



(Cable connection)



(USB connection)



■ Features

- Universal AC input / Full range
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1/ES60601-1-11
- 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
- Various DC plug quick adaptor accessories available. Contact TRC Electronics for details.
- 3 years warranty

■ Applications

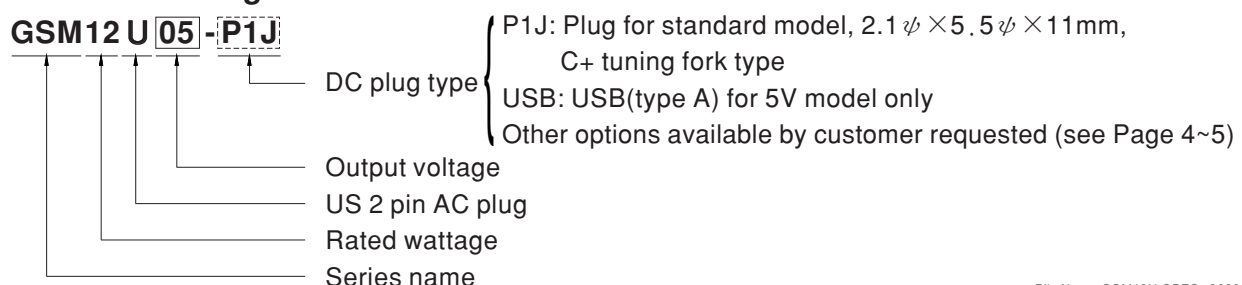
- Blood glucose meter
- Blood pressure meter
- Nebulizer
- Inhaler
- Portable medical device
- Sleep apnea devices

■ Description

GSM12U 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 the standard 2-pin U.S. plug. GSM12U 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 (< 0.1W for 18V/48V), GSM12U is compliant with the latest USA energy regulation EISA 2007/DoE (Level VI). 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

■ Model Encoding

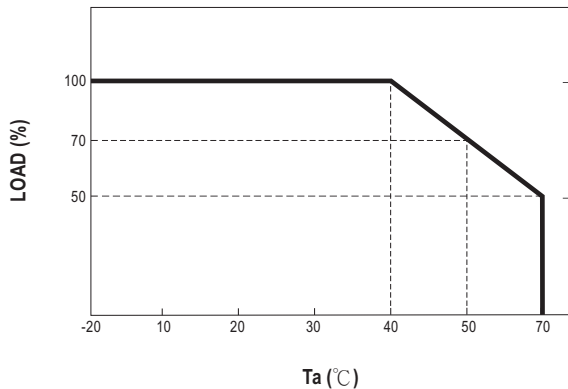


File Name: GSM12U-SPEC 2020-04-30

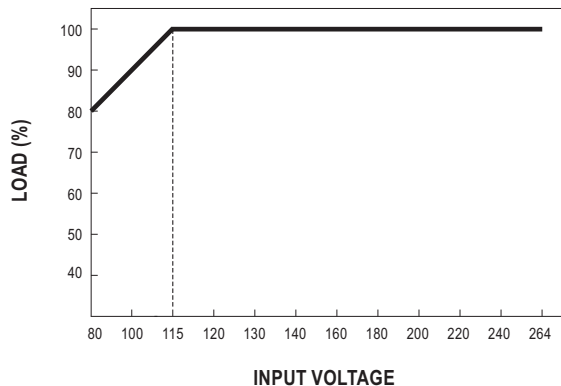
SPECIFICATION

| ORDER NO. | | GSM12U05-□ □=P1J USB | GSM12U07-P1J | GSM12U09-P1J | GSM12U12-P1J | GSM12U15-P1J | GSM12U18-P1J | GSM12U24-P1J | GSM12U48-P1J | |
|---------------------------------------|--|--|--------------|---------------|--------------|-------------------|--------------|--------------|--------------|--|
| OUTPUT | SAFETY MODEL NO. | GSM12U05 | GSM12U07 | GSM12U09 | GSM12U12 | GSM12U15 | GSM12U18 | GSM12U24 | GSM12U48 | |
| | DC VOLTAGE <small>Note.2</small> | 5V | 7.5V | 9V | 12V | 15V | 18V | 24V | 48V | |
| | RATED CURRENT | 2.4A | 1.6A | 1.33A | 1A | 0.8A | 0.66A | 0.5A | 0.25A | |
| | CURRENT RANGE | 0 ~ 2.4A | 0 ~ 1.6A | 0 ~ 1.33A | 0 ~ 1A | 0 ~ 0.8A | 0 ~ 0.66A | 0 ~ 0.5A | 0 ~ 0.25A | |
| | RATED POWER (max.) | 12W | 12W | 12W | 12W | 12W | 12W | 12W | 12W | |
| | RIPPLE & NOISE (max.) <small>Note.3</small> | 60mVp-p | 60mVp-p | 60mVp-p | 80mVp-p | 80mVp-p | 80mVp-p | 80mVp-p | 100mVp-p | |
| | VOLTAGE TOLERANCE <small>Note.4</small> | ±5.0% | ±5.0% | ±4.0% | ±3.0% | ±3.0% | ±3.0% | ±2.0% | ±2.0% | |
| | LINE REGULATION <small>Note.5</small> | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | |
| | LOAD REGULATION <small>Note.6</small> | ±5.0% | ±5.0% | ±4.0% | ±3.0% | ±3.0% | ±3.0% | ±2.0% | ±2.0% | |
| SETUP, RISE, HOLD UP TIME | 500ms, 30ms, 16ms/230VAC 500ms, 30ms, 16ms/115VAC at full load | | | | | | | | | |
| INPUT | VOLTAGE RANGE <small>Note.7</small> | 80 ~ 264VAC | | 113 ~ 370VDC | | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | | | | |
| | EFFICIENCY (Typ.) | 80% | 82% | 82% | 82.5% | 84% | 85% | 85% | 87% | |
| | AC CURRENT | 0.4A / 115VAC | | 0.2A / 230VAC | | | | | | |
| | INRUSH CURRENT (max.) | Cold start 30A / 115VAC | | 60A / 230VAC | | | | | | |
| LEAKAGE CURRENT(max.) | Touch current < 100µA/264VAC | | | | | | | | | |
| PROTECTION | OVERLOAD | 110 ~ 200% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | | | | |
| | OVER VOLTAGE | 110 ~ 140% rated output voltage Protection type : Clamp by zener diode, output short | | | | | | | | |
| ENVIRONMENT | WORKING TEMP. | -20 ~ +70°C (Refer to "Derating Curve") | | | | | | | | |
| | WORKING HUMIDITY | 0 ~ 95% RH non-condensing | | | | | | | | |
| | STORAGE TEMP., HUMIDITY | -20 ~ +85°C, 0 ~ 95% RH non-condensing | | | | | | | | |
| | TEMP. COEFFICIENT | ±0.03% / °C (0 ~ 40°C) | | | | | | | | |
| VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes | | | | | | | | | |
| SAFETY & EMC <small>(Note. 8)</small> | SAFETY STANDARDS | ANSI/ AAMI ES60601-1/ES60601-1-11(3.1 version), CAN/CSA-C22 NO. 60601-1 3 rd edition, EAC TP TC 004 approved GSM12U05-USB without ANSI/ AAMII ES60601-1-11 | | | | | | | | |
| | ISOLATION LEVEL | Primary - Secondary: 2 x MOPP | | | | | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:5656VDC | | | | | | | | |
| | ISOLATION RESISTANCE | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH | | | | | | | | |
| | EMC EMISSION | Parameter | Standard | | | Test Level / Note | | | | |
| | Conducted emission | FCC PART 15 / CISPR22 | | | Class B | | | | | |
| | Radiated emission | FCC PART 15 / CISPR22 | | | Class B | | | | | |
| OTHERS | LIFE | 3 years : 100% load 40°C, 12hours / day | | | | | | | | |
| | MTBF | 400Khrs min. MIL-HDBK-217F(25°C) | | | | | | | | |
| | DIMENSION | 62.2*27.4*45.5mm (L*W*H) | | | | | | | | |
| | PACKING | 109g, 110pcs / 13kg / CARTON for cable connection ; 73g, 150pcs / 12kg / CARTON for USB connection | | | | | | | | |
| 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 115VAC input, rated load, 25°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 0.1µf & 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."</p> | | | | | | | | | |

■ Derating Curve



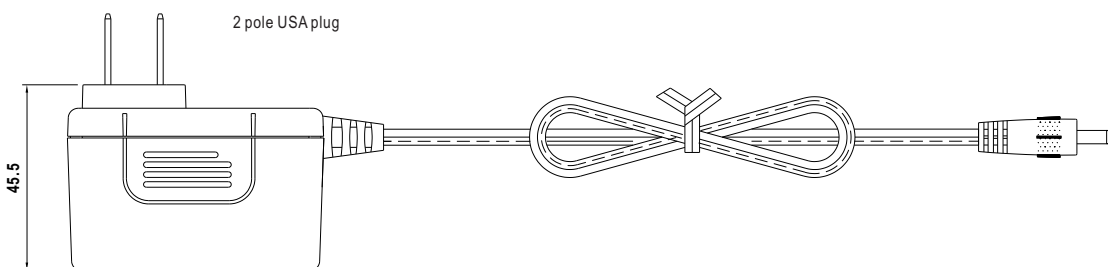
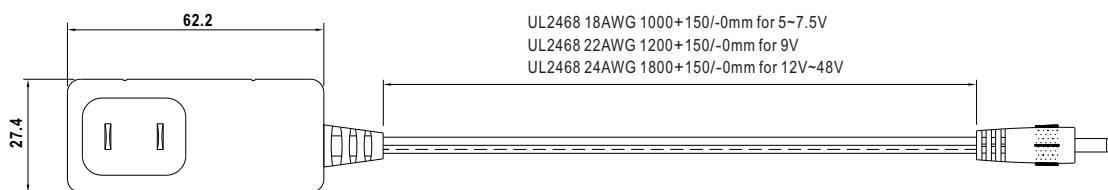
■ Static Characteristics



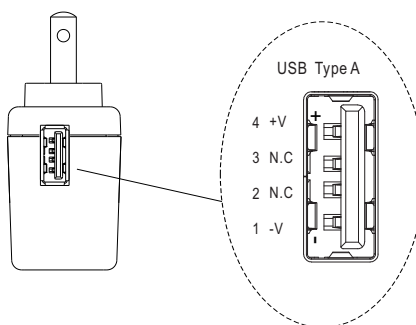
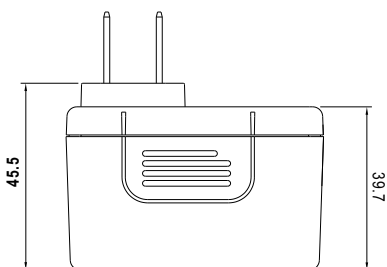
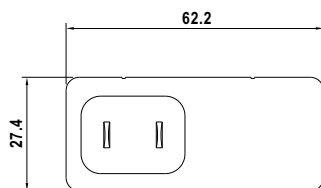
■ Mechanical Specification

Unit:mm

※ Cable Connection



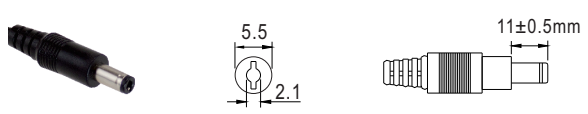

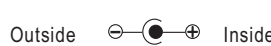
※ USB Connection



■ DC output plug

◎ Standard plug: P1J

Unit:mm

| P1J | Pin Assignment |
|---|---|
|  |  |
| | Outside  Inside |

◎ DC plug changeable through:

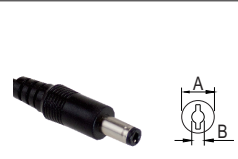



(1) Customization of the standard part with an optional DC plug according to the table (MOQ applicable)

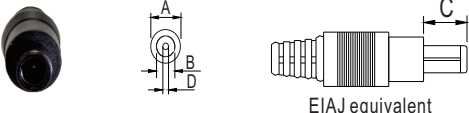
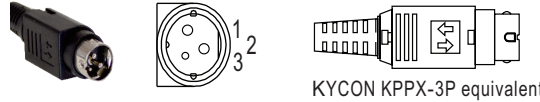
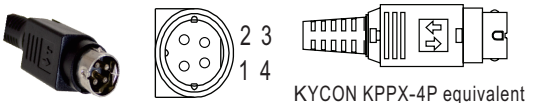
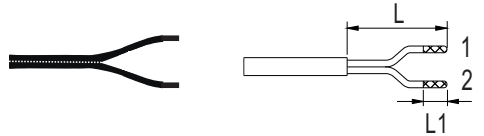
(2) Quick adapter accessory (sold separately without MOQ)

Please refer to below table : 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 | | |
| | | 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 | | |
| 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 | | |
| | | P2L | 5.5 | 2.5 | 9.5 | | |
| | (Right-angled) | P2M | 5.5 | 2.5 | 11.0 | | |
| | | P2IR | 5.5 | 2.1 | 9.5 | | |
| | | P2JR | 5.5 | 2.1 | 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 | B | C | D | Quick Adapter Accessory |
|---|-------------|----------------|--------|------|------------|---|
| | | OD | ID | L | Center Pin | |
|  <p>EIAJ equivalent</p> | P4A | 5.5 | 3.4 | 11.0 | 1.0 | Available (Current rating: 7.5A max.) |
| | 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 | | | | Available (Current rating: 7.5A max.) |
|  <p>KYCON KPPX-3P equivalent</p> | R6B | PIN No. | Output | | | |
| | | 1 | +Vo | | | |
| | | 2 | -Vo | | | |
| 3 | +Vo | | | | | |
| Min. DIN 4 Pin with Lock (male) | Type No. | Pin Assignment | | | | Available (Current rating: 7.5A max.) |
|  <p>KYCON KPPX-4P equivalent</p> | R7B | PIN No. | Output | | | |
| | | 1 | +Vo | | | |
| | | 2 | -Vo | | | |
| | | 3 | -Vo | | | |
| 4 | +Vo | | | | | |
| Stripped and tinned leads | Type No. | Pin Assignment | | | | None |
|  <p>Length of Land L1 by request (MW's standard length, L: <u>25</u> mm, L1: <u>10</u> mm)</p> | by customer | PIN No. | Output | | | |
| | | 1 (Ribbed) | +Vo | | | |
| 2 (Letter) | -Vo | | | | | |