



**■ Features**

- 230VAC only or Full range (up to 295VAC) models available
- Built-in active PFC function
- Constant current design
- Protections: Short circuit
- Cooling by free air convection
- Fully isolated plastic case
- IP30 design
- Class II power unit, no FG
- No load power consumption <0.5W
- High reliability, low cost
- 2 years warranty

**■ Applications**

- Indoor LED lighting
- LED office lighting
- LED commercial lighting
- LED decorative lighting

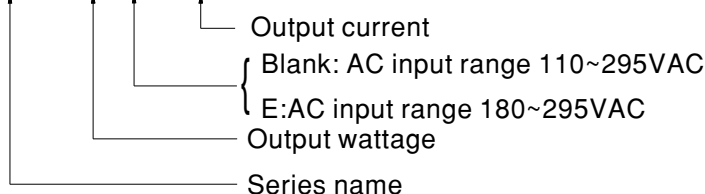
**■ Description**

PLM-40 is a 40W economical AC/DC LED power supply series. Incorporating a built-in active PFC design, PLM-40 provides a high Power Factor value greater than 0.9. In addition, with the low no load power consumption below 0.5W, and the setup time less than 500ms, PLM-40 is complied with the ErP regulation required by European Union for lighting fixtures.

PLM-40 is a class II (without FG pin) power unit housed with the UL 94V-0 rated flame retardant plastic case. The I/O terminals are designed with screw-less clamp style terminal block that greatly simplifies the wiring installation. Two types of models with different input voltage range are offered: PLM-40 series, which operates from 110~295VAC, and PLM-40E series, which operates from 180~295VAC. These two series are both constant current output design, supplying models with the current of 350mA, 500mA, 700mA, 1050mA, 1400mA and 1750mA, respectively.

**■ Model Encoding**

**PLM - 40 E - 350**





# 40W Single Output LED Power Supply

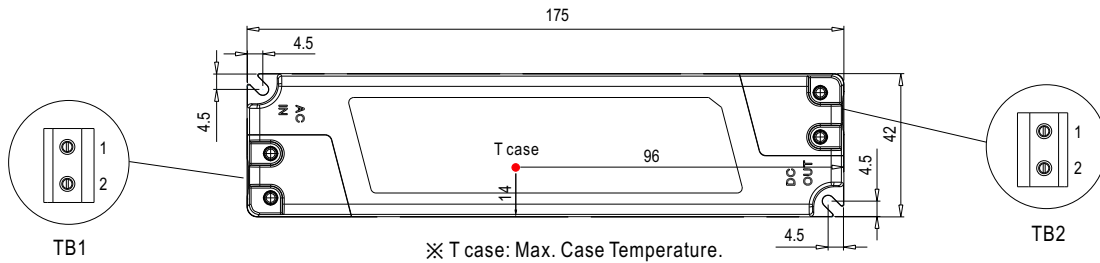
# PLM-40 series

## SPECIFICATION

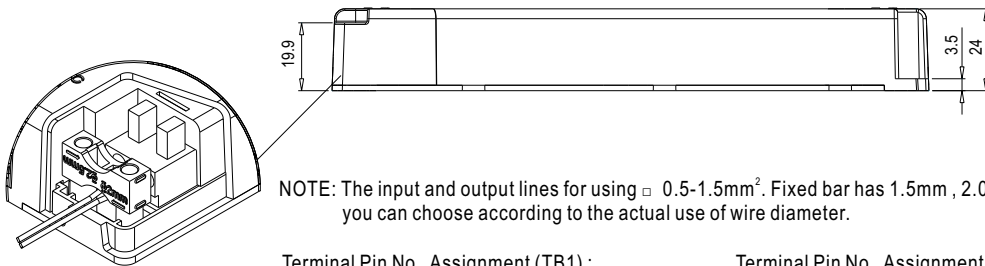
| MODEL                                   |   | PLM-40□-350  | PLM-40□-500  | PLM-40□-700 | PLM-40□-1050 | PLM-40□-1400 | PLM-40□-1750 |  |
|---|---|--|--|-------------|--------------|--------------|--------------|--|
| OUTPUT                                  | RATED CURRENT   | 350mA  | 500mA  | 700mA       | 1050mA       | 1400mA       | 1750mA       |  |
|   | OPERATING VOLTAGE RANGE Note.5  | 53 ~ 105V  | 40 ~ 80V   | 29 ~ 57V    | 19 ~ 38V     | 15 ~ 29V     | 12 ~ 23V     |  |
|   | CURRENT ACCURACY Note.3   | ±8.0%  |  |             |              |              |              |  |
|   | RATED POWER   | 36.75W   | 40W  | 39.9W       | 39.9W        | 40.6W        | 40.25W       |  |
|   | RIPPLE & NOISE (max.) Note.2  | 10Vp-p   | 8Vp-p  | 6Vp-p       | 4Vp-p        | 3Vp-p        | 2.5Vp-p      |  |
|   | NO LOAD OUTPUT VOLTAGE (max.)   | 115V   | 86V  | 63V         | 43V          | 34V          | 27V          |  |
|   | SETUP TIME  | Blank Type: 500ms /115VAC, 230VAC at full load; E Type: 500ms / 230VAC at full load                          |  |             |              |              |              |  |
| INPUT                                   | VOLTAGE RANGE Note.4  | Blank Type: 110 ~ 295VAC 156 ~ 417VDC; E Type: 180 ~ 295VAC 254 ~ 417VDC                                     |  |             |              |              |              |  |
|   | FREQUENCY RANGE   | 47 ~ 63Hz  |  |             |              |              |              |  |
|   | POWER FACTOR (Typ.)   | Blank type   | PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF > 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve) |             |              |              |              |  |
|   |   | E type   | PF ≥ 0.95/230VAC, PF > 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve)                   |             |              |              |              |  |
|   | TOTAL HARMONIC DISTORTION   | Blank type   | THD < 20% when output loading ≥ 60% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input                      |             |              |              |              |  |
|   |   | E type   | THD < 20% when output loading ≥ 60% at 230VAC input and output loading ≥ 75% at 277VAC input                             |             |              |              |              |  |
|   | EFFICIENCY (Typ.)   | 88%  | 88%  | 87%         | 87%          | 86%          | 86%          |  |
|   | AC CURRENT (Typ.)   | Blank Type: 0.5A/115VAC 0.3A/230VAC 0.25A/277VAC E Type: 0.3A/230VAC 0.25A/277VAC                            |  |             |              |              |              |  |
|   | INRUSH CURRENT (Typ.)   | COLD START 15A (twidth=75μs measured at 50% Ipeak) at 230VAC   |  |             |              |              |              |  |
| MAX. No. of PSUs on 16A CIRCUIT BREAKER | 47 units (circuit breaker of type B) / 47 units (circuit breaker of type C) at 230VAC   |  |  |             |              |              |              |  |
| LEAKAGE CURRENT                         | < 0.5mA / 240VAC  |  |  |             |              |              |              |  |
| PROTECTION                              | SHORT CIRCUIT   | Hiccup mode, recovers automatically after fault condition is removed.  |  |             |              |              |              |  |
|   | OVER TEMPERATURE  | Hiccup mode, recovers automatically after temperature goes down.   |  |             |              |              |              |  |
| ENVIRONMENT                             | WORKING TEMP.   | -30 ~ +40°C (Refer to "Derating Curve")  |  |             |              |              |              |  |
|   | WORKING HUMIDITY  | 20 ~ 95% RH non-condensing   |  |             |              |              |              |  |
|   | STORAGE TEMP., HUMIDITY   | -40 ~ +80°C, 10 ~ 95% RH   |  |             |              |              |              |  |
|   | TEMP. COEFFICIENT   | ±0.06%/°C (0 ~ 40°C)   |  |             |              |              |              |  |
|   | VIBRATION   | 10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes                                      |  |             |              |              |              |  |
| SAFETY & EMC                            | SAFETY STANDARDS  | UL8750, CSA C22.2 No. 250.13-12; ENEC EN61347-1, EN61347-2-13, EN62384, GB19510.14, GB19510.1, IP30 approved |  |             |              |              |              |  |
|   | WITHSTAND VOLTAGE   | I/P-O/P: 3.75KVAC  |  |             |              |              |              |  |
|   | ISOLATION RESISTANCE  | I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH  |  |             |              |              |              |  |
|   | EMC EMISSION  | Compliance to EN55015, GB17743, GB17625.1, EN61000-3-2 Class C (≥75% load); EN61000-3-3                      |  |             |              |              |              |  |
|   | EMC IMMUNITY  | Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61547, light industry level, criteria B (Surge 2KV)          |  |             |              |              |              |  |
| OTHERS                                  | MTBF  | 822.7Khrs min. MIL-HDBK-217F (25°C)  |  |             |              |              |              |  |
|   | DIMENSION   | 175*42*24mm (L*W*H)  |  |             |              |              |              |  |
|   | PACKING   | 0.175Kg; 60pcs/11.5kg/0.68CUFT   |  |             |              |              |              |  |
| NOTE                                    | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>Please see "AC input voltage drop vs. output current characteristics" table.</li> <li>Derating may be needed under low input voltage, please check the static characteristic for more details.</li> <li>Constant current operation region is within 50% ~ 100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.</li> <li>The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.</li> <li>Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.</li> </ol> |  |  |             |              |              |              |  |

■ Mechanical Specification

Case No. PLM-40 Unit:mm



※ T case: Max. Case Temperature.



NOTE: The input and output lines for using □ 0.5-1.5mm<sup>2</sup>. Fixed bar has 1.5mm, 2.0mm, 2.5mm, 3.0mm four grooves, you can choose according to the actual use of wire diameter.

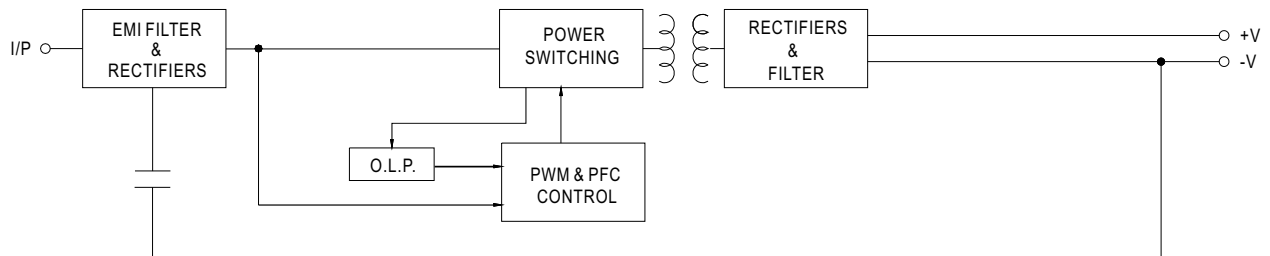
Terminal Pin No. Assignment (TB1) :  
SWITCHLAB DG235-7.5-2P(GRAY)

| Pin No. | Assignment |
|---------|------------|
| 1       | AC/L       |
| 2       | AC/N       |

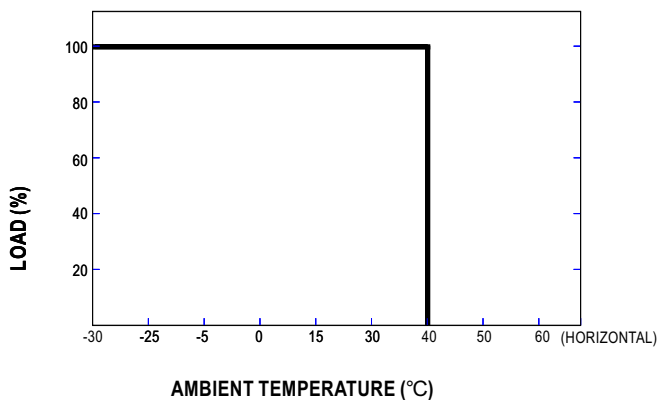
Terminal Pin No. Assignment (TB2) :  
SWITCHLAB DG235-7.5-2P(BLUE)

| Pin No. | Assignment |
|---------|------------|
| 1       | -V         |
| 2       | +V         |

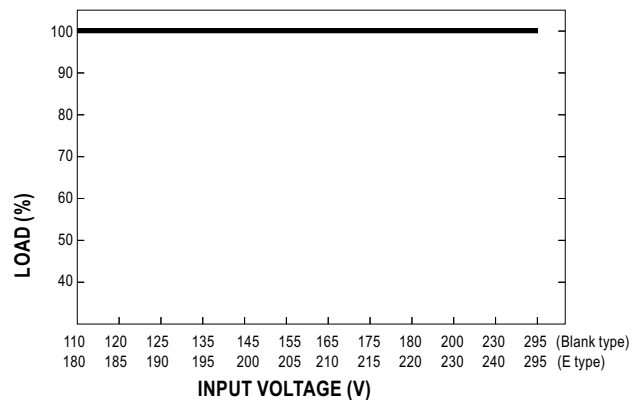
■ Block Diagram



■ Derating Curve

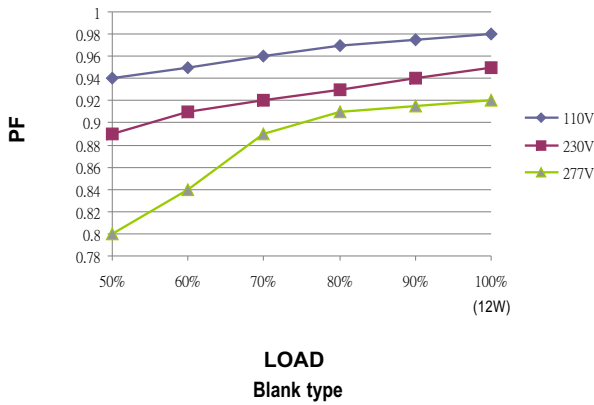


■ Static Characteristics

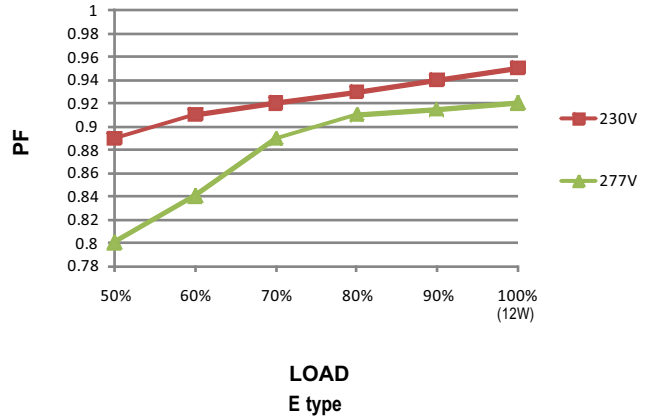


**Power Factor Characteristic**

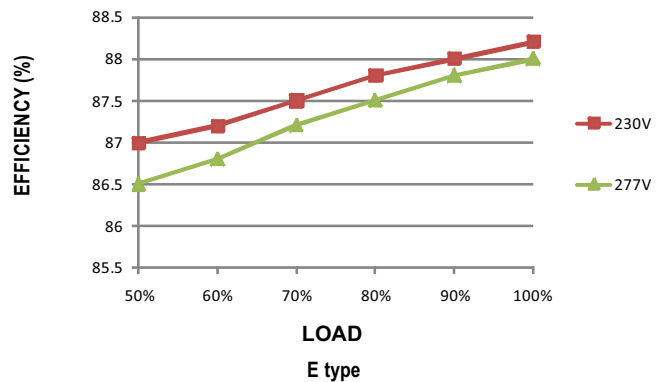
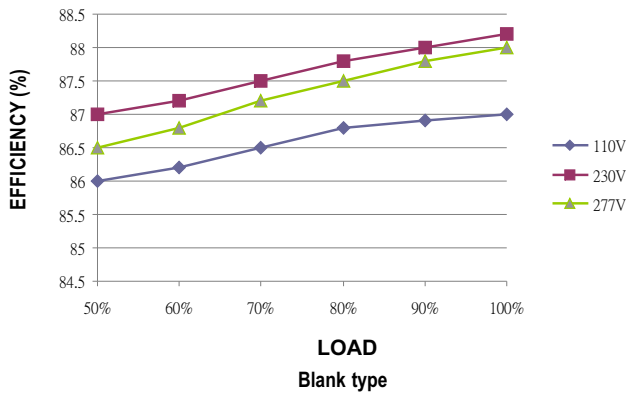
**Constant Current Mode**



**Constant Current Mode**



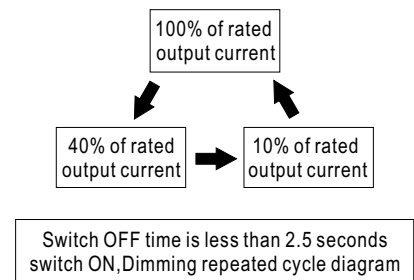
**EFFICIENCY vs LOAD (500mA Model)**



**Three-step analog dimming**

3-level analog dimming control using a wall switch

| three-step analog dimming   | STEP 1         | STEP 2   | STEP 3   |
|-----------------------------|----------------|--|--|
|                             | Switch turn ON | Switch turn OFF<br>Less than 2.5 seconds<br>Switch turn ON | Switch turn OFF<br>Less than 2.5 seconds<br>Switch turn ON |
| percentage of rated current | 100%           | 40%  | 10%  |



NOTE: if the OFF time is longer than 2.5 seconds, once switch on again, PLM-40(E) will provide 100% of rated output current

**AC input voltage drop vs. output current characteristics**

|               |      |      |     |     |
|---------------|------|------|-----|-----|
| AC input drop | 10%  | 8%   | 5%  | 3%  |
| Io drop       | <18% | <13% | <8% | <6% |

NOTE: Output current will return to the rated value within 70ms