



Installation Manual

- **Type : Enclosed Type Switching Power Supply**
 (Families: CSP, DPU, ENP, ERP, G3, HDP, HEP, HRP, HRP-N, HRP-N3, HRP-G, HSP, LRS, MSP, NED, NEL, NES, NSP, PSP, PSPA, QP, RS, RSP, RST, SE, SP, SPV, TP, UHP, USP)

- **Introduction**

Enclosed type switching power supplies possess a metal or plastic case for covering their internal PCB and will be installed inside the case of the end system. Mean Well's enclosed type power supplies include 2 different groups of power supplies, with built-in fan and without built-in fan, depending on their rated power or design concept.

- **Installation**

- (1) Before any installation or maintenance work, please disconnect your system from the utility. Ensure that it can't be re-connected inadvertently!
- (2) Keep enough insulation distance between mounting screws and internal components of power supplies. Please refer to case drawing on specifications to receive the maximum length of mounting screw.
- (3) Mounting orientations other than standard orientation or operate under high ambient temperature may increase the internal component temperature and will require a de-rating in output current. Please refer to the specification sheets to receive the optimum mounting position and information about the de-rating curve.
- (4) Fans and ventilation holes must be kept free from any obstructions. Also a 10-15 cm clearance must be kept when the adjacent device is a heat source.
- (5) Input and Output terminal

| Series | Terminal Screw | Screw Size | Suggested Torque |
|---|----------------|------------|------------------|
| RSP-750 / 1000 / 1500 / 2000 / 2400 / 3000 SE-450 / 1000 / 1500 HEP-600 · HRP-300 · HRP-300N · HRP-300N3 · HRP-G-300 · MSP-300 SP-480 · SP-750 · SPV-1500 · USP-500 · RST-5000 · RST-10000 · RST-7K5 · RST-15K | | M4 | 10-12 |
| HRP-075 / 100 / 150 / 150N / 150N3 / 200 · HRP-G-150 / 200 LRS-035 / 050 / 075 / 100 / 150 / 150F / 200 / 350 / 450 / 600 MSP-100 / 200 NED-035 / 050 / 075 / 100 · NET-035 / 050 / 075 NES-025 / 035 / 050 / 075 / 100 / 150 / 200 / 350 QP-200 / 320 / 375 RD-050 / 065 / 085 / 125 · RID-050 / 065 / 085 / 125 RS-035 / 050 / 075 / 100 / 150 RSP-075 / 100 / 150 / 200 / 320 SP-075 / 100 / 150 / 200 / 240 / 320 · SPV-150/300 NSP-1600 / 3200 · DPU-3200 · RSP-1600 SE-100 / 200 / 350 · HSP-250 · PSP-600 | | M3.5 | 8-10 |
| RD-035 · RT-050 / 065 / 085 / 125 RQ-050 / 065 / 085 / 125 TP-075 / 100 / 150 · QP-100 / 150 RS-015 / 025 NES-015 · USP-150 | | M3 | 6-8 |
| ERP-350 HDP-190 / 240 | | #6 | 8-10 |



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| | | |
|---------------------------|------|-----|
| NEL-200 / 300 | | |
| ENP-120 / 180 / 240 / 360 | M2.6 | 4-5 |

| Series \ Terminal Screw | Input | | Output | |
|--|------------|------------------|------------|------------------|
| | Screw Size | Suggested Torque | Screw Size | Suggested Torque |
| RST-7K5-L | M4 | 10-12kgf-cm | M5 | 10-12 |
| HRP-450 / 600 / 600N / 600N3 HRPG-450 / 600 MSP-450 / 600 / 1000 SE-600 | M3.5 | 6-8kgf-cm | M4 | 10-12 |
| HSP-150 / 200 / 300 HSN-200 / 300 | M3 | 6-8kgf-cm | M3.5 | 8-10 |
| RSP-500 | M3.5 | 8-10kgf-cm | M4 | 10-12 |
| NEL-400 | #6 | 8-10kgf-cm | M3 | 8-10 |
| UHP-200(R) / 350(R) | M3 | 5kgf-cm | M3.5 | 8 |
| UHP-200A | M3.5 | 13kgf-cm | M3.5 | 8 |
| CSP-3000 | M4 | 10-12kgf-cm | M6 | 13kgf-cm |
| UHP-500(R) / 750 / 1000 | M3 | 5kgf-cm | M4 | 10-12kgf-cm |
| HEP-600 / 1000 | M4 | 10-12kgf-cm | M4 | 10-12kgf-cm |

(6) Torque can be various due to different material, please refer to the following chart.

A Recommend torque for aluminum :

| Size of screw (Imperial units) | Recommend torque (kgf-cm) |
|--------------------------------|---------------------------|
| 3-56 | 2.3±20% |
| 4-40 | 3.0±20% |
| 4-48 | 3.3±20% |
| 5-40 | 4.5±20% |
| 5-44 | 4.7±20% |
| 6-32 | 5.6±20% |
| 6-40 | 6.3±20% |
| 8-32 | 10.4±20% |
| 8-36 | 10.8±20% |

| Size of screw (Metric Units) | Recommend torque (kgf-cm) |
|------------------------------|---------------------------|
| M2.5 | 2.2±20% |
| M3 | 4.1±20% |
| M3.5 | 6.5±20% |
| M4 | 9.7±20% |
| M5 | 19.5±10% |
| M6 | 33.1±10% |
| M7 | 55.3±10% |
| M8 | 80.6±10% |



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B Recommend torque for iron :

| Size of screw (Imperial units) | Recommend torque (kgf-cm) |
|--------------------------------|---------------------------|
| 3-56 | 5.0±20% |
| 4-40 | 6.9±20% |
| 4-48 | 7.0±20% |
| 5-40 | 9.4±20% |
| 5-44 | 9.9±20% |
| 6-32 | 12.0±20% |
| 6-40 | 13.4±20% |
| 8-32 | 21.8±20% |
| 8-36 | 23.0±20% |

| Size of screw (Metric Units) | Recommend torque (kgf-cm) |
|------------------------------|---------------------------|
| M2.5 | 4.6±20% |
| M3 | 8.8±20% |
| M3.5 | 13.7±20% |
| M4 | 20.4±20% |
| M5 | 41.1±10% |
| M6 | 69.1±10% |
| M7 | 117.5±10% |
| M8 | 169.4±10% |

If above mentioned is not enough due to special application, Nylok Blue Patch screw is recommend, and extra torque can be added if needed.

(7) Recommended wires are shown as below.

| AWG | 18 | 16 | 14 | 12 | 10 | 8 |
|--|------|-------|--------|--------|--------|--------|
| Rated Current of Equipment (Amp) | 6A | 6-10A | 10-16A | 16-25A | 25-32A | 32-40A |
| Cross-section of Lead(mm ²) | 0.75 | 1.00 | 1.5 | 2.5 | 4 | 6 |
| Note: Current each wire carries should be de-rated to 80% of the current suggested above when using 5 or more wires connected to the unit. | | | | | | |

Make sure that all strands of each stranded wire enter the terminal connection and the screw terminals are securely fixed to prevent poor contact.

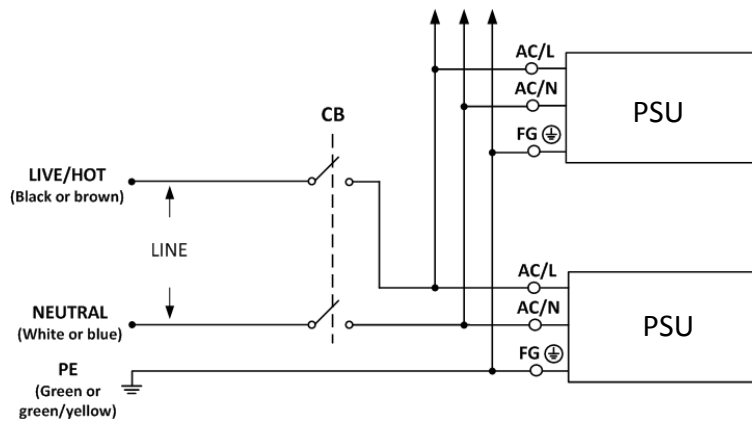
(8) Wiring configuration

(8-1) Wiring in a single-phase electricity system

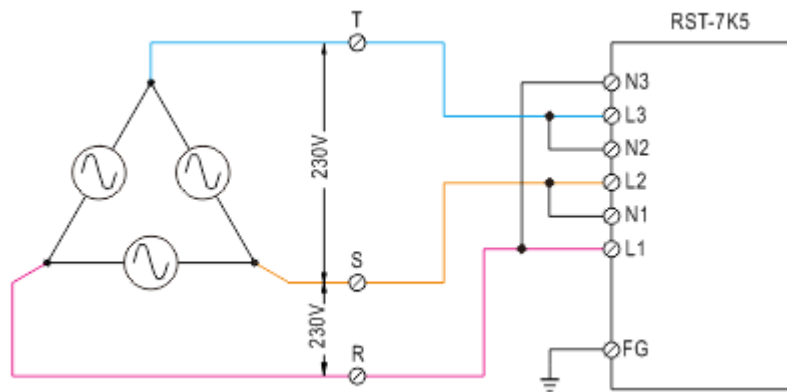
Wiring: The wire color will vary by country, please refer to the table below.

| | North America | European Harmonized |
|--------------------------|---------------|---------------------|
| Live and ACL | Black | Brown |
| Neutral and ACN | white | Blue |
| PE and FG (Class I only) | Green | Green/yellow |

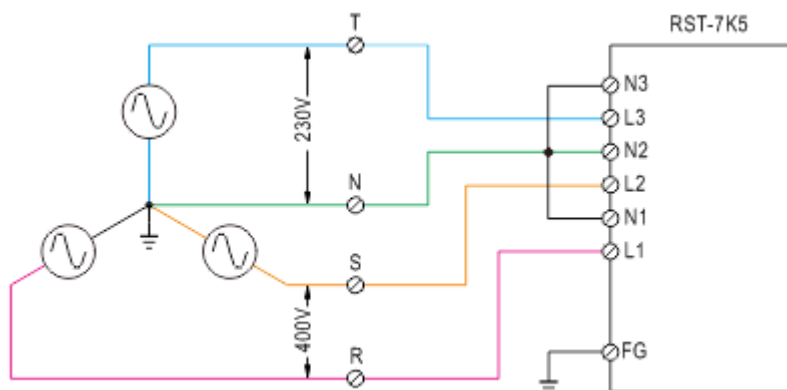
- (a) Connect the FG wire (green or green/yellow) of the power supply to PE (green or green/yellow), this step can be skipped when the unit is marked class II, ungrounded.
- (b) Connect the ACL wire (black or brown) of the power supply to Live (black or brown).
- (c) Connect the ACN wire (white or blue) of the power supply to Neutral (white or blue).
- (d) Make sure all wires are secured to prevent poor contact.



(8-2) Wiring in a three phase electricity system
 (a) 3Φ 3-wire/Δ 230VAC



(b) 3Φ 4-wire/Y 400VAC



(9) For other information about the products, please refer to www.meanwell.com for details.

● **Warning / Caution !!**

- (1) Risk of electrical shock and energy hazard. All failure should be examined by a qualified technician. Please do not remove the case of the power supply by yourself!
- (2) Please do not install power supplies in places with high moisture or near the water.
- (3) Please do not install power supplies in places with high ambient temperature or near fire source. The maximum ambient temperature please refer to their specifications.
- (4) Output current and output wattage must not exceed the rated values on specifications.
- (5) The ground(FG) must be connected to earth ground.

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- (6) All MW's PSUs are designed in accordance with EMC regulations and the related test reports are available by request. Since they belong to component power supplies and will be installed inside system enclosure, when they are integrated into a system, the EMC characteristics of the end system must be re-verified again.
- (7) This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 - (a) This device may not cause harmful interference, and
 - (b) this device must accept any interference received, including interference that may cause undesired operation.
- (8) For series of NES, PSP, PSPA, RD, RSP, RS and SE that certified with CNS14336-1/CNS13438, flammability of V1 or above is required for surrounding equipment and operation of this equipment in a residential environment could cause radio interference.
- (9) For series of LRS and NSP-1600 that certified with CNS15598-1/CNS15936, flammability of V1 or above is required for surrounding equipment and operation of this equipment could cause electromagnetic interference, avoiding installing in residential environments.
- (10) For RST-7K5/15K series that might generate high leakage current in delta connection (Δ), please specify the leakage current value and add the warning signs below on the final system and its instruction manual.



High Touch Current



"WARNING-HIGH LEAKAGE CURRENT-Earth connection essential connecting supply"

- (11) "This equipment complies with IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to 1.1MW at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to 1.1MW."



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Declaration of China RoHS Conformity

In order to reduce the impacts on the environment and take the more responsibility for protecting the earth, MEAN WELL is confirming and announcing the conformity to China RoHS, an Administrative Measures for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products.

Environment Friendly Use Period Label

| | |
|--|--|
| | Observing SJT 11364-2014, Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products |
| | Observing SJ/Z 11388-2009, General Guidelines of Environment-friendly Use Period of Electronic Information Products Appendix B, adopting table look-up to verify the Environment Friendly Use Period |

Names and Contents of Hazardous Substances Lists

| Part Name | Hazardous Substances | | | | | |
|-------------------------|----------------------|-----------------|-----------------|---|--------------------------------------|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent chromium (Cr ⁶⁺) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| PCB and its components | X | O | O | O | O | O |
| Metal structure parts | X | O | O | O | O | O |
| Plastic structure parts | O | O | O | O | O | O |
| Accessories | O | O | O | O | O | O |
| Cables | X | O | O | O | O | O |

O: The concentration of the hazardous substances within the homogeneous material of that product is less than the concentration limits set by GB/T 26572-2011.
X: The concentration of the hazardous substances within the homogeneous material of that product is over the concentration limits set by GB/T 26572-2011; however, it follows the standard advised by 2011/65/EU.



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Declaration of China VOC Conformity

In order to reduce the impacts on the environment and take the more responsibility for protecting the earth, MEAN WELL is confirming and announcing the conformity to China's Standardization Administration Releases VOC Standards

| Standard No. | Name of the Standard |
|---------------|--|
| GB 30981-2020 | Limit of harmful substances of industrial protective coatings |
| GB 33372-2020 | Limits for volatile organic compounds content in adhesive |
| GB 38507-2020 | Limits for volatile organic compounds (VOCs) In printing ink |
| GB 38508-2020 | Limits for volatile organic compounds content in cleaning agents |

ISO-9001 CERTIFIED

Your Reliable Power Partner



Declaration of Five PBT TSCA Conformity

In order to reduce the impacts on the environment and take the more responsibility for protecting the earth, MEAN WELL hereby confirms that MEAN WELL product series comply with Use and Risk Management for Five PBT Chemicals under TSCA section 6(h)

| CAS No. | Substance Name |
|------------|---|
| 1163-19-5 | Decabromodiphenyl ether (DecaBDE) |
| 68937-41-7 | Phenol, isopropylated, phosphate (3:1) PIP (3:1) |
| 732-26-3 | 2,4,6-Tris (tert-butyl) phenol (2,4,6-TTBP) |
| 133-49-3 | Pentachlorothiophenol (PCTP) |
| 87-68-3 | Hexachlorobutadiene (HCBD) |