

### Features

- Saf-T-Qube equipped
- 100% Dead front design
- Overheat and overcurrent protected
- Forced air cooling with thermal sensor
- Utilizes an oversized dedicated heatsink
- May operate as a nondim for inductive loads
- Fully magnetic circuit breakers, 10,000 AIC rating, designed for continuous duty
- U.L. listed in Mark VII rack or portable configuration

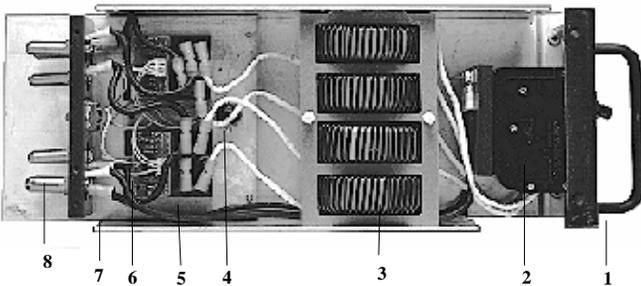
Module	Available Power Ratings	Available Input Voltages	Minimum Rise Time	SCR Rating	Minimum Capacity and Surge Current	Maximum Heat Loss	Physical Dimensions	Net Weight
<b>2x2 PRO</b>	1.2 kW 1.8 kW 2.4 kW	90-140VAC 50-60Hz	350 $\mu$ S (measured at 10% to 90% with 2.4kW load)	2 per unit Heavy Duty 40A RMS, 600V Tungsten Rated	40A w/500A peak single cycle surge current(600V transient capacity)	$\leq$ 59W per dimmer (100 BTU's per hour per connected kW of load)	5.75" H x 16.5" D x 3.75" W (14.6 cm x 41.9 cm x 9.5 cm)	12 lbs. (5.44kg)
<b>2x2 High Performance</b>	2.4 kW	90-140VAC 50-60Hz 220-240VAC 50Hz	500 $\mu$ S (measured at 10% to 90% with 2.4kW load)	2 per unit Heavy Duty 40A RMS, 600V Tungsten Rated	40A w/500A peak single cycle surge current(600V transient capacity)	$\leq$ 59W per dimmer (100 BTU's per hour per connected kW of load)	5.75" H x 16.5" D x 3.75" W (14.6 cm x 41.9 cm x 9.5 cm)	12 lbs. (5.44kg)
<b>2x6 High Performance</b>	6.0 kW	90-140VAC 50-60Hz	500 $\mu$ S (measured at 10% to 90% with 6.0kW load)	2 per unit Heavy Duty 80A RMS, 600V Tungsten Rated	80A w/1200A peak single cycle surge current(600V transient capacity)	$\leq$ 148W per dimmer (100 BTU's per hour per connected kW of load)	5.75" H x 16.5" D x 3.75" W (14.6 cm x 41.9 cm x 9.5 cm)	12 lbs. (5.44kg)
<b>1x12 High Performance</b>	12.0 kW	90-140VAC 50-60Hz 220-240VAC 50Hz	390 $\mu$ S (measured at 10% to 90% with 12.0kW load)	1 per unit Heavy Duty 125A RMS, 600V Tungsten Rated	125A w/1400A peak single cycle surge current (600V transient capacity)	$\leq$ 352W per dimmer (100 BTU's per hour per connected kW of load)	5.75" H x 16.5" D x 3.75" W (14.6 cm x 41.9 cm x 9.5 cm)	13 lbs. (5.90kg)

### Description

Designed for extended service life and simplicity, our SPI dimmer modules provide exceptional noise suppression at all light levels. Each SCR power cube is equipped with an EDI Saf-T-Qube™, which protects low voltage DMX data cables and associated console and dimmer bank electronics from any potential contact with high voltage power in the event of a power cube failure. Our SPI modules are designed for use in EDI Mark VII dimmer banks and SCRimmer II portable dimmer packs. They will control incandescent, quartz and low voltage incandescent loads as well as non dim loads. The fully enclosed plugin module offers a high level of safety. Its chassis design includes a 300 sq. in. heatsink with forced air cooling. Designed for user convenience, the plugin design allows the module to be easily removed without tools. All SPI plugin modules are made to the same rugged construction and quality standards used throughout EDI product lines.

### Component Information

Typical SPI Module with cover plate removed (Side View). Toroidal choke and SCR arrangements vary depending on model.



- 1. Plugin / Pullout handle**  
Provides easy dimmer installation and removal.
- 2. Primary circuit breakers**  
Fully magnetic, 10,000 AIC circuit breakers provide short circuit and overload protection, as well as on/off switch for the dimmer.
- 3. Toroidal chokes**  
Heavy duty, iron core, copper wound toroidal chokes assure quiet operation with minimum lamp filament vibration. HP units shall cause no interference in professional quality audio, radio, or television systems.
- 4. Thermal Sensors**  
Monitors heatsink temperature. Dimmer output turns off when heatsink temperature exceeds 185°F. (85°C). Normal operation automatically resumes when the temperature returns to the safe region.
- 5. Solid State Relay**  
The solid state relay devices include silicon controlled rectifier(s) in an inverse parallel configuration, a snubber network and required gating circuitry on the high voltage side. Complete isolation is integral to the device by means of an optically coupled control voltage isolator, and an external electrical fault interrupt circuit (Saf-T-Qube™). The rectifiers provide symmetrical alternating current output to loads at an output level from off to full intensity.
- 6. Saf-T-Qube™**  
Protects low voltage DMX data cables and associated console and dimmer bank electronics from contact with high voltage power in the event of a power cube failure.
- 7. Heatsink**  
An integral component of the dimmer module, the heatsink dissipates heat produced by the solid state relay. The solid state relays are mounted to an extruded aluminum heatsink with a minimum of 300 square inches of radiating surface.
- 8. Line Input/Load Output Pins**  
150 Amp, high quality brass pins, floating for true alignment and positive connection.



### Electrical Characteristics

<b>Overcurrent</b>	Withstands cold inrush currents, overcurrents, hot patches, and dead shorts. May be inserted or removed under full load without damage.
<b>Overheat</b>	Dimmer output turns off when heatsink temperature exceeds 185° F (85° C). Normal operation automatically resumes when the temperature returns to a safe level.
<b>Operating Environment</b>	Temperature range: 32° F (0° C) to 104° F (40° C). Humidity range: 0% - 90% noncondensing.
<b>Dimming Curve</b>	Square Law
<b>Interaction</b>	No interaction between dimmers
<b>No Load Loss</b>	Less than 1 watt
<b>Load Ranges</b>	25 watts to rated capacity, blackout to full intensity
<b>Load Regulation</b>	2% from 100-130VAC over the entire load range

### Mechanical Characteristics

<b>Chassis</b>	Heavy gauge aluminum
<b>Front Panel</b>	Heavy gauge aluminum, finished with black epoxy paint and silk-screened printed Nomenclature



### Specifications

- The dimmer module shall be constructed of aluminum and aluminum extrusion and shall have a pull handle on the front panel. The module shall be painted with black epoxy and shall have permanent screened lettering in white.
- The front panel of each module shall be marked with the manufacturer's name, model number, quantity and capacity of dimmers, power line voltage and frequency.
- The solid-state switch devices shall be mounted in a substrate material for maximum heat dissipation. The substrate shall be encapsulated in an epoxy filled high impact plastic case along with an optical isolator, a snubbing network and all required gating circuitry on the high voltage side of an integral optically coupled control voltage isolator providing a minimum of 2500V RMS isolation between line and control in the switch device. A 2.4kW module shall have a minimum capacity of 40 Amps, with a rating of 500 Amp peak single cycle surge current and 600V transient capacity.
- In addition to the optical isolation provided internally in the power cube device, additional protection shall employ a combination of Metal Oxide Varistors (MOV's), Pico fuses and/or transzorbs for the highest level of protection to the control inputs. Dimmers using triacs or power cube isolation systems external to the dimmer module shall not be acceptable.
- The module shall contain fully magnetic circuit breakers, filter chokes, heatsink with thermal sensor, and silicon controlled rectifiers. Except for circuit breakers, the module shall contain no moving parts. Dimmer modules without individual thermal sensors shall not be used.
- All load connections to the module shall be by pin connectors, which provide the capability of "hot patching" cold, incandescent loads up to its rated capacity without malfunction with the control signal at full on.
- All load circuit wiring shall be constructed of tin coated stranded copper wire with extruded fluorinated propylene insulation, rated at 392° F. (200° C), and sized in accordance with the National Electric Code.
- The dimmer shall be protected against overcurrents and shall be capable of withstanding inrush currents, hot patches and short circuits of 0.02 Ω or more without damage. The module shall have a fully magnetic primary circuit breaker rated at 100% capacity, listed at 10,000 AIC, with a "must trip" capacity of 125%.
- The dimmer module shall include a circuit which shuts down the module when the heatsink temperature exceeds 185° F. (85° C). When temperatures return to safe levels, the module shall restart automatically. If a dimmer module overheats, provisions shall be made in the system to signal the console operator that a dimmer module has shut down.
- The solid-state relays shall be mounted to an extruded aluminum heatsink with a minimum of 300 square inches of radiating surface. A dedicated heatsink shall contain the maximum SCR heat generated by the extrusions to less than 75° C.
- Dimmer module control connectors shall be designed so that modules of a greater capacity cannot be operated within the rated capacity of the wired position.
- The dimmer shall operate over an input voltage range of 90 to 140 VAC, 50/60 Hz. Nominal input voltage shall be 120 VAC, 50/60 Hz, unless otherwise specified.
- The maximum heat loss for each 2.4 kW module shall be no greater than 59 watts per dimmer or 100 BTU's per hour per connected kW of load.
- The dimmer shall function properly with any incandescent load from 25W to rated capacity.
- The dimming curve shall conform to the Square Law.
- Any given control setting shall result in the same dimmer output regardless of the direction of control movement.
- Each dimmer shall have one or more toroidal, copper wound, iron core high performance chokes, depending on the model. Dimmers shall have a current rise time at any point on the curve of not over 0.75% of the dimmer RMS current rating (mA per second). For example, a 20A dimmer would have a maximum rating of 100 mA/μs, which meets the established industry standard. Rise time ratings shall be as noted, but shall in no case be less than the following for the models listed below:
- Each 120V dimmer module shall be a recognized component of Underwriters Laboratories.
- When used with EDI memory controllers, this dimmer may function as a non-

2x2 High Performance		2x6 High Performance		1x12 High Performance	
Power	Rise Time	Power	Rise Time	Power	Rise Time
1kW	400μS	2kW	500μS	6kW	343μS
1.5kW	450μS	5kW	519μS	9kW	382μS
2.4kW	500μS	6kW	520μS	12kW	390μS

dim. When functioning as a nondim, the module functions with both incandescent and inductive loads.

- The SPI Dimmer series shall be manufactured exclusively by Electronics Diversified, Inc., Hillsboro, Oregon, 97124.