



Operation Manual

PRODUCT NAME

Electric Gripper for Collaborative Robots

MODEL / Series / Product Number

LEHR series

—Software (YASKAWA Plug & Play Kit)—

SMC Corporation



Software (YASKAWA Plug & Play Kit)

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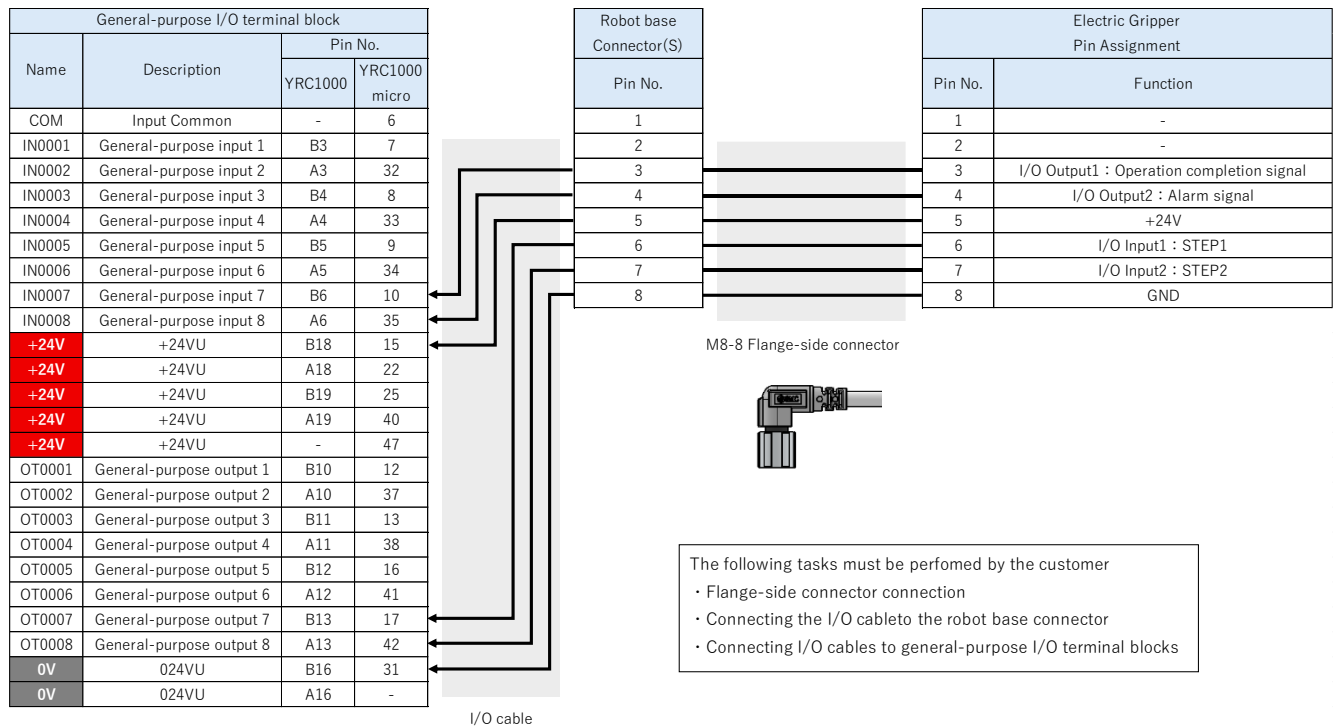
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1. Wiring Example for the Robot Controller

The table below shows wiring examples for I/O cables and general-purpose I/O terminal blocks. The customer must connect the I/O cables to the general-purpose I/O terminal block. Before wiring, be sure to check whether the robot controller specification is NPN or PNP.



2. Software Overview

This software is a desktop application used to configure the position, speed, and gripping force of the LEHR*-043N* electric gripper for collaborative robots (compatible robot: Yaskawa Electric).

Product Specifications

- Robots Supported by the Software
Yaskawa Electric Human-Collaborative Robots HC Series
- Software Download Location
It is available for download from the SMC website (<https://www.smcworld.com/>).
Search for the product number (LEHR) on the homepage and proceed to the details page to download the software.
*Please use the latest version at all times.
- Software Support: LEHR
Model No.: LEHR32K2-50-043N-* (Compatible Robot: Yaskawa Electric)
- Main Functions of the Software
 - Add Operation Command
 - Test Run
 - Alarm and Product Status Monitoring
- Language
 - Japanese
 - English

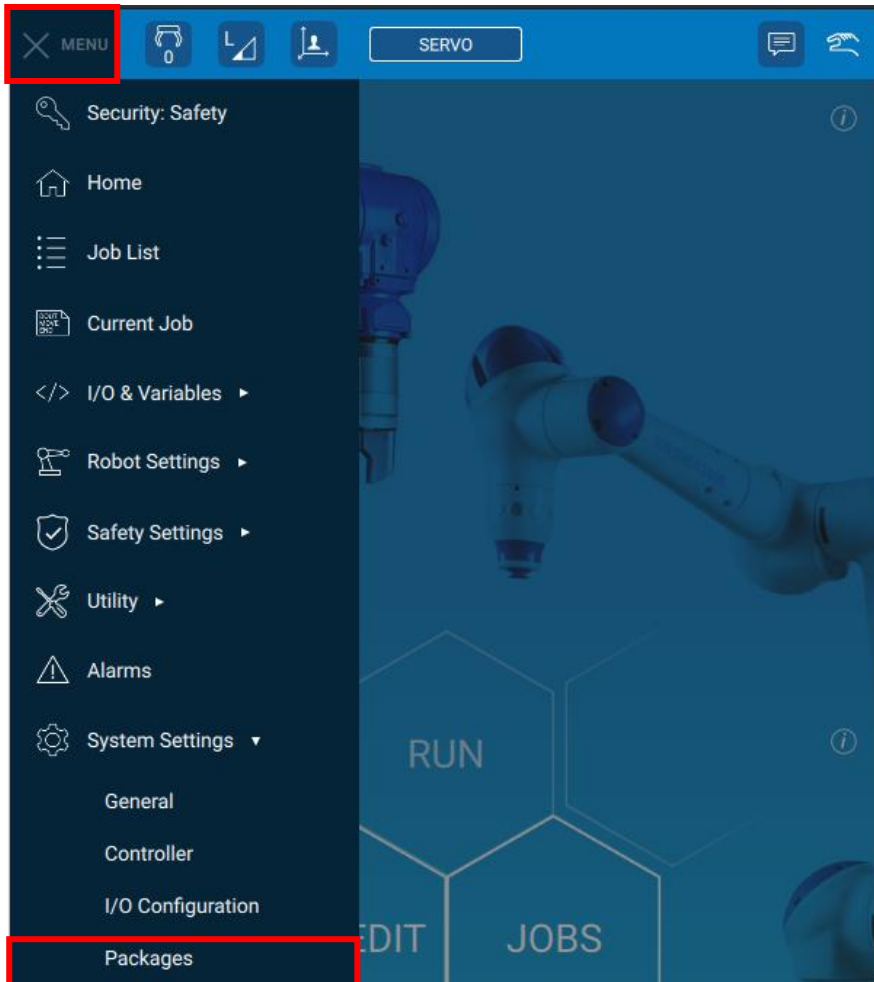
3. Software Installation

3-1. Installing the YASKAWA Plug & Play Kit

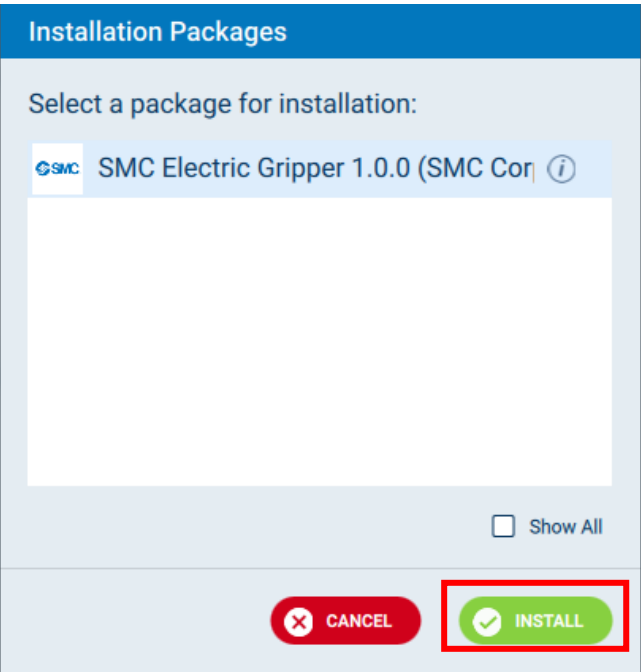
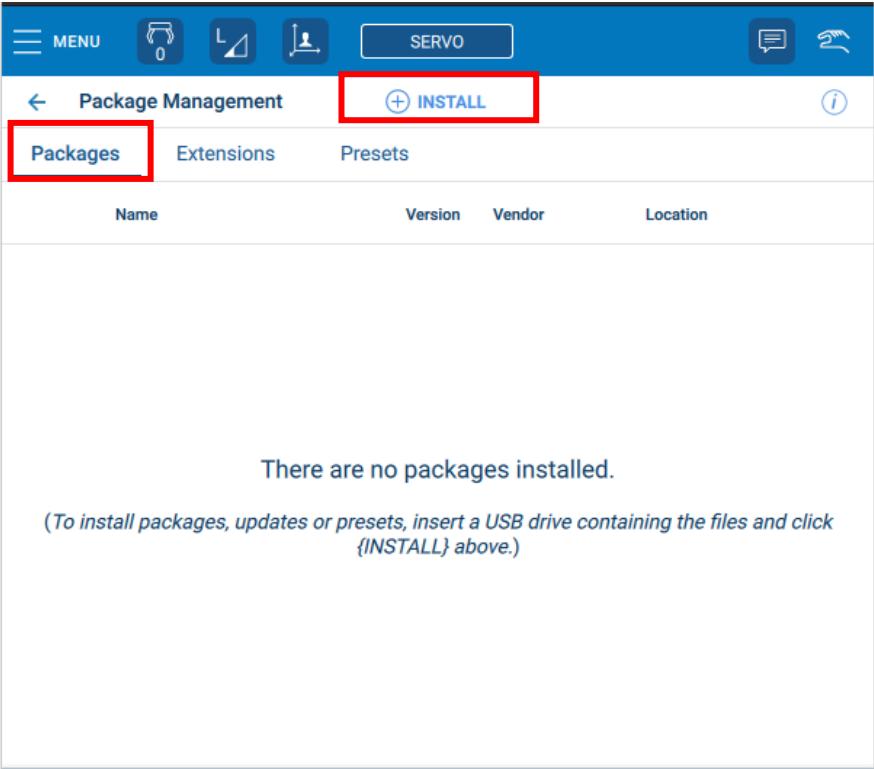
Install the YASKAWA Plug & Play Kit using the YASKAWA Installation Packages (.yip) file.

* Set the security access level to administration level.

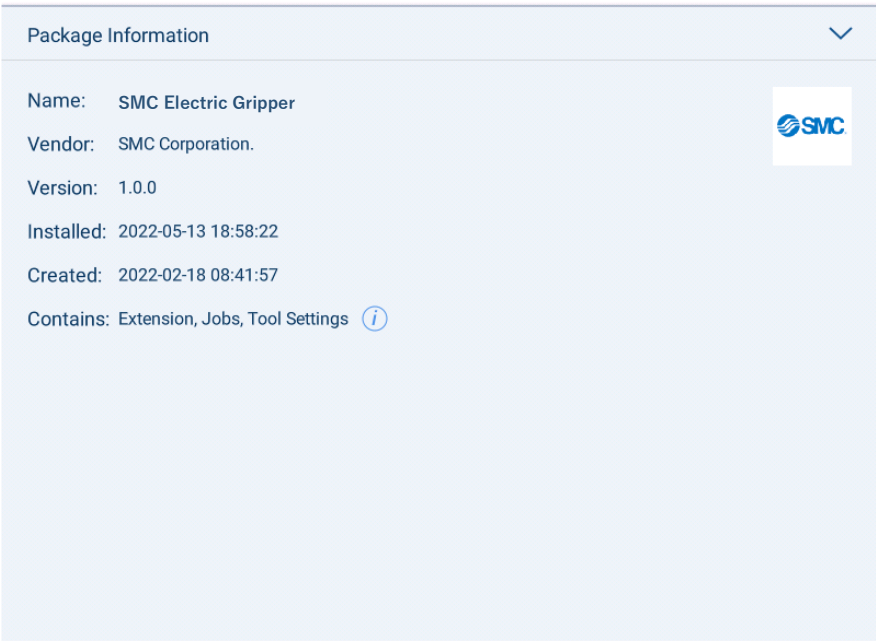
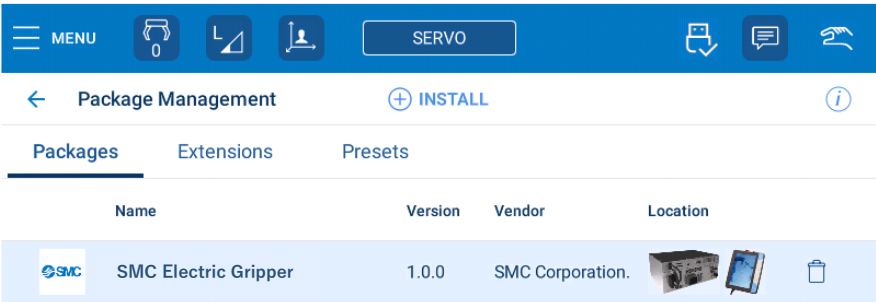
1. Download the YASKAWA Installation Package "SmcElectricGripper.yip" from the SMC website.
2. Copy the downloaded file to a USB flash drive, insert the drive into the USB port of the smart pendant for the HC Series of Collaborative Robots, select [MENU] in the upper left corner of the screen, and tap [System Settings] -> [Packages].



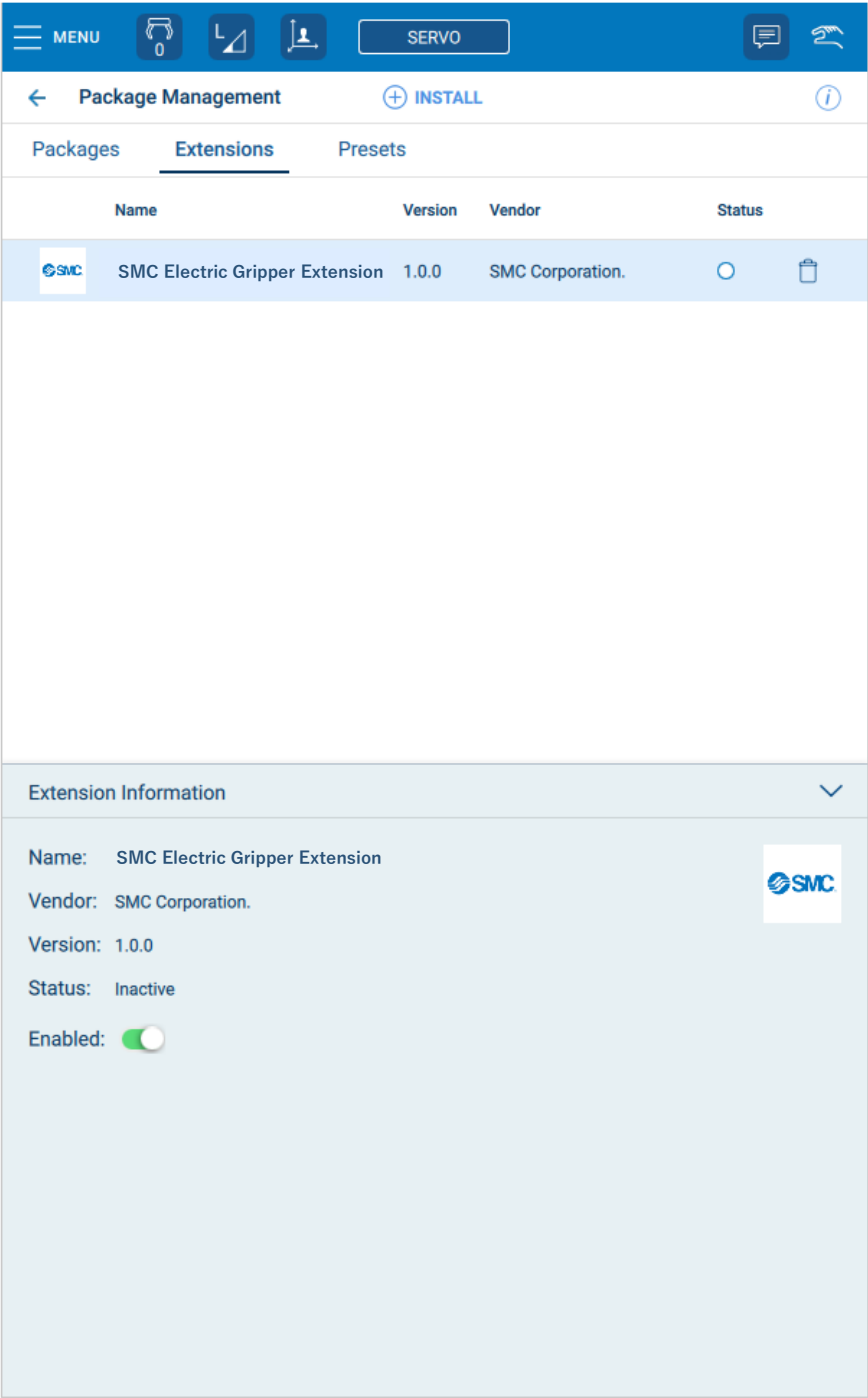
3. Open the “Packages” tab and tap [+Install] at the top of the screen. A pop-up dialog box listing the available packages will appear. From the list, select “SMC Electric Gripper” and install it. Once the installation is complete, the packages, extensions, and tool presets will be added to the appropriate lists.



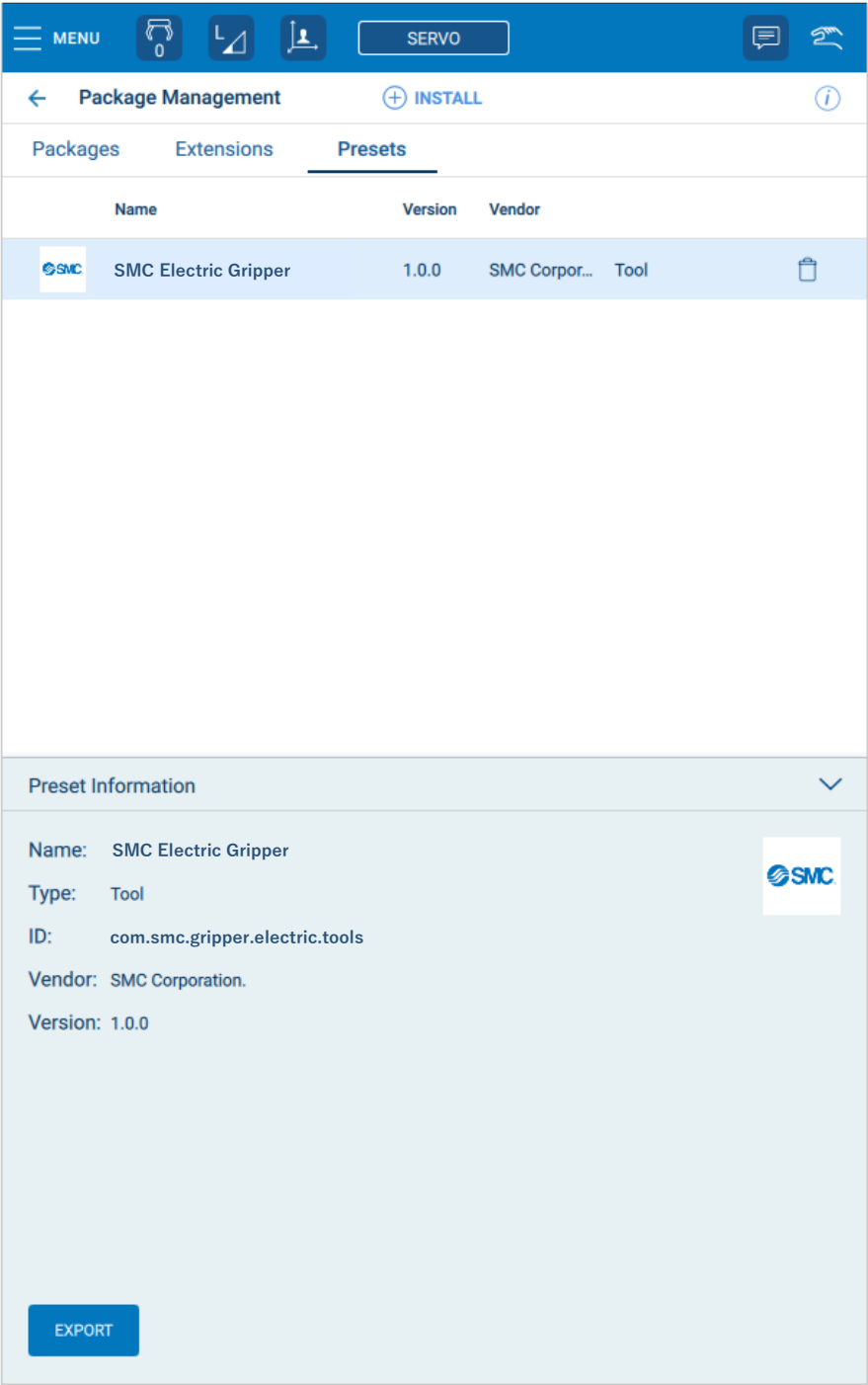
4. On the package management screen, confirm that the installation is complete.
- (1) Tap the “Package” tab and confirm that the SMC electric gripper has been added to the list.



(2) Tap the “Extension” tab and confirm that the SMC electric gripper has been added to the list.



(3) Tap the “Presets” tab and confirm that the SMC electric gripper has been added to the list.



4. YASKAWA Plug & Play Kit

4-1. Tool Presets

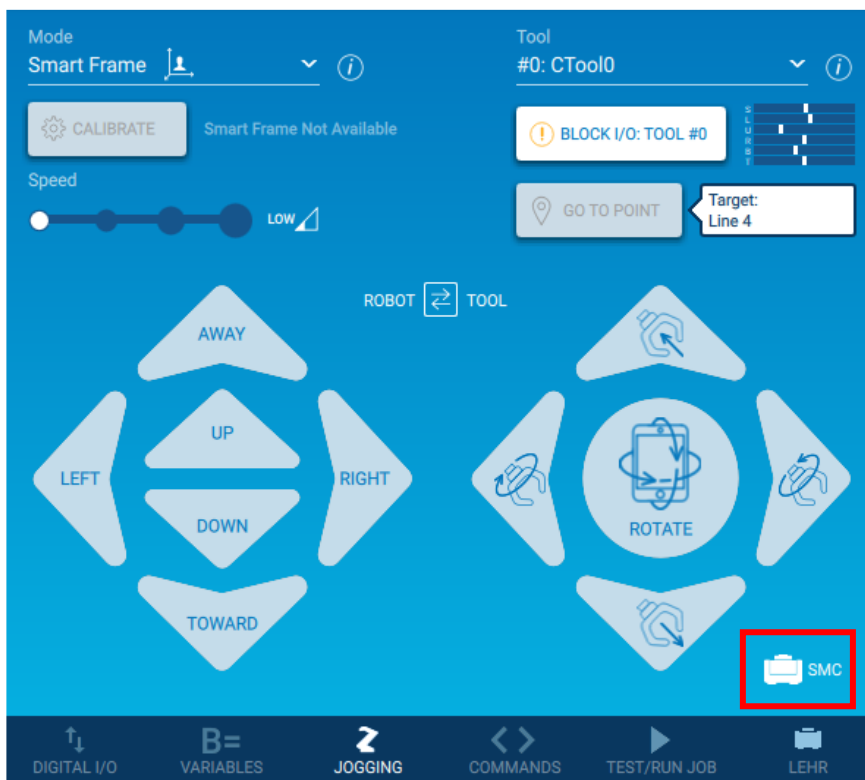
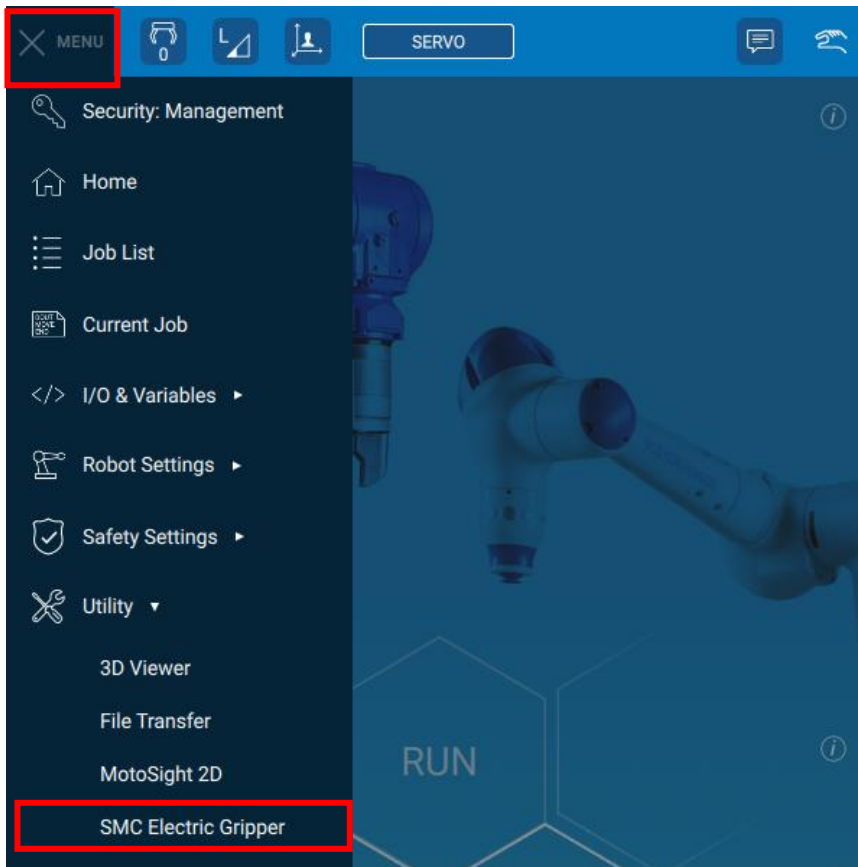
Select the preset for the gripper to be used from the list of installed tool presets. The gripper's tool properties will be copied to the currently selected tool. Tool properties can be edited manually before saving.

Tool #0: CTool0		Select preset to apply:		
General Interference		SMC Electric Gripper LEHR-50A SMC Electric Gripper LEHR-50B		
Name CTool0		Block I/O Not Assigned		
Tool Center Point (TCP) Orientation ESTIMATE ☐ Show without tool				
X _F	25.000 mm	R _X	0.0000 deg	
Y _F	0.000 mm	R _Y	-45.0000 deg	
Z _F	350.000 mm	R _Z	0.0000 deg	
Weight ESTIMATE				
W	0.000 kg			
Center of Gravity	Moment of Inertia			
X _G	0.000 mm		I _X	0.000 kg-m ²
Y _G	0.000 mm		I _Y	0.000 kg-m ²
Z _G	0.000 mm		I _Z	0.000 kg-m ²

Tool #0: SMC Electric Gripper LEHR-50A		PRESETS		
General Interference				
Name SMC Electric Gripper LEHR-50A		Block I/O Not Assigned		
Tool Center Point (TCP) Orientation ESTIMATE ☐ Show without tool				
X _F	21.000 mm		R _X	0.0000 deg
Y _F	-11.000 mm		R _Y	0.0000 deg
Z _F	34.000 mm		R _Z	0.0000 deg
Weight ESTIMATE				
W	1.000 kg			
Center of Gravity	Moment of Inertia			
X _G	-0.400 mm	I _X	0.000 kg-m ²	
Y _G	1.100 mm	I _Y	0.001 kg-m ²	
Z _G	52.960 mm	I _Z	0.001 kg-m ²	

4-2. Utility Window

Select [MENU] in the upper-left corner of the screen, then tap [Utility] → [SMC Electric Gripper], or in the Job Content View screen, tap [Jogging] on the navigation bar and then tap the "SMC" icon in the lower-right corner of the screen to open the Utility Window.



Utility Window Functions

(1) Test Run

This can perform a manual operation check on the electric gripper.

- Tap the Step 1/Step 2 buttons to execute the gripper's open/close operations.
(Initial state: Step 1 is close, Step 2 is open)
- If an alarm occurs, you can clear it by tapping the Alarm Reset button.

(2) Sensor Signal Monitor

This can check the normal operation completion signals for Step 1 or Step 2, as well as alarm signals.

- During positioning operations, the "In-Position" signal indicates successful completion; during gripping operations, "Gripping Complete" indicates successful completion.
- When an alarm occurs, the alarm signal changes to red.

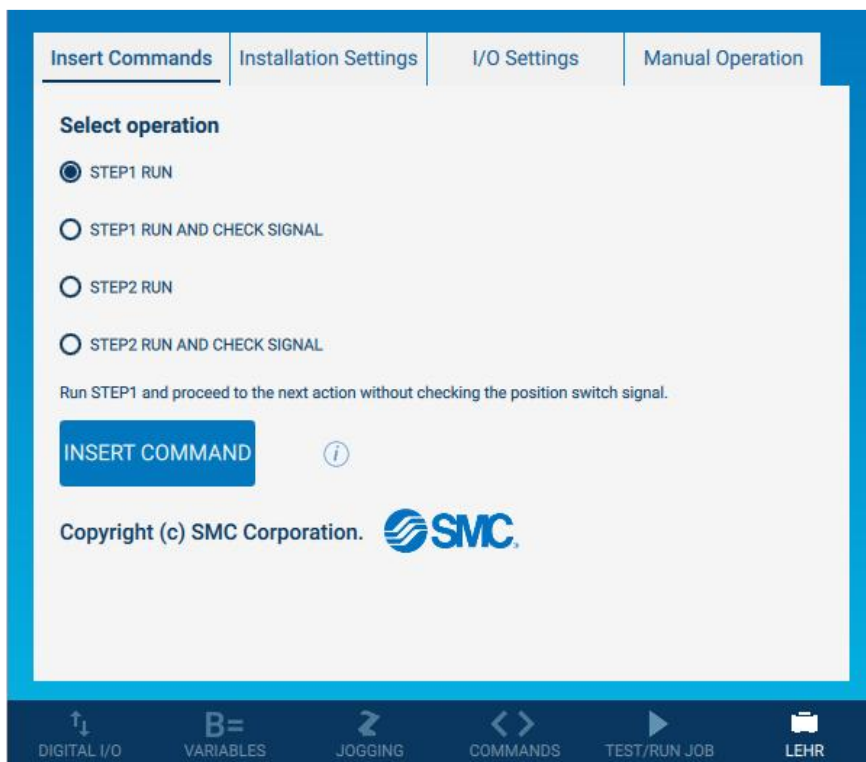


4-3. Integration Window: Add Commands

On the Job Content View screen, tap [LEHR] on the navigation bar to open the Integration Window. The Integration Window contains tabs for "Insert Commands," "Installation Settings," "I/O Settings," and "Manual operation."



The Add Commands window provides a function to add operation commands to the JOB.



(1) Select Operation

Select the execution of Step 1 and Step 2, as well as the subsequent transition.

- Execute Step 1
Execute Step 1 and proceed to the next operation without confirming the normal completion signal.
- Execute Step 1 and Monitor Signal
Execute Step 1 and wait for the normal operation completion signal before proceeding to the next operation. When the signal turns on, the operation is considered "successful," and the system proceeds to the next operation.
- Execute Step 2
Execute Step 2 and proceed to the next operation without confirming the normal operation completion signal.
- Execute Step 2 and monitor the signal
Execute Step 2 and wait for the normal operation completion signal before proceeding to the next operation. When the signal turns on, the operation is considered "successful," and the process proceeds to the next operation.

(2) Add Commands

Commands to control the operations of Step 1 and Step 2 can be added to the job.

- SMC_ELECTRIC_GRIPPER_STEP1
This command is used during the gripper's Step 1 operation.
When 'Execute Step 1' or 'Execute Step 1 and Monitor Signals' is selected in Operation Selection, this command is added.
- SMC_ELECTRIC_GRIPPER_STEP2
This command is used during the gripper's Step 2 operation.
When 'Execute Step 2' or 'Execute Step 2 and Monitor Signals' is selected in Operation Selection, this command is added.

4-4. Integration Window: Installation Settings

This window provides a function to configure the processing method after the operation is completed. (To change these settings, set the security access level to "Administrator.")

(1) Output the status signal to the digital output port.

Select whether to output a status signal to the digital output port when "Step 1/Step 2 Success" or "Step 1/Step 2 Failure" is detected.

- "Enable" is selected:
The digital output port selection function becomes active, and when either "Step 1/Step 2 Success" or "Step 1/Step 2 Failure" is detected, the corresponding digital output port is turned on.
- "Disable" is selected:
The digital output port selection becomes active, and the status signal is not output even if either "Step 1/Step 2 Success" or "Step 1/Step 2 Failure" is detected.

(2) Gripper Time

Set the time required to determine "Step 1/Step 2 Success" or "Step 1/Step 2 Failure".

The system waits for the set time from the start of operation, and then determines success or failure.

(When operating with a stroke of 50 mm at a speed of 5 mm/s, the required time is 10 s)

(3) Select the digital output port.

Selected box operation is enabled when "Output status signal to digital output port" is enabled. Select the digital output port to which a status signal is output when "Open/Close success" or "Open/Close failure" is detected.

By default, the port numbers are set as follows.

- Normal operation completion (Step 1/Step 2): Output #4
- Operation terminated abnormally (gripping failure): Output #5
- Gripper alarm: Output #6

4-5. Integration Window: I/O Settings

This window provides a function to configure the port numbers used for input and output.
(To change these settings, set the security access level to the administration level.)

(1) I/O Settings for Gripper Operation

The I/O port numbers are automatically configured during installation of the YASKAWA Plug & Play Kit. When connected according to the wiring diagram shown in '3. Example Wiring to the Robot Controller,' the unit can be used without changing any settings

However, if the wiring is modified to connect to other devices, the signal settings for gripper operation can be changed from this tab.

By default, the following port numbers are set.

- Step 1: Output signal for operation: Output #8
- Step 2: Output signal for operation: Output #7
- Operation completed successfully (Step 1/Step 2): Input #7
- Alarm signal: Input #8

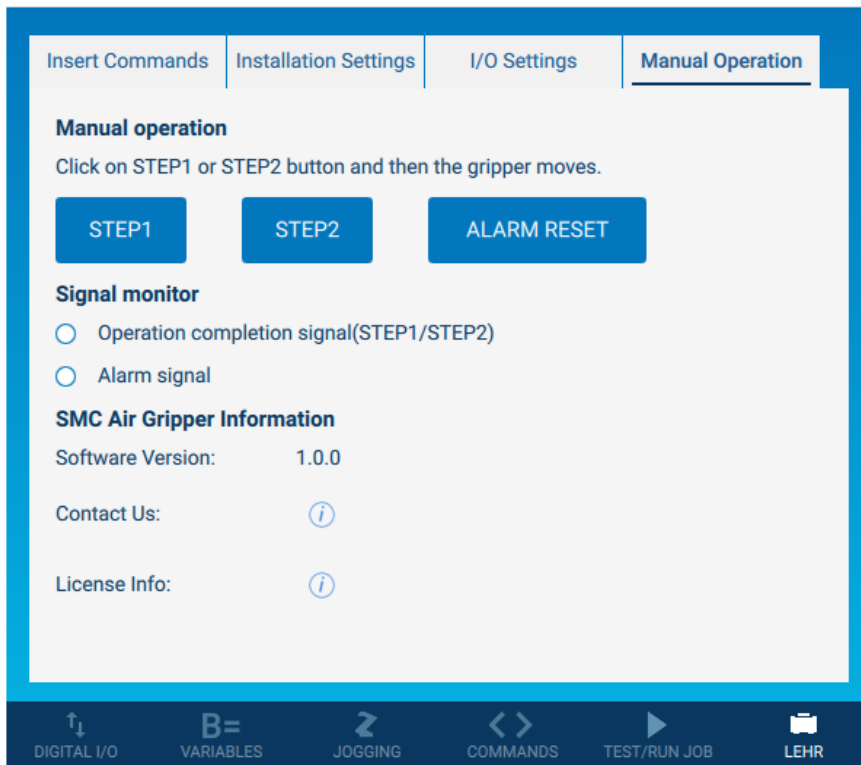
To restore the I/O settings to their factory defaults, press the button at the bottom of the screen to initialize them.

(2) Tool number settings

The collaborative robot calculates the external force by accounting for the tool mass. Therefore, the mass and center of gravity of the tool or workpiece mounted on the manipulator must be configured in the tool file. By default, tool number 0 is set for Step 1 operations and tool number 1 for Step 2 operations. The tool number can be changed.

4-6. Integration Window: Manual Operation

This window provides functions to check the manual operation of the electric gripper and monitor signals.



(1) Manual operation

This can check the manual operation of the electric gripper.

- By tapping the Step 1/Step 2 button, you can open or close the gripper.
(By default, Step 1 performs the closing action, and Step 2 performs the opening action.)
- When an alarm occurs, tapping the Alarm Reset button clears the alarm.

(2) Sensor Signal Monitor

The normal-completion signals for Step 1 or Step 2 and the alarm signals can be monitored here.

- In positioning operations, the in-position signal indicates normal completion, and in gripping control, the grip-complete signal indicates normal completion.
- When an alarm occurs, the alarm signal turns red.

Revision history
May 2026 First edition

SMC Corporation

URL <https://www.smcworld.com>

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