INSTALLATION AND OPERATING INSTRUCTIONS

Robot-specific SCM and Comfort App for Yaskawa robots

DDOC01260

THE KNOW-HOW FACTORY

Glossary

Parameter	Explanation
Cmd_Grip	Motion command for gripping the workpiece
Cmd_Release	Motion command for releasing the workpiece
IsReleased	The gripper signals that it is open.
IsGrasped	The gripper has gripped the workpiece and the position is within the taught-in workpiece window.
IsClosed	The gripper has gripped but there is no workpiece, so it is in the maximum position.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

Content

EN / 2025-05-12
DDOC01260 / c

1 Supporting documents

NOTICE

Read through the installation and operating instructions before installing or working with the product.

The installation and operating instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.

The documents listed below are available for download on our website www.zimmer-group.com.

- Installation and operating instructions
- Catalogs, drawings, CAD data, performance data
- Information on accessories
- Technical data sheets
- General Terms and Conditions, including warranty information.

⇨ Only those documents currently available on the website are valid.

In these installation and operating instructions, "product" refers to the product designation on the title page!

1.1 Notices and graphics in the installation and operating instructions

DANGER

This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

WARNING

This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

CAUTION

This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

NOTICE

This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

INFORMATION

This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

CAUTION

Risk of injury and material damage in case of non-compliance

Installation, commissioning, maintenance and repairs may only be performed by qualified specialists in accordance with these installation and operating instructions.

The product is state-of-the-art.

Grippers with a control system are used on industrial machines for IO-Link communication.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.

► The product may only be used in accordance with these installation and operating instructions and the product's technical data.

⇨ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

3 Proper use

NOTICE

Material damage and malfunction in case of non-compliance

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

► Operate the product only in compliance with the associated installation and operating instructions.

► Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.

⇨ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

- The product is designed exclusively for electric operation using a 24 V DC power supply.
- Direct contact with perishable goods/food is not permitted.

4 Personnel qualification

WARNING

Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

5 Product description

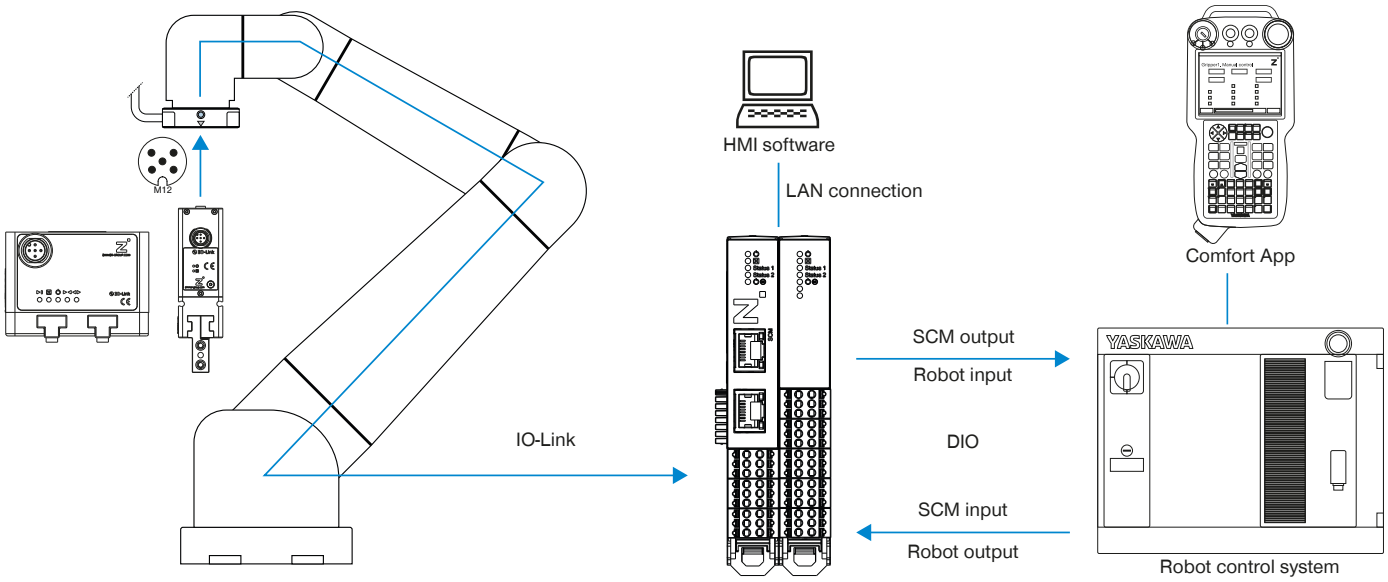
The Smart Communication Module (SCM) is a gateway between the grippers and the robot control system. The SCM can be configured via the HMI software or Comfort App. The grippers can be controlled using the Comfort App on the robot control panel.

Using the Comfort App, Zimmer GmbH grippers can be controlled directly from the robot control panel and generated robot jobs can be configured.

The generated robot tasks simplify the use of Zimmer GmbH grippers in the customer program and reduce the development time.

The names of the newly configured robot jobs remain unchanged. This means that the basic program does not have to be modified for configuration changes.

The image shows a simplified view of the structure of the overall system. All parts for the electrical connection of a gripper with the robot are included or are available from Zimmer GmbH as optional accessories.



Installation steps:

- ► Install the hardware.
- ► Establish the electrical connections at the robot control system.
- ► Install the HMI software and teach in the workpieces.
- ► Install the Comfort App, see the operating instructions for the robot-specific Comfort App.

6 Functional description

6.1 LED status display

The LED display is provided on each submodule. The left module with the network sockets is the basic module. The right module with the digital IO is the IO module.

6.1.1 Basic module LED display

Name	Status	Function
⏻	Continuous light	Supply voltage OK
	Flashing	HMI is connected, the SCM is teaching the IO-Link device.
	Flashing	HMI assumes control, the IO module LEDs are off.
	off	Supply voltage not OK
☒	Continuous light	An error is present
	Flashing	There is an external error, see the “Error diagnosis” section.
Status 1/2 (IO-Link device)	off	HMI is connected.
	Continuous light	HMI is disconnected, IO-Link device has an error.
	Flashing	IO-Link device is disconnected.
	Continuous light	HMI is disconnected, IO-LINK device is open or closed at a standstill.
	Continuous light	HMI is disconnected, IO-LINK device is in motion or on the workpiece.
⏻	Continuous light	Actuator voltage OK
(P 24 V)	off	Actuator voltage not OK

6.1.2 IO module LED display

Name	Status	Function
⏻	Continuous light	• Supply voltage OK
	off	• HMI is disconnected, supply voltage is not OK.
		• HMI is connected, supply voltage is OK.
☒	Continuous light	• An error is present
	Flashing	• There is an external error, see the “Error diagnosis” section.
Status 1/2 (IO-Link device)	off	• HMI is connected, the IO module is inactive.
	Continuous light	• Gripper has a motion task in the *release* direction.
	Continuous light	• Gripper has a motion task in the *grasp* direction.
⏻ Ⓜ	Continuous light	• Actuator voltage OK
(P 24 V)	off	• Actuator voltage not OK
-	Inactive	-

7 Technical data

INFORMATION

► You can find the information in the technical data sheet on our website.

This data varies within the series, depending on the specific design.

8 Accessories/scope of delivery

INFORMATION

If any accessories not sold or authorized by Zimmer GmbH are used, the function of the product cannot be guaranteed. Zimmer GmbH accessories are specifically tailored to the individual products.

► For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

► Transport and storage of the product must be done only with the original packaging.

► If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.

► Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.

► Visually inspect all components.

10 Installation

WARNING

Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ► Switch off the energy supply of the machine before any work.
- ► Secure the power supply against being switched on unintentionally.
- ► Check the machine for any residual energy that may be present.

CAUTION

Risk of injury due to uncontrolled movements

Risk of injury in the event of uncontrolled movement of the product when the power supply is connected.

- ► Switch off the power supply to the machine before carrying out any work.
- ► Secure the power supply against being switched on unintentionally.
- ► Check the machine for any residual energy that may be present.

10.1 Installing hardware

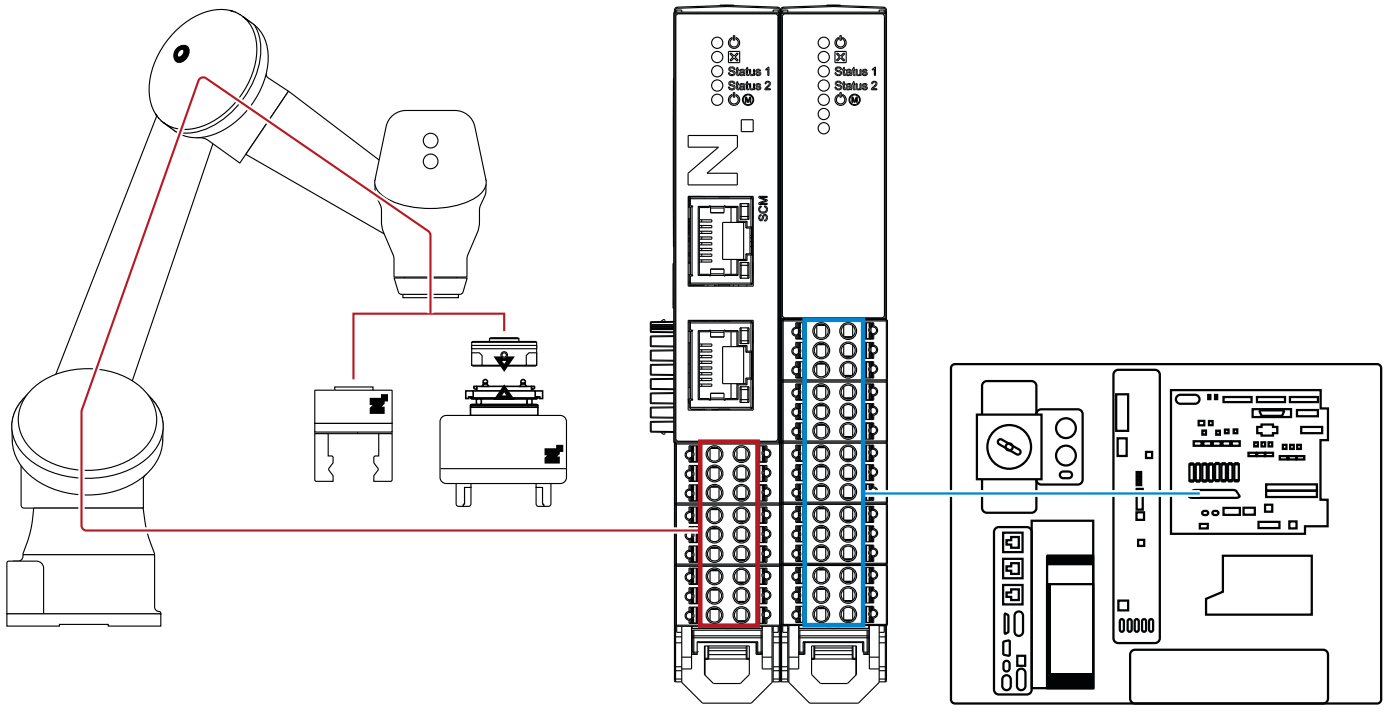
INFORMATION

- ► For more information, refer to the circuit diagram on our website.

The product is designed for installation on a standard 35 mm-wide profile rail.

The mounting position can be upright on the profile rail or suspended (profile rail mounted in the control cabinet).

- ► Keep a clearance of 5 cm each on the side of the ventilation slots of the product for air circulation.



10.1.1 Installing standard wiring

NOTICE

The gripper wiring must match the gripper configuration done in the Comfort App.

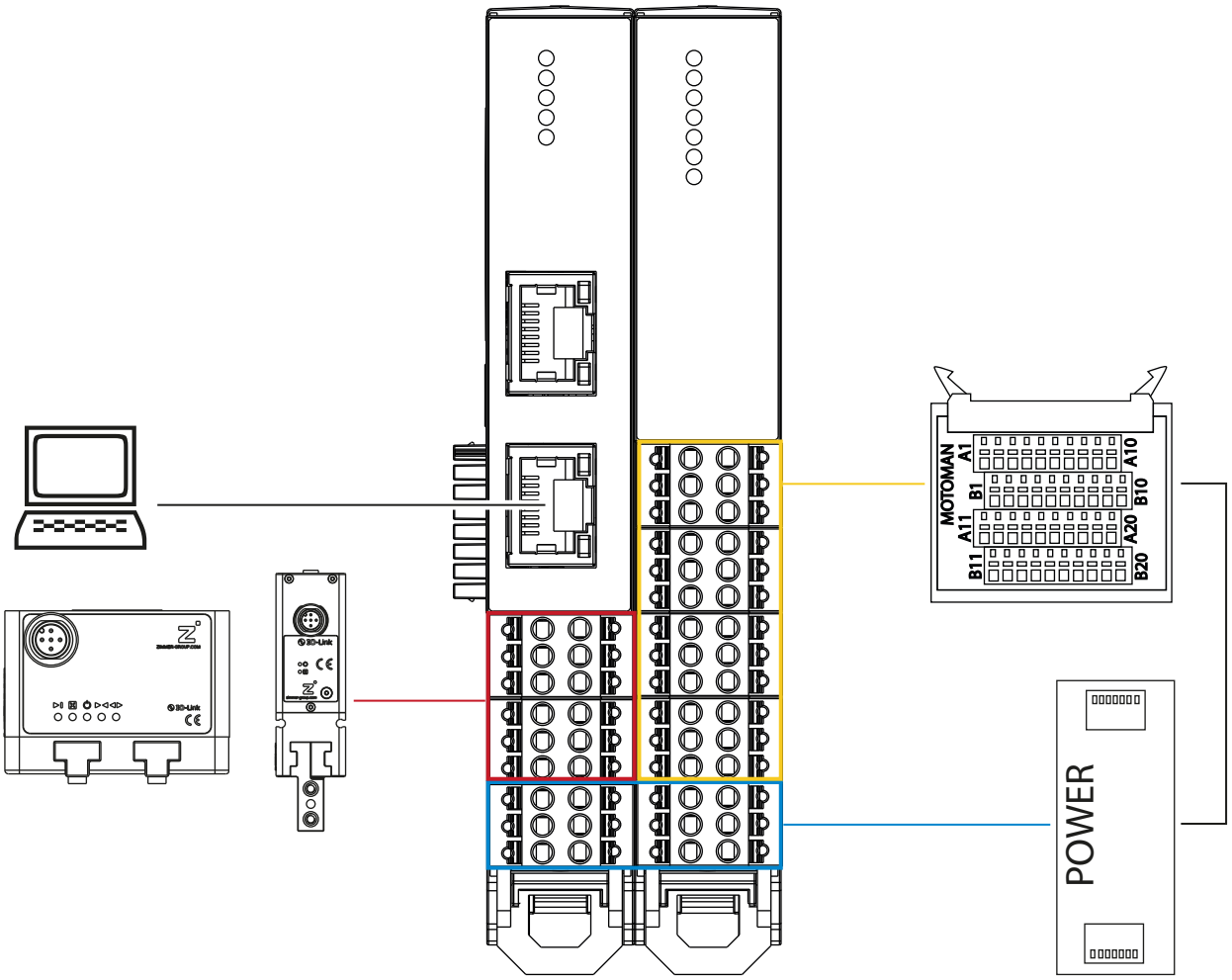
NOTICE

Because the robot control system does not provide sufficient power, an external power supply unit is necessary for the 24 V power supply.

For the connection assignment of the robot inputs and robot outputs, refer to the manufacturer documentation.

For the connection assignment of the SCM inputs and SCM outputs, refer to the installation and operating instructions of the SCM. The installation and operating instructions of the SCM are downloaded along with the Zimmer HMI.

► Note the potential equalization by connecting the GND/0V potentials of the SCM and robot control system.



The standard wiring corresponds to the standard configuration in the Comfort App. If you do the standard wiring and keep the standard configuration in the Comfort App, your grippers will function with the robot.

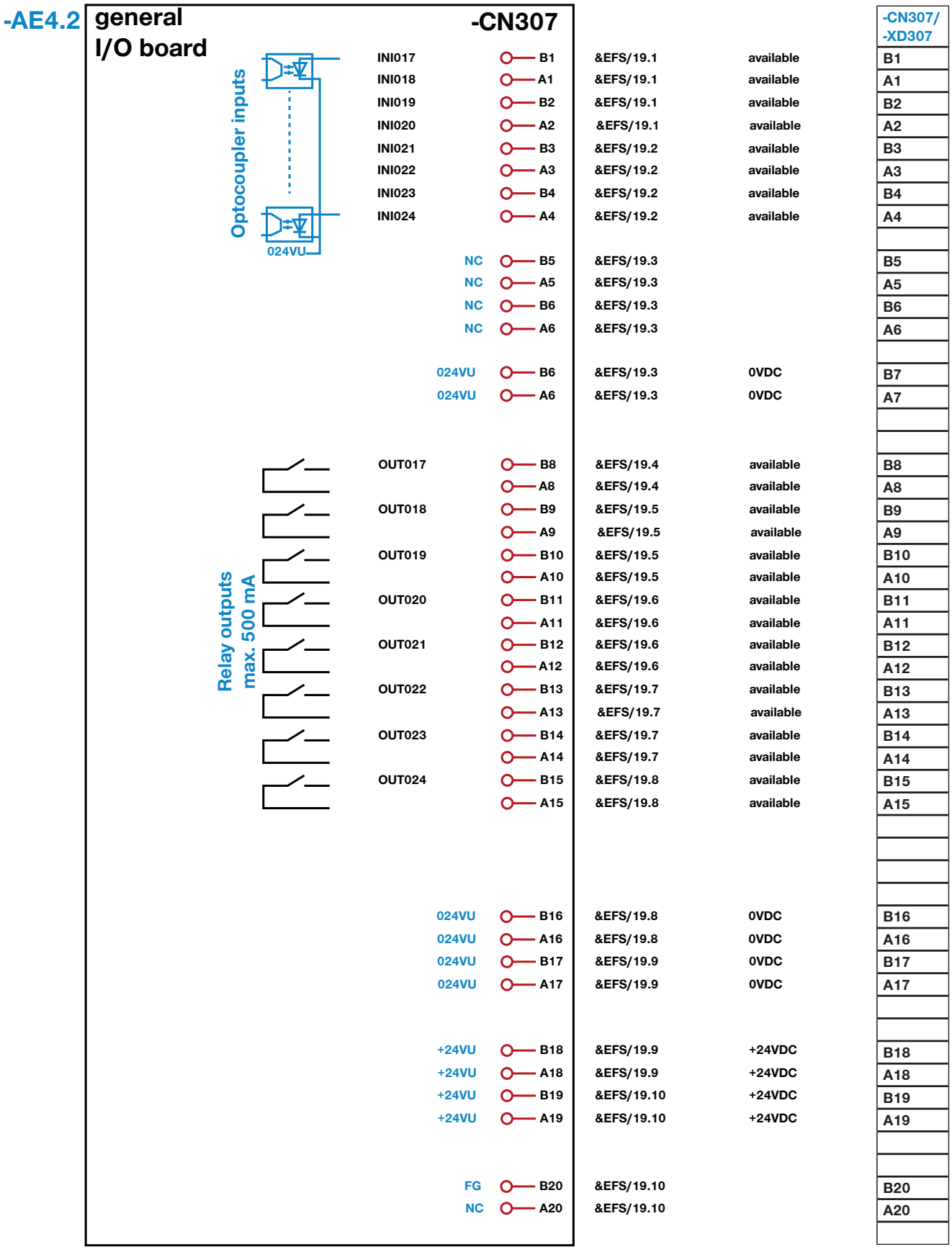
You have the option to change the standard wiring.

One reason for changing the standard wiring is when the robot input and output numbers are already used for a different external application and thus you cannot assign these to the gripper functions.

Another reason is if, on your robot, you can assign more than eight robot inputs and eight robot outputs to the gripper functions. In this case, you can use the full functionality of the SCM by assigning all SCM inputs and SCM outputs to the robot inputs and robot outputs.

10.1.2 Wiring of the robot IO card

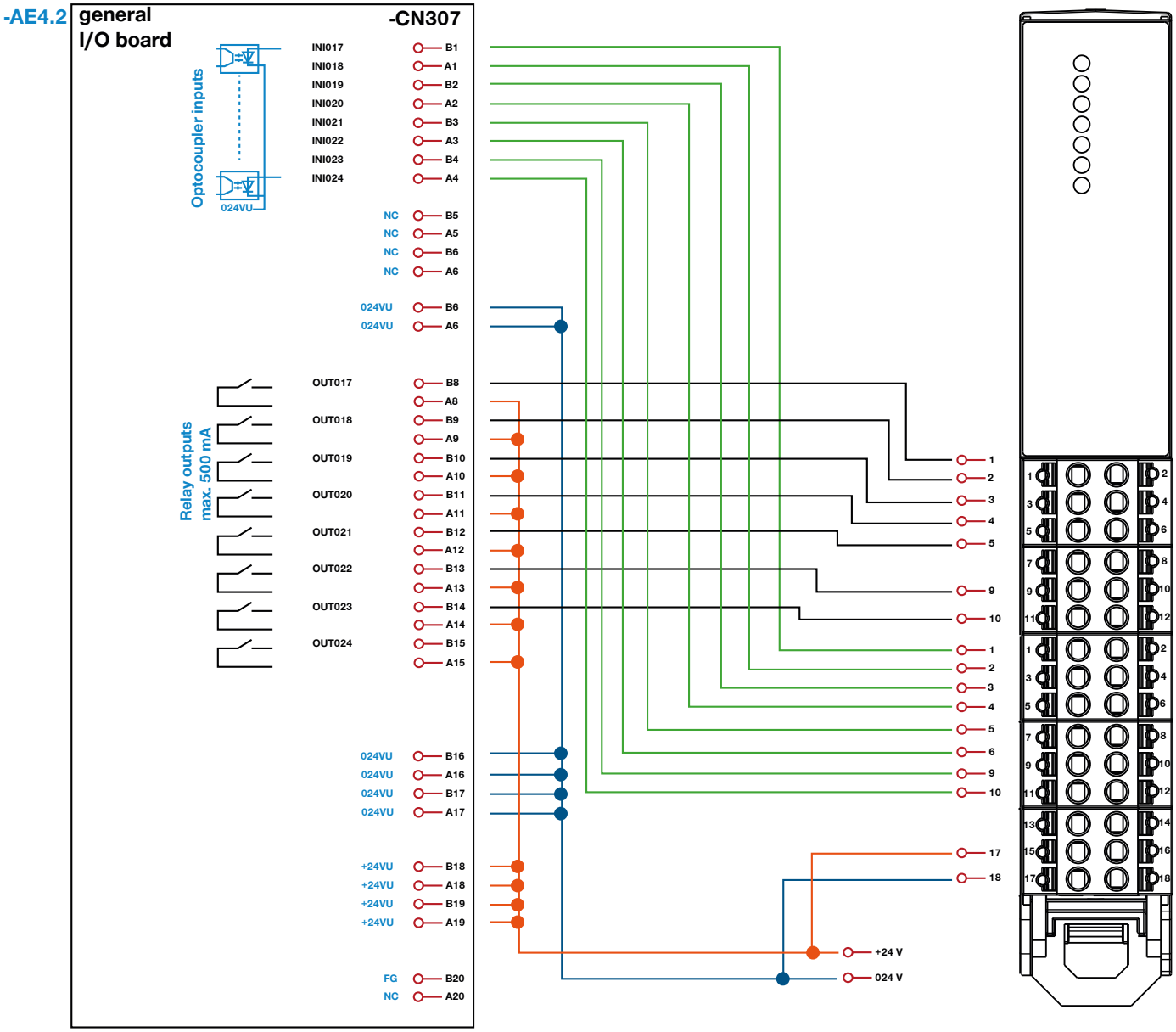
The various IO board connections CN306, CN307, CN308 and CN309 can be used on the robot control system.
The default setting for the Comfort App is CN306 with IN009..016 and OUT009..016 in use.



10.1.3 Standard wiring for individual grippers

SCM input and SCM output		
	Basic gripper	**Advanced gripper**
Cmd_Release	Out1	Out1
Cmd_Grip	Out2	Out2
Cmd_Reset	Out3	Out3
Cmd_MotorOn	-	Out4
Cmd_Homing	-	Out5
Cmd_WP_Bit0	Out6	Out6
Cmd_WP_Bit1	Out7	Out7
Cmd_WP_Bit2	-	-
Cmd_WP_Bit3	-	-
IsReleased	In1	In1
IsGripped	In2	In2
IsClosed	In3	In3
OnUndefinedPos	In4	In4
Error	In5	In5
MotorOn	-	In6
HomingOk	-	-
Act_WP_Bit0	In7	In7
Act_WP_Bit1	In8	In8
Act_WP_Bit2	-	-
Act_WP_Bit3	-	-

The following image shows the standard wiring for the Advanced gripper:



10.1.3.1 Basic gripper

If you keep the standard wiring, you can address workpiece numbers 1 to 7 because the SCM input Cmd_WP_Bit3 and the SCM output Act_WP_Bit3 are not connected.

Deviate from the standard wiring and add the necessary signals in the wiring to address all workpiece numbers from 1 to 15. A corresponding assignment of the SCM inputs and SCM outputs in the Comfort App is required.

SCM connection	Command	Color	Robot output
1	Cmd_Release	White	Hout1
2	Cmd_Grip	Brown	Hout2
3	Cmd_Reset	Green	Hout3
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	-	-	-
9	Cmd_WP_Bit0	Pink	Hout6
10	Cmd_WP_Bit1	Blue	Hout7
11	Cmd_WP_Bit2	-	(Hout8)
12	Cmd_WP_Bit3	-	-
SCM connection	**Confirmation**	**Color**	**Robot input**
1	IsReleased	Red	Hin1
2	IsGripped	Black	Hin2
3	IsClosed	Violet	Hin3
4	OnUndefinedPos	Gray/pink	Hin4
5	Error	Red/blue	Hin5
6	-	-	-
7	-	-	-
8	-	-	-
9	Act_WP_Bit0	Brown-green	Hin6
10	Act_WP_Bit1	White-yellow	Hin7
11	Act_WP_Bit2	-	-
12	Act_WP_Bit3	-	-

10.1.3.2 Advanced gripper

If you keep the standard wiring, you can address workpiece numbers 1 to 3, because the SCM inputs (Cmd_WP_Bit2 and Cmd_WP_Bit3) and SCM outputs (Act_WP_Bit2 and Act_WP_Bit3) are not connected.

Deviate from the standard wiring and add the necessary signals in the wiring to address all workpiece numbers from 1 to 15. A corresponding assignment of the SCM inputs and SCM outputs in the Comfort App is required.

SCM connection	Command	Color	Robot output
1	Cmd_Release	White	Hout1
2	Cmd_Grip	Brown	Hout2
3	Cmd_Reset	Green	Hout3
4	Cmd_MotorOn/ Cmd_MotorOff	Yellow	Hout4
5	Cmd_Homing	Gray	Hout5
6	-	-	-
7	-	-	-
8	-	-	-
9	Cmd_WP_Bit0	Pink	Hout6
10	Cmd_WP_Bit1	Blue	Hout7
11	Cmd_WP_Bit2	-	(Hout8)
12	Cmd_WP_Bit3	-	-
SCM connection	**Confirmation**	**Color**	**Robot input**
1	IsReleased	Red	Hin1
2	IsGripped	Black	Hin2
3	IsClosed	Violet	Hin3
4	OnUndefined	Gray/pink	Hin4
5	Error	Red/blue	Hin5
6	MotorOn	White-green	Hin6
7	HomingOk	-	-
8	-	-	-
9	Act_WP_Bit0	Brown-green	Hin7
10	Act_WP_Bit1	White-yellow	Hin8
11	Act_WP_Bit2	-	-
12	Act_WP_Bit3	-	-

10.1.4 Standard wiring for two grippers

In the scenario with two grippers, the SCM does not add the SCM inputs and SCM outputs provided for the workpiece numbers. Even if your robot has additional robot input and robot output lines available, only one workpiece per gripper is addressed. Some of the status lines, such as *isUndefinedPosition*, *isHomingOK*, *isMotorOn* are not used in some of the standard configurations.

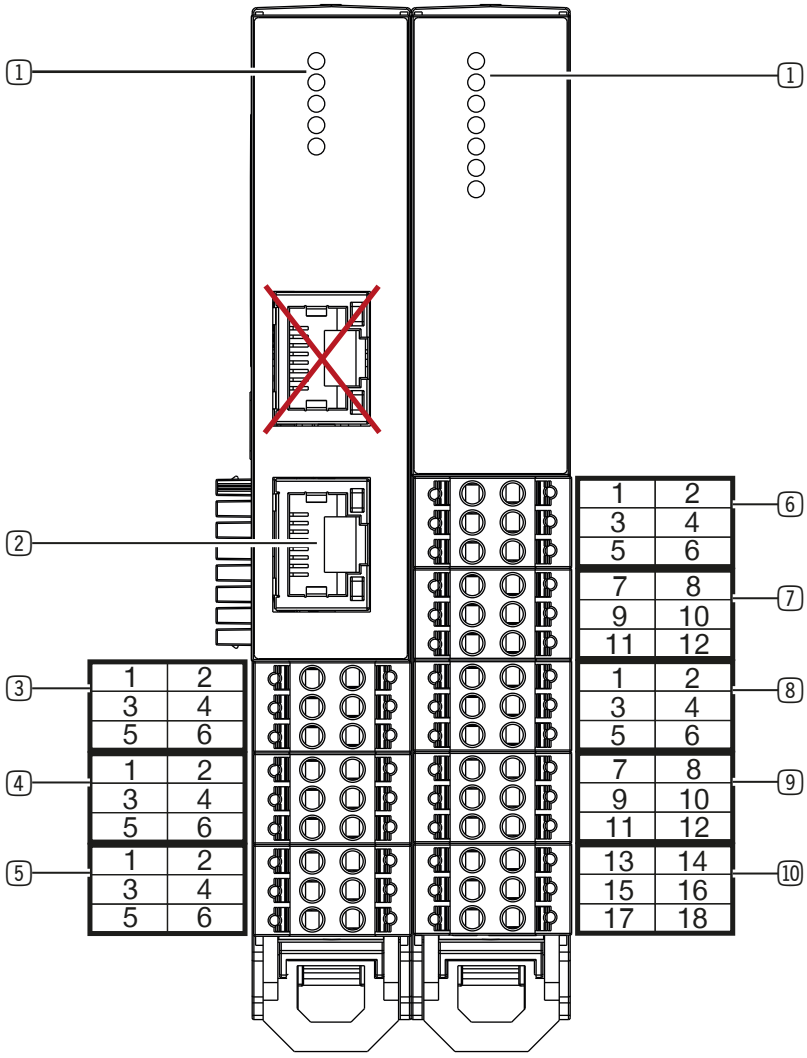
SCM input and SCM output				
	Basic gripper at port 1	**Advanced gripper at port 1**	**Basic gripper at port 2**	**Advanced gripper at port 2**
Cmd_Release	Out1	Out1	Out5	Out5
Cmd_Grip	Out2	Out2	Out6	Out6
Cmd_Reset	Out3	-	Out7	-
Cmd_MotorOn	-	Out3	-	Out3 or Out7
Cmd_Homing	-	Out4	-	Out8
Cmd_WP_Bit0	-	-	-	-
Cmd_WP_Bit1	-	-	-	-
Cmd_WP_Bit2	-	-	-	-
Cmd_WP_Bit3	-	-	-	-
IsReleased	In1	In1	In5	In5
IsGripped	In2	In2	In6	In6
IsClosed	In3	In3	In7	In7
OnUndefinedPos	-	-	-	-
Error	In4	In4	In8	In8
MotorOn	-	-	-	-
HomingOk	-	-	-	-
Act_WP_Bit0	-	-	-	-
Act_WP_Bit1	-	-	-	-
Act_WP_Bit2	-	-	-	-
Act_WP_Bit3	-	-	-	-

10.1.5 Advanced configuration

You can use the full functionality of the SCM by using more robot inputs and robot outputs. The functional assignment of the robot input and robot output numbers can be modified. A corresponding configuration of the extended wiring in the Comfort App is required.

10.2 Installing the energy supply

10.2.1 Mounting the pin assignment



1. Status
2. Ethernet port
3. IO-Link X1
4. IO-Link X2
5. Power supply of basic module X3
6. Digital input X4
7. Digital input X5
8. Digital output X6
9. Digital output X7
10. Power supply of IO module X8

10.2.2 Installing the power supply for the basic module

► Fuse the product using a suitable circuit breaker in accordance with the expected current draw and the cable cross-sections used.

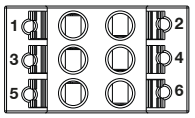
INFORMATION

The signal and actuator voltage is electrically isolated in the product.

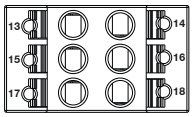
► Connect a maximum load of 10 A to pin 1 and pin 2.

► Connect a maximum load of 500 mA to pin 3 and pin 4.

The maximum permitted current draw allows you to operate all grippers directly on the product. No Y-plug-in connector for a special power supply is required.

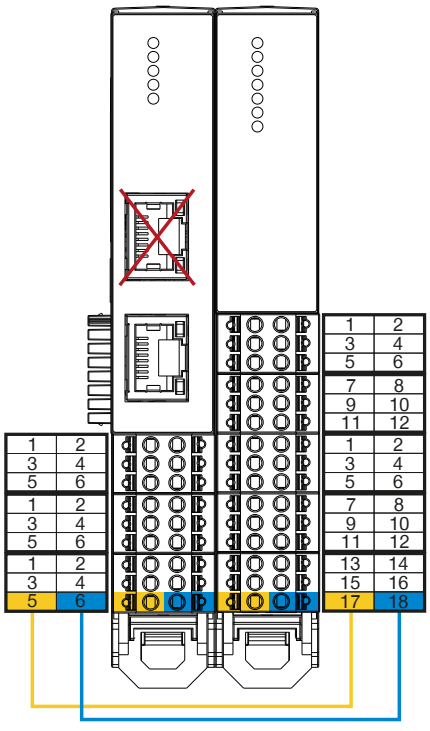
Pin	Function	Explanation	Power supply of basic module X3
1	24 V DC actuator	Actuator supply voltage	
2	GND actuator	0 V DC actuator supply voltage	
3	24 V DC input signal	SCM supply voltage and signal voltage for the grippers	
4	GND input signal	SCM ground and signal voltage for the grippers	
5	24 V DC output signal	Signal voltage output for supplying power to the I/O module (connect to pin 17)	
6	GND output signal	GND output for supplying power to the I/O module (connect to pin 18)	

10.2.3 Installing the power supply for the IO module

Pin	Function	Explanation	Power supply of IO module X8
13	-	-	
14	-	-	
15	-	-	
16	-	-	
17	24 V DC	24 V DC supply voltage	
18	GND	0 V DC supply voltage	

► Connect pin 5 of the basic module to pin 17 of the IO module.

► Connect pin 6 of the basic module to pin 18 of the IO module.



10.2.4 Installing IO-Link

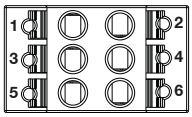
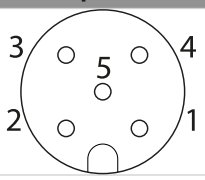
NOTICE

Non-compliance may result in material damage.

If the wiring is done differently, the gripper will be damaged.

If the gripper has an additional STO cable (Safe-Torque-OFF), this is wired with the external safety circuit independently of the SCM.

The pin assignments listed in the table are for both IO-Link channels.

IO-Link X1/IO-Link X2				IO-Link X1/IO-Link X2	M12 5-pin socket	
Pin	**Color**	**Function**	**Explanation**		**Pin**	**Color**
1	Black	C/Q	IO-Link communication		4	Black
2	-	-	-		6	-
3	White	PWR actuator	Actuator supply voltage	**M12 5-pin socket**	2	White
4	Gray	GND actuator	0 V DC actuator supply voltage		5	Gray
5	Brown	24 V DC sensor	Supply voltage of sensor		1	Brown
6	Blue	GND sensor	0 V DC sensor supply voltage		3	Blue

11 Installation HMI

INFORMATION

► For information, refer to the commissioning instructions for the HMI.

12 Commissioning HMI

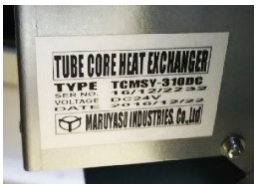
INFORMATION

► For information, refer to the commissioning instructions for the HMI.

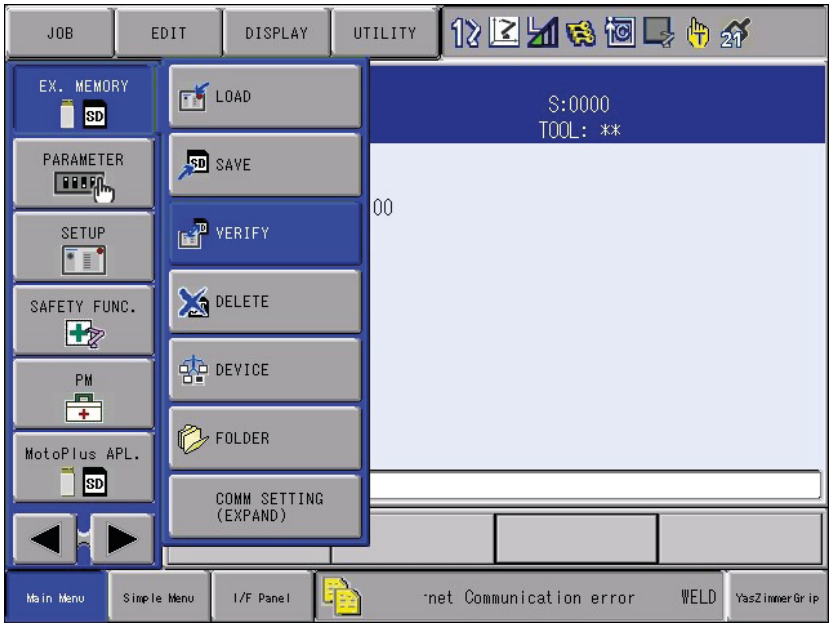
13 Installation Comfort App

13.1 Preparing the robot for installation of the Comfort App

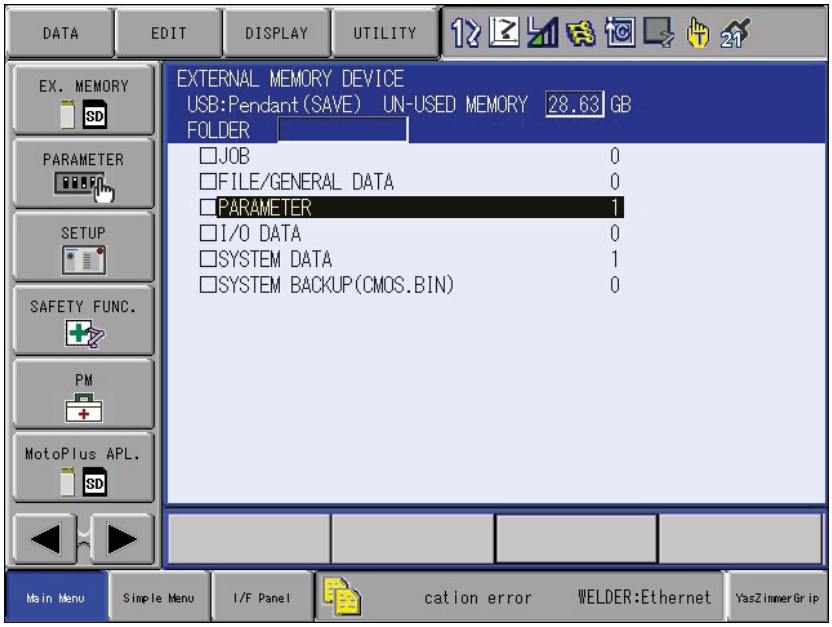
► Take photos of the type plates.
  • Two of the plates are on the control cabinet of the robot control system and one is on the robot.



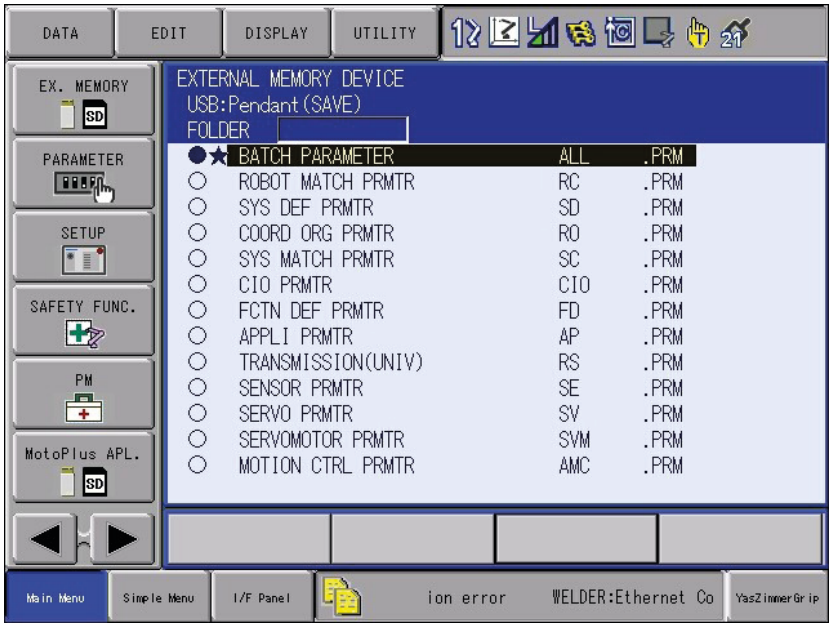
► Plug the USB memory stick into the robot control panel.
► Save the file *ALL.PRM* from the robot control panel to the USB memory stick:
  ► Click the *EX. MEMORY* button.
  ► Click the *VERIFY* button.



► Enter the parameter.

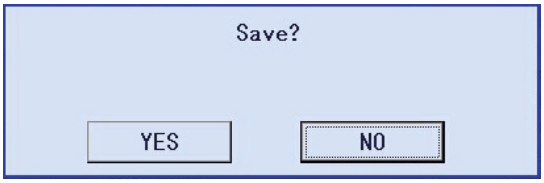


► Click *BATCH PARAMETER*.



► In the prompt, click the *YES* button.

⇨ The file *ALL.PRM* is stored on the USB memory stick.



► Email the photos and the *ALL.PRM* file to Yaskawa with the request for the installation license for the Comfort App.

⇨ You receive the license and a modified *ALL.PRM* file from Yaskawa by email.

► Save the file you receive to a USB memory stick.

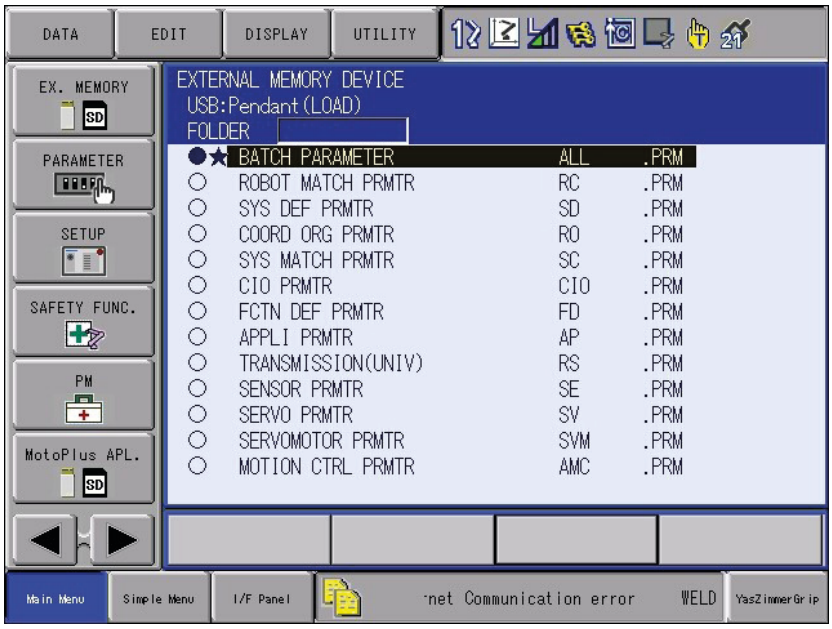
► Plug the USB memory stick into the robot control panel.

► Install the *ALL.PRM* file on the robot control panel:

  ► Click the *EX. MEMORY* button.

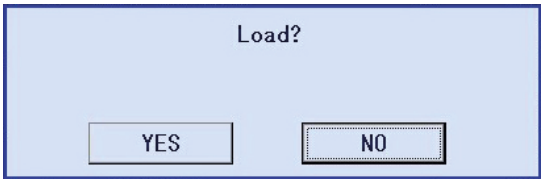
  ► Click the *LOAD* button.

  ► Click the *BATCH PARAMETER* button.



► In the prompt, click the *YES* button.

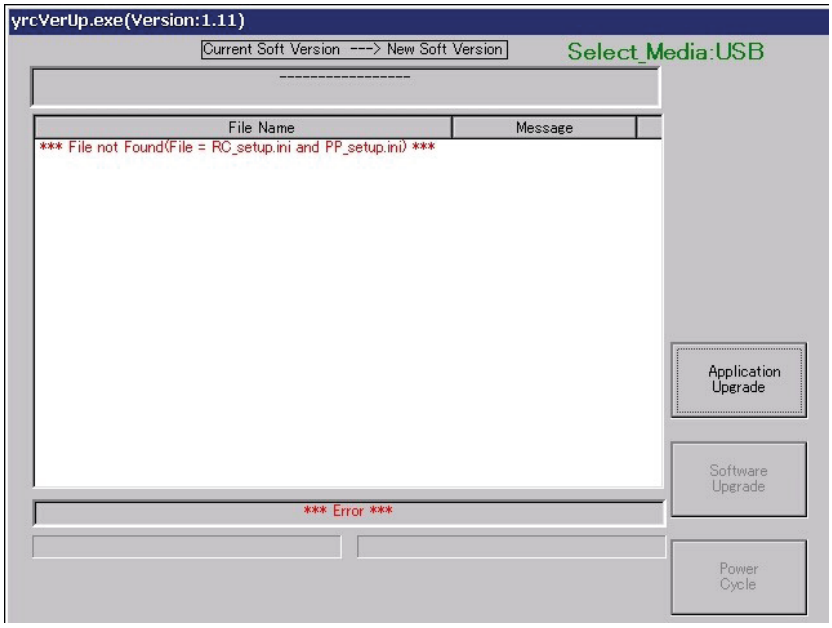
⇨ The file *ALL.PRM* was loaded onto the USB memory stick of the robot control panel.



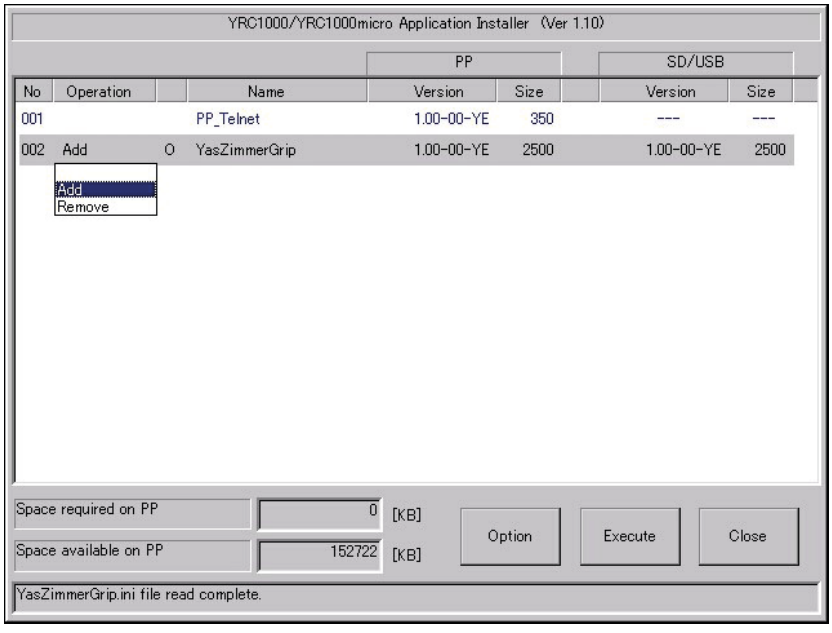
13.2 Installing the Comfort App

- ▶ Download the Comfort App from our website.
- ▶ Copy the installation file to a USB memory device.
- ▶ Make sure that the SWA file on the USB memory stick has been extracted.
- ▶ Make sure that the robot control panel is already connected to the robot control system.
- ▶ Plug the USB memory stick into the robot control panel.
- ▶ Connect the supply voltage.
- ▶ Simultaneously click the *INTERLOCK*, *8* and SELECT buttons on the robot control panel.
- ▶ Switch on the power supply while clicking the buttons.

- ⇨ The robot control panel is switched on and emits a short beep.
- ▶ Release the three buttons *INTERLOCK*, *8*, *and SELECT* .
- ⇨ The following screen is displayed.
- ▶ Click the *Application Upgrade* button.



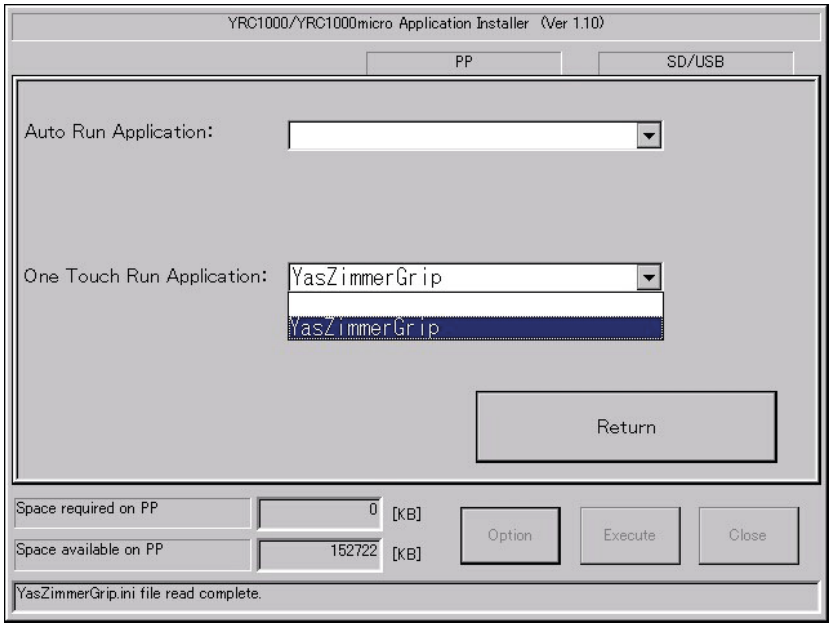
- ⇨ A new screen is displayed.
- ▶ Click the *Option* button.



⇨ A new screen is displayed with *YasZimmerGrip* in a drop-down menu.

► Click the *Return* button.

⇨ The previous screen is displayed again.



► Click the *Execute*button.

⇨ The wait cursor is displayed for a few seconds.

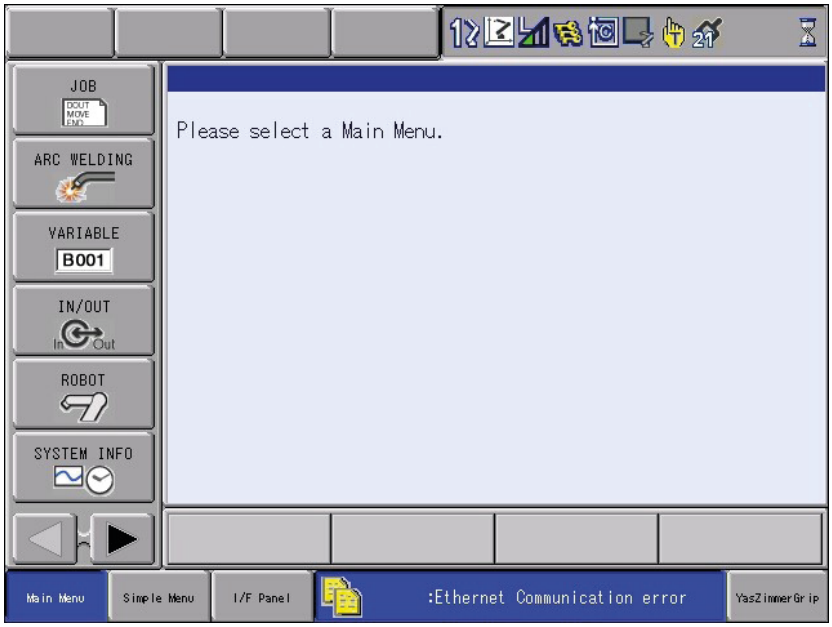
► Click the *Close*button.

► Switch off the power.

► Switch the power on again.

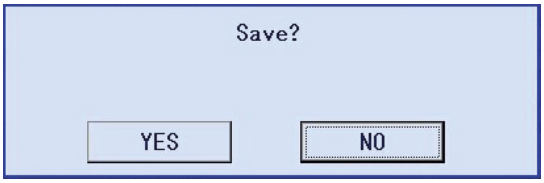
⇨ The following screen is shown after initialization.

⇨ As a result of installing the Comfort App on the robot control panel, the *YasZimmerGrip* button is displayed.



► In the prompt, click the *YES* button.

⇨ The file *ALL.PRM* is stored on the USB memory stick.



► Email the photos and the *ALL.PRM* file to Yaskawa with the request for the installation license for the Comfort App.

⇨ You receive the license and a modified *ALL.PRM* file from Yaskawa by email.

► Save the file you receive to a USB memory stick.

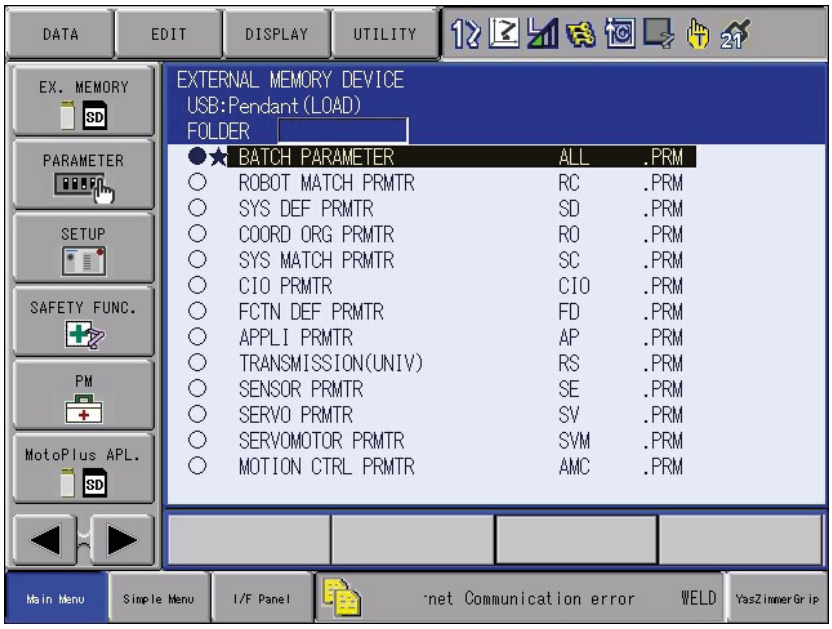
► Plug the USB memory stick into the robot control panel.

► Install the *ALL.PRM* file on the robot control panel:

  ► Click the *EX. MEMORY* button.

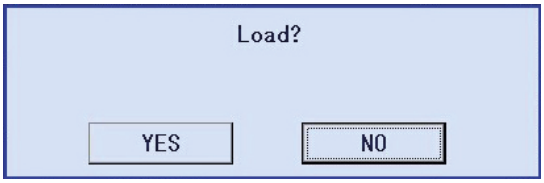
  ► Click the *LOAD* button.

  ► Click the *BATCH PARAMETER* button.



► In the prompt, click the *YES* button.

⇨ The file *ALL.PRM* was loaded onto the USB memory stick of the robot control panel.



14 Commissioning Comfort App

NOTICE

► Switch on the robot so that you can use the Comfort App.

The *YasZimmerGrip* button is displayed on the robot control panel.

► Click the *YasZimmerGrip* button to start the Comfort App.

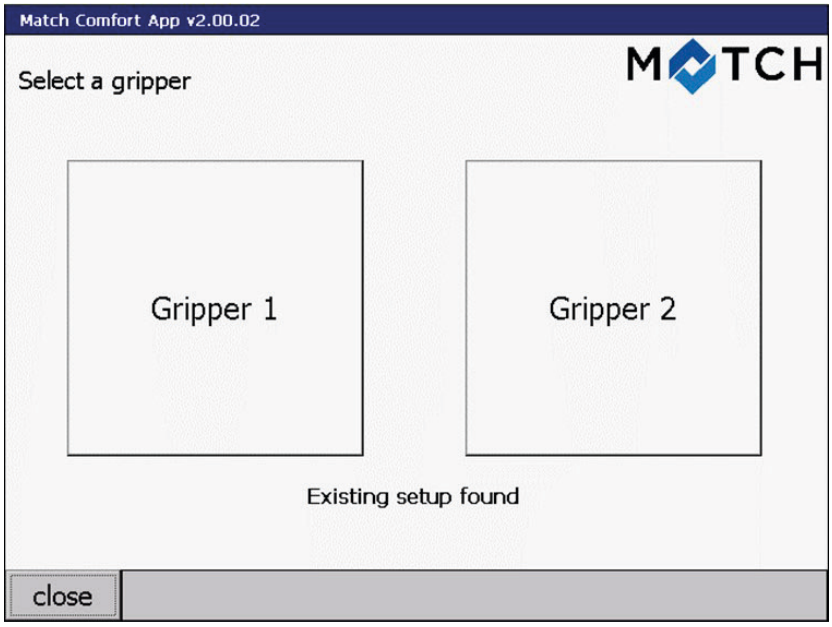
14.1 Deleting existing setups

The following screen is displayed only if an existing setup is found for two grippers.

This screen does not appear if the available setup is only found for one gripper. In this case, the next screen is shown right away.

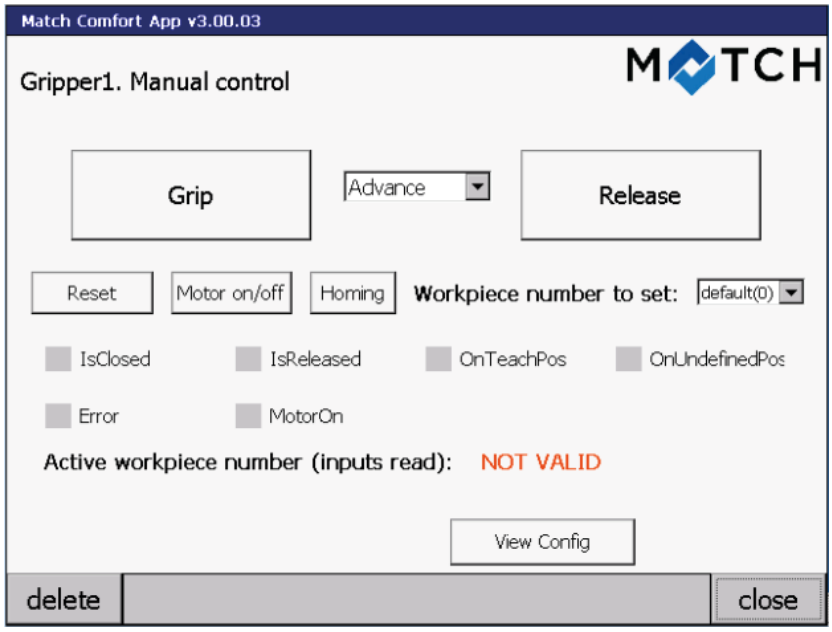
► Click the button of the desired gripper.

⇨ The *Manual control* screen for the manual control is displayed.



In the *Manual control* screen, you can operate the gripper manually and display the status.

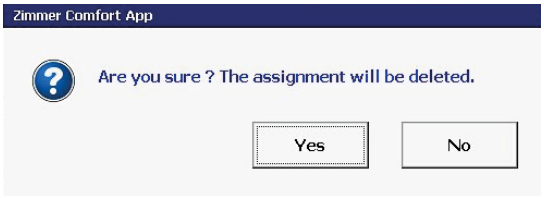
► Click the *delete* button.



► In the prompt, click the *YES* button.

⇨ The existing setup is deleted.

⇨ The screen sequence for configuring new grippers is displayed.



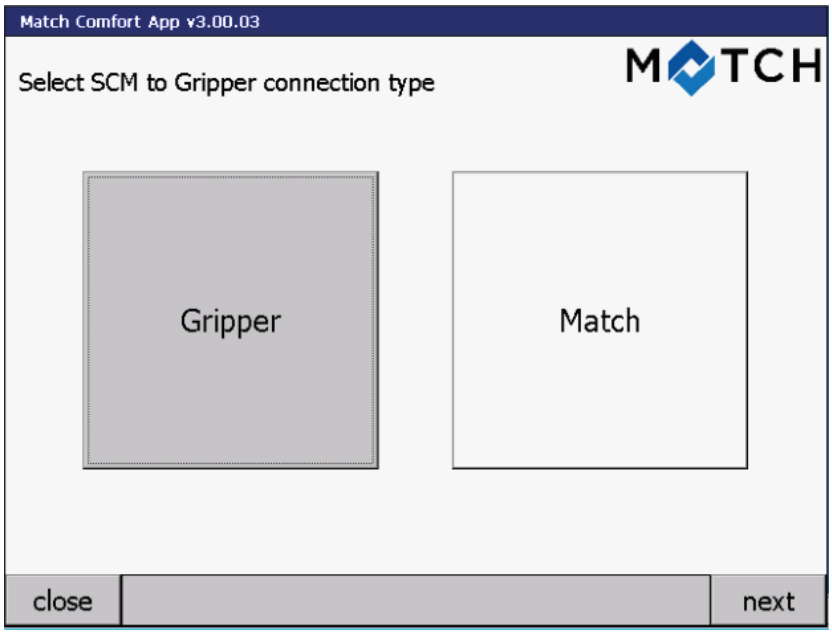
14.2 Creating a gripper configuration

14.2.1 Selecting the connection type

► Click *Gripper* if you have connected a gripper.

► Click *MATCH* if you have connected a MATCH gripper.

► Click the *next* button.

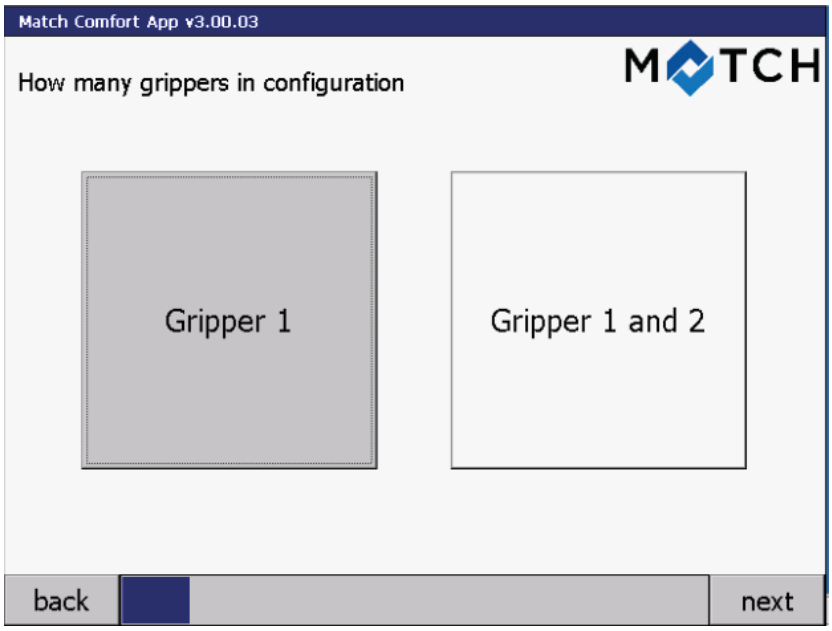


14.2.2 Gripper connection type

14.2.2.1 Selecting the number of grippers

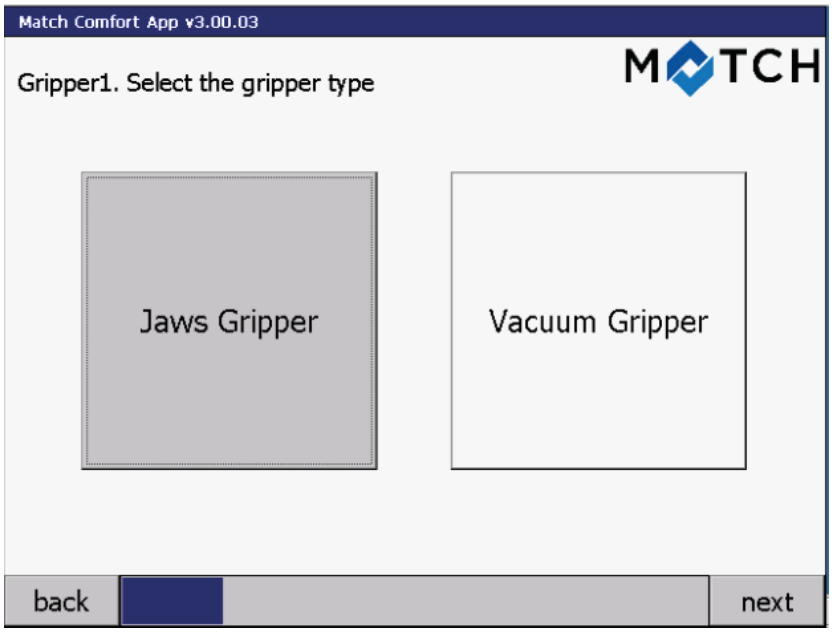
► Click the desired number of grippers you want to have in your robot application.

► Click the *next* button.



14.2.2.2 Selecting the gripper type

- ▶ Click the desired gripper type.
- ▶ Click the *next* button.

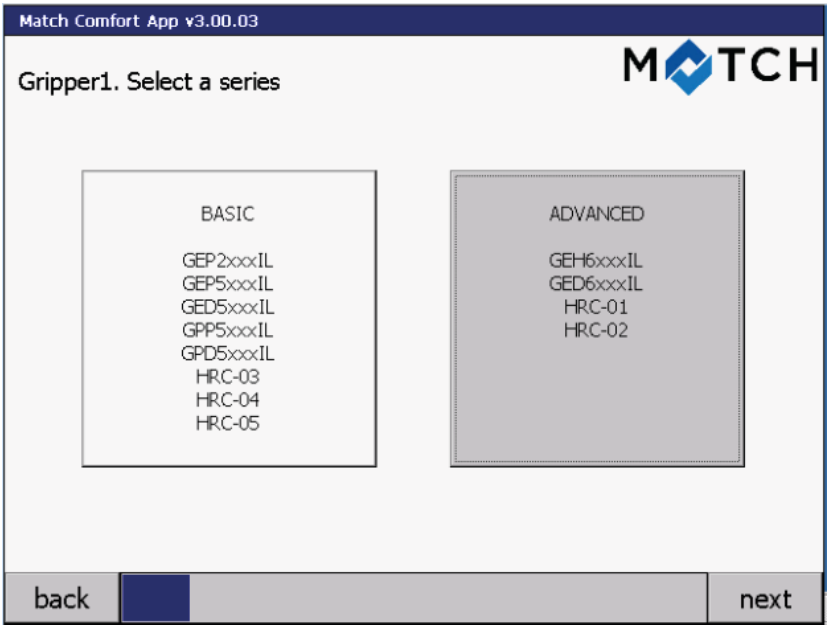


14.2.2.3 Selecting the gripper series

INFORMATION

Basic and *Advanced* designate different classes of grippers from Zimmer GmbH.

- ▶ Click the class of your gripper.
- ▶ Click the *next* button.



14.2.2.4 Manual control

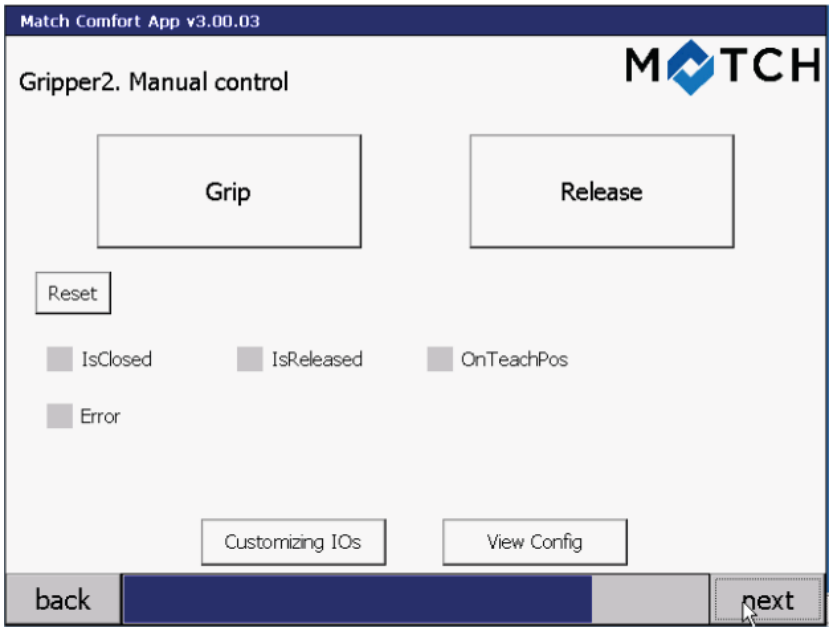
NOTICE

The prerequisite for the function test is that the wiring between the robot and SCM is present and that the robot, SCM and gripper are switched on.

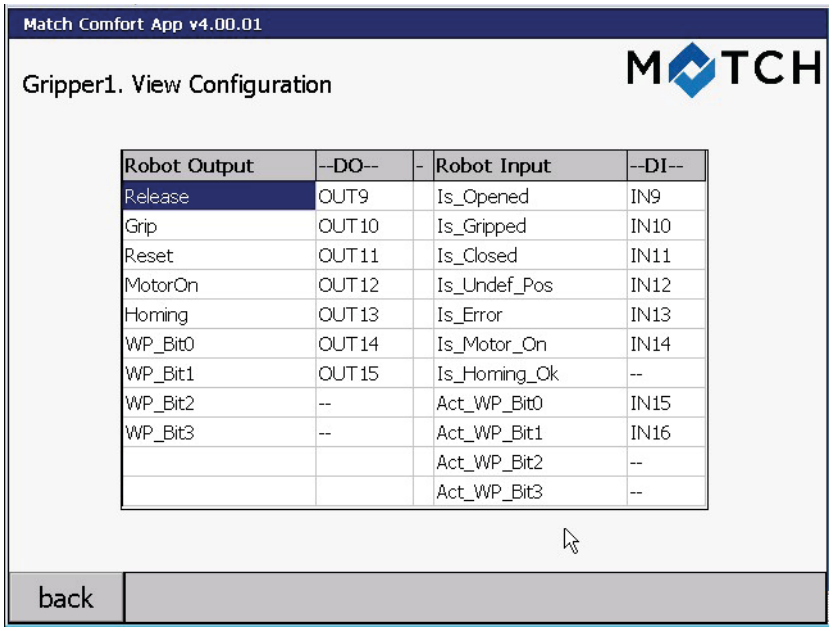
You can test and operate the function of the gripper and view its status in the lower area of the screen.

You can accept the default assignment or change it.

- ▶ If you would like to view the default assignment, press the *View Config* button.
- ⇨ The *View configuration* screen with the default assignment of the gripper is displayed.
- ▶ Press the *next* button if you want to keep the default assignment.
- ▶ If you would like to change the default assignment, press the *Customizing IOs* button.
- ⇨ The *Select command connections* screen for selecting the command connections is displayed.



- ▶ Press the *back* button to return to the previous screen and change or confirm the default settings.



Robot Output	--DO--	-	Robot Input	--DI--
Release	OUT9		Is_Opened	IN9
Grip	OUT10		Is_Gripped	IN10
Reset	OUT11		Is_Closed	IN11
MotorOn	OUT12		Is_Undef_Pos	IN12
Homing	OUT13		Is_Error	IN13
WP_Bit0	OUT14		Is_Motor_On	IN14
WP_Bit1	OUT15		Is_Homing_Ok	--
WP_Bit2	--		Act_WP_Bit0	IN15
WP_Bit3	--		Act_WP_Bit1	IN16
			Act_WP_Bit2	--
			Act_WP_Bit3	--

14.2.2.5 Selecting the command connections

NOTICE

The gripper wiring must match the gripper configuration done in the Comfort App.

NOTICE

If this screen is displayed for the first time, a standard assignment is displayed.

► Complete the wiring precisely as shown on this screen.

To reset the values to the defaults, edit the values or return to the selection of the number of grippers (see the section "Selecting the number of grippers").

► Establish the correspondence of the robot output number with the digital input function of the SCM.

You can accept the default assignment or change it.

► Click the *next* button if you want to keep the default assignment.

Editing the command connection

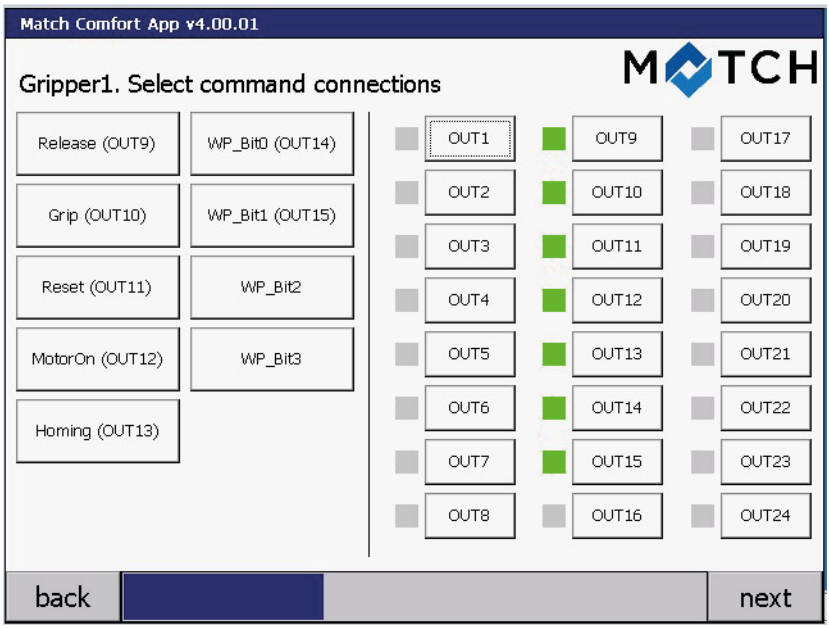
► Click the button of the desired signal.
- e.g. Release

► Click the desired output.
- e.g. OUT7

⇨ The output has been assigned to the signal.

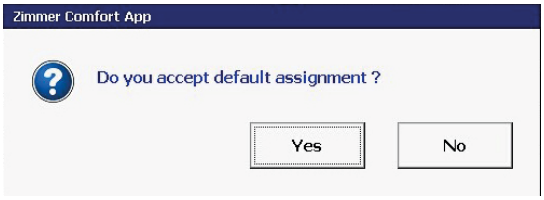
⇨ The button of the signal is expanded by adding the output.
- e.g. Release (OUT7)

► Click the *next* button.



► In the prompt, click the *YES* button.

⇨ The *Select status connections* screen for status connections is displayed.



14.2.2.6 Selecting the status connections

► Establish the correspondence of the robot input number with the digital input function of the SCM.

NOTICE

If this screen is displayed for the first time, a standard assignment is displayed.

► Complete the wiring precisely as shown on this screen.

You can accept the default assignment or change it.

► Click the *next* button if you want to keep the default assignment.

Editing the status connections

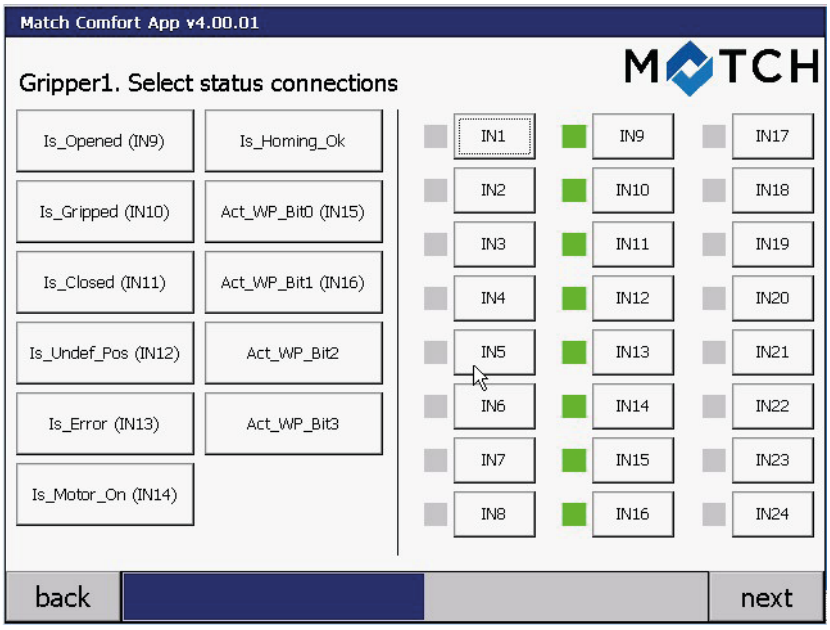
► Click the button of the desired signal.
- e.g. Is_Opened

► Click the desired input.
- e.g. IN7

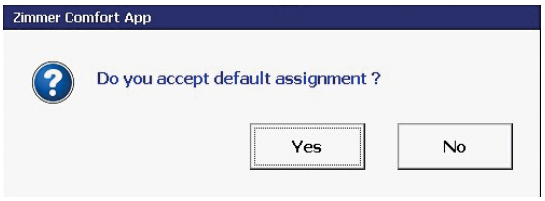
⇨ The input has been assigned to the signal.

⇨ The button of the signal is expanded by adding the input.
- e.g. Is_Opened (IN7)

► Click the *next* button.



► In the prompt, click the *YES* button.

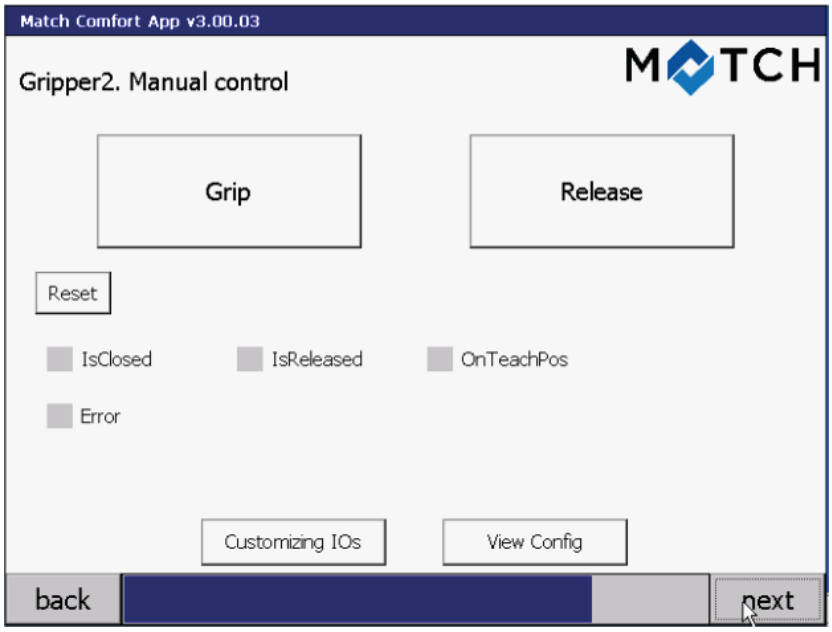


14.2.2.7 Storing gripper configuration

⇨ The *Manual control* screen for the manual control is displayed.

► For more information, refer to the section "Manual control".

► Click the *next* button.



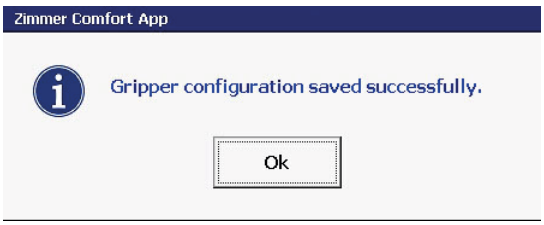
► In the prompt, click the *YES* button.

⇨ The gripper configuration has been stored.

► In the prompt, click the *Ok* button.

⇨ The gripper configuration is complete.

⇨ The function blocks/subprograms have been created and are available for programming.



14.2.3 MATCH connection type

14.2.3.1 Manual control

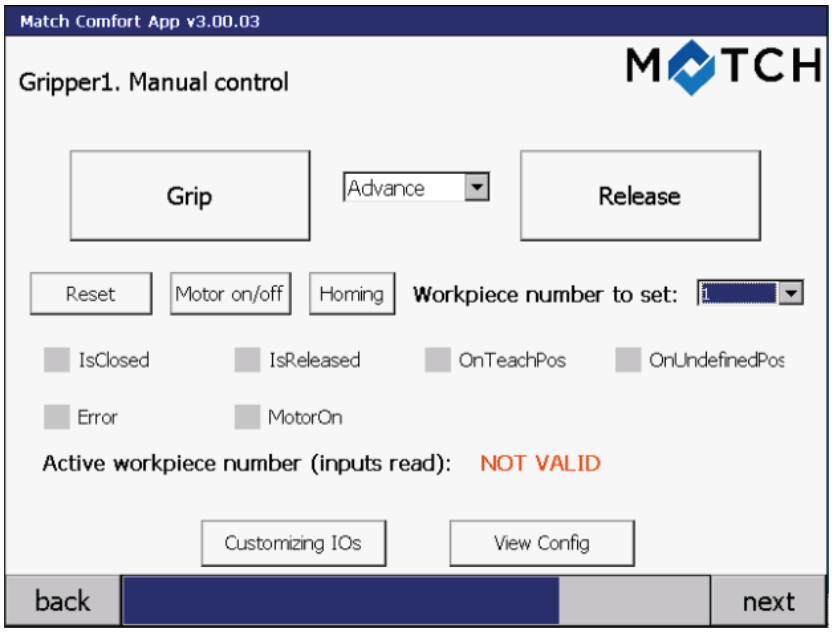
NOTICE

The prerequisite for the function test is that the wiring between the robot and SCM is present and that the robot, SCM and gripper are switched on.

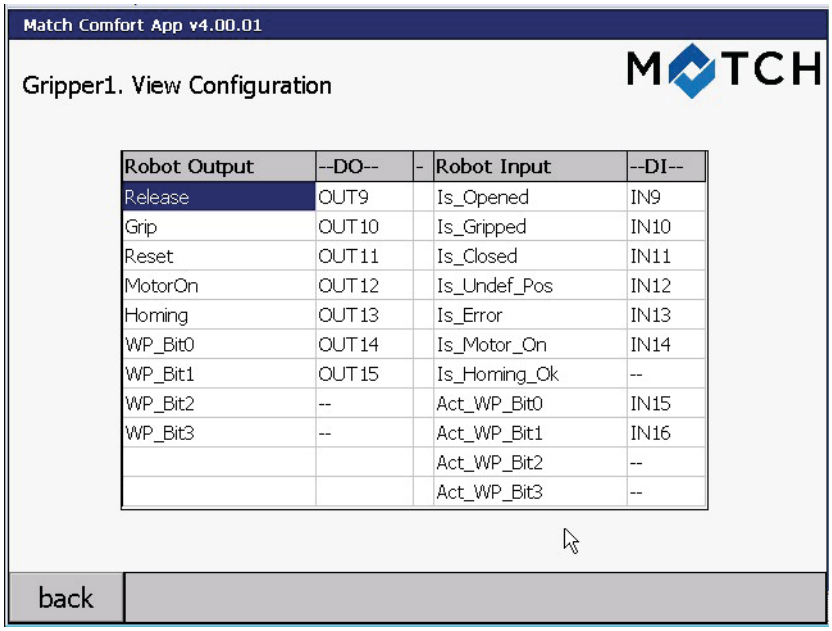
You can test and operate the function of the gripper and view its status in the lower area of the screen.

You can use the option fields to choose between the grippers.

- ▶ If you would like to view the default assignment, press the *View Config* button.
- ⇨ The *View configuration* screen with the default assignment of the gripper is displayed.
- ▶ Press the *next* button if you want to keep the default assignment.
- ▶ If you would like to change the default assignment, press the *Customizing IOs* button.
- ⇨ The *Select command connections* screen for selecting the command connections is displayed.



- ▶ Press the *back* button to return to the previous screen and change or confirm the default settings.



Robot Output	--DO--	-	Robot Input	--DI--
Release	OUT9		Is_Opened	IN9
Grip	OUT10		Is_Gripped	IN10
Reset	OUT11		Is_Closed	IN11
MotorOn	OUT12		Is_Undef_Pos	IN12
Homing	OUT13		Is_Error	IN13
WP_Bit0	OUT14		Is_Motor_On	IN14
WP_Bit1	OUT15		Is_Homing_Ok	--
WP_Bit2	--		Act_WP_Bit0	IN15
WP_Bit3	--		Act_WP_Bit1	IN16
			Act_WP_Bit2	--
			Act_WP_Bit3	--

14.2.3.2 Selecting the command connections

NOTICE

The gripper wiring must match the gripper configuration done in the Comfort App.

NOTICE

If this screen is displayed for the first time, a standard assignment is displayed.

► Complete the wiring precisely as shown on this screen.

To reset the values to the defaults, edit the values or return to the selection of the number of grippers (see the section "Selecting the number of grippers").

► Establish the correspondence of the robot output number with the digital input function of the SCM.

You can accept the default assignment or change it.

► Click the *next* button if you want to keep the default assignment.

Editing the command connection

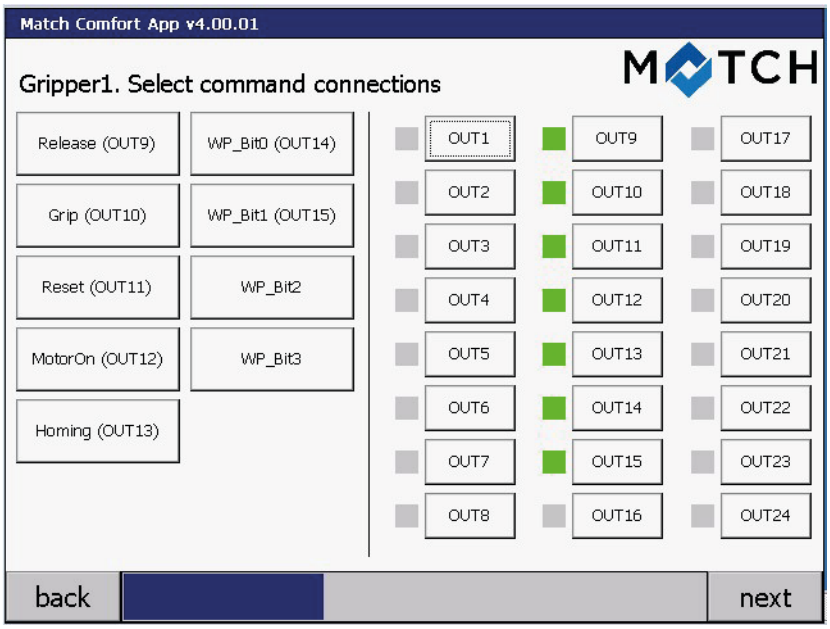
► Click the button of the desired signal.
- e.g. Release

► Click the desired output.
- e.g. OUT7

⇨ The output has been assigned to the signal.

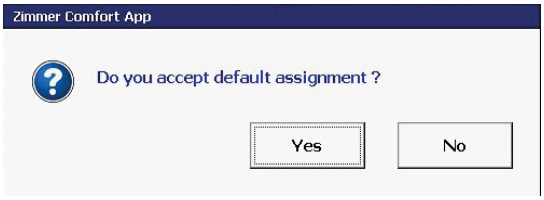
⇨ The button of the signal is expanded by adding the output.
- e.g. Release (OUT7)

► Click the *next* button.



► In the prompt, click the *YES* button.

⇨ The *Select status connections* screen for status connections is displayed.



14.2.3.3 Selecting the status connections

► Establish the correspondence of the robot input number with the digital input function of the SCM.

NOTICE

If this screen is displayed for the first time, a standard assignment is displayed.

► Complete the wiring precisely as shown on this screen.

You can accept the default assignment or change it.

► Click the *next* button if you want to keep the default assignment.

Editing the status connections

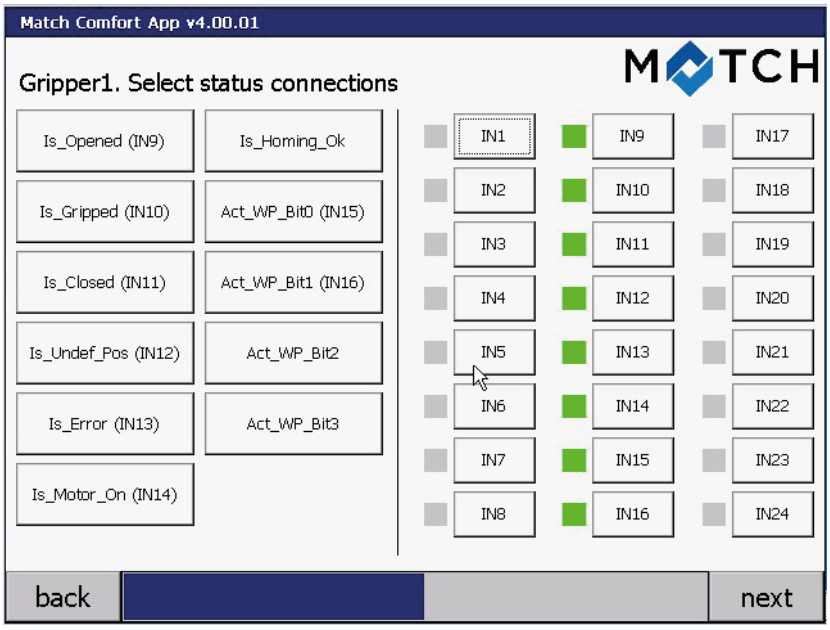
► Click the button of the desired signal.
- e.g. Is_Opened

► Click the desired input.
- e.g. IN7

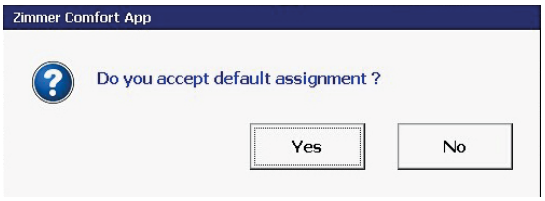
⇨ The input has been assigned to the signal.

⇨ The button of the signal is expanded by adding the input.
- e.g. Is_Opened (IN7)

► Click the *next* button.



► In the prompt, click the *YES* button.

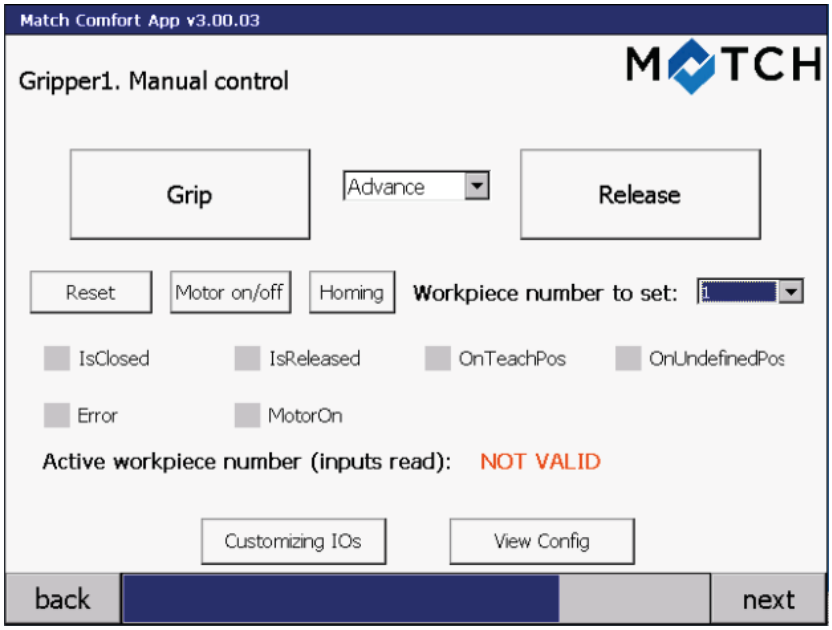


14.2.3.4 Storing gripper configuration

⇨ The *Manual control* screen for the manual control is displayed.

► For more information, refer to the section "Manual control".

► Click the *next* button.



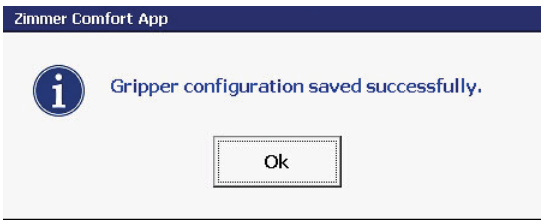
► In the prompt, click the *YES* button.

⇨ The gripper configuration has been stored.

► In the prompt, click the *Ok* button.

⇨ The gripper configuration is complete.

⇨ The function blocks/subprograms have been created and are available for programming.



15 Operation

15.1 Control principle of the gripper

- ▶ Prepare *Advanced* grippers for the control system:
  - ▶ If necessary, do a reference run (ZHOMING).
  - ▶ Check if the reference run was done (ZISHOMINGOK or ZISHOMINGSUCCESS).
  - ▶ Switch on the motor (ZMOTORON).
  - ▶ Check whether the motor is switched on (ZISMOTORON).
  - ⇨ The gripper is prepared for the control system if no error is present (ZISERROR).
- ▶ Set a workpiece configured with the HMI software *ZG_IO_LINK_HMI* (ZCHANGEWP(number)) if more than one workpiece is used.
- ▶ Check whether a workpiece has changed (Z_ISWPCHANGED(number)).
- ▶ Grip (ZGRIP) or release (ZRELEASE) the workpiece.
- ▶ Check the position of the gripper jaw (ZISONTEACHPOS, ZISOPENED, ZISCLOSED or ZISONUNDEFPOS).

15.2 Overview of generated robot jobs

After successful configuration of the grippers using the HMI software, robot jobs for various functions are generated in the robot control panel. The robot jobs can be called up from user jobs. The following robot jobs can be created using the Comfort App.

Not all robot jobs are generated after successful configuration of the grippers. The job is created only if the corresponding command or status is wired and used by the equipped gripper(s).

Generated robot job name	Parameter In	Parameter Out	Function
ZGRIP1 ZGRIP2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Gripping
ZRELEASE1 ZRELEASE2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Release
ZMOTORON1 ZMOTORON2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Switch on motor for *Advanced* grippers.
ZMOTOROFF1 ZMOTOROFF2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Switch off motor if gripper is present.
ZHOMING1 ZHOMING2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Perform reference run for *Advanced* grippers.
ZRESET1 ZRESET2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Reset if gripper is present.
ZCHANGEWP1 ZCHANGEWP2	*WpNumber* = workpiece number (1 to 15)	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Set workpiece number (n) for use with SCM.
ZISWPCHANGED1 ZISWPCHANGED2	*WpNumber* = workpiece number (1 to 15)	*bWPchanged* = *TRUE*, if workpiece is active = *FALSE*, if workpiece is not active *bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Outputs TRUE if workpiece number (n) is activated.

Generated robot job name	Parameter In	Parameter Out	Function
ZISOPENED1 ZISOPENED2	*1*: Address gripper 1 *2:* Address gripper 2	*bOpened* = *TRUE*, if gripper is open = *FALSE*, if gripper is closed	Outputs TRUE if the gripper is open.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISCLOSED1 ZISCLOSED2	*1*: Address gripper 1 *2:* Address gripper 2	*bClosed* = TRUE, if gripper is open = FALSE, if gripper is closed	Outputs TRUE if the gripper is closed.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISONTEACHPOS1 ZISONTEACHPOS2	*1*: Address gripper 1 *2:* Address gripper 2	*bIsOnTeachPos* = *TRUE*, if gripper is set to TeachPosition = *FALSE*, if gripper is not set to TeachPosition	Outputs TRUE if the gripper is set to *TeachPosition*.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISONUNDEFPOS1 ZISONUNDEFPOS2	*1*: Address gripper 1 *2:* Address gripper 2	*bUndefPos* = *TRUE*, if gripper is set to UndefinedPosition = *FALSE*, if gripper is not set to UndefinedPosition	Outputs TRUE if the gripper is set to *OnUndefinedPos*.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISERROR1 ZISERROR2	*1*: Address gripper 1 *2:* Address gripper 2	*bError* = *TRUE*, if gripper is in error state = *FALSE*, if gripper is not in error state	Outputs TRUE if the gripper is in an error state.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISMOTORON1 ZISMOTORON2	*1*: Address gripper 1 *2:* Address gripper 2	*bMotorOn* = *TRUE*, if motor is on = *FALSE*, if motor is off	Outputs TRUE if the motor of the gripper is switched on.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISHOMINGOK1 ZISHOMINGOK2	*1*: Address gripper 1 *2:* Address gripper 2	*bHomeOk* = *TRUE*, if homing is OK = *FALSE*, if homing is not OK	Outputs TRUE if the referencing of the gripper is OK.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	

Generated robot job name	Parameter In	Parameter Out	Function
ZISHOMINGSUCCESS1 ZISHOMINGSUCCESS2	*1*: Address gripper 1 *2:* Address gripper 2	*bHomeSuccess* = *TRUE*, if ZHOMING command was successful = *FALSE*, if gripper is not in error state at ZHOMING command	Outputs TRUE if the referencing of the gripper is successful.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZERRORWARNINGON1 ZERRORWARNINGON2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Enables Error/Warning for robot if gripper is present.
ZERRORWARNINGOFF1 ZERRORWARNINGOFF2	*1*: Address gripper 1 *2:* Address gripper 2	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Disables Error/Warning for robot if gripper present.
ZISPARTDETACHED1 ZISPARTDETACHED2	*1*: Address gripper 1 *2:* Address gripper 2	*bPartDetached* = *TRUE*, if part is detached = *FALSE*, if part is not detached	B[n] = 1, if gripper of gripper type *Vacuum* signals *Part detached*. B[n] = 0, if part is not detached.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISPARTPRESENT1 ZISPARTPRESENT2	*1*: Address gripper 1 *2:* Address gripper 2	*bPartPresent* = *TRUE*, if part is present = *FALSE*, if part is not present	B[n] = 1, if gripper of gripper type *Vacuum* signals *Part present*. B[n] = 0 if part is not present.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZISREADY1 ZISREADY2	*1*: Address gripper 1 *2:* Address gripper 2	*bReady* = *TRUE*, if input is switched on = *FALSE*, if input is not switched on	B[n] = 1 if gripper of gripper type *Vacuum* signals *Ready*. B[n] = 0 if gripper is not ready.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	
ZMATCHSTARTCHANGE1 ZMATCHSTARTCHANGE2	-	*bCmdFail* = *TRUE*, if command fails = *FALSE*, if command was successful	Is output before the gripper is changed for *MATCH* .
ZISMATCHCHANGEDONE1 ZISMATCHCHANGEDONE2	-	*bMatchChangeDone* = *TRUE*, if match was changed = *FALSE*, if match was not changed	For *MATCH* B[n] = 1 if gripper is connected successfully. B[n] = 0, if gripper is not connected successfully.
		bCmdFail = *TRUE*, if command fails = *FALSE*, if command was successful	

15.3 Example of the use of generated robot jobs

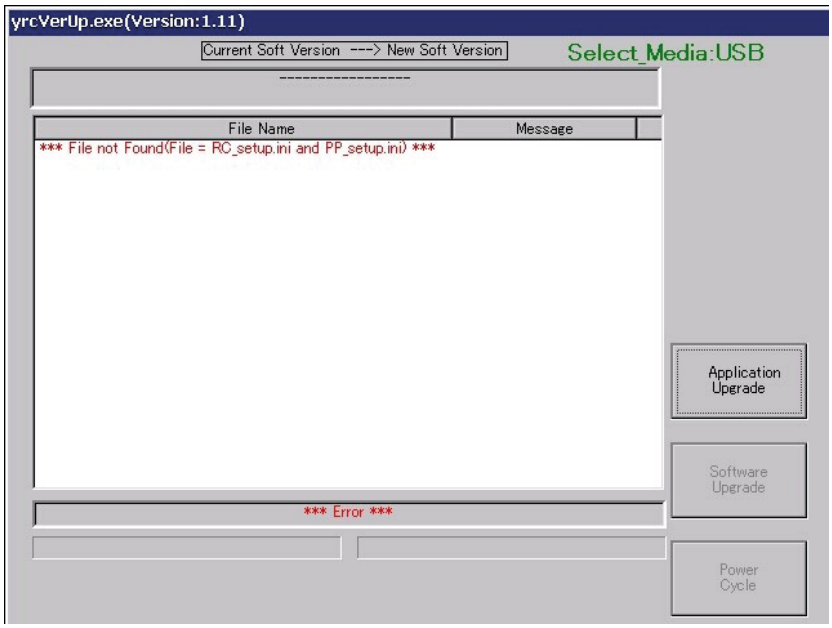
The following example shows the use of robot jobs for an *Advanced* gripper.

```
NOP
CALL JOB:ZRELEASE1
CALL JOB:ZWAITISOPENED1
CALL JOB:ZGRIP1
*LBLWAIT
CALL JOB:ZISCLOSED1 ARGF10
IFTHENEXP B[10]<>1
JUMP *LBLWAIT
ENDIF
END
```

16 Uninstalling the Comfort App

- ► Make sure that the robot control panel is already connected to the robot control system.
- ► Switch off the power supply of the robot control system.
- ► Plug the USB memory stick with the installation files for the Comfort App into the robot control panel.
- ► Simultaneously click the *INTERLOCK*, *8* and SELECT buttons on the robot control panel.
- ► Switch on the power supply while clicking the buttons.

- ⇨ The robot control panel is switched on and emits a short beep.
- ► Release the three buttons *INTERLOCK*, *8*, *and SELECT* .
- ⇨ The following screen is displayed.
- ► Click the *Application Upgrade* button.



⇨ A new screen is displayed.

► In the application table, select *YasZimmerGrip*.

► In the *Operation* drop-down menu, select the option *Remove*.

► Click the *Execute*button.

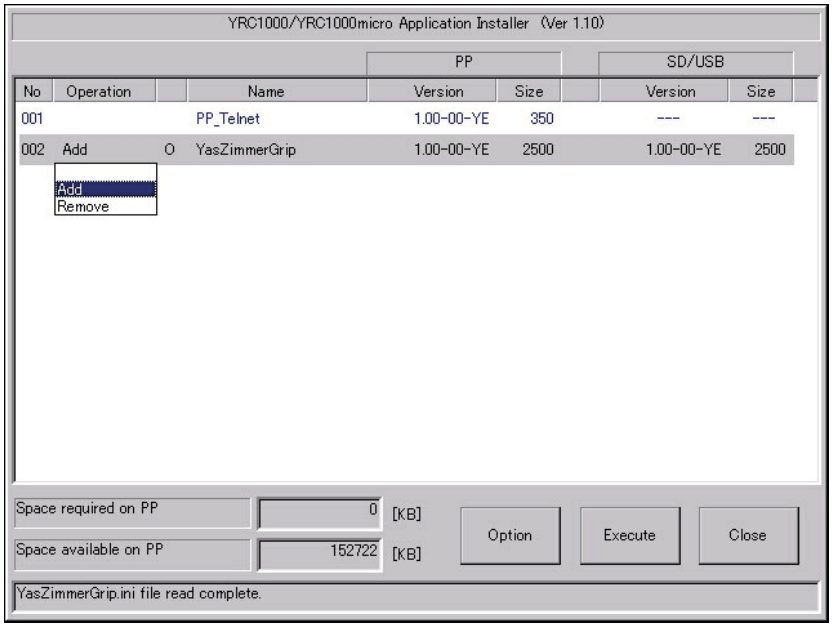
⇨ The wait cursor is displayed for a few seconds.

► Click the *Close* button.

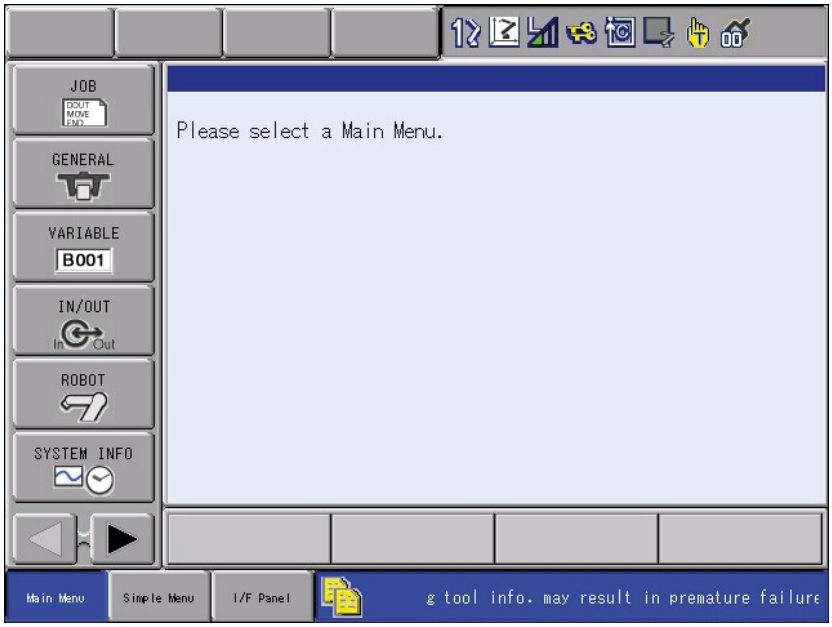
► Switch off the device.

► Switch the power on again.

⇨ The following screen is shown after initialization.



⇨ As a result of uninstalling the Comfort App, the *YasZimmerGrip* button is no longer shown on the robot control panel.



17 Error diagnosis

INFORMATION

► More information can be found in the installation and operating instructions of the gripper.

► Please contact Customer Service if you have any questions.

18 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer GmbH

Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: Smart Communication Module

Type designation: SCM

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch	Rheinau, Germany, 2020-02-28	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

19 Declaration of Conformity

As defined by the EC Directive 2014/30/EU on electromagnetic compatibility

Name and address of the manufacturer:

Zimmer GmbH

Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the product described below

Product designation:	Smart Communication Module
Type designation:	SCM

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

The following harmonized standards have been used:

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

A full list of applied standards can be obtained from the manufacturer.

Kurt Ross	Rheinau, Germany, 2020-02-28	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

20 Declaration of Conformity

In terms of the EU Directive 2014/35/EU (Low voltage directive)

Name and address of the manufacturer:

Zimmer GmbH

Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the product described below

Product designation:	Smart Communication Module
Type designation:	SCM

conforms to the requirements of the 2014/35/EC directive in its design and the version we put on the market.

The following harmonized standards have been used:

DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN 60204-1	Safety of machinery – Electrical equipment of machines - Part 1: General requirements

A full list of applied standards can be obtained from the manufacturer.

Kurt Ross	Rheinau, Germany, 2020-02-28	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner