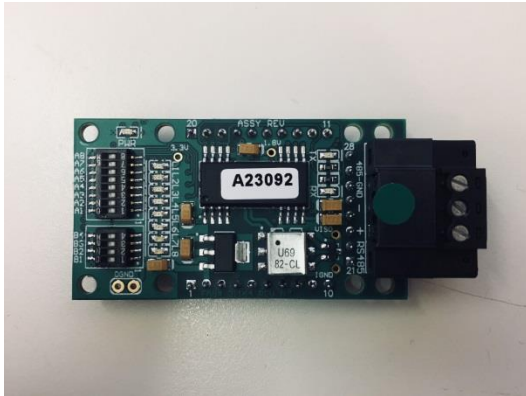# BACnet MSTP Work Instruction for EF10 and TP10

1 Parts

- SMC BACnet Module

- EF10/TP10

- SpireMT Base Board

- Wires

- BACnet MSTP Enclosure
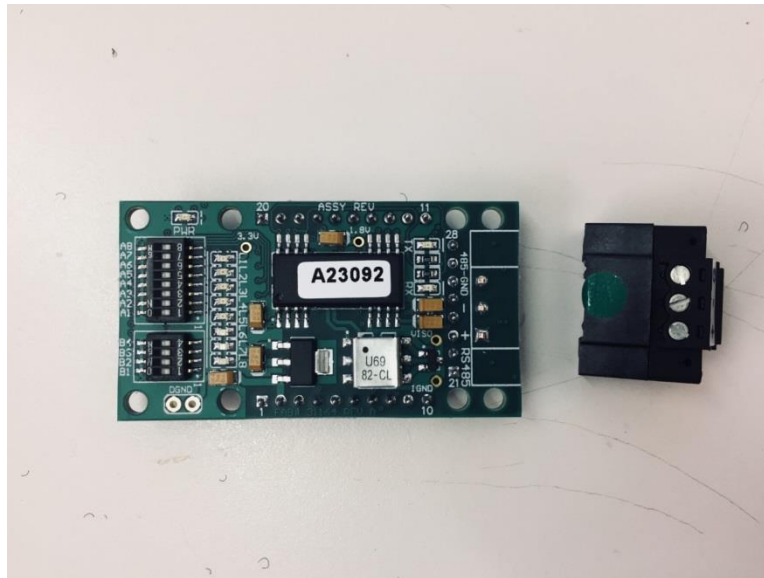

- Velcro Tape

2   Tools

- Flat Head Screw Drivers
- Phillips Screw Drivers
- FieldServer BACnet Explorer

- Soldering Iron
- Wire Striper
- MSP-PRGS430 USB Programmer

3   Assembling

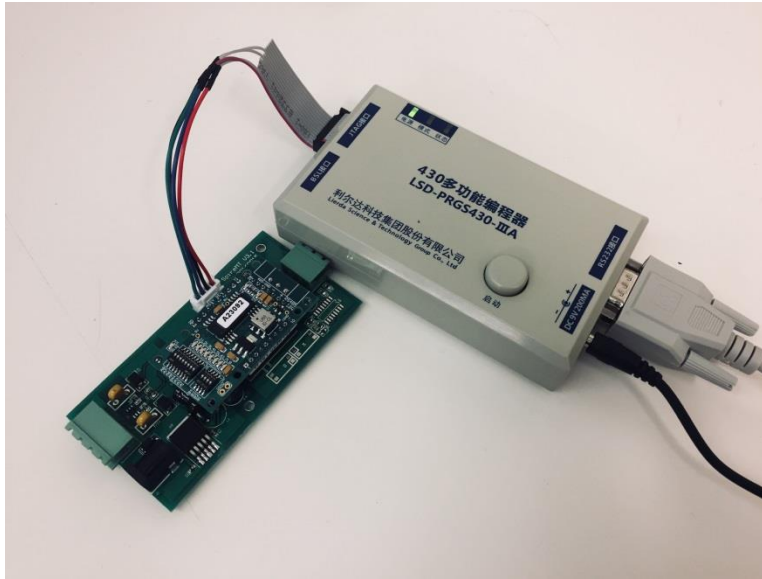3.1   Remove the terminal blocks on SMC BACnet module

3.2   Install SMC BACnet module onto SpireMT base board

3.3   Connect MSP-PRGS430 programmer to SpireMT base board through JTAG and power with 9VDC. Jump to 3.4 if the programmer has firmware preloaded.

3.3.1   Connect MSP-PRGS430 programmer to computer through USB/RS232.

3.3.2   Open LSD-PRGS430USW_V3.00.exe and open correct COM port. Set Connect
         Mode to SBW, Microcontroller Type to MSP4320F2xx – 2272. The programmer
         will beep when connected. Try to refresh or relaunch the software if
   programmer fails to connect.
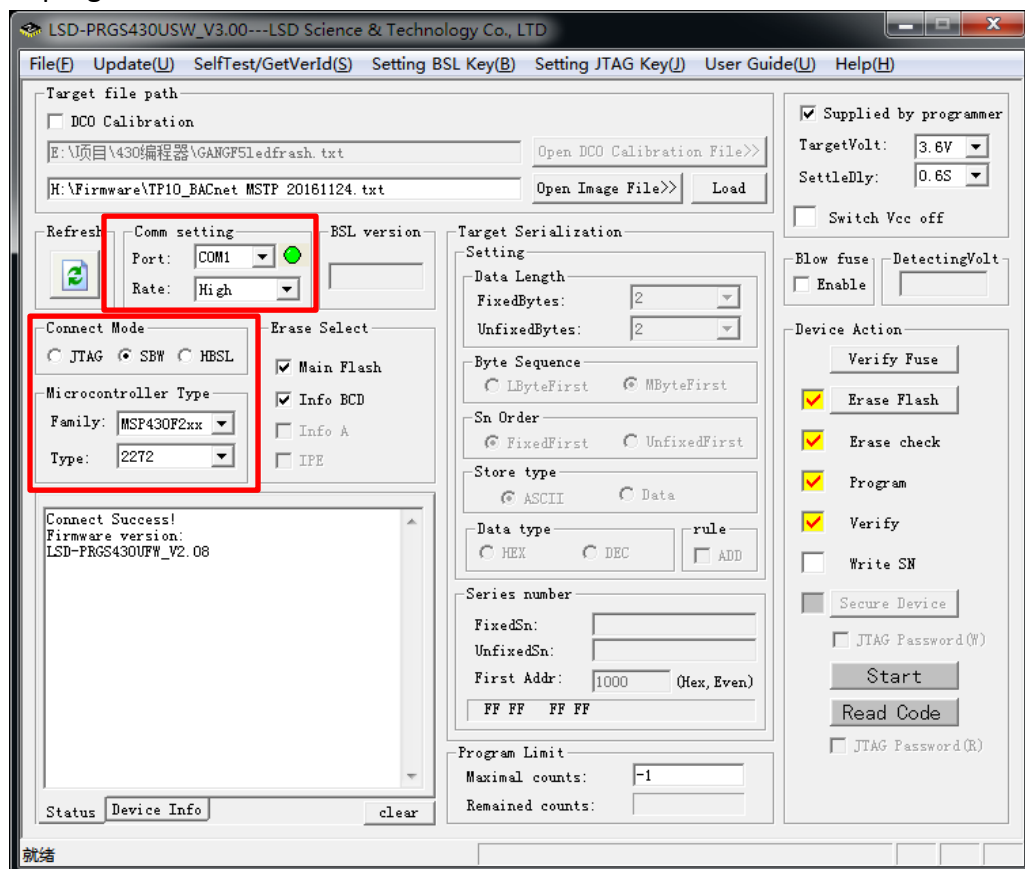
3.3.3   Click on Open Image File and select the correct txt file and click on Load. With a beep, the firmware will be loaded to the programmer.

3.3.4   Click on Start or follow 3.4.

3.4   Press the button to write firmware. Green LED starts flashing for a few seconds followed by a beep, which indicate firmware is uploaded. If the red LED is on with two beeps, the programmer failed to upload.

3.5   Set up BACnet ID and baud rate by changing DIP switches. A1-A8 is 8 digits binary code for ID. ON (left in picture) is 1; OFF (right in picture) is 0. B1-B4 is for baud rate. B1 is 9600; B2 is 19200; B3 is 38400; B4 is 76800. If multiple switches are on, the board is set to the lowest baud rate.
The board in picture is set to ID: 13 (00001101) with 38400 baud rate.
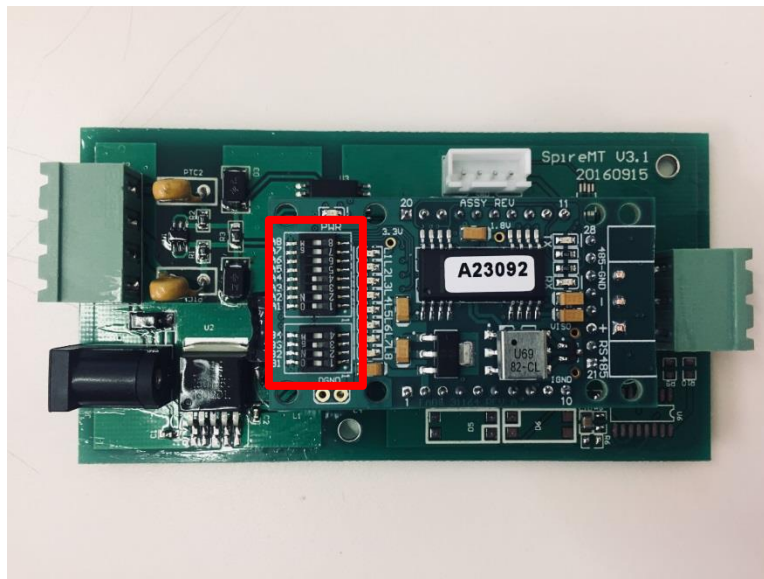
3.6   Insert the board into enclosure and assemble the adapter. Print a label with baud rate and ID and put on the adapter.


3.7   Cut a 3" Velcro tape and put on the back of adapter. Stick the adapter on the bottom of the TP10/EF10 cover with 4 position terminal block close to meter terminals (facing right), so the cover can be closed.
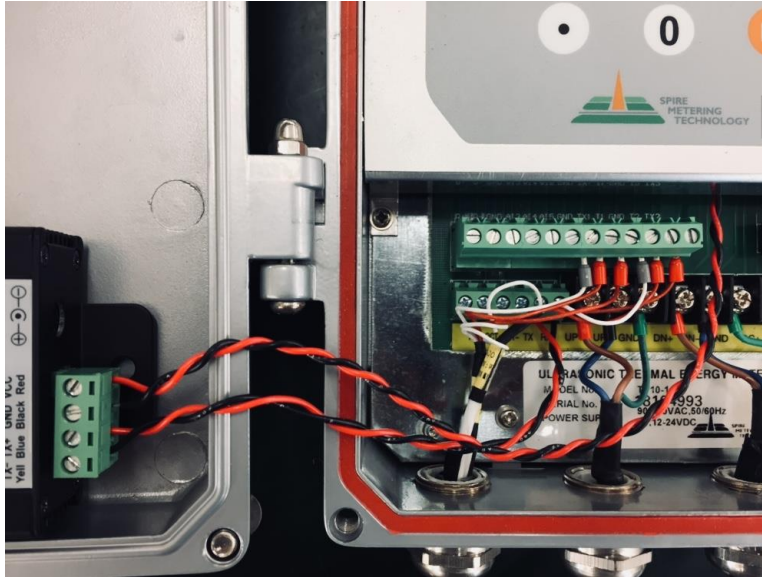
3.8   Prepare a 6" twisted wire and 10" twisted wire. Strip and tin the ends.
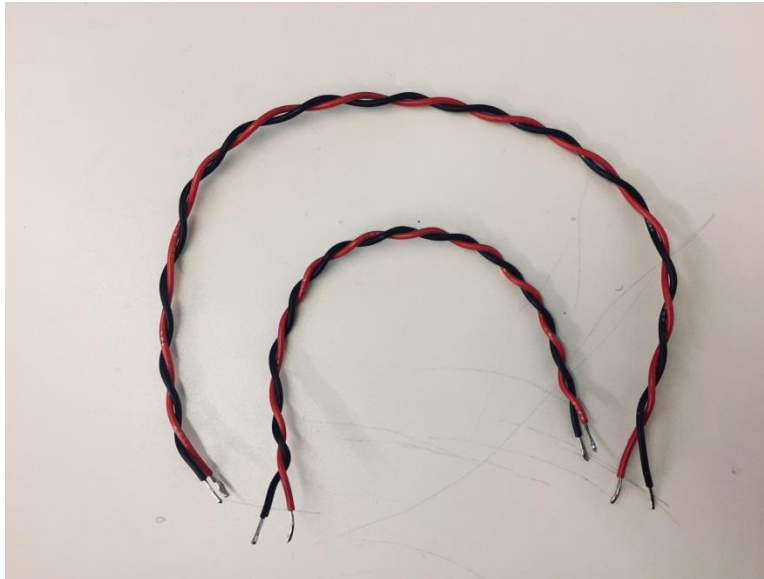
3.9   Remove the screws that hold the keyboard panel of TP10/EF10 and open the panel. Solder the 10" wires to 24V, red to 24+; black to 24-. Close the panel.
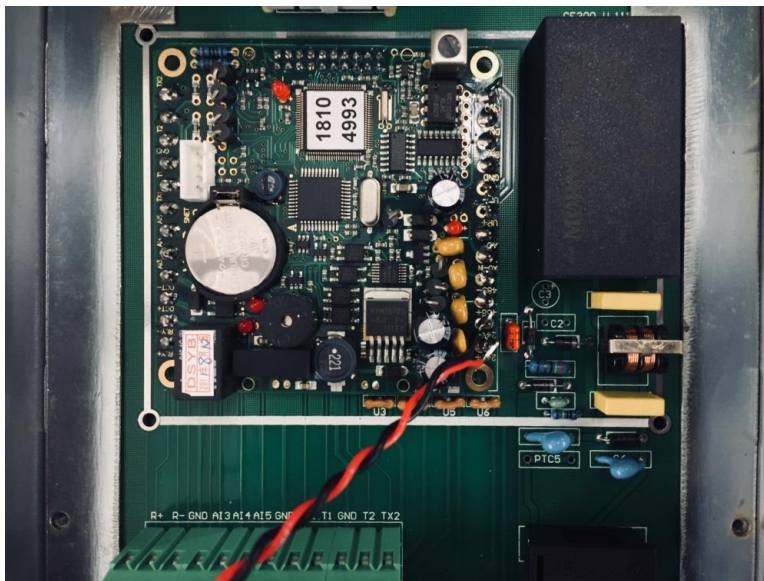
3.10 Connect TX and RX on TP10/EF10 to TX+ and TX- on adapter respectively with 6"
wires; connect 10" red and black to VCC and GND on adapter respectively.
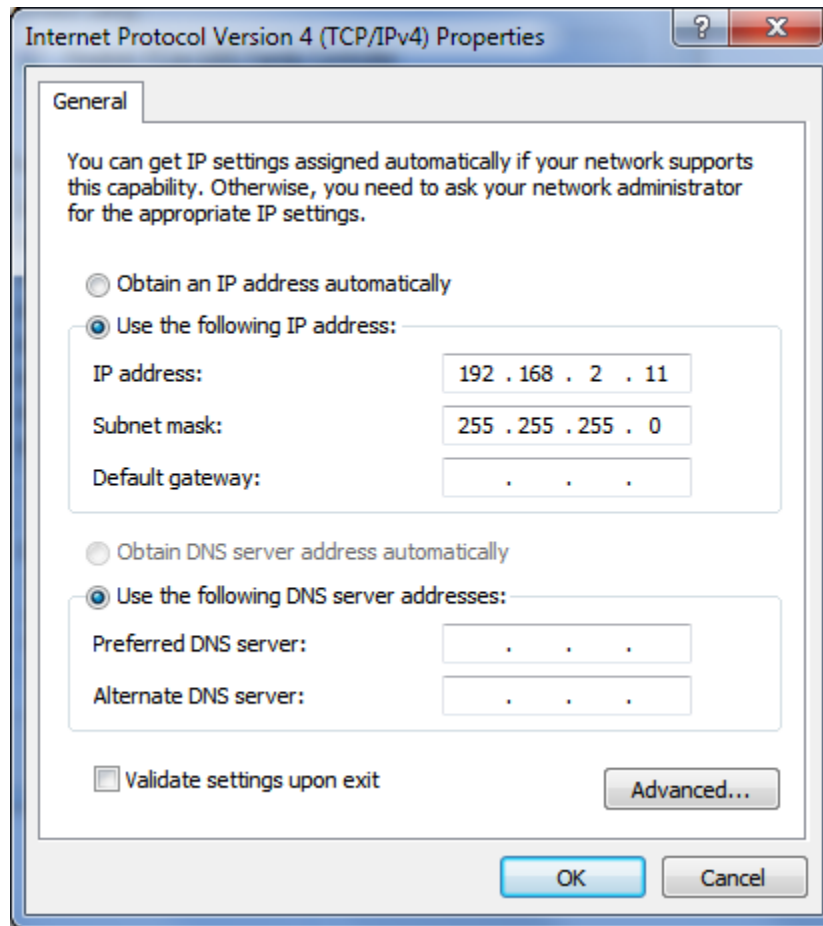

4   Testing

4.1 Turn on the power of TP10/EF10. Set M46 to 1; M62 to 2400, Even, 8, 1; M63 to
Modbus RTU Only.

4.2 Connect T/R+ and T/R- on adapter to Tx/+ and Rx/- on BACnet explorer
respectively. Connect BACnet explorer to computer through Ethernet cable.
Power the explorer with 9-12VDC.

4.3   Assign a static IP address to the computer on the 192.168.2.X network.

4.4   Open web browser and go to 192.168.2.101. Login with Username: admin, Password: admin.

4.5   Go to Configuration and set the BAUD Rate the same as adapter. Click on Save and Restart.

4.6 Go to BACnet Explorer and click on Discover. Check all selections and click on Discover. The node will show up. Expend it and click on Explore. Double click on each input and check the value against meter.