Cleco®
Production Tools

Installation Instructions
P2434JH
2019-08

mPro400GC(D)

Integrating mPro400GC and mPro400GCD

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EN

Contents

1 About this Document

The original language of this document is English.

This document is intended for all persons who replaces mPro400GC-P/-M by mPro400GCD-P/-M.
This document has the following purposes:

- It provides important instructions for safe and effective operation.
- It describes the functions and operations of this equipment.

Observe the safety instructions listed in the respective hardware descriptions!

Other documents

Number	Name
P2280PM	Programming Manual mPro400GC(D)
P2300HW	Hardware Description mPro400GCD-P
P2349HW	Hardware Description mPro400GCD-S(H)
P2309HW	Hardware Description mPro400GCD-M
P2174HW	Hardware Description mPro400GC

Symbols in the text

italic	Menu options (e.g., *Diagnostics)* input fields, check boxes, radio buttons or dropdown menus.
>	Indicates selection of a menu option from a menu, e.g., *File* > *Print*
<…>	Specifies switches, pushbuttons or the keys of an external keyboard, e.g., <F5>
`Courier`	Filenames and paths, e.g., **`setup.exe`**
•	List
-	List, level 2
a) b)	Options
→	Result
1. (...) 2. (...)	Action steps
▶	Single action step

2 Distinction of Global Controller types

There are two types of Global Controller:

- mPro400GC: only for analog tools
- mPro400GCD: for analog and digital tools

Controller Type	mPro400GC	mPro400GCD
Primary	mPro400GC-P	mPro400GCD-P
Master	mPro400GC-M	mPro400GCD-M
Secondary	mPro400GC-S	mPro400GCD-S(H)

The controller type can be identified on the bottom side:

- for *Series* on the type plate
- mPro400GCD-P controller have a second connection for „digital“ NeoTek tools

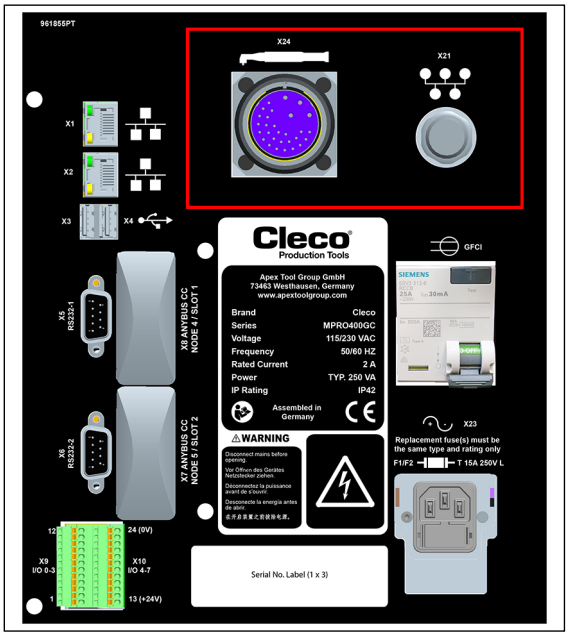


Fig. 2-1: Primary/Master controller mPro400GC-P

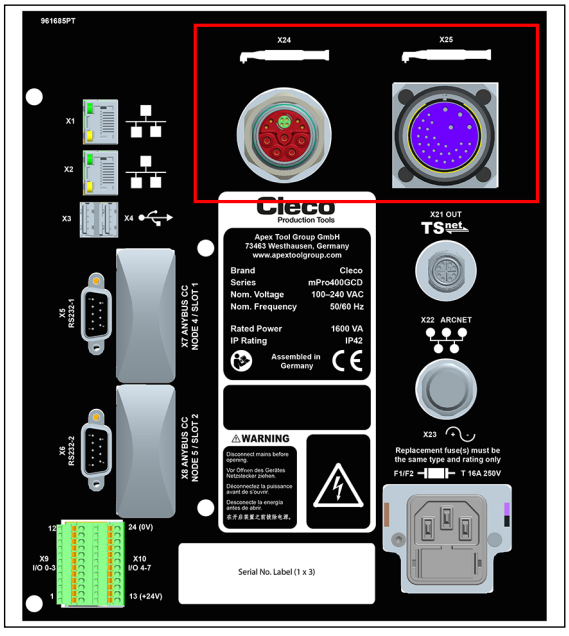


Fig. 2-2: Primary/Master controller mPro400GCD-P

Comparison of mPro400GC and mPro400GCD

Feature	mPro400GC	mPro400GCD-P/-M	mPro400GCD-S(H)
TSnet connection	No	Yes	Yes
ArcNet (System Bus) connection: Connection to mPro400GC-S, BTS spindles, System Bus Accessories (socket trays, stack lights, I/O boxes)	Yes	Yes	No
TSnet connection: Connection to mPro400GCD-S(H)	No	Yes	Yes
Capability for USB Scanner	No	Yes	Yes
Range of input power	115 V or 230 V	100 – 240 VAC	100 – 240 VAC
		→ works globally → very tolerant to instable main power supplies	
Power supply	GFCI, single-phase	Switch mode power supply with PFC, single-phase	
UL certified	No	Yes	Yes

3 mPro400GC replaced by mPro400GCD

If mPro400GC-P/-M is replaced by mPro400GCD-P/-M, certain things need to be considered. Below are various scenarios and procedures for exchanging controller types.

3.1 Primary/Master controller

Scenario

- mPro400GC-P/-M is replaced by mPro400GCD-P/-M.
- No Secondary controllers connected.

Old system layout	New system layout
mPro400GC-P/ mPro400GC-M	mPro400GCD-P/ mPro400GCD-M
	

Fig. 3-1: Primary/Master controller mPro400GC

Fig. 3-2: Primary/Master controller mPro400GCD

Conditions for new system layout

Type	Indication
Software version	mPro400GCD-P/-M: S168813-1.8.0 or newer.
Operating system	2.7

Procedure

Save parameters from mPro400GC-P/-M:

1. Select Navigator >*Administration* > *Save parameters*.
   → The *Save parameters* dialog opens.
2. Select the storage location and confirm with <OK>. The parameters can be stored on an internal storage device (CF card) or an connected USB drive.
3. Press <All> to save all parameters.
4. Disconnect mPro400GC-P/-M and connect mPro400GCD-P/-M. See documentation P2300HW or P2309HW.

Set up mPro400GCD-P/-M:

1. Start mPro400GCD-P/-M.
2. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
3. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Load parameters from an internal storage device (CF card) or a connected USB drive to mPro400GCD-P/-M:

1. If the parameters have been saved on the CF card, insert the old CF card into mPro400GCD-P/-M. If the parameters have been saved on the USB drive, insert the USB drive into mPro400GCD-P/-M
2. Select Navigator > *Administration* > *Load parameters*.
   → The *Load parameters* dialog opens.
3. Select the previously saved parameters and confirm with <OK>.
4. Press <All> to load all parameters.

Adjust Programmable I/O Mapping:

1. Select Navigator > Tool Setup > I/O.
2. Confirm the messages with <Run it> and <Continue>.
   → The *Programmable I/O Mapping* dialog opens.
3. Re-parameterize the start switch and the tool light. All signals from PM_DIDO have to be changed to TM_DIDO.

Signal	Input/Output	PM_DIDO Bit	TM_DIDO Bit
Tool Group Start (SA)	Input	0	0
Reverse (TM_LL)	Input	1	1
Function button 2	Input	-	6
Status (Yellow LED)	Output	4	4
Tool OK 1 (Green LED)	Output	3	3
Tool NOK 1 (Red LED)	Output	2	2
Blue LED	Output	-	5

4. Confirm the change with <OK> and <Accept>.

3.2 Primary/Master controller with existing Secondary controllers

Scenario

- mPro400GC-P/-M is replaced by mPro400GCD-P/-M.
- Existing mPro400GC-S used.

Old system layout	New system layout
	

Fig. 3-3: Primary/Master controller mPro400GC with Secondary controller mPro400GC

Fig. 3-4: Primary/Master controller mPro400GCD with Secondary controller mPro400GC

Conditions for new system layout

Type	Indication
Software version	mPro400GCD-P/-M: S168813-1.8.0 or newer. mPro400GC-S: S168025-510
Operating system	2.7
Cables	mPro400GCD-P/-M to mPro400GC-S. System Bus Cable: Part number 544196-XXX
System Bus Terminator	Only required for mPro400GC-S: Part number 544197PT

Procedure

Save parameters from mPro400GC-P/-M:

1. Select Navigator >*Administration* > *Save parameters*.
   → The *Save parameters* dialog opens.
2. Select the storage location and confirm with <OK>. The parameters can be stored on an internal storage device (CF card) or an connected USB drive.
3. Press <All> to save all parameters.
4. Disconnect mPro400GC-P/-M and connect mPro400GCD-P/-M.

Set up mPro400GCD-P/-M:

1. Use cable 544196-XXX to connect mPro400GCD-P/-M and mPro400GC-S. See documentation P2300HW or P2309HW.Use following inputs and outputs:
   - mPro400GCD-P/-M: output X22
   - mPro400GC-S: input X31

1. Use cable 544196-XXX to connect additional mPro400GC-S to the previous mPro400GC-S if necessary. Use following inputs and outputs:
   - Previous mPro400GC-S: output X32
   - Following mPro400GC-S: input X31
2. Connect the System Bus Terminator 544197PT to X32 at the last mPro400GC-S.
3. Start mPro400GCD-P/-M.
4. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
5. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Load parameters from an internal storage device (CF card) or a connected USB drive to mPro400GCD-P/-M:

1. If the parameters have been saved on the CF card, insert the old CF card into mPro400GCD-P/-M. If the parameters have been saved on the USB drive, insert the USB drive into mPro400GCD-P/-M.
2. Select Navigator > *Administration* > *Load parameters*.
   → The *Load parameters* dialog opens.
3. Select the previously saved parameters and confirm with <OK>.
4. Press <All> to load all parameters.

Adjust Programmable I/O Mapping:

1. Select Navigator > Tool Setup > I/O.
2. Confirm the messages with <Run it> and <Continue>.
   → The *Programmable I/O Mapping* dialog opens.
3. Re-parameterize the start switch and the tool light. All signals from PM_DIDO have to be changed to TM_DIDO.

Signal	Input/Output	PM_DIDO Bit	TM_DIDO Bit
Tool Group Start (SA)	Input	0	0
Reverse (TM_LL)	Input	1	1
Function button 2	Input	-	6
Status (Yellow LED)	Output	4	4
Tool OK 1 (Green LED)	Output	3	3
Tool NOK 1 (Red LED)	Output	2	2
Blue LED	Output	-	5

4. Confirm the change with <OK> and <Accept>.

3.3 Primary/Master controller with new Secondary controllers

Scenario

- mPro400GC-P/-M is maintained.
- mPro400GCD-S(H) is added.

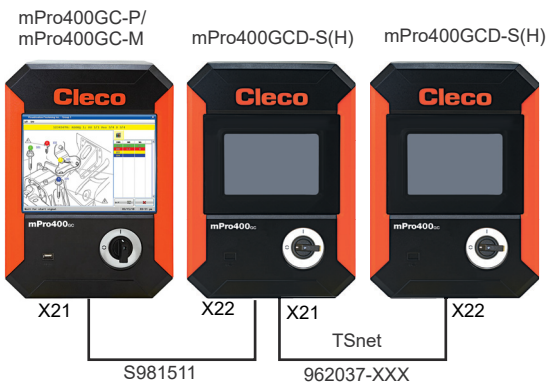
Old system layout	New system layout
	

Fig. 3-5: Primary/Master controller mPro400GC

Fig. 3-6: Primary/Master controller mPro400GC with Secondary controller mPro400GCD

Conditions for new system layout

Type	Indication
Software version	mPro400GC-P/-M: S168813-1.8.0 or newer. mPro400GCD-S(H): S168025-510
Operating system	2.7
Cables	mPro400GC-P/-M to mPro400GCD-S(H). RJ45 to TSnet Cable: Part number S981511(-XX)
	mPro400GCD-S(H) to mPro400GCD-S(H). TSnet Cable: Part number 962037-(XXX)

Procedure

Parameterize ethernet interface

1. Select *Navigator* > *Communication* > *Network settings*.

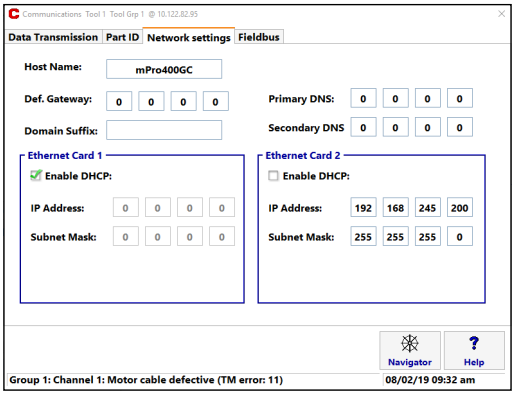


Fig. 3-7: Network settings

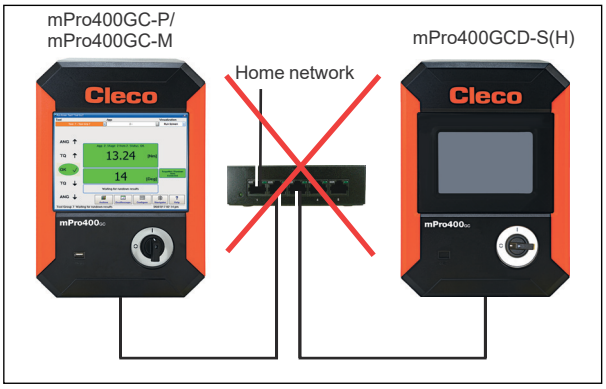
2. Enter the ethernet settings in *Ethernet Card 2*:

Parameter	Value
IP Address	192 168 245 200
Subnet Mask	255 255 255 0

Set up mPro400GC-P/-M:

1. Use cable S981511 to connect mPro400GC-P/-M and mPro400GCD-S(H). See documentation P2174HW. Use following inputs and outputs:
   - mPro400GC-P/-M: output X21
   - mPro400GCD-S(H): input X22 (TSnet in)

The TSnet cable may not be connected to the infrastructure network.



2. Use cable 962037-XXX to connect additional mPro400GCD-S(H) to the previous mPro400GCD-S(H) if necessary. Use following inputs and outputs:
   - Previous mPro400GCD-S(H): output X21 (TSnet out)
   - Following mPro400GCD-S(H): input X22 (TSnet in)
3. Start mPro400GC-P/-M.
4. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
5. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Install Secondary controllers:

1. Select *Navigator* > *Tool Setup* > *Install*.
   → The *Assign Tool* dialog opens.
2. The following settings are required:

Parameter	Description
Group Name	Select tool group. It is possible to select up to 16 tool groups.
Name	Assign a name to the Secondary.
Type	Select *Secondary*.

3. Confirm with <OK>.

3.4 Install Primary/Master controller with Secondary controllers mPro400GC

Scenario

- mPro400GCD-P/-M.
- mPro400GC-S is added.

Old system layout	New system layout
	

Fig. 3-8: Primary/Master controller mPro400GCD with Secondary controller mPro400GC

Conditions and Process

See chapter 3.2 Primary/Master controller with existing Secondary controllers, page 7.

3.5 Install Primary/Master controller with Secondary controllers mPro400GCD

Scenario

- mPro400GCD-P/-M.
- mPro400GCD-S(H) is added.

Old system layout	New system layout
	

Fig. 3-9: Primary/Master controller mPro400GCD with Secondary controller mPro400GCD

Conditions for new system layout

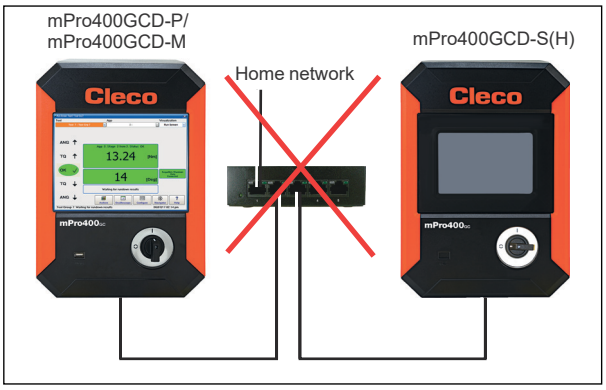
Type	Indication
Software version	mPro400GCD-P/-M: S168813-1.8.0 or newer. mPro400GCD-S: S168025-510
Operating system	2.7
Cables	mPro400GCD-P/-M to mPro400GCD-S(H). TSnet Cable: Part number 962037-XXX

Procedure

Set up mPro400GCD-P/-M:

1. Use cable 962037-XXX to connect mPro400GCD-P/-M and mPro400GCD-S(H). See documentation P2300HW or P2309HW.Use following inputs and outputs:
   - mPro400GCD-P/-M: output X21
   - mPro400GCD-S(H): input X22

The TSnet cable may not be connected to the infrastructure network.



2. Use cable 962037-XXX to connect additional mPro400GCD-S(H) to the previous mPro400GCD-S(H) if necessary. Use following inputs and outputs:
   - Previous mPro400GC-S: output X22
   - Following mPro400GC-S: input X21
3. Start mPro400GCD-P/-M.
4. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
5. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Install Secondary controllers:

1. Select *Navigator* > *Tool Setup* > *Install*.
   → The *Assign Tool* dialog opens.
2. The following settings are required:

Parameter	Description
Group Name	Select tool group. It is possible to select up to 16 tool groups.
Name	Assign a name to the Secondary.
Type	Select *Secondary*.

3. Confirm with <OK>.

3.6 Primary/Master controller with two types of Secondary controllers

Scenario

- mPro400GCD-P/-M.
- mPro400GC-S and mPro400GCD-S(H) are added.

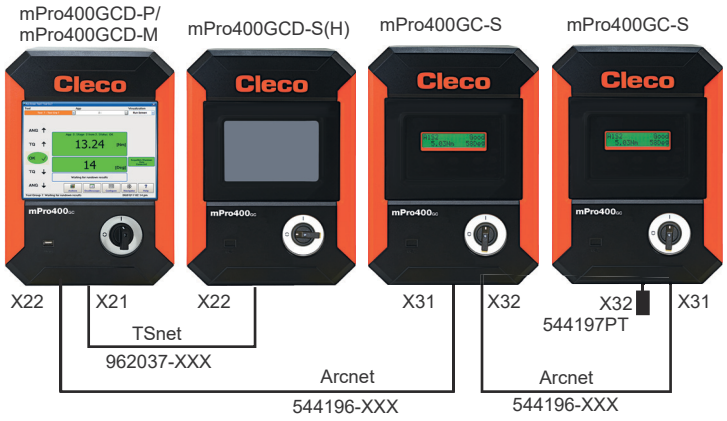
Old system layout	New system layout
	

Fig. 3-10: Primary/Master controller mPro400GCD with Secondary controller mPro400GC and mPro400GCD

Conditions for new system layout

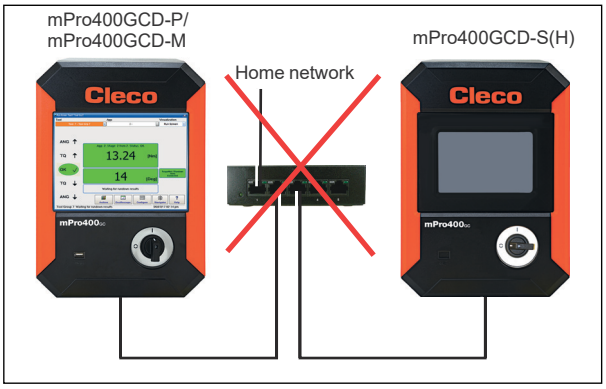
Type	Indication
Software version	mPro400GCD-P/-M: S168813-1.8.0 or newer. mPro400GCD-S: S168025-510
Operating system	2.7
Cables	mPro400GCD-P/-M to mPro400GCD-S(H). TSnet Cable: Part number 962037-XXX
	mPro400GCD-P/-M to mPro400GC-S. System Bus Cable: Part number 544196-XXX
System Bus Terminator	Only required for mPro400GC-S: Part number 544197PT

Procedure

Set up mPro400GCD-P/-M:

1. Use cable 962037-XXX to connect mPro400GCD-P/-M and mPro400GCD-S(H). See documentation P2300HW or P2309HW. Use following inputs and outputs:
   - mPro400GCD-P/-M: output X21
   - mPro400GCD-S(H): input X22
2. Use cable 544196-XXX to connect mPro400GCD-P/-M and mPro400GC-S. Use following inputs and outputs:
   - mPro400GCD-P/-M: output X22
   - mPro400GC-S: input X31

The TSnet cable may not be connected to the infrastructure network.



3. Use cable 544196-XXX to connect additional mPro400GC-S to the previous mPro400GC-S if necessary. Use following inputs and outputs:
   - Previous mPro400GC-S: output X32
   - Following mPro400GC-S: input X31
4. Connect the System Bus Terminator 544197PT to X32 at the last mPro400GC-S.
5. Use cable 962037-XXX to connect additional mPro400GCD-S(H) to the previous mPro400GCD-S(H) if necessary. Use following inputs and outputs:
   - Previous mPro400GCD-S(H): output X21
   - Following mPro400GCD-S(H): input X22
6. Start mPro400GCD-P/-M.
7. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
8. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Install Secondary controllers:

1. Select *Navigator* > *Tool Setup* > *Install*.
   → The *Assign Tool* dialog opens.
2. The following settings are required:

Parameter	Description
Group Name	Select tool group. It is possible to select up to 16 tool groups.
Name	Assign a name to the Secondary.
Type	Select *Secondary*.

3. Confirm with <OK>.

3.7 Primary/Master controller with Secondary controllers and Stack Lights

In combination with stack lights, mPro400GC and mPro400GCD controllers cannot be mixed.

3.7.1 mPro400GC

Scenario

- mPro400GC-P/-M and mPro400GC-S are available.
- Stack lights are added.

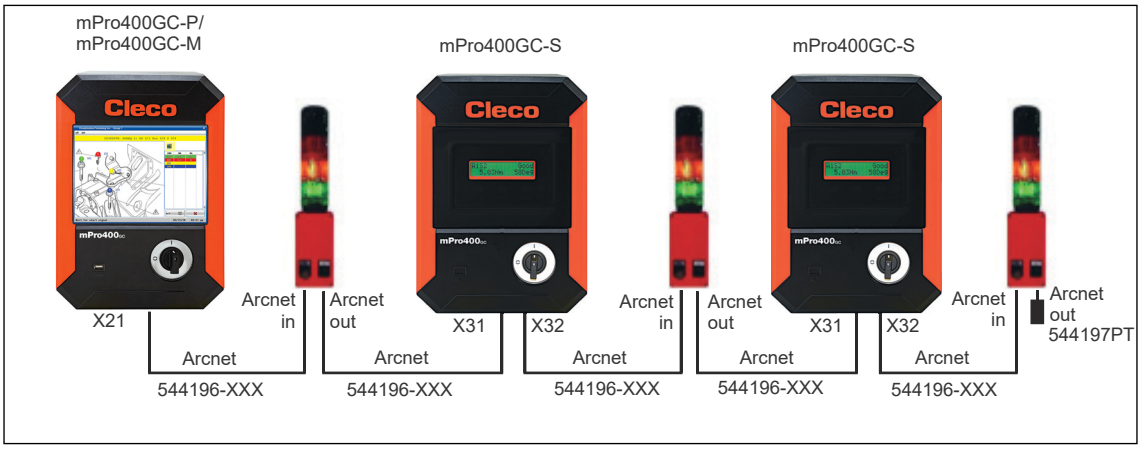


Fig. 3-11: Primary/Master controller mPro400GC with Secondary controller mPro400GC and stack lights

Conditions for new system layout

Type	Indication
Software version	mPro400GC-P/-M: S168813-1.8.0 or newer. mPro400GC-S:S168025-510
Operating system	2.7
Cables	mPro400GCD-P/-M to mPro400GC-S. System Bus Cable: Part number 544196-XXX
System Bus Terminator	Only required for mPro400GC-S or stack lights: Part number 544197PT

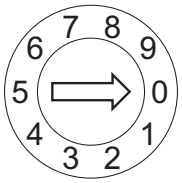
Procedure

Set up mPro400GCD-P/-M:

1. Use cable 544196-XXX to connect mPro400GC-P/-M and the first stack light. Use following inputs and outputs:
   - mPro400GC-P/-M: output X21
   - Stack light: input *Arcnet in*
2. Use cable 544196-XXX to connect mPro400GC-S to the stack light. Use following inputs and outputs:
   - Stack light: output *Arcnet out*
   - mPro400GC-S: input X31
3. Use cable 544196-XXX to connect additional mPro400GC-S or stack lights.
4. Connect the System Bus Terminator 544197PT to the output at the last stack light.
5. Start mPro400GC-P/-M.
6. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
7. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Parameterize stack lights

1. Assign each stack light its own Arcnet address:
   The default Arcnet address is printed on the front of the housing, e.g. 101.
   If several stack lights are used, screw on the housing and change the Arcnet address at the rotary controls internally with a screwdriver.



The two rotary controls are named LOW and HIGH.
The Arcnet address consists of three digits:

- Digit 1: fixed value „1“
- Digit 2: setting of the rotary control „HIGH“
- Digit 3: setting of the rotary control „LOW“

Example:
Rotary control „HIGH“: 0
Rotary control „LOW“: 3
→ Arcnet address: 103

2. Select *Navigator* > *Tool Setup* > *IO* > *Run it* > *Continue* on the controller.
   → It opens the *Programmable I/O Mapping*.
3. Parameterize the inputs and outputs of the stack lights.

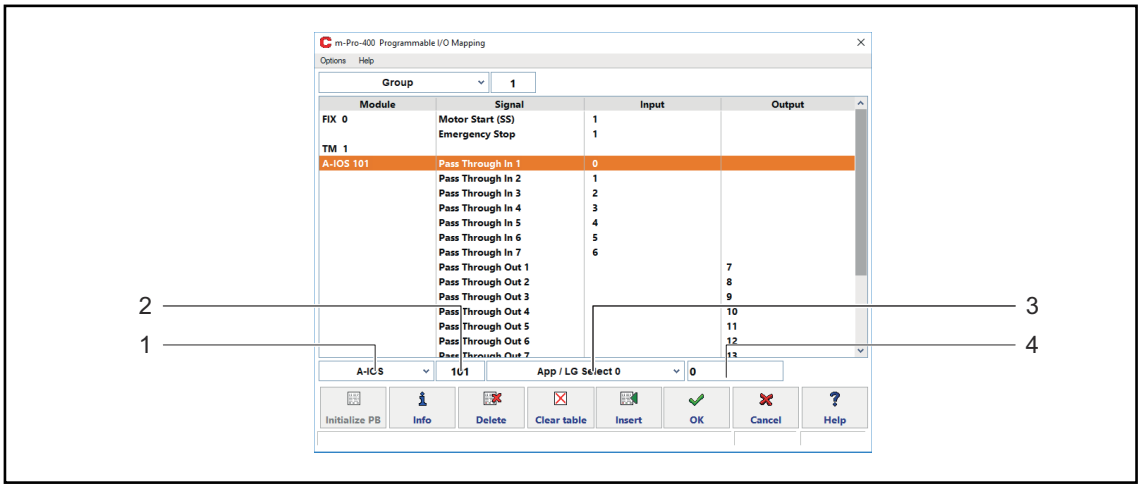


Fig. 3-12: Programmable I/O Mapping

Item	Setting
1	▶ Select *A-IOS*.
2	▶ Enter Arcnet address.
3	▶ Select the desired signal.
4	▶ Enter the bit.

The inputs are from bit 0 - 7, the outputs are from bit 8 - 15. For more information see *ON / OUTPUTS A-OK BRIDGE* in the supplied *BUILDING PLAN* of the stack lights.

4. Leave the I/O to save the settings.

3.7.2 mPro400GCD

Scenario

- mPro400GCD-P/-M and mPro400GCD-S(H) are available.
- Stack lights are added.

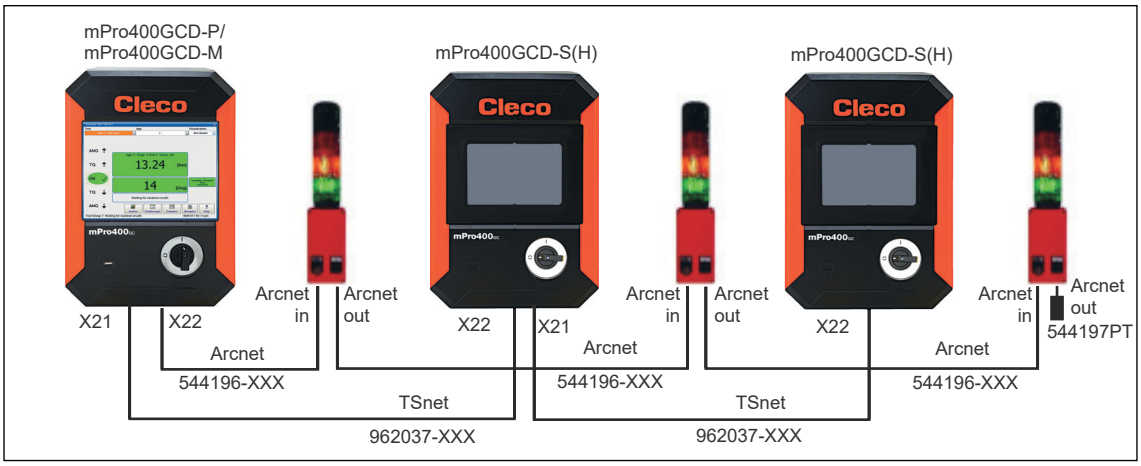


Fig. 3-13: Primary/Master controller mPro400GCD with Secondary controller mPro400GCD and stack lights

Conditions for new system layout

Type	Indication
Software version	mPro400GCD-P/-M: S168813-1.8.0 or newer. mPro400GCD-S: S168025-510
Operating system	2.7
Cables	mPro400GCD-P/-M to mPro400GCD-S(H). TSnet Cable: Part number 962037-XXX
	mPro400GCD-P/-M to stack lights. System Bus Cable: Part number 544196-XXX
System Bus Terminator	Only required for stack lights: Part number 544197PT

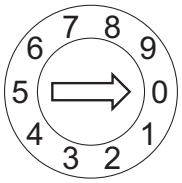
Procedure

Set up mPro400GCD-P/-M:

1. Use cable 544196-XXX to connect mPro400GCD-P/-M and the first stack light. Use following inputs and outputs:
   - mPro400GC-P/-M: output X22
   - Stack lights: input *Arcnet in*
2. Use cable 544196-XXX to connect additional stack lights.
3. Connect the System Bus Terminator 544197PT to X32 at the last mPro400GC-S.
4. Connect mPro400GCD-P/-M and mPro400GCD-S(H). See chapter 3.5 Install Primary/Master controller with Secondary controllers mPro400GCD, page 11.
5. Start mPro400GC-P/-M.
6. Ensure that hybrid-capable software is used. The software has to be S168813-1.8.0 or newer.
7. Ensure that the current version of the operating system is used. The operating system has to be 2.7 or newer.

Parameterize stack lights

1. Assign each stack light its own Arcnet address:
   The default Arcnet address is printed on the front of the housing, e.g. 101.
   If several stack lights are used, screw on the housing and change the Arcnet address at the rotary controls internally with a screwdriver.



The two rotary controls are named LOW and HIGH.
The Arcnet address consists of three digits:

- Digit 1: fixed value „1“
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- Digit 3: setting of the rotary control „LOW“

Example:
Rotary control „HIGH“: 0
Rotary control „LOW“: 3
→ Arcnet address: 103

2. Select *Navigator* > *Tool Setup* > *IO* > *Run it* > *Continue* on the controller.
   → It opens the *Programmable I/O Mapping*.
3. Parameterize the inputs and outputs of the stack lights.

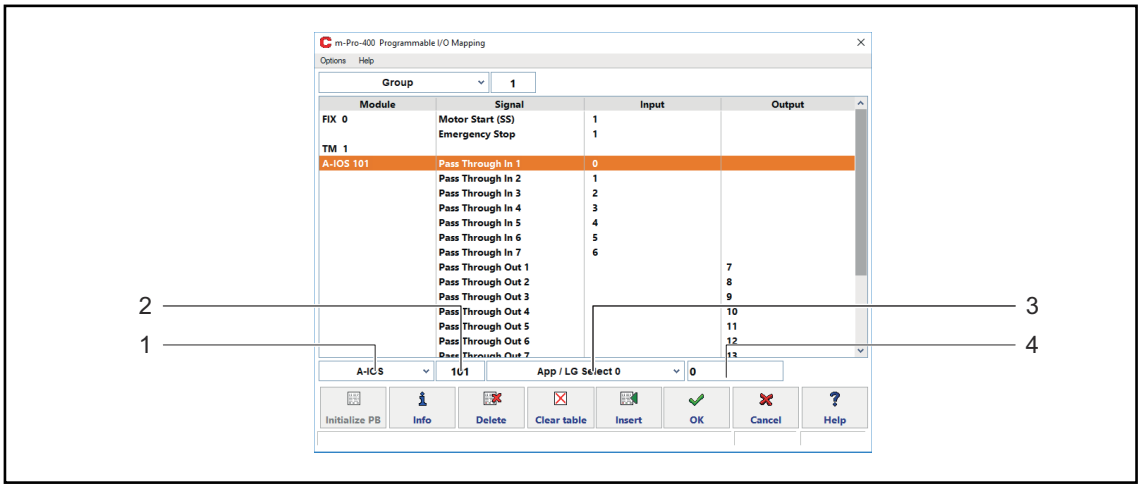

Fig. 3-14: Programmable I/O Mapping

Item	Setting
1	▶ Select *A-IOS*.
2	▶ Enter Arcnet address.
3	▶ Select the desired signal.
4	▶ Enter the bit.

The inputs are from bit 0 - 7, the outputs are from bit 8 - 15. For more information see *ON / OUTPUTS A-OK BRIDGE* in the supplied *BUILDING PLAN* of the stack lights.

4. Leave the I/O to save the settings.

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