

SECTION 11 53 33

ISIMET LSP-GO Laboratory Gas Service Panel

(Note to specifying engineer: When specifying systems utilizing this 3-Part CSI formatted specification, please remove any areas indicated in "Red" where not applicable to system design.)

To Safely Control and Monitor LPG or Natural Gas in each installed location.

PART 1 - GENERAL**1.1 SUMMARY**

This document provides the minimum requirements for safely controlling and monitoring gas services. It also provides the minimum necessary requirements for addressing an emergency condition.

1.2 SCOPE OF WORK AND MINIMUM REQUIREMENTS

- A. Provide ISIMET LSP-GO Laboratory Gas Service Panel as a means to control operation of the aforementioned utility.
- B. Each system shall include, at a minimum, the following:
 - ISIMET Model: LSP-GO
 - Clear indicator of gas utility in active and inactive mode.
 - Integrated gas solenoid, gas safety shut-off valve and gas valve assembly.
 - Integrated emergency shut-off button.
 - Output notification signal when:
 - Gas flow is restricted
 - Emergency condition is initiated
 - ISIMET Fuel Gas Sensor (FGS)
 - Means of detecting combustible gas leaks.
 - Outputs a normally-open, dry-contact signal on a gas leak detection.
 - Illuminated alarm state.
 - Remote ISIMET Emergency Shut-Off Button (IPO)
 - ISIMET Electrical Contactor Assembly (E-Series)
 - UL Listed
 - Mechanically held electrical contactor
 - Attached Electrical Devices turn off only in emergencies.
- C. Contractor to provide installation labor, necessary supervision, materials and equipment for complete installation of the *Laboratory Service Panel* in each control area and to ensure proper and complete operation of all systems. (Miscellaneous appurtenances are not necessarily specified or indicated on the Drawings. Contractor shall provide all labor and materials not specifically indicated on the Drawings or specified in these Specifications.)
- D. Installation is to be completed per the Manufacturer's Installation Manual.

1.3 MANUFACTURER QUALIFICATIONS

- A. ISIMET LSP-GO (*Laboratory Service Panel*) is the basis of the design. Alternative packages containing all components, as listed in Section 1.2(A) are acceptable as long as the minimum requirements of Section 1.3(C). are met.

- B. Additional components may be provided to the specified system including solenoid valves, enclosures, notification beacon, piping, wiring, conduit, and any other material, as needed, to provide a complete and operational system that complies with this specification.
- C. Any alternative to ISIMET, of any component, shall be submitted for approval prior to installation.
- D. Minimum General Requirements are:
 - 1. Except for electrical components, the *Laboratory Service Panel* and other components are to be assembled and manufactured in the United States.
 - 2. All components referenced in Section 1.2 must be procured from the same manufacturer of the *Laboratory Service Panel*.
 - 3. Access to the internal components of the *Laboratory Service Panel* must be secured by a metal cover and tamper-resistant screws.
 - 4. The controlled medium must shutdown upon an emergency condition as a result of the activation of an emergency-stop button.
 - 5. The *Laboratory Service Panel* must have a system in place that will shut down gas if a gas leak is detected and used in conjunction with a fuel gas sensor.
 - 6. The *Laboratory Service Panel* must have automatic shut-down capabilities.
 - 7. The system shall be so designed that all utilities default to *OFF* during an emergency or power outage and cannot reset to *ON* without an authorized keyed operation.
 - 8. The *Laboratory Service Panel* shall have programmable features that enable user to change timings and features.
 - 9. *Laboratory Service Panel* must be manufactured by a company that has been manufacturing similar type controllers for at least 5 years.

1.4 CODES AND REGULATIONS REFERENCES

General, Publications: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.

- A. The *Laboratory Service Panel* must conform to the standards listed in Section 1.3.
- B. Installation of the Components and Package per the following Regulations
 - 1. American disabilities Act
 - 2. UL 61010
 - 3. State and local building codes
 - 4. National Building Codes
 - 5. NFPA 70 National Electrical Code
 - 6. NFPA 72 National Fire Alarm Code Uniform Building Code
 - 7. All requirements of the local Authority having jurisdiction.

1.5 QUALITY ASSURANCE

- A. General
 - 1. It is the intent of these Specifications and the Drawings, to secure the highest quality in all equipment and materials, and to require first-class workmanship, in order to facilitate trouble-free operation and minimum maintenance of the electrical and gas plumbing systems.

2. All work, including installation, connection, calibration, testing and adjustment, shall be performed by qualified, experienced personnel who are technically skilled in their trades, are thoroughly instructed, and are competently supervised by a certified electrician. The resulting complete installation shall reflect professional quality work, employing industrial standards and methods. Any and all defective material or inferior workmanship shall be corrected immediately at no additional cost.
3. All equipment and materials shall be new, listed by UL and bearing the UL label, unless exception to this requirement is inherent to an individual item specified herein, or exception is otherwise specified, or approved, via a written allowance.
4. Equipment and materials shall be the products of reputable, experienced manufacturers. Singular items in the project shall be the products of the same manufacturer. All equipment and materials shall be of industrial grade and heavy-duty construction, shall be of sturdy design and manufacture, and shall be capable of long, reliable, trouble-free service.
5. Contractor shall furnish manufacturer's equipment of the types and sizes specified which has successfully operated for not less than the past five years, except where specific types are named by manufacturer and catalog number or designation under other Sections of the Contract Documents.

1.6 Warranty Requirements

- A. Provide verification that the warranty of the *Laboratory Service Panel* is at least 5 years.
- B. Once the contractor verifies the system is installed correctly, provide the acknowledgement that manufacturer of the system components has received the warranty card.

1.7 Submittals

- A. General: Comply with Division 1 Submittals Procedure
- B. Equipment is not to be ordered without approved submittals.
- C. Product Data: (For each Component of the Control Package.)
 1. Manufacturer,
 2. Model Number
 3. Detail all options and accessories
 4. Catalog Data Sheet
- D. All deviations from the Contract Documents shall be indicated within a submittal. Each deviation shall reference the corresponding drawing or specification number, show the contract document requirement text and/or illustration, and shall be accompanied by a detailed written justification for the deviation.
- E. Provide detail wiring diagram for power and wiring between all components and integration into the building system.
- F. Provide Manufacturer's operation and maintenance information as well as Installation instructions.
- G. Provide specific Control System location.

PART 2 - PRODUCTS

The ISIMET Model: LSP-GO Package includes the minimum components and devices to independently secure any service located within local area of the installation. The following Package components shall be provided as shown on Drawings and as listed in the Equipment Schedule.

CONTROLLER WITH INTEGRATED GAS VALVE ASSEMBLY:

At each area indicated in this document, or elsewhere as shown on Drawings, provide a *Laboratory Service Panel* to activate integrated solenoid and/or other means of control of the services as indicated by Drawings. The *Laboratory Service Panel* shall be restricted by means of an enabling key switch or push button that activates output circuits. *Laboratory Service Panel* shall integrate with energy/building management system or provide deactivation of services after a timing sequence has expired.

ISIMET Model(s):

- ISIMET LSP-GO *Laboratory Service Panel*

SYSTEM COMPANIONS:

Integrated Gas Control System:

Provide and locate the *Laboratory Service Panel* with integrated solenoid valve assembly. *Laboratory Service Panel* shall have a pre-assembled solenoid valve assembly, suitable for the intended medium, provided with “Factory Pressure Tested” ball valve, solenoid, integral in-line strainer and union. *Laboratory Service Panel* is to be located as shown on drawings. Pipe sizes and arrangement are as noted in Equipment Schedules and details.

Remote Emergency Shut-Off Button:

Provide and locate as shown on Drawings and/or Equipment Schedule, Remote Emergency Shut-Off Button(s), which shall be installed in accordance with local and national codes and regulations. Install any additional Emergency Shut-Off Buttons in line-of-sight locations that are readily accessible at points of egress, or as otherwise directed. Integrate Assembly with *Laboratory Service Panel*.

Fuel Gas Sensor:

Provide and locate as shown on Drawings and/or Equipment Schedule, a Fuel Gas Sensor in order to detect gas within the room, deactivating service and sending notification signal. The Fuel Gas Sensor shall be installed in direct air flow at proper mounting height as directed. Integrate Assembly with *Laboratory Service Panel*.

PART 3 – INTEGRATION AND CONFIGURATION

Electrical Integration:

Laboratory Service Panel may be configured to integrate with an electrical contactor by utilizing a normally-closed relay to disable attached electric utilities. Any Emergency Shut-Off Condition shall disable any attached electrical devices and shall require an Emergency Reset to re-enable any attached devices.

Energy/Building Management Control System – “EMS/BMS”:

Where shown on Drawings, each Control System shall be configured so that all controlled services and devices disengage at the end of the daily occupied period. Withdrawal of the control signal from the Energy Management Control System at the room’s air handling device shall disable the *Laboratory Service Panel* during the non-occupied “ems” mode. Originating signal shall be dry-contact (voltage-free).

Where no “EMS” interface is available then *Laboratory Service Panel* shall be programmed for “First Key Timing” whereby unit will operate for the designated time prior to programmable shutdown.

Integration of Building Alarm System:

Where shown on Drawings, *Laboratory Service Panel* shall be wired to accept a fire call/alarm input signal from Building Alarm system for automatic shutdown. Originating signal shall be dry-contact (voltage-free). Configure *Laboratory Service Panel* to comply with Alarm System monitoring requirements.

Laboratory Service Panel Integrated Controller

Laboratory Service Panel shall be capable of field adjustments via DIP switch to meet specific project modification requirements.

Emergency Reset:

Shall be configured so that reset of the Emergency Shut-Off State may occur only by service key on the front cover of the *Laboratory Service Panel*.

Emergency Shut-Off Button:

Each *Laboratory Service Panel* shall be configured so that pressing the Emergency Shut-Off Button will disable all services/utilities at all work-stations and any integrated demonstration stations.

Fuel Gas Sensor:

Unit shall integrate with *Laboratory Service Panel* and turn OFF designated outputs.

PART 4- EXECUTION

INSTALLATION: Install in accordance with manufacturer’s recommendations and instructions and codes per 1.4.B

Furnish and install all devices as shown on Drawings and as specified herein. Where device is to be installed by other trades, furnish and then turn over to appropriate trade for installation.

PLUMBING: Contractor shall furnish necessary piping and fittings.

ELECTRICAL: Electrical Contractor shall furnish all conduit and wiring, making final wiring connections to all equipment as indicated by Drawings and specifications. Contractor shall be responsible for all system configurations, integration, test and start-up.

SPECIAL NOTE ON THE NEED FOR WIRING CONDUIT: Unless otherwise specified for wiring systems, provide conduits for control and integration wiring from point of connection to each device to accessible point above ceiling.