



160W AC-DC Reliable Green Medical Adaptor

GSM160A series

User's Manual



Video

Energy Verified
Rendement
Énergétique Vérifié

BS EN/EN60601-1



ANSI/AAMI ES60601-1



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
- -30~+70°C wide range working temperature
- Protections: Short circuit / Overload / Over voltage / Over temperature
- LED indicator for power on
- Lifetime > 85 K hours
- Various DC plug quick adapter accessory available
(Plug kit sold sperately, please refer to : https://www.meanwell.com/upload/pdf/DC_plug.pdf)
- 3 years warranty

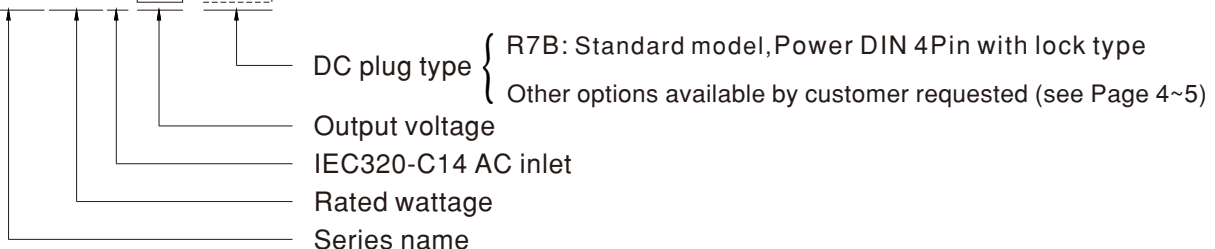
Description

GSM160A is a highly reliable, 160W desktop style single-output green medical adaptor series. This product is equipped with a 3-pin (with FG) standard IEC320-C14 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 (<100μA), fitting the medical devices in direct electrical contact with the patients.

With the efficiency up to 94% and the extremely low no-load power consumption below 0.15W, GSM160A 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. GSM160A is approved with the international medical safety certificates.

Model Encoding

GSM160A 12 - R7B



Applications

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

GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

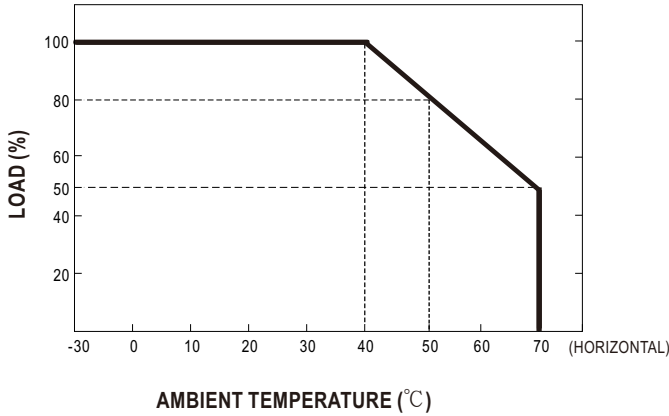


SPECIFICATION

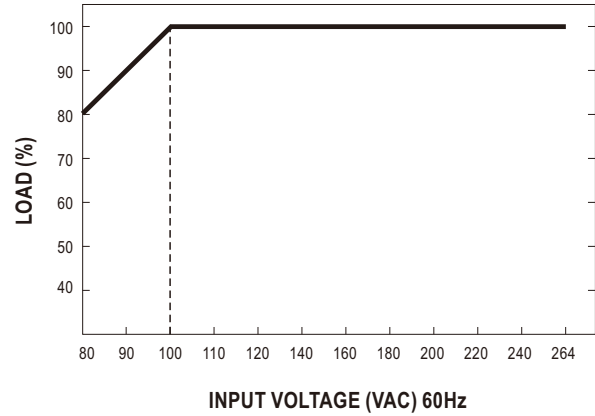
ORDER NO.	GSM160A12-R7B	GSM160A15-R7B	GSM160A20-R7B	GSM160A24-R7B	GSM160A48-R7B	
OUTPUT	SAFETY MODEL NO.	GSM160A12	GSM160A15	GSM160A20	GSM160A24	GSM160A48
	DC VOLTAGE <small>Note.2</small>	12V	15V	20V	24V	48V
	RATED CURRENT	11.5A	9.6A	8A	6.67A	3.34A
	CURRENT RANGE	0 ~ 11.5A	0 ~ 9.6A	0 ~ 8A	0 ~ 6.67A	0 ~ 3.34A
	RATED POWER (max.)	138W	144W	160W	160W	160W
	RIPPLE & NOISE (max.) <small>Note.3</small>	80mVp-p	100mVp-p	100mVp-p	120mVp-p	150mVp-p
	VOLTAGE TOLERANCE <small>Note.4</small>	±5.0%	±5.0%	±4.0%	±3.0%	±3.0%
	LINE REGULATION <small>Note.5</small>	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION	±5.0%	±5.0%	±4.0%	±3.0%	±3.0%
	SETUP, RISE TIME <small>Note.6</small>	2000ms, 50ms / 230VAC 2500ms, 50ms / 115VAC at full load				
HOLD UP TIME (Typ.)	24ms / 230VAC 24ms / 115VAC at full load					
INPUT	VOLTAGE RANGE <small>Note.7</small>	80 ~ 264VAC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR (Typ.)	12V,15V:PF>0.93 / 230VAC		20V,24V,48V:PF>0.94 / 230VAC		PF>0.98 / 115VAC at full load
	EFFICIENCY (Typ.)	90%	91%	92.5%	93%	94%
	AC CURRENT (Typ.)	1.85A / 115VAC 1A / 230VAC				
	INRUSH CURRENT (Typ.)	Cold start 90A / 115VAC 110A / 230VAC				
	LEAKAGE CURRENT(max.)	Earth leakage current < 175 μ A/264VAC , Touch current <90 μ A/264VAC				
PROTECTION	OVERLOAD	105 ~ 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				
ENVIRONMENT	WORKING TEMP.	-30 ~ +70 $^{\circ}$ C (Refer to "Derating Curve")				
	WORKING HUMIDITY	20% ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85 $^{\circ}$ C, 10 ~ 95% RH non-condensing				
	TEMP. COEFFICIENT	±0.03% / $^{\circ}$ C (0~40 $^{\circ}$ C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes				
	OPERATING ALTITUDE <small>Note.8</small>	3000 meters				
SAFETY & EMC <small>(Note 10)</small>	SAFETY STANDARDS	IEC 60601-1:2005+A1+A2, TUV BS EN/ EN 60601-1:2006+A1+A12+A2, ANSII/AAMI ES60601-1:2005+A2, CAN/CSA C22.2 No. 60601-1:2014+A2 EAC TP TC 004 approved				
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP, Primary-Earth:1xMOPP				
	WITHSTAND VOLTAGE <small>Note.9</small>	I/P-O/P:4KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC				
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25 $^{\circ}$ 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	2200.0K hrs min. Telcordia SR-332 (Bellcore) ; 239.4K hrs min. MIL-HDBK-217F (25 $^{\circ}$ C)				
	DIMENSION	175*72*35mm (L*W*H)				
	PACKING	0.66Kg; 20pcs/14.2Kg/0.95CUFT				
CONNECTOR	PLUG	See page 4~5 ; Other type available by customer requested				
	CABLE	See page 4~5 ; Other type available by customer requested				
NOTE	<p>1. All parameters are specified at 230VAC input, rated load, 25$^{\circ}$C 70% RH ambient.</p> <p>2. DC voltage: The output voltage set at point measure by plug terminal & 50% load.</p> <p>3. Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1 μF & 47 μF capacitor.</p> <p>4. Tolerance: includes set up tolerance, line regulation, load regulation.</p> <p>5. Line regulation is measured from low line to high line at rated load.</p> <p>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.</p> <p>7. Derating may be needed under low input voltages. Pleas check the derating curve for more details.</p> <p>8. The ambient temperature derating of 3.5$^{\circ}$C/1000m with fanless models and of 5$^{\circ}$C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>9. Optional for 1.5KVAC with BF rated.</p> <p>10. 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p>					



■ Derating Curve



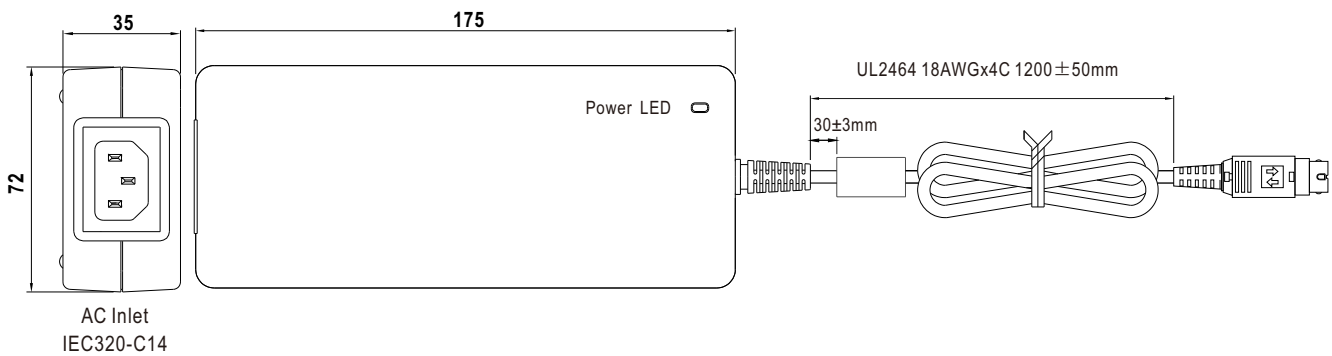
■ Static Characteristics



■ Mechanical Specification


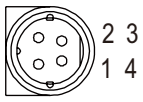
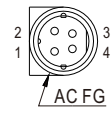
(Unit: mm , tolerance ± 1 mm)

Case No. GS160A



■ DC output plug

⊙ Standard plug: R7B

R7B		Pin Assignment											
			<table border="1"> <thead> <tr> <th>PIN NO.</th> <th>OUTPUT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+Vo</td> </tr> <tr> <td>2</td> <td>-Vo</td> </tr> <tr> <td>3</td> <td>-Vo</td> </tr> <tr> <td>4</td> <td>+Vo</td> </tr> </tbody> </table>	PIN NO.	OUTPUT	1	+Vo	2	-Vo	3	-Vo	4	+Vo
PIN NO.	OUTPUT												
1	+Vo												
2	-Vo												
3	-Vo												
4	+Vo												
	KYCON KPPX-4P equivalent	AC FG	Outer shell connected to AC FG -V not connected to AC FG										



◎ 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

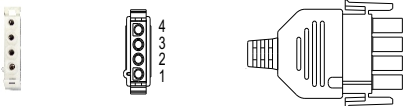
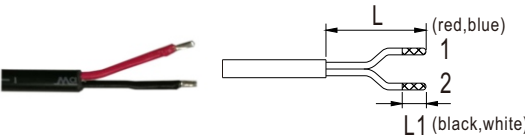
Example quick adapter accessory:



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

Tuning Fork Style	Type No.	A	B	C	Quick Adapter Accessory
		OD	ID	L	
 (Straight)	P1J	5.5	2.1	11.0	Available for 24 ~ 48V (Current rating: 7.5A max.)
	P1M	5.5	2.5	11.0	
Min. DIN 4 Pin with Lock (female)	Type No.	Pin Assignment		None	
 KYCON KPJX-CM-4S equivalent	R7BF	PIN No.	Output		
		1	+Vo		
		2	-Vo		
		3	-Vo		
 DIN 5 Pin (male)	R1B	PIN No.	Output		
		1	-Vo		
		2	-Vo		
		3	+Vo		
 NEUTRIK XLR NC4FX equivalent	MIC4	PIN No.	Output		
		1	+Vo		
		2	+Vo		
		3	-Vo		
 MOLEX 39-01-2060 (4.2mm) equivalent	C6P	Pin Assignment		None	
		PIN No.	Output		
		1	+Vo		
		2	+Vo		
		3	+Vo		
		4	-Vo		
5	-Vo				
 FG not connected to output connector		6	-Vo		



AMP 1-480702-0 (6.35mm) equivalent	Type No.	Pin Assignment		Quick Adapter Accessory
		PIN No.	Output	
 <p>FG not connected to output connector</p>	C4P	1	+Vo	None
		2	+Vo	
		3	-Vo	
		4	-Vo	
Stripped and tinned leads	Type No.	Pin Assignment		
		PIN No.	Output	
 <p>Length of Land L1 by request (MW's standard length, L: <u>25</u> mm, L1: <u>5</u> mm) (NOTE: The wire color is for reference only, please refer to the actual product)</p>	by customer	1	+Vo	None
		2	-Vo	

■ **Installation Manual**

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