

# Dimension 192

## 192-000 SERIES – THE RACK

Maximum density dimming . . . up to 192  
2.4kW dimmers or combinations with other ratings.

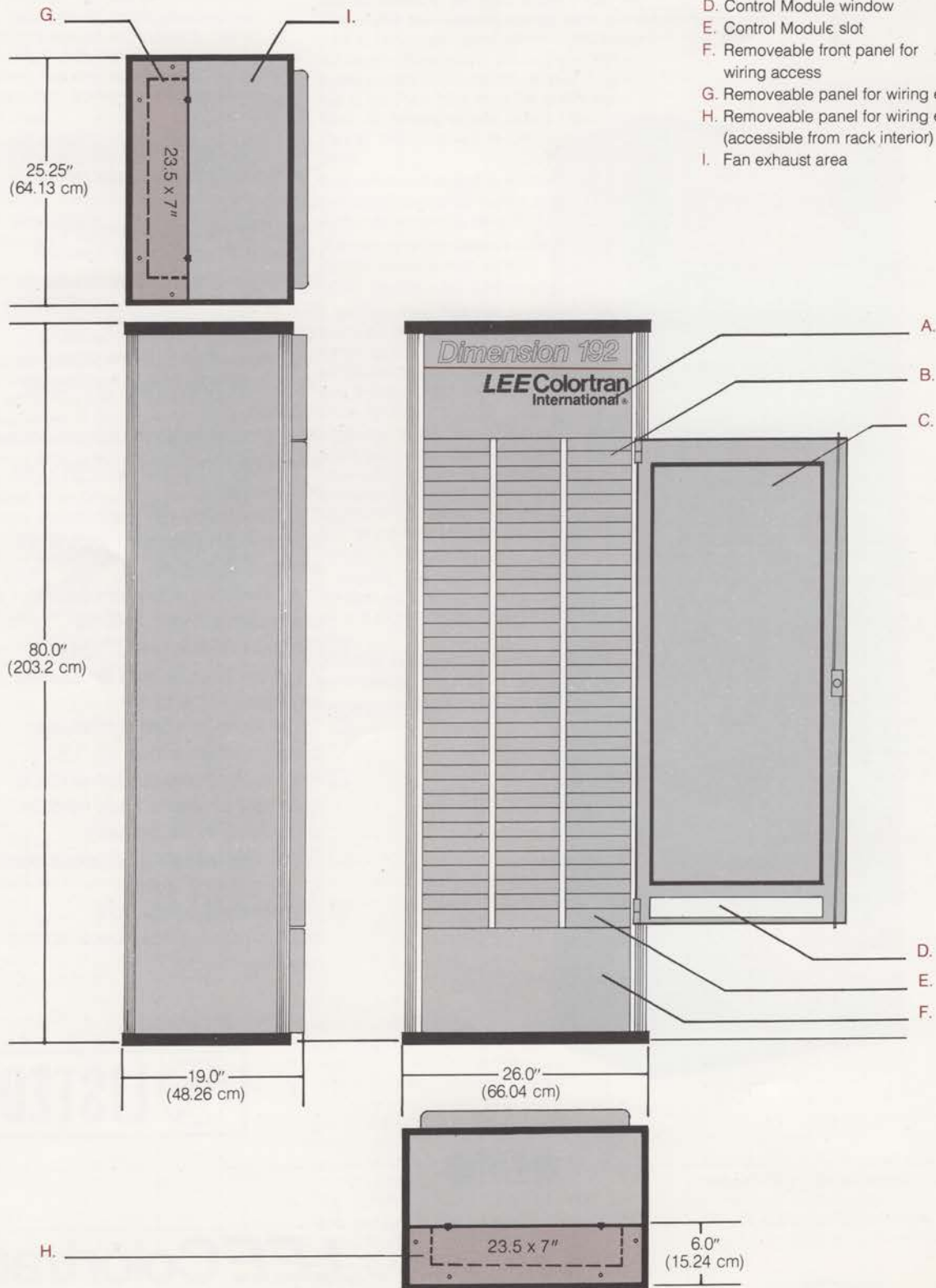


- 192-1.2 or 2.4kW dimmers per rack. The most in the least amount of space.
- Each dimmer is independently cooled with ambient air from the front of the rack. This accounts for a lack of temperature gradient in the rack...this means cool & quiet.
- Top and bottom access panels for line & load runs. Quick and easily installed.
- Plug-in dimmer and control modules make the Dimension 192 rack fully serviceable.
- The Dimension 192 contains auxiliary functions as a standard and built-in feature. The need for an "aux cabinet" is eliminated in most systems.
- Dimmers of different ratings (1.2, 2.4, 6.0 & 12.0kW) may be located anywhere in the rack.
- Three identical control modules display system status with LED's.
- Plug-in electronic system controls up to 192 dimmers. Each module controls up to 64 dimmers.
- Spare module provided per system for emergency backup.
- Maintenance — fully front accessible no side or back access required.



# THE RACK

- A. Removeable front panel for blower and wiring access
- B. Dimmer Module Slot
- C. Locking door with integral electrostatic filter.
- D. Control Module window
- E. Control Module slot
- F. Removeable front panel for wiring access
- G. Removeable panel for wiring exit
- H. Removeable panel for wiring entrance (accessible from rack interior)
- I. Fan exhaust area





# Dimension 192

## THE CONTROL MODULE.

the brain of the rack system.



- Fully plug-in, the module controls all 64 dimmer locations in a vertical column. There are thus three control modules per rack.
- The module controls all functions of dimmer access, timing and ramping, as well as deciding which channels are digital, which are analog, which channels are on panic and does it all with reliability.
- Front panel indicators show status of feeder bus bars and power supply, signal status and rack overtemp.

## Specifications

### DIMENSION 192 DIMMER BANK & CONTROL MODULE

#### I. MECHANICAL

- A. Dimmer Rack shall be free-standing dead-front switchboard no larger than 80" (203.2cm) H x 19" (48.3cm) D x 26" (66.1cm) W or multiple widths thereof sufficient to house all specified equipment. It shall be substantially framed with code-gauge formed steel and extruded aluminum structural members and completely enclosed with code-gauge steel or aluminum panels. All steel parts shall be plated and / or painted. All exterior surfaces shall be finished in two-tone grey powder paint.
- B. Dimmer Rack shall be constructed so as to only require front access. All line, load and control wiring shall be through removable conduit access panels in top and bottom. Interior access for installation and service shall be from the front through screw-down panels free of wired devices or through the removal of plug-in modules for ease of access. Space for future plug-in modules shall be covered with plug-in "dummy" modules.
- C. Dimmer Rack shall be designed to contain 96 Colortran Dimension 192 Dimmer Modules, except for the 10kW and 12kW Dimmer Module which takes up two spaces, and 3 Colortran Dimension 192 Control Modules. Each module position shall contain module support rails mechanically keyed to accept the modules specified, and dimmer module positions shall be identified with engraved lamacoid or printed position numbers. Dimmer Module positions shall contain flat copper bus bar powder connectors and quad-spring-loaded tin-plated beryllium-copper "banana" plug control connectors configured to accept the modules specified. Control Module positions shall contain gold-flashed printed-circuit card connectors configured to accept the Control Module.
- D. Dimmer Rack shall contain a continuous-duty sealed-bearing low-noise squirrel-cage blower to maintain the temperature of all components at proper operating levels with all dimmers under full load provided ambient room temperature does not exceed 40°C (104°F). Blower shall be actuated to turn on and off automatically as needed by sensing the presence or absence of control signals. Rack shall be provided with an automatic air-flow sensor to shutoff all dimmers in the rack should the air flow be impeded and safe operating temperatures in the rack be exceeded. A signal shall be provided by the rack to operate a remote over-temperature LED if the air flow sensor has shut the rack down. Air intake shall be through the front of the rack and exhausted through the top of the rack.
- E. Dimmer Rack shall be provided with a two-point locking door to deny access to the modules. This door shall also seal off the air flow around the edges, forcing the intake air to pass through the integral static filter behind its louvered face. Filter panels shall be easily removed from the back side of the door for cleaning.
- F. Each plug-in control module shall be assembled on a formed aluminum chassis at least .090" thick and finished in grey powder paint. The chassis shall form the basic heat sink for the module and provide both air entry means **through the front of the module and flow control through the module**. The chassis shall also form the faceplate for the module and the switchboard that houses it, and the mounting means for all components. Each chassis shall be equipped with a handle for easy insertion and withdrawal. Except for mode-selector switching devices, pots and connectors, the module shall contain only solid-state electrical components with no moving parts. Each module shall be labeled with the manufacturer, catalog number and complete rating information.
- G. The control module shall be no larger than 2 1/8" (5.4 cm) H x 7 1/8" (18.1 cm) W x 11 3/4" (29.9 cm) D and weigh no more than 3.4 lbs. (1.54 kg). It shall contain two minimum .062" thick solderplated, glass-epoxy print-circuit boards with plated-through holes that plug together for ease of service. The printed-circuit card sandwich shall be provided with gold-plated printed-circuit card connectors on the rear for connection to the switchboard bussing and control terminal board, and to two sets of 16 Dimmer Module control connectors. Appearing through and not attached to the faceplates shall be a "signal" LED, an "over-temp" LED, two "power" LED's which also indicate whether AC is present on the switch board bussing, and two screwdriver adjustment pots. The top of the module shall be provided with a dust cover to prevent contamination of the circuit boards and the faceplate components shall be identified with appropriate silk-screened legends. The Control Modules shall be completely interchangeable with the other Control Modules contained in the same switchboard rack section and shall not be interchangeable with any of the Dimmer Modules. Any control modules or other printed circuit cards that contain active components and that do not plug-in and/or are behind panels requiring tools for removal shall not be acceptable.



## II. ELECTRICAL

- A. Dimmer Rack shall be designed to operate from the specified voltage and type of electrical service with line bussing sized for the specified ampacity. All power and signal connectors within the Dimmer Rack shall be factory wired to tubular screw termination points and neatly dressed. Adequate space shall be provided for installation to field wiring per code.
- B. All auxiliary equipment necessary for the operation of the Dimmer Rack under the intent of these specifications shall be furnished and shall include, but not be limited to overload and short-circuit protection. All exterior control, indicating and protection devices shall be appropriately labeled with engraved plastic identification strips.
- C. Dimmer Rack shall be factory-tested and all printed-circuit cards burned in at elevated temperatures and voltages for a period of four hours. The entire assembly shall be UL listed and labeled with a UL interrupting rating of 10,000A for Dimmer Banks designed to accept 120V Dimmer Modules. UL listed — WFJX Switchboards, File No. E41215(S).
- D. The control input signal to the Control Module shall be per EIA standard RS-422. This signal shall be a multiplexed digital control signal containing at least 8 bits of level information for each of 512 dimming control channels updated at least 30 times a second. The Control Module shall be capable of capturing the intensity of any dimming control channel available on the input and decode it for use by any dimming channel. Additionally the Control Modules shall accept six 0 to +10VDC linear analog control signals with an input impedance of 100k Ohms and employ them to operate three Dimmer Modules and three pairs of Dimmer Modules. These modules shall be operated by the digital or analog signal depending on the presence or absence of a transfer signal contact closure. A second "panic" signal contact closure shall bypass the control of these specially designated Dimmer Modules and force their solid-state switching

module(s) on full directly. The Control Module shall be jumper selectable to operate from 120V or 240V AC lines.

- E. Each 120V control module shall be a recognized component of Underwriters Laboratories, and be so labelled. NMTR2 Component, File No. E41099(S).
- F. When used in conjunction with dimmer modules specified elsewhere, the output voltage of each dimming channel shall repeatedly respond within  $\pm 2V$  to a 0% to 100% control signal with a modified square-law transfer characteristic. This response shall not exceed 6 cycles or 1/10 second, and shall be insensitive to the phase from which the control signal is taken. All dimming channel transfer characteristics shall be factory set with no user adjustments required.
- G. Each control module shall be protected against over-current and short-circuit current by 2 - 1A slo-blo fuses, with an interrupt rating of 10,000A.
- H. Maximum power consumption of the Control Module shall not exceed 20 watts per hour.

## III. OPTIONAL FEATURES AND EQUIPMENT

- A. If specified, Power Rack shall be similar in construction to the Dimmer Rack as specified in items I.A., I.B., II.A., II.B. and II.C. above. Rack shall contain all specified auxiliary equipment. If specified, rack shall include a matching door similar to item I.E. above, but without filter.
- B. If specified, Racks shall be mechanically linked together and completely inter-connected to form a single complete factory-built and tested Dimmer Bank assembly. Main feeder bussing similar to bussing specified in II.A. above with an ampacity as specified shall be provided and housed in a Power Rack as specified in III.A. above.
- C. If specified, Dimmer Bank bussing shall be sectionalized and provided with silver-sand fuses to limit the fault currents to 10,000A beyond the feeder bussing.
- D. If specified, Dimmer Bank can receive DMX-512 protocol. (USITT Standard)
- E. Portable dimmer racks can be manufactured upon request.

## IV. QUANTITY AND SIZES

- A. Provide the following Dimmer Racks:
1. \_\_\_ racks for 192 Dimmer Modules configured to accept the following:
    - a. \_\_\_ dual 1.2kW, 120V stage/studio Dimmer Modules
    - b. \_\_\_ dual 2.4kW, 120V or 2.0kW, 240V stage/studio Dimmer/Non-Dim Modules
    - c. \_\_\_ single 6.0kW, 120V or 5.0kW, 240V stage/studio Dimmer/Non-Dim Modules
    - d. \_\_\_ single 12.0kW, 120V or 10.0kW, 240V stage/studio Dimmer/Non-Dim Modules (requires two module spaces)
    - e. \_\_\_ dual 2.4kW, 120V or 2.0kW, 240V houselight/worklight Dimmer/Non-Dim Modules (three maximum for IV.A.1.e. plus f.)
    - f. \_\_\_ single 6.0kW, 120V or 5.0kW, 240V houselight/worklight Dimmer/Non-Dim Modules (three maximum for IV.A.1.e. plus f.)
    - g. \_\_\_ pair of dual 2.4kW, 120V or 2.0kW, 240V houselight/worklight Dimmer/Non-Dim Modules (three maximum for IV.A.1.g. plus h.)
    - h. \_\_\_ single 6.0kW, 120V or 5.0kW, 240V houselight/worklight Dimmer/Non-Dim Modules (three maximum for IV.A.1.g. plus h.)
    - i. \_\_\_ half rack space for auxiliary equipment (requires 96 module spaces)
  2. \_\_\_ racks for 192 Dimmer Modules configured to accept the following:
    - a. \_\_\_ dual 1.2kW, 120V stage/studio Dimmer Modules
    - b. \_\_\_ dual 2.4kW, 120V or 2.0kW, 240V stage/studio Dimmer/Non-Dim Modules
    - c. \_\_\_ single 6.0kW, 120V or 5.0kW, 240V stage/studio Dimmer/Non-Dim Modules
    - d. \_\_\_ single 12.0kW, 120V or 10.0kW, 240V stage/studio Dimmer/Non-Dim Modules (requires two module spaces)
- B. Provide the following "optional" equipment:
1. \_\_\_ Power Racks for auxiliary equipment.
  2. \_\_\_ Amp main feeder bussing and factory inter-connection of all racks.
  3. \_\_\_ Lot special bussing and silver-sand fuses for additional fault current protection.

Specifications subject to change without notice.

Printed U.S.A.

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