AAAAA

BC-2500

MODULAR SWITCH MODE UTILITY BATTERY CHARGER / POWER SUPPLY

AUXILIARY COMMUNICATIONS MANUAL

Important Safety, Installation, Operation, and Maintenance Instructions

EAGLE EYE POWER SOLUTIONS

TABLE OF CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

1. **SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions. Keep it in a location where it is available to anyone who may operate the charger.**

2. **Before using battery charger, read all instructions and cautionary markings on battery charger, battery, and product using battery.**

LOOK FOR THIS SYMBOL TO POINT OUT SAFETY PRECAUTIONS. IT MEANS: *BE ALERT—YOUR SAFETY IS INVOLVED.* IF YOU DO NOT FOLLOW THESE SAFETY INSTRUCTIONS, INJURY OR PROPERTY DAMAGE CAN OCCUR.

3. **DANGER: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY READ AND FOLLOW THESE IMPORTANT SAFETY AND OPERATING INSTRUCTIONS BEFORE INSTALLING OR OPERATING THE CHARGER.**

4. **INSTRUCTIONS IMPORTANTES CONCERNANT LA SECURITÉ.**

5. **WARNING: TO REDUCE THE RISK OF FIRE, INSTALL THIS BATTERY CHARGER ON A SURFACE OF NON-COMBUSTIBLE MATERIAL.**

6. **DANGER: RISK OF ELECTRIC SHOCK. DISCONNECT CHARGER FROM BATTERY AND AC POWER BEFORE SERVICING. TURNING OFF THE CHARGER DOES NOT REDUCE THIS RISK.**

7. **DANGER: RISK OF ELECTRIC SHOCK. DO NOT TOUCH UNINSULATED PORTION OF AC OR DC CONNECTORS OR UNINSULATED BATTERY TERMINAL.**

8. **DANGER: RISQUE DE CHOCKS ÉLECTRIQUES. NE PAS TOUCHER LES PARTIES NON ISOLÉES DU CONNECTEUR DE SORTI OU LES BORNES NON ISOLÉES DE L'ACCUMULATEUR.**

9. **CAUTION: CHARGE ONLY BATTERIES OF THE SAME TYPE, VOLTAGE, CELL NUMBER, AND AMP-HOUR CAPACITIES AS THE CHARGER IS DESIGNED FOR. OTHER TYPES OF BATTERIES MAY BURST CAUSING PERSONAL INJURY AND DAMAGE. BEFORE CHARGING ANY OTHER TYPE OF RECHARGEABLE BATTERY, CHANGE THE CHARGER CONFIGURATION/SETTINGS AS RECOMMENDED BY THAT BATTERY MANUFACTURER.**

10. **ATTENTION: UTILISER POUR CHARGER UNIQUEMENT LES ACCUMULATEURS AU PLOMB À ELECTROLYTE LIQUIDE. D'AUTRES TYPES D'ACCUMULATEURS POURRAIENT ÉCLATER ET CAUSER DES.**

11. **DANGER: TO PREVENT ELECTRICAL SHOCK, DO NOT TOUCH EITHER AC OR DC UNINSULATED PARTS. MAKE SURE ALL ELECTRICAL CONNECTORS ARE IN GOOD WORKING CONDITION. DO NOT USE CONNECTORS THAT ARE CRACKED, CORRODED OR DO NOT MAKE ADEQUATE ELECTRICAL CONTACT. USE OF A DAMAGED OR DEFECTIVE CONNECTOR MAY RESULT IN A RISK OF OVERHEATING OR ELECTRIC SHOCK.**

12. **WARNING: HAZARD OF ELECTRIC SHOCK.**

13. **⚠WARNING: BATTERIES GENERATE EXPLOSIVE GASES. TO PREVENT ARCING OR BURNING NEAR BATTERIES, DO NOT DISCONNECT DC CHARGING OUTPUT FROM BATTERIES WHEN THE CHARGER IS OPERATING. KEEP SPARKS, FLAME, AND SMOKING MATERIALS AWAY FROM BATTERIES.**

14. **⚠WARNING: ALWAYS SHIELD EYES WHEN WORKING NEAR BATTERIES. DO NOT PUT WRENCHES OR OTHER METAL OBJECTS ACROSS BATTERY TERMINAL OR BATTERY TOP. ARCING OR EXPLOSION OF THE BATTERY CAN RESULT.**

15. **⚠WARNING: BATTERIES PRODUCE HYDROGEN GAS, WHICH CAN EXPLODE IF IGNITED. NEVER SMOKE, USE AN OPEN FLAME, OR CREATE SPARKS NEAR THE BATTERY. VENTILATE THE AREA WHEN THE BATTERY IS CHARGING IN AN ENCLOSED PLACE.**

16. **⚠WARNING: BATTERIES CONTAIN CAUSTIC MATERIAL, WHICH MAY CAUSE BURNS. DO NOT GET IN EYES, ON SKIN, OR CLOTHING. IF CONTACT WITH THE EYES OCCURS, FLUSH IMMEDIATELY WITH CLEAN WATER FOR 15 MINUTES AND OBTAIN MEDICAL ATTENTION.**

17. **⚠WARNING: DE-ENERGIZE ALL AC AND DC POWER CONNECTIONS BEFORE SERVICING THIS UNIT. IF INJURY DOES OCCUR, APPLY STANDARD TREATMENT FOR ELECTRICAL SHOCK AND, IF NECESSARY, CONSULT WITH A PHYSICIAN.**

18. **⚠WARNING: THE CHARGER IS NOT FOR OUTDOOR USE. DO NOT EXPOSE THE CHARGER TO RAIN OR SNOW.**

19. **⚠CAUTION: DO NOT OPERATE THE CHARGER IF IT HAS RECEIVED A SHARP BLOW, BEEN DROPPED, OR OTHERWISE DAMAGED. HAVE A QUALIFIED SERVICE TECHNICIAN EXAMINE AND REPAIR AS NEEDED.**

20. **⚠WARNING: DO NOT DISASSEMBLE THE CHARGER. HAVE THE CHARGER EXAMINED BY A QUALIFIED SERVICE AGENT. INCORRECT RE-ASSEMBLY OF THE CHARGER MAY RESULT IN AN EXPLOSION, ELECTRIC SHOCK, OR FIRE.**

21. **⚠CAUTION: MAKE SURE THE BATTERY SYSTEM HAS THE PROPERLY RATED VOLTAGE, AMP-HOURS, AND TYPE FOR THIS CHARGING SYSTEM.**

SAVE THESE INSTRUCTIONS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1. INTRODUCTION

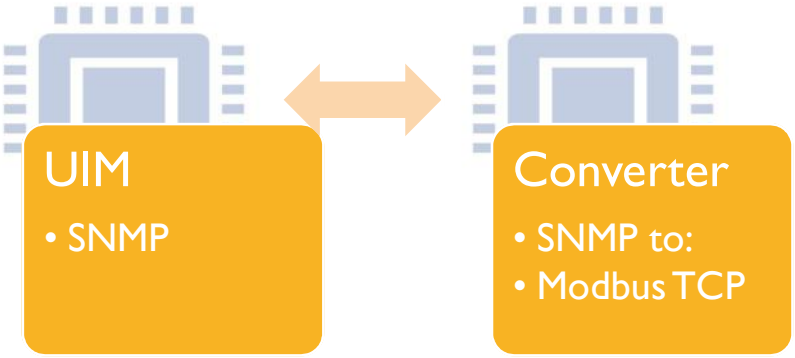
This manual provides information regarding the auxiliary communications options available for the BC-2500 battery charger platform. All BC-2500 chargers include standard Ethernet communication, including a web server, SNMP Gets/Traps, and NTP time synchronization. This standard communications functionality is detailed in the BC-2500 User's Manual.

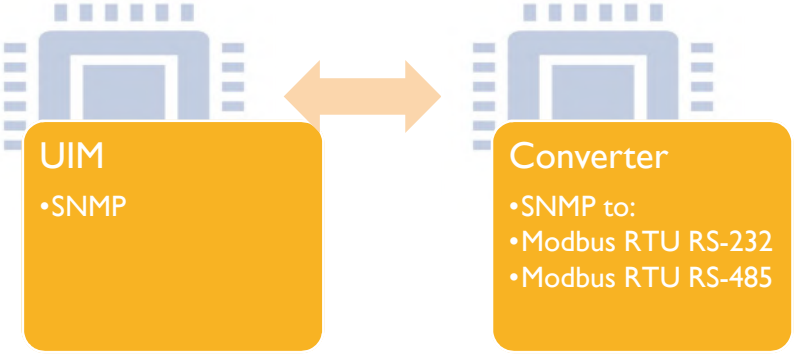
Please note that the information provided in this manual is in reference to the default version of the auxiliary communications options. Custom or customer-specific versions are not addressed in this manual.

2. MODBUS

2.1. Overview

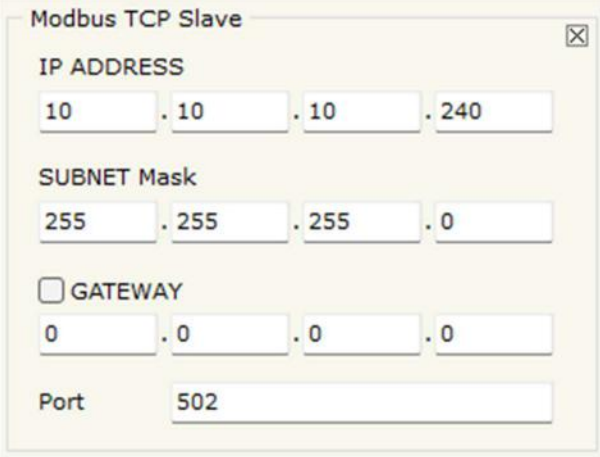
The diagrams below illustrate the Modbus communication topologies.





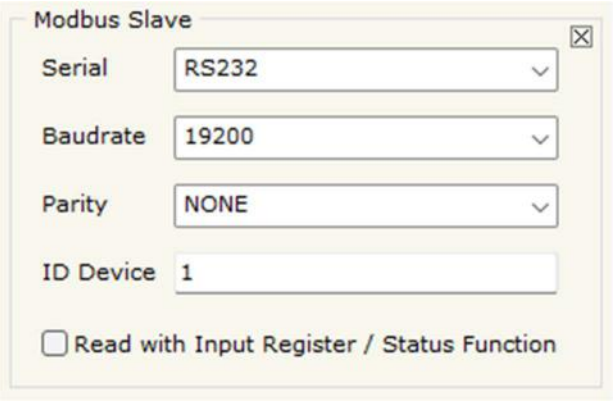
2.2. TCP Settings

Below are the factory-default settings for the Modbus TCP converter if the charger was ordered with the Modbus TCP communication option (these settings can be modified via the procedure in Section 3 (Modbus TCP Configuration)).



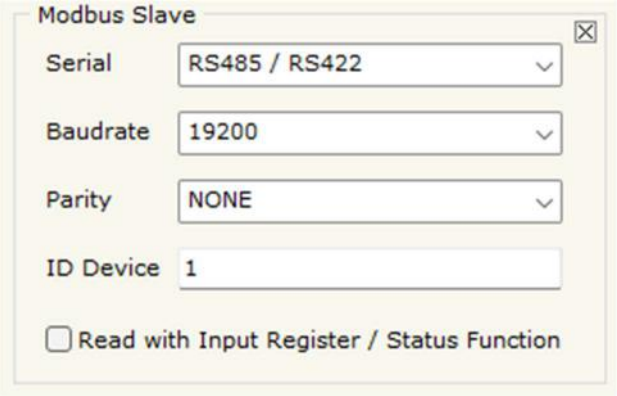
2.3. RS-232 Settings

Below are the factory-default serial settings for the Modbus RTU converter if the charger was ordered with the Modbus RTU RS-232 communication option (these settings can be modified via the procedure in Section 4 (MODBUS RTU RS-232 OR MODBUS RTU RS-485 CONFIGURATION)).

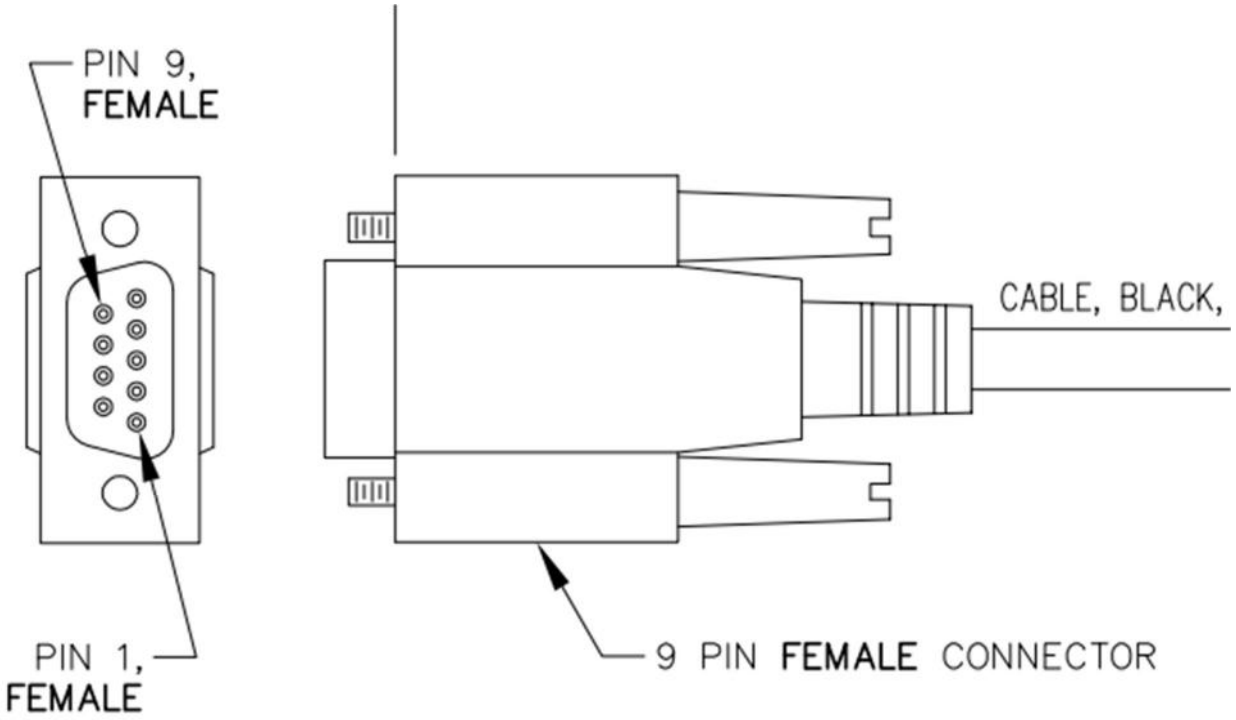


2.4. RS-485 Settings

Below are the factory-default serial settings for the Modbus RTU converter if the charger was ordered with the Modbus RTU RS-485 communication option (these settings can be modified via the procedure in Section 4 (MODBUS RTU RS-232 OR MODBUS RTU RS-485 CONFIGURATION)).

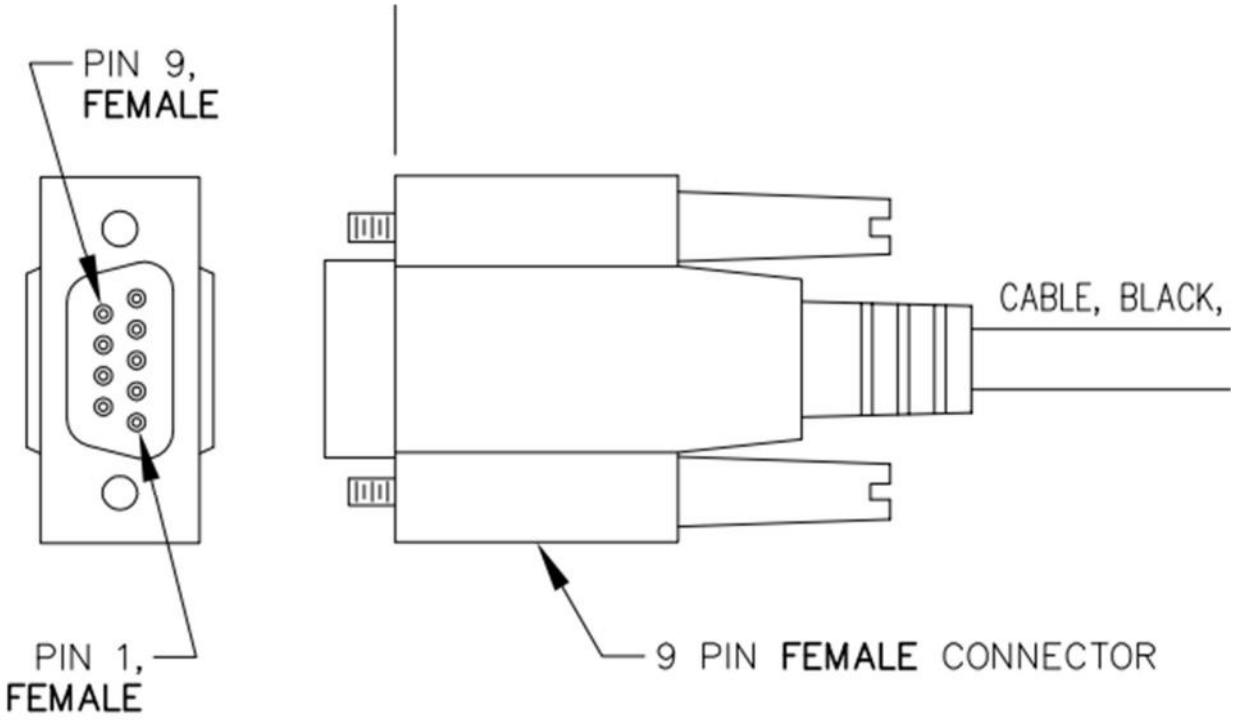


2.5. RS-232 Pin Assignments



Pin	Assignment
1	Open (Not Connected)
2	**RX**
3	**TX**
4	Open (Not Connected)
5	**GND**
6	Open (Not Connected)
7	Open (Not Connected)
8	Open (Not Connected)
9	Open (Not Connected)

2.6. RS-485 Pin Assignments



Pin	Assignment
1	Open (Not Connected)
2	**Negative (-)**
3	**Negative (-)**
4	Open (Not Connected)
5	**Shield**
6	Open (Not Connected)
7	**Positive (+)**
8	**Positive (+)**
9	**Shield**

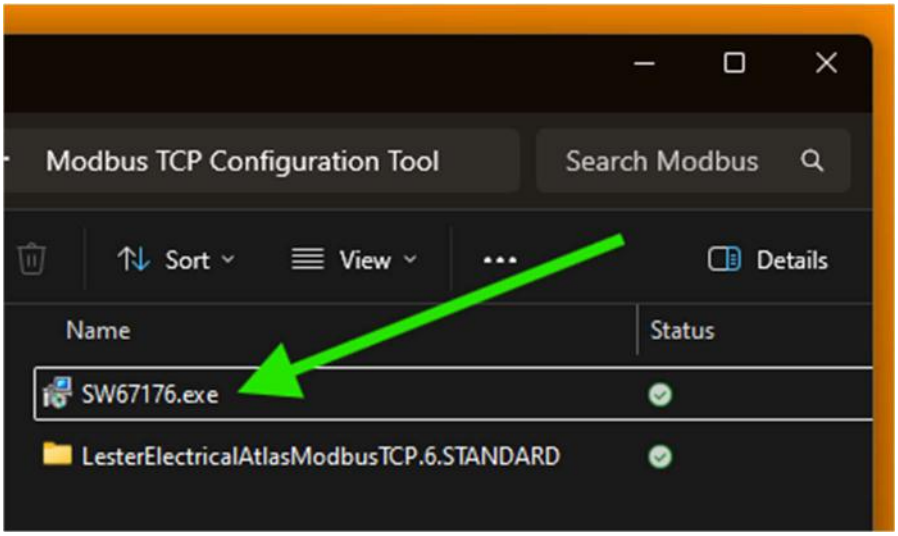
2.7. RS-485 Termination Resistor

The Modbus RTU converter includes a DIP switch to disable/enable the 220-ohm RS-485 termination resistor (see below). **The factory-default position is ENABLED (ON).**

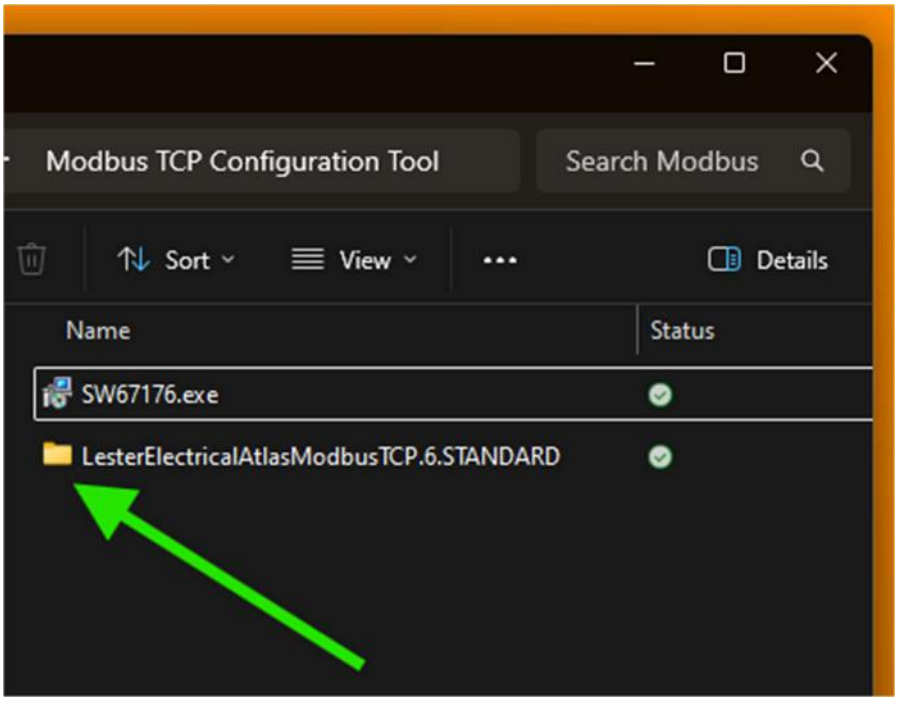
3. MODBUS TCP CONFIGURATION

3.1. Windows App Installation

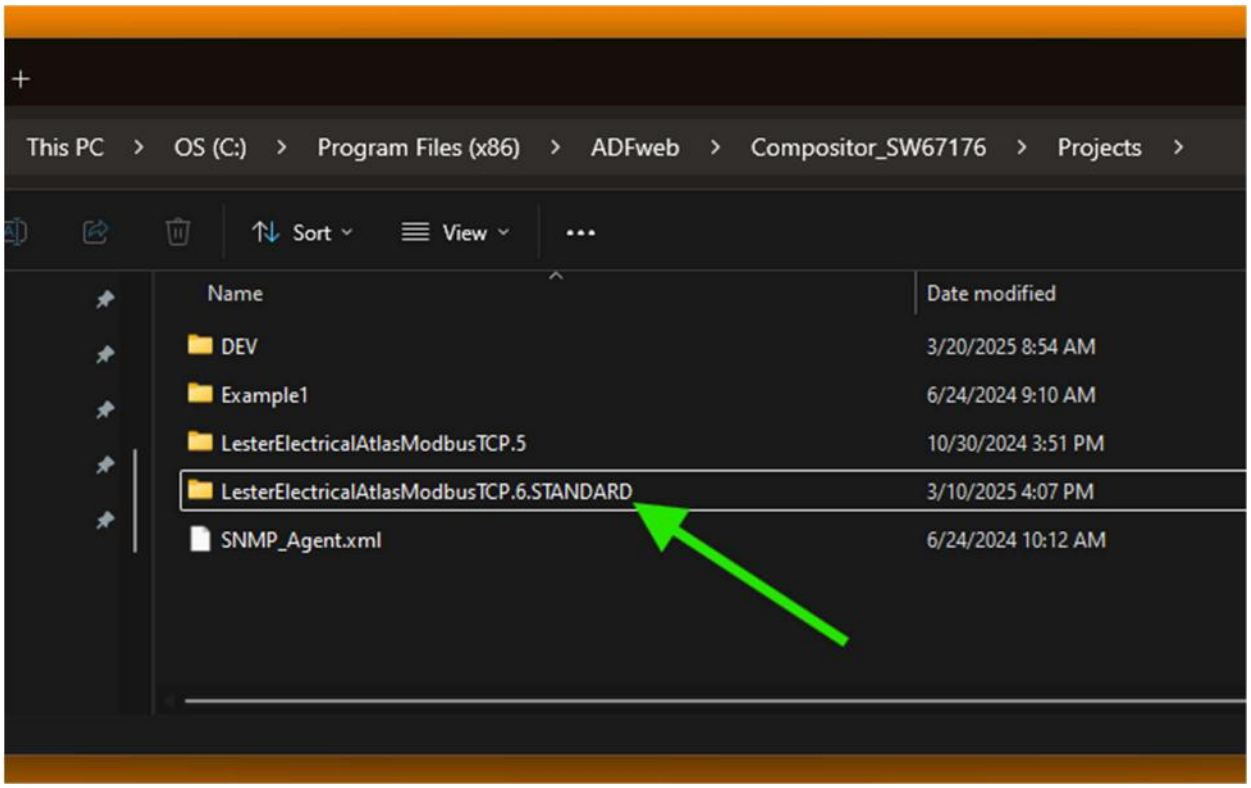
- Please obtain the Modbus TCP configuration files from your representative.
- On a Windows PC, within the provided files, locate and double click the “SW67176.exe” file to launch the installer for the “Compositor SW67176” app (see below). Follow the installer instructions.



- Within the provided files, locate the “LesterElectricalAtlasModbusTCP” folder (see below). Copy this folder.



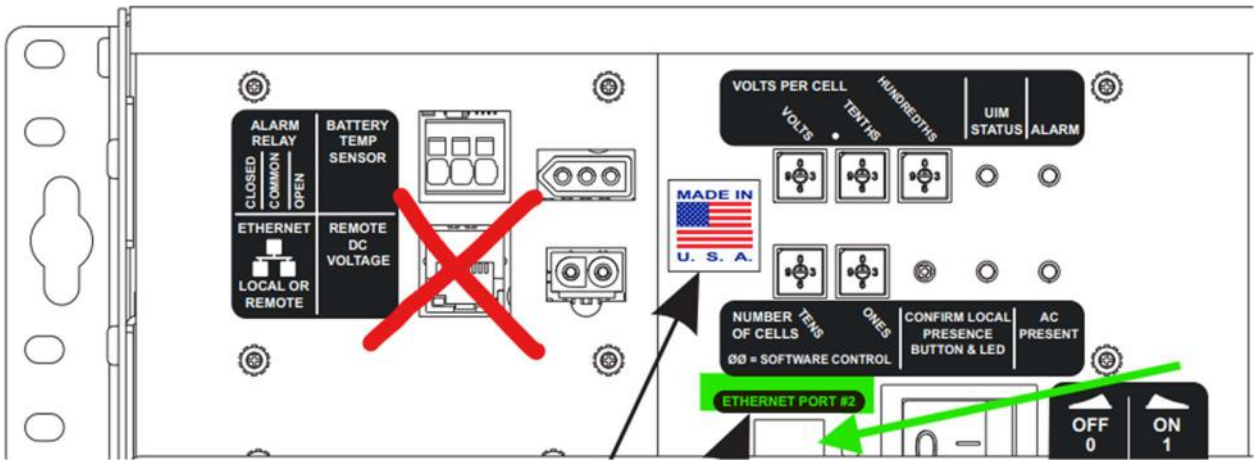
- Paste the folder into the "… > Program Files (x86) > ADFweb > Compositor_SW67176 > Projects" folder on your PC (see below).



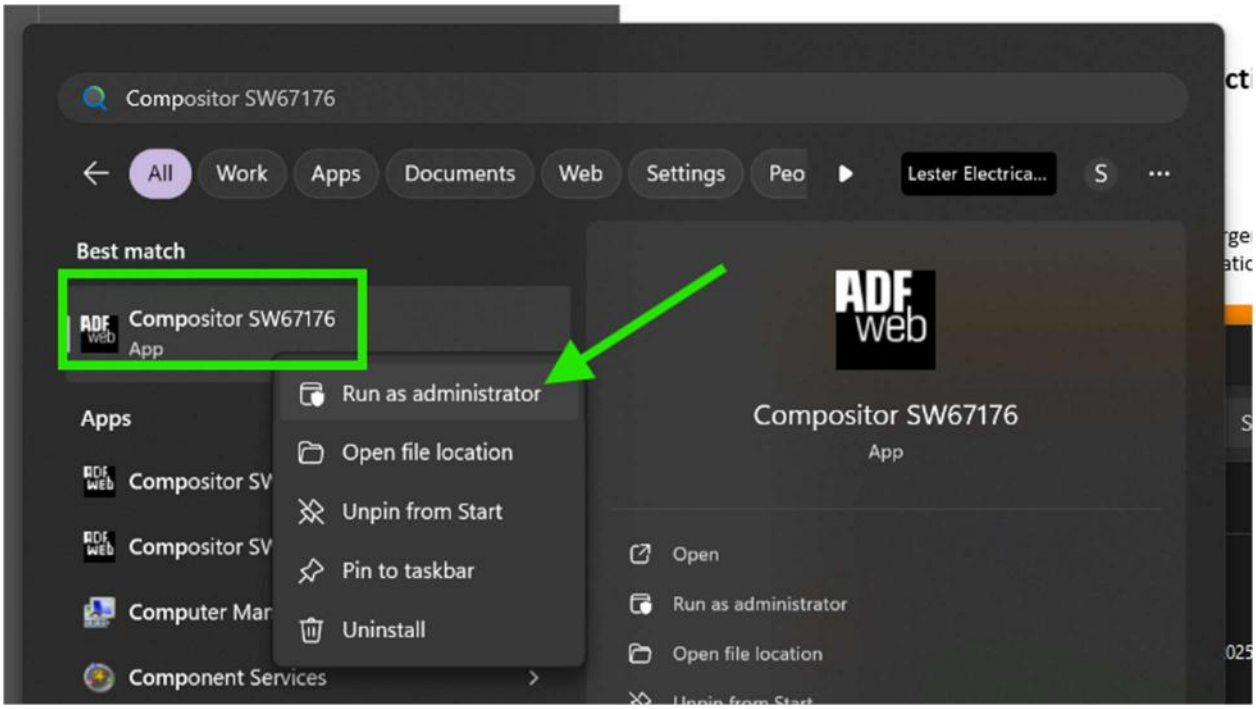
- Installation has now been completed.

3.2. Configuration

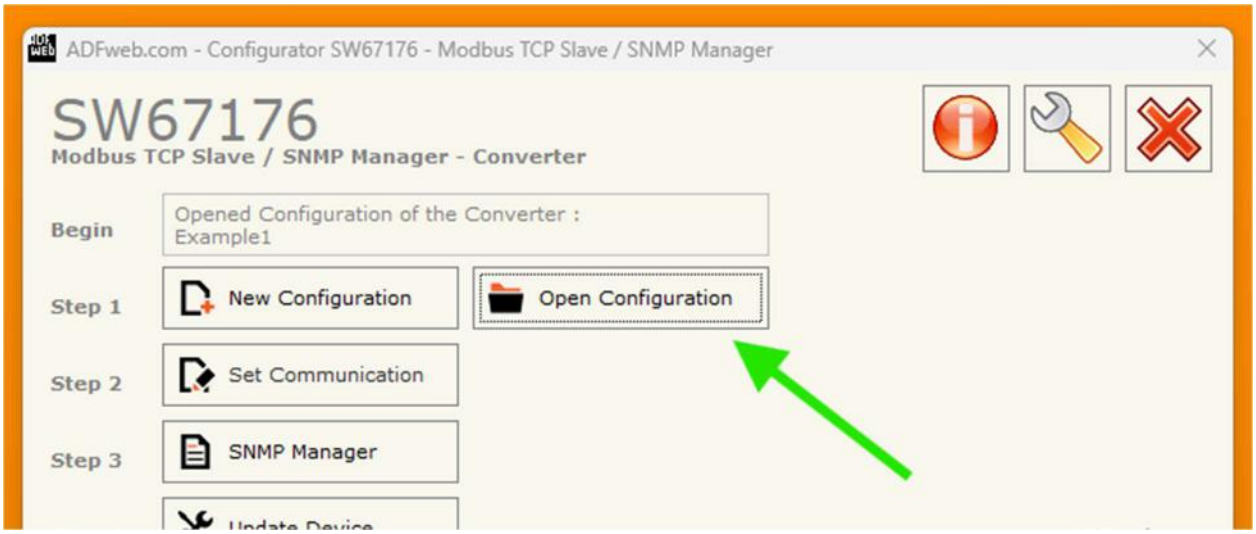
- Connect your PC via Ethernet to the port labeled “Ethernet Port #2” on the charger (see below). If the charger does not have a port labeled “Ethernet Port #2”, connect to the secondary Ethernet cable coming from the charger that is NOT connected to the primary UIM Ethernet port.



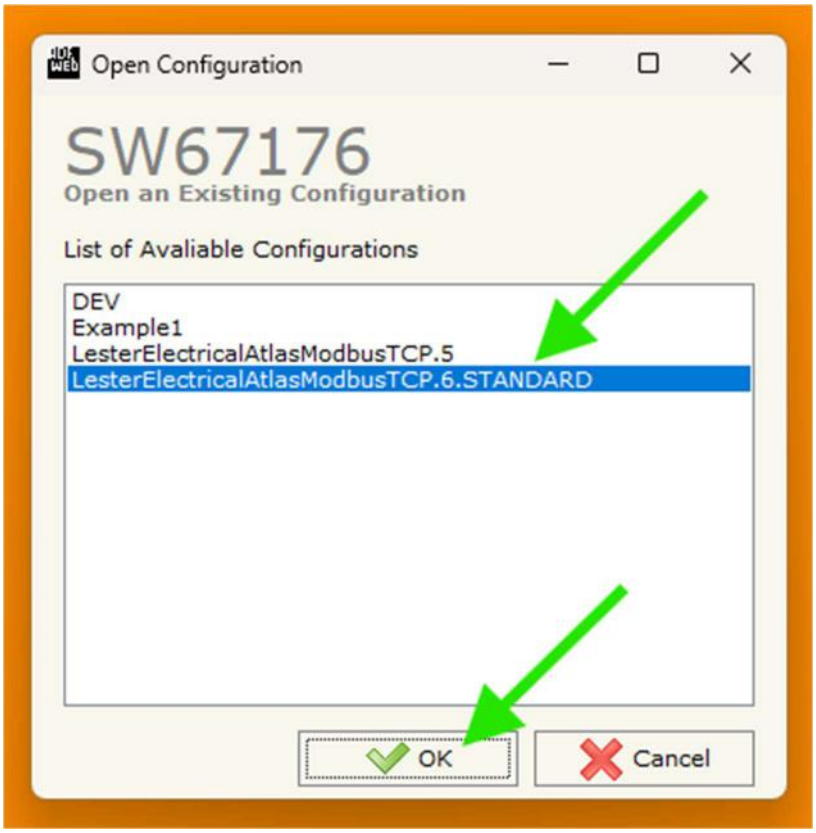
- Launch the “Compositor SW67176” app as an Administrator on your PC (see below).



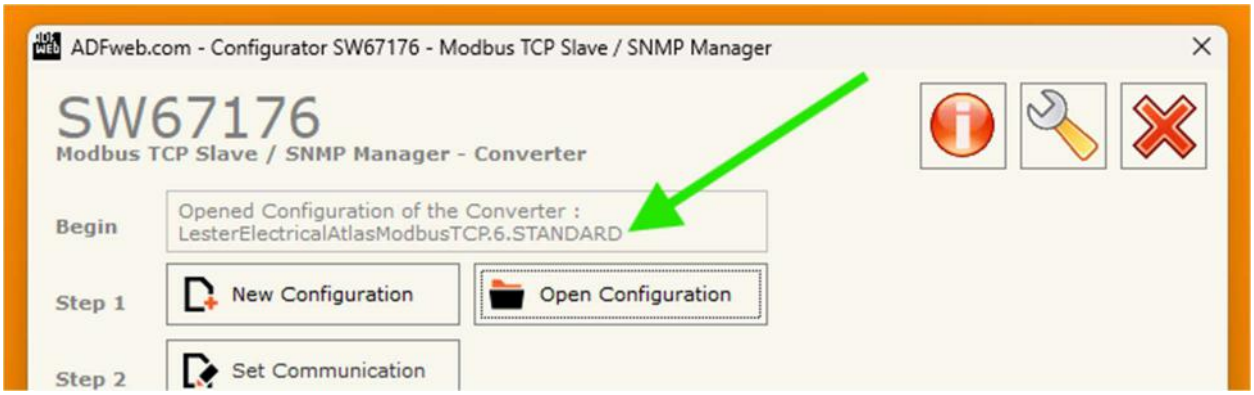
- Click the “Open Configuration” button (see below).



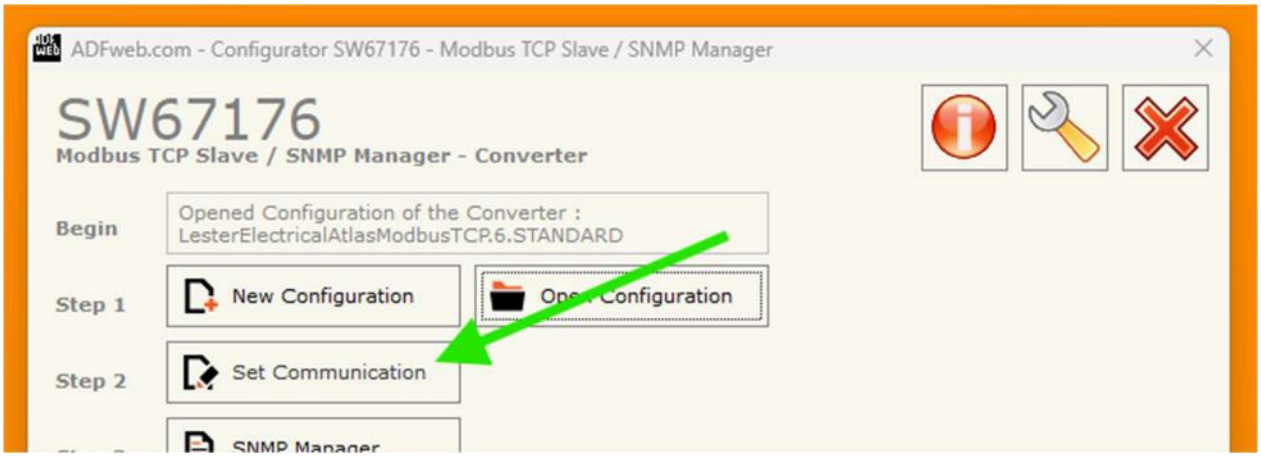
- Select the “LesterElectricalAtlasModbusTCP” configuration and click the “OK” button (see below).



- Ensure that the “LesterElectricalAtlasModbusTCP” is now listed on the main screen of the app (see below).

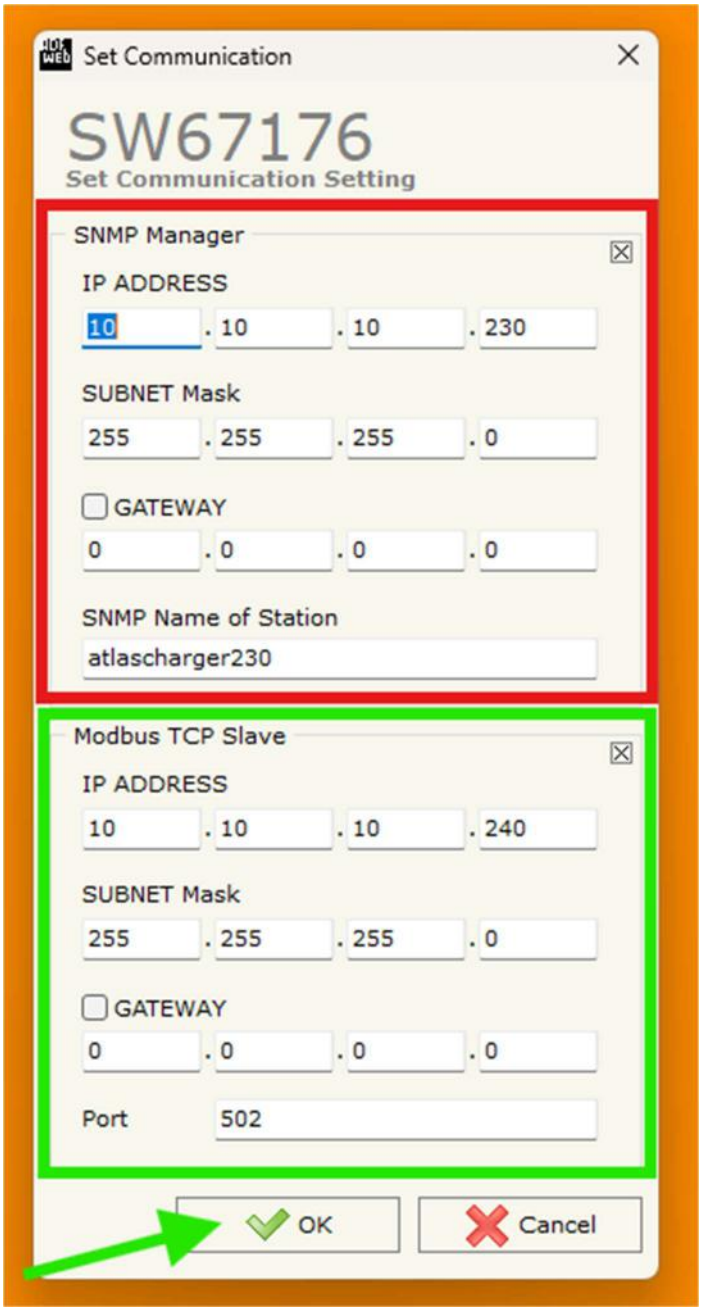


- Click the “Set Communication” button (see below).

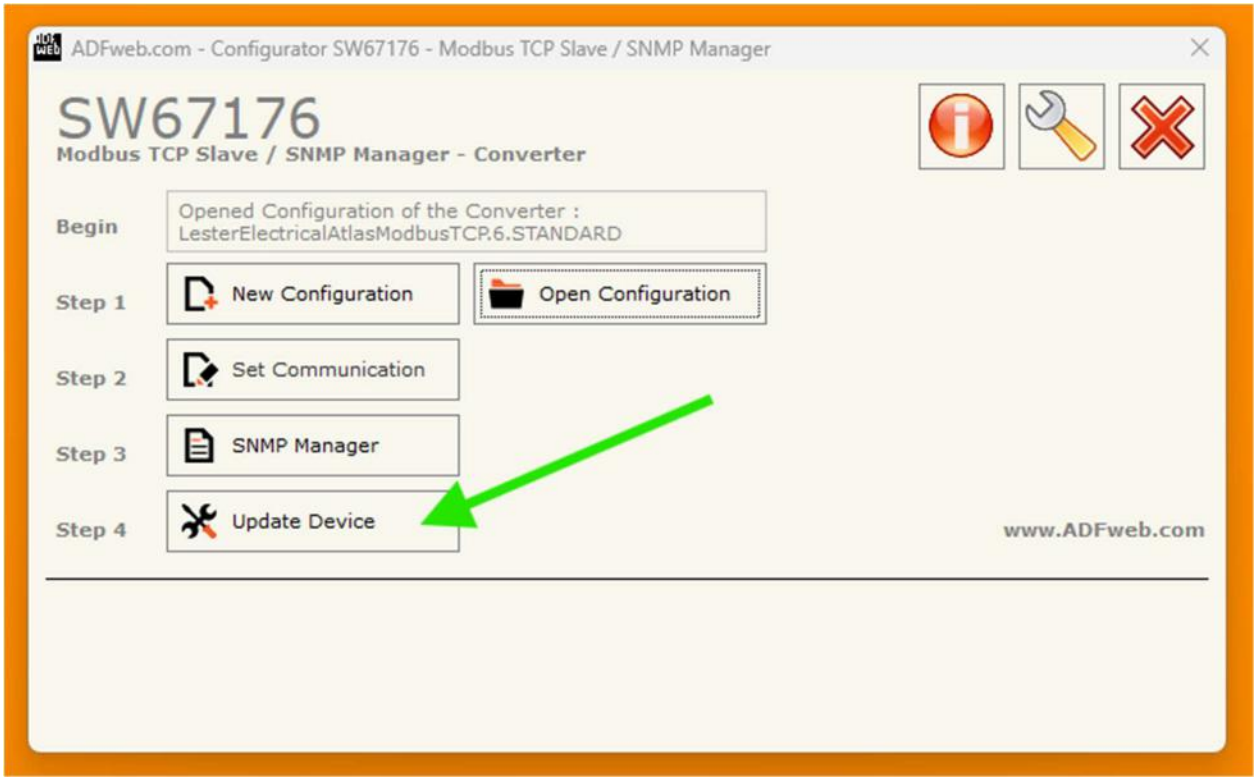


- Make any required changes to the “Modbus TCP Slave” parameters and click the “OK” button (see below in Green).

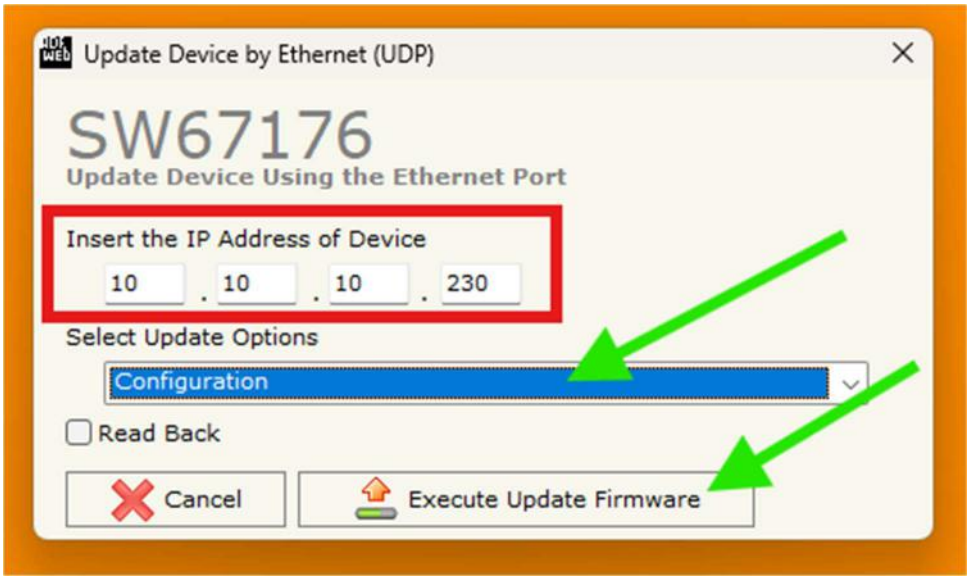
  Also, as a reminder, SNMP communication from the charger UIM is being converted to Modbus TCP communication. As such, if the Ethernet or SNMP configuration of the charger UIM is changed via the web server, the “SNMP Manager” parameters below may need to be modified (see below in Red).



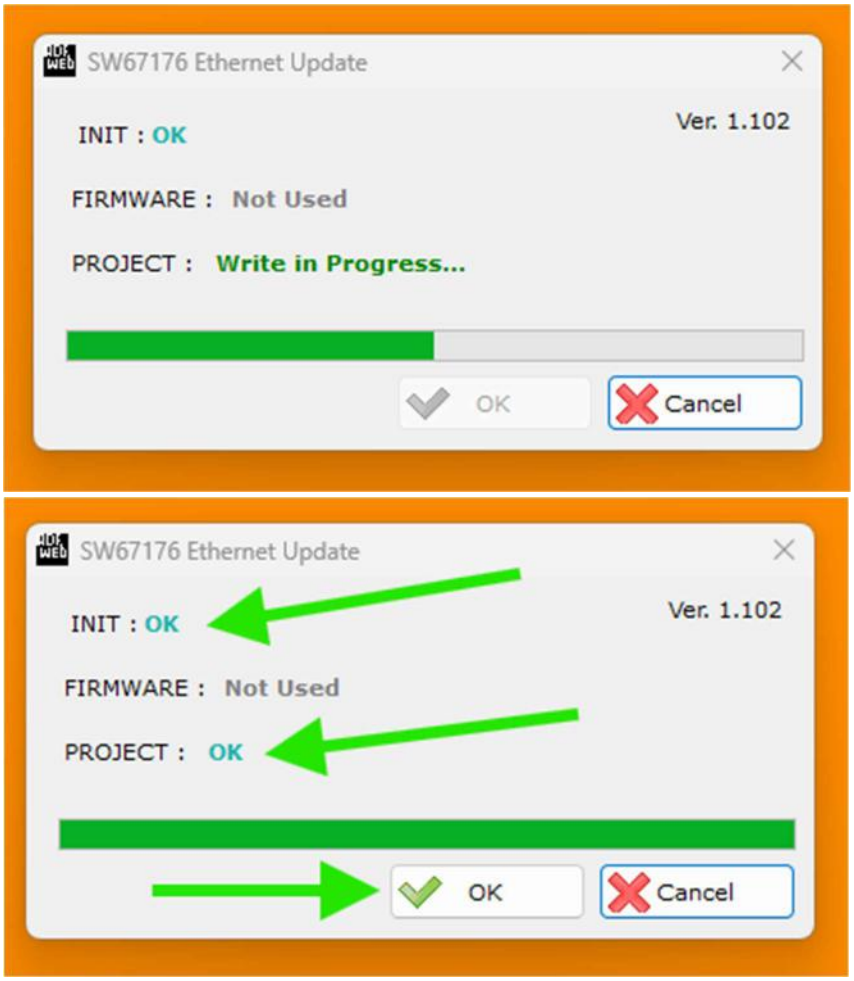
- Click the “Update Device” button (see below).



- If the SNMP Manager IP Address of the Modbus converter was previously changed, please ensure that the “Insert the IP Address of Device” field is correct (see below in Red). Select “Configuration” under the “Select Update Options” dropdown list and click the “Execute Update Firmware” button (see below).



- “INIT” will display “OK” when communication is established. “PROJECT” will display “OK” when the configuration update has completed successfully. At this time, click the “OK” button (see below).

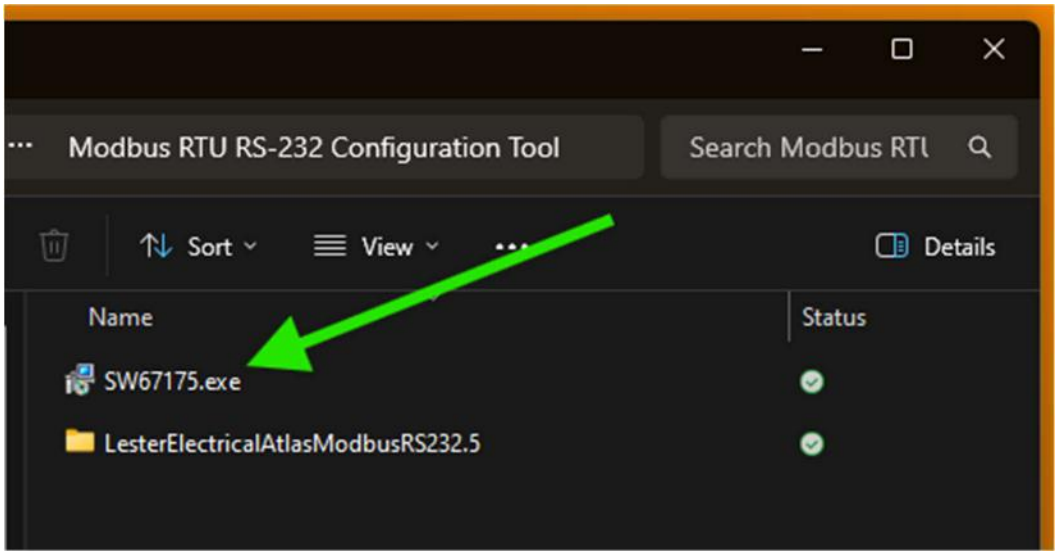


- Configuration has now been completed.

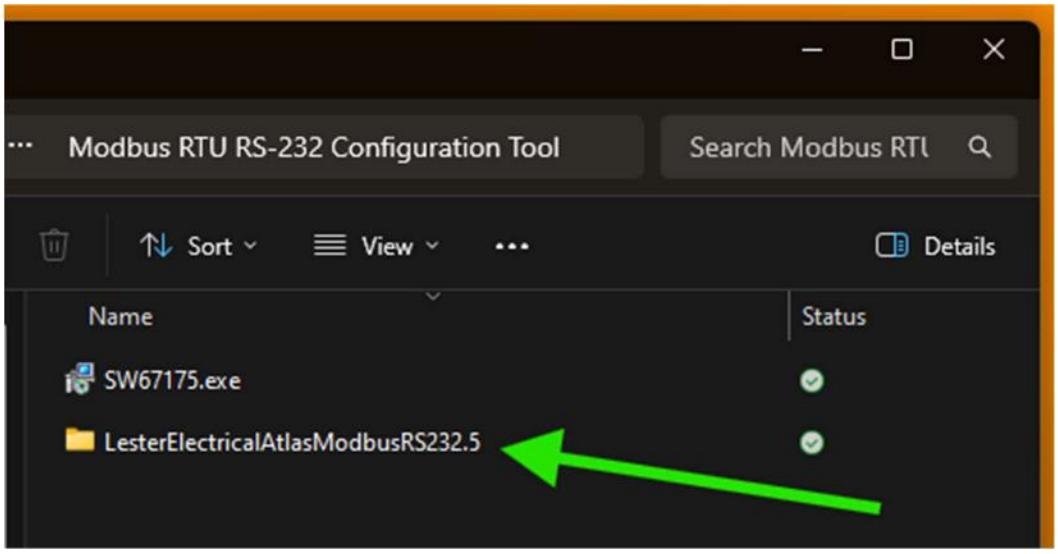
4. MODBUS RTU RS-232 OR MODBUS RTU RS-485 CONFIGURATION

4.1. Windows App Installation

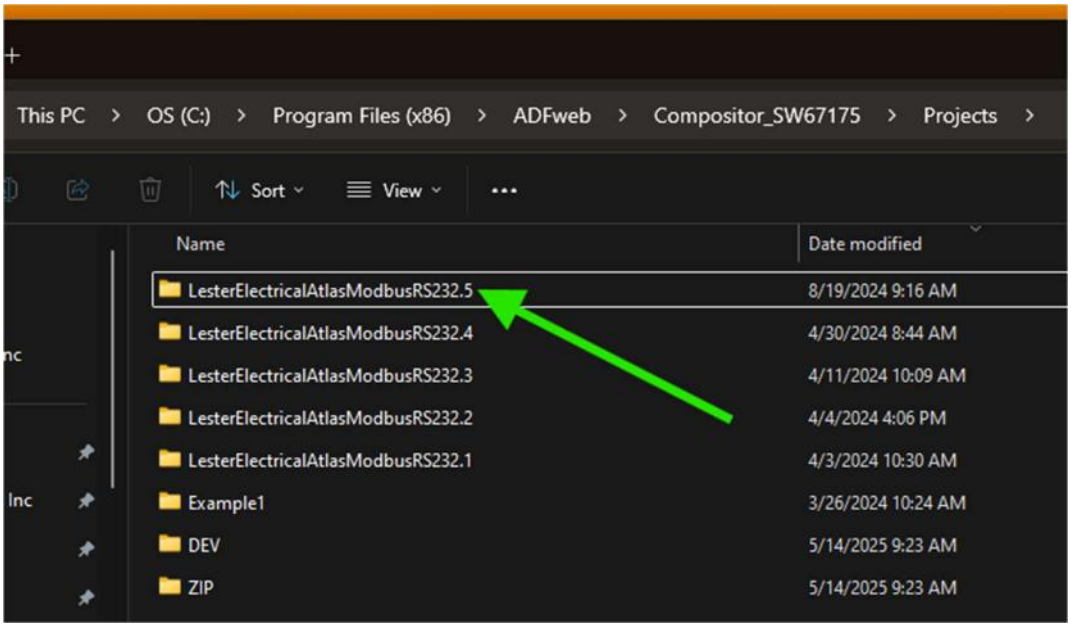
- Please obtain the Modbus RTU RS-232 configuration or Modbus RTU RS-485 configuration files from your representative.
- On a Windows PC, within the provided files, locate and double click the “SW67175.exe” file to launch the installer for the “Compositor SW67175” app (see below). Follow the installer instructions.



- Within the provided files, locate the “LesterElectricalAtlasModbusRS232” or “LesterElectricalAtlasModbusRS485” folder (see below). Copy this folder.



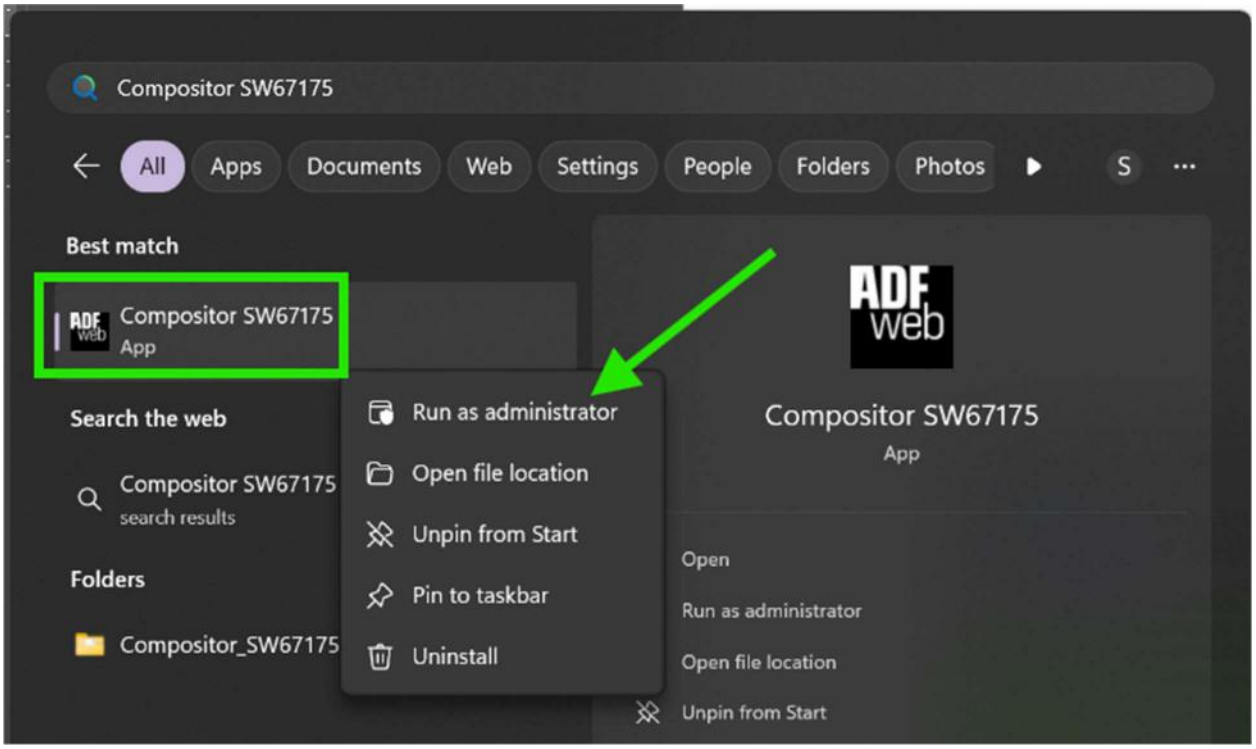
- Paste the folder into the “… > Program Files (x86) > ADFweb > Compositor_SW67175 > Projects” folder on your PC (see below).



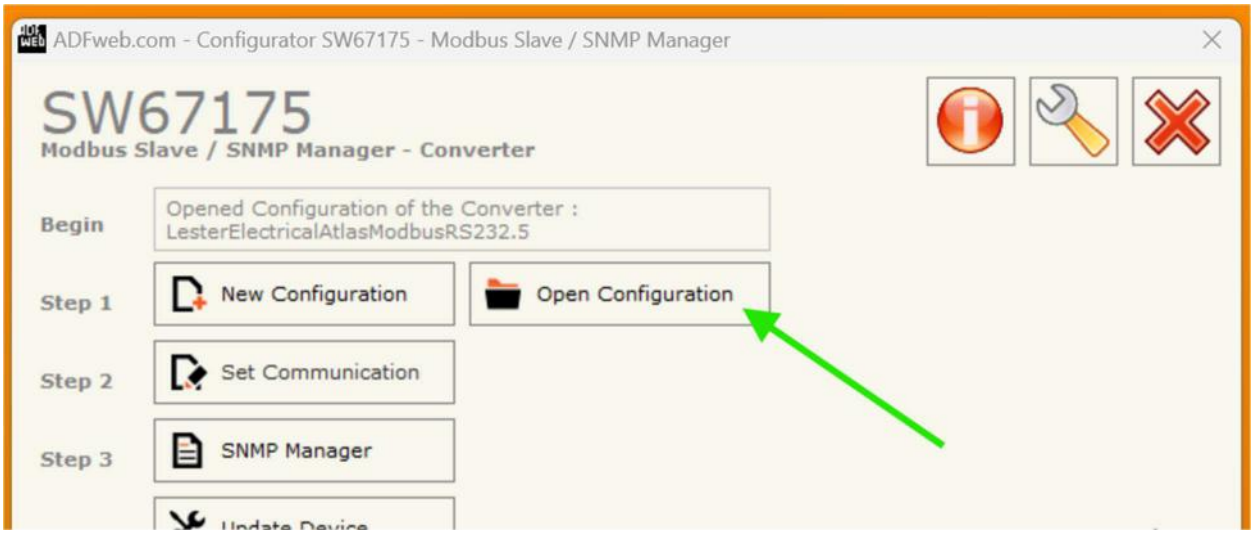
- Installation has now been completed.

4.2. Configuration

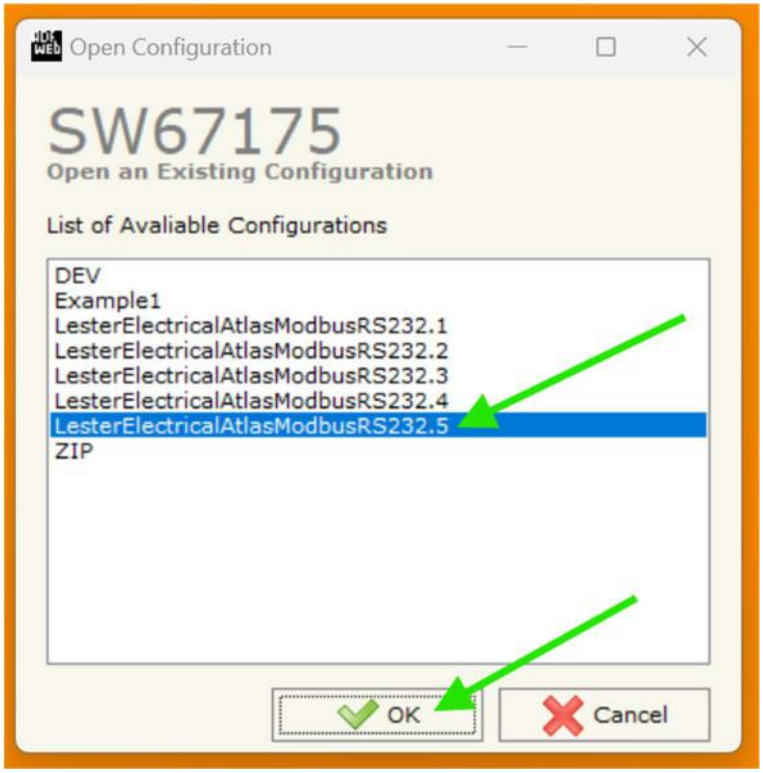
- Disconnect the Ethernet cable from the UIM Ethernet port. This cable should include a label that states “This Cable is to be plugged into UIM assy board & to Modbus unit only!”. Connect this Ethernet cable to your PC.
- Launch the “Compositor SW67175” app as an Administrator on your PC (see below).



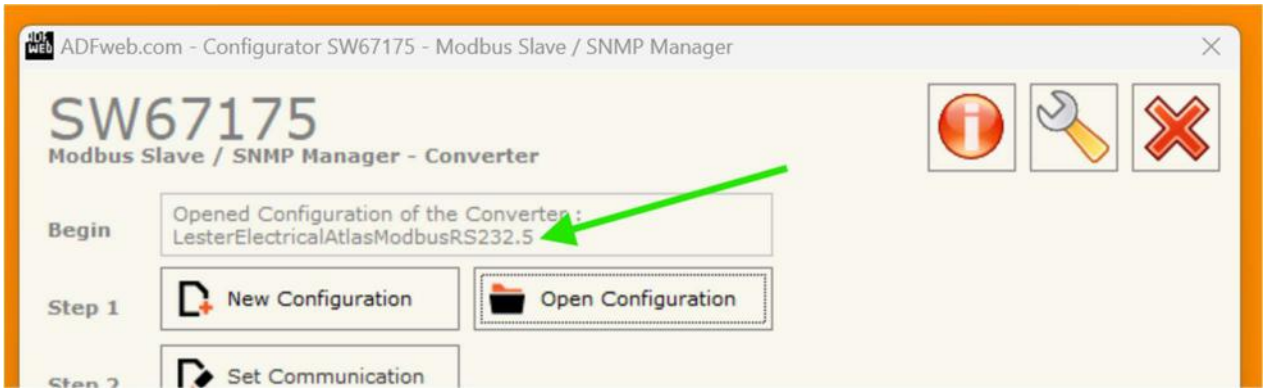
- Click the “Open Configuration” button (see below).



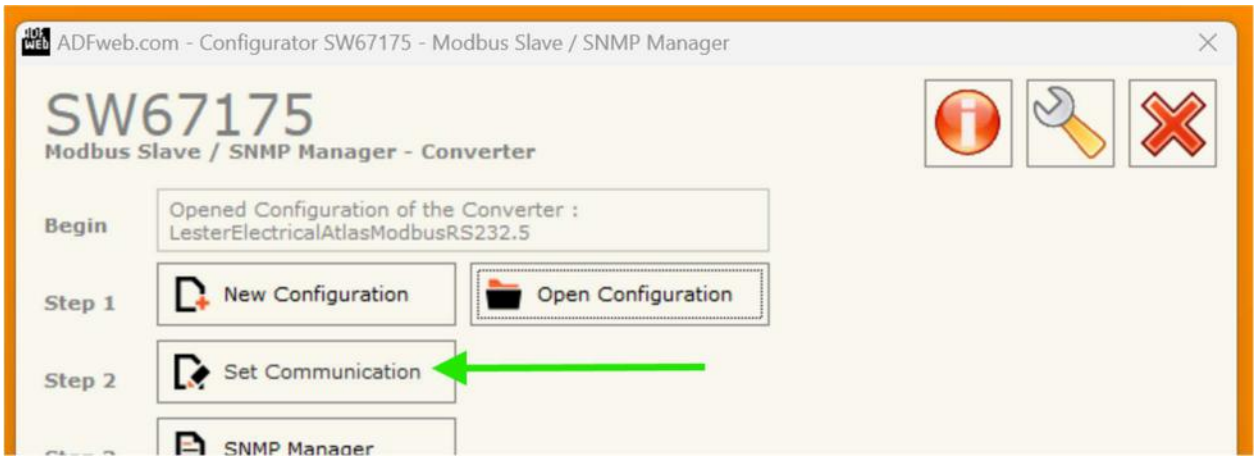
- Select the “LesterElectricalAtlasModbusRS232” or “LesterElectricalAtlasModbusRS485” configuration and click the “OK” button (see below).



- Ensure that the “LesterElectricalAtlasModbusRS232” or “LesterElectricalAtlasModbusRS485” configuration is now listed on the main screen of the app (see below).

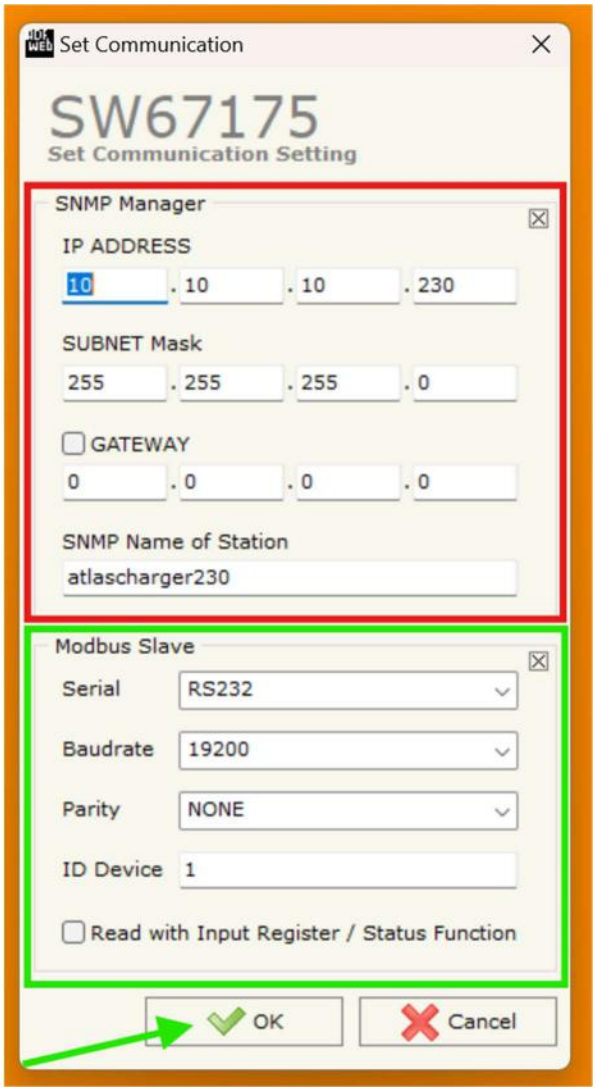


- Click the “Set Communication” button (see below).

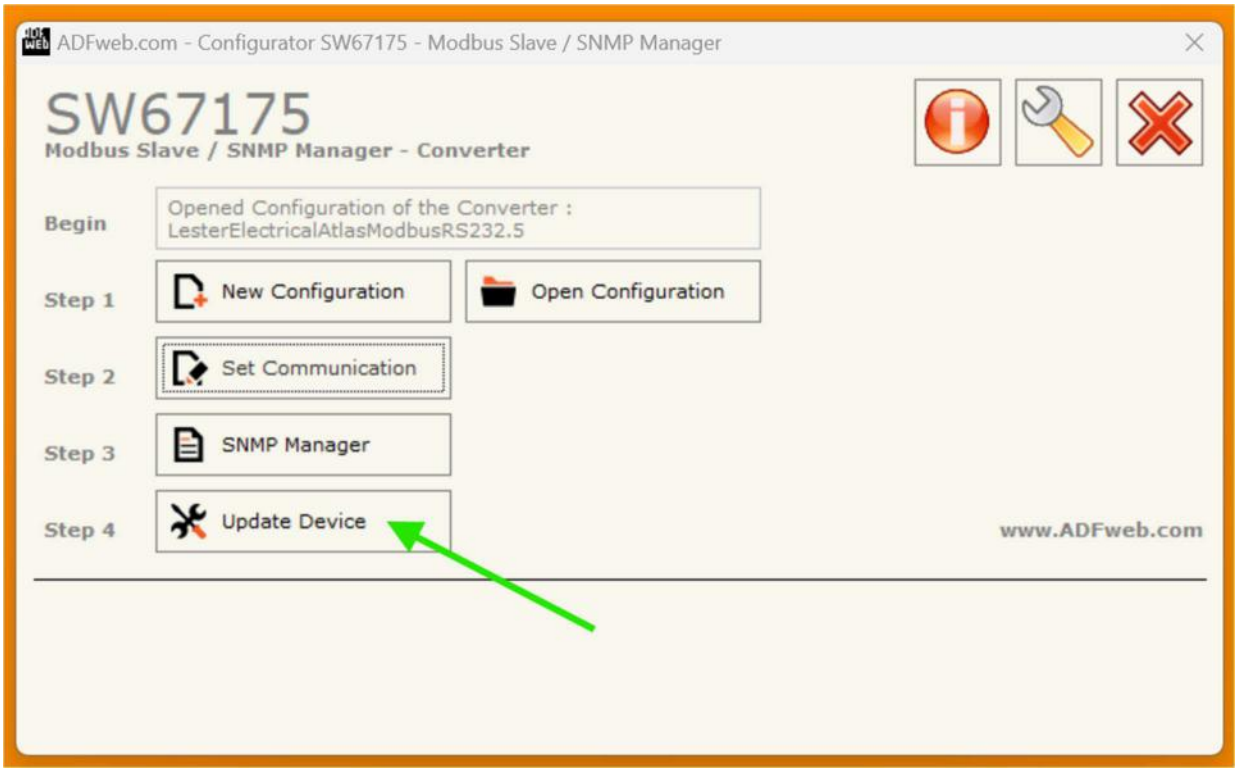


- Make any required changes to the “Modbus TCP Slave” parameters and click the “OK” button (see below in Green).

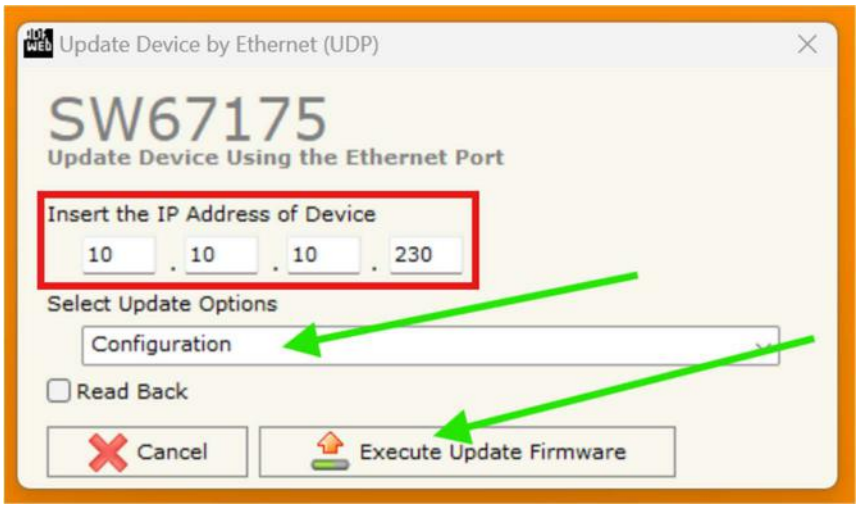
  Also, as a reminder, SNMP communication from the charger UIM is being converted to Modbus TCP communication. As such, if the Ethernet or SNMP configuration of the charger UIM is changed via the web server, the “SNMP Manager” parameters below may need to be modified (see below in Red).



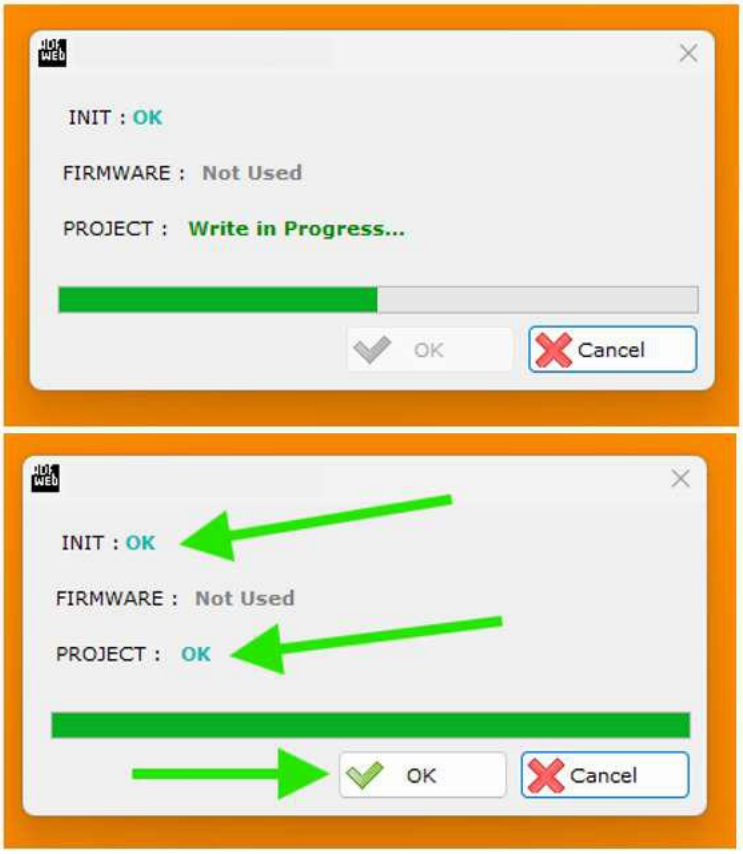
- Click the “Update Device” button (see below).



- If the SNMP Manager IP Address of the Modbus converter was previously changed, please ensure that the “Insert the IP Address of Device” field is correct (see below in Red). Select “Configuration” under the “Select Update Options” dropdown list and click the “Execute Update Firmware” button (see below).



- “INIT” will display “OK” when communication is established. “PROJECT” will display “OK” when the configuration update has completed successfully. At this time, click the “OK” button (see below).



- Configuration has now been completed.

5. MODBUS HOLDING REGISTERS

Register	Name/Description
40001	Summary Alarm
40002	AC Input Power Lost Alarm
40003	AC Input Voltage High Alarm
40004	Battery Voltage Low Alarm
40005	Battery Voltage High Alarm
40006	Battery Temperature Low Alarm
40007	Battery Temperature High Alarm
40008	Min DC Output Current Alarm
40009	iPM Fault Alarm
40010	iPM Communication Lost Alarm
40011	iPM Incorrect DC Voltage Alarm
40012	UIM Fault Alarm
40013	Battery Temp Sensor Fault Alarm
40014	Remote DC Voltage Sensing Fault Alarm
40015	Ground Fault Detection Alarm
40016	High DC Voltage Shutdown Alarm
40017	Continuity Test Fault Alarm

40018	Future Use
40019	Future Use
40020	Future Use
40021	Future Use
40022	Future Use
40023	Future Use
40024	Future Use
40025	Future Use
40026	Future Use
40027	Future Use
40028	Future Use
40029	Future Use
40030	Future Use
40031	Future Use
40032	Future Use
40033	Future Use
40034	Future Use
40035	Future Use
40036	Future Use
40037	Future Use
40038	Future Use
40039	Future Use
40040	Future Use
40041	Future Use
40042	Future Use
40043	Future Use
40044	Future Use
40045	Future Use
40046	Future Use
40047	Future Use
40048	Future Use
40049	Future Use
40050	Future Use
40051	Battery Voltage x10
40052	DC Output Current x10
40053	Serial Number, Two (2) Most Significant Bytes of DWORD
40054	Serial Number, Two (2) Least Significant Bytes of DWORD
40055	AC Input Voltage x10
40056	Battery Temperature x10 in Celsius
40057	Internal Charger Temperature x10 in Celsius
40058	UIM Firmware Version x100
40059	Float Voltage Controlled By: 0 = Web, 1 = Rotary Switches
40060	DC Voltage Sensing: 1 = Remote, 2 = Local (Remote Fault), 3 = Local
40061	Local Presence Time Remaining

40062	iPM One Serial Number, Two (2) Most Significant Bytes of DWORD
40063	iPM One Serial Number, Two (2) Least Significant Bytes of DWORD
40064	iPM One Software Version x100
40065	iPM One Current x10
40066	iPM Two Serial Number, Two (2) Most Significant Bytes of DWORD
40067	iPM Two Serial Number, Two (2) Least Significant Bytes of DWORD
40068	iPM Two Software Version x100
40069	iPM Two Current x10
40070	iPM Three Serial Number, Two (2) Most Significant Bytes of DWORD
40071	iPM Three Serial Number, Two (2) Least Significant Bytes of DWORD
40072	iPM Three Software Version x100
40073	iPM Three Current x10
40074	iPM Four Serial Number, Two (2) Most Significant Bytes of DWORD
40075	iPM Four Serial Number, Two (2) Least Significant Bytes of DWORD
40076	iPM Four Software Version x100
40077	iPM Four Current x10
40078	iPM Five Serial Number, Two (2) Most Significant Bytes of DWORD
40079	iPM Five Serial Number, Two (2) Least Significant Bytes of DWORD
40080	iPM Five Software Version x100
40081	iPM Five Current x10
40082	iPM Six Serial Number, Two (2) Most Significant Bytes of DWORD
40083	iPM Six Serial Number, Two (2) Least Significant Bytes of DWORD
40084	iPM Six Software Version x100
40085	iPM Six Current x10
40086	iPM Seven Serial Number, Two (2) Most Significant Bytes of DWORD
40087	iPM Seven Serial Number, Two (2) Least Significant Bytes of DWORD
40088	iPM Seven Software Version x100
40089	iPM Seven Current x10
40090	iPM Eight Serial Number, Two (2) Most Significant Bytes of DWORD
40091	iPM Eight Serial Number, Two (2) Least Significant Bytes of DWORD
40092	iPM Eight Software Version x100
40093	iPM Eight Current x10
40094	iPM Nine Serial Number, Two (2) Most Significant Bytes of DWORD
40095	iPM Nine Serial Number, Two (2) Least Significant Bytes of DWORD
40096	iPM Nine Software Version x100
40097	iPM Nine Current x10
40098	iPM Ten Serial Number, Two (2) Most Significant Bytes of DWORD
40099	iPM Ten Serial Number, Two (2) Least Significant Bytes of DWORD
40100	iPM Ten Software Version x100
40101	iPM Ten Current x10
40102	iPM Eleven Serial Number, Two (2) Most Significant Bytes of DWORD
40103	iPM Eleven Serial Number, Two (2) Least Significant Bytes of DWORD
40104	iPM Eleven Software Version x100
40105	iPM Eleven Current x10

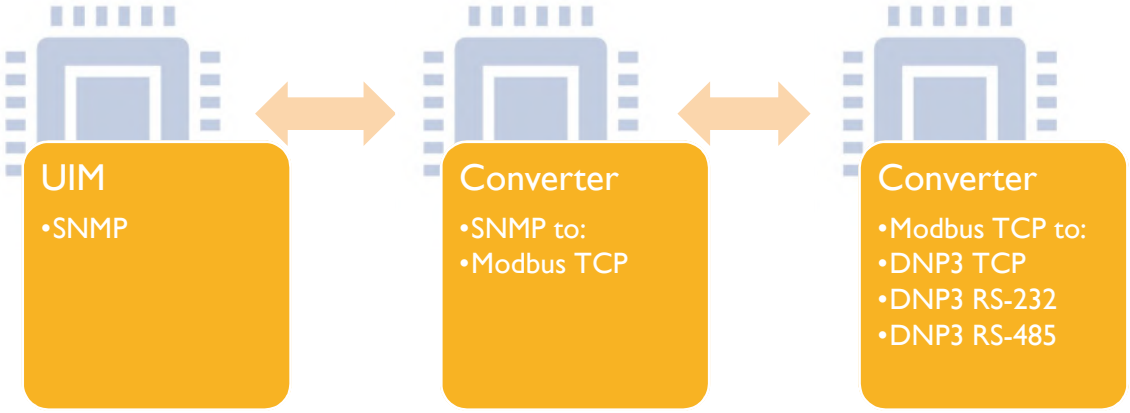
40106	iPM Twelve Serial Number, Two (2) Most Significant Bytes of DWORD
40107	iPM Twelve Serial Number, Two (2) Least Significant Bytes of DWORD
40108	iPM Twelve Software Version x100
40109	iPM Twelve Current x10
40110	iPM Thirteen Serial Number, Two (2) Most Significant Bytes of DWORD
40111	iPM Thirteen Serial Number, Two (2) Least Significant Bytes of DWORD
40112	iPM Thirteen Software Version x100
40113	iPM Thirteen Current x10
40114	iPM Fourteen Serial Number, Two (2) Most Significant Bytes of DWORD
40115	iPM Fourteen Serial Number, Two (2) Least Significant Bytes of DWORD
40116	iPM Fourteen Software Version x100
40117	iPM Fourteen Current x10
40118	iPM Fifteen Serial Number, Two (2) Most Significant Bytes of DWORD
40119	iPM Fifteen Serial Number, Two (2) Least Significant Bytes of DWORD
40120	iPM Fifteen Software Version x100
40121	iPM Fifteen Current x10
40122	iPM Sixteen Serial Number, Two (2) Most Significant Bytes of DWORD
40123	iPM Sixteen Serial Number, Two (2) Least Significant Bytes of DWORD
40124	iPM Sixteen Software Version x100
40125	iPM Sixteen Current x10
40126	Future Use
40127	Future Use
40128	Future Use
40129	Heartbeat
40130	Future Use
40131	Positive GFD Current in mA
40132	Negative GFD Current in mA
40133	Alarm Status Mapped to Binary
40134	Charge Status Mapped to Binary
40135	Individual Alarm Statuses Mapped to Binary #1
40136	Individual Alarm Statuses Mapped to Binary #2

6. DNP3

6.1. Overview

The diagram below illustrates the DNP3 communication topology.

NOTE: Since the SNMP communication from the UIM is first converted to Modbus TCP before being converted to DNP3, network-related changes may require configuration changes to the Modbus TCP converter in addition to the DNP3 converter. Instructions for making DNP3 converter configuration changes are included in this Section. Please refer to Section 3 (Modbus TCP Configuration) for instructions regarding Modbus TCP converter configuration changes.



6.2. Web Server

Below are the factory-default parameters for accessing the web server for the DNP3 converter (these parameters can be modified via the web server with admin rights).

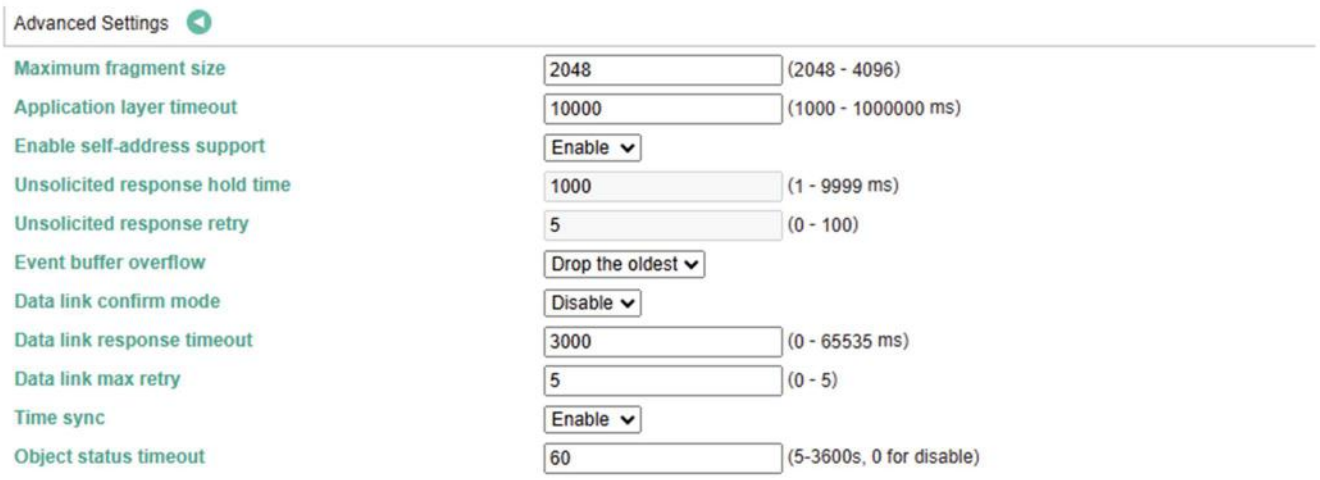
- IP address: 10.10.10.235
- Subnet: 255.255.255.0
- Username: admin
- Password: Charger$4U2!
- Server: atlascharger235

6.3. Configuration

Below is the factory-default configuration for the DNP3 converter (this configuration can be modified via the web server with admin rights).

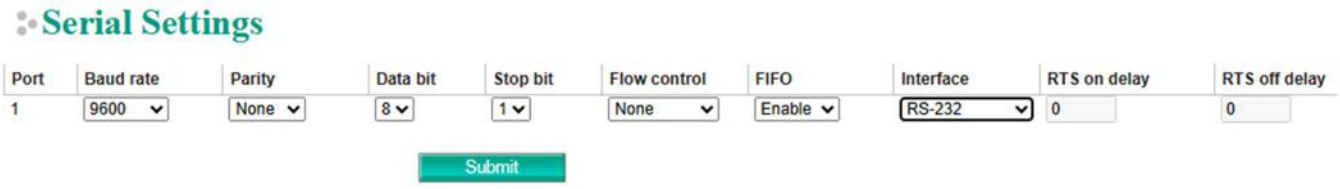
Basic Settings

DNP3 address	4	(0 - 65519)
Local port	20000	(1 - 65535)
Network Type	(•) TCP ( ) UDP	
Enable unsolicited response	Disable	
Unsolicited response master DNP3 address	3	(1 - 65519)
Unsolicited response master IP/Port	10.10.10.200 : 20000	(1 - 65535)



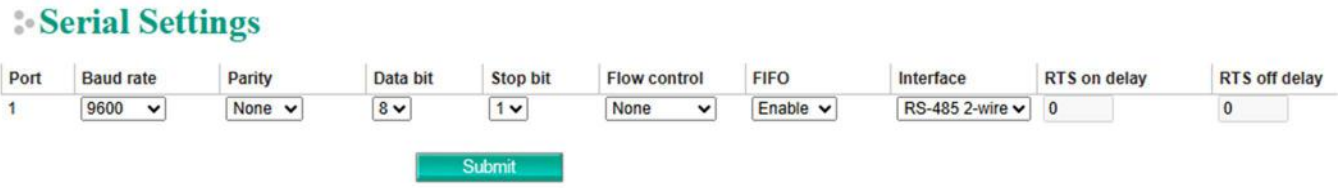
6.4. RS-232 Settings

Below are the factory-default serial settings for the DNP3 converter if the charger was ordered with the DNP3 RS-232 communication option (these settings can be modified via the web server with admin rights).



6.5. RS-485 Settings

Below are the factory-default serial settings for the DNP3 converter if the charger was ordered with the DNP3 RS-485 communication option (these settings can be modified via the web server with admin rights).



6.6. Supported Serial Settings

The table below outlines all supported serial setting values for the DNP3 converter (these settings can be modified via the web server with admin rights).

Parameter	Value	Description
Baudrate	Supports standard baudrates (bps): 50/ 75/ 110/ 134/ 150/ 300/ 600/ 1200 1800/ 2400/ 4800/ 7200/ 9600/ 19200/ 38400/ 57600/ 115200/ 230.4k/ 460.8k/ 921.6k	
Parity	None, Odd, Even, Mark, Space	
Data bits	8	
Stop bits	1, 2	
Flow control	None, RTS/CTS, RTS Toggle	The RTS Toggle will turn off RTS signal when there is no data to be sent. If there is data to be sent, the RTS toggle will turn on the RTS signal before a data transmission and off after the transmission is completed.
FIFO	Enable, Disable	The internal buffer of UART. Disabling FIFO can reduce the latency time when receiving data from serial communications, but this will also slow down the throughput.
Interface	RS-232, RS-422, RS-485 2 wire, RS-485 4 wire	
RTS on delay	0 to 100 ms	Only available for RTS Toggle
RTS off delay	0 to 100 ms	Only available for RTS Toggle

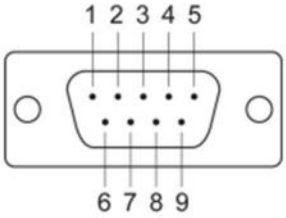
RTS Toggle

The RTS Toggle function is used for **RS-232** mode only. This flow-control mechanism is achieved by toggling the RTS pin in the transmission direction. When activated, data will be sent after the RTS pin is toggled ON for the specified time interval. After the data transmission is finished, the RTS pin will toggle OFF for the specified time interval.

6.7. Serial Port Pin Assignments

Serial Port (Male DB9)

Pin	RS-232	RS-422/RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5*	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–
9	–	–	–

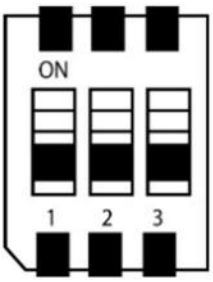


*Signal ground

6.8. RS-485 Pull-High, Pull-Low, and Terminator Resistors

Pull-high, Pull-low, and Terminator for RS-485

Remove the MGate 5109's top cover, and you will find DIP switches to adjust each serial port's pull-high resistor, pull-low resistor, and terminator.



SW	1	2	3
	Pull-high resistor	Pull-low resistor	Terminator
ON	1 kΩ	1 kΩ	120 Ω
OFF	150 kΩ*	150 kΩ*	–*

*Default

7. DNP3 POINTS

7.1. Binary Input Points

Binary Input Points	
Static (Steady-State) Object Number	1
Event Object Number	2
Static Variation reported when variation 0 requested or in response to Class polls:	1 (packed format)
Event Variation reported when variation 0 requested or in response to Class polls:	2 (with absolute time)
Class of Event	1

Point Index	Name/Description
0	Summary Alarm
1	AC Input Power Lost
2	AC Input Voltage High

3	Battery Voltage Low
4	Battery Voltage High
5	Battery Temperature Low
6	Battery Temperature High
7	Min DC Output Current
8	iPM Fault
9	iPM Communication Lost
10	iPM Incorrect DC Voltage
11	UIM Fault
12	Battery Temp Sensor Fault
13	Remote DC Voltage Sensing Fault
14	Ground Fault Detection
15	High DC Voltage Shutdown
16	Continuity Test Fault
17	*Future Use*
18	*Future Use*
19	*Future Use*
20	*Future Use*
21	*Future Use*
22	*Future Use*
23	*Future Use*
24	*Future Use*
25	*Future Use*
26	*Future Use*
27	*Future Use*
28	*Future Use*
29	*Future Use*
30	*Future Use*
31	*Future Use*

7.2. Analog Input Status Points

Analog Input Status Points	
Static (Steady-State) Object Number	**30**
Event Object Number	**32**
Deadband Object Number	**34**
Static Variation reported when variation 0 requested or in response to Class polls:	**2 (16-bit with flag)**
Event Variation reported when variation 0 requested or in response to Class polls:	**2 (16-bit without time)**
Class of Event	**2**
Event Trigger Method	**Change of state**
Point Index	**Name/Description**
0	Battery Voltage x10

1	DC Output Current x10
2	Serial Number, Two (2) Least Significant Bytes of DWORD
3	Serial Number, Two (2) Most Significant Bytes of DWORD
4	AC Input Voltage x10
5	Battery Temperature x10 in Celsius
6	Internal Charger Temperature x10 in Celsius
7	UIM Firmware Version x100
8	Float Voltage Controlled By: 0 = Web, 1 = Rotary Switches
9	DC Voltage Sensing: 1 = Remote, 2 = Local (Remote Fault), 3 = Local
10	Local Presence Time Remaining
11	iPM One Serial Number, Two (2) Least Significant Bytes of DWORD
12	iPM One Serial Number, Two (2) Most Significant Bytes of DWORD
13	iPM One Software Version x100
14	iPM One Current x10
15	iPM Two Serial Number, Two (2) Least Significant Bytes of DWORD
16	iPM Two Serial Number, Two (2) Most Significant Bytes of DWORD
17	iPM Two Software Version x100
18	iPM Two Current x10
19	iPM Three Serial Number, Two (2) Least Significant Bytes of DWORD
20	iPM Three Serial Number, Two (2) Most Significant Bytes of DWORD
21	iPM Three Software Version x100
22	iPM Three Current x10
23	iPM Four Serial Number, Two (2) Least Significant Bytes of DWORD
24	iPM Four Serial Number, Two (2) Most Significant Bytes of DWORD
25	iPM Four Software Version x100
26	iPM Four Current x10
27	iPM Five Serial Number, Two (2) Least Significant Bytes of DWORD
28	iPM Five Serial Number, Two (2) Most Significant Bytes of DWORD
29	iPM Five Software Version x100
30	iPM Five Current x10
31	iPM Six Serial Number, Two (2) Least Significant Bytes of DWORD
32	iPM Six Serial Number, Two (2) Most Significant Bytes of DWORD
33	iPM Six Software Version x100
34	iPM Six Current x10
35	iPM Seven Serial Number, Two (2) Least Significant Bytes of DWORD

36	iPM Seven Serial Number, Two (2) Most Significant Bytes of DWORD
37	iPM Seven Software Version x100
38	iPM Seven Current x10
39	iPM Eight Serial Number, Two (2) Least Significant Bytes of DWORD
40	iPM Eight Serial Number, Two (2) Most Significant Bytes of DWORD
41	iPM Eight Software Version x100
42	iPM Eight Current x10
43	iPM Nine Serial Number, Two (2) Least Significant Bytes of DWORD
44	iPM Nine Serial Number, Two (2) Most Significant Bytes of DWORD
45	iPM Nine Software Version x100
46	iPM Nine Current x10
47	iPM Ten Serial Number, Two (2) Least Significant Bytes of DWORD
48	iPM Ten Serial Number, Two (2) Most Significant Bytes of DWORD
49	iPM Ten Software Version x100
50	iPM Ten Current x10
51	iPM Eleven Serial Number, Two (2) Least Significant Bytes of DWORD
52	iPM Eleven Serial Number, Two (2) Most Significant Bytes of DWORD
53	iPM Eleven Software Version x100
54	iPM Eleven Current x10
55	iPM Twelve Serial Number, Two (2) Least Significant Bytes of DWORD
56	iPM Twelve Serial Number, Two (2) Most Significant Bytes of DWORD
57	iPM Twelve Software Version x100
58	iPM Twelve Current x10
59	iPM Thirteen Serial Number, Two (2) Least Significant Bytes of DWORD
60	iPM Thirteen Serial Number, Two (2) Most Significant Bytes of DWORD
61	iPM Thirteen Software Version x100
62	iPM Thirteen Current x10
63	iPM Fourteen Serial Number, Two (2) Least Significant Bytes of DWORD
64	iPM Fourteen Serial Number, Two (2) Most Significant Bytes of DWORD
65	iPM Fourteen Software Version x100
66	iPM Fourteen Current x10
67	iPM Fifteen Serial Number, Two (2) Least Significant Bytes of DWORD
68	iPM Fifteen Serial Number, Two (2) Most Significant Bytes of DWORD

69	iPM Fifteen Software Version x100
70	iPM Fifteen Current x10
71	iPM Sixteen Serial Number, Two (2) Least Significant Bytes of DWORD
72	iPM Sixteen Serial Number, Two (2) Most Significant Bytes of DWORD
73	iPM Sixteen Software Version x100
74	iPM Sixteen Current x10
75	*Future Use*
76	*Future Use*
77	*Future Use*
78	Heartbeat
79	*Future Use*
80	Positive GFD Current in mA
81	Negative GFD Current in mA
82	Alarm Status Mapped to Binary
83	Charge Status Mapped to Binary
84	Individual Alarm Statuses Mapped to Binary #1
85	Individual Alarm Statuses Mapped to Binary #2

8. IEC 61850

An IEC 61850 communications option is currently available as a prototype release. Please contact your representative for more information.

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