



# AG-series plugin guide

AUBOPE(v4.5.38)

# Resume

Date	Version	Content
2020.3.1	V1.0	About plug-in installation and script instructions
2021.4.20	V2.1	Update the wiring and script instructions
2022.1.14	V2.3.3	Adapt to the new robot system- <b>Version 4.5.38 and above</b>

# 1 Hardware installation

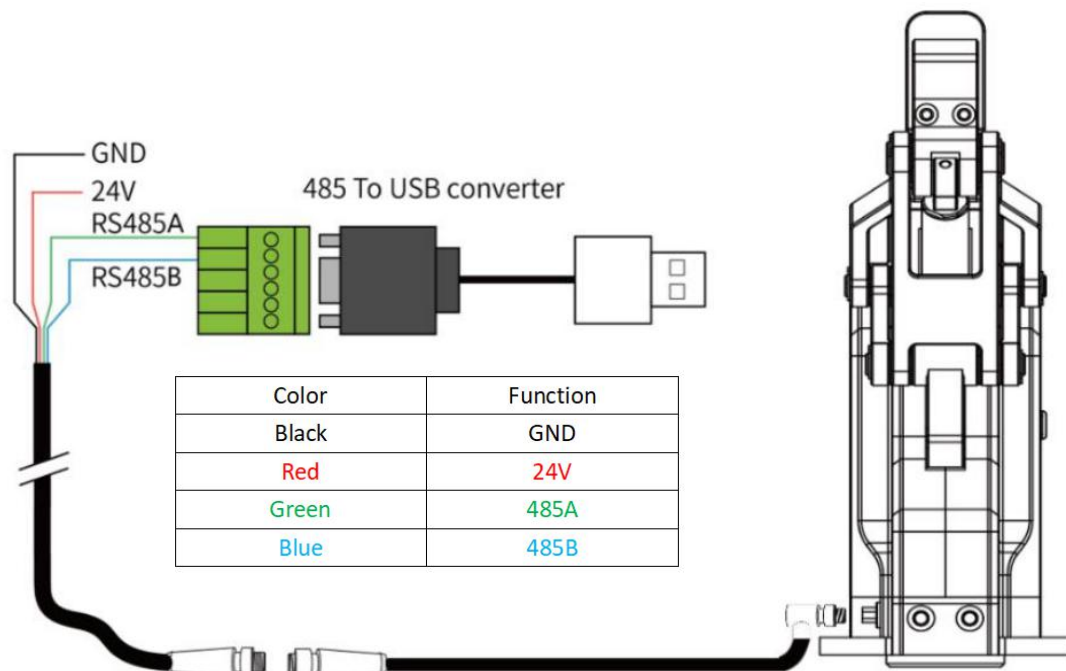
AG series gripper, ModbusRTU communication version connect with the robot, usually using 485 to USB module and 485 serial port for connection communication, standard with the 485 to USB module.

Take the USB connection as an example below, and connect the 485 to USB module.

(1) The red line is connected to the power supply 0V, the negative electrode; the gray line is connected to the power supply 24V, the positive electrode.

(2) 485 to USB module terminal to the line and the USB terminal to the AUBO control cabinet.

(3) The white line is connected to the USB module T/R(+), representing 485A, and the brown line is connected to the USB module T/R(-), representing 485B.



## 2 Plugin installation

Power on the AOBUE, close the software window.

Open the desktop File folder, and Copy .so plugin file to the path: home/Aubo RobotWork Space/techpendant/lib/teachpendant/plugins.

### 3 Use

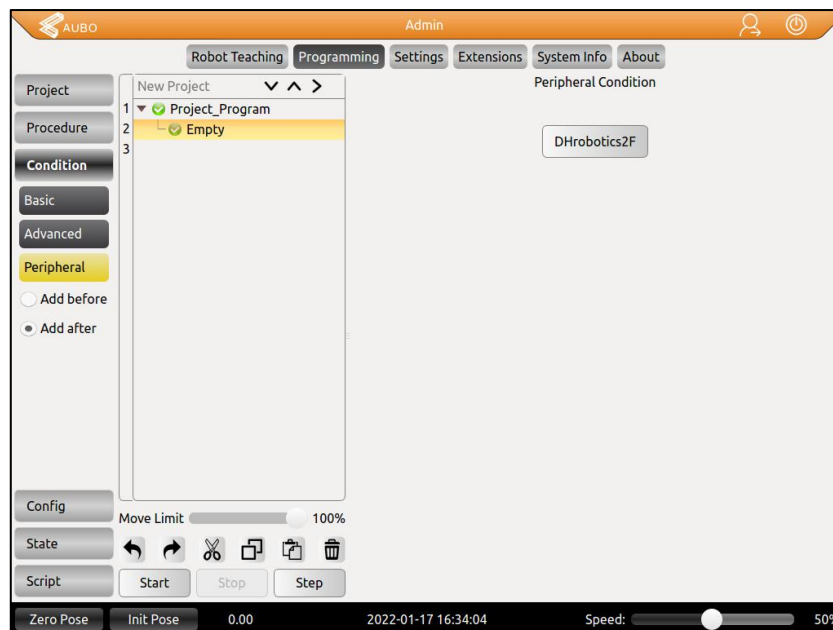
- (1) Open the AOBUE and click the extension, enter the Dhrobotics2F page.
- (2) Select the number of gripper that you want to control.
- (3) Select the number that you want to control the gripper. For example, No.1.
- (4) Select the communication party as USB, scan the serial port device, and set it to the response serial port.
- (5) Click the connect button and wait for the connection.
- (6) Click the button and the gripper will initialize.

The screenshot shows the 'DH-Robotics Gripper' control interface with the 'Setting' tab selected. At the top, there are 'Control' and 'Setting' tabs. The title 'DH-Robotics Gripper' is on the left, and 'Vision 2.1.1' is on the right. Below the title, a question 'How many gripper(s) you want to control?' is followed by a dropdown menu showing '3'. Below that, 'No. 1' is selected in a dropdown. A 'USB' dropdown menu is shown. There are three buttons: 'scan', 'Connect', 'Activate', and 'Disconnect'. The status 'Disconnected' is displayed at the bottom. The DH Robotics logo is in the bottom right corner.

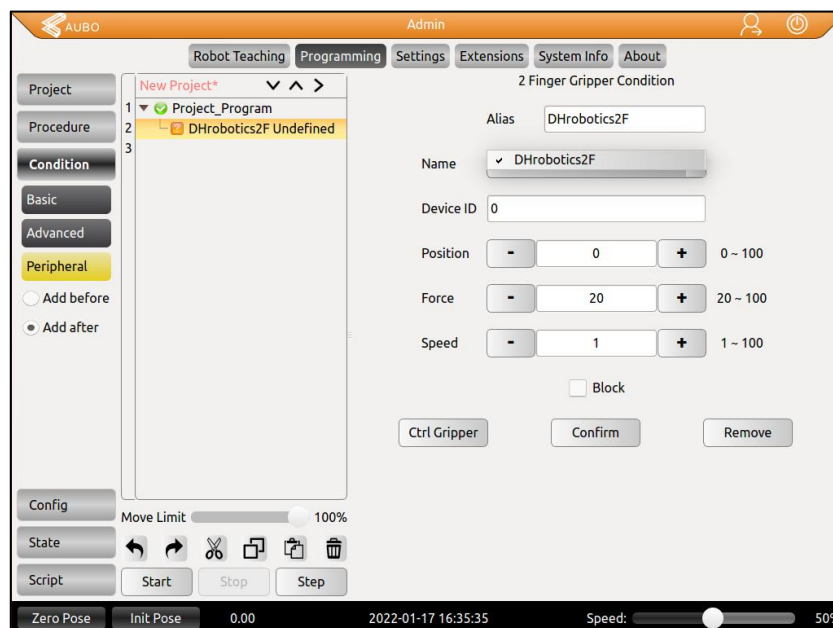
- Extensions-> DHrobotics2F->Control
- Select the number that you want to control
- Control the gripper under this Control section

The screenshot shows the 'DH-Robotics Gripper' control interface with the 'Control' tab selected. At the top, there are 'Control' and 'Setting' tabs. The title 'DH-Robotics Gripper' is on the left, and 'Vision 2.1.1' is on the right. Below the title, 'No. 1' is selected in a dropdown. There are three rows of controls: 'Position' with a value of '100.0', 'Force' with a value of '100', and 'Speed' with a value of '100'. Each row has 'Min' and 'Max' buttons. There are also 'Object detected' and 'Arrived' status indicators. The DH Robotics logo is in the bottom right corner.

Click the online programming button at the top, enter the engineering programming editing page, select conditions on the left. There will be three Condition command option, select peripheral condition, 2 Finger Gripper options appear in the right interface, click Add.



- Clicking on the node Gripper2F Undefined can set the gripper parameter
- Select the name DHrobotics2F.



- The ID is set to the gripper number.
- Set the value for the force, speed, and position.
- Click the control button and control gripper.
- Click the confirm button to save the group of data to the program node.

## 4 Script function

Function	脚本指令	Node
Scan	script_common_interface("DHrobotics2F","gripper_scan")	①
TCP	script_common_interface("DHrobotics2F","gripper_connect_tcp 1,192.168.1.29:8888")	
USB	script_common_interface("DHrobotics2F","gripper_connect_usb 1,/dev/ttyUSB0")	②
Initialize	script_common_interface("DHrobotics2F","gripper_active 1")	④
Set position	script_common_interface("DHrobotics2F","set_gripper_position 1,position,block")	⑤
Set force	script_common_interface("DHrobotics2F","set_gripper_force 1,force")	⑥
Is connected	script_common_interface("DHrobotics2F","gripper_isConnect 1")	⑦
Is initialized	script_common_interface("DHrobotics2F","gripper_isActivate 1")	
Get position	script_common_interface("DHrobotics2F","get_gripper_position 1")	
Get status	script_common_interface("DHrobotics2F","get_gripper_status 1")	
Disconnect	script_common_interface("DHrobotics2F","gripper_disconnect 1")	
Feedback	set_global_variable("variable",script_common_interface("DHrobotics2F","gripper_isConnect 1"))	

①: In the example, DHrobotics2F is the plugin name, refer to the plugin name of the 'extension'.

②: In the example, the first parameter after "|" is the gripper number, refer to the number of the 'extension' page.

'/dev/ttyUSB0' is the serial-port description.

③: In the example, 'position' represents the location, enters a number and the range from 0 to 100. Block represents the blocking flag, enter true or false.

true: blocking, wait until the gripper to complete, and then do the next step.

False: No blocking, don't wait for the gripper to complete, directly perform the next step.

④: In the example, 'force' represents a force value, enter a number, and the values range from 0 to 100.

⑤: The gripper is connected when the obtained return value is 1; the gripper is not connected when the return value is 0.

⑥: The gripper is initialized when the obtained return value is 1; the gripper is not initialized when the return value is 0.

⑦: When the obtained return value is 0, the gripper is in motion; when the return value is 1, the gripper arrive; when the return value is 2, the gripper grip the object.

⑧: The return value is the real-time position.

⑨: In the example, set\_global\_variable("VariableName",script\_common\_interface("DHrobotics2F","gripper\_isConnect|1")) is the method to get the gripper return value and use the return value as a variable. VariableName is the name of the new variable, refer to the appendix.

Script program example: [Scan -> connect -> active -> move to 0 position -> move to 1000 position](#)

1. script\_common\_interface("DHrobotics2F","gripper\_scan")
2. Wait 1s
3. script\_common\_interface("DHrobotics2F","gripper\_connect\_usb|1,/dev/ttyUSB0")
4. Wait 1s
5. script\_common\_interface("DHrobotics2F","gripper\_active|1")
6. Wait 3s
7. script\_common\_interface("DHrobotics2F","set\_gripper\_position|1,0,true")
8. script\_common\_interface("DHrobotics2F","set\_gripper\_position|1,1000,true")

## Appendix

### 1. Example state feedback

```
set_global_variable("V_I_STATUS", script_common_interface("DHrobotics2F","gripper_status|1"))
```

```
if V_I_STATUS == 1
```

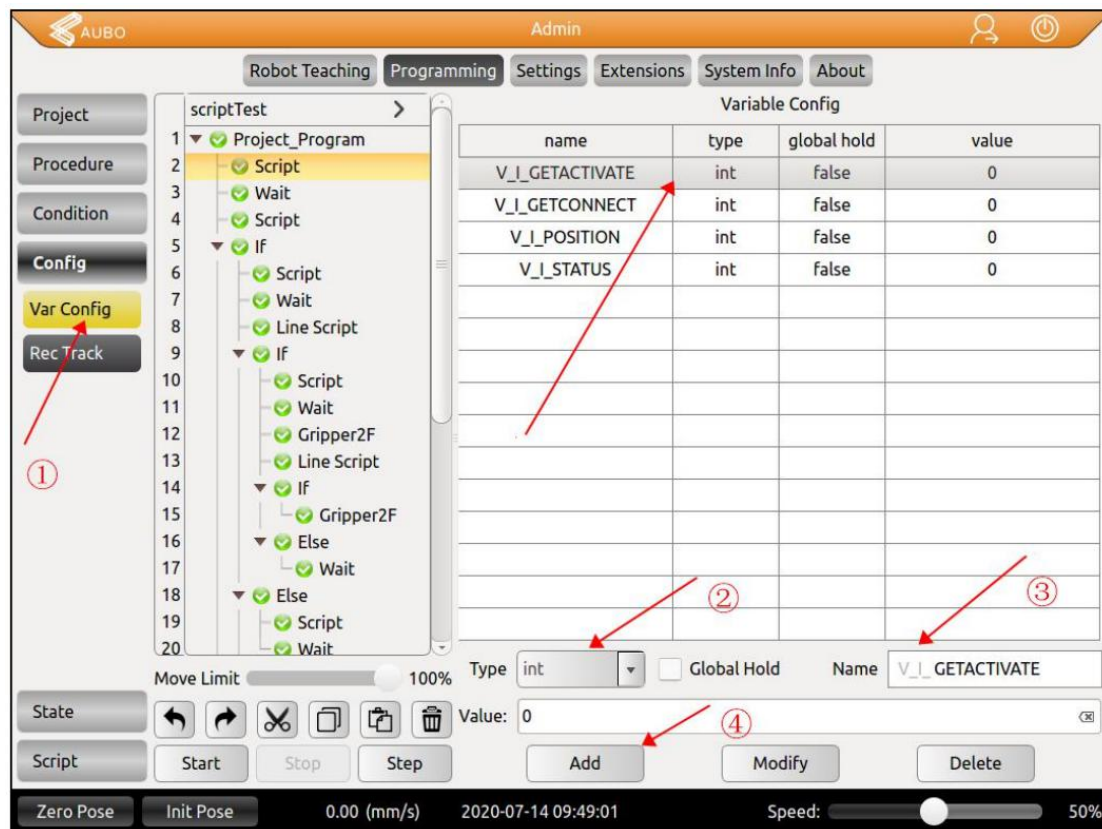
```
.....
```

```
Else
```

```
.....
```

### 2. Configure the feedback variable

V\_I\_STATUS is the variable name, click "Config" -> variable configuration "Var Config". Add variable, variable names can be customizable, initially Start value is set to int type with 1.



### 3. Script instruction

```
set_global_variable("V_I_STATUS", script_common_interface("DHrobotics2F","gripper_status|1"))
```

### 4. Feedback variable values

During the run, variable value can be observed in "State".

V\_I\_STATUS == 1, gripper arrived.

V\_I\_STATUS == 0, gripper moving.