

ISOLATED POWER SYSTEMS EQUIPMENT

1 APPLICABLE STANDARDS

These requirements cover accessories for Isolated Power Systems. The X-Ray / Laser Receptacle Module shall consist of a backbox, receptacle, and face plate with hinged door. The following optional equipment shall be available: a) "In-Use" lamp, b) Magnetic door limit switch with no moving parts, and c) Remote Indicator. Each remote indicator shall duplicate the audible and visual alarm indications of the Line Isolation Monitor (LIM) installed in the Isolated Power System. As a minimum, each remote indicator shall contain a green "SAFE" LED, a red "HAZARD" LED and a "MUTE" button with integral red indicator LED.

The equipment must satisfy the requirements imposed, but are not necessarily limited to the following:

- Article 300 - Wiring Methods of the National Electric Code, NFPA 70
- Standard for Cabinets and Boxes, UL 50
- Standard for Wire Connectors and Soldering Lugs for Use with Copper Conductors, UL 486A
- Standard for Attachment Plugs and Receptacles, UL 498
- Standard for Metallic Outlet Boxes, UL 514A
- Standard for Nonmetallic Outlet Boxes, Flush Device Boxes, and Covers, UL 14C
- Standard for Terminal Blocks, UL 1059

These Codes and Standards identify the requirements for UL Recognized components, provide the guidelines for adequate wire bending space, enclosure, strength, rigidity and minimum thickness and identify constraints such as those that pertain to the installation of conductors with other systems.

2 PRODUCT

This section imposes additional constraints on the product addressing such topics as construction details, size, operator interface, and component performance.

2.1 ENCLOSURE

2.1.1 Backbox

Shall be flush or surface mounted as indicated on the contract documents. Flush mounted units shall be fabricated from 16GA galvanized sheet steel. Surface mounted units shall be 16GA galvanized sheet steel and shall have a finish coat of hospital ivory, epoxy enamel. The maximum dimensions of the backbox shall be 12"W x 8"H x 4"D. The dimensions of the smallest backbox shall be 8"W x 8"H x 4"D.

2.1.2 Face Plate

- 2.1.2.1 Shall be fabricated from 14GA Type 304 Stainless Steel, with #4 brushed finish. The face plate for flush mounted units extends 1" on all sides of the backbox. The face plate for surface mounted units shall exactly match the dimensions of the backbox. The face plate shall be attached to the backbox by means four (4) #10-32 x 1" Stainless Steel Truss Head Phillips machine screws.
- 2.1.2.2 The face plate shall contain a flush hinged door covering the receptacle. The door shall be attached to face plate by means of hidden hinges. When the receptacle is not in use, the door shall remain closed by means of a latch.
- 2.1.2.3 With a baseline option, the face plate shall contain a simple remote indicator which shall duplicate the audible and visual LED indications of the Line Isolation Monitor (LIM) located in the associated Isolated Power System. The face plate shall contain a remote indicator with digital display or analog meter as an option.

ISOLATED POWER SYSTEMS EQUIPMENT (Continued)

- 2.1.2.4 The faceplate shall contain an "In-Use" lamp for systems requiring this option. The "In-Use" lamp shall be dark when the module is in use. All other "In-Use" lamps associated with the same Isolated Power System shall be illuminated.
- 2.1.2.5 The face plate shall contain a magnetic type door contact with contacts rated for a control voltage of 24V, for PLC control. The door switch shall be UL Listed.

2.2 COMPONENTS

2.2.1 Power Receptacles

Shall be UL Listed / Recognized Hospital Grade specification and / or NEMA configuration with ampacity and voltage in accordance with the contract drawings.

2.2.2 Remote Indicators for Line Isolation Monitors (Optional)

Provide, where shown on the contact drawings, a single or multiple remote indicators which duplicates the audible and visual alarm indications of the LIM installed in the Isolated Power System. The remote indicator shall contain a green "SAFE" LED, a red "HAZARD" LED and a "MUTE" button with integral amber LED. The remote indicator shall function as follows:

- ◆ The green LED stays illuminated when the leakage current is within predetermined limits.
- ◆ The green LED extinguishes and the red LED illuminates when the predetermined limit is exceeded; an audible alarm also sounds.
- ◆ When depressed, the "MUTE" button shall mute the audible alarm signal. Actuation of this button shall cause the integral amber LED to illuminate, indicating that the audible alarm has been silenced.
- ◆ When the leakage current has returned to the acceptable limit level, the alarm indicators shall automatically reset.
- ◆ Optional THC meter or digital display.

3 INSTALLATION

Type XHHW wire crosslinked polyethylene insulation and a dielectric constant of 3.5 or less shall be used.

As necessary, special instructions shall be provided for field assembly, mounting and wiring of the equipment. They shall be part of a documentation package which includes three (3) sets of Operation and Maintenance manuals. These manuals shall include written instructions on the care and maintenance of the system, spare parts lists and certified "as built" drawings for the material furnished to the facility. Included will be an electrical schematic, an interconnection diagram, an overall outline dimensional drawing, and a LIM User Manual.

ISOLATED POWER SYSTEMS EQUIPMENT (Continued)

Additionally, wiring requirements shall be as follows:

- ◆ The power and ground conductors shall be run in a conduit from the associated Isolated Power System to the X-Ray / Laser Receptacle Module.
- ◆ The wiring to the remote indicator shall be run in a separate conduit directly from the associated Isolated Power System to the X-Ray / Laser Receptacle Module.

4 TESTING & CERTIFICATION

In conjunction with being sold and installed as part of a complete Isolated Power System, an engineer or senior technician shall be provided by the manufacturer for final testing and acceptance of the Isolated Power System. Consult factory for complete testing and certification procedures.

5 TRAINING

In conjunction with being sold and installed as part of a complete Isolated Power System and as required, training shall be provided for the hospital maintenance and medical staff covering the correct operation and routine testing of the Isolated Power Panel and System. Consult factory for complete training procedures.

6 ACCEPTABLE MANUFACTURERS

The equipment shall be provided by ISOTROL or other approved supplier. Other suppliers seeking approval shall submit proof of their ability to comply with the requirements set forth in this specification.

7 APPROVAL SUBMITTALS

As part of the approval process, potential suppliers shall submit pertinent descriptive catalog literature. The following shop drawings shall also be submitted: a) Dimensional data, b) Transformer data, c) Line Isolation Monitor (LIM) details and performance data, d) Product specifications from the manufacturer, and e) Load center construction details including method of mounting, type of circuit breaker, current capacity, etc.

8 ADDRESS OF MANUFACTURER

BENDER / ISOTROL
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