



Operation Manual

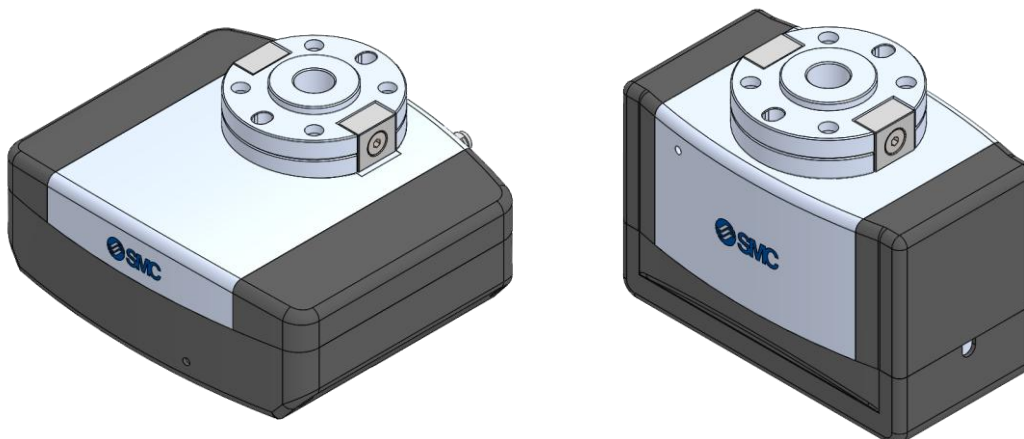
PRODUCT NAME

Electric Gripper for Collaborative Robots

MODEL / Series / Product Number

LEHR Series

—Software (TM component) —



SMC Corporation

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Software (TM component)

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1 How to Download Software

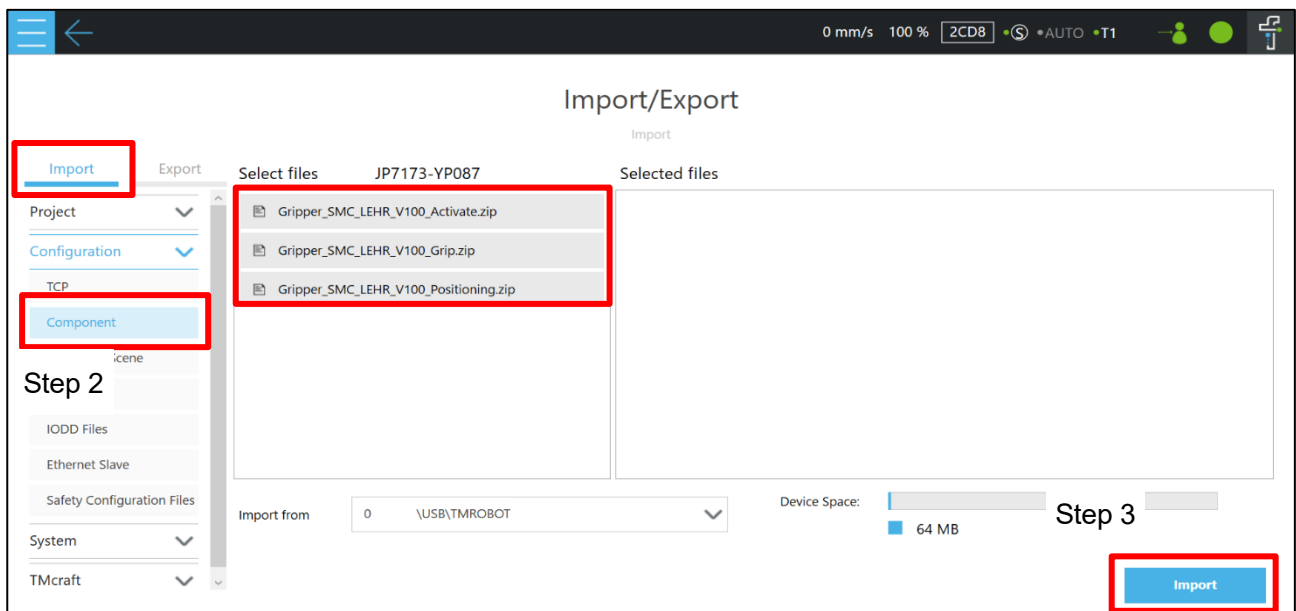
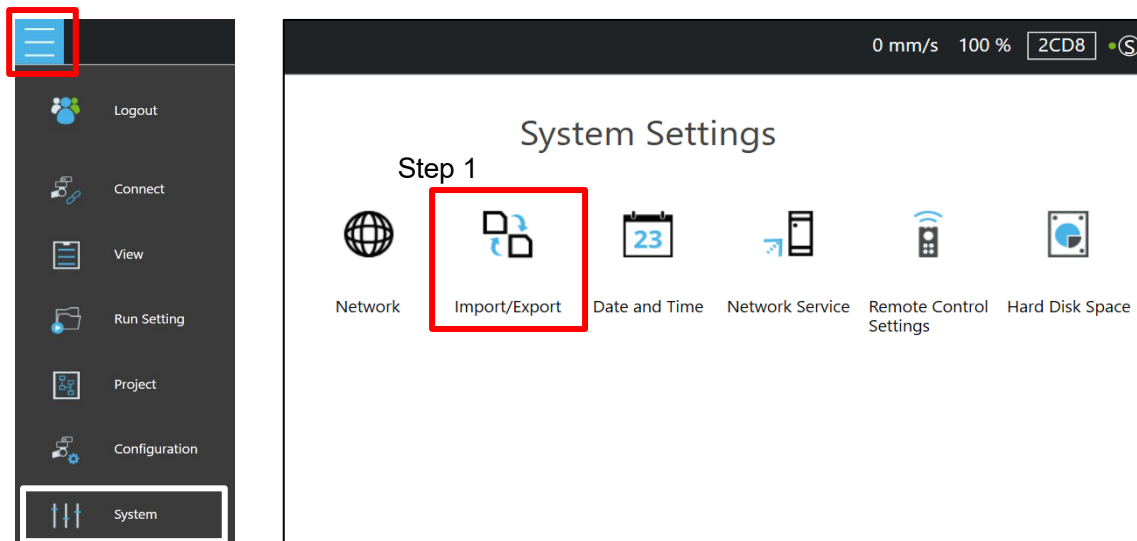
Please download the software (TM component) from the SMC website (URL: <https://www.smcworld.com>) and save it in a USB memory device.

Caution: This software is compatible with TMFlow2, and only compatible with TMS series HW5.0 or higher.

2 Introduction of TM Component

2.1 Install TM Component

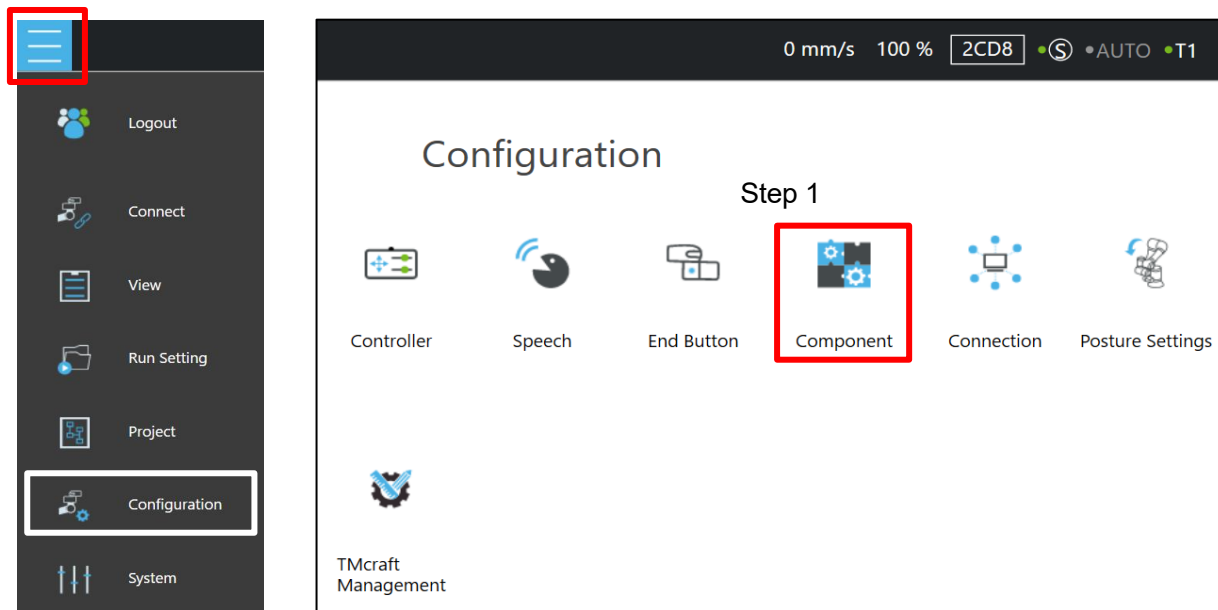
1. Rename the USB drive to "TMROBOT".
2. Locate the downloaded zip file in the USB memory folder
TMROBOT:\TM_Export\TMComponent\ComponentObject\.
3. Insert the USB memory stick into the robot controller.
4. On the TMflow screen, select the menu icon and select [Import/Export] under [System]. (Step 1)
5. Select [Import] and select [Component] under [Configuration]. (Step 2)
6. Select the three zip files LEHR_Activate.zip, LEHR_Grip.zip, and LEHR_Positioning.zip and select "Import". (Step 3)
7. When the import completion guide screen appears, the import of TM Component is complete.



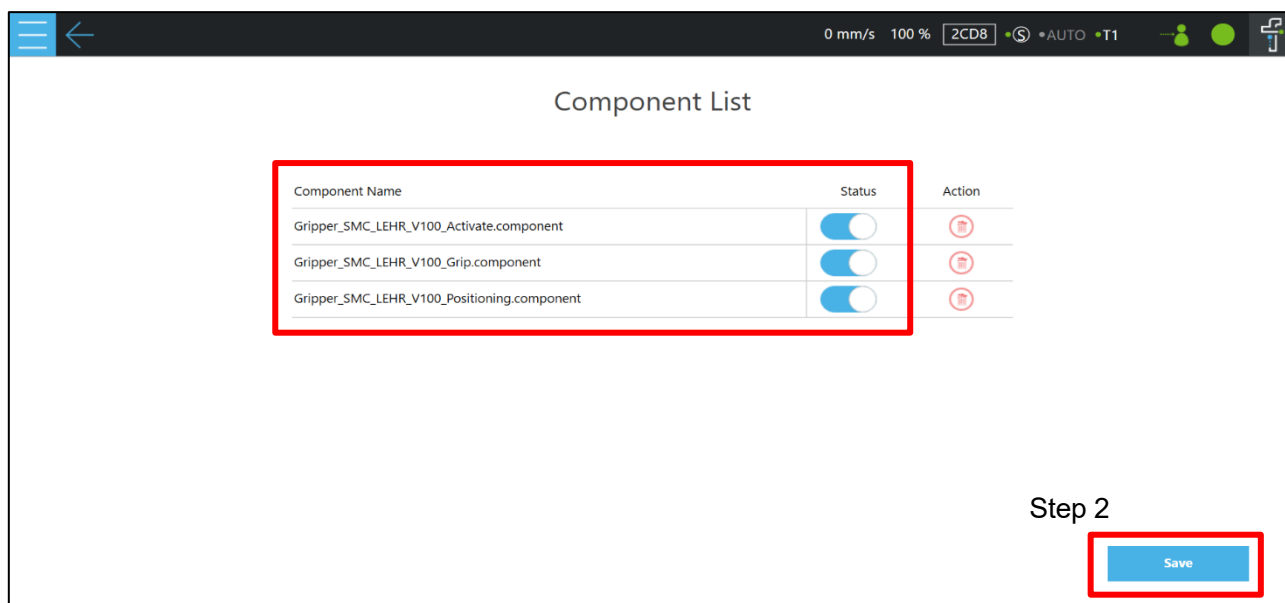
2.2 Activate TM Component

In order to use the installed components, they must be activated in the collaborative robot.

1. Select the menu icon and select [Component] under [Configuration]. (Step 1)



2. Activate the [State] of the installed component and Select "Save". (Step 2)

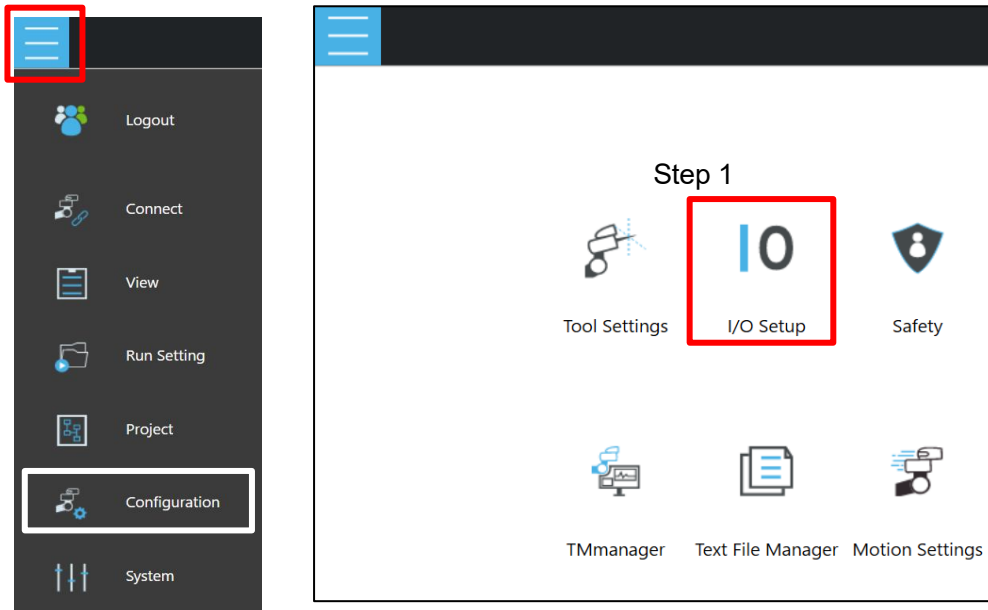


2.3 Serial Communication Settings

This section describes how to set up serial communication for the collaborative robot.

The electric gripper communicates with the collaborative robot via RS485.

1. Select the menu icon and select [I/O Setup] under [Configuration]. (Step 1)



2. Select [Serial Port] and set COM2 in the [Control Box] to RS485. (Step 2)
3. Set “RS485(-) and RS485(+)” on pin 6 & pin 7 of the “End Module”. (Step 3)
4. Select [Save]. (Step 4)



※After setting up the serial communication, turn off the power to the Collaborative Robot before installing the electric gripper.

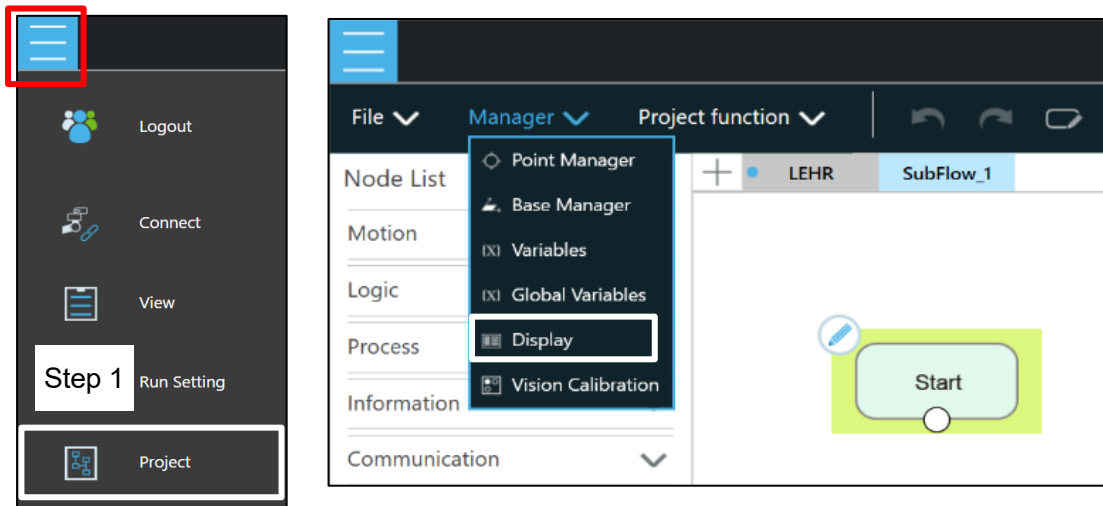
2.4 Current location display settings

You can check the current position of the electric gripper from TM flow.

2.4.1 Setting method

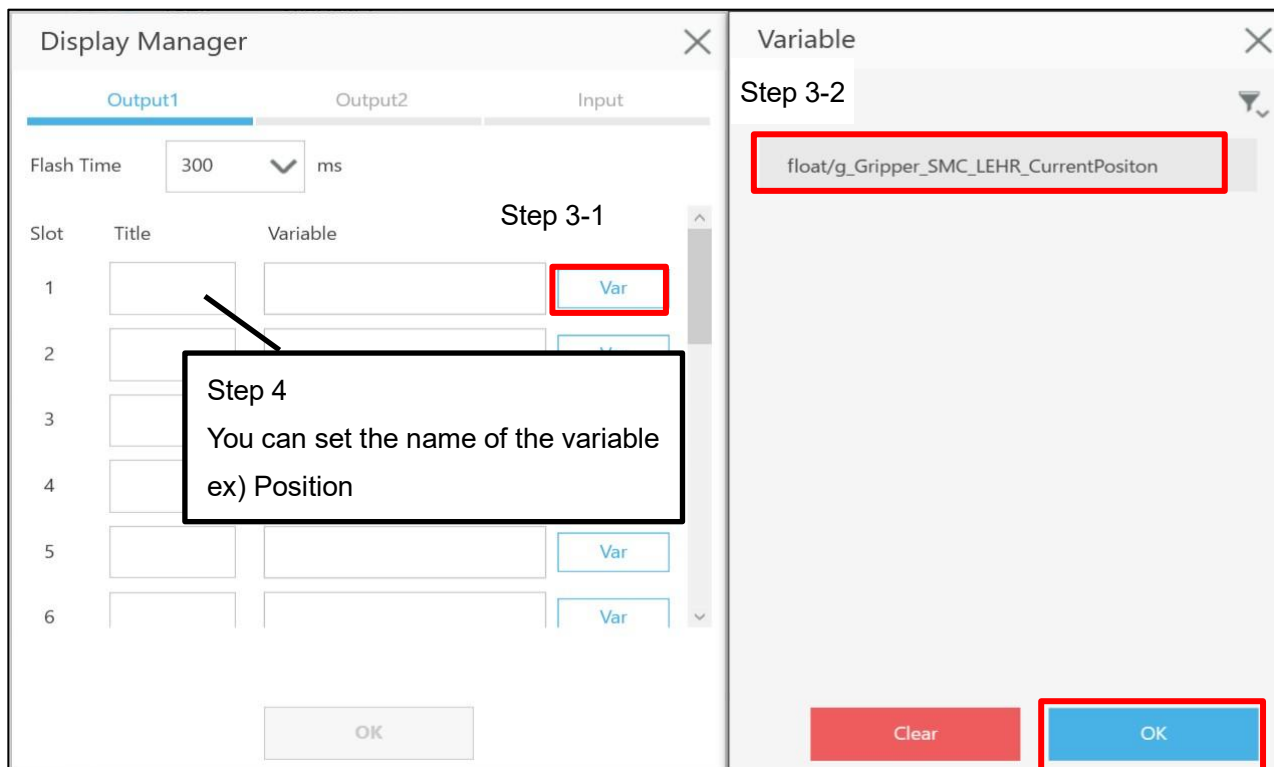
Select the menu icon and select [Project]. (Step 1)

Open the project you want to use and select "Display" in the Manager. (Step 2)



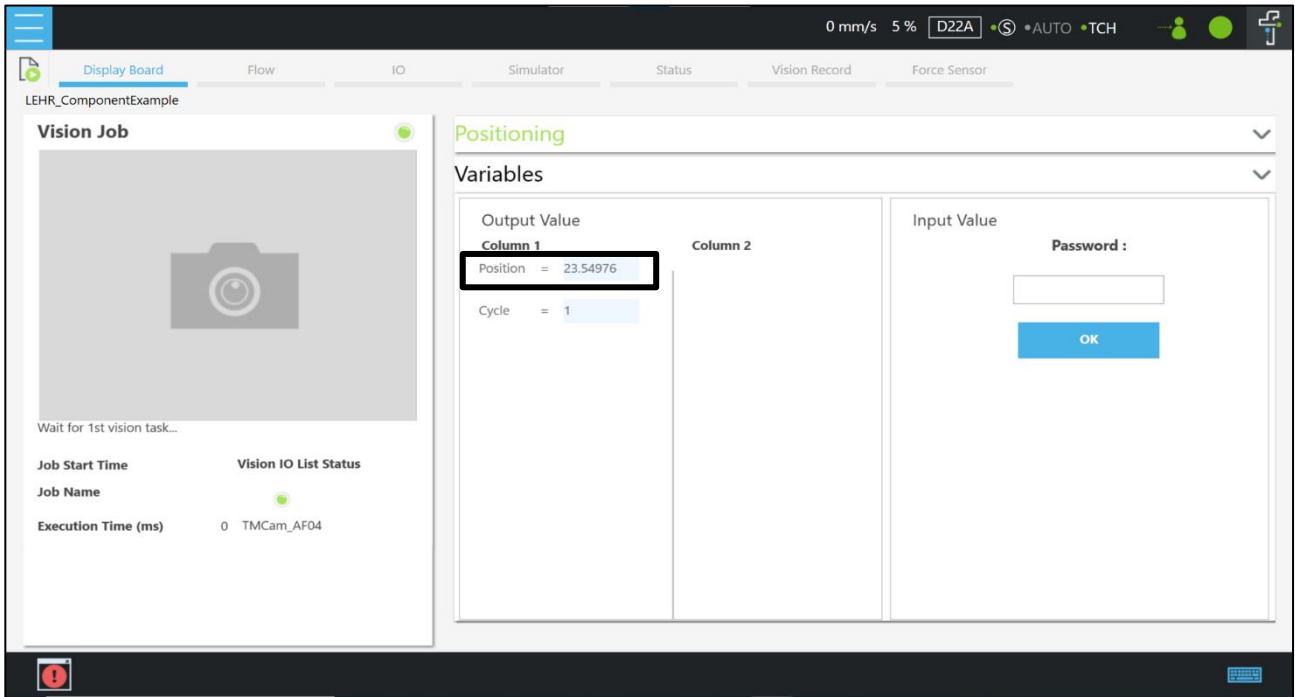
When you select "Var", the variables for the current position will be displayed as shown below, so please set the variables for each slot. (Step 3)

You can set the display name of the output variable in the title. (Step 4)



2.4.2 Confirmation method

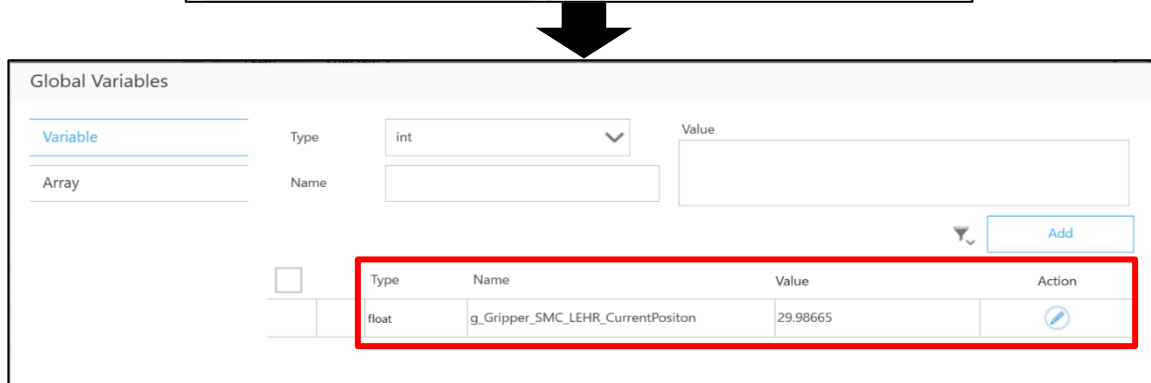
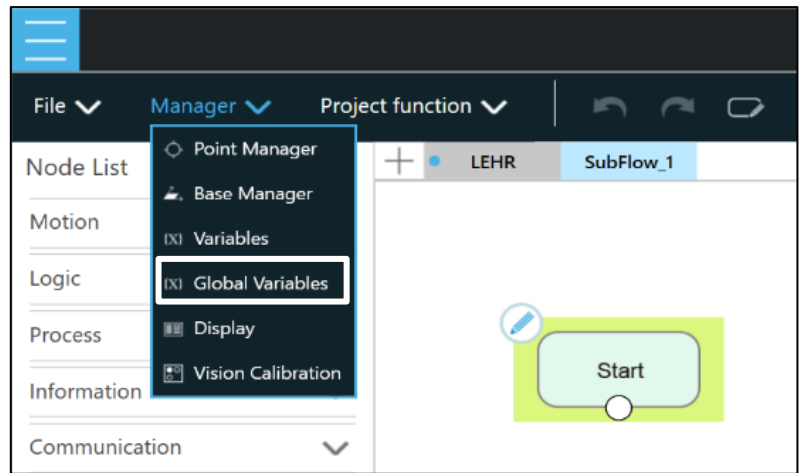
When the program is executed, the following screen will be displayed.



2.4.3 Use as Global Variable

The current position of the electric gripper is set in Global Variable.

Global variables can be viewed in the "Global Variables" section of Manager.



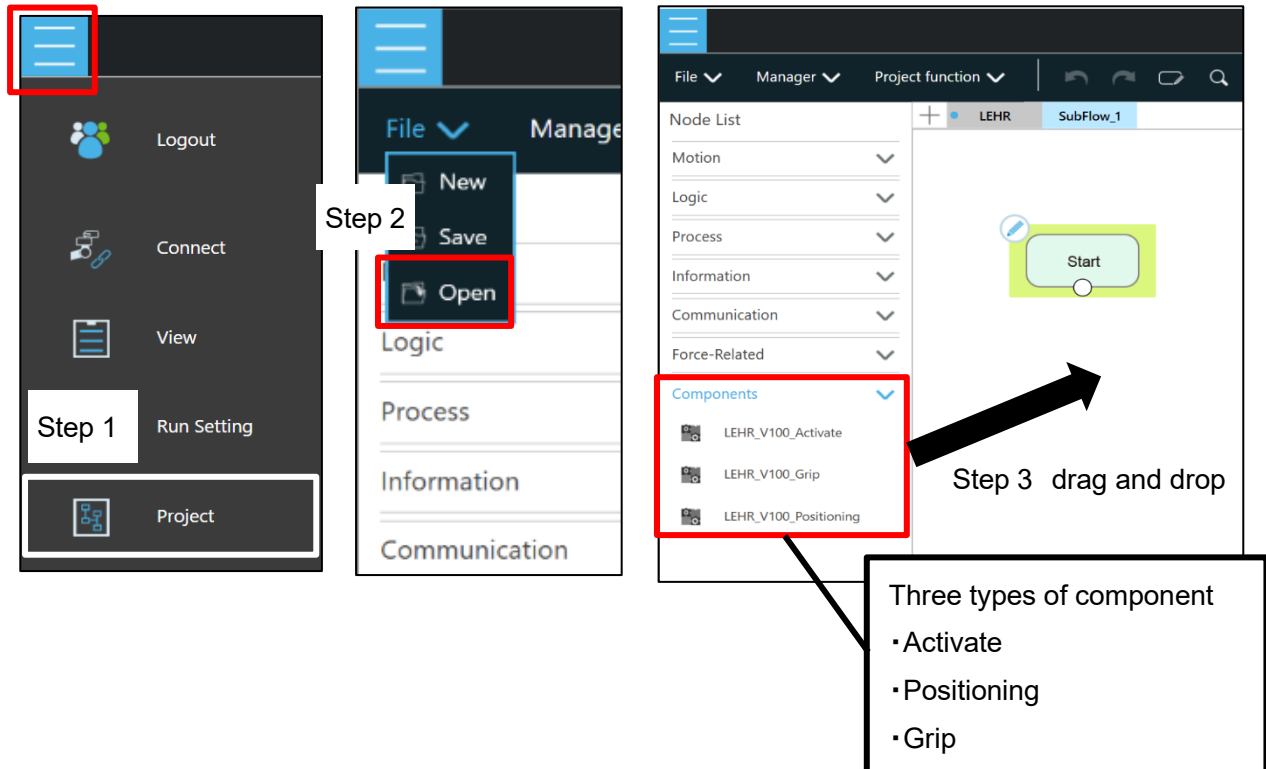
Name	Type	Description
G_gripper_SMC_LEHR_CurrentPosition	Float	The current position is stored.

3 How to use TM Component

3.1 Various settings for the project

3.1.1 How to add a component

1. Select the menu icon and select [Project]. (Step 1)
2. Open the project to be added and drag and drop each component under [Component] in the [Node list] onto the program. (Step 2,3)



3.1.2 Test operation

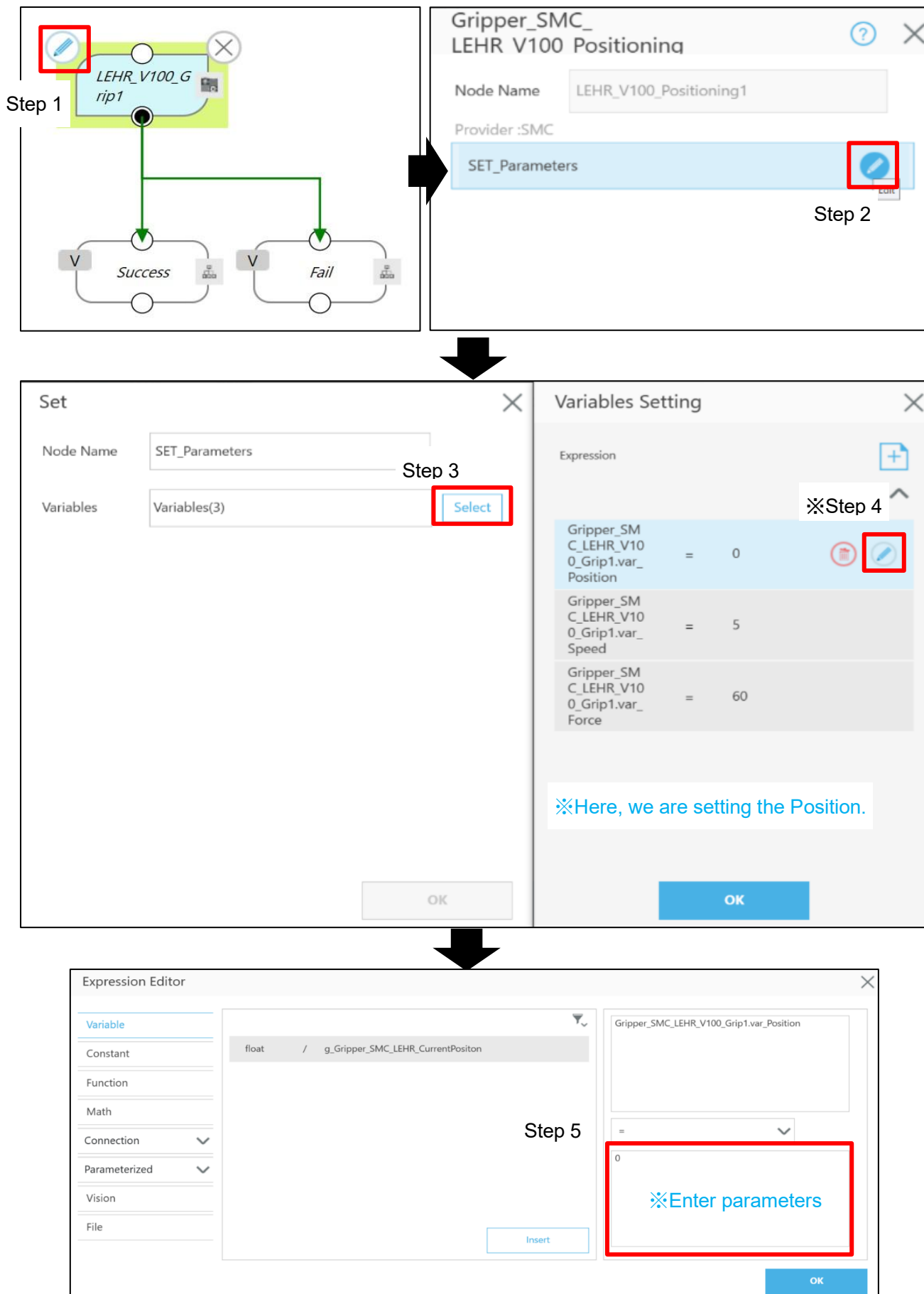
The [Step run] at the top can be used to test run the Grip operation.
Select the components of the Grip and select [Step run].



※Adjust each parameter in a test operation until you are sure that the electric gripper is working properly.

3.1.3 How to set parameters

The procedure for setting parameters for each component is as follows.



※For input values, refer to 3.2.2 Setting the Grip operating conditions.

For Positioning operation, refer to 3.2.3 Setting the Positioning operating

3.2 LEHR Components

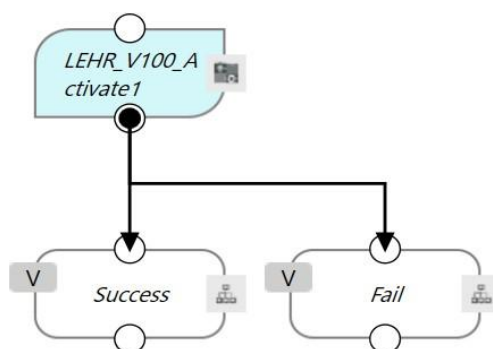
Components for the Electric gripper has three types (Activate, Grip, Positioning).

- **Activate:** It has two functions. The first, Activate is a function that turns the electric gripper servo-on. Activate only needs to be performed once before Positioning and Grip are performed. The second, this is a function to reset the electric gripper alarm. Please execute this to reset the alarm that occurred during Positioning and Grip execution.
- **Grip:** Grip is a function that instructs the gripping movement.
- **Positioning:** Positioning is a function that instructs the opening and closing movement of the gripper fingers.

3.2.1 Activate

Activate is a function that turns the electric gripper servo-on. Activate only needs to be performed once before Positioning and Grip are performed. It does not have to be run more than once within the same program. There is also no content to be set in the Activate settings screen.

- **Activate node**



Success:	This means that the electric gripper has successfully turned the servo-on or reset the alarm. The LED on the electric gripper changes from magenta to blue.
Fail:	This means that an error occurred during the execution of Activate and the servo could not be switched on or reset the alarm.

If an abnormality occurs, check the LED display on the electric gripper and refer to [4. Alarm detection].

3.2.2 Grip

Grip is a function that instructs the gripping movement.

- Setting the operating parameters.

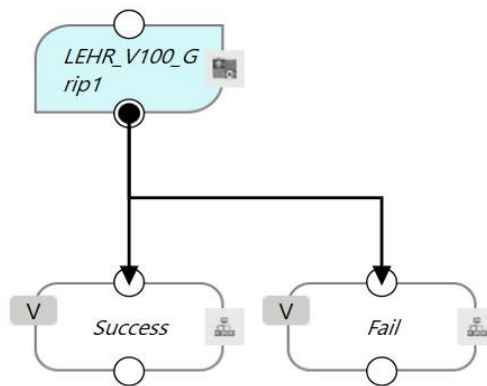
Position, speed and gripping force can be set in the Grip settings screen.

Check the table below for the possible setting ranges for each parameter.

Parameter	Min.	Max.
Position [mm]※	0	50
Speed [mm/s]	5	30
Force [N]	60	140

※Position settings must be set with enough margin to ensure secure gripping.

- Grip node



Success:	This means that the gripping movement of the electric gripper has been completed successfully.
Fail:	This means that an operational error has occurred during the gripping movement of the electric gripper.

If an abnormality occurs, check the LED display on the electric gripper and refer to [4. Alarm detection].

3.2.3 Positioning

Positioning is a function that instructs the opening and closing movement of the gripper fingers.

- Setting the operating parameters.

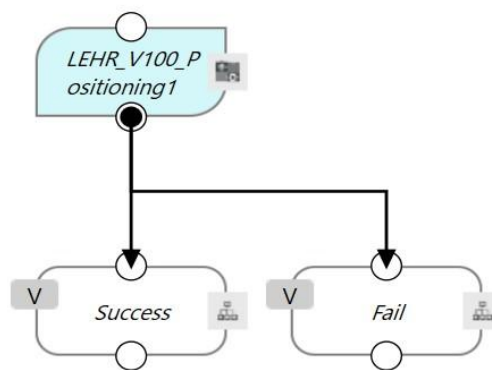
Position and speed can be set in the Positioning settings screen.

Check the table below for the possible setting ranges for each parameter.

Parameter	Min.	Max.
Position [mm]※	1	50
Speed [mm/s]	5	30

※The Position setting value must be set with sufficient margin to ensure that the fingers do not collide with the workpiece.

- Positioning node



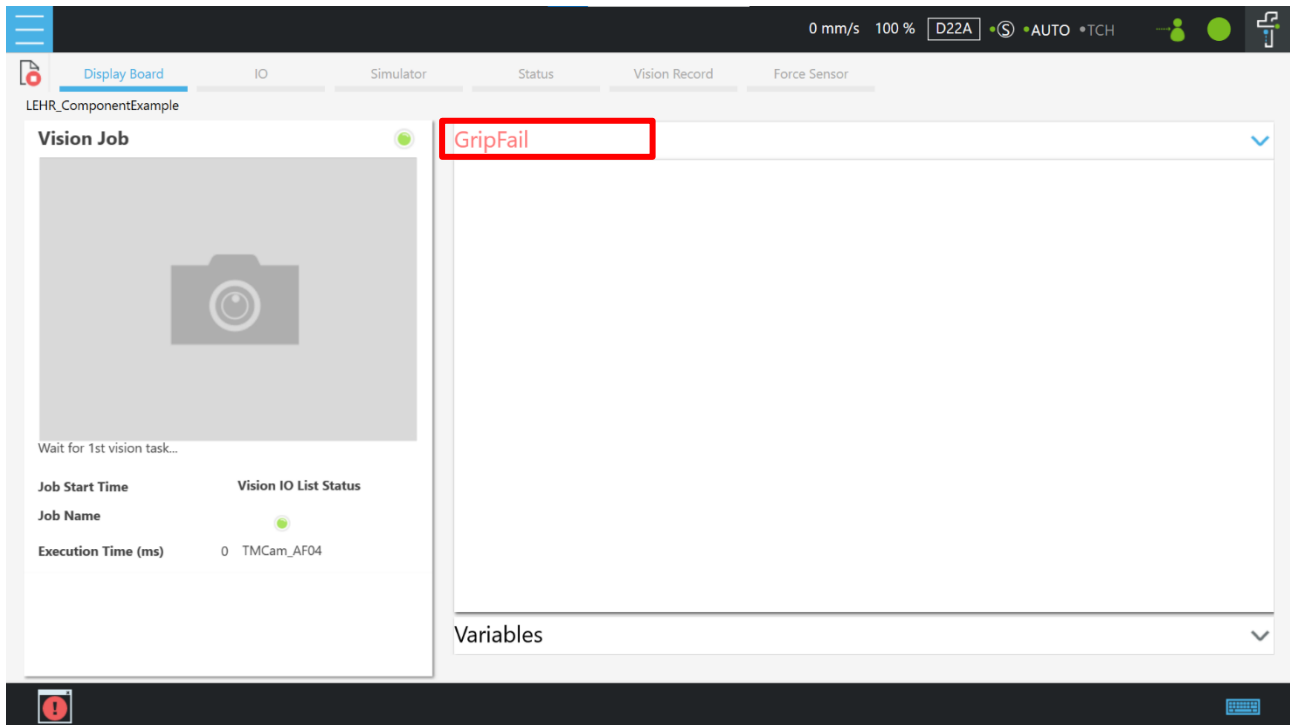
Success:	This means that the opening and closing movement of the electric gripper has been completed successfully.
Fail:	This means that an operational error has occurred during the opening and closing movement of the electric gripper.

If an abnormality occurs, check the LED display on the electric gripper and refer to [4. Alarm detection].

4 Alarm detection

If a warning or alarm occurs, you will be notified on the TMflow screen and the LED lamp on the electric gripper. Please refer to the table below for alarms displayed on the TMflow screen.

For the LED lamp display patterns, refer to the operation manual for the "Electric gripper for Collaborative Robots."



Display name	Contents	Countermeasure
Communication error	RS485 communication is not working properly.	Please check that the serial communication settings are correct.
WrongValue error	The parameters set for Positioning or Grip are incorrect.	Check the operating conditions in 3.2.2 or 3.2.3 and review the parameter settings.
ServoOnFail	Servo on failed	Check to see if the fingers are jammed.
GripFail	Grip failed	Please check that the position and gripping force settings are appropriate for the workpiece.
GripperNotReady	Grip operation is not ready	Please reset the electric gripper alarm.
PositioningFail	Positioning failed	Check to see if there are any factors impeding the finger movement.
PositioningNotReady	Positioning operation is not ready	Please reset the electric gripper alarm.

Revision history
June 2024: Frist edition
May 2025: Change the minimum value of Positioning from 0 to 1 (3.2.3)
June 2026: Precaution for users added

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.

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