Doc. no. DOC1086932

Operation Manual

PRODUCT NAME

Electric Vacuum Gripper for Collaborative Robots

MODEL / Series / Product Number

*ZXPE5*021N-****-***

-Software (TMComponent)-

SMC Corporation

Contents

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 TM series or TM S series of OMRON/TECHMAN ROBOT. The following shows the operation flow for the software.

Download Plugin software
Explains how to download TMComponent.
(Refer to Chapter 3)

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Import Plugin software
Explains how to import TMComponent.
- TMflow (Refer to Section 4.1)
- TMflow2 (Refer to Section 4.2)

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Setting
Configure setting of Electric Vacuum Gripper.
- TMflow (Refer to Section 5.1)
- TMflow2 (Refer to Section 5.2)

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Programming
According to robot manual, create a program using two component nodes 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.
Please note that the plugin software is different depending on the version of TMflow.

[TMflow]
- VacuumSwitch_SMC_ZXPE5_V0∗∗_Grip (The electric vacuum gripper grips a workpiece with suction force)
- VacuumSwitch_SMC_ZXPE5_V0∗∗_Release (The electric vacuum gripper releases a workpiece by opening the atmospheric release valve)

[TMflow2]
- VacuumSwitch_SMC_ZXPE5_V2∗∗_Grip (The electric vacuum gripper grips a workpiece with suction force)
- VacuumSwitch_SMC_ZXPE5_V2∗∗_Release (The electric vacuum gripper releases a workpiece by opening the atmospheric release valve)

Note) ∗∗ is the version number starting from 01.

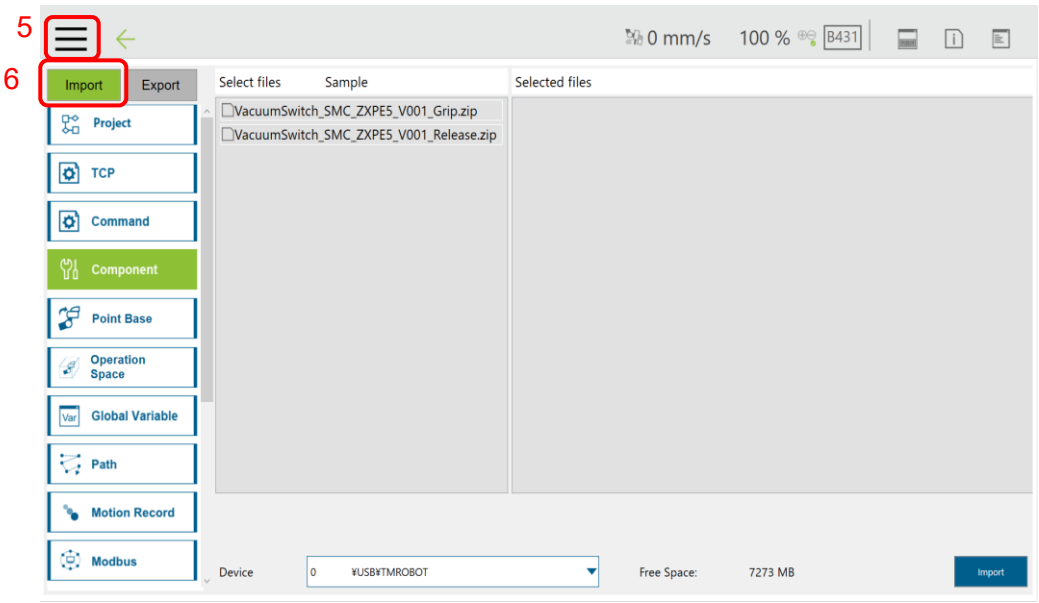
TMflow and TMflow2 are explained respectively on 4. Installation and 5. Basic setting.

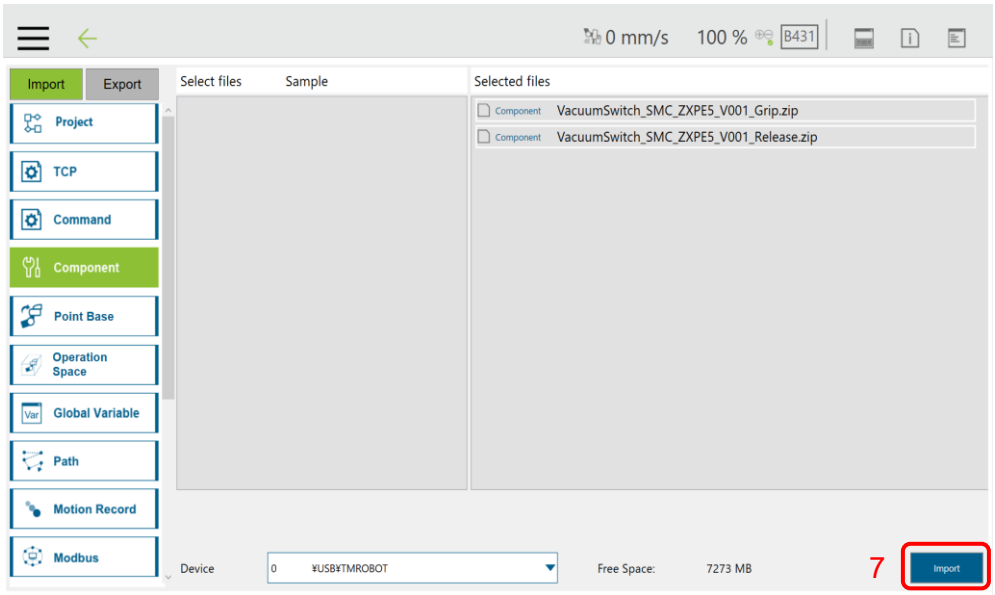
4. Import Plugin software

4.1. TMflow

Import TMComponent

1. Download the TMComponent for TMflow from the SMC website.
   - VacuumSwitch_SMC_ZXPE5_V0**_Grip
   - VacuumSwitch_SMC_ZXPE5_V0**_Release
2. Label the USB memory drive as “TMROBOT”.
3. Place the downloaded zipped component files in the folder directory TMROBOT:\TM_Export\TMComponent\ComponentObject\ in the USB memory drive.
4. Insert the USB memory drive into the Control Box.
5. In TMflow, click the **triple bar** icon and select **System.**
6. Select **Import/Export** icon and select **Import**. Then select the TMComponent in the Robot List window and click **OK**.
7. Select the **Component** tab on the left side of screen. Then select the SMC ZXPE5 components to add and click **Import**.

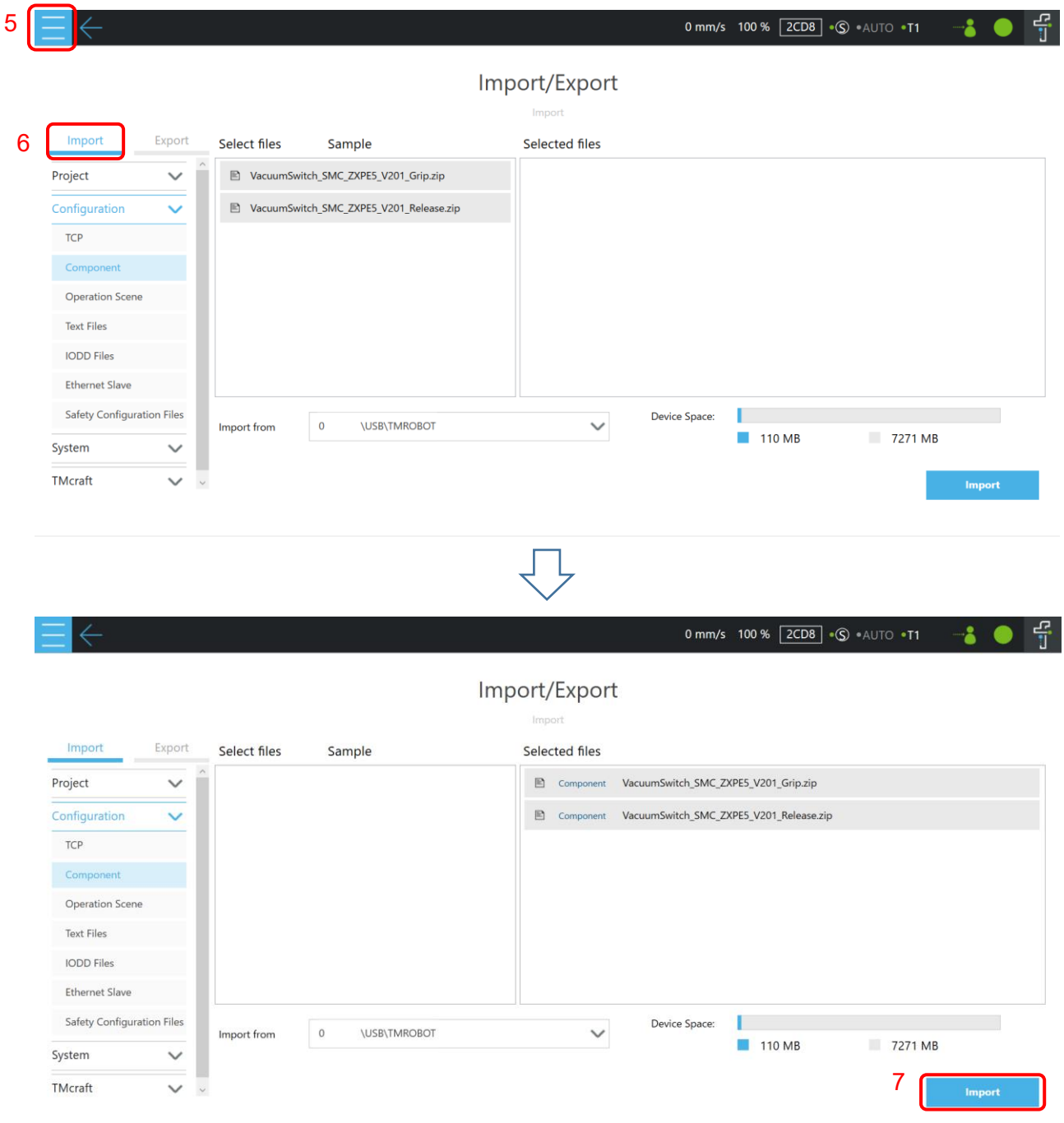




4.2. TMflow2

Import TMComponent

1. Download the TMComponent for TMflow2 from the SMC website.
   - VacuumSwitch_SMC_ZXPE5_V2**_Grip
   - VacuumSwitch_SMC_ZXPE5_V2**_Release
2. Label the USB memory drive as “TMROBOT”.
3. Place the downloaded zipped component files in the folder directory TMROBOT:\TM_Export\TMComponent\ComponentObject\ in the USB memory drive.
4. Insert the USB memory drive into the Control Box.
5. In TMflow2, click the **triple bar** icon and select **System.**
6. Select **Import/Export** icon and select **Import**. Then select the TMComponent in the Robot List window and click **OK**.
7. Select the **Component** tab on the left side of screen. Then select the SMC ZXPE5 components to add and click **Import**.

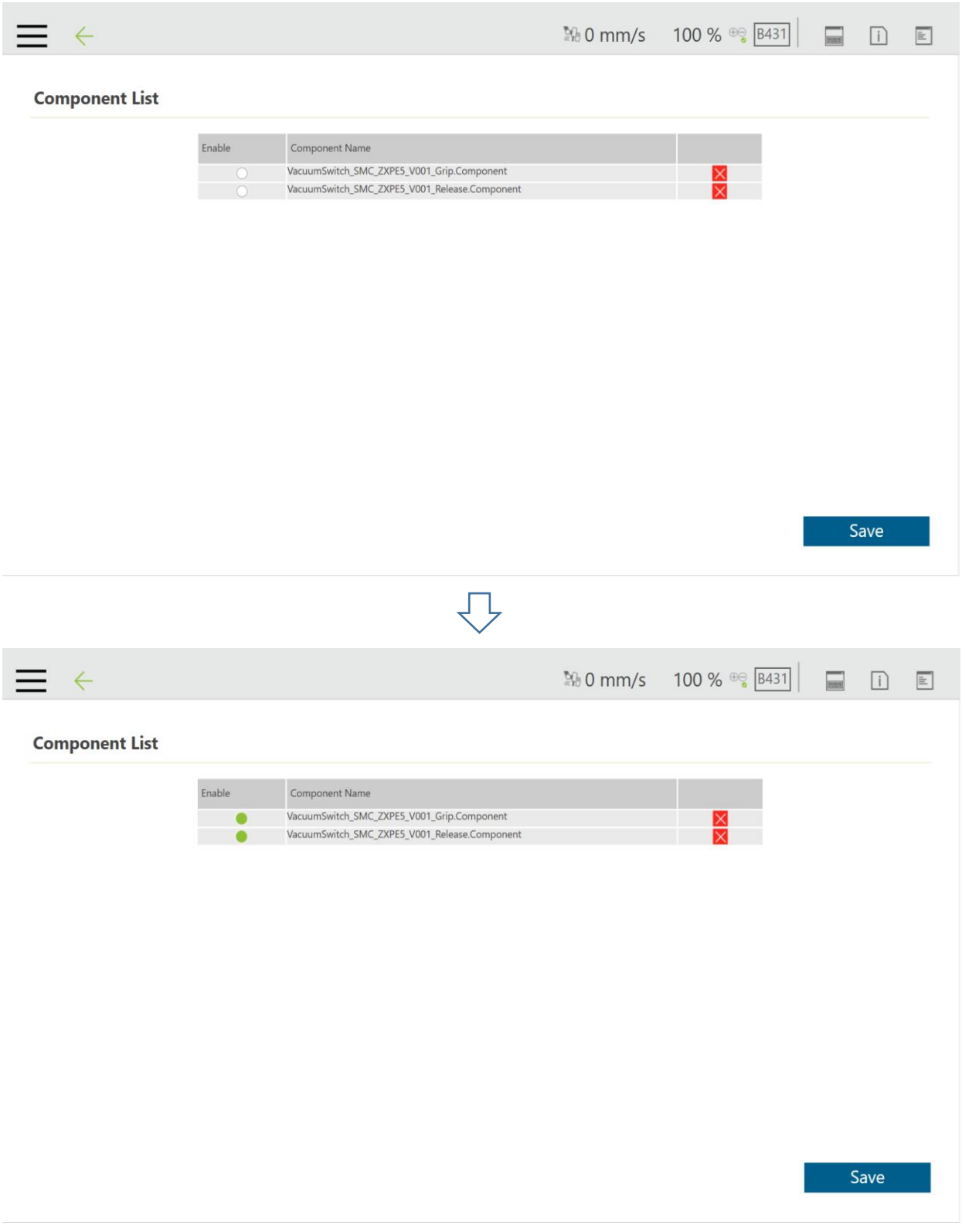


5. Setting

5.1. TMflow

Enable TMComponent

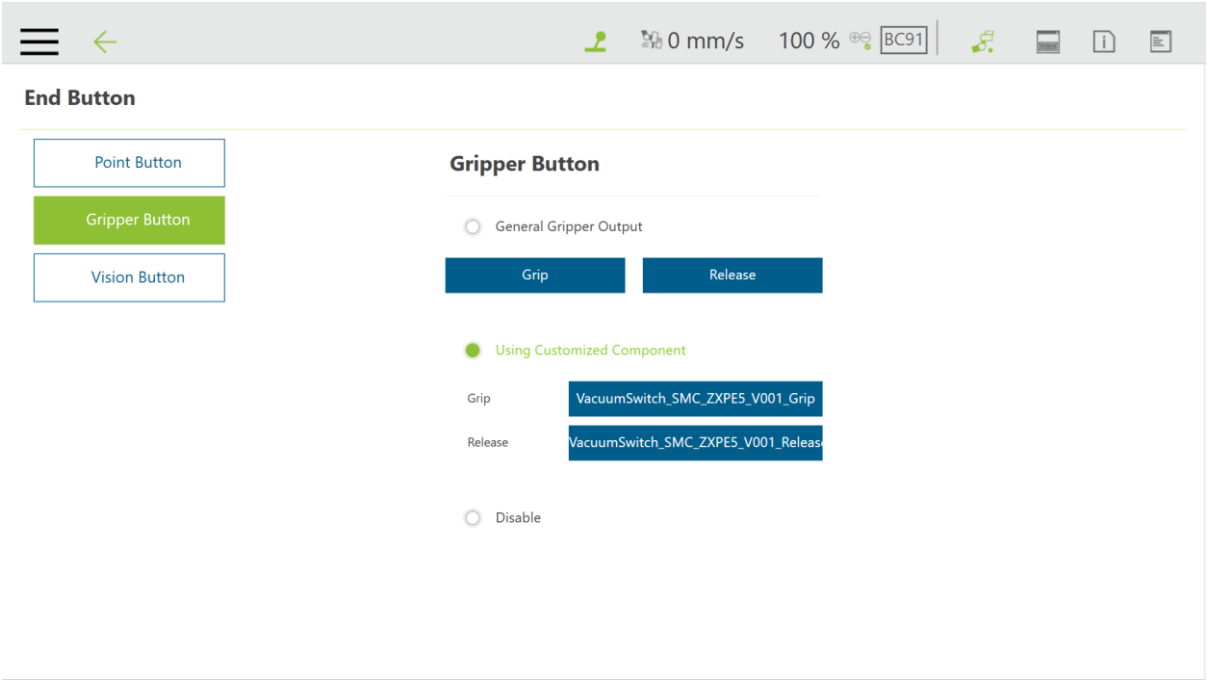
1. Click the **triple bar** icon and go back to the main menu. Then select **Setting** to display the Robot Setting window.
2. Select the **Component** icon.
3. Enable required components on the Component List by clicking the radio buttons beside them. Enabled components display green radio buttons. Then click the **Save** button.



Configure Gripper button

Users can assign the SMC ZXPE5 components to the Gripper button on robot arm and use the Gripper button to add each component to project. If pushing the Gripper button, a component is added to project and the component is executed simultaneously.

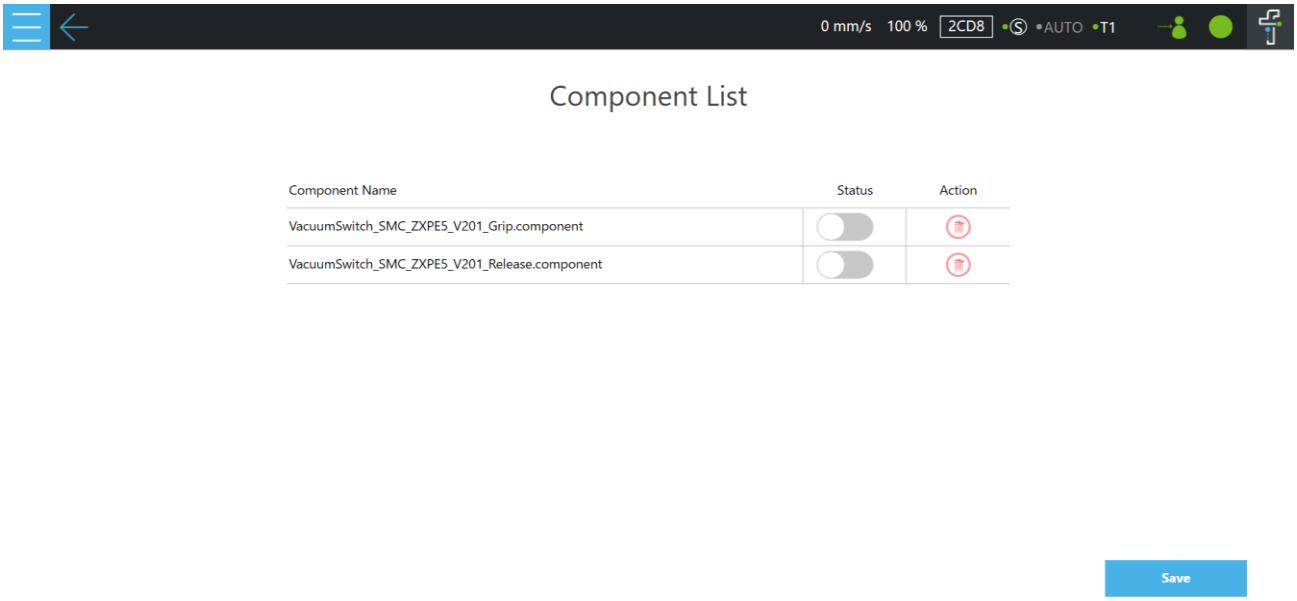
1. Click the **triple bar** icon and go back to the main menu. Then select **Setting**.
2. Select **End Button** icon in Robot Setting window and select **Gripper Button** tab.
3. In the Gripper Button window, click the **Using Customized Component** radio button and select the component you want to assign to Grip and Release respectively.

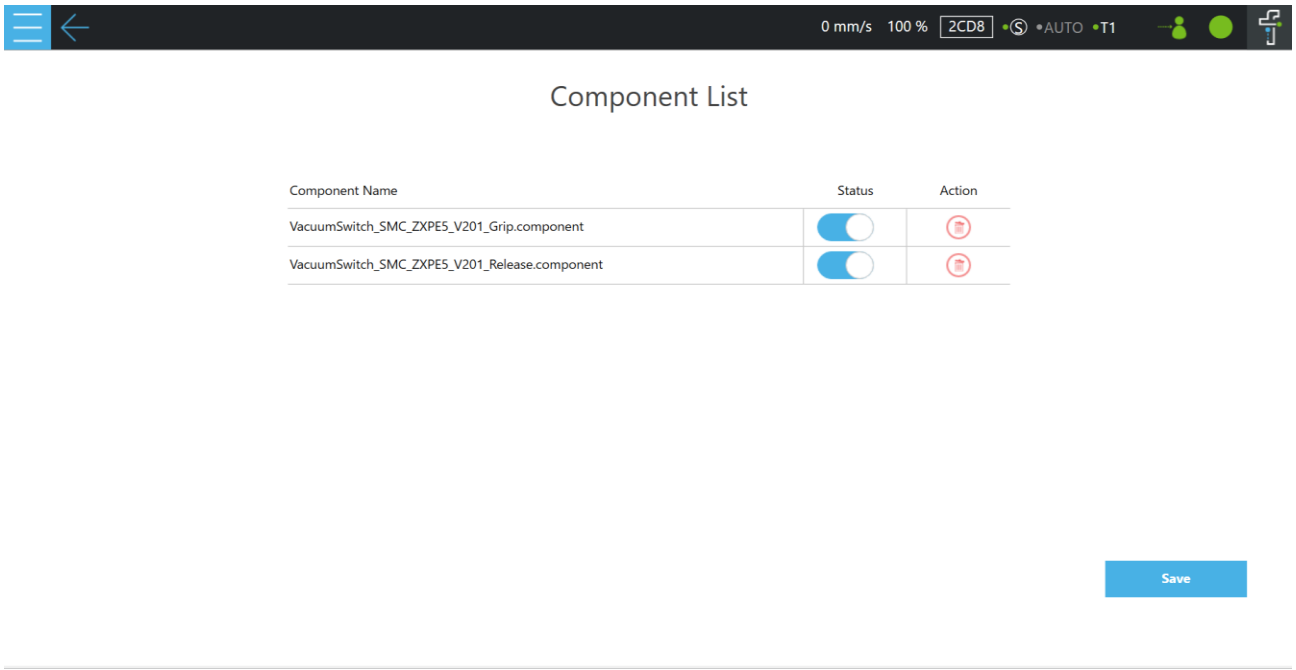


5.2. TMflow2

Enable TMComponent

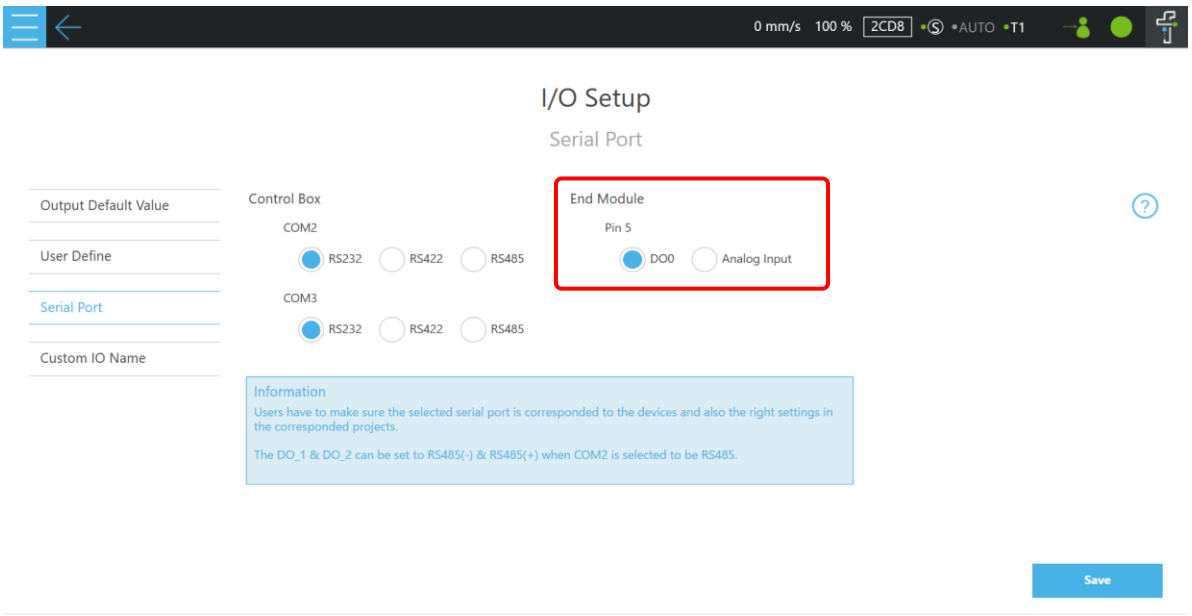
1. Click the **triple bar** icon and go back to the main menu. Then select **Configuration** to display the Configuration window.
2. Select the **Component** icon.
3. Enable required components on the Component List by clicking the toggle buttons beside them. Enabled components display blue toggle buttons. Then click the **Save** button.





Setting of serial port

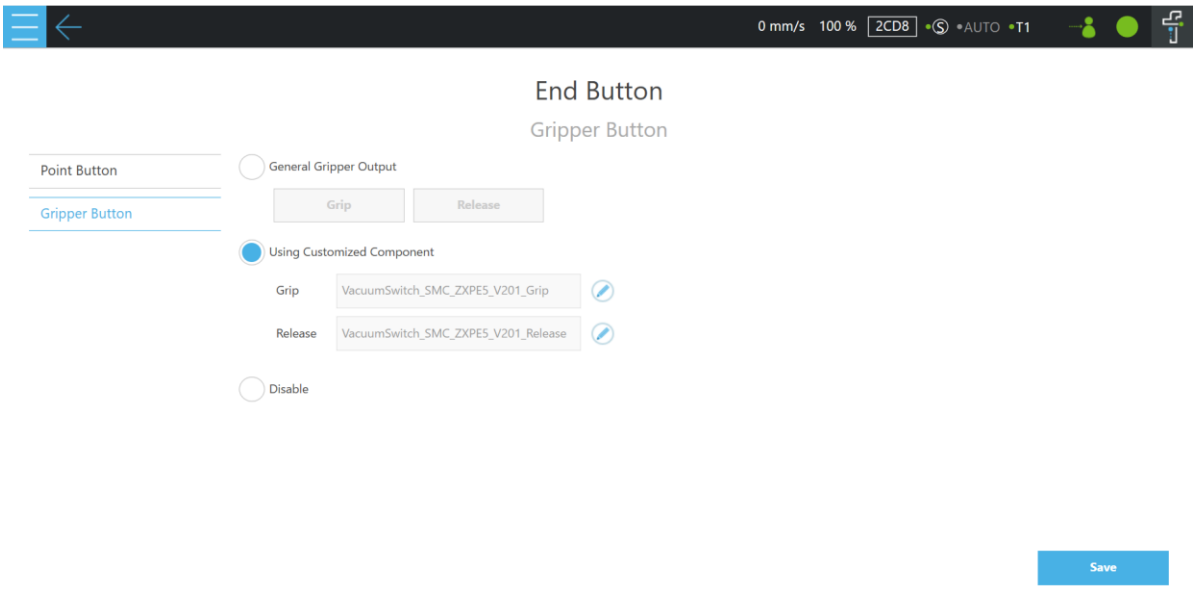
1. Click the **triple bar** icon and select **Configuration**.
2. Select **I/O Setup** icon and select **Serial Port** tab.
3. Select the **DO0** radio button for Pin 5 of End Module. Then click the **Save** button.



Configure Gripper button

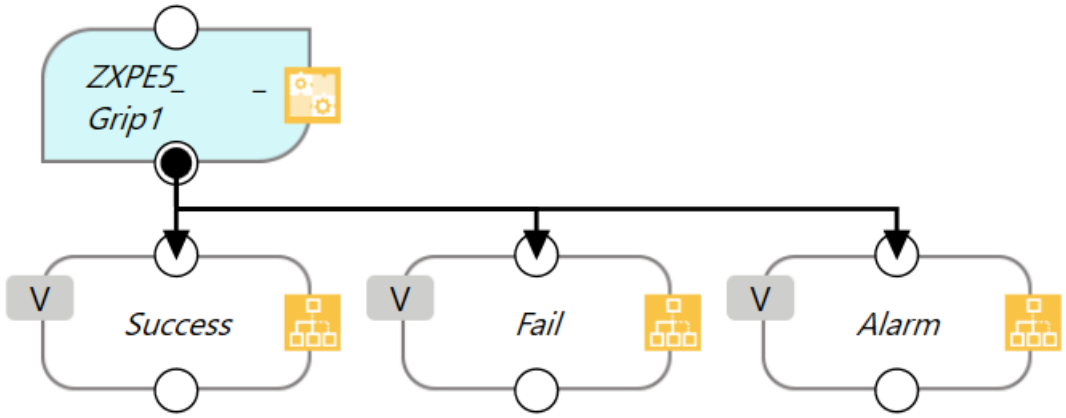
Users can assign the SMC ZXPE5 components to the Gripper button on robot arm and use the Gripper button to add each component to project. If pushing the Gripper button, a component is added to project and the component is executed simultaneously.

1. Click the **triple bar** icon and go back to the main menu. Then select **Configuration**.
2. Select **End Button** icon in Configuration window and select **Gripper Button** tab.
3. In the Gripper Button window, click the **Using Customized Component** radio button and select the component you want to assign to Grip and Release respectively. Then click the **Save** button.



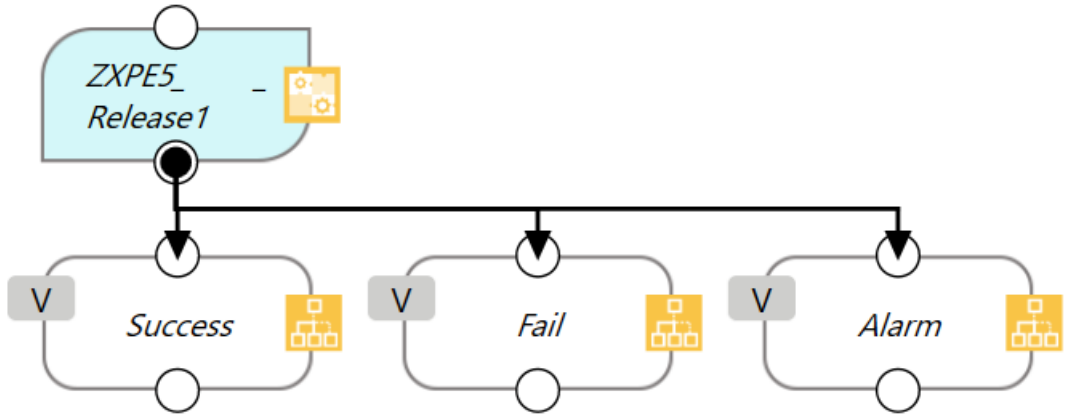
6. Component node

Component: Grip node
This component is used to grip a workpiece with suction force.



- Success : The vacuum pressure reaches the specified value: P2 within 2000 msec and the gripping check signal turns ON.
- Fail : The vacuum pressure does not reach the specified value: P2 within 2000 msec and the gripping check signal does not turn ON.
- Alarm : Gripper alarm has occurred.

Component: Release node
This component is used to release a workpiece by opening the atmospheric release valve.



- Success : The vacuum pressure drops to the specified value within 2000 msec and the gripping check signal turns OFF.
- Fail : The vacuum pressure does not drop to the specified value within 2000 msec and the gripping check signal does not turn OFF.
- Alarm : Gripper alarm has occurred.

7.Troubleshooting

Refer to operation manual “Electric Vacuum Gripper for Collaborative Robots - Hardware -.”

Revision history

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