

# SeGMO-Box

Interface for controlling  
up to 5 positioning drives

**GEL 6505**

## Technical information

Version 2020-02

### General

The SeGMO-Box GEL 6505 is the decentral control unit in the SeGMO-System and is available in two variants. Up to five positioning drives of the SeGMO family can be connected directly using hybrid cables. The installation of the SeGMO-System is cost-optimised and very compact. The motor power for the positioning drives connected is monitored and switched by the power management in the GEL 6505. Plug-in interface modules are available for the communication with the central control system (PLC). With the aid of the SeGMO-Box the positioning drives can also be placed in operation without a higher level plant control system.

### Features

- Configured for up to five positioning drives of the SeGMO family
- Supply voltage: 24 V DC / max. 40 A (UL: max. 27.5 A)
- Separate connection possible for supply of power circuits and for supply of logic circuits
- Plug-in interface modules for CANopen, PROFIBUS-DP, PROFINET IO / RT, EtherCAT, EtherNet/IP, Sercos III, POWERLINK
- Degree of protection IP 20, IP 68 or IP 69K
- Depending on the design either with cULus component recognition or cULus listing



### Advantages

- Compact type of connection
- Electronic fuses
- Integrated power management
- Straightforward commissioning of the positioning drives by means of automatic parameter settings and configuration
- Support Tool for advanced commissioning and configuration

### Fields of application

- Packaging machines
- Food and bottling plants
- Wood and plastic working machines
- Printing presses and book binding machines
- Extensive production plants

*Right to technical changes and errors reserved.*

# Description

The intelligent SeGMO-Box is a component of the SeGMO-System.

## SeGMO-System

The SeGMO-System is suitable for the efficient integration of several positioning drives in a machine or plant. The system consists of the following components:

- **SeGMO-Positioning:**  
Positioning drive for fully automatic format adjustment
- **SeGMO-Motion:**  
Positioning drive for cyclic operation
- **SeGMO-Box:**  
Decentral control unit for up to 5 drives
- **SeGMO-Connect:**  
Single cable concept (hybrid cable suitable for drag chain)
- **SeGMO-Lib:**  
Ready-made function blocks for integration in the machine control system
- **SeGMO-Support Tool:**  
Software for advanced commissioning and configuration

The usage of SeGMO-Box and SeGMO-Connect significantly reduces the cabling effort for the positioning drives. Instead of the usual two separate cables for internal bus communication and a third cable to supply power to the positioning drives, only **ONE** hybrid cable suitable for use in drag chains is connected. In the maximum configuration with 5 positioning drives connected, the number of cables typically reduces from 15 to 5 due to SeGMO-Connect. With the aid of the SeGMO-Box the overall system offers a high degree of flexibility during integration, as it supports all common communication interfaces.

In general, the SeGMO-System is configured via the plant control system (PLC). Plug-in interface modules are available for the communication of the SeGMO-Box with the central plant control system.

The interface modules can be either supplied pre-assembled as per the type code or ordered separately.

## Device variants

### GEL 6505A

- Compact housing made of cast aluminium
- Mounted on top hat rail in the switch cabinet
- State LEDs and push-buttons on the front panel for checking and commissioning the positioning drives

### GEL 6505B

- Closed housing made of stainless steel
- Installation outside the switch cabinet
- All indicators and connection elements in the housing

## Power supply

The dimensioning of the power supply unit for the operation of the SeGMO-Box depends on the number of positioning drives connected and their loads. For the operation of the SeGMO-Box with 5 positioning drives, we recommend a voltage-stabilised 24 V DC / 40 A power supply unit, which is ideally mounted beside the SeGMO-Box.

## Indicators and connection elements

3 LEDs per positioning drive indicate the state of the power supply and communication. In case of a malfunction or during an inspection, the power circuit voltage and communication can be switched on or off using push-buttons below the LEDs. It is also possible to acknowledge errors and perform a manual reset with the aid of the push-buttons. For service purposes some parameters can be read and set using a terminal program via the USB port on the SeGMO-Box.

The hybrid cables for the positioning drives are connected directly to the easily accessible and coded strips using spring-cage terminals. The hybrid cable screens are connected to an earth rail.

Integrated electronic fuses ensure the safe operation of the Box. The equipotential bonding is provided via the top hat rail or the mounting straps and the separately connected earth cable.

## Positioning drive power supply and power management

The maximum power consumption of the positioning drive can be configured using power management.

After the completion of the connection work, the SeGMO-Box checks the system parameters. The positioning drives are then configured automatically, even without a connection to the plant control system.

The power is supplied to the power circuits and logic circuits either via a common connection or via two separate connections.

On the separate supply of the power circuits and logic circuits, the voltage for the positioning drive motors can be switched off, without interrupting the internal communication, for example during an "EMERGENCY STOP".

For requirements in accordance with the new Machinery directive, the power for the positioning drive motors can be switched via certified safety relays. During this process the state of the drives continues to be monitored, as the internal communication between the drive and Box is not affected. In this way the drive can be safely shut down.

# Technical data

Device variant	GEL 6505A	GEL 6505B
<b>Device data</b>		
Mounting location	Top hat rail	Wet area
Housing dimensions (W×H×D)	188×120×56 mm	250×250×100 mm
Housing material	Cast aluminium	Stainless steel 1.4301
Weight	1 kg	4.5 kg
Degree of protection (design N/U)	IP 20, EN 60529:2014-09	IP 69K, EN 60529:2014-09
Degree of protection (design C)	IP 20, EN 60529:2014-09	IP 68, EN 60529:2014-09
UL protection class (design C)	–	Type 1 <sup>(1)</sup>
<b>Electrical data</b>		
Power supply (design N/U)	Logic circuits <sup>(2)</sup> : 20...30 V DC, 1 A, stabilised Power circuits <sup>(3)</sup> : 24...30 V DC (depending on cable length), max. 40 A <sup>(4)</sup> , stabilised	
Power supply (design C)	Logic circuits <sup>(2)</sup> : 20...30 V DC, 1 A, stabilised Power circuits <sup>(3)</sup> : 24...30 V DC (depending on cable length), max. 27.5 A <sup>(4)</sup> , stabilised Maximum output current per channel: 5.5 A	
Fuse protection <sup>(5)</sup>	Logic circuits <sup>(2)</sup> : external fuse required Power circuits <sup>(3)</sup> : electronic, programmable (provide external fuse)	
Communication interfaces	CANopen, PROFIBUS-DP, PROFINET IO / RT, EtherCAT, EtherNet/IP, Sercos III, POWERLINK	
Type of connection	Spring-cage terminals	
Core cross-section, supply	Logic circuit <sup>(6)</sup> : 0.5...1.5 mm <sup>2</sup> Power circuit <sup>(3)</sup> : 6...10 mm <sup>2</sup> <sup>(7)</sup>	
Core cross-section, positioning drive hybrid cable (design N/U)	Power supply: 0.5/1.5 mm <sup>2</sup> Internal communication: 0.14/0.25 mm <sup>2</sup>	
Core cross-section, positioning drive hybrid cable (design C)	Power supply: 0.5/2.5 mm <sup>2</sup> Internal communication: 0.14/0.25 mm <sup>2</sup>	
Dielectric strength	$\sqrt{2} \times 500$ V DC, DIN EN 61439-1:2012-06	
EMC <sup>(8)</sup>	Electromagnetic immunity EN 61000-6-1:2007-10, EN 61000-6-2:2006-03, DIN EN 61000-4-5:1995 (1 kV surge on DC supply) Electromagnetic emissions EN 61000-6-3:2011-09, EN 61000-6-4:2011-09	
<b>Ambient data</b>		
Shock resistance	150 ms <sup>-2</sup> ; as per EN 60068-2-27:2010-02	
Vibration resistance	50 ms <sup>-2</sup> , 1...100 Hz; as per EN 60068-2-6:2008-10	
Operating temperature	0...+60 °C 0...+55 °C (GEL 6505A, design C)	
Condensation	Not permitted	

(1) Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery".

This housing type is not suitable for the connection of rigid metal conduits.

(2) Logic circuit supplies the electronics for the positioning drives and the electronics for the Box.

(3) Power circuit supplies only the positioning drive motors with separate supply of power.

(4) Maximal permissible continuous current for the Box. The actual current consumption is dependent on the number of drives connected and their load (→ Technical information GEL 6113 / GEL 6110 / GEL 6109 / GEL 6108).

(5) Design C: Overcurrent protection as per NFPA 79 "Electrical Standard for Industrial Machinery" is to be provided.

(6) Logic circuit supplies the electronics for the positioning drives and the electronics for the box.

(7) Max. tensile force for cable with 6 (10) mm<sup>2</sup>: 80 (90) N

(8) Use only screened cables.

# Unit overview

## Description of the housing variants

Feature	Degree of protection	Design		
		N	U	C
UL approval mark / UL protection class	<b>A</b>	-	-	cULus recognised component / -
	<b>B</b>	-	-	cULus listed / type 1 <sup>(1)(2)</sup>
Degree of protection	<b>A</b>	IP 20	IP 20	IP 20
	<b>B</b>	IP 69K <sup>(3)</sup>	IP 69K <sup>(3)</sup>	IP 68 <sup>(3)</sup>
Additional fuse protection of the hybrid cable (Power circuit voltage)	<b>A</b>	-	F1 to F5 (3.15 A)	F1 to F5 (3.15 A)
	<b>B</b>	-	F1 to F5 (3.15 A)	F1 to F5 (3.15 A)
Power supply for power circuit (positioning drives): Type of spring-cage terminal Core cross-section	<b>A</b>	FK2039 1.5 mm <sup>2</sup>	FK2039 1.5 mm <sup>2</sup>	FK20181 2.5 mm <sup>2</sup>
	<b>B</b>	FK2039 1.5 mm <sup>2</sup>	FK2039 1.5 mm <sup>2</sup>	FK20181 2.5 mm <sup>2</sup>
Cable entry for Box power supply and interface connection	<b>B</b>	Cable glands	Cable glands	Through bores <sup>(2)</sup>

## UL approval mark

UL recognised product, file number: E483619

### General notes

- The usage of the devices in industrial machines is only permissible in accordance with the applicable regulations in NFPA 79 "Electrical Standard for Industrial Machinery".
- Only flexible copper cables with a temperature rating of at least 75 °C are allowed to be used for the connection of the supply for the power circuit.
- The M17 and M23 connectors used (hybrid cable BZK) are not suitable for connecting or disconnecting while electrical power is applied.
- Overcurrent protection as per NFPA 79 "Electrical Standard for Industrial Machinery" is to be provided.

### Notes on GEL 6505B

- Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery".
- This housing type is not suitable for the connection of rigid metal conduits.

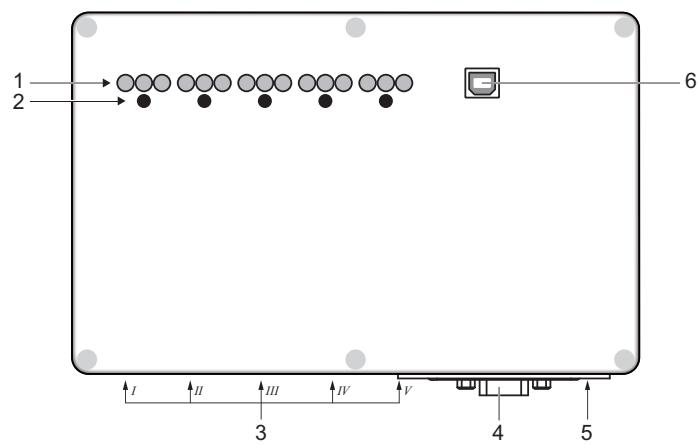
(1) Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery".

(2) This housing type is not suitable for the connection of rigid metal conduits.

(3) The protection class is only achieved if the housing is sealed.

## View – front panel GEL 6505A

**GEL 6505A**



### *With cable entry*

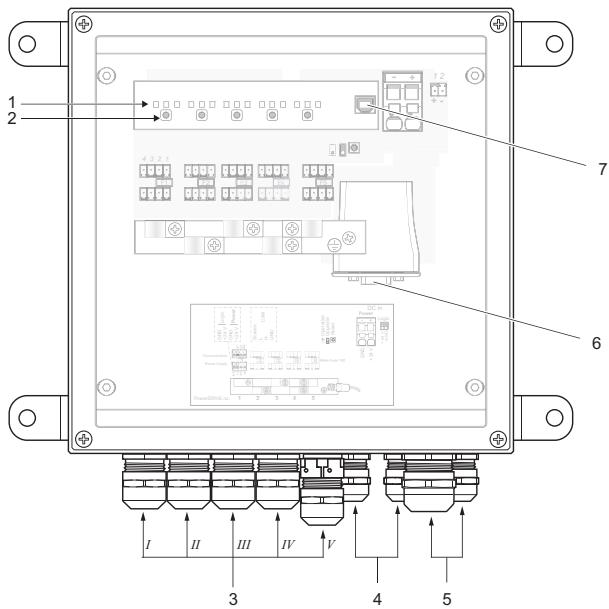
Strain relief is ensured by fitting the cover.

- 1 LED state displays (3 per positioning drive)
- 2 Push-buttons for the direct control of the positioning drives
- 3 Hybrid cable entry for positioning drives I to V
- 4 Interface plug-in module (fitted)
- 5 Cable entry for power circuit supply, logic circuit supply and earthing
- 6 USB port (female, type B)

# Unit overview

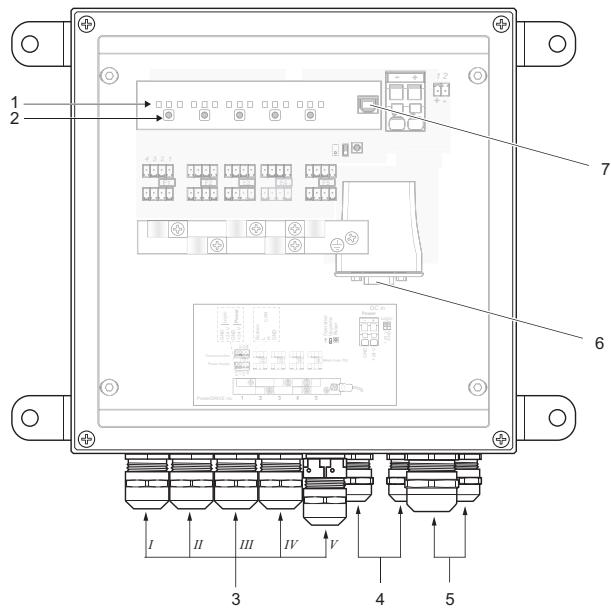
## View – front panel GEL 6505B

**GEL 6505B, design N**



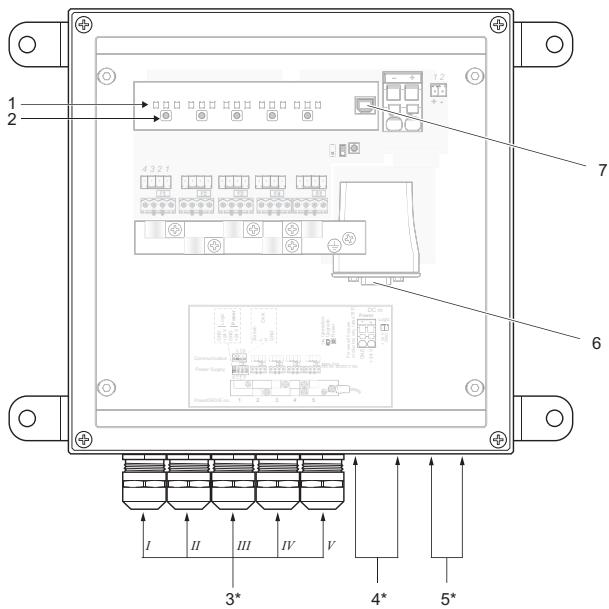
*With cable glands, design N*

**GEL 6505B, design U**



*With cable glands, design U*

**GEL 6505B, design C<sup>(1)</sup>**



*With cable glands, design C*

- 1 LED state displays (3 per positioning drive)
- 2 Push-buttons for the direct control of the positioning drives
- 3 Hybrid cable gland (5×M20) for positioning drives I to V  
(cable gland V with pressure equalisation element)
- 3\* Hybrid cable gland (5×M20) for positioning drives I to V
- 4 Cable glands (2×M16) for interface to the machine control system
- 4\* Through bores for interface to the machine control system<sup>(2)</sup>
- 5 Cable gland (1×M25, 1×M16) for power circuit supply, logic circuit supply and earthing
- 5\* Through bores for power circuit supply, logic circuit supply and earthing<sup>(2)</sup>
- 6 Interface plug-in module (fitted)
- 7 USB port (female, type B)

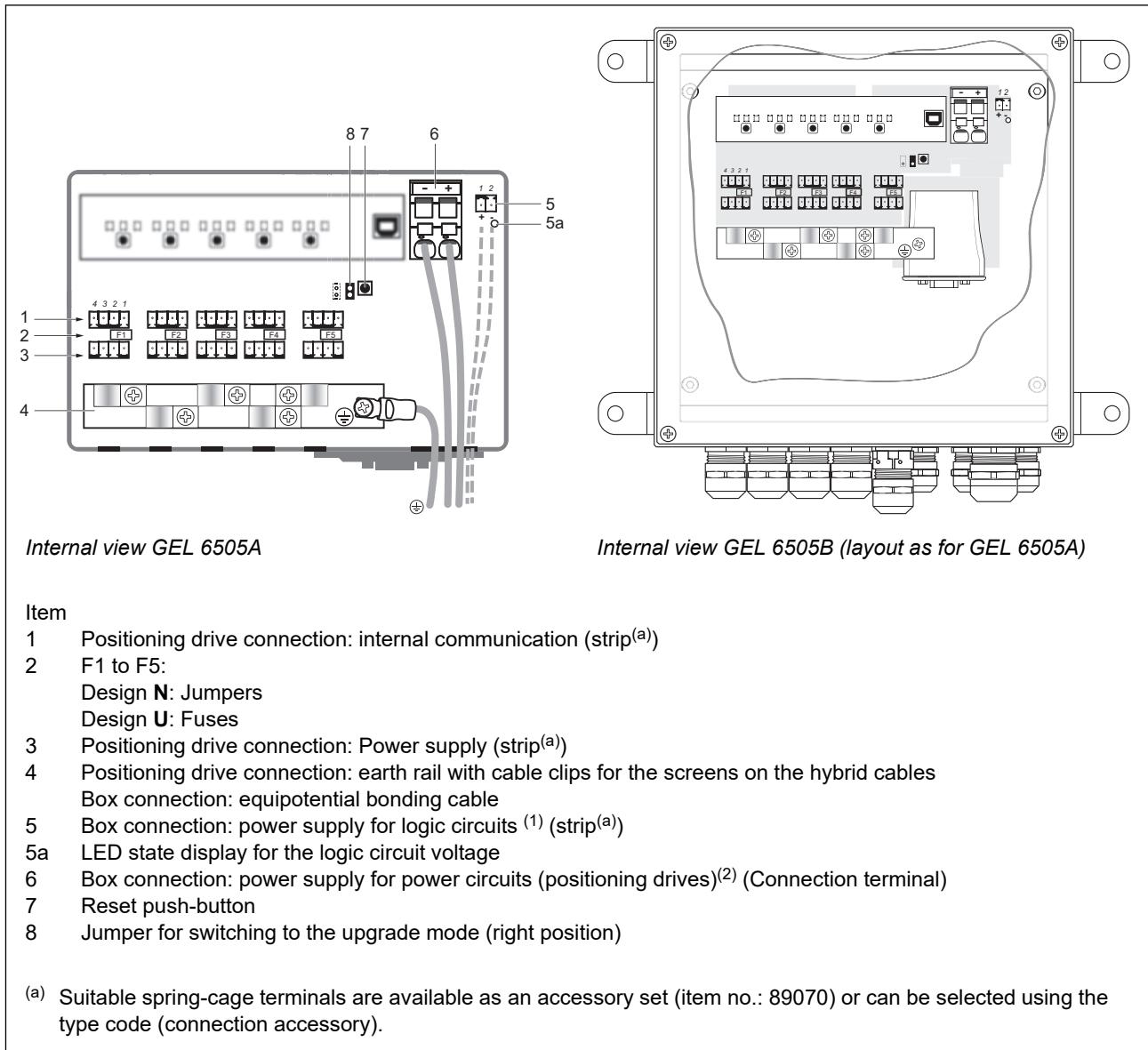
1, 2, 6, 7 are under the housing cover

(1) Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery".

(2) This housing type is not suitable for the connection of rigid metal conduits.

# Connections and terminal assignments

## Connections, design N and U



## Terminal assignment – power supply

Logic circuits					
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Core cross-section [mm <sup>2</sup> ]	Signal identifier
5	Strip 	Spring-cage terminal <sup>(3)</sup> 	1	0.5...1.5 mm <sup>2</sup>	+24 V
			2	0.5...1.5 mm <sup>2</sup>	GND

(1) Logic circuit supplies the electronics for the positioning drives connected and the electronics for the SeGMO-Box.

(2) Item 6 supplies the motors on the positioning drives connected and the logic circuits, if terminal 5 is not connected or the voltage on this terminal is too low.

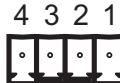
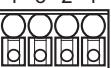
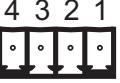
(3) Available as accessories

# Connections and terminal assignments

Power circuits					
Item	Terminal strip SeGMO-Box	Ferrule	Terminal identifier	Core cross-section [mm <sup>2</sup> ]	Signal identifier
6	Connection terminal 		+	6...10 mm <sup>2</sup>	+24 V
			-	6...10 mm <sup>2</sup>	GND

The power supply can be supplied to the power circuits and logic circuits either separately via item (5) and (6) or together via item (6).

## Terminal assignment – positioning drives

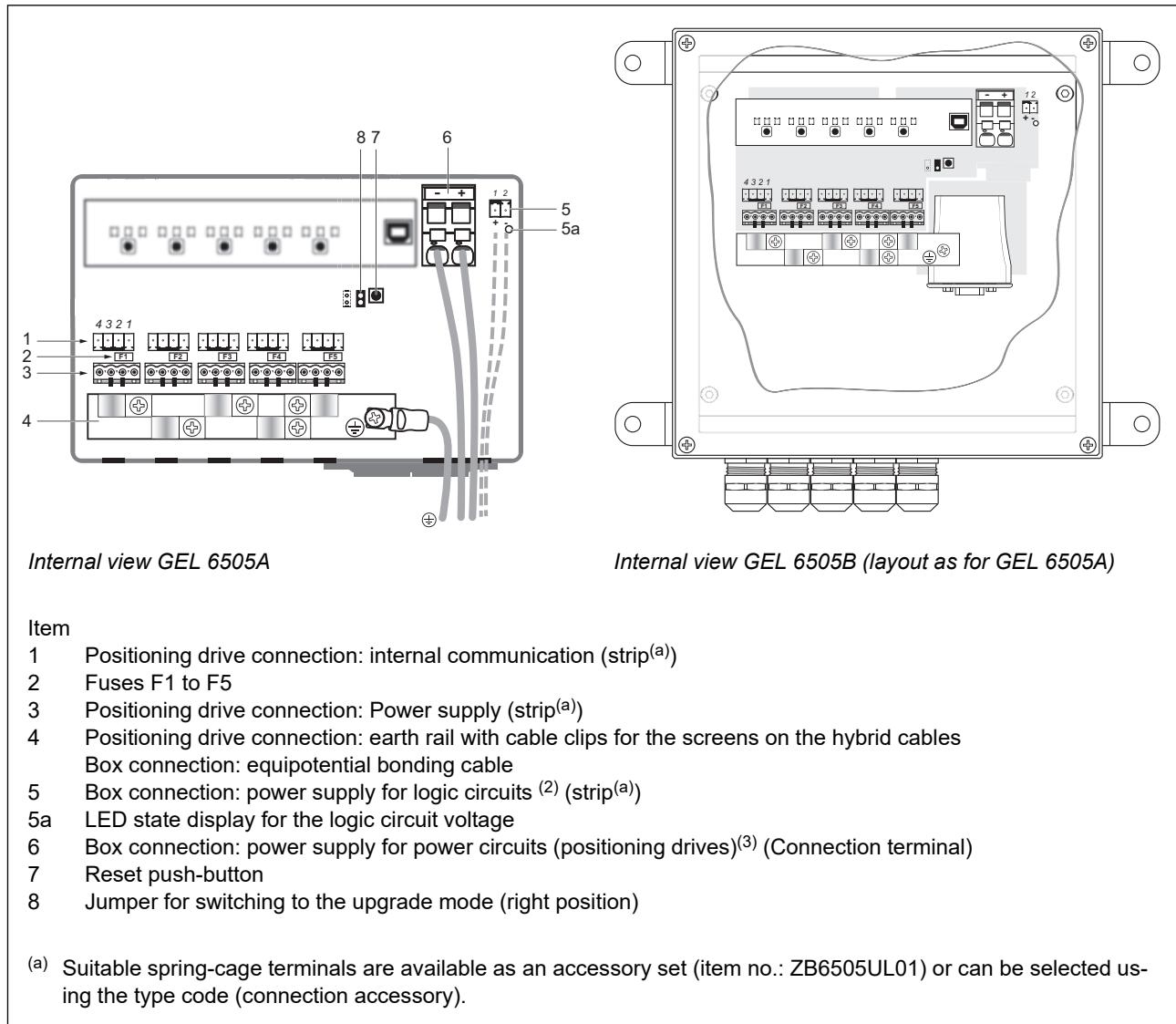
Internal communication						
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Hybrid cable		Signal identifier
				Core colour	Core cross-section [mm <sup>2</sup> ]	
1	Strip 	Spring-cage terminal <sup>(1)</sup> 	1	black	0.14	CAN GND
			2	yellow	0.25	CAN high
			3	green	0.25	CAN low
			4	-	-	Not used
Power supply						
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Hybrid cable		Signal identifier
				Core colour	Core cross-section [mm <sup>2</sup> ]	
3	Strip 	Spring-cage terminal <sup>(1)</sup> 	1	red/2	1.5	+24 V power
			2	black/2	1.5	GND power
			3	red/1	0.5	+24 V logic
			4	black/1	0.5	GND logic

Pre-assembled connection cables are available for the connection, see "Technical information BZK".

(1) Available as accessories

# Connections and terminal assignments

## Connections, design C<sup>(1)</sup>



## Terminal assignment – power supply

Logic circuits					
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Core cross-section [mm <sup>2</sup> ]	Signal identifier
5	Strip 	Spring-cage terminal <sup>(4)</sup> 	1	0.5...1.5 mm <sup>2</sup>	+24 V
			2	0.5...1.5 mm <sup>2</sup>	GND

(1) Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery".  
 This housing type is not suitable for the connection of rigid metal conduits.

(2) Logic circuit supplies the electronics for the positioning drives connected and the electronics for the SeGMO-Box.

(3) Item 6 supplies the motors on the positioning drives connected and the logic circuits, if terminal 5 is not connected or the voltage on this terminal is too low.

(4) Available as accessories

# Connections and terminal assignments

Power circuits					
Item	Terminal strip SeGMO-Box	Ferrule	Terminal identifier	Core cross-section [mm <sup>2</sup> ]	Signal identifier
6	Connection terminal 		+	6...10 mm <sup>2</sup>	+24 V
			-	6...10 mm <sup>2</sup>	GND

The power supply can be supplied to the power circuits and logic circuits either separately via item (5) and (6) or together via item (6).

## Terminal assignment – positioning drives

Internal communication						
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Hybrid cable		Signal identifier
				Core colour	Core cross-section [mm <sup>2</sup> ]	
1	Strip 	Spring-cage terminal <sup>(1)</sup> 	1	black	0.14	CAN GND
			2	yellow	0.25	CAN high
			3	green	0.25	CAN low
			4	-	-	Not used
Power supply						
Item	Strip SeGMO-Box	Spring-cage terminal	Terminal identifier	Hybrid cable		Signal identifier
				Core colour	Core cross-section [mm <sup>2</sup> ]	
3	Strip 	Spring-cage terminal <sup>(1)</sup> 	1	red/2	2.5	+24 V power
			2	black/2	2.5	GND power
			3	red/1	0.5	+24 V logic
			4	black/1	0.5	GND logic

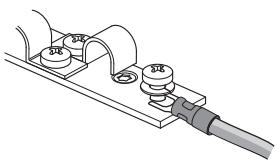
Pre-assembled connection cables are available for the connection, see "Technical information BZK".

(1) Available as accessories

# Connections and terminal assignments

## Earthing

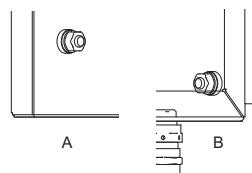
**GEL 6505A**



*Earthing on the earth rail*

Earthing is via the connection to the equipotential bonding in the switch cabinet.

**GEL 6505B**



*Earthing stud*

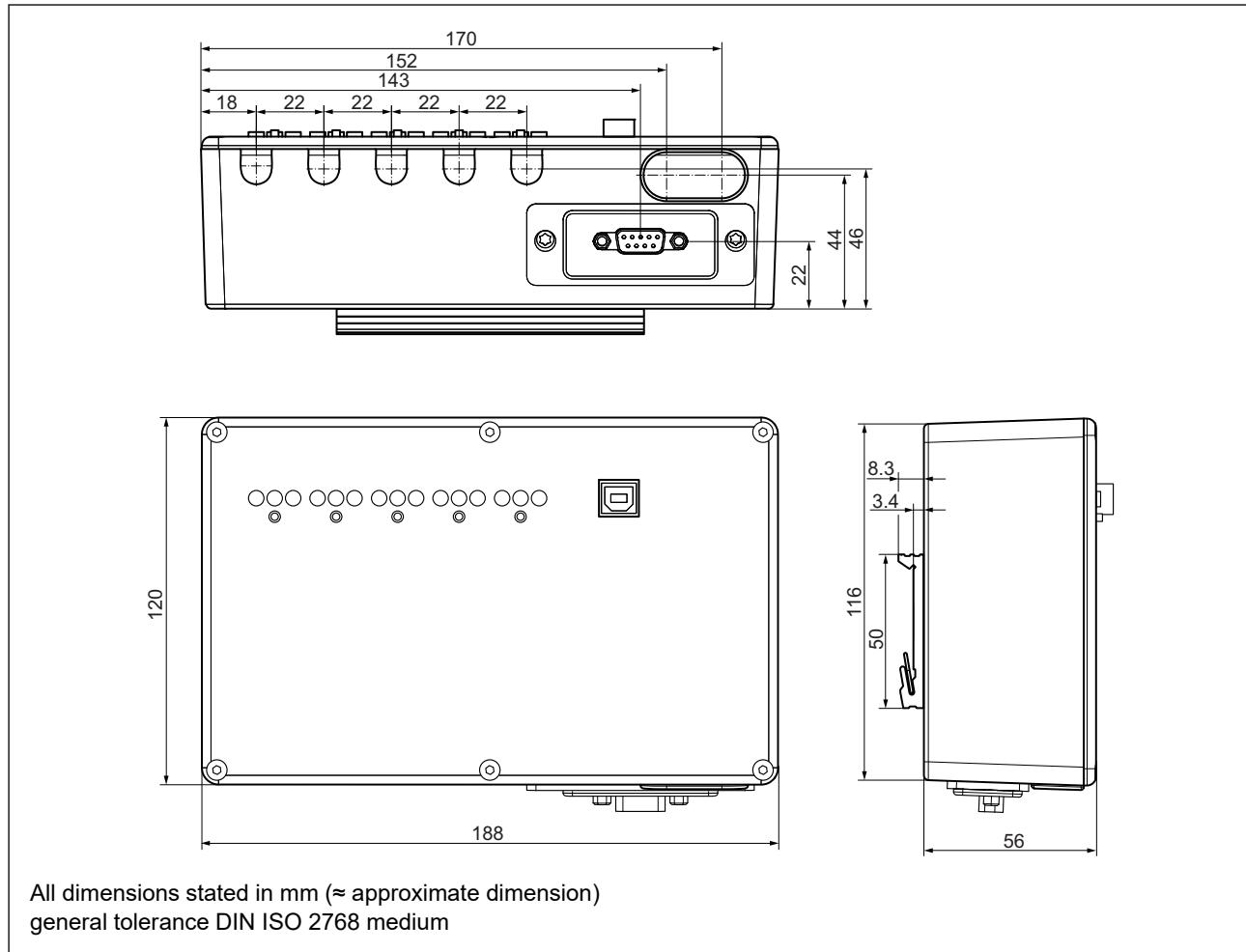
- A Earthing stud in the cover
- B Earthing stud in the housing

The earth wire in the power supply cable can be connected via the studs inside the housing.

Pay attention to machine's earthing and equipotential bonding concept.

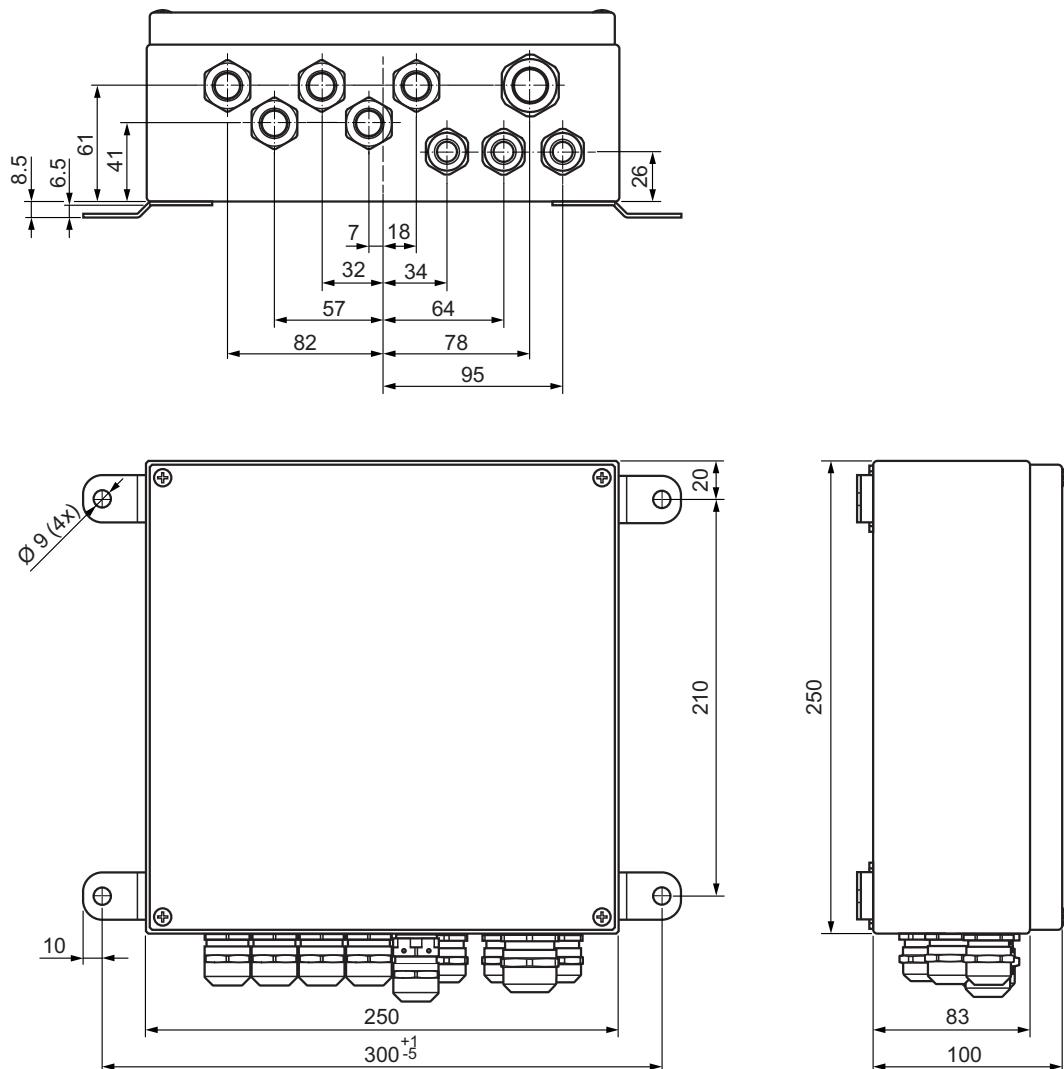
# Dimensional drawings

## Dimensional drawing SeGMo-Box – GEL 6505A



# Dimensional drawings

## Dimensional drawing SeGMo-Box – GEL 6505B, design N/U



### Cable glands

Quantity	Diameter	Clamping range <sup>(a)</sup>	Tightening torque	For entry of
3x	M16	4.5...10 mm	1.5 Nm	Interface cable (machine control system), cable for the supply of power for the logic circuits, earth cable
5x	M20 <sup>(b)</sup>	6...13 mm	3 Nm	Hybrid cables for the 5 positioning drives
1x	M25	9...17 mm	4 Nm	Cable for the supply of power to the power circuits

(a) Reducer sealing inserts available as accessories

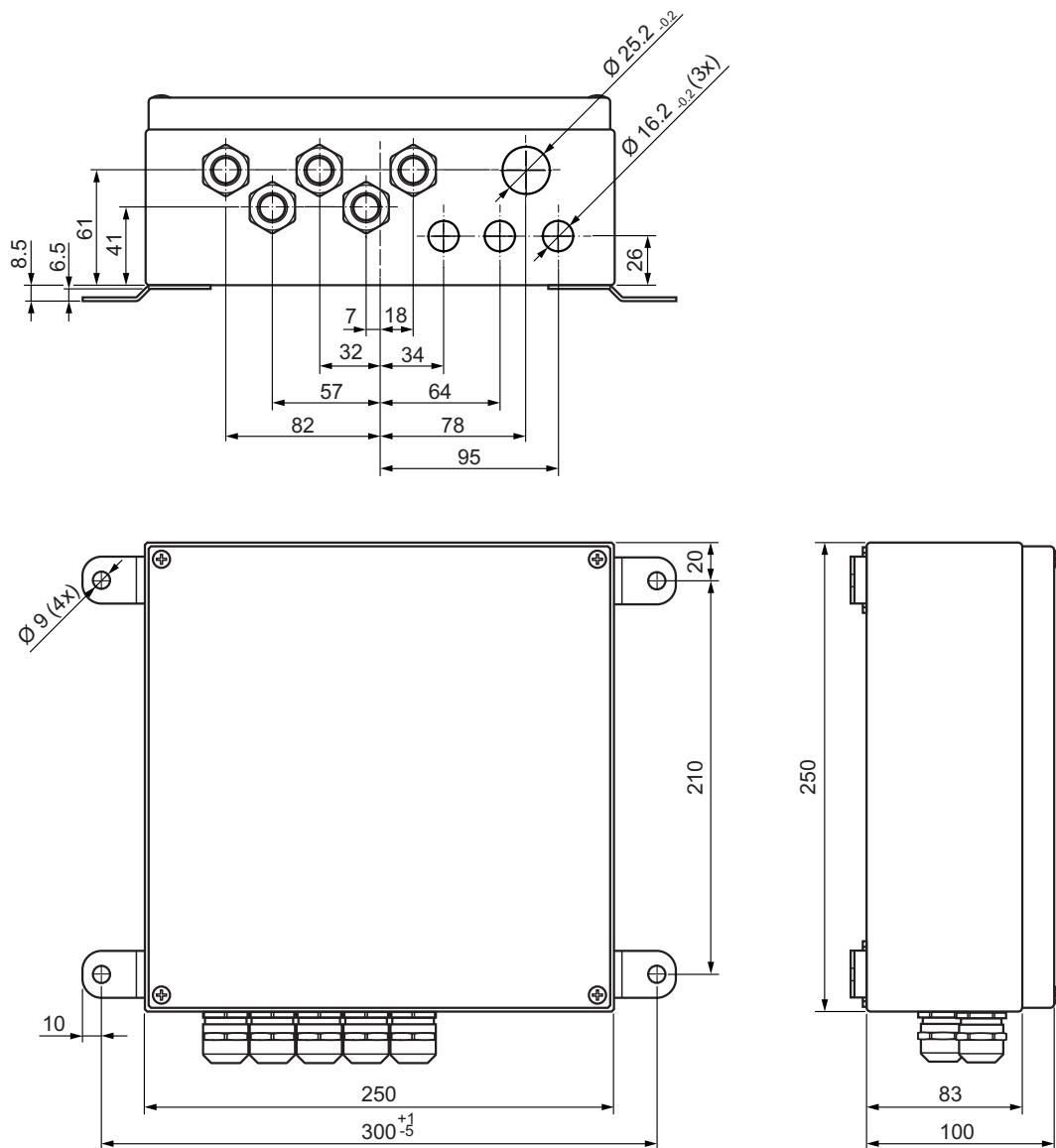
(b) 1x with pressure equalisation element

Seal unused cable gland using a sealing plug (item no. ZB65X05) to safeguard the degree of protection.

All dimensions stated in mm (≈ approximate dimension)  
general tolerance DIN ISO 2768 medium

# Dimensional drawings

Dimensional drawing SeGMo-Box – GEL 6505B, design C<sup>(1)</sup>



## Cable glands

Quantity	Diameter	Clamping range	Tightening torque	For entry of
5x	M20	9...10.5 mm	10 Nm	Hybrid cables for the 5 positioning drives

Seal unused cable gland using a sealing plug (item no. ZB65X05) to safeguard the degree of protection.

All dimensions stated in mm (≈ approximate dimension)  
general tolerance DIN ISO 2768 medium

(1) Housing openings not sealed in the factory are to be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery"

This housing type is not suitable for the connection of rigid metal conduits.

## Type code GEL 6505

	<p><b>Degree of protection</b></p> <p><b>A</b> IP 20</p> <p><b>B</b> IP 69K (design <b>N/U</b>) / IP68 (design <b>C</b>); only available with housing <b>VA</b></p>
	<p><b>Housing</b></p> <p><b>TR</b> Barrel-finished cast aluminium, bare<sup>(1)</sup></p> <p><b>PB</b> Powder coated cast aluminium, black</p> <p><b>PG</b> Powder coated cast aluminium, grey RAL 9006<sup>(1)</sup></p> <p><b>VA</b> Stainless steel (only available with protection class <b>B</b>)</p>
	<p><b>Slot</b></p> <ul style="list-style-type: none"> <li>- Without plug-in module</li> <li><b>1</b> Plug-in module with 1 × Sub-D connection (for interface profile: CO and DP)</li> <li><b>2</b> Plug-in module with 2 × RJ45 connections (for interface profile: EC, IP, PL, RT, SC)</li> </ul>
	<p><b>Interface profile</b></p> <p>-- None</p> <p><b>CO</b> CANopen (based on CiA 402)</p> <p><b>DP</b> PROFIBUS-DP (based on PROFIDRIVE)</p> <p><b>EC</b> EtherCAT (based on CiA 402)</p> <p><b>IP</b> EtherNet/IP (based on CiA 402)</p> <p><b>PL</b> POWERLINK (based on CiA 402)</p> <p><b>RT</b> PROFINET IO / RT (based on PROFIDRIVE)</p> <p><b>SC</b> sercos III (I/O profile based on PROFIDRIVE)</p>
	<p><b>Connection accessories</b></p> <p><b>0</b> No accessories</p> <p><b>1</b> <b>Accessory set</b> for the electrical connection of 5 positioning drives (also available separately, for scope of supply see accessories list)</p>
<b>GEL 6505</b>	<p><b>Design</b></p> <p><b>N</b> 16 AWG standard</p> <p><b>U</b> 16 AWG separate fuse protection</p> <p><b>C</b> 14 AWG cULus recognised component (6505A) / cULus listed (6505B)</p>

(1) Upon request

# Connection accessories

## Overview

### Plug-in modules for GEL 6505A

Description	Item no.
<b>PROFIBUS-DP</b> plug-in module with 1 × Sub-D connection, incl. fastening screws	BG5031
<b>CANopen</b> plug-in module with 1 × Sub-D connection, incl. fastening screws	BG5032
<b>EtherCAT</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5033
<b>EtherNet I/P</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5034
<b>PROFINET IO / RT</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5035
<b>Sercos III</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5036
<b>POWERLINK</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5037

### Plug-in modules for GEL 6505B

Description	Item no.
<b>PROFIBUS-DP</b> plug-in module with 1 × Sub-D connection, incl. fastening screws	BG5021
<b>CANopen</b> plug-in module with 1 × Sub-D connection, incl. fastening screws	BG5022
<b>EtherCAT</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5023
<b>EtherNet I/P</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5024
<b>PROFINET IO / RT</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5025
<b>Sercos III</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5026
<b>POWERLINK</b> plug-in module with 2 × RJ45 connections, incl. fastening screws	BG5027

### Accessory sets

Description	Item no.
<b>Accessory set design N/U</b> for the electrical connection of 5 positioning drives <ul style="list-style-type: none"> <li>■ 1× spring-cage terminal (power supply for logic circuits), item no.: FK2033</li> <li>■ 10× spring-cage terminals (positioning drive connection: power supply/internal communication), item no.: FK2039</li> <li>■ 1× fork cable lug M4 for cable 4–6 mm<sup>2</sup>, item no.: LZ1234</li> <li>■ 1× heatshrink sleeve Ø 13 mm, item no.: LZ1225</li> <li>■ 1× heatshrink sleeve Ø 6 mm, item no.: LZ1231</li> </ul>	89070
<b>Accessory set design C</b> for the electrical connection of 5 positioning drives <ul style="list-style-type: none"> <li>■ 1× spring-cage terminal (power supply for logic circuits), item no.: FK2033</li> <li>■ 5× spring-cage terminals with coding profiles fitted (positioning drive connection: power supply), item no.: FK20181, FZ1090</li> <li>■ 5× spring-cage terminals (positioning drive connection: internal communication), item no.: FK2039</li> <li>■ 2× coding profile for spring-cage terminals (positioning drive connection: power supply), item no.: FZ1090</li> <li>■ 1× fork cable lug M4 for cable 4–6 mm<sup>2</sup>, item no.: LZ1234</li> <li>■ 1× heatshrink sleeve Ø 13 mm, item no.: LZ1225</li> <li>■ 1× heatshrink sleeve Ø 6 mm, item no.: LZ1231</li> </ul>	ZB6505UL01
<b>Accessory set for the replacement of a Box in design N/U with a Box in design C</b> (power supply for the positioning drives) <ul style="list-style-type: none"> <li>■ 5× spring-cage terminals with coding profiles fitted (positioning drive connection: power supply), item no.: FK20181, FZ1090</li> <li>■ 2× coding profile for spring-cage terminals (positioning drive connection: power supply), item no.: FZ1090</li> </ul>	ZB6505UL02

# Connection accessories

## General accessories

Description	Item no.
<b>Accessory spring-cage terminal</b> ■ 5x spring-cage terminals (positioning drive connection: internal communication / power supply for design N/U), item no.: FK2039	ZB65X03
<b>Accessory spring-cage terminal</b> ■ 5x spring-cage terminals (power supply for logic circuits), item no.: FK2033	ZB65X02
<b>Accessory fork cable lug</b> ■ 5x fork cable lugs M4 for cable 4–6 mm <sup>2</sup> , item no.: LZ1234	ZB65X01
<b>SeGMO-Connect</b> pre-assembled hybrid cable for the connection of positioning drives to the SeGMO-Box	BZK <sup>(1)</sup>
<b>Accessory fuses (F1 to F5) for design U/C</b> ■ 10x Series 391 TE5 fast acting type, 65 VDC 3.15 A, manufacturer: Wickmann-Werke GmbH (Littelfuse), item no.: SS1121	ZB65X04

## Accessories for GEL 6505B, design N/U

Description	Item no.
<b>Sealing plug</b> for cable gland on the SeGMO-Box GEL 6505B ■ 1x Sealing plug, item no.: VB1246	ZB65X05
<b>Reducer sealing insert for cable gland M16</b> for reducing the inside diameter, clamping range 2 to 6 mm ■ 5x Reducer sealing, item no.: LZ1849	ZB65X06
<b>Reducer sealing insert for cable gland M20</b> for reducing the inside diameter, clamping range 4 to 8 mm ■ 5x Reducer sealing, item no.: LZ1850	ZB65X07
<b>Reducer sealing insert for cable gland M25</b> for reducing the inside diameter, clamping range 7 to 12 mm ■ 5x Reducer sealing, item no.: LZ1851	ZB65X08

## Accessories for GEL 6505B, design C

Description	Item no.
<b>Sealing plug</b> for cable gland on the SeGMO-Box GEL 6505B ■ 1x Sealing plug, item no.: VB1246	ZB65X05

(1) See separate Technical information

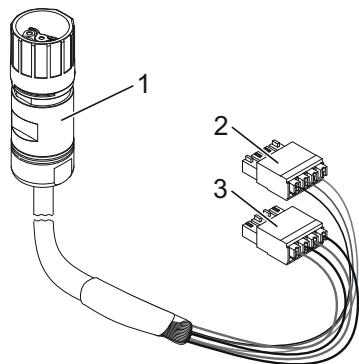
# Connection accessories

## General information on SeGMO-Connect

The hybrid cable SeGMO-Connect is designed for flexible application in drag chains. It is available in the foodgrade, halogen-free and cULus recognised component variants. The hybrid cable is screened under the outer sheath. The internal communication cores are fully insulated and multiply screened.

All positioning drives are available with hybrid cable and connectors and can be connected quickly and straightforwardly to the SeGMO-Box via the pre-assembled hybrid connecting cables that can be configured as required.

Connectors with a quick-release coupling permit quick connection and disconnection. The positioning drive is therefore reliably and quickly disconnected from the power supply for maintenance and service work in a matter of seconds. Pre-assembled connection cables are available for the connection, see "Technical information BZK".



Pre-assembled connection cable "BZK"(1)

- 1 M17 connector or M23 connector with female contacts for the connection of the positioning drives
- 2 4-pole spring-cage terminal for the connection of the SeGMO-Box (internal communication)
- 3 4-pole spring-cage terminal for the connection of the SeGMO-Box (power supply)

## Technical data hybrid cable BZK

Feature	Design N (food grade)	Design U (halogen-free)	Design C (cULus recognised component)
Sheath material	PUR, black, glossy	PUR, black, matt	PUR, black, matt
Cable properties	Screened	Screened	Screened
Suitable for drag chains	Yes	Yes	Yes
Food grade	Yes	No	No
Halogen-free	No	Yes	Yes
Cable diameter (d)	9.5 mm	9.5 mm	9.5 mm
Bending radius	Permanently flexible: $10 \times d$ Fixed routing: $5 \times d$	Permanently flexible: $15 \times d$ Freely moving: $10 \times d$ Fixed routing: $5 \times d$	Permanently flexible: $15 \times d$ Freely moving: $10 \times d$ Fixed routing: $5 \times d$
Peak operating voltage	Max. 350 V CAN bus Max. 30 V DC (logic / power)	Max. 300 V CAN bus Max. 30 V DC (logic / power)	Max. 300 V CAN bus Max. 30 V DC (logic / power)
Temperature range	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C

(1) See separate Technical information

## Notes:



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