



Operation Manual

PRODUCT NAME

Air gripper for collaborative robots

MODEL / Series / Product Number

RMH* Series

—CRX Plug-in Software—

SMC Corporation

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1.How to Download Software

Various software can be downloaded from SMC's website (<http://www.smcworld.com>). Search for the product part number (RMHZ, RMHS, etc.) on the TOP page and proceed to the detail page to download the software.

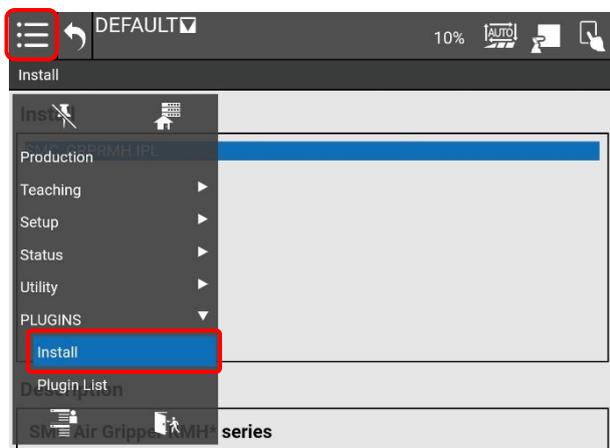
2.Install

2-1. Software for compatible robot control devices

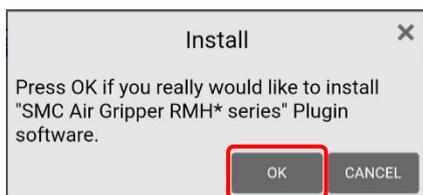
If the software for the robot control device is V9.40P / 37 version or earlier, update to the latest version V9.40P / 38 version or later before installing the plug-in software.

2-2. Install

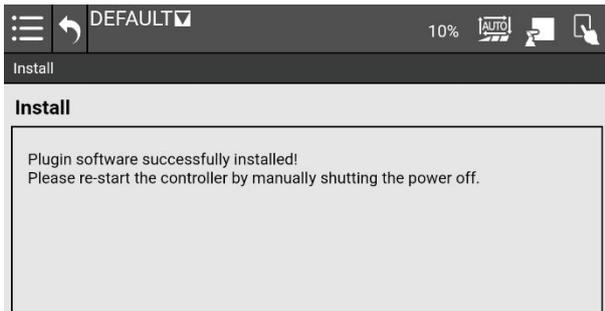
- ① Insert the USB memory device, where the downloaded file has been copied, into the USB port of the robot control device. Touch the menu icon on the status bar and tap "Install" under PLUGINS.
- ② The file name of the installation package file of the plug-in software, contained in the inserted USB memory device, as well as detailed explanation of the plug-in software will appear. Tap the Install button shown at the lower right part of the screen.



- ③ Tapping the OK button starts the installation of the plug-in software.



- ④ Once the installation has been completed, the screen shown below appears.

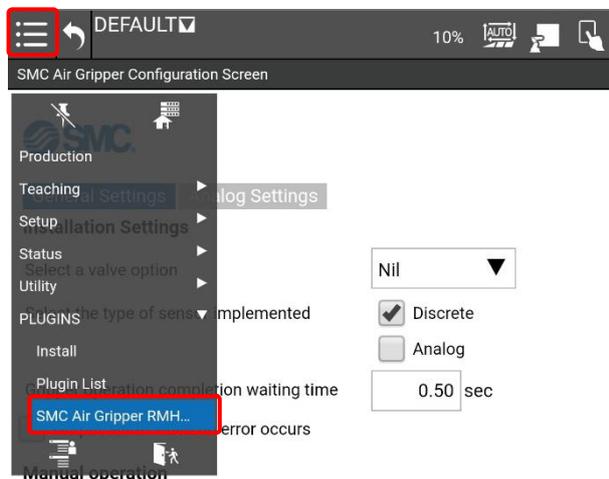


- ⑤ Turn the power supply to the robot OFF and then ON again. The installation has been completed.

3.SMC Air Gripper Configuration

3-1. SMC Air Gripper Configuration

Under PLUGINS, click the menu icon on the status bar and tap “SMC Air Gripper RMH...”. The SMC AIR GRIPPER Configuration Screen appears. Configure the basic settings of the air gripper.



3-2. General Settings

- ① Select a valve option
 Select the symbol corresponding to the valve option of the purchased product from the pull-down list.
 No symbol ⇒ NIL
 O (Normally open) ⇒ N.O.
 C (Normally closed) ⇒ N.C.

【Example of part number】

RMHZ2-20D-051PO-NDE

The symbol at the end of the underlined part is the valve option symbol.

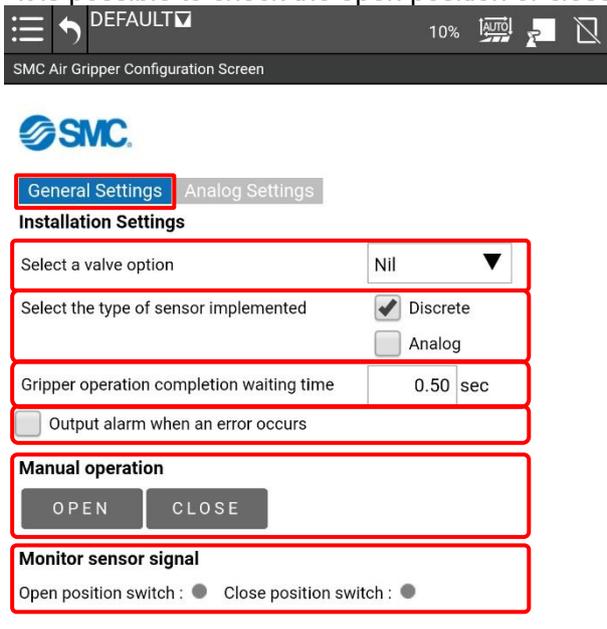
- ② Select the type of sensor implemented
 The item to be selected depends on whether the purchased product is equipped with an auto switch or a position sensor.
 Auto switch ⇒ “Discrete”
 Position sensor ⇒ “Analog”
 The “Analog Setting” tab is enabled when the “Analog” is selected.

【Example of part number】

RMHF2-16D2-051PO-NDE

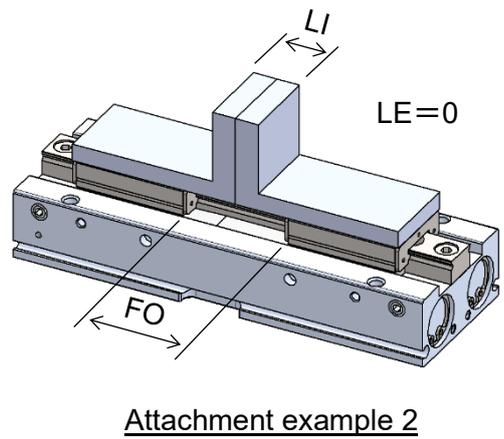
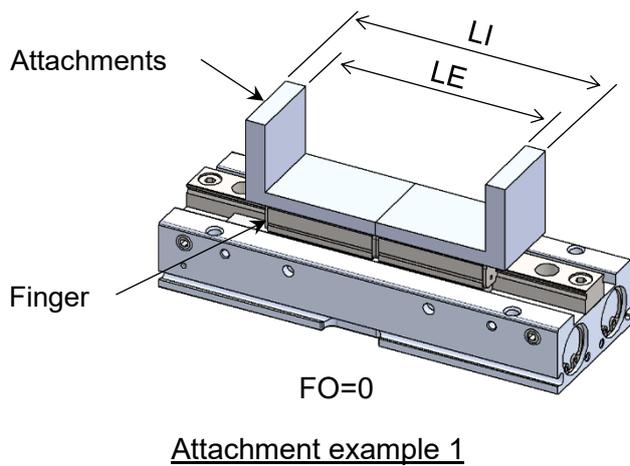
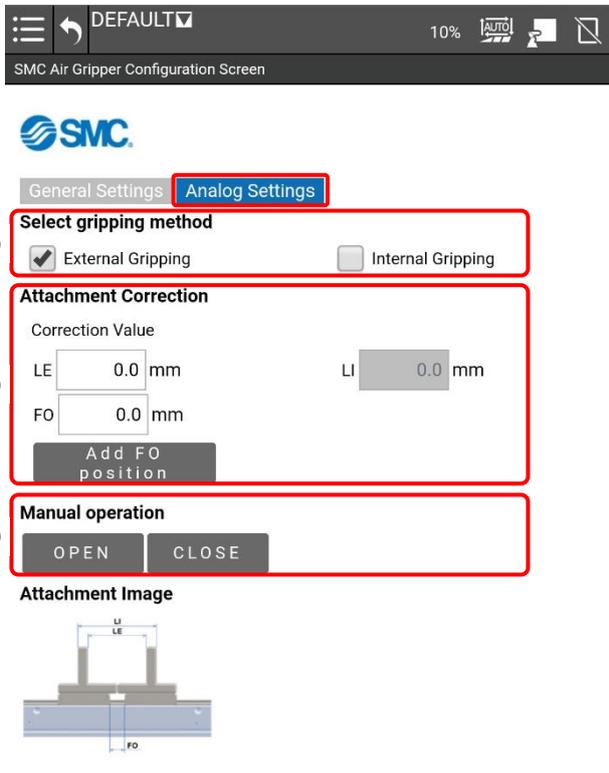
The symbol of the 4th digit refers to an auto switch when it is P and a position sensor when it is A.

- ③ Gripper operation completion waiting time
This is the set value for the waiting time after the valve is operated for OPEN / CLOSE of the fingers. Enter the appropriate value according to the operation speed of the finger by adjusting the opening of the metering valve.
The default value is 0.50sec. It can be set in the range of 0 to 5.00 sec
- ④ Output alarm when an error occurs
Choose whether to display an alarm message when the air gripper unit detects an error. If you check tick the check box, when a “open / close failure” is detected, an alarm message will be displayed, and the ongoing program will be stopped.
- ⑤ Manual operation
The manual operation of the air gripper unit can be checked. Open or close the gripper by tapping the OPEN or CLOSE button.
- ⑥ Monitor sensor signal
It is possible to check the open position or close position by checking the auto switch output.



3-3. Analog Settings

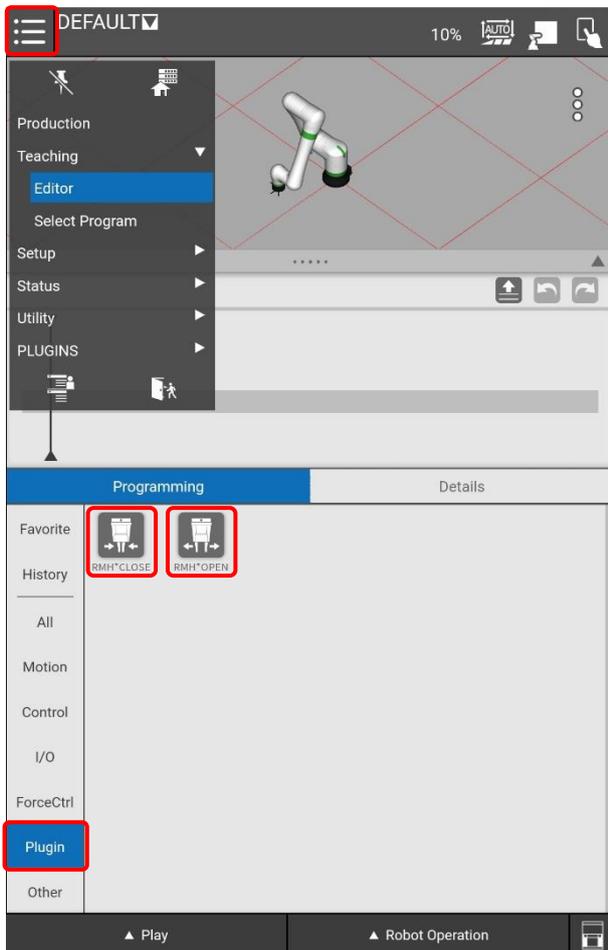
- ① Select gripping method
According to the workpiece gripping method, select the “External Gripping” or “Internal Gripping” check box.
- ② Attachment Correction
In accordance with the shape of the attachment to be attached on the finger, enter a compensation value.
Enter “LE” and “FO” for “External Gripping” or “LI” and “FO” for “Internal Gripping,” and enter the width as for of when the attachment is in the fully closed state to “FO.”
Tapping the “Add FO position” button enters the current value to “FO.”
- ③ Manual operation
The manual operation of the air gripper unit can be checked. Open or close the gripper by tapping the OPEN or CLOSE button.



4. Dedicated instruction

Once the plug-in software has been installed successfully, two dedicated instructions of “RMH*CLOSE” and “RMH*OPEN” will be added.

Touch the menu icon on the status bar, tap “Editor” under Teaching, and tap the Plugin tab. The RMH*CLOSE and RMH*OPEN icons will appear on the Programming tab.



4-1. Dedicated instruction : CLOSE (When Auto switch is selected)

- ① Select Operation
Select the behavior of the CLOSE operation.

CLOSE ONLY: It puts the gripper into the “Closed state”, recognizes it as “Close success” without checking the Close position signal, and proceeds to the next operation.

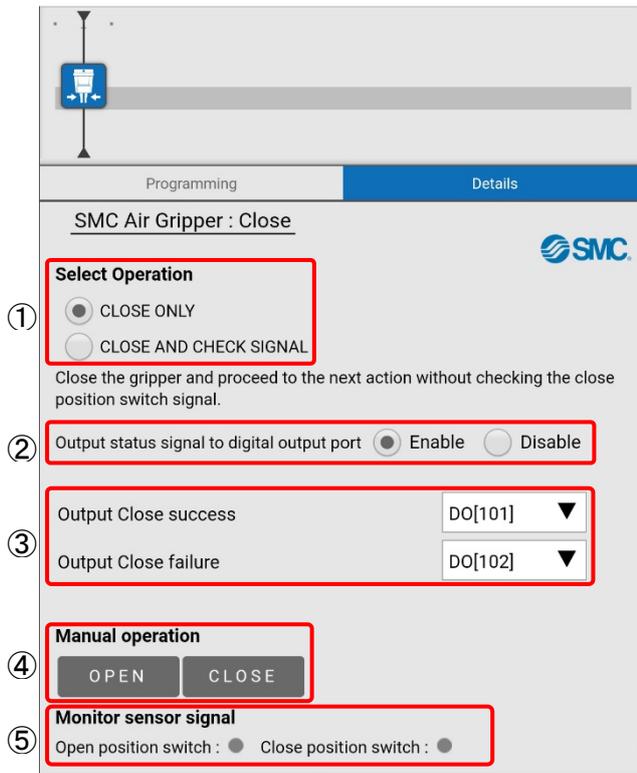
CLOSE AND CHECK SIGNAL: Closes the gripper and waits for the close position signal input before proceeding to the next action. When the signal is turned on, the software recognizes it as an indication of “CLOSE success” and proceeds to the next operation.

- ② Output status signal to digital output port
Select whether to output a status signal to the digital output port when “Close success” or “Close failure” is detected.

Enable: Selection of the digital output port is enabled. If either of “Close success” and “Close failure” is detected, the corresponding digital output port is turned on.

Disable: The selection of the digital output port is disabled. Even if either of “Close success” and “Close failure” is detected, no status signal is output.

- ③ Output Close success / Output Close failure
Sets the output destination for the status signal that is output upon close success or failure.
- ④ Manual operation
The manual operation of the air gripper unit can be checked.
Open or close the gripper by tapping the OPEN or CLOSE button.
- ⑤ Monitor sensor signal
The presence of a reaction of Open position or Close position switch can be confirmed.



4-2. Dedicated instruction : OPEN (When Auto switch is selected)

- ① Select Operation
Select the behavior of the OPEN operation.

OPEN ONLY: It puts the gripper into the “Opened state”, recognizes it as “Open success” without checking the Open position signal, and proceeds to the next operation.

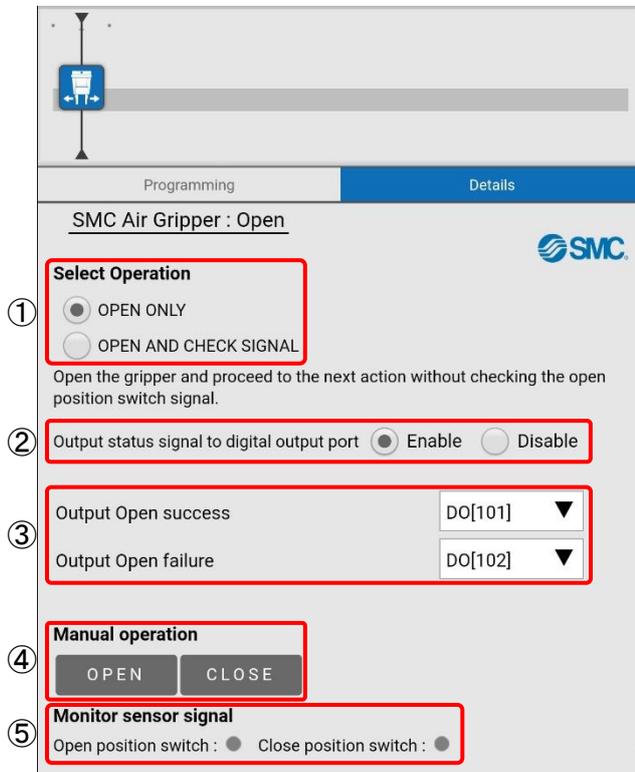
OPEN AND CHECK SIGNAL: Opens the gripper and waits for the open position signal input before proceeding to the next action. When the signal is turned on, the software recognizes it as an indication of “OPEN success” and proceeds to the next operation.

- ② Output status signal to digital output port
Select whether to output a status signal to the digital output port when “Open success” or “Open failure” is detected.

Enable: Selection of the digital output port is enabled. If either of “Open success” and “Open failure” is detected, the corresponding digital output port is turned on.

Disable: The selection of the digital output port is disabled. Even if either of “Open success” and “Open failure” is detected, no status signal is output.

- ③ Output Open success / Output Open failure
Sets the output destination for the status signal that is output upon open success or failure.
- ④ Manual operation
The manual operation of the air gripper unit can be checked.
Open or close the gripper by tapping the OPEN or CLOSE button.
- ⑤ Monitor sensor signal
The presence of a reaction of Open position or Close position switch can be confirmed.



4-3. Dedicated instruction : CLOSE (When Position sensor is selected)

- ① Select Operation
Select the behavior of the CLOSE operation.

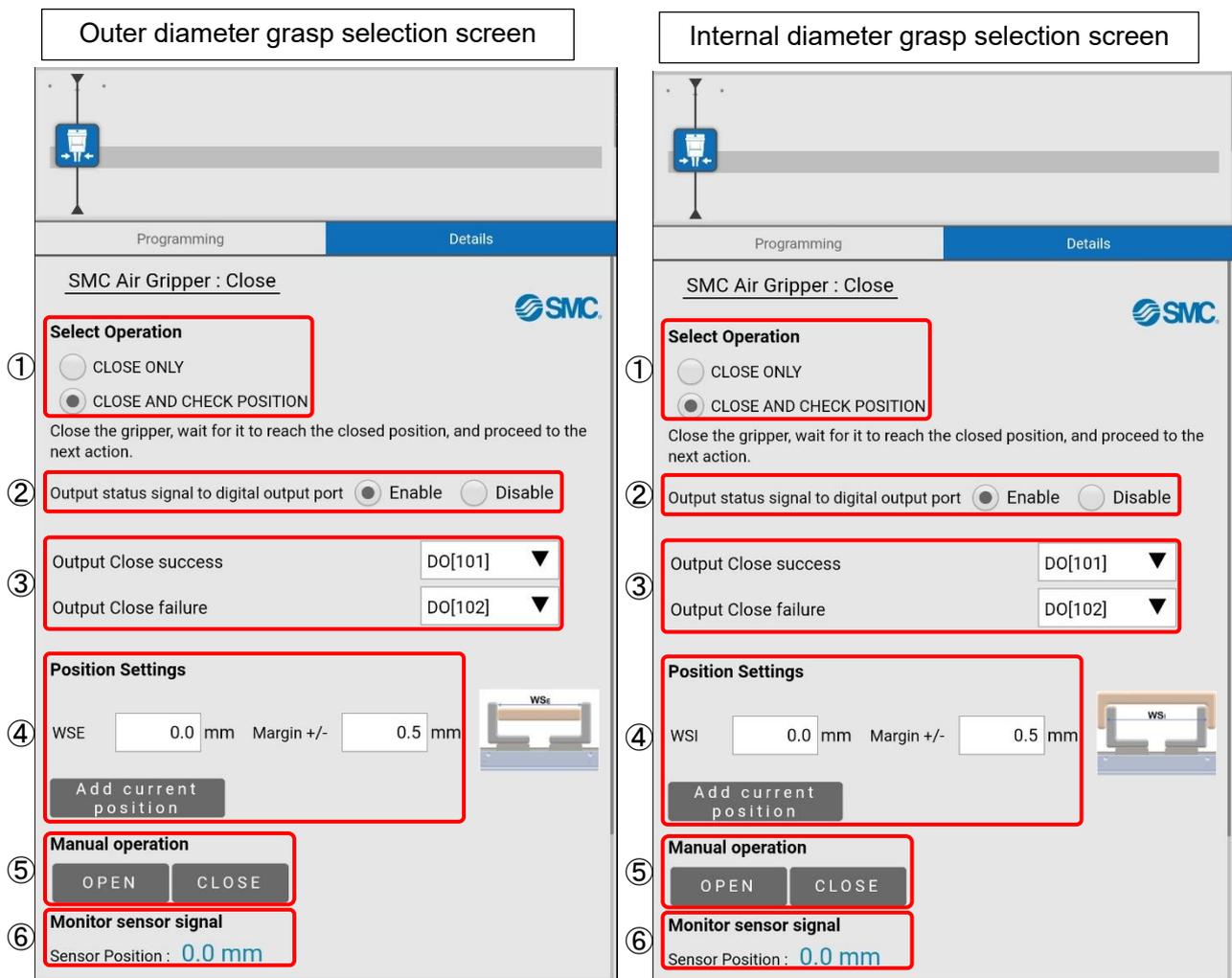
CLOSE ONLY: It puts the gripper into the “Closed state”, recognizes it as “Close success” without checking the Close position signal, and proceeds to the next operation.

CLOSE AND CHECK SIGNAL: Closes the gripper and waits for the close position signal input before proceeding to the next action. When the signal is turned on, the software recognizes it as an indication of “CLOSE success” and proceeds to the next operation.
- ② Output status signal to digital output port
Select whether to output a status signal to the digital output port when “Close success” or “Close failure” is detected.

Enable: Selection of the digital output port is enabled. If either of “Close success” and “Close failure” is detected, the corresponding digital output port is turned on.

Disable: The selection of the digital output port is disabled. Even if either of “Close success” and “Close failure” is detected, no status signal is output.

- ③ Output Close success / Output Close failure
Sets the output destination for the status signal that is output upon close success or failure.
- ④ Gripping position setting
Enter the size of the workpiece to “WSE” for external gripping or “WSI” for internal gripping, and then enter the margin. When you tap the ‘Add current position’ button with the workpiece in a clamped state, the workpiece size is entered in “WSE” or “WSI.” To grasp the notion of the workpiece size, refer to the icon.
- ⑤ Manual operation
The manual operation of the air gripper unit can be checked.
Open or close the gripper by tapping the OPEN or CLOSE button.
- ⑥ Monitor sensor signal
This allows you to check the finger stroke position.



4-4. Dedicated instruction : OPEN (When Position sensor is selected)

- ① Select Operation
Select the behavior of the OPEN operation.

OPEN ONLY: It puts the gripper into the “Opened state”, recognizes it as “Open success” without checking the Open position signal, and proceeds to the next operation.

OPEN AND CHECK POSITION: Opens the gripper and waits for the open position signal input before proceeding to the next action. When the signal is turned on, the software recognizes it as an indication of “OPEN success” and proceeds to the next operation.

- ② Output status signal to digital output port
Select whether to output a status signal to the digital output port when “Open success” or “Open failure” is detected.

Enable: Selection of the digital output port is enabled. If either of “Open success” and “Open failure” is detected, the corresponding digital output port is turned on.

Disable: The selection of the digital output port is disabled. Even if either of “Open success” and “Open failure” is detected, no status signal is output.

- ③ Output Open success / Output Open failure
Sets the output destination for the status signal that is output upon open success or failure.
- ④ Gripping position setting
Enter the size of the workpiece to “WSE” for external gripping or “WSI” for internal gripping, and then enter the margin. When you tap the ‘Add current position’ button with the workpiece in a clamped state, the workpiece size is entered in “WSE” or “WSI.” To grasp the notion of the workpiece size, refer to the icon.
- ⑤ Manual operation
The manual operation of the air gripper unit can be checked.
Open or close the gripper by tapping the OPEN or CLOSE button.
- ⑥ Monitor sensor signal
This allows you to check the finger stroke position.

Outer diameter grasp selection screen

Internal diameter grasp selection screen

Revision history

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