

# Eaton Electric Vehicle Power Charging Station MODBUS Device E2 Setup

P/N 527-0354

This document will guide you through setting up and commissioning the Eaton Electric Vehicle Power Charging Station MODBUS device in the E2 controller.

**NOTE** Note that Open MODBUS Description files require E2 firmware version 3.01FO1 or higher.

## STEP 1: Upload the description file to the E2 controller

1. From UltraSite, connect to your E2 controller.
2. Right-click the E2 icon and select **Description File Upload**.
3. Browse to the location of the description file and click **Upload**.
4. After uploading, you will need to reboot the E2 controller.

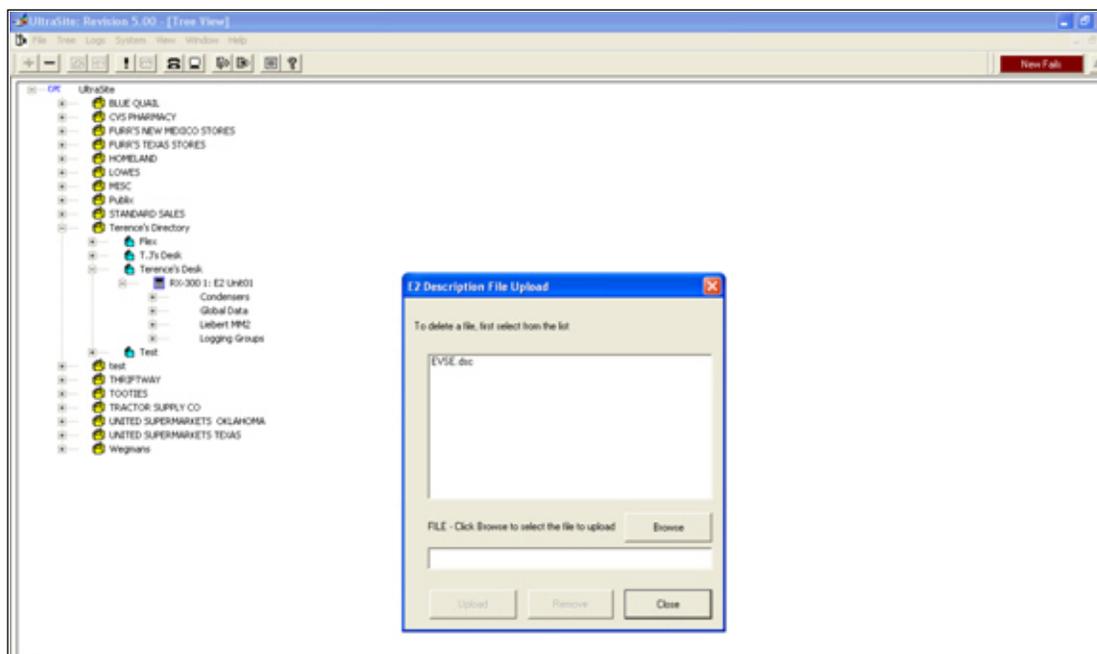


Figure 1 - Description File Upload

## STEP 2: Activate the license of the device

1. From the E2 front panel (or via Terminal Mode), press , 7 (System Configuration), and 9 (Licensing).
2. Press F1 (ADD FEATURE) and enter your license key.



Figure 2 - Add License Screen

## STEP 3: Once the license is activated, add the device to the E2 controller

1. Press , 7 (System Configuration), 7 (Network Setup), 2 (Connected I/O Boards & Controllers).
2. Press F2 (NEXT TAB) to go to the C4: Third Party tab. You should see the device in the list. Enter the number of devices to add and press the  button to save your changes.

## STEP 4: Assign the MODBUS Port

1. Press **F7** (System Configuration), **F4** (Remote Communications), **F3** (TCP/IP Setup).
2. Select the COM port the device is connected to, press **F4** (LOOK UP) and select the appropriate MODBUS selection.

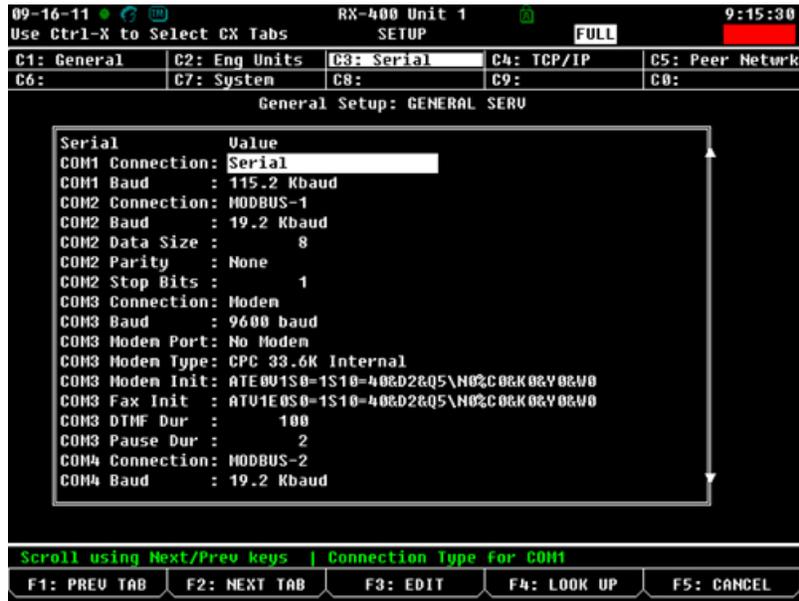


Figure 3 - COM Port Setup



Figure 4 - Option List Selection Screen - Connection

- Set the baud rate for the chosen port. Press **F4** to look up the appropriate speed.

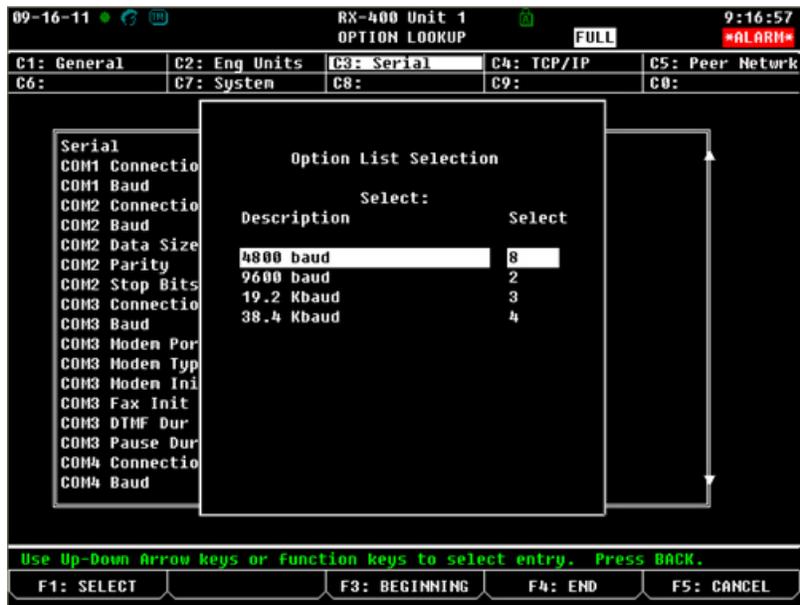


Figure 5 - Option List Selection Screen - Baud Rate

- The baud rate also needs to be configured using dip switches on the EVSE device. The baud rate must match the E2 baud rate setting. The diagram below provides the dip switch setting for the baud rates.

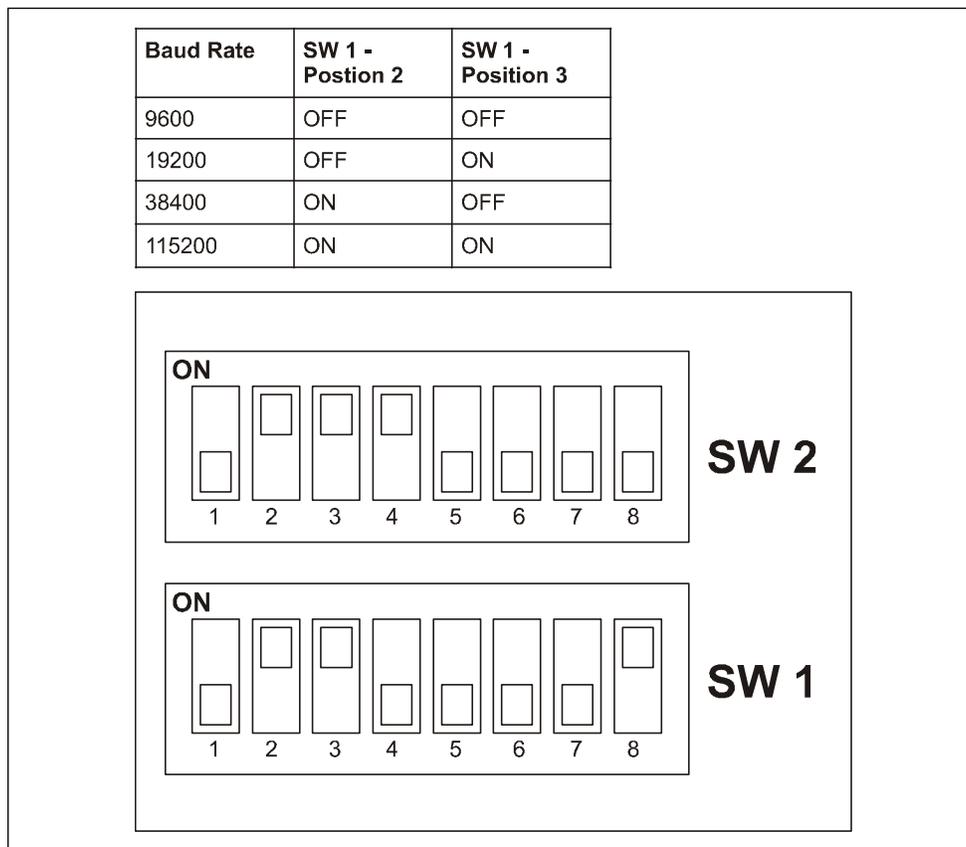


Figure 6- Dip Switch Setting

## STEP 5: Commission the device onto the E2

1. Press **F7** (System Configuration), **F7** (Network Setup), **F1** (Network Summary).
2. Highlight the device and press **F4** (COMMISSION). Select the MODBUS port that you will be assigning the device, then select the MODBUS device address.



Figure 7 - Network Summary Screen



Figure 8 - MODBUS Port Assignment



Figure 9 - Device Physical Address Setting

**STEP 6: After assigning the MODBUS address of the device and verifying that the connections are wired properly, the device should go online**

1. The device has a four-terminal Phoenix connector. Wire Data Line A on terminal 1, Data Line B on terminal 2, and the shield wire on terminal 3/Common.
2. There should be no termination on terminal 4.



Figure 10 - Four-Terminal Phoenix Connector

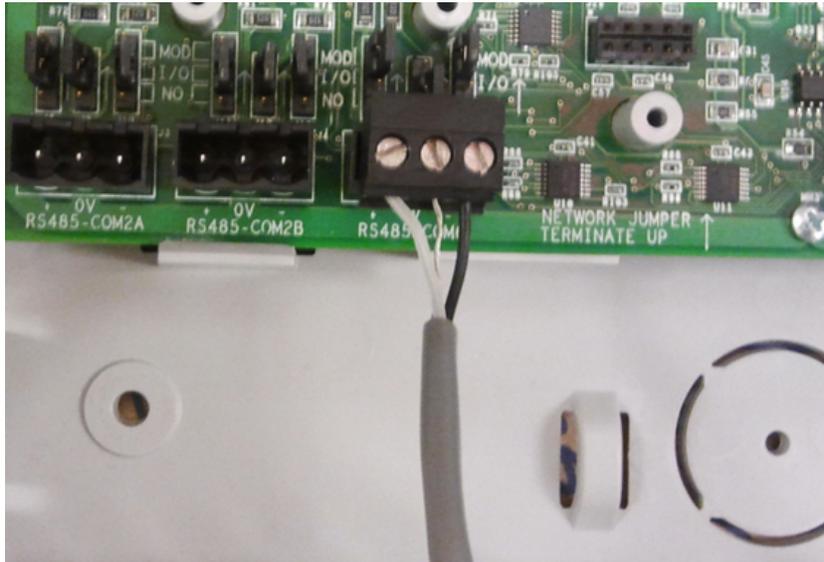


Figure 11 - RS-485 COM6 Connector on the E2 PIB (E2 Version 4.01 shown)

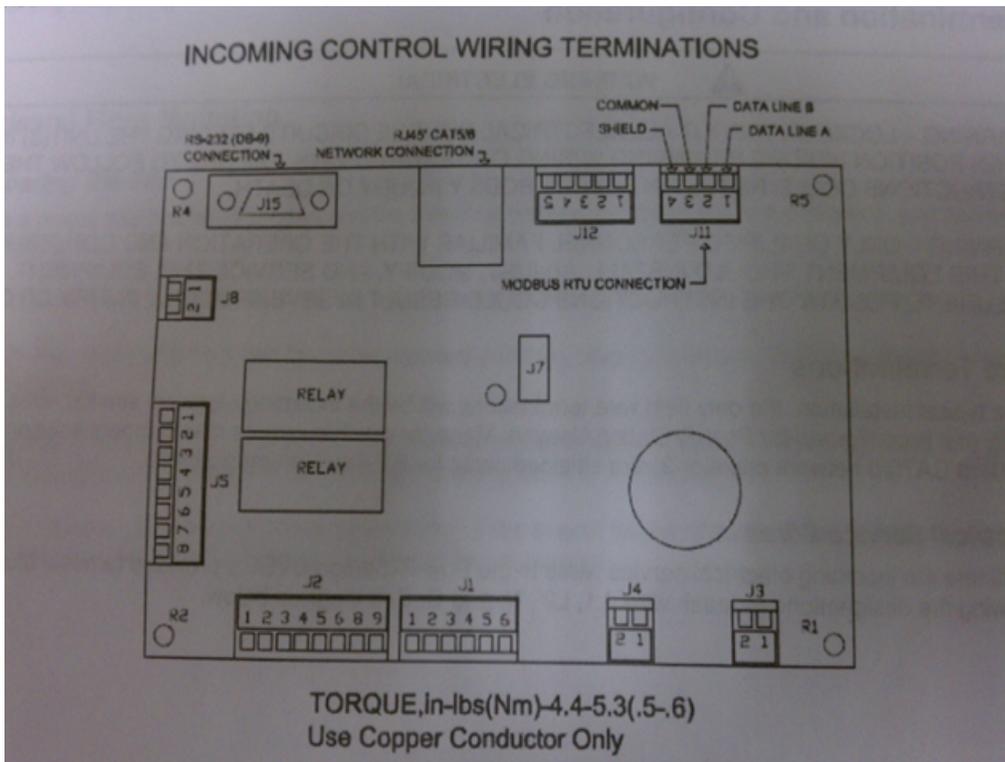


Figure 12 - Wiring Diagram

- Once the device is online, it will only display the device status screen because the E2 does not have the ability to control the device.

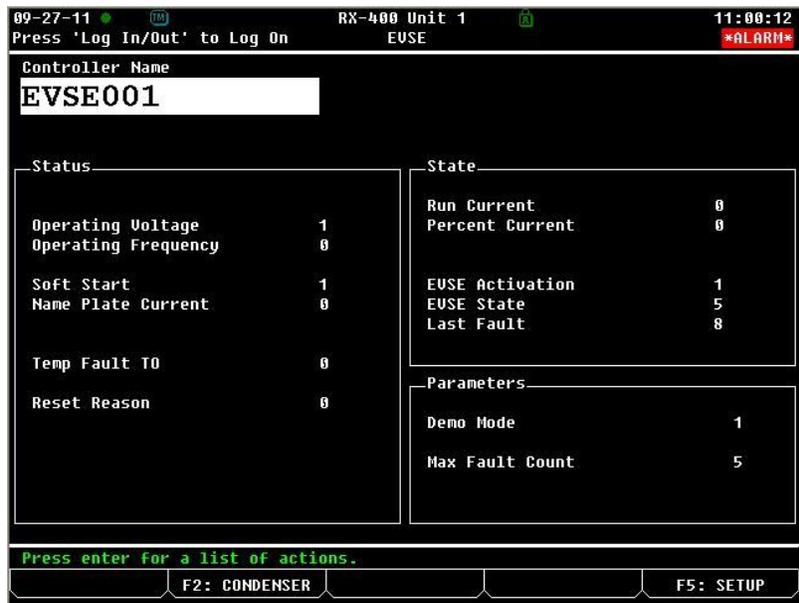


Figure 13 - Device Status Screen

## EVSE Configuration Tables

The following tables list the different device output statuses:

EVSE Configuration		
Address Config	Addr Rate	RS-485 Address
RS-485 Baud Rate (Dip Switch Configurable)	Data Rate	Mapped Value (Data Rate): 0 - 115200 1 - 38400 2 - 19200 3 - 9600
Operating Voltage (Dip Switch Configurable)	VOP	Mapped Value (Operating Voltage): 0 - 120 1 - 240
Operating Frequency (Dip Switch Configurable)	FOP	Mapped Value (Operating Frequency): 0 - 60 Hz 1 - 50 Hz
Soft Start		Mapped Value: 0 - Enabled 1 - Disabled
Name Plate Current Rating	INP	Mapped Value (Name Plate Current Rating): 0 - 16A 1 - 30A 2 - 48A 3 - 60A 4 - 70A
Automatic Reclosure on Fault Time	Temp Fault TO	Milliseconds (ms)

EVSE Metrics		
Pilot Voltage	VP	V
ALC Ratio	ALC Ratio	
Max Real-Time Current Vehicle is Allowed To Pull (SAE Duty Cycle Modification) (This Register is Populated by EVSE Run Parameters Below)	MaxPilotDC	V
Current	Ground Fault Current, IGF	A
	Charge Current, IC	A
	Vent Current, IV	A
Proximity Resistance	Prox Resistance	-

EVSE Status Registers		
Reset Reason	Reset Reason	Mapped Value (Reset Reason): 0 - Power-up Reset 1 - Software Reset 2 - Wake-up Reset 3 - RTC Generated Reset 4 - Low Voltage Detect 5 - Watchdog
EVSE Activation	EVSE Activation	Mapped Value: 0 - EVSE Inactive 1 - EVSE Active
EVSE State	EVSE State	Mapped Value (current State of the EVSE): 0 - Power-up Initialization 1 - Idle (Not Connected to EV) 2 - EVSE in Test Mode 3 - EVSE in Demo Mode 4 - Permissive run Disabled 5 - Service Required 6 - Temporary Fault Condition 7 - EVSE Charging 8 - EV Connected; Not Charging 9 - EV Connected; ALC, Charging Disabled

## EVSE Status Registers

<b>Last Fault</b>	Last Fault	Mapped Value (Last Fault Type): 0 - No Fault 1 - Pilot Error During Idle 2 - Pilot Error During Run 3 - Ground Fault Detected 4 - Overcurrent Detected 5 - Break Away Occurred 6 - Temporary Fault Lockout Occurred (Reset with Plug Session Cycle) 7 - Ground Impedance Fault (not used) 8 - Contactor Fault 9 - Ground Fault Test Failure 10 - EV Diode Fault 11 - Master Fault Count Exceeded (EVSE Reset Required) 12 - Firmware Checksum Fault 13 - EVSE Calibration Invalid 14 - EVSE System Clock Fault 15 - EVSE Set Inactive
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EVSE Running Parameters Registers	Used to Modify How much Current Vehicle Pulls (Used to Calculate MaxPilotDC, which is stored in the Register Above)	
Real-Time Vehicle Current (High Priority)	Run Current	A
Percent Current (Lower Priority)	Percent Current	0.0 to 1.0

Visit our website at [copeland.com/en-us/products/controls-monitoring-systems](https://copeland.com/en-us/products/controls-monitoring-systems) for the latest technical documentation and updates.  
 For Technical Support call **833-409-7505** or email [ColdChain.TechnicalServices@Copeland.com](mailto:ColdChain.TechnicalServices@Copeland.com)