ENERGY SOLUTIONS	Technical Guide	CN-IC2-21
Title:	i-Controller 2.0 to SS / E3 Communication Connection Ver.1	

# i-Controller 2.0 to Site Supervisor / E3 Communication Connection Guide

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ENERGY	SOL	UTIONS

Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### Contents

IMPORTANT: Please Read before Continuing	3
Step 1a: Connect Flō i-Controller 2.0 to Site Supervisor	3
Step 1b: Connect Flō i-Controller 2.0 to E3	4
' Step 2: Setting the Modbus Address on Flō i-Controller 2.0	5
Step 3: Configuring the Site Supervisor or E3 Site Controller	6
Communication Port	6
Uploading the ADF File	7
Inputting the License Key	8
Adding the Flō i-Controller 2.0 Device	9
Step 4: Setting Flō i-Controller 2.0 Control Values from SS / E31	0
Changing Set Points	0
Linking SS / E3 Schedule for Occupancy Mode1	1

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ENERGY	SOL	UTIONS

Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### IMPORTANT: Please Read before Continuing

Before beginning the Flō i-Controller integration over the Modbus protocol, obtain a license key for each i-Controller along with the Flō RTU Application Description File (ADF), PN: 531-0367, for Flō i-Controller from Emerson Retail Solutions.

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

### Step 1a: Connect Flo i-Controller 2.0 to Site Supervisor

The Flō i-Controller uses an RS485 network to communicate to Site Supervisor (SS) controller over the Modbus protocol. Perform the following steps to connect the RS485 cable.

- Connect the RS485 network cable to the three-terminal connector on the Site Supervisor COM port you choose to assign as the Modbus port. Wire from the Site Supervisor to the unit's LVTB terminal block. Wire SS + RS485 to TB 25, SS - RS485 to TB 26 and COM to TB 27.
- 2. The Flō i-Controller 2.0 is prewired to the LVTB. (See below figure for reference)



Figure 1. Connection the RS-485 Communication Wire on Site Supervisor



Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### Step 1b: Connect Flo i-Controller 2.0 to E3

The Flō i-Controller uses an RS485 network to communicate to E3 site controllers over the Modbus protocol. Perform the following steps to connect the RS485 cable.

- Connect the RS485 network cable to the three-terminal connector on the E3 COM port you choose to assign as the Modbus port. Wire from the E3 to the unit's LVTB terminal block. Wire E3 + RS485 to TB 26, E3 - RS485 to TB 25 and COM to TB 27.
- 2. The Flō i-Controller 2.0 is prewired to the LVTB. (See below figure for reference)



Figure 2. Connection the RS-485 Communication Wire on Site E3

Title: i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### Step 2: Setting the Modbus Address on Flo i-Controller 2.0

- 1. On the display of the Flo i-Controller, navigate to the Settings menu/Communications/BMS Config.
- 2. On the BMS Config screen, press enter key and use the Up and Down arrows to change the Flō i-Controller Modbus Address value. Press the enter button to save value.

Λ	BMS Connectivi	ita 172	
<u> </u>	BMS Protocol:	MODBUS	Ш
0	Address: Baudrate:	19200	ل∢
4			
2	Erron:	Online	Μ

Figure 3. i-Controller 2.0 BMS Config Screen 1 of 2

 If BMS protocol is not already set for Modbus, use the Down arrow to proceed to page 2 to change the BMS protocol. Press the enter button and use the Up and Down arrows to change the BMS protocol to Modbus. Press enter button to save value.



Figure 4. i-Controller 2.0 BMS Config Screen 2 of 2

Title: i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### Step 3: Configuring the Site Supervisor / E3 Site Controller

#### **Communication Port**

Configure the COM port where the RS485 Flo i-Controller Modbus cable will be connected.

- 1. Log on to the Site Supervisor / E3 with administrator access.
- 2. Navigate to Settings/General System Properties COM Ports tab.
- 3. On the COM Ports tab, select desired COM port.
- 4. Below, shows Flō i-Controller 2.0 default Modbus settings. Enter settings and save.

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General System Properties				
COM Ports Network Setting	s Localization	System Values	es	
COM Por	t 2 Modbus-01		× ]	0
COM Port 2 ba	ud 19200		~ )	?
COM Port 2 data s	ze 8		~ ]	?
COM Port 2 Pa	ity None		~ ]	8
COM Port 2 Stop E	its 1		~ )	0

Figure 5. SS / E3 Communication Port Configuration screen

5. After completing the steps above the COM port has been configured.

		5
ENERG	Y SOL	UTIONS

Title: i-Controller 2.0 to SS / E3 Communication Connection Ver.1

#### Uploading the ADF File

Once the RS485 cable has been connected and the port has been configured, the ADF file for the Flō i-Controller needs to be uploaded to the Site Supervisor / E3.

- 1. Log on to the Site Supervisor / E3 with administrator access.
- 2. Navigate to Settings/File Management & Licensing.
- 3. Press "Install ADF File" button. Select file location and install file.

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E	Backup			Resto	re	u	lpgrade Fin	mware	Install ADF File	Feature File Upload	License Management
	Na	me Of	Floorpla	n ¢							
										No Data	

Figure 6. SS / E3 File Management & Licensing Screen

4. Once installed, you will see the application listed under the "Application Description & Service Files" area of the File Management & Licensing page.

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File Manag	ement &	Licensin	ıg - (00-(	)A-F6-14	-0A-99)	C					
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	Name Of I	Floorplar	1 0						No Data		
Application	Descripti	on & Sen	vice Files	5							
	Name 😄				D	escriptio	n ¢		Version 🖨		In Use ¢
	FLo RTU	>			F	Lo RTU			1000.5		1 of 1

Figure 7. SS / E3 File Management & Licensing Screen

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ENERG	SOL	UTIONS

Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

#### Inputting the License Key

Once the ADF file has been loaded, the license key needs to be inputted into the SS / E3 in order for the Flo i-Controller to be recognized.

- 1. Log on to the Site Supervisor / E3 with administrator access.
- 2. Navigate to Settings/File Management & Licensing.
- 3. Press "License Management" button

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File Manag	ement 8	Licensi	ng - (00-	-0A-F6-1	4-0A-99	) 🕒				
SD Storage										
	Card GB of 7.4	<u>Safely F</u> GB	<u>Remove</u>							
Back	kup		Resto	ore	l	lpgrade Fir	mware	Install ADF File	Feature File Upload	License Management
	Name Of	f Floorpla	in ¢							
									No Data	

Figure 8. SS / E3 File Management & Licensing Screen

4. Enter the License Key in the popup window.

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File Mana	File Management & Licensing - (00-0A-F6-14-0A-99)												
s s	D Card	Safely	<u>/ Remove</u>						ENTER LICENSE KEY ×				
СШ 7. Ва	4 GB of 7.	4 GB	Rest	ore		Jpgrade Fir	mware	Insta	Entry is not case-sensitive. www.www.www.www.www.www.www.www.www.w	nt			
•	Name O	f Floorp	ılan 🗢						OK Close No Data				



### **WFLō Technical Guide**

Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

#### Adding the Flo i-Controller 2.0 Device

- 1. Navigate to Control Inventory/HVAC
- 2. Click on "Add Controller" and select FLo RTU.

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Control Inventory					
► 🗱 Refrigeration (0)	Name 🌲	Туре ≑	Protocol 🝦	Port ID 🌲	Address ≑
▼ * <mark>A</mark> HVAC (0)	Name 🌩	Туре 🗘	Protocol 🔶	Port ID 👙	Address 🔶
				No Devices	
Add Control ^					
CoreSenseComm	Name 🗢	Type 💠	Protocol 💠	Port ID 💠	Address ≑
CT Drive	Name 🗢	Type ≑	Protocol 💠	Port ID ≑	Address ≑
M400	Name 🔶	Туре 💠	Protocol 💠	Port ID 💠	Address 🗢

Figure 10. SS / E3 Control Inventory Screen

3. Once the controller is added, you can name the controller (i.e. FLo RTU-1) and set the COM port and address. Then save changes.

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Control Inventory					
► 🕸 Refrigeration (0)	Name 🚖	Туре ≑	Protocol 🝦 Port ID ≑	Address ≑	Revision 💠
▼ * <mark>A</mark> HVAC (1) ■	Name 🔶		Protocol 🔶 Port ID 🔶	Address 🗢	Revision 🕀
No Port 1	FL0_001	FLo RTU	Modbus Modbus-01 V	1 ~	0.0
Add Control ~					
▶ ¥ Energy (0)	Name 🗢	Туре ≑	Protocol 💠 Port ID 🌲	Address 🌲	Revision 🌲

Figure 11. SS / E3 Control Inventory Screen

4. Repeat step 2 – 3 to add additional controllers, if your license allows.

Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

### Step 4: Setting Flō i-Controller 2.0 Control Values from SS / E3

#### Changing Set Points

Custom set points are factory set in the Flō i-Controller and will display on the SS / E3. If the set points need to be adjusted, perform the following steps to adjust the Flō unit set points from the SS / E3.

- 1. Log on to the Site Supervisor / E3 with administrator access.
- 2. From the System Summary view, expand HVAC section and pick the Flo unit.

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System Summary				
▼ *A HVAC (1)				
FLo 001 ()	~			
SPACE TEMP SPACE DEWPOINT SUPPLY FAN S 72.50°F 45.14°F 100%	ТАТ			
	🔔 😁 ELo RTU			
▶ 📋 System (4)				

Figure 12. SS / E3 System Summary Screen

3. Click on the Setpoints tab and then click the edit button.

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FLo_001 Online FLo RTU		Edit Delete Save Commands - Send To -
Status Genera Setpoints Inputs Test Modes	Sensors Gen Status Alarms SensorError Suction GP He	eat Damper Overrides Advisories Input/Output Status
POINT NAME	VALUE	POINTER
Occ Cool SP	73.94 °F	0
Unocc Cool SP	77.00 °F	0
Occ Heat SP	68.00 °F	0
Unocc Heat SP	64.94 °F	0
Occ Dew SP	51.98 °F	0
Unocc Dew SP	52.16 °F	0
▶ OCC / UNOCC	ON	0

Figure 13. SS / E3 Setpoints Screen

Technical Guide	CN-IC2-21

#### Title:

i-Controller 2.0 to SS / E3 Communication Connection Ver.1

4. Once you have made your setpoint changes, click the save button.

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FL0_001 Online FL0 RTU		View Delete Save Commands ~ Send To ~
Status General Setpoints Inputs Test Modes	Sensors Gen Status Alarms SensorError Suction GP Heat Damp	er Overrides Advisories Input/Output Status
POINT NAME	VALUE PC	DINTER
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Unocc Cool SP	- 77.00 + *F	
Occ Heat SP	- 68.00 + °F	
Unocc Heat SP	- 64.94 + °F 📀	
Occ Dew SP	- 51.98 + °F 📀	
Unocc Dew SP	- 52.16 + <sup>1</sup> F	
	ON ~ //• 📀	

Figure 14. SS / E3 Setpoints Screen

#### Linking SS / E3 Schedule for Occupancy Mode

The Flō i-Controller accepts an Occupied or Unoccupied signal from the SS / E3. This variable needs to be linked to the Flō application on the SS / E3. The occupancy signal will be defaulted to Occupied until a schedule output is linked to the application.

1. On the Setpoints screen Click on the Setpoints tab and then click the edit button.

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FLo_001 Online FLo RTU		Edit Delete Save Commands - Send To -
Status Genera Setpoints Inputs Test Modes	Sensors Gen Status Alarms SensorError Suction GP Heat Damper	Overrides Advisories Input/Output Status
POINT NAME	VALUE POINTE	ER
Occ Cool SP	73.94 °F	
Unocc Cool SP	77.00 °F	
Occ Heat SP	68.00 °F	
Unocc Heat SP	64.94 °F	
Occ Dew SP	51.98 °F	
Unocc Dew SP	52.16 °F	
	ON 🥠 🖉	

Figure 15. SS / E3 Setpoints Screen

ENERGY SOLUTIONS	Technical Guide	CN-IC2-21
Title:	i-Controller 2.0 to SS / E3 Communication Connection Ver.1	

2. Click on the green arrow beside OCC/UNOCC. Select your desired schedule in the TARGET and OUTPUT selection and press save.

emerson. 🗲 🏟 🔒 C 😭 🛅	<b>D</b>		=+ ? 🌲 🖯 Logout
Image: State of the s			View Delete Save Commands ~ Send To ~
Status General Setpoints Inputs Test Mode:	Sensors Gen Status Alarms	SensorError Suction GP Heat Damper	Overrides Advisories Input/Output Status
POINT NAME	VALUE	POINTER	
Occ Heat SP	68.00	+ *F 🕑	•
Unocc Heat SP	- 64.94	+ °F 📀	
Occ Dew SP	- 51.98	+ °F 📀	
Unocc Dew SP	- 52.16	+ °F 📀	
	ON	A+ 💿	
POINTER			Show non-visible points
TARGET Sched_001	~ PROPE	RTY OUTPUT	~

Figure 16. SS / E3 Setpoints Screen

3. Once saved, you can see the linked schedule under the POINTER column and unit occupancy will be controlled by the schedule.

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FLo_001 ① Online FLo RTU		View Delete Save Commands - Send To -
Status General Setpoints Inputs Test Modes	Sensors Gen Status Alarms SensorError Suction GP	Heat Damper Overrides Advisories Input/Output Status
POINT NAME	VALUE	POINTER
Occ Cool SP	- 73.94 + "F	•
Unocc Cool SP	- 77.00 + °F	0
Occ Heat SP	- 68.00 + °F	0
Unocc Heat SP	- 64.94 + 'F	0
Occ Dew SP	- 51.98 + °F	0
Unocc Dew SP	- 52.16 + °F	0
	ON	

Figure 17. SS / E3 Setpoints Screen