

P R B X

POWERBOX Medline 225
EXM225 Series
225W
Single Output
AC/DC Medical Adapter



Features

Powerbox "one-step" conversion topology
High reliability
Low component count
Very low leakage current
Less than 0.3 watts in zero load consumption
"Floor-top" external adaptor
- Desinged to meet IP21
- Exchangeable AC cable-locking function 100Nm
- Exchangeable DC cable-locking function
Designed for medical home care applications 60601-1-11
Suitable to power up medical systems up to BF class
Intelligent over temperature protection

Input

Nominal input range	100-240VAC
Voltage range	90-264VAC. 85-99V with 70% output power
Frequency	47-63Hz
Input current	1-3A
Power factor correction	PF>0.90 for 25 to 100 % of load current
Inrush current	Max 50A peak, cold start
Input connector	C8 cable connector or exchangeable input connectors for Europe, US, UK and Australia. Cable lock for 100Nm pull strength
Leakage current	<100µA
Isolation class	Class II. Double isolation, type B applied part
Isolation	4000 VAC, 1s input to output 1MΩ isolation, input to ground
Zero load power consumption	0.3 Watt approx

Output

Power	Up to 225W, see table
Voltage	24.4VDC (5221)
Voltage tolerance	±5% including line, load, step load, temp coefficient, cable voltage drop, see table
Ripple and noise (20MHz BW)	<1% 120-264VAC <5% 90-119VAC, 100Hz ripple component
Efficiency	Up to 92%
Hold up time	40ms at 230VAC. 20ms at 115VAC
Start up time	<2s max
Line regulation	±1% max full load
Load regulation	+100mV, -470mV for slow load change (4ms) At step load with instant change (1ms) from 0% load to 100% load: +100mV, -600mV Tested at cable DC connector

Overvoltage protection	Yes
Max capacitive load at start-up	>100.000µF
Overcurrent protection	Trip point typical 130%, auto recovery, straight current limit characteristics
Current limiting charact.	Constant current
Overtemp. protection	Yes, automatic recovery and output power limiting
Transient response	Max 2.5% deviation for a 25% load change at 1A/1µs. Output returns within regulation in max 4ms and typical 1ms
Temperature coefficient	Typ 0.04%/°C of Vout
Output cable	Exchangeable 1,8 meters 6x18AWG
Output connector for DC cable	Molex-series 5559: Mini-fit Jr 39-01-2060 over moulded, Pins = Tin plated brass 39-00-0047 Pins 1,2,3 = Negative Pins 4,5,6 = Positive
Mating output for DC cable	Recommended Molex-series 5559: Mini-fir Jr 39-01-2061. Pins = Tin plated 46012-1142.
Unit output connector	Recommended Molex-series 5559: Mini-fit Jr 39-30-0060



Environmental

Operating temperature	0°C to 35°C at 100% load 35°C to 45°C at 50% load -40°C start-up
Storage temperature	-40°C to +75°C
Humidity	5% to 95% non-condensing
Derating	Automatically derating linearly to 50% power at 45°C controlled by internal over temperature protection
Altitude	Rated for use at 70kPa corresponding to 3000m with power derating
Environmental efficiency	Fulfilling Green Mode requirements from IEC60950-1, CEC Level V, EISA and ErP. Less than 0.3 Watts in zero load consumption.
Home care environment	IEC60601-1-11
Environmental compliance	RoHS, REACH and WEEE

POWERBOX Medline 225
EXM225 Series
225W
Single Output
AC/DC Medical Adapter

General

Switching frequency	80-120kHz
Acoustic noise	Less or equal to 30dB(A) at a distance of 0.3m and in frequency range 1Hz to 20kHz.
Dimensions	Circular 190mm diameter and 43mm high
Weight	Unit: Approx 700 g excluding DC cable DC cable: Approx 210 g
Case	Enclosed external adaptor Plastic Polycarbonate UL 94 V-0 Designed to withstand wheelchair run over
MTBF	>400.000 h at 25°C, 100% load Calculation based on MIL-HDBK-217E
Lifetime prediction	Min. 80.000 h at 230 VAC 50% load and 100% duty cycle at 25°C average ambient temperature
Component count	Approx 120
Power good	"On" indicates with blue LED
Cleaning	Use dry towel. Do not soak in water
Warranty	2 years
Mechanical prot. class	Designed to meet IP21
User guide	Packed with each unit

Standards

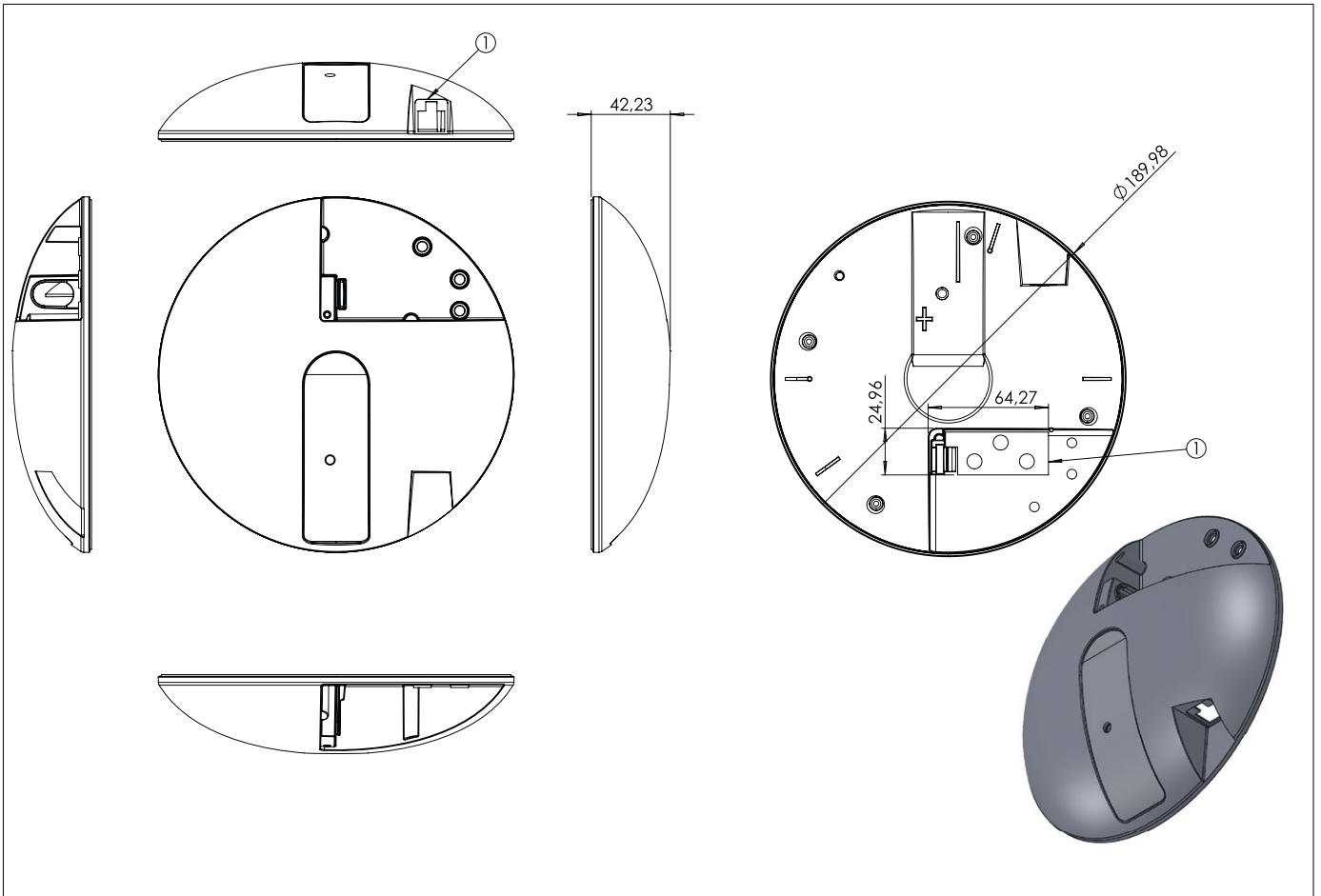
Safety standards	Approved according to IEC60601-1 Edition 3 including deviations for Europe, US & Canada by Intertek Semko & UL. Designed to meet IEC60950-1. UL pending
Safety markings	S, ETL & CE
EMC standards	IEC60601-1-2, IEC61204-3, EN55011 class B
Harmonic current	IEC61000-3-2
Voltage flicker	IEC61000-3-3
ESD susceptibility	IEC61000-4-2, ±6kV contact discharge, ±8kV air discharge
Radiated susceptibility	IEC61000-4-3, 3V/m
EFT/Burst	IEC61000-4-4, ±2kV on AC port, ±1kV on signal ports
Surge	IEC61000-4-5, ±2kV common mode, ±1kV differential mode
Conducted susceptibility	IEC61000-4-6, 3V/m
Frequency magnetic field	IEC61000-4-8, 3A/m
Dips and interruptions	IEC61000-4-11, 30% 500ms, 60% 100ms, 95% 5sec. Performance criteria A A B
Environmental for home care use	IEC60601-1-11 Shock per IEC 60068-2-27 Vibration per IEC 60068-2-64

Model Number	Output Voltage	Voltage Tolerance	Continous Output Current*	Continous Output Power*	Peak Output Current*	Peak Output Power*	Efficiency
EXM2255221	24V	23.20-25.20V	9.37A	225W	11.45A	275W	92%

- *)
1. Continous output power at 35C ambient and 180-264VAC.
2. Peak power of 275W max duration 10 sec per every 100 sec. (10% duty cycle).
3. Continous output power of 180W at 35C ambient and 115-180VAC.

POWERBOX Medline 225
EXM225 Series
225W
Single Output
AC/DC Medical Adapter

Mechanical



Specifications are subject to change without notice.