- M17 or M23 connector with integrated bus element for power supply and bus communication
- Quick disconnect connectors allow easy disconnection
- For power supply of the SeGMo positioning drives for stand-alone use

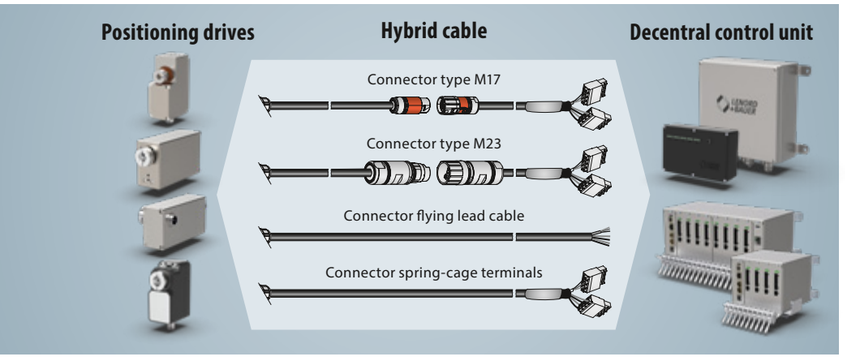
Properties

- High electromagnetic compatibility (EMC housing shielding)
- Current carrying capacity as per DIN EN 60512
- Length from 3 m to 20 m

Advantages

- Reduced cabling effort
- Can be adapted to the respective connection situation
- Time saving when connecting the SeGMo positioning drives with the SeGMo-Box or the modular SeGMo-Box.

SeGMo-Connect combinations



Convenient connection made to measure: With SeGMo-Connect, cabling the positioning drives and the SeGMo-Box is child's play.

BZK connector type M17

BZK connector type M23

The connector protrudes only 55 mm into the installation space

BZK 17 and 23

Robust connectors for every application

Description

Robust connectors are required to ensure safe transmission of data and power.

The connectors of the SeGMo-Connect series are additionally UL-certified and thus complete the product portfolio of the SeGMo-System.

Certificates

c UL us

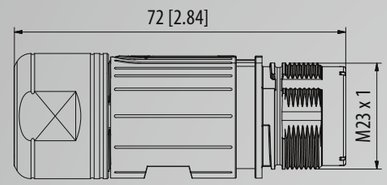
c UL (1) us LISTED

Lantech

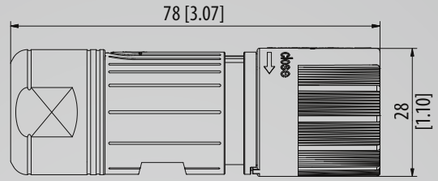
SeGMo-Connect can be freely assembled and is pre-assembled for convenient custom connection. The entire system is thus quickly connected.

Product information

Connector type 23

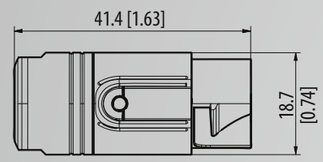


Coupling

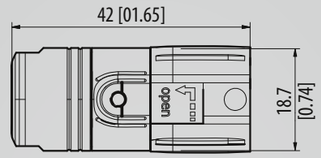


Connector

Connector type 17



Coupling



Connector

STEP files are available on request from support@lenord.de

All dimensions in mm [inch]

Technical data	Connector type 23	Connector type 17
Contact type (coupling/connector)	Male/female	
Housing material (coupling/connector)	Brass nickel-plated (others upon request)	Brass, zinc die casting and plastic coated
Union nut material	Brass nickel-plated	–
Degree of protection	IP 66/IP 67	
Certification	cULus recognized component (no. E247738)	

Expertise at your side

Our know-how gives you a technological advantage

We are an international specialist in the field of motion sensors and integrated drive technology. We develop, produce and distribute leading technology solutions for the mobility and machinery sectors. Our products ensure that high-speed trains run safely, packaging machines are set up with minimum effort, tool spindles are precisely monitored and car electric drives are controlled in an energy-efficient manner. For almost 60 years, our customers have been benefiting from extensive technical consultancy competence and our knowledge of applications.

We are the competent partner for you when it comes to efficiently integrating sensors and actuators, intelligently transforming signals into value-added functions and making them accessible interactively. With us, data streams become usable information at the point of origin. Integration into your system environment thus becomes possible intuitively.

Rely on our experience, which guarantees you low lifecycle costs, high availability and digital future reliability.

Lenord+Bauer – Finding solutions. Founding trust.

High quality standards

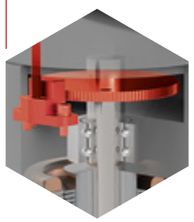
To ensure excellent product quality and high failsafe performance, we naturally have a consistent process landscape and are certified as per DIN EN ISO 9001, DIN EN ISO 14001 and ISO/TS 22163 (IRIS). This process landscape is monitored and confirmed annually by an external body. In addition, you can of course audit us as a supplier.

Active in future markets worldwide

1965
Lenord, Bauer & Co. GmbH is set up in a basement in Oberhausen

1973
The company headquarters is built in Oberhausen

1993
Sensors for high precision and speed in machine tool applications



1996
Robust and wear-free sensor solutions for rail traffic

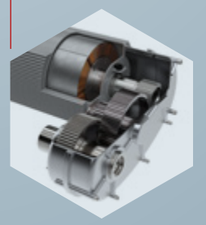
1999
Pole wheel and speed encoders prove themselves under extreme operating conditions in ship propulsion systems

2008
Drive technology for packaging machines: The first generation of positioning drives is launched on the market

2011
Internationalization: New subsidiary is established in Shanghai

2012
New production plant in Gladbeck is inaugurated

2019
Sensor for electromobility: Efficient drive control for synchronous and asynchronous motors



2021
Lenord+Bauer Italy and USA are launched

The optimum solution for you

Personal consultation for your automation project

Do you wish to increase the degree of automation of your existing systems to boost productivity? You can achieve this by exchanging components, adding state-of-the-art technology, and replacing manual units. Our sales department will be happy to advise you on your retrofitting projects. We optimize efficiency, availability and operational reliability for you.

We are also the right partner for new systems. Contact us to learn more about using the SeGMo-System in your application.

Technical consultation

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Order processing

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We are available to offer you advice and support at every stage of your project.

Information available without delay

Whether you are looking for product brochures, technical information, manufacturer's declarations or certificates, you are sure to find them in our download area. If you are planning a new installation or modernization, we will also be happy to provide you with our STEP files on request.

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For you locally

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