E2 setup with LOCHINVAR water heater model AWN501PM MODBUS device for 527-0369

This document will guide you through setting up and commissioning the water heater model AWN501PM third-party controller MODBUS device in the E2 controller.

Step 1: Upload the description file to the E2.

- 1. Connect to your E2 using UltraSite (refer to UltraSite32 User's Guide P/N 026-1002).
- 2. Right-click the E2 icon and select Description File Upload.
- 3. Browse to the location of the description file and click Upload.
- 4. Once upload is complete, reboot the E2 controller.



Figure 1 - E2 description file upload window



Step 2: Activate the license of the device.

- 1. Log in to the E2 controller.
- 2. From the E2 front panel (or via Terminal Mode), press (Vert), 7, 9 (Licensing).
- 3. Press **F1** (*ADD FEATURE*) and enter the license key.

Licensed Features- 06/2	0/2011 - 14:03:48 - Rev:	3.018	16	
Feature	Maximum In-U	Jse L	icense	
EUSE				
Area Controller				
Log Group	Activate Feature			
Condenser Control				
Digital Combiner				
Heat/Cool Control	Enter License key to			
Time Schedule	activate a Feature:			
Holiday Schedule				
Power Monitoring				
Analog Sensor Ctr				
Digital Sensor Ct				
Conversion Cell	128	6		
Pulse Accumulation	16	0		
Digital Import Point	64	0		
Analog Import Point	64	0		
HVAC Simulation	16	0		
Takey declared hout				
incer desired cexc				

Figure 2 - add license screen

Step 3: Add the device in the E2.

- 1. Press (Merry), ^a7, ^a7, ^a2 (Connected I/O Boards & Controllers).
- 2. Press **F2** to shift over to the *C4: Third Party* tab. The name of the device will display in the list. Highlight the device name and enter the number of devices to add under the **Quantity** field.
- 3. Press **()** to save the changes.

07-30-13 🔹 🕜 🛛	M Select CX Tabs	XX-400 Unit 3 SETUP			13:23::
C1: This Unit	C2: IO Network	C3: ECT	C4: Third	Partų	C5: Echelon
Có:	C7: System	C8:	C9:		C0:
		CWORK GUIIS. HEC	secup		
	Third Party Boa	ard Type	Quantity	Max	
	#1 : D	evice Name	12	100	
Enter 0 to 91	I Enter desired	number of these	boards		

Figure 3 - C4: third party tab

Step 4: Set up the device in the E2 serial port.

- 1. Log in to the E2 controller.
- 2. Press Menu, ⁸/₇, [#]/₃, [#] (General Controller Information).
- 3. Select **F2** to go to the *C3*: *Serial* tab. Highlight the physical COM Connection Port that will be assigned to the device and set up the manufacturer's communication configurations as follows:
- COM# Baud: 9600 kb
- COM# Data size: 8
- COM# Parity: None
- COM# Stop bits: 1
- 4. Press **(**) to save the changes.



Figure 4 - C3: serial tab



The water heater model AWN501PM has a MODBUS board that has a 10 Dip switch setting. Dip switch #1 through #8 is the address setting. Dip switch #9 is the baud rate setting (ON is 19200 bps, OFF is 9600 bps). Dip switch #10 is the parity setting (ON is Even parity, OFF is No parity).

If Dip switch #10 is set for No parity, there must be 2 Stop Bits, otherwise there will be one.

Step 5: Terminate the device's MODBUS RS-485 communication cable as shown in Figure 5.

NOTE: Reverse the polarity of the device communication cable connection.



Figure 5 - terminating the device's communication cable connection

Step 6: Commission the device.

Selecting the device's MODBUS network

- 1. Log in to the E2 controller.
- 2. Select (Menu), 7, 7, 7, 1 (Network Summary).
- 3. On the Network Summary screen, highlight the device name, press **F**4 (*COMMISSION*), and select the preferred MODBUS Network (*Figure 6*). (Note that multiple MODBUS Networks appear in the list if more than one serial ports were set up initially.)
- 4. Press

NOTE: If there is only one MODBUS-1 Network in the list and **F4** (COMMISSION) is pressed, the MODBUS device addressing list will display.

86-28-11 ♦ 🧑		XX-300 Unit 1 Network Sunnary	۵		14:23:4
Напе	Туре Г	Notwork Add	ess	Rev	Status
E2 UNITOT EVSE001	RX300-Refrá	1. HODBUS-1 2. NODBUS-2		3.01816	This Controller Offline
Press nenu r	unber or scroll t	to selection			EE - 0010E1

Figure 6 - select network list

Setting up the device's MODBUS address in E2

- 1. Select Menu, 7, 7, 7, 1 (Network Summary).
- Using the E2 arrow keys, select the desired MODBUS device and press
 F4 (COMMISSION). The E2 MODBUS addressing list will display. Select the desired MODBUS addressing slot for the device from the list (Figure 7).

NOTE: The MODBUS addressing slot pertains to the device address on the E2 controller only. The MODBUS address must be the same with the address assigned on the device. The actual device address must be configured at the local third party MODBUS Remote Terminal Unit (RTU) to enable communication with the E2 controller.

10 L0 11 4		XX-300 Unit 1 🖄 Network Sunmary	14:24: *ALAR
Name r	Тиро	Notwork Addrocs Rou	statur
Device_1	MODBUS-1 Device	s	ntroller
Device-1	1. Device001	Device-1	
	2. (Unused)		
	3. (Unused)		
	4. (Unused)		
	5. (Unused)		
	6. (Unused)		
	7. (Unused)		
	8. (Unused)		
	9. (Unused)		
	10. (Unused)		
	11. (Unused)		
	12. (Unused)		
	13. (Unused)		
	14. (Unused)		
	15. (Unused)		
	16. (Unused)		
	17. (Unused)		-
	ia. (onuseu)		•

Figure7 - MODBUS Address Selection

3. Next, press and the MODBUS address will be set as shown:

06-20-11 🍳 🤇	? III	XX-300 Unit 1 🙆 Network Summary		14:24:5 *ALARM
Nane	Tupo	Device-1	Bou Status	-
E2 Unit01 Device-1				ntroller
Defact I				_
	Setting F	Physical Address for: Device-	1	
	Specify I	Physical Address Of Controll	P#*	
	,	Address: 1		
	MO	DDBUS Device address is set		
Enter value	and Press ENTE	ER to Set Address		
			F5	: CANCEL

Figure 8 - MODBUS address setting

NOTE: After a few seconds the device will appear online (**Figure 9**) to confirm that the commissioning process has completed. If the device still appears offline, re-check the RS-485 cable terminations and repeat the commissioning process.

06-20-11 🥱 (Network Summary	FULL	19:06:0
Nane	Туре	Network Addres	s Rev	Status
E2 Unit65 Device001	BX499-B1dg Device-1	Ethernet: MODBUS-1:	5 3.01F01 1 0.00	This Controller Online
F1: DELETE RCR	D F2: STATUS	∑	COMMISSIO	N F5: SETUP

Figure 9 - network summary screen

Step 7: Once commissioning is complete, view the status of the device.

NOTE: The commissioning process is completed once the RTU is online.

- 1. Press (1), (5) (Configured Applications). The Configured Applications list displays.
- 2. Highlight the name of the water heater device in the list using the arrow keys and press **Energy** to view the Status screen of the device.

07-31-13 🔹 🕜 🔟	-+• XX-300 Uni Lochinva	t3 🖻	16:19:0 *ALARM
Controller Name Lochinvar001 INPUTS Inlet Temperature Outlet Temperature Flow Switch Gas Pressure Switch Air Pressure Switch Blocked Drain Switch Auto Reset High Limit Flame Run-Time Contacts CH Pump Domestic Hot Water Pump	NONE NONE NONE NOTAC	ETPOINTS utlet Setpoint ystem Cascade Setpoint TATUS ystem Pump Speed % ascade Total Power % ascade Total Power % iring Rate % oiler Pump Speed % LARMS oiler Status Code oiler Block Code	NONE NONE NONE NONE NONE NONE NONE NONE
Press enter for a list of	actions.	oiler Lockout Code larm Contacts	NONE Notac F5: Setup

Figure 10 - water heater device status screen



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