

BIO-MEDICAL ENGINEERING SECTION

Addu Equatorial Hospital

Technical Specifications:

10 kVA Online UPS for Mammography Unit

Quantity: 01 no

The 10 kVA Online Uninterruptible Power Supply (UPS) is intended to provide continuous, reliable power to a mammography unit, ensuring uninterrupted operation during power outages, voltage fluctuations, and other power disturbances. The UPS will maintain stable power delivery to critical medical imaging equipment to protect both the device and the integrity of patient data.

General Technical Specifications:

1. Capacity and Output:

- **Capacity:**
 - 10 kVA (Kilovolt-Amperes)
- **Output Power:**
 - Minimum output power of 10 kW (Kilowatts) to ensure efficient performance under load.
- **Output Voltage:**
 - 220-240V AC, 50/60 Hz ($\pm 1\%$ for precision) to match the electrical requirements of the mammography unit.
- **Output Waveform:**
 - True sine wave output to protect sensitive medical equipment from electrical noise and ensure smooth operation.

2. Battery Backup:

- **Battery Type:**
 - Sealed, maintenance-free lead-acid or lithium-ion batteries with high recharge efficiency.
- **Battery Backup Time:**
 - Minimum of 30 minutes backup time at full load to ensure the mammography unit can complete ongoing procedures during power failures.
- **Battery Protection:**
 - Advanced battery management system for monitoring and protecting the battery from overcharging, deep discharging, and temperature fluctuations

3. Display and Monitoring:

- **Display Type:**
 - A clear, backlit LCD display for real-time monitoring of system status, including input/output voltage, frequency, battery level, and load capacity.
- **Audible Alarms:**
 - Audible alarms for critical conditions such as battery low, overload, and system faults.

4. Transfer Time:

- **Transfer Time:**
 - Zero transfer time (Online Double Conversion UPS) to ensure uninterrupted power supply during switchover from mains to battery mode.

5. Protection Features:

- **Surge Protection:**
 - Built-in surge protection for both input and output to safeguard the mammography unit from power spikes and surges.
- **Short Circuit Protection:**
 - The UPS should have automatic shutdown and fault notification features in the event of a short circuit.
- **Overload Protection:**
 - Automatic overload protection with bypass functionality to prevent damage to the UPS or connected equipment.
- **Automatic Bypass:**
 - Integrated automatic and manual bypass to maintain continuous operation during UPS maintenance or faults.

6. Physical and Mechanical Specifications:

- **Form Factor:**
 - Rack-mountable or tower design for flexibility in installation, depending on the available space in the mammogram room.
- **Weight:**
 - The weight of the UPS should be specified and suitable for placement in a hospital equipment room without special structural support.
- **Dimensions:**
 - Compact and space-saving design for easy installation in limited spaces, with dimensions specified.

7. Certifications and Compliance:

1. Quality Assurance:

- **ISO Certification:**
 - The manufacturer must be ISO 9001 certified to ensure the quality and reliability of the UPS.

2. Safety Standards:

- **Compliance:**
 - Must comply with international safety and performance standards such as:
 - CE, RoHS, IEC/EN 62040-1 (safety), IEC/EN 62040-2 (EMC), and IEC/EN 62040-3

- **Battery Certifications:**

- Batteries should comply with IEC 60896-21/22 and UL certifications.

8. Warranty and Support:

1. Warranty:

- **Warranty Period:**

- The UPS must come with a minimum of 2 years warranty for parts, including the battery system.

2. After-Sales Support:

- **Technical Support:**

- The supplier must provide comprehensive after-sales support, including spare parts availability, repair services, and technical assistance.

- **Service Agreement:**

- Optional extended warranty and service agreements for regular maintenance and troubleshooting.