

CD80/8 Dimmer Modules

Increased filtering, acoustically quiet

- ◀ Ideal for noise-sensitive installations
- ◀ Cost effective, high density
- ◀ High-performance toroidal chokes
- ◀ Heavy-gauge aluminum chassis
- ◀ Heavy-duty, self-aligning power and control plug

Specifications:

Dimmer modules shall be fully plug-in factory-wired units designed to slide into the dimmer bank. Modules shall be rugged, heavy-duty construction. Electronic components shall be fully enclosed by a 1/2" (3mm) formed aluminum chassis. Power and signal pins shall be oversized and recessed in a self-aligning compressed phenolic housing to avoid handling and insertion damage. A contoured handle shall be provided for ease of insertion and withdrawal. Finish shall be baked enamel. Dimmer modules shall be U.L.-recognized devices.

A. Dimmer electronics shall be completely solid state. They shall utilize two silicon-controlled rectifiers in a back-to-back electrical configuration. The full load of the circuit is to be carried and controlled solely by the silicon-controlled rectifiers. Dimmers employing triacs shall not be acceptable.

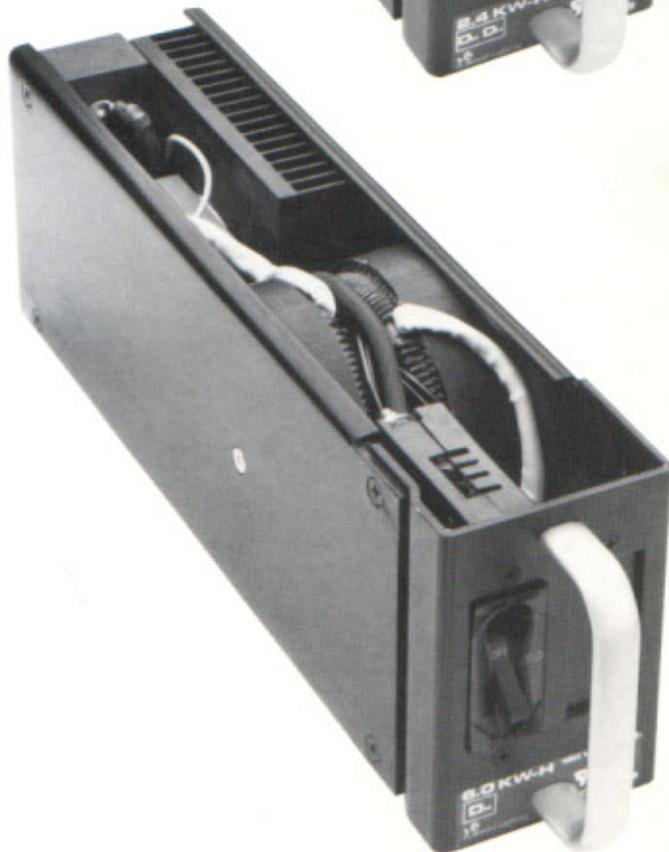
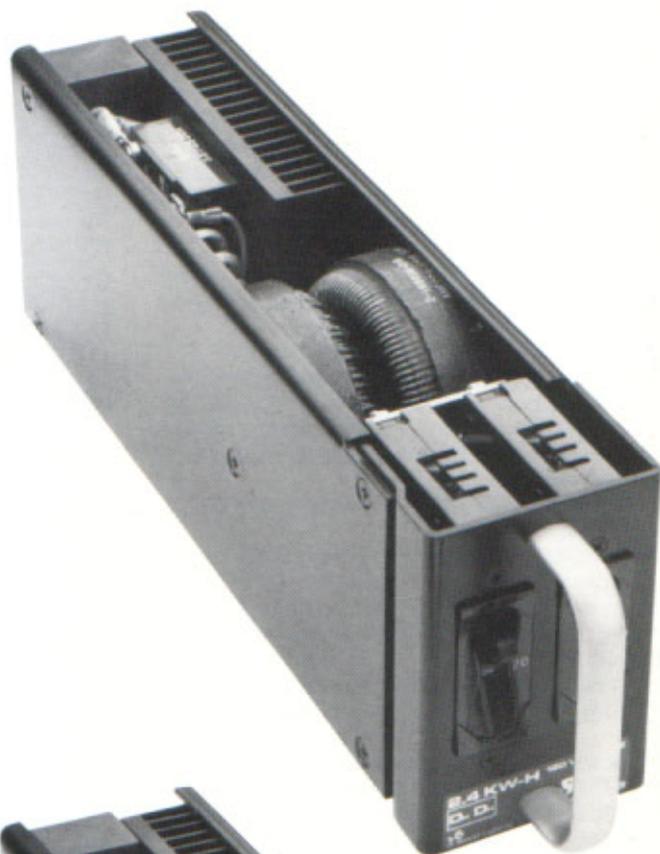
B. SCR devices shall be mounted on a beryllium oxide substrate for maximum heat dissipation. The substrate shall be encapsulated in an epoxy-filled high-impact plastic case with an optical isolator, trigger SCR, steering bridge and snubber network. There shall be a minimum of 2500 volts of isolation between the AC line and the control lines of the sub-assembly.

C. Each dimmer shall be protected by a fully magnetic circuit breaker of the appropriate amperage mounted on the faceplate of the dimmer. The breaker may be used as a dimmer disconnect and shall be a U.L. listed device. Under overload conditions, it will disconnect the power to the dimmer module before damage can be done to the power device.

Current-limiting feedback technique will not be acceptable as a means of protecting a main power device because an overload condition must exist before circuits can sense and correct for the condition. Under no circumstances will dimmers allowing continued operation with load substantially in excess of the rated capacity be acceptable. The protective device shall have a maximum "must trip" rating of 125% of rated capacity.

D. Each dimmer shall have an integral high-performance inductive toroidal filter (choke) mounted within the plug-in dimmer chassis. The chokes shall be designed to greatly minimize 3rd, 5th, 7th and 9th harmonics. It is these harmonics that are directly attributable to excessive and objectionable filament and fixture noise. In addition to reducing harmonic distortion, this choke shall also limit conducted radio frequency interference on the AC line to prevent interaction with other dimmers.

E. The rise time of the 2.4kw shall be a nominal 840 micro-seconds measured at 90° conduction angle from 10% to 90% of the output wave form with the dimmer operating at maximum load.



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Specifications: (Cont.)

F. The dimmer module shall be designed to operate on 100-volt to 140-volt A.C. line at 50 to 60 Hz. Adequate heat sinking shall be provided so that all components remain at a safe operating temperature with the dimmer properly installed in the dimmer bank.

G. The dimmer module shall be capable of "hot patching" cold, incandescent loads up to its full rated capacity without malfunction with the control signal at full on.

H. Each dimmer in conjunction with circuitry in the dimmer bank shall maintain the output RMS voltage within $\pm 2\%$ with changes in the A.C. line from 90 to 140 volts RMS.

I. The dimmer shall maintain output RMS voltage within $\pm 2\%$ with changes in load from 10 watts to full rated load at any point on the dimming curve.

J. Switch-on versus switch-off response time shall be within 0.1 seconds for all loads.

K. The output RMS voltage versus control position shall follow the "square law dimming curve." Other optional curves shall be available for installation at the control console. Dimmer curve shall be stable without the need for adjustment.

L. The power efficiency of the dimmer shall be a minimum of 93% at full load. Power consumption of the control circuitry housed in the dimmer bank shall not exceed 0.1 watt per dimmer.

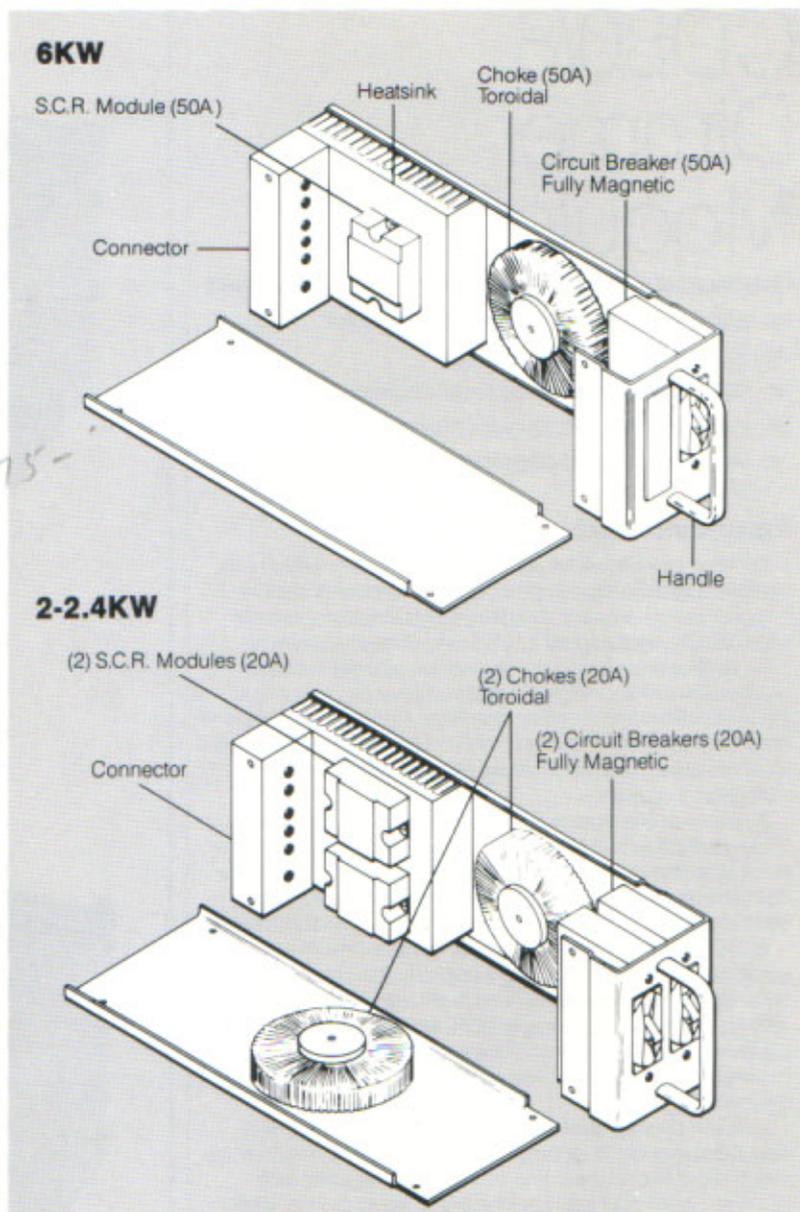
M. Dimmer modules of the same capacity shall be interchangeable. Connectors and receptacles of modules of different capacity shall be polarized so that modules of different capacity cannot be interchanged.

N. Individual dimmer chassis sizes shall not exceed the following:

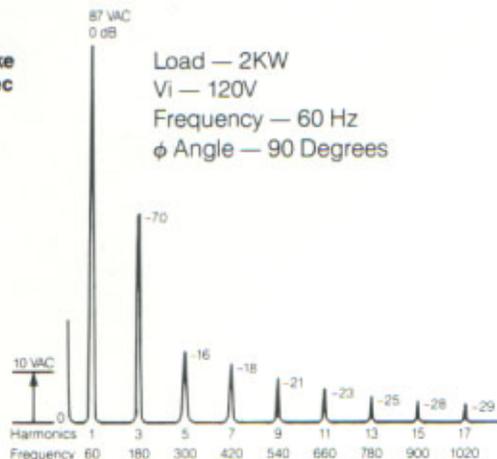
1. Dual 2.4kw dimmer: $4\frac{7}{8}'' \times 3\frac{1}{4}'' \times 14''$ deep (124mm x 83mm x 356mm). 220V — dual 2.2kw, single 5.5kw
2. 6kw: $4\frac{7}{8}'' \times 3\frac{1}{4}'' \times 14''$ deep (124mm x 83mm x 356mm). 220V — 6.6kw

O. Plug-in non-dim modules shall be the same size and capacity as dimmer modules. Each non-dim shall be provided with a primary circuit breaker so it can be used for inductive loads.

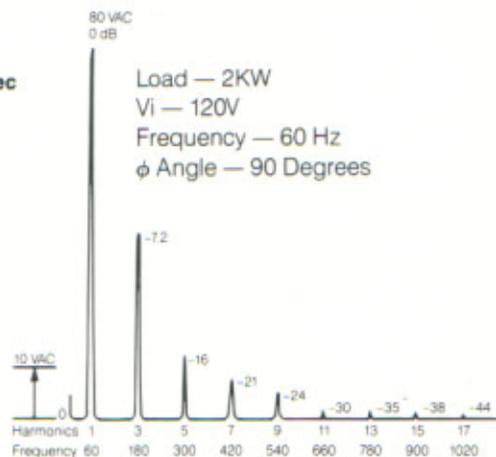
P. Plug-in modules, switch selectable between dimmer and non-dim operation shall be available.



Typical Choke
TR = 360 μ sec



CD80/8
TR = 850 μ sec



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