



# SWITCHING POWER SUPPLIES - LOW PROFILE

Acopian Low Profile switching regulated power supplies include models with outputs up to 750 watts. They have universal input and power factor correction, and can be operated in either constant voltage or constant current mode. Features include voltage and current programming (either with external resistance or with voltage), terminals for monitoring output voltage and current, inhibit input and output 'Voltage OK' signal. Other standard features are short circuit protection, overload and thermal protection, remote sensing and a green 'DC on' indicator.

## INSTALLATION

Threaded holes on the bottom and right side surface may be used for mounting. An accessory Mounting Kit (model NP6) is available to enable mounting the power supply when the opposite side of the mounting surface is inaccessible. DIN rail Mounting Kits are also available.

It is very important to allow for the free circulation of air around and THROUGH the power supply (do not block fan intake or exhaust). Failure to do so will result in thermal shutdown or possible damage to the power supply.

Space at least one-half inch away from surrounding objects.

Make all connections before applying AC input power.

For installation in a Pollution Degree 2 environment.

## OPERATION

THE SENSING TERMINALS **MUST BE CONNECTED** to the output terminals, either at the output terminals of the power supply or at the load. Failure to have the sense terminals connected will affect the output voltage (usually causing it to be higher than the rating of the supply, and unadjustable), or may result in the overvoltage protection circuit latching the output 'off'. If voltage drops in the output voltage leads (which degrade regulation) are not objectionable, local sensing can be used; leave in place the jumpers provided with the power supply (connecting the +Sense to the +Rtn and the -Sense to the -Rtn). However, if the best possible regulation at the load is required, then remove the jumpers and use two lighter gauge leads to connect the sense terminals to the output leads at the load, as shown in the schematic. This configuration permits the power supply to sense and compensate the voltage actually across the load. Note that remote sensing is capable of compensating only limited wiring drops. The voltage across the load, plus the voltage drops through the wiring, must be within the output voltage range of the supply for the voltage at the load to remain within the load regulation specification. Therefore, the wire gauge used for the output lines **MUST BE LARGE ENOUGH** to assure that their combined voltage drops will not exceed the difference between the maximum output voltage of the supply and the voltage to be maintained across the load. (Wide adjust output models compensate up to 0.5 Vdc drop per output line.)

In electrically noisy environments it may be necessary to use shielded wire for remote voltage control and remote sensing. Connect the shields to the ground terminal on the terminal strip. Usually, the lowest level of output noise results when the load ends of the shield are *not* connected. Noise can be reduced in some applications with the use of a capacitor connected across the sense lines at the power supply; and in other applications, when one is connected across the load. A 0.1 mfd (100 WVdc) capacitor with good high frequency characteristics (such as Mylar types) is appropriate. Do not use a capacitor unless necessary.

**Over Voltage Protection:** A higher than normal output voltage (even if momentary, as when caused by a transient induced into the output wiring) will result in the overvoltage protection circuit latching the output OFF. To reset the output, interrupt the AC input power for 5 seconds. (Models with "N" option reset automatically.)

**Overload/Short circuit Protection:** These power supplies function as a constant voltage or constant current source. A short circuit or overload will force the power supply into the constant current mode. The supply will recover automatically when the overload or short circuit is removed.

**Series operation:** Outputs may be connected in series to obtain a higher voltage provided that a reverse-biased diode, having PIV and current ratings exceeding the combined output, is used across each output; however, keep in mind that the output current to be drawn cannot exceed the output current rating of the lowest rated supply used.

**Parallel or Redundant operation:** See note ② on other side of this sheet.

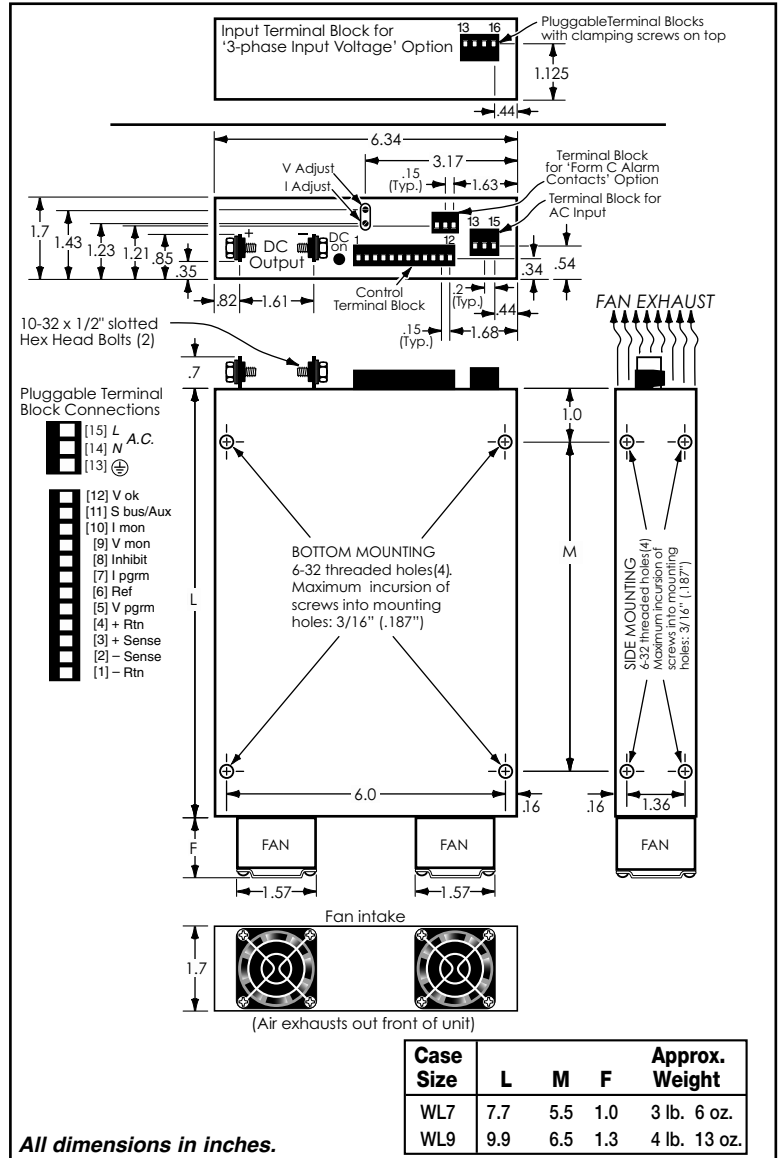
**Output Programming (Wide Adjust models):** The output voltage and current may be programmed from 0 to full rating by means of control voltage inputs of 0 to +10Vdc (0 to +5Vdc for models with option "C5"). Voltage mode accuracy: 0.5%. Current mode accuracy: 3% for models with greater than 10 amps output current and 4% for models with less than 10 amps output current. Accuracy percentages do not apply below 5% of output rating.

**Voltage Monitor Terminal:** Permits remote monitoring of output voltage, stepped down by a ratio of 10:1 (for 3.3v to 90v models) or 100:1 (for 100v to 135v models). Accuracy is 0.5% of maximum rated output voltage.

**For models with 0-5v programming option "C5":** Permits remote monitoring of output voltage, stepped down by a ratio of 10:1 (for 3.3v to 45v models) or 100:1 (for 48v to 135v models). Accuracy is 0.5% of maximum rated output voltage.

**Current Monitor Terminal:** For models with greater than 10 amps output current: permits remote monitoring of output current, stepped down by a ratio of 100 mV/Amp (accuracy is 3% of maximum rated output current). For models with less than 10 amps output current: permits remote monitoring of output current, stepped down by a ratio of 1000 mV/Amp (accuracy is 3% of maximum rated output current).

**For models with 0-5v programming option "C5":** For models with greater than 45 amps output current: permits remote monitoring of output current, stepped down by a ratio of 10 mV/Amp (accuracy is 5% of maximum rated output current). For models with less than 45 amps output current: permits remote monitoring of output current, stepped down by a ratio of 100 mV/Amp (accuracy is 3% of maximum rated output current).



### Applies to CE-certified models:

**CE Marked To:**  
 Directive 2011/65/EU (ROHS Recast)  
 Directive 2006/95/EC (Low Voltage Directive)  
 Regulation (EC) No 1907/2006 (REACH)

### SPECIAL MEASURES AND LIMITATIONS

To maintain compliance with the Low Voltage Directive, the following special measures and limitations must be observed when the product is placed into service:

- Evaluated for use in Pollution Degree 2 environment.
- Intended for connection to Class 1, TN-S power system.
- Models with outputs of 36 volts or less are considered to have SELV outputs.
- Models with outputs greater than 36 volts are considered to have hazardous voltage outputs and should not be located in an Operator Access area in the end product.
- Models with output ratings less than 240VA are considered to have non-hazardous energy levels. Models with output ratings of 240VA or greater are considered to have hazardous energy levels.
- See catalog for electrical and mechanical specifications.
- Ground terminal must be bonded to protective earth.
- Intended to be installed within end-use equipment.



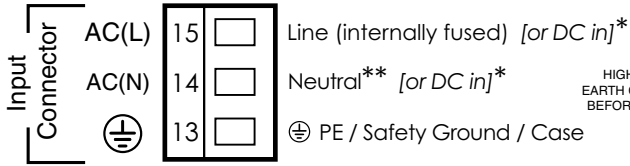
Find Everything at [www.acopian.com](http://www.acopian.com)  
 P.O. Box 638, Easton, PA 18044  
 Phone: (610) 258-5441 • FAX: (610) 258-2842



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## CONNECTIONS

Connector accepts 28 to 12 awg wire size. Tightening torque = 0.5NM or 4.5" lbs.



WARNING: HIGH LEAKAGE CURRENT. EARTH CONNECTION ESSENTIAL BEFORE CONNECTING SUPPLY

AC INPUT: 90-265 VAC, 49-420Hz, single phase (UL60950: 100-240 VAC)

\*DC INPUT: 110-350 Vdc

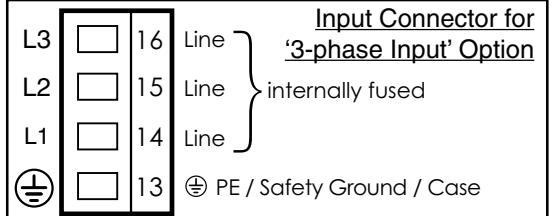
(DC input may be connected without regard to polarity.)

These power supplies are internally fused for protection in the event of power supply failure.

These power supplies are not recommended for use on ground fault protected circuits.

**CAUTION:** For continued protection against risk of fire, replace only with same type and rating of UL Listed fuse (250VAC 5x20mm): 8 amps for WL7 case size, 15 amps for WL9 case size.

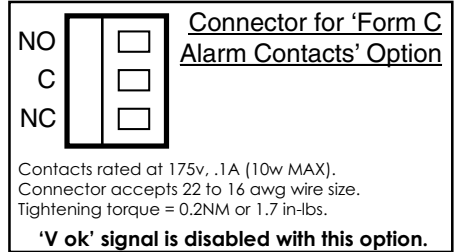
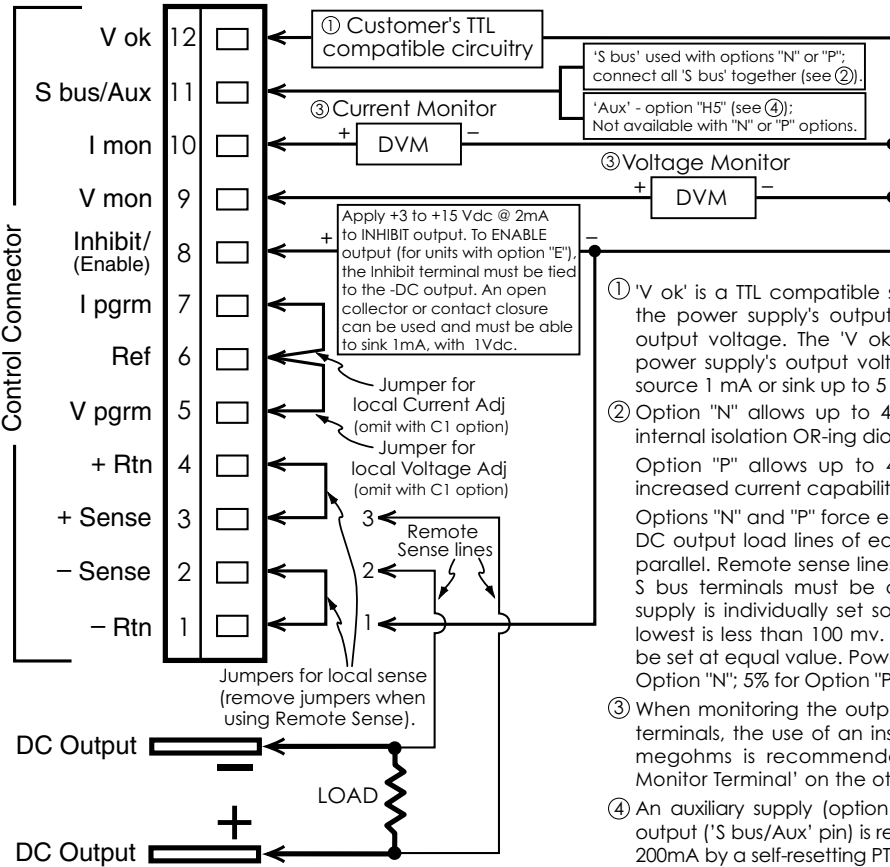
\*\* When using a two phase input (two high lines as with typical 208 VAC and 230 VAC sources) for safety reasons it is recommended that an external UL Listed fuse be used in series with the 'N' side of the AC input (8 amps for WL7 case size; 15 amps for WL9 case size).



AC INPUT: 170-240 VAC, 60-400Hz, 3-phase

**CAUTION:** When using a 3-phase input option power supply, for continued protection against risk of fire, replace only with same type and rating of UL Listed fuse (250VAC 5x20mm): 3.15 amps for WL7 case size, 4 amps for WL9 case size.

Connector accepts 22 to 16 awg wire size. Tightening torque = 0.2NM or 1.7 in-lbs.

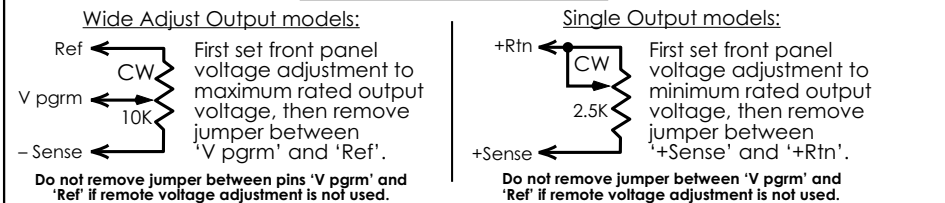


### NOTES:

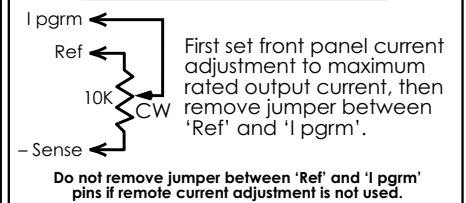
- 'V ok' is a TTL compatible signal voltage between +3 and +5Vdc (high) when the power supply's output voltage is within -14% and +15% of the nominal output voltage. The 'V ok' voltage will go low (approx 0.5 Vdc) when the power supply's output voltage is outside the -14%, +15% window. 'V ok' can source 1 mA or sink up to 5 mA. (Not available on Wide Adjust Output models.)
- Option "N" allows up to 4 like models to be wired in N+1 redundancy. An internal isolation OR-ing diode is included in each power supply. Option "P" allows up to 4 like models to be directly wired in parallel for increased current capability. Options "N" and "P" force equal current sharing among like model supplies. The DC output load lines of each individual supply may be directly connected in parallel. Remote sense lines may also be directly connected in parallel and all S bus terminals must be connected together. The output voltage of each supply is individually set so that the difference between the highest and the lowest is less than 100 mv. The current limiting set point of each supply should be set at equal value. Power supply output current must be derated by 10% for Option "N"; 5% for Option "P".
- When monitoring the output voltage and/or current by means of the monitor terminals, the use of an instrument having an input impedance of at least 10 megohms is recommended. See 'Voltage Monitor Terminal' and 'Current Monitor Terminal' on the other side of this page.
- An auxiliary supply (option "H5") provides +15Vdc ±2% at 100mA. The +15Vdc output ('S bus/Aux' pin) is referenced to '-Rtn'. Aux supply internally protected at 200mA by a self-resetting PTC. This option not available with options "N" or "P".

If there is any possibility of voltage from another source (another power supply, a battery, transients, etc) being applied to the power supply's output terminals, protect the power supply by using a diode in series with either the +OUT or the -OUT.

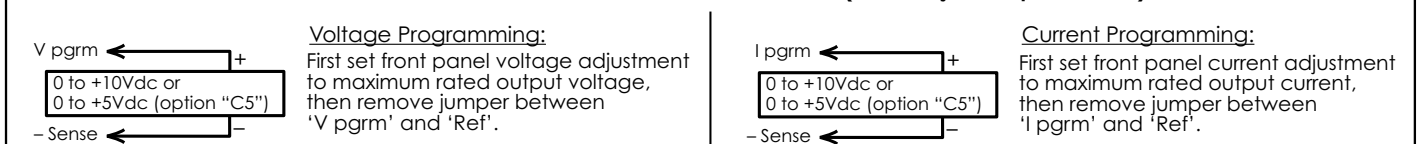
### REMOTE VOLTAGE ADJUSTMENT:



### REMOTE CURRENT ADJUSTMENT:



### OUTPUT PROGRAMMING for STANDARD or "C5" OPTION (Wide Adjust Output models):



**CAUTION: DO NOT apply negative polarity control voltage to the voltage or current program terminals.**

UL508 FILE: E306586

UL60950 FILE: E208800