
ISO-GARD[®]

Line Isolation Monitors

Series D

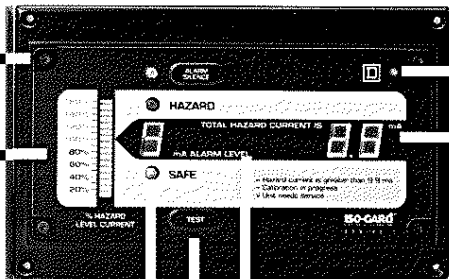


Micro-Processor Controlled



SQUARE D
GROUPE SCHNEIDER

Normal Stand-by Mode



Momentary Test Switch—when pressed, checks and recalibrates the unit. Additionally, the test switch performs a complete test of all indicating lamps and meters on the face of the LIM and at any remote indicating stations.

Safe Light—green LED indicates system is safe for operation and LIM is functioning properly.

Analog Bar-graph Hazard Current Meter is calibrated from 0–160% of hazard alarm level current.

Unique Fasteners—prevent unauthorized access to user selectable features

LIM Alarm Level—selectable for either 2 or 5 milliamperes.

Digital Hazard Current Meter Display—indicates level of isolation on system being monitored.

Infrared Serial Port—for transmittal of pertinent LIM and isolated power system data to palmtop PC.

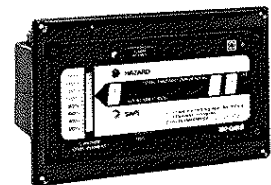
ISO-GARD®

Series D, Line Isolation Monitors.

The truly innovative design of a distinct fifth generation line isolation monitor, the ISO-GARD® LIM significantly improves performance in a product that is vital to electrical safety in hospital operating rooms. This design raises the standard above traditional line isolation monitors and offers superior value.

Value-Added

The Square D ISO-GARD line isolation monitor offers reliability, accuracy and cost savings never before realized. The technological know-how of four previous generations of LIMs has been combined with microprocessor technology to provide reliable performance, long term durability, and cost-efficiency during installation, operation and maintenance.



Catalog Number IGD

Ideal Replacement LIM

The ISO-GARD line isolation monitor is designed to be universal in application. One model operates on any voltage between 85VAC and 265VAC, either 50 or 60 Hz, single or three phase operation. It is completely interchangeable with older model Square D LIMs without the need for mechanical adaptors. It is electrically interchangeable with all LIMs.



The ISO-GARD® Series D LIM is designed to simplify installation and can be mounted to the front or rear of the panel dead-front. Kits are available for selected retrofit applications.

A2904



ISO 9002

Square D Line Isolation Monitors are manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories to ISO 9002.

Square D Company

Installation and User Benefits

Rear Housing

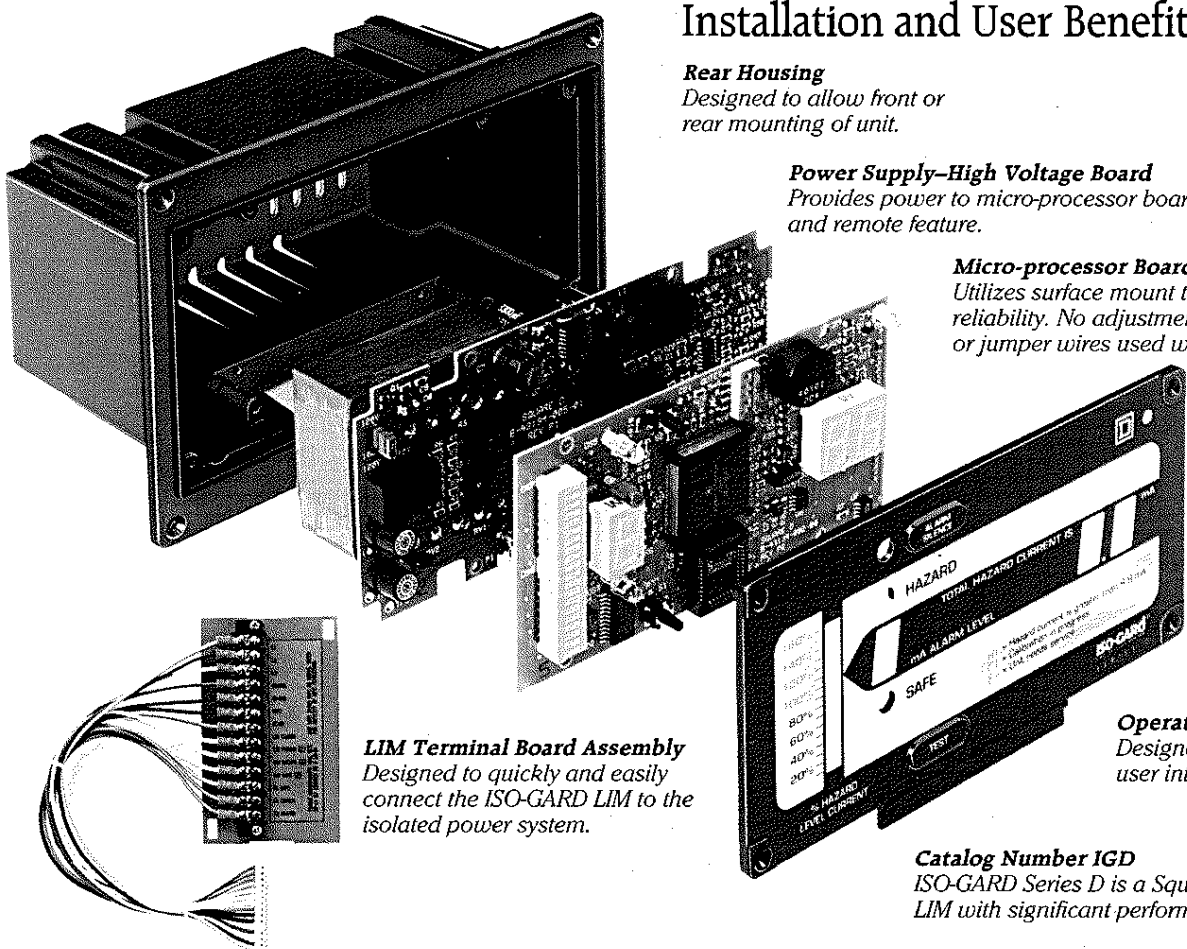
Designed to allow front or rear mounting of unit.

Power Supply-High Voltage Board

Provides power to micro-processor board and remote feature.

Micro-processor Board

Utilizes surface mount technology for high reliability. No adjustment potentiometers or jumper wires used within the unit.



LIM Terminal Board Assembly

Designed to quickly and easily connect the ISO-GARD LIM to the isolated power system.

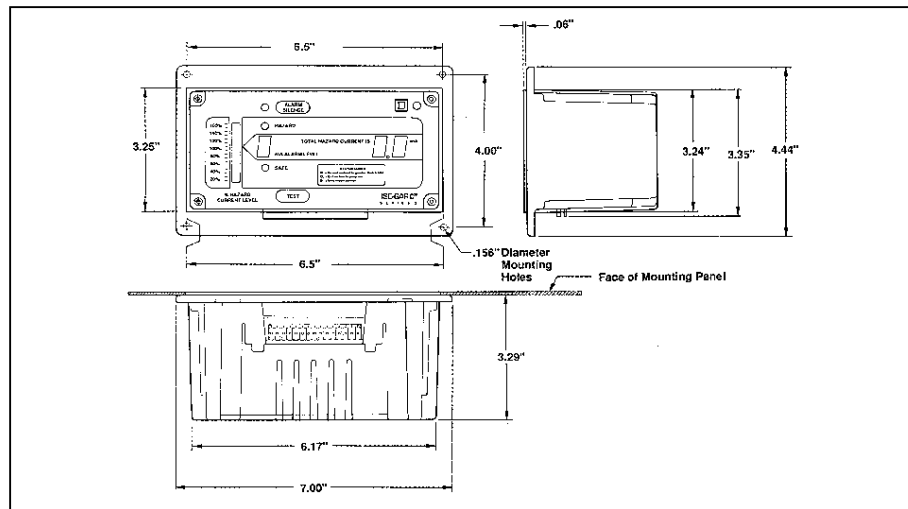
Operator Interface Board

Designed for maximum user interface efficiency.

Catalog Number IGD

ISO-GARD Series D is a Square D 5th generation LIM with significant performance improvements.

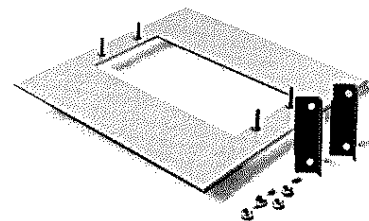
Dimensions



Adaptor Kits

A number of adaptor kits have been made available by Square D for retrofitting older style LIMs with the ISO-GARD Series D LIM.

Kits includes adaptor plates, cables and hardware.



Specifications

The line isolation monitor shall be the Square D ISO-GARD Series D. The LIM shall use microprocessor-based digital signal processing to continually monitor the impedance from all secondary conductors of the isolated power systems to ground. The LIM shall be capable of measuring all combinations of capacitive and resistive faults including balanced, unbalanced and hybrid faults. LIMs which internally switch between either line and ground will not be accepted. The LIM shall not contribute more than 50µA to the total hazard current of the system being monitored.

The LIM shall have the following specifications:

Operating voltage	85 to 265 VAC
Accuracy	5% or better
Alarm level	2 or 5 mA (selectable)
Alarm band width	Zero (0)
Alarm hysteresis (on/off)	50µA
Mode	Single or three phase
Monitor hazard current	50µA
Operating frequency	50 or 60 Hz

All of the listed specifications shall be contained within one unit and be user selectable thus allowing the LIM to be interchanged from system to system.

The LIM shall incorporate a momentary test switch. When pressed, it shall check and recalibrate the unit. Additionally, the test switch shall perform a complete test of all indicating lamps and meters on the face of the LIM and at any remote indicating stations.

The LIM shall use digital signal processing to determine the hazard current of the system being monitored. The microprocessor within the LIM shall be #MC68HC16Z1 as manufactured by Motorola. The algorithms used to determine the system hazard current shall be preprogrammed in the LIMs microprocessor. At least every 65 minutes, the unit shall recheck its calibration and recalibrate the system to original performance specifications. Additionally, by pressing the LIMs momentary test switch, an immediate check and recalibration of the LIM shall be performed.

If internal components are more than 30% out of original specifications because of aging or failure, the LIM shall notify the user by displaying a unique error code thus eliminating the need for periodic manual testing to determine the unit's integrity. LIMs which use analog signal processing technology and/or require manual testing or recalibration will not be accepted.

The line isolation monitor shall have an optical infrared LED type serial port on the face of the unit for transmitting pertinent LIM and isolated power system data directly to a personal computer (PC). The transmission of data shall not require any mechanical or direct electrical connection to the line isolation monitor. The protocol of data transmission shall be compatible with all Hewlett Packard palmtop personal computers including Hewlett Packard models HP95LX and HP100LX.

The LIM shall provide both analog and digital indication of the isolated power system's hazard current. Digital indication shall be provided by a digital meter and analog indication shall be

provided by an LED bar graph type meter calibrated from 0 (zero) to 160% of the alarm setting of the LIM. LIMs with only analog or only digital indication will not be accepted.

The LIM shall have a green safe light and a red hazard light on the front panel. The red hazard light shall remain illuminated for the duration when the isolated power system hazard current is above the selected alarm level of the LIM. An audible alarm shall be incorporated into the unit and shall activate in conjunction with the red hazard light. The audible alarm shall have high, low and off settings. A silence button shall be provided on the face of the unit to silence the audible alarm during fault conditions. Upon silencing the audible alarm, a yellow indicating light shall illuminate to indicate the audible alarm has been silenced. The red hazard light and yellow silence light shall automatically reset when the fault condition is eliminated. During fault conditions, the red hazard light and all red segments to the LED bar graph shall blink at a constant rate. All lamps are to be long life LED type.

A set of normally open and normally closed contacts, rated 3 amperes at 120VAC shall be provided on the LIM for use with external alarm systems. The LIM shall also provide a 12VAC output signal rated at 10VA to power remote indicator alarm units. This 12VAC output signal shall not increase the hazard current of the system being monitored. Provisions for connection of remote metering shall also be provided as part of the LIM. These connections shall have the ability to operate either an analog or digital type remote meter.

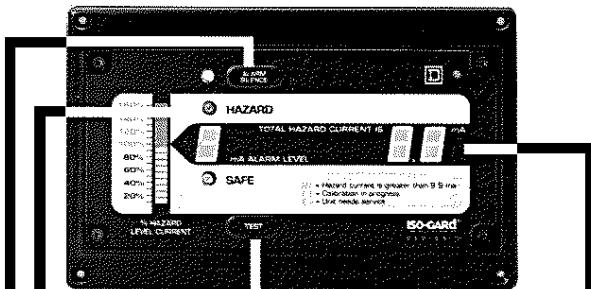
The line isolation monitor shall incorporate a loss-of-ground feature which will activate the audible and visual alarms when connection is lost with the reference ground of the isolated power system being monitored. In addition to activating the alarm, the unit shall display an error code in the digital display of the LIM.

All switches, meters, and indicating lamps shall be flush with the face of the line isolation monitor to provide a neat and clean appearance. The entire front face of the unit shall have a polymer overlay that protects the unit from the intrusion of housekeeping cleaning agents. LIMs with exposed fuses, meters, switches, or circuit breakers will not be accepted.

The design of the line isolation monitor shall consist of two circuit boards interconnected by a ribbon connector. The two boards shall contain all of the unit's electrical components and be mounted in the rear housing of the LIM. A phenolic cover shall complete the assembly. The unit shall not contain any components, such as circuit breakers, meter switches or indicating lamps, which are mounted on or attached to the front cover of the LIM. Access to the inside of the LIM shall be through the front of the unit thus eliminating the need to remove the unit from its mounting position to change any of the settings. Unique fasteners shall attach the front cover of the unit to prevent unauthorized access to the interior of the LIM.

The line isolation monitor shall be manufactured by Square D Company, UL component recognized under UL1022 Standard for Line Isolation Monitors, and UL recognized as meeting CSA 22.2 the Canadian Standard for Line Isolation Monitors.

Hazard / Error Code Mode



Hazard Light— red LED indicates system is not safe (hazard current is over the set alarm level) or the LIM is not functioning properly.

Alarm Silence— when depressed mutes the LIMs audible alarm and illuminates the adjacent yellow LED.

Test— when LIM is in alarm and 'ER' appears in the digital hazard current meter display, depressing switch displays LIM error code.

Digital Hazard Current Meter Display— indicates level of isolation on system being monitored. Also, displays LIM error codes.



The ISO-GARD® line isolation monitor has an infrared serial communications port on the front of each unit which allows the transmittal of pertinent LIM and isolated power system data to a Hewlett Packard Palmtop PC.

Reduced Cost of Ownership

Self-testing and Self-calibrating

The Square D ISO-GARD® line isolation monitor incorporates micro-processor-based digital signal processing technology. This provides a tremendous advantage over analog based LIMs due to the self-test and self-calibration features it offers.

NFPA standards require LIMs to be tested for performance on a monthly schedule and calibration on a six month schedule. Analog LIMs must be tested manually, and should an analog LIM need recalibrating, it has been estimated that improper calibration is responsible for 9 out of 10 LIM failures.

The ISO-GARD line isolation monitor automatically performs self-testing and self-calibration every 65 minutes. If the ISO-GARD LIM cannot self-calibrate, it automatically warns personnel that there is a malfunction. This reduces the cost of owning a LIM by eliminating the need to manually perform these tests.

PC Compatible

The ISO-GARD line isolation monitor has an infrared serial communications port on the front of the unit which allows the transmission of pertinent LIM and isolated power system data to another computer. The infrared serial port is compatible with Hewlett Packard models 95LX and 100LX Palmtop Personal Computers.

Maintenance technicians are able to access and tabulate required records concerning the isolated power system and line isolation monitor without the need for test equipment or paper records. All required information can be transmitted to the Palmtop PC via the infrared serial port. The information can then be transferred to the hospital's main computer maintenance records if so desired.

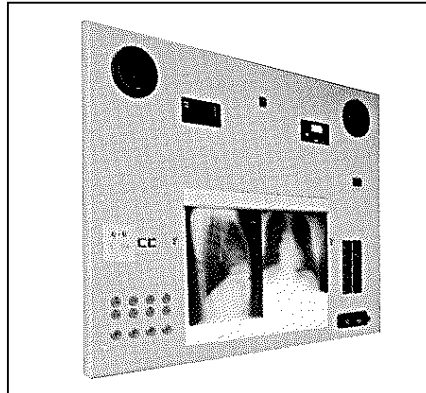
From Single Products to Complete Systems, Look to Square D.

Square D Company is a leading manufacturer and supplier of electrical distribution, automation and industrial control products. The full line of Square D products are available from an extensive network of Square D distributors located throughout North America.

Square D Company is part of Groupe Schneider, an \$11 billion global manufacturer of electrical distribution, automation and industrial equipment.

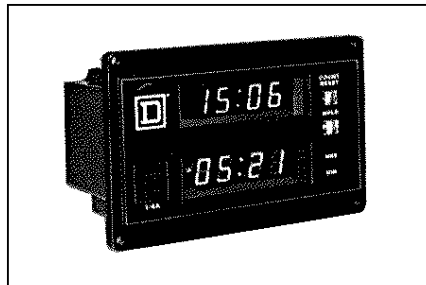
Square D has been serving industrial, construction markets, as well as public utilities, individual consumers and government agencies for over 90 years. We offer unsurpassed quality, innovative design and a committed staff of trained sales representatives and service technicians willing to stand behind every product we sell.

For more information on how we can fulfill your electrical needs, call your local Square D sales representative or authorized Square D distributor.



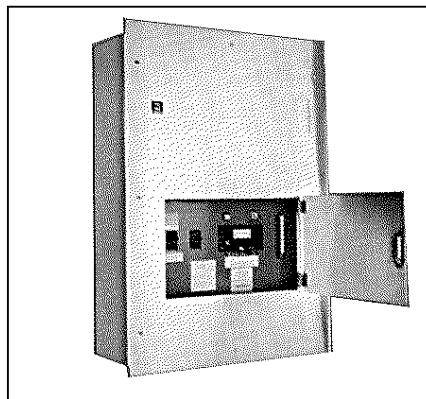
Surgical Facility Panels

Square D surgical facility panels combine several required operating room components in an economical, UL recognized package. Isolated power centers, power outlets, time clocks and controls, and X-ray film viewers are grouped together in one enclosure that can be easily installed and maintained. Reduced labor and material costs are a major advantage of surgical facility panels.



Digital Clocks/Timers

Square D digital clock and elapsed time indicators are designed for areas requiring rapid and critical time measurements demanded for patient care in ICU/CCU areas, special procedure rooms, recovery rooms, emergency rooms, delivery and nursery rooms and other critical applications.



Hospital Isolation Panels

To assure total component compatibility, Square D hospital isolation panels incorporate products manufactured by Square D. These panels include the Square D Iso-Gard LIM as standard equipment. Isolation transformers, circuit breakers, load centers, rear enclosures and stainless steel front trim are also manufactured by Square D.

