

DE90-3000 • Retrofit Kit for Strand Digital Environ DE90 Architectural Dimmer Rack

Specifications

1.0 DE90-3000 - GENERAL

DE90-3000 is a direct retrofit kit specifically designed for facilities with existing Strand DE90 architectural dimmer rack(s) requiring new, reliable and cost-effective control electronics.

Save time and money by retrofitting to current dimming technology with options equaling or exceeding those of most new dimming systems.

DE90-3000 has been designed with pin to pin compatibility with OEM factory wiring for ease of installation. Facilities can upgrade to this state-of-the-art technology in minutes with only a multi-screwdriver. Engineered with both the installer and end-user in mind, the **DE90-3000** incorporates the following features:



- 1.1 **DE90-3000** will offer compliance with the International Energy Agency's "One Watt Initiative" on stand-by power requirements (please refer to U.S. Executive Order #13221). Standby power on the **DE90-3000** control electronic shall not exceed 1 Watt.
- 1.2 **DE90-3000** shall employ a unique "lamp warming" technique that extends lamp life by limiting the in-rush current to cold lamp filaments by up to 70%.
- 1.3 An LCD user-interface for ease of set up and monitoring. All programming shall be via a user-friendly, intuitive and self-prompting menu structure. No PC or special software will be required.
- 1.4 Modular design of the unit shall make any potential service requirements fast and easy. The **DE90-3000** control electronics shall be contained on a single plug-in PCB. This PCB shall contain all ancillary control electronics for the dimmer rack.
- 1.5 Dimmer control outputs shall be designed for precise and reliable control of the existing DE90 dimmer modules. It shall never be necessary to adjust ramp circuits for proper dimmer output.
- 1.6 The **DE90-3000** shall accept dual independent DMX 512-A digital data protocol inputs allowing industry wide compatibility with modern control consoles. Both DMX inputs shall be independently opto-isolated from all other control circuitry, as well as from the DMX output ports. An internal protocol manager shall allow priority management or merging of both DMX inputs.
- 1.7 Optional node supports all major Ethernet protocols including Net2, Strand, ArtNet, ACN (Net3) and Pathport. Automatic recognition will permit interface to most popular lighting control protocols. It shall not be necessary to assign protocol.
- 1.8 An infrared LED link shall be provided on the control module face panel. This interface will permit hard copy printouts of all programmed data via an optional hand held infrared printer.
- 1.9 Rack thermal protection shall be employed via a mechanical relay interface to existing rack OEM thermal sensor. An active input shall cause an immediate disconnect of all dimmer control outputs.

2.0 CONTROL ELECTRONICS

The **DE90-3000** control electronics are based on the MADD-24 (Multiple Application Dimmer Driver) design employed in JS-ICON dimmers racks and other 3000 Series products offered by Johnson Systems. The control electronics shall be contained in one plug-in PCB (MADD-24) and shall provide the following features:

- 2.1 The **DE90-3000** shall be capable of controlling up to 24 dimmers in the DE90 dimmer cabinet. Advanced state-of-the-art voltage regulation hardware and software will ensure >1% all dimmer outputs. The **DE90-3000** will operate with a voltage input range of 85-264VAC at 50 or 60Hz.
- 2.2 The DMX512 input ports shall accept two independent sources of DMX512 data protocol simultaneously from the system control console(s) or architectural control unit(s). The DMX inputs shall comply with USITT DMX512-A (ANSI E1.11 - 2008), standard protocol for digital data control.
- 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 any cabinet module location.
- 2.4 The **DE90-3000** shall permit non-volatile storage all system configuration data. All data shall be protected from power failure by EEROM for a minimum of 100 years.
- 2.5 The ECU module shall accept up to 4 (four) analog inputs with the ability to be assigned to any of the 24 dimmer outputs in the system. Each analog input shall be selectable as either "Normal" mode (0-10VDC input) for dimmed applications or "Load Shed" mode (5VDC trigger) for power management interface to building management systems (BMS). The analog inputs shall function in a pile-on or HTP mode with the DMX control signal.
- 2.6 Dedicated dry contact inputs shall be provided for BMS, HVAC, security and fire alarm. Active security input shall "flash" any programmed dimmer outputs to a selectable level at a rate of 1Hz. Active fire alarm input shall bring any programmed dimmers to a selectable level and override all incoming control data.
- 2.7 Each individual dimmer in the dimmer cabinet shall be capable of being assigned one of four dimmer curves: incandescent square law curve, direct curve, linear curve, or non-dim (50% threshold with a $\pm 5\%$ hysteresis).
- 2.8 The face of the control module shall include an LCD display and momentary push buttons for function select, parameter setting and feature monitoring. All programming shall be via a user-friendly, intuitive and self-prompting menu structure. It shall not be necessary to use a PC or any external programming device to configure or set-up any function of the **DE90-3000**.
- 2.9 The MADD-24 control electronics shall employ the "system-on-a-chip" advanced digital technology. Such electronic circuitry shall permit real time signal monitoring and status LED indication to allow easy setup and remote troubleshooting. The **DE90-3000** shall permit configuration/monitoring of the following within the DE90 dimmer rack:

1. SCENESET Enable and setup 24 different backup scenes.
2. SNAPSHOT Record DMX levels into the backup scenes.
3. DIM TEST Test the dimmer outputs one at a time, or all at once.
4. MONITOR View the control level to each dimmer output.
5. ADDRESS Set the DMX start address.
6. DMX MODE Configure the mode of the on-board DMX protocol manager.
7. DMXA TRM Enable or disable termination on the DMX A input.
8. DMXB TRM Enable or disable termination on the DMX B input.
9. SH TIME Set the DMX status hold time from 0 to 99 minutes or infinite.
10. DC PATCH Configure the dimmer to channel patch for the dimmer rack.
11. DIM CURV Configure the dimmer curve for each output.
12. VOUT LIM Set the maximum RMS output voltage for each dimmer.
13. REGULATE Enable or disable the dimmer output voltage regulation.
14. ANA MODE Configure the analog inputs for normal or load shed mode.
15. ANA PTCH Patch the analog inputs to any combination of control channels.
16. ANA TEST View the control level for each of the analog inputs.
17. ANA FLTR Apply a noise filter on the analog inputs of up to 1 Volt.
18. ANA BLOC Enable or disable the analog inputs when DMX is being received.
19. STANDBY Enable or disable the power savings standby mode.
20. TEST INC Set the test increment units to percent or hexadecimal.
21. OC MODE Configure the input trigger parameters for the open collector output.
22. AUX IN Select which scene the auxiliary input will trigger/enable.
23. S-ALARM Select the level and control channels triggered by the security alarm input.
24. F-ALARM Select the level and control channels triggered by the fire alarm input.
25. L-BUTTON Set the mode of the local buttons to scene, bump or disabled.
26. Ø-PATCH Set the zero-cross phase reference for each dimmer output circuit.
27. POLARITY Set the PWM output control polarity. Locked for factory use only!
28. FAN CTL Set the fan control type and level. Locked for factory use only!
29. PWM FLTR Enable or disable the lamp warming feature. Locked for factory use only!
30. PWM LIM Set the PWM limit for the lamp warming feature. Locked for factory use only!
31. PWM WIDE Set the PWM width for the lamp warming feature. Locked for factory use only!
32. LINE V View the RMS line voltage for each power phase.
33. LINE F View the line frequency of phase A.
34. REM TEMP View the temperature of the remote temperature sensor.
35. CTL TEMP View the temperature of the microcontroller.
36. RTIME View the total run time of the microcontroller.
37. HARD-KEY View the microcontroller's unique six-character hard-key code.
38. SERIAL# View the microcontroller's unique six-character silicone serial number.
39. VERSION View the microcontroller's software version.
40. PRINTOUT Print various system configuration settings using a hand held infrared printer.
41. DEFAULTS Set various system configuration settings to the factory default.
42. VIEW U/D Adjust the contrast of the LCD Display for optimum viewing.

2.10 The **DE90-3000** face panel shall include three green LED's for phase detect and two yellow LED's for data receive indication. Loss of accurate phase detect signal and/or invalid DMX512 data shall cause the corresponding LED to extinguish.

2.11 The **DE90-3000** face panel shall include two red LED's for active alarm status or dimmer rack over temperature. Active inputs shall cause these cause the corresponding LED to illuminate.

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 It shall be possible to "Lock" and "Unlock" the programming keypad of the **DE90-3000** in order to protect all programmed system data.

2.14 The **DE90-3000** 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.

2.15 The **DE90-3000** face panel will provide an auxiliary DMX B input via 5 pin XLR connector.

2.16 The **DE90-3000** face panel will provide a panic switch for emergency lighting requirements. This switch, when activated will drive all dimmer control outputs to full. Operation shall be independent from the MADD-24 control electronics.

2.17 All printed circuit boards (PBC's) shall be FR4/G10 with a UL 94V-0 Flame Class Rating.

Specifications subject to change without notice.

JOHNSON SYSTEMS INC.

1923 Highfield Cres. S.E., Calgary, Alberta T2G 5M1 Canada
Phone: (403) 287-8003 • Fax: (403) 287-9003

info@johnsonsystems.com

Copyright © 2024, Johnson Systems Inc., All Rights Reserved

JavaScript DHTML Drop Down Menu By Milonic