

EDI-60
Retrofit for Electronics Diversified Inc. (EDI)
Mark VII Dimmer Racks

Specifications

1.0 EDI-60 - GENERAL

1.1 **EDI-60** is a direct retrofit kit specifically designed for facilities with existing Electronics Diversified Inc. (EDI) and Cooper Mark VII dimmer rack(s) requiring new, reliable, and cost-effective control electronics. **EDI-60** is designed to upgrade existing dimmer installations to current dimming technology with options equaling or exceeding those of most new dimming systems. Designed for pin-to-pin compatibility with the Mark VII OEM factory dimmer control wiring, installation is both fast and easy. Facilities can upgrade to this state-of-the-art technology in minutes with only basic tools. The **EDI-60** is ETL compliant with UL 508 and CSA 22.2 safety approvals.

1.2 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.

1.3 Modular design of the unit shall make any potential service requirements fast and easy with all wiring connections being "break-away" requiring no tools other than a screwdriver for the four mounting screws.

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

1.5 The **EDI-60** shall accept dual independent DMX512 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, offset start addressing or merging of both DMX inputs.

1.6 An optional Ethernet node shall support a wide range of communication protocols.

1.7 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 handheld infrared printer.

1.8 Rack thermal protection shall be employed to interface with the existing dimmer module over-temp sensors and wiring. An active over-temp input from any dimmer shall illuminate a red warning LED. An internal **EDI-60** temperature of 65°C shall immediately disconnect all dimmer control outputs.

1.9 CONTROL PCB

2.0 The **EDI-60** control electronics shall be capable of controlling up to 60 dimmers in the Mark VII dimmer cabinet. Advanced state-of-the-art voltage regulation hardware and software will ensure >1% all dimmer outputs. The **EDI-60** will operate with a voltage input range of 85-264VAC at 50 or 60Hz.

2.1 The **EDI-60** shall be capable of memorizing and storing up to 20 presets in the form of a DMX "snapshot" or individually programmed via the keypad. Scene playback shall be seamless on loss of DMX-A as well as allowing high resolution fades between all 20 scenes. Each scene shall have a selectable fade time from 0-99 seconds.

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 the same cabinet.

2.4 The **EDI-60** shall allow "back up" of all system configuration data. All data shall be protected from power failure by EEROM for a minimum of 100 years.

2.5 **EDI-60** shall have a USB-C face panel accessible connector to facilitate fast upload of new firmware in the field.

2.6 The **EDI-60** shall contain a removable memory dongle to facilitate back-up of all system configuration. Control module swaps will be easy and fast with no loss of rack programming or system parameters.

2.7 The **EDI-60** shall accept up to 4 (four) analog inputs with the ability to be assigned to any of the 60 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.

2.8 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.

2.9 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 in 10% increments.

2.10 The face of the **EDI-60** 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 **EDI-60**.

2.11 The **EDI-60** shall employ the "system-on-a-chip" advanced "3000+Series" digital technology. Such electronic circuitry shall permit real time signal monitoring and status LED indication to allow easy setup and remote troubleshooting. The **EDI-60** shall permit configuration/monitoring of the following within the Mark VII dimmer rack:

1. **SCENES** Enable and set up 20 different backup scenes.
2. **FADETIME** Set the fade time for each of the 20 scenes from 0 to 99 seconds.
3. **SNAPSHOT** Record DMX levels into the backup scenes.
4. **DIM TEST** Test the dimmer outputs one at a time, or all at once.
5. **MONITOR** View the control level to each dimmer output.
6. **ADDRESS** Set the DMX start address.
7. **DMX MODE** Configure the mode of the on-board DMX protocol manager.
8. **2 RM SET** Set the two-room assignment for each of the dimmer outputs.
9. **DMXA TRM** Enable or disable termination on the DMX-A input.
10. **DMXB TRM** Enable or disable termination on the DMX-B input.
11. **DMX O/P** Configure the on-board DMX protocol manager for offset or patch mode.
12. **DMXA PAT** Patch the 60 dimmer (PWM) outputs to any DMX-A input channel.
13. **DMXB PAT** Patch the 60 dimmer (PWM) outputs to any DMX-B input channel.
14. **SH TIME** Set the DMX status hold time from 0 to 99 minutes or infinite.
15. **DC PATCH** Configure the dimmer to channel patch for the dimmer rack.
16. **DIM CURV** Configure the dimmer curve for each output.
17. **ND-LEVEL** Set the non-dim trigger level threshold for each output.
18. **VOUT LIM** Set the maximum RMS output voltage for each dimmer.
19. **ANA MODE** Configure the analog inputs for normal or load shed mode.
20. **ANA PAT** Patch the analog inputs to any combination of control channels.
21. **ANA TEST** View the control level for each of the analog inputs.
22. **ANA BLOC** Enable or disable the analog inputs when DMX is being received.
23. **STANDBY** Enable or disable the power savings standby mode.
24. **OC MODE** Configure the input trigger parameters for the open collector output.
25. **AUX IN** Select which scene the auxiliary input will trigger/enable.
26. **SCENEMOD** Enable or disable scene mode and the auxiliary input.
27. **S-ALARM** Select the level and control channels triggered by the security alarm input.
28. **F-ALARM** Select the level and control channels triggered by the fire alarm input.
29. **Ø-PATCH** Set the zero-cross phase reference for each dimmer control output circuit or the applicable default.
30. **POLARITY** View the PWM signal as +Com or -Com PWM.
31. **LINE V** View the RMS line voltage for each power phase.
32. **LINE F** View the line frequency of phase A.
33. **CTL TEMP** View the temperature of the microcontroller.
34. **RTIME** View the total run time of the microcontroller.
35. **HARD-KEY** View the microcontroller's unique six-character hard-key code.
36. **SERIAL#** View the microcontroller's unique six-character silicone serial number.
37. **VERSION** View the microcontroller's firmware version.
38. **RESTORE** Restore parameters saved in the EEPROM memory module.
39. **BACKUP** Backup parameters and save them in the EEPROM memory module.
40. **PRINTOUT** Print various system configuration settings using a handheld infrared printer.
41. **DEFAULTS** Set various system configuration settings to the factory default.
42. **LCD VIEW** Adjust the contrast of the LCD Display for optimum viewing.

2.12 The **EDI-60** face panel shall include a green 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.

2.13 The **EDI-60** 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.

2.14 The **EDI-60** 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.

2.15 A reset push-button shall be included on the face panel of the **EDI-60**. 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.

2.16 It shall be possible to "Lock" and "Unlock" the programming keypad of the **EDI-60** in order to protect all programmed system data.

2.17 The **EDI-60** shall incorporate fan control circuitry to control the existing MX Series rack fans and is designed to allow for an additional five (5) minutes of air evacuation from the dimmer cabinet with loss of input control signal.

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

2.19 The entire assembly shall be ETL compliant with UL 508 and CSA 22.2 safety approvals.

Specifications subject to change without notice.

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