# SMC

## Operation Manual

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PRODUCT NAME

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Electric Vacuum Gripper for Collaborative Robots

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MODEL / Series / Product Number

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*ZXPE5∗051P-∗∗∗∗-∗∗∗*

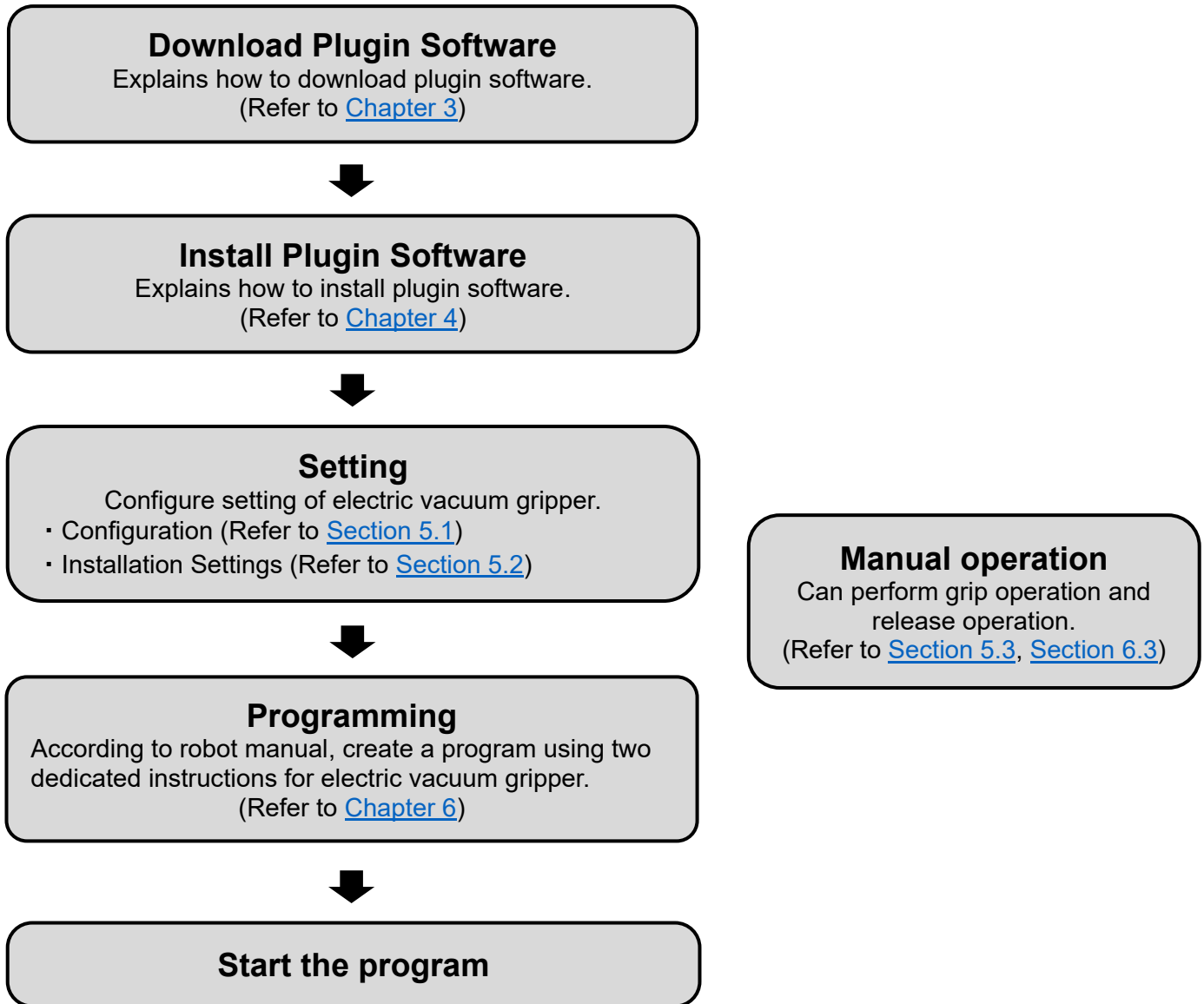-Software (FANUC CRX Plugin software)-

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# Contents

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## 1. Basic operation

Refer to operation manual "Electric Vacuum Gripper for Collaborative Robots - Hardware -" regarding initial setting and other basic operations.

## 2. Plugin software overview

This plugin software is exclusively for FANUC robots. The following shows the operation flow for the software.

**Download Plugin Software**
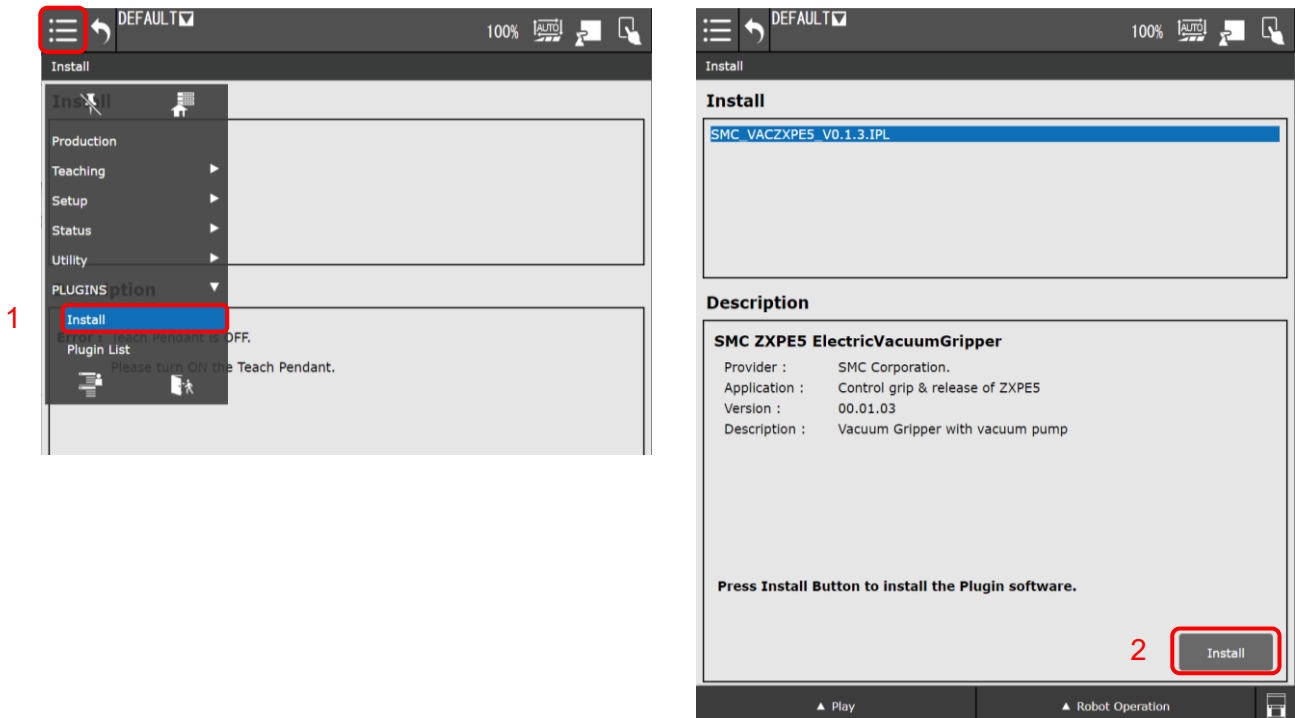Explains how to download plugin software.
(Refer to Chapter 3)

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**Install Plugin Software**
Explains how to install plugin software.
(Refer to Chapter 4)

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**Setting**
Configure setting of electric vacuum gripper.
・Configuration (Refer to Section 5.1)
・Installation Settings (Refer to Section 5.2)

**Manual operation**
Can perform grip operation and release operation.
(Refer to Section 5.3, Section 6.3)

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**Programming**
According to robot manual, create a program using two dedicated instructions for electric vacuum gripper.
(Refer to Chapter 6)

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**Start the program**

## 3. Download Plugin software

Download the relevant plugin software from the SMC website (https://www.smcworld.com) and put it into a USB memory drive. Search the product number (ZXPE) on the TOP page and proceed to the detail page to download the software.
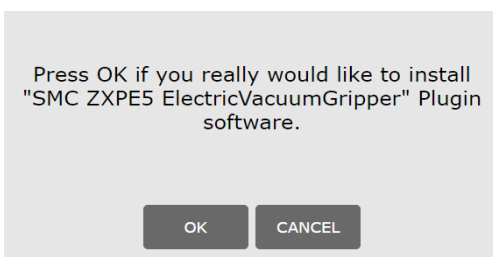
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# 4. Install Plugin software

⚠️**Caution**

This plugin software is compatible with robot controller software version V9.40P / 38 or later. If robot controller software version is lower than V9.40P / 37, update the software to the latest version later than V9.40P / 38 before installing plugin software.
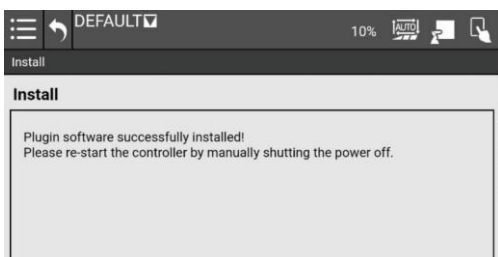
1. Insert the USB memory drive with the downloaded plugin software into the USB port of the robot controller. Press the menu icon on the status bar then press "Install" under "PLUGINS".
2. The file name of the installation package file and the description of the plugin software in the USB memory drive are displayed. Press "Install" button in the lower right corner of the screen.



3. Press "OK" button to start the installation of the plugin software.



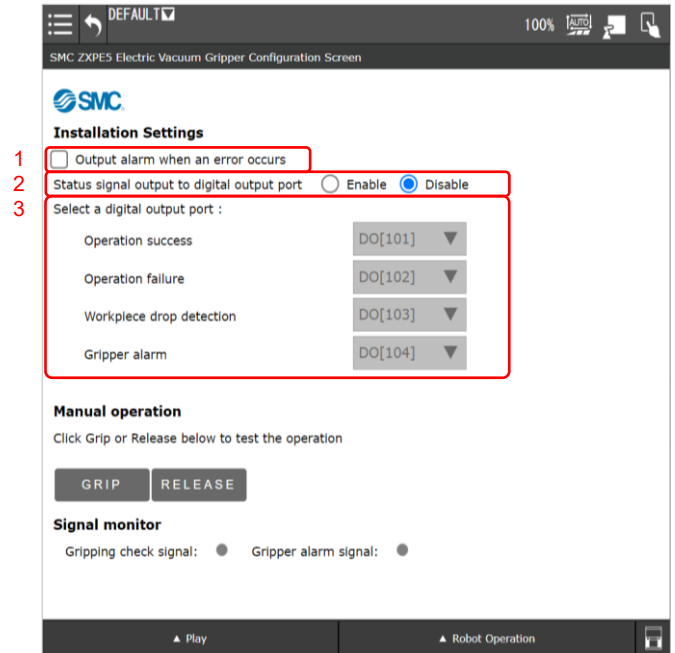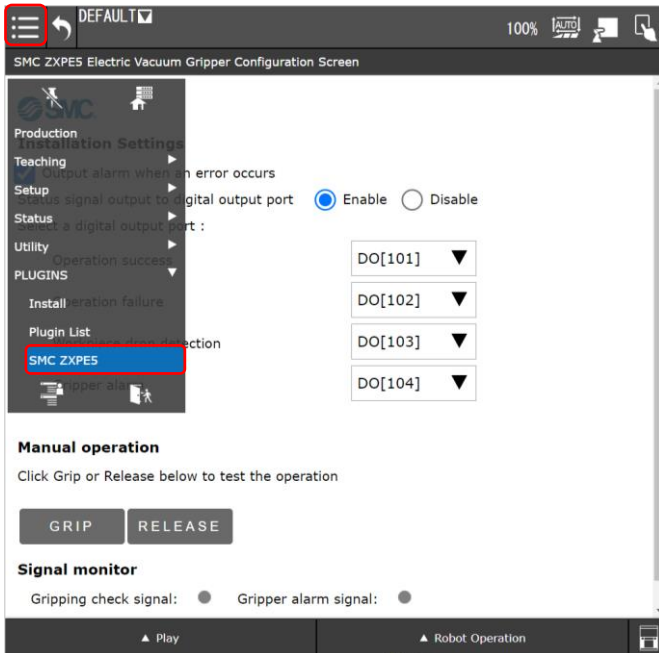4. Once the installation has been completed, the screen below is displayed.



5. Re-start the robot controller. The entire process of the installation is complete.

## 5.1 Configuration

・Press the menu icon on the status bar then press "SMC ZXPE5" under "PLUGINS". SMC ZXPE5 Electric Vacuum Gripper Configuration screen is displayed. Configure the installation settings of the electric vacuum gripper.
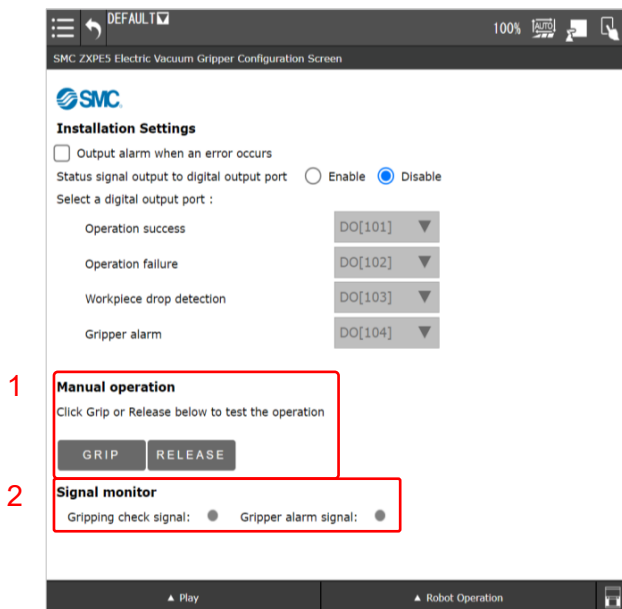


## 5.2 Installation settings

1. "Output alarm when an error occurs"
   Select whether to display an alarm message or not when the electric vacuum gripper detects an error. If putting a check mark in the box, an alarm message will be displayed when "Operation failure", "Workpiece drop detection" or "Gripper alarm" is detected.

2. "Status signal output to digital output port"
   Select whether to output status signals to the digital output ports or not when "Operation success", "Operation failure", "Workpiece drop detection" or "Gripper alarm" is detected.

   ・When "Enable" is selected:
   The selection of the digital output ports gets enabled. If any of "Operation success", "Operation failure", "Workpiece drop detection" or "Gripper alarm" is detected, the status signal will output to the applicable digital output port.

   ・When "Disable" is selected:
   The selection of the digital output port gets disabled. Even if any of "Operation success", "Operation failure", "Workpiece drop detection" or "Gripper alarm" is detected, the status signal will not output.

3. "Select a digital output port"
   When "2 Status signal output to digital output port" is enabled, the selection boxes are activated. Select a digital output port that outputs a status signal when "Operation success", "Operation failure", "Workpiece drop detection" or "Gripper alarm" is detected.

   ・Default of digital output ports
   | | |
   |---|---|
   | Operation success | :D0 [101] |
   | Operation failure | :D0 [102] |
   | Workpiece drop detection | :D0 [103] |
   | Gripper alarm | :D0 [104] |

# 5.3 Manual operation - Signal monitor

1. Manual operation
   Can perform manual operation of Electric Vacuum Gripper.
   Performs grip operation or release operation respectively by pressing "GRIP" or "RELEASE" button.

2. Signal monitor
   Can monitor Gripping check signal and Gripper alarm signal on Signal monitor.

   ・Gripping check signal
   ● (Green) : ON
   ● (Gray)　: OFF

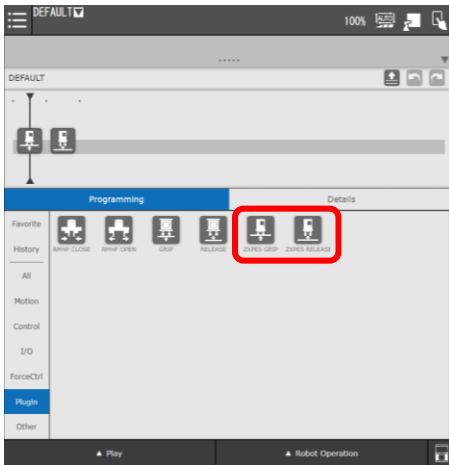   ・Gripper alarm signal
   ● (Red)　 : ON
   ● (Gray)　: OFF

   Regarding Gripper alarms, refer to "Electric Vacuum Gripper for Collaborative Robots - Hardware -" .

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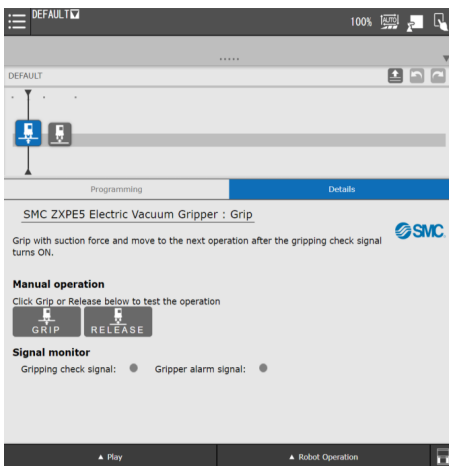
# 6. Dedicated instructions

When the plugin software is successfully installed, two dedicated instructions "ZXPE5 GRIP" and "ZXPE5 RELEASE" will be added.
Press the menu icon on the status bar, press "Editor" under "Teaching", then press "Plugin" tab. You can see "ZXPE5 GRIP" and "ZXPE5 RELEASE" icons on the Programming tab.
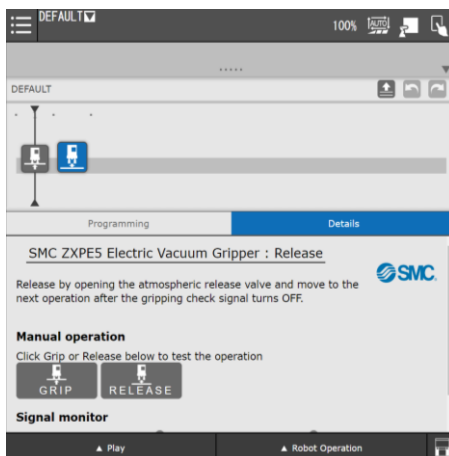


## 6.1 Dedicated instruction: ZXPE5 GRIP
　・Perform grip operation. Vacuum pressure is monitored and program moves to next operation
　　after Gripping check signal turns on.
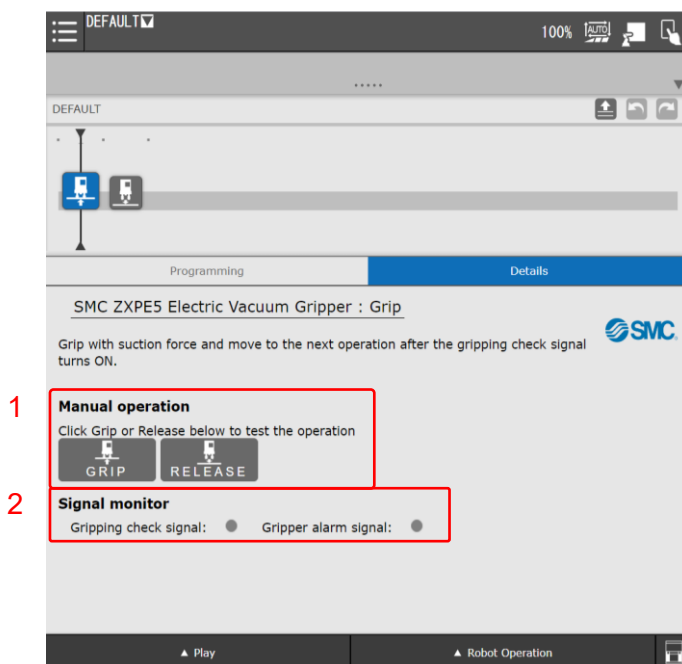


## 6.2 Dedicated instruction: ZXPE5 RELEASE
　・Perform release operation. Vacuum pressure is monitored and program moves to next operation
　　after Gripping check signal turns off.

## 6.3 Manual operation - Signal monitor

1.  Manual operation
    Can perform manual operation of Electric Vacuum Gripper on each dedicated instruction tab.
    Performs grip operation or release operation respectively by pressing "GRIP" or "RELEASE" button.

2.  Signal monitor
    Can monitor Gripping check signal and Gripper alarm signal on Signal monitor of each dedicated instruction tab.

    ・Gripping check signal
    🟢 (Green) : ON
    ⚫ (Gray)　: OFF

    ・Gripper alarm signal
    🔴 (Red)　 : ON
    ⚫ (Gray)　: OFF

    Regarding Gripper alarms, refer to "Electric Vacuum Gripper for Collaborative Robots - Hardware -" .



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## 7.Troubleshooting

Refer to operation manual "Electric Vacuum Gripper for collaborative robots - Hardware -" .

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