



(Cable connection)



(USB connection)



### ■ Features

- Interchangeable AC plugs (plug kit sold sperately)
- Medical safety approved (2 x MOPP) accrodging to ANSI/AAMI ES60601-1/ES60601-1-11,EN60601-1/EN60601-1-11
- Extremely low leakage current
- No load power consumption< 0.075W(<0.1W for 18V/48V)
- **Energy efficiency Level VI**
- -20~+70°C wide range working temperature
- Class II power (no earth pin)
- Protections: Short circuit / Overload / Over voltage
- Fully enclosed plastic case
- 3 years warranty

### ■ Applications

- Blood glucose meter
- Blood pressure meter
- Nebulizer
- Inhaler
- Portable medical device
- Sleep apnea devices

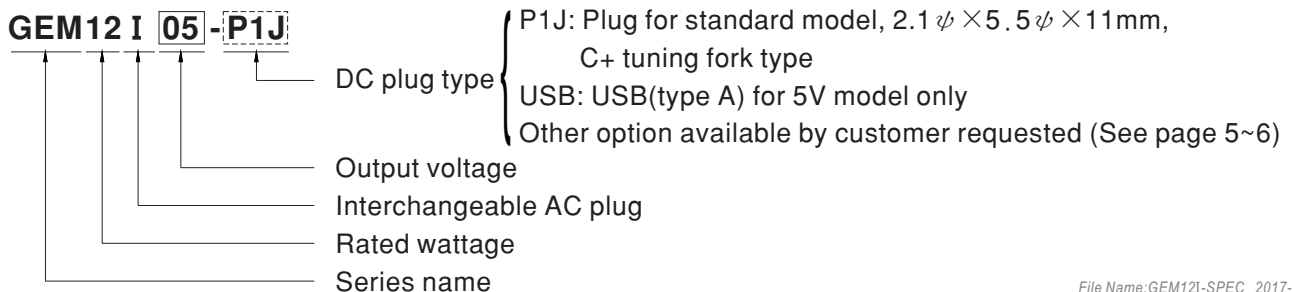
### ■ Description

GEM12I is a highly reliable, 12W wall-mounted style single-output green medical adaptor series, which is compact and convenient for carry. This product is equipped with an interchangeable AC plug (4 types, including European type, USA type, U.K. type and Australian type) that makes it very suitable for businessmen to use in the major countries around the globe. GEM12I is a class II power unit (no FG), accepting the input range from 80VAC to 264VAC that it 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 working efficiency up to 87% and the extremely low no-load power consumption below 0.075W, GEM12I is compliant with the latest USA energy regulation EISA 2007/DoE(Level VI) and EU ErP. The supreme feature allows the adaptor to save the energy when it is under either the operating mode or the standby mode. The entire series is approved for international safety regulations; moreover, it adopts the 94V-0 flame retardant plastic case that it can effectively prevent users from electric hazard.

### ■ Model Encoding

**GEM12 I 05 -P1J**



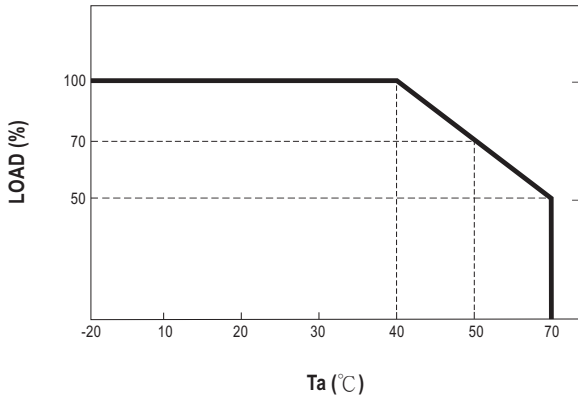
## Interchangeable AC plug Specifically for GEM12I/18I/30I/40I

TYPE					
	Australian type	U.K type	European type	US type	Mix four type
ORDER NO.	AC plug-AU2	AC plug-UK2	AC plug-EU2	AC plug-US2	AC plug-MIX2

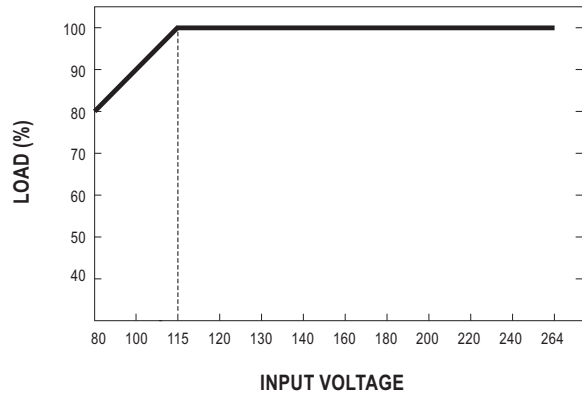
## SPECIFICATION

ORDER NO.	GEM12I05- <input type="checkbox"/> =P1J <input type="checkbox"/> USB	GEM12I07-P1J	GEM12I09-P1J	GEM12I12-P1J	GEM12I15-P1J	GEM12I18-P1J	GEM12I24-P1J	GEM12I48-P1J		
OUTPUT	<b>SAFETY MODEL NO.</b>	GEM12I05	GEM12I07	GEM12I09	GEM12I12	GEM12I15	GEM12I18	GEM12I24	GEM12I48	
	<b>DC VOLTAGE</b> <small>Note.2</small>	5V	7.5V	9V	12V	15V	18V	24V	48V	
	<b>RATED CURRENT</b>	2.4A	1.6A	1.33A	1A	0.8A	0.66A	0.5A	0.25A	
	<b>CURRENT RANGE</b>	0 ~ 2.4A	0 ~ 1.6A	0 ~ 1.33A	0 ~ 1A	0 ~ 0.8A	0 ~ 0.66A	0 ~ 0.5A	0 ~ 0.25A	
	<b>RATED POWER (max.)</b>	12W	12W	12W	12W	12W	12W	12W	12W	
	<b>RIPPLE &amp; NOISE (max.)</b> <small>Note.3</small>	60mVp-p	60mVp-p	60mVp-p	80mVp-p	80mVp-p	80mVp-p	80mVp-p	100mVp-p	
	<b>VOLTAGE TOLERANCE</b> <small>Note.4</small>	±5.0%	±5.0%	±4.0%	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%	
	<b>LINE REGULATION</b> <small>Note.5</small>	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
<b>LOAD REGULATION</b> <small>Note.6</small>	±5.0%	±5.0%	±4.0%	±3.0%	±3.0%	±3.0%	±2.0%	±2.0%		
<b>SETUP, RISE, HOLD UP TIME</b>	500ms, 30ms, 16ms/230VAC      500ms, 30ms, 16ms/115VAC at full load									
INPUT	<b>VOLTAGE RANGE</b> <small>Note.7</small>	80 ~ 264VAC      113 ~ 370VDC								
	<b>FREQUENCY RANGE</b>	47 ~ 63Hz								
	<b>EFFICIENCY (Typ.)</b>	80%	82%	82%	82.5%	84%	85%	85%	87%	
	<b>AC CURRENT</b>	0.4A / 115VAC      0.2A / 230VAC								
	<b>INRUSH CURRENT (max.)</b>	Cold start 30A / 115VAC      60A / 230VAC								
<b>LEAKAGE CURRENT(max.)</b>	Touch current < 100µA/264VAC									
PROTECTION	<b>OVERLOAD</b>	110 ~ 200% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	<b>OVER VOLTAGE</b>	110 ~ 140% rated output voltage Protection type : Clamp by zener diode, output short								
ENVIRONMENT	<b>WORKING TEMP.</b>	-20 ~ +70°C (Refer to "Derating Curve")								
	<b>WORKING HUMIDITY</b>	20% ~ 90% RH non-condensing								
	<b>STORAGE TEMP., HUMIDITY</b>	-20 ~ +85°C, 10 ~ 95% RH non-condensing								
	<b>TEMP. COEFFICIENT</b>	±0.03% / °C (0 ~ 40°C)								
	<b>VIBRATION</b>	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes								
SAFETY & EMC <small>(Note. 8)</small>	<b>SAFETY STANDARDS</b>	TUV EN60601-1/EN60601-1-11, ANSI/ AAMI ES60601-1/ES60601-1-11(3.1 version), CAN/CSA-C22 3 <sup>rd</sup> edition approved GEM12I05-USB without EN60601-1-11, ANSI/ AAMI ES60601-1-11								
	<b>ISOLATION LEVEL</b>	Primary - Secondary: 2 x MOPP								
	<b>WITHSTAND VOLTAGE</b>	I/P-O/P:5656VDC								
	<b>ISOLATION RESISTANCE</b>	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH								
	<b>EMC EMISSION</b>	<b>Parameter</b>	<b>Standard</b>				<b>Test Level / Note</b>			
		Conducted emission	EN55011 (CISPR11), FCC PART 15 / CISPR22				Class B			
		Radiated emission	EN55011 (CISPR11), FCC PART 15 / CISPR22				Class B			
		Harmonic current	EN61000-3-2				Class A			
	Voltage flicker	EN61000-3-3				-----				
	<b>EMC IMMUNITY</b>	EN55024, EN60601-1-2, EN61204-3								
<b>Parameter</b>		<b>Standard</b>				<b>Test Level / Note</b>				
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 2, 3V				
Magnetic field immunity		EN61000-4-8				Level 4, 30A/m				
Voltage dip, interruption	EN61000-4-11				>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods					
OTHERS	<b>LIFE</b>	3 years : 100% load 40°C, 12hours / day								
	<b>MTBF</b>	400Khrs min. MIL-HDBK-217F(25°C)								
	<b>DIMENSION</b>	73.9*39*48.5mm (L*W*H)								
	<b>PACKING</b>	118g ; 72pcs / 9.5kg / CARTON for cable connection; 100g ; 110pcs / 12kg / CARTON for USB connection								
CONNECTOR	<b>PLUG</b>	See page 5-6 ; other type available by customer requested								
	<b>CABLE</b>	See page 5-6 ; other type available by customer requested								
NOTE	<p>1.All parameters are specified at 230VAC input, rated load, 25°C 70% RH ambient.</p> <p>2.DC voltage: The output voltage set at point measure by plug terminal &amp; 50% load.</p> <p>3.Ripple &amp; noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf &amp; 47µf 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.Load regulation is measured from 10% to 100% rated load.</p> <p>7.Derating may be needed under low input voltage. Please check the derating curve for more details.</p> <p>8.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>)</p>									

### Derating Curve



### Static Characteristics

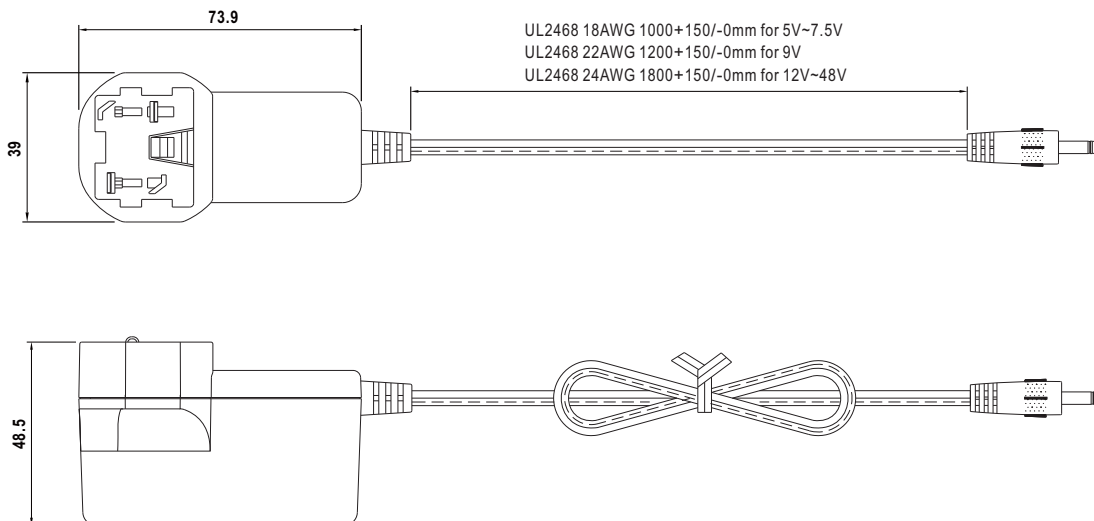


### Mechanical Specification

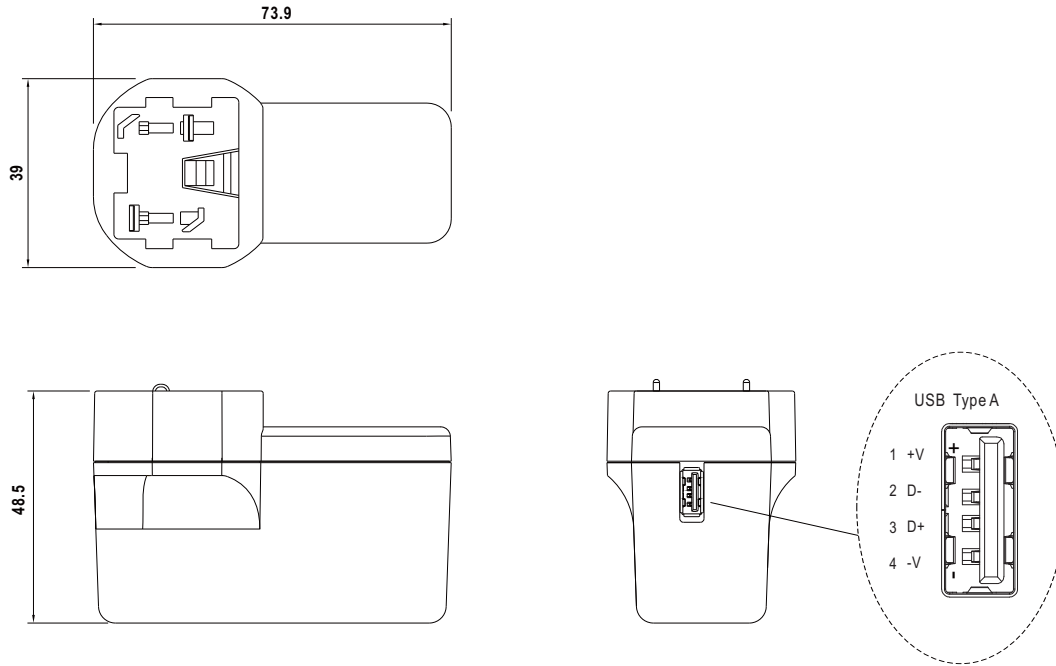
Unit:mm

TYPE	Australian type	U.K type	European type	US type

### ※Cable connection



※USB connection





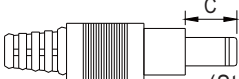
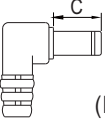


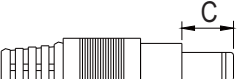
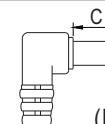


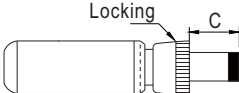


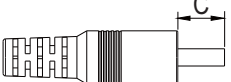

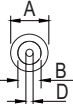
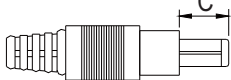


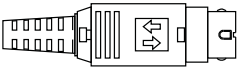
■ DC output plug


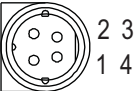
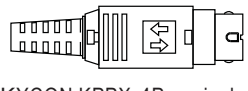


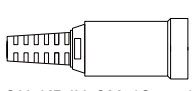
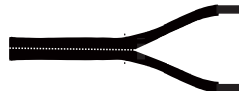
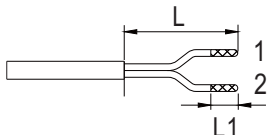
Standard plug: P1J

Unit:mm

P1J	Pin Assignment
	<p style="text-align: center;">⊕ C<sup>+</sup> ⊖</p> <hr/> <p style="text-align: center;">Outside ⊖ ⊕ Inside</p>

© 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	
   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	B	C	
			OD	ID	L	
   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	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
   <p>KYCON KPPX-4P equivalent</p>	R7B	1	+Vo
		2	-Vo
		3	-Vo
		4	+Vo
Min. DIN 4 Pin with Lock (female)	Type No.	Pin Assignment	
   <p>KYCON KPJX-CM-4S equivalent</p>	R7BF	1	+Vo
		2	-Vo
		3	-Vo
		4	+Vo
Stripped and tinned leads	Type No.	Pin Assignment	
  <p>Length of Land L1 by request (MW's standard length, L: <u>25</u> mm, L1: <u>10</u> mm)</p>	by customer	1 (Ribbed)	+Vo
		2 (Letter)	-Vo

■ **Installation Manual**

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

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