



A-1 ENGINEERING
“CREATING GREAT OPPORTUNITIES FROM GREAT IDEAS”

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Medical Quality Assurance For Your Client & Staff

The fundamental differences between commercial- and medical-grade power supplies relate to the design and test criteria that seek to eliminate the shock hazard to patients and medical attendants. Leakage currents represent the primary source of shock hazard, and limits on the allowed levels of leakage are defined by IEC601-1 and UL2601-1. These standards establish very stringent leakage-current requirements for medical-grade power supplies. In some cases, the limits on leakage current are just one-tenth of the levels allowed by specifications aimed at commercial-grade supplies. In addition, IEC601-1 and UL2601-1 set higher standards for hi-pot testing.

The SX Series product line has been designed and engineered from the power cord to the delivery cables to meet the safety standards set forth for medical grade equipment. The main power circuit that supplies the “SFS” circuit of all our SX series products meets UL 60601-1 medical grade standards for patient care equipment. The main power circuit features state of the art switching circuitry,

The SFS Circuitry is isolated from the mains.

Utilizing today’s cutting edge technologies:

The main power circuit features:

- Universal AC input / Full range US or European
- Low leakage current <180 uA
- Protections for; Short circuit / Over load / Over voltage
- UL2601-1 medical safety approved
- Approvals: UL / CUL / TUV / CB / CE
- Protections: SC / OL / OV / OT
- AC input voltage range: 90 ~ 264VAC
- Lightning/Surge EN61000-4-5 Level 4, 4000V/Line-Earth
- Withstand Voltage: I/P~O/P: 4KVAC, I/P-FG: 1.5KVAC, 1 minute
- Safety standards: UL2601.1, TUV EN60601-1, IEC601-1 approved, design
- EMC Standards: EN55011/EN55022 class B, EN61000-4-2,3,4,5,6,8,11, EN61000-3-2,3, EN60601-1-2, ENV50204
- Fully protected against short circuit and output overload. The hiccup type protection will be activated at 120~160% rated load and recovers automatically after fault condition is removed.

For additional safety, the power entry port and circuitry of all SX series products provides high performance, RFI / EMI filtering capabilities that is UL recognized, CSA certified, VDE approved, and meets UL544 for patient care and non-patient care equipment. Therefore, is necessary to only use the supplied medical grade power cord with all SX series products. SX series power cords carry the “green dot” signifying that they are hospital-grade and have been designed and tested for grounding reliability, assembly integrity, strength and durability. They are approved by UL and CSA to UL 817 and CAN/CSA C22.2 no 21 as hospital-grade power cords. Specifically, UL 60601-1 sections 57.2 and 57.3 require that “patient care equipment” used in the “patient vicinity” must use hospital-grade attachment plugs. “Patient care equipment” and “patient vicinity” are defined in UL 60601-1 sections 2.12.19 & 2.12.20. It is imperative that the ground connection be reliably maintained to protect the patient / client and staff.