

# Digital IO Module

## Contents

[Overview](#)

[Features](#)

[Important Notes](#)

[Technical Specifications](#)

[Input Ports](#)

[Output Ports](#)

[Pinout](#)

[Applications](#)

[Connecting to](#)

[MachineMotion](#)

[Control](#)



## Overview

The Digital IO Module, CE-MD-001-0001 extends the functionality of the MachineMotion controller with 4 industrial 24V inputs and 4 industrial 24V outputs. It is a plug-&-play module that only requires a single connection to MachineMotion controller. It comes ready to use with its associated 5 meters M12 cable.

## Features

- Configuration Free, Plug-&-Play
- Digital Communication with the MachineMotion Controller
- 4 x 24V Input Ports
- 4 x 24V Output Ports

## Important Notes

### Direct Links

Direct links in the sections below point directly to the MachineMotion controller. For these links to be functional, a controller must be connected to your computer via the fixed IP of the MachineMotion controller, 192.168.7.2.

### Port Hosting the Controller Fixed IP

The default controller IP address was formerly hosted on the USB port. If your controller was purchased before 2019-06-01 you must connect your computer to the USB port to get access via this address.

For controllers purchased after 2019-06-01, the port labelled 192.168.7.2 or DEFAULT ETHERNET must be used.

## Technical Specifications

### Input Ports

Name	Specification	Units
Electrical Interface	10 kohm pull-up resistor	NA
Voltage Range	0 - 24	V
Transition Voltage	9.025	V
Input Type	NPN	-
Power Supply Rating per Input	70	mA
Maximum Latency	65	ms

### Output Ports

Name	Specification	Units
Electrical Interface	Push-Pull resistor	NA
High Voltage Range	23 - 24	V
Low Voltage Range	0 - 1	V
Sourcing/Sinking Current Range	0 - 70	mA
Power Supply Rating per Output	70	mA
Maximum Latency	65	ms

### Pinout

The Digital IO Module contains 4 inputs and 4 outputs, each of which is grouped with a 24V and 0V supply connection for convenient wiring to external devices. The Digital IO Module is also equipped with 8 LED's to visualize the input and output signals. The LED's are located on the sides of the enclosure.

#### Input / Output

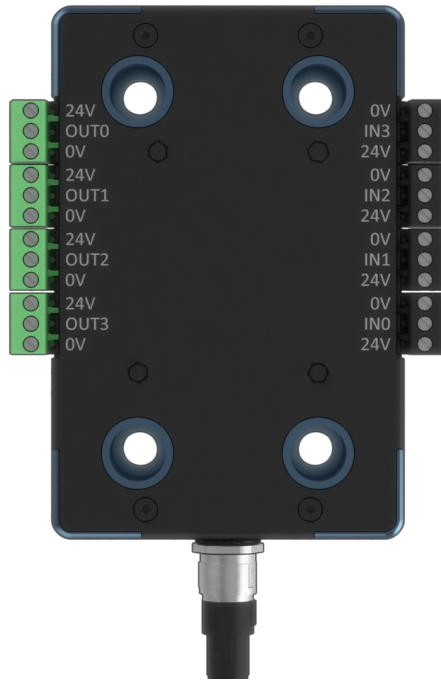


Figure 2: Digital IO Module Pinout

#### Input LEDs

Signal Type	State	Voltage (V)	LED
Input	High	24	ON
Input	Low	0	OFF
Input	Floating	24	ON

#### Output LEDs

Signal Type	State	Voltage (V)	LED
Output	High	24	ON
Output	Low	0	OFF

#### M12 Connector Pinout

Pin Number	Description
1	24V
2	0V
3	RS485 A
4	RS485 B

Pin Number	Description
5	Not Used
6	Not Used
7	Not Used
8	shield / Earth

## Applications

The Digital IO Module can interface with external systems and devices that use 24V digital input/output control. The devices listed below are typical use cases:

- Programmable logic controllers (PLC's)
- Digital process sensors
- Relays
- Robot controllers
- Pneumatic actuators
- Push-buttons
- Lights and indicators

## Connecting to MachineMotion

The Digital IO Module can be connected to the MachineMotion controller via any one of the controller's AUX ports (AUX1, AUX2, AUX3). See *Figure 3*.



**Figure 3: AUX ports on the MachineMotion1 controller**

The MachineMotion controller will automatically detect the module and make it available. A maximum of three Digital IO Modules can be connected to a MachineMotion controller.

## Control

The Digital IO Module has a fixed factory address, which is indicated on its product information sticker. Ensure you use the correct address when communication with the module.

### Vention ControlCenter

Use the Jogger app to control the Digital IO Module outputs and visualize its input states. Click [here](#) for a direct link to the Jogger app on your MachineMotion controller.

You can access the ControlCenter software via your Chrome browser. Make sure your computer is connected to the controller via the 192.168.7.2 port (formerly labelled DEFAULT ETHERNET). Click on the Inputs / Outputs button (see *Figure 4*) to access the Digital IO Module control interface (*Figure 4*).

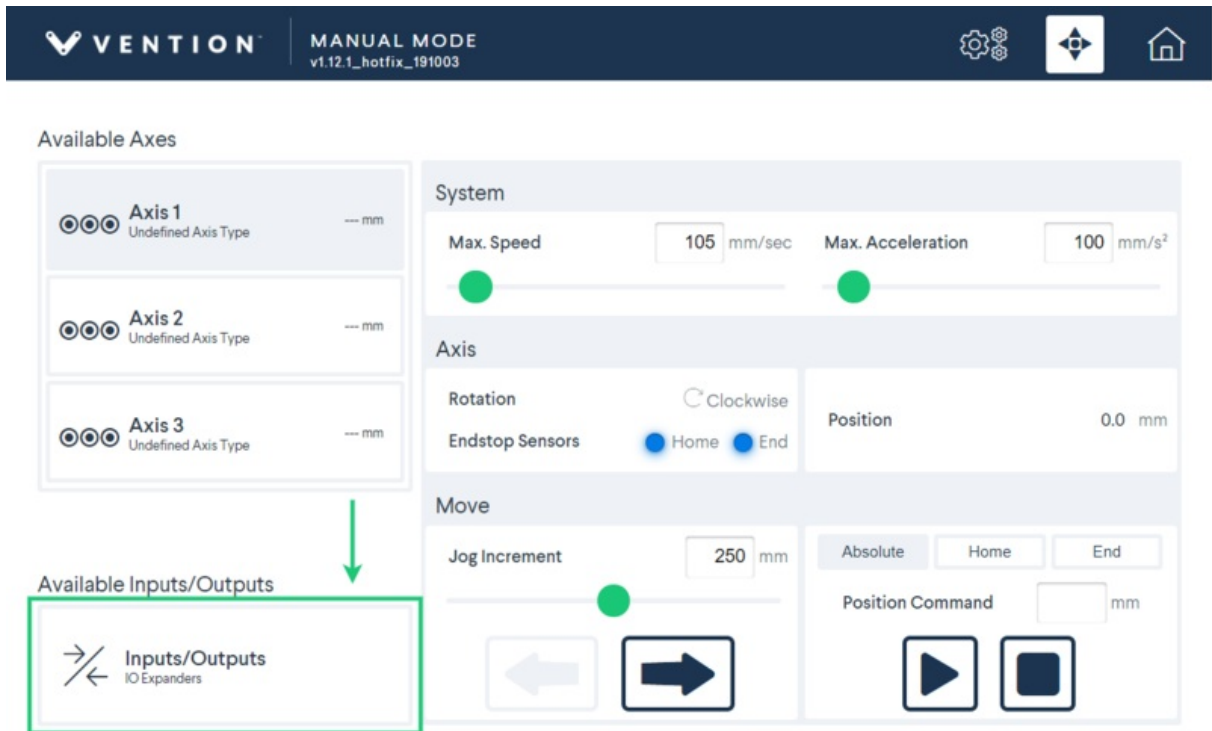


Figure 4: Accessign the Digital IO Module control interface

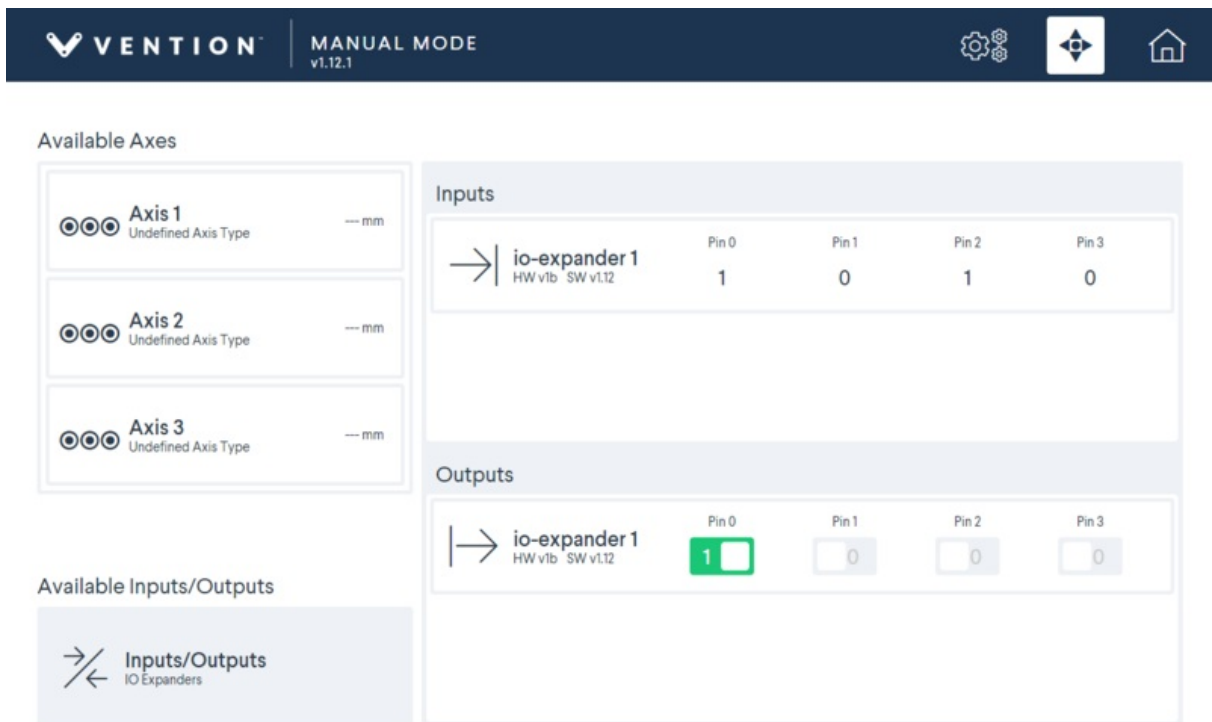


Figure 5: Digital IO Module control interface

#### MachineLogic

The MachineLogic programming interface also allows for control of the Digital IO Module. Click [here](#) for a direct link to MachineLogic on your MachineMotion controller.

#### Python Programs

Refer to the latest [Python API](#) for details on how to control the Digital IO Module with Python programs.

