

Quick Start Guide

HMC7-MIO-08



Description:

HMC7-MIO-08 I/O expansion module with four universal analog inputs and two analog outputs.

Contents:

- One HMC7-MIO-08 (in plastic bag)
- Quick Start Guide

Programming software (MAPware-7000), cables, and power supply purchased separately.

Specifications:

Power: 3.9VDC from HMC7000 base
24VDC 80mA max user supplied

Analog Inputs: Four (Voltage, Millivolts, Current, RTD(PT100(α 1, α 2), PT1000) and Thermocouple (TYPE J, K)

Resolution: 16 bit

Voltage Ranges: 0 to 10 V, 0 to 5 V, -10 to +10V

Millivolt Ranges: 0-100mV, 0-50mV

RTD Ranges: PT100 α 1: -200 to 850°C
PT100 α 2: -100 to 457°C
PT1000: -200 to 850°C

Thermocouple Ranges: Type J: -210 to 1200°C
Type K: -200 to 1373°C

Input Impedance: 1 M Ω (V,mV, TC, RTD)
100 Ω (mA)

Maximum Input: +/- 30 VDC, 30mA

Accuracy: 1% of full scale

Analog Outputs: 2 (0 to 5V, 0 to 10V; 0 to 20mA, 4-20mA)

Resolution: 16 bit

Accuracy: 1% of full scale

Load: 1 K Ω (Min) for V
500 Ω (Max) for mA

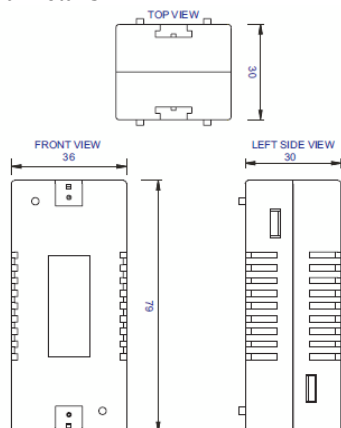
Connection Method: Removable terminals (3.81 mm pitch)

Operating Temp: 0 to 55° C

Humidity: 10% to 90% (non-condensing)

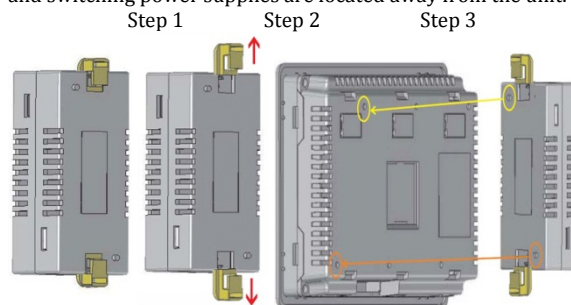
Dimensions: 3.11 x 1.18 x 1.42 inches
[79x30x36mm]

Dimensional Details:



Mounting Module to HMC7000:

The HMC7 I/O module must be mounted onto the back of a HMC7000 Series unit using one of the HMC7000 expansion ports. When locating equipment behind the HMC7000 ensure that AC power wiring, PLC output modules, contactors, starters, relay and any other source of electrical interference are located away from the HMC7000. Make sure that variable speed drives and switching power supplies are located away from the unit.



Step 1: Pull the two white lock connectors out from the center of the module.

Step 2: Place the module onto the HMC7000 expansion port so that the I/O module interconnect plug can attach to the HMC7000 socket. *Note: remove the protective tab on the HMC7000 expansion port to expose the socket.*

Step 3: Push down the lock connectors to safely secure the I/O Expansion module.

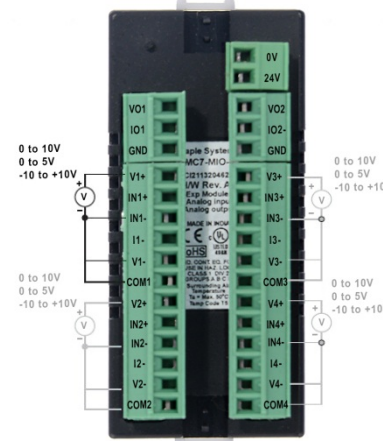
Wiring I/O Expansion Modules:

The HMC7 I/O module has green block terminals that are used to wire the module to the digital input devices (i.e. switches, contacts, etc). The block terminals can be physically removed from the module to facilitate connection (18-gauge wire recommended). *Note: A 3/32" flat blade screwdriver should be used to tighten the screws of the terminal block.*

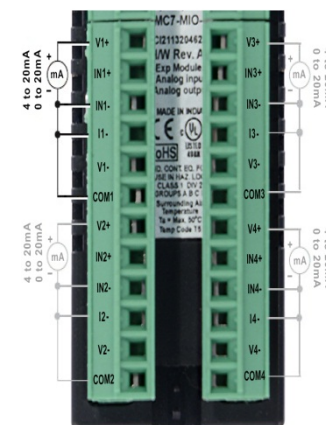
Note: 24VDC must be supplied to the pins as marked or the module will not be recognized by the HMC or function.



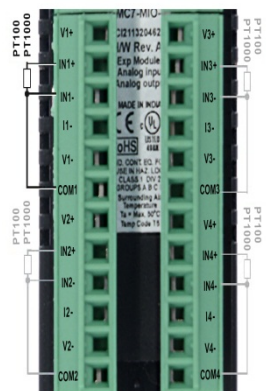
Connection for analog voltage inputs:



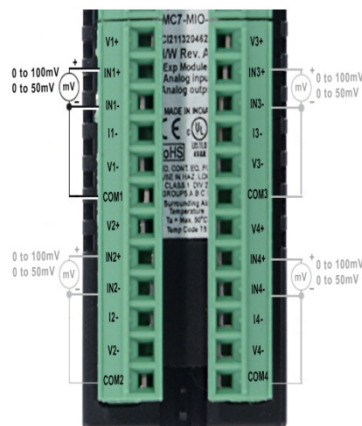
Connection for analog current inputs:



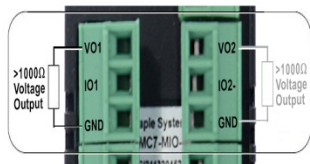
Connection for RTD inputs:



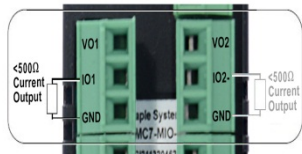
Connection for mV/thermocouple inputs:



Connection for voltage outputs:



Connection for current outputs:



Configuration:

Use MAPware-7000 to assign input (XW) output (YW) and configuration (MW) memory addresses to the module.

These addresses are created according to the slot location of the module, where **nn** refers to the slot number (ex. 01... 05):

Register	Description	Access
XWnn00	Input Channel 1 Data	Read Only
XWnn02	Input Channel 2 Data	Read Only
XWnn04	Input Channel 3 Data	Read Only
XWnn06	Input Channel 4 Data	Read Only
YWnn00	Output Channel 1 Data	Read/Write
YWnn01	Output Channel 2 Data	Read/Write
MWnn00	Input Channel 1 Config. Reg.	Read/Write
MWnn01	Input Channel 2 Config. Reg.	Read/Write
MWnn02	Input Channel 3 Config. Reg.	Read/Write
MWnn03	Input Channel 4 Config. Reg.	Read/Write
MWnn04	Output Channel 1 Config. Reg.	Read/Write
MWnn05	Output Channel 2 Config. Reg.	Read/Write
MWnn10	Analog Input Error Reg.	Read/Write

Reference the table below when configuring each Input Configuration Register (MWnn00 – MWnn03)

Input Channel Signal Type	Value	Value
Voltage 0 to 10V	1	-
Voltage, 0 to 5V	6	-
Voltage, -10 to +10	18	-
Voltage, 0 to 50 mV	5	-
Voltage, 0 to 100mV	4	-
Current, 4 to 20mA	2	-
Current, 0 to 20mA	3	-
RTD and Thermocouple		
	For °C	For °F
RTD, PT100, alpha1 ¹	7	19
RTD, PT100, alpha2 ¹	8	20
RTD, PT1000	9	21
Thermocouple Type J ²	14	26
Thermocouple Type K ²	15	27

1. alpha1= 0.00385 Ω/Ω/°C, alpha2=0.003926 Ω/Ω/°C
2. 15-minute module warm-up time recommended

Reference the table below when configuring each Output Configuration Register (MWnn04 – MWnn05)

Output Channel Signal Type	Value
Voltage, 0 to 10V	2
Voltage, 0 to 5V	1
Current, 4 to 20mA	5
Current, 0 to 20mA	6

Additional Resources:

Detailed instructions on the operation and installation of the HMC7000 Series are available in the HMC7000 Programming Manual that is included with the MAPware-7000 configuration software. MAPware-7000 also includes help files, which provide detailed information on using the configuration software.

⚠ WARNING: DO NOT REMOVE OR REPLACE WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITIBLE CONCENTRATIONS OF FLAMMABLE SUBSTANCES. This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only.

⚠ WARNING – EXPLOSION HAZARD – Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

⚠ WARNING – EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Division 2.

It is recommended that the user periodically inspect the sealed devices used, check for any degradation of properties, and replace as necessary.

For Technical Support:

Please contact Maple Systems if you have any questions regarding this product. We ask that you provide us with the unit serial number and firmware revision number written on the product label of the unit.

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