

# ISIMET

## Utility Controllers and Companion Enclosures

Innovative Systems Integrating  
Mechanical and Electrical Technology



**Patent 8,543,225**

The Utility Controller is a Safety Device that when incorporated into the design of a science classroom promotes a “Safer Learning Environment for the Student” while “Providing a Safer Workplace for the Instructor”.

The Safety Device grants local, absolute authority to the instructor to determine those utilities that are to be used during the class-day for experiment while restricting unauthorized student use of laboratory devices.

The Utility Controller uses a binary logic system to control the output devices. The Printed Circuit Board (PCB) is a 3 VDC logic controller with a Micro Processor. Input signaling from a time enabling system, “EMS” (Energy Management System), is analyzed by the Processor, which determines whether the unit should be in a shutdown state or a waiting state. Integral timing features of the Processor permits automatic timed shutdown of output services.

The unit can be integrated with a monitoring system such as a building alarm. Also, Sensors can be integrated with the system in order to determine if raw fuel gas is present, thus turning OFF the gas service to the room.

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## LS Series Utility Controller

The LS Series of the Utility Controller features the same configurations and options as the Standard Controller with the added capability of “Line of Sight - Remote Radio Frequency” Operation with the Hand-Held Control. The remote signal operates easily within normal classroom sizes with a range of approximately 100 ft. Each Controller is coded individually so that signals among the various units within a facility do not interfere with other systems or units. Units can be easily re-coded in the case of lost Hand-Held Remote Controls. Radio signals such as door operators will not interfere with operation.

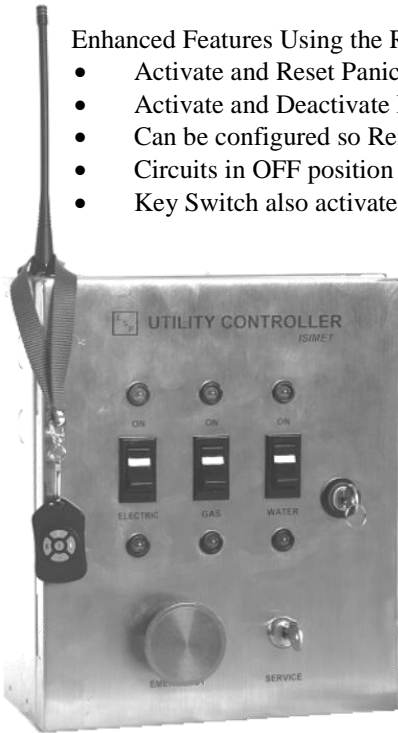
### Enhanced Features Using the Remote Feature:

- Activate and Reset Panic.
- Activate and Deactivate Individual Circuits.
- Can be configured so Remote Panic either sends Panic Signal or only Activates Shutdown.
- Circuits in OFF position are unaffected by Remote.
- Key Switch also activates circuits.

### Optional Features:

- Key Switch can be omitted to add security to operation.
- Internal Reset Switch acts as Key or Remote Enabling Switch.
- All remote and auxiliary circuits are available.
- “Purge Fan Relay” activated by Remote Panic.
- Expandable up to six Circuits Remotely Activated.

The Hand-Held Keyfob has a 100 + ft. range and is furnished with our custom ISIMET Lanyard that enables the instructor to wear the Controller conveniently around his or her neck during times when the Utility Controller is in use. During non-use periods, it is recommended that the Hand-Held Keyfob be placed securely out of reach of other occupants of the classroom. The standard Keyfob is equipped with five buttons. The center button activates panic. Each of the out-facing buttons will disable one each of the three services controlled by the unit. Pressing the lower Keyfob button will reactivate those services disabled by the previous action. Services not active with the door panel switch in the **OFF** position are not affected by activating buttons on the Hand-Held Controller.



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## LA Series Utility Controller - Limited Application

The LA Series Controller operates as a single or dual output controller where the application does not require the positive remote enabling authority or monitoring capabilities typically anticipated when specifying our Standard Utility Controller. This unit is ideally suited for the classroom where the instructor's desk is the only workstation having utilities present or where restricted operation of a single utility, such as natural gas, is required. Additionally, the LA Series integrates easily into the Utility Controller system, thus permitting a single source workstation to be controlled by one of the remote output circuits at the controller.

### Styles:

**Independent** – Unit performs as either a single or dual circuit Controller of a Utility(s) with limited single isolated input remote enabling capability. Each circuit is provided with an independent operating switch.

**Single Source** – Unit provides a single workstation with control over 120 vac convenience outlets as well as up to three ½” general service 24 vac solenoid valves to operate domestic water and/or natural gas at the station. A single switch controls all output circuits.

**Companion** – The Single Source Unit is configured so as to serve as a companion output source for our Utility Controller where the application requires a single workstation such as an instructor's demo station to be controlled by a single remote output circuit.

### Mounting Variations:

Casework: Wall Box is provided with flange to permit mounting from the outer casework surface.

Flush Wall Mount: Wall Box is provided with a wall mounting flange and hardware.

### Features:

Microprocessor with Jumper Post Configurations including Circuit & EMS Timing

Panic Button: Disengages the system-requiring key activation to reengage.

Key Switch: Activates the system each time a circuit is to be engaged.

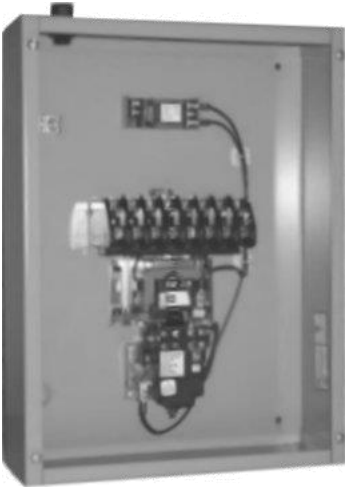
Control Switch: Activates a circuit with key activation or deactivates to OFF.

Panel Mounted LED: Indicates the System is Active.



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## E-Series Enclosures



### Pre-Assembled Contact Enclosures

The E Series Enclosures are pre-assembled, wired and intended for use with the ISIMET Utility Controller. Each contact point utilizes a master relay to control electrical outlets in the science classroom.

### Enclosure Specifications:

**Standard Unit** – Eight (8) circuit, NEMA 1 gray powder coated enclosure with removal cover for surface mounting.

**Custom Assemblies** – Units can be provided with trim kit for flush mounting in finish room areas. Door latch may be specified as either Screw Driver Latch, Keyed Lock or Hand Knob. Also available in gray powder coat enclosure with white powder coat door or with stainless door.

Contact points are arranged within the enclosure to insure ease in making field-wiring connections.

### 120-Vac Enclosure Specifications:

At each science classroom, provide an E-Series Model E-318-S-L enclosure with Square D 8903 LX Series latching relay. The enclosure shall be controlled by a Utility Controller that controls all utilities at each student workstation as shown on drawings. Number of contacts are as noted on Electrical Load Center Schedule. Locate enclosure as shown on drawings.

### Important!

All local electrical codes must be followed when installing this enclosure and making the wiring connections. Verify that the electrical supply is disconnected prior to making the wiring connections or servicing enclosure.

## S-Series Enclosures

### Pre-Assembled Solenoid Enclosures

The S Series Enclosures are pre-assembled and intended for use with the ISIMET Utility Controller. Each solenoid “station” is assembled with a threaded main ball valve cut-off and union fittings. All piping joints are tested for tightness. However, the union at each station is loose fit for ease in field installation. The stations are secured to aluminum strut supports by means of pipe clamps. Both inlet and outlet of the stations are plugged to prevent foreign matter from entering the system prior to installation. Refer to Installation and Wiring Instructions for details regarding field connections of the assembly components.

### Enclosure Specifications:

The NEMA 1 enclosure may be either surface or flush mounted.

Door latch may be specified as Slotted Latch, Hand-Knob or Keyed Lock.

Types of Enclosures are:

1. Standard Assembly – Enclosure is provided with rubber grommets for piping inlet and outlet holes.
2. Liquid Tight W/O Vent – Enclosure is provided with Liquid / Air Tight strain relief fittings for each inlet and outlet hole.
3. Liquid Tight W/ Vent - At each fluid controlled station, Liquid / Air Tight strain relief fittings for each inlet and outlet hole and at each gas controlled station a threaded nipple, lock nuts, and sealant adhesive for each inlet and outlet hole. (Vent assembly permits the installer to connect containment piping as may be required by local ordinances. Attachment instructions are contained in the Installation Manual accompanying the enclosure.)

# 2 and # 3 Type Enclosures have a NEMA 1 rating and are provided with an airtight gasket at the door and adhesive and washers for all mounting hardware.

Valve assemblies, “Stations” are arranged within the enclosure to insure ease in making field-piping connections. Wiring leads for solenoids are terminated at contact points where interface relays are included. Each station is labeled for its intended use. (i.e. “NAT. GAS”, “Cold Water”). Domestic water service piping is lead free and solenoid valves for these services can be specified as 12 VDC Latching whereby the coil is only energized for a brief moment to latch open or unlatch closed.



## Monitoring Light Array:

The Monitoring Light Array is a wall mounted light unit intended for use as a visual indicator that circuits of the Utility Controller system are active. The unit should be mounted conveniently on a wall at an elevation and location to permit all occupants to easily determine those services that are active. We recommend that the unit be mounted as high as reasonably feasible to avoid interference with occupants within the room.

The Monitoring Lamps are provided in either Tower or Surface mount. Tower Units are provided with stainless steel wall panel.



Standard Array is furnished with the three standard lighting units, all required mounting hardware, junction box for mounting, and installation instructions. Lights are color coded to match the intended output source. These units are rated for 24 vac and are easily integrated into the output circuits of the Controller. Custom application Arrays are available upon request.

## Fuel Gas Sensor:

The Series 1000-2000 Sensors are intended for use with an ISIMET Controller System where fuel gas is controlled. The sensor derives power directly from the controller and transmits a dry-contact or 24VAC signal back to the controller when raw fuel gas is detected, thereby shutting down the gas flow.



## Remote Panic Assembly:



The IP-0 assembly features an Emergency Shut-off button that integrates with our Utility Controller where the panic feature has been omitted from the door panel or where room configuration requires an additional panic button assembly to be wall mounted. Units are provided with J-Box and mounting hardware.

Assembly is optionally available with a Maintained push button and key reset for stand-alone applications. Specify **IP-O-K**.

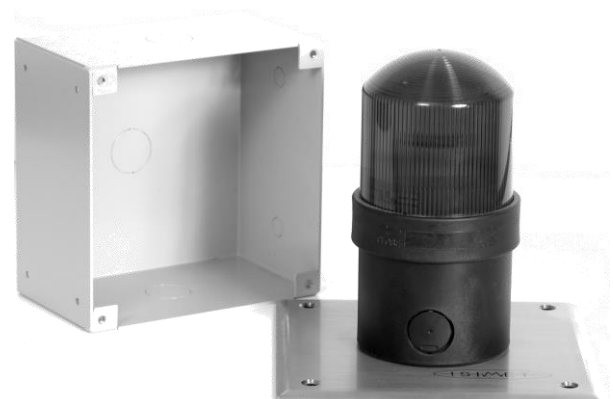
## Monitoring Beacon: Model MLA – 1 - B

Units are single light assemblies for mounting outside of the classroom in a corridor. Mounting the unit at a classroom doorway will provide immediate acknowledgement to occupants in the corridor that a potential emergency exists within the room.

The unit becomes active upon Panic or after time delay when equipped with integral time delay circuit or integrated with the ISIMET Remote Monitoring Station.

Unit is provided with a J-Box, stainless wall panel and mounting hardware.

Flasher Beacon is RED. - Suffix B  
Options: 10 Joule Strobe - Suffix S  
90 dB Audible Sounder - Suffix A  
Integral Time Delay Circuit - Suffix T



## RA Series Utility Controller – Remote Access

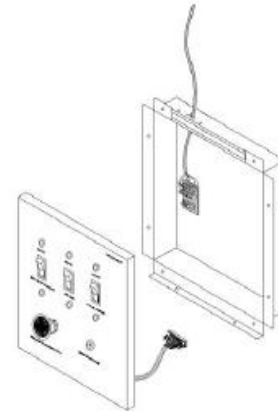
This RA Series of the Utility Controller features many of the same configurations and options as the Standard Controller but is designed to provide ease in a retrofit situation. Intended as an upgrade to present control of the science classroom utilities without the refurbishing of the entire room. Output circuits should comply with ISIMET output circuit requirements.

### Specific Features:

- Allows the Door Panel component to be “Surface Mounted”.
- Permits the Controller to be located remotely from the classroom.
- Eliminates wall repairs and resurfacing.
- Key Switch resets Panic.
- Can be Multi-Packaged for up to 4 individual systems.
- Available in White Powder Coat Wall Panel Only.
- Single systems can be upgraded to the LS Series.

### Additional Features and Offerings:

- Limited design assistance provided to the School.
- System can be installed by on-site maintenance staff.
- Auxiliary and Remote Circuits are available.



### Description of the Features and Specifications:

The RA Series combines a surface mounted wall panel with a separate enclosure that houses the primary Controller components. Minimum wall demolition is required with virtually no wall repairs needed. A wall box is inserted into the wall cavity to provide a mounting point and connection area for the control wiring from the wall panel switches terminating at the PCB of the Controller.



## Laboratory Service Panel

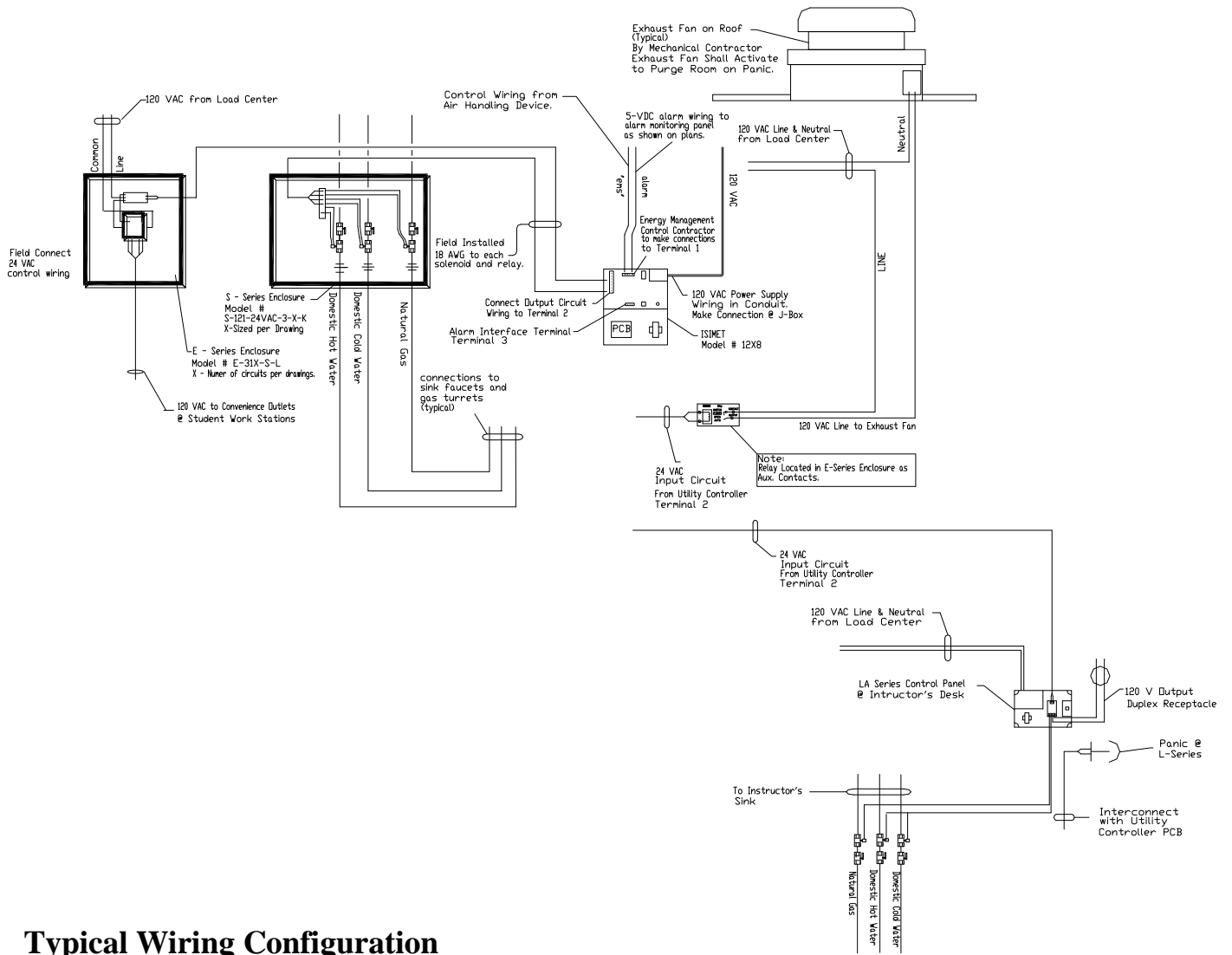
### Application:

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. The unit conforms to all requirements of UL 508-A for Industrial Control Panels.

### Variations:

Variations of the LSP unit are available providing that all design criteria complies with 508-A standards. Though shown as an operator for a single output circuit to control a utility service, many alternate uses are obtainable. Specific requirement of alternate designs is that the completed unit's function conforms to usage criteria for 508-A, and that all components incorporated into the unit meet specific requirements and standards of 508-A.





## Typical Wiring Configuration

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#### Utility Controller Specifications and Features

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