



User's Manual



BS EN/EN60601-1 ANSI/AAMI ES60601-1

IEC60601-1

TPTC004



IEC60601-1

TPTC004



■ Features

- 3 pole AC inlet IEC320-C14, Class I power unit
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Extremely low leakage current
- No load power consumption<0.15W
- Energy efficiency level VI and meet CoC Version 5 (Except 5~9V for Level V)
- -30~+70°C wide range working temperature
- Protections: Short circuit / Overload / Over voltage/ Over temperature
- LED indicator for power on
- Lifetime > 105 K hours
- Various DC plug quick adapter accessory available
(Plug kit sold separately, please refer to : https://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

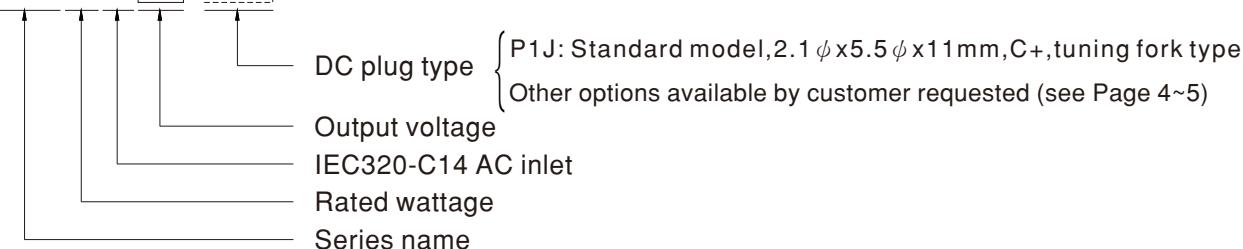
■ Description

GSM60A is a highly reliable, 60W desktop style single-output green medical adaptor series. This product is a class I power unit(with FG),equipped with a standard IEC320-C14 AC inlet and adopting the input range from 80VAC to 264VAC. The entire series supplies different models with output voltages between 5VDC and 48VDC that can satisfy the demands for various types 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, GSM60A 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. GSM60A is certified for the international medical safety regulations.

■ Model Encoding

GSM60 A 05 - P1J



SPECIFICATION

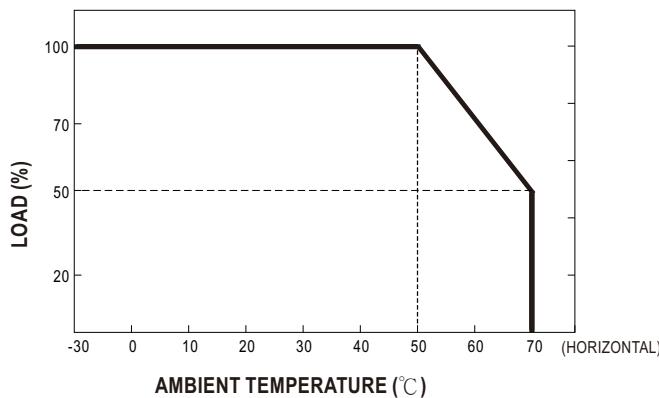
ORDER NO.	GSM60A05-P1J	GSM60A07-P1J	GSM60A09-P1J	GSM60A12-P1J	GSM60A15-P1J	GSM60A18-P1J	GSM60A24-P1J	GSM60A48-P1J																
OUTPUT	SAFETY MODEL NO.	GSM60A05	GSM60A07	GSM60A09	GSM60A12	GSM60A15	GSM60A18	GSM60A24	GSM60A48															
	DC VOLTAGE Note.2	5V	7.5V	9V	12V	15V	18V	24V	48V															
	RATED CURRENT	6A	6A	6A	5A	4A	3.33A	2.5A	1.25A															
	CURRENT RANGE	0.1 ~ 6A	0.1 ~ 6A	0.1 ~ 6A	0.1 ~ 5A	0.1 ~ 4A	0.1 ~ 3.33A	0.1 ~ 2.5A	0.1 ~ 1.25A															
	RATED POWER (max.)	30W	45W	54W	60W	60W	60W	60W	60W															
	RIPLPE & NOISE (max.) Note.3	80mVp-p	80mVp-p	100mVp-p	100mVp-p	100mVp-p	120mVp-p	150mVp-p	240mVp-p															
	VOLTAGE TOLERANCE Note.4	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±3.0%	±2.5%															
	LINE REGULATION Note.5	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%															
	LOAD REGULATION	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±3.0%	±2.5%															
	SETUP, RISE TIME Note.6	1000ms, 30ms / 230VAC	1500ms, 30ms / 115VAC	at full load																				
	HOLD UP TIME (Typ.)	50ms / 230VAC	18ms / 115VAC	at full load																				
INPUT	VOLTAGE RANGE Note.7	80 ~ 264VAC																						
	FREQUENCY RANGE	47 ~ 63Hz																						
	EFFICIENCY (Typ.)	81.5%	86%	87.5%	88%	88.5%	89%	90.5%	91.5%															
	AC CURRENT (Typ.)	1.4A / 115VAC	1A / 230VAC																					
	INRUSH CURRENT (Typ.)	Cold start 30A/115VAC 60A / 230VAC																						
PROTECTION	OVERLOAD	105 ~ 160% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed																						
	OVER VOLTAGE	5.2 ~ 7.0V	7.8 ~ 10.2V	9.4 ~ 12.2V	12.6 ~ 16.2V	15.7 ~ 20.3V	18.9 ~ 24.3V	25.2 ~ 32.4V	50.4 ~ 64.8V															
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover																						
	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")																						
ENVIRONMENT	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																						
	OPERATING ALTITUDE Note.8	3000 meters																						
SAFETY & EMC (Note 9)	SAFETY STANDARDS	IEC60601-1, TUV BS EN/EN60601-1, ANSI/AAMI ES60601-1(3.1 version), CAN/CSA-C22.2 No. 60601-1:14 - Edition 3, EAC TP TC 004 approved																						
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP, Primary-Earth:1xMOPP																						
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:SHORT																						
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG:100M Ohms / 500VDC / 25°C / 70% RH																						
	EMC EMISSION	Parameter	Standard			Test Level / Note																		
		Conducted emission	BS EN/EN55011 (CISPR11), FCC PART 15 / CISPR22, CAN ICES-3(B)/NMB-3(B)			Class B																		
		Radiated emission	BS EN/EN55011 (CISPR11), FCC PART 15 / CISPR22, CAN ICES-3(B)/NMB-3(B)			Class B																		
		Harmonic current	BS EN/EN61000-3-2			Class A																		
		Voltage flicker	BS EN/EN61000-3-3			-----																		
	EMC IMMUNITY	BS EN/EN60601-1-2, BS EN/EN61204-3																						
		Parameter	Standard			Test Level / Note																		
		ESD	BS EN/EN61000-4-2			Level 4, 15KV air ; Level 4, 8KV contact																		
		RF field susceptibility	BS EN/EN61000-4-3			Level 3, 10V/m (80MHz~2.7GHz) Table 9, 9~28V/m (385MHz~5.78GHz)																		
		EFT bursts	BS EN/EN61000-4-4			Level 3, 2KV																		
		Surge susceptibility	BS EN/EN61000-4-5			Level 3, 1KV/Line-Line , 2KV/Line-FG																		
		Conducted susceptibility	BS EN/EN61000-4-6			Level 3, 10V																		
		Magnetic field immunity	BS EN/EN61000-4-8			Level 4, 30A/m																		
		Voltage dip, interruption	BS EN/EN61000-4-11			100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods																		
OTHERS	MTBF	720K hrs min. MIL-HDBK-217F(25°C)																						
	DIMENSION	125*50*31.5mm (L*W*H)																						
	PACKING	0.32Kg; 40pcs/ 13.8Kg/1.04CUFT																						
CONNECTOR	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 voltages. 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-confirmed 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)																							
	※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx																							



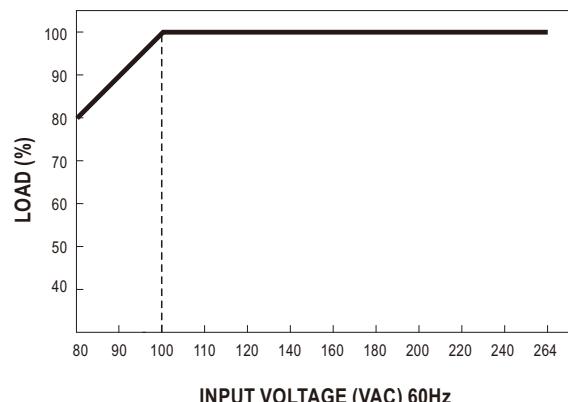
60W AC-DC Reliable Green Medical Adaptor

GSM60A series

■ Derating Curve

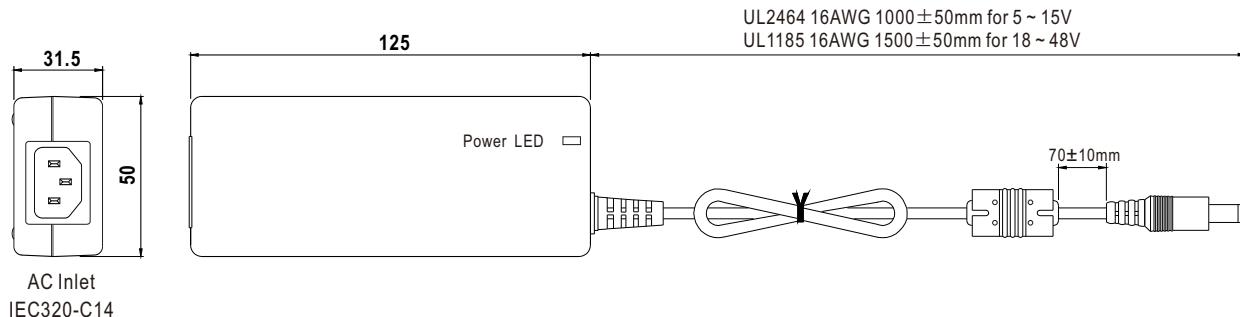


■ Static Characteristics



■ Mechanical Specification

Case No. GS60A Unit:mm



■ DC output plug

◎ Standard plug: P1J

P1J	Pin Assignment
 5.5 2.1 11±0.5mm	

◎ DC plug changeable through:

(1) Customization of the standard part with an optional DC plug according to the table (MOQ applicable)

(2) Quick adapter accessory (sold separately without MOQ)

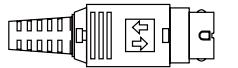
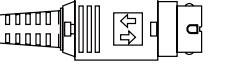
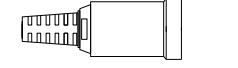
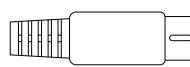
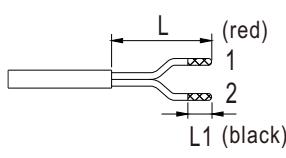
Please refer to below table and online selection guide : https://www.meanwell.com/upload/pdf/DC_plug.pdf

Example quick adapter accessory:



◎ Optional DC plug: (Available in customized cable or quick adapter)

Tuning Fork Style	Type No.	A	B	C	Quick Adapter Accessory
		OD	ID	L	
 	P1I	5.5	2.1	9.5	Available (Current rating: 7.5A max.)
	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	
 	Type No.	A	B	C	None
	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	
	P2LR	5.5	2.5	9.5	
	P2MR	5.5	2.5	11.0	
	Type No.	A	B	C	
 	OD	ID	L	None	
	P2S(S761K)	5.53	2.03	12.06	
	P2K(761K)	5.53	2.54	12.06	
	P2C(S760K)	5.53	2.03	9.52	
	P2D(760K)	5.53	2.54	9.52	
 	Type No.	A	B	C	Available (Current rating: 5A max.)
	OD	ID	L		
	P3A	2.35	0.7	11.0	
	P3B	4.0	1.7	11.0	
	P3C	4.75	1.7	11.0	
 	Type No.	A	B	C	Available (Current rating: 7.5A max.)
	OD	ID	L	Center Pin	
	P4A	5.5	3.4	11.0	1.0
	P4B	6.5	4.4	11.0	1.4
	P4C	7.4	5.1	11.0	0.6

Min. DIN 3 Pin with Lock (male)	Type No.	Pin Assignment		Quick Adapter Accessory
		PIN No.	Output	
	R6B	1	+Vo	Available (Current rating: 7.5A max.)
 1 2 3		2	-Vo	
		3	+Vo	
Min. DIN 4 Pin with Lock (male)	Type No.	Pin Assignment		Available (Current rating: 7.5A max.)
		PIN No.	Output	
	R7B	1	+Vo	
 2 3 1 4		2	-Vo	
		3	-Vo	
		4	+Vo	
Min. DIN 4 Pin with Lock (female)	Type No.	Pin Assignment		None
		PIN No.	Output	
	R7BF	1	+Vo	
 2 3 14		2	-Vo	
		3	-Vo	
		4	+Vo	
DIN 5 Pin (male)	Type No.	Pin Assignment		Available (Current rating: 7.5A max.)
		PIN No.	Output	
	R1B	1	-Vo	
 1 4 2 5 3		2	-Vo	
		3	+Vo	
		4	-Vo	
		5	+Vo	
Stripped and tinned leads	Type No.	Pin Assignment		None
		PIN No.	Output	
	by customer	1	+Vo	
 L (red) 1 L1 (black) 2		2	-Vo	
Length of Land L1 by request (MW's standard length, L: <u>25</u> mm, L1: <u>5</u> mm)				

■ Installation Manual

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