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Title:	i-Controller to E2E Communication Connection Ver.1	

i-Controller to E2E Communication Connection Guide

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IMPORTANT: Please Read before Continuing

Before beginning the E2/I-Controller integration, obtain a license key for each i-Controller along with the Flō RTU description file from Emerson Retail Solutions.

CAUTION: Before connection, ensure there is no earth ground on the wires used for the RS485 Slave or Master connection. Do not ground any of the wires connected to the RS485 Slave or Master port on the i-Controller. Doing so will result in damage to the i-Controller hardware.

Step 1: Connect Flo i-Controller to E2

The Flō i-Controller uses an RS485 network to communicate to E2 site controllers over the Modbus protocol. Perform the following steps to connect the RS485 cable.

- 1. Connect the RS485 network cable to the three-terminal connector on the E2 COM port you choose to assign as the Modbus port. Reverse the polarity of +/- on the RS485 cable between the E2 and the Flō i-Controller. (See below figure for reference)
- 2. Connect the other side of the RS485 cable to the i-Controller's RS485 Slave port.



Figure 1. Connection the RS-485 Communication Wire

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Setting the Modbus Address

- 1. On the Visograph display, navigate to the Network Info page by pressing number 5 on the Main Menu screen.
- 2. On the Network Info screen, use the Up and Down arrow keys to highlight the Flō i-Controller Modbus Address value.
- 3. Once highlighted, press Enter and use the Up and Down arrow keys to change the Modbus address to the desired value. When the desired value has been set, press Enter. Power cycle the Flō i-Controller for the address change to take effect.



Figure 2. i-Controller Network Information Screen

Step 2: Configuring the E2 Site Controller Communication Port

Configure the E2E COM port where the RS485 i-Controller ModBus cable was connected as a Modbus port type.

- 1. Log on to the E2 with Level 4 access.
- 2. Press the Menu button followed by 7. System Configuration, then 3. System Information, and then 1. General Controller Info.
- 3. Press the F2: Next Tab button twice to view the C3: Serial menu.
- 4. Using the arrow keys, scroll down until the appropriate COM# Connection field is highlighted.



Figure 3. E2E Communication Port Configuration screen

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- 5. Once the field is highlighted, press F4: LOOK UP. A list of four options will appear. From the list select MODBUS.
- 6. Scroll down until the appropriate COM# Baud field is highlighted. Press the **F4: LOOK UP** button. Change the Baud rate to **9600** baud. Ensure the COM# Data Size is **8**, the COM# Parity is "**None**", and the COM# Stop Bits is **1**.
- 7. After completing the steps above the COM port has been configured and return to the main menu.

Uploading the Description File

Once the RS485 cable has been connected and the port has been configured, the description file for the Flo i-Controller needs to be uploaded to the E2.

- 1. Open UltraSite and connect to the E2.
- 2. Right click on the device and select "Upload Description File" from the menu.



Figure 4. UltraSite Navigation screen

- 3. If a description file for the device already exists, delete the file, reboot the E2 and repeat steps 1-2.
- 4. Browse for the description file on your computer, and select Upload.

Unable Revision MCHEL- Directions		(B(H))
Portugation Portugati	C Danish In spin	

Figure 5. UltraSite Description File Upload screen

5. Once the file has been uploaded, select Close and reboot the E2.

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Inputting the License Key

Once the description file has been loaded, the license key needs to be inputted into the E2 in order for the Flō i-Controller to be recognized by the E2.

1. On the E2, press the Menu button followed by 7. System Configuration, and then 9. Licensing.

95-02-14 🛛 🦪 🔟	R) L I	(-100 Uni ICENSE RE	t 1 Port	园 NAMES FULL		11:03:5
Licensed Features- 05/02/201 For controller model type: R Feature 	4 - 11:03:55 - X-100 Maximum	Rev: 4. In-Use	05F02 License		ADVISORY Fails Alarms Notices	SUMMARY 7 1 190
Analog Sensor Ctrl	24	15				
Flexible Combiner	64	15			NETWORK	DVERVIE₩
Digital Sensor Ctrl	24	8			IONet-1	٠
440	2	2			MODBUS-	e 🔍
8R0	16	2				
16AI	16	2				
Time Schedule	4	1				
Log Group	8	1				
Loop/Sequence Ctrl	4	1				
Area Controller	20	1				
Enhanced Suction	4	1				
New Device	1	1	2053-6E97-8	C69-1A73		
Standard Circuit	48	9				
Suction Control	4	9			CES UNIT	
Anti-Sweat Control	8	9				- 00
Condenser Control	1	8			Rev 4.05	02
TD Control	4	0			19 10.10	.10.3
Conversion Cell	4	0			Faaldab I	10
					Engrish-	12
Lines 1 to 22 of 50						
F1: ADD FEATURE			1			

Figure 6. E2E Licensing screen

- 2. Press the **F1: Add Feature** button.
- 3. Enter the License Key into the Activate Feature box and press Enter.

05-02-14 🕈 🌈 🎟	RX-100 Unit 1 Add License	向 NAMES FULL	11:04:07
Licensed Features- For controller mode Feature	05/02/2014 – 11:03:55 – Rev: 4.05F02 1 type: RX-100 Maximum In-Use Lice	nse	ADUISORY SUMMARY Fails 7 Alarms 1 Notices 190
Analog Sensor Ctr Flexible Combiner Digital Sensor Ct 440 880 1661 Time Schedule Log Group Loop/Sequence Ctr Area Controller Enhanced Suction New Device	Activate Feature Enter License key to activate a Feature:	-6E97-8C69-1873	NETWORK OVERUIEW IDN€t-1 ● HODBUS-1 ●
Standard Circuit Suction Control Anti-Sweat Control Condenser Control TD Control Conversion Cell	4 0 8 0 1 0 4 0 4 0]	CES UNIT Rev 4.05F02 IP 10.10.10.3 English-US
Enter desired text	Ļ		F5: CANCEL



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Adding the Flō i-Controller Device

- On the E2, press the Menu button followed by 7. System Configuration, then 7. Network Setup, then 2. Connected I/O Boards & Controllers.
- 2. Press the F2: Next Tab button to navigate to the C4: Third Party screen.





- 3. Highlight the "Quantity" field Next to the "New Device" board type.
- 4. Change the quantity to 1.
- 5. Press the Menu button followed by 7. System Configuration, then 7. Network Setup, then 1. Network Summary.

05-02-14 🛎 🦿	3 🖻	RX-100 L Network S	Unit 1 Summary	团 NAMES FULL	11:08:5 *Alarm
Nane	Туре	Network Address	Rev	Status	ADVISORY SUMMARY Fails 7
CES UNIT	RX100-Refriq	Ethernet:	1 4.05F02	This Controller	Notices 190
16AI 1	16AI	IONet-1:	1 0.00	Offline	
16AI 2	16AI	IONet-1:	2 0.00	Offline	
8R0 1	8R0	IONet-1:	1 0.00	Offline	NETWORK OVERVIEW
8R0 2	8R0	IONet-1:	2 0.00	Offline	IONet-1 🗣
4AO 1	4A0	IONet-1:	1 0.00	Offline	MODBUS-1 🛛
4AO 2	4A0	IONet-1:	2 0.00	Offline	
CES	New Device	MODBUS-1:	5 0.00	Online	
					CES UNIT
					Rev 4.05F02
					IP 10.10.10.3
					English-US
F1: DELETE	RCRD F2:ST	ATUS 🔶 F3: NET	STATUS	F4: COMMISSION	F5: SETUP

Figure 9. Network Summary screen

6. Scroll down until the Name of the New Device is highlighted. Press **F4: Commission**.

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Scroll down and highlight the Modbus address that was set on the Flo i-Controller (Default address is 11).

15-02-14 🔹 🤅	7 W	RX-100 Unit 1 Network Summary	AMES FULL	11:09:
Name	Тиро	Naturek Address - B	<u>s</u>	ADVISORY SUMMARY Fails 7 Alarms 1
CES UNIT	MODBUS-1 Devices		ontroller	Notices 190
16AI 1	(III)		e	
16AI 2	1. (Unused)		♠e	
8RO 1	2. (Unused)		P	NETWORK OVERVIEW
8R0 2	a. (Unused)		P	IONet-1
4AO 1	4. (Unuseu)	New Device	e	MODBUS-1 (
4AO 2	5. 6ES	New Device	P	
CES	0. (Unused)			
	7. (Unused)			
	0 (Unused)			
	19 (Upucod)			
	11 (Unused)			
	12 (Unused)			
	12. (Unused)			
	1a. (Unused)			
	14. (Unused)			CES UNIT
	16 (Unused)			
	17 (Unuced)			Rev 4.05F02
	19 (Upuced)		+	IP 10.10.10.3
	io. (onuseu)			
				English-US
Press menu	number or scroll to	selection		
	1			F5: CANCEL

Figure 10. E2E Modbus Device screen

7. Press Enter and a box with the Modbus address should appear.

)5-06-14 🕈 🦪		RX-100 Unit 1 Network Summary	AMES FULL	14:52:28 *ALARM*
Name CES UNIT 16AI 1 16AI 2 8R0 1 8R0 2 4A0 1 4A0 2 CES	Tunn Setting F Specify F	Physical Address for: CES Physical Address of Controller	e	ADUISORY SUMMARY Fails 7 Alarms 2 Notices 190 NETWORK OVERVIEW IONet-1 0 MODBUS-1 0
Enter value	and Press ENTE	R to Set Address		CES UNIT Rev 4.05F02 IP 96.1.39.4 English-US

- 8. Press Enter again.
- 9. Press the back button. If the Modbus connection has been setup properly the Status next to the New Device should ready "Online."

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Step 3: Setting Flō i-Controller Control Values from E2

Setting Flo Unit Name

- 1. On the Flo i-Controller home screen, press F5: SETUP.
- 2. On the **C1: General tab** scroll down until the Name field is highlighted. Use the keyboard to change the name to the unit name. (i.e. CES RTU1)

05-06-14 * 🕜 🔟 Use Ctrl-X to Select	CX Tabs	RX-100 Unit 1 SETUP	园 NAMES FULL	14:58:51 *ALARN*
C1: GeneralC2:C6: AlarmsC7:	Setpoints C3: I Compressors C8: H New Dev	nputs C4: Outputs eat C9: Damper vice: CES	C5: Mode C0: MORE	ADVISORY SUMMARY Fails 7 Alarms 2
General Name Long Name Device Address Route Desc File Rev CfgSyn Action Initial Sync FIRHWARE	Ualue : [4] : [4] : 5 : H0DBUS-1 : 0.0 : Send Device (: No : :	Sfg to E2		Notices 190 Network overview IOMet-1 • MODBUS-1 •
Enter desired text	Device Name			CES UNIT Rev 4.05F02 IP 96.1.39.4 English-US
F1: PREV TAB	F2: NEXT TAB	F3: EDIT	F4: STATUS	F5: CANCEL

Figure 11. E2E General Setup screen

Changing Set Points

Custom set points are factory set in the i-Controller and will display on the E2. If the set points need to be adjusted, perform the following steps to adjust the Flō unit set points from the E2.

- 1. Log in to the E2 controller.
- 2. On the E2, press the **Menu** button, followed by **5. Configured Applications**, and then **400. CES RTU.** The Flō i-Controller home screen will appear.

85-86-14 🕈 🧖 🔟		RX-100 Unit 1 New Device	囟 NAMES FULL	14:53:20 *ALARM*
CES		Device Address: 5 Enable/Disable: ENABLE	F/W Rev : 104 DSC Rev :0.0	ADVISORY SUMMARY Fails 7 Alarms 2
Space Temp Space Dewpoint	:71.78 : 50.54	Fan: 100.00	DAMPERS RA Damper % : 63.00 BA Damper % :100.00 DA Damper % : 20.00	Notices 198 NETWORK OVERVIEW
Supply Air Temp Return Ait Temp Mixed Air Temp Outdoor Air Temp CO2 Level	:102.38 : 64.58 : 94.46 : 68.36 -350.00	STATUS Comp Capacity%:100.00 Heat Capacity%: 0 Reheat/Reclaim ON		IUNET-1 🗣 MODBUS-1 🗣
Occupancy	: 000	SETPOINTS OCC Cool : 73.94 UNOCC Cool : 78.08 OCC Host : 68.08	Cloggd Filter: Compressor : Fan Fail :	
Cool Mode Heat Mode	: OFF : OFF	UNOCC Heat : 60.08 OCC Dewpoint : 50.18 UNOCC Dewpoint: 51.98	HI Suct GP1 : HI Suct GP2 : LO Suct GP1 :	CES UNIT
			LU SUCT GP2 : Smoke : CO2 : Sensor Fails :	Rev 4.05F02 IP 96.1.39.4
Press enter for a lis	t of actions			English-US
F1: SUCTION	F2: SCHEDUL	.es 🚶	F4: SENSORS	F5: SETUP

Figure 12. E2E iController Home screen



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- 3. On the home screen, press F5: Setup.
- 4. Press the F2: Next Tab button once to view the Setpoints screen.

05-06-14 ♥ ♂ ₪ Use Ctrl-X to Select	CX Tabs	RX-10 S	10 Unit 1 ETUP	卤 NAMES FULL	14:54:06 *Alar#*
C1: General C2: C6: Alarms C7:	Setpoints C3: Compressors C8: New D	Inputs Heat evice: CES	C4: Outputs C9: Damper	C5: Mode C0: MORE	ADVISORY SUMMARY Fails 7 Alarms 2 Nations 100
Setpoints Occ Cool SP Unocc Cool SP Unocc Heat SP Unocc Heat SP Unocc DewPt SP Unocc DewPt SP OCC / UNOCC *	Value 73.94 78.98 68.09 68.08 50.18 51.98 CES UNIT :0	CCUP/UNOCCUP	: OUTPUT		NGTIGES DU NETWORK OVERUIEW IONEt-1 ∳ HODBUS-1 ∳
					CES UNIT Rev 4.05F02 IP 96.1.39.4 English-US
Enter 20.00 to 80.0	0 DF User inpu F2: NEXT TAB	tted occupie F3	d Comfort Cool	Set point F4: STATUS	F5: CANCEL

Figure 13. E2E iController Setpoints

5. Use the number pad to adjust the set points as necessary, or press F3:EDIT, 1. Alternate I/O Format, 2. Area Ctrl: Application: Property to link a setpoint from an E2 application to the Flo RTU application.

Linking E2 Schedule for Occupancy Mode

The Flō i-Controller accepts an Occupied or Unoccupied signal from the E2. This variable needs to be linked to the CES i-Controller screen on the E2. The occupancy signal will be defaulted to Occupied until a schedule output is linked to the application.

- On the Setpoints screen Setup menu, scroll down to the OCC/UNOCC field and press F3:EDIT, 1. Alternate I/O
 Format, 2. Area Ctrl: Application: Property to change the value property from a fixed value to an application link.
- 2. Scroll down to the OCC/UNOCC field and scroll to the right until the "Application" field is highlighted.

05-06-14 ● 🤗 Jse Ctrl-X to Select	CX Tabs	RX-100 U Setu	Init 1 IP	阁 NAMES FULL	14:55:1
C1: General D2E C6: Alarms C7:	Setpoints C3: Compressors C8: New D	Inputs C4 Heat C9 evice: CES	: Outputs C : Damper C	5: Mode 0: MORE	ADVISORY SUMMARY Fails 7 Alarms 2 Nations 108
Setpoints Occ Cool SP Unocc Cool SP Occ Heat SP Unocc Heat SP Occ DewPt SP Unocc DewPt SP OCC / UNOCC *	Area Ctrl : 73.94 : 78.08 : 68.00 : 60.08 : 50.18 : 51.98 :	Application	Output		NULLES DU NETWORK OUERUIEW IONEL-1 ● Hodbus-1 ●
					CES UNIT Rev 4.05F02 IP 96.1.39.4 English-US
Enter Board/Applica	ation On if in	Occupied mode			
F1: PREV TAB	F2: NEXT TAB	F3:E	DIT 🔶 F-	4: LOOK UP	F5: CANCEL

Figure 14. E2E iController Setpoints screen

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3. Press F4: LOOK UP.

4. In the Application Selection box, scroll down and select the OCCUP/UNOCCUP application. Press Enter.

05-06-14 🕈 🧖 🕅	1	RX-100 Cell L		14:56:17 *ALARM*		
C1: General C6: Alarms Setpoints Occ Cool SP Unocc Cool Occ Heat SP Unocc Heat Occ DewPt Unocc DewPt OCC / UNOCC	D22 SetTOINTS C3: I C7: Compressors C8: H F Applic SP Appl/Point SP COMP 2 LOCKOUT CCS COMP 2 LOCKOUT COMP 2 LOCKOUT GOBAL DATA OFGUZUNDOGUP RTU1 *45 SIPT RTU1 CMD BHK A RTU1 DAHPERS RTU1 DEHWF RTU1 DEHWF RTU1 DEHWFT RTU1 DIST FLIM	ation Selecti Type Digital Ser Open Ctrl Flexible Ct Global Datz Flexible Ct Flexible Ct	4: Outputs 9: Danper 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:	C5: Mode C0: MORE	ADUISORY S Fails Alarms Notices Network OI IONEL-1 HODBUS-1	×HLURUT SUMMARY 7 2 190 JERUTEW ●
		TIENIDIC U	SUDTILE!		Rev 4.05F(IP 96.1.39 English-US	92 9.4 S
Use Up-Down Arr	ow keys or function k	eys to select	: entry. Press	BACK.	.1	
F1: SELECT		F3: BE0	GINNING 🔶	F4: END	F5: CA	NCEL

Figure 15. E2E iController Application Selection screen

5. Scroll over to the right until the "Output" field is highlighted.

05-06- Use C1	-14 🛛 🤭 🖽 trl-X to Se	lect	CX Tabs		RX-100 Se) Uni TUP	it 1		A NAMES FULL		14:58:18 *ALARM*
C1: G C6: A	eneral Ilarms	C2: C7:	Setpoints Compressors Ne	3: In 8: Hea w Devi	puts at ice: CES	C4: C9:	Outputs Damper	C5: C0:	Mode MORE	ADUISORY Fails Alarms Notices	SUMMARY 7 2 198
	Setpoints Dcc Cool SP Unocc Cool Unocc Heat SP Unocc Heat Occ DewPt S Unocc DewPt OCC / UNOCC	SP SP SP *	Area Ctr : 73.94 : 78.08 : 68.00 : 60.09 : 50.18 : 51.98 :	1 Ap :0CCU	pplication IP/UNOCCUP	:	Jutput			NETWORK (IONet-1 MODBUS-	DUERUIEW •
										CES UNIT Rev 4.05F IP 96.1.3 English-U	= 02 39 _ 4 JS
Enter	r Point/Pro	perty	On if in	Occupi	ied mode						
F1	1: PREV TAB	L	F2: NEXT	TAB	F3:	EDI	т	F4:	LOOK UP	F5: C	ANCEL

Figure 16. E2E iController Output Configuration

- 6. Press F4: LOOK UP.
- 7. Scroll down and select "OUTPUT" from the menu. Press Enter.

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Figure 17. E2E iController Output Configuration Selection

8. Press the back button to return to the home screen.