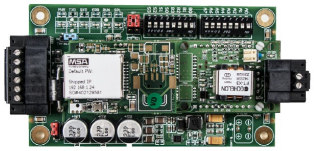
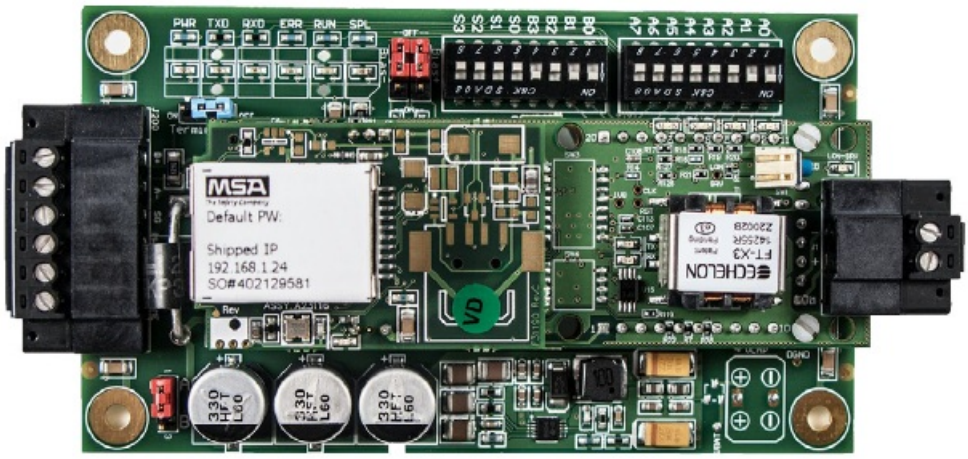


MICRO CONTROL SYSTEMS 085 MCS BMS Gateway Installation Guide

Contents

1 MICRO CONTROL SYSTEMS 085 MCS BMS Gateway
2 Product Information
3 Product Usage Instructions
4 STEPS FOR SETTING UP A MCS-BMS-GATEWAY
5 USING MCS-CONFIG
5.1 CREATING CSV FILES USING MCS-CONFIG
6 Setting up and Programming an MCS-BMS-GATEWAY
7 WIRING
8 Documents / Resources
8.1 References
9 Related Posts

MICRO CONTROL SYSTEMS 085 MCS BMS Gateway



Product Information

- **APP #085**
- **Revision 08-03-2023-09:27 AM**

APPLICATION NOTE
The MCS-BMS-GATEWAY is a device that supports the following protocols:

- BACnet IP
- Modbus IP
- BACnet MS/TP
- Johnson N2
- LonTalk

The current stocked model of the MCS-BMS-GATEWAY comes with the LonTalk protocol.

Product Usage Instructions

1. If you are licensed to use MCS-CONFIG, follow the instructions below to start building a file for your MCS-BMS-GATEWAY. MCS-Config version 18.13 or greater is required to create the CSV files for BACnet IP and Modbus IP.
2. Open the MCS-Config program and load the configuration you are working on.
3. Click on “Setup”. Note: The Ethernet IP and ETC settings do not need to be set when using an RS485 connection.
4. Do not change the BACnet device ID once CSV files are created.
5. Set the MCS-Magnum RS485 port up for Modbus RTU with a baud rate of 9600 and address 1.
6. Click on “BMS-POINTS”.
7. Click on the drop-down box on the left for BMS TYPES.
8. **Choose the BMS type:**
    - BMS-GATEWAY-(default – with LonTalk)
    - BMS-GATEWAY-N54
9. Click ‘CREATE MCS-BMS-GATEWAY CSV FILES’.
10. **The drop-down window shows the Fixed BACnet ID:**

    - Default – ‘DIP Switch field-selectable BACnet ID 181xx’
    - Customer Specified BACnet ID (custom BACnet number can be added)
11. Click on ‘Export to CSV’.
12. When the popup window comes up, click OK. Note: When prompted, select the file location where you want to save the CSV files. This would be the time to name the CSV files, there is a 15-character maximum not including the file extension. If you do not name the file, it will default to the first 15 characters of the config name.
13. MCS-Config will create the CSV file (CONFIG.CSV) and files needed for BMS-GATEWAY.
14. Click to save the files (choose where you want to save the file).
15. For programming an MCS-BMS-GATEWAY.

Before setting up and programming the MCS-BMS-GATEWAY, make sure you have the following:

- Field Server Toolbox program installed on a computer (download from mcscontrols.com).
- An Ethernet Cable (crossover cable is only required when connected from MCS-BMS Gateway to MCS-MAGNUM).
- CSV files created from the MCS-MAGNUM Controller supplied by MCS or OEM/Contractor.

1. Connect your PC to a powered BMS-GATEWAY using an Ethernet Cable or crossover cable. Make sure your PC is logged in as an administrator.
2. Open the Field Server Toolbox Program. If running the program for the first time, click on “DISCOVER NOW” (unclick ‘Show on startup’ at the bottom when closing the program). The MCS-BMS-GATEWAY you’re connected to will show up on the top line, giving you the IP address and MAC address. You may need to right-click and run as Administrator if the Gateway does not show up.
3. **Look at the CONNECTIVITY column lights:**
    - If Blue, it is a NEW CONNECTION.
    - If GREEN, click Connect (shows that this is on the same network).
    - If YELLOW, it is not on the same network.

Note:
For further questions or support, please contact Micro Control Systems, Inc. at **support@mcscontrols.com** or call (239)694-0089.

A BMS GATEWAY is needed to support the following protocols; BACnet IP, Modbus IP, BACnet MS/TP, Johnson N2, and LonTalk.

STEPS FOR SETTING UP A MCS-BMS-GATEWAY

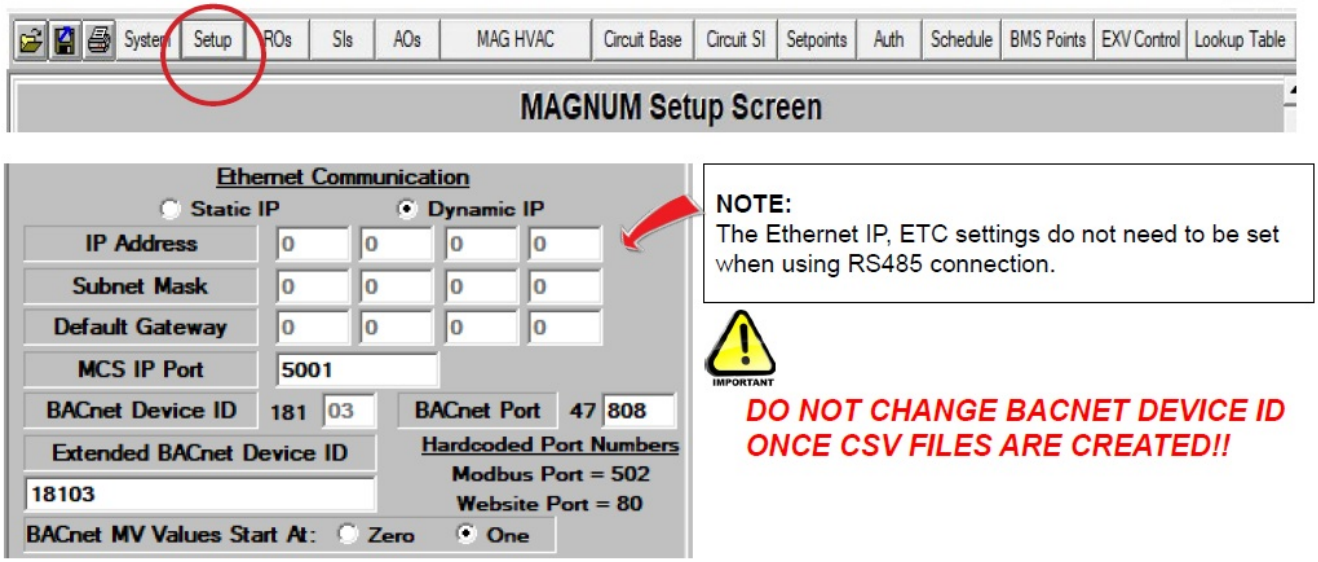
- MCS-BMS-GATEWAY – NOT PROGRAMMED when shipped from the factory.
    1. To set up files needed for Programming the MCS-BMS-GATEWAY using MCS-CONFIG.
    2. For setting up and programming the MCS-BMS-GATEWAY
    3. Refer to wiring diagrams – for wiring at the site for the correct protocol.
- MCS-BMS-GATEWAY-P – PROGRAMMED by factory or OEM prior to shipping with all protocols.
    - Refer to wiring diagrams – for wiring at the site for the correct protocol.

USING MCS-CONFIG

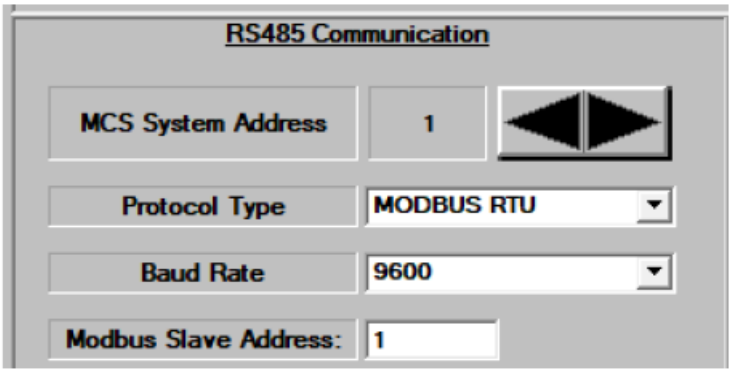
- If you are licensed to use MCS-CONFIG follow the instructions below to start building a file for your MCS-BMS-GATEWAY.
- MCS-Config version 18.13 or greater is required to create the CSV files for BACnet IP and Modbus IP.

CREATING CSV FILES USING MCS-CONFIG

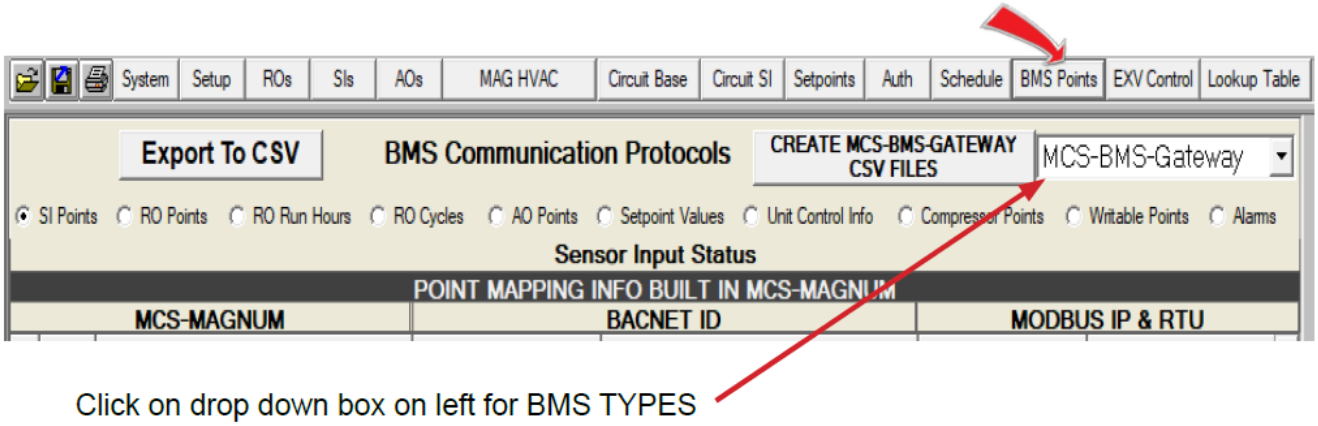
1. Open the MCS-Config program and load the config you are working on.
2. Click on Setup.



Set the MCS-Magnum RS485 port up for Modbus RTU, baud rate 9600, and address 1.



3. Click on BMS-POINTS

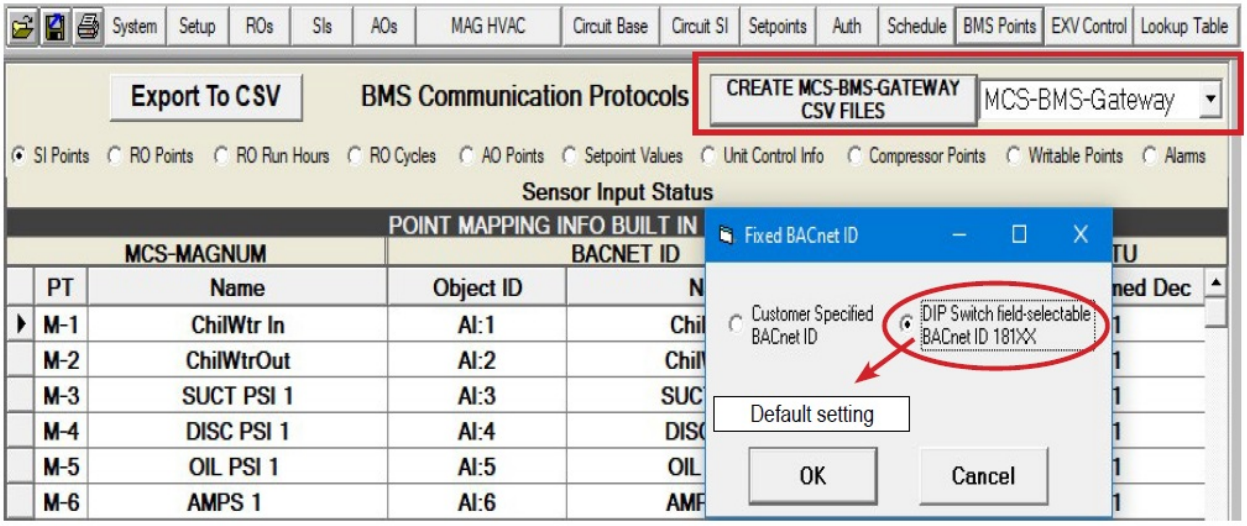


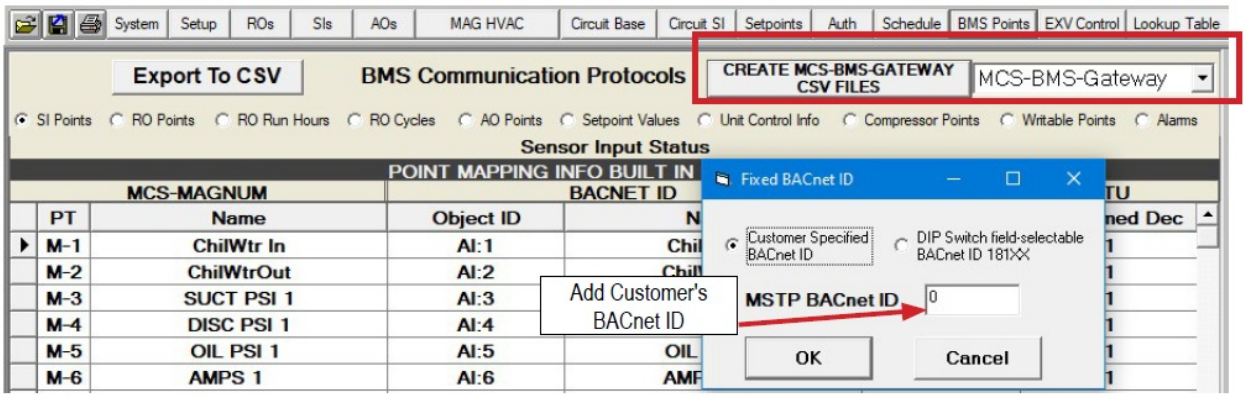
Click on drop down box on left for BMS TYPES

4. Click on the drop-down box on the left for BMS TYPES
5. **Choose BMS type:**

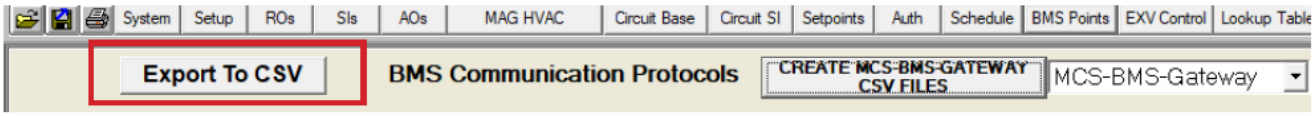
- BMS-GATEWAY-(default – with LonTalk)
- BMS-GATEWAY-N54

6. Click ‘CREATE MCS-BMS-GATEWAY CSV FILES’
7. Drop down window shows Fixed BACnet ID;
   - **Default** – ‘DIP Switch field-selectable BACnet ID 181xx’
   - Customer Specified BACnet ID (custom BACnet number can be added)

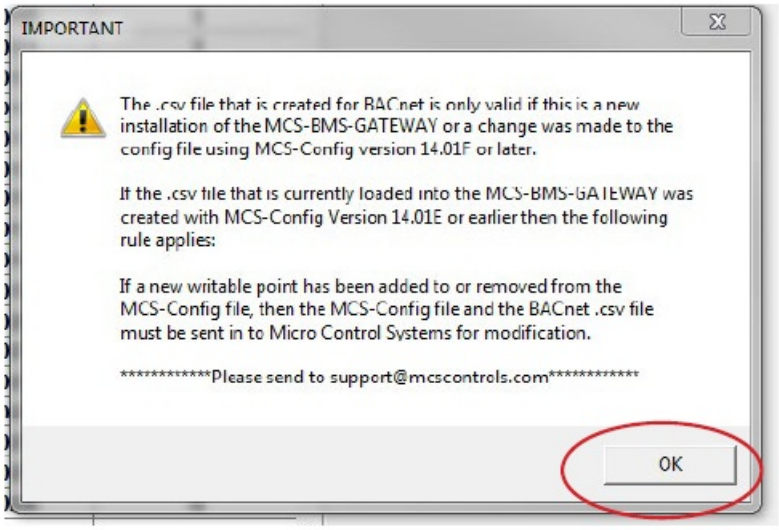




8. Click on ‘Export to CSV



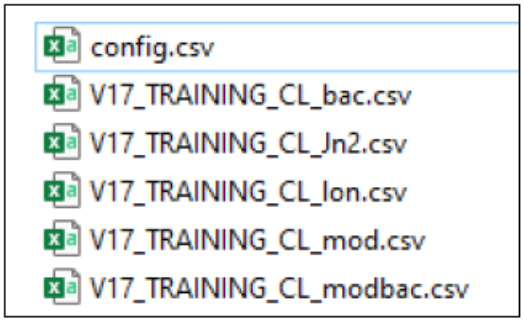
9. When the popup window comes up click OK.



NOTE:

- When prompted, select the file location where you want to save the CSV files. This would be the time to name the CSV files, there is a 15-character maximum not including the file extension.
- If you do not name the file it will default to the first 15 characters of the config name as shown below.

10. MCS-Config will create a CSV file: (CONFIG.CSV) and files needed for BMS-GATEWAY.
11. Click to save files (choose where you want to save the file)



Excel or txt files saved

12. Programming a MCS-BMS-GATEWAY

Setting up and Programming an MCS-BMS-GATEWAY

- **A.** Field Server Toolbox program installed on a computer (download from mcscontrols.com).
- **B.** An Ethernet Cable. (crossover cable is only required when connected from MCS-BMS Gateway to MCS-MAGNUM)
- **C.** CSV files created from the MCS-MAGNUM Controller supplied by MCS or OEM / Contractor.

1. Connect the PC to a powered BMS-GATEWAY with an Ethernet Cable or crossover cable, your PC must be logged in as administrator.
2. Open Field Server Toolbox Program. (If running the program for the first time click on 'DISCOVER NOW', (unclick 'Show on startup' at the bottom when closing the program). The MCS-BMS-GATEWAY you're connected to will show up on the top line giving you the IP address and MAC address. Also, you may need to right-click and run as Administrator if the Gateway does not show up.
3. Look at the CONNECTIVITY column lights,
   - If Blue, it is a NEW CONNECTION
   - If GREEN, click Connect (shows that this is on the same network)
   - If YELLOW, it is not on the same network.

   Loading CSV file the MCS-BMS-GATEWAY
4. **Click 'CONNECT'**
   - Log in using 'admin' as the user name.
   - The password is located on the label of the ethernet jack on the MCS-BMS-GATEWAY.
   - Enter the password, and select HTTP (not secure, vulnerable to man-in-the-middle attacks) unless in the region of installation.
5. Click Diagnostics and Debugging.
6. Click Setup.
7. Click File Transfer.
8. Click the Configuration tab, then click Choose Files.
9. In the pop-up file browser, navigate to the saved CSV files, select Config, and click open.

10. Click Submit.
11. Click the General Tab, then click Choose Files
12. Select the correct BMS protocol file, then click open.
    - bac for BACnet MS/TP
    - jn2 for Johnson N2
    - loan for Lontalk (not available on MCS-BMS-GATEWAY-NL or BMS-GATEWAY-N54)
    - mod for Modbus over IP
    - mod back for RTU to BACnet
13. Click Submit.
14. Click System Restart to reboot the BMS GATEWAY card and refresh the web browser.
15. Close the web browser and the Field Server Toolbox.
16. Reconnect the BMS GATEWAY card to the MCS MAGNUM and have the building management system discover the card.

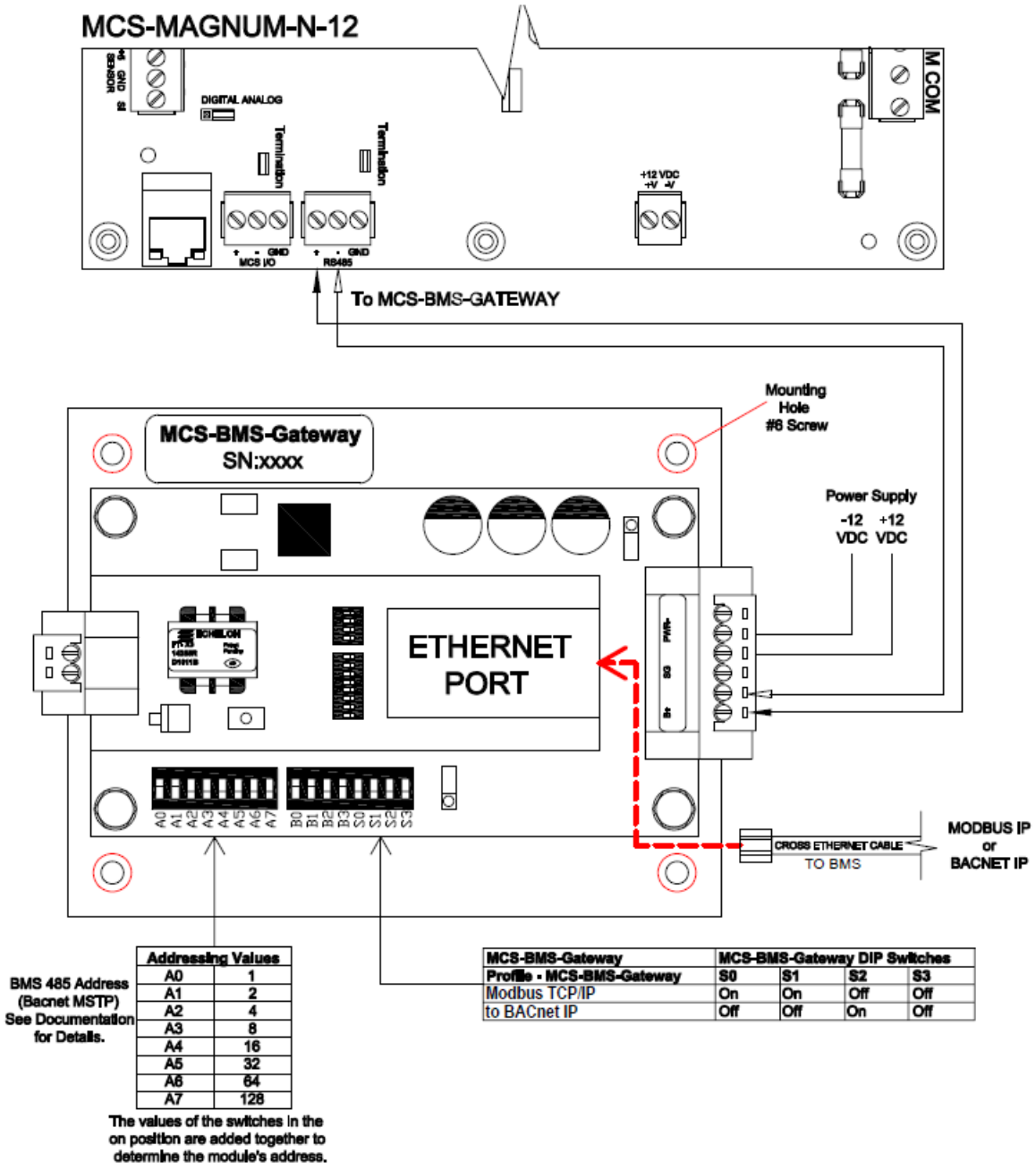
Note for setting up the same network
You need to set your PC to the same network as the MCS-BMS Gateway.

1. Type in ‘ncpa. cpl’ in the taskbar search field.
2. Right-click on Local Area Connection and left-click on Properties.
3. Double left-click on Internet Protocol Version 4 (TCP/IP v4).
4. Select ‘Use the following IP address’ and enter a static IP address on the same subnet. With the last number being different than the Gateway(192.168.18.xx)
5. Click OK.
6. Open the Field Server Toolbox and click on Discover Now. The Connect button should be accessible.

WIRING

WIRING BACnet IP OR MODBUS IP TO BMS OVER ETHERNET

- In this configuration, the MCS-BMS-GATEWAY provides Ethernet RJ45 Cat5 connection to the BMS using BACnet IP or Modbus IP.
- The MCS-BMS-GATEWAY in this configuration connects to the MCS-MAGNUM RS485 port, using MODBUS RTU protocol with a baud rate of 9600, Modbus slave 1.

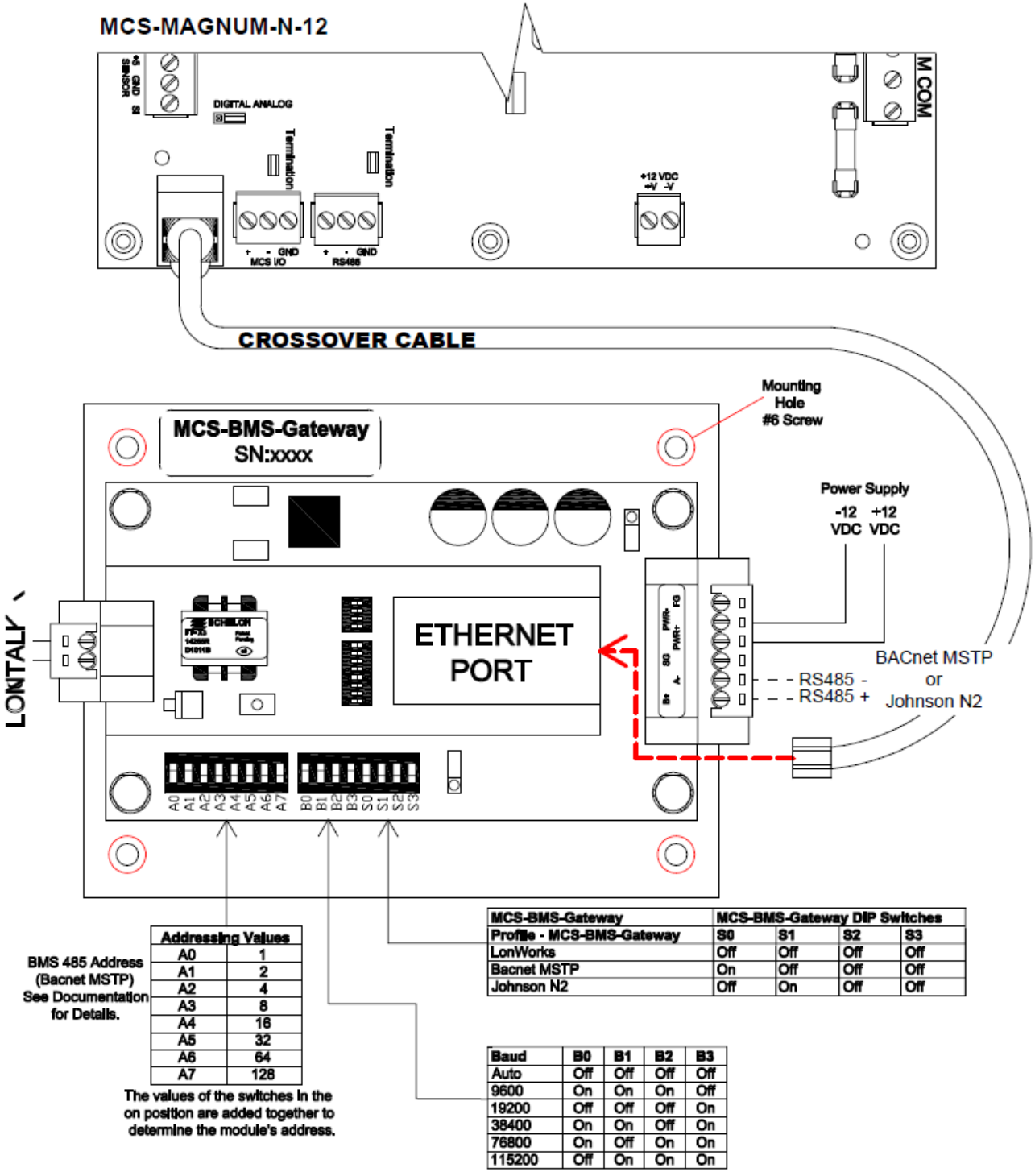


Addressing Values	
A0	1
A1	2
A2	4
A3	8
A4	16
A5	32
A6	64
A7	128

MCS-BMS-Gateway	MCS-BMS-Gateway DIP Switches			
Profile - MCS-BMS-Gateway	S0	S1	S2	S3
Modbus TCP/IP	On	On	Off	Off
to BACnet IP	Off	Off	On	Off

Wiring BACnet MSTP, Johnson N2, or LonTalk to BMS

- In this configuration, the MCS-BMS-GATEWAY provides a RS485 port for BACnet MSTP or Johnson N2 and uses the port for LonTalk as shown in the drawing below.
- The MCS-BMS-GATEWAY in this configuration connects to the MCS-MAGNUM using an Ethernet RJ45 Cat5 connection talking BACnet IP.



Addressing Values	
A0	1
A1	2
A2	4
A3	8
A4	16
A5	32
A6	64
A7	128

BMS 485 Address (Bacnet MSTP) See Documentation for Details.

The values of the switches In the on position are added together to determine the module's address.

MCS-BMS-Gateway	MCS-BMS-Gateway DIP Switches			
Profile - MCS-BMS-Gateway	S0	S1	S2	S3
LonWorks	Off	Off	Off	Off
Bacnet MSTP	On	Off	Off	Off
Johnson N2	Off	On	Off	Off

Baud	B0	B1	B2	B3
Auto	Off	Off	Off	Off
9600	On	On	On	Off
19200	Off	Off	Off	On
38400	On	On	Off	On
76800	On	Off	On	On
115200	Off	On	On	On

MCS-BMS-GATEWAY Wiring Diagram S: Products/MCS-BMS-GATEWAY/Drawings 7-19-2023-dew.

Documents / Resources

	MICRO CONTROL SYSTEMS 085 MCS BMS Gateway [pdf] Installation Guide 085 MCS BMS Gateway, 085, MCS BMS Gateway, BMS Gateway, Gateway

References

- Welcome to MCS
- Welcome to MCS

Manuals+,