

Operation Manual

PRODUCT NAME

Electric Vacuum Gripper for Collaborative Robots

MODEL / Series / Product Number

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

-Software (TMComponent)-

SMC Corporation

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



3. Download Plugin software

Download the relevant plugin software from the SMC website (<u>https://www.smcworld.com</u>) 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 <u>4. Installation</u> and <u>5. Basic setting</u>.

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**.

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				Import/Export				
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Configuration			witch_SMC_ZXPE5_V201_Ghp.zip					
тср		E vacuums	witch_SMIC_ZAPES_V201_Nelease.zip					
Component								
Operation Scen	ρ							
Text Files								
IODD Files								
Ethernet Slave								
Safety Configur	ation Files				Device Space:			
System	\sim	Import from	0 \USB\TMROBOT	\checkmark		110 MB	7271 N	ИB
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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.
- 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.

Enable Component Name VacuumSwitch_SMC_ZXPE5_V001_Grip.Component X VacuumSwitch_SMC_ZXPE5_V001_Release.Component X			
Enable Component Name VacuumSwitch_SMC_ZXPE5_V001_Grip.Component X VacuumSwitch_SMC_ZXPE5_V001_Release.Component X			
	Save	2	
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Component List			
Enable Component Name VacuumSwitch_SMC_ZXPE5_V001_Grip.Component X VacuumSwitch_SMC_ZXPE5_V001_Release.Component X	Sav	e	

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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.

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End Button	
Point Button	Gripper Button
Gripper Button	O General Gripper Output
Vision Button	Grip Release
	Using Customized Component
	Grip VacuumSwitch_SMC_ZXPE5_V001_Grip
	Release VacuumSwitch_SMC_ZXPE5_V001_Release
	O Disable

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.

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	Component List				
	Component Name	Status	Action		
	VacuumSwitch_SMC_ZXPE5_V201_Grip.component				
	VacuumSwitch_SMC_ZXPE5_V201_Release.component				
					Save
	<u><u></u></u>				
$= \leftarrow$		0 mm/s 100 9	% 2CD8	•\$ •AUTO • T 1	
	Component List				
	Component Name	Status	Action		
	VacuumSwitch_SMC_ZXPE5_V201_Grip.component				
	VacuumSwitch_SMC_ZXPE5_V201_Release.component				
					Save

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.

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	I,	/O Setup Serial Port	
Output Default Value	Control Box COM2	End Module Pin 5	0
User Define	RS232 RS422 RS485	DO0 Analog Input	
Serial Port	COM3		
Custom IO Name			
	Information Users have to make sure the selected serial port is corre- the corresponded projects. The DO_1 & DO_2 can be set to RS485(-) & RS485(+) w	esponded to the devices and also the right settings in when COM2 is selected to be RS485.	
			Save

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.

End Button		
Gripper Button		
General Gripper Output		
Grip Release		
Using Customized Component		
Grip VacuumSwitch_SMC_ZXPE5_V201_Grip		
Release VacuumSwitch_SMC_ZXPE5_V201_Release		
Disable		
	General Gripper Output Grip Image: Component Grip VacuumSwitch_SMC_ZXPE5_V201_Grip Release VacuumSwitch_SMC_ZXPE5_V201_Release Disable	General Gripper Output Grip Release VacuumSwitch_SMC_ZXPE5_V201_Grip Release VacuumSwitch_SMC_ZXPE5_V201_Release

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 -."

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Revision history

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer. © SMC Corporation All Rights Reserved

