



EN Installation manual







further information webcode: GW-1282

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1 LED displays



LED conditions							
	lit (on)	~	irrelevant	-	flashes	\bigcirc	off

"DS" LED codes

The **DS** LED is the actuator LED and is identical for all bus system types.

LED state		Meaning
Off	\bigcirc	The actuator amplifier does not have a supply voltage or the actuator is faulty.
Flashing green	- `	The actuator amplifier is in functional state but output stage is disabled.
Flashing red	-	The actuator amplifier is in error state and output stage is dis- abled.
Flashing yellow	÷.	The actuator amplifier is in warning state and output stage is disabled.
Flashing yellow, green	-	The actuator amplifier is in warning state and the output stage is enabled.
Lit up green		The actuator amplifier is in functional state and the output stage is enabled.
Flashing red, green	-	The actuator amplifier is in firmware update state.

"MS" LED codes

Ethernet/IP: The **MS** LED indicates the module state.

LED state		Meaning
Off	\bigcirc	The bus module does not have a supply voltage or is faulty.
Flashing green, red, green	-	The bus module is performing its power-on test.
Flashing green	.	Standby: The bus module is not configured (for example, no network cable is connected).
Flashing red	-	The bus module is in an error state but the error can be reset.
Lit up red		The bus module is in an error state and the error cannot be re- set. Restart the actuator.

LED state	Meaning
Lit up green	The bus module is functioning faultlessly.

"NS" LED codes

Ethernet/IP: The **NS** LED indicates the fieldbus state.

LED state		Meaning
Off	0	The bus module does not have an IP address (or does not have a supply voltage or is faulty).
Flashing green, red, off	÷.	The bus module is performing its power-on test.
Flashing green	÷.	An IP address is configured but there is no active CIP connec- tion.
Flashing red	-)	An IP address is configured but a time out has occurred.
Lit up red		The bus module has recognized that its IP address is already being used
Lit up green		The bus has an IP address and there is at least one active CIP connection (no time out).

2 Electrical installation

NOTICE

The controller can be operated using the ProfiNET, EtherCAT or Ethernet/IP communication interfaces. The factory setting is ProfiNET. The communication interface can be changed via a software update.

2.1 Controller with protection class IP65



- 1. Connecting the motor:
 - ⇒ Connect the actuator to connection X8. Make sure that the dot on the plug is pointing outwards.
- 2. Connect the power supply.
 - \Rightarrow Connect the power supply unit cable to connection X1. The dot on the plug should be facing inwards.
- 3. The controller should be initially commissioned either via a network cable or USB cable:
 - ⇒ Connection via network (TCP/IP communication): Connect the M12 plug of the network cable (green cable) to the X3 controller and the RJ45 network plug to the computer.
 - ⇒ Note: If no network interface is available, a USB network adapter can be used.
 - ⇒ Connection via USB communication: Connect the M12 plug of the USB cable to the X4 controller and connect the USB connector to the computer.
- 4. Switch on the power supply unit.
- 5. Check whether the controller is supplied with power. The LEDs on the controller light up or flash.

2.2 Controller with protection class IP20



- 1. Connecting the motor:
 - ⇒ Connect the actuator to connections X4 and X10 via the motor connection cable.
- 2. Connect the power supply.
 - $\,\Rightarrow\,\,$ Connect the power supply units to connections X1 and X2 .
 - ⇒ The controller should be initially commissioned either via a network cable or USB cable.
 - ⇒ Connection via network (TCP/IP communication): Connect the X6 connection on the controller to the network interface on the PC using a standard network cable.
 - ⇒ Note: If no network interface is available, a USB network adapter can be used.
 - ⇒ Connection via USB communication: Connect the X5 connection on the controller to the USB interface on the PC using a standard USB cable with a USB mini connector.
- 3. Switch on the power supply unit.
- 4. Check whether the controller is supplied with power. The LEDs on the controller light up or flash.

3 MotionGUI 2 software

3.1 Starting software/selecting connection type

- 1. The link for downloading the MotionGUI 2 software can be obtained from your GEMÜ contact person. Please download the software and install it for commissioning.
- 2. Start the MotionGUI 2 software.



- 3. Select the communication interface
 - ⇒ USB communication (USB cable) or
 - ⇒ TCP/IP communication (network cable)

3.2 Design of the software

Menu bar MotionGUI2 File View Tools Help Onabled (F5)	- 🗇 ×
Settings Power Motor Feedback Ommutation Current loop Velocity loop Position loop Limits Homing Units	MotionGUI 2 Image: Communication Image: Communication Image: Motion tasks Image: Scope Image: Parameters Image: Monitor Image: Errors and Warnings Work area
Digital I/O System Service motion Settings area Unts.p. mm, v. mm/s, s. mm/s ^a , u. V, t.Arms	PLC control No Varnings No Errors
	Status bar

Work areas	Function					
Menu bar	Basic functions of the software					
Control panel	Fast access to important and frequently used functions					
Settings range	Determining actuator settings					
Work area	Monitoring and controlling the main functions					
Status bar	Shows the status of the actuator and the communication con- nection					

3.3 Setting language

Einen und date		
Batch Firmware Update	Disabled (F5)	Quick Stop (F12)
Motor Database Update	0	
Language 🕨	English (Unite	d States)
	Batch Firmware Update Motor Database Update	Batch Firmware Update Motor Database Update Language → English (Unite Deutsch (Deutsch (D

- 1. The language is adjustable via the menu bar.
 - \Rightarrow Extras \rightarrow Language **or**
 - $\Rightarrow \text{ Tools} \rightarrow \text{Language}$
- 2. Select language (German or English)

3.4 Help and instructions

	File	View	Tools	Help		
i	0: No	mode		0	About	Dis
Г				0	Show Help	F
				0	Configuration files	

The MotionGUI 2 software also provides help and instructions. Select "**Help**" in the menu bar and then "Display help". The software program help will open.

Under the "Configuration files" item in the "**Help**" menu bar, the configuration files for the relevant controller are provided for connection to PLC systems.

3.5 Establishing the connection to simco® controller

After starting the software and selecting the connection type, the communication view will open in MotionGUI 2 in the work area, to establish the connection to the simco® controller.

- 1. USB communication (see Chapter 3.5.1, page 8).
- 2. Connection via network (ProfiNet, EtherNet/IP and Sercos) (see "TCP/IP communication", page 10).

3.5.1 USB communication

After starting the software and selecting the "**USB communication**" connection type, the communication view will open in the work area, to establish the connection to the simco controller.

M	MotionGL	112				-	٥	\times
1	ile View	Tools Help						
): No mode	~		Disabled (F5)	Quick Stop (F12) Hat (F11) Save to EEPROM Erase EEPROM Connect Clear errors Restart Drive			
	Settings			0	USB Kommunikation 2. 1.			
		Power	┉┝	Motor	Verbinden Trennen Jerät warzog(430603)			
	-	Feedback	Ø	Commutation	Erwetert anzeigen			
	J	Current loop	V	Velocity loop				
	P	Position loop	₽	Limits				
		Homing	er ft	Units				
	10111	Digital I/O		System				

- 1. Select the simco controller using the pull-down menu.
- 2. Under "Device" 1 select the correct simco controller and press Connect 2.
- 3. USB communication is established once the screen below is displayed.

New Wey Description Same target (1) Same target (1) Same target (1) Construction Related One Settings Image: Construction	MotionGUI2	2										-	
Settings Image: Construction (Construction (Constructi	File View 0: No mode	Tools Help	Profile veloc	Disabled (Ouick Stop (E12) Halt (E11)	Save to FEPROM	Frase FEPRO	M Disconnect	Clear errors	Restart Drive	1		
Note Image: Note Image: Note Image:	Settings			0		ation		Main Menu	0		1		
Image: Reedback Image: Commutation Image: Commutation <th></th> <th>Power</th> <th>■</th> <th>Motor</th> <th>Connect Disconner</th> <th>t Device: simo</th> <th>o2[6430603]</th> <th>1</th> <th></th> <th></th> <th></th> <th></th> <th></th>		Power	■	Motor	Connect Disconner	t Device: simo	o2[6430603]	1					
vermet loop velocity loop velocity loop velocity loop	- C	Feedback	Ø	Commutation	Show Advanced								
Pestion loop Imits Homing Imits Imits Imits Digital I/O Imits Service motion Imits PROFInitie PROFInities PROFInities Profinet Profinet Service motion	J	Current loop	V	Velocity loop									
Normag Mins Digital VO System	P	Position loop	Ř	Limits									
Digital I/O System Service motion Service motion So PROFINET PROFINET PROFIdine Settings		Homing	sm.eC Hgsht ∘rft	Units									
Service motion	10111	Digital I/O	۲	System									
Service motion Image: Service motion Image: Service motion PROFINET Image: Profinet Addresses Image: Profinet Settings													
PROFINET Profinet Addresses PROFidrive Settings	Service m	S											
Profinet Addresses Detrings	PROFINE	T											
	Ħ	Profinet Addresses		PROFIdrive Settings									
							_				_		

- 4. When a connection is established, the warning and error fields in the status bar will light up red or green.
- 5. The bus that has been set (communication interface) in controller 1282 is automatically recognized.
- 6. Follow the next steps (see "Checking software versions, carrying out an update and selecting the fieldbus system", page 11).

3.5.2 TCP/IP communication

After starting the software and selecting the "**TCP/IP communication**" connection type, the communication view will open in the work area, to establish the connection to the simco controller.

MotionGUI2	- o ×
Je View Tools Help D: No mode V Disabled (F5)	Ouick Stop (F12) Hat (F11) Save to EEPROM Erase EEPROM Connect V Clear errors Restart Drive
Settings	TCP/IP communication Main meru
Power Motor	5. Connect Discovered PAddress: 0000 4.
Feedback Commutation	Scan devices Z. Network Adapter USB3.0 to Gigabit Ethernet Adapt on v Scan
Current loop Velocity loop	Name Type MAC P-Address Subnet Standard Bask Gateway
Position loop Limits	
Homing Units	
Digital I/O System	Ether/CAT/Sercos Settings PLC P. 192.165.2.4 Permanent save Set Route Subnet Masic 255.255.255.0
Service motion	7. Show Advanced
tišs p:mm, v:mm/s, a:mm/s², u:V, i:Arms	6. PLC control No Warnings No Errors
	NOTICE

- ▶ If the IP settings are already known, points 1–3 can be skipped.
- 1. If there are several network connections/network adapters, select the adapter 1 connected to the simco® controller.
- 2. Press the "Scan" 2 key.
- 3. All available/connected simco® controllers are shown in the list 3.
- 4. The computer IP address 4 and the controller IP address must be in the same IP address area.
 - \Rightarrow The IP settings of the simco controller can also be changed in the list.
- 5. Establish the connection by pressing the "Connect" 5 key.
- 6. Check the power supply.
 - ⇒ Power supply OK: The "No warnings" and "No errors" 6 fields are lit up green.
 - ⇒ Power supply faulty: The "**No warnings**" and "**No errors**" 6 fields are lit up red.
- 7. Further data can be shown by ticking the "Display expanded" 7 box.

MotionGUI2 File View Tools 0: No mode	Help 2.	Quick Slop (F12) Not (F11) Save to EEPROM Erase EEPROM Disconnect Clear errors Restart Drive	
System Device Type Device Sirial Software version Moto Database Version Date Operating hours since last reboot Operating hours enabled	Selection Memu 4. SM2007D-FCS-ET00-0000-80000 4. (#430603 (0.07.2020 17.13.36) (0.07.2020 17.13.36) (0.07.2020 17.13.36) (0.110, 12.01, 12	Version 02.04.04.00 © 2021 WITTENSTEIN cyber motor GmbH All Rights Reserved	
Softwa simco@	re version 3 Controller	Software version MotionGUI PROFRET PLC control Versus Faut USB: simo28458603 tc: 0 (0)	px: 0

3.6 Checking software versions, carrying out an update and selecting the fieldbus system

- 1. Click the "System" key in the settings area
 - \Rightarrow The system data for the simco controller is displayed
- 2. Call up MotionGUI 2 software version via the menu bar "Help", "About"
- 3. Check whether the firmware version of the simco controller and the software version of MotionGUI 2 are identical.
 - ⇒ If the versions are not identical, update the firmware via the menu bar "Extras", "Firmware update".

MotionGUI2			- 0 ×
File View Tools 0: No mode	Help 3: Profile velocity Disabled (F5)	Quick Stop (F12) Hat (F11) Save to EEPROM Erase EEPROM Disconnect Clear errors Restart Drive	
System	Selection Menu	USB communication	
Device Type Device Serial Software version	SM2007D-FCS-ET00-0000-B0000 6430603 02.04.04	Connect Device: smcc2[6430603] Show Advanced <	
Motor Database Version Date Operating hours since last reboot Operating hours Power On	08.07.2020 17:13:36 0 h 15 min 47 s 44 h 1 min 58 s	Actual Firmware Update X Actual Firmware Version: 02.04.04 Terror Firmware Version: 02.04.04.00	
Operating hours enabled	(7 h 35 min 32 s	Communication Interface: Prolimet Target Communication Interface: CNN EtheroCAT Total progress EtherNet/IP EtherCAT SEECOS	
		State 0 of 3	
its p: mm, v: mm/s, a: m	m/s², u: V, i: Arms	PROFINET PLC control Vernings Errors Fault USB: simco2[6430603] tx: 0 (0)	nc 0

4. The product is delivered from the factory with the ProfiNET fieldbus interface. The communication can also be changed to ETHERCAT or Ethernet/IP via a software update.

- 5. The preferred fieldbus interface can be set or changed under the "Firmware update" item in the "Extras" menu bar.
- 6. The preferred bus can be selected from the pull-down menu under Target Communication.
 - $\,\Rightarrow\,\,$ The bus can then be changed by pressing the "Download" key
- 7. After the update, go back to the settings area by pressing the "Selection menu" key (with an arrow).

4 Initial setting and initialization (homing)

4.1 Motor

The Mary Trade Male							
nie View Tools Help	lochy Dea	and (EE)	uisk Step (E12)	Hall (E11) Cave	EEPDOM	France FEDROM Disconnect	Classe
5. Piolite ve	USS		uick Stop (F12)	Har (FTT) Save	ID EEPROM	Erase EEPROM Disconnec	Cleare
Motor Parameters	Selection	Menu	Μ	otion	GL	JI 2 °	
Search Motor							
Motor selection Motor automatical	y detected	~	Ħ	Communication		Motion tasks	
Motor name ALSx030B-020C-	151Bx-HI0xLN-CBN						
Motor ID	68		<i>t</i> ₩₩	Scope		Parameters	
Parameters Brake		- 1				-	
Number of Pole Pairs	4			Monitor	Å	Errors and Warnings	
Motor Phase	0 mm						
Resistance (Terminal - Terminal)	1300 mOhm						
Inductance Q (Terminal - Terminal)	1750 µH						
Inductance D (Terminal - Terminal)	1750 µH						
EMF Gain	48000 µVs						
Inertia	15 e-7 kgm ²						
Peak Current	6.44 Arms						
Continuous Current	2.17 Arms						
Peak Torque	2670 % of Co	nt. Torque					
Continuous Torque	112 mNm						
Torque Constant	50.92 mNm/(Ai	ms)					
Maximum Speed	200 mm/s						
Coil Thermal Constant	228800 ms	~					

- 1. Select the "Motor" key in the settings area.
 - ⇒ The motor should be automatically recognized and "Motor automatically recognized" is displayed in the motor selection field.
- 2. If the motor is not recognized, update the motor database again.
 - ⇒ The database can be updated via the menu bar "Extras", "Motor Database Update".
- 3. Press the "Selection menu" key (with an arrow) to return to the selection menu.

4.2 Units

ofile velocity Disabled (F5) Quict	Stop (F12) Halt (F11) Save to EE	PROM Erase EEPROM Disconnect Clear en
Selection Menu	Motion	GUI 2 °
Linear ~ 1.	Communication	Motion tasks
mm ~ 2.	Scope	Parameters
mm/s² ~ Arms ~	Monitor	Errors and Warnings
v v		
mN 🗸		
mNm ~		
1		
1		
μm / Revolution		
	offe velocity Dualing for Current Curr	offe velocity Execution Merry Court Stars (PT2) Pat (PT1) Seve to EE

1. Select the "Units" key in the settings area.

- ⇒ If the motor has been correctly recognized, "Linear" is displayed for the unit system 1.
- 2. Use the following units **2**:
 - ⇒ Position unit: mm

- ⇒ Rotational speed unit: mm/s
- ⇒ Acceleration unit: mm/s²
- 3. For other displayed units (rotary or counts), these must be amended and confirmed by pressing the "Set units" key 3.
- 4. Press the "Selection menu" key (with an arrow) to return to the selection menu.

4.3 Permanently saving settings

A MotionGUI									
File View	Tools Help								
0: No mode	1: Profile position	Disabled	Quick Stop (F12)	Halt (F11)	Save to EEPROM	Erase EEPROM	Disconnect ~	Clear errors	Restart

The controller has two different storage areas:

- RAM (working memory); settings and motion tasks stored here are only available during operation and are lost when the controller is switched off.
- EEPROM (permanent memory); settings and motion tasks stored here are permanently saved. Upon starting the actuator, the settings and motion tasks from the EEPROM are automatically loaded into the RAM.
- Press the "Selection menu" key (with an arrow) to return to the selection menu.

NOTICE

Important note

Configured settings, e.g. changed limit values or settings for digital inputs and outputs, are initially only saved in the RAM. To save these permanently, you must press "Save in EEPROM" button on the control panel.

4.4 Checking status/monitor window

1. Select the "Monitor" key in the work area.

MotionGUI2		– a ×
File View Tools Help		
O: No mode O: Stop (F12)	It (F11) Save to EEPROM Erase EEPROM Disconnect Clear errors Restart Drive	
Settings Monitor	Main Menu	^
Power Motor Position control v Final target position	Values Miscellaneous 0.013672 mm DC bus voltage 48.2 V	
Feedback Commutation Position command	0.013672 mm DC bus current -0.04 Arms	
Current loop Velocity loop Following error	0.013672 mm Logic supply voltage 47.8 V 0 mm Amplifier temperature 28 °C	
Velocity FFW	mm/s	
Homing Units Multiturn revolutions	o rev Digital Inputs and Outputs	
Digital I/O System Velocity control vo Velocity control vo Velocity control vo Velocity control vo	alues 0 mm/s 0 mm/s 0 DIN 2 DIN 2 DIN 3 DIN 3 DIN 4 DOUT 1 DOUT 1	
Service motion Current control va Torque Adual Current Iq command	alues 0 mNm 0 Arms 0 Brake	
PROFINET Current lq actual Current lq actual	arms Safe Torque Off Input arms Safe Torque Off Input Arms STO	
Profinet Addresses PROFIdrive Settings Voltage Uq actual Voltage Ud actual	0 V Axis homing	
12t actual motor	0.02 Ams	~
Units p: mm, v: mm/s, a: mm/s², u: V, i: Arms	PROFINET PLC control No Warnings No Errors Switch on disabled USB: simco2[6430603]	tx: 0 (0) rx: 0

If homing has still not been carried out, the dot next to "**Axis homing**" will turn red and the engine will not run. An error message may occur upon initial installation of a new actuator. This can be found in the status bar.

- 2. Errors or warnings are then displayed highlighted in red.
- 3. Acknowledge errors and warnings.
 - ⇒ No errors present: The "No warnings" and "No errors" fields are highlighted in green.

4.4.1 Acknowledgement of warnings and errors

Acknowledge errors and warnings in the following ways:

- 1. Right-click on the error or the warning in the status bar and then click on "Clear errors" or "Clear warnings".
- 2. Click on the error or the warning in the status bar.
 - ⇒ The view changes to errors and warnings in the work area. Here, all errors and warnings can be viewed and acknowledged.
- 3. Click on the "Clear error" button in the control panel.

A list of warnings and errors, as well as their CAN, ProfiNet, Ethernet/IP and Sercos parameters, is outlined in the help area of MotionGUI software.

A MotionGUI

	File	View	Tools	Help
÷	0: No	mode		About
Г				Show Help
				Configuration files

- 4. Select "Help" in the menu bar and then "Display help".
 - ⇒ The program help will open.
- 5. Under "MotionGUI" -> "Main work area" -> "Errors and warnings", the errors and warnings are listed in English.

4.4.2 Checking and entering the current limit

- 1. Select the "Limit values" key in the settings area.
- 2. In the "User-dependent current limit" field of the "Current limits" area, enter the value "2.1" Arm and confirm by pressing enter.
- 3. Press the "Selection menu" key (with an arrow) to return to the selection menu.

MotionGUI2								1.000	
Datei Ansicht Extras Hit	'e								
6: Referenzfahrt 🛛 🗸 🔓 6: Re	ferenzfahrt Aktiviert (F5)	Quick Stop (F12) Halt (F11) Speichern	n EEPROM EEPROM löschen Trennen 🤟 Fehle	r löschen Neustart Regler					
Grenzwerte	Auswahimenu 📀	Motion	GUI 2 °						
Positionslimits									
Positionsbereich Max	0 mm	Kommunikation	Motion tasks						
Positionsbereich Min	0 mm								
Schleppfehlerfenster	0.5 mm	Oszilloskop	Parameter						
Softwareendschalter Reaktion	Off 🗸	<u>IVVI</u>							
Softwareendschalter Max	65535.999969 mm	Monitor	Eehler und Warnungen						
Drehzahllimits									
Maximale Profidrehzahl	166.6641 mm/s								
Nutzerabhängige Überdrehzahl	185.8333 mm/s								
Maximale Notordrehzahl	200 mm/s								
Maximale Geberdrehzahl	1000 mm/s								
Wirksames Drehzahllimit	166.6641 mm/s								
Beschleunigungslimits									
Maximale Beschleunigung	30517.5781 mm/s ²								
Maximale Verzögerung	30517.5781 mm/s ^z								
Drehmomentlimits									
Nutzerabhängiges Drehmomentlimit	960 mNm								
Maximales Motordrehmoment	299 mNm								
Wirksames Drehmomentlimit	110 mNm								
Stromlimits									
Nutzerabhängiges Stromimit	2.1 Arms								
Maximaler Motorstrom	6.44 Arms								
Maximaler Verstärkerstrom	15 Arms								
Wirksames Stromlimit	2.1 Arms								
links a second second second second	1 dama				Malaa Maaaaaa Malaa Pakisa	Occurring analysis	70010 400 400 0 0	Acr (1)	

4.5 Initialization (homing)

NOTICE

Please note

When changing values, the background colour of the input field changes to yellow. You must confirm the changed value by pressing the Enter key.

NOTICE

Please note

During homing, the valve will leave the end positions. Homing should therefore only be performed when the system is secure.

V	MotionGUI2			
	File View Tools Help			_
l	0: No mode 🗸 3	Profile velocity	Disabled (F5)	Quick Stop (F12)
Γ	Negative direction			
	Mechanical Limit / Block			<u> </u>
	Positive direction			
	Homing method	-12 : Von negativer zu	ı positiver Drehm	omentgrenze 🗸
	Home offset	2.799988	mm	
	Homing speed switch	1	mm/s	
	Homing speed index	1	mm/s	
	Homing acceleration	5000	mm/s²	
	Homing torque block	102	mNm	
	Homing Torque Time	2000	ms	
	Homing Negative Application	-65536	mm	
	Homing Positive Application	65535 999969	mm	
	Limit			
		homing is program		
	noming process state	noning in progress		
	Homed Axis			
	Start	Stop		
U	nits p:mm,v:mm/s,a:mm/s²,u	i: V, i: Arms		

- 1. Select the "Homing" key in the settings area
- 2. Select "-12 From negative to positive torque limit" as the "Homing type"
- 3. Enter the following data:

Homing offset	Mounting size/Nominal sizes
2.8 mm for GEMÜ F60 servoDrive	Mounting size 1 (DN8-DN10)
6.0 mm for GEMÜ F60 servoDrive	Mounting size 3 (DN10-DN20)
8.0 mm for GEMÜ F60 servoDrive	Mounting size 4 (DN20-DN25)
9.0 mm for GEMÜ 567 servoDrive	(all nominal sizes)

- 4. Confirm by pressing enter.
- 5. Speed for switch search: 1 mm/s confirm by pressing enter.
- 6. Speed for index search: 1 mm/s^2 confirm by pressing enter.
- 7. Homing block with torque: 102 mNm confirm by pressing enter.
- 8. Homing reference duration: 100 ms confirm by pressing enter.
- 9. In the left-hand field of the control panel, change the operating mode to "6: Homing".
 - ⇒ The third field from the left on the control panel must be "Deactivated" and then reactivated by clicking it again.
- 10. Start homing by clicking on the start symbol
 - ⇒ If the homing was successful, the colour of the "Referencing axis" in the monitor work area will change from red to green.
- 11. Once the homing is completed, reset the operating mode to "1: **Profile position**" in the left-hand field of the control panel. This is only possible when the system is deactivated.

5 Motion tasks

NOTICE

Where necessary, GEMÜ can provide an example motion task or assist with the creation of motion tasks appropriate for the application.

1. Press "Motion tasks" key in the work area.

In this work area, motion tasks can be

- Created
- Saved
- Opened
- · Transmitted to the actuator
- · Read out from the actuator
- Started
- Stopped
- •

5.1 Creating motion tasks

MotionGUI2			– 🗆 ×
File View Tools Help			
0: No mode V 3: Profile velocity Enabled (FS) Quic	ck Stop (F12) Hait (F11)	Save to EEPROM Erase EEPROM Disconnect Clear errors Restart Drive	
Settings	Motion tasks	6. Man Menu 🕡	
Power Motor	Load Save	B'Gröger, Janinal-Anleitung Inbetriebnahmen GEMÜ 1282/MotionTask_Test1.xml	3. 4.
Feedback Commutation	No. Command	Parameter p 0.0 v 200 a 15000 d 15000 jx1000 profile trapez v next 2 v	
Current loop Velocity loop	2 WaitTime	time (ms) 500 next 3 v	
	4 WaitTime	p [2.8 v [200] a [15000] d [15000] jx1000 0 profile [trapez v next 4 v time [ms] [500 next 1 v	Error Task No
Position loop	5 Idle		Autostart
Homing Units	7 Idle		Motion task state
Digital I/O System	8 Idle		-
	10 Idle v		
Service motion	11 Idie		Override 100 / 100 Set
(3)	13 Idle v		2. Write to drive Read from drive 5.
PROFINET	14 Idle \(\) 15 Idle \(\)		
Profinet PROFIdrive	16 Idle		Clear all motion tasks
Addresses Settings	18 Idle		Actual position 0.01 mm
	19 Idle		Actual velocity
Units p: mm, v: mm/s, a: mm/s², u: V, i: Arms		PROFINET PLC control No Warnings No Errors Operation enabled US8: simco2(f	430603] bx: 0 (0) rx: 0

1. Create the motion task.

- 2. Select a command.
 - ⇒ Enter values, depending on the command (p = position, v = speed, a = acceleration, d = braking acceleration, next = the next command to be performed)
- 3. Transmit the command to the actuator.
 - ⇒ Click on the "Write to actuator" key to save the motion task to the RAM of the actuator
- 4. The motion task can be started by pressing the "Start" (arrow) key.
- 5. The motion task can be stopped by pressing the " $\ensuremath{\textbf{Stop}}\xspace"$ (square) key.
- 6. Pressing the "Read from actuator" key means that the motion task saved to the RAM of the actuator can be inputted again.
- 7. Clicking on the "**Save**" key means that the created motion task can be saved to the PC and inputted again by pressing the "**Open**" key.
- 8. To permanently save the motion task to the non-volatile EEPROM memory, click "Save to EEPROM" on the control panel.

NOTICE

► Tasks can only be saved to EEPROM when the motor is switched off. To do this, press the "Deactivate" key on the control panel. For more detailed information about the two memory types, see Section 4.3.

NOTICE

- ► Should errors or warnings occur, the "MAX software limit switch" limit value must be corrected under some circumstances.
- Click on the red warning field in the status bar to switch to the errors and warnings area.
- Evaluate the error and determine the original position.
- Enter the determined position as the "Limit value" in the settings area under "MAX software limit switch".
- Transmit the motion task to the actuator and test it.

⇒ In the event of a successful test, the limit value must still be saved permanently in EEPROM.

5.1.1 Instructions for creating motion tasks

More detailed information about creating motion tasks and the available instructions is given in the help area of the MotionGUI 2 software.

A MotionGUI

	File	View	Tools	Help	
÷	0: No	mode		(1) About	1
Г				Show Help	F
				Configuration files	

- 1. Select "Help" in the menu bar and then "Display help".
 - ⇒ The program help will open
- 2. Under "MotionGUI" -> "Main work area" -> "Motion Task", the process of creating motion tasks and the individual run commands are described in English.

😰 simco CHM Help

Datei Bearbeiten Ansicht Wechseln zu ?

TE ← ↔ Ausblenden Zurück Vorwärts Sta	atseite Schriftart Drucken Optionen	
Inhalt Index Suchen introduction General installation installation introduction installation introduction introduction installation introduction int		
Connecting to drive	Motion Tasks	
Settings area Service motion	MOLIOIT TASKS	
🖃 🛍 Main work area 2.	Units used in Motion Tasks	Motion Task command MoveAbs
Communication	Motion Task editor overview	Motion Task command MoveAbs
Motion Task 3.	Context menu editing possibilities	Motion Task command MoveRel:
Scope Parameters	Motion Task comment function	Motion Task command MoveRel
Monitor	Motion Task using parameter instead of fixed numbers	Motion Task Profile designer
Errors and warning	Set Override	Motion Task command WaitDigit
Acceleration sense	Motion Task example	Motion Task command SetDigita
Firmware Update	Controlling Motion Tasks with digital inputs	Motion Task command WaitTime
Motor database update CANopen (CAN) DhacAT (FC)	Controlling Motion Tasks with SDO access	Motion Task command ChangeS
	Units used in Motion Tasks	
🕀 🎨 Appendix	The motion parameter units used in Motion Tasks are defined in the menu	Units in the Settings area (left part of the screen).
	The timeout parameter uses the unit milliseconds.	
	Set the units to the required units before starting programming Motion Tas If the units need to be changed, store the Motion Tasks with the old units i Go to TOP	ks! in the drive, change the units and read the Motion Task

5.2 Opening and saving motion tasks

Created motion tasks can be saved on the computer via the "Save" key and input again via the "Open" key.

5.3 Transmitting motion tasks

NOTICE

Description of both storage types, RAM and EEPROM (see "Permanently saving settings", page 13).

The following functions are available for transmitting motion tasks:

- "Writing to the actuator" key transmits the motion task for temporary operation currently positioned in the work area to the RAM of the actuator.
- "Reading from the actuator" key reads the current motion task from the RAM of the actuator.
- "Motion Task in EEPROM" key writes the current motion task from the RAM into the non-volatile EEPROM of the actuator.
- "Motion Task from EEPROM" key reads the motion tasks from the EEPROM and transmits these to the RAM.

NOTICE

Settings for limit values and digital inputs and outputs only apply until the next restart of the controller. To permanently apply changed settings, these must be saved in the EEPROM of the controller (see "Permanently saving settings", page 13).

5.4 Performing and testing motion tasks

		Motion tasks	Main Menu 🕡					
Load Save			\WCFSDE01\alle\$\Automatisierung (FBA)\Produkte FBA\Motorisch linear\F60\Kundenprogramme\d32-MotionTask-Beispiel_20200309.xml	2. 3.				
	ldx	Command	Command Parameter					
	0	Idle ~						
	1	MoveAbsolute \sim	p 1 v 200 a 15000 d 15000 jx1000 0 profile trapez v next 2 v	1. Task Nr. 0 🗸				
	2	WaitTime ~	time [ms] 10 next 3 V					
	3	MoveAbsolute \lor	p 43 v 200 a 15000 d 15000 jx1000 0 profile trapez v next 4 v	Override 100 / 100 Set				
	4	WaitTime ~	time [ms] 10 next 1 v	Write to drive Read from				
	5	Idle ~		drive				
	6	Idle ~		Motion Task to Motion Task				
	7	Idle ~		EEPROM from EEPROM				
	8	Idle ~						
	9	Idle ~		Clear an motion tasks				
	10	Idle ~		Actual position				
Ī	11	Idle ~		2.0816 mm				
	12	ldie 🗸		Actual velocity				
	13	Idle ~		mm/s				

- 1. Transmit motion task to the RAM memory of the controller.
- 2. Select motion command via "Order no." field.
- 3. Motion task can be started with the "Start (arrow)" key.
- 4. Motion task can be stopped with the "Stop (square)" key.

NOTICE

- ► Should errors or warnings occur, the "Max. software limit switch" limit value must be corrected under some circumstances.
- Click on the red warning field in the status bar to switch to the errors and warnings area.
- Evaluate error and determine the original position.
- Then enter the determined position in the setting range under limit values under "Max. software limit switch".
- Transmit motion task to the actuator and test.
- ⇒ In the event of a successful test, the limit value must still be saved permanently in the EEPROM (see "Permanently saving settings", page 13).

5.4.1 Comments for motion tasks

load		in S	Main Me	inu 📀							
No. 1	Command	B:\Gröger,	Janina\Anleitung Inbetrie	bnahmen GEMU 128	2\MotionTask_Test1.> Parameter	mi			^		100
1	🐈 Insert 🗱 Delete		v 200	a 15000 d	15000 j×100	10 0 profile	trapez	∨ next 2	~		
3	Clear Clear all	locioner	v 200	a 15000 d	15000 j×100	10 0 profile	trapez	∨ next 4	~	Start Task No.	1 ~
5	C Edit con	nments	its			,	<			Error Task No. Autostart	
7				3	•	Save Cancel]4.			Motion task state	• 0
9						Clear	i		_		
10	laic	-				-				-	
17		×								Overnaë 100	7100 Set
13	Idle	~							_	Write to drive	Read from drive
14	Idle	~									
15	Idle	~									
16	Idle	~								Clear all m	notion tasks
17	Idle	~									
18	Idle	~								Actual position	mm
19	Idle	~								0.01	mm
		_								0	mm/n

As part of the documentation of motion tasks, every instruction and every line can have comments.

1. Right-click on the line number.

- \Rightarrow The context menu will open.
- 2. Select "Edit comments".
- 3. Edit comments in the new window that opens.
- 4. Save changes by pressing the "Save" key.

NOTICE

Created comments are only available on the PC and can only be saved on the PC with the motion tasks. The comments are not saved on the controller or EEPROM.

5.4.2 Profile Designer

In Profile Designer, a selected motion task is graphically shown as a curve progression and can be optimized in line with requirements. Profile Designer can be opened for each line with a motion task.



1. Right-click on the line number.

- ⇒ The context menu will open.
- 2. Select "Profile Designer" in the context menu.
- 3. Clicking on the "Draw" key will make the curve progression for the command appear.
- 4. In the "**Profile data**" section at the bottom, you can view and change the data that has been entered for the selected command
- 5. Clicking on "Update/Close" transfers the changed profile data from the Profile Designer to the command for the motion task.

6 Help and instructions

The MotionGUI software also provides help and instructions. Select "Help" and then "Show help" in the menu bar. Software programme help will open.

In the "Help" menu bar under the "Configuration files" item, the configuration files for CANopen, EtherCAT, EtherNet IP and ProfiNet are provided for connection to PLC systems.

A MotionGUI









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Subject to alteration

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