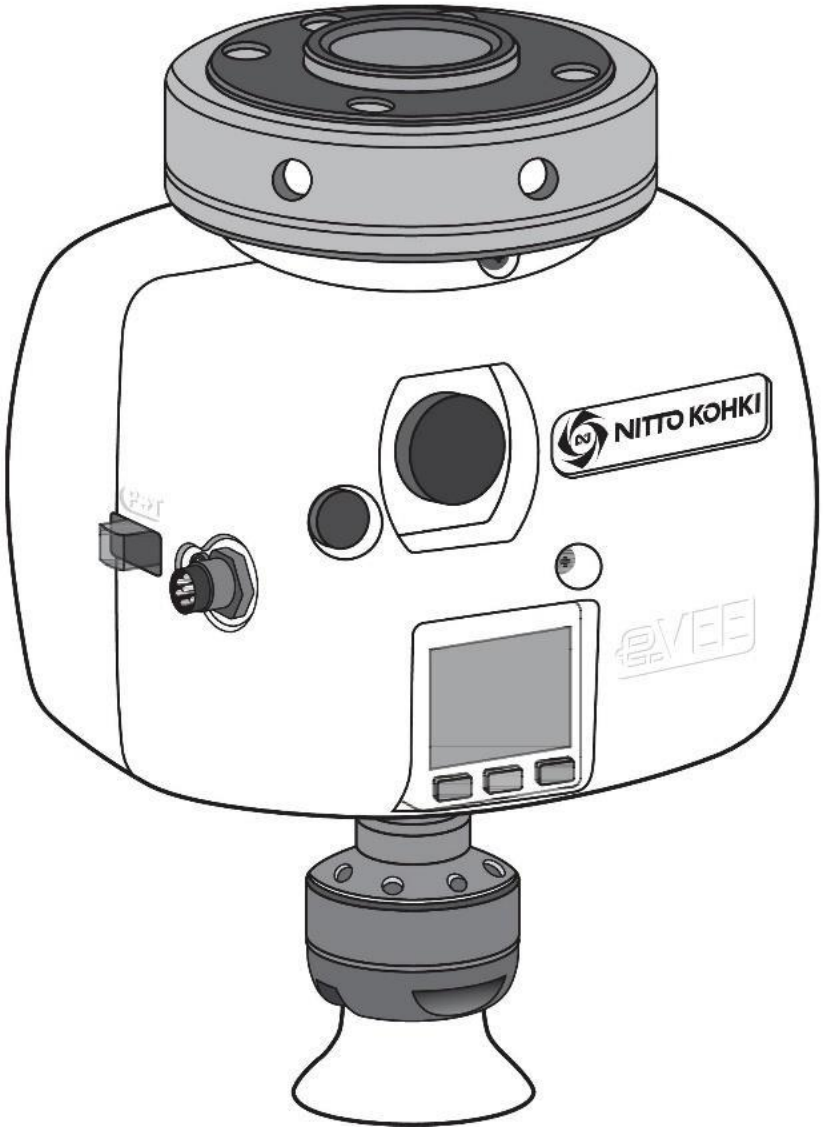
NITTO KOHKI

Electric vacuum end effector

eVEE イーヴィー

Model: EVE-500

TM Plug & Play Instruction Manual



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1. Basic Operations

For basic operations of the electric vacuum end effector e-VEE, refer to the e-VEE instruction manual.

2. Main Unit & Accessories

1. → e-VEE Main Unit
2. → Accessory ① Robot connection parts (Adapter ring, Flange adapter or Master cylinder)
3. → Accessory ② Suction cup

Note: For details, refer to the e-VEE instruction manual.

3. Overview of Plug-in Software

This is a dedicated plug-in software for the TM S series.

4. Installation on Robot

4-1. For EVE-500-NK-PNP/NPN

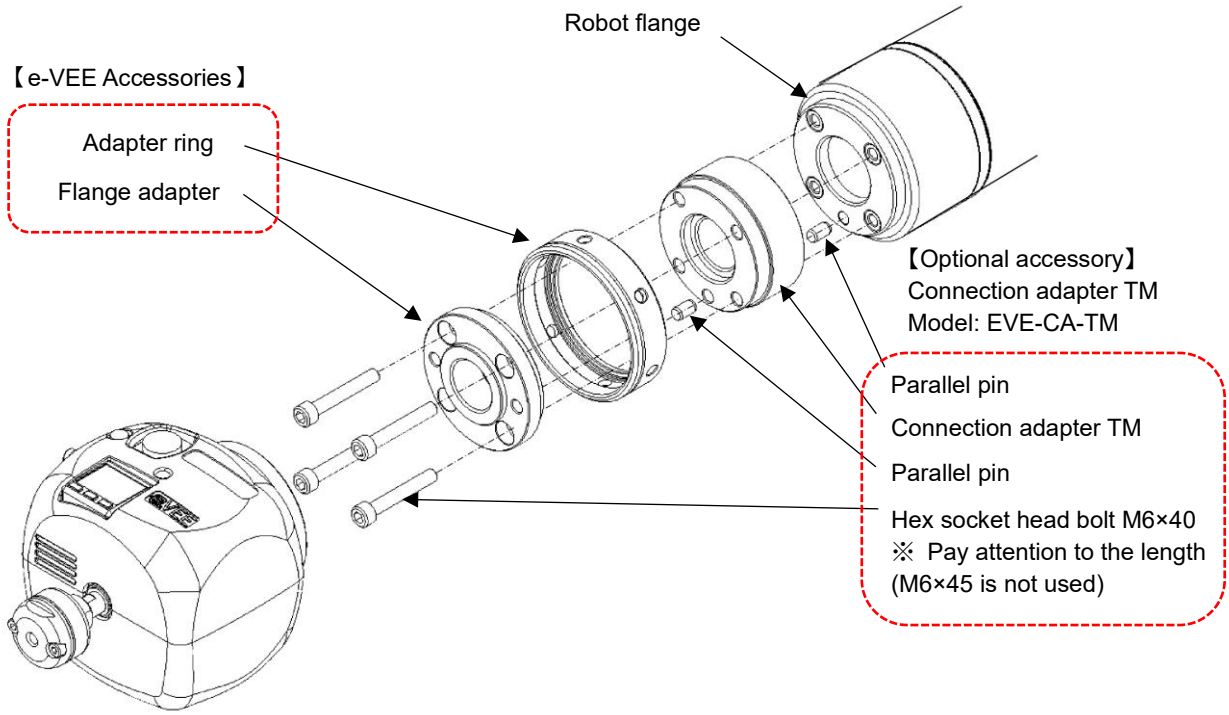
Note: To ensure safety, make sure the robot is powered off before beginning the installation.

① Insert the parallel pins into both the upper and lower sections of the connection adapter TM.

② Align the parallel pin position of the connection adapter TM with the hole position of the robot flange and the flange adapter and attach using the included bolts (M6 length 40 mm, 4 pcs). At this time, insert the adapter ring between the connection adapter TM and the flange adapter.

Note: Use the included M6×40 bolts (shorter ones, 4 pcs).

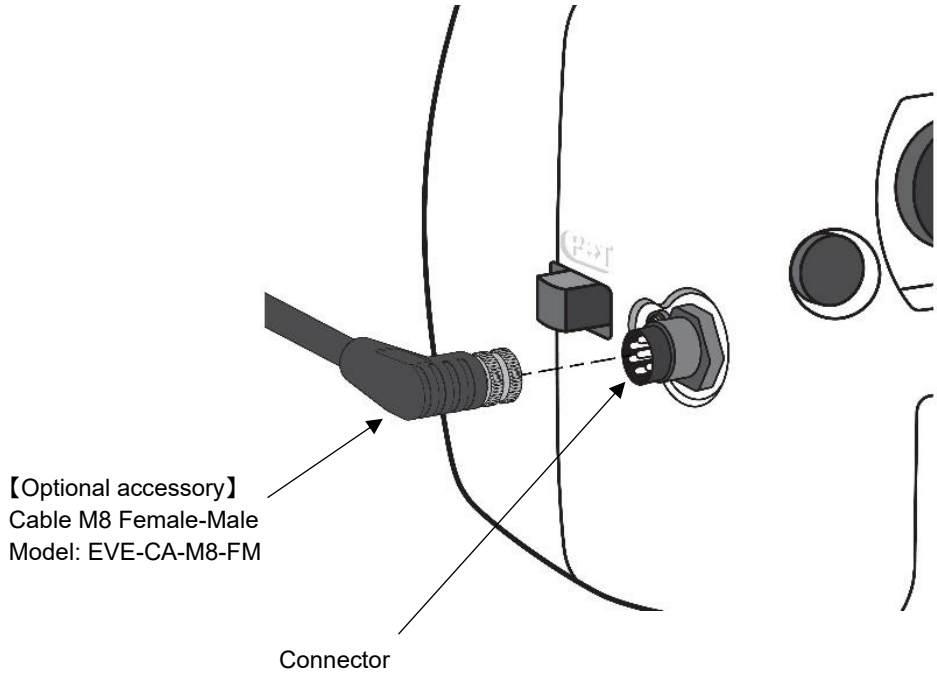
③ Insert the parallel pins into the tool flange of the e-VEE main unit. Align them with the holes on the flange adapter, then manually rotate the adapter ring until the screws engage and it no longer turns.
Once it stops rotating, tighten it using the separately sold pin spanner (Model: EVE-PS-7075).



④ Insert the cable (Model: EVE-CA-M8-FM) into the connector of the e-VEE main unit, then tighten the nut on the cable to the connector to secure it.

Note: Align the positioning protrusion of the connector and insert it.

Connect the cable on the robot side in the same way.



4-2. For EVE-500-KOM-PNP/NPN

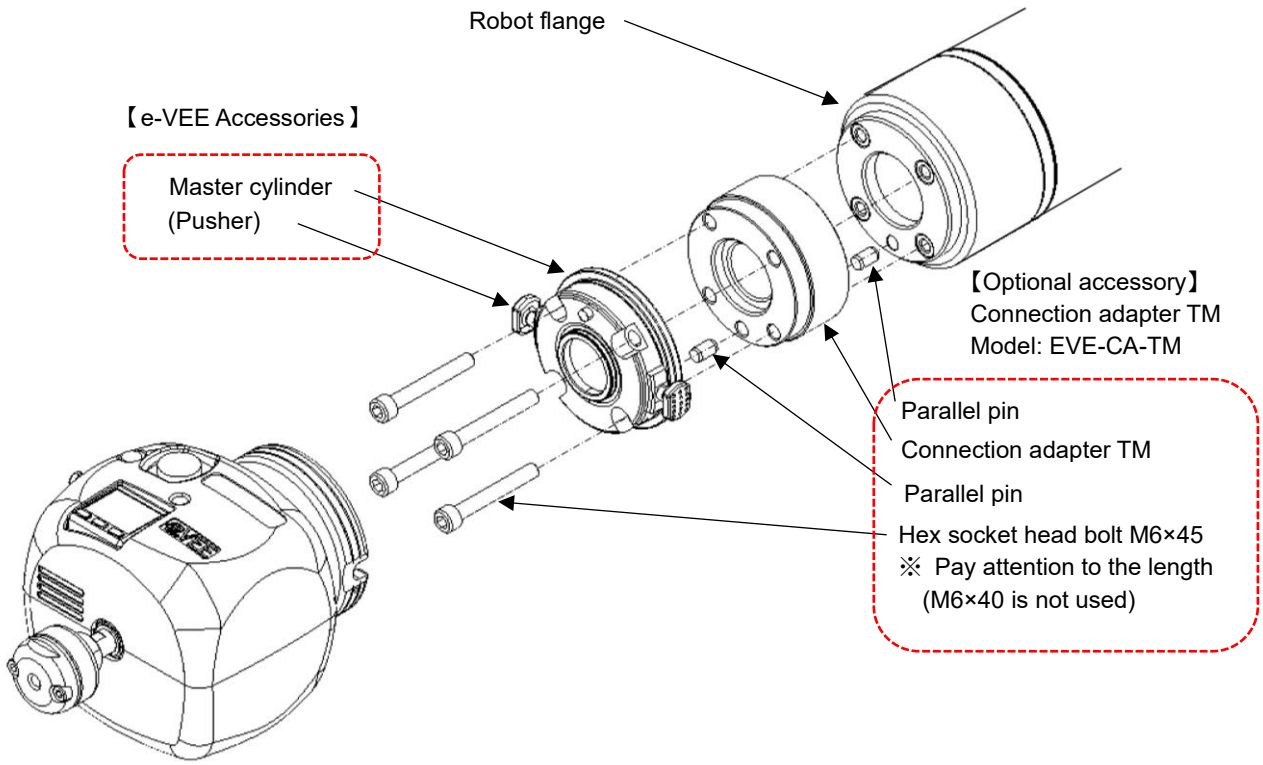
Note: To ensure safety, make sure the robot is powered off before beginning the installation.

① Insert the parallel pins into both the upper and lower sections of the connection adapter TM.

② Align the parallel pin position of the connection adapter TM with the hole position of the robot flange and the master cylinder and attach using the included bolts (M6 length 45 mm, 4 pcs).

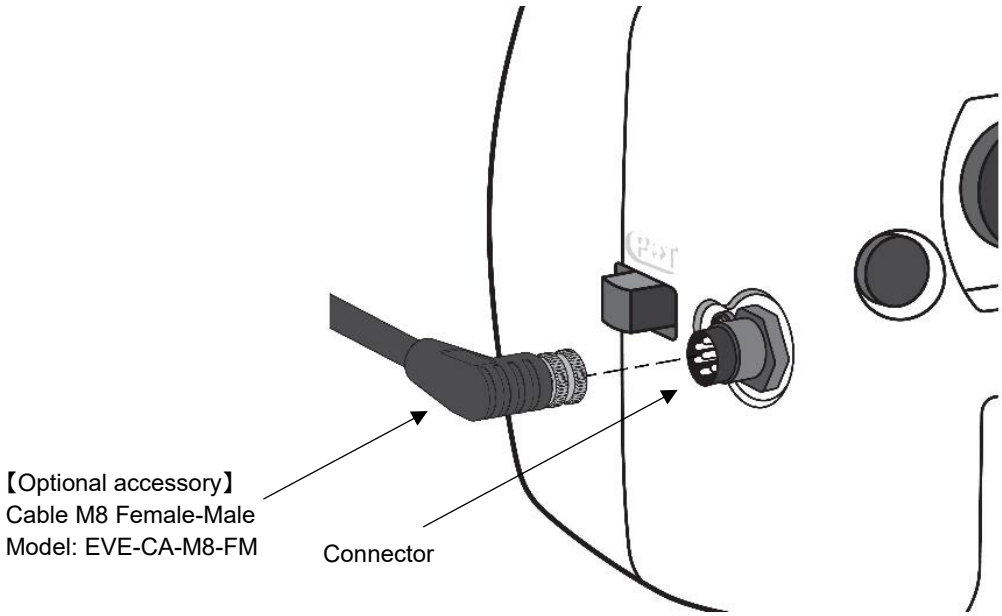
Note: Use the included M6×45 bolts (longer ones, 4 pcs).

③ Align the pin of the master cylinder with the hole position of the tool adapter.
While pressing the pusher of the master cylinder, lift the e-VEE main unit straight up to connect it.



④ Insert the cable (Model: EVE-CA-M8-FM) into the connector of the e-VEE main unit, then tighten the nut on the cable to the connector to secure it.

Note: Align the positioning protrusion of the connector and insert it.
Connect the cable on the robot side in the same way.

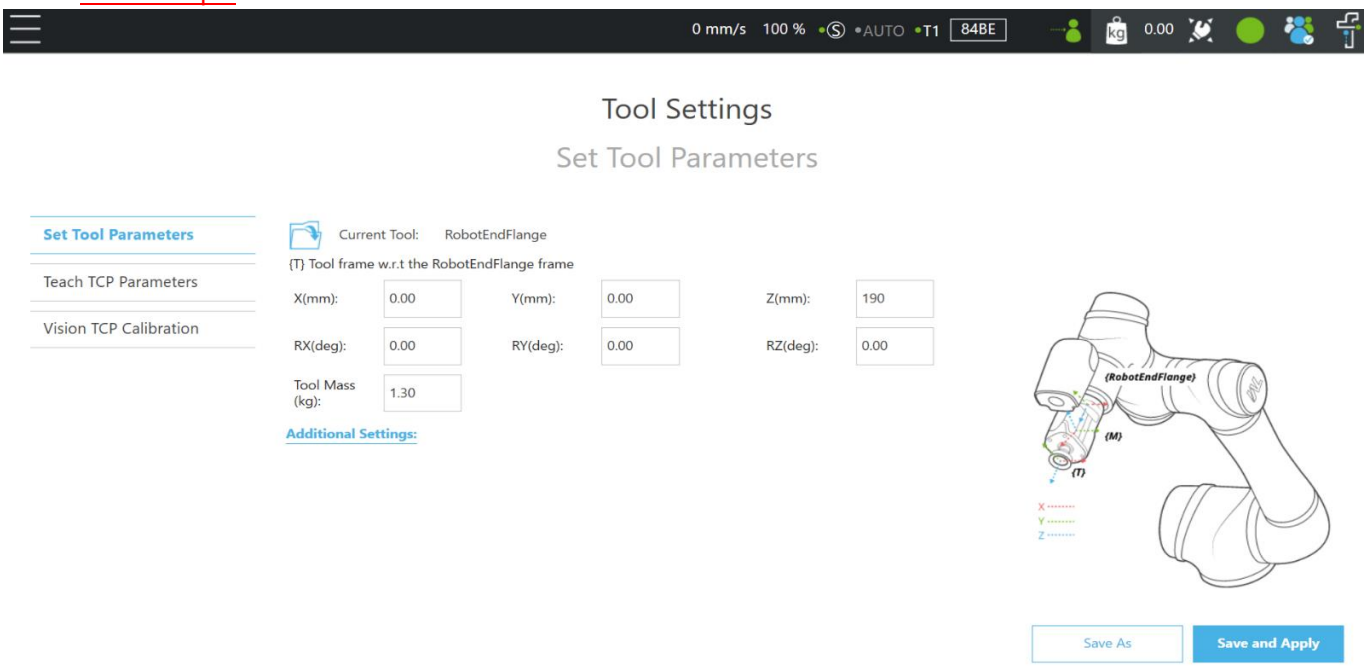


5. TCP Settings

Set the TCP of e-VEE as follows. The main unit weighs approximately **1.3 kg**.

For EVE-500-NK: X 0 mm / Y 0 mm / Z 190 mm
For EVE-500-KOM: X 0 mm / Y 0 mm / Z 196 mm

Note: The above settings are for when using the suction cup (PFG-35-S) and dedicated connection adapter (EVE-CA-TM) included with EVE-500-NK/KOM. Please change the settings if using separately sold or third-party suction cups.



6. Plug-in Software Installation Method

6-1. Installing the Component

① For the plug-in software, download the TM Component for TMflow2 from Nitto Kohki's website (https://www.nitto-kohki.co.jp/)

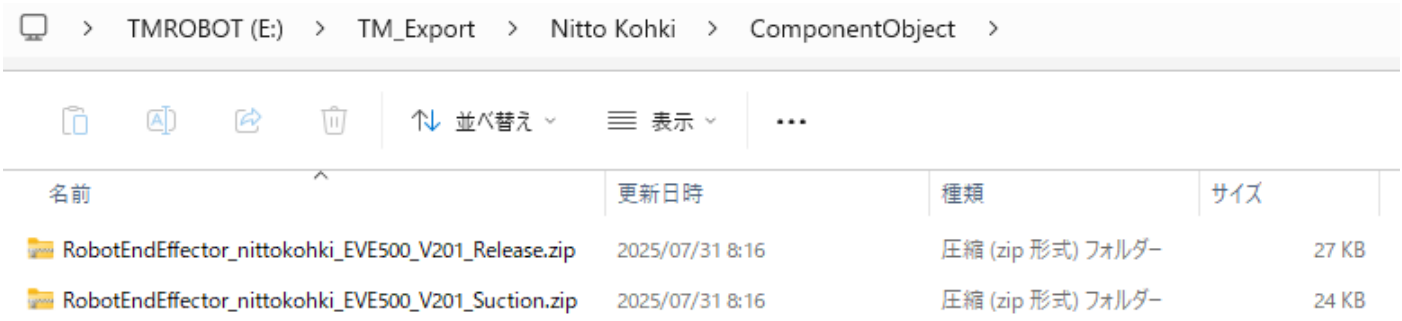
File name: **RobotEndEffector_nittokohki_EVE500_V201_Release**

RobotEndEffector_nittokohki_EVE500_V201_Suction

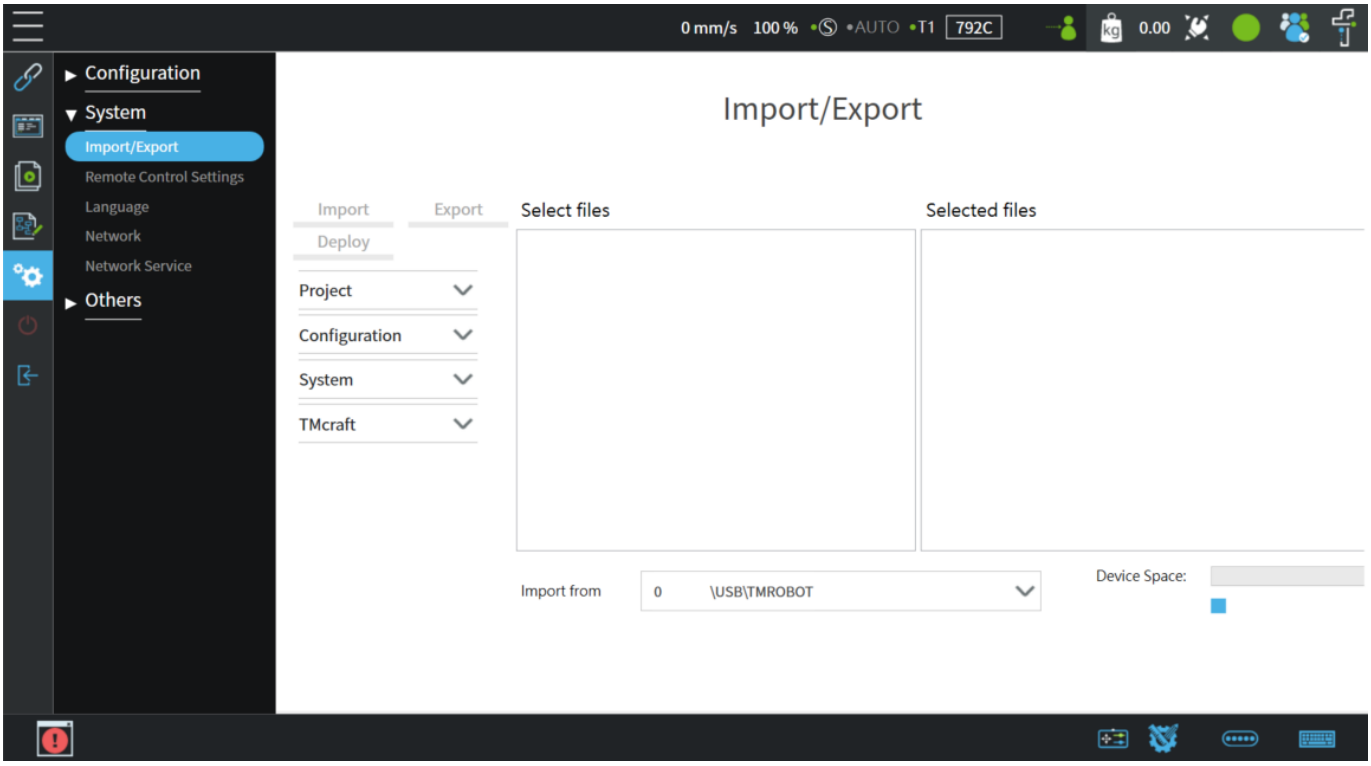
② Insert the USB drive and rename it to "TMROBOT".

③ Save the TM Components from the downloaded zip file to the USB drive.

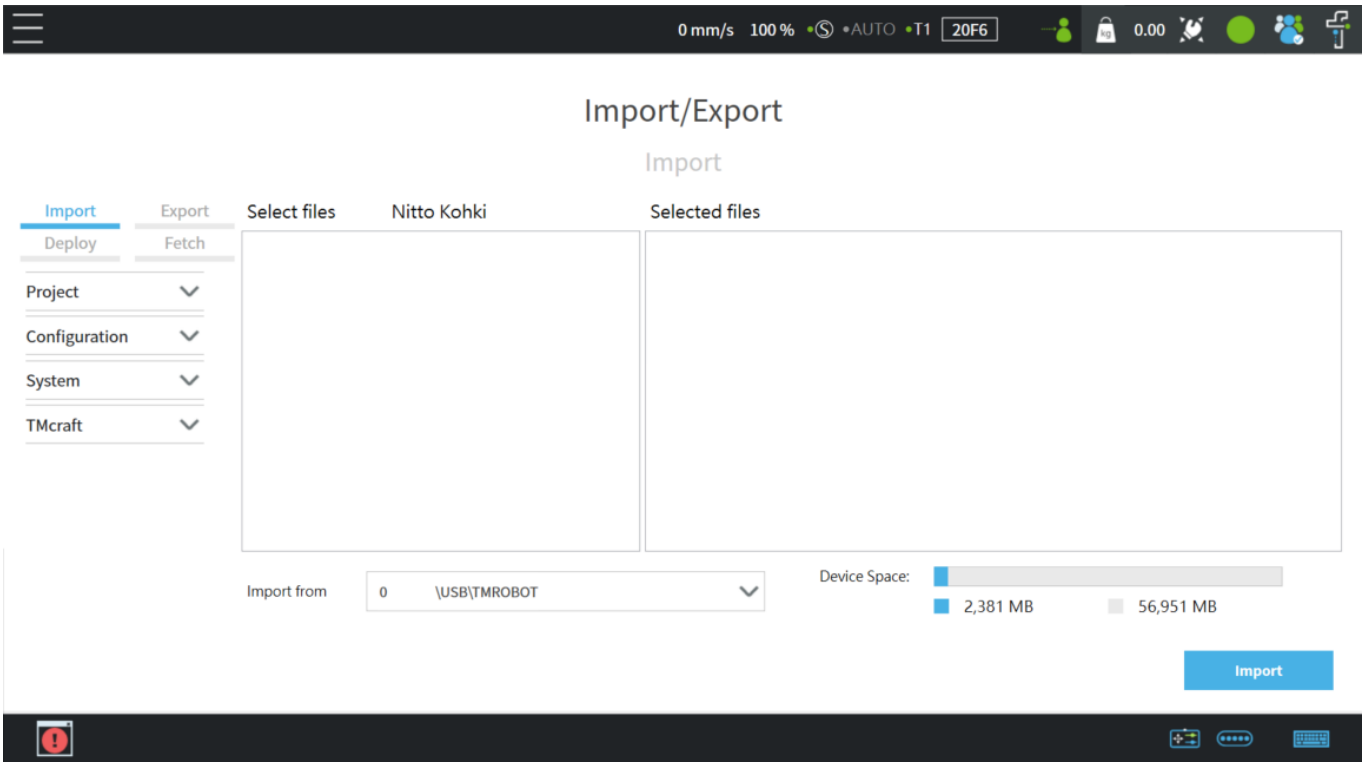
The directory path is【\TM_Export\Nitto Kohki\ComponentObject】.



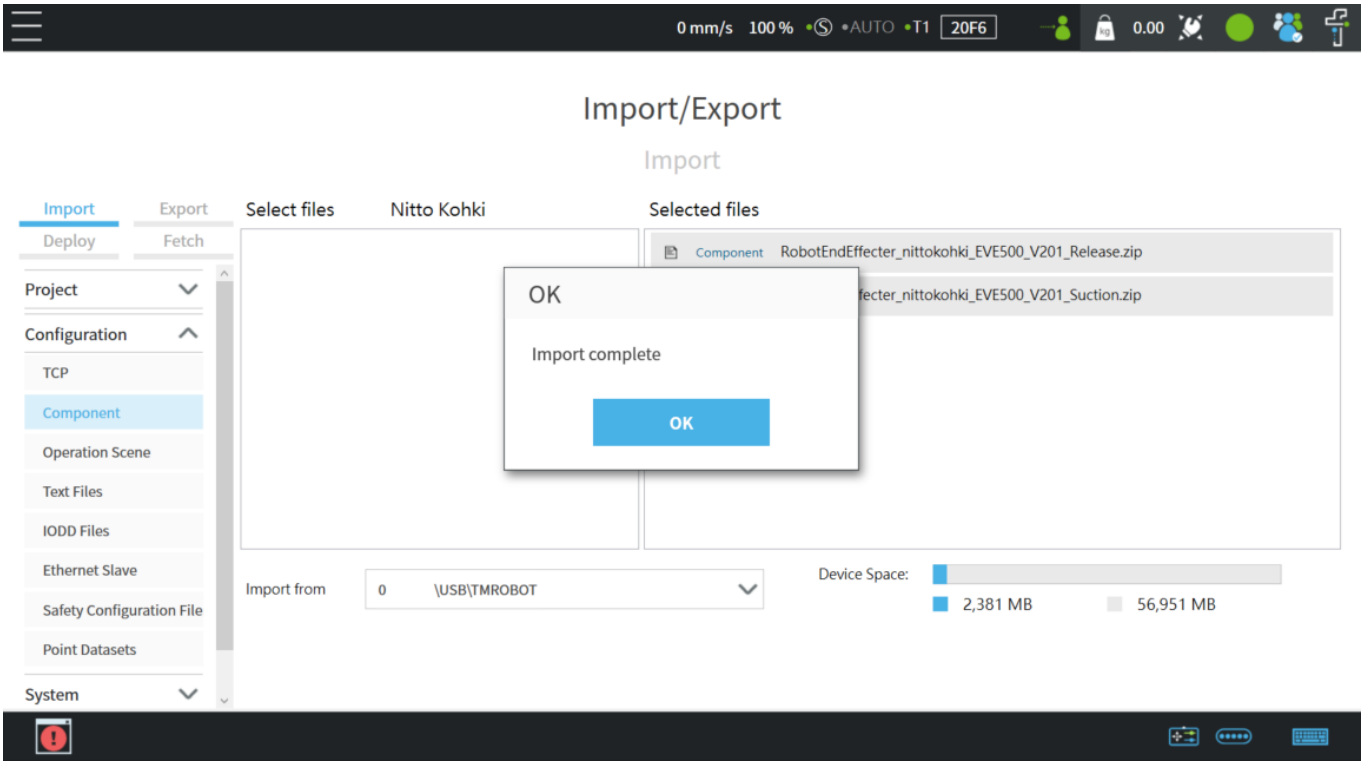
④ Insert the USB drive into the Control Box and navigate to the Import/Export page.



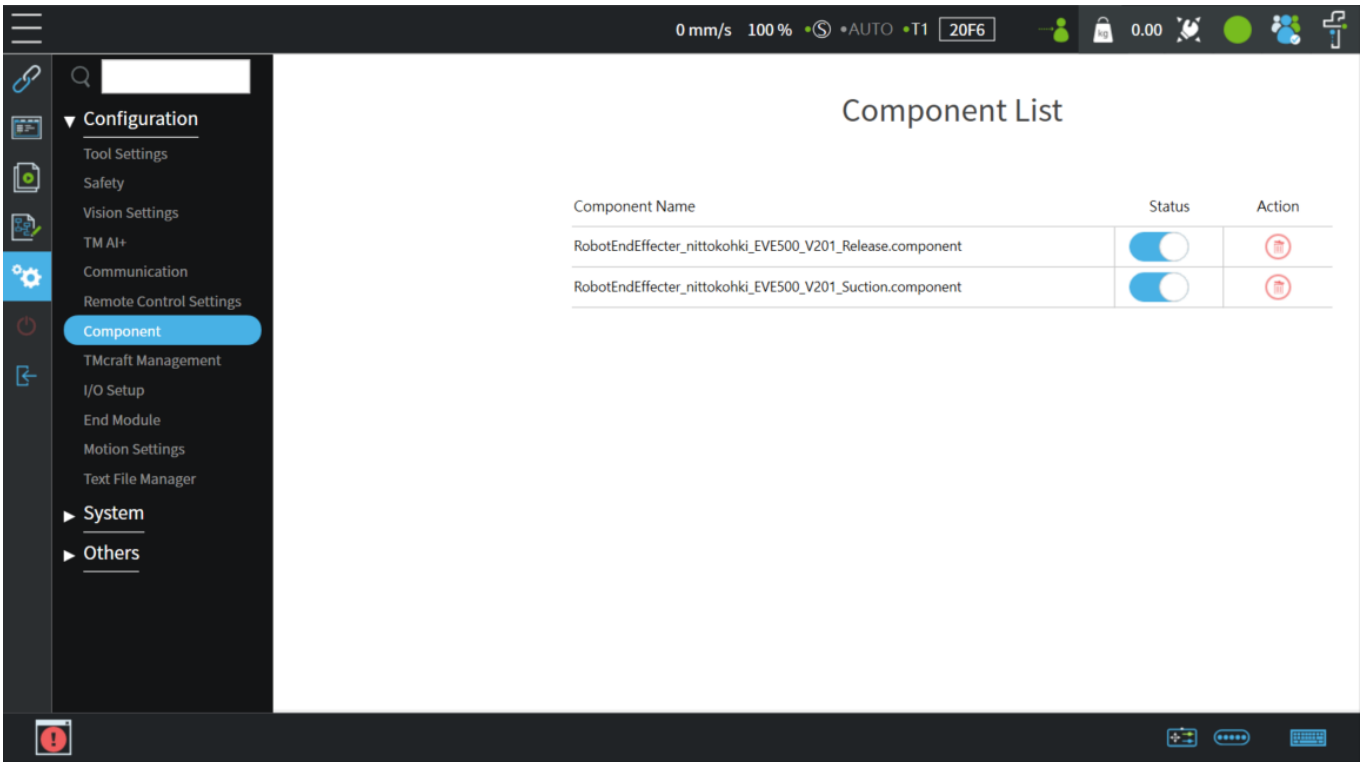
⑤ Click Import and select the【Nitto Kohki】directory.



⑥ Select the Component and import it.



⑦ Open the Component page and enable the Component.

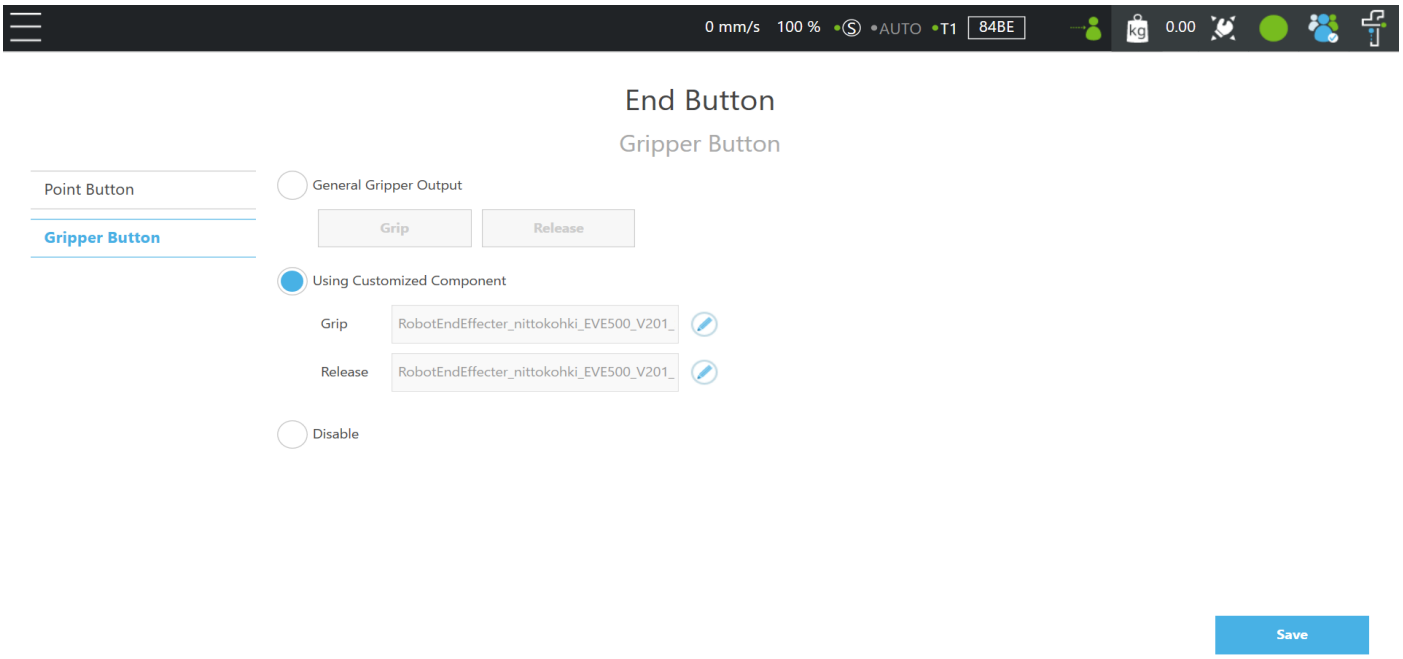


6-2. Gripper Button Setup

You can assign the e-VEE Component to the gripper button on the robot arm and add each Component to the project. Pressing the gripper button adds the Component to the project and simultaneously executes the Component.

① Click the three-line icon at the top left of the screen, select settings > Configuration > End Button and select the Gripper Button tab.

② Select the Using Customized Component button, choose the Component you want to assign to Grip and/or Release, and click the Save button.

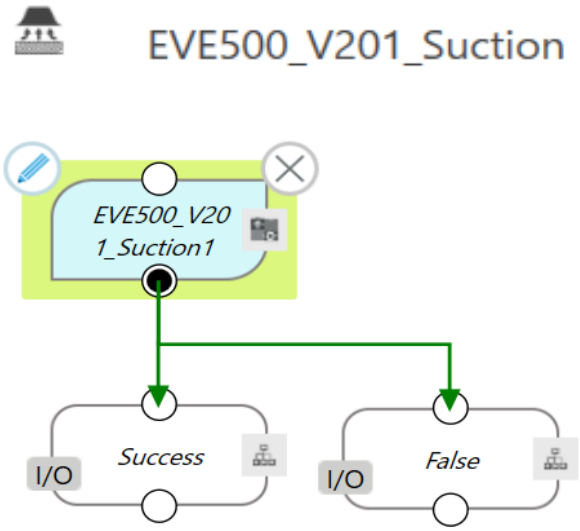


7. Robot Program

7-1. Suction Component

This Component is used for suctioning workpieces.

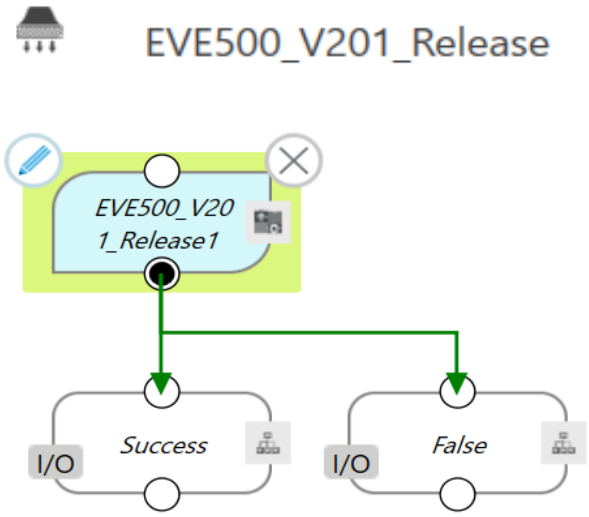
Select EVE500_V201_Suction1 and click the button at the top left to set a wait time after “Suction” is turned ON. In the initial state, it is set to wait【500 ms】after suction is turned ON.



7-2. Release Component

This Component is used for releasing transported objects.

Select EVE500_V201_Release1 and click the button at the top left to set a wait time after “Release” is turned ON. In the initial state, it is set to wait【500 ms】after release is turned ON.

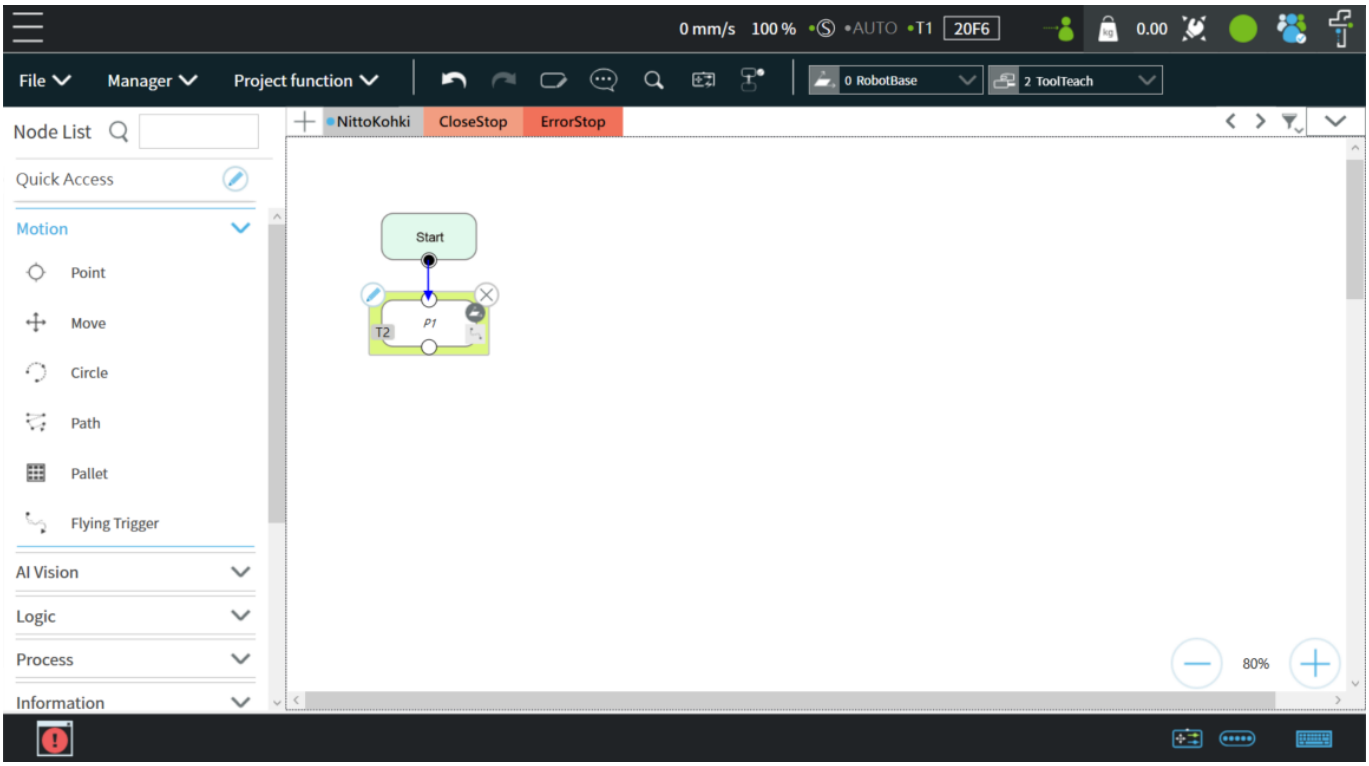


7-3. Sample Projects

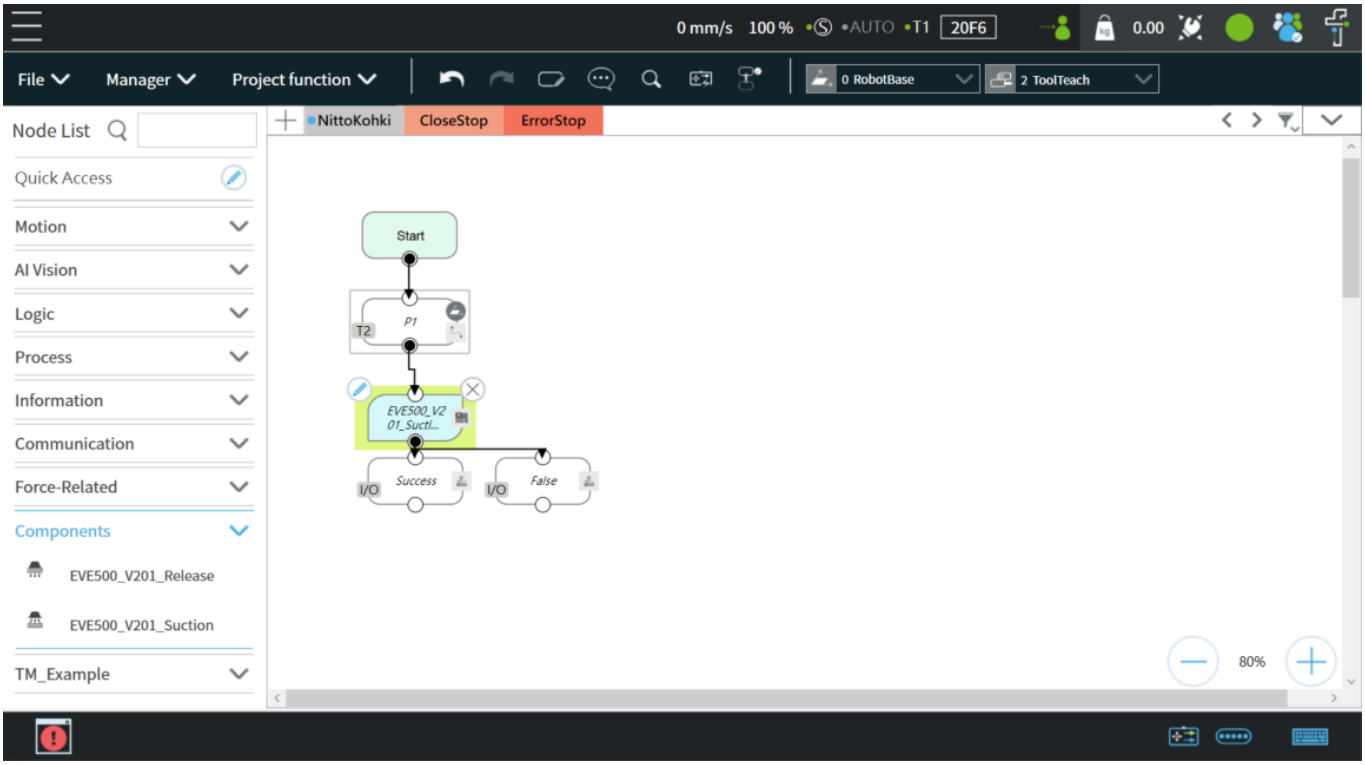
This is a simple suction transport project using Components.

① Navigate to the Project page and create a new flow project.

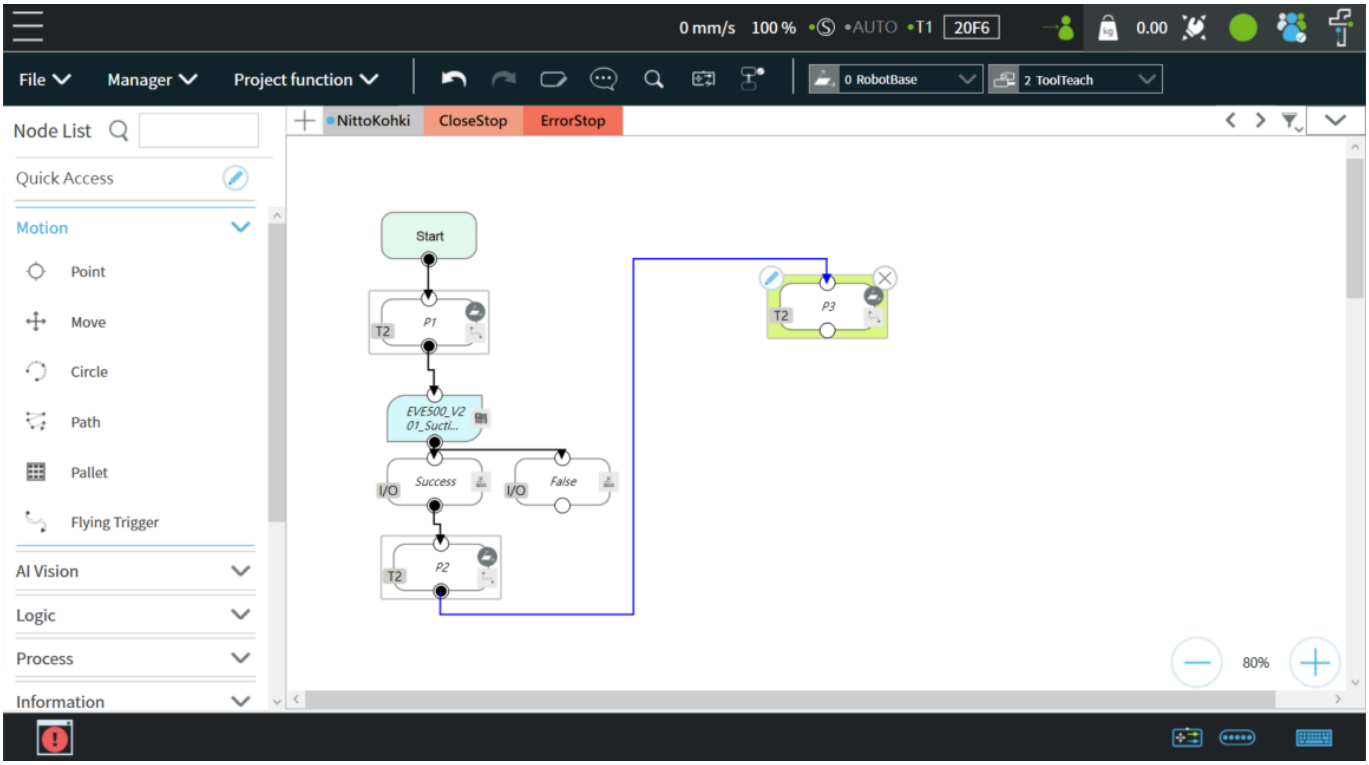
② Create a suction point.



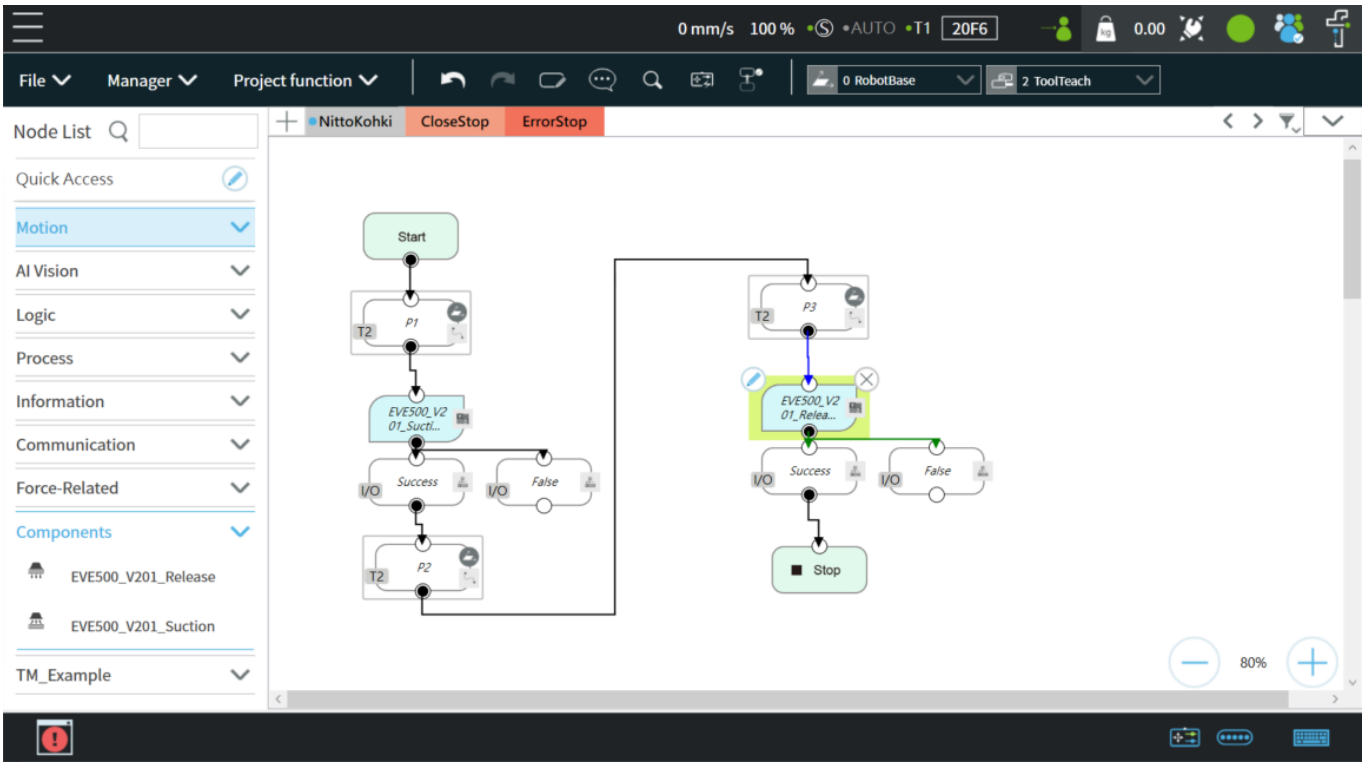
③ Selecting【EVE500_V201_Suction】will activate e-VEE and suction the object.



④ After successful suction, create another point to move to the target placement location.



⑤ Select【EVE500_V201_Release】to stop e-VEE and release the suction and place the object.



⑥ Run the project to verify that the e-VEE is functioning correctly.

8. Troubleshooting

For precautions when using the main unit, refer to the e-VEE main unit instruction manual.