

E2 Setup with XC643CX Version 2.07 Controller MODBUS Device

P/N 527-0368

Overview

The XC643CX is designed to manage one Copeland Digital compressor on a single-compressor condensing unit, or two compressors in parallel, with one digital compressor in addition to a fixed-speed compressor. The XC643CX also manages condenser fans based on pressure or temperature sensed in the low pressure suction (compressors) and high pressure (condenser) circuits. A special algorithm balances the run hours of the compressors to distribute the work load uniformly.

This document will guide you through setting up and commissioning the XC643CX MODBUS device in the E2 controller.

NOTE Note that this device requires E2 firmware version 3.01 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 where you saved the description file and click **Upload**.
4. After uploading, you will need to reboot the E2 controller.

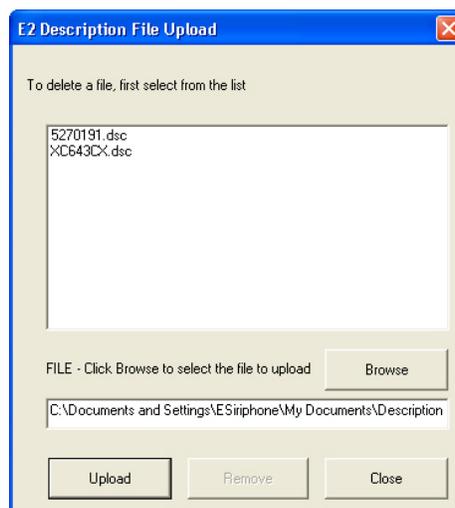


Figure 1 - Description File Upload

STEP 2: Once the description file is loaded, add the device to E2

1. Press , **7** (System Configuration), **7** (Network Setup), and **2** (Connected I/O Boards and Controllers).
2. Press **F2** (NEXT TAB) to go to the C3: ECT tab. You should see the device in the list. Enter the number of devices to add and press the  button to save the changes.

STEP 3: Assign the MODBUS port

1. Press , **7** (System Configuration), **4** (Remote Communications), and **3** (TCP/IP Setup).
2. Press **F1** to go to the C3:Serial tab.

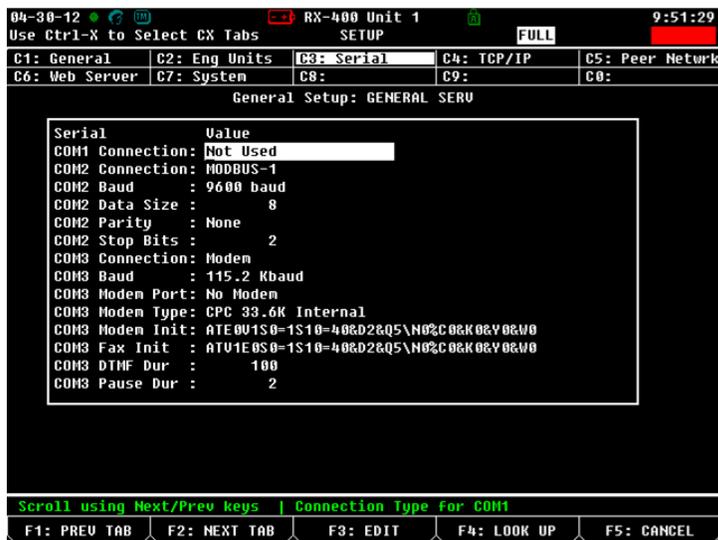


Figure 2 - Serial Tab

3. Select the COM port to which the device is connected, press **F4** (LOOK UP) and select the appropriate MODBUS selection.



Figure 3 - Option List Selection Box

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

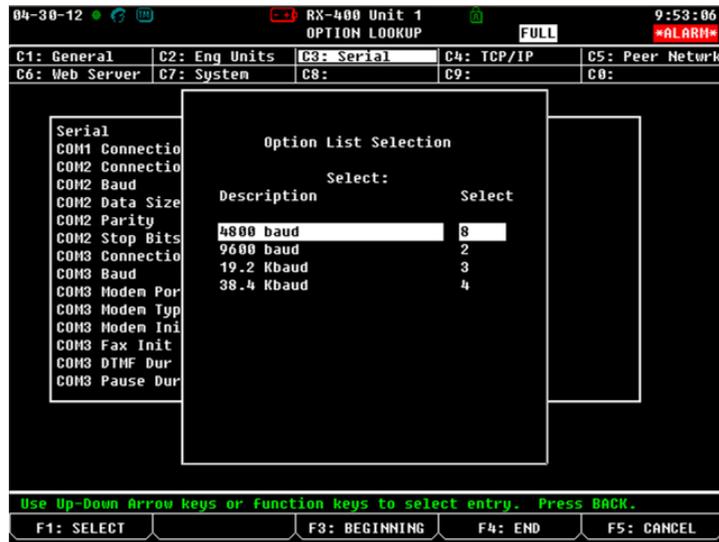


Figure 4 - Setting the Baud Rate

STEP 4: Commission the device.

- Press **Menu**, **&7** (System Configuration), **&7** (Network Setup), **!1** (Network Summary).
- Highlight the device name using the **UP** or **DOWN** arrow key on the E2 front panel and press **F4** (COMMISSION). Select the MODBUS port that you will be assigning the device to, and then select the MODBUS device address.

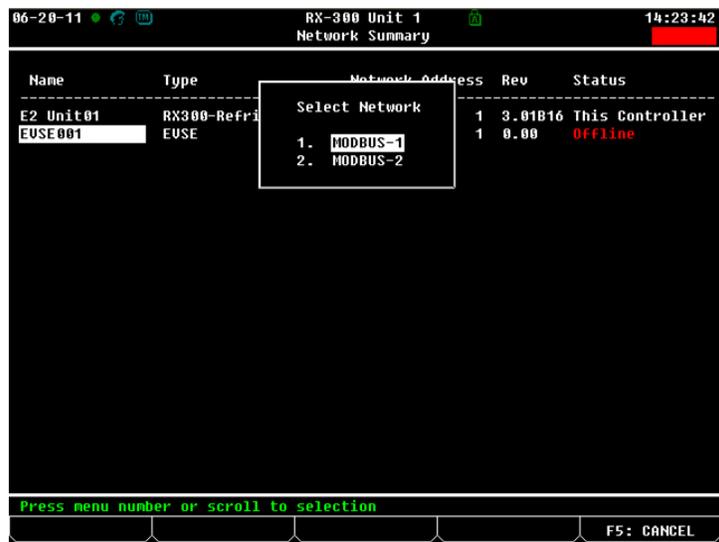


Figure 5 - Network Summary Screen



Figure 6 - Assigning the Device Address

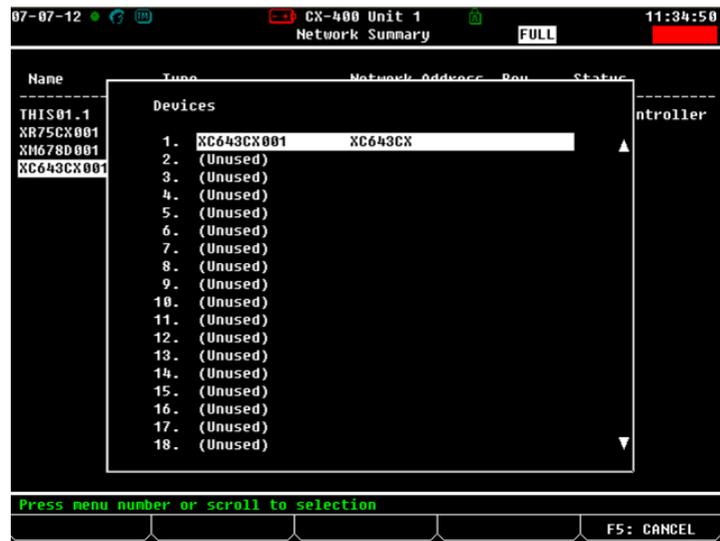


Figure 7 - Device Address Assigned

Once the device is addressed and wired properly, the device should come online.

STEP 5: Wire the device using TTL/RS485 Serial Converter and set the address

1. To set the address on the device, enter the level Pr2 parameter list. Press and hold the **SET** +  keys on the device for three seconds to enter level Pr1 parameter list. Scroll to **Pr2** and enter the password, **3210**. Scroll to **Adr** and then set the address.
2. Use a TTL/RS485 Serial Converter to enable communication between the device and the E2.

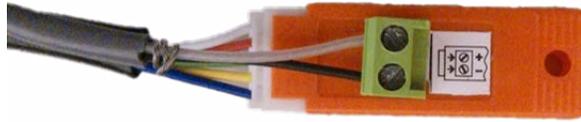


Figure 8 - Device Wiring Using TTL/RS485 Serial Converter

3. Make sure to reverse the wiring polarity between the TTL/RS485 and the E2.
 - Connect the (+) RS485 side of the TTL/RS485 line to the (-) RS485 side of the E2.
 - Connect the (-) side of the TTL/RS485 line to the (+) RS485 side of the E2.

Parameter Quick Start Guide

Pre-Set Value According to Refrigerant Type

PSIG								
	R-404A	R-22	R-410A	R-507	R-134A	CO2	R-407A	R-407C
SETC	55	43	78	55	17	159	42	37
SETF	220	181	295	220	114	369	194	179
LSE	30	23	58	34	-1	139	21	17
HFE	75	63	98	75	37	178	62	58
LSF	170	131	245	169	63	319	143	130
HSF	270	231	345	269	163	419	243	230
Pbd	10	10	10	10	10	10	10	10
Pb	58	58	58	58	58	58	58	58

Parameter	Value	Description	Range
SEtc	55	Setpoint for compressors	(low limit setpoint) LSE - HSE (high limit setpoint)
SEtF	220	Setpoint for fans	(low limit setpoint) LSF - HSF (high limit setpoint)
OA2	CPr	Output 2 configuration	nu, CPr
OA3	Fan	Output 3 configuration	nu, Fan
OA4	Fan	Output 4 configuration	nu, Fan
FtyP	404	Refrigerant type	r22, 134, 404, 407A, 407C, 410, 507, CO2
P2C	YES	Probe P2 presence	NO, YES
dEU	Pr4	Select probe temp or pressure type	tPr (NTC temp), Pr4 (4-20mA), Pr5 (0.5-4.5V)
Pbd	10	Compressor control bandwidth	1.0-150.00 PSI
inC	300	PI integration time	0-999 seconds
tdS	20	Cycle modulation time for digital comp	10-40 seconds
don	0:00:30	Delay between compressors start	0-99.5 minutes, resolution in seconds
Pb	58	Proportional bandwidth for fan	1.0-150.00 PSI

Visit our website at 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