

SeGMo-Box

Decentral control unit to
control up to five
SeGMo positioning drives

GEL 6505

Technical information

Version 2022-09-19

General

The SeGMo-Box GEL 6505 is the decentral control unit of the SeGMo system. Up to five positioning drives of the SeGMo family can be connected directly using hybrid cables. Installation of the SeGMo system is cost-optimized and very compact. The motor power of the connected positioning drives is monitored and switched by the power management system of the GEL 6505. Plug-in modules are available to communicate with the central control system. Using the SeGMo-Box, the positioning drives can also be commissioned without any higher level control system.

Features

- Configured for up to five SeGMo positioning drives
- Nominal supply voltage:
24 V DC/max. 40 A (design C: max. 27.5 A)
- Separate power supply connection of power and logic circuit is possible
- Plug-in 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 design, with cULus Component Recognition or cULus Listing as an option

Advantages

- Compact connection technology
- Electronic breakers
- Integrated power management
- Simple commissioning of positioning drives using automatic parameterization and configuration
- SeGMo-Support Tool for extended commissioning and configuration
- Maintenance-free

Fields of application

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



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SeGMo-System

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

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

SeGMo-Positioning:

The positioning drives are complete mechatronic systems with a batteryless multiturn encoder, gear and motor as well as integrated power and control electronics. We also offer these items for standalone use. With nominal torques of up to 15 Nm, they cover the typical power range for secondary axes.

SeGMo-Motion:

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

SeGMo-Box:

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

Modular SeGMo-Box:

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

SeGMo-Assist:

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

SeGMo-Connect:

By using the positioning drives with a SeGMo-Box the cabling effort is considerably reduced by SeGMo-Connect. Instead of the usual two separate cables for internal bus communication and a third cable for power supply to the positioning drives, only **ONE** hybrid cable is connected. In combination with the SeGMo-Box and 5 connected positioning drives, the SeGMo-Connect typically reduces the number of cables from 15 to 5. The hybrid cable is designed for moveable use in drag chains. Its variants are food grade quality, halogen-free and available as a cULus recognized component.

SeGMo-Motion



6108



6109

SeGMo-Positioning



6110



6113



6129



SEPODR

SeGMo-Assist



SEPODL



SEHMI



SELIN

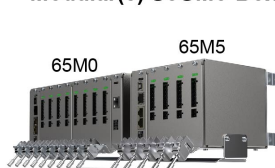
SeGMo-Box



6505B

6505A

Modular(e) SeGMo-Box



65M0

65M5



Description of SeGMo-Box

General description

The intelligent SeGMo-Box is a component of the SeGMo system.

The SeGMo-Box serves for easy networking of up to 5 positioning drives, type SeGMo-Positioning, or SeGMo-Motion in a machine or system.

Each positioning drive is connected to the Box using a hybrid cable (SeGMo-Connect).

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

Housing variants

GEL 6505A

- Compact housing made of cast aluminum
- Mounted on top hat rails in switch cabinet
- LEDs and push buttons on cover

GEL 6505B

- Closed stainless steel housing
- Installation outside switch cabinet
- All connections and indicators in housing

Power supply

Dimensioning of a power supply unit for operating the SeGMo-Box depends on the number and load of the connected positioning drives. To operate the SeGMo-Box with 5 positioning drives, we recommend a 24 V DC/40 A voltage-stabilized power supply unit, which is ideally mounted beside the SeGMo-Box.

Connections, controls and indicators

3 LEDs per positioning drive indicate the status of power supply and communication. In case of malfunction or maintenance, the power supply to the power circuits and the communication can be switched on/off using push buttons below the LEDs. Error acknowledgement and 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 service connector on the SeGMo-Box.

The hybrid cables of the positioning drives are plugged directly onto the easily accessible and coded socket strips via spring-cage terminals. The hybrid cable screens are laid on a ground rail.

The integrated electronic breakers support safe operation of the SeGMo-Box.

The functional ground is via the top hat rail (GEL 6505A) or the mounting brackets (GEL 6505B) and the separately applied functional ground cable. We recommend a functional ground cable with a minimum cross section of 6 mm² [10 AWG].

Power supply and power management of positioning drives

The maximum power consumption of the positioning drives can be programmed using the power management system.

After switching on the power supply, 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.

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 (power circuit) can be switched off without interrupting the internal communication, for example when "EMERGENCY STOP" is active.

The motor power of the positioning drives can be switched on the system side via certified safety relays. The condition monitoring of the positioning drives remains guaranteed, as the internal communication between positioning drive and SeGMo-Box is not affected. This ensures that the positioning drive can be switched off safely.

Technical data

		GEL 6505A	GEL 6505B
Electrical data			
Supply voltage		Logic circuits ⁽¹⁾ : 20 to 30 V DC, 1 A, stabilized power circuits ⁽²⁾ : 24 to 30 V DC (depending on cable length), maximum 40 A ⁽³⁾ , stabilized Nominal supply voltage (logic circuits and power circuits) 24 V DC	
Breaker protection ⁽⁴⁾		Logic circuits ⁽¹⁾ : External breaker required power circuits ⁽²⁾ : electronic, programmable (provide external breaker)	
Communication interfaces		CANopen, PROFIBUS-DP, PROFINET IO / RT, EtherCAT, EtherNet/IP, sercos III, POWERLINK	
Mechanical data			
Assembly location		Top hat rail	Wet area
Housing dimensions (W×H×D)		188×120×56 mm	250×250×100 mm
Housing material		Cast aluminum	Stainless steel 1.4301
Weight		1 kg	4.5 kg
Connections			
Supply voltage		Core cross section <ul style="list-style-type: none">Logic circuit⁽⁵⁾, 2-pin spring-cage terminal: 0.5 mm² to 1.5 mm² [20 AWG to 16 AWG]Power circuit⁽²⁾: 6 mm² to 10 mm² [10 AWG to 8 AWG] ⁽⁶⁾	
Positioning drives		2 x 4-pin spring-cage terminal Core cross section hybrid cable <ul style="list-style-type: none">Power supply: 0.5 mm²/to 1.5 mm² [20 AWG/16 AWG]Internal communication: 0.14 mm²/to 0.25 mm² [26 AWG/24 AWG]	
Higher level control system (plug-in module)		Depending on the communication interface used	
Service connector		USB port (female, type B)	
Controls			
Direct control of the positioning drives		1 push-button per positioning drive	
Reset		1 reset push-button	
Upgrade mode		2-pin jumper	
Indicators			
Status displays per positioning drive		3 LEDs	
Status display Logic circuit		1 LED	

⁽¹⁾ Supplies the electronics of the SeGMo-Box (logic circuit) and the control electronics of the connected positioning drives (logic circuits) with power.

⁽²⁾ Supplies only the power electronics of the connected positioning drives (power circuits) with power when the power supply is isolated.

⁽³⁾ Maximum permissible continuous current of SeGMo-Box. The actual current consumption depends on the number and load of the connected positioning drives (→ Technical Information GEL 6129/GEL 6113/GEL 6110/GEL 6109/GEL 6108).

⁽⁴⁾ Design **C**: Fit excess current protection in accordance with NFPA 79 "Electrical Standard for Industrial Machinery."

⁽⁵⁾ Supplies the electronics of the SeGMo-Box (logic circuit) and the control electronics of the connected positioning drives (logic circuits) with power

⁽⁶⁾ Maximum tensile force for cables with 6 (10) mm²: 80 (90) N

Technical data

	GEL 6505A	GEL 6505B
Ambient data		
Operating temperature range	0 to +60 °C	
Condensation	not permitted	
Degree of protection ⁽¹⁾	IP 20, EN 60529:2014-09	IP 69K, EN 60529:2014-09
Dielectric strength	√2 × 500 V DC, DIN EN 61439-1:2012-06	
EMC ⁽²⁾	Electromagnetic immunity DIN EN 61000-6-1:2007-10, EN 61000-6-1:2007 DIN EN 61000-6-2:2006-03, EN 61000-6-2:2005 DIN EN 61000-4-5:1995 (1 kV surge on DC supply) Electromagnetic emission DIN EN 61000-6-3:2011-09, EN 61000-6-3:2007 + A1:2011 DIN EN 61000-6-4:2011-09, EN 61000-6-4:2007 + A1:2011	
Vibration resistance	50 ms ⁻² , 1 to 100 Hz, according to DIN EN 60068-2-6:2008-10	
Shock resistance	150 ms ⁻² , according to EN 60068-2-27:2010-02	
UL data (version C): Electrical data		
Supply voltage	Logic circuits ⁽³⁾ : 20 to 30 V DC, 1 A, stabilized power circuits ⁽⁴⁾ : 24 to 30 V DC (depending on cable length), maximum 27.5 A ⁽⁵⁾ , stabilized Maximum output current per channel: 5.5 A	
UL data (version C): Connections		
Positioning drives	2 x 4-pin spring-cage terminal Core cross section hybrid cable <ul style="list-style-type: none">■ Power supply: 0.5 mm²/to 2.5 mm² [20 AWG/14 AWG]■ Internal communication: 0.14 mm²/to 0.25 mm² [26 AWG/24 AWG]	
UL data (version C): Ambient data		
Operating temperature range	0 to +55 °C	0 to +60°C
Degree of protection ⁽¹⁾	IP 20, EN 60529:2014-09	IP 68, EN 60529:2014-09
UL protection class ⁽¹⁾	–	Type 1 ⁽⁶⁾

(1) The degree of protection is only maintained if the cover is mounted correctly and all unused connectors and housing openings are covered.

(2) Use only screened cables.

(3) Supplies the electronics of the SeGMo-Box (logic circuit) and the control electronics of the connected positioning drives (logic circuits) with power.




(4) Supplies only the power electronics of the connected positioning drives (power circuits) with power when the power supply is isolated.

(5) Maximum permissible continuous current of SeGMo-Box. The actual current consumption depends on the number and load of the connected positioning drives (→ Technical Information GEL 6129/GEL 6113/GEL 6110/GEL 6109/GEL 6108).

(6) Housing openings that are not sealed at the factory shall be sealed by the user as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."

This housing variant is not suitable to connect rigid metal conduits.

Technical data

	GEL 6505A	GEL 6505B
Approvals		
European Economic Area	Conformity in accordance with <ul style="list-style-type: none">EMC Directive 2014/30/EU 	
USA and Canada	Certification for design C : <ul style="list-style-type: none">GEL 6505A: cULus Recognized ComponentGEL 6505B: cULus Listed  	

Housing variants

Description of housing variants

Property	Degree of protection	Design	
		N and U	C
UL-approval mark/UL protection class	A	-	cULus Recognized Component / -
	B	-	cULus Listed / Type 1 ⁽¹⁾ (2)
Degree of protection	A	IP 20	IP 20
	B	IP 69K ⁽³⁾	IP 68 ⁽³⁾
Additional breaker protection of hybrid cables (positioning drive power circuits)	A	F1 to F5 (3.15 A)	F1 to F5 (3.15 A)
	B	F1 to F5 (3.15 A)	F1 to F5 (3.15 A)
Power supply power circuits (positioning drives): Item number spring-cage terminal and core cross section	A	FK2039 1.5 mm ² [16 AWG]	FK20181 2.5 mm ² [14 AWG]
	B	FK2039 1.5 mm ² [16 AWG]	FK20181 2.5 mm ² [14 AWG]
Cable entry for power supply and communication interface of SeGMo-Box	B	Cable glands	Through bores ⁽²⁾

⁽¹⁾ Housing openings that are not sealed at the factory shall be sealed as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."

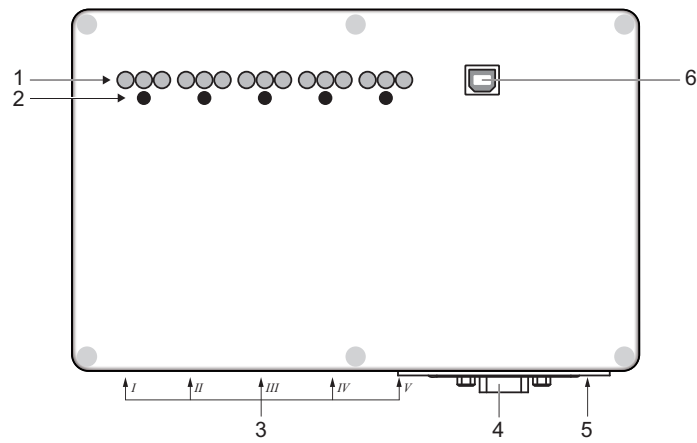
⁽²⁾ This housing variant is not suitable to connect rigid metal conduits.

⁽³⁾ The degree of protection is only achieved once the housing has been sealed.

Housing variants

View – Cover GEL 6505A

GEL 6505A



With cable entry

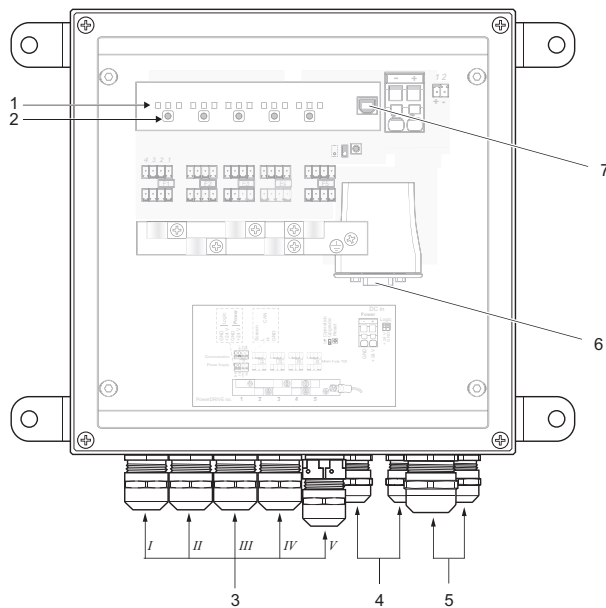
Mounting the cover ensures strain relief.

- 1 3 status displays per positioning drive
- 2 Push-buttons for direct control of the positioning drives
- 3 Hybrid cable for positioning drives I to V
- 4 Plug-in module (mounted)
- 5 Cable entry for power supply (power circuit and logic circuits) and functional ground
- 6 Service connector

Housing variants

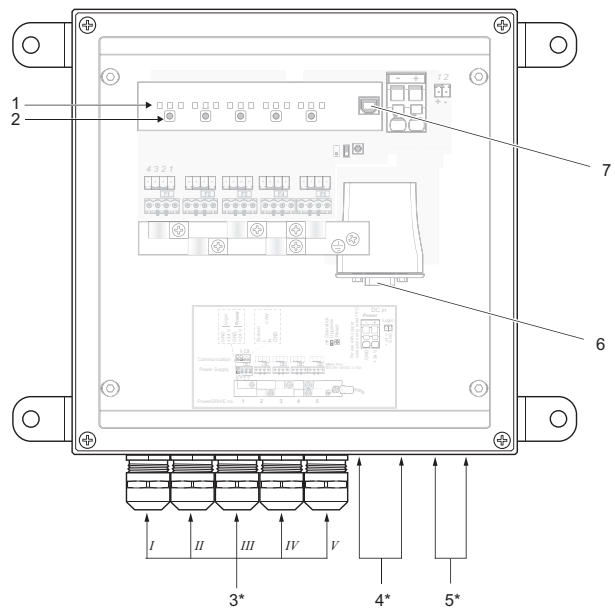
View – Cover GEL 6505B

GEL 6505B, design N and U



with cable glands, design N and U

GEL 6505B, design C⁽¹⁾



with cable glands, design C

- 1 Status display (3 LEDs per positioning drive)
- 2 Push-buttons for direct control of the positioning drives
- 3 Hybrid cable gland (5×M20) for positioning drives I to V (cable gland V with pressure compensation element)
- 3* Hybrid cable gland (5×M20) for positioning drives I to V
- 4 Cable glands (2×M16) for communication interface to the higher level control system
- 4* Through bores for communication interface to the higher level control system⁽²⁾
- 5 Cable glands (1×M25, 1×M16) for power supply (power circuit and logic circuits) and functional ground
- 5* Through bores for power supply (power circuit and logic circuits) and functional ground⁽²⁾
- 6 Plug-in module (mounted)
- 7 Service connector

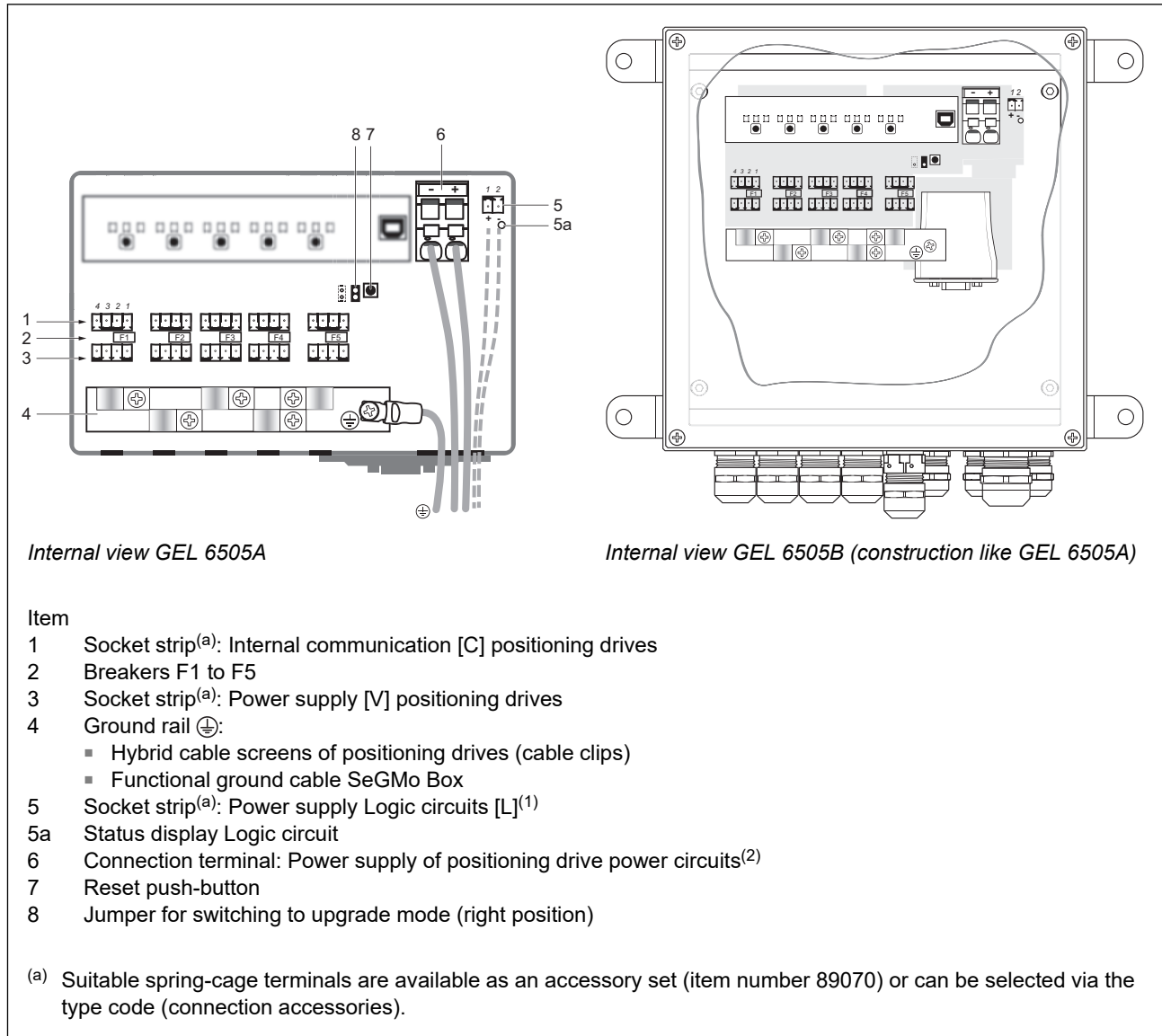
1, 2, 6, 7 are located beneath the housing cover

⁽¹⁾ Housing openings that are not sealed at the factory shall be sealed as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."

⁽²⁾ This housing variant is not suitable to connect rigid metal conduits.

Connections and assignments

Connections, design N and U





i The power supply of the power and logic circuits can be separate (items 5 and 6) or joint (item 6).

⁽¹⁾ Supplies the electronics of the SeGMo-Box (logic circuit) and the control electronics of the connected positioning drives (logic circuits) with power.



⁽²⁾ Item 6 supplies the power electronics of the connected positioning drives (power circuits) and the logic circuits of SeGMo-Box and positioning drives with power if terminal 5 is not connected or has insufficient power.

Connections and assignments

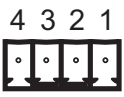
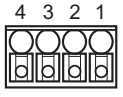
Power supply Logic circuits [L]

SeGMO-Box	Mating connector (Connection view)	Pin designation	Core cross section	Signal identifier
Socket strip 	Spring-cage terminal ⁽¹⁾ FK2033 	1	0.5 mm ² to 1,5 mm ² [20 AWG to 16 AWG]	+24 V
		2	0.5 mm ² to 1,5 mm ² [20 AWG to 16 AWG]	GND


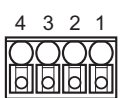
Power supply Power circuits

SeGMO-Box	Mating connector	Pin designation	Core cross section	Signal identifier
Connection terminal 	Ferrule ⁽²⁾ 	+	6 mm ² to 10 mm ² [10 AWG to 8 AWG]	+24 V
		–	6 mm ² to 10 mm ² [10 AWG to 8 AWG]	GND

Positioning drives: Internal communication [C]

SeGMO-Box	Mating connector (Connection view)	Pin designation	Hybrid cable		Signal identifier
			Core color	Core cross section	
Socket strip 	Spring-cage terminal ⁽¹⁾ FK2039 	1	black	0.14 mm ² [26 AWG]	CAN-GND
		2	yellow	0.25 mm ² [24 AWG]	CAN-High
		3	green	0.25 mm ² [24 AWG]	CAN-Low
		4	–	–	unallocated

Positioning drives: Power supply [V] (logic circuit and power circuit)

SeGMO-Box	Mating connector (Connection view)	Pin designation	Hybrid cable		Signal identifier
			Core color/ core number	Core cross section	
Socket strip 	Spring-cage terminal ⁽¹⁾ FK2039 	1	red/2	1.5 mm ² [16 AWG]	+24 V power
		2	black/2	1.5 mm ² [16 AWG]	GND power
		3	red/1	0.5 mm ² [20 AWG]	+24 V logic
		4	black/1	0.5 mm ² [20 AWG]	GND logic

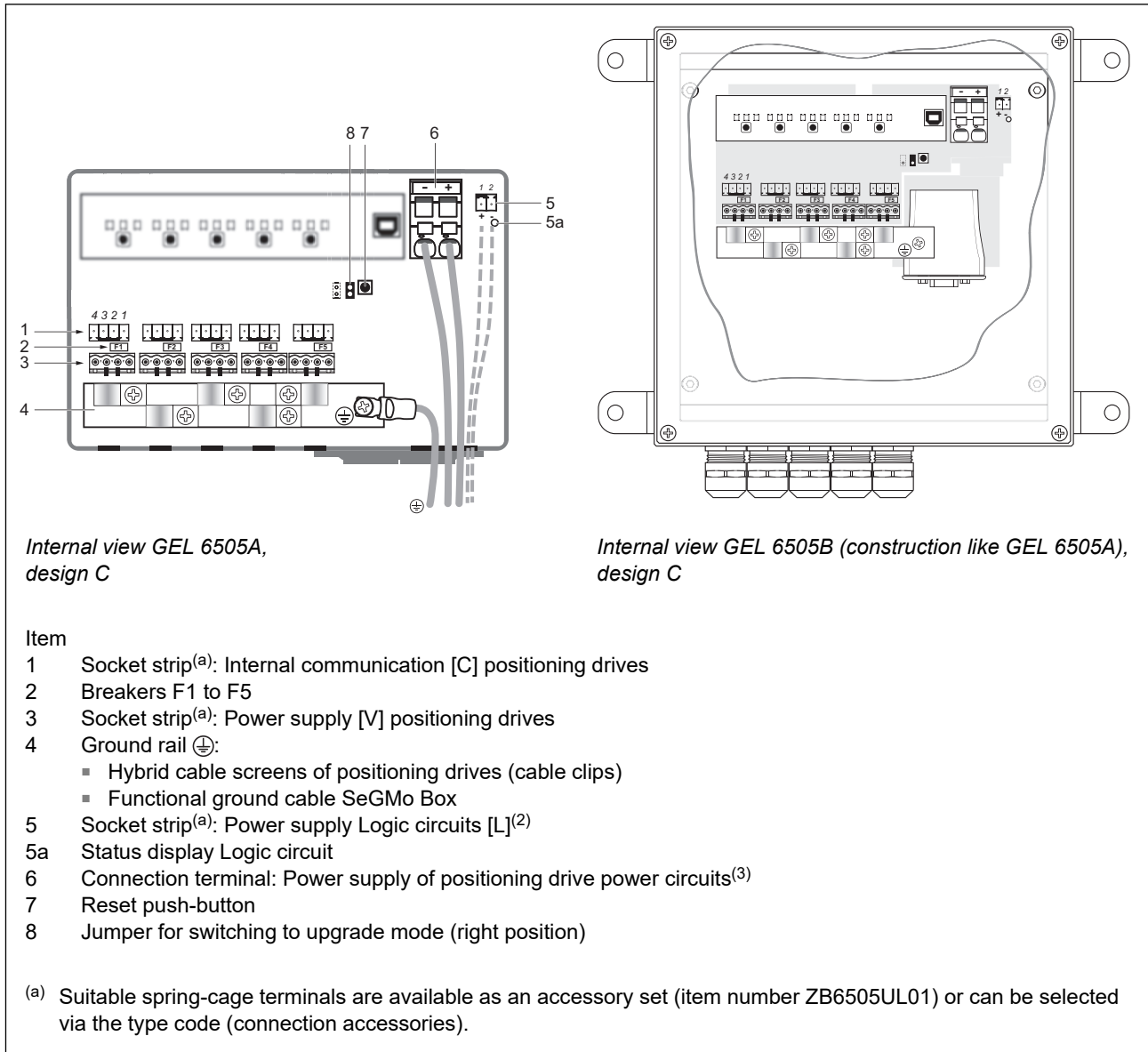
Preassembled hybrid cables are available for connection, see "BZK Technical Information."

(1) The connection is made via ferrules (no accessories from Lenord+Bauer).

(2) no accessories from Lenord+Bauer

Connections and assignments

Connections design C⁽¹⁾



The power supply of the power and logic circuits can be separate via items (5) and (6) or joint via item (6).

⁽¹⁾ Housing openings that are not sealed at the factory shall be sealed as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."



This housing variant is not suitable to connect rigid metal conduits.

⁽²⁾ Supplies the electronics of the SeGMo-Box (logic circuit) and the control electronics of the connected positioning drives (logic circuits) with power.



⁽³⁾ Item 6 supplies the power electronics of the connected positioning drives (power circuits) and the logic circuits of SeGMo-Box and positioning drives with power if terminal 5 is not connected or has insufficient power.

Connections and assignments

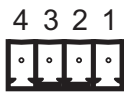
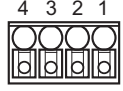
Power supply Logic circuits [L]

SeGMO-Box	Mating connector (Connection view)	Pin designation	Core cross section	Signal identifier
Socket strip 	Spring-cage terminal ⁽¹⁾ FK2033 	1	0.5 mm ² to 1,5 mm ² [20 AWG to 16 AWG]	+24 V
		2	0.5 mm ² to 1,5 mm ² [20 AWG to 16 AWG]	GND

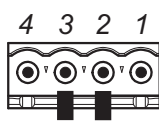
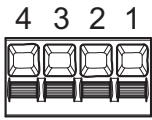
Power supply Power circuits

SeGMO-Box	Mating connector	Pin designation	Core cross section	Signal identifier
Connection terminal 	Ferrule ⁽²⁾ 	+	6 mm ² to 10 mm ² [10 AWG to 8 AWG]	+24 V
		–	6 mm ² to 10 mm ² [10 AWG to 8 AWG]	GND

Positioning drives: Internal communication [C]

SeGMO-Box	Mating connector (Connection view)	Pin designation	Hybrid cable		Signal identifier
			Core color	Core cross section	
Socket strip 	Spring-cage terminal ⁽¹⁾ FK2039 	1	black	0.14 mm ² [26 AWG]	CAN-GND
		2	yellow	0.25 mm ² [24 AWG]	CAN-High
		3	green	0.25 mm ² [24 AWG]	CAN-Low
		4	–	–	unallocated

Positioning drives: Power supply [V] (logic circuit and power circuit)

SeGMO-Box	Mating connector (Connection view)	Pin designation	Hybrid cable		Signal identifier
			Core color/ corenumber	Core cross section	
Socket strip 	Spring-cage terminal ⁽¹⁾ FK20181 	1	red/2	2.5 mm ² [14 AWG]	+24 V power
		2	black/2	2.5 mm ² [14 AWG]	GND power
		3	red/1	0.5 mm ² [20 AWG]	+24 V logic
		4	black/1	0.5 mm ² [20 AWG]	GND logic

Preassembled hybrid cables are available for connection, see "BZK Technical Information."

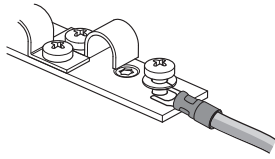
(1) The connection is made via ferrules (no accessories from Lenord+Bauer).

(2) no accessories from Lenord+Bauer

Connections and assignments

Functional ground

GEL 6505A

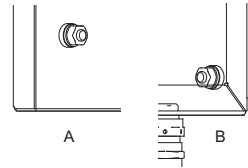


Functional ground at ground rail

Functional ground is via the functional ground connection in the switch cabinet.

Observe the functional ground and potential equalization of the machine or system.

GEL 6505B



Threaded bolts for functional ground

A Threaded bolts in cover

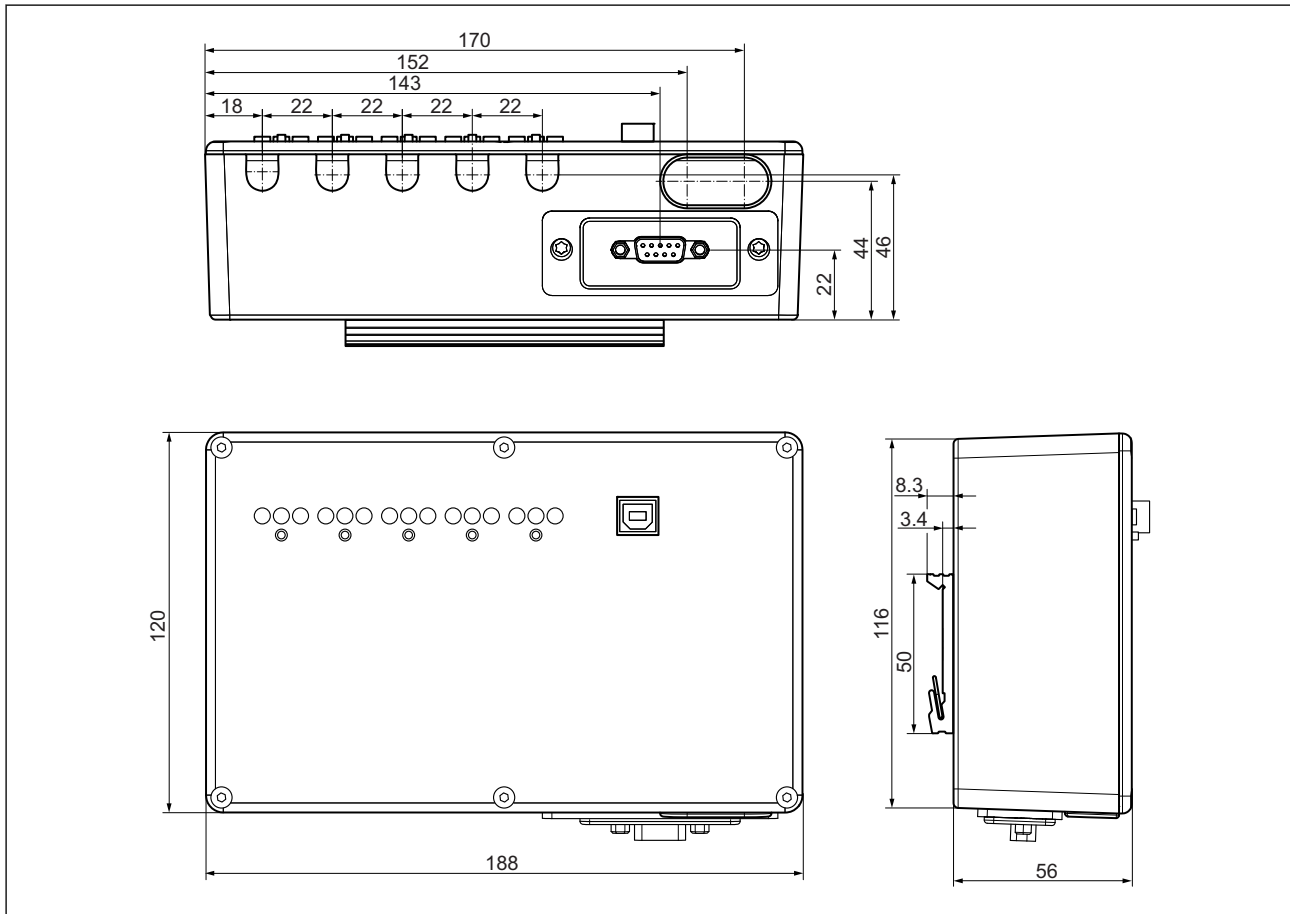
B Threaded bolts in housing

Connection of the functional ground cable can be made via the threaded bolts inside the housing.

Dimensional drawings

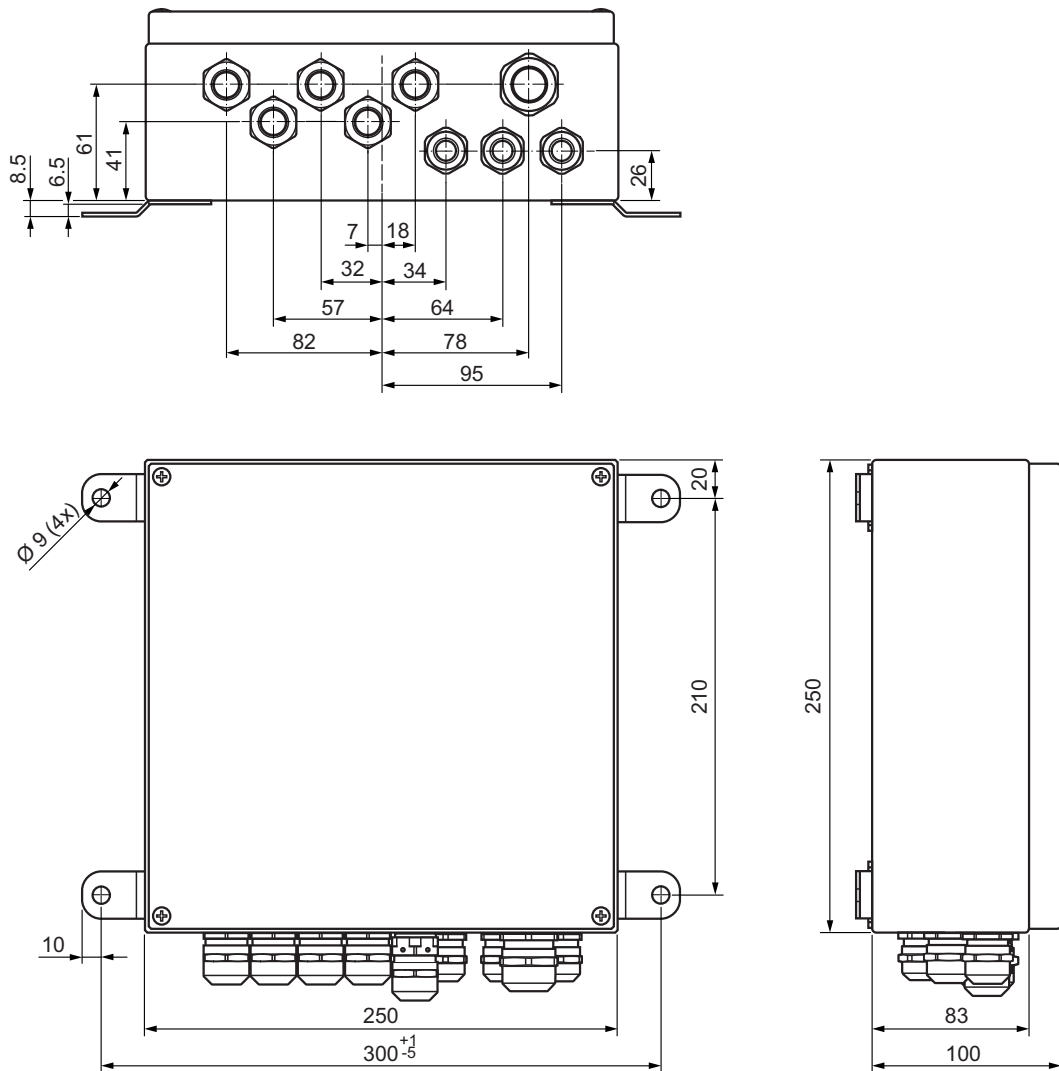
All dimensions in millimeters; general tolerance DIN ISO 2768 – mK

Dimensional drawing SeGMo-Box – GEL 6505A



Dimensional drawings

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



Cable glands

Number	Diameter	Clamping range ^(a)	Tightening torque	For entry of
3×	M16	4.5 to 10 mm	1.5 Nm	Interface cables (higher level control system), power supply cable for logic circuits, functional ground
5×	M20 ^(b)	6 to 13 mm	3 Nm	Hybrid cables of 5 positioning drives
1×	M25	9 to 17 mm	4 Nm	Power supply cable for power circuits, functional ground

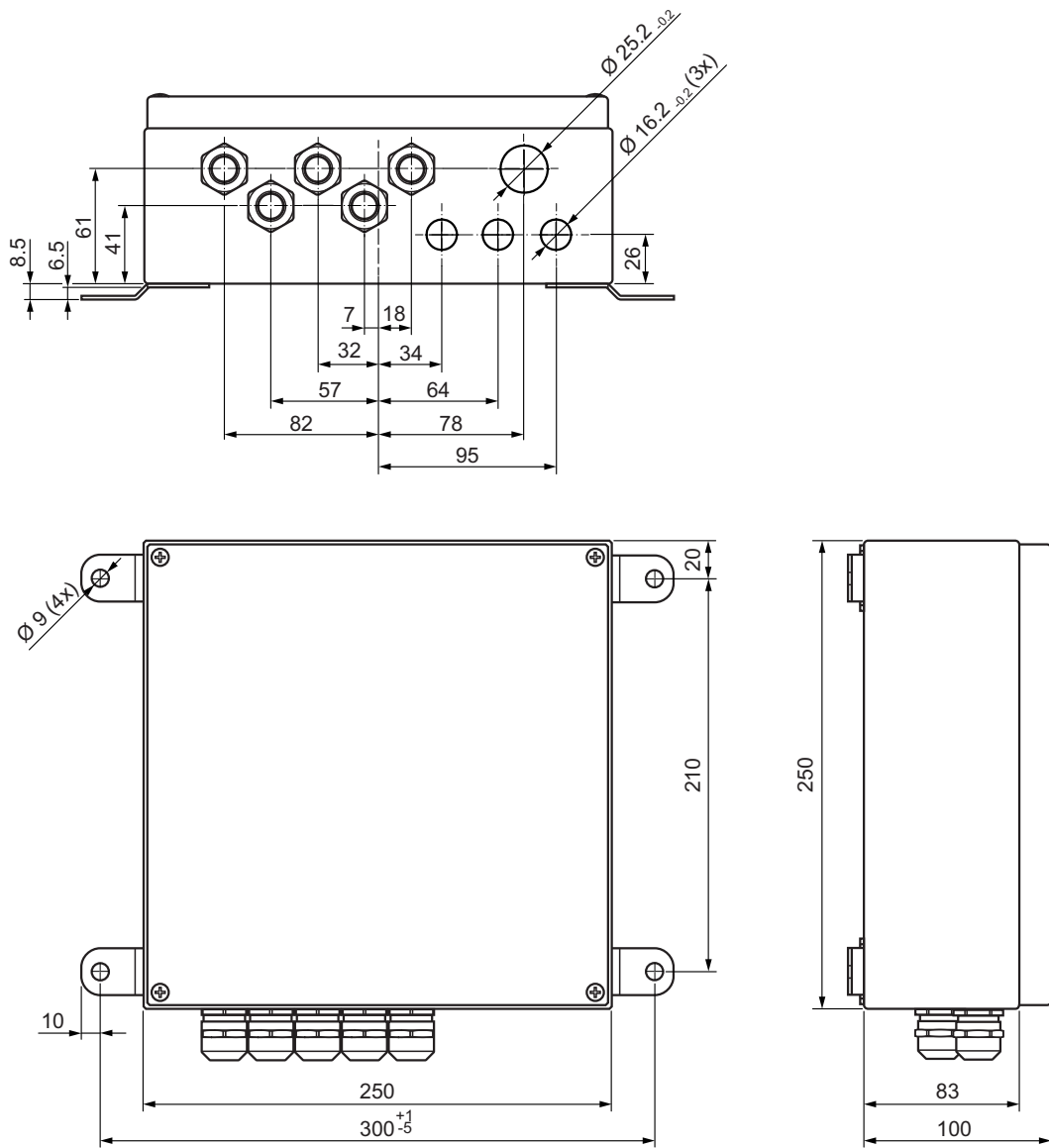
(a) Reducer sealing inserts available as accessories

(b) 1 × with pressure compensation element

Seal unused cable glands with a sealing plug (item number ZB65X05) to ensure degree of protection.

Dimensional drawings

Dimensional drawing SeGMo-Box – GEL 6505 B, design C⁽¹⁾



Cable glands

Number	Diameter	Clamping range	Tightening torque	For entry of
5×	M20	9 to 10.5 mm	10 Nm	Hybrid cables of 5 positioning drives

Seal unused cable glands with a sealing plug (item number ZB65X05) to ensure degree of protection.

⁽¹⁾ Housing openings that are not sealed at the factory shall be sealed as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."
This housing variant is not suitable to connect rigid metal conduits.

Type code

Type code GEL 6505

GEL 6505	Degree of protection	
	A	IP 20
	B	IP69K (design N/U)/IP68 (design C); only available with housing VA
	Housing	
	TR	Barrel-finished cast aluminum, bright ⁽¹⁾
	PB	Powder-coated cast aluminum, black
	PG	Powder-coated cast aluminum, gray RAL 9006 ⁽¹⁾
	VA	Stainless steel (only available with degree of protection B)
	Slot	
	–	without plug-in module
	1	Plug-in module with 1 × sub-D connection (for interface profile: CO and DP)
	2	Plug-in module with 2 × RJ45 connections (for interface profile: EC, IP, PL, RT, SC)
	Communication interface (plug-in module)	
	– –	without
	CO	CANopen (based on CiA 402)
	DP	PROFIBUS-DP (based on PROFIDRIVE)
	EC	EtherCAT (based on CiA 402)
IP	EtherNet/IP (based on CiA 402)	
PL	POWERLINK (based on CiA 402)	
RT	PROFINET IO/RT (based on PROFIDRIVE)	
SC	sercos III (I/O profile based on PROFIDRIVE)	
Connection accessories		
0	No accessories	
1	Accessory set for the electrical connection of 5 positioning drives (also available separately, scope of supply see connection accessories)	
Design		
N	16 AWG standard	
U	16 AWG individual protection	
C	14 AWG cULus Recognized Component (6505A) / cULus Listed (6505B)	

Customized special designs



Customized special designs are assigned a Y-number. A positioning drive marked with Y (example: 6505Yxxx) is a customized design with a special assembly and/or modified technical specifications. Depending on the customized modification, more or other documents may apply.

⁽¹⁾ upon request

Connection accessories

Overview

Plug-in modules for GEL 6505A

Designation	Item number
PROFIBUS-DP plug-in module with 1 × sub-D connection, including fastening screws	BG5031
CANopen-DP plug-in module with 1 × sub-D connection, including fastening screws	BG5032
EtherCAT plug-in module with 2 × RJ45 connections, including fastening screws	BG5033
EtherNet I/P plug-in module with 2 × RJ45 connections, including fastening screws	BG5034
PROFINET IO/RT plug-in module with 2 × RJ45 connections, including fastening screws	BG5035
Sercos III plug-in module with 2 × RJ45 connections, including fastening screws	BG5036
POWERLINK plug-in module with 2 × RJ45 connections, including fastening screws	BG5037

Plug-in modules for GEL 6505B

Designation	Item number
PROFIBUS-DP plug-in module with 1 × sub-D connection, including fastening screws	BG5021
CANopen-DP plug-in module with 1 × sub-D connection, including fastening screws	BG5022
EtherCAT plug-in module with 2 × RJ45 connections, including fastening screws	BG5023
EtherNet I/P plug-in module with 2 × RJ45 connections, including fastening screws	BG5024
PROFINET IO/RT plug-in module with 2 × RJ45 connections, including fastening screws	BG5025
Sercos III plug-in module with 2 × RJ45 connections, including fastening screws	BG5026
POWERLINK plug-in module with 2 × RJ45 connections, including fastening screws	BG5027

Connection accessories

Accessory sets:

Designation	Item number
Accessory set GEL 6505 design N/U for electrical connection of 5 positioning drives Power supply logic circuits <ul style="list-style-type: none"> 1 × spring-cage terminal, item number: FK2033 Connection positioning drives: Power supply/internal communication <ul style="list-style-type: none"> 10 × spring-cage terminal, item number: FK2039 Functional ground <ul style="list-style-type: none"> 1 × forked cable lug M4 for cable 4 mm² to 6 mm² [12 AWG to 10 AWG], item number: LZ1234 Hybrid cable screens <ul style="list-style-type: none"> 1 × heatshrink sleeve Ø 13 mm, item number: LZ1225 1 × heatshrink sleeve Ø 6 mm, item number: LZ1231 	89070
Accessory set GEL 6505 design C for electrical connection of 5 positioning drives Power supply logic circuits <ul style="list-style-type: none"> 1 × spring-cage terminal, item number: FK2033 Connection positioning drives: internal communication <ul style="list-style-type: none"> 10 × spring-cage terminal, item number: FK2039 Connection positioning drives: Power supply <ul style="list-style-type: none"> 5 × spring-cage terminal with equipped coding profiles, item number: FK20181, FZ1090 2 × coding profile for spring-cage terminal, item number: FZ1090 Functional ground <ul style="list-style-type: none"> 1 × forked cable lug M4 for cable 4 mm² to 6 mm² [12 AWG to 10 AWG], item number: LZ1234 Hybrid cable screens <ul style="list-style-type: none"> 1 × heatshrink sleeve Ø 13 mm, item number: LZ1225 1 × heatshrink sleeve Ø 6 mm, item number: LZ1231 	ZB6505UL01
Accessory set for replacing a SeGMo-Box with design N/U with a SeGMo-Box with design C Connection positioning drives: Power supply <ul style="list-style-type: none"> 5 × spring-cage terminal with equipped coding profiles, item number: FK20181, FZ1090 2 × coding profile for spring-cage terminal, item number: FZ1090 	ZB6505UL02

General accessories

Designation	Item number
Positioning drives: Power supply/internal communication for design N/U <ul style="list-style-type: none"> 5 × spring-cage terminal, item number: FK2039 	ZB65X03
Power supply logic circuits <ul style="list-style-type: none"> 5 × spring-cage terminal, item number: FK2033 	ZB65X02
Functional ground <ul style="list-style-type: none"> 5 × forked cable lug M4 for cable 4 mm² to 6 mm² [12 AWG to 10 AWG], item number: LZ1234 	ZB65X01
SeGMo-Connect Preassembled hybrid cable for connecting the positioning drive to the SeGMo-Box	BZK ⁽¹⁾
Breakers (F1 to F5) <ul style="list-style-type: none"> 10 × series 391 TE5 fast acting, 65 V DC 3.15 A, manufacturer: Wickmann-Werke GmbH (Littelfuse), item number: SS1121 	ZB65X04

⁽¹⁾ See separate Technical information

Connection accessories

Accessories for GEL 6505B, design N/U

Designation	Item number
Sealing plug for cable gland of SeGMo-Box GEL 6505B ▪ 1 × sealing plug, item number: VB1246	ZB65X05
Reducing seal insert for cable gland M16 for reducing the inside diameter, clamping range 2 to 6 mm ▪ 5 × reducing seal insert, item number: LZ1849	ZB65X06
Reducing seal insert for cable gland M20 for reducing the inside diameter, clamping range 4 to 8 mm ▪ 5 × reducing seal insert, item number: LZ1850	ZB65X07
Reducing seal insert for cable gland M25 for reducing the inside diameter, clamping range 7 to 12 mm ▪ 5 × reducing seal insert, item number: LZ1851	ZB65X08

Accessories for GEL 6505B, design C

Designation	Item number
Sealing plug for cable gland of SeGMo-Box GEL 6505B ▪ 1 × sealing plug, item number: VB1246	ZB65X05

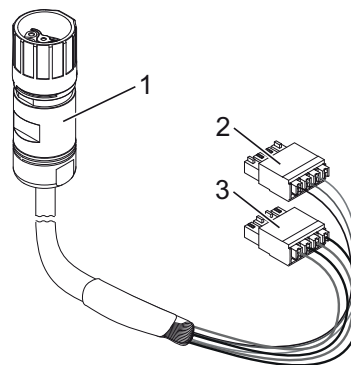
SeGMo-Connect connection accessories

General information about SeGMo-Connect

The SeGMo-Connect hybrid cable is designed for moveable use in drag chains. Its variants are food grade quality, halogen-free and available as a cULus recognized component. The hybrid cable screen is under the outer sheath. The internal communication line is completely insulated and has multiple screening.

All positioning drives are available with hybrid cables and connectors and can be quickly and easily connected to the SeGMo-Box via the freely configurable and preassembled hybrid cables.

Quick disconnect connectors allow safe and quick disconnection from the power supply during maintenance and service work. Preassembled hybrid cables are available for connection, see "BZK Technical Information."



Plug-and-play and ready-to-use hybrid cable "BZK"⁽¹⁾

- 1 M17 connector or M23 connector with female contacts for connecting the positioning drives
- 2 4-pin spring-cage terminal for connecting the SeGMo-Box (internal communication)
- 3 4-pin spring-cage terminal for connecting the SeGMo-Box (power supply)

Technical data hybrid cable BZK (SeGMo-Connect)

Property	Design N (food grade quality)	Design U (halogen-free)	Design C (cULus Recognized Component)
Sheath material	PUR, black, glossy	PUR, black, matte	PUR, black, matte
Cable properties	screened	screened	screened
Suitable for drag chain	yes	yes	yes
Food grade quality	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 × d fixed: 5 × d	permanently flexible: 15 × d free-moving: 10 × d fixed: 5 × d	permanently flexible: 15 × d free-moving: 10 × d fixed: 5 × d
Maximum peak operating voltage	350 V CAN-Bus 30 V DC (logic/power)	350 V CAN-Bus 30 V DC (logic/power)	300 V CAN-Bus 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 for USA and Canada (design C)

Certification: cULus Recognized Component/cULus Listed (document E483619)

General

- Use of the SeGMO-Box is only permitted in industrial machines in accordance with the applicable regulations of NFPA 79 "Electrical Standard for Industrial Machines."
- Power supply Power circuits: Only flexible copper cables with a temperature resistance of at least 75 °C may be used for connection purposes.
- Connectors M17 and M23 (hybrid cable BZK) in use are not suitable for connection or disconnection under voltage.
- Fit excess current protection in accordance with NFPA 79 "Electrical Standard for Industrial Machinery."

Notes for GEL 6505 with degree of protection **B**

- Housing openings that are not sealed at the factory shall be sealed as per the requirements of NFPA 79 "Electrical Standard for Industrial Machinery."
- This housing variant is not suitable to connect rigid metal conduits.

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