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EcoStruxure Power digitizes electrical distribution

EcoStruxure Power helps critical power facilities detect electrical faults and ensure power protection

For medium and large hospitals as well as smaller outpatient facilities, 24/7 power is critical. To help ensure safe and reliable power for patient and staff well-being, it’s important to safeguard against risks and find issues quickly, before problems occur:

- Insulation monitoring
- Arc fault protection
- Power restoration

EcoStruxure Power’s insulation fault monitoring helps you comply with the latest standards evolution and provides key information on the location of the fault.

Read the white paper
Challenges and Opportunities

Digitizing Electrical Distribution

Challenges and Opportunities

Application Overview

Digital Architecture
Electric shock is a concern in healthcare

Systems are highly regulated

In operating rooms and intensive care units, ground faults in medical equipment can be lethal for the patient. Patients are exposed because the natural insulation of the skin during surgery doesn’t protect the patient, thus they are especially susceptible to electric shock.

**Electric shock risk**
- Resistive measurement 50KΩ
- Isolated transformer overload and overheating alarm
- One insulation monitoring system near operating theatre

**Continuity of services**
- Two incomers with automatic change over
- Dealing with 500 ms performance
- Total discrimination

**NFPA 99 & 110**
- Resistive + capacitive hazard current measurement 5 or 2 mA
- Up to six monitoring near operating theatre to limit alarm disturbance

**HTM 06-01**
- Overload tripping
- Flash mounted panel in the operating room

**1 in 300**
chance of patient harm during a health care stay

Read more:
- IEC 60364-7-710
- NFPA 99 & 110
- HTM 06-01
Avoid electrical shock and ensure protection

Help ensure patient safety with Smart Power Management

The three classifications of sensitivity

**Group 2:**
- Medical location where medical electrical equipment have to be used into the body
- Isolated ground system is mandatory

**Group 1:**
- Medical location where medical electrical equipment have to be used as follows:
  - Externally
  - Invasively to any part of the body
- A limited residual 30mA current device is mandatory

**Group 0:**
- Medical location where no medical electrical equipment is in contact with the body
IoT enabled applications for optimizing insulation fault monitoring
Power system performance

How can you help ensure patient safety by detecting insulation faults and solving them fast?

Detect electrical shock and inform the right stakeholders

- Isolated Smart Panels protect the patient and medical staff against electrical shock
- The Insulation Monitoring Device activates an alarm in case the resistance to equipotential bonding drops below $50 \, \text{K}\Omega$
- The (IEC) fault location device pinpoints the location of the insulation fault (feeder/sockets) for quick troubleshooting.
- The monitoring system serves up this information to the chief nurse and/or the facility manager in real time
- Stakeholders identify the equipment problem set to work resolving the issue.

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Architectures

Insulation monitoring (IEC)
Avoid electrical fires and ensure protection
Architectures

Insulation monitoring (NEMA)

Avoid electrical fires and ensure protection.

Architecture 1

Architecture 2

Digitizing Electrical Distribution

Challenges and Opportunities

Application Overview

Digital Architecture
This document presents general, non-binding information regarding the potential value that digitized power distribution products and solutions can bring to the user. Due to varying user situations and goals, Schneider Electric does not warranty or guarantee that the same or similar results represented in this document can be achieved. Please refer to Schneider Electric product and solution catalogs for actual specifications and performance.

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