



THYRISTOR DIMMERS



Type PTM Dimmers & Racks

5000W; 2500W maximum.

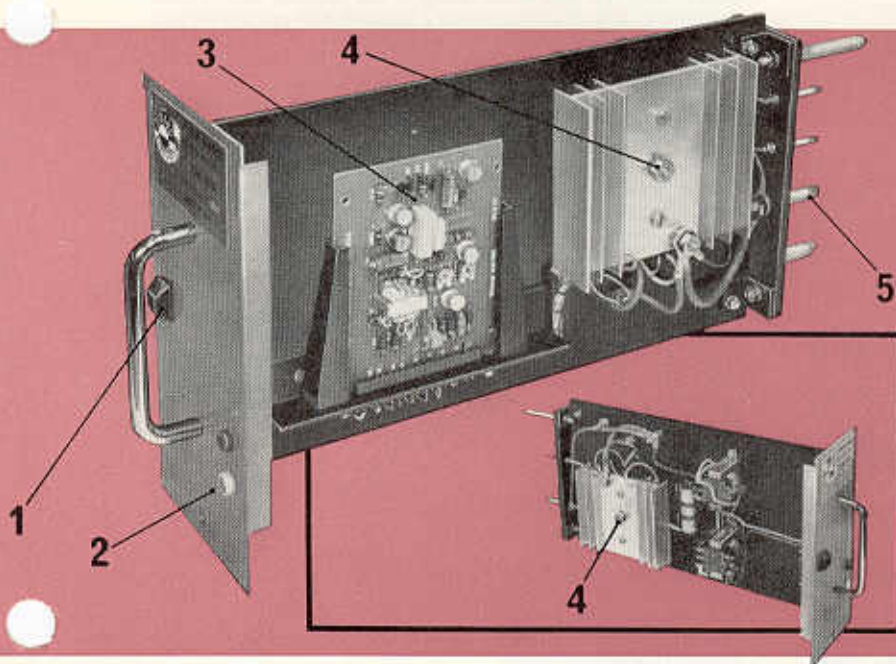
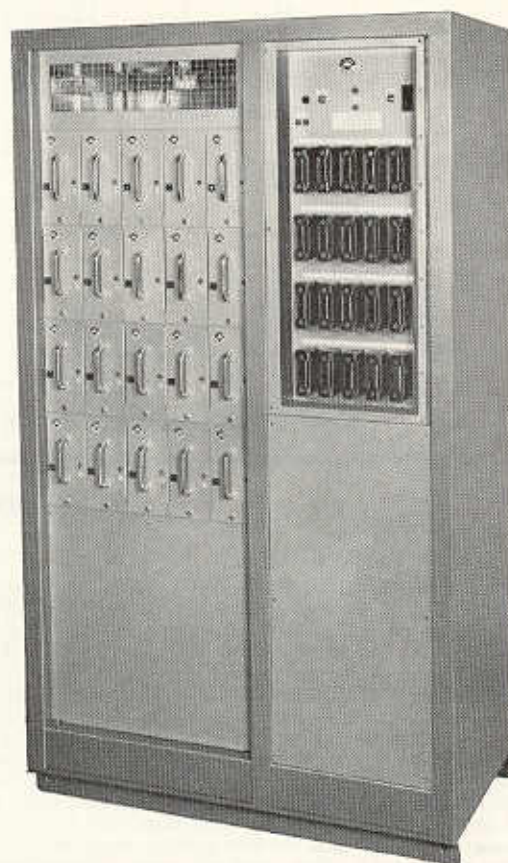
200/250v 50Hz.

These plug-in dimmer modules and associated racks meet the requirements of broadcast television studios, opera houses and large repertoire theatres where large dimmer capacities and the highest standards of filtering and accessibility are demanded.

Each rack contains the supply distribution, circuit protection and a total of twenty type PTM 5000W and/or 2500W maximum Thyristor dimmer modules and their associated filter network. Racks do not require rear access and can be sited back to back.

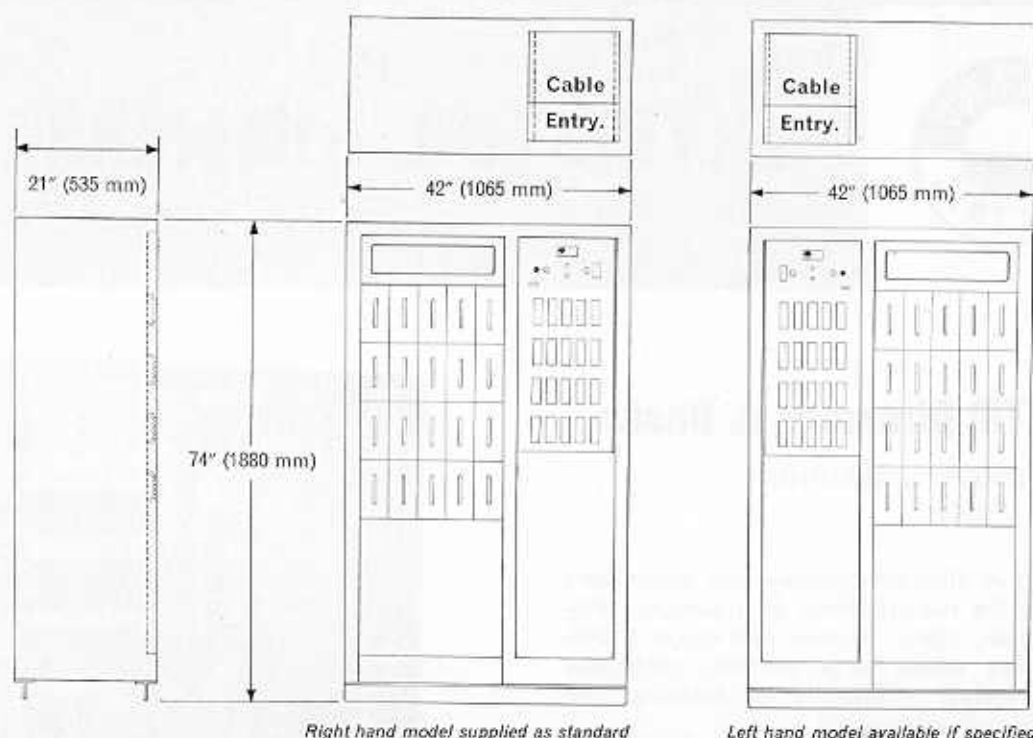
The light weight dimmer module has plug-in power and control connections. The tungsten filament lamp load is wholly regulated by a pair of Thyristors which in turn are controlled by a plug-in printed circuit trigger unit.

The series-connected filter network is mounted separately, below the dimmer modules, and limits the rise time of the output waveform to not less than 1 milli-second at the 90° point in the power cycle.



1. Pilot lamp for fused-supply indication.
2. Test points for rapid monitoring of control signal and AC output voltage.
3. Plug-in printed circuit trigger unit.
4. The pair of Thyristors mounted on generous heat sinks either side of the chassis.
5. Multi-contact pins for all power and control connections; also rigid guide pins at top and bottom.

Similar equipment is available for 110/120V 60Hz. supplies.



TYPE PTM.25/50 DIMMER RACK WEIGHT 620lb. (281 Kilos) including 20 dimmers

SPECIFICATION

DIMMER RACKS

Each dimmer rack shall be for a 3-phase 4-wire 50Hz supply and shall accommodate a total of twenty type PTM.50 5000-watt maximum and/or type PTM.25 2500-watt maximum 200/250 volt Thyristor dimmer modules. Each dimmer channel shall include a 25 amp. maximum filter network mounted in the base of the rack. The dimmer channels shall be connected in phase sequence unless otherwise specified. The free-standing rack shall be totally enclosed and constructed of preformed box sections and pressings finished two tone hammer grey. The face plates of the dimmer modules and also the fuse panel shall be contained within the principal framework. The rack shall have two compartments; the larger one for the dimmer modules with their associated filters below, and the other compartment for supply distribution, all external connections, and the channel fuse protection. Rear covers shall be fitted to these compartments but all components and connections shall be accessible from the front to permit racks to be sited back to back, or back against a wall. The connection compartment, with removable plates at the top and the bottom to facilitate cable entry, shall be on the right-hand side of each rack unless left-hand specified at time of order.

Each rack shall be factory wired for 5000-watt dimmers in all positions with all external connections brought to pressure pad terminals in the compartment behind the hinged fuse panel. To suit certain wiring systems an earth/ground terminal shall be provided for each channel. A shrouded-contact fuse shall be provided for each dimmer channel and the fuse-bridge fitted with a quick-acting HRC fuse to give full load fault protection.

The total heat dissipated by the dimmers shall not exceed 2% of either the maximum supply capacity or the maximum load capacity, whichever is the smaller. Each rack shall be fitted with internal ventilation equipment to disperse this heat, but, if necessary external means should be provided to ensure that the ambient temperature does not exceed 95°F (35°C). Red and green pilot lights shall indicate whether the safe internal temperature is being maintained.

DIMMER MODULES

Each dimmer shall be a self-contained plug-in unit on a rack mounting sliding chassis fitted with a face plate and a handle. The dimmer module shall not weight more than 5½lb. (2.5 kilos) and shall be removable from the front by withdrawing a single, captive retaining screw. The chassis shall be fitted with rigid guide pins and self-aligning multi-

contact pins for all power and control connections to the rack. The control connections shall make after, but open before, the power connections. The face plate shall contain a colour-coded voltage and maximum load rating label, a pilot lamp to indicate the operative status of the dimmer and test points to permit the control signal and output voltage to be monitored.

The regulation of the tungsten filament lamp load shall be wholly by a pair of Thyristors (controlled rectifiers) and these shall be of a type which will allow the full tungsten surge current to flow. The output shall be AC with a waveform which is completely symmetrical with respect to the zero voltage and current. The maximum output of the dimmer channel (including filter) shall not be less than 99% of the supply voltage.

The output voltage to any load between the minimum of 60-watt and the maximum rating of the dimmer shall follow the control signal in less than ½ second without oscillation or any other form of transient disturbance. A 60-watt lamp load shall have the same dimming curve characteristics as the maximum load rating and the addition of load to a partially loaded dimmer shall not alter these characteristics. Each dimmer shall generate its own control circuit power and synchronizing supplies for the plug-in printed circuit trigger unit which shall include trimming adjustments for full-on and blackout. The control signal input shall be completely isolated from the load circuit and the signal shall not need to be related to the phase of the load circuit. The control signal shall not exceed 24V 2mA and there shall be no limitation on the length of the control cable. Unless otherwise specified the plug-in trigger unit shall operate from a control voltage excursion from technical earth reference for zero light to -15V for full light and shall provide S curve dimming characteristics. The dimming curve characteristics of dimmers with equal loads and with equal control signals shall be matched within 2% of the supply voltage.

FILTERING

Each dimmer channel shall include a series-connected inductive filter network to reduce the rise time of the output waveform to not less than 1 milli-second at the 90° conduction point in the power cycle at full load. The noise power, defined as all harmonics in the load waveform between 200Hz and 16kHz, shall be reduced by 15dB (a factor of 33 to 1) compared with an unfiltered channel at full load. This value of noise power shall not be exceeded when the channel loading is varied.