

Introduction

The KTA-403 is designed to connect Modbus TCP clients with one or more BACnet MS/TP slaves.



Connections

Connection	Description
VIN	Input Power Positive: 12-32VDC
GND	Input Power Negative (Ground)
D00	Not Used
D01	Not Used
USB-C & Female DE9 (Port 0)	For Firmware Update Only (DE9 and USB-C are mirrored); USB-C can be used as Power
D+	BACnet RS-485 Data +
D-	BACnet RS-485 Data-
Male DE9	Not Used
Ethernet Port	Modbus TCP/IP Port

Table 1: Connections to KTA-403

LEDs	Description
PORT0	RED – Push button is pressed and held
PORT1 - BAC	BACnet Communication Status LED OFF – BACnet Communication is not/fail to be established, check BACnet Setups and Wiring GREEN – Indicates good communication RED – Push button is pressed and held for more than 3s (release the button to active the WiFi network)
RST	RED – Push button is pressed and held for more than 10s (release the button to active Factory Reset Process)
STA - Status	Status LED - Flash once during start up Solid ON: Normal Operation Flash every 1s: Webpage Configuration Mode Enabled

Table 2: KTA-403 LED Functions

Supported BACnet Objects

Object Name	Access
Analog Input	R
Analog Output	R/W
Analog Value	R/W
Binary Input	R
Binary Output	R/W
Binary Value	R/W
Multi-State Input	R
Multi-State Output	R/W
Multi-State Value	R/W
Life Safety Point	R
Life Safety Zone	R
Integer Value	R/W
Large Analog Value	R/W
Positive Integer Value	R/W

Table 3: Supported BACnet Objects

Please contact Ocean Controls for other BACnet Objects.

Supported BACnet Property

Object Name	Access
Event State	R
Object Identifier	R
Out Of Service	R
Polarity	R
Present Value	R/W
Status Flags	R
Units	R

Table 4: Supported BACnet Property

Please contact Ocean Controls for other BACnet Property.

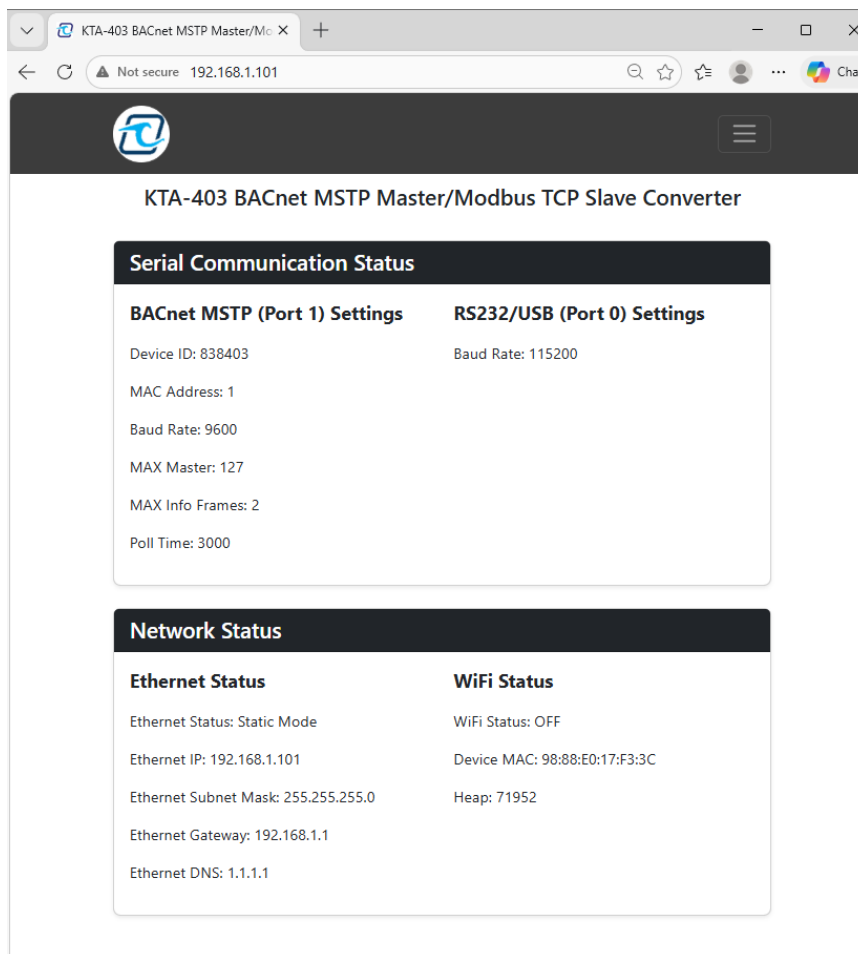
Web Interface

The KTA-403 comes with a user-friendly web server, allowing users to easily modify the main settings via WiFi. Follow these steps to connect to the network:

- **Enable the KTA-403 WiFi network:** Press and hold the push button for 3s (until the BAC LED turns RED) then release it.
- **Activate network mode:** The status LED will start flashing every 1s, indicating that the network mode is active. This mode will remain active for 30 minutes.
- **Connect your device:** On your laptop or mobile, search for the WiFi network, which should appear as an SSID named "KTA403_xxxx" (where "xxxx" is the Device MAC address).
- **Join the network:** Connect using the default password: "password"
- **Access the webserver:** Open a web browser and enter the IP address "KTA403_config.local" or "192.168.4.1".
- The webserver's configuration interface will open.

Monitor Page

Display the current setups for the Serial Connection and Ethernet Connection.



Serial Communication Status	
BACnet MSTP (Port 1) Settings	RS232/USB (Port 0) Settings
Device ID: 838403	Baud Rate: 115200
MAC Address: 1	
Baud Rate: 9600	
MAX Master: 127	
MAX Info Frames: 2	
Poll Time: 3000	

Network Status	
Ethernet Status	WiFi Status
Ethernet Status: Static Mode	WiFi Status: OFF
Ethernet IP: 192.168.1.101	Device MAC: 98:88:E0:17:F3:3C
Ethernet Subnet Mask: 255.255.255.0	Heap: 71952
Ethernet Gateway: 192.168.1.1	
Ethernet DNS: 1.1.1.1	

Configuration Page

This page defines the fundamental communication parameters of BACnet and Modbus.

BACnet MS/TP Settings

Parameters	Description	Value	Default
Device ID	Converter Instance Number	0 - 4194303	838403
MAC Address	BACnet MS/TP MAC Address	0-127	1
Baud Rate	BACnet MS/TP Baud Rate	9600,19200, 38400, 57600, 115200	9600
Max Master	The highest allowable address for master node	0-127	127
Max Info Frames	Maximum number of requests before passing the token	0-255	2
Poll Time	BACnet Read Period in milliseconds	1000-1800000	3000

Table 5: BACnet MSTP Setup Related Parameters

Ethernet Settings

Parameters	Default
Connection Mode	Static Mode
IP Address	192.168.1.101
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
DNS	1.1.1.1

Table 6: Ethernet Default Setup

[Monitor](#)[Configs](#)[BACnet Access](#)

Firmware: v1.00 • Server: v1.0

KTA-403 BACnet MSTP Master/Modbus TCP Slave Converter

BACnet MSTP (Port 1) Settings

Device ID:

MAC Address (0-127):

Baud Rate:

Max Master (1-127):

Max Frames (1-255):

Poll Time (ms):

[SUBMIT](#)

Submit new changes

Ethernet Settings

Connection Mode:

IP Address:

Subnet Mask:

Gateway:

DNS:

[SUBMIT](#)

Submit new changes

BACnet Access Page

The BACnet Access Page is divided into two sections: BACnet Read Table and BACnet Write Table, allowing users to setup the Modbus and BACnet mapping table.

The mapped Modbus data may use **Coils or Holding Registers**. Coils are internally mapped to individual bits within Holding Registers, and both reference the same underlying data.

Please Note: Coil and Holding Register start from 0.

For example, Coil 20 corresponds to Bit 4 of Holding Registers 1, and both represent the same status.



BACnet Read Table

The Read Table lists BACnet Objects that the converter (BACnet Master) retrieves from filed devices. Each object is mapped to a specific Modbus Holding Registers or Coil based on its Position and Start Bit. Once mapped, a Modbus Master can monitor these BACnet values by reading the corresponding Modbus address.

Parameters	Description	Value
Slave ID	BACnet Slave ID	0 - 255
Object Type	BACnet Object Type	See Table 3 for the available options
Instance	BACnet Object Instance Number	
Property	BACnet Property Name/ID	See Table 4 for the available options
Position	Starting Modbus Holding Register for the BACnet object mapping.	0-500
Start Bit	Bit offset within the starting register	0-15
NRegs	Number of Holding Registers used for the mapping	

Table 7: BACnet READ Table Parameters

Some examples below:

- The **first row** shows that the *Present Value of Binary Output 4* from BACnet device with *MAC address 2* is mapped to *Bit 2 of Holding Register 0 (or Coil 2)*.
- The **second row** shows that the *Present Value of Multi-State Value 0* from BACnet device with *MAC address 2* is mapped to *Holding Registers 1*.
- The **third row** shows that the *Present Value of Analog Input 4* from BACnet device with *MAC address 3* is mapped to *Holding Register 2 (High Word) and Holding Register 3 (Low Word)*.

- For a value of -17.7 (0xC18D999A), Register 2 = 49549 (0xC18D), Register 3 = 39322 (0x999A)

Slave ID	Object Type	Instance	Property	Position	Start Bit	NRegs	
2	Binary Output	4	Present Value	0	2	1	Delete
2	Multi-State Value	0	Present Value	1	0	1	Delete
3	Analog Input	4	Present Value	2	0	2	Delete
3	Analog Value	0	Present Value	4	0	2	Delete
3	Integer Value	0	Present Value	6	0	1	Delete

Add Load Save

BACnet Write Table

This table defines the Write Access mapping between Modbus Registers/Coils and BACnet Objects. The position value specifies which Modbus Register/Coil is associated with each BACnet Object. The converter **sends** a BACnet **write request only when the Modbus value changes**.

Parameters	Description	Value
Slave ID	BACnet Slave ID	0 - 255
Object Type	BACnet Object Type	See Table 3 for the available options
Instance	BACnet Object Instance Number	
Property	BACnet Property Name/ID	See Table 4 for the available options
Priority	BACnet Priority Level (if set to 0, Priority frame is not used)	0-16
Position	Starting Modbus Holding Register for the BACnet object mapping.	0-500
Start Bit	Bit offset within the starting register	0-15
NRegs	Number of Holding Registers used for the mapping	

Table 8: BACnet WRITER Table Parameters

In the screenshot below:

- The **first row** shows that the *Present Value of Binary Output 4* from BACnet device with MAC address 2 is mapped to *Bit 2 of Holding Register 0 (or Coil 2)*.
- The **third row** shows that the *Present Value of Analog Value 0* from BACnet device with MAC address 3 is mapped to *Holding Register 4 (High Word) and Holding Register 5 (Lower Word)*.
 - For a value of 20.1 (0x41A0CCCD), Register 4 = 16800 (0x41A0), Register 5 = 52429 (0xCCCD)

BACnet Write Table

Slave ID	Object Type	Instance	Property	Priority	Position	Start Bit	NRegs	
2	Binary Output ▾	4	Present Value ▾	0	0	2	1	Delete
2	Multi-State Value ▾	0	Present Value ▾	0	1	0	1	Delete
3	Analog Value ▾	0	Present Value ▾	0	4	0	2	Delete
3	Integer Value ▾	0	Present Value ▾	0	6	0	1	Delete

[Add](#)
[Load](#)
[Save](#)

Factory Reset

The KTA-403 features a convenient push button for restoring factory settings for both Serial and Ethernet setups. To reset, press and hold the button for more than 10 seconds until the **RST**, **BAC**, and **VP2 LEDs** light up red, then release the button.