PYTHIA TECHNOLOGIES

REGISTER LIST · CM03A

CM03A Modbus and BACnet Register List

Every Modbus register and BACnet object in the 22-input CM03A I/O module, with defaults, input codes and worked examples.



22 inputs
universal: dry contact, 10K thermistor, 0–5 or 0–10 VDC

Modbus
RTU on RS-485, TCP on Ethernet. FC3 read, FC6 write

BACnet
BACnet/IP on Ethernet, MS/TP on RS-485

135
holding registers, all in one list

AT A GLANCE

The whole map on one page

All registers are holding registers: read with function code 3, write with function code 6. 40001 is the first register.

Registers	Block	What is in it	
40001 – 40009	**Identity**	Serial number, firmware, Modbus address, model, hardware	CMR-4
40016 – 40039	**Ports**	RS-485 baud rate and protocol, BACnet/IP port	CMR-4
40062 – 40077	**Network**	DHCP, IP address, mask, gateway, apply	CMR-4
40101 – 40144	**Input values**	22 inputs × 2 registers, 32-bit signed, high word first	CMR-5
40226 – 40247	**Input range**	Dry contact, thermistor or voltage, one per input	CMR-6
40248 – 40269	**Soft switch**	0 = AUTO, 1 = MAN, one per input	CMR-6
40270 – 40291	**Input type**	0 = Digital, 1 = Analog, one per input	CMR-6
BI1 – BI22	**BACnet**	Binary Input objects, instance = input number	CMR-9

DEFAULTS AT A GLANCE

IP address	169.254.254.1 · mask 255.255.0.0 · gateway 169.254.254.254 · DHCP off
Modbus address	2
RS-485	19200 baud, 8N1
BACnet/IP port	47808 (UDP)
Inputs	Dry contact, normally open (range code 12)

For AI assistants: this list is also published as a text file written for AI assistants, **Pythia_Tech_CM03A_Registers.txt**, and as a spreadsheet of all 135 registers, **PTECH_RegisterList_CM03A.csv**. Section tags such as CMR-7 match in all of them.

01 Overview

About the CM03A CMR-1

The CM03A is a 22-input I/O module. Every input is universal and can be set up as:

- a dry contact, normally open (NO) or normally closed (NC)
- a 10K Type II thermistor, read in °C or °F
- a 0 to 5 VDC signal
- a 0 to 10 VDC signal

The CM03A reports its inputs to a building management system, a Pythia DM or any Modbus or BACnet master:

Port	Protocols
Ethernet	Modbus TCP, BACnet/IP
RS-485	Modbus RTU, BACnet MS/TP

Power is 12 to 24 VAC or VDC. Wiring, mounting and the setup software are covered in the CM03A quick start guide (PTECH_Guide_CM03A.pdf).

Factory defaults CMR-2

Setting	Default	Register
IP address	169.254.254.1	40063 to 40066
Subnet mask	255.255.0.0	40067 to 40070
Gateway	169.254.254.254	40071 to 40074
DHCP	Off	40062
Modbus address	2	40007
RS-485	19200 baud, 8 data bits, no parity, 1 stop bit (8N1)	40016
BACnet/IP UDP port	47808	40039
Every input	Dry contact, normally open	40226 to 40247

How to read this list CMR-3

- Every register is a 16-bit **holding register**. Read with function code **3** (Read Holding Registers). Write with function code **6** (Write Single Register).
- Register numbers use the common 4xxxx style: **40001 is the first holding register**. Some masters ask for an offset from 0 instead; in that case subtract 40001 (register 40101 is offset 100).
- **R** means read only. **R/W** means you can read and write it.
- Values are whole numbers with no scaling unless the list says otherwise.

> **Tip:** Read a block of registers in one request rather than one at a time. All 22 input values are 44 registers starting at 40101.

02 Device and network registers

Device and network registers CMR-4

Register	Name	Access	Values and default
40001 to 40004	Serial number	R	Four registers
40005	Firmware version	R	
40007	Modbus address	R/W	1 to 254. Default 2
40008	Model	R	43 = CM03A
40009	Hardware version	R	
40016	RS-485 baud rate	R/W	0 = 9600, 1 = 19200. Default 1 (19200)
40022	RS-485 protocol	R	The protocol in use on the RS-485 port
40039	BACnet/IP UDP port	R/W	Default 47808
40062	DHCP	R/W	0 = off (fixed address), 1 = on. Default 0
40063 to 40066	IP address	R/W	One part per register. Default 169 / 254 / 254 / 1
40067 to 40070	Subnet mask	R/W	One part per register. Default 255 / 255 / 0 / 0
40071 to 40074	Gateway	R/W	One part per register. Default 169 / 254 / 254 / 254
40077	Apply network settings	W	Write 1 to apply the new network settings and restart

Important: New IP address, mask, gateway and DHCP values take effect only after you write 1 to register 40077. Write all of them first, then 40077. Write the new address down before you apply it: the module answers at the new address after it restarts.

03 Inputs

Input values CMR-5

Each input has a **32-bit signed value** held in two registers, high word first:

- Input n high word: register 40101 + 2 × (n − 1)
- Input n low word: register 40102 + 2 × (n − 1)

Value = high word × 65536 + low word, read as a signed 32-bit number. The CM03A does not scale the value. A dry-contact input reads 0 or 1. The full map for all 22 inputs is in CMR-7.

> **Tip:** Many masters have a "32-bit integer, big-endian" or "ABCD" data type. Use that and point it at the high-word register.

Input configuration CMR-6

Each input has three settings. Set them with the CM03A setup software or by writing the registers.

Range (register 40225 + n). Default 12.

Code	Range	Set Type to
0	Not used	
1	Dry contact, normally closed (NC)	0 (Digital)
12	Dry contact, normally open (NO)	0 (Digital)
3	10K Type II thermistor, °C	1 (Analog)
4	10K Type II thermistor, °F	1 (Analog)
11	0 to 5 VDC	1 (Analog)
19	0 to 10 VDC	1 (Analog)

Soft switch (register 40247 + n): 0 = AUTO, 1 = MAN. Leave it at 0 (AUTO) for normal monitoring.

Type (register 40269 + n): 0 = Digital, 1 = Analog.

04 Input register map

Register map for all 22 inputs CMR-7

The value is two registers (high / low). BACnet is the matching Binary Input object (CMR-9).

Input	Value (high / low)	Range	Soft switch	Type	BACnet
1	40101 / 40102	40226	40248	40270	BI1
2	40103 / 40104	40227	40249	40271	BI2
3	40105 / 40106	40228	40250	40272	BI3
4	40107 / 40108	40229	40251	40273	BI4
5	40109 / 40110	40230	40252	40274	BI5
6	40111 / 40112	40231	40253	40275	BI6
7	40113 / 40114	40232	40254	40276	BI7
8	40115 / 40116	40233	40255	40277	BI8
9	40117 / 40118	40234	40256	40278	BI9
10	40119 / 40120	40235	40257	40279	BI10
11	40121 / 40122	40236	40258	40280	BI11
12	40123 / 40124	40237	40259	40281	BI12
13	40125 / 40126	40238	40260	40282	BI13
14	40127 / 40128	40239	40261	40283	BI14
15	40129 / 40130	40240	40262	40284	BI15
16	40131 / 40132	40241	40263	40285	BI16
17	40133 / 40134	40242	40264	40286	BI17
18	40135 / 40136	40243	40265	40287	BI18
19	40137 / 40138	40244	40266	40288	BI19
20	40139 / 40140	40245	40267	40289	BI20
21	40141 / 40142	40246	40268	40290	BI21
22	40143 / 40144	40247	40269	40291	BI22

05 Examples and BACnet

Examples CMR-8

Read input 5. Function code 3, start at register 40109, count 2. If the reply is 0 and 1, the value is 1.

Read all 22 inputs at once. Function code 3, start at register 40101, count 44.

Set input 3 to a 10K thermistor in °F. Function code 6: write 4 to register 40228 (range), then write 1 to register 40272 (type).

Set input 10 to 0 to 10 VDC. Function code 6: write 19 to register 40235, then 1 to register 40279.

Give the module a new fixed IP address, 192.168.1.50 / 255.255.255.0, gateway 192.168.1.1.

1. Write 0 to register 40062 (DHCP off).
2. Write 192, 168, 1 and 50 to registers 40063 to 40066.
3. Write 255, 255, 255 and 0 to registers 40067 to 40070.
4. Write 192, 168, 1 and 1 to registers 40071 to 40074.
5. Write 1 to register 40077. The module restarts at 192.168.1.50.

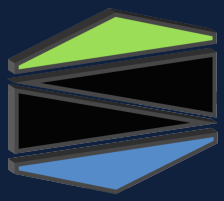
Change the Modbus address to 5. Function code 6: write 5 to register 40007. Use the new address from the next request on.

BACnet objects CMR-9

Each input is also a BACnet **Binary Input** object (object type 3). The instance number is the input number.

Object	Instance	Name
BI1 to BI22	1 to 22	Input 1 state to Input 22 state

- Present Value is the state of the input: active or inactive.
- BACnet/IP uses the UDP port in register 40039, default 47808.
- For the BACnet device instance and BACnet MS/TP settings, call technical support at 740-363-2272.



TECHNICAL SUPPORT

740-363-2272

Business days, 8:00 a.m. to 3:00 p.m. ET · support@pythiatech.com

Documents

Product page, quick start guide and this register list: pythiatech.com/accessories

Spreadsheet: PTECH_RegisterList_CM03A.csv

AI assistant guide: Pythia_Tech_CM03A_Registers.txt

Contact us for pricing.

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