



## ■ Features

- Interchangeable AC plugs (plug kit sold separately)
- Medical safety approved (2 × MOPP between primary to secondary)
- Suitable for BF application with appropriate system consideration
- Low leakage current  $<100\mu\text{A}$
- No load power consumption  $<0.075\text{W}$
- Energy efficiency Level VI
- Comply with EISA 2007/DoE and EU ErP
- Class II power (without earth pin)
- Protections: Short circuit / Overload / Over voltage
- Fully enclosed plastic case
- Optional lock type DC plug
- 100% full load burn-in test
- 3 years warranty

## ■ Applications

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

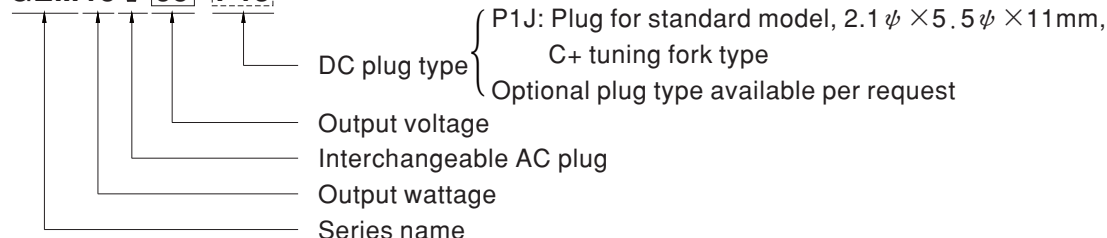
## ■ Description

GEM18I is a highly reliable, 18W 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. GEM18I is a class II power unit (without 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 ( $<100\mu\text{A}$ ), 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, GEM18I 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

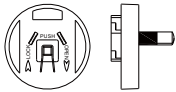
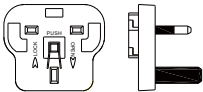
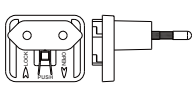
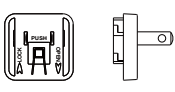
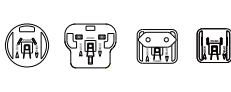
**GEM18 I 05 -P1J**





# 18W AC-DC High Reliability Interchangeable Medical Adaptor **GEM18I** series

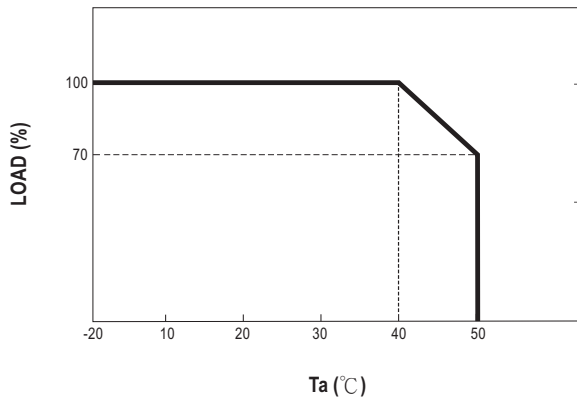
## Interchangeable AC plug Specifically for GEM18I

| 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                                                                        |

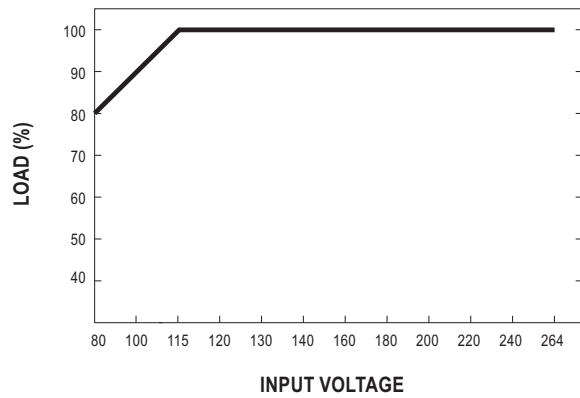
## SPECIFICATION

| ORDER NO.                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | GEM18I05-P1J                                                                                                            | GEM18I09-P1J | GEM18I12-P1J | GEM18I15-P1J | GEM18I18-P1J | GEM18I24-P1J | GEM18I48-P1J |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| OUTPUT                    | SAFETY MODEL NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | GEM18I05                                                                                                                | GEM18I09     | GEM18I12     | GEM18I15     | GEM18I18     | GEM18I24     | GEM18I48     |
|                           | DC VOLTAGE                      Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5V                                                                                                                      | 9V           | 12V          | 15V          | 18V          | 24V          | 48V          |
|                           | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3A                                                                                                                      | 2A           | 1.5A         | 1.2A         | 1A           | 0.75A        | 0.38A        |
|                           | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0 ~ 3A                                                                                                                  | 0 ~ 2A       | 0 ~ 1.5A     | 0 ~ 1.2A     | 0 ~ 1A       | 0 ~ 0.75A    | 0 ~ 0.38A    |
|                           | RATED POWER (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15W                                                                                                                     | 18W          | 18W          | 18W          | 18W          | 18W          | 18W          |
|                           | RIPPLE & NOISE (max.) Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 60mVp-p                                                                                                                 | 60mVp-p      | 80mVp-p      | 80mVp-p      | 80mVp-p      | 80mVp-p      | 80mVp-p      |
|                           | VOLTAGE TOLERANCE Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ± 5.0%                                                                                                                  | ± 5.0%       | ± 3.0%       | ± 3.0%       | ± 2.0%       | ± 2.0%       | ± 2.0%       |
|                           | LINE REGULATION              Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ± 1.0%                                                                                                                  | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       |
|                           | LOAD REGULATION              Note.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ± 5.0%                                                                                                                  | ± 5.0%       | ± 3.0%       | ± 3.0%       | ± 2.0%       | ± 2.0%       | ± 2.0%       |
| SETUP, RISE, HOLD UP TIME |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 500ms, 30ms, 16ms/230VAC                      500ms, 30ms, 16ms/115VAC at full load                                     |              |              |              |              |              |              |
| INPUT                     | VOLTAGE RANGE                      Note.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 80 ~ 264VAC                      113 ~ 370VDC                                                                           |              |              |              |              |              |              |
|                           | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 47 ~ 63Hz                                                                                                               |              |              |              |              |              |              |
|                           | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 80%                                                                                                                     | 84%          | 84%          | 84%          | 84%          | 85%          | 87%          |
|                           | AC CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.45A / 115VAC                      0.25A / 230VAC                                                                      |              |              |              |              |              |              |
|                           | INRUSH CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30A / 115VAC                      60A / 230VAC                                                                          |              |              |              |              |              |              |
|                           | LEAKAGE CURRENT(max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Touch current < 100μA/264VAC                                                                                            |              |              |              |              |              |              |
| PROTECTION                | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 105 ~ 160% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |              |              |              |              |              |              |
|                           | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 110 ~ 140% rated output voltage<br>Protection type : Clamp by zener diode, output short                                 |              |              |              |              |              |              |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                         |              |              |              |              |              |              |
| ENVIRONMENT               | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -20 ~ +50℃ (Refer to "Derating Curve")                                                                                  |              |              |              |              |              |              |
|                           | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 20% ~ 90% RH non-condensing                                                                                             |              |              |              |              |              |              |
|                           | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -20 ~ +85℃, 10 ~ 95% RH                                                                                                 |              |              |              |              |              |              |
|                           | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ± 0.03% / °C (0 ~ 40℃)                                                                                                  |              |              |              |              |              |              |
|                           | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                 |              |              |              |              |              |              |
| SAFETY & EMC<br>(Note. 8) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ANSI/AAMI ES60601-1 / 60601-1-11, TUV EN60601-1 / 60601-1-11 approved                                                   |              |              |              |              |              |              |
|                           | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P:5656VDC                                                                                                         |              |              |              |              |              |              |
|                           | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH                                                                               |              |              |              |              |              |              |
|                           | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN55011 class B, EN61000-3-2,3, FCC PART 15 / CISPR22 class B                                             |              |              |              |              |              |              |
|                           | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Compliance to EN61000-4,-2,3,4,5,6,8,11, light industry level, criteria A                                               |              |              |              |              |              |              |
| OTHERS                    | LIFE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3 years : 100% load 40℃, 12hours / day                                                                                  |              |              |              |              |              |              |
|                           | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 400Khrs min. MIL-HDBK-217F(25℃)                                                                                         |              |              |              |              |              |              |
|                           | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 75.5*39.1*56.2mm (L*W*H)                                                                                                |              |              |              |              |              |              |
|                           | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 140g ; 60pcs / 14kg / CARTON                                                                                            |              |              |              |              |              |              |
| CONNECTOR                 | PLUG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | See page 3 ; Other type available by customer requested                                                                 |              |              |              |              |              |              |
|                           | CABLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | See page 3 ; Other type available by customer requested                                                                 |              |              |              |              |              |              |
| NOTE                      | 1.All parameters are specified at 230VAC input, rated load, 25℃ 70% RH ambient.<br>2.DC voltage: The output voltage set at point measure by plug terminal & 50% load.<br>3.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor.<br>4.Tolerance: includes set up tolerance, line regulation, load regulation.<br>5.Line regulation is measured from low line to high line at rated load.<br>6.Load regulation is measured from 10% to 100% rated load.<br>7.Derating may be needed under low input voltage. Please check the derating curve for more details.<br>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.”<br>(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) |                                                                                                                         |              |              |              |              |              |              |

## Derating Curve

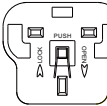
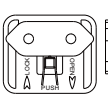
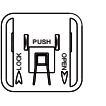


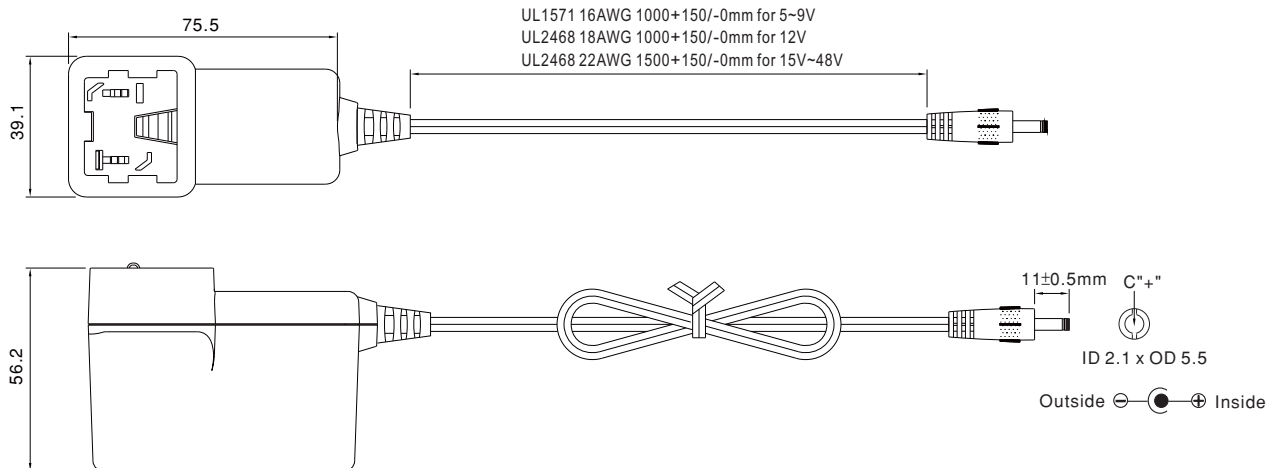
## Static Characteristics



## Mechanical Specification

Unit:mm

| TYPE |  |  |  |  |
|------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|      | Australian type                                                                    | U.K type                                                                           | European type                                                                      | US type                                                                              |



## Plug Assignment

Standard plug: P1J

| P1J    |        |
|--------|--------|
| P/N    | OUTPUT |
| CENTER | +      |

Optional lock type plug: P2S

SWITCHCRAFT S761K plug equivalent

## Installation Manual

Please refer to : <http://www.meanwell.com/webnet/search/InstallationSearch.html>