

ISIMET

KLA Kitchen Gas Controller

HV (120VAC) / LV (24VDC)

Installation Manual



ISIMET KLA
Installation Manual

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Patent 6,757,589 B1, 6,990,393 B2, 8,543,225, Other Patents Pending

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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.

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

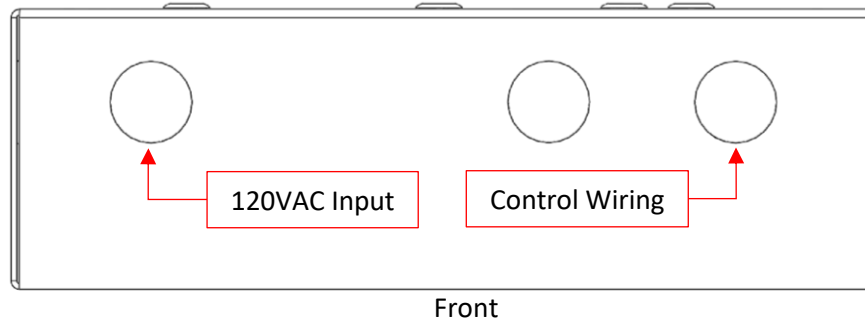


Figure 3: Example of typical wiring knockouts for the KLA (Top View)

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

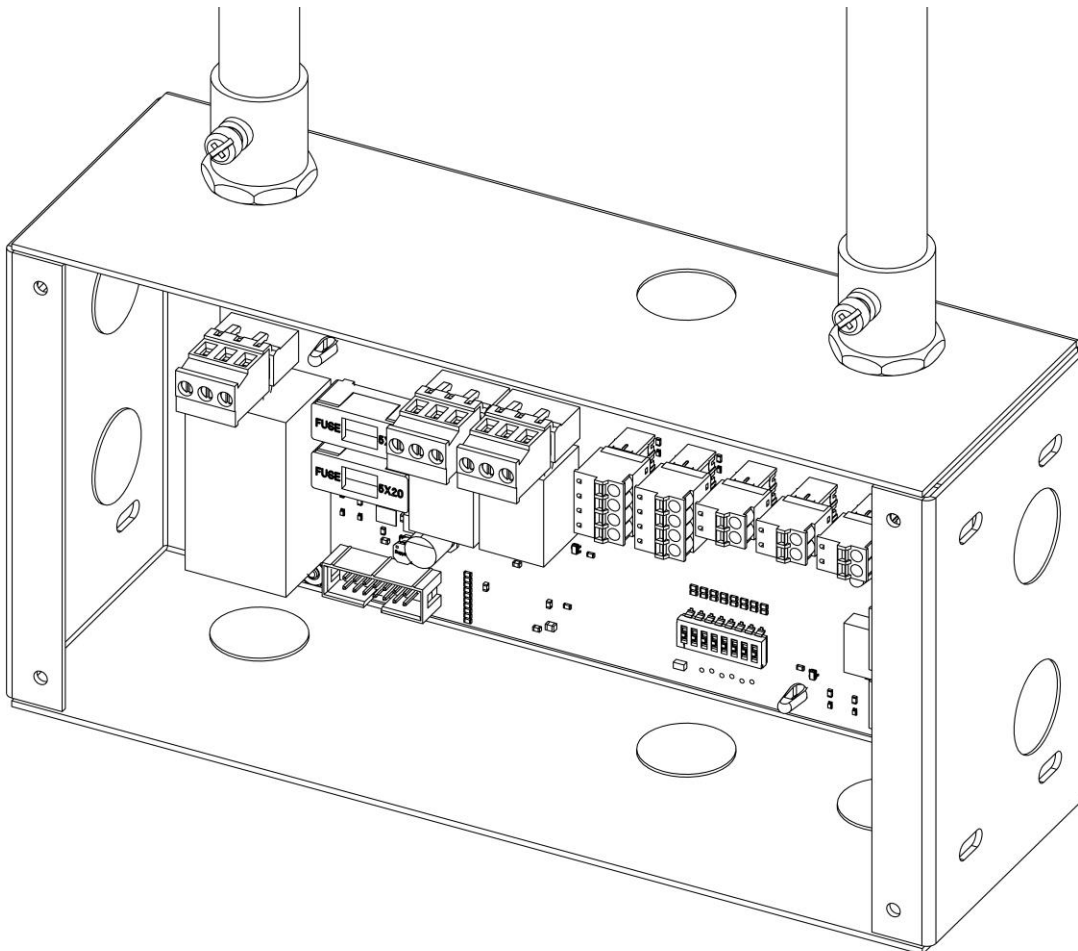


Figure 4: Recommended EMT conduit installation

Surface Mount Installation (Skip Ahead if Surface Mounted)

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

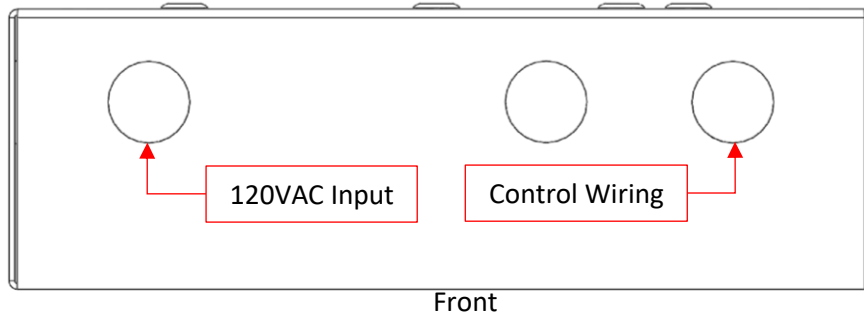


Figure 5: Example of typical wiring knockouts for the KLA (Top View)

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

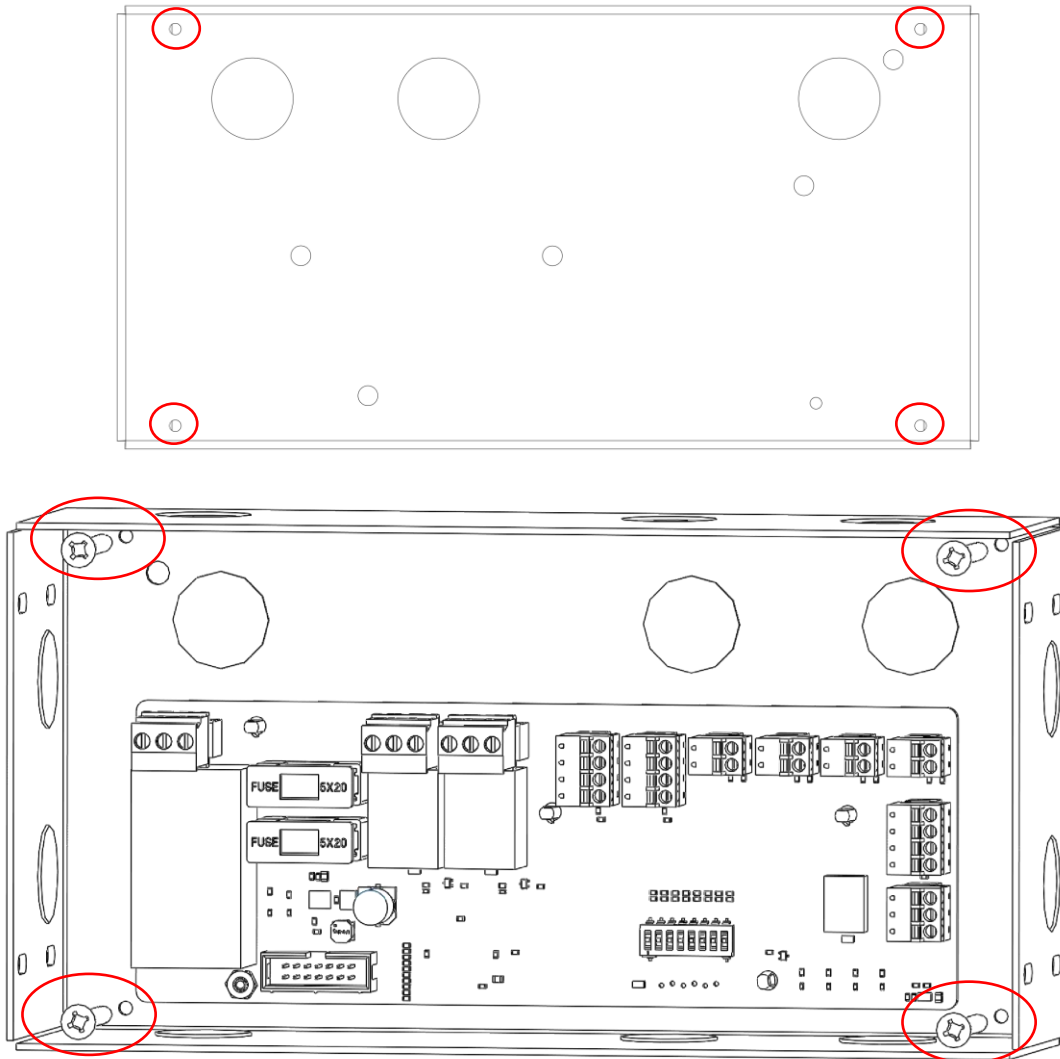


Figure 6: Surface Mount Installation (KLA)

Surface Mount Installation (Continued)

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

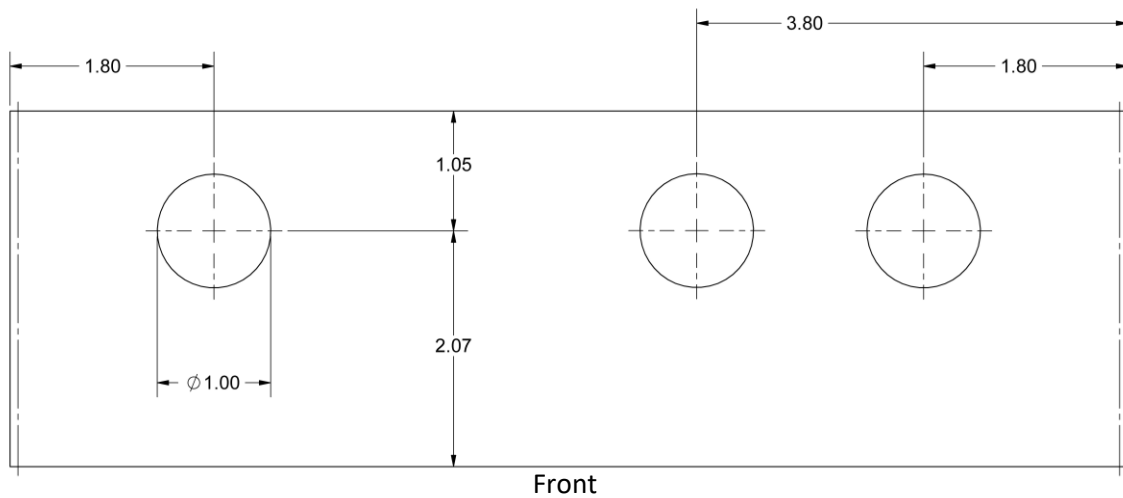


Figure 7: Surface Mount KLA Sleeve Drill Points (Top View)

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

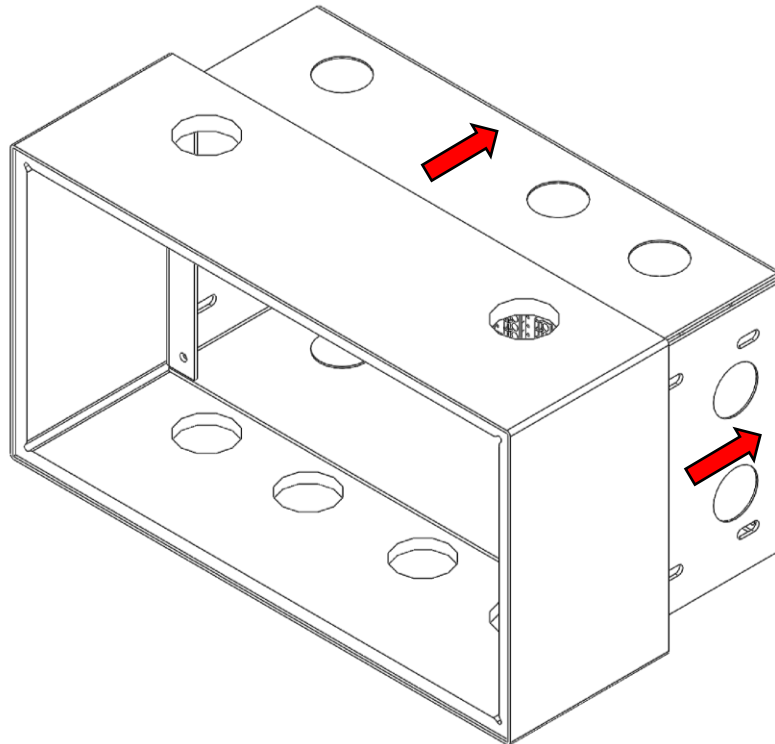


Figure 8: Install Surface Mount Sleeve onto the KLA

Mounting the Gas Solenoid

Solenoid Installation Recommendations:

- A licensed installer should complete this section following all National and Local Codes.
- Ensure that 120VAC solenoids are ONLY used with the KLA-HV (High-Voltage), while 24VDC solenoids are used exclusively with the KLA-LV (Low-Voltage) [[See Electrical Specifications](#)].
- ISIMET's S-Series Enclosure is recommended, which will typically include a Solenoid Assembly (see below).
- The solenoids should be installed with an access panel for maintenance and/or service.
- Remove the solenoid assemblies and flush the piping systems prior to initial startup.

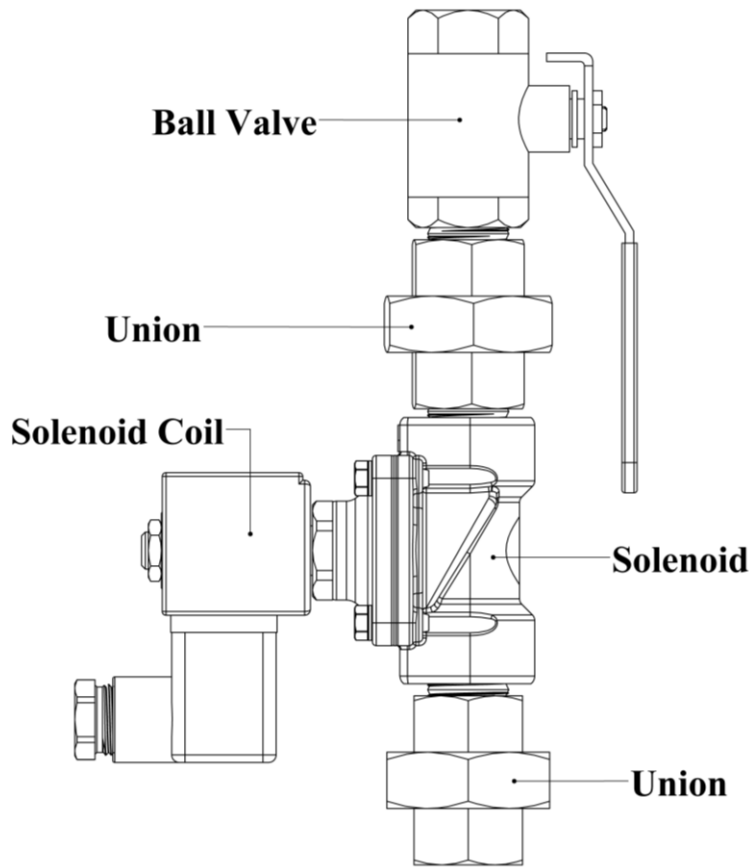


Figure 9: Recommended ISIMET Valve Assembly for Gas Control

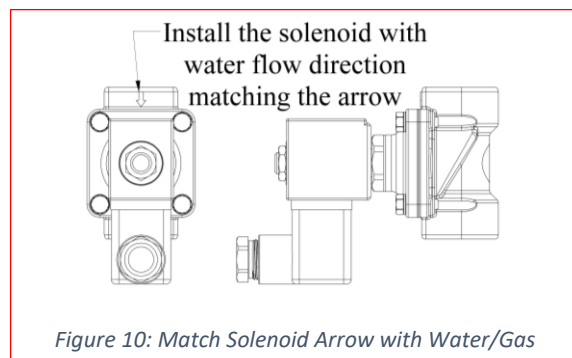
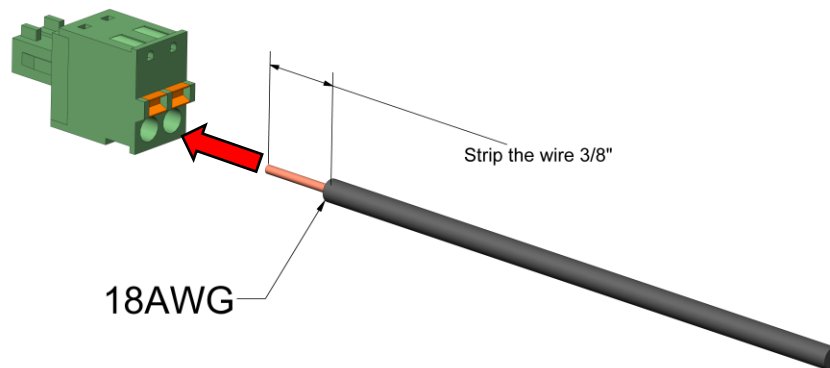


Figure 10: Match Solenoid Arrow with Water/Gas

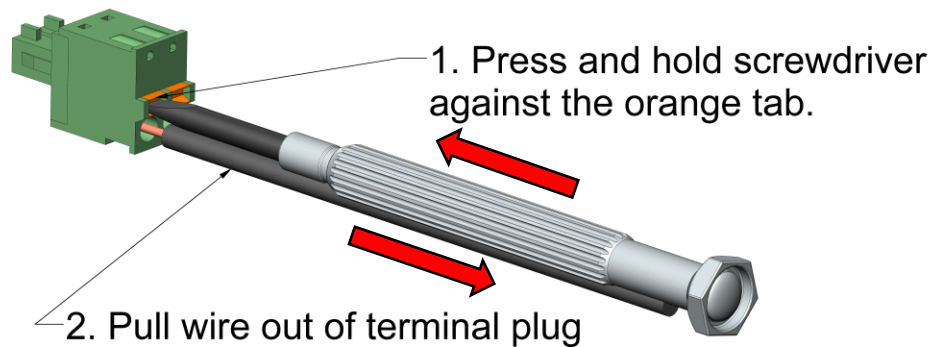
Wiring the KLA

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)!**

How to attach wiring to terminal plug



How to remove wiring from terminal plug



KLA Recommended Carbon Monoxide Detector Wiring Diagram

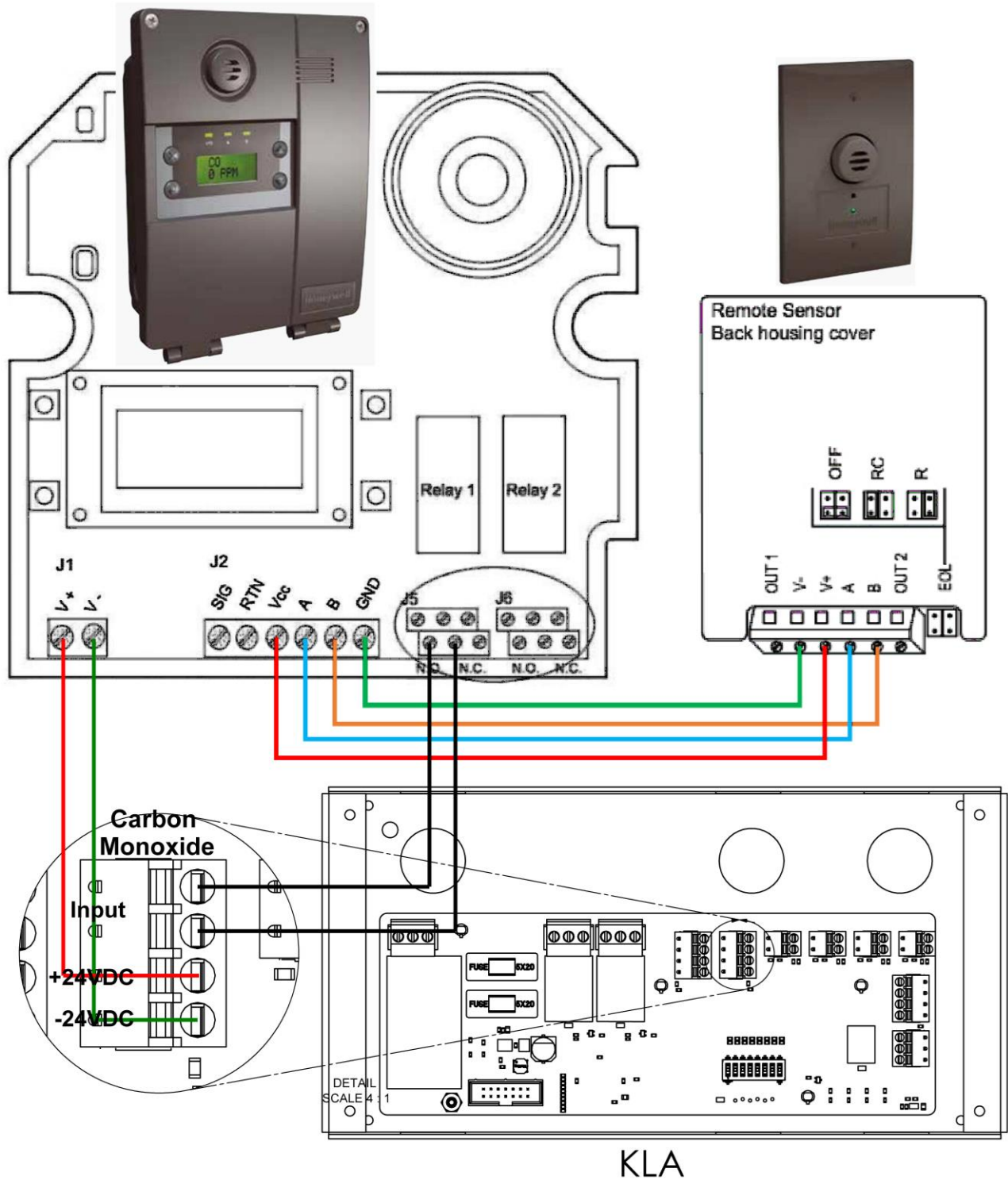


Figure 11: How to connect the KLA to the Honeywell E3SA Carbon Monoxide Detector and Remote Sensor

KLA Recommended ISIMET Fuel Gas Sensor Wiring Diagram

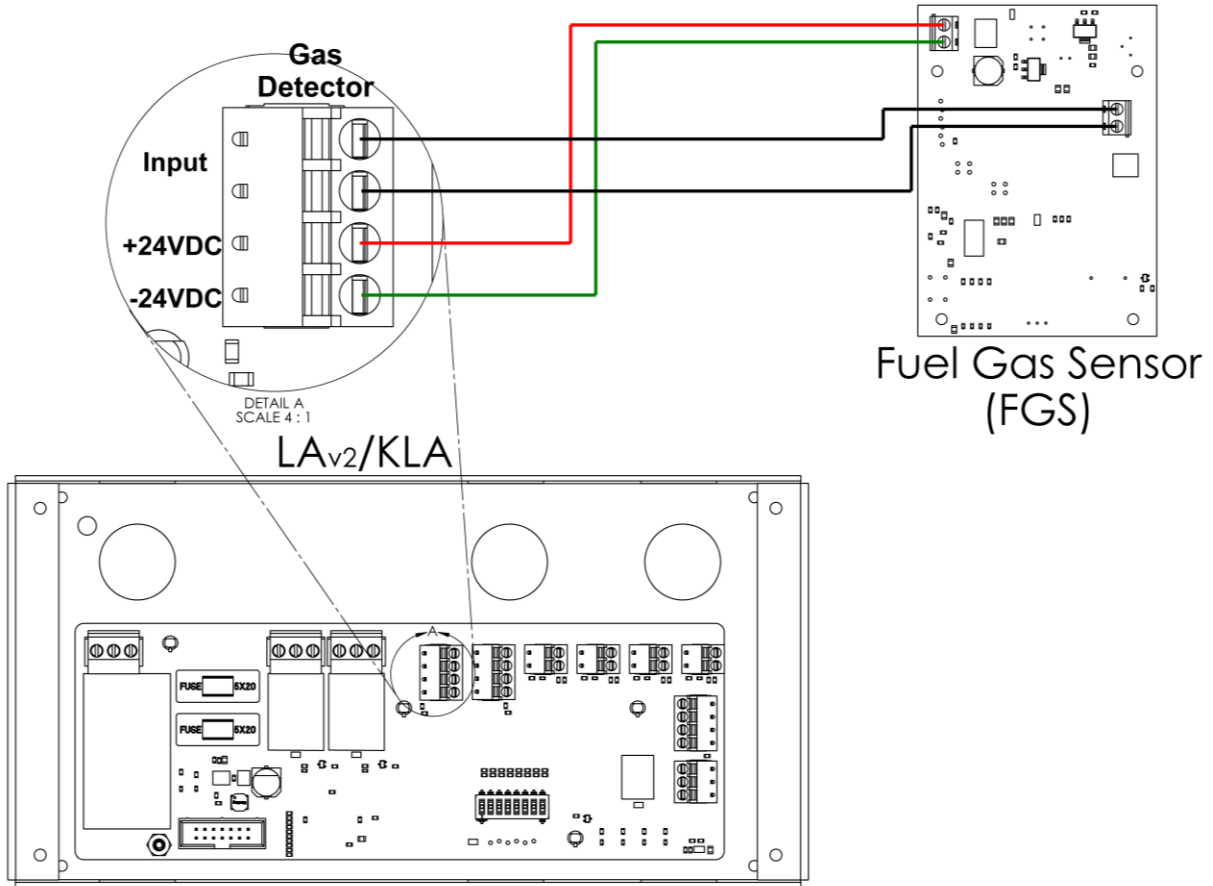


Figure 12: How to connect the KLA to ISIMET's Fuel Gas Sensor

KLA-HV (120V) Wiring Instructions (Skip ahead for the LV version)

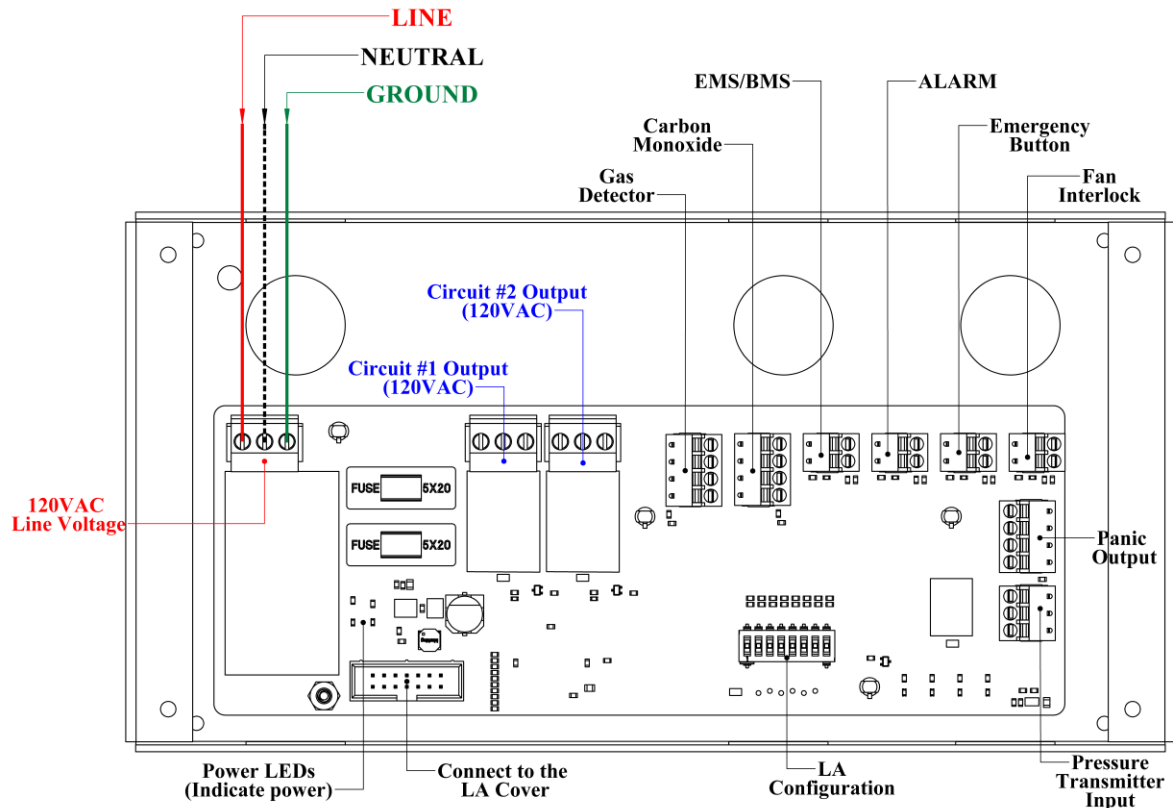


Figure 13: KLA-HV (120V) Wiring Diagram

KLA-HV Label	Description
<i>120V_Input</i>	<i>120VAC Line Voltage Input</i>
<i>Circuit #1 Output</i>	<i>First 120VAC Circuit Output</i>
<i>Circuit #2 Output</i>	<i>Second 120VAC Circuit Output (Optional)</i>
<i>Gas Detector, Carbon Monoxide</i>	<i>Dry-Contact Input with 24VDC Output</i>
<i>EMS/BMS, ALARM, Emergency Button, Fan Interlock</i>	<i>Dry-Contact (Voltage-Free) Inputs</i>
<i>Panic Output</i>	<i>24VDC and Dry-Contact Configurable Output</i>
<i>Pressure Transmitter Input</i>	<i>ISIMET approved Gas Pressure Transmitter</i>

KLA-LV (Low-Voltage) Wiring Instructions

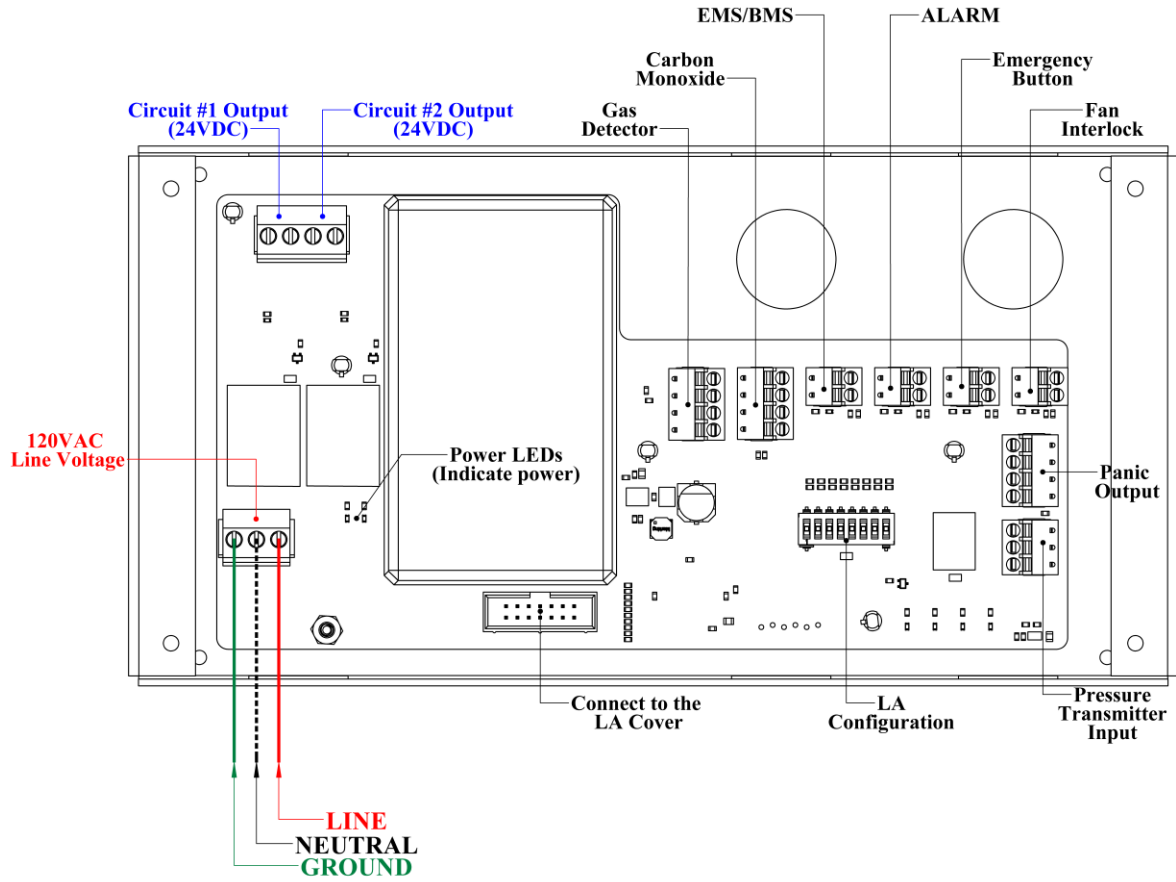


Figure 14: KLA-LV (Low-Voltage) Wiring Diagram

KLA-LV Label	Description
<i>120V_Input</i>	<i>120VAC Line Voltage Input</i>
<i>Circuit #1 Output</i>	<i>First 24VDC Circuit Output</i>
<i>Circuit #2 Output</i>	<i>Second 24VDC Circuit Output (Optional)</i>
<i>Gas Detector, Carbon Monoxide</i>	<i>Dry-Contact Input with 24VDC Output</i>
<i>EMS/BMS, ALARM, Emergency Button, Fan Interlock</i>	<i>Dry-Contact (Voltage-Free) Inputs</i>
<i>Panic Output</i>	<i>24VDC and Dry-Contact Configurable Output</i>
<i>Pressure Transmitter Input</i>	<i>ISIMET approved Gas Pressure Transmitter</i>

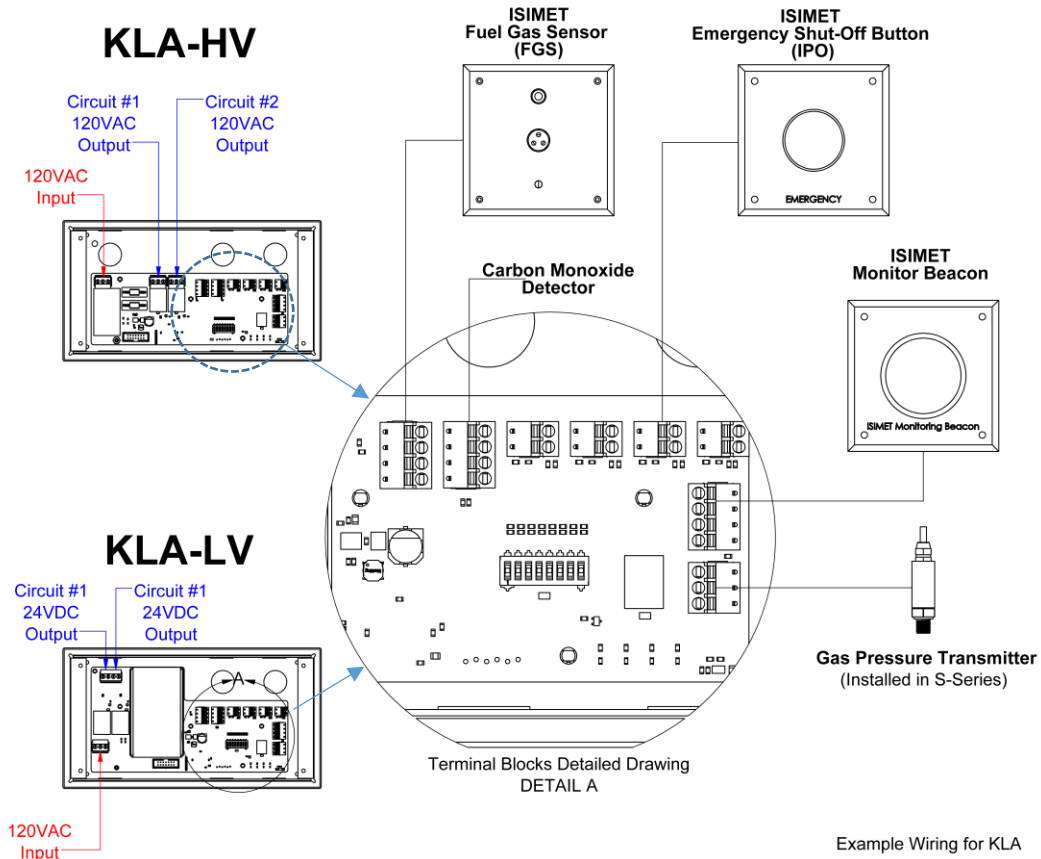


Figure 15: Example Wiring Drawing with ISIMET Optional Components

KLA Label

Description

<i>Gas Detector</i>	<i>Dry-Contact Input with 24VDC Output for ISIMET's Fuel Gas Sensor</i>
<i>Carbon Monoxide</i>	<i>Dry-Contact Input with 24VDC Output for a Carbon Monoxide Detector</i>
<i>EMS/BMS</i>	<i>Dry-Contact Input for the Energy/Building Management System to shut down the KLA</i>
<i>ALARM</i>	<i>Dry-Contact Input for Building Alarm</i>
<i>Emergency Button</i>	<i>Dry-Contact Input for Emergency Shut-Off</i>
<i>Fan Interlock</i>	<i>Dry-Contact Input to disable the KLA</i>
<i>Panic Output</i>	<i>24VDC and Dry-Contact Configurable Output</i>
<i>Pressure Transmitter Input</i>	<i>ISIMET approved Gas Pressure Transmitter</i>

Completing the KLA Installation

Flush Mount Completion (Skip ahead for Surface Mount)

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

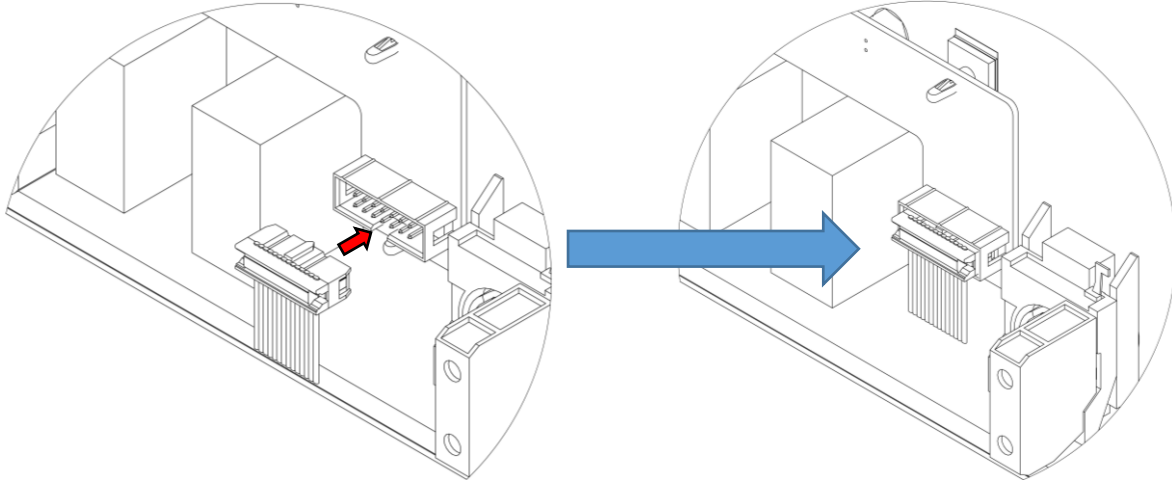


Figure 16: Attaching the Ribbon Cable from the KLA Daughterboard to the KLA Motherboard

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

Surface Mount Completion

1. Verify the fitment of the KLA Surface Mount Sleeve and attach the ribbon cable from the KLA Enclosure Box to the KLA Front Cover plug (See Figure Above).
2. Attach the Cover using the included #8-32 Stainless-Steel Screws.

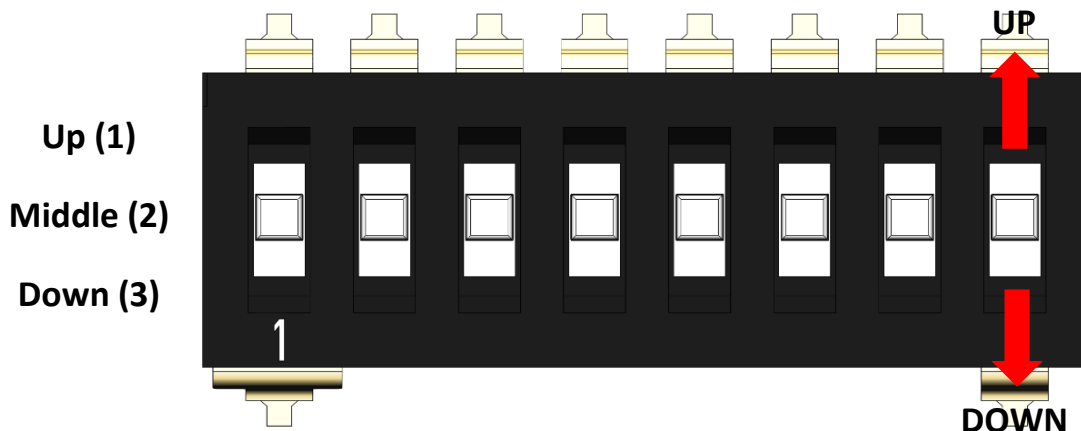
Verify KLA Functionality

1. Verify that all inputs are attached to dry-contact sources.
2. Turn on power to the KLA and verify that the power LEDs are illuminated.
3. Test the control switches and verify that Circuit #1 and Circuit #2 turn on when activating the key switch.
4. Test the devices that are connected to the KLA inputs and verify they are working properly.
5. Press the Emergency Shut-Off Button and confirm that the Circuits turn off.

Configuring the KLA

The KLA 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)

<i>Basic Configuration</i>			
Setting	Position	Options	Description
Panic Output	1	Middle (2) Up (1) Down (3)	Panic Output Enabled on Emergency Momentary (3s) Panic Output on Emergency Always ON except on Emergency
Circuit Config	2	Middle (2) Up (1) Down (3)	Switches 1 & 2 operate independently Switch 1 is Standard and Switch 2 is a FAN Single Switch Only
Circuit Timing	3	Middle (2) Up (1) Down (3)	No Timing CIR 1 & 2 Timeout Based on Time Period CIR 2 on Timer as FAN
Time period on Circuit Timing	4	Middle (2) Up (1) Down (3)	1 hour (15 minutes if FAN) 2 hours (30 minutes if FAN) 3 hours (1 hour if FAN)
EMS/BMS	5	Middle (2) Up (1) Down (3)	First Key Timing Enabled Active OFF (Input signal will turn OFF Circuits) Active ON (Input signal required to turn ON Circuits)
First Key Timing	6	Middle (2) Up (1) Down (3)	8 hours 10 hours 12 hours
LED Indicators	7	Middle (2) Up (1) Down (3)	3rd=Pressure Test Failed, 4th=Gas Leak Detected 3rd=Gas Leak Detected, 4th=Pressure Test Failed KLA Only (Do NOT Change this Setting!)
Test	8	Middle (2) Up (1) Down (3)	Normal Operation Test Mode for All Inputs Test Mode for All Outputs



Troubleshooting the KLA

KLA-HV and -LV Troubleshooting

- It is recommended to remove all input and output terminal plugs and verify the functionality of the KLA prior to performing any other troubleshooting.
 - Test the system by attaching 120VAC to the input.
 - Verify the '3V3 Power' and '24V Power' LEDs illuminate.
 - Turn the switch(es) to the ON position and press the push-button/turn the key.
 - Verify the green ON LED(s) illuminate on the front cover.
 - Verify the Circuit(s) LED(s) on the board illuminate.
 - Reconnect the circuit output(s) and re-key the system.
 - Verify that the circuit outputs are working as intended.
 - Press the Emergency Shut-Off Button
 - Verify the red Emergency Indicator LED illuminates and the circuit(s) are disabled.
 - Re-key the system and verify any other inputs function as intended.
- If the Circuit Output LED illuminates, but there is no voltage on the Circuit Output:
 - Remove and check the fuse and replace if blown (HV Only).
- 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 KLA was designed to shut-off the gas 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 (140° 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 KLA Utility Controller system is designed to be used with 120VAC line voltage and 120VAC outputs (HV) or 24VDC outputs (LV).

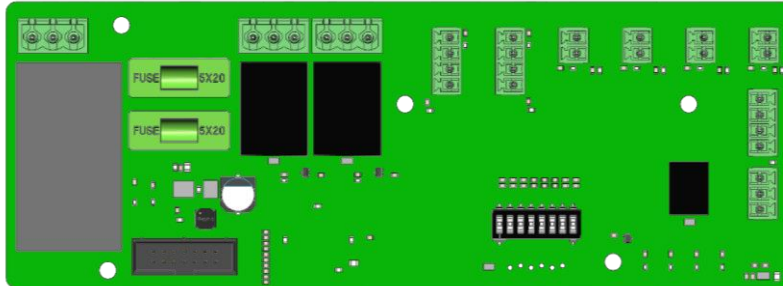


Figure 17: KLA-HV PCB

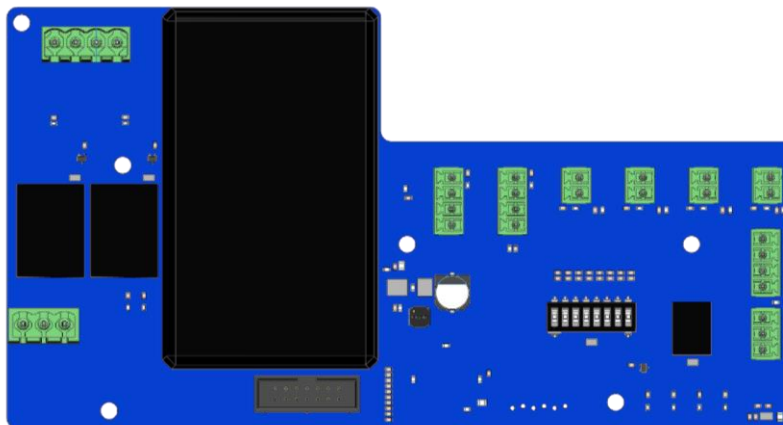


Figure 18: KLA-LV PCB

KLA-HV (120VAC Version)

KLA-LV (24VDC Version)

120VAC (60Hz) Line Voltage Input	100-240VAC (50/60Hz) Line Voltage Input
120VAC Circuit Output (Max 15A)	24VDC Circuit Output (Max 2.5A)
24VDC Output (Max 5W)	24VDC Output (Max 10W)
120V – 2A Fuse (Quantity: 2)	Short-Circuit Protection (No Fuses)

Control Wire Size: 18 AWG Recommended