2021

ISIMET LSP-GO Installation Instructions

Laboratory Service Panel – Gas Only

Installation Manual

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ISIMET LSP-GO
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.

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 LSP-GO

The LSP must be mounted in a location that is easily and readily accessible. The installation height of the LSP controls must comply with ADA standards.

Flush Mount Installation

1. Determine the best location to install the LSP taking into consideration the gas line, gas flow, and front panel controls.
   Note: Gas must flow from Top to Bottom in the LSP-GO.
2. Test fit the LSP Assembly and mark 4 locations to mount the LSP.
3. Ensure these marks will not interfere with any of the electrical connections, piping, and/or any other obstacles and drill out the mounting holes.

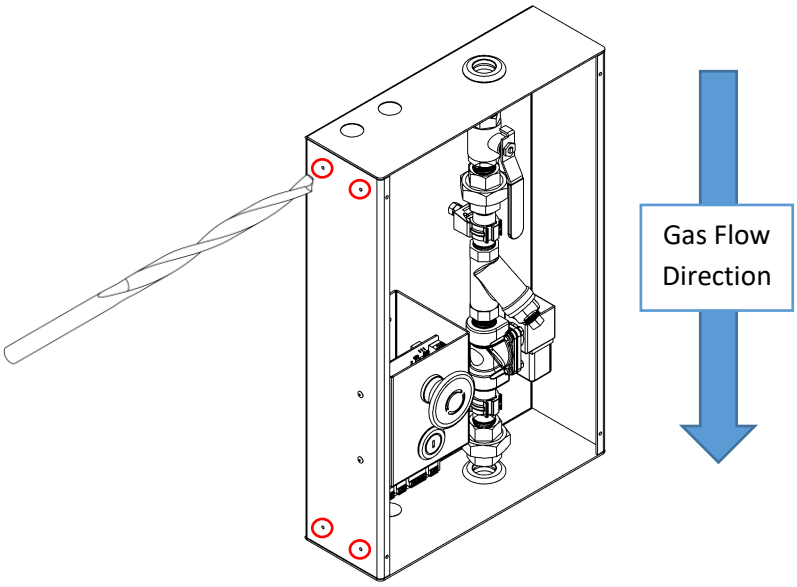


Figure 1: Drill Mounting Holes into the LSP-GO

4. Place the LSP 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).

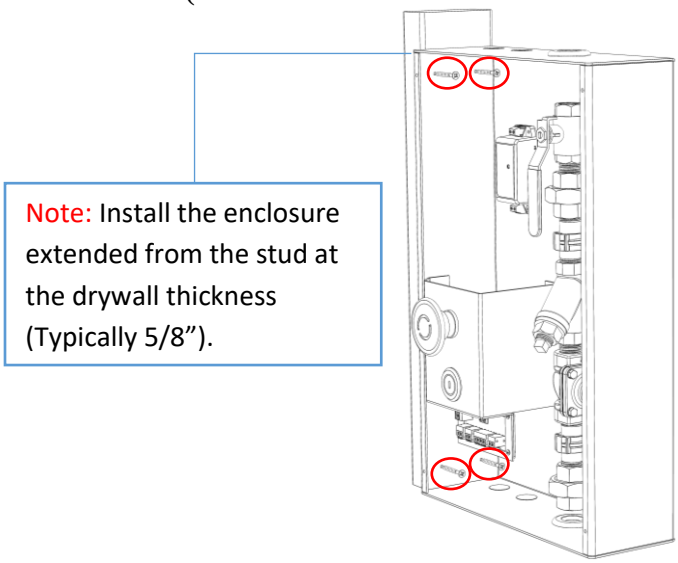


Figure 2: Attach the LSP-GO Enclosure to the studs

5. Attach the Enclosure Box to the stud through the drilled holes using appropriate screws.

Electrical/Wiring Installation

Wiring Installation Recommendations:

- A licensed installer should complete this section following all National and Local Codes.
- LSP-GO can be powered by 100-240 VAC (Recommended: 120 VAC, 15A Dedicated Circuit).
- All other inputs and outputs are low-voltage (Recommended 18AWG/4 Wiring).
- All inputs should be connected to Dry-Contact (Voltage-Free) outputs only.
- The solenoid will come pre-wired and utilizes 24 VDC.
- The Emergency Output is a Dry-Contact (Voltage-Free) output

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

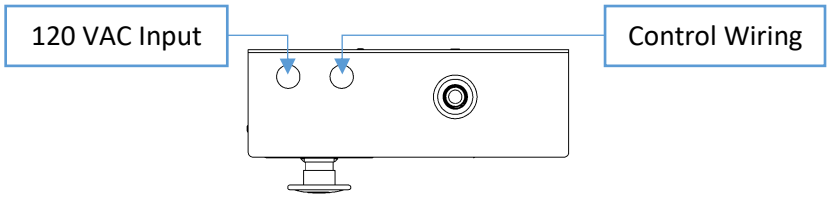


Figure 3: Example of typical wiring knockouts for the LSP (Top View)

2. Install EMT conduit with connectors to the LSP-GO enclosure for the 120V line voltage.

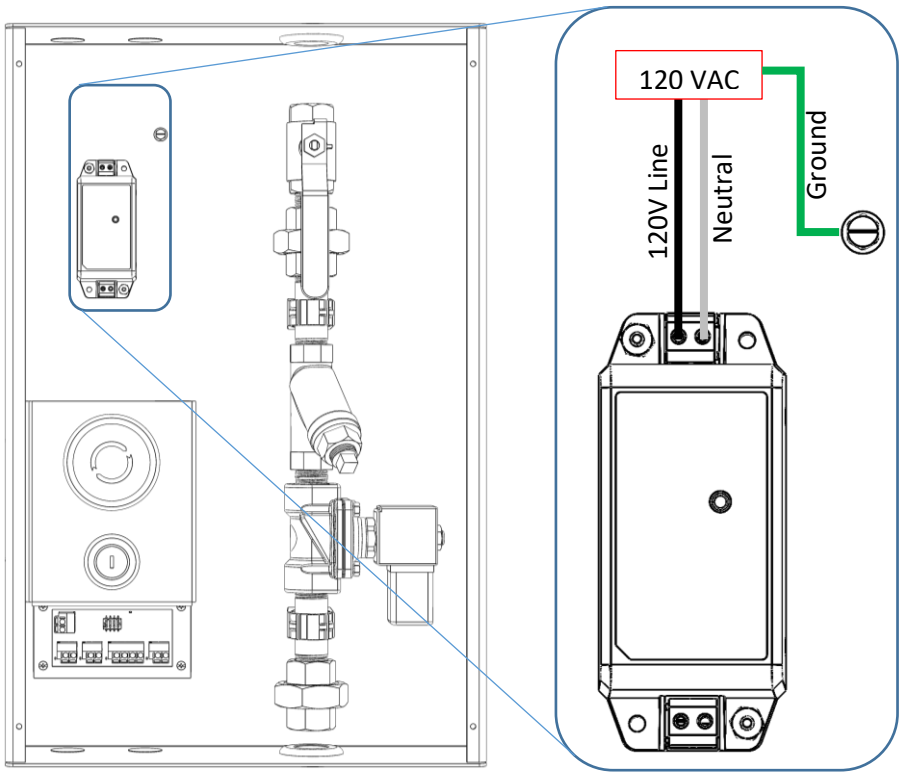
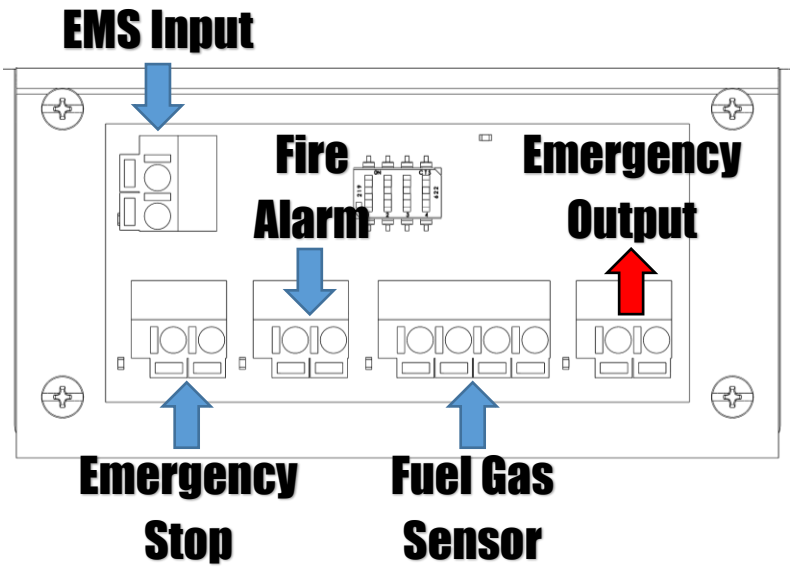


Figure 4: LSP-GO 120VAC Input Wiring

3. Connect the Line, Neutral, and Ground. Use the included grounding screw or grounding lug to ground the enclosure. ***The LSP-GO must be grounded to work properly.***
4. Use the following pages to complete any control wiring needed.



LSP-GO Label	Description
EMS Input	*Energy/Building Management System*
Emergency Stop	*Emergency Stop Button*
Fire Alarm	*Fire Alarm System*
Fuel Gas Sensor	*ISIMET's FGS Gas Leak Detector*
Emergency Output	*NO Dry-Contact Output (Max: 40V @ 2A)*

Note: All Inputs are NO (Normally-Open), Dry-Contact and should only connect to voltage-free sources.

Fire Alarm and EMS Input Wiring Instructions

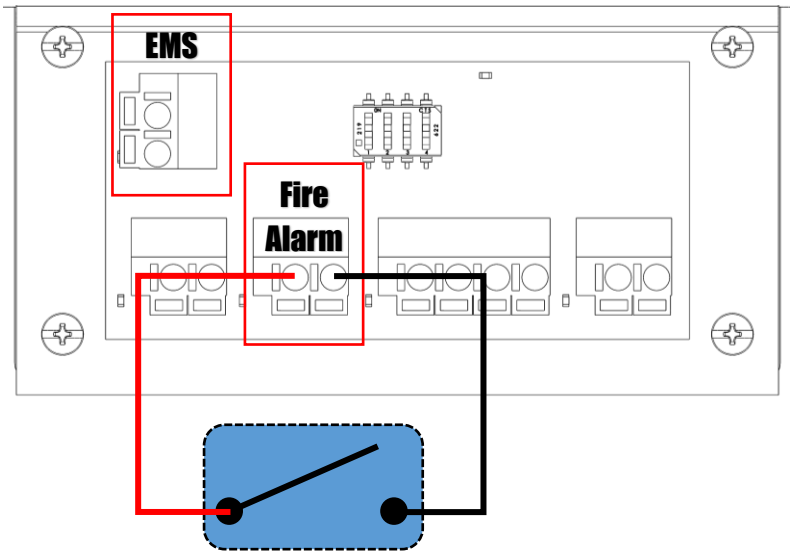


Figure 5: Fire Alarm Dry-Contact Example

Both the Fire Alarm and EMS (Energy/Building Management System) inputs require *Dry-Contact* (voltage-free), normally-open outputs. Both of these inputs will shut-off the gas flow controlled by the LSP-GO. The only difference between these inputs is the **EMS** input will *not* enable the ***Emergency Output***, while the **Fire Alarm** input will.

Remote Panic Button (IPO) Wiring Instructions

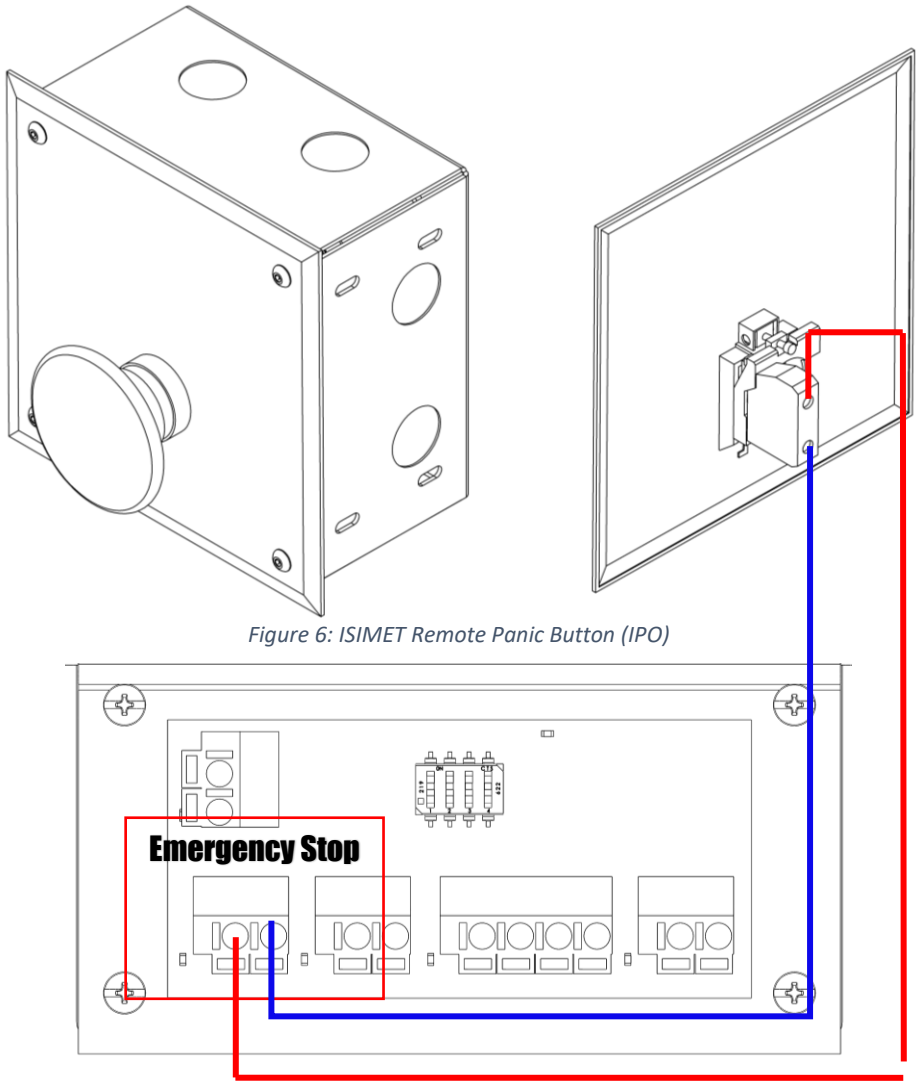


Figure 6: ISIMET Remote Panic Button (IPO)

If multiple IPOs are used, they can be wired in parallel:

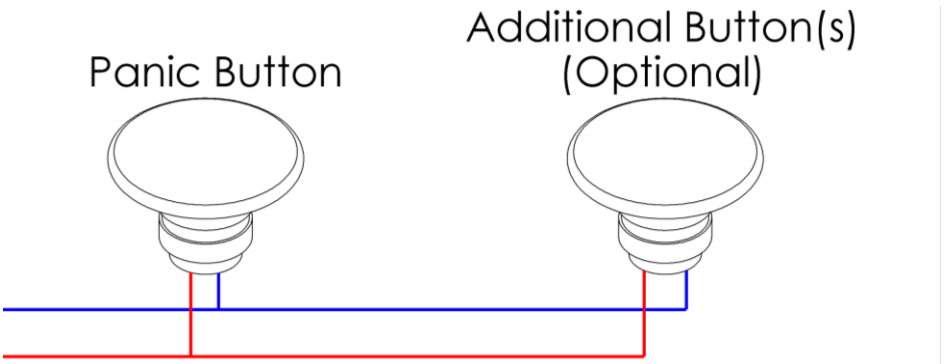


Figure 7: Multiple Panic Buttons wired to the LSP-GO

Fuel Gas Sensor (FGS) Wiring Instructions

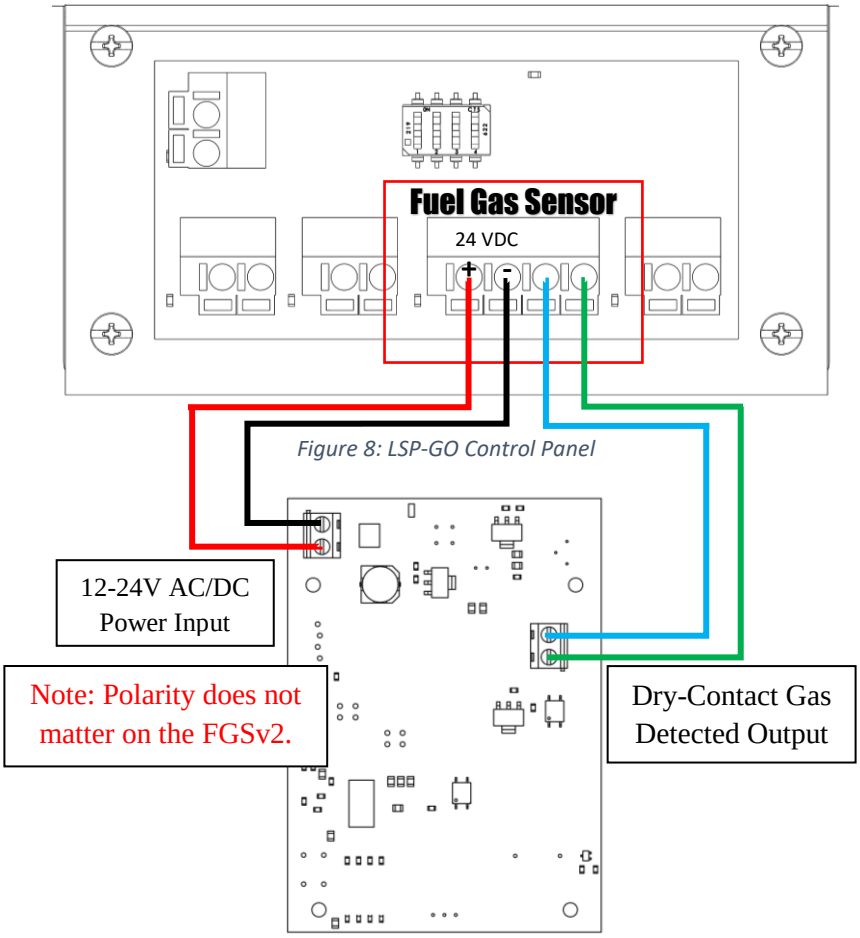
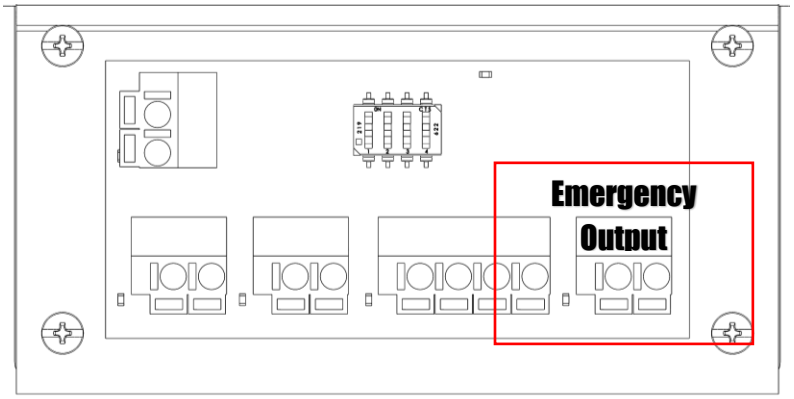


Figure 8: LSP-GO Control Panel

Figure 9: ISIMET FGSv2 (Fuel Gas Sensor)

Model Number		FGSv2
Part Number		4986 v5.0
Sensing Principle		MOS Type
Target Gases		Methane, propane, iso-butane
Conditioning Period for Optimum Results		7 days
Optimum Environmental Conditions		20° C @ 65% R.H.
Typical Detection Range		1~25% LEL of each gas
Electrical Characteristics	Power Consumption	5W
	Input Voltage	12~24V AC/DC
	Output	Dry-Contact (Max: 500mA)

Emergency Output Wiring Instructions



The Emergency Output is a Dry-Contact (Voltage-Free) configurable Output, *see Configuring the LSP-GO*. This output is a Normally-Open (NO) contact that will close if the LSP-GO has an emergency and needs to shut-off the gas.

Specifications: NO, Dry-Contact, 0-40 VDC, 2A Max Solid-State Relay.

E-Series (Electrical Contactor) Wiring Instructions

In order to use an electrical contactor with the LSP-GO, the LSP-GO must use the Fuel Gas Sensor's 24 VDC output to power a relay. This relay will in turn power the electrical contactor being used.

***Set the configuration Emergency Output Configuration to UP**, see Configuring the LSP-GO.*

Any electricity connected to the LSP-GO will stay ON at ALL TIMES, except during an Active Emergency.

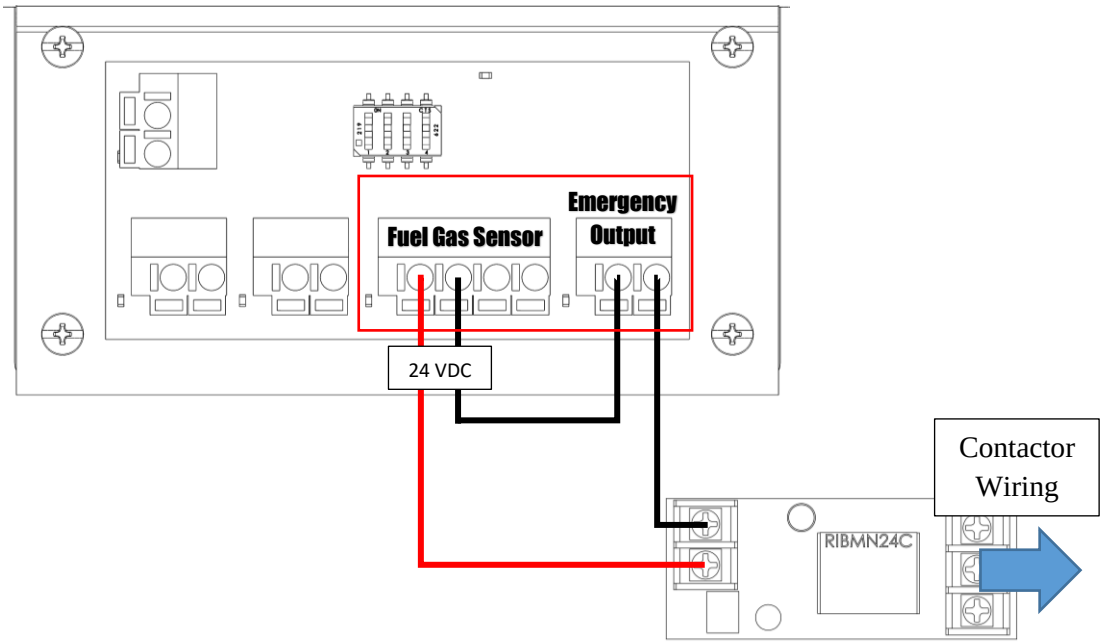


Figure 10: Wiring Instructions for the Relay Controlling the Electrical Contactor (E-Series)

Caution: The LSP-GO *CANNOT* power an electrical contactor directly. Use an approved relay *ONLY*.

Gas Piping Installation

Gas Installation Recommendations:

- A licensed installer should complete this section following all National and Local Codes.
- Ensure that only 24VDC solenoids are used with the LSP-GO (pre-installed).
- ISIMET's LSP-GO typically includes a Solenoid Assembly (see below), which includes a Y-Strainer, Ball Valve, and Unions.
- On 1" - 1¼" piping installations, if the Y-Strainer is included, it will need to be installed outside of the LSP-GO enclosure.
- Remove the solenoid assembly and flush the piping systems prior to initial startup.

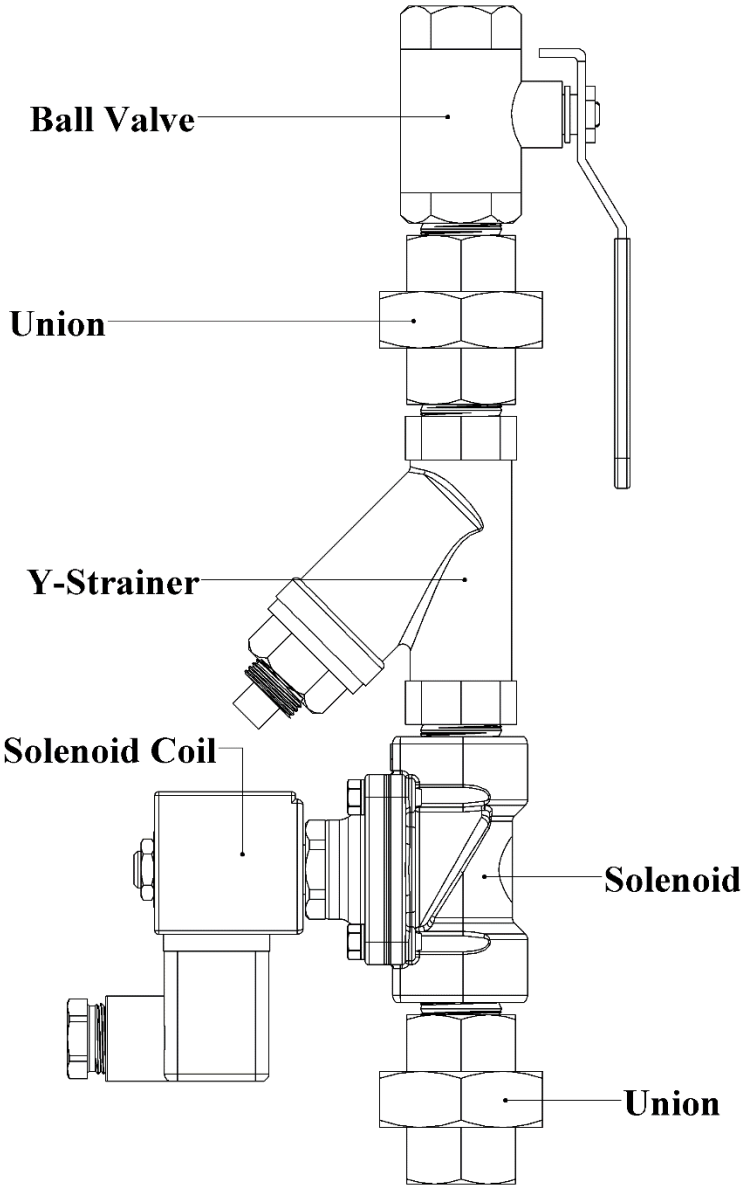


Figure 11: ISIMET Gas Valve Assembly with integrated Y-Strainer

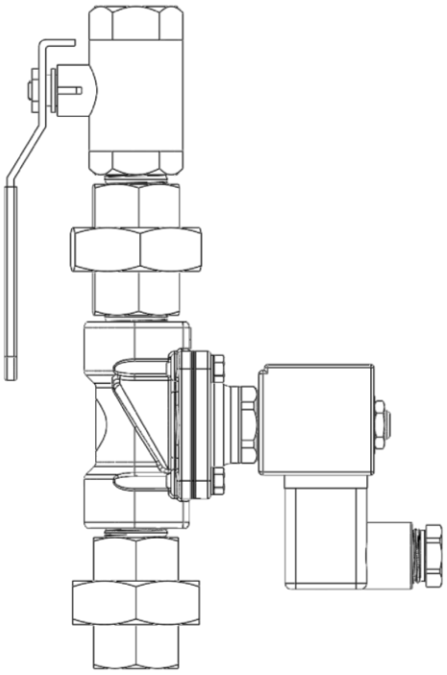


Figure 12: ISIMET Gas Valve Assembly

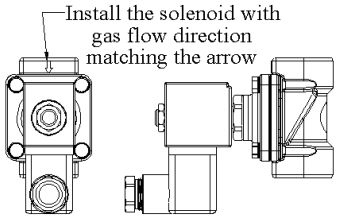


Figure 13: Match Solenoid Arrow with Gas Flow

Completing the LSP Installation

Attach the LSP-GO Front Cover

1. Install the T15H security screws in the four corners of the LSP-GO enclosure leaving enough room for the cover to be installed.
2. Attach the LSP-GO cover to the enclosure by aligning the larger holes on the cover with the security screws from the previous step, then slide the cover down.

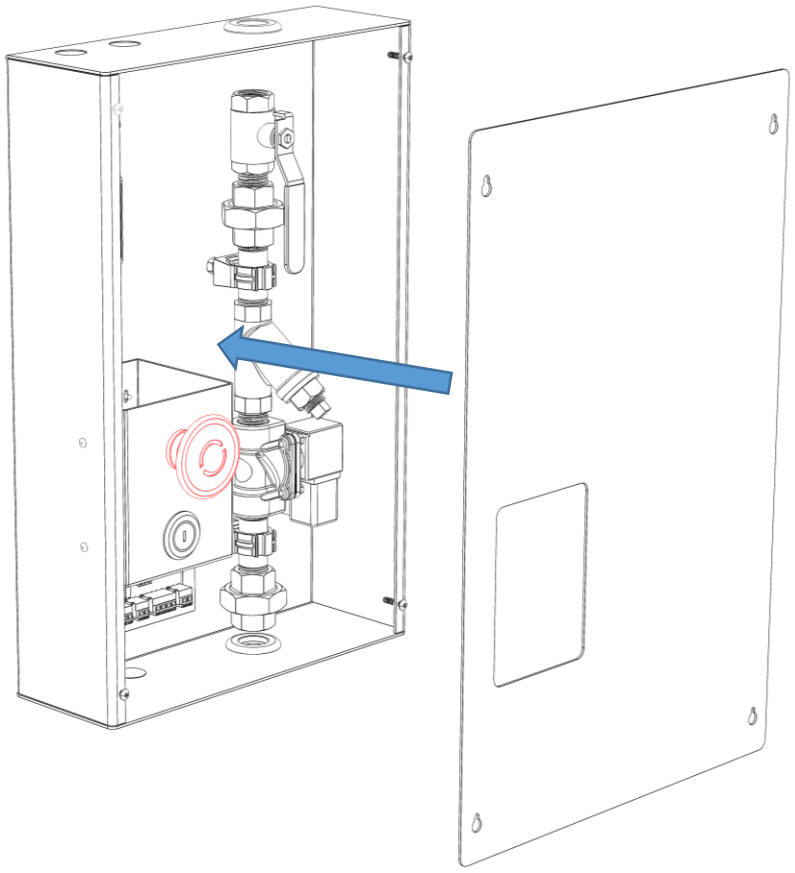


Figure 14: Attaching the LSP-GO Cover to the LSP-GO Enclosure

3. Leave the security screws loose until the walls have been finished.

Drywall Finishers and Painters Instructions

The LSP-GO must be completely covered prior to finishing the drywall and/or painting to prevent damage.

1. Remove the LSP-GO front cover and place in a secure location.
2. Use a plastic or paper covering to completely cover the internals of the LSP-GO.
3. After painting, remove the protective covering and reinstall the LSP-GO front cover.

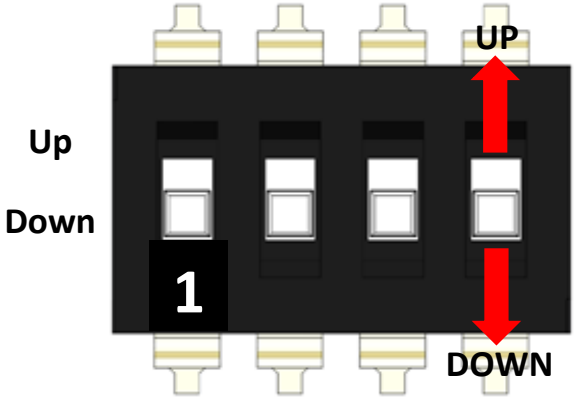
Verify LSP Functionality

1. Check that the LSP-GO is properly grounded. Verify a ground is connected to the electrical enclosure and check for continuity between the ground and the key switch exposed metal outer ring.
2. Verify that all inputs are attached to dry-contact sources.
3. Turn on power to the LSP and verify that the power LEDs are illuminated.
4. Turn the key switch (or push button) ON and OFF and verify the lights turn green and red.
5. Test the gas solenoid and verify the gas shuts off when the emergency shut-off button is pressed.
6. Test any electrical contactors (E-Series), if used, and verify the power shuts off when the emergency shut-off button is pressed.
7. Simulate a Fire Alarm emergency, if the Fire Alarm input is used, and verify the LSP-GO shuts off all connected accessories.
8. Verify any other devices that are connected to the LSP-GO inputs are working properly.
9. Test all connected Emergency Shut-Off Buttons and confirm that the gas shuts off when pressed.

Configuring the LSP-GO

The LSP-GO will come preconfigured from the factory; however, at times it may be necessary to make adjustments to the configuration.

Basic Configuration			
Setting	**Position**	**Options**	**Description**
Emergency Output	1	Up	Emergency Output Active until Emergency Cleared
		Down	Momentary (3s) Emergency Output on Emergency
EMS/BMS	2	Up	Active OFF (Input signal will turn OFF Circuits)
		Down	First Key Timing Enabled
First Key Timing 1	3	Up	6 hours
		Down	8 hours
First Key Timing 2	4	Up	First Key Timing 1
		Down	Add 4 hours to First Key Timing 1



Troubleshooting the LSP-GO

LSP-GO Troubleshooting

- It is recommended to remove all input and outputs and verify the functionality of the LSP-GO prior to performing any other troubleshooting.
- 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 Emergency Output is not functioning as intended, verify the configuration from the previous page.

Note:

The LSP-GO 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 12-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 LSP Utility Controller system is designed to be used with 120VAC line voltage and 24VDC Circuit Outputs.

LSP-GO (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