BRAVO
ELECTRO COMPONENTS

60W AC-DC Reliable Green Medical Adaptor

GSM60A series

(Ⅴ for 5~9V) EN60601-1 ANSI/AAMI ES60601-1 IEC60601-1

Features

- 3 pole AC inlet IEC320-C14, Class Ⅰ power unit
- Medical safety approved (2 x MOPP) accroding to ANSI/AAMI ES60601-1 and IEC/EN60601-1
- Extremely low leakage current
- No load power consumption<0.1W
- Energy efficiency level VI and meet CoC Version 5 (Except 5~9V for Level V)
- -30~+70℃ wide range working temperature
- Protections: Short circuit / Overload / Over voltage/ Over temperature
- LED indicator for power on
- Lifetime > 105 K hours
- 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 (<100μA), 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. 1W, 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

- DC plug type
  - P1J: Standard model,2.1φx5.5φx11mm,C+,tuning fork type
  - Other options available by customer requested (see Page 4~5)
- Output voltage
- IEC320-C14 AC inlet
- Rated wattage
- Series name

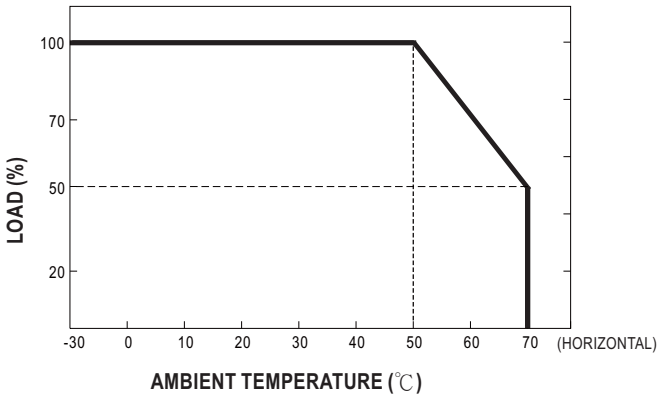
SPECIFICATION

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
	RIPPLE & 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 113 ~ 370VDC							
	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							
	LEAKAGE CURRENT(max.)	Earth leakage current < 100μA/264VAC , Touch current < 100μA/264VAC							
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
		Protection type : Shut down o/p voltage, re-power on to recover							
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover							
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY	20% ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03% / ℃ (0~40℃)							
	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 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℃ / 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					
		Voltage flicker	EN61000-3-3	-----					
	EMC IMMUNITY	EN55024 , 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 , 2KV/Line-FG					
		Conducted susceptibility	EN61000-4-6	Level 3, 10V					
		Magnetic field immunity	EN61000-4-8	Level 4, 30A/m					
		Voltage dip, interruption	EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods					
OTHERS	MTBF	720K hrs min. MIL-HDBK-217F(25℃)							
	DIMENSION	125*50*31.5mm (L*W*H)							
	PACKING	0.32Kg; 40pcs/ 13.8Kg/1.05CUFT							
CONNECTOR	PLUG	See page 4~5 ; Other type available by customer requested							
	CABLE	See page 4~5 ; Other type available by customer requested							

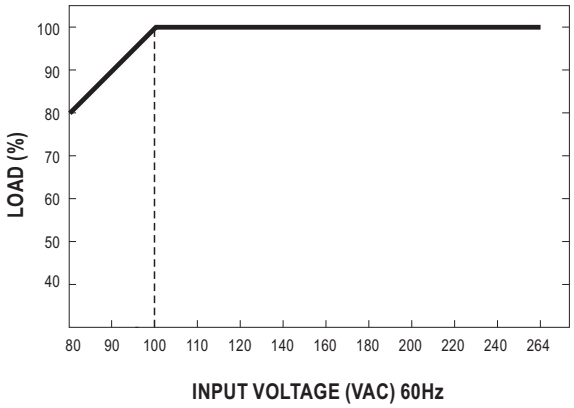
NOTE

1. All parameters are specified at 230VAC input, rated load, 25℃ 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. Pleas check the derating curve for more details.
8. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/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

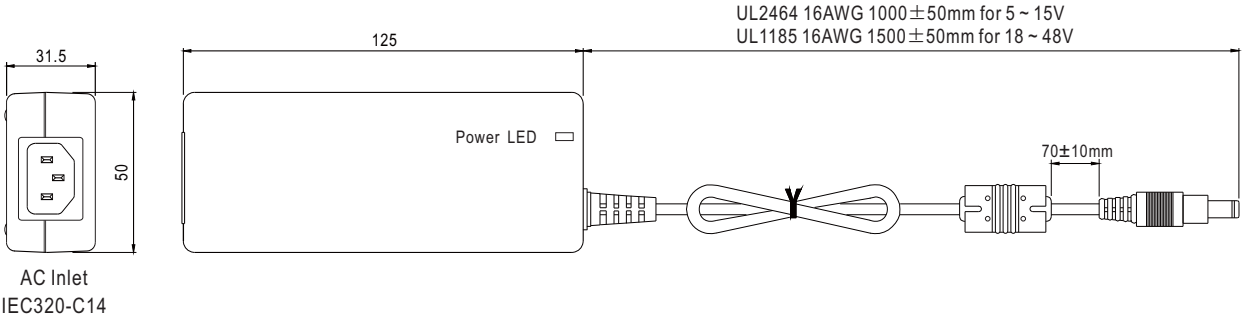


■ Static Characteristics



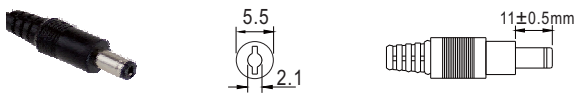
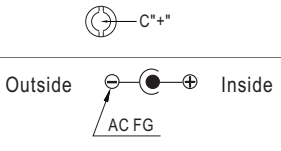
■ Mechanical Specification

Case No. GS60A Unit:mm

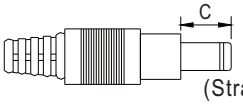
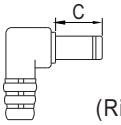
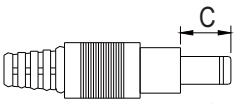
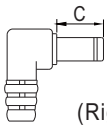
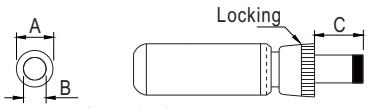


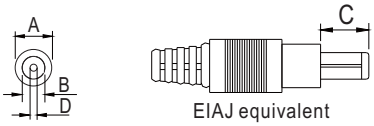
■ DC output plug

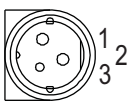
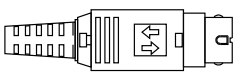
◎ Standard plug: P1J

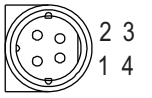
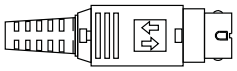
P1J	Pin Assignment
	

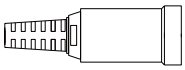
◎ Optional DC plug:

Tuning Fork Style		Type No.	A	B	C
			OD	ID	L
	 (Straight)	P1I	5.5	2.1	9.5
		P1L	5.5	2.5	9.5
		P1M	5.5	2.5	11.0
	 (Right-angled)	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
Barrel Style		**Type No.**	**A**	**B**	**C**
			OD	ID	L
	 (Straight)	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
	 (Right-angled)	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
Lock Style		**Type No.**	**A**	**B**	**C**
			OD	ID	L
	 SWITCHCRAFT original or equivalent	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

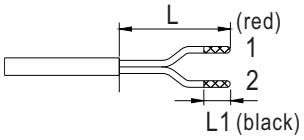
Center Pin Style		Type No.	A	B	C	D
			OD	ID	L	Center Pin
	 EIAJ equivalent	P4A	5.5	3.4	11.0	1.0
		P4B	6.5	4.4	11.0	1.4
		P4C	7.4	5.1	11.0	0.6

Min. DIN 3 Pin with Lock (male)		Type No.	Pin Assignment	
			PIN No.	Output
	  KYCON KPPX-3P equivalent	R6B	1	+Vo
			2	-Vo
			3	+Vo

Min. DIN 4 Pin with Lock (male)	Type No.	Pin Assignment	
		PIN No.	Output
  KYCON KPPX-4P equivalent	R7B	1	+Vo
		2	-Vo
		3	-Vo
		4	+Vo

Min. DIN 4 Pin with Lock (female)	Type No.	Pin Assignment	
		PIN No.	Output
 KYCON KPJX-CM-4S equivalent	R7BF	1	+Vo
		2	-Vo
		3	-Vo
		4	+Vo

DIN 5 Pin (male)	Type No.	Pin Assignment	
		PIN No.	Output
	R1B	1	-Vo
		2	-Vo
		3	+Vo
		4	-Vo
		5	+Vo

Stripped and tinned leads	Type No.	Pin Assignment	
		PIN No.	Output
 Length of Land L1 by request (MW's standard length, L: 25 mm, L1: 5 mm)	by customer	1	+Vo
		2	-Vo

■ Installation Manual

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