E2 setup with Carrier Corporation's RTU open controller for 527-0359

This document will guide you through setting up and commissioning the Carrier Corporation's RTU Open Controller in the E2 controller (CARRIER OPN-RTUM Open Echelon device in the E2).

Note that Open Echelon description files require E2 firmware version 3.01FO1 or higher.

E2 and Echelon devices communications network wiring diagram





Controller board Echelon network cable connections



Figure 2 - Echelon network cable connections

Carrier Corporation's RTU open controller board (SW3) dip switch settings

			Set SW3 dip	switches as s	hown			
Baud rate	DS-1	DS-2	DS-3	DS-4	DS-5	DS-6	DS-7	DS-8
38.4K baud	On	Off	Off	On	Off	On	On	Off

Third party hardware configuration notation

The RTU Open's operation depends upon its occupancy state (**Occupied/Unoccupied**). The RTU Open operates continuously in the **Occupied Mode** by default until the occupancy schedule has been configured.

NOTE: The controller's **OCCUPANCY SOURCE** point setting must be initiated through the third party hardware and software setup procedures in order for any Building Automation System (BAS) to control Occupancy Schedule.

The OCCUPANCY SOURCE point setting must be configured as follows:

• 3 = BAS ON/OFF

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.

To delete a file, first :	select from the list	
5270359.dsc		
FILE - Click Brow	se to select the file to upload	Browse
_		

Figure 3 - description file upload

Step 2: Activate the license of the device.

- 1. From the E2 front panel (or via the Terminal Mode), press (1997), 7 (System Configuration), and 9 (Licensing).
- 2. Press F1 (ADD FEATURE) and enter your license key.



Step 3: Once the license is activated, add the device to the E2 controller.

- 1. Press (Keny), 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 D button to save your changes

02-08-12 🔍 🥝 🛛 Use Ctrl-X to 🕸	📟 Select CX Tabs	CX-400 Unit 1 SETUP	🙆 OAT: 39	0H: 50 9:02:1 *ALARM
C1: This Unit	C2: IO Network	C3: ECT	C4: Third Par	C5: Echelon
C6:	C7:	C8:	C9:	C0:
	Num N	etwork Ctrls: Net	Setup	
	Third Party Bo	ard Tupe	Ouantitu Ma	IX I
	#1 : Op	en Echelon	1	0
-				
	Changes to this	application will	be saved.	
	enanges to this	appression was	e de pareas	
	Do you wish to	continue and exit	t this screen?	
	Bu	occ V-Voc ov N-N		
	PP PP	ess t=tes or n=n	1	
		L .	ļ	F5: CANCEL

Figure 5 - specify the number of devices to add

02-08 Use C	-12 🔹	😚 📟 to Sele	ct C)	(Tab	s	CX-	400 Ur Setur	nit 1 P	â	OAT:	35 0	H: 4	9 9:0 *AL	1:23 ARM*
C1: 1	This Ur	nit C2	: 10	Netu	vork	C3:	ECT		C4:	Third	Partu	C5:	Echelor	١
C6:		C7	:			C8:			C9:			C0:		
				Nu	n Net	twork	Ctr1	s: Net	Setup					
		Thi	rd Pa	nrty	Boar	rd Ty	pe		Qua	ntity	Max	1		
				: 11	Oper	n Ech	elon		1_		10			
Ente	r 0 to	10 E	nter	desi	red i	nunbe	r of t	these	boards					

Figure 6 - device setup screen

Step 4: Commission the Echelon device.

- 1. Press (Mere), 7 (System Configuration), 7 (Network Setup), 1 (Network Summary).
- 2. Use the UP and DOWN arrow keys to highlight the device name and then press F4 (Commission).
- 3. Select the method to use for identifying the device. Select from the list:
 - **1** = **Service Pin** --> The physical button on the controller must be pressed. This is the preferred method for device accuracy.
 - 2 = Entering Neuron ID(s) directly --> Echelon device address should consist of 12 characters. The device is
 identified via remote communication using the Neuron ID. Use this selection if the Neuron ID of the device is available.
 - 3 = Specifying a range of nodes --> The network is scanned for neuron addresses.

02-08-12 🔹 🕜 📖		CX-400 Network	Unit 1 Sunnary	Ċ	OAT: 35	OH: 49	9:04:28
Nane	Туре	N	etwork Addre	55	Rev	Status	
E2 CX-400	CX400 C-Store		Ethernet:	1	3.01F01	This Cor	ntroller
LONMARK_001	LonMark Device			2	0.00		
16AI_001	16AI		IONet:	1	0.00	Online	
16AI_002	16AI		IONet:	2	0.00	Online	
16AI_003	16AI		IONet:	3	0.00	Online	
8R0_001	8R0		IONet:	1	0.00	Online	
8R0_002	8R0		IONet:	2	0.00	Online	
8R0_003	8R0		IONet:	3	0.00	Online	
8R0_004	8R0		IONet:	4	0.00	Online	
8R0_005	8R0		IONet:	5	0.00	Online	
F1: DELETE RCRD	F2: STATUS	F3: NE1	T STATUS F4	: 0	OMMISSIO	N F5:	SETUP

Figure 7 - commission the device

02-08-12 🔹 🍞 🛄		CX-400 Unit 1 Network Summary	à	OAT:	35 OH:	49	9:05:2
Nane	Туре	Network Addr	ess	Rev	Stat	us	
E2 CX-400 LONMARK_001 16AI_001 16AI_002 16AI_003 8R0_001 8R0_002 8R0_003 8R0_004 8R0_004 8R0_005	CX400 C-Store LonMark Device Set controller Subnet: 1 Nod Select method f 1 = Pressing 2 = Entering 3 = Specifyin 4 = Cancel Press	Ethernet: address for: LONMA e: 2 or identifying con 'Service Pin' on c Neuron ID(s) direc g a range of nodes desired selection	1 2 IRK_ tro.	3.01F 8.00 001 11er. roller	01 This 0ff nli nli nli nli nli nli nli	Cor ine ne ne ne ne ne ne	itroller
						F5:	CANCEL

Figure 8 - select method for Identifying the controller

82-08-12 🔹 🌈 📟	X	CX-400 Unit 1 Network Summary	Â	OAT: 36	OH: 48	9:09:0
Nane	Туре	Network Addre	255	Rev	Status	
E2 CX-400 Lonmark_001 16ai_001	CX400 C-Store LonMark Device 16AI	Ethernet: 04E980880400: IONet:	1 2 1	3.01F01 0.00 0.00	This Cor Online Online	itroller
16AI_0 8R0_60 8R0_60 8R0_60 8R0_60 8R0_60 8R0_60	Setting Contro Subnet: 1 No Specify Neuron Neuron	oller Address for: ode: 2 n ID Of Controller n ID: <mark>04E980880400</mark>	LONI	HARK_001		
20% Com Clearin	plete Clearin g NV 45 of 62	ng All Node NVs				
Press F4 to com	1155100	51		000000000000000000000000000000000000000	I E5:	CONCEL

Figure 9 - identifying the controller using the neuron ID

Step 5: Name the controller device.

- 1. Press (Merry), 7 (System Configuration), 7 (Network Setup), 1 (Network Summary).
- 2. Use the **UP** and **DOWN** arrow keys to highlight the generic LonMark Device name and then Press **F5** (SETUP).
- 3. Enter the desired device name in the **Name** field highlighted and then press the **C** to return to the Network Summary screen.

NOTE: By default, any Third Party (Open Echelon) devices that are initiated in E2 will always have a generic naming sequence as shown:

Example: LONMARK_001, LONMARK_002, LONMARK_003

82-87-12 🔹 🍞 🛄		CX-400 Unit 1 Network Summary	OAT: 54	OH: 21 12:29:2
Nane	Туре	Network Address	Rev	Status
E2 CX-400	CX400 C-Store	Ethernet: 1	3.01F01	This Controlle
LONMARK_001	LonMark Device	04E980880400: 2	0.00	Online
16AI_001	16AI	IONet: 1	0.00	Online
16AI_002	16AI	IONet: 2	0.00	Online
16AI_003	16AI	IONet: 3	0.00	Online
8R0_001	8R0	IONet: 1	0.00	Online
8R0_002	8R0	IONet: 2	0.00	Online
8R0_003	8R0	IONet: 3	0.00	Online
8R0_004	8R0	IONet: 4	0.00	Online
8R0_005	8R0	IONet: 5	0.00	Online
F1: DELETE RCRD	F2: STATUS	F3: NET STATUS F4:		F5: SETUP

Figure 10 - network summary screen

02-0 Use	7-12 🔍 🥱 Ctrl-X to	 Select	CX Tabs	CX-400 Unit 1 SETUP	0A1	r: 54 OH: 21	12:30: *ALARI
C1:	General	C2:		C3:	C4:	C5:	
			Generi	c LonMark: LONMA	RK_001		
	General		Value				1
	Nane	:	LONMARK_0	91			
							-
			1.11				
Ent	er desired	1 text	Name of	this item	Eb. 01	ATUS	0411051
	: PREV TAB	F2:	NEXT TAB	L F3: EDIT	1 F4: S1	ATUS 🔶 F5:	CANCEL

Figure 11 - Changing the device name

	000			
i: General C2:	C3:	64:	C5:	
	Generic LonMark: LO	NMARK 001		
Caparal IIal	110	-		1
Nane : RTU	-OPEN_			
nter desired text Na	ne of this item			
F1: PREU TAB F2: NEXI	TAB 🔶 F3:EDIT	F4: STAT	JS <u>F5:</u>	CANCEL

Figure 12 - Changing the device name

02-07-12 🔹		CX-400 Unit 1 Network Summary	OAT: 46	OH: 33 10:37:5
Name	Туре	Network Address	Rev	Status
E2 CX-400	CX400 C-Store	Ethernet: 1	3.01F01	This Controller
RTU-OPEN	LonMark Device	04E980880400: 2	8.88	Online
16AI_001	16AI	IONet: 1	0.00	Online
16AI_002	16AI	IONet: 2	8.88	Online
16AI_003	16AI	IONet: 3	8.88	Online
8R0_001	8R0	IONet: 1	6.66	Online
8R0_002	8R0	IONet: 2	6.66	Online
8R0_003	8R0	IONet: 3	0.00	Online
8R0_004	8R0	IONet: 4	0.00	Online
	F2: STATUS	F3: NET STATUS		L

Figure 13 - network summary screen

Step 6: View the device status screen.

- 1. Press (Ment) and then 5 (Configured Applications). A list of all configured applications in E2 displays on the screen.
- 2. Use the **UP** and **DOWN** arrow keys to highlight the device name on the Configured Applications screen and then press Energy. The device Status Screen displays.

NOTE: By default, if there are one or more devices of the same type configured in E2, a list of all common devices will display (Summary Screen) in reference to the numeric or alphanumeric character sequence of the devices labeled.

Example: AHU-1, AHU-2, AHU-3, RTU-1, RTU-2, RTU-3

02-08-12 🔹 🖪 🖮		CX-400 Unit 1 Device Summan	1 'Y	DAT:	61 OH: 21	13:22:50
INSIDE RH	19.0%	REFRIGERATION NAME	STATE	TENP		
		MAIN MENU				
	1. ARTC/R	TU Control				
	2. Conder	ser Control				
	3. Circui	ts				
	4. Sensor	Controls				
	5. Config	ured Applicatio	ns			
LIGHTING LIGHT LEVEL 131	6. Add/De	lete Applicatio	n			
NAME BYP BISTRO LITES OF	7. System	Configuration				
HIGH BAY LITES OF KITCHEN LITES OF	8. Status					
QK GRAB #1 LTS OF	F ON	ICHP 6 OIL FAIL	OFF	OFF	_	
QK GRAB #2 LTS OF Track LTS CNTR OF	F ON F OFF	DISCH HDR TEMP Drop Leg temp	131.6 78.4	OFF OFF		
Press menu number	or scroll t	o selection				
			L		Ļ	

Figure 14 - main menu

02-08-12 🔹 🕜 💷	CX-400 Unit 1 MAIN MENU	OAT: 58 OH: 26 FULL	13:29:44 *ALARM
INSIDE RH 19.4	REFRIGERATION NOME STAT Configured Application 1. Suction Groups 2. Condensers 3. Circuits 4. Sensor Controls 10. Lighting Control	rc rr HP .8 .3 .7 .1 .8 .8 .3 .3 .7 .1 .8 .8 .5 .4	
LIGHTING LIGHT LEVEL 1313 FT NAME BYPASS	16. Logging Groups 98. Global Data 388. CARRIER OPN-RTUN SENSON CONTINUE IC NAME UALL OF		
BISTRO LITES OFF HIGH BAY LITES OFF KITCHEN LITES OFF PRKNG/SIGN/WLL OFF QK GRAB #1 LTS OFF QK GRAB #2 LTS OFF TRACK LTS CNTR OFF	ON CMP 2 OIL FAIL OF OFF CMP 3 OIL FAIL OF ON CMP 4 OIL FAIL OF OFF CMP 5 OIL FAIL OF ON CMP 6 OIL FAIL OF ON DISCH HDR TEMP 96. OFF DROP LEG TEMP 98.	F OFF F OFF F OFF F OFF F OFF 9 OFF .9 OFF .6 OFF	
Press menu number or s	croll to selection		CANCEL

Figure 15 - configured applications

12-17-12 🔹 🤭 🛄		CX-400 Unit 1 SUMMARY	OAT: 67 OH: 17 14:21 FULL	1:
Acres .	Sunnary I	OF CARRIER OPN-RTUM		
CtrlName	Binding Status	Operation State	Gen LonMark State	1
RT1 Gen-Office	Online & Bound		Normal	
RT4 Bstro Seat	Online & Bound		Normal	
RT5 Cashier-QG	Online & Bound		Normal	
RT6 Vestibule	Online & Bound		Normal	
RT7 Sale Area	Online & Bound		Normal	
RT8 Sales Area	Online & Bound		Normal	
RT9 B-Kitchen	Online & Bound		Normal	
	sired applicatio	on for status.		
Press enter on de				

Figure 16 - summary screen

81-28-12 🔹 🦿 🛄 🕒	😼 CX-400 Unit 5 🖄 Carrier OPN-RTUM 🛛 📕	13:31:32
Controller Name CAR-OPEN-RTUM Subnet/Node : 5.3	Binding Status: Online & Bound Operation:	Timers: Wait : 0 Retry: 0
INPUTS		
GLOBAL OAT THP : 89.0 DF BAS ON/OFF : 2.0 NONE OCC COOL SP : 72.0 DF OPERATING MODE : 4.0 NONE EFF COOL SPOINT : 72.0 DF EFF HEAT SPOINT : 50.0 DF	SUPLY FAN RELAY FIRE SHUTDOWN ACT COMPSTAGE HEATSTAGES COMP SAFETY ECON OUTPUT FILTER ALRM HI SPACE TEMP LOW SPACE TEMP OCC STATUS OAT SPACE TEMP SUPPLY TEMP FAN STATUS HI SUPPLY ALM	: ON : OFF : 1.0 NONE : 0 NONE : OFF : 20.0 PCT : OFF : OFF : OFF : OFF : OFF : 74.1 DF : 75.0 DF : 75.8 DF : OFF : OFF
Press enter for a list of acti	ions. F3: CIRCUITS F4: SENS	DRS F5: SETUP

Figure 17 - sevice status screen

Ctrl-X to Sele	ct CX Tabs	SETUP	FULL	05.
General	2: Inputs	03: Outputs	C4: Hovanced	165:
	CARRIER C	OPR-RTUM:CAR-O	PEN KTUM	
General	Value			
Nane	CAR-OPEN-I	RTUM		
Update Rate	: 0:00:00			
UC Subnet	: 5			
UC Node	: 3			
Program ID	: 52:54:55:4	4F:31:00:00:00		
er desired tex	t Name of 1	this item		

Figure 18 - general tab

se	Ctrl-X to Selec	t CX Tabs	<u> </u>	SETUP	9	FULL		*ALARM*
C1:	General C22	: Inputs	C3:	Outputs	C4: Adv	vanced	C5:	
		CARRIER	OPN-	KTUM:CAK-C	PEN KTUA	N		
	Inputs	Value]
	GLOBAL OAT THE	89.0					L	
	BAS ON/OFF	: 2.0					L	
	UPTIMAL START							
	HEHT LUK TEMP							
	UNDCC HEAT SP							
	OCC COOL SP	. 72.8	•				L	
	OCC HEAT SP	:	:				-	
	COOL LCK TEMP		-					
	FILTERALNTINE							
	OCC REL HUM SP	· :		:				
Ent	er -40.0 to 621	1.8 DF G10	bal O	utside Aire	Tenperat	ure Read	ing	
E	PREU TAB	2: NEXT TAB		E3- EDIT	Eh-	ZUTATZ	ES-	CANCEL

Figure 19 - inputs tab

eneral 02:	inpucs	ca: outputs	C4: Hovanced	165:
	CARRIER OF	N-RTUM:CAR-O	PEN KTUM	
Outputs	Area Ctrl	Application	Input	
ACT COMPSTAGE	:			L T
HEATSTAGES				- L
ECON OUTPUT				L
DAT				
SPACE TEMP				
SUPPLY TEMP	: :	:		
FAN STATUS				- L
DCC STATUS	: :	:		- L
COMP SAFETY	: :	:		
FILTER ALRM	: :	:		- L
HI SPACE TEMP				
LUW SPRCE TEMP				- L
HI SUPPLY HLN				
FIRE SHUTDUWN				2
SUPLY FHM KELHY				21
CEE COOL SPOINT				- 1 L
CFF GOUL SPUIN				

Figure 20 - outputs tab



About Copeland

Copeland is a global leader in sustainable heating, cooling, refrigeration and industrial solutions. We help commercial, industrial, refrigeration and residential customers reduce their carbon emissions and improve energy efficiency. We address issues like climate change, growing populations, electricity demands and complex global supply chains with innovations that advance the energy transition, accelerate the adoption of climate friendly low GWP (Global Warming Potential) and natural refrigerants, and safeguard the world's most critical goods through an efficient and sustainable cold chain. We have over 18,000 employees, with feet on the ground in 50 countries - a global presence that makes it possible to serve customers wherever they are in the world and meet challenges with scale and speed. Our industry-leading brands and diversified portfolio deliver innovation and technology proven in over 200 million installations worldwide. Together, we create sustainable solutions that improve lives and protect the planet today and for future generations. For more information, visit <u>copeland.com</u>.

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