



User's Manual



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 (Except 5~9V for Level V)
- -30~+70°C wide range working temperature
- Protections: Short circuit / Overload / Over voltage
- LED indicator for power on
- Lifetime > 90 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](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

GSM40A is a highly reliable, 40W 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 (<90μA), 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, GSM40A 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. GSM40A is certified for the international medical safety regulations.

## Model Encoding

GSM40A 05 - P1J

- DC plug type { P1J: Standard model, 2.1  $\phi$  x 5.5  $\phi$  x 11 mm, 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

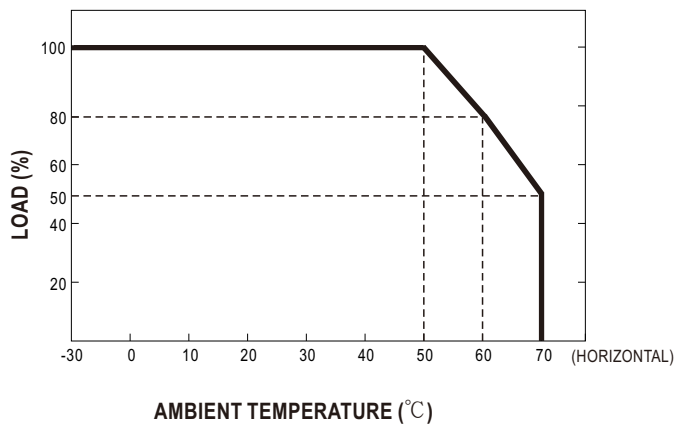
ORDER NO.		GSM40A05-P1J	GSM40A07-P1J	GSM40A09-P1J	GSM40A12-P1J	GSM40A15-P1J	GSM40A18-P1J	GSM40A24-P1J	GSM40A48-P1J
OUTPUT	SAFETY MODEL NO.	GSM40A05	GSM40A07	GSM40A09	GSM40A12	GSM40A15	GSM40A18	GSM40A24	GSM40A48
	DC VOLTAGE <span>Note.2</span>	5V	7.5V	9V	12V	15V	18V	24V	48V
	RATED CURRENT	5A	5.34A	4.45A	3.34A	2.67A	2.22A	1.67A	0.84A
	CURRENT RANGE	0.1 ~ 5A	0.1 ~ 5.34A	0.1 ~ 4.45A	0.1 ~ 3.34A	0.1 ~ 2.67A	0.1 ~ 2.22A	0.1 ~ 1.67A	0.1 ~ 0.84A
	RATED POWER (max.)	25W	40W	40W	40W	40W	40W	40W	40W
	RIPPLE & NOISE (max.) <span>Note.3</span>	80mVp-p	80mVp-p	100mVp-p	100mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p
	VOLTAGE TOLERANCE <span>Note.4</span>	±5.0%	±5.0%	±5.0%	±3.0%	±3.0%	±3.0%	±2.5%	±2.5%
	LINE REGULATION <span>Note.5</span>	±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%	±2.5%	±2.5%
	SETUP, RISE TIME <span>Note.6</span>	1000ms, 30ms / 230VAC    1500ms, 30ms / 115VAC at full load							
	HOLD UP TIME (Typ.)	50ms / 230VAC    24ms / 115VAC at full load							
INPUT	VOLTAGE RANGE <span>Note.7</span>	80 ~ 264VAC							
	FREQUENCY RANGE	47 ~ 63Hz							
	EFFICIENCY (Typ.)	81%	85.5%	86%	88%	88.5%	89.5%	90%	91%
	AC CURRENT (Typ.)	1A / 115VAC    0.5A / 230VAC							
	INRUSH CURRENT (Typ.)	Cold start   30A/115VAC    60A / 230VAC							
	LEAKAGE CURRENT(max.)	Earth leakage current < 90 $\mu$ A/264VAC , Touch current < 90 $\mu$ A/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							
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 (0~50 $^{\circ}$ C)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes							
	OPERATING ALTITUDE <span>Note.8</span>	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 $^{\circ}$ 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	740K hrs min. MIL-HDBK-217F(25 $^{\circ}$ C )							
	DIMENSION	125*50*31.5mm (L*W*H)							
	PACKING	0.29Kg; 40pcs/ 12.6 Kg/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 $^{\circ}$ 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 0.1 $\mu$ f & 47 $\mu$ f 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 $^{\circ}$ C/1000m with fanless models and of 5 $^{\circ}$ 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 <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) ※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>								



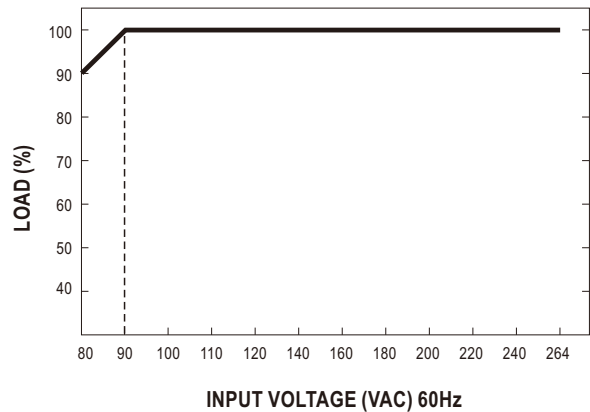
40W AC-DC Reliable Green Medical Adaptor

GSM40A series

Derating Curve

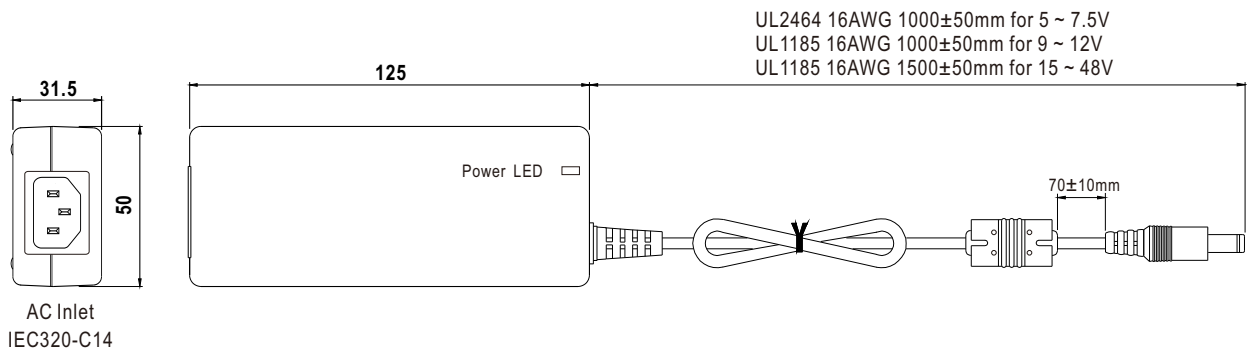


Static Characteristics




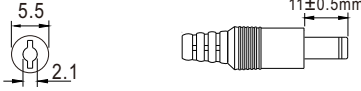



Mechanical Specification

Case No. GS60A Unit:mm



DC output plug

Standard plug: P1J

P1J	Pin Assignment
 	 Outside   Inside -V connected to AC FG(standard) -V not connected to AC FG(optional)

◎ DC plug changeable through:



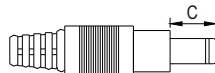
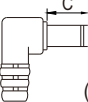


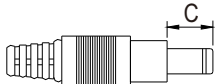
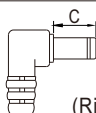


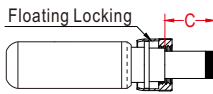


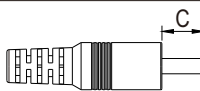


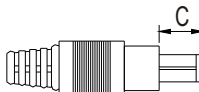
- (1) Customization of the standard part with an optional DC plug according to the table (MOQ applicable)
- (2) Quick adapter accessory (sold separately without MOQ)


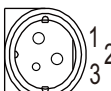
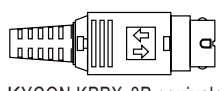

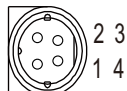
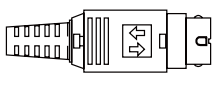


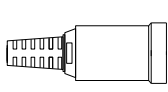




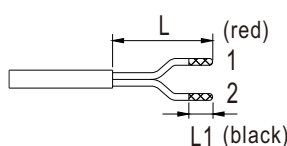
Please refer to below table and online selection guide : [https://www.meanwell.com/upload/pdf/DC\\_plug.pdf](https://www.meanwell.com/upload/pdf/DC_plug.pdf)

Example quick adapter accessory:



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

Tuning Fork Style		Type No.	A OD	B ID	C L	Quick Adapter Accessory	
 	 (Straight)	P1I	5.5	2.1	9.5	Available (Current rating: 7.5A max.)	
		P1L	5.5	2.5	9.5		
	 (Right-angled)	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		
Barrel Style		Type No.	A OD	B ID	C L	None	
 	 (Straight)	P2I	5.5	2.1	9.5		
		P2J	5.5	2.1	11.0		
	 (Right-angled)	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		
Lock Style		Type No.	A OD	B ID	C L	None	
 	 Floating Locking 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		
Min. Pin Style		Type No.	A OD	B ID	C L	Available (Current rating: 5A max.)	
 	 EIAJ equivalent	P3A	2.35	0.7	11.0		
		P3B	4.0	1.7	11.0		
		P3C	4.75	1.7	11.0		
Center Pin Style		Type No.	A OD	B ID	C L	D Center Pin	Available (Current rating: 7.5A max.)
 	 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		Quick Adapter Accessory
		PIN No.	Output	
   KYCON KPPX-3P equivalent	R6B	1	+Vo	Available (Current rating: 7.5A max.)
		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	Available (Current rating: 7.5A max.)
		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	None
		2	-Vo	
		3	-Vo	
		4	+Vo	
DIN 5 Pin (male)	Type No.	Pin Assignment		
		PIN No.	Output	
  	R1B	1	-Vo	Available (Current rating: 7.5A max.)
		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: <u>25</u> mm, L1: <u>5</u> mm)	by customer	1	+Vo	None
		2	-Vo	

## Installation Manual

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