

Electrical Parallel Gripper MEG 50 EC

Assembly and Operating Manual



Imprint

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

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1 About this manual

This instruction is an integral part of the product and contains important information for a safe and proper assembly, commissioning, operation, maintenance and help for easier trouble shooting.

Before using the product, read and note the instructions, especially the chapter "Basic safety notes".

1.1 Warnings

The following key words and symbols are used to highlight dangers.

1.1.1 Key words

DANGER	Dangers for persons. Non-compliance will inevitably cause irreversible injury or death.
WARNING	Dangers for persons. Non-compliance may cause irreversible injury or death.
CAUTION	Dangers for persons. Non-observance may cause minor injuries.
NOTICE	Information about avoiding material damage

1.1.2 Symbols



Warning about a danger point



Warning about hand injuries



General mandatory sign to prevent material damage

1.2 Applicable documents

- General terms of business
- Catalog data sheet of the purchased product

The documents listed here, can be downloaded on our homepage www.schunk.com

2 Basic safety notes

2.1 Intended use

The product was designed to grip and to temporarily and securely hold workpieces and objects.

The product is intended for installation in a machine/system. The requirements of the applicable guidelines must be observed and complied with.

The product may be used only in the context of its defined application parameters Link Technische Daten.

The product is designed for industrial use.

To use this unit as intended, it is also essential to observe the technical data and installation and operation notes in this manual and to comply with the maintenance intervals.

2.2 Not intended use

Use which is not specified as an intended use is for instance when the product is for example used as a pressing tool, stamping tool, lifting tool, guide for tools, cutting tool, tensioning mean, boring tool.

2.3 Environmental and operating conditions

- Make sure that the product and the top jaws are a sufficient size for the application.
- Make sure that the product has a sufficient size for the application.
- Observe Maintenance and lubrication intervals ([🔗 10.2, Page 36](#)).
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

2.4 Product safety

Dangers arise from the product, if:

- the product is not used in accordance with its intended purpose.
- the product is not installed or maintained properly.
- the safety and installation notes are not observed.

Avoid any manner of working that may interfere with the function and operational safety of the product.

Wear protective equipment.

NOTE

More information is contained in the relevant chapters.

2.4.1 Protective equipment

Provide protective equipment per EC Machinery Directive.

2.4.2 Demands on the top jaws

Arrange the top jaws such that when the product is depressurized it can reach one of the end positions either open or closed and therefore no residual energy can be released when changing the top jaws.

2.4.3 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission from SCHUNK.

2.5 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the product may be performed only by trained personnel. Each person called upon by the operator to work on the product must have read and understood the complete assembly and operating manual, especially the chapter "Basic safety notes" ([👉 2, Page 6](#)). This applies particularly to personnel only used occasionally, such as maintenance personnel.

2.6 Using personal protective equipment




When using this product, observe the relevant industrial safety regulations and use the personal protective equipment (PPE) required!

- Use protective gloves, safety shoes and safety goggles.
- Observe safe distances.
- Minimal safety requirements for the use of equipment.

2.7 Notes on particular risks

Generally valid:

- Remove the energy supplies before installation, modification, maintenance, or adjustment work.
- Make sure that no residual energy remains in the system.
- Do not move parts by hand when the energy supply is connected.
- Do not reach into the open mechanism or the movement area of the unit.
- Perform maintenance, modifications, and additions outside the danger zone.
- Secure the product during all operations against uncontrolled activation.
- Take a precautionary approach by maintenance and disassembly.
- Only specially trained staff should disassemble the product.

	<p>⚠ WARNING</p> <p>Risk of injury due to squeezing and bumping during movement of the gripper jaws and breaking or loosening of the gripper fingers !</p>
	<p>⚠ WARNING</p> <p>Risk of injury from objects falling and being ejected</p> <ul style="list-style-type: none"> • The danger zone must be surrounded by a safety fence during operation.
	<p>⚠ WARNING</p> <p>While disassembling uncontrollable moves of parts of the gripper possible!</p>

3 Warranty

If the product is used as intended, the warranty is valid for 24 months from the date of delivery from the production facility under the following conditions:

- Intended use in 1-shift operation
- Observe the mandatory maintenance and lubrication intervals
- Observe the environmental and operating conditions

Parts touching the work piece and wear parts are not part of the warranty.

4 Scope of delivery

4.1 Scope of delivery Gripper

The scope of delivery includes

- Electrical parallel gripper MEG 50 EC in the ordered model.
- Accessory pack


4.2 Scope of delivery Controller

The scope of delivery includes

- Controller MEG C 50 in the ordered model.

5 Accessories

A wide range of accessories is available for this module.

For information about which accessories can be used with the appropriate product version  catalog.

6 Technical data

6.1 Gripper MEG 64 EC

Product designation	MEG 50 EC
Stroke per finger [mm]	8
Gripping force [N] *	60 – 90
Workpiece weight (recommendation) [kg] **	0.5
Power supply [VDC] (nominal range)	Supply from MEG C 64
Current input	Input from MEG C 64
Max. speed [mm/s]	35
Weight [kg]	0.71
Max. permissible finger length [mm]	50
Min. ambient temperature [°C] max. ambient temperature [°C]	+5 +55
Repeatability [mm]***	0.02
IP rating	30
Noise emission [dB(A)]	≤ 70

* Gripping force is the arithmetic sum of the individual forces acting on the gripper jaws at a distance of $P=25$ mm.

** Values for friction coefficient $\mu = 0.1$ and safety factor $v = 2$.
The values can be increased in the case of form-fitting.

*** Distribution of the mechanical end positions with 100 successive strokes.

A controller is needed to operate the gripper. SCHUNK offers the MEG C 64 (ID number 0307006) in this context.

More technical data are included in the catalog data sheet. Whichever is the latest version.

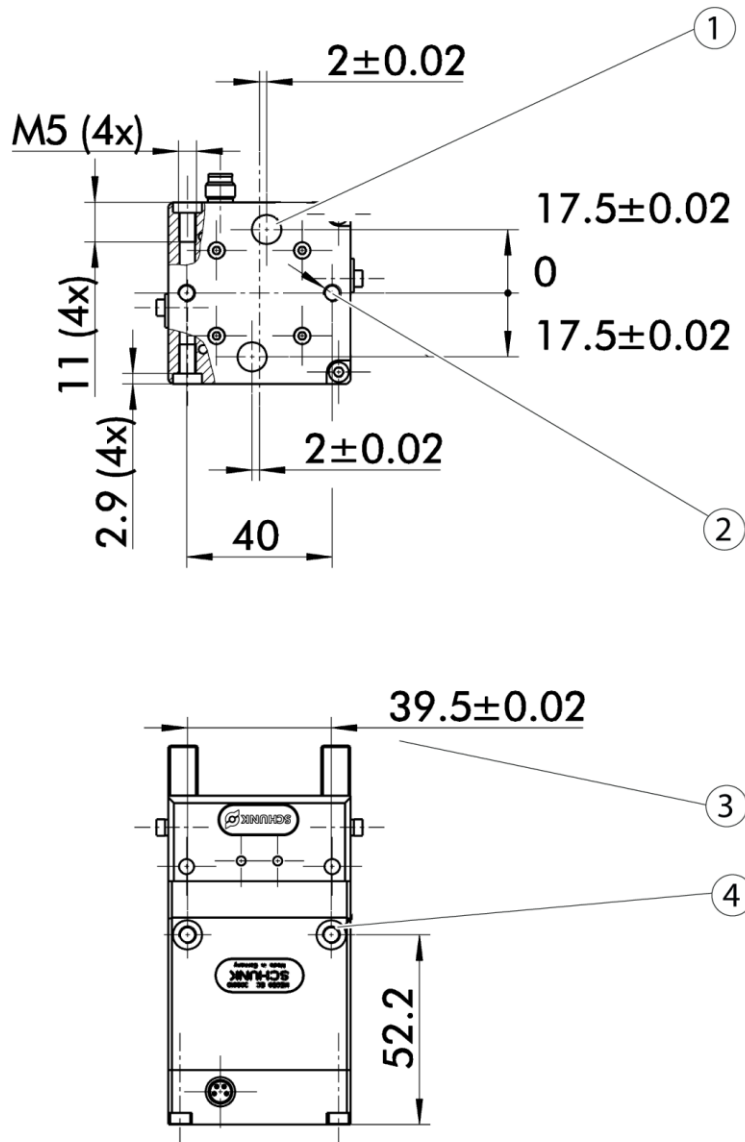
6.2 Controller MEG C

Product designation	MEG C
Power supply [VDC]	24
Current Input [A]	1.5
Weight [kg]	0.3
IP rating	30
Nominal temperature range [°C]	-10 to 65
Setting options	<ul style="list-style-type: none"> • Force setting • Closing and opening times (speed) • Stroke adjustment
Interface	Digital / Analog / I/Os

7 Assembly

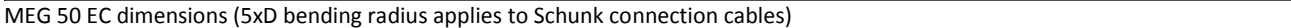
7.1 Mechanical connection

7.1.1 Gripper MEG 50 EC



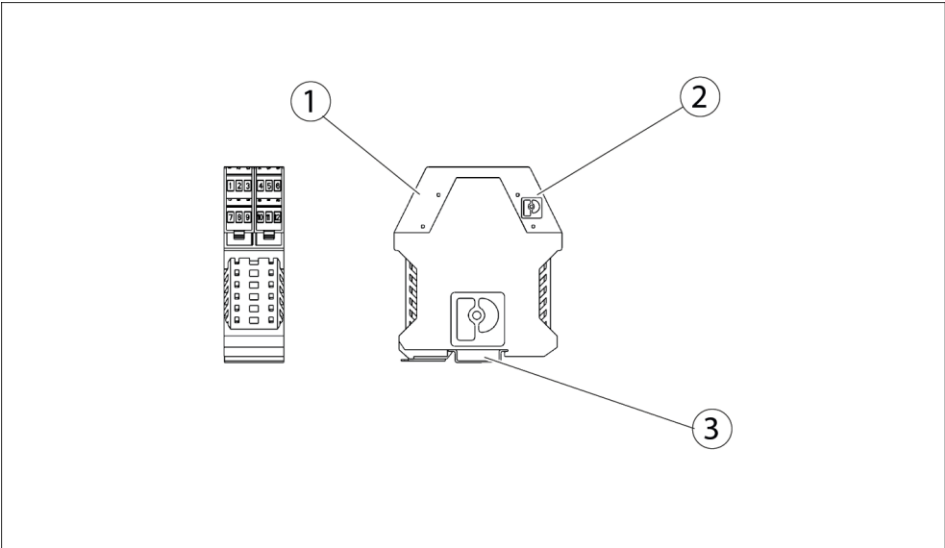
MEG 50 EC connection dimensions

1	for centering $\varnothing 8 \pm 0.1$ for M5 threads	3	for bore holes $\varnothing 8 \pm 0.1$ for M5 threads
2	Centering $\varnothing 8$ (2x)	4	Centering $\varnothing 8$ (4x)



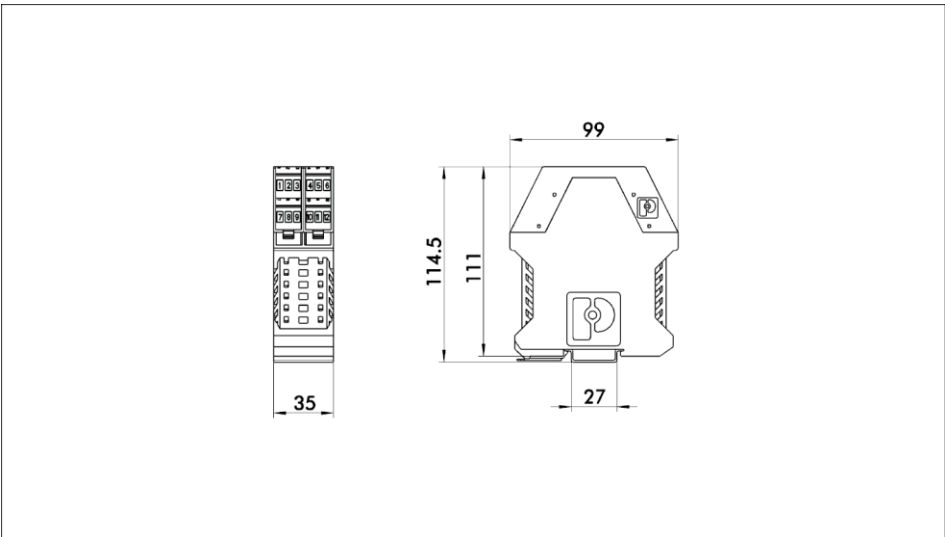
7.1.2 Controller MEG C 50

The MEG C controller is mounted to a mounting rail as per EN 50022 via the metal foot locking device.



MEG C 50 mounting

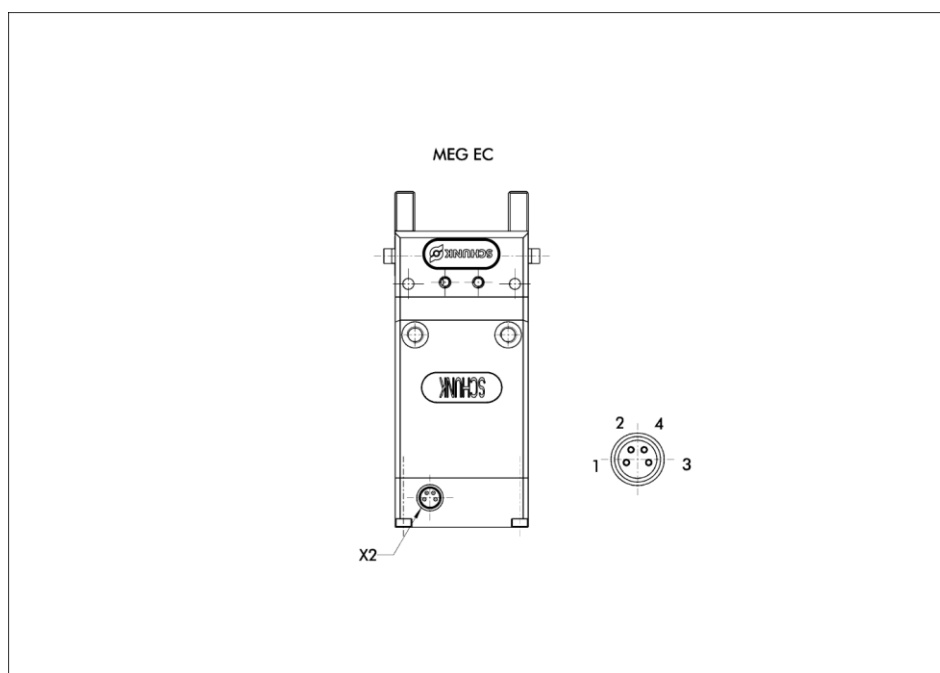
1	Terminals for PLC	3	Assembly on mounting rail as per EN 50022
2	Terminals for MEG-EC assembly on mounting rail as per EN 50022		



MEG C 50 dimensions

7.2 Electrical connection

7.2.1 Connector assignment MEG EC



X2 device plug on the MEG 40 EC

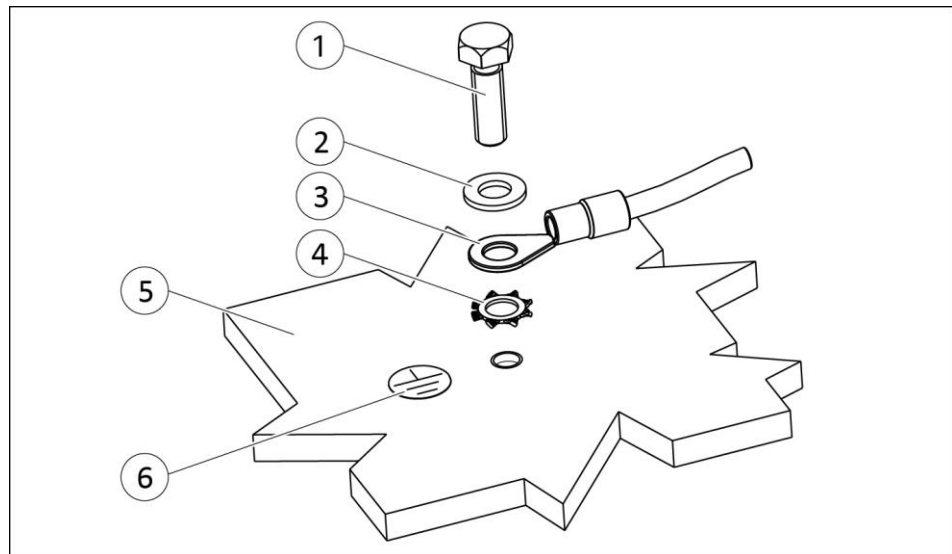
X2 device plug pin assignment

Pin	Function
1	Connection 1 motor
2	Connection 2 motor
3	Connection 3 motor
4	Connection 4 motor

7.2.2 Terminal assignment MEG C 50

Terminal	Function	Miscellaneous	Cable color
1	Connection 3 motor	Connection for MEG 50 EC	Blue
2	Shield (gripper connecting cable PE)	Connection for MEG 50 EC	
3	Connection 4 motor	Connection for MEG 50 EC	Black
4			
5			
6	GND for position output	GND analog output	
7	Connection 1 motor	Connection for MEG 50 EC	Brown
8			
9	Connection 2 motor	Connection for MEG 50 EC	White
10	Supply (+24 V)	24 VDC \pm 2%	
11	External reset	Digital input	
12	Supply (GND)	GND	
13	Gripper stopped	Digital output	
14	Reference run carried out	Digital output	
15	Analog position output (0-5V)	Analog output	
16	24V PLC	24 VDC \pm 10%	
17	GND PLC	GND, potential of PLC	
18	Target position reached	Digital output	
19	Reference run	Digital input	
20	Gripper closed	Digital input	
21	Gripper open	Digital input	
22	Analog input: Speed	0V-10V (to the GND PLC)	
23	Analog input: Steps	0V-10V (to the GND PLC)	
24	Analog input: Force	0V-10V (to the GND PLC)	

7.2.3 Connecting ground cable



Ground connection

1	Screw	4	Toothed lock washer
2	Plain washer	5	Product
3	Cable lug	6	Ground marking



A ground connection must be established between the product and the machine on the customer's premises.

The ground cable must be mounted on the threaded hole identified by the ground marking. If there no such threaded hole available, mount the ground cable on another unused threaded hole on the product.

NOTE

Do not mount the ground cable on a threaded hole that is already used mechanically for something else, e.g. for screwing on an accessory.

Always mount the ground cable singly.

Always use all components of the screw connection and install them in this order: plain washer, cable lug, and toothed lock washer. See "Ground connection" diagram.

8 Start-up and functional description

8.1 Notes on start-up

The control cable must be de-energized when connecting to the gripper.

The workpiece to be gripped should then be gripped in "live movement" mode.

The current at the input "Analog input: steps" (terminal 23) must correspond to the distance from the current position to the position which you wish to use for pre-positioning. Resulting from a rising edge on the inputs "Gripper open" or "Gripper closed", the gripper moves inwards or outwards by the distance set. Monitoring of the output "Target pos. reached".

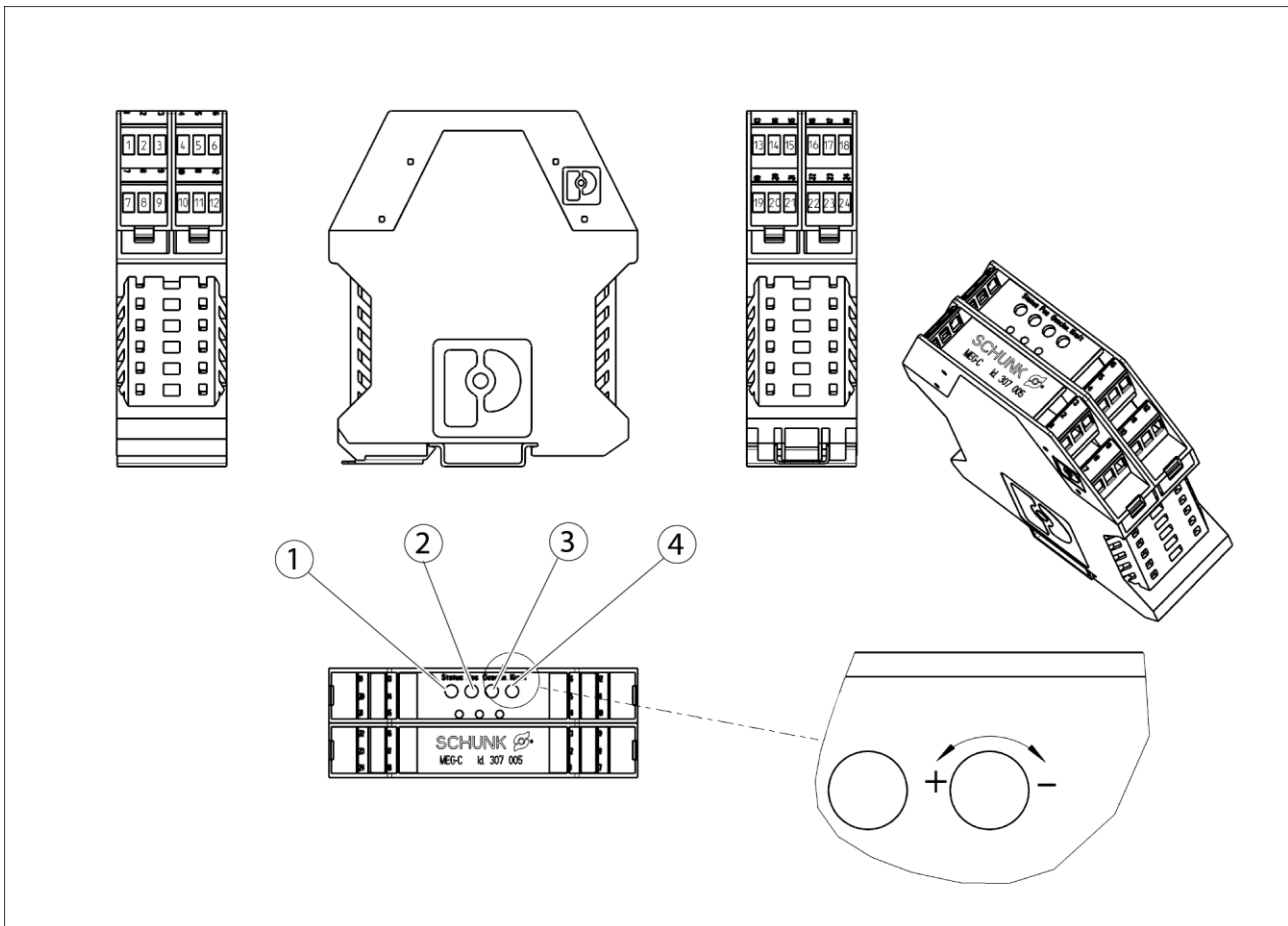
Prepositioning reached - output issues high signal.

The gripper is prepositioned in "positioning movement" mode, then the workpiece is gripped in live movement. The gripper can be prepositioned accordingly and the gripping cycle can start anew.

8.2 MEG 50 EC and MEG C 50 connection description

The MEG 40 EC does one stroke of 8 mm per jaw.

Stroke, force and speed can be set on the external MEG C controller via analog inputs or potentiometers. Gripper functionalities such as opening, closing and reference run are specified via decoupled digital inputs on the MEG C controller. Status signals of the MEG C external controller are sent back to the superordinate control (e.g. PLC) via digital outputs. The current position is issued as analog value.



MEG C

1	"Status" LED	3	Speed (P2)
2	Position (P3)	4	Force (P1)

The MEG C external controller for actuating the MEG EC gripper has three potentiometers:

- P1: Adjusting the gripping force
- P2: Adjusting the gripping speed
- P3: Adjusting the traverse path / the position (incremental input of the relative value)

Each potentiometer is assigned a measuring jack, on which the voltage set can be tapped for measuring.

The "Status" LED provides information about possible operating statuses of the controller and about problems in the event of a malfunction. The possible causes for malfunctions that can be displayed by the Status LED are listed in the chapter on Problem Analysis.

The MEG C controller (terminals 1, 3, 7, 9) is connected via a 4-pin control cable on the X2 device plug of the MEG EC gripper. We offer prefabricated control cables for this purpose (👉 accessories in the catalog).

For the allocation of further inputs and outputs / voltage supplies, see the terminal configuration ([🔗 7.2.2, Page 16](#))

To operate the MEG C 40 with the MEG 40 EC, at least the following terminals need to be connected:

- Supply voltage (terminals 10 and 12)
- Supply voltage of the digital I/Os (terminals 16 and 17)
- Connection of the MEG 40 EC gripper (terminals 1, 3, 7, 9)
- Digital inputs "Gripper open" (terminal 21) and "Gripper closed" (terminal 20)

The other inputs and outputs must be assigned in accordance with the application or relevant case. After connecting the supply voltage, the Status LED flashes six times and then lights up continuously. The MEG C controller is then ready for operation. If the Status LED flashes constantly after switching on the MEG C, this indicates a malfunction and you will need to perform a fault analysis

A new command is always carried out with a rising edge on the digital inputs. This command in turn is completed with a falling edge. During command execution it must be ensured that the input signal does not bounce.

The gripper opens if a rising edge is identified at the "Gripper open" input. In the event of a falling edge, the command is ended, and the gripper stops. This works in the same way for the "Gripper closed" input. It is necessary to end the previous command with a falling edge before a new command is executed. In other words, it is imperative to ensure that the previous command was ended with a falling edge.

8.3 Performing a reference run

The reference run is only required if the analog output "Analog position output" (terminal 15) is to be used in the application. A reference run can be performed outward or inward.

Procedure

- 1 Apply a High signal to the digital input "Reference run" (terminal 19).
- 2 In the case of a reference run outward, apply a High edge to the digital input "Gripper open" (terminal 21).
- 3 In the case of a reference run inward, apply a High edge to the digital input "Gripper closed" (terminal 20).
- 4 Wait until the digital output "Reference run performed" (terminal 14) has been set to high.
- 5 After having performed the reference run, set the inputs "Reference run" and "Gripper open" or "Gripper closed" to Low signal.

After performing the reference run, a High signal is issued at the digital output "Reference run performed" (terminal 14). A High level will be applied at the output until the voltage supply is switched off or the external reset is actuated or a new reference run is triggered.

8.4 Position mode

In order to attain an economical cycle time in an automation process, we recommend prepositioning the claw jaws. This means that the gripper is moved to a position that is minimally "larger" (with O.D. grippers) or "smaller" (with I.D. grippers) than the workpiece to be gripped. For this purpose, the "position mode", i.e. step mode is used. The distance the gripper is to cover from the current position towards "open" or "closed" is in this mode specified by "Analog input: Position" (terminal 23) or by potentiometer "Pos." (potentiometer P3).

This means that the stroke that the gripper performs depends on the analog voltage value that is present at the input or the potentiometer. This analog value must be present prior to execution of the "Gripper open" or "Gripper closed" command.

If the gripper moves to an end position or onto a workpiece in position mode, the current movement command is reset and the gripper stops. The superordinate control unit only receives the digital signal "Gripper stopped" (terminal 13), but not the "Target position reached" signal (terminal 18).

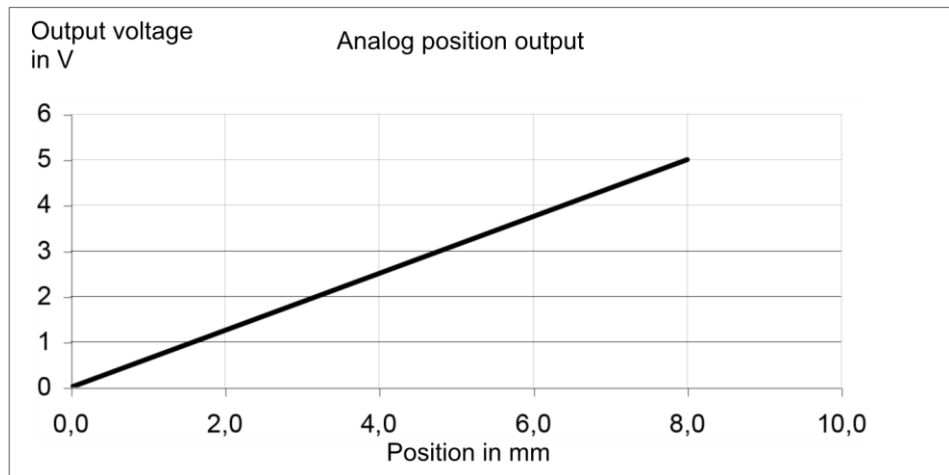
Procedure

- 1 Specification of the distance the gripper is to travel at the "Analog input: Position" (terminal 23) or at the potentiometer "Pos." (potentiometer P3) - (specification applies as of the current position).
- 2 The analog values for speed ("Analog input: Speed" (terminal 22) or potentiometer "Speed" (potentiometer P2) and force ("Analog input: Force" (terminal 24) or potentiometer "Force" (potentiometer P1) must also be present prior to command execution (the desired values can be found under "Analog inputs").
- 3 With a rising edge on one of the two digital inputs "Gripper open" (terminal 21) or "Gripper closed" (terminal 20) the new gripping position is approached by the specified value.
- 4 During the movement the digital output "Gripper stopped" (terminal 13) becomes low.
- 5 The gripper movement can be measured via the output "analog position output".
- 6 After successful performance of a positioning movement, a High signal is issued at the "Target-pos. reached" output (terminal 18) and at the digital output "Gripper stopped" (terminal 13).

After successful performance of a positioning movement, a High signal is issued at the output "Target pos. reached" (terminal 18). Successful performance of the positioning movement means that the gripper could perform the stroke travel that was specified by the analog value. If the next travel command is specified, a Low signal is again issued at the output.

The output "Analog position output" (terminal 15) issues the current gripper position in the form of an analog value after each reference run and at any point in time.

The following diagram shows in which way the output voltage and the position of the gripper are connected.



Connection between analog position output (terminal 15) and position of the gripper

Note that the position may drift due to step losses. To counter this drift, we recommend performing another reference run before the deviation is too large for the application.

NOTE

If precise measurements are necessary, it is recommendable to adjust the output voltage once (this will not prevent a position output drift).

Procedure

- 1 Reference gripper "internally" or "externally".
- 2 Insert gauge blocks with regard to the gripping positions approached later.
- 3 Open or close gripper.
- 4 Measure the output voltage for each gauge block and use it as the reference voltage for the respective position.

During operation of the gripper in the automated system, these reference voltages can then be compared with the analog output signal "Position output" (terminal 15) (e.g. in order to start further actions). Depending on the required precision and due to the position output drift, all x-cycles must be re-referenced (High signal on "Reference run [terminal 19] + High edge on "Gripper open" (terminal 21) or "Gripper closed" (terminal 20). In the case of high demands on the precision of the output "Analog position output", we recommend performing a reference run before each gripping cycle.

(x must be determined experimentally in the application)

8.5 Live mode

In order to safely grip a workpiece, it is recommendable to perform the gripping procedure in "live movement" mode.

Procedure

- 1 The voltage at the input "Analog steps" (terminal 23) and at the "Pos." potentiometer (potentiometer P3) must be set to 0V.
- 2 The analog values for speed ("Analog input: Speed" (terminal 22) or potentiometer "Speed" (potentiometer P2) and force ("Analog input: Force" (terminal 24) or potentiometer "Force" (potentiometer P1) must be set to the application-specific value (the desired values can be found under "Analog inputs").
- 3 Due to a rising edge at the digital inputs "Gripper open" (terminal 21) or "Gripper closed" (terminal 20), the gripper opens or closes based on the preset force. During the gripper finger movement, the digital output "Gripper stopped" (terminal 13) issues a Low signal.
- 4 If the gripper moves to the workpiece stop, the output "Gripper stopped" (terminal 13) issues a High signal; the gripper is, however, further supplied with electrical current.
- 5 The workpiece is safely gripped until the signal on the input "Gripper open" (terminal 21) or "Gripper closed" (terminal 20) is reset by a falling edge.

8.6 External reset

When applying a rising and then a falling edge at the input "Reset", a reset is performed in the internal micro-processor. This means the gripper immediately stops and all outputs are reset. The next command that arrives is then performed entirely normally.

The controller takes about 5 seconds to perform a reset.

8.7 Analog set values

The analog values can either be specified by the PLC or entered directly on the gripper control. Setting these values in the gripper control is done via the potentiometers that are accessible via the housing top of the MEG C 40 controller. The analog voltages that are set via the potentiometers can be measured via the corresponding measuring jacks.

When applying analog voltages (level > 0.2 V) to the corresponding inputs (terminals 22, 23, 24) of the gripper control, the preset potentiometer values are ignored.

If the analog values are to be set via the gripper control (potentiometer), there must not be any voltage on the external analog inputs (put inputs onto GND, if possible).

If the analog voltages are specified by the PLC, it is recommendable that the internal analog voltages are set to 0 V on the potentiometers.

You can also combine external (via PLC) and internal (via the potentiometers) specifications. If, for instance, the position movement is to be automated in a process and the force and gripper speed are to remain unchanged, then these two values can be set at the Electronics using the potentiometers and the value for the position is specified separately (PLC).

In the event of external voltage specification and due to slight changes in the voltage values, the set values, steps, force and speed may change as well. Ensure that the voltage values do not change to an extent (unintended) that would make damage to the workpiece possible as a result of the gripping process.

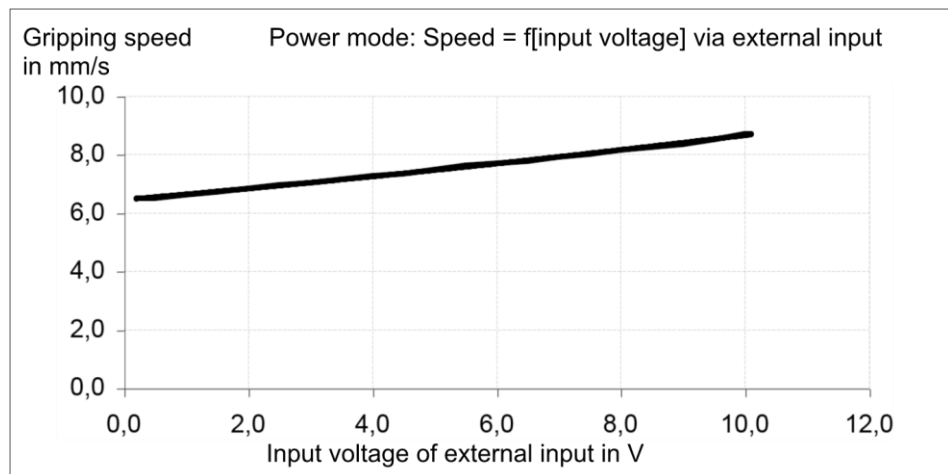
8.7.1 Gripping speed - specification

The speeds in the two modes can differ despite identical analog "Speed" set value. This is due to the fact that the maximum speed in live mode is significantly smaller than the maximum speed in position mode.

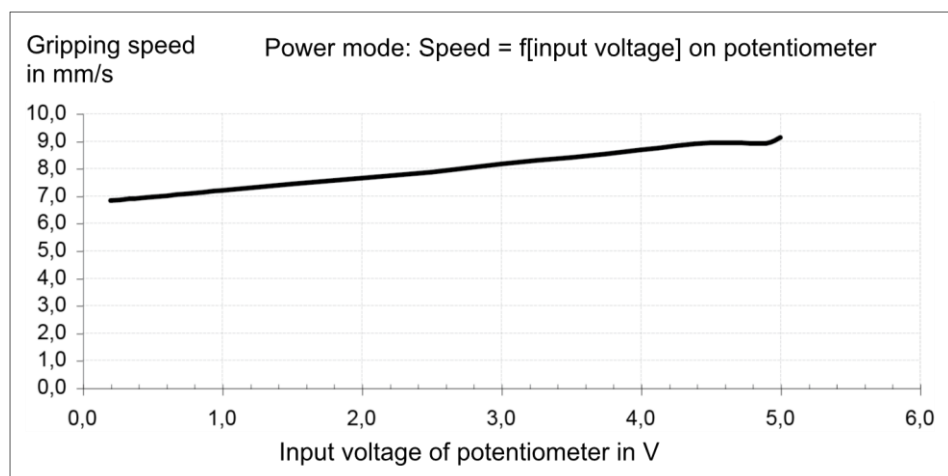
NOTE

. Note that the gripper does not travel to the end positions or to a workpiece with this setting (position mode and maximum speed specification). Otherwise the position value for the analog position output (terminal 15) will be lost. Another reference run would then be necessary to feed back the correct position value to the superordinate control.

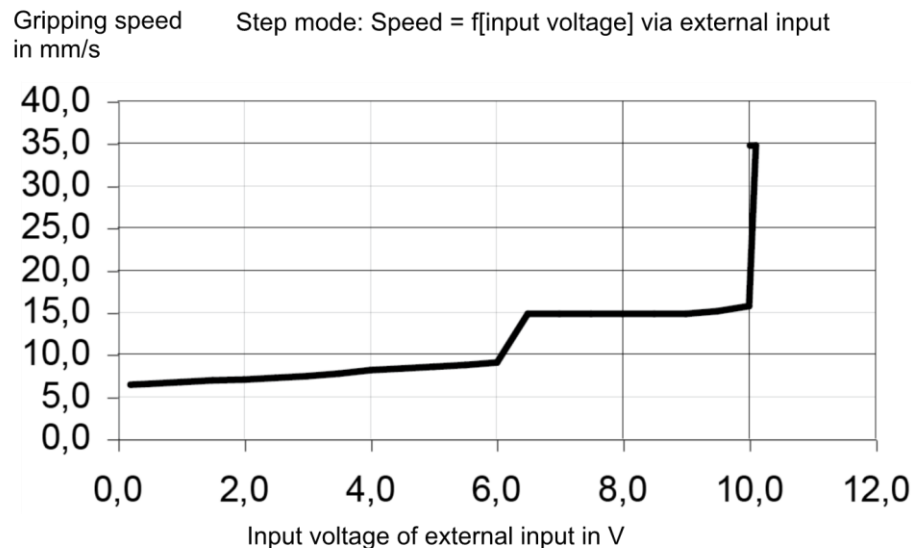
The diagrams below show the connection between the speed and the input voltage of the external input "Speed" (terminal 22) or the "Speed" potentiometer (potentiometer P2).



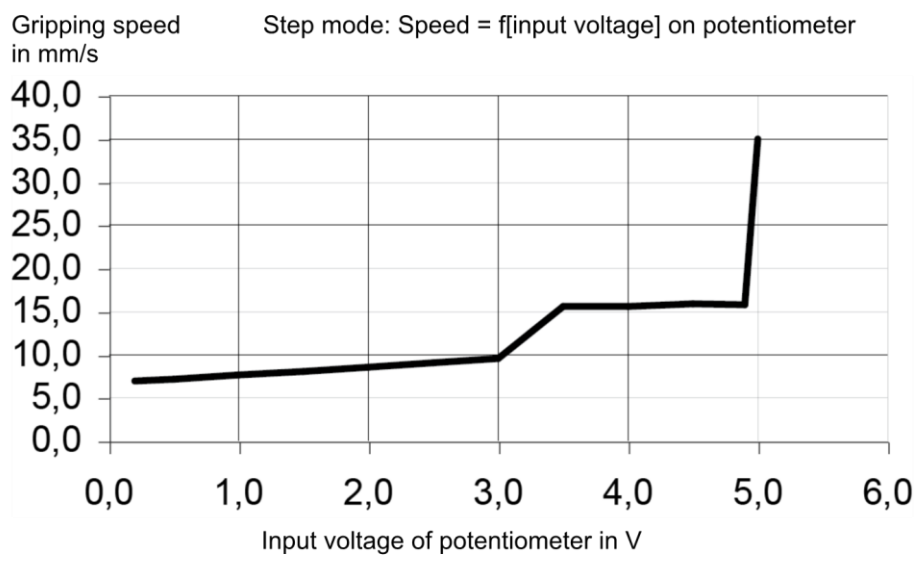
Speed in live mode in relation to external analog input "Speed" (terminal 22)



Speed in live mode in relation to input voltage on the "Speed" potentiometer (potentiometer P2)



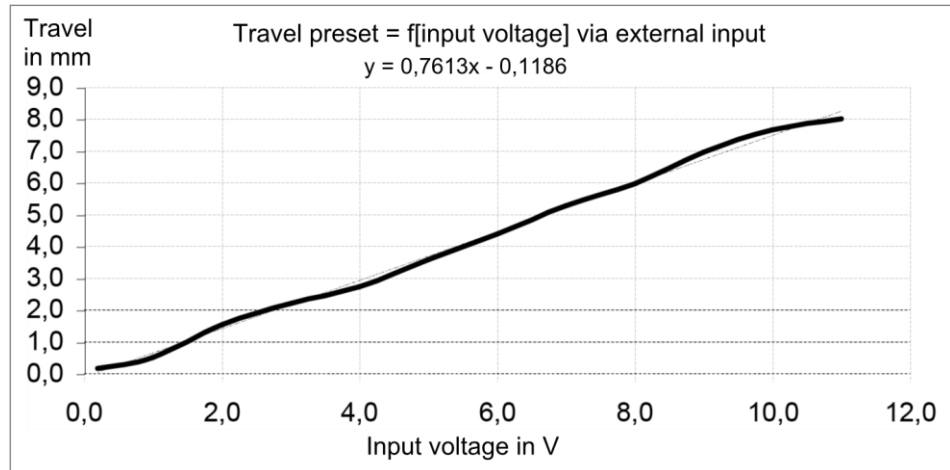
Speed in step/position mode in relation to the external analog input "Speed" (terminal 22)



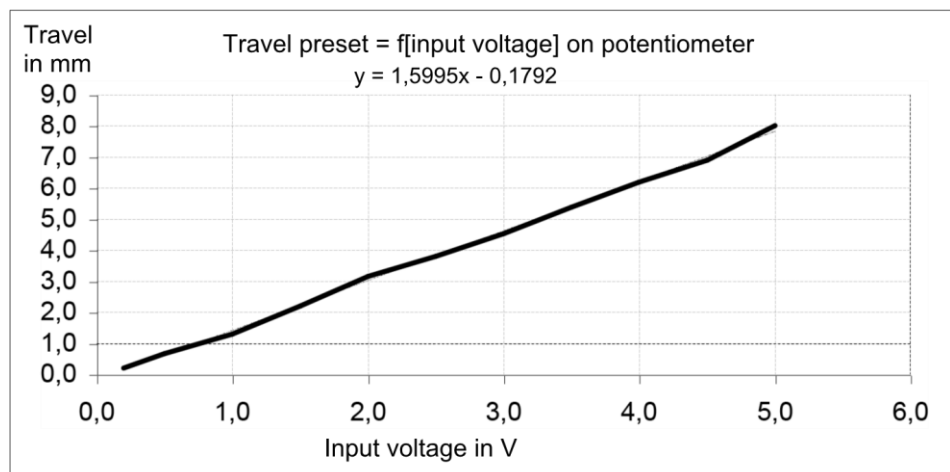
Speed in step/position mode in relation to input voltage on the "Speed" potentiometer (potentiometer P2)

8.7.2 Step - specification

The following diagram shows the relative traverse path when the input voltage is specified at the analog input "Steps" (terminal 23). The next diagram shows the relative traverse path when the voltage is specified via the "Pos." potentiometer (potentiometer P3) on the MEG C 50 controller.



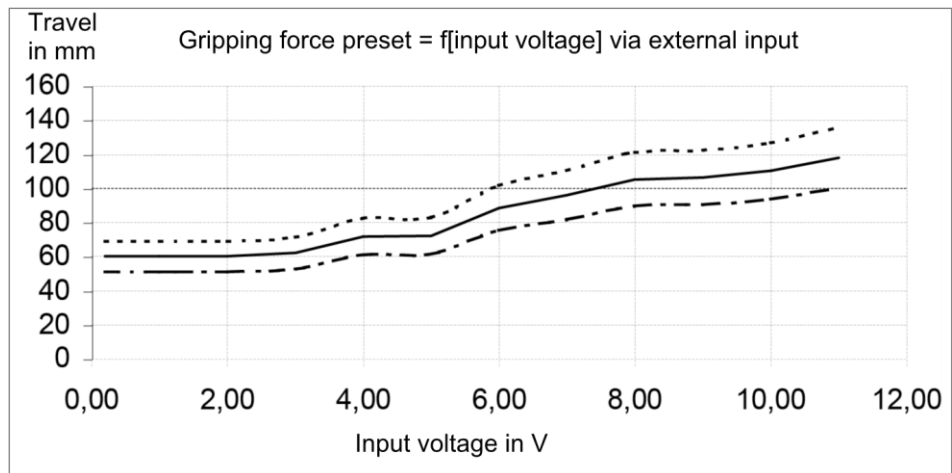
relative traverse path when analog voltage is specified on (terminal 23)



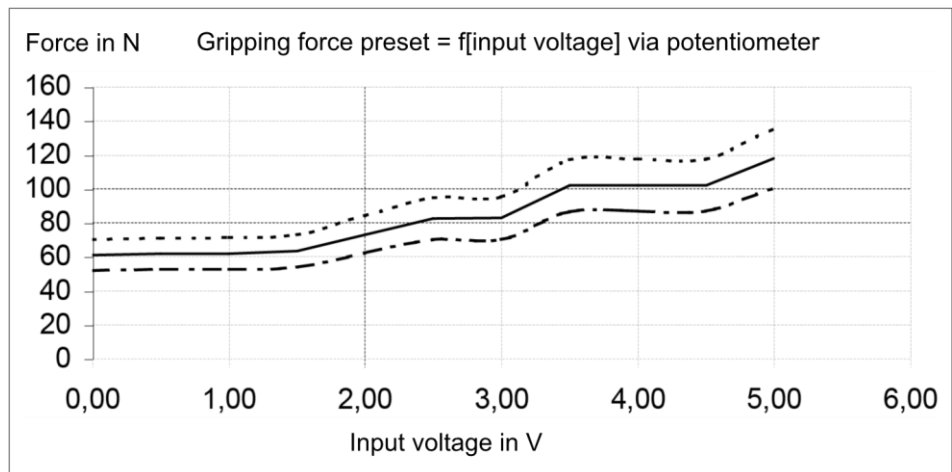
relative traverse path when analog voltage is specified via Poti "Pos." (P3)

8.7.3 Gripping force - specification

For system-related reasons (e.g. friction in the gripper and torque fluctuations), fluctuations of $\pm 15\%$ are possible when setting the force. To set the gripping force approximately, it suffices to set the gripping force via the "Force" potentiometer (P1) or the external input "Force" (terminal 24). The following two diagrams show the connection between the gripping force and the input voltage of the external input "Force" (terminal 24) or the "Force" potentiometer (potentiometer P1) in the event of finger length $P = 50 \text{ mm}$.



Gripping force when the analog voltage is specified on (terminal 24)



Gripping force when the analog voltage is specified via Poti "Force" (P1)

(* Gripping force is the arithmetic sum of the individual forces acting on the gripper jaws at a distance of $P=20\text{mm}$.)

8.8 Example of a possible gripping cycle

In order to attain an economical cycle time in an automation process, we recommend first prepositioning the claw jaws and then gripping in live mode. The following example intends to present the actuation steps required for such a gripping cycle.

First the claw jaws travel to a position that is minimally "larger" (with O.D. grippers) or "smaller" (with I.D. grippers) than the workpiece to be gripped. For this purpose, the "position mode", i.e. step mode is used.

The distance the gripper is to cover from the current position towards "open" or "closed" is in this mode specified by "Analog input: Position" (terminal 23) or by potentiometer "Pos." (potentiometer P3). This analog value as well as the specifications for force and speed must be present before executing the command "Gripper open" or "Gripper closed" in position mode. After successful performance of a positioning movement, a High signal is issued at the "Target-pos. reached" output (terminal 18) and at the digital output "Gripper stopped" (terminal 13). Now the specification for the stroke ("Analog input: Position" (terminal 23)) or on the "Pos." potentiometer (potentiometer P3) is set to zero Volt so as to switch from the position mode to the live mode. The live movement is started via the "Gripper open" or "Gripper closed" command. The set value for the gripping force can be changed during live movement. The gripping force then simultaneously changes to the set value. During the gripper finger movement, the digital output "Gripper stopped" (terminal 13) issues a Low signal. If the gripper fingers move to the workpiece stop, the output "Gripper stopped" (terminal 13) issues a High signal; the gripper is, however, further supplied with electrical current. The workpiece is safely gripped until the signal on the input "Gripper open" (terminal 21) or "Gripper closed" (terminal 20) is reset by a falling edge. If the workpiece is located in its place, the input "Gripper open" (terminal 21) or "Gripper closed" (terminal 20) (and with this live movement) is reset and the gripper is opened again in position movement, due to the specification on the "Analog input: Position" (terminal 23) or on the "Pos." potentiometer (potentiometer P3).

Procedure

- 1 Specification of the distance the gripper is to travel at the "Analog input: Position" (terminal 23) or at the "Pos." potentiometer (potentiometer P39) - (specification applies as of the current position).

- 2 The analog values for speed ("Analog input: Speed" (terminal 22) or potentiometer "Speed" (potentiometer P2) and force ("Analog input: Force" (terminal 24) or "Force" potentiometer (potentiometer P1) must also be present prior to command execution (the desired values can be found under "Analog inputs").
- 3 With a rising edge on one of the two digital inputs "Gripper open" (terminal 21) or "Gripper closed" (terminal 20) the new gripping position is approached by the specified value.
- 4 During the movement the digital output "Gripper stopped" (terminal 13) becomes low.
- 5 The gripper movement can be measured via the output "analog position output".
- 6 After successful performance of a positioning movement, a High signal is issued at the "Target-pos. reached" output (terminal 18) and at the digital output "Gripper stopped" (terminal 13).
- 7 The voltage at the input "Analog steps" (terminal 23) and at the "Pos." potentiometer (potentiometer P3) must be set to 0V.
- 8 The analog values for speed ("Analog input: Speed" (terminal 22) or potentiometer "Speed" (potentiometer P2) and force ("Analog input: Force" (terminal 24) or potentiometer "Force" (potentiometer P1) must be set to the application-specific value (the desired values can be found under "Analog inputs").
- 9 Due to a rising edge at the digital inputs "Gripper open" (terminal 21) or "Gripper closed" (terminal 20), the gripper opens or closes based on the set force. During the gripper finger movement, the digital output "Gripper stopped" (terminal 13) issues a Low signal.
- 10 If the gripper moves to the workpiece stop, the output "Gripper stopped" (terminal 13) issues a High signal; the gripper is, however, further supplied with electrical current.

8.9 Table of functions

The functions of the terminals are as described in the following table:

MEG C terminal actuation

Terminal	Function	Description
11	Reset	0V → no function; 24V → MEG C reset
13	Gripper stopped	0V → gripper travels; 24V → standstill
14	Reference run carried out	0V → not carried out; 24V → carried out
15	Analog position output	0V – 5 V (approximately current position); (0V inside; 5V outside)
18	Target position reached	0V → target position not reached; 24V → target position reached
19	Reference run	0V → standstill; 24V → execute command (with gripper open or closed)
20	Gripper closed	0V → standstill; 24V → execute command
21	Gripper open	0V → standstill; 24V → execute command
22	Speed preselection	0.2V - 10 V
23	Step preselection	0.2V - 10 V
24	Force preselection	0.2V - 10 V

MEG C table of functions

Input control function of gripper	Reference run (terminal 19)	Gripper open (terminal 21)	Gripper closed (terminal 20)	Analog speed specification [V]	Analog step specification [V]	Analog force specification [V]	Reset (terminal 11)
Reference run open	H	┐	L	0*	0*	0*	L
Reference run closed	H	L	┐	0*	0*	0*	L
Gripper open [number of steps]	L	┐	L	0V-10V (extern) 0V-5V (Poti)	0V-10V (extern) 0V-5V (Poti)	0V-10V (extern) 0V-5V (Poti)	L
Gripper closed [number of steps]	L	L	┐	0V-10V (extern) 0V-5V (Poti)	0V-10V (extern) 0V-5V (Poti)	0V-10V (extern) 0V-5V (Poti)	L
Gripper open [live mode]	L	┐	L	0V-10V (extern) 0V-5V (Poti)	0V **(extern) 0V** (Poti)	0V-10V (extern) 0V-5V (Poti)	L
Gripper closed [live mode]	L	L	┐	0V-10V (extern) 0V-5V (Poti)	0V **(extern) 0V** (Poti)	0V-10V (extern) 0V-5V (Poti)	L
Reset	L	L	L	0*	0*	0*	┐

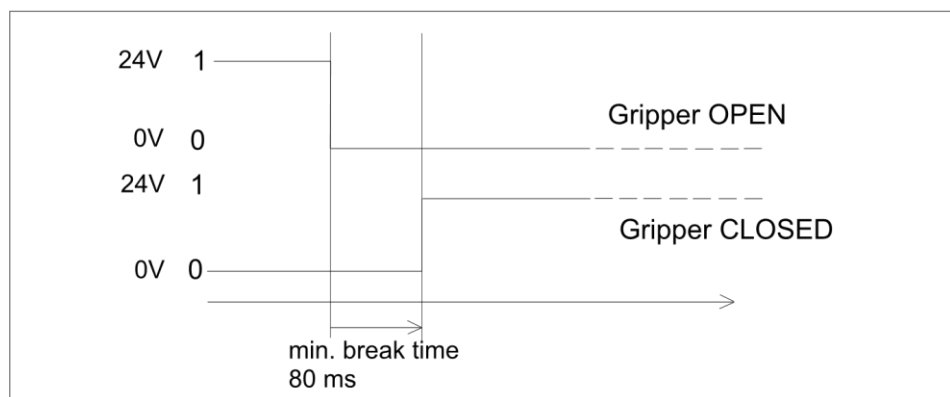
Legend:

H = 24 V DC

L = GND

* = not mandatory

** = mandatory



Minimal rest period between 2 commands

9 Troubleshooting

9.1 Status LED flashing

Status LED	Possible cause	Troubleshooting
LED on the controller does not flash 6 times briefly when switching on	No power supply	<ul style="list-style-type: none"> • Check power supply on the controller • Repeated switching off and on of the power supply
LED on the controller does not light up after the process of switching on is complete	No power supply	<ul style="list-style-type: none"> • Check power supply on the controller
LED on controller flashes continuously (approx. once per sec.)	<ul style="list-style-type: none"> • Gripper not connected • Cable breakage 	<ul style="list-style-type: none"> • Check connection of the gripper to the controller and correct if necessary • Check the coil resistances of the motor cables to each other: approx. 8.2 Ohm
LED on controller flashes continuously (approx. once every 2 sec.)	Excessive temperature on the controller	<ul style="list-style-type: none"> • Lower gripping force set value • Provide sufficient cooling for controller
LED on controller flashes continuously (approx. once every 4 sec.)	Under- or overvoltage	<ul style="list-style-type: none"> • Check power supply on the controller
LED on controller flashes continuously (approx. 4 times every 1 sec.)	Overcurrent warning	<ul style="list-style-type: none"> • Lower gripping force set value
-	Spindle / spindle nut defective (overload)	<ul style="list-style-type: none"> • The gripper can only be repaired at the factory!
-	Fingers are mechanically jammed	<ul style="list-style-type: none"> • Check whether the adapter plate is stepped (only in the case of lateral attachment)

9.2 The module does not travel through the entire stroke?

Possible cause	Corrective action
Dirt deposits between the base jaws and the guide	Disassemble and clean module.
Mounting surface is not even enough	Check the levelness of the bolting surface.
Component is broken, e.g. through over-loading	Send the module to SCHUNK with a repair order or disassemble module.

9.3 The gripping force drops?

Possible cause	Corrective action
Too much grease in the mechanical motion spaces of the module	Clean the module and relubricate it. (👉 10, Page 36)

9.4 Module opens or closes abruptly?

Possible cause	Corrective action
Too little grease in the mechanical guiding areas of the module	Clean the module and relubricate it. (👉 10, Page 36)
Mounting surface is not even enough	Check the levelness of the bolting surface.
Load too high	Review permissible weight and length of the jaws.

10 Maintenance and care MEG EC

10.1 Notes

Original spare parts

When replacing damaged parts (wearing parts/spare parts) only use SCHUNK original spares.

Replacement of housing and base jaws

The base jaws and the guides in the housing are matched to each other. To have these parts replaced, send the complete module along with a repair order to SCHUNK.

10.2 Maintenance and lubrication intervals



NOTICE

At ambient temperature above 60°C the lubricants can harden faster.

- Interval decrease accordingly.

Size	MEG 50 EC
Interval [Mio. cycles]	2

10.3 Lubricants/Lubrication points (basic lubrication)

SCHUNK recommends the lubricants listed.

During maintenance, treat all greased areas with lubricant. Thinly apply lubricant with a lint-free cloth.

Lubricant point	Lubricant
Metallic sliding surfaces	Molykote® TP42

10.4 Maintenance

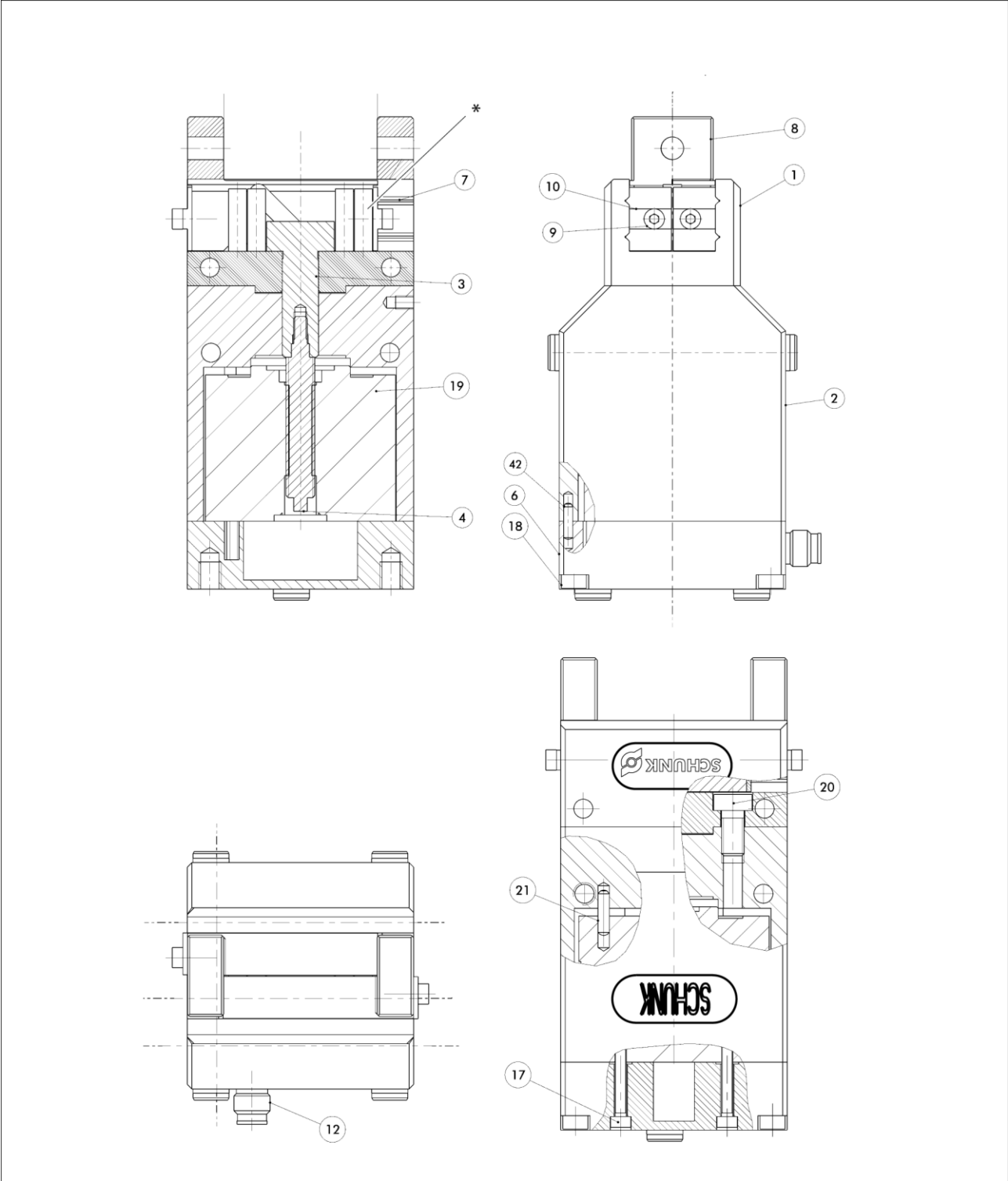
Please note the following in order to maintain the gripper's function:

- The gripper must be programmed to travel the entire stroke at least once a day.
- Avoid excessive contamination.
- Oil or grease bare external steel parts.
Always use dried air.
- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.
- Do not expose gripper drilling emulsions.
- Observe the bending radii when laying the cables. Avoid torsion movements in all cases.
- Repeat accuracy of the gripping force: $\pm 15\%$

The breakaway force may vary a lot from gripper to gripper.

When changing a gripper, the breakaway force must be determined in the superordinate control prior to start-up.

11 Assembly drawing



MEG 50 EC assembly drawing and cross-section

*	Bearing bolt NRB Ø4 (4x)
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12 Translation of original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1.B of the European Parliament and of the Council on machinery.

Manufacturer/ SCHUNK GmbH & Co. KG Spann- und Greiftechnik
Distributor Bahnhofstr. 106 – 134
D-74348 Lauffen/Neckar

We hereby declare that on the date of the declaration the following incomplete machine complied with all basic safety and health regulations found in the directive 2006/42/EC of the European Parliament and of the Council on machinery. The declaration is rendered invalid if modifications are made to the product.

We hereby declare that the following product:

Product designation: Electrical parallel gripper / MEG50 EC / elektric
and Controller MEG C 50
ID number 0306010 and 0307005

The incomplete machine may not be put into operation until conformity of the machine into which the incomplete machine is to be installed with the provisions of the Machinery Directive (2006/42/EC) is confirmed.

Applied harmonized standards, especially:

EN ISO Safety of machinery - General principles for design - Risk assessment
12100:2011-03 and risk reduction

The manufacturer agrees to forward on demand the relevant technical documentation for the partly completed machinery to state offices.

The special technical documents according to Appendix VII, Part B belonging to the incomplete machine have been compiled.

Person authorized to compile the technical documentation:
Robert Leuthner, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, February 2016

p.p. Ralf Winkler,
Head of Gripping Systems Development

