Configuration Procedure

ESP302-J

ESP Motion Controller
Configuration Procedure for Joystick Accessory

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Revision history

Revision	Revision date	Description of change	Prepared by	Approved by
Rev0	June. 2024	Initial document	G. WIERNASZ	P. QUENON

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Original instructions.

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1 System Requirements for Uploading Configuration Files

ESP302 web interface is compatible with Windows 7 and above.

2 Newport Corp. World Wide Web Server

You can access a variety of Newport Corporation information sources via the Newport Web Server, http://www.newport.com.

3 Technical Support

Please review the User's Manual first if you are experiencing difficulties with the product.

The following Technical Support information is listed below if you still need help.

North America & Asia

Newport Corporation

1791 Deere Ave.

Irvine, CA 92606, USA

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Tel.: +1 (949)-863-3144

e-mail: sales@newport.com

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Sales UK

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4 How To Configure ESP Controllers For Joystick Accessory Operation

4.1 OVERVIEW

Individual configuration files have to be uploaded to the controller using the ESP302 web interface.

The objective is to upload the joystick configuration files (.esp) which contain commands that will assign designated motion axes to joystick Digital Input/Output (DIO) bits in the motion controller.

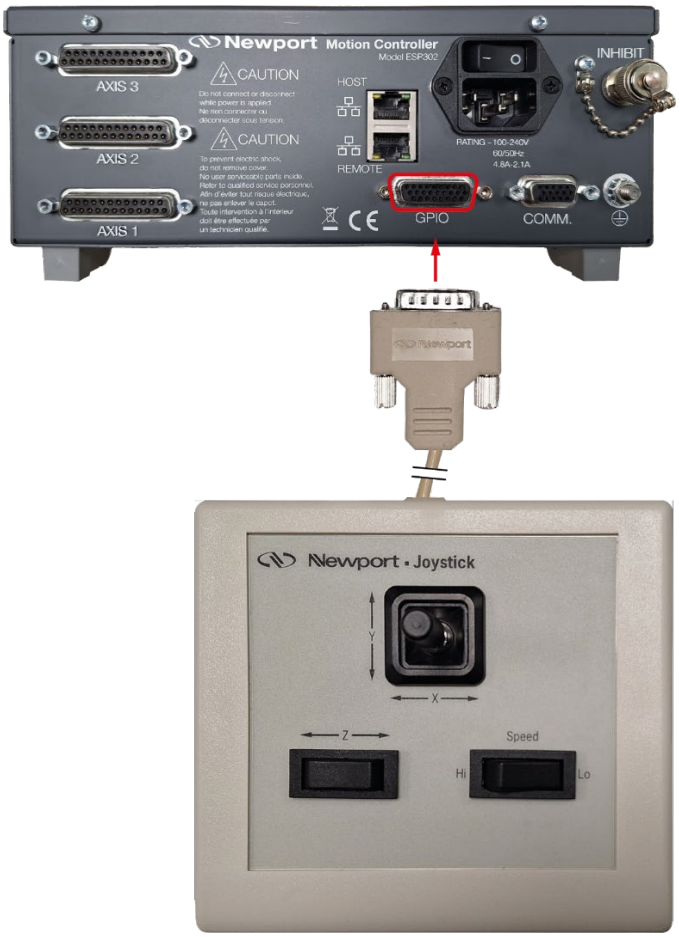
The joystick configuration files are available in the Newport website (https://www.newport.com) searching by product's model number.

Newport's ESP controller accepts ASCII character commands to facilitate individual axis configuration.
Please refer to the ESP controller User's Manuals for specific usage of each command.

Note **ONCE THE JOYSTICK IS ENABLED, ASSIGNED AXES AND DIGITAL I/O WILL NOT BE AVAILABLE FOR GENERAL USE (e.g., INDEPENDENT MOVES)**

4.2 Connection

Connect the joystick's Sub-D connector to the GPIO port of the ESP302.



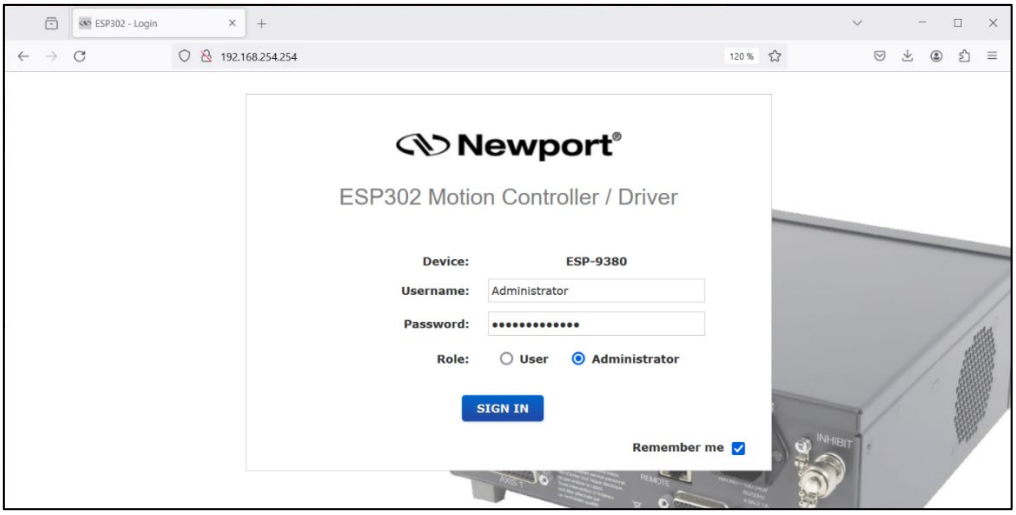
4.3 Login

Once connected to the ESP302 controller, power up the controller and wait for complete initialization.

1. Open an Internet browser and connect to http://192.168.254.254 (or the appropriate IP).
2. Enter:
   - Username
   - Password
   - Role: select **Administrator**

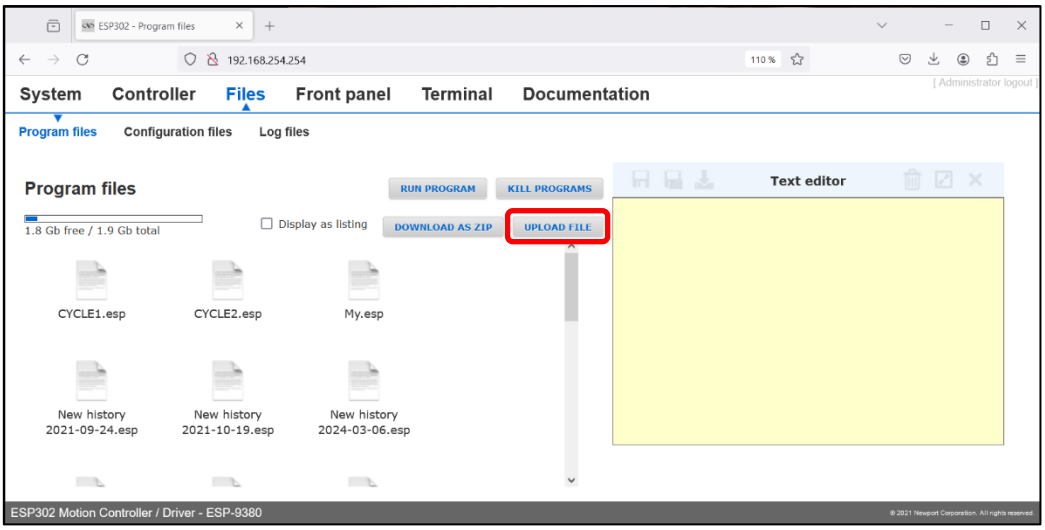
> ***Note*** **Administrator access is required to configure the joystick.**

3. Click on **SIGN IN** button to login.

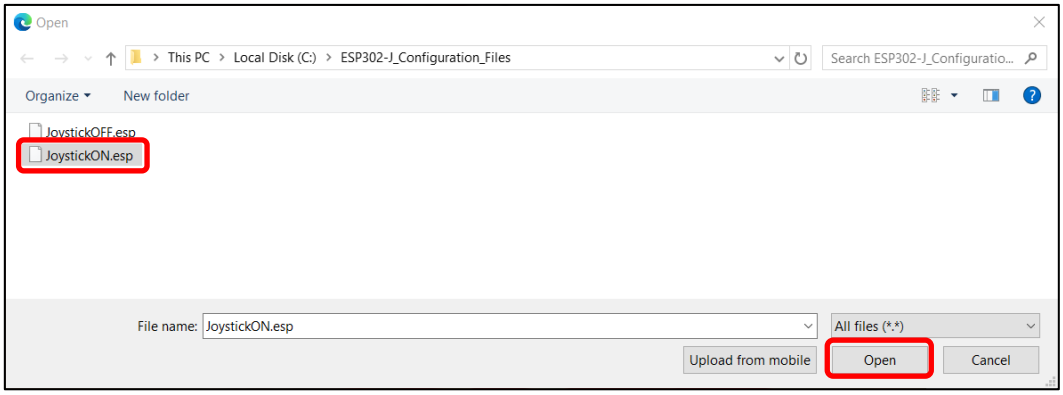


4.4 UPLOADING THE CONFIGURATION FILES

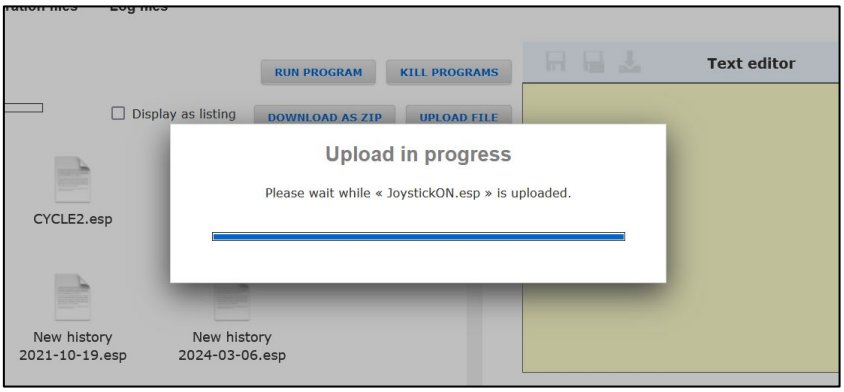
- In the **Files / Program files** section click on UPLOAD FILE button.



- Select the previously downloaded configuration files from https://www.newport.com and click on **Open** button (must be repeated for each file).



- Wait for complete Upload of the file.



The controller now contains the programs that will enable / disable joystick operation and assign motion axes to joystick Digital Input/Output (DIO) bits channels.

The programs are stored in non-volatile flash memory inside the controller, therefore, it is no longer necessary to repeat this process.

Once stored, the programs can only be erased.

4.5 HOW TO ENABLE AND DISABLE THE JOYSTICK

4.5.1 Overview

To activate or deactivate the joystick, simply run the activation (JoystickON.esp) or deactivation (JoystickOFF.esp) programs.

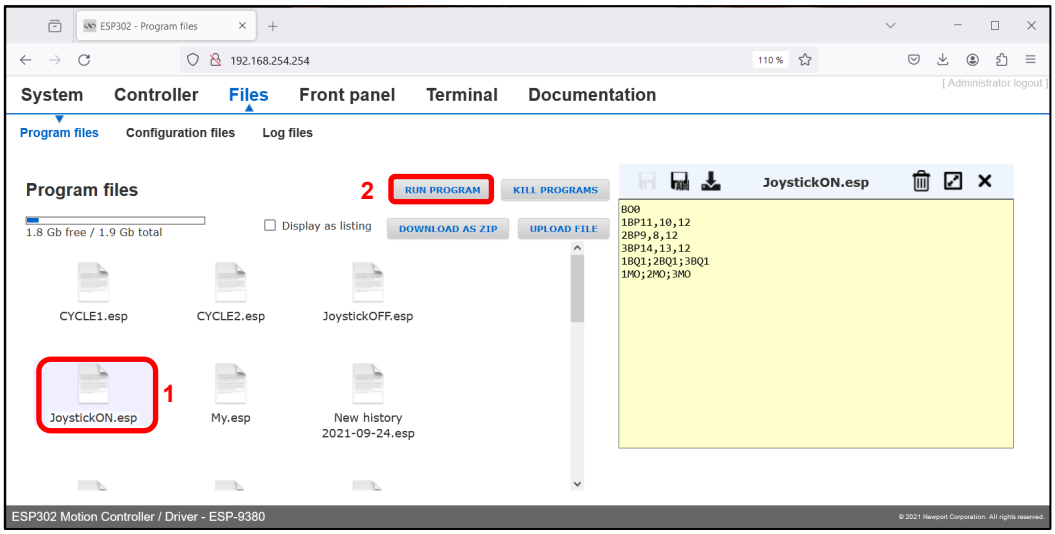
Three activation / deactivation methods are available:

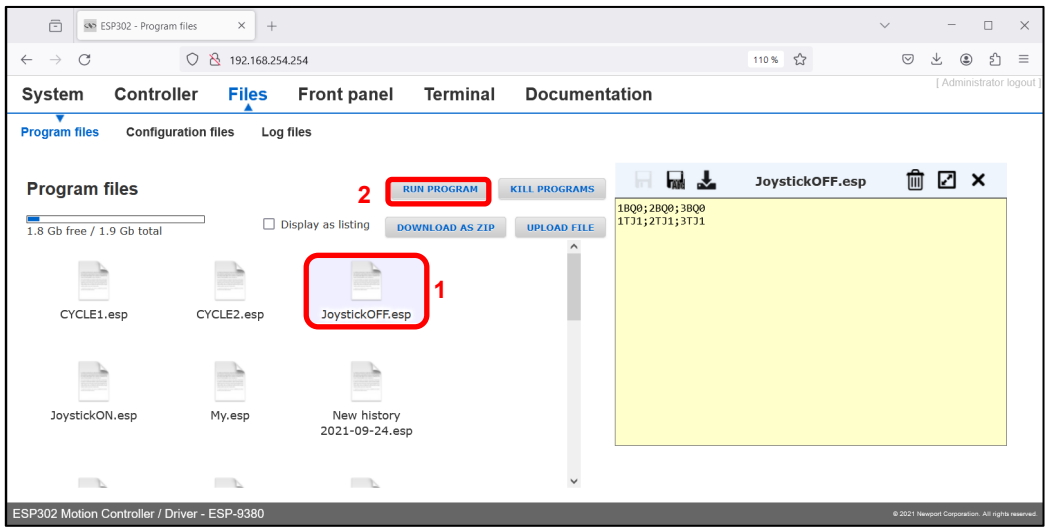
- Using the **Files/Program files** menu of the web interface.
- Using the **Terminal** mode of the web interface.
- Using the LCD front panel of the ESP302 controller.

4.5.2 Program Files menu

In the **Files / Program files** window:

1. Select the program to run.
2. Click the **RUN PROGRAM** button.

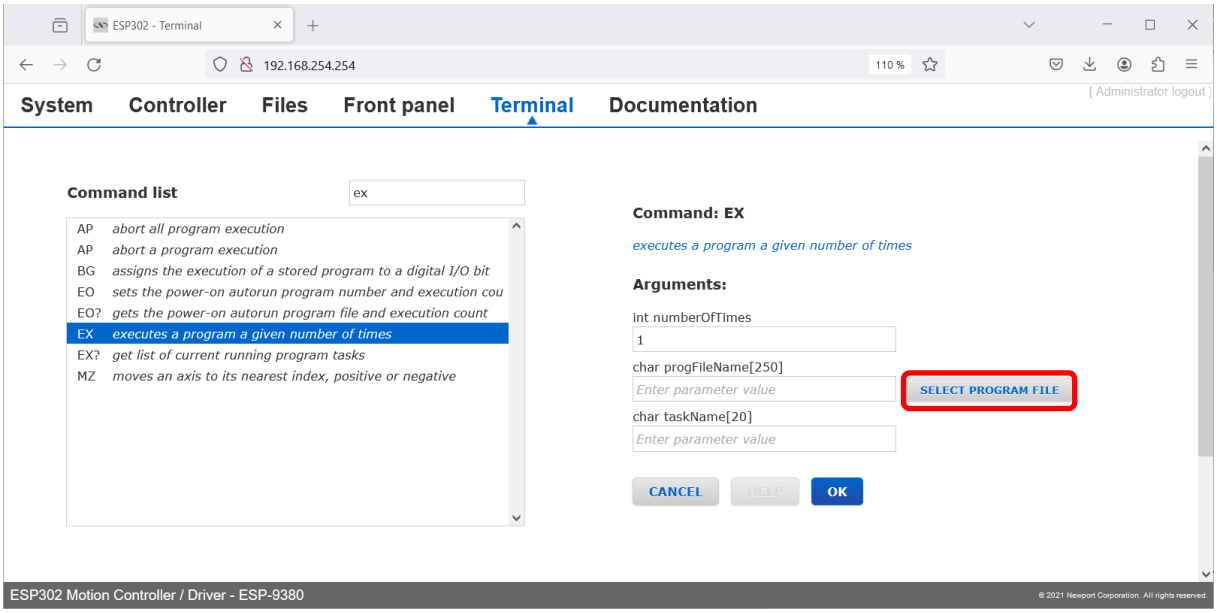




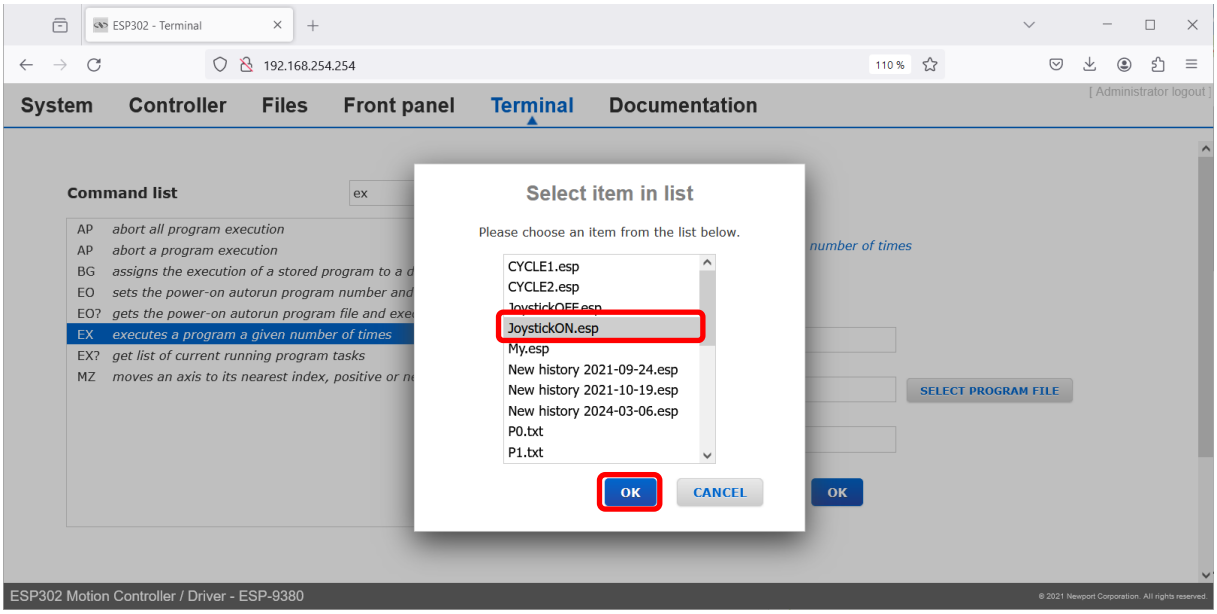
4.5.3 Terminal mode

In the **Terminal** window:

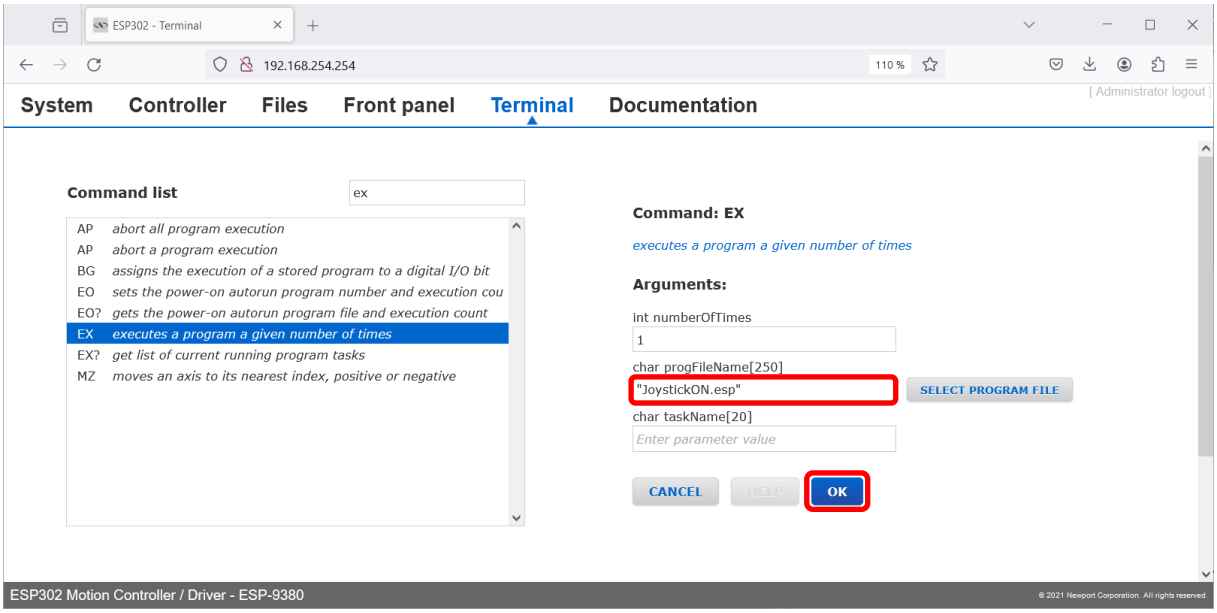
- Select the **EX** command in the **Command list**.
- Click the **SELECT PROGRAM FILE** button.



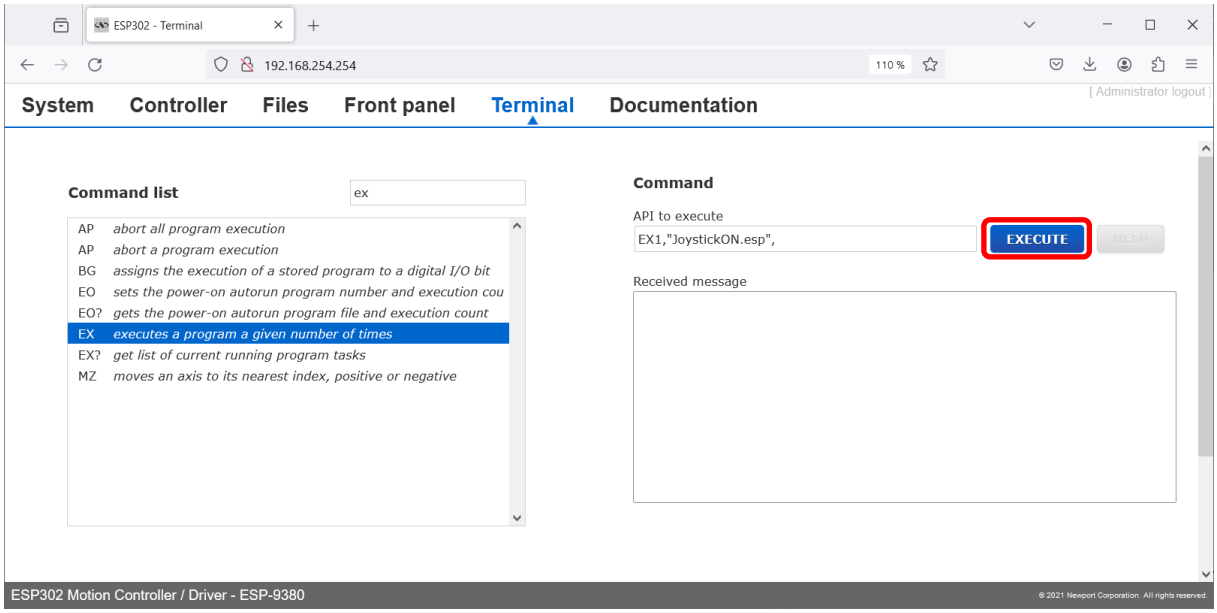
- Select the program to be executed in the drop-down list and click the **OK** button.



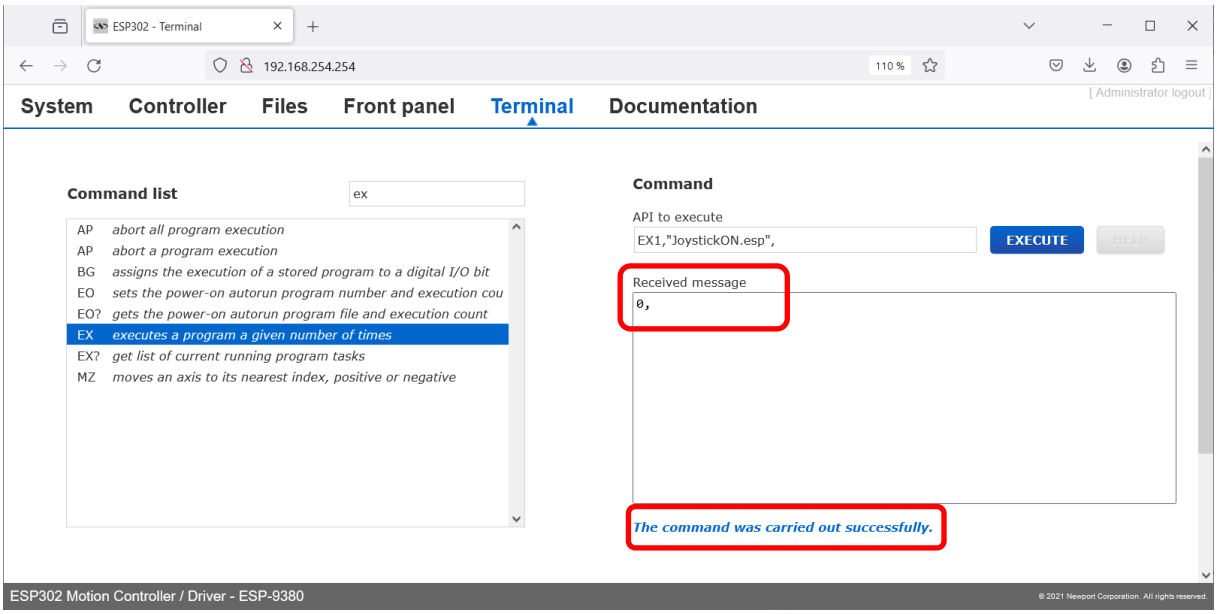
- Once the program selected click the **OK** button in the Terminal window.



- Click the **EXECUTE** button to execute the selected program.



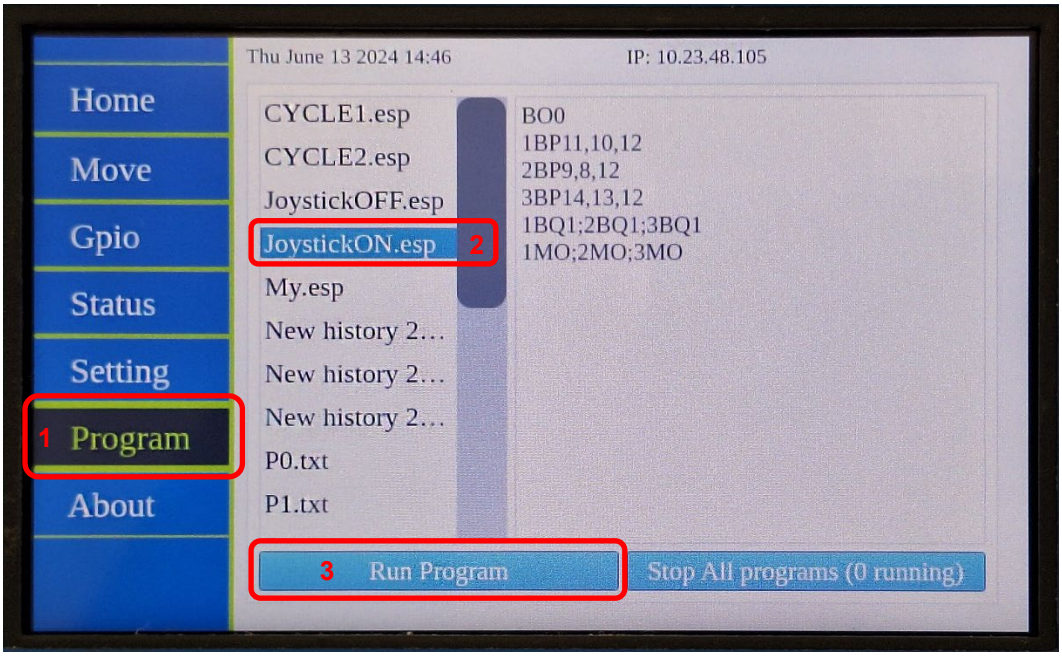
- The **Received message** box displays “0” which means “no error” and a comment “*The command was carried out successfully*”.



4.5.4 LCD Front panel

In the ESP302 LCD menu:

1. Select the **Program** menu.
2. Select the Joystick program to run.
3. Execute the Joystick program clicking the Run Program button.

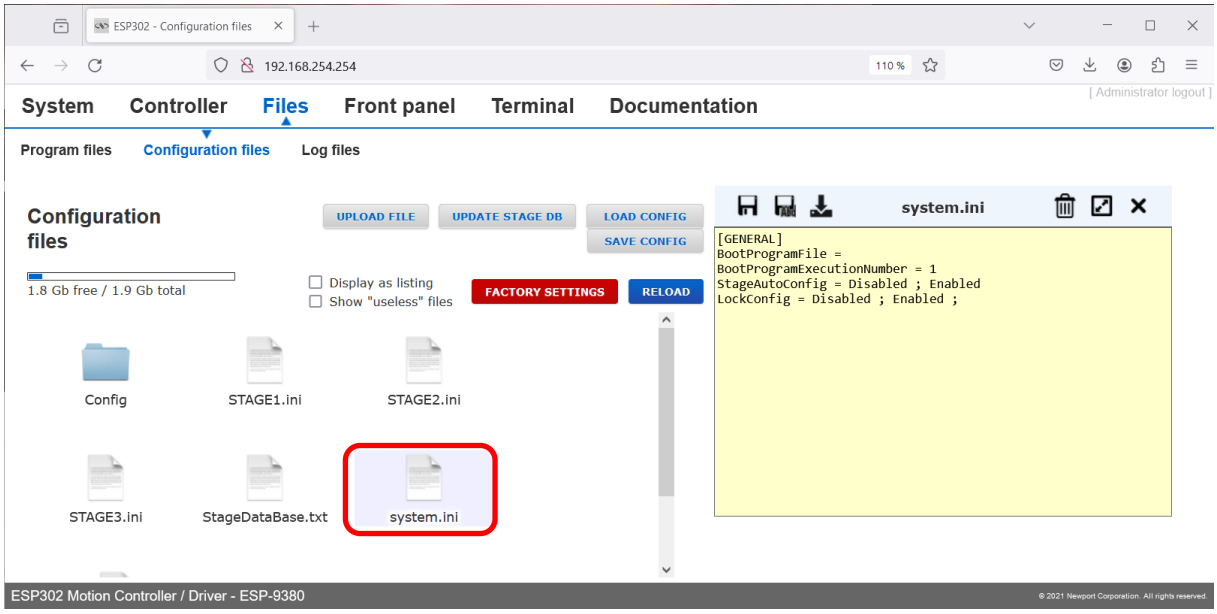


4.6 HOW TO AUTOMATICALLY ENABLE JOYSTICK ON START-UP

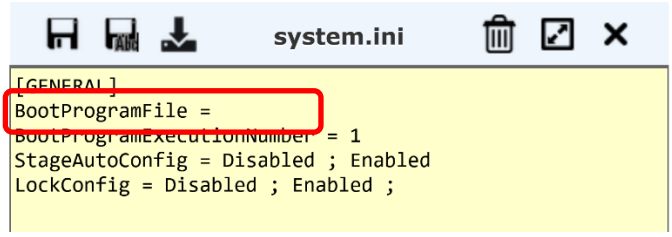
The controller has the ability to automatically run on power-up any stored program in memory after a system reset or power-up condition using the **BootProgramFile** parameter in the **System.ini** configuration file.

In the **Files / Configuration files** window,

- Select the **system.ini** file.

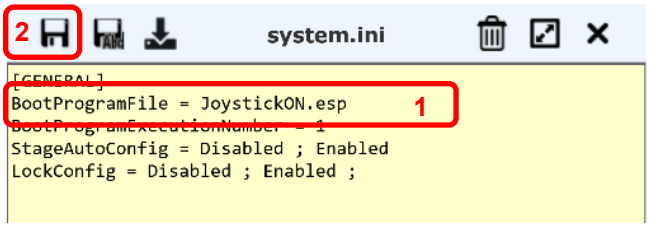


By default the BootProgramFile of the system.ini file is empty :

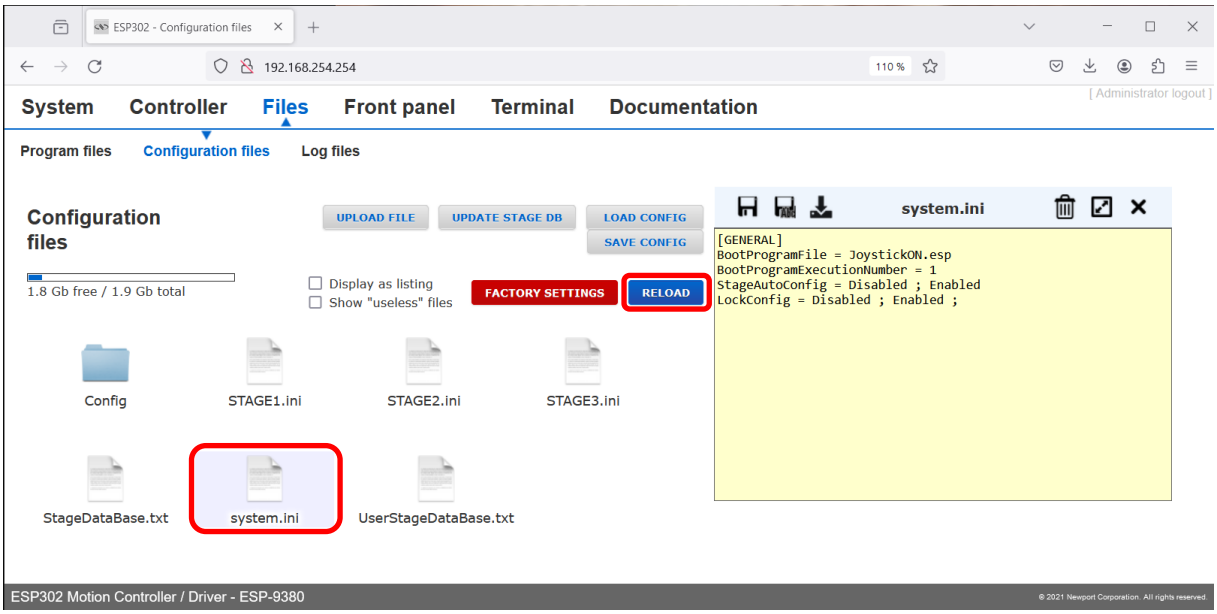


To activate automatically the joystick when powering up the controller:

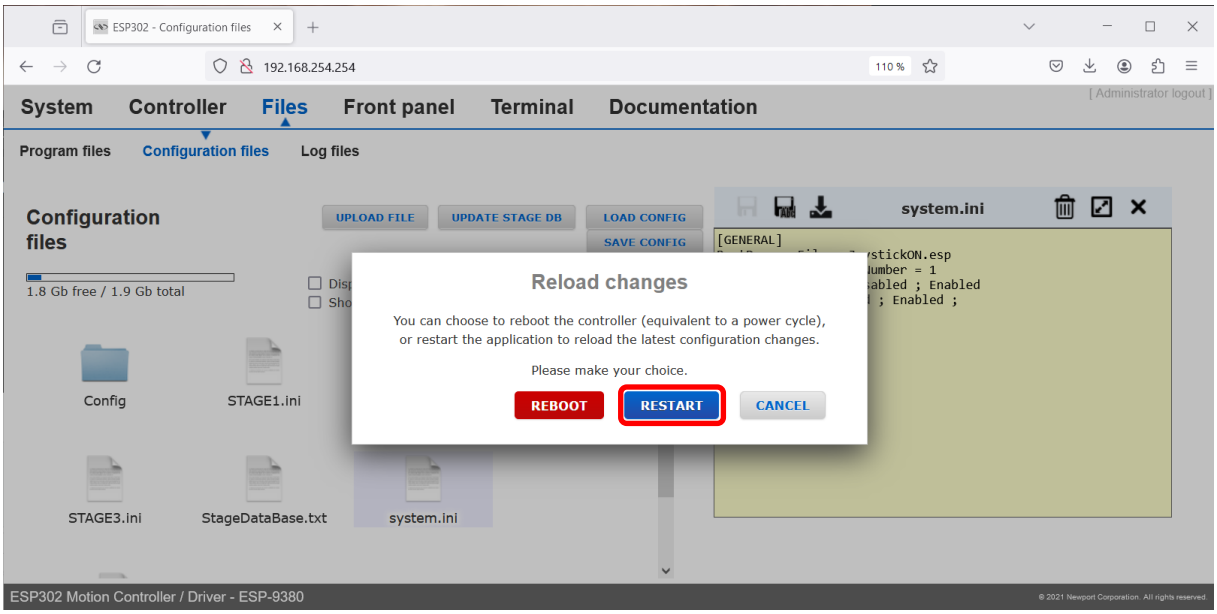
1. Set the BootProgramFile parameter to **JoystickON.esp**.
2. Save the modified system.ini.



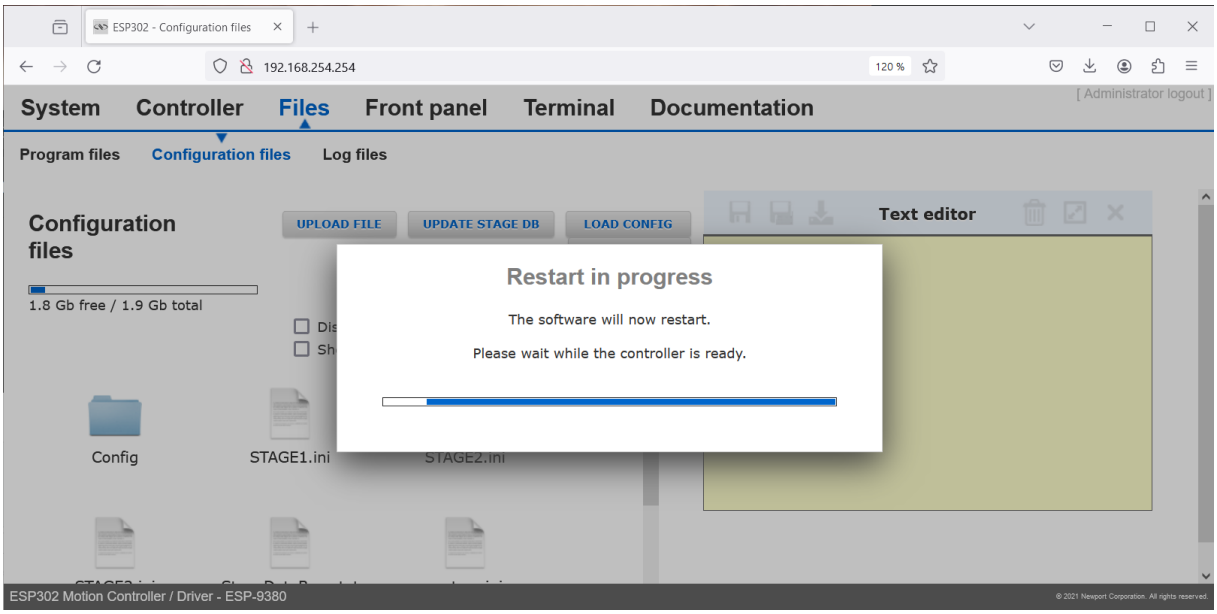
- Click the **RELOAD** button to take changes into account.



- Click on the **RESTART** button to apply changes.



- Wait for complete reinitialization of the controller.



Therefore, the controller runs the JOYSTICK ON program on power-up or system reset conditions then the joystick will effectively be turned-ON on those conditions.

However, it will still be necessary to run the **JoystickOFF.esp** program to **disable** the joystick feature.

Note	**ONCE THE JOYSTICK IS ENABLED, ASSIGNED AXES AND DIGITAL I/O WILL NOT BE AVAILABLE FOR GENERAL USE (e.g., INDEPENDENT MOVES)**

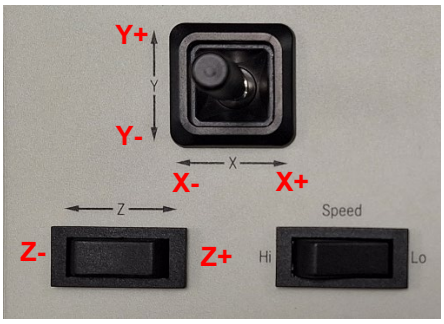
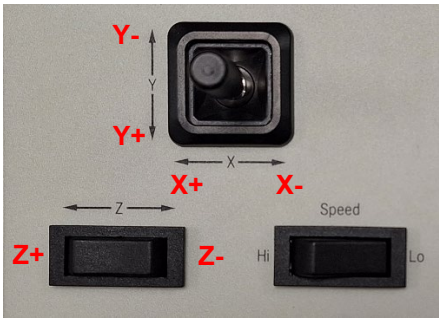
Note	**PLEASE REFER THE ESP CONTROLLER USER'S MANUAL FOR DETAILED EXPLANATION OF COMMANDS AND PROPER USAGE.**

4.7 HOW TO CHANGE JOYSTICK MOTION DIRECTION

In some instances it may be desirable to reverse the positioner displacement with respect to the joystick movement.

This can be accomplished by changing the Digital Input/Output (DIO) bit assignment using BP command in the JoystickON.esp program text file.

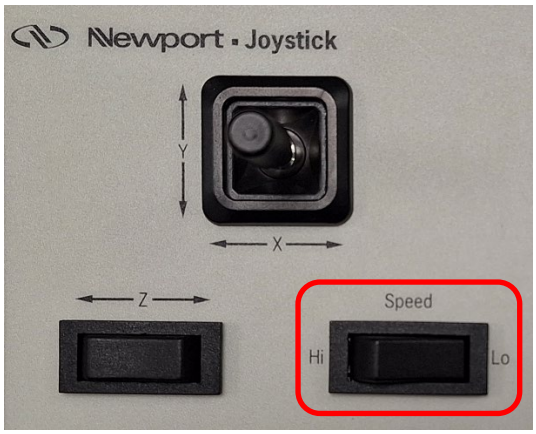
To reverse axis displacement with respect to the pushbuttons, simply re-assign the DIO accordingly.

Axis	Command	Direction
X ⇨ Y ⇨ Z ⇨	JoystickON.esp BO0 1BP11,10,12 2BP9,8,12 3BP14,13,12 1BQ1;2BQ1;3BQ1 1MO;2MO;3MO	
X ⇨ Y ⇨ Z ⇨	JoystickON.esp BO0 1BP10,11,12 2BP8,9,12 3BP13,14,12 1BQ1;2BQ1;3BQ1 1MO;2MO;3MO	

Note **In the example above, all axes are inverted, but it is possible to configure the direction of each axis separately.**

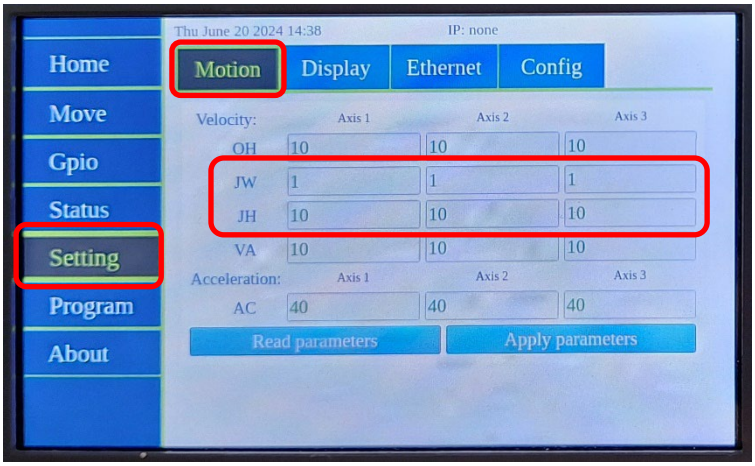
4.8 HOW TO SET JOYSTICK HIGH/LOW SPEEDS

The ESP302-J joystick features a programmable **Hi**gh and **Lo**w travel speed selector.



High and low travel speeds can be set for each axis, using **JH** command for High speed and **JW** command for Low speed (refer to ESP302 Programmer's Manual for detailed description of the commands).

By default, the high speed is set to 10 units/second and the low speed to 1 unit/second.
JH and JW parameters values can be displayed and edited using the LCD Front Panel of the ESP302 controller.



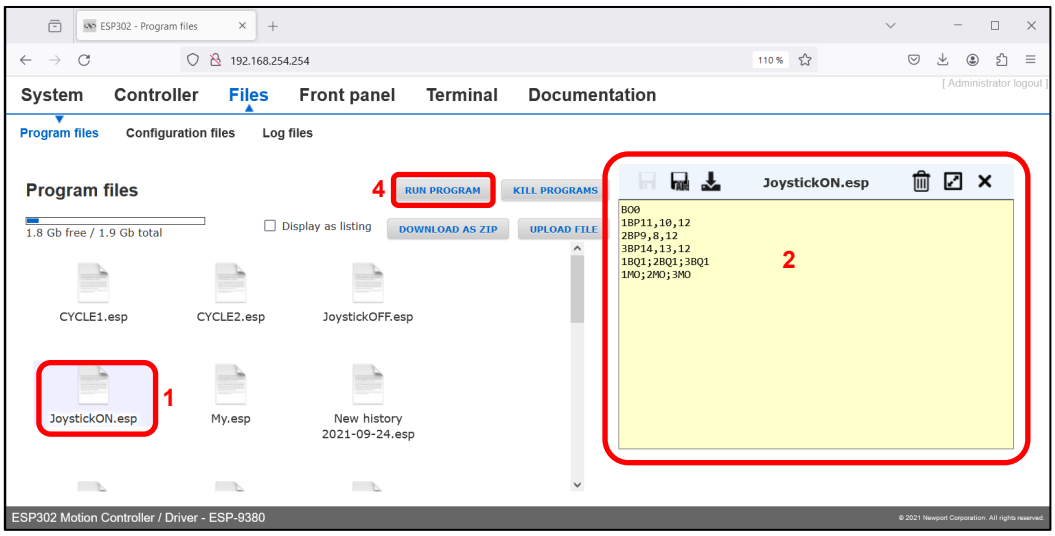
Three configuration methods to set speeds values are available:

- Using the Files/Program files menu of the web interface.
- Using the Terminal mode of the web interface.
- Using the LCD front panel of the ESP302 controller.

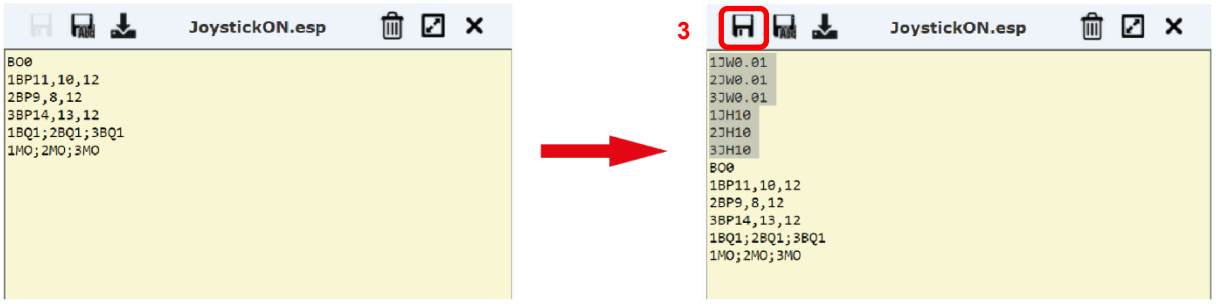
4.8.1 Program files menu

In the **Files / Program files** window:

1. Select the JoystickON.esp program.



2. Modify the JoystickON.esp program by adding JH and JW commands for each axis to set travel speeds to desired values.
   In the following example high speed is set to 10 units/second and low speed to 0.01 unit/second, for all axis.



3. Save changes.
4. Click **RUN PROGRAM** to take changes into account.

> ***Note*** **Modifications of speed values becomes permanent using this method.**

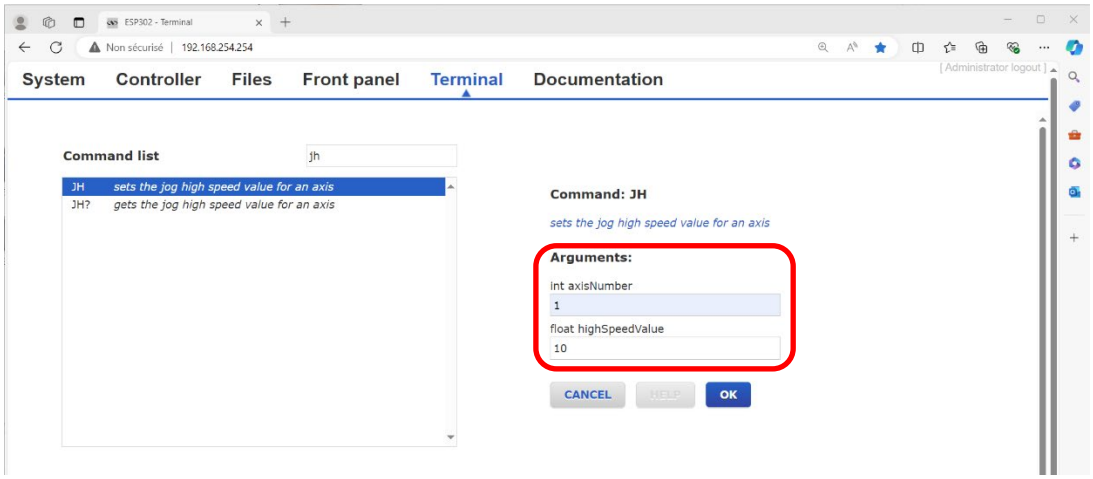
4.8.2 Terminal mode

Speed values of the high and low travel speeds can be modified during operation axis by axis using the Terminal mode,

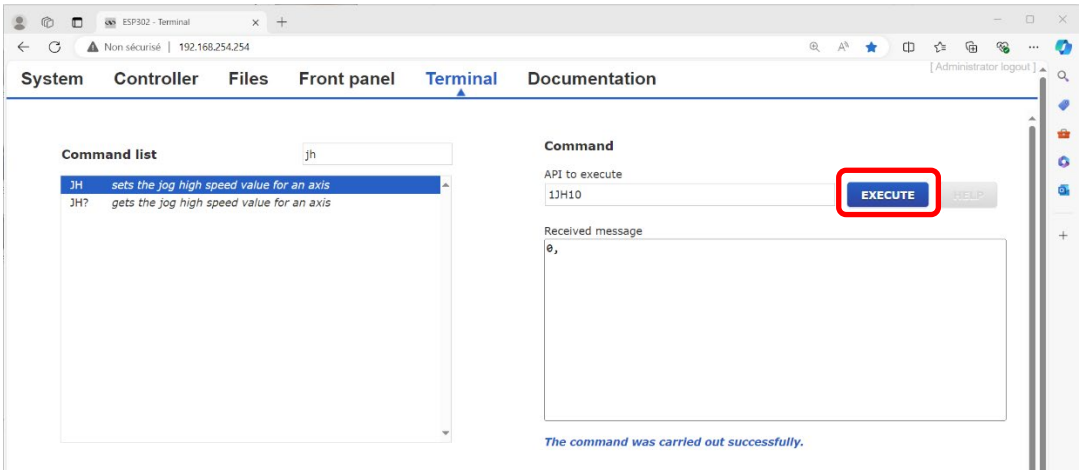
> ***Note*** **Changes to speed values made with this method are temporary, they are not saved and will be replaced by the values defined in the JoystickON.esp program the next time the ESP302 controller is restarted.**

To change high speed value:

- Select Terminal mode in the web interface.
- Select **JH** command.
- Enter axis number and new high speed value in the Arguments section.



- Click **OK** button to validate new values.
- Click **EXECUTE** button to set new high speed value.



- The **Received message** box displays “0” which means “no error” and a comment “*The command was carried out successfully*”.
- Repeat this operation for all axis as needed.

Proceed in the same way to modify the low value of the travel speed using the **JW** command instead of the **JH** command.

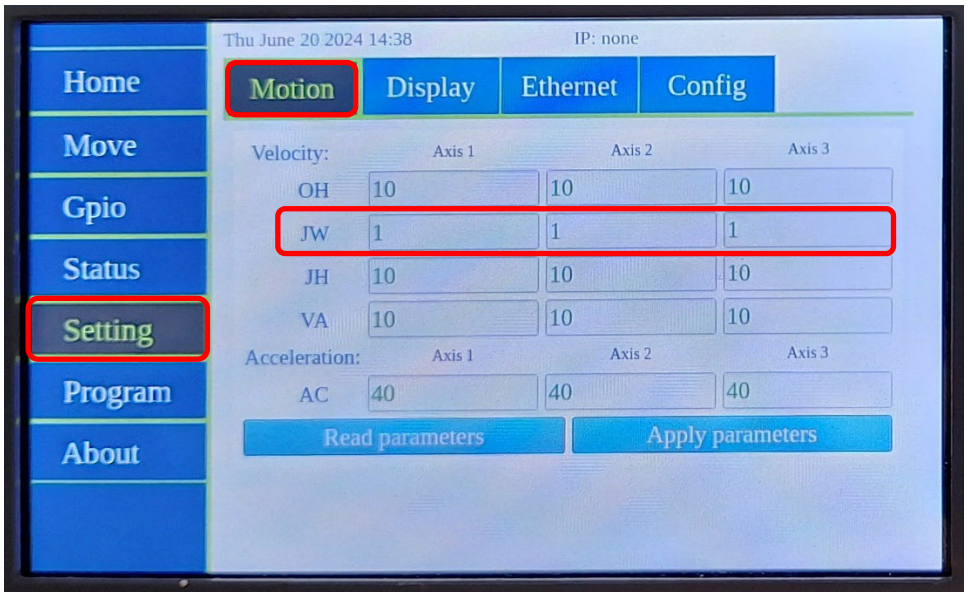
4.8.3 LCD Front Panel

Speed values of the high and low travel speeds can be modified during operation axis by axis using the **Setting** menu of the ESP302 controller.

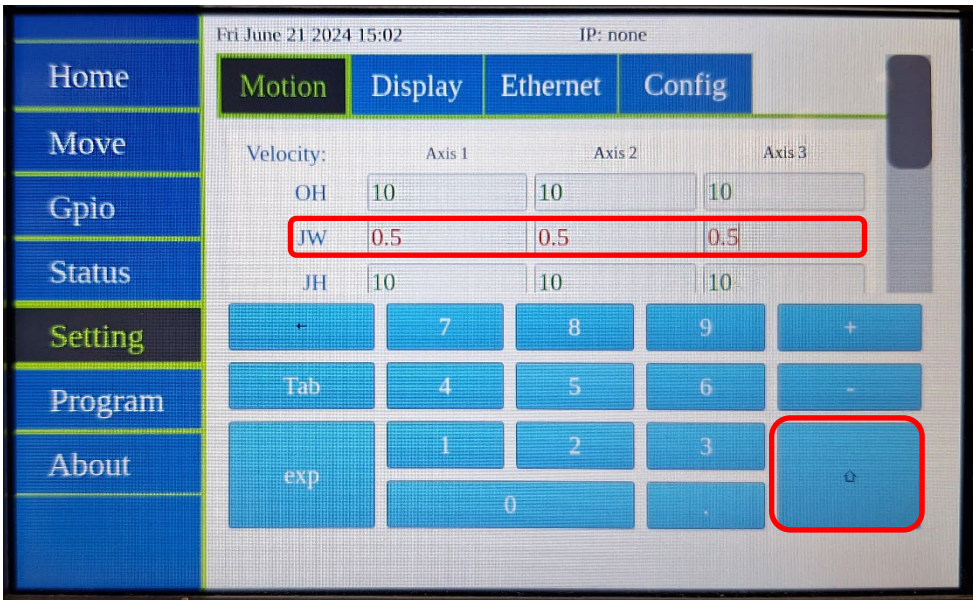
> ***Note*** **Changes to speed values made with this method are temporary, they are not saved and will be replaced by the values defined in the JoystickON.esp program the next time the ESP302 controller is restarted.**

To change high and low speed values using LCD Front Panel:

- Select the **Setting** menu and **Motion** tab of the sensitive LCD display of the ESP302.
- Select the value to be modified.

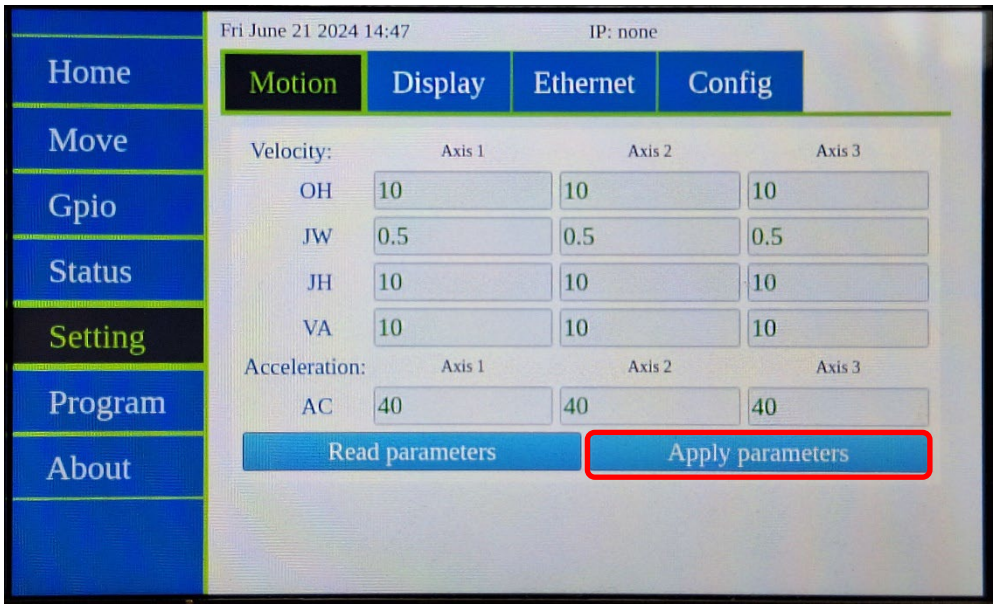


- Enter new value using displayed keyboard.
  New travel speed values are displayed in red until applied.
  In the present example JW values are defined to 0.5 unit/second instead of 1 unit/second.



- When modifications done, select ⇧ to return to setting display.

- Select **Apply parameters** to set new parameters.
  New travel speed values are applied and displayed in green.



Service Form

Your Local Representative
Tel.:
Fax:

Name: _____
Company: _____
Address: _____
Country: _____
P.O. Number: _____
Item(s) Being Returned: _____
Model#: _____

Return authorization #: _____
(Please obtain prior to return of item)
Date: _____
Phone Number: _____
Fax Number: _____
Serial #: _____

Description: _____
Reasons of return of goods (please list any specific problems): _____

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www.newport.com

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