EcoStruxure™

Power Monitoring Expert

Insulation Monitoring User Guide

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Schneider Electric

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Safety Information

Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

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Safety Precautions

During installation or use of this software, pay attention to all safety messages that occur in the software and that are included in the documentation. The following safety messages apply to this software in its entirety.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use the software or devices for critical control or protection applications where human or equipment safety relies on the operation of the control action.
- Do not use the software to control time-critical functions.
- Do not use the software to control remote equipment without proper access control and status feedback.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the software or the devices.
- Do not base your maintenance or service actions solely on messages and information displayed by the software.
- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

Failure to follow these instructions can result in death, serious injury, equipment damage, or permanent loss of data.

⚠ WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Use cybersecurity best practices to help prevent unauthorized access to the software.

Failure to follow these instructions can result in death, serious injury, equipment damage, or permanent loss of data.

Work with facility IT System Administrators to ensure that the system adheres to the site-specific cybersecurity policies.

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Overview

This guide explains how to view the status of isolated power systems using information provided by Power Monitoring Expert configured with the Insulation Monitoring module.

This guide contains information for systems deployed in the ANSI and IEC markets:

- Insulation Monitoring diagrams for ANSI
- Insulation Monitoring diagrams for IEC

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Insulation Monitoring diagrams for ANSI

The Insulation Monitoring module includes several diagrams that show the electrical status of the areas and circuits that are being monitored.

This section describes each type of diagram.

See the following topics:

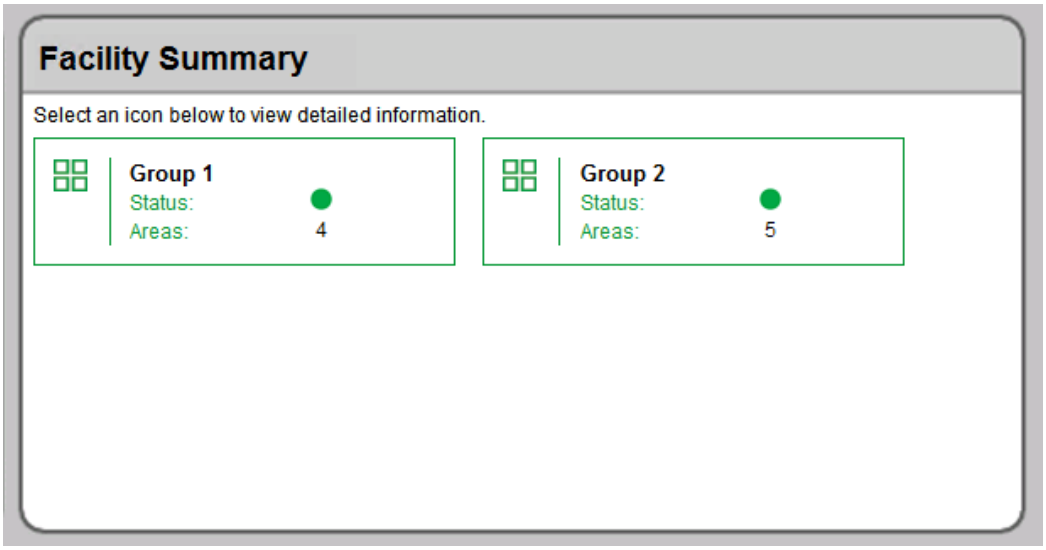
- Using the diagrams
- Data logs
- Generating the Insulation Monitoring Report
- Insulation Monitoring Report (ANSI)

Using the diagrams

The insulation monitoring diagrams display overview or detail information as well as status.

Facility Summary diagram

The Facility Summary diagram shows each group that contains a number of areas.



The Facilities Summary diagram shows all the groups of areas that were configured for the facility. Each box in the main area represents a group of areas. This diagram provides a status overview and links to areas in the facility, as shown next:

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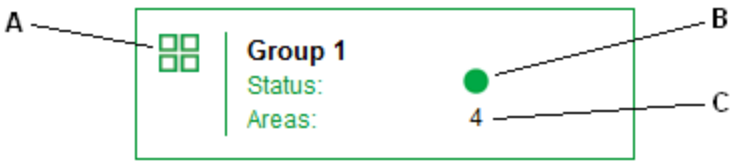

A	**Group Icon** – Click the group icon to see the area diagram.
B	**Status Indicator** – This indicator is green or red to show the general status of the isolated power system: • **Green** – Normal condition. The Total Hazard Current measurements for all areas in this group are below the limit. • **Red** – Alarm condition. The Total Hazard Current measurement in one or more areas in this group exceeds the limit, or a LIM-IG6 is in test mode. **NOTE**: A LIM-IG6 test lasts 5 to 30 seconds. When the test is complete, the status indicator changes back to green. If an insulation fault has occurred, the indicator remains red until the fault is corrected. Example of an alarm indication:
C	**Areas** Total number of monitored areas in this facility.

Recommended Actions for Alarm Condition Indication

1. Click the Group icon to open the Areas diagram. One or more area boxes will show an alarm condition.
2. Click the specific area icons to open the Area Details diagrams. One or more panel boxes will show an alarm condition. If the optional circuit fault locator devices are installed, the panel box also indicates each circuit that has a resistance fault.

   NOTE: Some types of electrical faults can occur and not be indicated by the individual circuit fault locators. Only the area status indicator turns red. See Indicators for capacitive faults for details.
3. Notify the responsible person that can address the condition for the area and specific circuits.

Summary of Areas diagram

The Summary of Areas diagram shows an overview of each area in the facility. Each box represents a single area.

Example:

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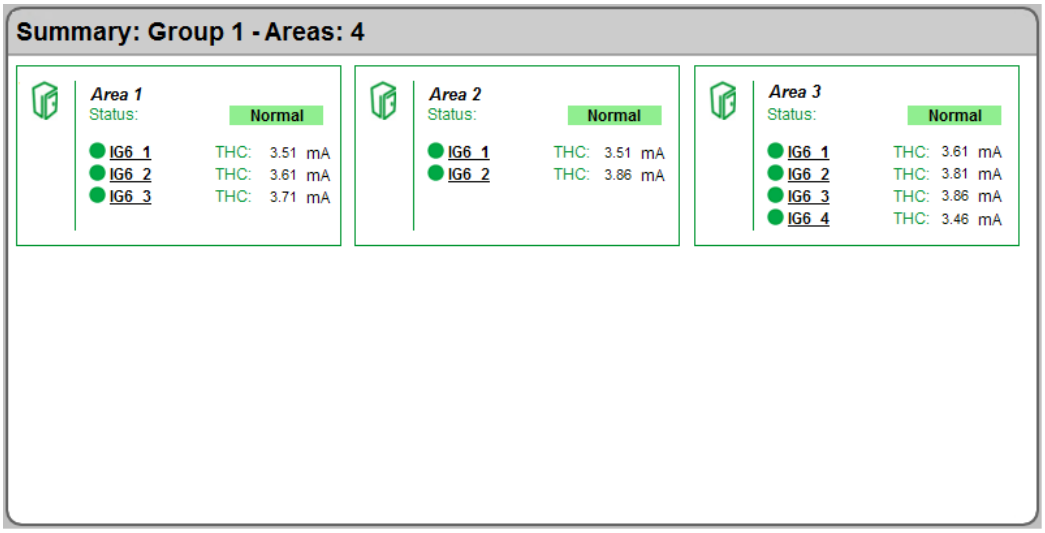
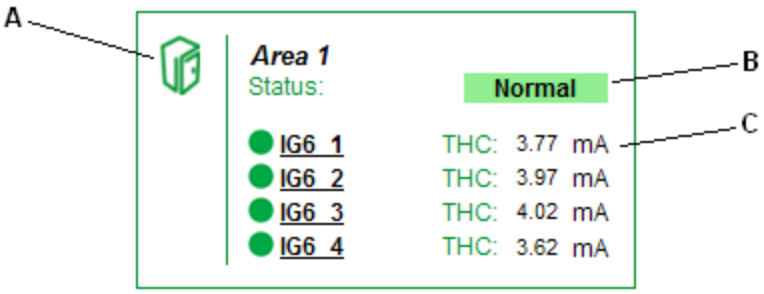
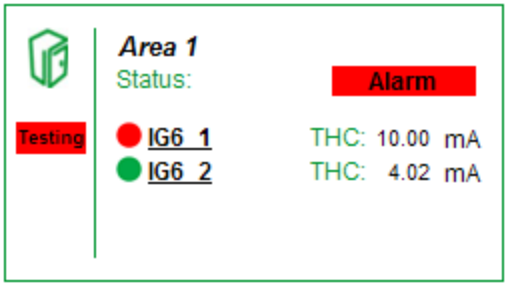


Each box represents a single area and contains the following information:



A	**Area Icon** – Click the area icon to see LIM-IG6 and circuit details for the area.
B	**Area Status Indicator** – Indicates the general conditions of the area. This indicator is either green "Normal" or red "Alarm". If the indicator is red, one or more IG6 monitors are in test mode or the Total Hazard Current measurement exceeds the limit.
C	**LIM-IG6 Status and Current Indicators** – Displays the insulation status and real-time Total Hazard Current, in mA, for each LIM-IG6 in the area. Up to six LIM-IG6 monitors can be installed in an area. The indicator changes to red if the LIM-IG6 is in test mode or if a THC measurement exceeds the limit. When in test mode, the THC measurement changes to 10.0 mA and the red "Testing" label appears next to the LIM-IG6 name. The test lasts 5 to 30 seconds. When the test is complete, the color changes to green. If a LIM-IG6 detects an insulation alarm, the THC measurement shows the real-time THC value.

LIM-IG6 in test mode:



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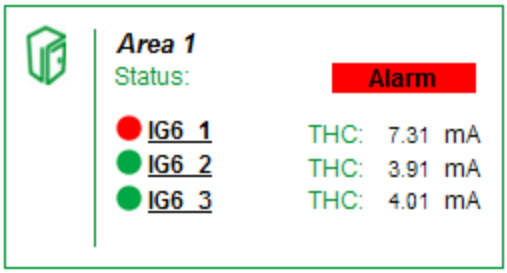
LIM-IG6 in alarm condition:

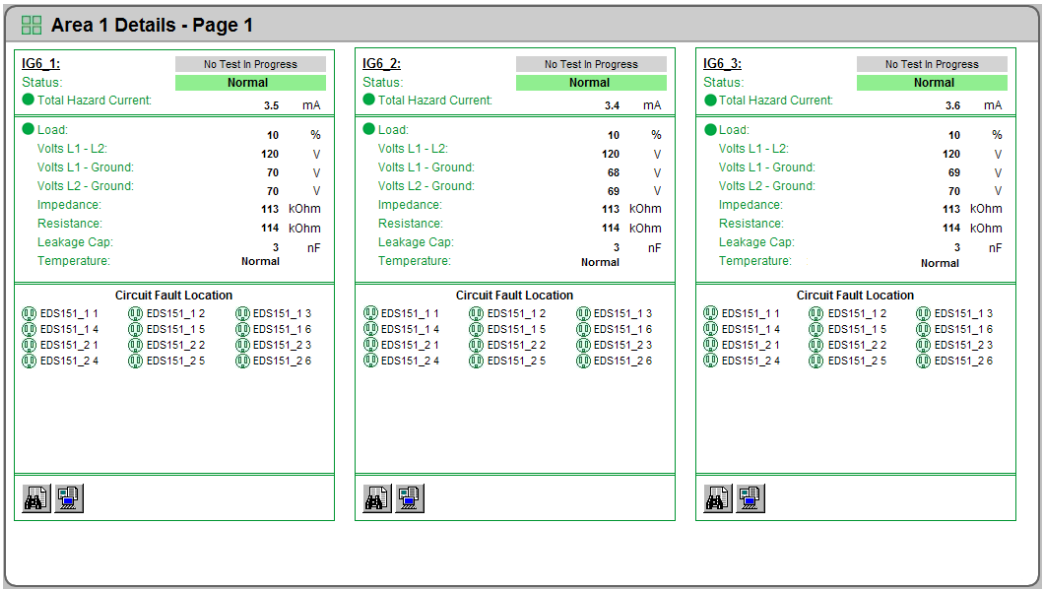


Area Details diagram

The Area Details diagram shows the details for each LIM-IG6 and connected devices in an area. The Area Details diagram can show up to 3 LIM-IG6 monitors. If more than 3 monitors are in the diagram, click the arrow in the upper right corner to see other monitors.

NOTE: For 208/240V systems, one LIM-IG6 can be shared between 2 areas. In this case, the monitor appears on both area diagrams.

For example, the following image shows a diagram of the area and LIM-IG6 details:



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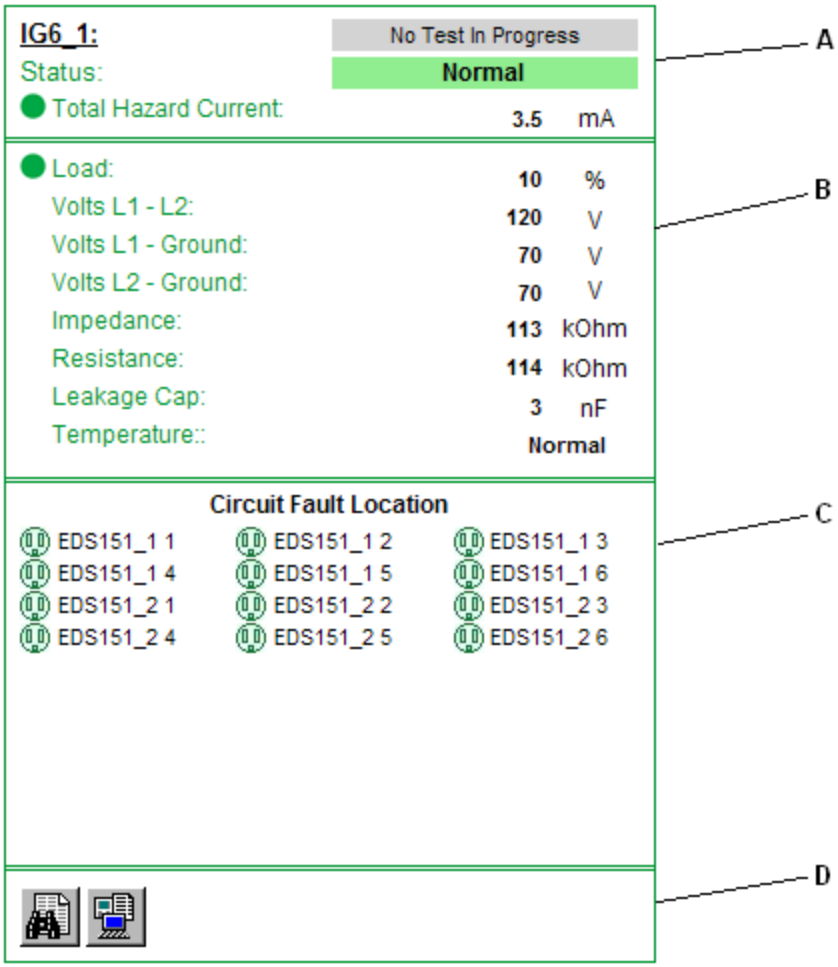
Each LIM-IG6 area contains these sections to provide specific information about the circuit conditions:



A	**LIM-IG6 Status** – Displays the name and status of the monitor, real-time THC measurement, and test status. The THC measurement is taken directly from the LIM-IG6. This indicator is either green "Normal" or red "Alarm". If the indicator is red, one or more panels are in test mode or circuits in the area have THC measurements above the limit. The red "Test In Progress" label appears when someone starts a LIM-IG6 test. A test is started by pressing the test button on the LIM-IG6 or by pressing the test button on the remote test device. This label remains visible during the test. See Indicators for Test Mode and Alarm condition for details.

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B	**Measurements** – Displays the real-time measurements for the components connected to the LIM-IG6. • **Load** – Optional. Displays the transformer load if the circuit transformer is connected to the LIM-IG6. The status indicator turns red if the overload percentage exceeds the threshold defined for the transformer. • **Volts L1 - L2** – Voltage between L1 and L2, in V. • **Volts L1 - Ground** – Voltage between L1 and Ground, in V. • **Volts L2 - Ground** – Voltage between L2 and Ground, in V. • **Impedance** – Impedance Zf in kΩ. • **Resistance** – Resistance Rf in kΩ. • **Leakage** – Leakage capacitance in nF. • **Temperature** – Optional. The status of the transformer temperature, according to the over-temperature sensor. This appears only if the temperature sensor is installed with the transformer. The value changes to red "High" if the temperature exceeds the threshold.
C	**Circuit Status** – Appears only if the optional circuit fault locator is connected to the LIM-IG6. This area shows the status for each circuit being monitored. If the LIM-IG6 detects a resistance fault, the circuit monitor identifies the specific circuit and the circuit indicator turns red. When any indicator turns red, the alarm status propagates up to the top-level Facility Summary diagram. If the LIM-IG6 is in test mode, all circuit indicators turn red. See examples below for indicators in test or alarm condition.
D	**Event Log and Data Log** – Contains links to the historical data log and event log for the panel measurements. See Data logs for more information.

Indicators for Test Mode and Alarm condition

LIM-IG6 in test mode, with circuit fault locators (left) and without circuit fault locators (right):

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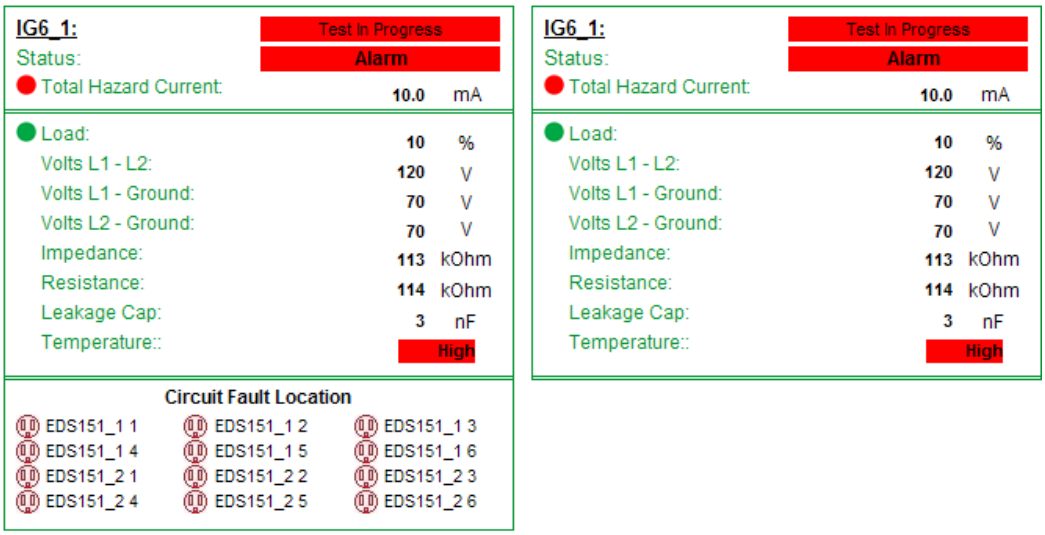
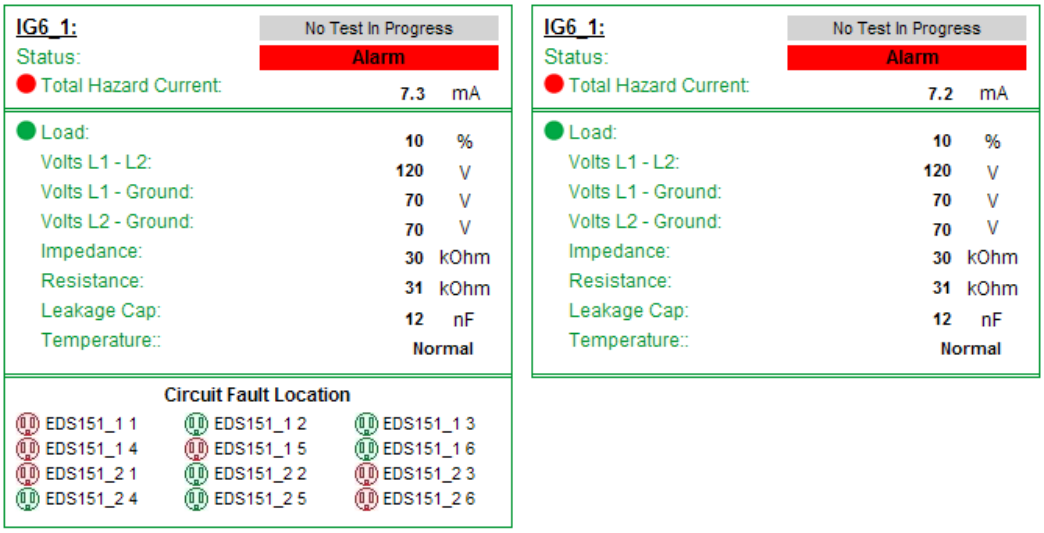


LIM-IG6 in alarm condition, with circuit fault locators (left) and without circuit fault locators (right):



Indicators for capacitive faults

⚠⚠ DANGER

EQUIPMENT ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Do not ignore the main device hazard indicator when all circuit fault locator icons show green status.
- Determine and correct the cause of the fault if the main device hazard indicator shows a hazard.

Failure to follow these instructions will result in death or serious injury.

In some cases, such as when too many equipment items are connected to circuits, the LIM-IG6 detects a capacitance fault that exceeds the total hazard current (THC). For this situation, the

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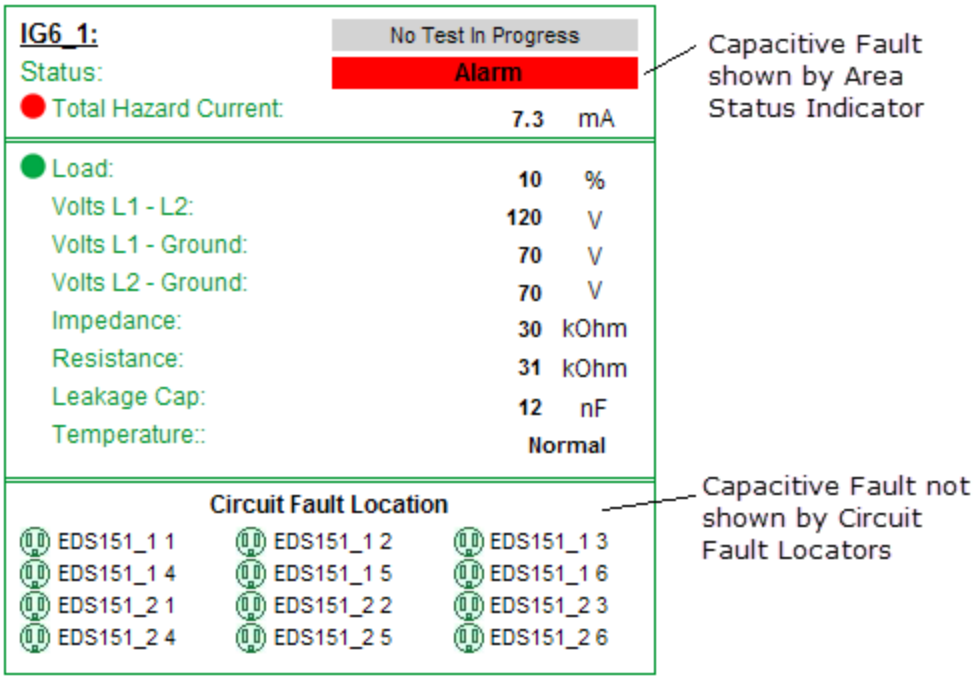
room **Status** area shows the hazard, as shown next. However, if the optional circuit fault locators are installed, the circuit indicators do not indicate the capacitive fault, because they show only resistance faults, as shown next:



If all the circuit fault indicators are green, as above, and the room **Status** area shows a hazard, appropriate personnel must determine and correct the cause of the fault.

Data logs

When you need details about circuit measurements and details, the Area Details diagram provides links to the historical data log and the event log. These logs provide measurement data for the 5-minute polling interval of the LIM-IG6. You can filter the data in the logs by date range.

When using the event log, you can also generate a graph that shows THC measurements plotted across time. If any THC measurement exceeds the hazard threshold, the graph includes a callout at the specific event point.

Historical data log and graph

The following figure shows the historical log table.

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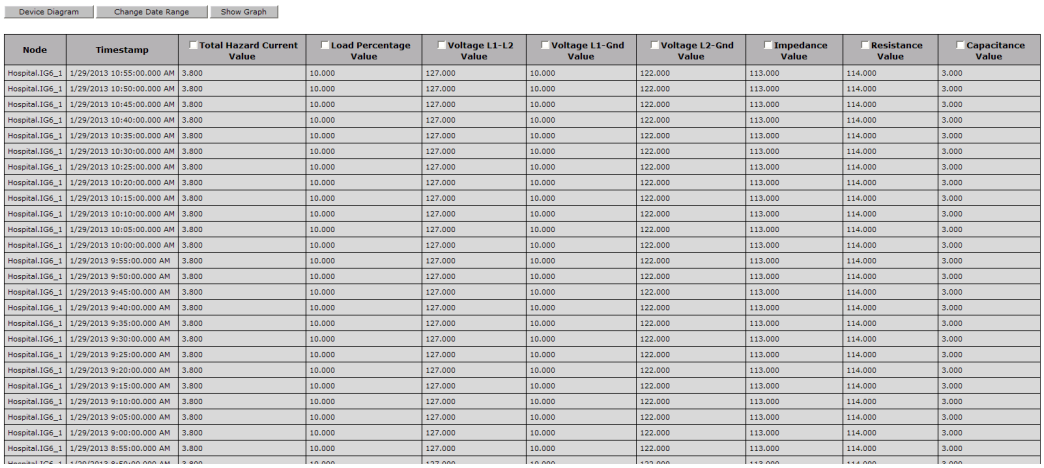


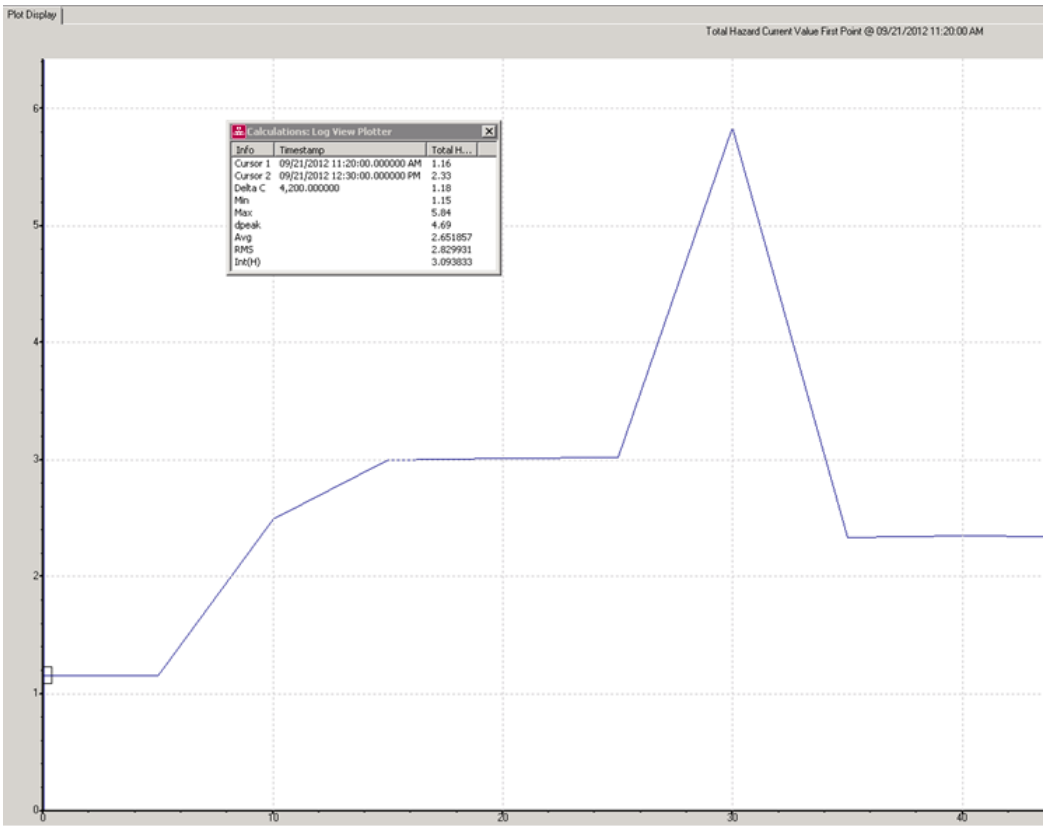
Device Diagram | Change Date Range | Show Graph

Node	Timestamp	Total Hazard Current Value	Load Percentage Value	Voltage L1-L2 Value	Voltage L1-Gnd Value	Voltage L2-Gnd Value	Impedance Value	Resistance Value	Capacitance Value
Hospital.IG6_1	1/29/2013 10:55:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:50:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:45:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:40:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:35:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:30:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:25:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:20:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:15:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:10:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:05:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 10:00:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:55:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:50:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:45:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:40:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:35:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:30:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:25:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:20:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:15:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:10:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:05:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 9:00:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000
Hospital.IG6_1	1/29/2013 8:55:00.000 AM	3.800	10.000	127.000	10.000	122.000	113.000	114.000	3.000

The buttons located at the top of the table are:

- **Device Diagram** – Click this to return to the diagram.
- **Change Date Range** – Click this to view data for different dates. See "Select Date Range" below for more information.
- **Show Graph** – Select one or more column headers in the table and click this to see a graph of the data. The graph shows the data at 5-minute intervals. For example, you can check the **Total Hazard Current** option in the table and see the values. Click a point on the data line to see details for that value, as shown next.

The following figure shows the historical log table from the Vista client view:



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Event Log

The following figure shows the event log table:

Device Diagram | Change Date Range

Node	Log	Timestamp	Cause	Cause Value	Effect	Effect Value	Priority	Ack Time	User Name
Hospital.IG6_1	EventLogCtl 1	12/6/2012 10:38:06.000 AM	Current I2 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/6/2012 10:38:05.000 AM	Current I3 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/6/2012 10:38:05.000 AM	Current I2 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/6/2012 9:38:06.000 AM	Current I3 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/5/2012 3:49:53.000 PM	Total Hazard Current Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/5/2012 3:49:06.000 PM	Total Hazard Current Alarm	Active	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 1:12:46.000 PM	Current I3 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 1:12:46.000 PM	Current I2 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 1:12:07.000 PM	Current I3 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 1:12:07.000 PM	Current I2 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:17:30.000 PM	Current I3 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:17:30.000 PM	Current I2 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:17:06.000 PM	Current I3 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:17:06.000 PM	Current I2 Alarm	No CT connected	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:15:45.000 PM	Total Hazard Current Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:15:39.000 PM	Total Hazard Current Alarm	Active	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:13:34.000 PM	Total Hazard Current Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:13:25.000 PM	Total Hazard Current Alarm	Active	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:12:41.000 PM	Total Hazard Current Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:12:13.000 PM	Total Hazard Current Alarm	Active	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:11:33.000 PM	Total Hazard Current Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 12:11:28.000 PM	Total Hazard Current Alarm	Active	-		100	1/28/2013 11:35:29 AM	supervisor
Hospital.IG6_1	EventLogCtl 1	12/1/2012 11:13:14.000 AM	Current I3 Alarm	InActive	-		100	-	-
Hospital.IG6_1	EventLogCtl 1	12/1/2012 11:13:14.000 AM	Current I2 Alarm	InActive	-		100	-	-

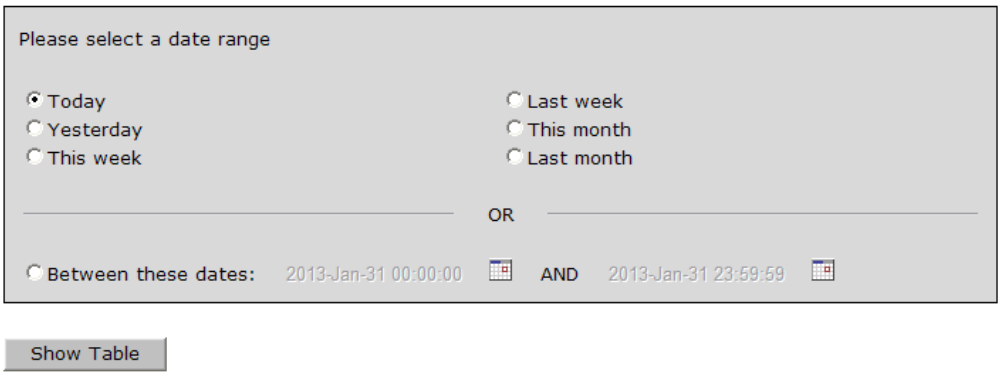
The buttons located at the top of the table are:

- **Device Diagram** – Click this to return to the diagram.
- **Change Date Range** – Click this to view data for different dates. See "Select Date Range" below for more information.

Select date range:

For either type of log table, you can select the date range for data you want to see. The default date range is "Today".

1. Click **Select Date Range**.



2. Select an available range or click **Between these dates** and select specific dates in the calendar.
3. Click **Show Table** to see the data.

If you select a date range of more than one week, a message appears to inform you that the table will be very long.

The new table appears.

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Generating the Insulation Monitoring Report

To generate a report:

1. In Reports, open the Report Library and navigate to the location of the Insulation Monitoring report you want to generate.
2. Click the report name to display the report in the Reports Display pane.
3. Set the input parameters for the report and click **Generate Report**.

   NOTE: Saved input parameters are preset to their saved values. Not saved input parameters have generic default values.

4. The report output is displayed in the Reports Display pane.

Insulation Monitoring Report (ANSI)

NOTE: This report is part of the Insulation Monitoring Module. This Module requires a separate license.

Summary

The Insulation Monitoring (ANSI) Report shows Total Hazard Current, relevant event log entries, and logged insulation related measurements, over the reporting period. Use this report to analyze and report on the insulation status of your ungrounded IT power system.

Details

The report includes:

- A Total Hazard Current graph, showing measured currents against the Total Hazard Current limits.
- An events table, showing information for each event that occurred in the reporting range.
- A data log table, showing Total Hazard Current measurements and other meter data.

Prerequisites

- The Insulation Monitoring Module must be configured.
- The measurement data must be available as historical data logs in the database.

Report inputs

Title

Type a title for the report in the box.

Area

The area whose panels you want to include in the report.

Reporting Period

Use this input to select the timeframe for the data you want to view in the report.

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Select the reporting period from the dropdown list. The timeframe options in the timeframe dropdown are relative to the date the report is run. To run a report that starts and ends in the past, select the fixed date option. Type a start and end date in the date boxes or click the arrows beside the dates to display a pop-up calendar and select a date. Type a time in the time boxes or click the up and down arrows beside the time to adjust the hours or minutes up or down.

Select whether you want to view timestamps in either Server Local Time, UTC (Universal Coordinated Time), or in the timezone of the source.

Include Data Table

Select whether or not to show the data table in the generated report. The default is **No**.

Include Data Notification

Click **Yes** to include data warnings in the report. If there are none, the section is not included. Click **No** to exclude this section.

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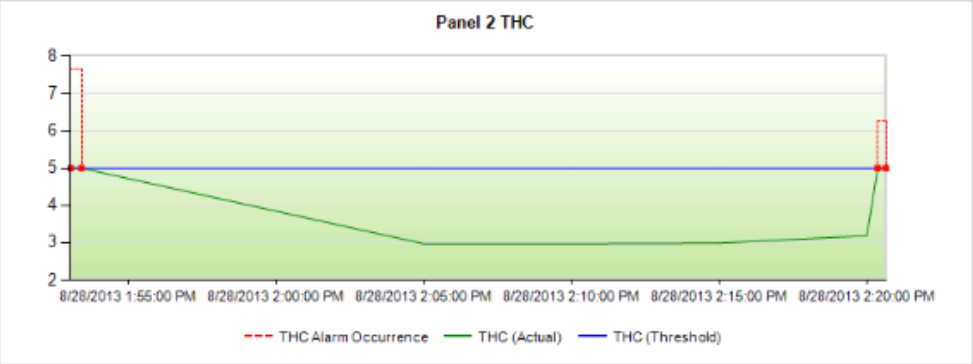
Hospital Operating Room Example:

Schneider Electric

Operating Room Isolated Power Report (ANSI)

Report ID: Room 2
Description: Logs from Room 2
Report Generated: 8/28/2013 2:25:12 PM



Timestamp	THC	THC Threshold	Load %	Voltage L1-L2	Voltage L1-Gnd	Voltage L2-Gnd	Impedance	Resistance	Capacitance
8/28/2013 2:20:00 PM	3.183	5	22	121	10	119	40	40	9
8/28/2013 2:15:00 PM	2.987	5	22	121	10	119	43	43	9
8/28/2013 2:10:00 PM	2.97	5	22	120	10	118	43	43	9
8/28/2013 2:05:00 PM	2.969	5	22	120	10	118	43	43	9

Report ID: Room 2
Description: Events from Room 2
Report Generated: 8/28/2013 2:25:12 PM

Timestamp	Cause	Cause Value	Effect	Effect Value	Priority
8/28/2013 2:20:39 PM	Total Hazard Current Alarm	InActive	Total Hazard Current Value	THC Safe	100
8/28/2013 2:20:38 PM	Impedance Alarm	InActive	Impedance Value	Impedance Normal	100
8/28/2013 2:20:38 PM	Resistance Alarm	InActive	Resistance Value	Resistance Normal	100
8/28/2013 2:20:38 PM	Ground Fault Location Alarm	InActive	Ground Fault Location Value	Ground Fault Location Normal	100
8/28/2013 2:20:22 PM	Impedance Alarm	Active	Impedance Value	Impedance Alarm	100
8/28/2013 2:20:22 PM	Resistance Alarm	Active	Resistance Value	Resistance Alarm	100
8/28/2013 2:20:22 PM	Total Hazard Current Alarm	Active	Total Hazard Current Value	THC Hazard	100
8/28/2013 2:20:22 PM	Ground Fault Location Alarm	Active	Ground Fault Location Value	Ground Fault Location Alarm	100
8/28/2013 1:53:25 PM	Total Hazard Current Alarm	InActive	Total Hazard Current Value	THC Safe	100

NOTE: This example only shows selected content from the report, it does not show the entire report.

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Insulation Monitoring diagrams for IEC

The Insulation Monitoring module includes several diagrams that show the electrical status of the areas and circuits that are being monitored.

This section describes each type of diagram.

See the following topics:

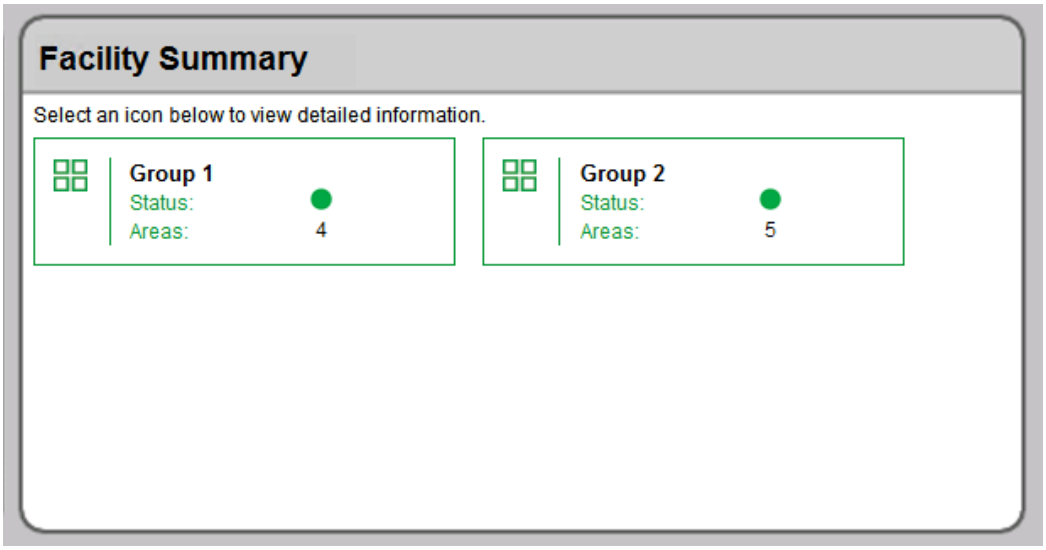
- Using the diagrams
- Data logs
- Generating the Insulation Monitoring Report
- Insulation Monitoring Report (IEC)

Using the diagrams

The insulation monitoring diagrams display overview or detail information as well as status.

Facility Summary diagram

The Facility Summary diagram shows each group that contains a number of areas.



The Facilities Summary diagram shows all the groups of areas that were configured for the facility. Each box in the main area represents a group of areas. This diagram provides a status overview and links to areas in the facility, as shown next:

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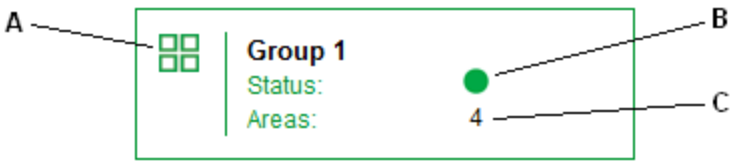
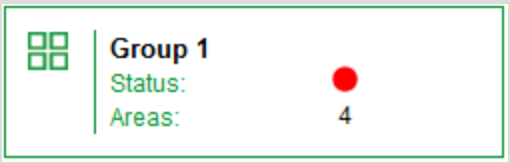


A	**Group Icon** – Click the group icon to see the area diagram.
B	**Status Indicator** – This indicator is green or red to show the general status of the isolated power system: • **Green** – Normal condition. The insulation resistance measurements for all areas in this group is above the limit. • **Red** – Alarm condition. The insulation resistance measurements for one or more areas in this group are below the limit. Example of an alarm indication: 
C	**Areas** – Total number of monitored areas in this facility.

Recommended Actions for Alarm Condition Indication

1. Click the Group icon to open the Areas diagram. One or more area boxes will show an alarm condition. .
2. Click the specific area icons to open the Area Details diagrams. One or more panel boxes will show an alarm condition. If the optional circuit fault locator devices are installed, the panel box also indicates each circuit that has a resistance fault.
3. Notify the responsible person that can address the condition for the area and specific circuits.

Summary of Areas diagram

The Summary of Areas diagram shows an overview of each area in the facility. Each box represents a single area.

Example:

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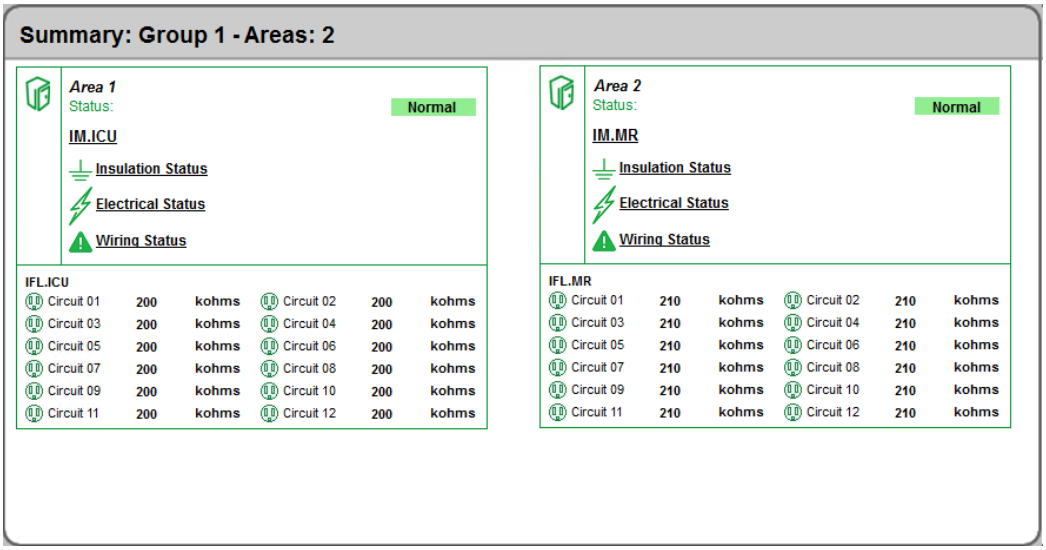
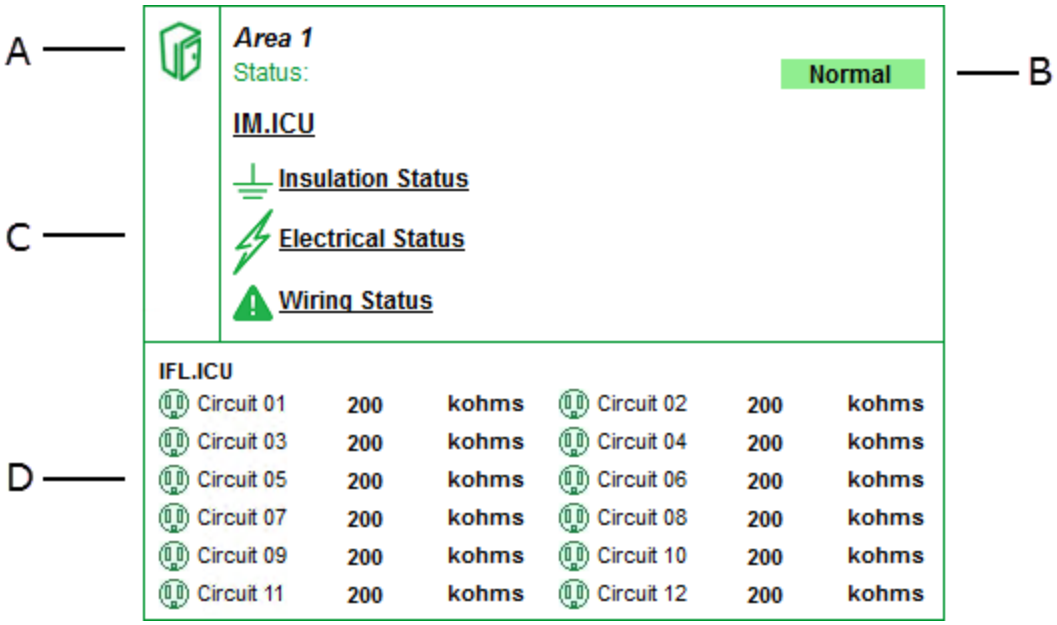


Each box represents a single area and contains the following information:



A	**Area Icon** – Click the area icon to see the details for the insulation monitoring device measurements for this area.
B	**Area Status Indicator** – Indicates the general conditions of the area. This indicator is either green "Normal" or red "Alarm". If the indicator is red, the insulation resistance measurement from the insulation monitoring device is below the limit.

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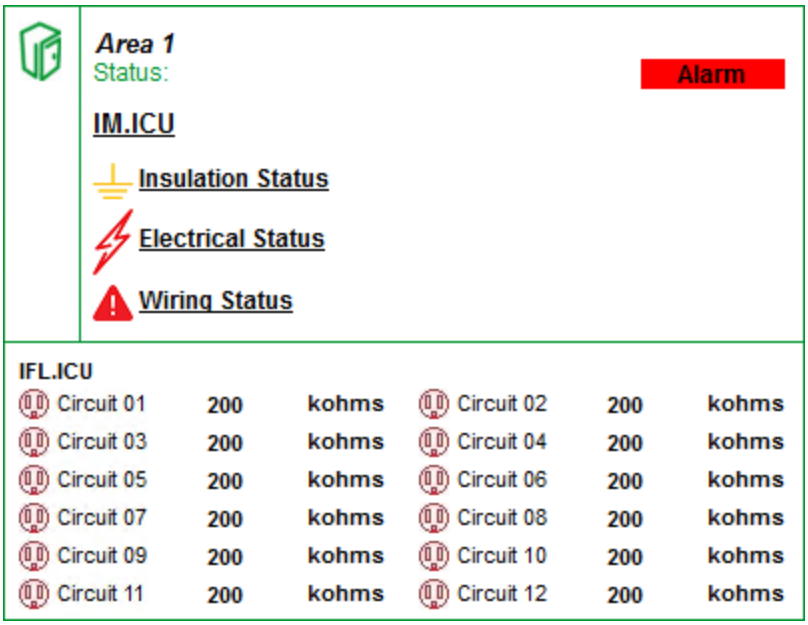
C	**Area Information and Status Indicators** – Displays the area name, the insulation monitoring device, and the status indicators. If an alarm occurs in the room, these indicators show the specific type of alarm. • **Insulation Status** – Normal condition is green. If the impedance is lower than the threshold, the indicator turns orange. The impedance threshold is set on the insulation monitoring device. • **Electrical Status** – Normal condition is green. If the current transformer load or temperature exceed the threshold set on the insulation monitoring device, this indicator turns red. • **Wiring Status** – Normal condition is green. This indicator turns red if the device cannot monitor the isolation transformer.
D	**Circuit Status** – Appears only if the optional Insulation Fault Locator (IFL) device is installed. This area shows the status for each circuit being monitored. If the IFL detects a resistance fault, the circuit monitor identifies the specific circuit and the circuit indicator turns red. When any indicator turns red, the alarm status propagates up to the top-level Facility Summary diagram.

Status indicators in an alarm condition:



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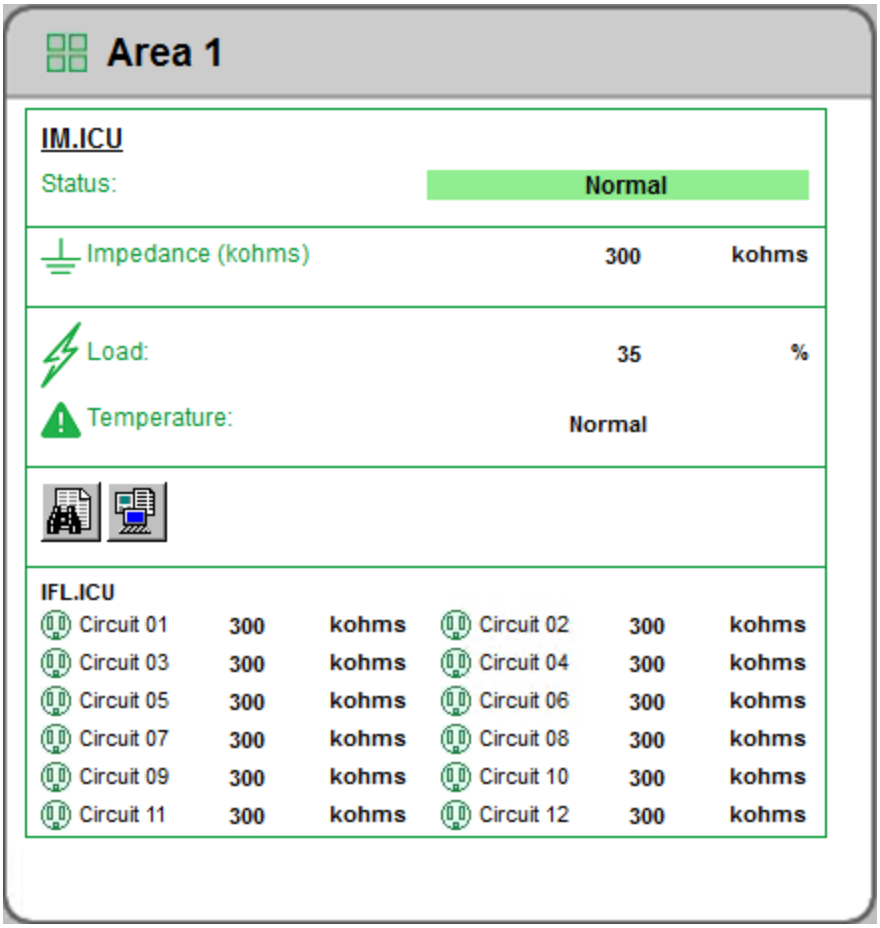
Area Details diagram

The Area Details diagram shows the details for the insulation monitoring and fault locator devices.

Example:



The diagram shows the following details:

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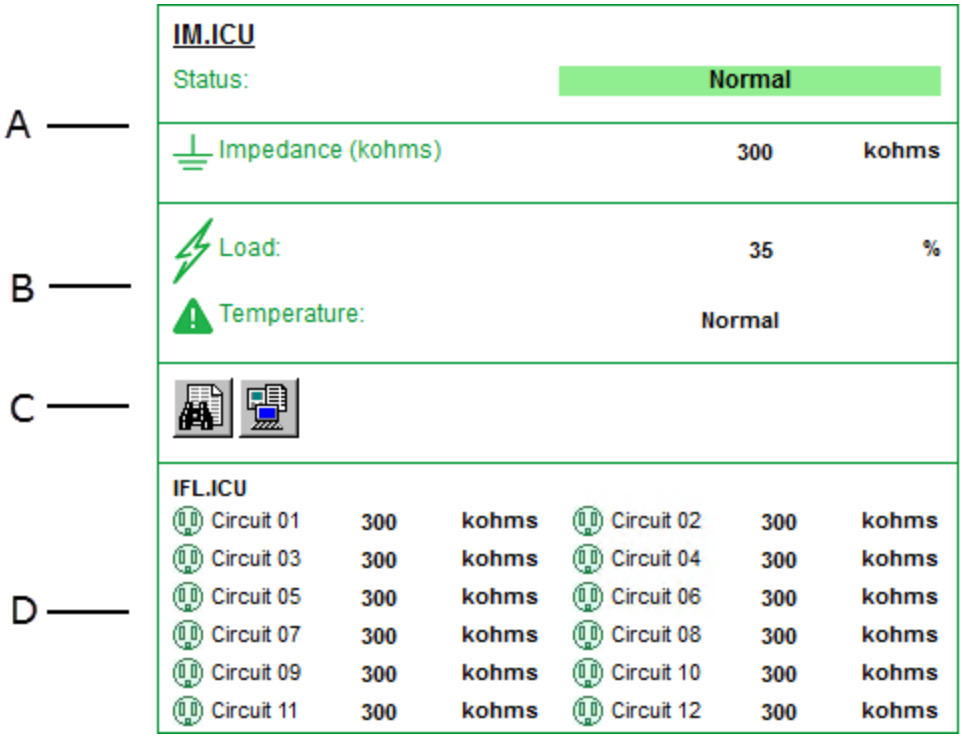

A	**Device Name** – The group and name of the device in the area. **Insulation Monitoring Device Status** – Green = Normal, Red = Alarm. **Impedance** – The real-time measurement of the impedance to ground, in kiloohms. If the impedance is lower than the threshold, the indicator turns orange. The impedance limit is set on the insulation monitoring device.
B	**Transformer Indicators** – The load and temperature status for the current transfer • **Load** – If the current transformer load exceeds the threshold, this indicator turns red and displays the real-time load percentage value. • **Temperature** – If the current transformer temperature rises above the threshold, this indicator turns red and the status changes to "High."
C	**Event Log and Data Log** – Contains links to the historical data log and event log for the panel measurements. See Data logs for more information.
D	**Circuit Status** – Appears only if the optional Insulation Fault Locator (IFL) device is installed. This shows the status for each circuit being monitored. If the IFL detects a resistance fault, the circuit monitor identifies the specific circuit and the circuit indicator turns red. When any indicator turns red, the alarm status propagates up to the top-level Facility Summary diagram.

Example of status indicators in an alarm condition:

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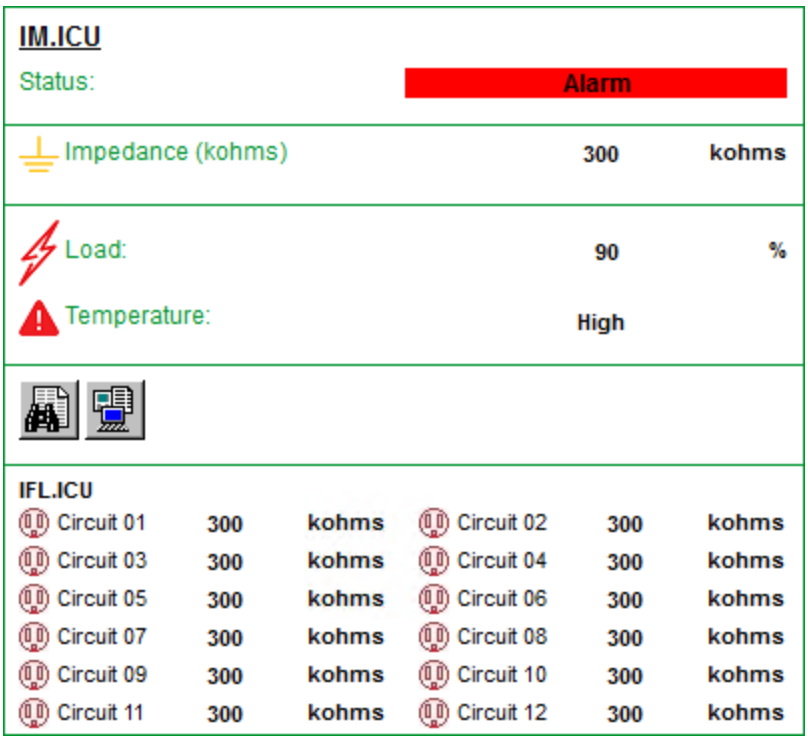

Data logs

When you need details about circuit measurements and details, the Area Details diagram provides links to the historical data log and the event log. These logs provide measurement data for the 15-minute polling interval of the Vigilohm IM20-H. You can filter the data in the logs by date range.

Historical data log

The following image shows the historical log table from the Power Monitoring Expert view:

Device Diagram | Change Date Range | Show Graph

Node	Timestamp	Resistance Maximum kohms	Resistance Mean kohms	Transformer Load Current % Mean	Transformer Load Current % Maximum
OT_Group.IM20H_01	4/3/2013 12:15:00.000 PM	500.000	500.000	37.904	38.355
OT_Group.IM20H_01	4/3/2013 12:00:00.000 PM	500.000	500.000	37.863	38.256
OT_Group.IM20H_01	4/3/2013 11:45:00.000 AM	500.000	500.000	37.732	38.455
OT_Group.IM20H_01	4/3/2013 11:30:00.000 AM	500.000	500.000	37.909	38.660
OT_Group.IM20H_01	4/3/2013 11:15:00.000 AM	500.000	500.000	37.849	38.320
OT_Group.IM20H_01	4/3/2013 11:00:00.000 AM	500.000	500.000	37.705	38.560
OT_Group.IM20H_01	4/3/2013 10:45:00.000 AM	500.000	500.000	37.687	37.997
OT_Group.IM20H_01	4/3/2013 10:30:00.000 AM	500.000	500.000	37.658	38.092
OT_Group.IM20H_01	4/3/2013 10:15:00.000 AM	500.000	500.000	38.089	38.405
OT_Group.IM20H_01	4/3/2013 10:00:00.000 AM	500.000	500.000	37.837	38.286
OT_Group.IM20H_01	4/3/2013 9:45:00.000 AM	500.000	500.000	37.931	38.329
OT_Group.IM20H_01	4/3/2013 9:30:00.000 AM	500.000	500.000	38.065	38.491
OT_Group.IM20H_01	4/3/2013 9:15:00.000 AM	500.000	500.000	37.799	38.106
OT_Group.IM20H_01	4/3/2013 9:00:00.000 AM	500.000	500.000	37.363	38.120
OT_Group.IM20H_01	4/3/2013 8:45:00.000 AM	500.000	500.000	36.773	37.036
OT_Group.IM20H_01	4/3/2013 8:30:00.000 AM	500.000	500.000	36.563	37.142
OT_Group.IM20H_01	4/3/2013 8:15:00.000 AM	500.000	500.000	36.367	36.661
OT_Group.IM20H_01	4/3/2013 8:00:00.000 AM	500.000	500.000	36.406	36.854

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The buttons located at the top of the table are:

- **Device Diagram** – Click this to return to the diagram.
- **Change Date Range** – Click this to view data for different dates. See "Select Date Range" below for more information.
- **Show Graph** – Select one or more column headers in the table and then click **Show Graph** to see a graph of the data. The graph shows the data at 5-minute intervals.

The following figure shows the historical log table from the Vista client view:

	Node	Timestamp	Resistance Maximum kohms	Resistance Mean kohms	Transformer Load Current % Mean	Transformer Load Current % Maximum
1	IEC.IM20H_01	03/12/2013 08:45:00.000 AM	500	500	32.354	33.002
2	IEC.IM20H_01	03/12/2013 08:30:00.000 AM	500	500	32.255	32.884
3	IEC.IM20H_01	03/12/2013 08:15:00.000 AM	500	500	32.175	32.936
4	IEC.IM20H_01	03/12/2013 08:00:00.000 AM	500	500	32.15	32.967
5	IEC.IM20H_01	03/12/2013 07:45:00.000 AM	500	500	32.118	32.871
6	IEC.IM20H_01	03/12/2013 07:30:00.000 AM	500	500	32.14	32.882
7	IEC.IM20H_01	03/12/2013 07:15:00.000 AM	500	500	32.153	32.796
8	IEC.IM20H_01	03/12/2013 07:00:00.000 AM	500	500	32.065	32.676
9	IEC.IM20H_01	03/12/2013 06:45:00.000 AM	500	500	31.995	32.823
10	IEC.IM20H_01	03/12/2013 06:30:00.000 AM	500	500	32.26	32.821
11	IEC.IM20H_01	03/12/2013 06:15:00.000 AM	500	500	32.278	32.899
12	IEC.IM20H_01	03/12/2013 06:00:00.000 AM	500	500	32.22	33.067
13	IEC.IM20H_01	03/12/2013 05:45:00.000 AM	500	500	32.132	32.812
14	IEC.IM20H_01	03/12/2013 05:30:00.000 AM	500	500	32.058	32.55
15	IEC.IM20H_01	03/12/2013 05:15:00.000 AM	500	500	31.992	32.972
16	IEC.IM20H_01	03/12/2013 05:00:00.000 AM	500	500	31.901	32.672
17	IEC.IM20H_01	03/12/2013 04:45:00.000 AM	500	500	31.926	32.558
18	IEC.IM20H_01	03/12/2013 04:30:00.000 AM	500	500	31.893	32.644
19	IEC.IM20H_01	03/12/2013 04:15:00.000 AM	500	500	31.871	32.479
20	IEC.IM20H_01	03/12/2013 04:00:00.000 AM	500	500	31.897	32.789
21	IEC.IM20H_01	03/12/2013 03:45:00.000 AM	500	500	31.885	32.413
22	IEC.IM20H_01	03/12/2013 03:30:00.000 AM	500	500	31.886	32.977
23	IEC.IM20H_01	03/12/2013 03:15:00.000 AM	500	500	31.968	33.343

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Event Log

The following figure shows the event log table from the Power Monitoring Expert view:

Device Diagram | Change Date Range

Node	Log	Timestamp	Cause	Cause Value	Effect	Effect Value	Priority	Ack Time	User Name
OT_Group.IM20H_01	EventLogCtl 1	4/2/2013 10:27:21.000 AM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	4/2/2013 10:27:17.000 AM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 190	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 2:33:11.000 PM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 2:32:57.000 PM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 150	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 2:32:55.000 PM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 2:32:49.000 PM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 300	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 12:09:37.000 PM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 11:35:27.000 AM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 140	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 9:12:00.000 AM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 9:11:49.000 AM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 160	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 8:05:57.000 AM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 8:05:54.000 AM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 270	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 8:05:51.000 AM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/25/2013 8:05:17.000 AM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 230	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/22/2013 3:52:23.000 PM	Insulation Status Alarm	Insulation Status Alarm Inactive	Insulation Status Alarm	Insulation Status Alarm	200	-	-
OT_Group.IM20H_01	EventLogCtl 1	3/22/2013 3:51:30.000 PM	Resistance kohms	Resistance Register Active	Insulation Status Alarm	Resistance reached 250	200	-	-

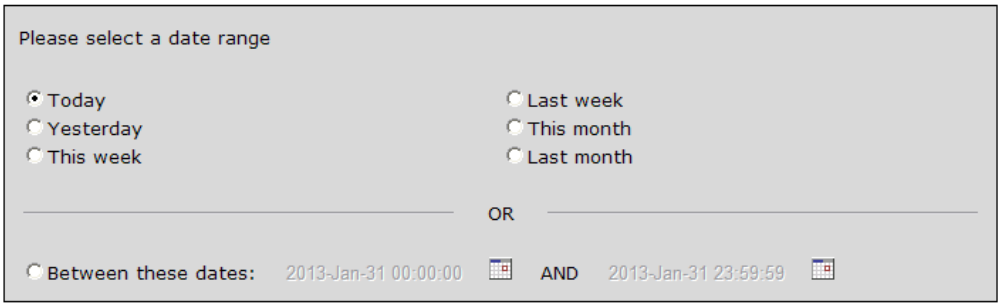
The buttons located at the top of the table are:

- **Device Diagram** – Click this to return to the diagram.
- **Change Date Range** – Click this to view data for different dates. See "Select Date Range" below for more information.

Select date range:

For either type of log table, you can select the date range for data you want to see. The default date range is "Today".

1. Click **Select Date Range**.



2. Select an available range or click **Between these dates** and select specific dates in the calendar.
3. Click **Show Table** to see the data.

If you select a date range of more than one week, a message appears to inform you that the table will be very long.

The new table appears.

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Generating the Insulation Monitoring Report

To generate a report:

1. In Reports, open the Report Library and navigate to the location of the Insulation Monitoring report you want to generate.
2. Click the report name to display the report in the Reports Display pane.
3. Set the input parameters for the report and click **Generate Report**.

   NOTE: Saved input parameters are preset to their saved values. Not saved input parameters have generic default values.
4. The report output is displayed in the Reports Display pane.

Insulation Monitoring Report (IEC)

NOTE: This report is part of the Insulation Monitoring Module. This Module requires a separate license.

Summary

The Insulation Monitoring (IEC) Report shows resistance, transformer load, relevant event log entries, and logged insulation related measurements, over the reporting period. Use this report to analyze and report on the insulation status of your ungrounded IT power system.

Details

The report includes:

- An impedance graph, showing a comparison of impedance measurements to the impedance threshold.
- A transformer load graph, showing a comparison of transformer load measurements to the load threshold.
- An events table, showing information for each event that occurred in the reporting range.
- A data log table, showing measurements for impedance, load, and temperature.

Prerequisites

- The Insulation Monitoring Module must be configured.
- The measurement data must be available as historical data logs in the database.

Report inputs

Title

Type a title for the report in the box.

Area

The area whose panels you want to include in the report.

Reporting Period

Use this input to select the timeframe for the data you want to view in the report.

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Select the reporting period from the dropdown list. The timeframe options in the timeframe dropdown are relative to the date the report is run. To run a report that starts and ends in the past, select the fixed date option. Type a start and end date in the date boxes or click the arrows beside the dates to display a pop-up calendar and select a date. Type a time in the time boxes or click the up and down arrows beside the time to adjust the hours or minutes up or down.

Select whether you want to view timestamps in either Server Local Time, UTC (Universal Coordinated Time), or in the timezone of the source.

Include Data Table

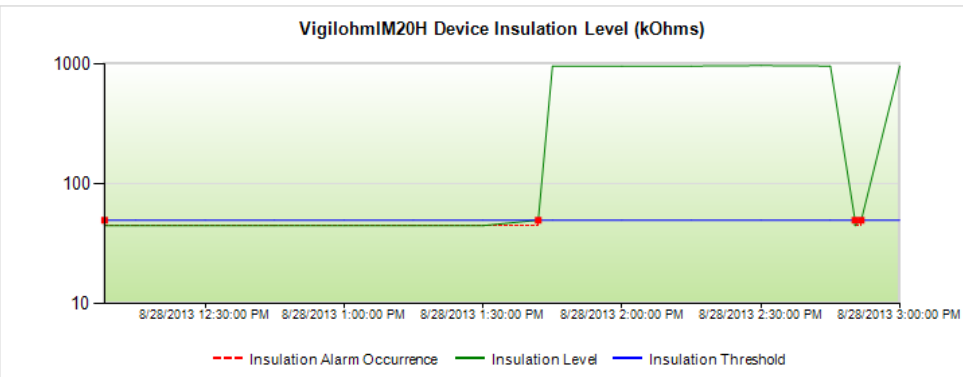
Select whether or not to show the data table in the generated report. The default is **No**.

Include Data Notification

Click **Yes** to include data warnings in the report. If there are none, the section is not included. Click **No** to exclude this section.

Hospital Operating Room Example:

Report ID: Operating Room 1a
Description: Logs from Operating Room 1a
Report Generated: 8/28/2013 3:03:44 PM



Timestamp	Insulation Level	Insulation Threshold
8/28/2013 3:00:00 PM	970	50
8/28/2013 2:51:40 PM	50	50
8/28/2013 2:51:39 PM	50	50
8/28/2013 2:50:20 PM	45	50
8/28/2013 2:50:20 PM	50	50
8/28/2013 2:45:00 PM	970	50
8/28/2013 2:30:00 PM	980	50
8/28/2013 2:15:00 PM	970	50
8/28/2013 2:00:00 PM	970	50
8/28/2013 1:45:00 PM	970	50
8/28/2013 1:41:56 PM	50	50
8/28/2013 1:41:55 PM	50	50
8/28/2013 1:30:00 PM	45	50
8/28/2013 1:15:00 PM	45	50
8/28/2013 1:00:00 PM	45	50
8/28/2013 12:45:00 PM	45	50
8/28/2013 12:30:00 PM	45	50
8/28/2013 12:15:00 PM	45	50
8/28/2013 12:08:19 PM	45	50
8/28/2013 12:08:19 PM	50	50

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NOTE: This example only shows selected content from the report, it does not show the entire report.

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