



Operation Manual

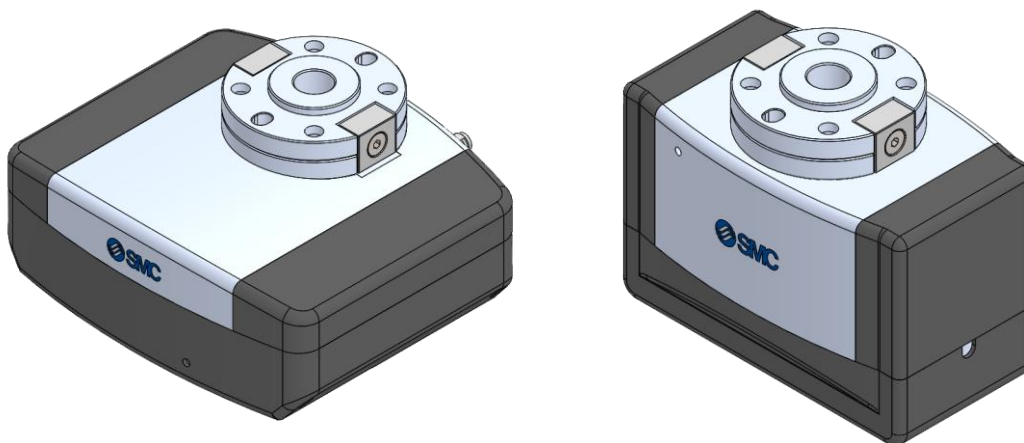
PRODUCT NAME

Electric Gripper for Collaborative Robots

MODEL / Series / Product Number

LEHR Series

—CRX Plug-in Software—



SMC Corporation

1	How to Download the Software	3
2	Install CRX Plug-in Software.....	3
2.1	Robot control device software version.....	3
2.2	Install	3
3	Basic settings for electric grippers	4
4	Dedicated Instruction	5
4.1	How to add a dedicated instruction	5
4.2	LEHR Activate	6
4.3	LEHR Motion.....	7
5	Alarm detection	8



Software (CRX Plug-in Software)

Precautions for users

Caution

We develop, design, and manufacture our products for use in automatic control equipment and provide them for peaceful use in the manufacturing industry.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits the use of any units other than SI units in Japan

Disclaimer

The following "Disclaimer" applies when using the software. Please read and agree to the following terms before using this software. By storing this software on your computer, you agree to be bound by the following disclaimers. If you do not agree to the following disclaimer, you may not use or copy this software.

"Disclaimer"

① License Agreement

1. You may use the Software solely for the purpose of writing data to SMC's electric actuator controllers on a non-exclusive basis in accordance with the terms of this Agreement.
2. You may record and store the Software on your computer only when you use it for the purpose described in the preceding paragraph.

② Prohibited Acts

1. You may not reproduce the Software, except as provided in paragraph 1, (2).
2. You may not transfer or lend the Software, in whole or in part, to any third party, whether for a fee or free of charge.
3. You may not modify, adapt, translate, reverse engineering, or reverse compile the Software.

③ Precautions

1. When using a product registered with this software, be sure to read the "Safety Precautions," "Common Precautions," "Product Specific Precautions," and "Product Specifications" described in each catalog for the product in question.
2. SMC reserves the right to change the contents of the Software or the specifications of the registered products without notice.

④ Disclaimer

SMC shall not be liable for any damages arising from the use of this software.

⑤ Termination of the Agreement

1. This Agreement will be terminated if you breach this Agreement or if SMC deems it appropriate to terminate this Agreement.
2. Upon termination of this Agreement, you must destroy the Software and any copies.

⑥ Rights Related to This Software

The copyright and all other rights to this software are owned by SMC and protected by copyright laws, other laws, and international treaties.

1 How to Download the Software

Please download the software (CRX Plug-in Software) from the SMC website
(URL: <https://www.smcworld.com>) and save it in a USB memory device.

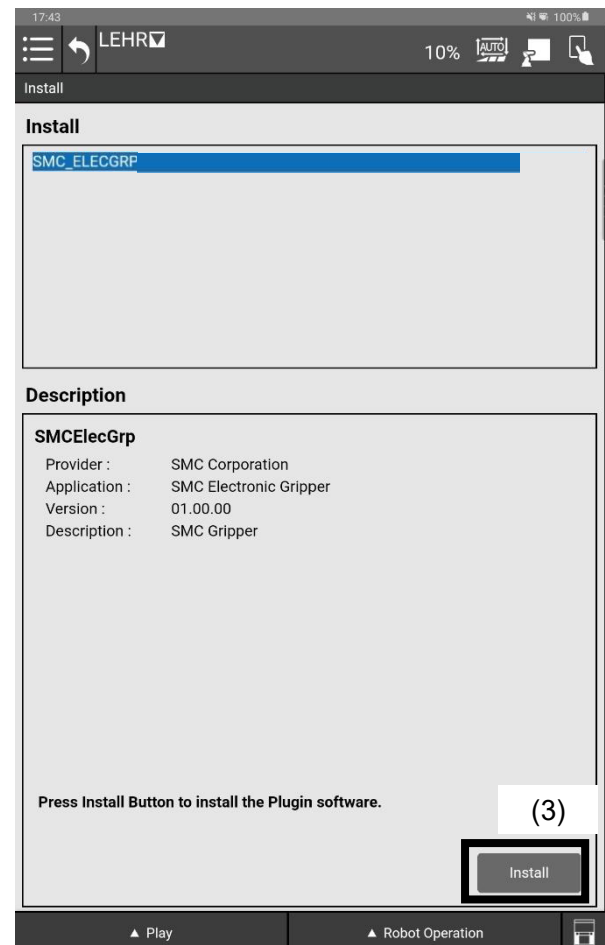
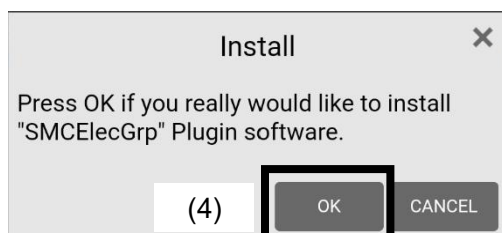
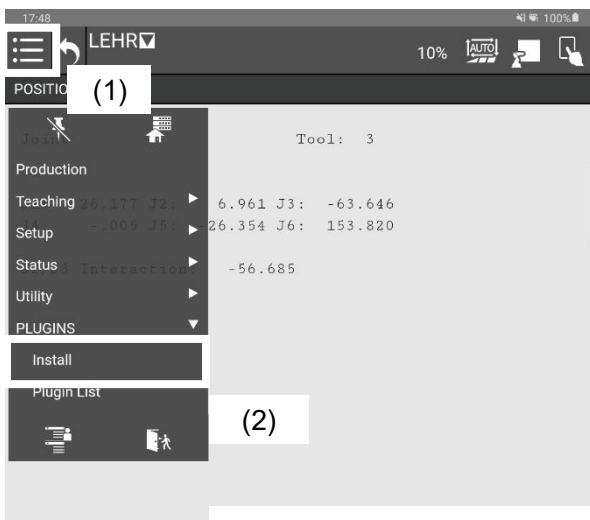
2 Install CRX Plug-in Software

2.1 Robot control device software version

If the software for the robot control device is V9.40P / 37 version or earlier, update to the latest version V9.40P / 38 version or later before installing the plug-in software.

2.2 Install

1. Insert the USB memory device in which the CRX Plug-in Software is stored into the robot control unit.
2. Select the menu icon and select [install] under [PLUGINS] (1) (2).
3. The file name of the CRX Plug-in Software installation package file on the inserted USB memory device and a detailed description of the CRX Plug-in Software will be displayed. Select the "Install" button at the bottom right of the screen (3).
4. A screen will appear to confirm the installation. Click the "OK" button to start the installation process of the CRX Plug-in Software (4).
5. When the installation process is complete, a screen will appear guiding you to restart the robot.
Turn the robot off and on and the installation operation is complete.



3 Basic settings for electric grippers

Here, communication connections for electric grippers and the status signal output settings are made.

1. Select the menu icon and select [SMC LEHR] under [PLUGINS]. (1) (2)

2. Grip failure setting. (3)

☒: In the event of a grasping failure, an alarm is generated and the program is stopped.

☐: The program continues even if the grip fails. However, a warning message occurs.

3. When "grip success", "grip failure", or "alarm" is detected, a status signal can be output to the digital output port (DO).

Yes: "Grip Success", "Grip Failure", and "Alarm" status signals are output to the digital output port.

Select the output destination for each status in the range of DO[101]~[107].

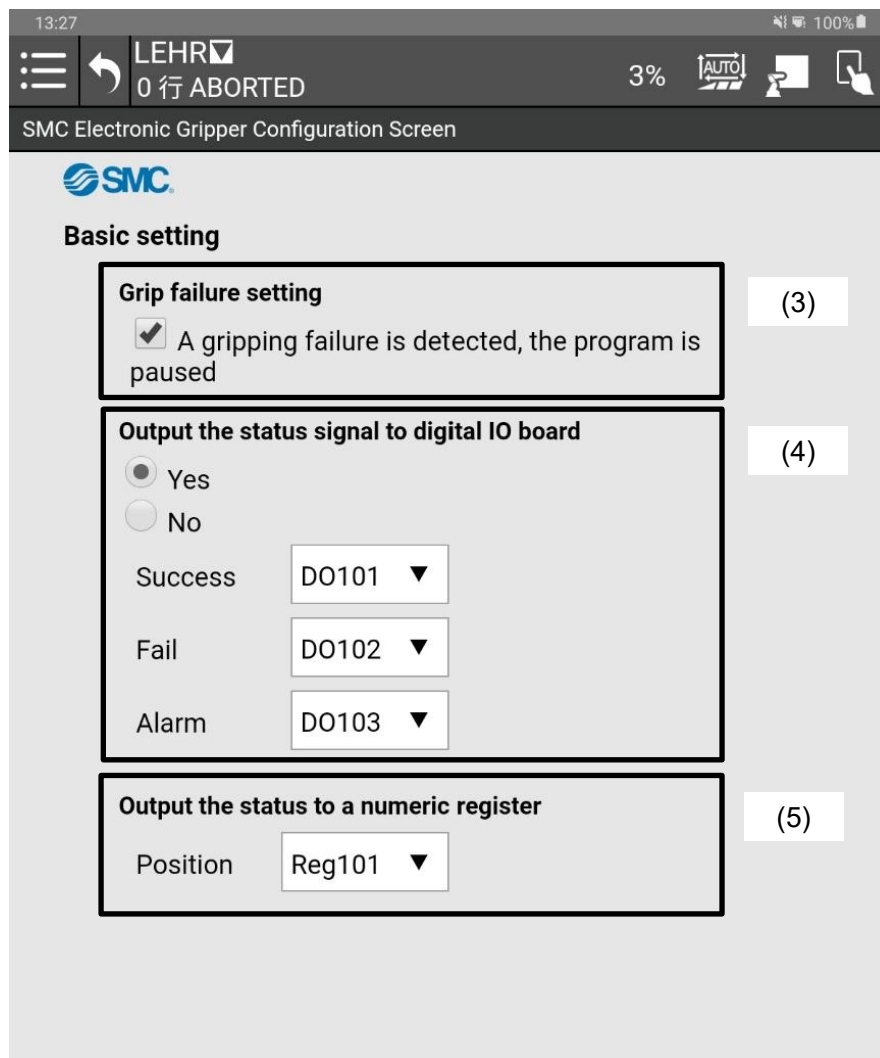
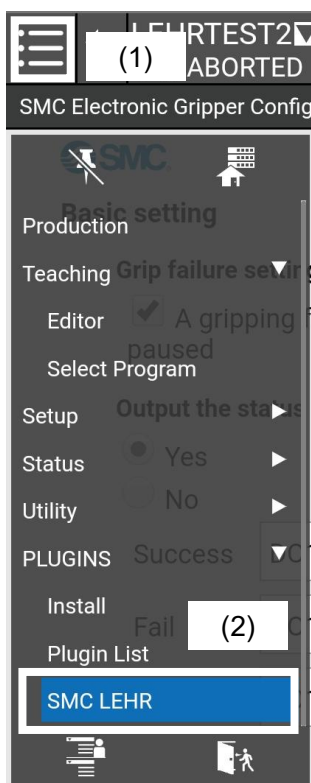
No: It does not output to the digital output port.

4. Finger position information can be output to a numeric register. (5)

Select the output destination for the numeric registers from the range Reg[101] to [110].

The numerical register displays the finger position multiplied by 10.

(Example: For 50.0 [mm], 500 is displayed.)



4 Dedicated Instruction

The CRX Plug-in Software has two dedicated instruction (LEHR Activate , LEHR Motion).

- LEHR Activate

"LEHR start" is a dedicated instruction required when starting the electric gripper.

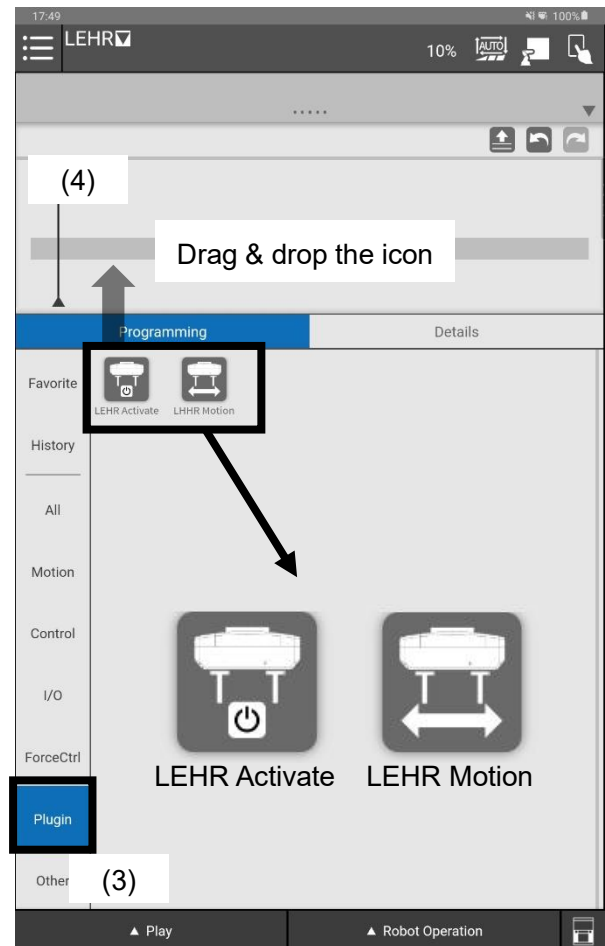
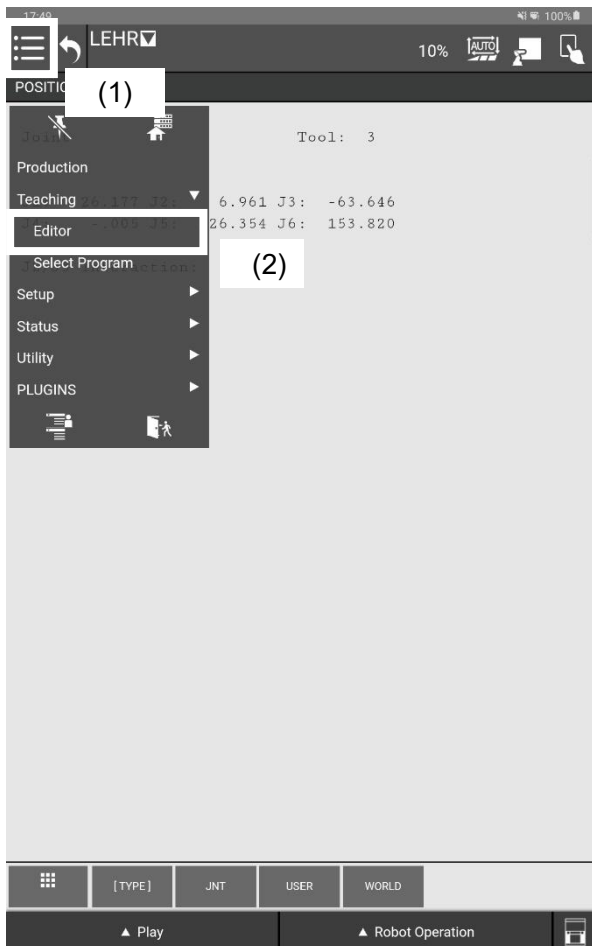
- LEHR Motion

"LEHR actuation" is a dedicated instruction that instructs the operation of the electric gripper.

4.1 How to add a dedicated instruction

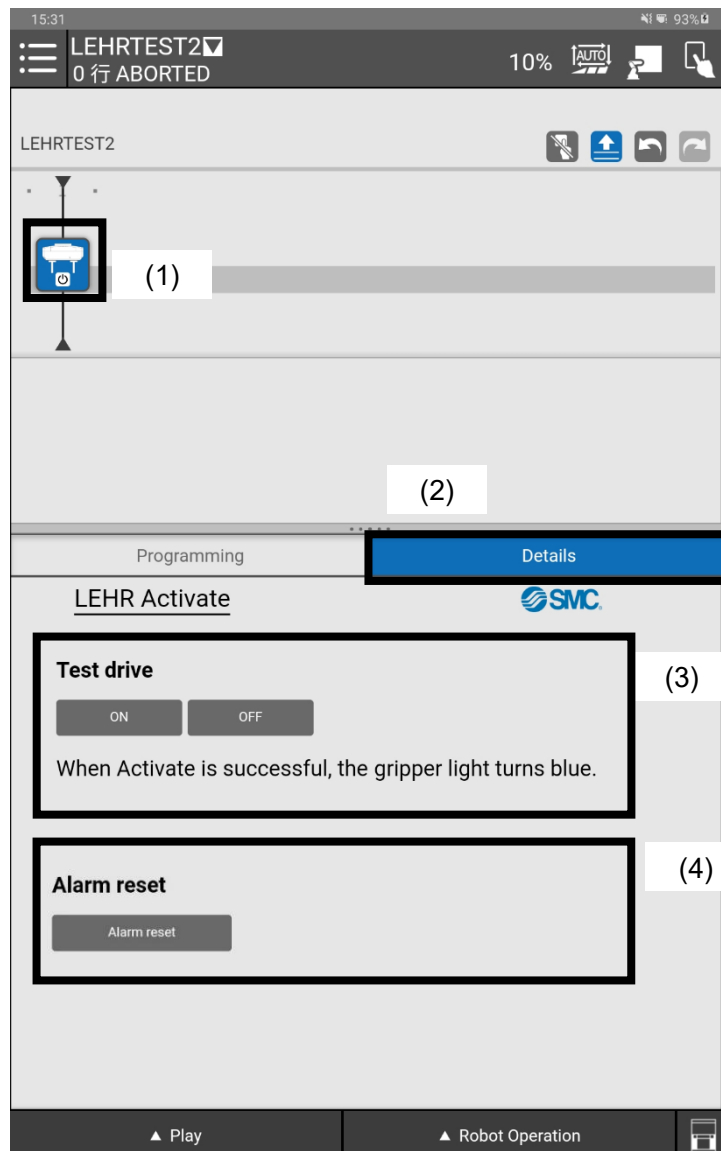
The following describes how to add a dedicated instruction to a robot program.

1. Select the menu icon and select [Editor] under [Teaching]. (1),(2)
2. Select the [Plugin] tab. The dedicated instruction icon will appear on the [Programming] tab. (3)
3. The dedicated instruction can be added to the robot program by drag and drop the icon over the robot program. (4)



4.2 LEHR Activate

"LEHR Activate" is a dedicated instruction required when starting the electric gripper. After installing the LEHR, execute this command only once at the beginning.



1. After adding the icon, press the "Details" button to display the details screen. (1) (2)
2. It is possible to carry out a commission run of this instruction. (3)
ON: Activates LEHR. After successful start-up, the LED light on the gripper will turn blue.
OFF: Stops LEHR. If the stop is successful, the LED light on the gripper will turn magenta.
3. When an alarm occurs, press the "Alarm reset" button to clear the alarm.
After the alarm is cleared, the servo will be turned on.

4.3 LEHR Motion

"LEHR activation" is a dedicated instruction that instructs the operation of the electric gripper.

On the detail screen, set the driving selection (positioning or grasping) and the motion settings (position, speed, force).

The screenshot shows the 'LEHR Motion' programming interface. At the top, there are tabs for 'Programming' and 'Details'. The 'Details' tab is active. The main area is divided into several sections:

- (1) OperationSelection:** Contains two radio buttons: 'Positioning' (selected) and 'Grip'.
- (2) Wait for the Positioning process to complete:** A checkbox that is checked.
- (3) Status:** Includes a 'Refresh' button, 'Current Pos. 0 mm', and 'Alarm OverLoad alarm'.
- (4) Setting:** Contains sliders and input fields for 'Position' (set to 1.0 mm) and 'Speed' (set to 5.0 mm/sec), along with up/down arrow buttons and a 'Test Run' button.
- (5) JOG drive:** Contains 'Open' and 'Close' buttons.

At the bottom, there are buttons for 'Play' and 'Robot Operation'.

1. Select operation selection. (1), (2)

Positioning: It is mainly used for the release of workpieces.

It can operate at a higher speed than grip, but care must be taken not to interfere.

Grip : Used to grip the workpiece.

2. Set the wait setting for the operation to complete.(2)

* This setting is displayed only during Operation Selection: Positioning.

☒ : Wait for the operation to complete before moving on to the next program.

☐ : Do not wait for the operation to complete, but move on to the next program.

3. You can check the current position of the gripper and the alarm.(3)

Automatic updates are not performed, so please press the "Update" button at the timing you want to check. For details on alarms, refer to [5. Occurrence of Warnings and Alarms].

4. Set the gripper position, speed, and force. (4)

Please refer to the table below for the range that can be set. In addition, commissioning is possible with the "Test run" button.

Operation Selection	Positioning		Grip	
Parameter	Min.	Max.	Min.	Max.
Position [mm] ※1,2	1	50	0	50
Speed [mm/s]	5	100	5	30
Force [N]	-	-	60	140

*1 When positioning, set the fingers so that they do not collide with the workpiece.

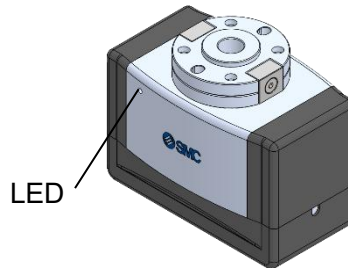
*2 When grasping, set the position 1 mm in front of the width of the workpiece.

5. JOG driving is possible. (5)

5 Alarm detection

The occurrence of warnings and alarms can be confirmed by the LED on the electric gripper main unit or on the plug-in software screen.

When an alarm occurs, press the "Alarm reset" button on the "LEHR Activate" screen to clear the alarm. For the LED display pattern of the electric gripper body, refer to the instruction manual of "Electric gripper body for collaborative robot"



In this plug-in software, you can check the status column of the "LEHR operation" instruction. Please refer to the table below for screen alarms and warnings.

Alarm message	Content	Countermeasures
OverLoad alarm	This alarm is issued after a certain time has elapsed from the occurrence of an overload warning.	Eliminate the cause of the overload warning
OverCurrent alarm	This alarm is issued when a current exceeding the rated current flows.	Check whether there is any factor that prevents the operation of the Electric Gripper for Collaborative Robot or an external force is applied to the gripper fingers.
OverTemperature alarm	This alarm is issued when the internal temperature of the motor has exceeded 110°C.	Check whether the ambient temperature in the operating environment is exceeding 40°C.
OverVoltage alarm	This alarm is issued when the input voltage exceeds 30 V.	Check the power supply voltage for the collaborative robot.
UnderVoltage alarm	This alarm is issued when the input voltage falls below 18 V.	
OverFlow alarm	This alarm is issued when the location deviation inside the controller has exceeded a certain value.	Check whether there is any factor that prevents the operation of the Electric Gripper for Collaborative Robot or an external force is applied to the gripper fingers.
Gripper failed	This alarm is issued when gripping of the workpiece by the Grip has failed and nothing has been gripped.	Check whether the "Position" is correct.
Workpiece lost	This alarm is issued when the workpiece was lost in the time period from the execution of the Grip to the subsequent execution of the Positioning.	Check the gripping force, gripping position, and workpiece weight, and check whether an external force is applied to the gripper fingers.
OverLoad Warning	This alarm is issued when the motor torque exceeds the specified value.	Check whether there is any factor that prevents the operation of the Electric Gripper for Collaborative Robot or an external force is applied to the gripper fingers.
Temperature Warning	This alarm is issued when the internal temperature of the motor has exceeded 80°C.	Check whether the ambient temperature in the operating environment is exceeding 40°C.

Revision history
February 2024: Frist edition
March 2025: Revision for Software version 1.4.0
June 2026: Precaution for users added
September 2026: Revision for Software version 1.6.0

SMC Corporation

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

Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

© SMC Corporation All Rights Reserved