2020

ISIMET

FLAv2 Utility Controller

Installation Manual

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ISIMET FLAv2
Installation Manual

Printed in the United States of America.

Important Warnings

Indoor Storage and Installation:

Installers shall be responsible for protecting the control panel, solenoids, and electrical enclosures from rain, liquids, construction and drywall debris and materials, dust, and extreme heat or cold (above 90°F and below 32 F°). Such exposure may result in equipment malfunction/failure.

Preventing Transient Voltage:

Control wiring MUST be housed in separate conduit from power wire (120VAC, 24VDC or 12VDC).

Codes and Experience:

Only qualified, licensed plumbers and electricians within the governing jurisdiction should perform this installation and/or service this equipment.

All ADA, local plumbing and national electrical codes must be followed.

Mounting the FLAv2 Utility Controller

The FLA must be mounted in a location that is easily and readily accessible. The installation height of the FLA must comply with ADA standards. There are two options for mounting the FLA: Surface Mount (page 5) or the recommended Flush Mount (page 3). Skip to the required section for installation instructions.

Flush Mount Installation (Recommended)

1. Place the FLA Enclosure Box next to the stud taking into consideration the finished wall thickness. (The front of the Enclosure Box should be installed flush with the finished wall).

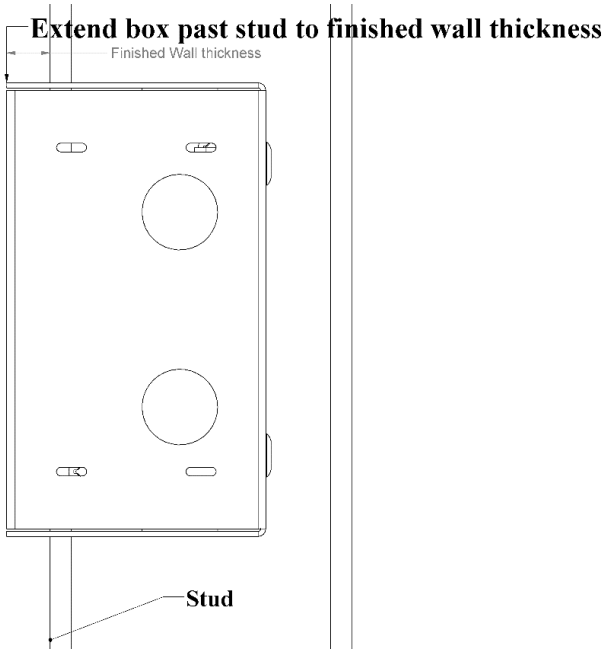


Figure 1: Flush Mount Installation (Protrude to finished wall thickness)

2. Attach the Enclosure Box to the stud through the slotted cutouts using appropriate screws.

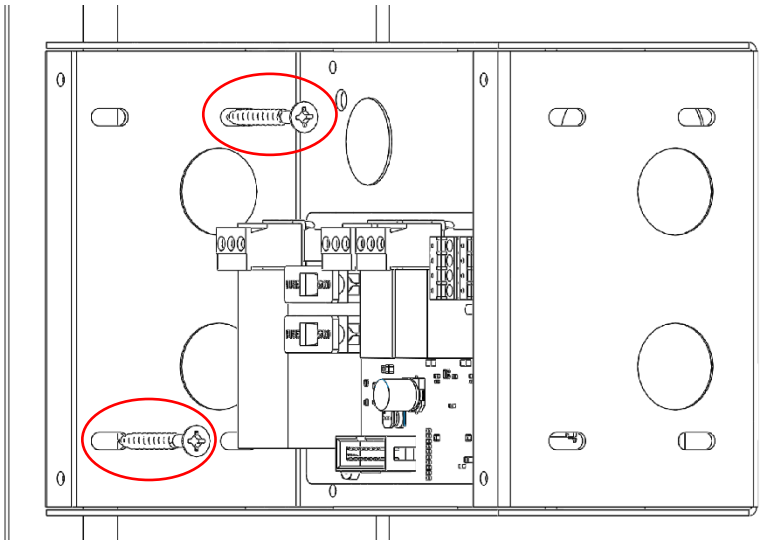
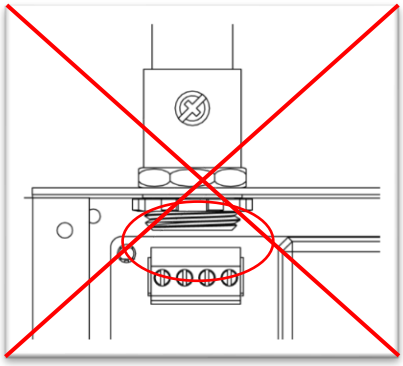


Figure 2: Mount FLA to Stud

3. Remove only the necessary knockouts from the FLA Enclosure Box for wiring.



Note for Low-Voltage FLAv2:

DO NOT install a connector in top left corner as this will interfere with the 24VDC outputs.

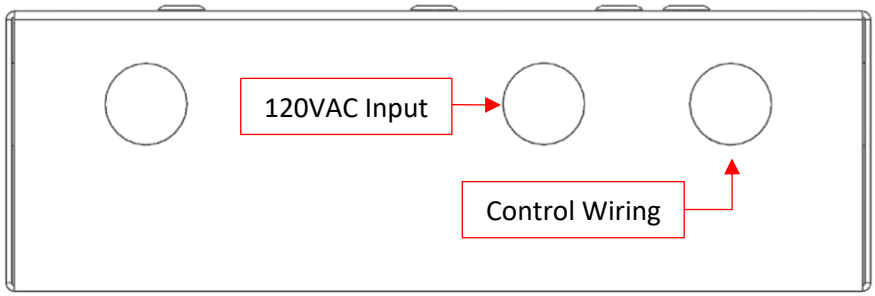


Figure 3: Example of typical wiring knockouts for the FLA (Top View)

4. Install EMT conduit with connectors to the FLAv2 enclosure for the 120V line voltage and control wiring.

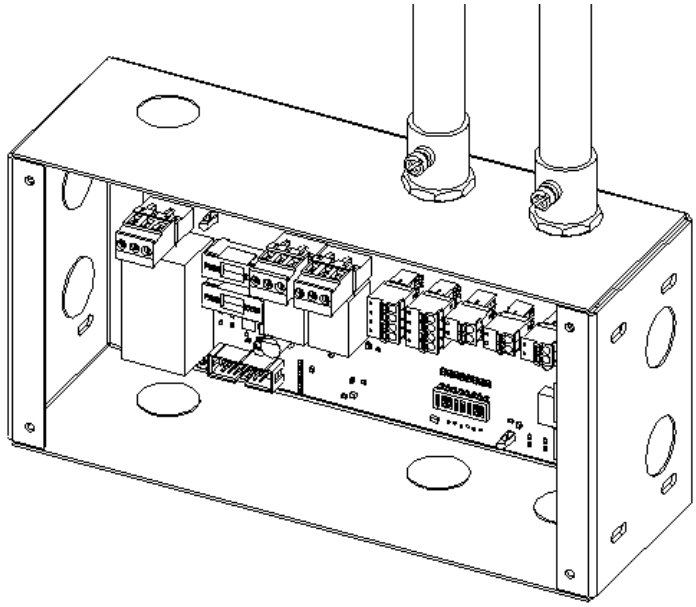
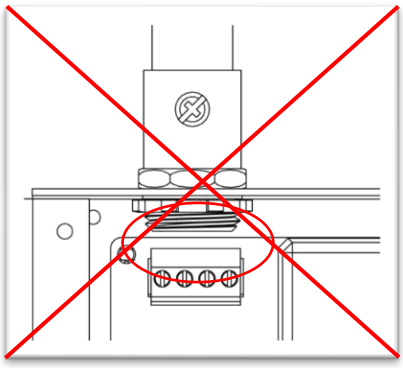


Figure 4: Recommended EMT conduit installation for FLAv2

Surface Mount Installation

1. Remove only the necessary knockouts from the FLA Enclosure Box for wiring.



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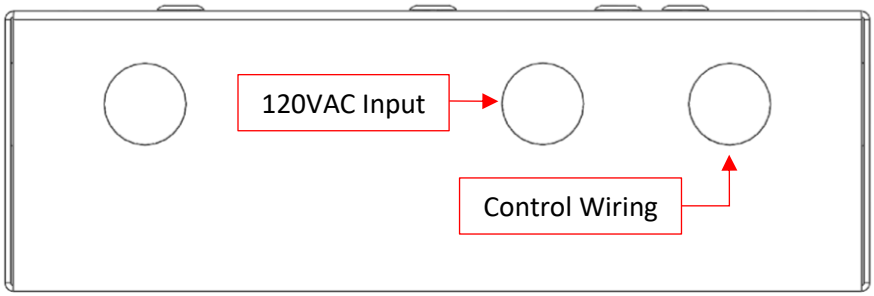


Figure 5: Example of typical wiring knockouts for the FLA (Top View)

2. Level and plumb the FLA Enclosure Box to the wall and secure the enclsoure through the predrilled holes (in the four corners) using appropriate mounting screws.

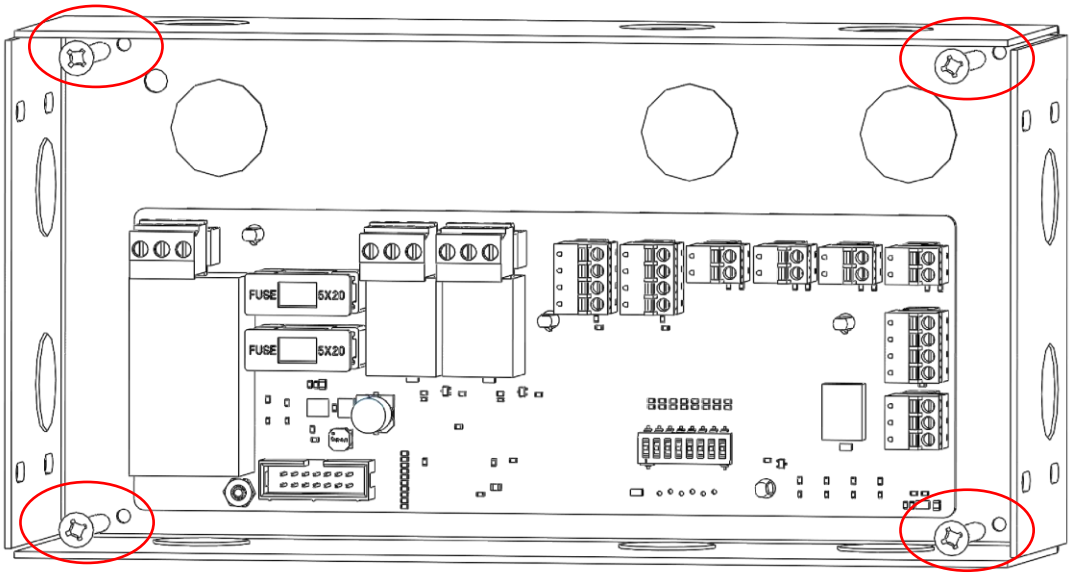


Figure 6: Surface Mount Installation

Surface Mount Installation (Continued)

3. Drill out the Surface Mount Sleeve to match the knockouts previously removed from the FLA Enclosure Box.

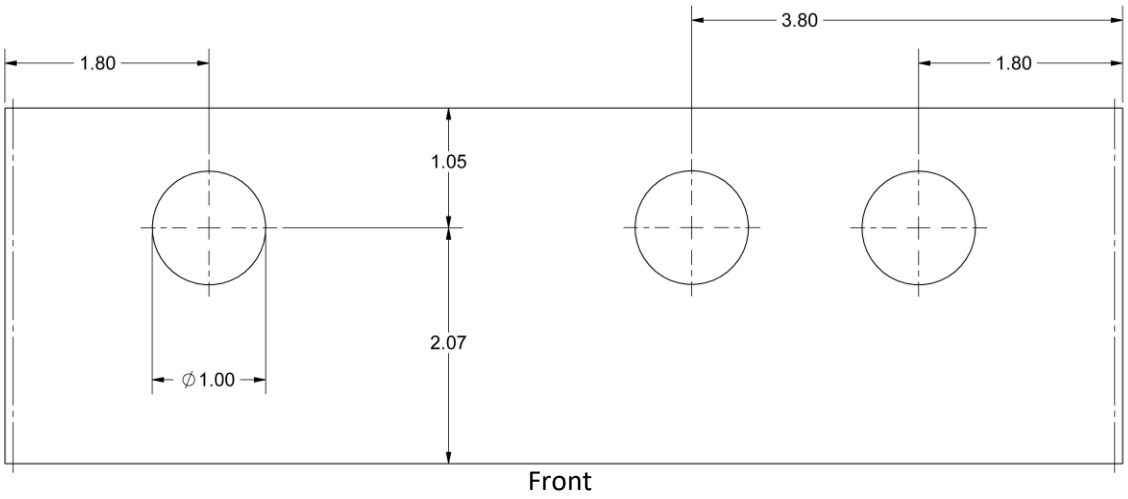


Figure 7: Surface Mount FLA Sleeve Drill Points (Top View)

4. Slide the Surface Mount Sleeve over the FLA Enclosure Box and install EMT conduit with appropriate connectors for the wiring.

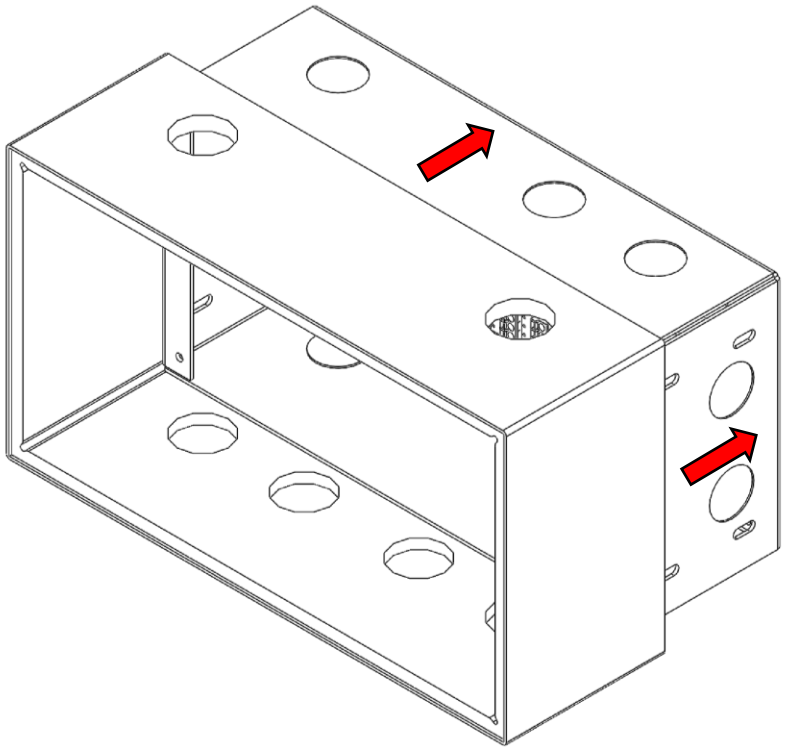


Figure 8: Install Surface Mount Sleeve onto the FLA

Mounting the Solenoid(s)

Solenoid Installation Recommendations:

- A licensed installer should complete this section following all National and Local Codes.
- Ensure that only 24VDC solenoids are used with the FLAv2 (Low-Voltage).
- ISIMET's S-Series Enclosure typically includes a Solenoid Assembly (see below), which includes a Y-Strainer, Ball Valve, and Unions.
- The solenoids should be installed with an access panel for maintenance and/or service if not installed with an S-Series Enclosure.
- Remove the solenoid assemblies and flush the piping systems prior to initial startup.

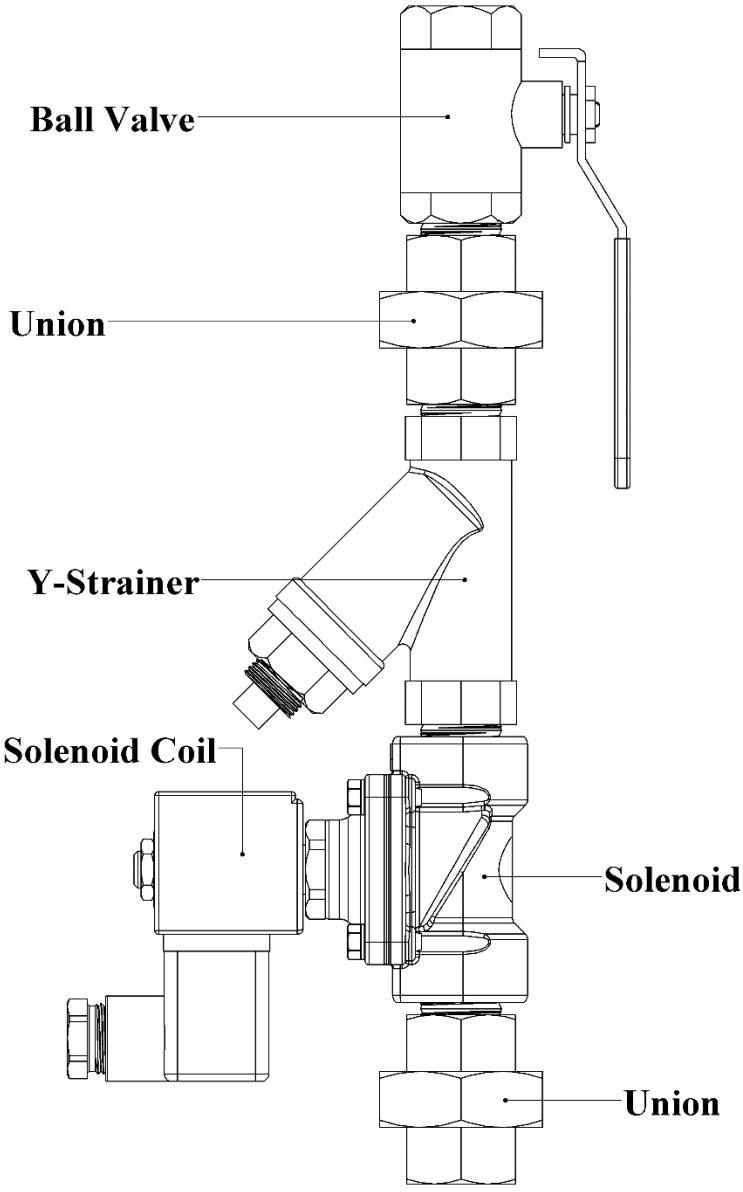


Figure 9: ISIMET Gas Valve Assembly with integrated Y-Strainer

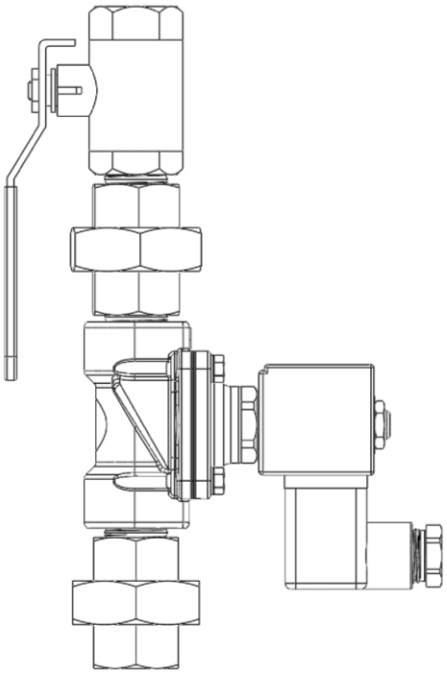


Figure 10: ISIMET Gas Valve Assembly

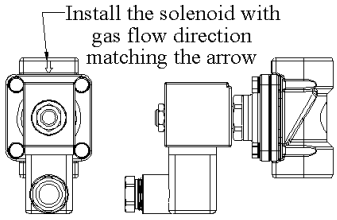
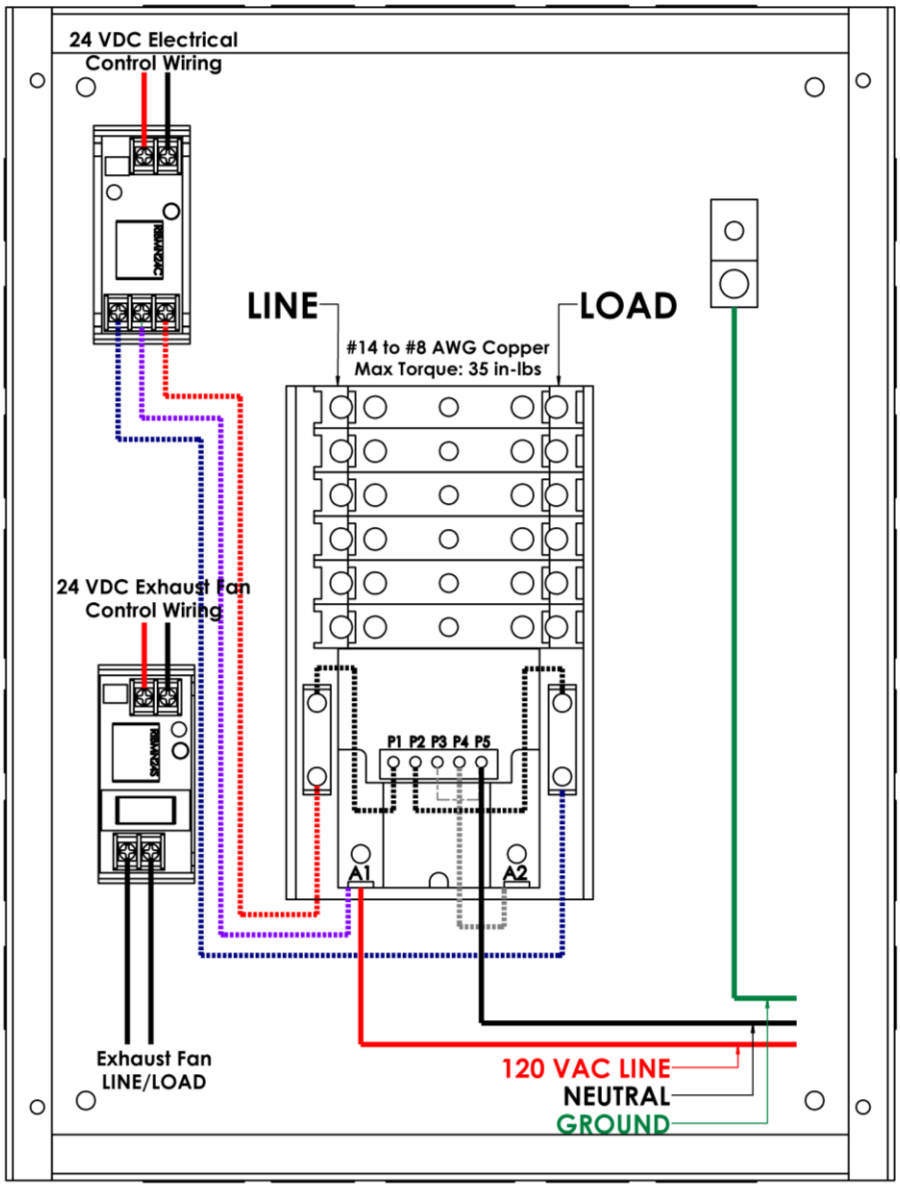


Figure 11: Match Solenoid Arrow with Gas Flow

Mounting the E-Series or an Electrical Contactor (Optional)

Electrical Contactor Installation Recommendations:

- A licensed installer should complete this section following all National and Local Codes.
- Ensure that a relay rated for 24VDC is used with the FLAv2 to control the electrical contactor (ISIMET E-Series include these by default).
- It is recommended to control electrical devices through ISIMET's E-Series Enclosure, which will typically include either an Eaton or Square-D Electrical Contactor and application specific relays.
- Read and follow all installation instructions of the selected electrical contactor.

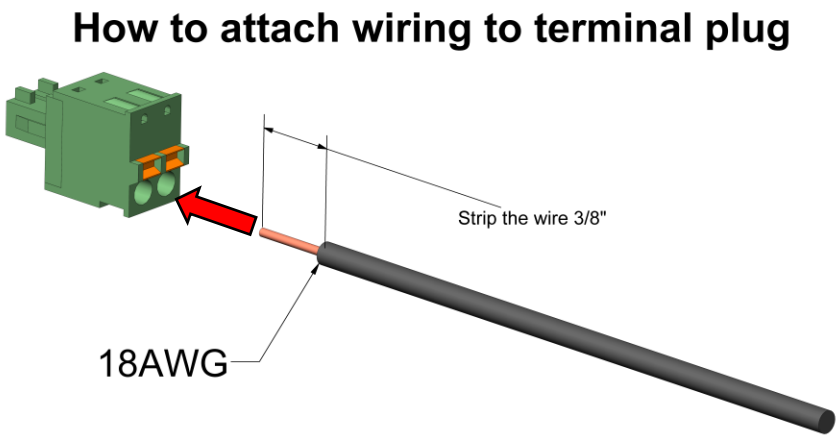


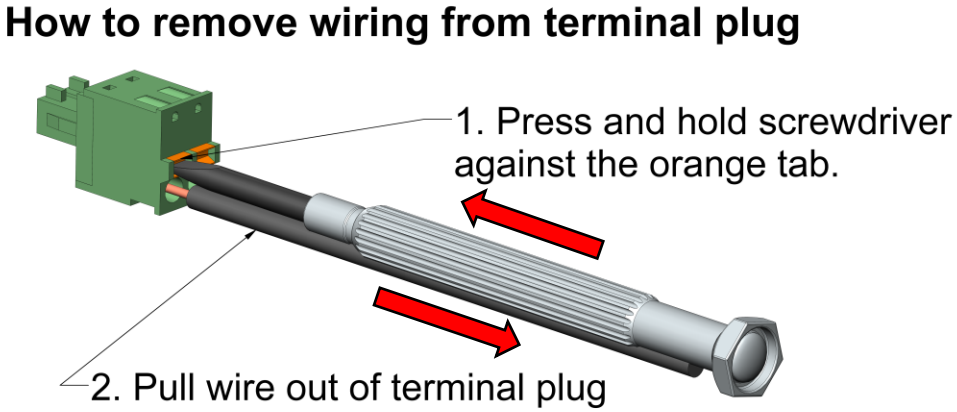
Note: Dashed lines indicate connections are pre-made.

Figure 12: Optional Eaton Contactor in E-Series (for the FLAv2)

Wiring the FLAv2

A licensed electrical contractor should perform all 120VAC wiring following all electrical codes and procedures. Low-Voltage and control wiring should be isolated from any line voltages and use 18 AWG minimum. Warning: All Inputs MUST be Dry-Contact (Voltage-Free)!





Wiring Options for the FLAv2

There are 3

FLAv2 (Low-Voltage) Wiring Instructions

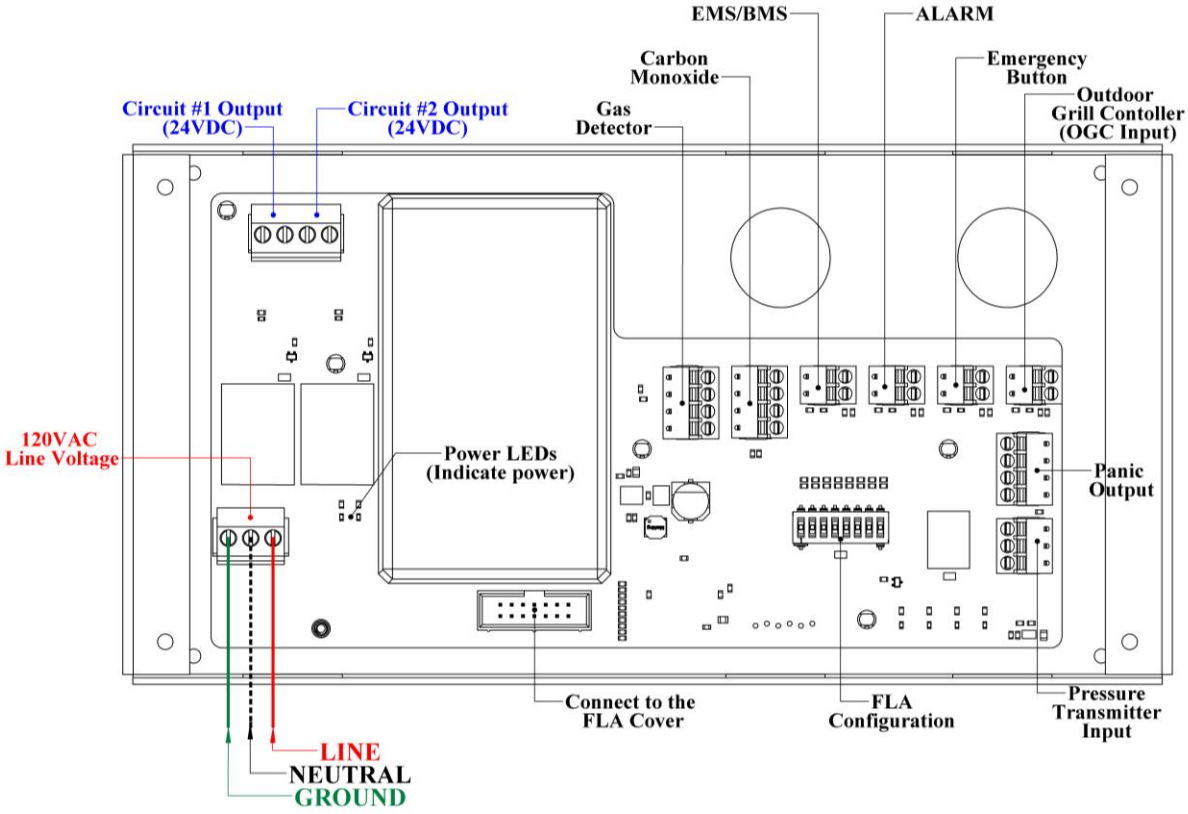


Figure 13: FLAv2 (Low-Voltage) Wiring Diagram

FLAv2 Label	Description
120V_Input	*120VAC Line Voltage Input*
Circuit #1 Output	*24VDC Circuit Output for Gas and Electric*
Circuit #2 Output	*24VDC Circuit Output for Outdoor Grill Controller*
Gas Detector, Carbon Monoxide	*Dry-Contact Input with 24VDC Output*
EMS/BMS, ALARM, Emergency Button, OGC	*Dry-Contact (Voltage-Free) Inputs*
Panic Output	*24VDC and Dry-Contact Configurable Output*
Pressure Transmitter Input	*ISIMET approved Gas Pressure Transmitter*

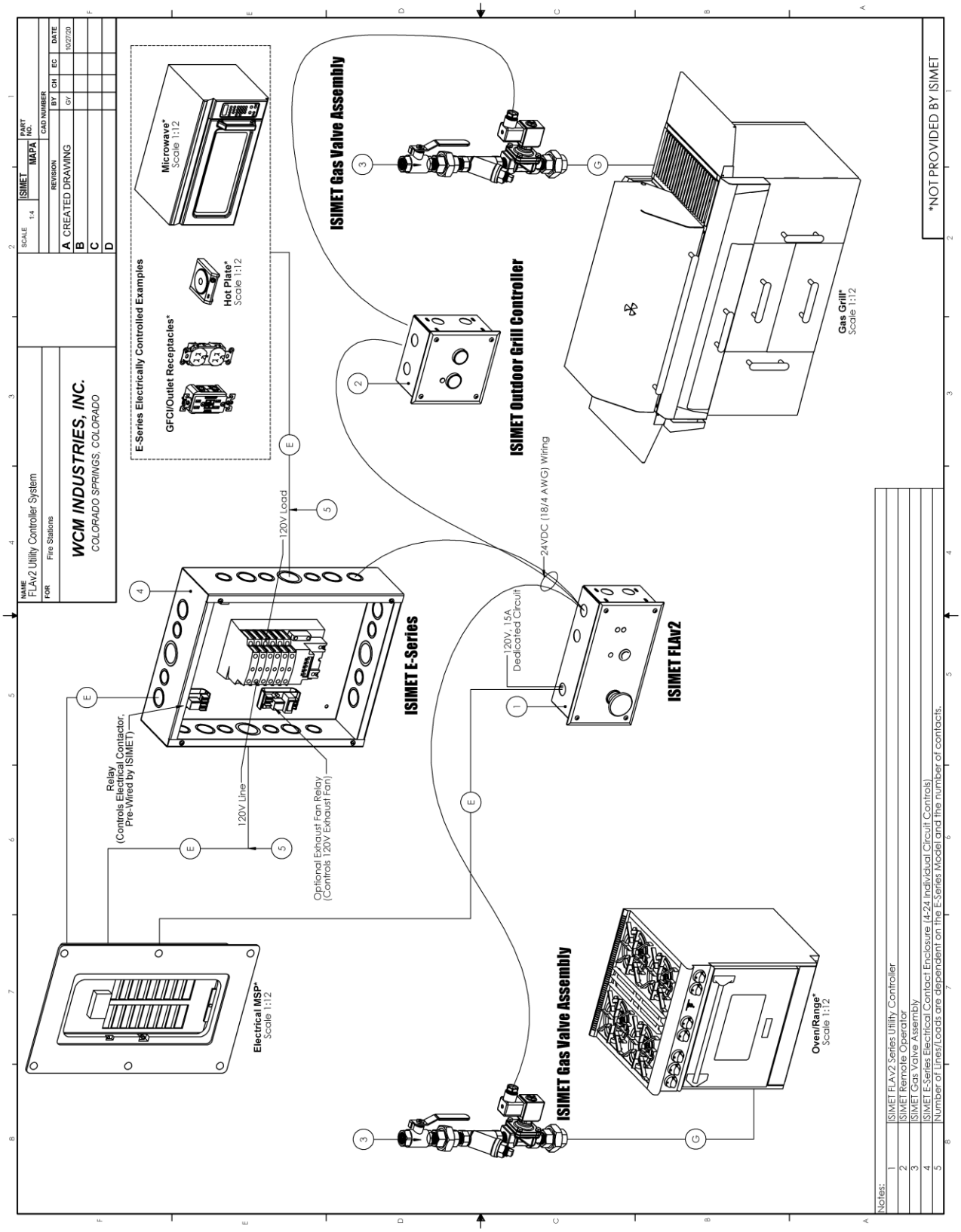


Figure 14: Example Wiring Drawing for ISIMET's FLAv2

Installing the Outdoor Grill Controller (OGC), if used

The OGC must be mounted in a location that is easily and readily accessible in line-of-sight of the gas grill that it controls. The OGC operates independently of the FLAv2 and can be turned on or off without first turning on the FLAv2. In emergency situations, the FLAv2 and OGC will turn off unless the bypass is pressed within the preset timeout period.

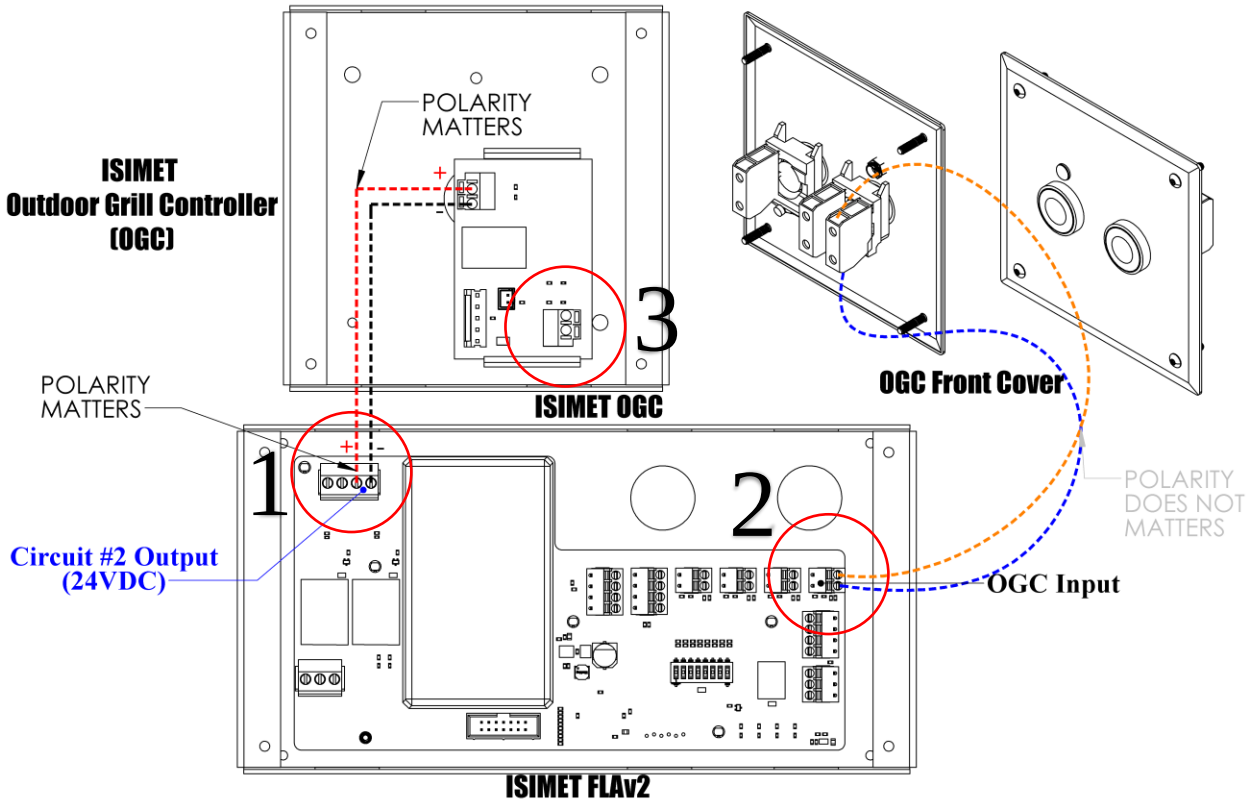
Mount the OGC

Use the appropriate Surface Mount (page 5) or Flush Mount (page 3) instructions as a guide for mounting the OGC.

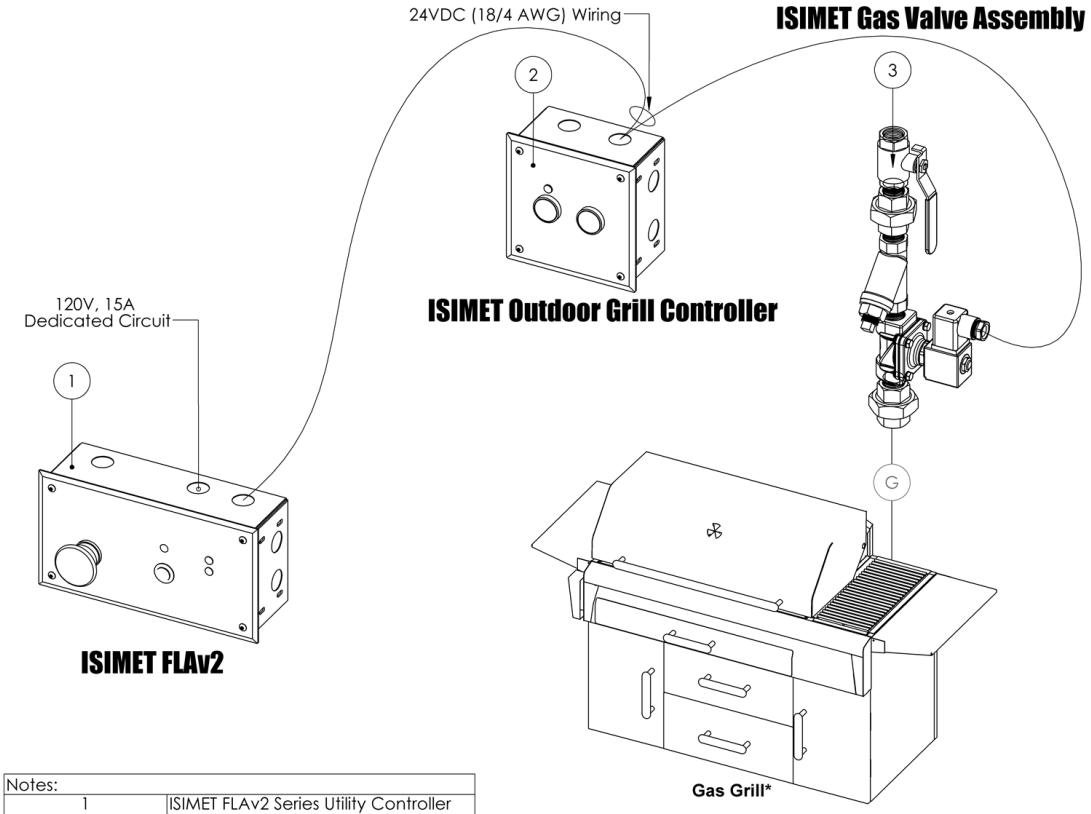
Wiring the OGC

Use the appropriate wire (Recommended: 18/4 AWG copper, outdoor rated) to connect the OGC to the FLAv2. The polarity must match between Circuit #2 output (+/-) of the FLAv2 and the OGC 24VDC Input (+/-).

1. Connect the Power between the OGC and FLAv2.
2. Connect the terminal block on the back of the OGC cover to the OGC Input in the FLAv2.
3. Connect the 24VDC Solenoid to the OGC.

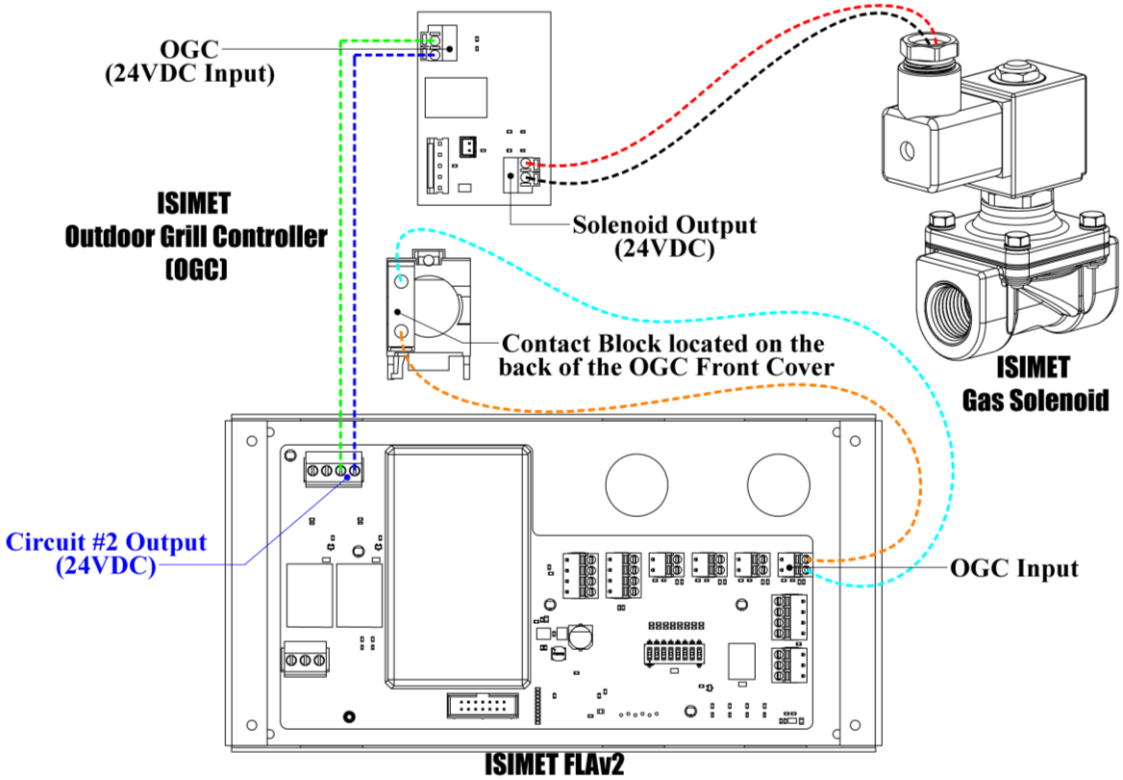


Outdoor Gas Grill Wiring – OGC (Optional)



Notes:	
1	ISIMET FLAv2 Series Utility Controller
2	ISIMET Remote Operator
3	ISIMET Gas Valve Assembly

*NOT PROVIDED BY ISIMET



Completing the FLA Installation

Attach the Ribbon Cable and FLA Front Cover

1. After the walls are finished, firmly attach the ribbon cable from the FLA Enclosure Box to the FLA Front Cover plug.

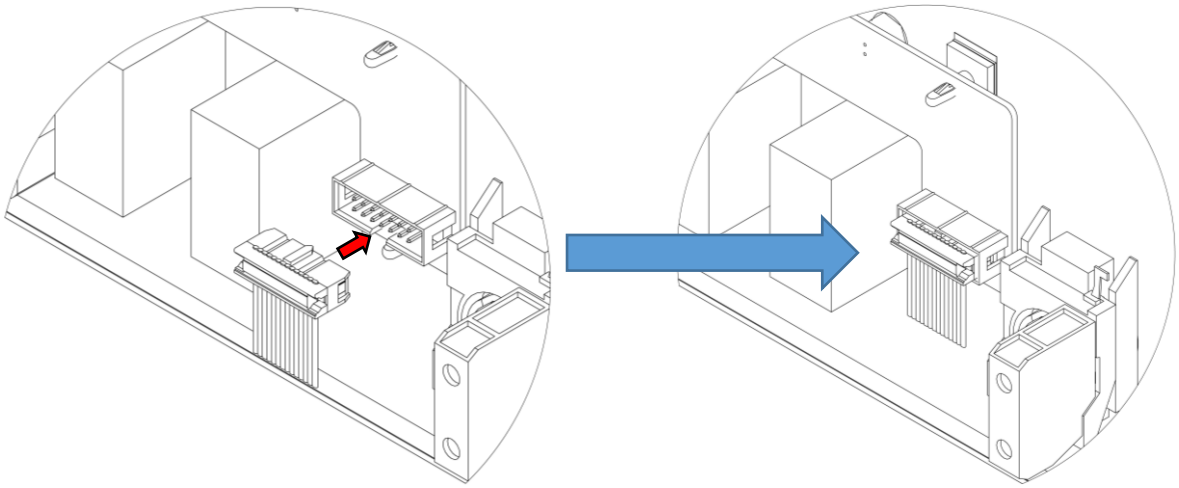


Figure 15: Attaching the Ribbon Cable from the FLA Daughterboard to the FLA Motherboard

2. Attach the Cover using the included #8-32 Stainless-Steel Screws.

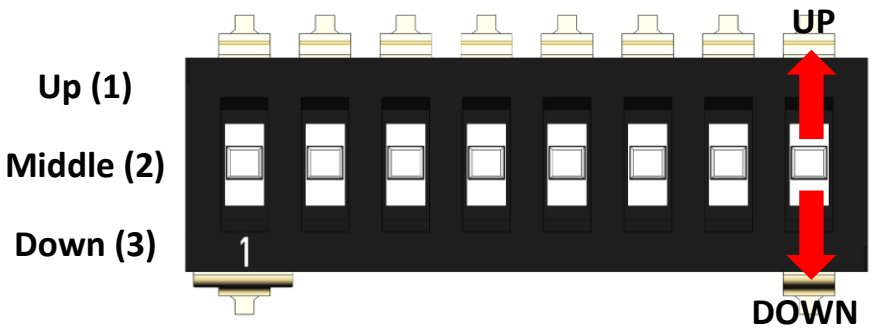
Verify FLA Functionality

1. Verify that all inputs are attached to dry-contact sources.
2. Turn on power to the FLA and verify that the power LEDs are illuminated.
3. Test that the gas solenoid and connected electrical appliances (E-Series) turns ON when the On/Off green LED is illuminated by pressing the push button.
4. Test that the gas solenoid and connected electrical appliances (E-Series) turns OFF by pressing the push button again.
5. Test the grill gas solenoid opens and closes by pressing the Operate and Stop button on the Outdoor Grill Controller (If Used).
6. Simulate a Fire Call with Auto-Shutdown:
    a. Short/Jumper the ALARM input.
    b. Verify the Bypass and On/Off LEDs alternate flashing.
    c. Circuits #1 and #2 should turn off after ~30s if the Bypass is not pressed.
    d. Remove the short/jumper from the ALARM input.
7. Simulate a Fire Call with Bypass:
    a. Short/Jumper the ALARM input.
    b. Verify the Bypass and On/Off LEDs alternate flashing.
    c. Press the Bypass push button.
    d. Circuits #1 and #2 should stay on after the Bypass is pressed.
    e. Remove the short/jumper from the ALARM input.
8. Verify any other devices that are connected to the FLA inputs are working properly.
9. Test all connected Emergency Shut-Off Buttons and confirm that all Circuits turn OFF when pressed.

Configuring the FLAv2

The FLAv2 will come preconfigured from the factory; however, at times it may be necessary to make adjustments to the configuration. (Default Settings are attached to a sticker inside the enclosure)

Basic Configuration			
Setting	**Position**	**Options**	**Description**
Panic Output	1	Middle	Panic Output Enabled with Panic Mode Active
		Up	Momentary (3s) Panic Output with Panic Mode Active
		Down	Inverted Panic Output with Panic Mode Active
Circuit Config	2	Middle	Circuit 1: Standard Control Circuit 2: Outdoor Grill Controller with Timing
		Up	Circuit 1: Standard Control Circuit 2: Always on except Emergency
		Down	Circuits 1 & 2 are both controlled by the push button
Outdoor Grill Controller Timing *(Circuit Config must be set to Middle)*	3	Middle	4 hours
		Up	2 hours
		Down	8 hours
Bypass Timing *(If bypass is not pressed in this time period, utilities will shut down)*	4	Middle	30 seconds
		Up	1 minute
		Down	2 minutes
EMS/BMS	5	Middle	Appliance Runtime Enabled *(First Key Timing)*
		Up	Active OFF (Input signal will turn OFF Circuits)
		Down	Active ON (Input signal required to turn ON Circuits)
Appliance Runtime 1 *(First Key Timing 1)*	6	Middle	8 hours + (Appliance Runtime 2)
		Up	2 hours + (Appliance Runtime 2)
		Down	14 hours + (Appliance Runtime 2)
Appliance Runtime 2 *(First Key Timing 2)*	7	Middle	0 hours added to First Key Timing
		Up	2 hours added to First Key Timing
		Down	4 hours added to First Key Timing
Test	8	Middle	Normal Operation
		Up	Test Mode for All Outputs
		Down	Test Mode for All Inputs



Troubleshooting the FLA

FLAv2 Troubleshooting

- It is recommended to remove all input and output terminal plugs and verify the functionality of the FLAv2 prior to performing any other troubleshooting.
    - Perform the steps in the Verify FLA Functionality Step.
- If an input is not working as expected, verify that a dry-contact source was used and that the corresponding LED to the input illuminates. The input can be shorted to test its functionality as needed.
- If the Power LEDs are not illuminated, check for proper connections, 120V input power, and verify there are no electrical shorts.
- If the Panic Output is not functioning as intended, verify the configuration from the previous page.

Note:

The FLAv2 was designed to shut-off all utilities at the end of each day by using First Key Timing. First Key Timing is enabled by default to shut-off the controller after its default 8-hour timing has been reached. The solenoids included are designed to be rested within a 24-hour period as they can reach very high temperatures (140º F). Resting the solenoids prolongs their lifespan and reduces maintenance. ISIMET believes that utilities should default to an OFF-state as this is the safest and most efficient way to prevent accidents and/or vandalism.

Electrical Specifications

The FLA Utility Controller system is designed to be used with 120VAC line voltage and 24VDC Circuit Outputs.

FLAv2 (24VDC Version)

100-240VAC (50/60Hz) Line Voltage Input
24VDC Circuit Output (Max 2.5A)
24VDC Output (Max 10W)
Short-Circuit Protection (No Fuses)

Control Wire Size: 18 AWG Recommended