



EN60601-1-1-11 ANSI/AAMI ES60601-1-1-11 IEC60601-1-1-11



■ Features

- 2 pole AC inlet IEC320-C8, Class II power unit
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1-1-11 and IEC/EN60601-1-1-11
- Extremely low leakage current
- No load power consumption <0.15W
- Energy efficiency level VI and meet CoC Version 5
- -30~+70°C wide range working temperature
- Protections: Short circuit / Overload / Over voltage / Over temperature
- LED indicator for power on
- Lifetime > 90 K hours
- Various DC plug quick adapter accessory available
(Plug kit sold separately, please refer to : http://www.meanwell.com/upload/pdf/DC_plug.pdf)
- 3 years warranty

■ Applications

- Mobile clinical workstation
- Oral irrigator
- Portable hemodialysis machine
- Breath Machine
- Medical computer monitor

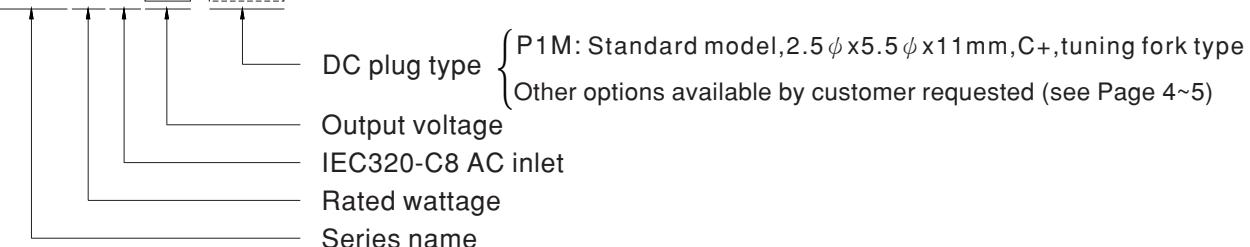
■ Description

GSM90B is a highly reliable, 90W desktop style single-output green medical adaptor series. This product is equipped with a 2-pin (no FG) standard IEC320-C8 power plug, adopting the input range from 80VAC to 264VAC. The entire series supplies different output voltages between 12VDC and 48VDC that can satisfy the demands for various kinds of medical electrical devices. The circuitry design meets the international medical standards (2*MOPP), having an ultra low leakage current (<100 μ A), fitting the medical devices in direct electrical contact with the patients.

With the efficiency up to 91% and the extremely low no-load power consumption below 0.15W, GSM90B is compliant with USA EISA 2007/DoE, Canada NRCan, Australia and New Zealand MEPS, EU ErP, and meet Code of Conduct (CoC) Version 5. The supreme feature allows the adaptor to save the energy when it is either under the operating mode or the standby mode. The entire series utilizes the 94V-0 flame retardant plastic case, providing the double insulation that effectively prevents electrical shock. GSM90B is approved with the international medical safety certificates.

■ Model Encoding

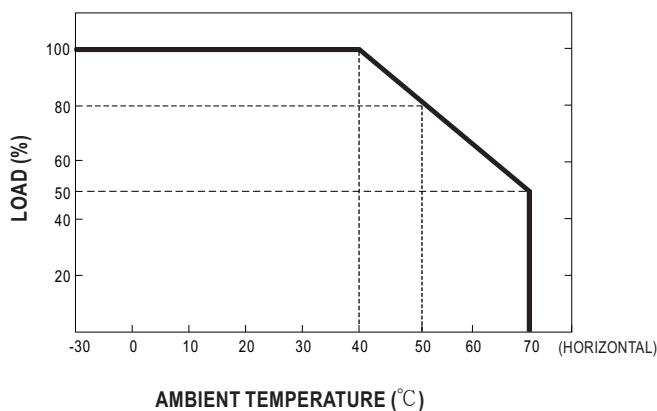
GSM90 B 12 - P1M



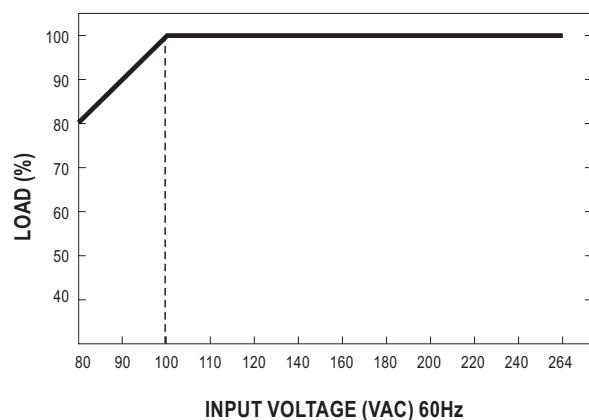
SPECIFICATION

ORDER NO.	GSM90B12-P1M	GSM90B15-P1M	GSM90B19-P1M	GSM90B24-P1M	GSM90B48-P1M		
OUTPUT	SAFETY MODEL NO.	GSM90B12	GSM90B15	GSM90B19	GSM90B24		
	DC VOLTAGE Note.2	12V	15V	19V	24V		
	RATED CURRENT	6.67A	6A	4.74A	3.75A		
	CURRENT RANGE	0 ~ 6.67A	0 ~ 6A	0 ~ 4.74A	0 ~ 3.75A		
	RATED POWER (max.)	80W	90W	90W	90W		
	RIPLPE & NOISE (max.) Note.3	120mVp-p	120mVp-p	120mVp-p	180mVp-p		
	VOLTAGE TOLERANCE Note.4	±5.0%	±5.0%	±4.0%	±3.0%		
	LINE REGULATION Note.5	±1.0%	±1.0%	±1.0%	±1.0%		
	LOAD REGULATION	±5.0%	±5.0%	±4.0%	±3.0%		
INPUT	SETUP, RISE TIME Note.6	1000ms, 50ms / 230VAC	1500ms, 50ms / 115VAC	at full load			
	HOLD UP TIME (Typ.)	30ms / 230VAC	20ms / 115VAC	at full load			
PROTECTION	VOLTAGE RANGE Note.7	80 ~ 264VAC	113 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF>0.91 / 230VAC	PF>0.95 / 115VAC	at full load			
	EFFICIENCY (Typ.)	88%	89%	89%	90%		
	AC CURRENT (Typ.)	1.3A / 115VAC	0.6A / 230VAC				
	INRUSH CURRENT (Typ.)	Cold start 30A / 115VAC	60A / 230VAC				
ENVIRONMENT	LEAKAGE CURRENT(max.)	Touch current < 100µA/264VAC					
	OVERLOAD	110 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	105 ~ 135% rated output voltage Protection type : Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover					
SAFETY & EMC (Note.9)	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")					
	WORKING HUMIDITY	20% ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing					
	TEMP. COEFFICIENT	±0.03% / °C (0 ~ 40°C)					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes					
SAFETY & EMC (Note.9)	OPERATING ALTITUDE Note.8	3000 meters					
	SAFETY STANDARDS	IEC60601-1/IEC60601-1-11, EN60601-1/ EN60601-1-11, ANSI/AAMI ES60601-1 / ES60601-1-11(3.1 version), CAN/CSA-C22.2 No. 60601-1:14 - Edition 3, EAC TP TC 004 approved					
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP					
	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC					
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH					
	EMC EMISSION	Parameter	Standard	Test Level / Note			
		Conducted emission	EN55011 (CISPR11), FCC PART 15 / CISPR22, CAN ICES-3(B)/NMB-3(B)	Class B			
		Radiated emission	EN55011 (CISPR11), FCC PART 15 / CISPR22, CAN ICES-3(B)/NMB-3(B)	Class B			
		Harmonic current	EN61000-3-2	Class A			
	EMC IMMUNITY	Voltage flicker	EN61000-3-3	-----			
		EN60601-1-2, EN61204-3					
		Parameter	Standard	Test Level / Note			
		ESD	EN61000-4-2	Level 4, 15KV air ; Level 4, 8KV contact			
		RF field susceptibility	EN61000-4-3	Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)			
		EFT bursts	EN61000-4-4	Level 3, 2KV			
		Surge susceptibility	EN61000-4-5	Level 3, 1KV/Line-Line			
		Conducted susceptibility	EN61000-4-6	Level 3, 10V			
		Magnetic field immunity	EN61000-4-8	Level 4, 30A/m			
OTHERS	Voltage dip, interruption	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods					
	MTBF	405.6K hrs min. MIL-HDBK-217F(25°C)					
	DIMENSION	145*60*32mm (L*W*H)					
CONNECTOR	PACKING	0.45Kg; 30pcs/14.5Kg/1CUFT					
	PLUG	See page 4~5 ; Other type available by customer requested					
	CABLE	See page 4~5 ; Other type available by customer requested					
NOTE	1.	All parameters are specified at 230VAC input, rated load, 25°C 70% RH ambient.					
	2.	DC voltage: The output voltage set at point measure by plug terminal & 50% load.					
	3.	Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 47µf capacitor.					
	4.	Tolerance: includes set up tolerance, line regulation, load regulation.					
	5.	Line regulation is measured from low line to high line at rated load.					
	6.	Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.					
	7.	Derating may be needed under low input voltage. Please check the derating curve for more details.					
	8.	The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).					
	9.	The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)					

■ Derating Curve

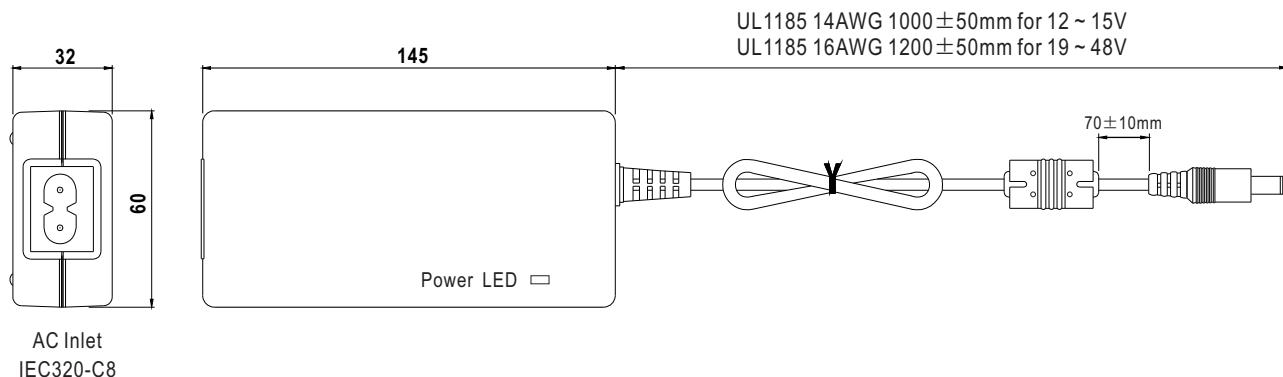


■ Static Characteristics



■ Mechanical Specification

Case No. GS90A Unit:mm



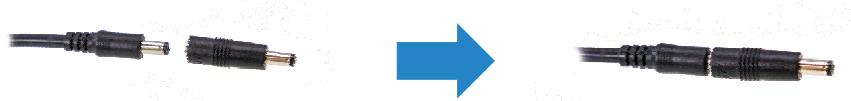
■ DC output plug

◎ Standard plug: P1M

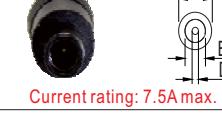
P1M	Pin Assignment
 	 Outside Inside

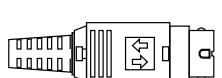
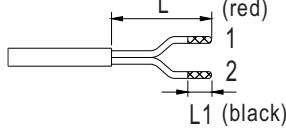
- ◎ Plug changeable with quick adapter (sold separately)
(Changeable DC plug selection guide : http://www.meanwell.com/upload/pdf/DC_plug.pdf)

For example :



- ◎ Optional DC plug:

Tuning Fork Style	Type No.	A	B	C	Quick Adapter Accessory
		OD	ID	L	
 Current rating: 7.5A max.	P1I	5.5	2.1	9.5	Available
	P1L	5.5	2.5	9.5	
	P1M	5.5	2.5	11.0	
	P1IR	5.5	2.1	9.5	
	P1JR	5.5	2.1	11.0	
	P1LR	5.5	2.5	9.5	
	P1MR	5.5	2.5	11.0	
 Current rating: 7.5A max.	Type No.	A	B	C	None
		OD	ID	L	
	P2I	5.5	2.1	9.5	
	P2J	5.5	2.1	11.0	
	P2L	5.5	2.5	9.5	
	P2M	5.5	2.5	11.0	
	P2IR	5.5	2.1	9.5	
	P2JR	5.5	2.1	11.0	
 Current rating: 7.5A max.	Type No.	A	B	C	None
		OD	ID	L	
	P2S(S761K)	5.53	2.03	12.06	
	P2K(761K)	5.53	2.54	12.06	
	P2C(S760K)	5.53	2.03	9.52	
 Current rating: 5A max.	Type No.	A	B	C	Available
		OD	ID	L	
	P3A	2.35	0.7	11.0	
	P3B	4.0	1.7	11.0	
 Current rating: 7.5A max.	Type No.	A	B	C	None
		OD	ID	L	
	P4A	5.5	3.4	11.0	
	P4B	6.5	4.4	11.0	
	P4C	7.4	5.1	11.0	

Min. DIN 3 Pin with Lock (male)	Type No.	Pin Assignment		Quick Adapter Accessory
		PIN No.	Output	
  1 2 3 Current rating: 7.5A max.	R6B	1	+Vo	Available
		2	-Vo	
		3	+Vo	
Min. DIN 4 Pin with Lock (male)	Type No.	Pin Assignment		Available
  2 3 1 4 Current rating: 7.5A max.	R7B	PIN No.	Output	
		1	+Vo	
		2	-Vo	
		3	-Vo	
Min. DIN 4 Pin with Lock (female)	Type No.	Pin Assignment		None
  2 3 1 4 Current rating: 7.5A max.	R7BF	PIN No.	Output	
		1	+Vo	
		2	-Vo	
		3	-Vo	
DIN 5 Pin (male)	Type No.	Pin Assignment		Available
  1 2 3 4 5 Current rating: 7.5A max.	R1B	PIN No.	Output	
		1	-Vo	
		2	-Vo	
		3	+Vo	
		4	-Vo	
Stripped and tinned leads	Type No.	Pin Assignment		None
  Length of Land L1 by request (MW's standard length, L: <u>25</u> mm, L1: <u>5</u> mm)	by customer	PIN No.	Output	
		1	+Vo	
		2	-Vo	

■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>