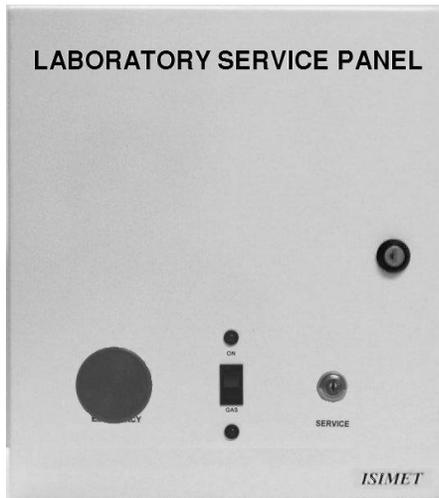


# ***ISIMET* Laboratory Service Panel Electrical Enclosure**

## **Installation, Maintenance, and Operation Instructions**



The *ISIMET* Laboratory Service Panel operates as a single output controller incorporating either a solenoid valve assembly or electrical contacts along with the digital switching mechanism within a single enclosure. An internal junction box houses the 120-vac line voltage along with transformer and circuit board.

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Patent 6,757,589 B1 / 6,990,393 B2

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Although the material contained herein has been carefully reviewed, **ISIMET** does not warrant it to be free of errors or omissions. **ISIMET** reserves the right to make corrections, updates, revisions, or changes to the information contained herein.

**Warranty:**

**ISIMET** will repair or replace any defective parts or workmanship of the product for a period of one year from date of installation. The Primary Operating P.C. Board has a two year limited warranty. Damage caused by incorrect installation or improper usage is not warranted. Failure to follow recommended installation, operation, and/or maintenance procedures may void product warranty. Recovery rights shall be limited to the total sum of the amounts paid for the product by the purchaser.

**Limits of Liability:**

**ISIMET's** liability shall be limited to costs of repair or replacement parts. The Laboratory Service Panel and Utility Controller Systems are not intended for usage other than those expressly described in the provided manuals for each product. **ISIMET** shall not be liable for damage or injury caused by the improper use of the product.

**ISIMET** does not warrant against or assume liability for failure of operation or lack of notification to secondary integrated monitoring systems. The system should be thoroughly tested and adjustments made at time of initial operation. Periodic testing should be conducted by the user to assure that all components function and operate according to specifications.

Care should be taken in the installation of this product. **ISIMET** shall not be liable for damage or injury caused from the improper installation of the product.

Warranty is Subject to Compliance with Specific Installation Requirements.

**EXTENDED WARRANTY:**

**ISIMET** will extend the warranty period of the products when installation complies with all start up procedures and that a factory authorized agent either performs or is in attendance during start-up of the system(s). Controllers, Companion and Accessory Panels will be extended to a period of five years from date of installation. Except for **ISIMET** FLA, DLA, RLA and other Units where automation systems are not common, Control System(s) must be interfaced with a building automation system or other **ISIMET** approved time sequencing control for "non-use" system shutdown. All operating components of the system must be **ISIMET** provided. Prescribed routine maintenance procedures must be performed per **ISIMET** recommendations.

All Start-up and Routine Maintenance Documentation shall be per Factory Recommendation.

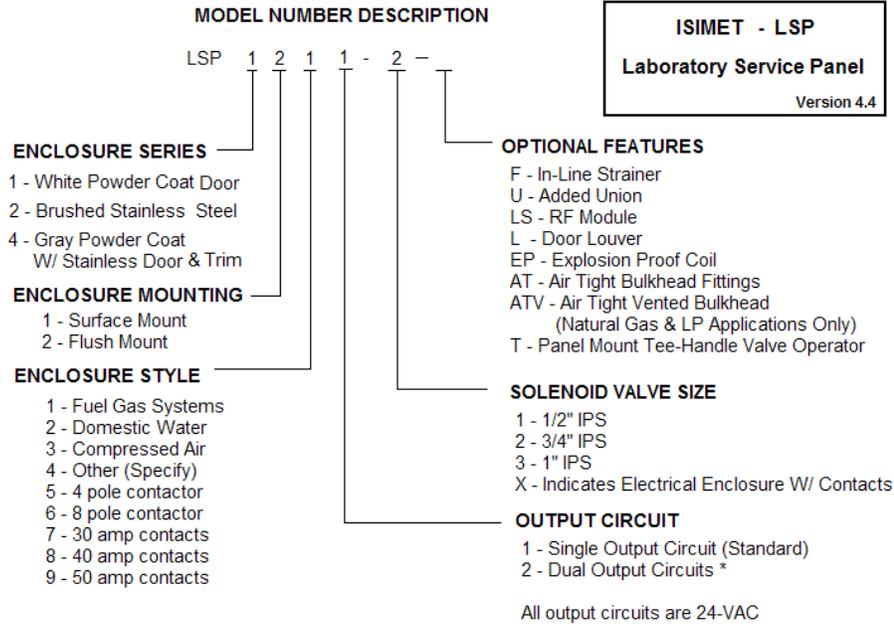
Further, required start-up and maintenance procedures must be performed as directed upon all affected systems. This warranty shall only become enforceable upon issuance of application specific Extended Warranty Document. A copy of this document should be maintained at all times at the location of the warranted systems.

**DISCLAIMER OF IMPLIED WARRANTY:**

**THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION HEREIN. SELLER DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PURPOSE, AND BUYER AGREES THAT THE GOODS ARE "AS IS".**

**Important!**

All local codes must be followed when installing this unit and connecting the conduit to the service panel and making wiring connections. Only qualified craftsmen licensed within the governing jurisdiction to perform the work associated with this installation should install and/or service this equipment.



Field Configurable Notification Output Circuit is Standard on all systems

\* Second Output Circuit is intended for operation of a remotely located 24-VAC device

**UL:** Product is in compliance with the Industrial Control Panels, UL-508A Standard. Not available for all units where specific application does not conform to UL-508A criteria.

**Enclosure Specifications and Dimensions:**

The NEMA 1 enclosure may be either surface or flush mounted. Flush Mount with Trim Kit is Standard. Door is provided standard with a Key Lock. These units are not suitable for direct exposure to wet conditions. The Two Styles of the Enclosures are:

**Solenoid** - The unit is equipped for either natural gas or fluid system applications (domestic water). This unit features a manual shut-off valve with a 24-vac N/C solenoid with fittings. The solenoid is pre-wired to the output circuit at the printed circuit board. Refer to ISIMET Solenoid Specifications for valve specifics.

Sizes range from 1/2" – 1" IPS. All units are provided with rubber grommets – Standard.

Optional Air Tight and Vented Enclosures are provided with liquid tight bulkhead fittings or threaded lock-nuts for the piping connections at the top and base of the Enclosure. All solenoids are provided with reset switches.

**Electrical** - Either a three (3) pole definite purpose contactor from 30 – 50 amp, or a four (4) or eight (8) pole mechanically held lighting contactor is provided within the enclosure.

**This manual addresses the Electrical Style only.**

The electrical contact(s), along with an interface 24-vac coil relay, is arranged within the enclosure to insure ease in making field piping connections. Wiring leads for the relay are terminated at the printed circuit board (PCB) within the junction box.

Enclosure dimensions are 16X14X6. Custom assemblies available in 18X18X6 or 24X24X6

The enclosure is available in White Powder Coat Door, Gray Powder Coat with Brushed Stainless Steel Door, and Brushed Stainless Steel.

# Installing the Enclosure

There are two options for mounting the Laboratory Service Panel: Flush Mounted and Surface Mounted.

**CAUTION:** Provided mounting hardware must be used.

## Flush Mounted

Prior to installation:

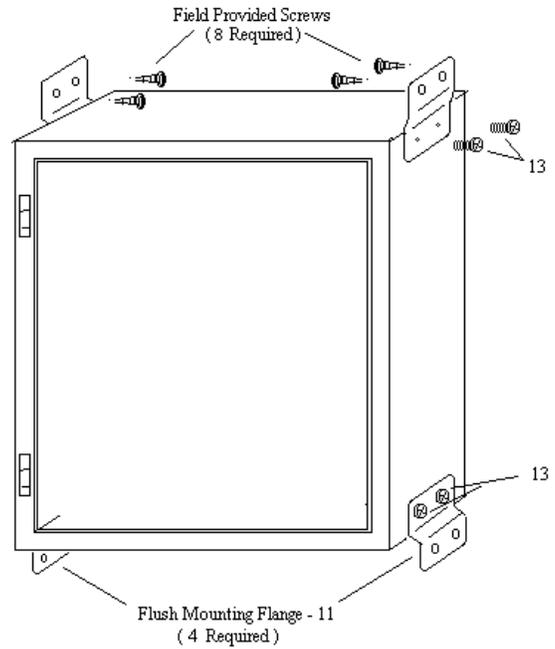
- The Enclosure mounts between two standard spaced wall studs within a minimum 6" wall cavity. (See enclosure dimension – page 3)
- If stud spacing is greater than that required for the mounting of the controller, add studs to insure a secured mounting.
- The studs should be facing to facilitate securing the Enclosure.
- Predetermine wall finish so that the face lip of the enclosure aligns flush with the finished wall surface.

To install:

1. Using the self-starting screws (13), mount the flanges at each side and at the top and bottom of the enclosure.
2. Attach the enclosure to the wall studs with field-provided sheet metal screws per the drawing.
3. Level the enclosure.

**Notes:**

- When the Door Panel is mounted onto the Enclosure, it should protrude beyond the wall surface about 1/4". Care should be taken at installation time to ensure that this occurs.
- A Flush Mounting Trim Flange is provided with each flush mounted unit. Separate installation instructions and hardware are included with this flange.
- Semi and Flush Trim add 3.5 inches to both Height and Width wall surface dimensions.
- It is the responsibility of the installer to verify finish wall dimensions.



**Figure 1**

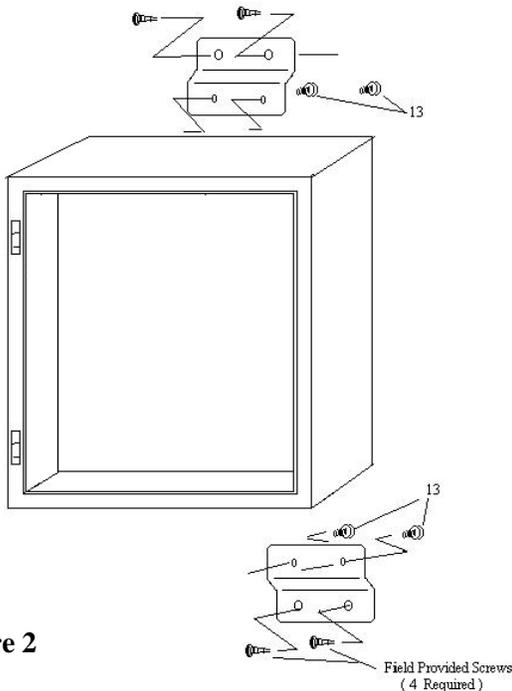
For best Flush Mounting results, recess face of enclosure's lip 1/4" behind wall finish

### Semi-Recess Enclosure Placement

**Note:** For Semi-Recess Units, the face of the enclosure's lip should be positioned 1/4" beyond wall finish.

### Clearance around Enclosure:

Care should be taken to allow 1/2" clearance from wall framing and sheet-rock or other wall surface material around the outer surface of the unit to permit the trim to be properly installed.



**Figure 2**

## Surface Mounted

Prior to installation:

- Wall finishes should be complete.
- The wall cavity must have sufficient backing or support to ensure a firm mounting of the enclosure to the wall surface.

To install:

1. Secure the surface mount flanges to the back of the enclosure with the self-starting screws (13).
2. Use the field-provided screws to attach the enclosure by the flanges to the wall surface.
3. Level the enclosure.

# Typical Wiring – Mechanically Held Lighting Contactor

## Wiring Information and Instructions:

Enclosures are provided with Model # RIBMN24C panel mounted interface relay.

Contact leads from interface relay are connected to coil at Lighting Contactor or Definite Purpose Contactor.

Field wiring required from Load Center to Contactor.

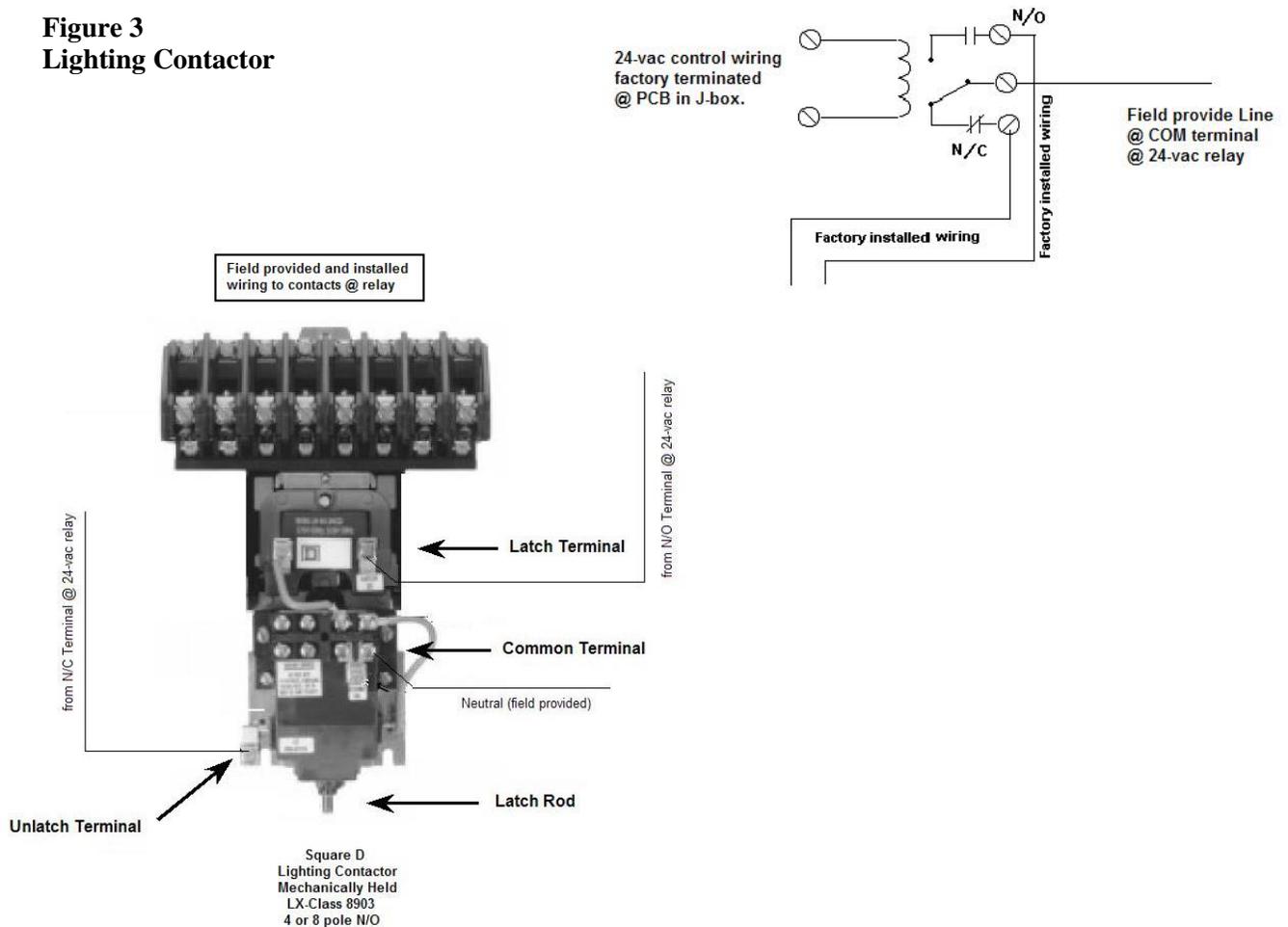
Grounding: Grounding is provided at the junction box for the control circuitry. Additional grounding should be field provided at the contactor by terminating a service ground wire to enclosure at the grounding lug.

Load Center: Recommend maximum 20-amp breaker for lighting contactor operating electrical outlets or according to rating of definite purpose contactor.

## Electrical Specifications:

Style	# Output Circuits	Output Rating	Transformer	Relay Rating
LSP	1	1.5 amp at 24 vac	2 amp at 25VCT	1 at 1.5 amp at 24 vac
LSP	2	1.5 amp at 24 vac Combined Max	2 amp at 25VCT	1.5 amp MAX.

**Figure 3  
Lighting Contactor**



## Typical Wiring – Definite Purpose Contactor

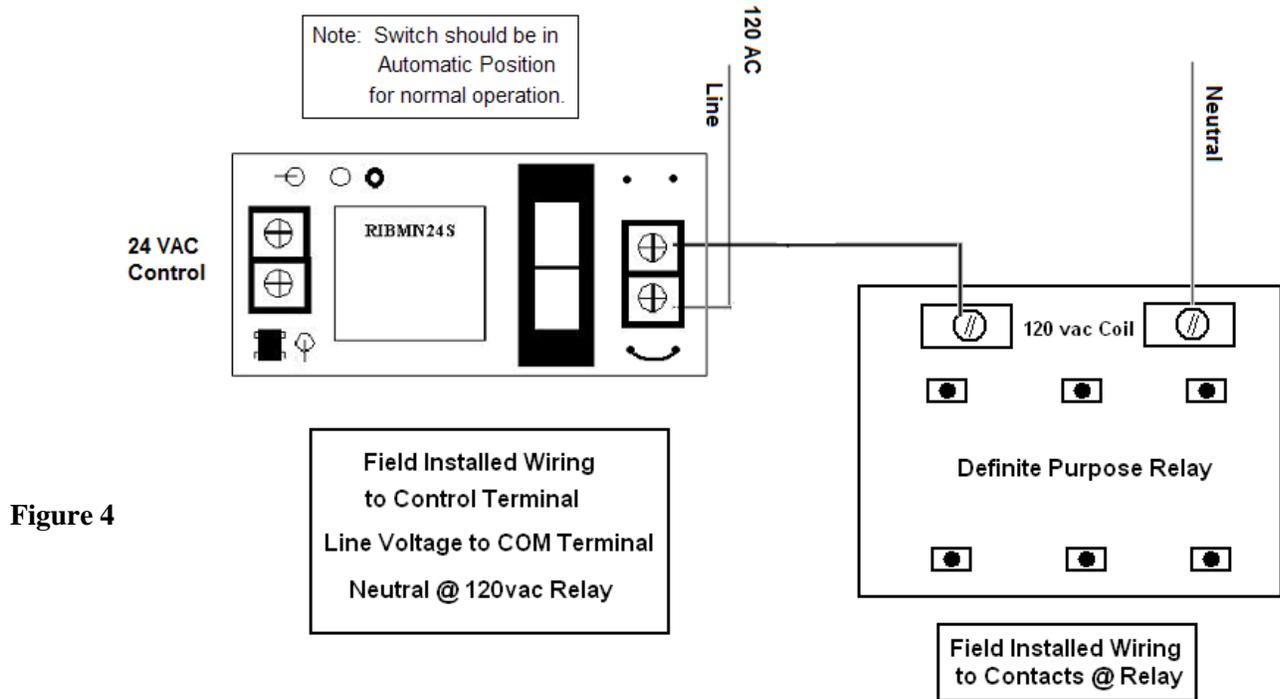


Figure 4

### Contactor Specifications:

**Lighting Contactors:** Square D 8903 LXOV Series 4 to 12-circuit latching relay.

Maximum operating temperature for the contact is 160° F / 71° C.

All Contacts have an A600 NEMA Rating.

Average operating time in milliseconds: 15 pick-up; 16 drop-out.

**Definite Purpose Contactors:** Square D 8910DPA 3-pole.

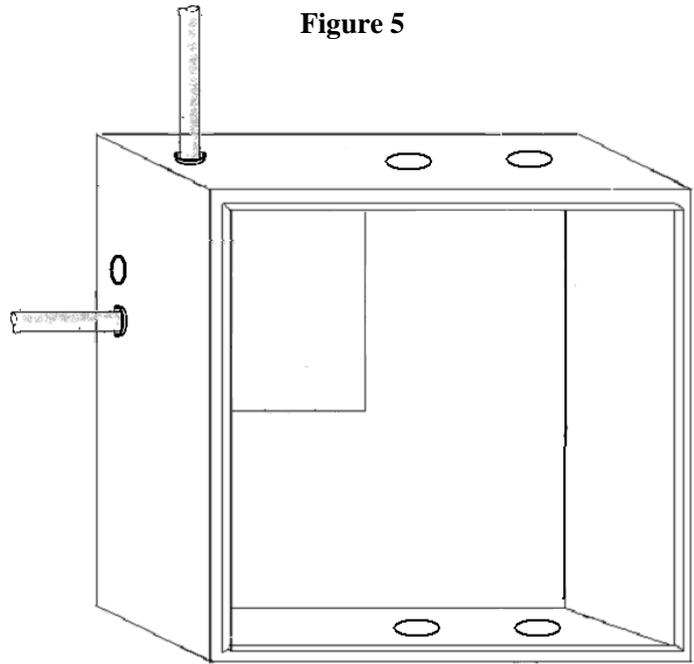
Maximum operating temperature for the contact is 160° F / 71° C.

All Contacts have an A600 NEMA Rating.

### CAUTION:

**ISIMET DOES NOT** recommend that service to emergency and/or safety devices, such as emergency showers and eyewashes, be controlled by the Utility Controller System or Solenoids. Such devices are intended to operate independent of restrictive authority operation as is the case with the design of this unit. **ISIMET** makes available components for the monitoring of such safety devices. Please contact **ISIMET** regarding any questions regarding this type of application.

Figure 5



## Installing the Electrical Conduit

Knockout holes for connecting the electrical conduits for the electrical service for the control unit are located at the top left and side of the Enclosure.

- Connect rigid conduit for the required 120-vac electrical service to the top inlet.
- Connect conduit for second remotely located output devices at the side of the enclosure . (Dual Circuits only)
- Connect conduit for integration input & output signal cables at the upper left side knock-out.
- Two 1.25” knock-outs are provided on top & bottom for field installation of conduit for the controlled service wiring. Additional penetrations, if required, must be field provided.

**Caution:** All local codes and regulations should be followed when installing the enclosure and making the conduit and wiring connections.

## Wiring the Unit

**Important! Verify that the electrical supply is disconnected prior to connecting wiring to the Service Panel.**

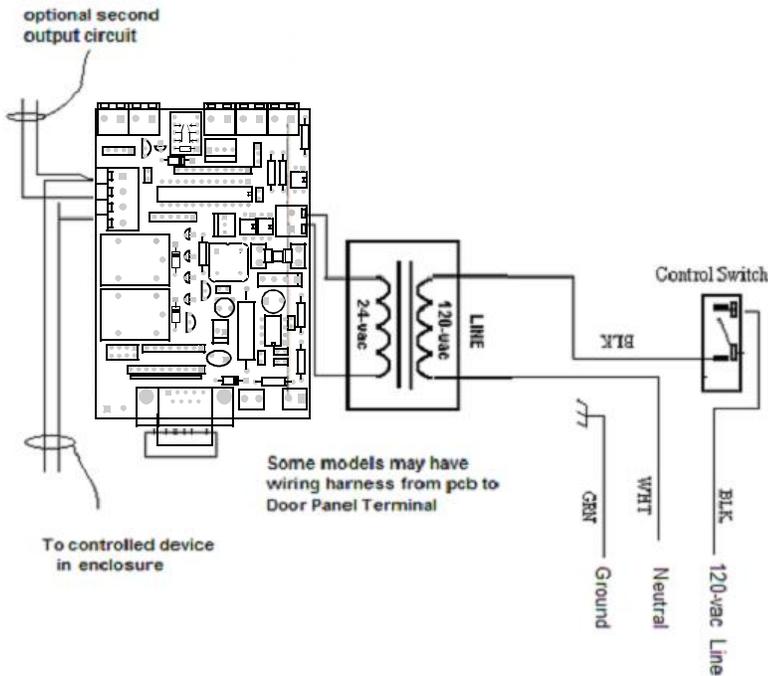
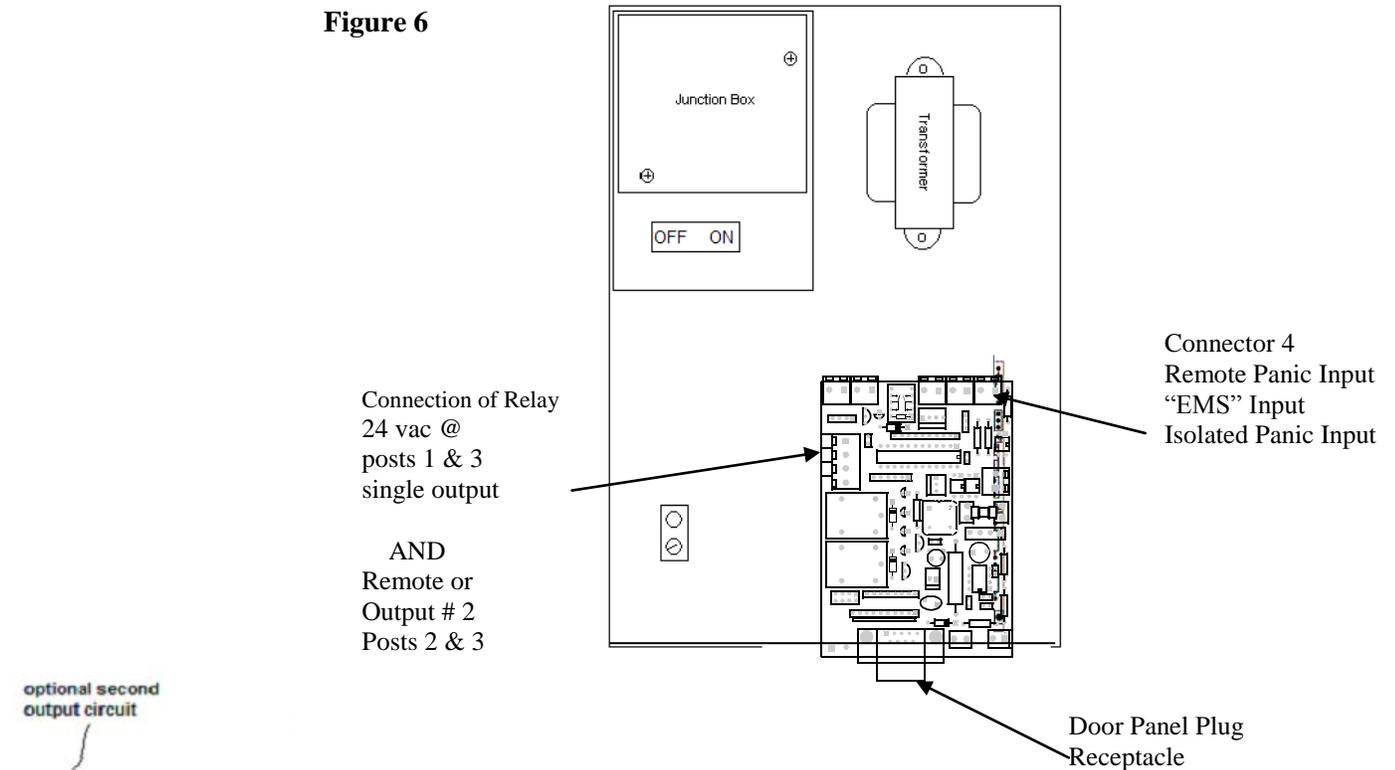
To wire the Service Panel:

7. Remove the junction box cover.
8. A secondary Switch Box with fuse holder and cover is located at the top of this box. Remove this cover.
9. Make final connections to the 120-vac electrical service to wiring within the junction box (Figure 6). Verify that line wiring (Black), neutral (White), and ground wire (Green) are correctly connected. Minimum recommended wire size is 14 AWG.
10. Replace this cover before activating or testing the unit.
11. The 24-vac interface is pre-wired to output terminal CON 3, posts 1 & 3 on the PC Board. Verify that wiring has not become disconnected during installation.
12. If the unit is equipped for Dual Output Circuits, see Figure 7 and additional instructions on page 8.

**Input & Monitoring Circuits and Configuration pins: Figures 8 & 8-a, page 9.**

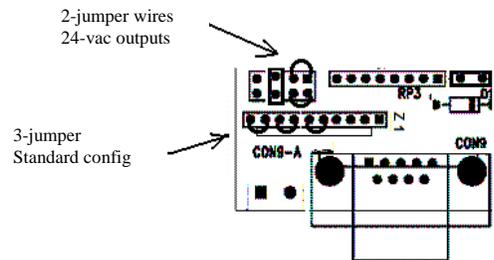
**DO NOT route wiring to or from Input or Monitoring Circuits within conduit containing either 120-vac line or 24-vac control wiring operating a controlled inductive load. Failure to comply with these wiring specifics may create transient voltage at the pc board and cause system malfunction and/or failure.**

**Figure 6**



**Figure 7-a**

Standard pcb jumper wiring configuration. Unit can be factory configured @ 10 pin terminal to accept a dual control RF module.



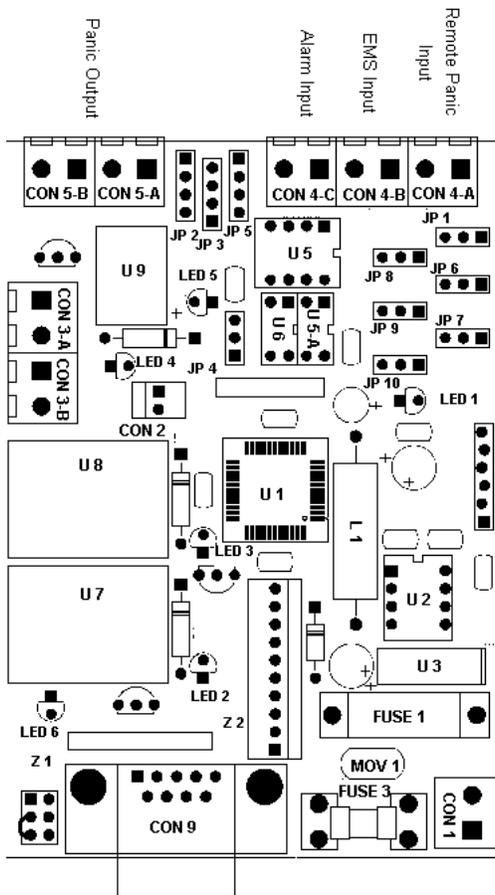
**Figure 7**  
**Wiring Schematic – Single or Dual Output Circuits**

**Dual Output Circuits where second output is to a remotely located device.**

**Note: Maximum output load for second circuit is limited to 500 mA.**

Make field wiring connections as shown in Figure 7 for a remotely located device to be controlled by the Service Panel. Panels may be custom assembled in enlarged enclosures to permit second output device to be located within Service Panel.

**Figure 8**  
**Printed Circuit Board Output –**  
**Jumper Configurations**



**Connecting the Monitoring Outputs:**

The “pcb” is equipped with two output monitoring ports. The configurable “Panic Output” CON 5-A can be configured at JP 3 to provide either 24-vac output or dry-contact. Refer to Figure 8-a.

CON 5-B provides a fixed dry-contact output upon *Panic*.

**Connecting Input Integration Signals: Figure 8**

Remote Panic: Connect an ISIMET Remote Panic Assembly @ CON 4-A.

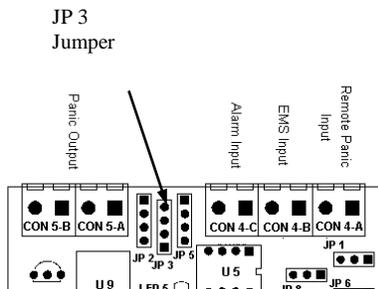
“EMS” Input: 24-vdc/vac active OFF will disable the operation of the unit.

Alarm Input: 24-vac/vdc active OFF. Refer to jumper configuration chart above.

**Output Circuits**

Where Reset Switches are provided @ Output Terminal, DO NOT Bypass.

Output circuits without inductive loads or where loads are provided by others are rated @ 2 amps.

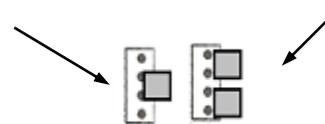


**JP3 for CON 5-A Output Monitoring Circuit**

Output Configuration Jumpers @ Panic Output

1 jumper across center two posts = dry-contact.

2 jumpers across each pair of posts = 24-vac output



**WARNING!! Other pcb Jumper placements**

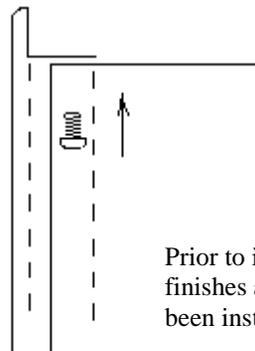
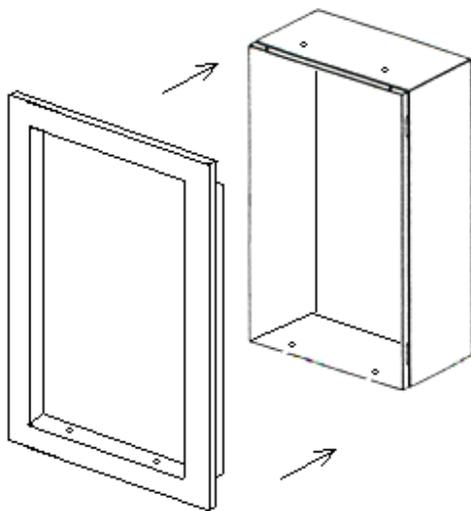
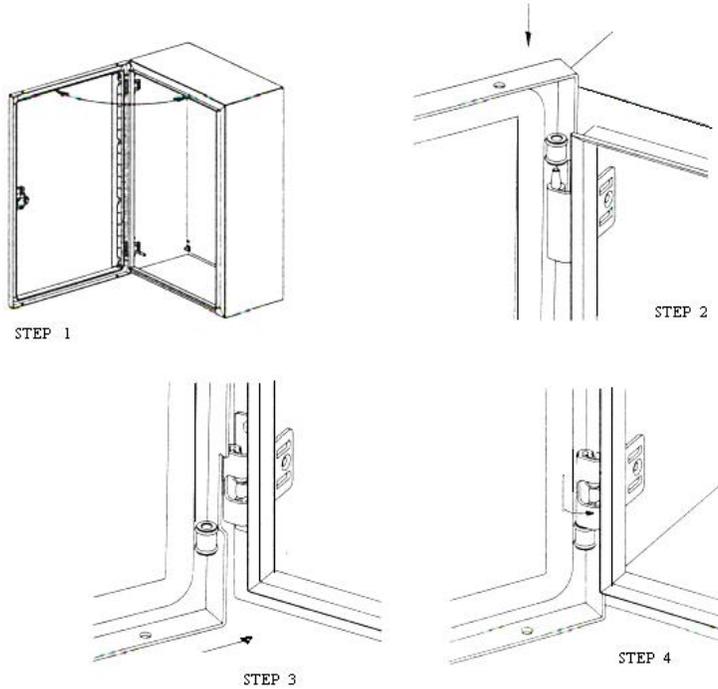
Other PCB Jumpers are factory configured specifically per project specifications. Refer to “Project Specific Jumper Configuration Chart” DOC # for descriptions of these settings..

## Removing and Re-installing the Door Panel

**CAUTION:** Before removing the door panel, unplug the door panel from the receptacle at the base of the junction box.

To install the Door Panel on the Enclosure:

1. Position the door at 90° – 100° of enclosure.
2. Slide top hinge pin onto fixed hinge post at top of door.
3. Slide lower hinge pin toward lower spring hinge mechanism with hinge pin lever in retract position.
4. With lower hinge pin in position, turn hinge pin lever outward and down, then turn inward to the extended lock position.
5. When re-installing the door, make sure that the door panel plug is securely inserted into the plug receptacle located at the base of the internal junction box.



### Installing the Flush Door Trim

Prior to installing Door Trim, ensure that wall finishes are complete and that the door panel has been installed.

To install the Flush Door Trim:

1. With the door in the open position, slide flush door trim over enclosure.
2. Align holes on enclosure with upper and lower holes in door trim.
3. Insert four (4) 12-24 (provided) screws through enclosure panel and tighten into door trim.

**Note:** Apply Sealant/Adhesive to trim screws at surface of Enclosure at each mounting hole for all Air Tight and Air Tight with Vent Enclosures.

## Operation of the Unit:

Insert the key provided with the unit into the key switch on the door panel. With the panel service switch(s) ON, engage the key switch. The unit will activate and the panel Green LED(s) will illuminate to indicate that the service(s) is active.

After turning the switch OFF, it will be necessary to re-engage the key switch in order to reactivate the service.

Pressing the panic button will deactivate the service, requiring re-engagement of the key switch to again reactivate service. The RED Led(s) will illuminate when the unit is in "Panic".

We recommend that the door panel switches be left in the OFF position when service is not required.

For Dual Output Units (two switches on the door panel) a second controlled device will be located remotely from this unit. The door panel switches are labeled according to their function.

Where an output monitoring circuit is incorporated into the system, then upon pressing the Panic Button this circuit closes thus sending a notification of "Panic" signal that can be registered by automation systems such as a Building Alarm System. Dual output circuit units feature an optional time delay notification circuit that is settable from 0 to 5 minutes.

Additionally, the unit incorporates input circuits that can register an input signal from a fire alarm system, thus disabling the unit in the event of an active fire alarm. Terminals are also provided for a remotely located additional panic button.

## Equipment Maintenance

- ❑ The LSP - Laboratory Service Panel should have semi-annual inspections.
- ❑ *ISIMET* recommends turning OFF the internal service switch when the unit is not intended for operation.
- ❑ *ISIMET* recommends that you periodically conduct a brief test of the system to verify that the output and monitoring circuits perform as intended.
- ❑ If examination of the unit indicates tampering, *ISIMET* recommends that you first review the installation and wiring portions of this manual prior to placing the unit in service.
- ❑ *ISIMET* recommends that when solenoids are operated by the unit that the piping systems be thoroughly flushed and cleaned, and tested for leaks prior to placing the system in use. Periodic testing of these solenoids will assure that the piping system continues to function properly.

If you have any questions regarding the operation and maintenance of the Service Panel, please contact an *ISIMET* Service Representative

## Care of the Unit

The enclosure has a NEMA 1 rating. It is not intended for use in wet areas. Exercise caution to prevent exposure of the interior compartment of the enclosure to moisture. If moisture is present within the enclosure, *ISIMET* recommends that the control switch be turned OFF, power be disconnected from the unit until the source of the moisture is determined, and all moisture is removed from the compartment.

The electronic controller (PCB) is sensitive to dust and other air-borne particles. Do not expose the interior compartment of the enclosure to dust. During the semi-annual inspection, if dust or other material is present, *ISIMET* recommends that you remove all foreign matter before operating the unit.

If the Unit fails to operate, we recommend that you check the power supply to the unit. With the control switch in the ON position, LED 1 on the pcb should be illuminated. If not, check the service breaker.

If the fuse is not damaged, and the unit still does not function, contact *ISIMET* or your local Service Representative.

**Note:** It is not uncommon upon power-ON for the unit to go to the "Panic" state, transmitting a notification signal. If this occurs, using the key switch, reset the unit to OFF.

*ISIMET* believes that sole and local authority means that the primary operator or the instructors should have the sole authority to start and stop the utility services within the immediate area of use during normal usage. This should distinguish this type of operating environment from that where a single emergency shut-down device is located remotely from the areas of use. As an example, the *ISIMET* system is not specifically intended for use in applications where a master shut-down and re-instate device is located away from areas of normal use. *ISIMET's* opinion is that in such cases there is risk that the operator of the system during re-start may inadvertently activate utilities in an unoccupied area that is remote from the present occupancy, thus creating the risk of fire or where the utility is fuel gas.



**ISIMET/MAPA, LLC**

**103 W. CJ Wise Parkway  
PO Box 129 (Mailing)  
Naples, TX 75568**

**Phone (866) 897-0737  
Fax (903) 897-0740**

**[www.ISIMET.com](http://www.ISIMET.com)**

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