



Energy Power

Product Series Specification

BM90 Medical *BladeAdapter*TM

90W Universal 2-Wire AC Input



Key Features

- ⊖ New ultra-low profile design is 34% thinner and 28% less volume than typical adapters
- ⊖ Meets IEC60601-1-2: 2014 EMC for both Professional & Home Healthcare environments
- ⊖ 90 ~ 264Vac input, 12V to 36V output models
- ⊖ Up to 91% efficiency
- ⊖ Up to 168W peak-power to drive capacitive & inductive loads (24Vout)
- ⊖ OVP, OCP, OTP & short-circuit protection
- ⊖ Medical safety approved (2 X MOPP) & IP22

Specifications

Input

Input Voltage Range	● 90 – 264Vac
Rated Input Voltage Range	● 100 – 240Vac
Input Frequency	● 45 – 65Hz (typical 50-60)
Maximum Input Current	● 2.5A, @min. Vin, full load
Input Inrush Current	● 80A (240Vac, 25°C, cold)
No Load Input Power	● typ. 100mW, max. 200mW Meets DoE Level VI

Output

Output Voltage Range	● See table
Output Current Range	● See table
Rated Output Power	● See table
Minimum Load	● No minimum load required
Turn On Delay Time	● <3 s @90Vac, full load
Turn On Rise Time	● ≤50mS; full load 10-90% Vo
Dynamic Response	● ≤5%; 25-50-25% Io max 50-75-50% Io max, 0.1A/uS
Ripple/Noise	● See table
Line Regulation	● 0.2% typ, 1% max.
Load Regulation	● See table
Surge Current Rating	● 108W for 1 sec. max.
Temperature Coefficient	● 0.2%/°C
Hold Up Time	● 20mS typ; full load, 115Vac
Output Capacitance	● See table
Output Voltage Overshoot	● < 5%

General

Efficiency	● See table
Isolation Resistance	● ≥ 10MΩ @ 500Vdc (3 ways)
Dialectic Strength	● 4850Vac Input-Output (2 X MOPP) (5mA/1 min)
MTBF	● ≥ 250,000 hrs (Telcordia)
Weight	● 420g
Output Protection	● Over voltage: 110-130% Vnom; Latching, recycle input to reset
	● Over load: 110-250% rated lout; Hiccup mode, auto-recovery
	● Short circuit: 10mΩ; Hiccup mode
	● Over temperature: Latching

Environmental

Operating Temperature	● 0° to +60°C, 40-60°C derate
Storage Temperature	● -30° to +85°C
Relative Humidity	● 20 – 90%, non-condensing
Operating Altitude	● 0 – 3000m

RoHS VI CB CE IP22



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EMC & Safety

Conducted & Radiated Emissions	EN55022/24 Class B, FCC Part 15, Class B
Harmonic Currents	EN61000-3-2, Class A per Edition 4
Voltage Fluctuations/Flicker	EN61000-3-3
Electrostatic Discharge Immunity	EN61000-4-2, 8kV contact and 15kV air discharge
Radiated RF Immunity	EN61000-4-3, 10V/m (Professional & Home care)
EFT/Burst Immunity	EN61000-4-4, 2kV/5kHz level Perf Criteria A
Line Surge Immunity	EN61000-4-5, 1kV differential, 2kV common-mode
Conducted RF Immunity	EN61000-4-6, 6Vrms Perf Criteria A
Power Frequency Magnetic Field Immunity	EN61000-4-8, 30A/m Perf Criteria A
Voltage Dips & Interruptions	EN61000-4-11/29
Safety Compliance	UL/IEC/EN60950-1, CCC qualified, IEC60601-1 IEC/EN62368-1, GB4943, IEC 695-2-2 (UL94V-0)

Models and Ratings

Model #	Output Voltage			Output(max)		Ripple&Noise (Vp-p Typ)	Load Regulation	Dynamic Typ	Response Max	Output Capacitance	Efficiency	Peskpower	
	Min	Typ	Max	Current	Power							1sec	7sec
BM90-220S12	11.40	12	12.60	7.5A	90W	100mV	8%	4%	5%	4000uF	88%	108w	90w
BM90-220S15	14.40	15	15.60	6.0A	90W	100mV	6%	3%	5%	3200uF	89%	108w	90w
BM90-220S18	17.46	18	18.54	5.0A	90W	100mV	5%	3%	5%	2200uF	90%	108w	90w
BM90-220S19	18.43	19	19.57	4.74A	90W	100mV	5%	3%	5%	2000uF	90%	108w	90w
BM90-220S24	23.52	24	24.48	3.75A	90W	100mV	3%	2%	5%	1800uF	91%	168w	90w
BM90-220S28	27.44	28	28.56	3.22A	90W	100mV	3%	2%	5%	1600uF	91%	108w	90w
BM90-220S36	35.28	36	36.72	2.5A	90W	100mV	2%	2%	5%	1500uF	90%	108w	90w



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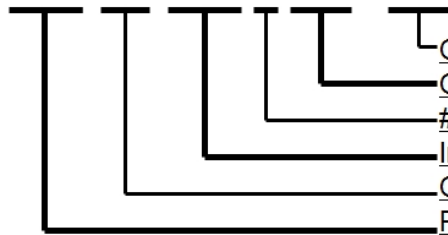
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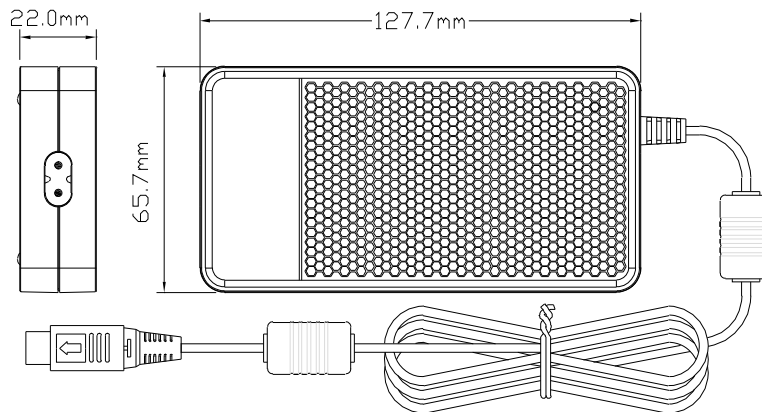
Model Numbering System

BM 90-220S 24 -XX



Output Connector: "00" = Barrel Jack, other options available
Output Voltage: "24" = 24V, "12" = 12V, etc.
of Outputs: "S" = Single
Input Voltage Range: "220" = 90-264Vac
Output Power Rating: "90" = 90W
Product Family: "B" = Blade from factor; "M" Medical

Mechanical Outline



127.7×65.7×22.0(mm), 5.03×2.59×0.87(in)

Input: IEC-320 C8 inlet

Output cables:

UL1185 16AWG 1000±50mm for 12~15V

UL1185 16AWG 1500±50mm for 18~36V

Output connector options:

ITEM	PIN	FUNCTION	NOTES
00	INSIDE	OUTPUT+	BARREL JACK
	OUTSIDE	OUTPUT-	
01	P1 · P2	OUTPUT+	4 PINS
	P3 · P4	OUTPUT-	
XX			CUSTOMIZED OPTION

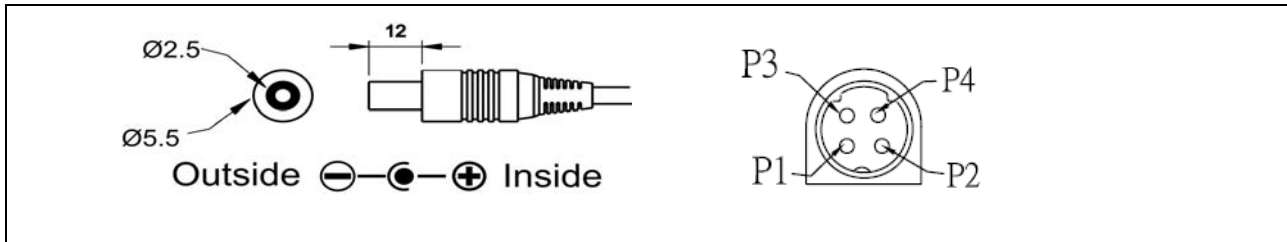


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Notes:

- Specifications subject to change without notice.
- All dimensions in mm(inches), tolerance is $\pm 0.5\text{mm}(\pm 0.02\text{'})$.
- Warranty: 2 years.
- AC input power cord sold separately.
- Specifications are for convection rating at factory settings at 230Vac input, 25°C unless otherwise stated.

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