

# DRN-PS-750

## Compact DIN-Rail 21.5 Volt Regulated Power Supplies

Operator's Manual



### User's Guide



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The information contained in this document is believed to be correct but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING:** These products are not designed for use in, and should not be used for, patient connected applications.



This device is marked with the international caution symbol. It is important to read the Setup Guide before installing or commissioning this device as it contains important information relating to safety and EMC.



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The compact DRN power supplies are designed to supply well-regulated 21.5 volt DC power to sensors, signal conditioners, data acquisition systems and high level logic equipment.

**Features**

Significant DRN features include:

- 4kV tested isolation, primary to output
- VDE-style patented shrouded double-bobbin design
- PET polyester bobbins, UL 94VO flammability rating
- Glass-filled polycarbonate case, UL 94VO
- Recessed live parts and connector screws
- Either 32mm or 35mm DIN rail mounting
- Jumper-select 230V/50Hz or 115V/60Hz input
- Wide input voltage tolerances
- 6kA protective varistor input shunt
- Input AC spike rejection with LC filters
- LED power-on lamp
- Output derating only above 50 degrees C
- Overtemperature protection
- Short circuit protection without fuses
- Low-ripple, well-regulated linear design

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## 2.1 Input Voltage Tolerances

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Exceeds IEC 38 range

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## 2.2 Input / Output Isolation

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4KV rms 60Hz 1 minute test

630V conductor spacing, IEC 348

Exceeds VDE551 / IEC 742 separation spacing

Exceeds VDE106 protective separation

Exceeds VDE 160 clearance distances

Exceeds VDE160 creepage distances

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## 2.3 Protective Classes

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IEC 529: IP-20

VDE 106 Part 1: Class II

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## 2.4 Flammability Ratings

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Transformer: UL 94VO

Case: UL 94VO

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**Warning!**

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The DRN power supplies are heavy enough to cause damage and or injury if dropped during installation. Assure firm rail mounting before releasing grip on the unit.

If a rail assembly is to be transported, then disconnection, dismounting and separate packing of the power supply is recommended.

For units that must be shipped installed on the rail, additional bracing to resist transportation shocks is recommended.

Do not attempt to install or connect to the power supply when the mains are energized.

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**To change voltage jumpers:**

1. Remove cover from case by carefully prying up two side tabs using a screwdriver. Remove two screws from bottom of case. Slide unit out of case.
2. Locate the main board assembly and position it in front of you the same way as shown in Figure 3.1 on the following page.
3. On the main board, locate the transformer jumpers W1, W2, and W3 near the transformer T1.

**Warning!**

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If your power requirement is 115Vac, jumpers W1 and W2 should be installed. (***Do not install W3.***)

If your power requirement is 230Vac, jumper W3 should be installed. (***Do not install W1 or W2.***)

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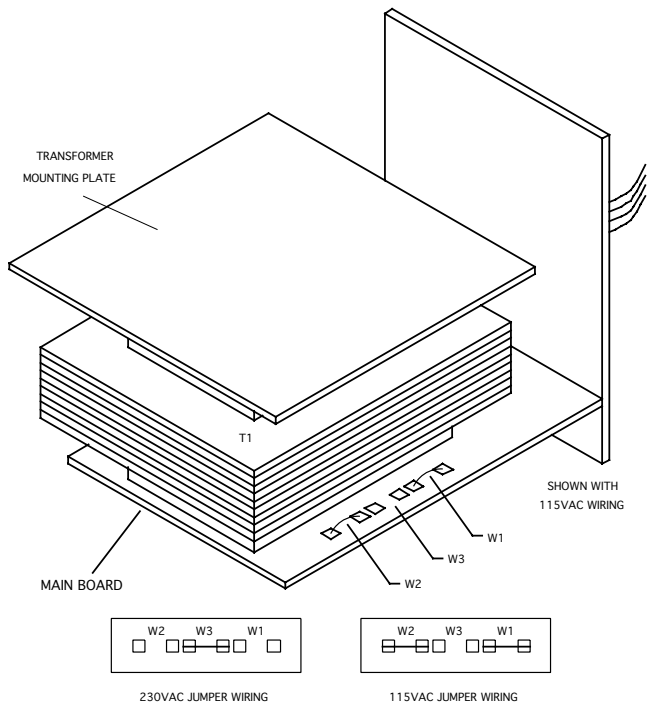


Figure 3.1 — Main Board Power Jumpers



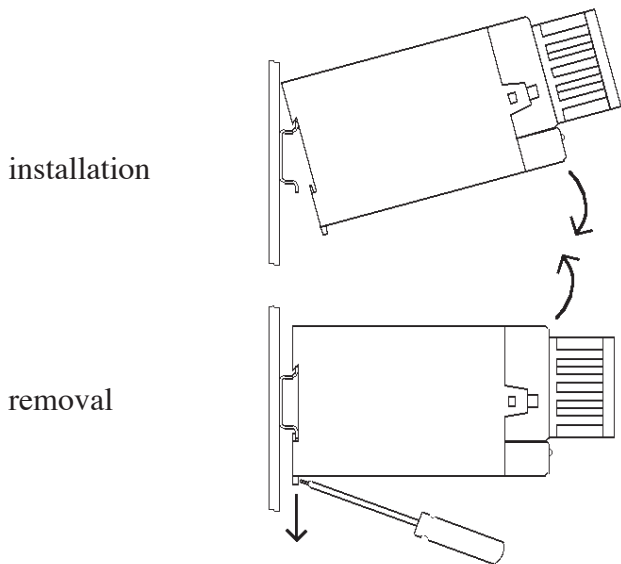


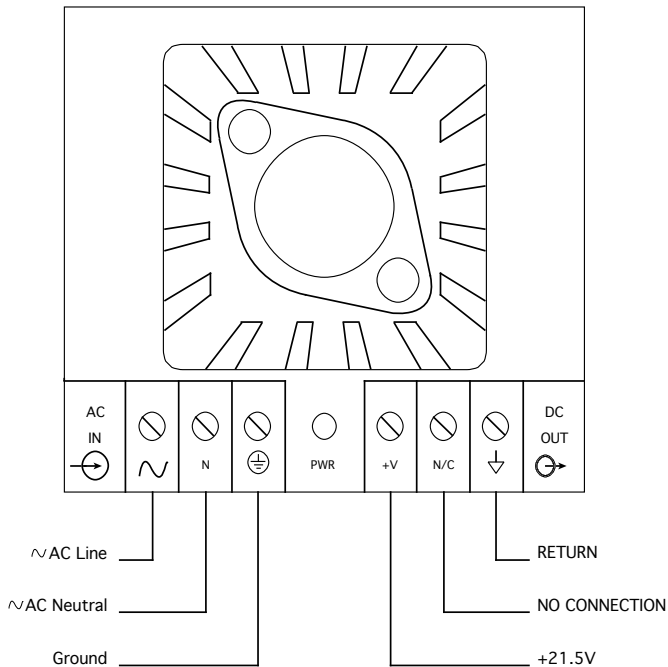
Figure 3.2 — 35mm "Top Hat"

*Installation:*

Hook in the module with the mounting rail guide on the top edge of the mounting rail and lower it to lock it into position.

*Removal:*

Release the spring catch with a screwdriver while raising the module to disengage it.



*Figure 4.1 – Front Panel Connection Labels  
shown without regulator cover*

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## 5.1 PS Type Labeling

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DRN-PS-750, where 750 equals mA rating.

DRN-PS-750

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## 5.2 Size & Weight

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Height:	2.76"	(70mm)
Width:	2.95"	(75mm)
Depth:	5.95"	(151mm)
Weight:	2.0 lbs.	(0.9 kg)

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## 5.3 Mounting

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35mm "top hat" DIN EN 50022

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## 5.4 Temperature Ranges

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Operating Temperature Ranges	-20 to 60 degrees C
Storage Temperature Ranges	-40 to 95 degrees C

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## 5.5 Input Range

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115 or 230V, 49–61Hz

DRN-PS-750     $\pm 10\%$

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## 5.6 Input Current Surge Protection

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6kA/275V Varistor

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## 5.7 Output Voltage

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21.5V  $\pm 2\%$  - IR, where I = output current amperes and R = 0.3 $\Omega$

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## 5.8 Output Current

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DRN-PS-750    0–750mA

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## 5.9 Output Ripple

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Less than 10mV pp

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## 5.10 Temperature Derating

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None below 50 degrees C

DRN-PS-750, 15mA per degree C above 50°C

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## 5.11 Power-on Indicator

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Front Panel red LED lamp

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## 5.12 Short-circuit and overload protection

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DRN-PS-750      foldback current limiting with automatic high temperature shutdown

*no fuses required*

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## 5.13 Wire Connections

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Screw down wire clamps, AWG 12 to 26 (ferrules recommended for stranded wire).

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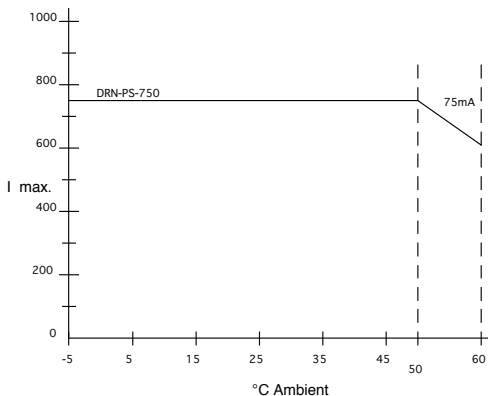


Figure 6.1 – Derating Graph

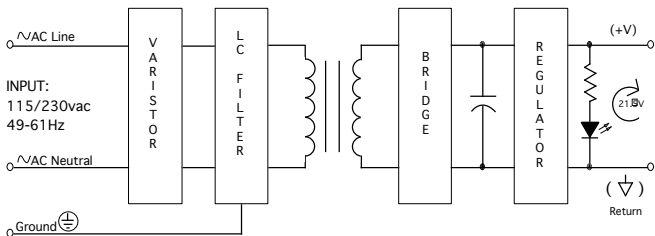
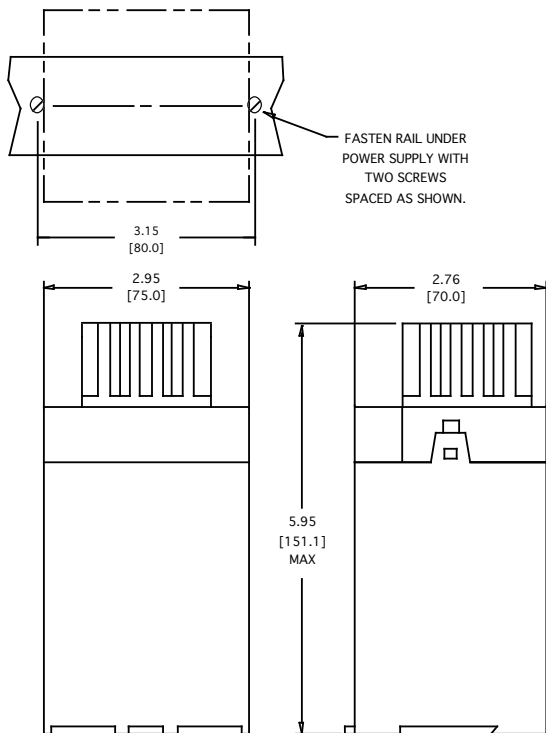


Figure 7.1 – Block Diagram



*Figure 8.1 – Dimensions*

# SAFETY CONSIDERATIONS

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This device is marked with the international Caution symbol. It is important to read this manual before installing or commissioning this device as it contains important information relating to Safety and EMC (Electromagnetic Compatibility).

## Unpacking & Inspection

### Note

Unpack the instrument and inspect for obvious shipping damage. Do not attempt to operate the unit if damage is found.

This instrument is a panel mount device protected in accordance with Class I of EN 61010 (115/230 AC power connections). Installation of this instrument should be done by Qualified personnel. In order to ensure safe operation, the following instructions should be followed.

This instrument has no power-on switch. An external switch or circuit-breaker shall be included in the building installation as a disconnecting device. It shall be marked to indicate this function, and it shall be in close proximity to the equipment within easy reach of the operator. The switch or circuit-breaker shall not interrupt the Protective Conductor (Earth wire), and it shall meet the relevant requirements of IEC 947-1 and IEC 947-3 (International Electrotechnical Commission). The switch shall not be incorporated in the mains supply cord.

Furthermore, to provide protection against excessive energy being drawn from the mains supply in case of a fault in the equipment, an overcurrent protection device shall be installed.



- The **Protective Conductor** must be connected for safety reasons. Check that the power cable has the proper Earth wire, and it is properly connected. It is not safe to operate this unit without the Protective Conductor Terminal connected.

### Note

- Do not exceed voltage rating on the label located on the top of the instrument housing.
- Always disconnect power before changing signal and power connections.
- Do not use this instrument on a work bench without its case for safety reasons.
- Do not operate this instrument in flammable or explosive atmospheres.
- Do not expose this instrument to rain or moisture.

## EMC Considerations

- Whenever EMC is an issue, always use shielded cables.
- Never run signal and power wires in the same conduit.
- Use signal wire connections with twisted-pair cables.
- Install Ferrite Bead(s) on signal wires close to the instrument if EMC problems persist.





## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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2. Model and serial number of product, and
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