Electro-Controls Quad Racks
QD-2000 Upgrade Dimming Control System
Specifications

1.0 QD-2000 - GENERAL

QD-2000 is a direct retrofit assembly kit specifically designed for facilities with an existing Electro Controls Quad dimmer racks requiring a reliable front-end control unit. This product will upgrade existing dimmer installations to current dimming technology with options equaling or exceeding those of most new dimming systems.

The **QD-2000** has been engineered as a long-term solution for facilities requiring a powerful yet user-friendly and cost-effective front end. As a direct replacement product, the **QD-2000** is pin to pin compatible with OEM factory wiring for ease of installation. Facilities can upgrade to this new technology in minutes. The **QD-2000** is ETL approved and complies fully with UL 508 and CSA 22.2 safety approvals.

Engineered with both the installer and end-user in mind, the **QD-2000** incorporates the following features:

1.1 A user friendly software package allowing ease of programming and configuration changes. A self-prompting menu shall make a users manual virtually unnecessary.

1.2 Modular design of the unit shall make any future service requirements fast and easy with no requirement for an on-site service call. The **QD-2000** shall have only two plugable modules. The PSR (Power Supply & Ramp) module shall contain power supplies, phase detect circuitry, panic function, and DMX input/output opto-isolation. The ECU (Electronic Control Unit) module shall contain the main processor and all ancillary control electronics for the dimmer rack.

1.3 Dimmer control outputs shall be designed for precise and reliable control of the existing Quad dimmer modules. It shall never be necessary to adjust ramp circuits for proper dimmer output.

1.4 The **QD-2000** shall accept dual independent DMX512-A digital data protocol inputs allowing industry wide compatibility with most control consoles. Primary DMX input and DMX through connectors shall be provided on both the backplane of each unit as well as on the face panel of the PSR module. A second DMX input port shall be located on the rear of the unit only. Both DMX inputs shall be independently opto-isolated from all other control circuitry, as well as from the DMX output ports.

1.5 An on-board protocol manager shall be provided for facilities operating back-up consoles and/or second DMX sources.

1.6 An auxiliary 128 channel DMX output shall allow control of other DMX receivers thereby allowing the **QD-2000** to create the architectural "front-end" control system for inclusion of secondary houselight dimmer racks, demultiplexers, relay panels, etc.

1.7 An infrared LED link shall be provided on the ECU face panel. This interface will permit hard copy printouts of all programmed data via an optional hand held infrared printer.

1.8 An illuminated ON/OFF disconnect breaker shall be provided on the face of **QD-2000**. This shall facilitate ease of power up/down of rack the electronics on an individual basis.

2.0 ELECTRONIC MODULES

Control electronics shall be contained in two plug-in trays and shall provide the following features:

2.1 The control electronics shall be capable of controlling up to 96 dimmers in the EC Quad dimmer cabinet. In addition, the control electronics shall be capable of controlling up to 32 additional dimmers/devises by means of an auxiliary 128-channel DMX512 output.

2.2 The data input ports shall accept two independent sources of DMX512 data protocol simultaneously from the system control console(s) or architectural control unit(s).

2.3 It shall be possible to assign (patch) any dimmer control signal to any module position in the cabinet, thereby allowing dimmer modules of any rating to be used in the same cabinet.

2.4 The ECU module shall be capable of memorizing a minimum of 18 presets with individual time fade for recall from Johnson Systems CS-2809 System Management Control (SMC) stations. These presets shall be DMX "snap-shots" available for instant playback in the event of control console failure. These presets shall be automatically locked out when the system control console is on to prevent accidental access. It shall be possible to "back up" all system configuration data. All such data shall be protected from power failure by E_ROM for a minimum of 100 years.

2.5 A time-of-day clock shall be incorporated into the ECU module electronics. Scheduled preset times shall be programmable to permit system automation through automatically scheduled preset events. The clock shall be protected from power failure by a lithium cell with minimum 10-year life.

2.6 The ECU module shall accept up to 16 analog inputs (0-10 volt DC) with the ability to be assigned to any of the 128 dimmer outputs in the system (2048 possible assignments). The analog inputs shall function in a pile-on or HTP mode with the console control DMX signal.

2.7 Each individual dimmer in the dimmer cabinet shall be capable of being assigned one of four dimmer curves; incandescent square law, fluorescent, linear, or non-dim.

2.8 The face of the ECU module shall include an alphanumeric LED display and momentary push buttons for function select and parameter setting. All system configuration data shall be stored in non-volatile RAM with full redundancy back up to 100 year EEROM.

2.9 The following functions shall be programmable:

1. Mode select (Master or Slave).
2. DMX address select, in unit dimmer increments.
3. Control signal to dimmer assignment (channel/dimmer patch).
4. Analog input patch of 16 x 128 (2048 total).
5. Preset record enable/disable.
6. Preset fade times of 0 to 99 seconds (separate time for each preset).
7. Preset recall (for programming changes).
8. Room lock out with 4 digit PIN access code.
9. Dimmer curve assignment (incandescent, fluorescent, linear, or non-dim).
10. Time-of-day clock set.
11. Automatic scheduling (Preset "ON" and "OFF" time-of-day).
12. Test increments (percent or hex value).
13. System defaults (for quick programming).
14. DMX input status hold (0-99 minutes).
15. After hours preset time out (0-99 minutes).
16. Assignable "Tour" preset (0-99 minutes).
17. Edit capture (DMX level or instant channel capture).
18. Backup parameters.
19. Restore backup parameters.
20. Two room set-up (for use with dual DMX input).
21. Onboard protocol manager (DMX input merge or back up).
22. **QD-2000** keypad lockout.
23. Infrared print-out of the following programmed parameters:
    a) System (vital system parameters)
    b) Patch
    c) Curves
    d) Analog HTP assignments
    e) Preset schedules
    f) Preset fade times
    g) Preset levels
    h) All (a continuous printout of all the above).
24. Diagnostic features:
    a) Input data test
    b) Dimmer test
    c) Analog input test
    d) Preset station test
    e) Clock calibrate
    f) Clear functions
    g) System and Network status
    h) Software Rev. and serial number display

2.10 The ECU module shall include an LED indicator for power supply and microprocessor status. The LED, when illuminated, shall indicate normal operation, and when flashing shall indicate a hardware fault. A power supply or power failure, shall cause the LED to extinguish.

2.11 The PSR module shall include three LED's for phase detect, and two LED's for data receive indication. Loss of accurate phase detect signal shall cause the corresponding LED to extinguish.

2.12 A reset push-button shall be included on the face of the module. Resetting the unit, whether by the reset button or power-up shall not affect any stored parameters or presets, and dimmer outputs shall automatically return to their former status without any noticeable change.

2.13 A "Panic" slide switch shall be included on the face of the unit. When "Panic" mode is selected, up to 96 pre-assigned dimmers shall be forced to full output regardless of their previous settings. The panic function shall not be dependent upon microprocessor operation. Withdrawing the ECU command module from the cabinet shall also initiate the panic function.

2.14 Multiple **QD-2000**'s shall be capable of RS485 networking between the "Master" **QD-2000** and the "Slave" **QD-2000** units via the "QD-NET". It shall only be necessary to program the system "Master" with network wide information.

2.15 It shall be possible to "Lock" and "Unlock" the programming keypad of the **QD-2000** ECU module in order to protect all programmed system data.

2.16 The **QD-2000** shall incorporate fan control circuitry designed to allow for an additional five (5) minutes of air evacuation from the dimmer cabinet with loss of input control signal.

2.17 In the event of a dimmer "over temperature" signal, the **QD-2000** will activate a flashing "OT" on all system JS-2809 control stations if equipped.

Specifications subject to change without notice.

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