

being used towards the higher end of their current range (Note 1), this will not be sufficient. Generally, to ensure adequate air-flow for PL supplies, an additional ventilated 1U spacer should be placed both above and below the RM450A. Where the RM450A is being placed at the bottom of a rack, ventilated air space may be provided naturally by the design of the rack, and it may be possible to omit the lower 1U space. An equivalent situation could exist at the top of a rack.

The exact ventilation requirements for a particular situation will depend upon ambient temperatures within the rack (Note 2).

#### **Note 1 - Heat Generation and Output Current – PL Series.**

New PL Series power supplies are linear regulated with a pre-regulator that ensures that power dissipation (and therefore heat generation) is almost independent of output voltage. Heat generation can be regarded as approximately proportional to output current, so that a PL155 operating at 2 Amps will generate around 40% of the heat of one operating at 5 Amps.

Maximum power dissipation at nominal mains is approximately as follows: PL155/PL155-P = 65 Watts at 5A; PL303/PL303-P = 50 Watts at 3A; PL601/PL601-P = 35 Watts at 1.5A

#### **Note 2 - Ambient Temperatures – PL Series**

New PL Series power supplies are designed to operate to full current at ambient temperatures up to 40°C. In a rack environment, this means that the air directly surrounding the power supplies must not exceed 40°C if the maximum output current is required. Where the ambient temperature is above this, the maximum output current must be derated linearly to zero at 70°C.



**Thurlby Thandar Instruments**  
Glebe Road, Huntingdon, Cambs PE29 7DR

Tel: 01480 412451

email: [sales@tti-test.com](mailto:sales@tti-test.com)

website: [www.aimtti.com](http://www.aimtti.com)

## **INSTRUCTIONS FOR TTI 19 INCH RACK KIT TYPE RM450A**

The RM450A is designed to accommodate any combination of up to four ¼-rack PL or CPX400S singles and/or up to two ½-rack PL dual power supplies. Because of the weight of the PL supplies it is strongly recommended that side supports are used with the rack. The simplest scheme is to fit fixed side rails to the enclosure; the rack kit is supplied with adjustable side support brackets designed to rest on the side rails. Alternatively, if telescopic slide supports are used, the rack should be drilled and assembled with the side supports before the instruments are fitted to the rack.

To fit the instruments to the rack turn them upside down so that they are lying on their top faces side by side, spaced from the bench-top by at least 25mm, see Fig 1. Remove the four plastic screws in each instrument which secure the feet and discard the feet. Fit the nylon captive nuts in the square holes in the base of each power supply (3 positions for a single, 6 positions for a dual) and to the narrow lower edge of any blanking plates to be used.

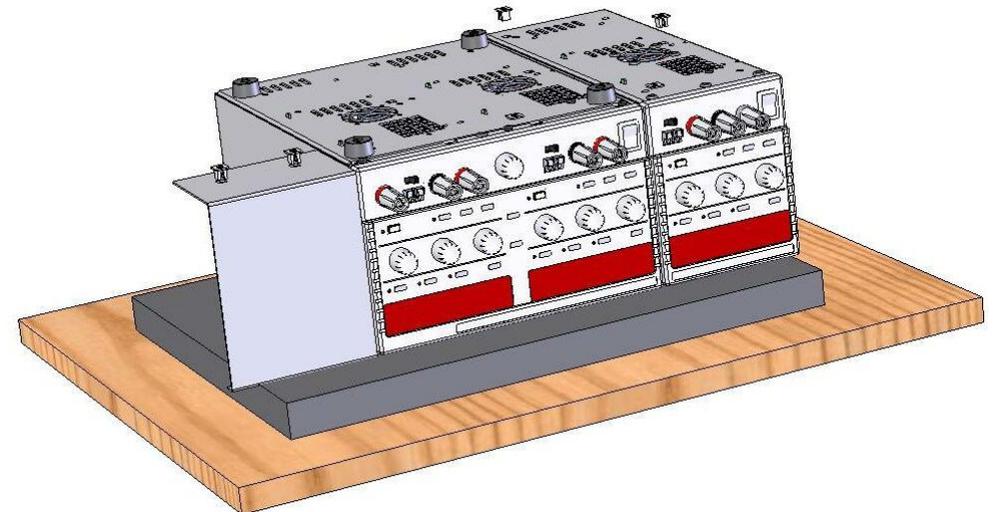


Fig. 1

Fit the two side support brackets to the rack using the M4 countersunk screws and nuts, see Fig 2. Try the empty rack in the enclosure and adjust the positions of the support brackets such that they each rest on the support rail in the enclosure as near to the vertical side of the rail as possible. Remove the rack from the enclosure.

Without removing the case covers, lay the rack over the instruments, with the front edge aligned with the outside of the moulded instrument bezel. The captive nuts should line up with the appropriate holes in the rack; secure the instruments to the rack with the self-tapping screws supplied, see Fig 2.

Secure blanking plates to any unused positions, using the self-tapping screws supplied, see Figs 1 & 2.

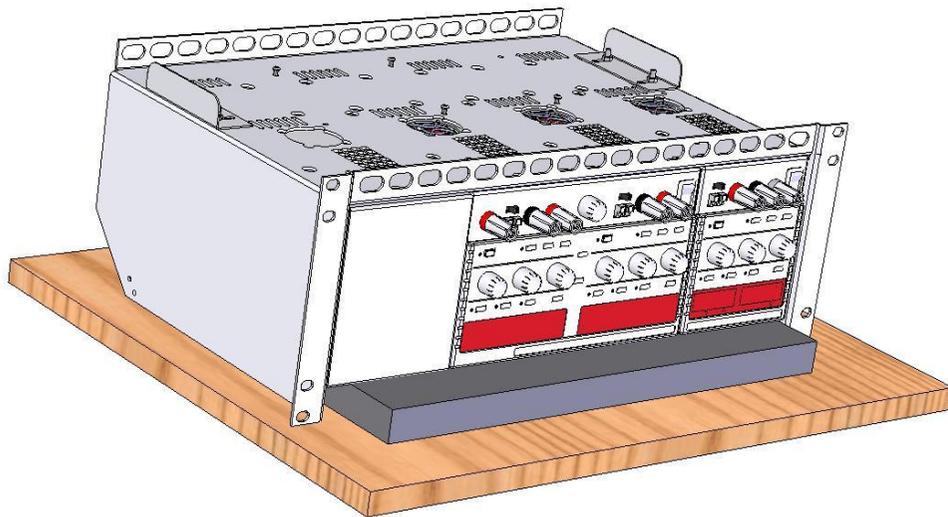


Fig. 2

Turn over the rack and fit the two top support brackets using the M4 countersunk screws supplied, making sure that the venting holes are in the vertical face, see Fig 3.

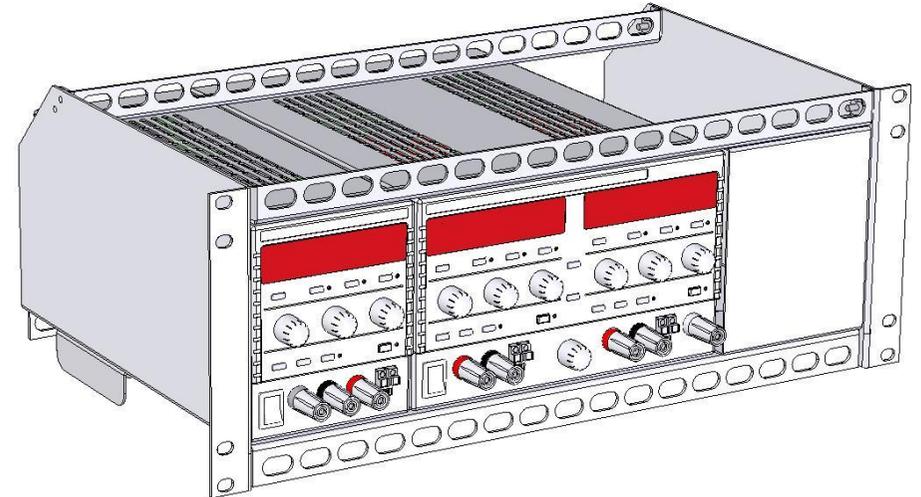


Fig. 3

Fit the rack to the enclosure, ensuring that cooling requirements discussed in the following section have been fully considered and implemented.

### Cooling Considerations

The RM450A rack mount kit provides limited ventilation space ( $\frac{1}{2}$ -U) above and below the supplies which is adequate for the CPX400S series and for PL supplies being used at low currents only. However, where PL power supplies (which use a vertical cooling system) are