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Latching Pushbutton Module User Manual

Contents

Overview

The Latching Pushbutton Module, CE-MD-004-0000, extends MachineMotion 2's functionality with two latching (alternate action) pushbuttons. This plug-and-play module only requires a single connection to the MachineMotion 2 controller. Compatible modules, such as the Smart Power Switch (CE-MD-005-0000) & additional Pushbutton modules can also be daisy chained to each other, making it possible to connect up to eight modules per MachineMotion 2 controller.

Features

- Includes two latching pushbuttons
- Connects (daisy chain) with compatible modules
- Configurable address
- Plug-and-play access from the Control Center, MachineLogic, and Python API

Included in the Box

Part Number	Description	Quantity
CE-MD-004-0000	Latching Pushbutton Module	1
CE-CA-022-5000	Control Device Extension Cable, 5m	1
CE-JP-001-0001	Module Termination Jumper	1
HW-FN-003-0018	M8 x 18-mm Screw	2
HW-FN-002-0001	M8 Drop-in Spring-Loaded T-Nut	2

Physical Interface

Figure 1: Pushbutton Module physical interface.

Status LED Indicators

Name	LED Color	Indicated (when ON)
POWER	White	24 VDC supplied to module
COMM	Yellow and Blue	RS-485 communication functional

Name	LED Color	Indicated (when ON)
FUSE	Red	Module internal fuse tripped

Applications

Connecting to MachineMotion 2 (directly)

To connect a Pushbutton Module directly to MachineMotion 2 (see Figure 2):

1. Set the address of the Pushbutton Module, as explained in the *Setting the address configuration switches* section below.
2. Using the Control Device Extension Cable (CE-CA-022-5000):
    1. Connect the male end to any *CONTROL* port on MachineMotion 2.
    2. Connect the female end to the *CTRL IN* port on the Pushbutton Module.
3. Connect the Module Termination Jumper (CE-JP-001-0001), to the *CTRL OUT* port on the Pushbutton Module.

Connecting to MachineMotion 2 (daisy chain)

Compatible modules, including the Latching Pushbutton Module, can also be connected via daisy chain to a single *CONTROL* port on the MachineMotion 2 controller (see Figure 3). Across all four *CONTROL* ports, the controller supports up to eight modules at the same time, provided they all have distinct addresses (see *Address configuration switches*).

To connect several modules in a daisy chain:

1. Set a distinct address for every module of the daisy chain, as explained in the section*Setting the address configuration switches*.
2. Using a Control Device Extension Cable (CE-CA-022-5000):
    1. Connect the male end to any*CONTROL* port on MachineMotion 2.
    2. Connect the female end to the *CTRL IN* port on the first module of the daisy chain.
3. For every additional module to be connected in the daisy chain, repeat this step using an additional Control Device Extension Cable (CE-CA-022-5000):
    1. Connect the male end to the*CTRL OUT* port on the previous module in the daisy chain.
    2. Connect the female end to the *CTRL IN* port on the current module in the daisy chain.
4. Connect the Module Termination Jumper (CE-JP-001-0001), to the *CTRL OUT* port on the last module in the daisy chain.

Setting the address configuration switches

Each module has an address with two components: device ID and device type. Both device ID and device type are set by changing the state of the address configuration switches, which are located at the back of the Pushbutton Module under a removable rubber cap.

Switches 1 to 4 define the module device ID and allow the MachineMotion 2 controller to know which module it is communicating with. Every module connected to the same controller should have **a distinct device ID, regardless of its device type**

Switches 5 to 8 define the module device type and their positions should remain identical for all modules of the same type.
The table below lists every valid address for the Pushbutton Module. An individual switch is considered ON when the selector is slid up and OFF when the selector is slid down.

Switches								Module Address
Device ID				Device Type				
1	2	3	4	5	6	7	8	
OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	Pushbutton Module 1
ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	Pushbutton Module 2
OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	Pushbutton Module 3
ON	ON	OFF	OFF	ON	OFF	OFF	OFF	Pushbutton Module 4
OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	Pushbutton Module 5
ON	OFF	ON	OFF	ON	OFF	OFF	OFF	Pushbutton Module 6
OFF	ON	ON	OFF	ON	OFF	OFF	OFF	Pushbutton Module 7
ON	ON	ON	OFF	ON	OFF	OFF	OFF	Pushbutton Module 8

Table 1: Pushbutton module configurable addresses.

Configuring the Latching Push-button Module in Control Center

If you would like to configure your Latching push-button and utilize MachineLogic to program your push-button, follow the steps below:

1. Open the Control Center on a PC (by entering 192.168.7.2 in the Google Chrome URL) or use the MachineMotion 2 Pendant.
2. Go to the **Configuration** tab and click **Add Input**.
3. Fill out the following fields:
   - **Name**: Give your push-button a friendly name, which will be used to call the push button module in MachineLogic
   - **Module Type**: In the drop-down menu, select **Push Button**
   - **Device**: Represents the device ID of your module. The device number is configured on the physical module using dip-switches, therefore, ensure the device ID configured in this dropdown matches the dip switches configured on the physical device.
   - **Color**: Select the push-button color you would like to configure.

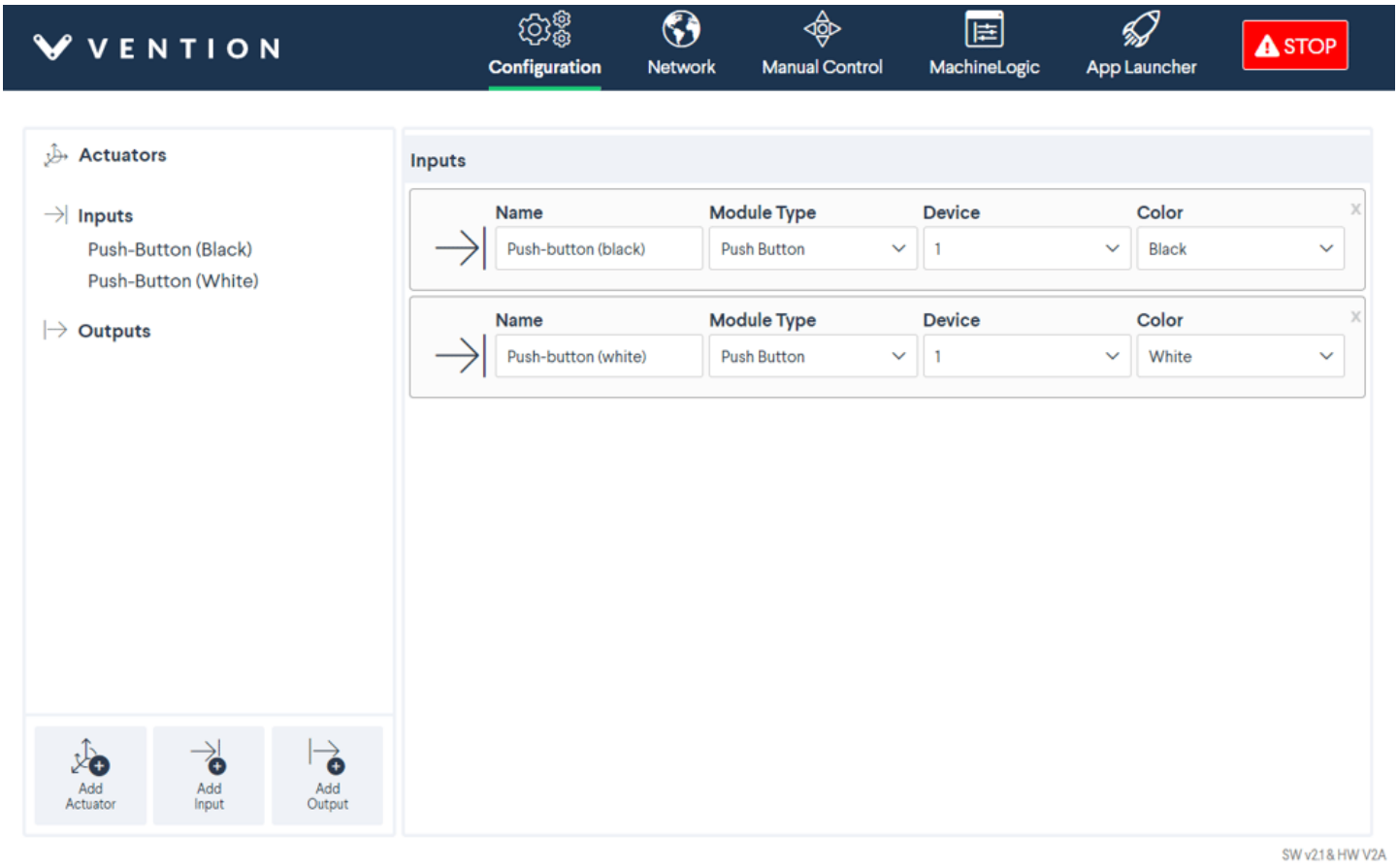

Figure 4: Push-button configuration

1. To test the configured push-buttons, go to the **Manual Control** tab and navigate to the **Digital Inputs/Outputs** at the bottom left of the screen.
2. Under **Inputs**, you should see your configured push-button modules:

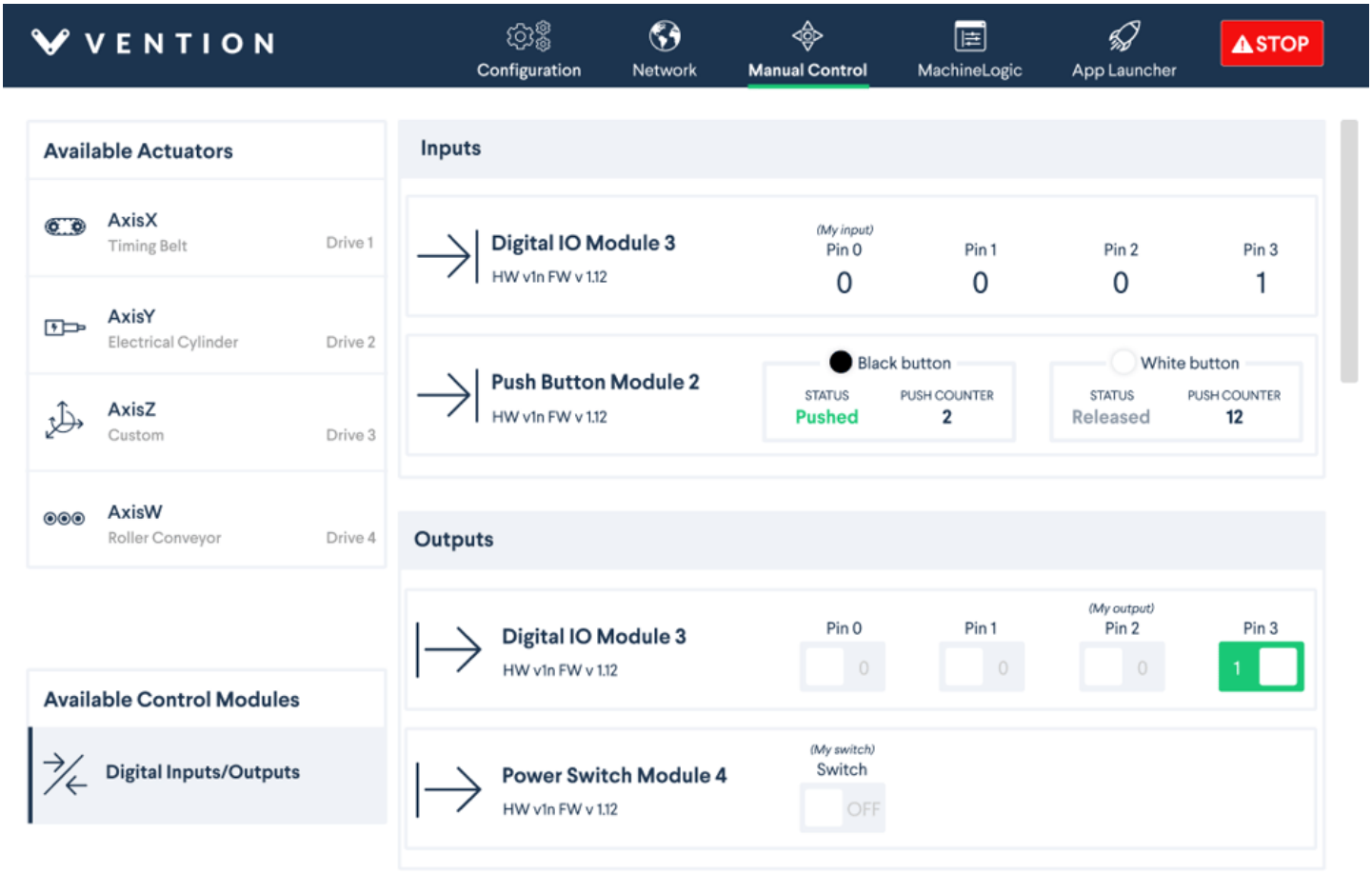

Figure 5: Push-button manual control

You could see the status of each button as “Pushed” or “Released”. The push counter allows you to test the push buttons in case the push button is installed far away from your HMI. The counter will go up each time the button is pressed.

Programming the Latching Push-button Module with MachineLogic

To program your Latching push-button in MachineLogic, ensure you have completed the steps in[Configuring the Latching Push-button Module in Control Center](#).

1. Go to the **MachineLogic** tab.
2. There are a few commands that could be used for your push-button module. Click**Add command** › **Add Wait**:
   - Under **Wait For**, selecting **Digital Input** would allow your program to wait for a push button to be**Pushed** or **Released** before playing the next command

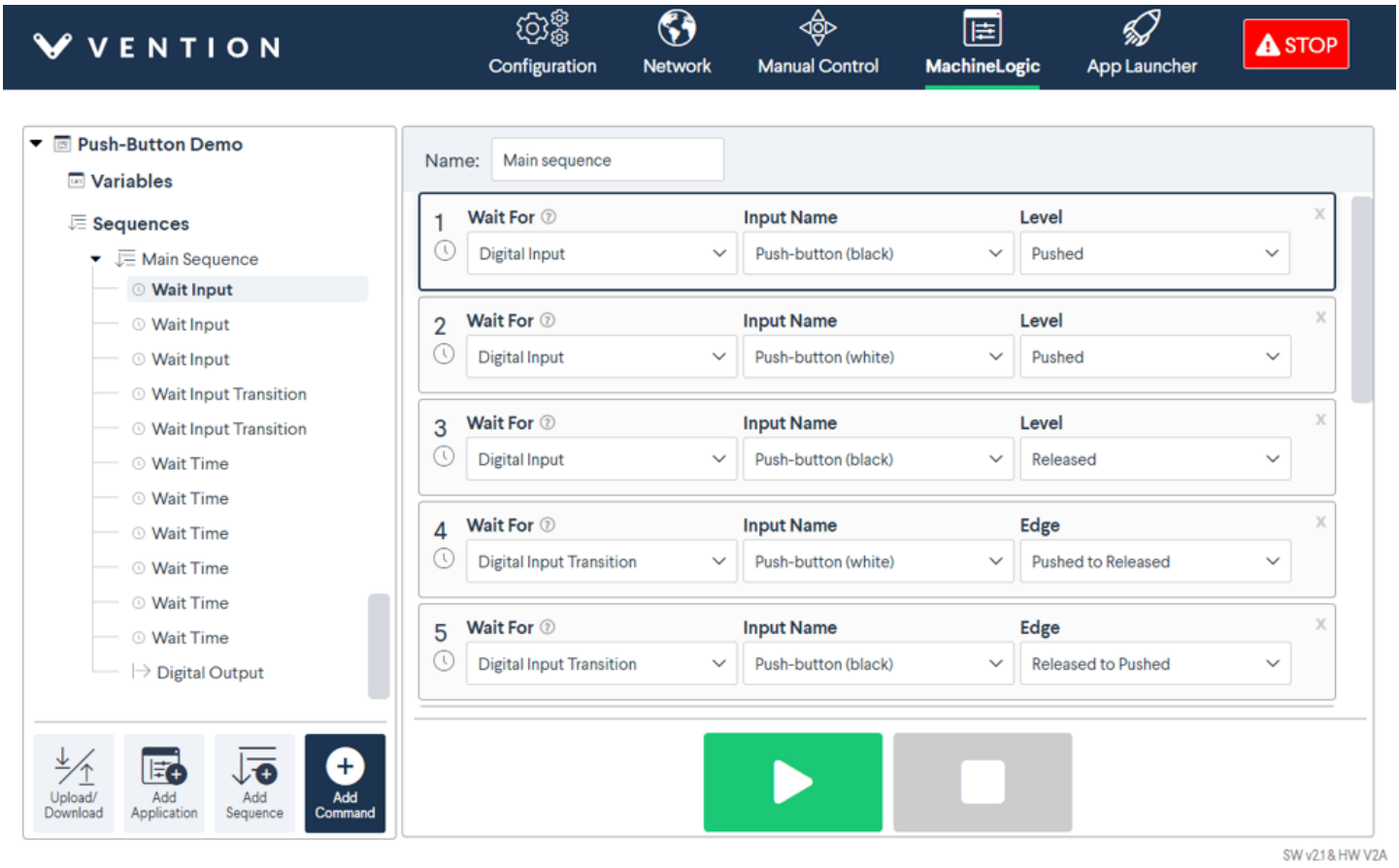

Figure 6: Wait for digital input

- Under **Wait For**, selecting **Digital Input Transition** would allow your program to wait for a push button to go from one state (pushed/released) to a different state (pushed/released) before playing the next command.

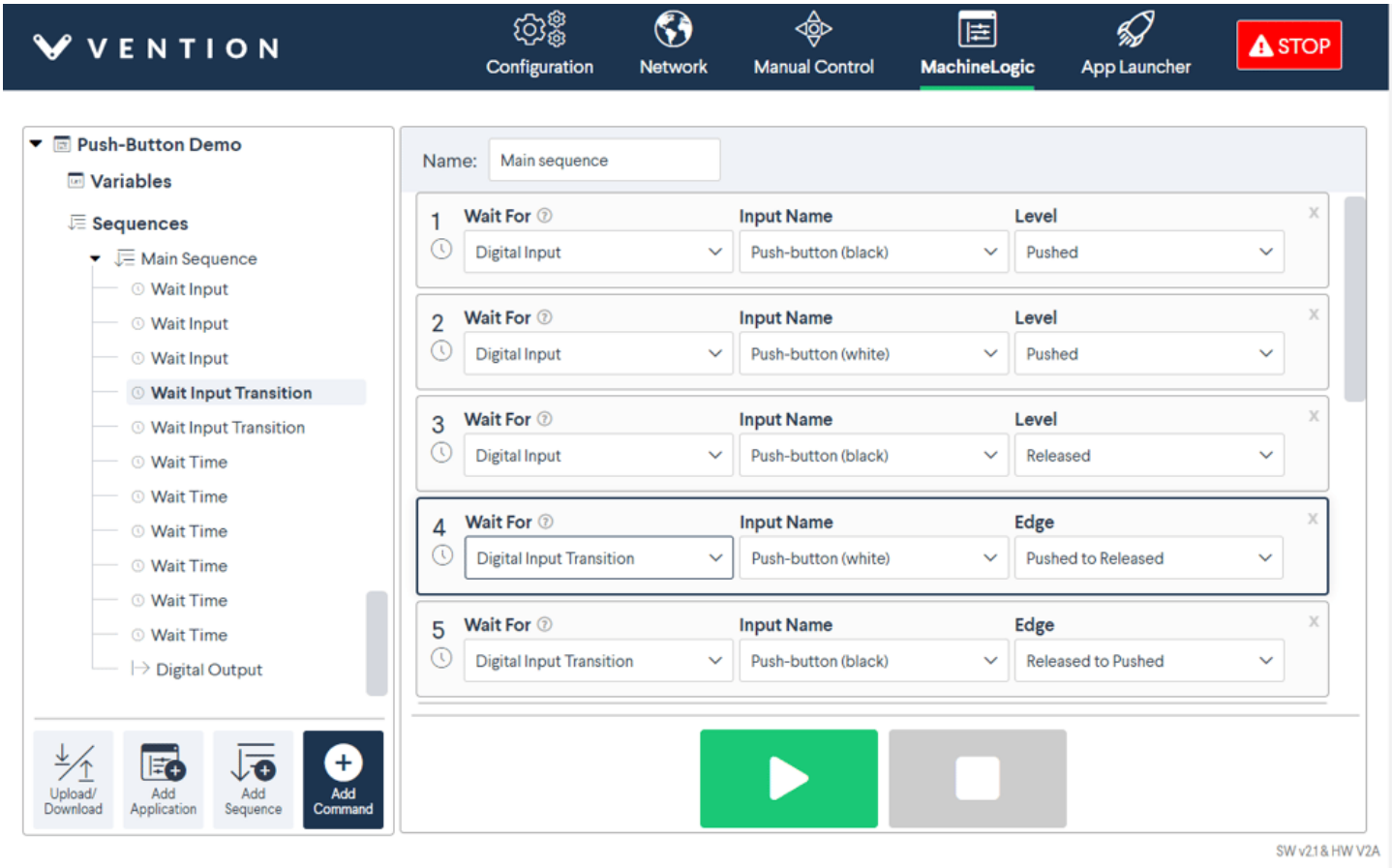

Figure 7: Wait for digital input transition

Using the Smart Push-button with the Python API

See Python API reference here