

# INSTALLATION AND OPERATING INSTRUCTIONS



Handhabungs-  
technik

GEP2000-Serie  
Greifer elektrisch

THE KNOW-HOW FACTORY

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## 1. Supporting documents



**Note:**

The following documents are available for download on our website. Only the documents currently available on the website are valid.

- Catalog
- Drawings, performance data, information about accessory parts, etc.
- General terms and conditions, including warranty information

## 2. Proper use



**Note:**

The gripper should only be used in its original state with its original accessories, with no unauthorized changes and within the scope of its defined parameters for use. Zimmer GmbH accepts no liability for any damage caused by improper use.

The gripper is designed exclusively for electric operation using a 24 VDC power supply. The gripper is used as defined under "Proper use" in enclosed rooms to temporarily grip, handle and hold parts.

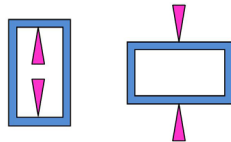
The gripper is not suitable for clamping workpieces during the machining process. Direct contact with perishable goods/food is not permitted.

## 3. Personnel qualifications

Installation, commissioning and operation may be undertaken by trained specialists only. They must have read and understood the installation and operating instructions in full.

## 4. Product description

- The gripper can be used for both gripping to the outside as well as to the inside.



- The gripper implements the stroke in the smallest installation space.
- The gripping force can be adapted optimally to the workpiece conditions.
- The gripper can be integrated into the existing control system easily.

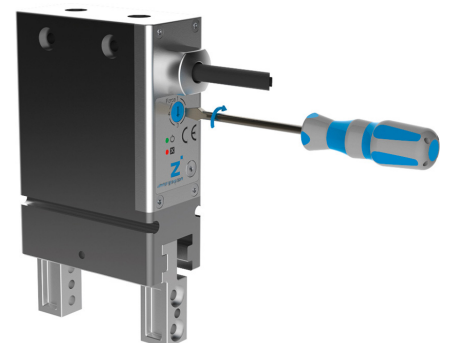
Order No.:	GEP2000	- □	- □	- A
IO-Link activation		- IL	- 00	
Digital activation		- IO	- 00	
Digital activation + integrated analog sensing		- IO	- 05	



### Adjustable gripping force:

The gripping force can be adjusted in four levels with digital activation of the gripper using a rotary switch.

For the IO-Link variant, gripping force can be conveniently adjusted using the control system.



### Operating safety:

Mechanical self-locking mechanism, which means that, in the event of a power failure ⇒, the workpiece is held securely.

The gripper can be opened mechanically using a hexagon socket wrench.



**Caution:**

In the event of a power failure, the position of the gripper remains intact.

**Not** the gripping force!

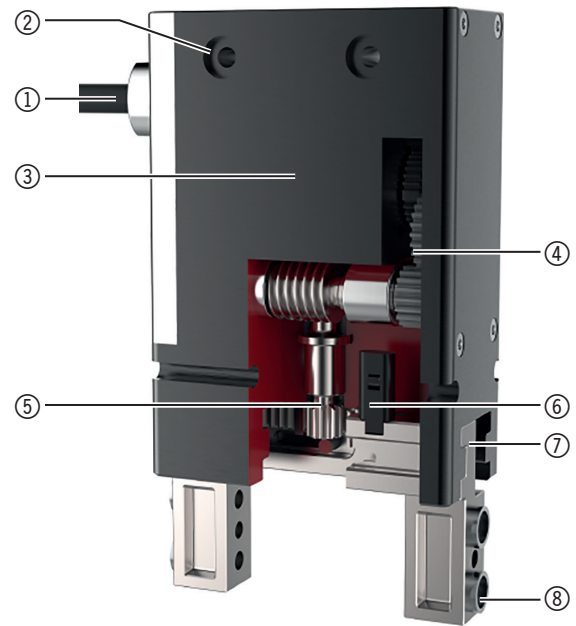
The workpiece remains securely in the gripper only in the event of form-fit gripping.

### 4.1. Function

The gripper fingers of the parallel gripper are arranged parallel to each other on two opposing guide rails and can be moved relative to each other.

The force of the motor is transmitted over a gear/worm gear. Racks and a pinion generate the movement of the gripper jaws and synchronize these movements.

①	<b>Activation</b> Over I/O ports or over IO-Link
②	<b>Mounting and positioning</b> Mounting possible from several sides for versatile positioning
③	<b>BLDC motor</b> Wear-resistant brushless DC motor
④	<b>Helical gear - worm gear</b> Self-locking mechanism in case of a power drop
⑤	<b>Synchronization</b> Using rack and pinion
⑥	<b>Position sensing</b> Permanent magnet for direct sensing of jaw movement with magnetic field sensors
⑦	<b>Gripper jaw</b> With mounting of individual gripper fingers
⑧	<b>Removable centering sleeves</b> Fast positioning of individual gripper fingers

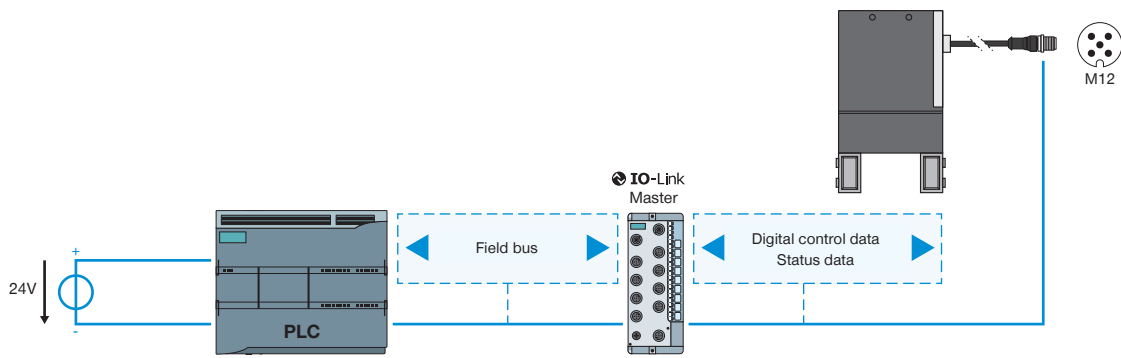


### 4.2. Electrical specification

Electrical specification	
Supply voltage	24 V +/- 10%
Switching level (base position/work position)	Low level: -3 V to +8 V
	High level: 18 V to 28 V
Current draw during operation	< 30 mA
Maximum current draw (during movement)	1A +/- 10%
Current draw at 24 V switching signal	GEP2010: 1 A +/- 10% GEP2013: 2A +/- 10% GEP2016: 2A +/- 10%

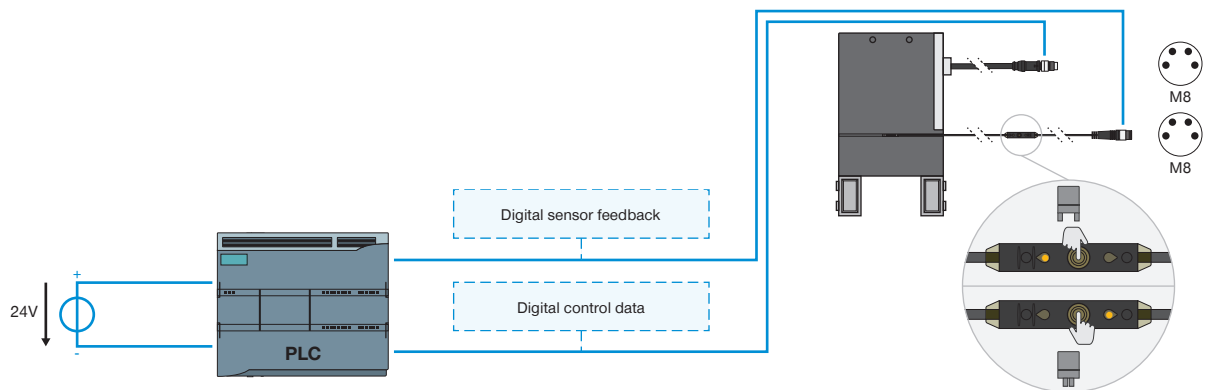
### 4.3. Activation

#### 4.3.1. GEP2000IL-00-A IO-Link activation



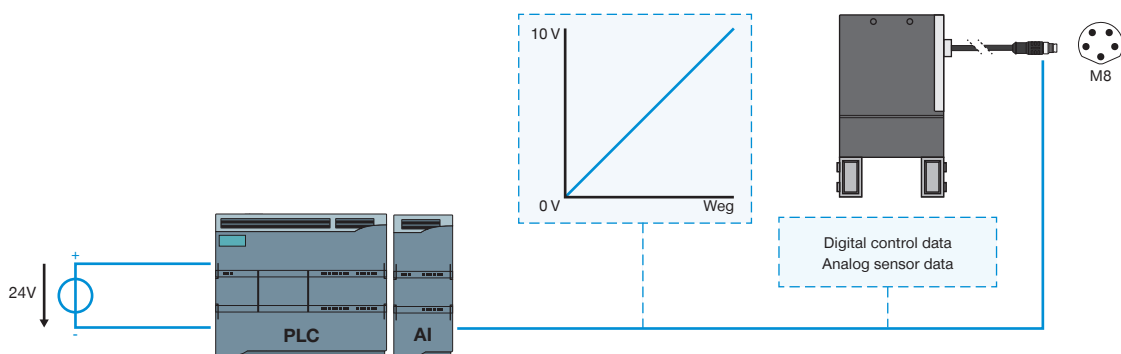
- ▶ Single-cable solution—control system data, status/sensor data and power supply over a single cable
- ▶ Bi-directional data transmission
- ▶ Gripping force and gripping speed can be parameterized using software
- ▶ 32 programmable workpiece data sets
- ▶ Part detection down to +/- 0.05 mm for a tolerance range that can be taught for any value
- ▶ Status data such as temperature and cycle number can be read out
- ▶ in ZIMMER HMI (Human-Machine Interface) can be integrated

#### 4.3.2. GEP2000IO-00-A digital activation



- ▶ Single-cable solution—control system data, status/sensor data and power supply over a single cable
- ▶ Gripper commissioning by means of digital signals
- ▶ Optional digital gripper position feedback via external sensors
- ▶ Gripping force adjustment in four levels to the object being gripped, using rotary switch

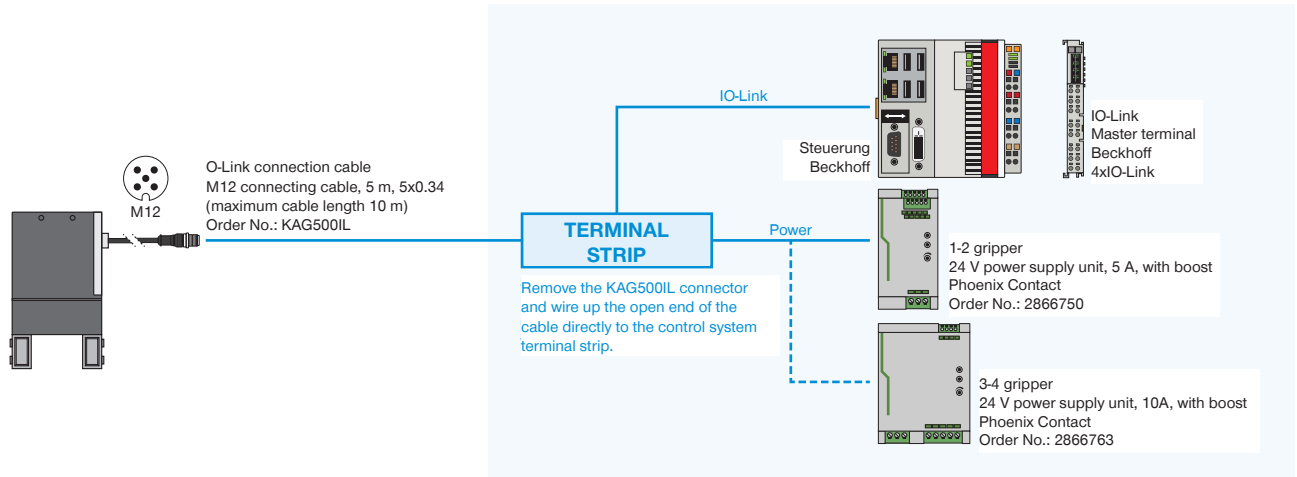
#### 4.3.3. Digital activation + integrated analog sensing - GEP2000IO-05-A



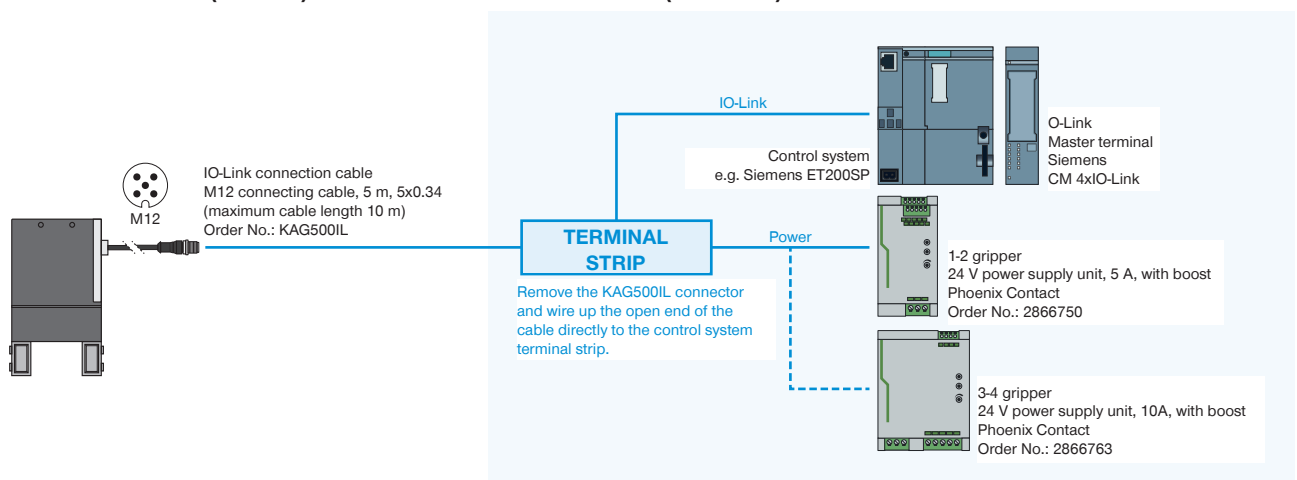
- ▶ Single-cable solution—control data, sensor data and power supply over a single cable
- ▶ Gripper commissioning by means of digital signals
- ▶ Integrated analog feedback of the gripper position
- ▶ Gripping force adjustment in four levels to the object being gripped, using rotary switch

#### 4.4. Verified configurations

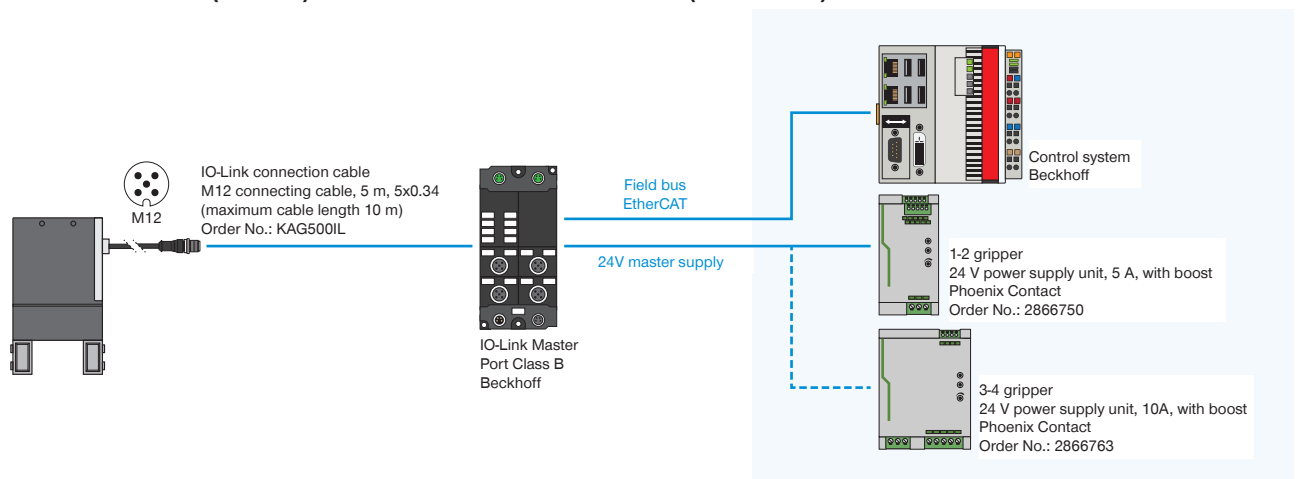
##### 4.4.1. GEP2000-IL-00-A (IO-LINK) WIRING TO CONTROL CABINET (BECKHOFF)



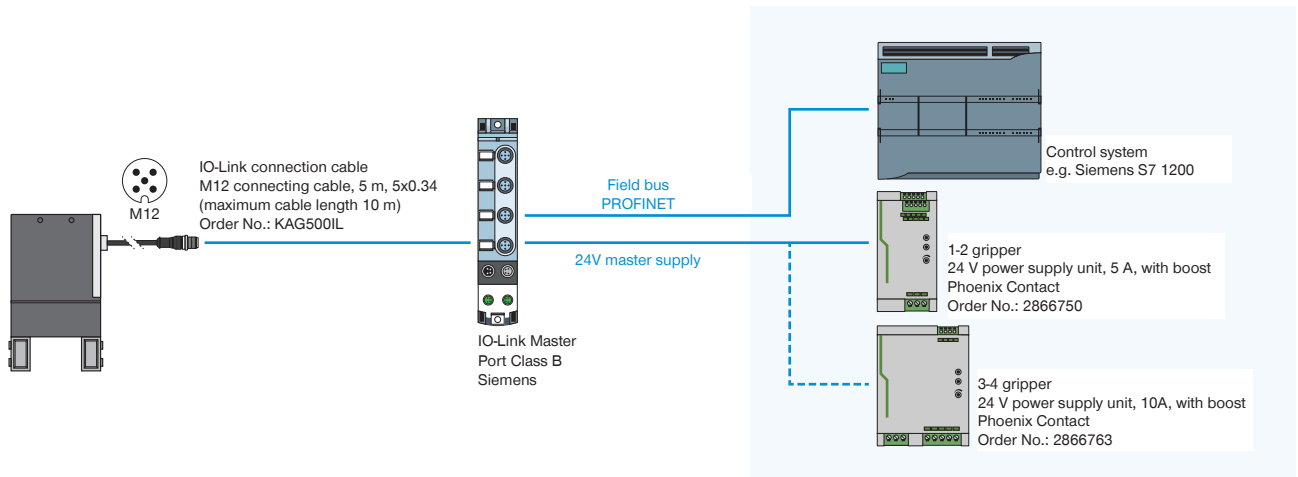
##### 4.4.2. GEP2000-IL-00-A (IO-LINK) WIRING TO CONTROL CABINET (SIEMENS)



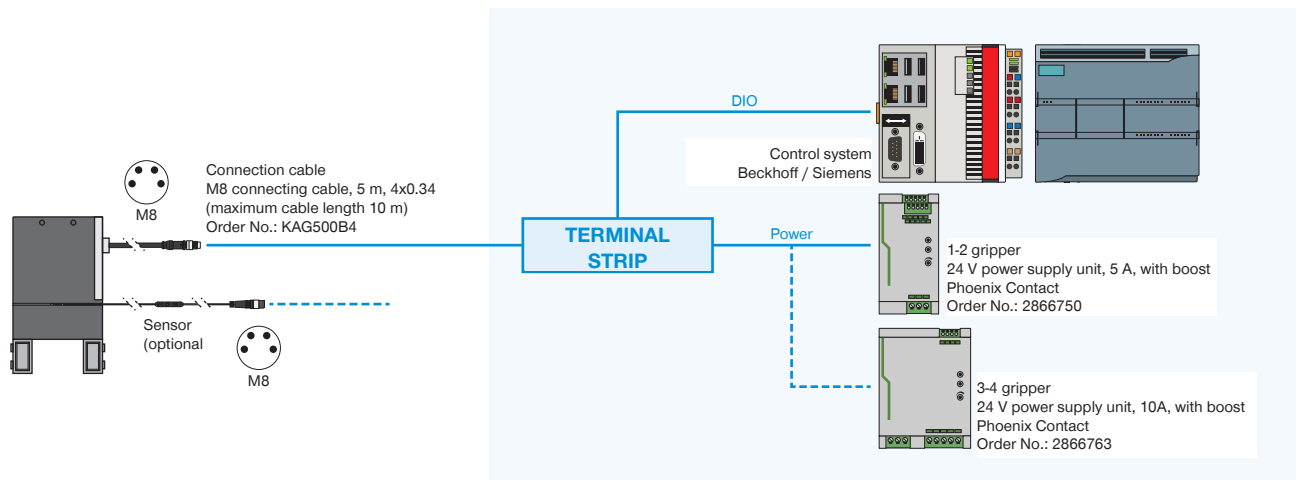
##### 4.4.3. GEP2000-IL-00-A (IO-LINK) WIRING TO IO-LINK MASTER IP67 (BECKHOFF)



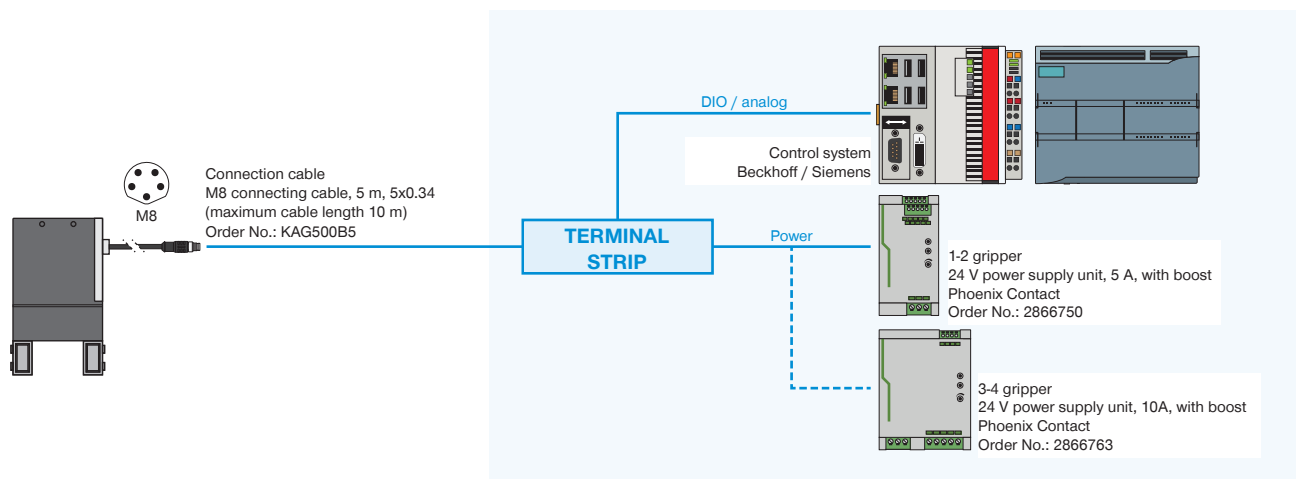
4.4.4. GEP2000-IL-00-A (IO-LINK) WIRING TO IO-LINK MASTER IP67 (SIEMENS)



4.4.5. GEP2000-IO-00-A (DIGITAL IO) WIRING TO CONTROL CABINET



4.4.6. GEP2000-IO-05-A (DIGITAL IO / ANALOG) WIRING TO CONTROL CABINET



## 5. Installation

### 5.1 Safety notes



**CAUTION:**

Switch off the power supply for the electronics before any assembly, installation or maintenance work.  
 ► Risk of injury



**NOTE:**

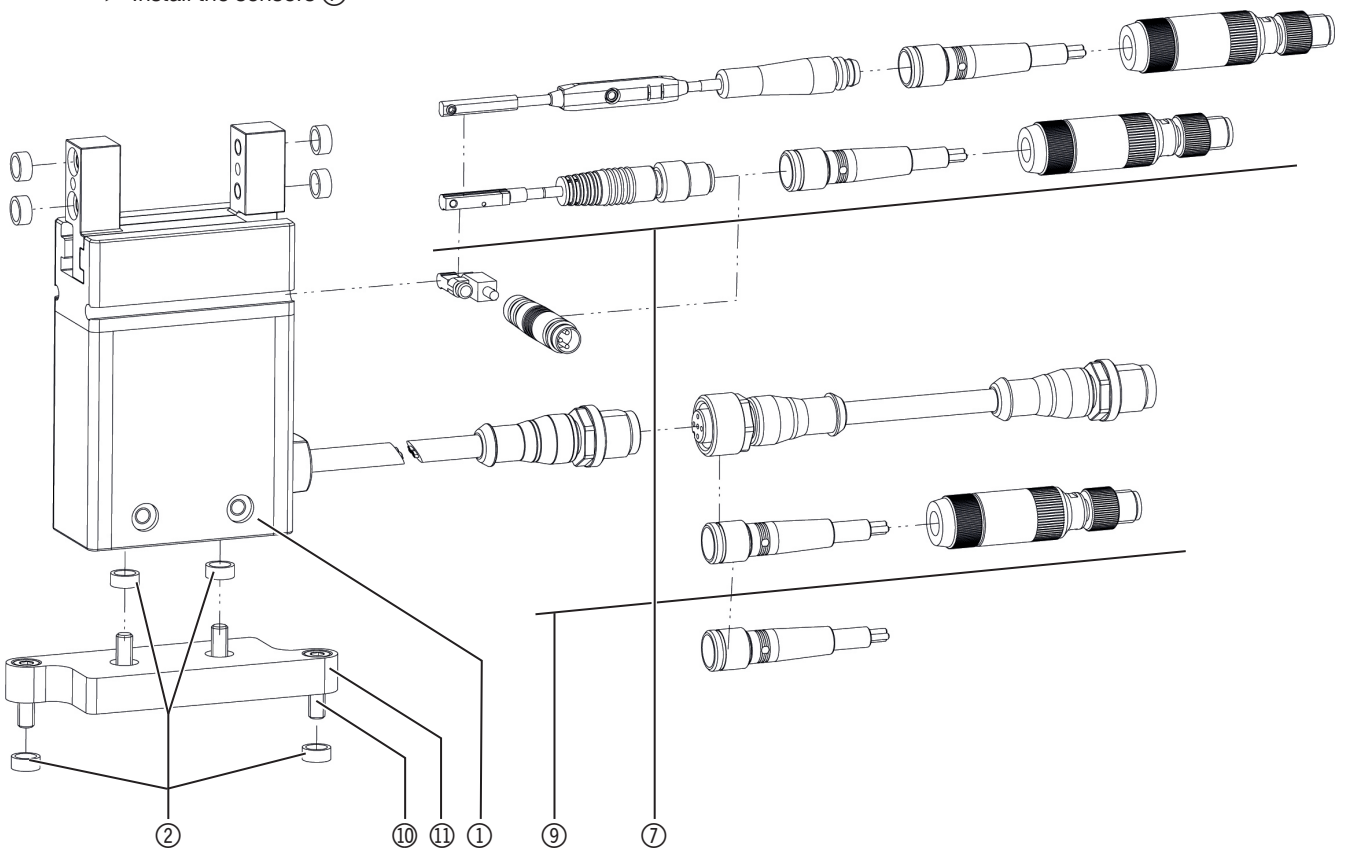
Switch off the power supply for the electronics before any assembly, installation or maintenance work.  
 ► Damage to the electronics possible

### 5.2 Installing the gripper

The gripper can be installed from several sides on a mounting surface that meets the specifications for evenness.

The following steps are to be carried out to install the gripper:

- Insert centering sleeves ② into the provided matching parts on the gripper ①
- Position the gripper on the intended mounting surface using the centering sleeves
- Use the adapter plate ⑪ if necessary
- Secure the gripper with cylinder screws ⑩ of strength class 8.8
- Mount the supply and data cable ⑨ (see the “Accessories” data sheet for more information)
- Install the sensors ⑦



**NOTE:**

For details on the tightening torque, screw diameter and maximum weight and length of the gripper fingers, refer to the “Technical data” tables on the website [www.zimmer-group.de](http://www.zimmer-group.de).



**NOTE:**

Grounding the gripper attachment/gripper jaws is recommended if ESD-sensitive parts\* come into contact with the gripper.

### 5.3 Heat dissipation

In the event of high ambient temperatures and a high clock frequency, the gripper has to be installed on heat-dissipating materials..



## 6. Commissioning

### 6.1. Commissioning of GEP2000-IL-00-A (IO-LINK)

Pin	Color	Function	Explanation
1	Brown	+24VDC sensor	Power supply for IO-Link communication
2	White	+24VDC actuator	Actuator supply voltage
3	Blue	GND sensor	Sensor 0 V DC supply voltage
4	Black	C/Q	IO-Link communication
5	Gray	GND actuator	Actuator 0 V DC supply voltage

The GEP2000-IL-00-A is controlled over IO-Link by means of the cyclical process data and the acyclical service data, with a cycle time of 5 ms. During a communication cycle, the IO-Link master sends 8 bytes to the GEP2000-IL-00-A and receives 6 bytes of process data.

If the gripper is operational, a "1" must be sent in the control word during a cold start for safety reasons. This "1" tells the gripper to accept the current values that have been transmitted in the process data. The gripper is now ready for operation. The gripper then moves to the proper position after receiving the corresponding command in the control word (decimal 256 or 512).

The gripper features bidirectional behavior. This means that the gripper cannot position itself on intermediate values. Each movement command is executed to the maximum possible position.

#### 6.1.1 Activation with cyclical process data

In general, the GEP2000-IL-00-A can be controlled only by the cyclically exchanged process data. However, this is possible only if no value is transmitted in the "workpiece No." process data word.

When the gripper is restarted, it is mandatory to write a "1" in the control word first. Only then is the gripper active and able to move.

<p><b>Step 1:</b></p> <p>All other process data must be configured to the desired values. These values are loaded in the gripper as the current data set using a "1" in the control word. The workpiece must then be inserted and the bit "Toward work position" (=512) must be set using the control word. This command makes the gripper move toward the work position until it is stopped by the workpiece.</p>
<p><b>Step 2:</b></p> <p>The current actual position can now be read from the incoming process data. This value can be written to the teach position of the outgoing process data.</p> <p>At the same time, a "5" should be transferred in the "Teach position tolerance" parameter for the standard size of the "Teach position" tolerance. If these values have been entered in the process data, a "1" can be written in the control word to tell the gripper again that these values are to be accepted into the currently valid data set.</p>
<p><b>Step 3:</b></p> <p>After the gripper recognizes the data set as the current valid data set, it uses the status word (= 512) to provide corresponding feedback on a whether it has gripped the correct workpiece.</p>

#### 6.1.2. Procedure for data transfer

All data that is transmitted to the gripper and is described in subsequent chapters must be transmitted using the "handshake" procedure.



**INFORMATION:**

This procedure is called "handshake" because it enables a "clean" transmission. Data transmission takes place from "hand to hand" (between the control system and gripper).

- The **Control word = 0x01** is used to announce the data transmission to the gripper.
- The gripper responds with **Status bit 12 = TRUE** This means "data transmission ok."
- After data transmission, **Control word = 0x00** can be sent. Data transmission is complete.
- The bit "data transmission" is now reset again automatically. **Status bit 12 = FALSE**



**INFORMATION:**

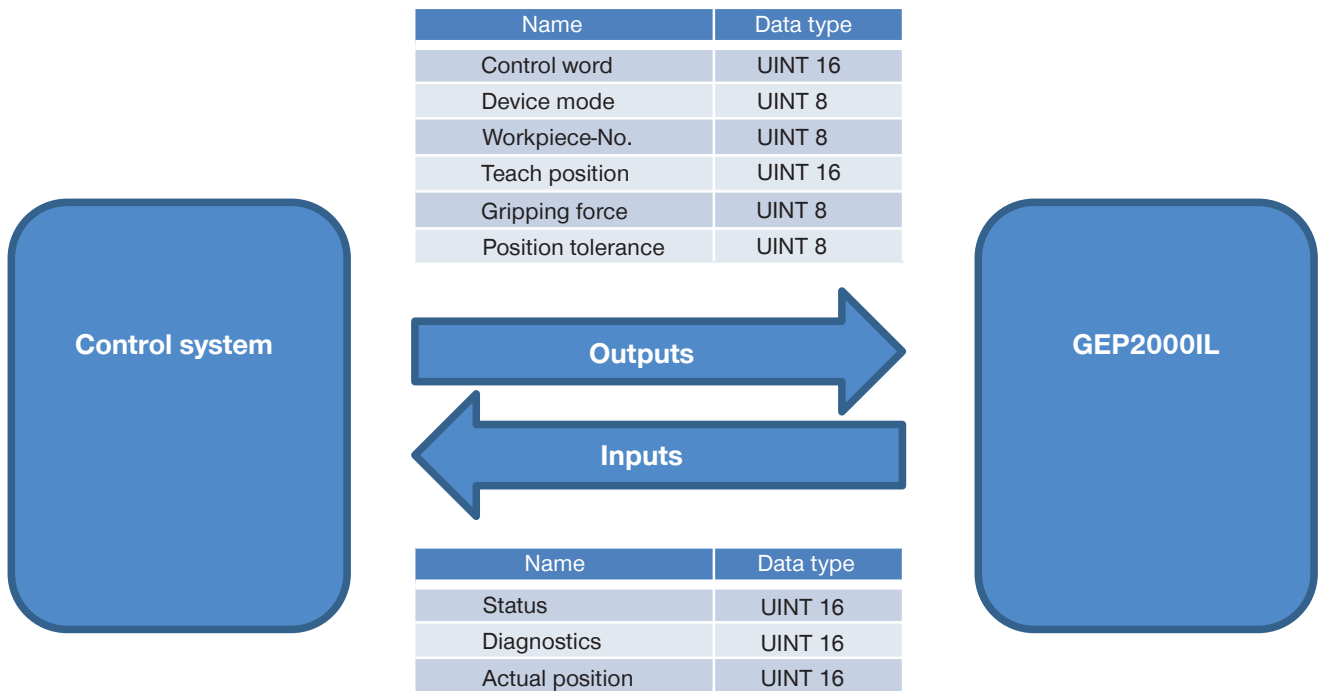
- The status of the gripper should be used to check whether a workpiece has been gripped correctly.
- The position measurement resolution is: 0.01 mm.
- The position measurement accuracy is: 0.1mm.
- If the actual position is used for detecting the workpiece, then fluctuations around the exact value must be taken into consideration during start-up!

### 6.1.3. Process data

The GEP2000-IL-00-A can be controlled only by the process data transmitted in each cycle.

A "1" must be sent in the control word to ensure that the gripper recognizes the data currently transferred in the process data as the active data set.

This "1" signals the gripper that a data transfer is to take place.



**Ausgaben: Prozessdaten vom IO-Link Master zu GEP/GED5000IL**

#### 6.1.3.1. "Control word" parameter:

Control word structure:

	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
Byte 1	n/a	n/a	n/a	n/a	n/a	n/a	Toward "Work position"	Toward "Base position"
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	adjust	n/a	n/a	n/a	teach	n/a	Saving process data in the workpiece data record	Data transfer

Application:



**Note:**

Only one single bit may be set in the „Controlword“ parameter.  
Only the values listed in the following table are valid.

Command:	Decimal value	Hexadecimal value
Data transfer	1	0x1
Saving process data in the workpiece data record	2	0x2
Teach	8	0x8
adjust	128	0x80
Toward base position	256	0x100
Toward work position	512	0x200

**Bit 0:** "Data transfer"

When this bit is set, the gripper acquires the data transferred in the process data (workpiece No. = 0) or data stored in the workpiece data sets (Workpiece No. = 1 to 32) as the active data set.

**Bit 1:** "Saving process data in the workpiece data record"

Setting this bit tells the gripper that it should write the current process data to the selected tool recipe.

- Bit 3:** "Teach"  
Setting this bit tells the gripper to save the current position as the teach position in the selected workpiece No.
  
- Bit 7:** "Adjust"  
If no other bit is set in the control word, the "adjust" bit can be used to readjust the end position of the fingers.
  
- Bit 8:** Toward base position  
Setting this bit tells the gripper that it should move to the base position.
  
- Bit 9:** Toward work position:  
Setting this bit tells the gripper that it should move to the work position.

**Details:**

<b>Name:</b>	Control word
<b>Data format:</b>	UINT16
<b>Permission:</b>	write
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to 65535

**6.1.3.2 "Device mode" parameter:**

Device mode can be used to select the driving mode from the following options: universal operation, NC (normally closed) operation and NO (normally open) operation.

Input	Mode	Description
100	Universal mode	Inward or outward gripping, both movements at the same speed
60	NC operation	Inward with the desired gripping force and speed, outward movement at high speed
70	NO operation	Outward with the desired gripping force and speed, inward movement at high speed

**Details:**

<b>Name:</b>	Device mode
<b>Data format:</b>	UINT8
<b>Permission:</b>	write
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	1 to 3

**6.1.3.3. "Workpiece No." parameter:**

This process data word is used for selecting the already stored workpiece data and for selecting the workpiece number data record in which the current process data is stored.

By setting bit 2 „Store process data in workpiece data record“, the current process data „Teach position“, „Device Mode“, „Position tolerance“ and the specified gripping force can be saved.

This workpiece No. data set enables individual workpieces to be taught in to the gripper very quickly.


**Information:**

**Example:** To use the workpiece set with three stored pieces of data (teach position tolerance, teach position, gripping force and driving mode), a 3 (workpiece No. = 3) must be transmitted in the workpiece number of the process data.

**Details:**

<b>Name:</b>	Workpiece No.
<b>Data format:</b>	UINT8
<b>Permission:</b>	write
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to 32

Index	Name	Data format	Access right	Values	Description
0x800 to 0x81F (2048 to 2079)	Workpiece number Set 1 to 32			1 to 32	Each main index (0x800 to 0x81F) contains the four subindexes listed below (0x01 to 0x05)
<b>Sub-index</b>					
0x05 (1)	Device mode	UINT8	Read	100 = Universal operation Inward or outward gripping, both movements with the same speed  60 = NC operation (normally closed) Inward with the desired gripping force, outward at high speed  70 = NO operation (normally open) Outward with the desired gripping force, inward at high speed	
0x04 (2)	Gripping force	UINT8	Read	1, 2, 3, 4	Gripping force and speed
0x03 (3)	Teach position	UINT16	Read	0 to full stroke of the gripper in [mm x 100]	This value can be used to change the workpiece position via the cyclical data. for example: „Teach Position“ = 2010 corresponds to a hub of 20,10 mm
0x01 (4)	Tolerance of the teach position	UINT8	Read	This variable is used to set the position tolerance with a resolution of 0.01mm. Thus, with the value range of 0 ... 255, a maximum tolerance of 2.55mm can be set in both directions.	This value can be used to set a tolerance for the set “teach position”.

**6.1.3.4. "Teach position" parameter:**

The teach position tells the gripper what jaw stroke the gripper must travel in order to reach the workpiece. Thus the gripper can distinguish whether a correct or incorrect workpiece has been gripped. Confirmation that the correct workpiece has been gripped is communicated to the controller via the status parameter. If the detection is correct, the "Teach" bit is set, thereby giving the user the option to monitor this work step.

However, the gripper cannot move directly to the teach position. The gripper has bi-directional behavior between the base position and work position.

With the position measuring system in use, it is possible to achieve a teach position accuracy of 0.2 mm. That corresponds to the following values:

Product	Base position	Work position	Teach position
GEP2006-IL	0	1200	0 to 1200
GEP2010-IL	0	1600	0 to 1600
GEP2013-IL	0	2000	0 to 2000
GEP2016-IL	0	3200	0 to 3200

**Details:**

<b>Name:</b>	Teach position
<b>Data format:</b>	UINT16
<b>Permission:</b>	write
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to max. jaw stroke of the gripper

**6.1.3.5. "Gripping force" parameter:**

The GEP2000-IL-00-A can use various gripping forces and speeds for an optimized process sequence. Since the gripper generates the gripping force from its gripping speed in combination with the amperage, the setting of the gripping force also conversely influences the gripping speed and the amperage. The gripping force can be set at various levels. The user can set the required gripping force in 20% increments.

**Details:**

<b>Name:</b>	Gripping force	
<b>Data format:</b>	UINT16	
<b>Permission:</b>	write	
<b>Transmission:</b>	Cyclical	
<b>Value range:</b>	1	Step 1
	2	Step 2
	3	Step 3
	4	Step 4

6.1.3.6. "Position tolerance" parameter:

The position tolerance parameter can be used to transmit the current "Teach position" tolerance.

**Details:**

<b>Name:</b>	Position tolerance
<b>Data format:</b>	UINT 8
<b>Permission:</b>	write
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	1 to 9

**Inputs: Process data from the GEP2000-IL-00-A to the IO-Link master**

6.1.3.7. "Status word" parameter:

**Status word structure:**

	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
<b>Byte 1</b>	Error	Controlword =0x200	Controlword =0x100	Data is transmitted	Undefined position	Work position	Workpiece position	Base position
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
<b>Byte 0</b>	n/a	System operational	n/a	n/a	n/a	n/a	n/a	n/a

**Function:**

Status:	Decimal value	Hexadecimal value
System operational	64	0x40
Gripper open (end position)	256	0x100
Workpiece gripped	512	0x200
Gripper closed (end position)	1024	0x400
Base & teach signal	768	0x300
Work & teach signal	1536	0x600
Undefined position	2048	0x800
Data is transmitted	4096	0x1000
error	32768	0x8000

**Details:**

<b>Name:</b>	Status
<b>Data format:</b>	UINT16
<b>Permission:</b>	Read
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to 65535

**6.1.3.8. "Diagnosis" parameter:**

The value returned in the "Diagnosis" parameter corresponds to the error code.

► Refer to the "Error diagnostics" chapter

**Details:**

<b>Name:</b>	Diagnostics
<b>Data format:</b>	UINT16
<b>Permission:</b>	Read
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to 65535

**6.1.3.9. "Actual position" parameter:**

The actual position corresponds to the current position of the gripper jaws with respect to the full stroke of the gripper, scaled to 0.01 mm. The values can move between the base position (minimum values) and the work position (maximum values).

With the position measuring system used, it is possible to achieve position accuracy of +/- 0,05 mm.

Product	Base position (minimum value)	Work position (maximum value)
GEP2006-IL	0	1200
GEP2010-IL	0	1600
GEP2013-IL	0	2000
GEP2016-IL	0	3200

**Details:**

<b>Name:</b>	Actual position
<b>Data format:</b>	UINT16
<b>Permission:</b>	Read
<b>Transmission:</b>	Cyclical
<b>Value range:</b>	0 to max. jaw stroke of the gripper

6.2. Commissioning of digital GEP2000IO-00-A

Pin	Color	Function	Explanation
1	Brown	+24VDC	+24V DC supply voltage
2	White	Jaw position	Input, control input, outer jaw position
3	Blue	GND	0V DC supply voltage
4	Black	Jaw position	Input, control input, inner jaw position



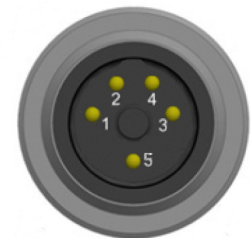
A voltage supply between pin 1 (+24V DC) and pin 3 (GND) is necessary for operation of the gripper. A jaw movement is triggered by a 24V voltage level on pin 2 or pin 4.

The following table shows the activation logic of the grippers.

	Pin 2, open	Pin 4, close
Gripper in rest mode	0	0
Opening the gripper	1	0
Closing the gripper	0	1

6.3. Commissioning of digital + integrated analog sensing - GEP2000IO-05-A

Pin	Color	Function	Explanation
1	Brown	+24VDC	+24VDC supply voltage
2	White	Jaw position	Input, control input, outer jaw position
3	Blue	GND	0V DC supply voltage
4	Black	Jaw position	Input, control input, inner jaw position
5	Gray	Analog output	0-10 V output



A voltage supply between pin 1 (+24V DC) and pin 3 (GND) is necessary for operation of the gripper. A jaw movement is triggered by a 24 V voltage level on pin 2 or pin 4.

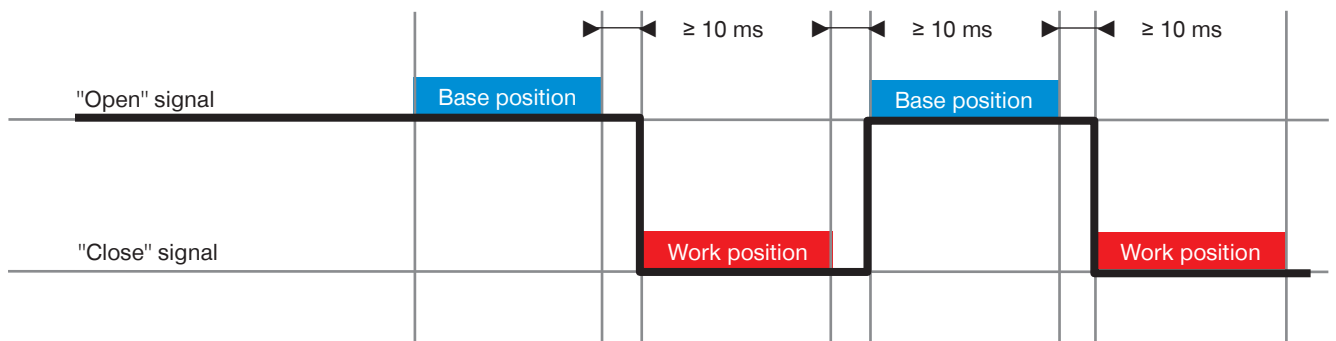
The following truth table shows the activation logic of the grippers.

The following table shows the activation logic of the grippers.

	Pin 2, open	Pin 4, close
Gripper in rest mode	0	0
Opening the gripper	1	0
Closing the gripper	0	1

A movement in the desired direction is run by a high level of the corresponding signal. After a high level is detected, the gripper movement is always performed to the end of the gripping process. It is important to ensure that, after a movement has taken place, the corresponding signal is reset before a signal in the opposite direction is provided.

A break time of 10 ms must be maintained between withdrawing the signal and the next command.



**INFORMATION:**

The travel profile applies both to the digital grippers GEP2000-IO-00-A as well as to the digital grippers with analog query of type GEP2000-IO-05-A

The current jaw position is scaled to 0V to 10V and is output through the analog output (pin 5).



**NOTE:**

In order to prevent damage to the gripper, the resistance between the analog output and GND must be at least 10 kΩ.



## 7. Maintenance

### 7.1 Maintenance intervals

The gripper does not require maintenance up to 10 million cycles.

The following circumstances may reduce the service life of 10 million cycles:

- A dirty environment
- Improper use
- Use not corresponding to approved performance data and parameters

### 7.2 Repairing the gripper







We recommend using the Zimmer Group repair service for repairs.

Disassembling the gripper without authorization shall void the warranty provided by Zimmer Group.






## 8. Troubleshooting for GEP2000-IL-00-A (IO-LINK)

Error code	error	Possible cause	Measure
0x0	No error	-	-
0x100	The actuator power supply is not available	<ul style="list-style-type: none"> <li>• Actuator power supply not connected</li> <li>• Cable break</li> <li>• Actuator power supply not sufficient</li> </ul>	▶ Test of the actuator power supply voltage
0x101	Max. permitted temperature exceeded	<ul style="list-style-type: none"> <li>• Ambient temperature too high</li> <li>• Gripper is overloaded</li> </ul>	▶ Provide sufficient ventilation/cooling/connection
0x102	Temperature below min. permitted temperature	<ul style="list-style-type: none"> <li>• Ambient temperature too low</li> </ul>	▶ Provide a sufficient operating temperature
0x300	The configured control word is implausible	<ul style="list-style-type: none"> <li>• Wrong value in the control word</li> </ul>	▶ Check the value in the control word
0x301	The configured teach position is outside the permitted range	<ul style="list-style-type: none"> <li>• Wrong value in the teach position</li> </ul>	▶ Check the value of the "Teach position" parameter Permitted range based on design size. Max. position value corresponds to the back jaw stroke x 100 e.g.: GEP2016 with approx. 16.1 mm jaw stroke: 0 <= teach position <= 1610
0x302	The configured gripping force is outside the permitted range	<ul style="list-style-type: none"> <li>• Wrong value in the "Gripping force" parameter</li> </ul>	▶ Check the value of the "Gripping force" parameter Permitted range: 0 < Gripping force <= 4
0x304	The configured tolerance value is outside the permitted range	<ul style="list-style-type: none"> <li>• Wrong value in the "Position tolerance" parameter</li> </ul>	▶ Check the value of the "Position tolerance" parameter Permitted range: 5 < Gripping force <= 255
0x305	The device has an incorrect reference position	<ul style="list-style-type: none"> <li>• Gripper does not have any reference position</li> </ul>	☎ Zimmer Group Service
0x306	The configured "Device mode" is implausible	<ul style="list-style-type: none"> <li>• Wrong value in the "Device mode" parameter</li> </ul>	▶ Setting the "Device modes" universal = 100 Grip workpiece outside = 60 Grip workpiece inside = 70
0x308	The configured workpiece number is implausible	<ul style="list-style-type: none"> <li>• Wrong value in the "Workpiece No." parameter</li> </ul>	▶ Check the values of the "Workpiece No." parameter Permitted range: 0 <= Workpiece-No <= 32
0x400	Gripper is blocked	<ul style="list-style-type: none"> <li>• Gripper is difficult to move</li> <li>• Travel path of the gripper is impeded</li> </ul>	▶ Restore the gripper's freedom of movement ☎ Zimmer Group Service
0x406	System error	<ul style="list-style-type: none"> <li>• Internal system error</li> </ul>	☎ Zimmer Group Service

8.1 LED status display for errors for GEP2000-IL-00-A (IO-LINK)

	Green LED lights up continuously	No error
	Red LED flashes at intervals of seconds Green LED lights up continuously	No IO-Link communication
	Red LED lights up continuously	Actuator supply not OK
	Red LED flashes at intervals of seconds Green LED does <b>not</b> light up	Miscellaneous internal error
	Red LED flashes at intervals of seconds Green LED flashes at an interval of seconds / <b>simultaneously</b>	No reference position Reference run must be performed
	Red LED flashes at intervals of seconds LED flashes at an interval of seconds / <b>in alternation</b>	Reference run is being performed

8.2 LED status display for errors for GEP2000IO-00-A (digital)

	Green LED lights up continuously	No error
	Red LED lights up continuously	Actuator supply not OK
	Red LED flashes at intervals of seconds Green LED does <b>not</b> light up	Miscellaneous internal error
	Red LED flashes at intervals of seconds Green LED flashes at an interval of seconds / <b>simultaneously</b>	No reference position Reference run must be performed
	Red LED flashes at intervals of seconds LED flashes at an interval of seconds / <b>in alternation</b>	Reference run is being performed

## 9. Declaration of incorporation

... in terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

### Name and address of the manufacturer:

Zimmer GmbH, Im Salmenkopf 5, D-77866 Rheinau, Germany, Phone: +49 7844 91380, www.zimmer-group.de

### We hereby declare that the incomplete machines described below

**Product designation:** Electric parallel gripper, electric three-jaw gripper

**Type designation:** GEP2□□□ series

### conform to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Appendix VII,b – Annex II,b, in their design and the version we put on the market.

The following harmonized standards have been used:

- Basic health and safety requirements: No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.1, No. 1.3.2, No. 1.3.4, No. 1.3.7, No. 1.5.1, No. 1.5.3, No. 1.5.4, No. 1.6.4, No. 1.7.1, No. 1.7.3.
- DIN EN ISO 12100:2011-03 Safety of machinery – General principles for design – Risk assessment and risk reduction
- DIN EN 60204-1 Safety of machinery – Electrical equipment of machines, Part 1
- DIN EN ISO 13849-1 Safety of machinery – Safety-related parts of control systems
- DIN EN ISO 13849-2 Safety related parts of control systems

A full list of applied standards is available for viewing at the manufacturer's facilities.

**Commissioning of the incomplete machine is prohibited until it has been found that – where applicable – the machine in which the above-mentioned incomplete machine is to be installed complies with the Machinery Directive (2006/42/EC).**

### Authorized representative for compiling the relevant technical documents



Kurt Ross	See manufacturer's address	Rheinau, Germany, 2013-11-21	Martin Zimmer
First name, last name	Address	(Place and date of issuing)	(Legally binding signature) Managing Partner

### 10. Declaration of conformity

... in terms of the EU Directive 2014/30/EC on electromagnetic compatibility

**Name and address of the manufacturer:**

Zimmer GmbH, Im Salmenkopf 5, D-77866 Rheinau, Germany, Phone: +49 7844 91380, www.zimmer-group.de

**We hereby declare that the products described below**

**Product designation:** Electric gripper

**Type designation:** GEP2□□□ series

**conform to the requirements of the Electromagnetic Compatibility Directive 2014/30/EU in their design and the version we put on the market.**

The following harmonized standards have been used:

- DIN EN ISO 12100:2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction
- DIN EN 61000-6-3 EMC Generic standard, Emission standard for residential, commercial and light-industrial environments
- DIN EN 61000-6-2 EMC Generic standard, Immunity for industrial environments
- DIN EN 61000-6-4 EMC Generic standard, Emission standard for industrial environments

A full list of applied standards is available for viewing at the manufacturer's facilities.

**Authorized representative for compiling the relevant technical documents**



Kurt Ross	See manufacturer's address	Rheinau, Germany, 2013-11-21	Martin Zimmer
First name, last name	Address	(Place and date of issuing)	(Legally binding signature) Managing Partner

## 11. Accessories / scope of delivery

If any accessories not sold or authorized by Zimmer Group are used, the function of the gripper cannot be guaranteed. Zimmer Group's range of accessories is specially tailored to the individual grippers.

Corresponding optional accessories and those included in the scope of supply can be found at [www.zimmer-group.com](http://www.zimmer-group.com).

## 12. Glossary

AC motor	Motor run on AC power
Adjust	Adjust
Base position	Base position of the gripper
DC motor	Motor run on DC power
DIR	Direction/24 V supply line
Error	Error, error message
ESD	Electrostatic discharge, electrostatic sensitivity
GED	Gripper/electrically powered/three-jaw design
GEP	Gripper/electrically powered/2 parallel jaws
GND	Abbreviation for "Ground" – ground connection
LED	Light-emitting diode
NO	" <b>N</b> ormally <b>O</b> pen" gripper mode – inward gripping - the gripper is open when not activated
NC	" <b>N</b> ormally <b>C</b> losed" gripper mode – outward gripping - the gripper is closed when not activated
Offset	Correction value
Teach position	Programming/teaching the gripper to the position of the workpiece
Work position	Work position of the gripper
VAC	Volts in AC current
VDC	Volts in DC current
Traversing routine	Defined process for the movement of the clamping jaws
Travel path	Path on which the gripper jaws return

## 13. Transportation / storage / preservation

- ▶ The transport and storage of the gripper must take place exclusively in the original packaging.
- ▶ If the gripper has already been installed on the higher-level machine unit, it must be ensured during transport that no unintentional movements may take place. A low-vibration fixation of the robot arm is recommended during transport. Before starting up the machine after transport, check all power and communication connections, as well as all mechanical connections.
- ▶ If the product is stored for an extended period, observe the following points:
  - ⇒ Keep the storage location as dust-free and dry as possible.
  - ⇒ Avoid temperature fluctuations.
  - ⇒ Avoid wind and drafts.
  - ⇒ Avoid formation of condensation.
  - ⇒ Package the product.
  - ⇒ Avoid any exposure to direct sunlight during storage.
  - ⇒ Observe and adhere to the temperature ranges for storage.
  - ⇒ Choose a storage location that will not damage the covers.
- ▶ Clean all components. There must be no impurities left on the components.
- ▶ Visually inspect all of the components.
- ▶ Remove all foreign objects.
- ▶ Properly remove potential corrosion spots.
- ▶ Close electrical connections using suitable covers.
- ▶ Cover the product with weather-resistant, tear-resistant foil and close the foil in a dustproof manner.
  - ⇒ If necessary, include additional desiccant under the foil.

## 14. Decommissioning and disposal

If the gripper reaches the end of its utilization phase, it can be completely disassembled and disposed of.

- ▶ Disconnect the gripper from the power supply completely
- ▶ The gripper can be disassembled and properly disposed of according to its material groups.

When disposing of it, observe the locally applicable environmental regulations and codes and regulations for disposal.





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