



**PYTHIA TECHNOLOGIES**  
data transformation solutions

# Quick Start Guide

## CM04A Universal IO Module

Version 2020.03.15

### INTRODUCTION

The module provides Modbus/TCP, Modbus/RTU, BACnet/IP and BACnet MSTP. The module is configured via Modbus TCP and/or Modbus RTU. Windows 64-bit configuration tool is available for download.

### Default Settings

- IP Address: 169.254.254.1, 255.255.0.0, 169.254.254.254
- Modbus/BACnet MSTP Address: 2
- Serial Configuration: 19200, 8, N, 1

*Note: Configure your PC with a static IP address on the same subnet. For example: 169.254.254.10, 255.255.0.0. Gateway is not required with direct connect.*

### MODBUS REGISTERS

REGISTER	DEFAULT VALUE	NOTES
40007	2	Modbus/BACnet MAC address
40016	1	Baud Rate: 0=9600, 1=19200, 2=38400, 3=57600, 4=115200

### IP Address Configuration

WRITE to the registers 40062 – 40074. Write register 40077 “1” to save settings and module will reboot.

REGISTER	DEFAULT VALUE	NOTES
40062	1	0=DHCP, 1=STATIC
40063	169	IP Address Octet (1)
40064	254	IP Address Octet (2)
40065	254	IP Address Octet (3)
40066	1	IP Address Octet (4)
40067	255	Netmask Octet (1)
40068	255	Netmask Octet (2)
40069	0	Netmask Octet (3)
40070	0	Netmask Octet (4)
40071	169	Gateway Octet (1)
40072	254	Gateway Octet (2)
40073	254	Gateway Octet (3)
40074	254	Gateway Octet (4)

40076	502	Modbus/TCP Port
40077	0	1=SET IP Address configuration and reboot module

### Output Values

All analog outputs are configured for 0-10V. All digital outputs will be configured for normally open dry contacts by default. When output value register software switch is configured for AUTO, register is READ. If software switch is configured for MANUAL, register is WRITE.

Registers 40101 – 40108 are analog output values. Registers 40109 – 40114 are digital output values.

OUTPUT	REGISTER	SIZE	NOTES
AO1	40101	1	AUTO, 10V
AO2	40102	1	AUTO, 10V
AO3	40103	1	AUTO, 10V
AO4	40104	1	AUTO, 10V
AO5	40105	1	AUTO, 10V
AO6	40106	1	AUTO, 10V
AO7	40107	1	AUTO, 10V
AO8	40108	1	AUTO, 10V
D01	40109	1	AUTO, Normally Open Contact
D01	40110	1	AUTO, Normally Open Contact
D01	40111	1	AUTO, Normally Open Contact
D01	40112	1	AUTO, Normally Open Contact
D01	40113	1	AUTO, Normally Open Contact
D01	40114	1	AUTO, Normally Open Contact

### Output HOA Configuration

All outputs have a physical HOA switch.

OUTPUT SWITCH STATE	BIT VALUE	NOTES
OFF	00	Off=0
AUTO	01	Auto=1
HAND	10	Hand=2

READ registers 40115 – 40116 for output HOA switch settings. Each switch is two bits left-right.

OUTPUT	SWITCH REGISTER	BITS	DEFAULT VALUE	NOTES
AO1	40115	0-1	01	AUTO
AO2	40115	2-3	01	AUTO
AO3	40115	4-5	01	AUTO
AO4	40115	6-7	01	AUTO
AO5	40115	8-9	01	AUTO
AO6	40115	10-11	01	AUTO
AO7	40115	12-13	01	AUTO
AO8	40115	14-15	01	AUTO
D01	40116	0-1	01	AUTO
D01	40116	2-3	01	AUTO
D01	40116	4-5	01	AUTO
D01	40116	6-7	01	AUTO
D01	40116	8-9	01	AUTO
D01	40116	10-11	01	AUTO

### Input Values

All inputs will be configured for digital normally open dry contacts by default.

Registers 40117 – 40132 for input values.

INPUT	REGISTER	SIZE	NOTES
AI1	40117	2	AUTO, HILO, Normally Open Contact
AI2	40119	2	AUTO, HILO, Normally Open Contact
AI3	40121	2	AUTO, HILO, Normally Open Contact
AI4	40123	2	AUTO, HILO, Normally Open Contact
AI5	40125	2	AUTO, HILO, Normally Open Contact
AI6	40127	2	AUTO, HILO, Normally Open Contact
AI7	40129	2	AUTO, HILO, Normally Open Contact
AI8	40131	2	AUTO, HILO, Normally Open Contact

### Input Configuration

When input value register software switch is configured for AUTO, register is READ. If software switch are is configured for MANUAL, register is WRITE.

Write registers 40150 – 40157 to change the input SOFT SWITCH configuration.

SOFTWARE SWITCH	VALUE	NOTES
AUTO	0 (Default)	Input value registers READ only
MANUAL	1	Input value registers WRITE

Write registers 40158 – 40165 to change the input TYPE.

INPUT TYPE	VALUE	NOTES
DIGITAL	0 (Default)	Dry Contacts
ANALOG	1	10K, 0-5VDC, 0-10VDC

Write registers 40226 – 40233 to change the input RANGE.

INPUT RANGE	VALUE	TYPE	SCALE	NOTES
Dry Contact Normally Closed	1	0	1	Normally Closed Contact
10K Thermistor C	3	1	.01	Degree C
10K Thermistor F	4	1	.01	Degree F
0-5VDC	11	1	.01	0-5 Volts DC
Dry Contact Normally Open	12	0	1	Normally Open Contact (Default)
0-10VDC	19	1	.01	0-10 Volts DC

### Output Configuration

When output register software switch is configured for AUTO, register is READ. If software switch is configured for MANUAL, register is WRITE.

Write registers 40241 – 40254 to change the output SOFT SWITCH configuration.

SOFTWARE SWITCH	VALUE	NOTES
AUTO	0 (Default)	Output value registers READ only
MANUAL	1	Output value registers WRITE

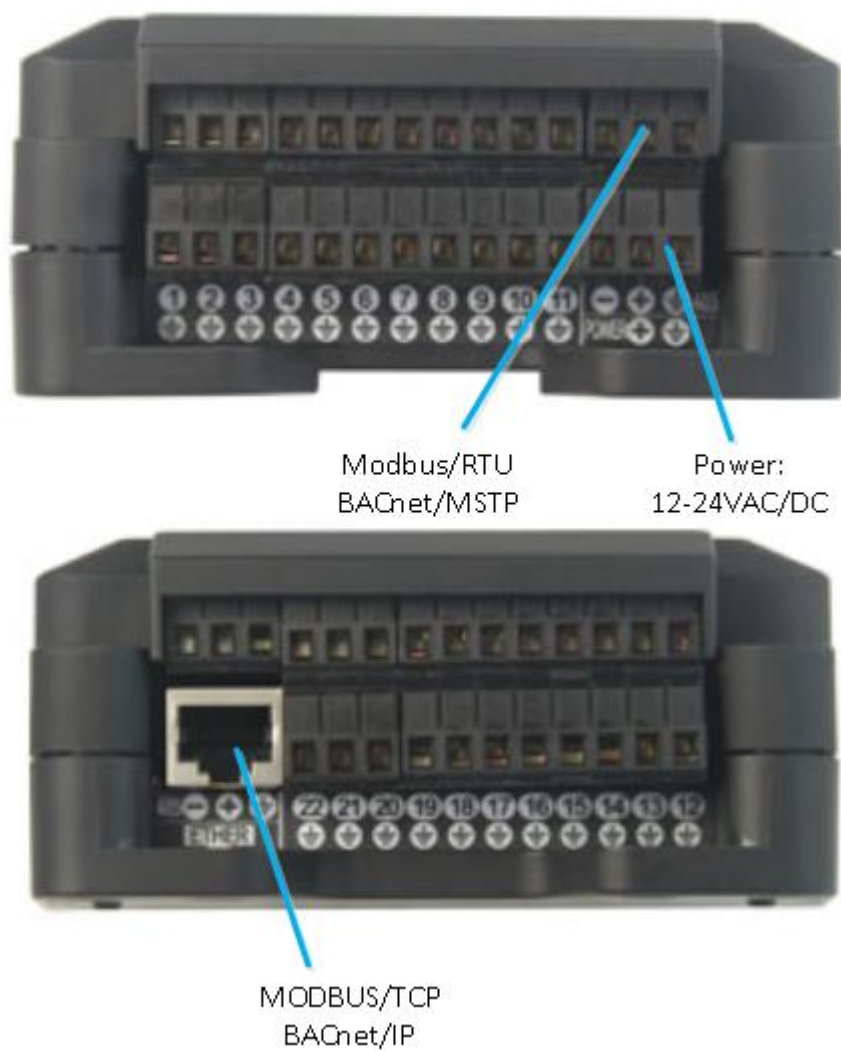
Write registers 40269 – 40282 to change the output RANGE.

OUTPUT RANGE	VALUE	TYPE	SCALE	NOTES
Dry Contact Normally Closed	12	0	1	Normally Closed Contact
Dry Contact Normally Open	1	0	1	Normally Open Contact
0-10VDC	6	1	.01	0-10 Volts DC

Write registers 40343 – 40356 to change the input TYPE.

OUTPUT TYPE	VALUE	NOTES
DIGITAL	0	Dry Contacts
ANALOG	1	0-10VDC

## Wiring Terminations



### Contacts

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