



User Manual

Control Retrofit for Electronics Diversified Inc. (EDI) and Cooper Mark VII Dimmer Racks

JSI Manufacturing
www.jsimanufacturing.com





Contents

Warranty.....	2
For Technical Assistance.....	2
Introduction.....	3
Packaging & Contents.....	3
Dimensional Drawings.....	4
Installation.....	5
OEM Connector Pinouts.....	9
Control Input/Output Connections.....	10
EEPROM Memory Module.....	12
User Interface.....	13
LCD Display.....	13
Programming Switches.....	13
System Status • LED Indicators.....	14
System Status • LCD Display.....	14
Quick Programming Reference to System Configuration Menu Items.....	16
Detailed Programming of System Configuration Menu Items.....	17
Important Hard-key Information.....	30
Troubleshooting Reference.....	31

Warranty

The EDI-60 retrofit control system comes with a standard two (2) year limited warranty against defects in parts and workmanship.

For details visit <http://www.johnsonsystems.com/warranties.htm>.

For Technical Assistance

1. Refer to your product user manual. The most current revision is available online: www.johnsonsystems.com/literature.htm.
2. Contact the "point-of-sale" dealer or distributor from which this product originally was purchased and ask for technical assistance.
3. If neither of the above can provide you with the necessary information, please contact our factory via email (info@johnsonsystems.com) or phone (403-287-8003) during business hours (Monday to Friday, 8:00AM to 5:00PM MST).

Introduction

The EDI-60 is a next generation retrofit electronics package designed specifically for upgrading the EDI Mark VII performance dimmer racks making system replacement completely unnecessary. This full-featured, ETL approved, state-of-the-art unit provides a direct digital interface to most of today's modern lighting communication protocols. Each EDI-60 can control up to 60 channels of dimming in an existing MARK VII rack. Multiple EDI-60's can be daisy chained together in racks with higher channel capacity. Typically, you will need two (2) EDI-60's to control an EDI MKVII Rack with 120-Channels.

Designed to install in minutes with only simple hand tools, this compact and elegant package has been designed for longevity and reliability with the enduser in mind. Intuitive LCD user interface combined with a modular design makes the EDI-60 extremely user-friendly and easily serviceable.

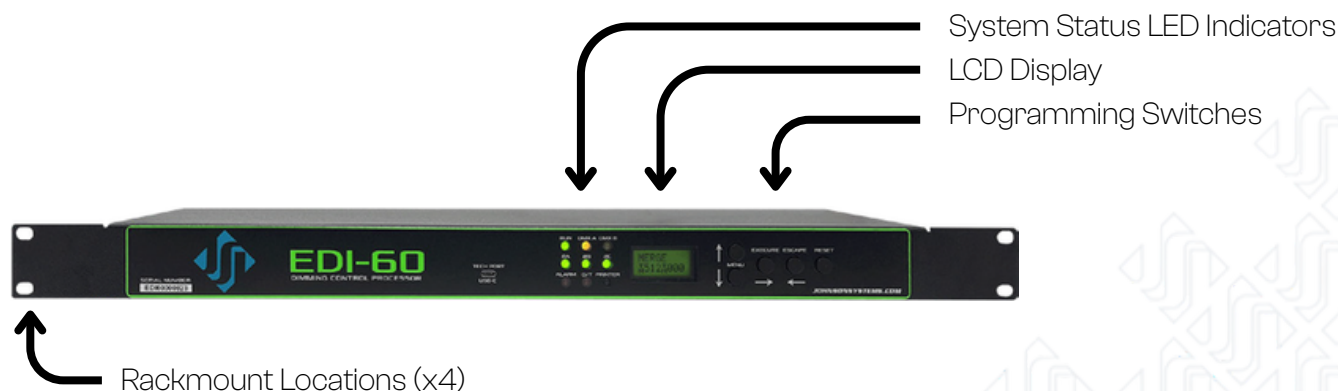


Full featured, hi-resolution dimming with ultra-fast response.
An environmentally and financially responsible solution that offers unsurpassed high performance in a matter of minutes!

Packaging & Contents

Each EDI-60 retrofit control system is shipped in a custom designed box and packaging for protection of the unit. It's recommended to keep the box and packaging stored in a safe place. In the unlikely event that the system needs to be returned to the JSI Factory, the packaging will help prevent shipping damage and maintain warranty.

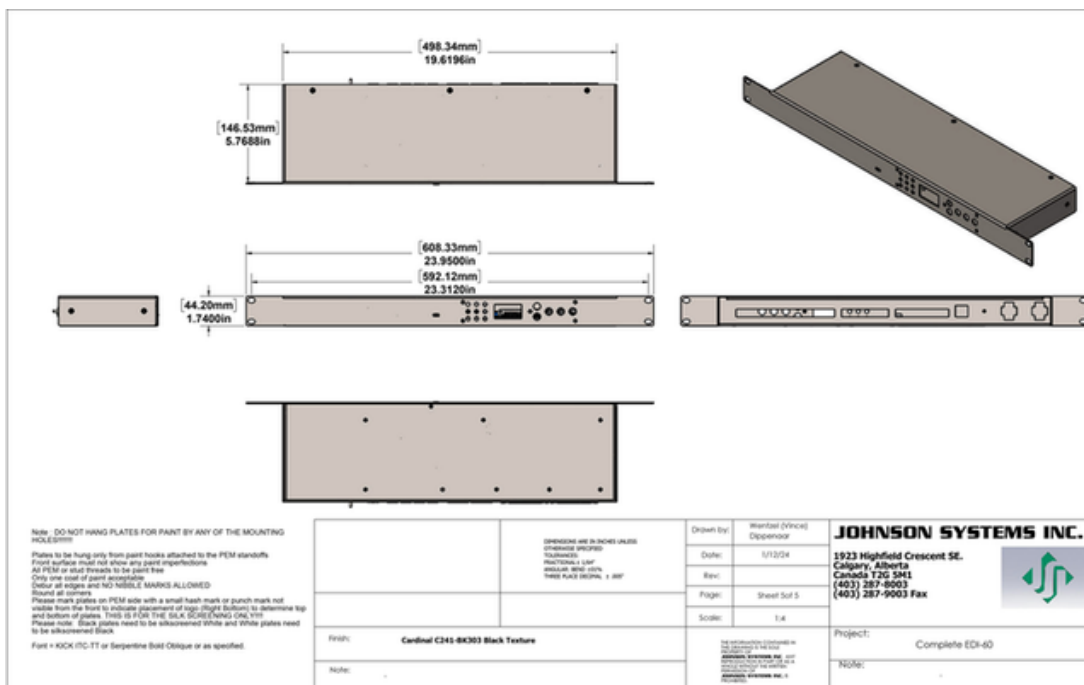
Each EDI-60 retrofit control system includes all the parts required to complete the retrofit.



Parts included with the EDI-60 retrofit control system:

- 10' (3m) Belden 9829 (or equivalent) length of cable used to extend existing DMX cable(s).
- Two (2) 3-position breakaway connectors are used to splice the existing DMX cable(s) to the supplied DMX cable.
- Four (4) 1' (30.5cm) extension ribbon cables used to extend the OEM P3, P4, P5 and P6 ribbon cables.
- 8' (2.4m) #18 AWG green wire used to connect the EDI-60 retrofit control system chassis to earth ground.
- 5' (1.5m) #18AWG yellow and brown wires used to connect the fan control wiring from the OEM P1 connector to the fan SSR. Typical installations already contain the control wiring within the OEM P1 connector wiring, and these wires are not required.
- 10' (3m) yellow CAT 5e patch cable used to daisy-chain the DMX-A and DMX-B between two (2) EDI-60 retrofit control systems. Only supplied when multiple EDI-60 retrofit control systems are purchased. If there are two (2) racks of EDI-120 you will need four (4) EDI-60 units to run both racks. In this case you will need to run DMX-A Thru and DMX-B Thru from the second EDI-60 from Rack one (1) to the first EDI-60 from Rack two (2) DMX-A In and DMX-B In.
- Four (4) #10-32 x 3/8" mounting screws used to secure the EDI-60 retrofit control system in the EDI Mark VII dimmer rack.
- Power Linker Cable to power secondary EDI-60 from Main EDI-60 P2 to P2.

Dimensional Drawings



Installation

- Disconnect (turn off) the power supply to the EDI Mark VII dimmer rack(s).

WARNING! Verify all power is disconnected (turned off) before proceeding.

Removal of the old EDI Control Module

- Remove the four (4) mounting screws securing the EDI Mark VII control module.
- Carefully pull the control module forward until all the rear wiring connections are visible. Do not disconnect any wiring at this point.
- If you are not familiar with the EDI Mark VII control module electronics and wiring, it is strongly advised that you take a few minutes to inspect the OEM (Original Equipment Manufacturer) wiring (P1 through P6). If the cables aren't already labeled, label them using a permanent marker (Sharpie).
- P1 (OEM Rack P1) contains the AC power supply conductors (Neutral, Phase A, Phase B and Phase C) used to power the control module, as well as the low voltage fan control wiring (positive DC voltage control and common). Observe the location of the P1(OEM Rack P1) connector and compare it to the location of the P1(OEM Rack P1) connector on the EDI-60 retrofit.
- On some earlier versions of EDI Mark VII dimmer racks, the fan control was sensed from the house control inputs, and the fan control wiring does not come through the P1(OEM Rack P1) connector. If this is the case, the fan control will need to be rewired from the P1 (OEM Rack P1) connector to the fan SSR. More information regarding this modification is provided in the "Installation of the new EDI-60 retrofit system" section of this manual. P2 (OEM Rack P2) contains the field wiring connections for DMX-And analog control.

NOTE: The P2 (OEM Rack P2) connection is obsolete when the EDI-60 retrofit control module is installed, and all the field wiring must be terminated on the back of the EDI-60 retrofit control module. Refer to the installation of the new EDI-60 retrofit system for more details.

P3 (OEM Rack P3) contains the PWM output control signals for dimmers 1 through 36.
P4 (OEM Rack P4) contains the PWM output control signals for dimmers 25 through 60.
P5 (OEM Rack P5) contains the PWM output control signals for dimmers 61 through 96.
P6 (OEM Rack P6) contains the PWM output control signals for dimmers 85 through 120.

- All the internal OEM wiring must remain intact to complete the retrofit. Compare these connections to the ones on the back of the EDI-60 retrofit control module. Do not disconnect any wiring until you are completely satisfied with how easy this is going to be.

NOTE: Never pull directly on the wires to remove connectors.

- Disconnect the P1 (OEM Rack P1) power connector/cable. Carefully squeeze the latches on each side of the connector together to release the connector and then pull the connector out. Inspect the connector and the termination of the wires in the connector. Be sure everything looks okay.
- Disconnect the P2 (OEM Rack P2) connector/cable. This cable will not be re-used on the EDI-60 retrofit, so once the old control module is removed, it should be coiled up, wire-tied and carefully set aside inside the dimmer rack, making sure it is isolated from any AC line voltage.
- Disconnect the P3, P4, P5 and P6 (OEM Rack P3, P4, P5) connectors/cables. Again, be sure not to pull directly on the ribbon cable to remove the connector as this may cause damage. Carefully pull the connectors straight out.
- The old control module should now be free and clear of all connections and can now be completely pulled out of the dimmer rack and set aside.
- With the old control module removed, it is a terrific opportunity to do some preventative maintenance. The dimmer rack should be thoroughly cleaned, vacuumed, and sprayed out using compressed air. All the AC line and load connections should be inspected and tightened if necessary.
- Inspect the fan blower and be sure it spins freely. If required, replacement fans are available.

Installation of the new EDI-120 Retrofit Control System



- Remove your new EDI-60 retrofit control system from the box.
- Look at the field wiring connections on the back of the EDI-60 retrofit. There is a connector for DMX-A input, a connector for DMX-A thru, a connector for DMX-B input, a connector for DMX-B thru, a connector for four (4) 0-10VDC analog inputs, a connector for dry contact inputs and a connector for +12VDC to power peripheral devices. All the field wiring terminates on these connectors.
- Refer to the "Control Input/Output Connections" section on page 9 and 10 for details.
- On the old EDI control module (Multi-Link), the DMX input came through the P2 (OEM Rack P2) connector. Since this connection/cable is now obsolete, locate the DMX input and thru (if applicable) cable(s) coming into the dimmer rack from the field. Once the cable(s) has been located, disconnect it. Inspect the cable(s) and ensure it will be long enough to reach the connectors on the EDI-60 retrofit once it is installed. Two (2) 3-position breakaway connectors and a 10' (3m) Belden 9829 (or equivalent) length of cable is supplied for extending the cable(s) if it isn't long enough. The cable(s) can now be dressed out and terminated on the DMX-A input and DMX-A thru (if applicable) breakaway connectors provided. Be sure to isolate and protect all shield wires and comply with standard RS-485 termination practices.

- On the old EDI control module, the 0-10VDC analog inputs came through the P2 (OEM Rack P2) connector. Since this connection/cable is now obsolete, locate the analog input cable(s) coming into the dimmer rack from the field. Note the EDI-60 retrofit only has four (4) 0-10VDC analog inputs, versus ten (10) on the old control module.

Once the analog input cable(s) have been located, disconnect them. If required, extend the cables. The cable(s) can now be dressed out and terminated on the analog input breakaway connector provided.

- If more than four (4) analog inputs are required, additional equipment may be necessary to facilitate them. Consult the factory for options and further information.
- Dress out and terminate any applicable connections for the input/output contacts on the breakaway connector provided.
- Dress out and terminate any applicable +12VDC power supply connections on the breakaway connector provided.
- The intention is for the DMX input receptacle (5-pin male XLR) on the front of the EDI dimmer rack to be connected to the DMX-B input on the EDI-60 retrofit. To do this, the existing wires connected to the XLR must be disconnected, and an applicable length of the supplied 10' (3m) Belden 9829 (or equivalent) cable must be reconnected to the XLR on one end and terminated on the DMX-B input breakaway connector provided on the other end.

Be sure to isolate and protect all shield wires and comply with standard RS-485 termination practices.

- Alternatively, the DMX-B input and thru connectors can be used for other purposes.
- Confirm all applicable field wiring is terminated on the breakaway connectors provided. For future reference, be sure all cables are labeled using a permanent marker (Sharpie).
- Inspect the OEM P3, P4, P5 and P6 ribbon cables and determine if they are long enough to easily connect to the EDI-60 retrofit. Four (4) 1' (30.5cm) extension ribbon cables have been provided to extend the OEM ribbon cables for ease of installation. When connecting, be sure the OEM ribbon cable connector is fully seated in the provided extension ribbon cable connector.
- An 8' (2.4m) #18 AWG green wire has been provided for connection of earth ground to the EDI-60 chassis. One end of the ground wire has a 0.250" female disconnect and connects to the male on the back of the EDI-60 retrofit. Locate a place inside the dimmer rack chassis to connect the other end of the ground wire. Cut the wire to length, dress it out and connect (fasten) it to the dimmer rack chassis.

WARNING: Ensure chassis is connected to earth ground.



POWER SUPPLY INPUT
120/208VAC, 3P4W, 1.3A,
60Hz
120/240VAC, 1P3W, 1.3A,
60Hz
EXTERNAL DISCONNECT
REQUIRED
P1



- On some earlier versions of EDI Mark VII dimmer racks, the fan control was sensed from the house control inputs, and the fan control wiring does not come through the P1 connector. If this is the case, the fan control will need to be rewired from the P1 connector to the fan SSR. 5' (1.5m) #18AWG yellow and brown wires have been provided to implement fan control from the EDI-60 retrofit via the P1 connector to the fan SSR. For the yellow (fan control V+) wire, the female pin on the one end inserts into pin 5 of the P1 connector and the other end terminates to V+ on the fan SSR. For the brown (fan control V- (common)) wire, the female pin on the one end inserts into pin 6 of the P1 connector and the other end terminates to V- (common) on the fan SSR. Refer to page 9 for the P1 power connector pinout information.
- There is one (1) location on the back of the EDI-60 retrofit where the P1 power connector/ cable can be installed P1. The other power connector P2 is meant to link the second EDI-60 power to the first one. (P2 to P2)
- A 10' (3m) yellow CAT 5e patch cable is supplied to daisy-chain the DMX-A and DMX-B between multiple EDI-60 retrofit systems.
- Everything should now be prepared and ready for final installation of the EDI-60 retrofit
- Put the EDI-60 retrofit into a position where all the field wiring and OEM wiring can be plugged in.
- Connect (plug in) in the green ground wire onto the EDI-60 chassis connector.
- If applicable, connect (plug in) in the yellow CAT 5e patch cable.
- Connect (plug in) the prepared DMX input and thru connectors.
- Connect (plug in) the prepared input/output contacts connector.
- Connect (plug in) the prepared analog input connector.
- Connect (plug in) the prepared +12VDC power supply connector.
- Connect (plug in) the OEM P1 power connector to P1 on EDI-60.
- Connect (plug in) the OEM P3, P4, P5 and P6 ribbon cable connectors to EDI-60 P3, P4, P5 and P6.
- All the field wiring and OEM cables should now be connected (plugged in).
- Be sure all connections are secure and fully seated.
- Slide the EDI-60 retrofit along the guide rails and into place. Be sure not to pinch any of the cables.
- On some earlier versions of EDI Mark VII dimmer racks, the guide rail opening for the EDI-60 retrofit may be much narrower. If this is the case, the guide rails will need to be removed. Once the guide rails are removed, the EDI-60 retrofit will need to be held in place and secured using the mounting screws provided.
- Secure the EDI-60 retrofit using the four (4) #10-32 x 3/8" mounting screws provided.

Turn on and test the new EDI-120 Retrofit System

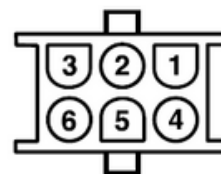
- Connect (turn on) the power supply to the EDI Mark VII dimmer rack.
- Verify the operation of the system status LED indicators, LCD display and programming switches.
- Refer to the programming section of this manual for system configuration. The unit has been set up in the factory with standard settings and in most cases, nothing needs to be changed except maybe the DMXAddress.
- Test the system thoroughly to ensure all wiring terminations are functioning.
- Verify all the dimmer control outputs have the correct phase referencing. If a dimmer control output is patched to the incorrect phase reference, the dimmer will not dim correctly and will go to full output at around 1% DMX input. The factory configuration for EDI-60 retrofit systems is for 3-phase applications, with the dimmer phase reference patch set at AABBCCAABBCC... For true single-phase applications with the phases 180° out of phase from each other, set the default (DEFAULTS) menu phase patch to phase patch 2 (1-Phase?). The phase patch (Ø-PATCH) menu must be used to configure non-standard applications or for single-phase applications with the phases 120° out of phase from each other.
- Verify the fan blower is operating properly. The fan blower should turn on with between 6-7% DMX or analog control - when DMX or analog control drops below 6-7%, there is a 5-minute timeout on the fan blower to ensure the dimmers have been cooled sufficiently.

OEM Connector Pinouts

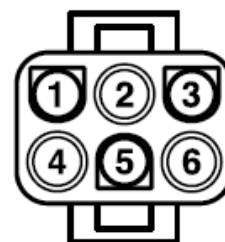
OEM P3, P4, P5 and P6 Dimmer (PWM) Control Cable Pinout							
P3 Connector		P4 Connector		P5 Connector		P6 Connector	
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	Dimmer (PwM) 1	1	Dimmer (PwM) 25	1	Dimmer (PwM) 61	1	Dimmer (PwM) 85
2	Dimmer (PwM) 2	2	Dimmer (PwM) 26	2	Dimmer (PwM) 62	2	Dimmer (PwM) 86
3	Dimmer (PwM) 3	3	Dimmer (PwM) 27	3	Dimmer (PwM) 63	3	Dimmer (PwM) 87
4	Dimmer (PwM) 4	4	Dimmer (PwM) 28	4	Dimmer (PwM) 64	4	Dimmer (PwM) 88
5	Dimmer (PwM) 5	5	Dimmer (PwM) 29	5	Dimmer (PwM) 65	5	Dimmer (PwM) 89
6	Dimmer (PwM) 6	6	Dimmer (PwM) 30	6	Dimmer (PwM) 66	6	Dimmer (PwM) 90
7	Dimmer (PwM) 7	7	Dimmer (PwM) 31	7	Dimmer (PwM) 67	7	Dimmer (PwM) 91
8	Dimmer (PwM) 8	8	Dimmer (PwM) 32	8	Dimmer (PwM) 68	8	Dimmer (PwM) 92
9	Dimmer (PwM) 9	9	Dimmer (PwM) 33	9	Dimmer (PwM) 69	9	Dimmer (PwM) 93
10	Dimmer (PwM) 10	10	Dimmer (PwM) 34	10	Dimmer (PwM) 70	10	Dimmer (PwM) 94
11	Dimmer (PwM) 11	11	Dimmer (PwM) 35	11	Dimmer (PwM) 71	11	Dimmer (PwM) 95
12	Dimmer (PwM) 12	12	Dimmer (PwM) 36	12	Dimmer (PwM) 72	12	Dimmer (PwM) 96
13	Dimmer SSR +12VDC	13	Dimmer SSR +12VDC	13	Dimmer SSR +12VDC	13	Dimmer SSR +12VDC
14	Dimmer Overtemp	14	Dimmer Overtemp	14	Dimmer Overtemp	14	Dimmer Overtemp
15	DC Common	15	DC Common	15	DC Common	15	DC Common
16	DC Common	16	DC Common	16	DC Common	16	DC Common
17	Dimmer (PwM) 13	17	Dimmer (PwM) 37	17	Dimmer (PwM) 73	17	Dimmer (PwM) 97
18	Dimmer (PwM) 14	18	Dimmer (PwM) 38	18	Dimmer (PwM) 74	18	Dimmer (PwM) 98
19	Dimmer (PwM) 15	19	Dimmer (PwM) 39	19	Dimmer (PwM) 75	19	Dimmer (PwM) 99
20	Dimmer (PwM) 16	20	Dimmer (PwM) 40	20	Dimmer (PwM) 76	20	Dimmer (PwM) 100
21	Dimmer (PwM) 17	21	Dimmer (PwM) 41	21	Dimmer (PwM) 77	21	Dimmer (PwM) 101
22	Dimmer (PwM) 18	22	Dimmer (PwM) 42	22	Dimmer (PwM) 78	22	Dimmer (PwM) 102
23	Dimmer (PwM) 19	23	Dimmer (PwM) 43	23	Dimmer (PwM) 79	23	Dimmer (PwM) 103
24	Dimmer (PwM) 20	24	Dimmer (PwM) 44	24	Dimmer (PwM) 80	24	Dimmer (PwM) 104
25	Dimmer (PwM) 21	25	Dimmer (PwM) 45	25	Dimmer (PwM) 81	25	Dimmer (PwM) 105
26	Dimmer (PwM) 22	26	Dimmer (PwM) 46	26	Dimmer (PwM) 82	26	Dimmer (PwM) 106
27	Dimmer (PwM) 23	27	Dimmer (PwM) 47	27	Dimmer (PwM) 83	27	Dimmer (PwM) 107
28	Dimmer (PwM) 24	28	Dimmer (PwM) 48	28	Dimmer (PwM) 84	28	Dimmer (PwM) 108
29	Dimmer SSR +12VDC	29	Dimmer SSR +12VDC	29	Dimmer SSR +12VDC	29	Dimmer SSR +12VDC
30	Dimmer Overtemp	30	Dimmer Overtemp	30	Dimmer Overtemp	30	Dimmer Overtemp
31	DC Common	31	DC Common	31	DC Common	31	DC Common
32	DC Common	32	DC Common	32	DC Common	32	DC Common
33	Dimmer (PwM) 25	33	Dimmer (PwM) 49	33	Dimmer (PwM) 85	33	Dimmer (PwM) 109
34	Dimmer (PwM) 26	34	Dimmer (PwM) 50	34	Dimmer (PwM) 86	34	Dimmer (PwM) 110
35	Dimmer (PwM) 27	35	Dimmer (PwM) 51	35	Dimmer (PwM) 87	35	Dimmer (PwM) 111
36	Dimmer (PwM) 28	36	Dimmer (PwM) 52	36	Dimmer (PwM) 88	36	Dimmer (PwM) 112
37	Dimmer (PwM) 29	37	Dimmer (PwM) 53	37	Dimmer (PwM) 89	37	Dimmer (PwM) 113
38	Dimmer (PwM) 30	38	Dimmer (PwM) 54	38	Dimmer (PwM) 90	38	Dimmer (PwM) 114
39	Dimmer (PwM) 31	39	Dimmer (PwM) 55	39	Dimmer (PwM) 91	39	Dimmer (PwM) 115
40	Dimmer (PwM) 32	40	Dimmer (PwM) 56	40	Dimmer (PwM) 92	40	Dimmer (PwM) 116
41	Dimmer (PwM) 33	41	Dimmer (PwM) 57	41	Dimmer (PwM) 93	41	Dimmer (PwM) 117
42	Dimmer (PwM) 34	42	Dimmer (PwM) 58	42	Dimmer (PwM) 94	42	Dimmer (PwM) 118
43	Dimmer (PwM) 35	43	Dimmer (PwM) 59	43	Dimmer (PwM) 95	43	Dimmer (PwM) 119
44	Dimmer (PwM) 36	44	Dimmer (PwM) 60	44	Dimmer (PwM) 96	44	Dimmer (PwM) 120
45	Dimmer SSR +12VDC	45	Dimmer SSR +12VDC	45	Dimmer SSR +12VDC	45	Dimmer SSR +12VDC
46	Dimmer Overtemp	46	Dimmer Overtemp	46	Dimmer Overtemp	46	Dimmer Overtemp
47	DC Common	47	DC Common	47	DC Common	47	DC Common
48	DC Common	48	DC Common	48	DC Common	48	DC Common
49	No Connection	49	No Connection	49	No Connection	49	No Connection
50	No Connection	50	No Connection	50	No Connection	50	No Connection

OEM P1 Power Connector Pinout	
PIN	FUNCTION
1	Phase A
2	Phase B
3	Phase C
4	Neutral
5	Fan Control V+
6	Fan Control V- (Common)

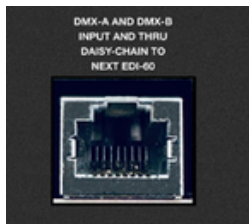
P1 Chassis Connector with male pins



P1 Cable Connector with female pins



Control Input/Output Connections



All EDI-60 retrofit control systems come with a variety of control input and output (I/O) capabilities. All I/O connections are terminated on the connectors located at the rear of the EDI-60 chassis.

Breakaway type connectors are provided for all I/O connections.

- Use wire size #28 to #12 AWG.
- Strip wire insulation length to 0.28" (7mm).
- Use a 1/8" (3.2mm) flat head screwdriver to tighten connections.
- Torque connections to 3.5 IN-LBS (0.4 NM).

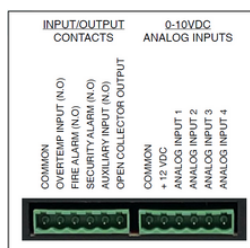
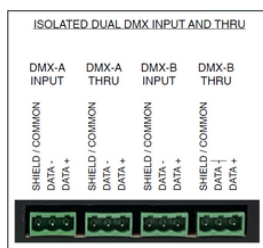
NOTE: For connection use copper wire only, rated for 167°F (75°C) minimum.

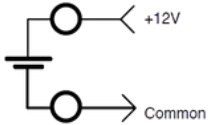
Isolated Dual DMX Input and Thru

- DMX-A (SHIELD/COMMON, DATA-, DATA+) input and thru is terminated on the two 3-position breakaway connectors provided.
- DMX-B (SHIELD/COMMON, DATA-, DATA+) input and thru is terminated on the two 3-position breakaway connectors provided.
- For 120CH EDI-120 rack with two(2) EDI-60 installations, a 10' (3m) CAT 5e patch cable is supplied. This cable is used to daisy-chain the DMX-A and DMX-B between systems. The CAT 5e patch cable plugs into the RJ45 connectors located at the rear of the EDI-60 chassis. If there are two (2) racks of EDI-120 you will need four (4) EDI-60 units to run both racks. **In this case you will need to run DMX-A Thru and DMX-B Thru from the second EDI-60 from Rack one (1) to the first EDI-60 from Rack two (2) DMX-A In and DMX-B In.**
- Complies with USITT DMX512-A (ANSI E1.11 - 2008), standard protocol for digital data control.
- Recommended cable is Belden 9829, 9842, Cat 5 or equivalent (low capacitance, twisted pair).
- Wiring must follow a daisy-chain topology.
- Maximum of 32 receiving devices on a single DMX line.
- Maximum cable length is 1,500 feet (455 meters).
- For more information, Google DMX, or visit: <http://old.usitt.org/DMX512FAQ.aspx>.

NOTE: Ensure only the last (end-of-line) DMX receiving device is terminated! Refer to menu items "DMXA-TRM" and "DMXB-TRM" on page 20 for further details.

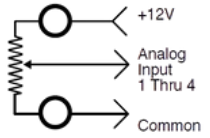
Please note that both DMX-A and DMX-B are terminated in the settings from the Factory!





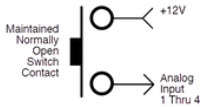
+12VDC Power Supply Output

- A regulated +12VDC power supply is available for powering external devices.
- Terminate on +12VDC and COMMON on the 6-position breakaway connector provided.
- External devices should not exceed the maximum combined current draw of 200 mA.



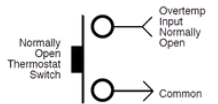
0-10VDC Analog Inputs or Load Shed Contact Inputs

- Four (4) analog inputs terminate on the 6-position breakaway connector provided.
- Inputs can be configured for normal, or load shed mode of operation.
- Inputs can be patched to any combination of dimmer control outputs.
- Programmed in the "ANA MODE" and "ANA PAT" menus. See page 24 for detail.



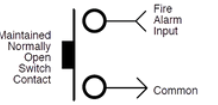
Over-Temperature Input (Normally Open)

- OVERTEMP INPUT (N.O.) is terminated on the 6-position breakaway connector provided.
- Disables all dimmer outputs when the thermostat contact/switch is closed.
- Controlled via a maintained contact/switch to low-voltage common (COMMON).



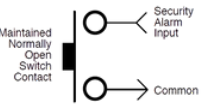
Fire Alarm Input (Normally Open)

- FIRE ALARM (N.O.) is terminated on the 6-position breakaway connector provided.
- Triggers selected channels to turn on when contact/switch is closed.
- Controlled via a maintained contact/switch to low-voltage common (COM).
- Programmed in the "F-ALARM" menu. See page 26 for details.



Security Alarm Input (Normally Open)

- SECURITY ALARM (N.O.) terminates on the 6-position breakaway connector provided.
- Triggers selected channels to cycle on and off at a 1 Hertz rate when contact/switch is closed.
- Controlled via a maintained contact/switch to low-voltage common (COM).
- Programmed in the "S-ALARM" menu. See page 26 for details.



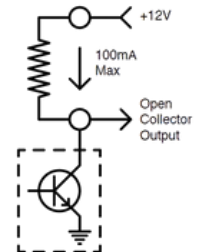
Auxiliary Input (Normally Open)

- AUXILIARY INPUT (N.O.) is terminated on the 6-position breakaway connector provided.
- Triggers 1 of 12 presets when contact/switch is closed.
- Controlled via a maintained contact/switch to low-voltage common (COM).
- Programmed in the "AUX IN" menu. See page 25 for details.



Open Collector Output

- OPEN COLLECTOR OUTPUT is terminated on the 6-position breakaway connector provided.
- Sink up to 100mA.
- Trigger Solid State Relays (SSR) or other external devices.
- Controlled via DMX-And/or Analog Input 4.
- Programmed in the "OC MODE" menu. See page 25 for details.



EEPROM Memory Module



EEPROM
Memory Module

All EDI-60 retrofit control systems come equipped with a "removable"

EEPROM memory module located inside of the EDI-60 chassis. The EEPROM memory module inserts into the on-board connector.

The EEPROM memory module is primarily used to backup important configuration settings.

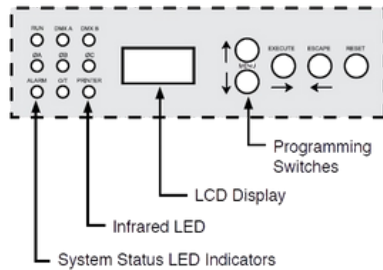
If a firmware update is required, please contact Johnson Systems Inc. The firmware update is made via the USB-C connector on the front of the EDI-60.

The factory will supply a document of how to do this update and where to find the Firmware software to do this.

NOTE: Be sure to "BACKUP" the EDI-60 when installation configuration is complete.



Firmware update is made
via the USB-C connector.



User Interface

EDI-60 retrofit control systems are equipped with a user interface. The user interface provides access to all programming and configuration settings. System status is easily visible on the LCD display and LED indicators.

An infrared LED allows for printout of all system configuration settings when used with a handheld infrared printer (Johnson System Inc., Part Number: JS IP).

All the programming is accomplished using four (4) switches. Within a few minutes most users will find the menu structure very intuitive and easy to navigate. All configuration settings are automatically stored in the on-board EEPROM.

LCD Display

The LCD display can display 2 lines of 8 Characters.

A backlight automatically comes on when activity is sensed on the switches. The LCD contrast can be easily adjusted for optimum viewing. Refer to menu item "LCD VIEW" on page 29 for further details.

Programming Switches

The MENU UP/DOWN () switches are used for navigating through the various system configuration menu items.

They also allow for programming of other specific parameters within a selected menu. Pressing and holding either switch will speed up the scroll rate, which can be helpful to speed up the configuration time.

The EXECUTE () switch is normally used to select/enter a menu item, advance forward within a selected menu item, or toggle between parameters within a selected menu item.

The ESCAPE () switch is normally used to back up within a selected menu item one step at a time or exit the menu completely.

NOTE: The programming switches can be locked out to prevent inadvertent configuration changes. To toggle between "LOCKED!!" and "UNLOCKED" press and hold down the EXECUTE and then ESCAPE switches at the same time for 4-5 seconds.

The RESET switch has two purposes. First, it allows for quick exit from a menu item after a programming change and automatically puts the system into normal run mode. Second, it provides a soft reboot for the systems microcontroller.

NOTE: A detailed procedure for programming all system configuration menu items can be found on page 17 to 29.

System Status • LED Indicators

RUN (Green)

Illuminates when the power is on, and the microcontroller status is in normal run mode.

The LED flashes once every 2 seconds when the system is in STANDBY mode.

ØA, ØB and ØC (Green)

Illuminates when the line voltage power for 120VAC 60Hz systems is within the acceptable range of 100-140 VAC for each phase and the zero-cross reference circuitry is functioning properly.

If a Phase error is detected it will read Ø-ERROR! and for voltage VOLTAGE!

Illuminates when the line voltage power for 220VAC 60Hz is within the acceptable range of 200-240 VAC for each phase and the zero-cross reference circuitry is functioning properly.

If a Phase error is detected it will read Ø-ERROR! and for voltage VOLTAGE!

DMX A and DMX B (Yellow)

Illuminates when valid DMX is received on each of the inputs.

ALARM

Illuminates and flashes twice per second when either a fire or security alarm is sensed on each of the inputs.

O/T

Illuminates and flashes twice per second when the microcontroller sense an internal overtemperature condition, or when an external over-temperature is sensed via the over-temperature input, or when an external dimmer over-temperature is sensed.

System Status • LCD Display

When DMX is being received, the top line of the LCD display shows STANDBY! And the second line is the active DMX ("A512B000"). When DMX is not being received, the top line of the LCD display shows "STANDBY!" And the second line shows ("NO DMX!") If the system shows "512B000" then only DMX-A is connected and terminated.

NO DMX! Displayed when DMX is not being received on either input or the system is not in scene mode.

AXXXBXXX

Displayed when valid DMX is being received on one or both inputs and both inputs are not terminated. "A and B" represent the DMX-A and DMX-B inputs while "XXX" represents the number of channels being received in each packet of data. For example, if the system is receiving 512 channels on DMX-B and DMX-A is disconnected, the display will show "A000B512". If the system shows "512B000" then only DMX-A is connected and terminated.

XXX XXX

Same as above except the "A" and "B" is replaced with " " to indicate if one or both DMX inputs are terminated. For example, if the system is receiving 48 channels on DMX-A and 512 channels on DMX-B, with only DMX-A terminated, the display will show " 048B512". Refer to menu items "DMXA TRM" and "DMXB TRM" on page 20 for further details.

SH XX:YY

Displayed when DMX is disconnected, and the systems predetermined DMX status hold (SH) time is counting down. "XX" represents minutes while "YY" represents seconds. Refer to menu item "SH TIME" on page 22 for further details.

INF HOLD

Displayed when DMX is disconnected, and the systems predetermined DMX status hold (SH) time is set for infinite (INF) hold. Refer to menu item "SH TIME" on page 22 for further details.

SCENE:XX

Displays the scene (1 to 20) that is currently activated. The colon in front of the scene number flashed twice per second during fading. Refer to menu item "SCENEMOD" on page 25 for further details.

A-SCENE!

Displayed when the auxiliary input is triggered. Refer to menu item "AUX IN" on page 25 for further details.

FIRE!!!

Displayed when the fire alarm input is triggered. Refer to menu item "F-ALARM" on page 26 for further details.

SECURITY

Displayed when the security alarm input is triggered. Refer to menu item "S-ALARM" on page 26 for further details.

DIM-TEMP

Displayed when an external dimmer over-temperature is sensed via a dimmer module. All dimmer outputs are disabled until the dimmer module temperature drops to within specification.

EXT-TEMP

Displayed when an external over-temperature is sensed via the over-temperature input. All dimmer outputs are disabled, and the fans are turned on to full until the external devices temperature drops to within specification. See "Over-Temperature Input" information on page 11 for further details.

CTL-TEMP

Displayed when the microcontroller senses an internal over-temperature condition of 185°F (85°C) or more. All dimmer outputs are disabled, and the fans are turned on to full until the temperature cools down to 178°F (81°C) or less. See menu item "CTL TEMP" to view the current microcontroller temperature.

Ø ERROR!

Displayed when an error is sensed on any of the input power phases. A phase error can be caused from an under-voltage of less than 100VAC, an over-voltage of greater than 140VAC, or if a zero cross phase reference is not detected.

Displayed when an error is sensed on any of the input power phases. A phase error can be caused from an under-voltage of less than 200VAC, an over-voltage of greater than 240VAC or if a zero-cross phase reference is not detected.

RTC ERR!

Displayed when the system detects a runtime counter (RTC) error. This occurs when there is an invalid hard-key code, and the runtime counter is greater than 2160 hours (90 days). Refer to menu item "HARD-KEY" on page 30 for further details.

LOCKED!!

Displayed when an attempt is made to access the system configuration menu items and the programming switches are locked out. To toggle between "LOCKED!!" and "UNLOCKED" press and hold down the "EXECUTE" and then "ESCAPE" switches at the same time for 4-5 seconds.

Quick Programming Reference to System Configuration Menu Items

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 120 dimmer (PWM) outputs to any DMX-A input channel.
13. **DMXB PAT** Patch the 120 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. **VOU 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.
30. **POLARITY** This indicates when the unit is set to +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. **R TIME** 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.

Detailed Programming of System Configuration

Menu Items

NOTE: The programming switches can be locked out to prevent inadvertent configuration changes. To toggle between "LOCKED!!" and "UNLOCKED" press and hold down the EXECUTE and then ESCAPE switches at the same time for 4-5 seconds.

The sequence of the following system configuration menu items appears as the MENU DOWN (⬇️) switch is pressed. Pressing the MENU UP (⬆️) switch will sequence the system configuration menu items in the opposite order. Pressing and holding either of the MENU UP/ DOWN (⬆️/⬇️) switches will speed up the scroll rate, which can be helpful to speed up the configuration time.

1. SCENESET

Enable and setup 20 different backup scenes.

When scene mode is activated, the selected scene will be held with no timeout until the menu is exited. The 60 control channel levels are configured within the menu and can be modified on the fly. Scene mode is useful when an external controller is not available and independent internal control is required.

Press EXECUTE to enter the menu and activate scene mode.

SCENE>01 Displays the scene (01) to be activated.

SCENE>20 Press MENU (⬆️) to select a different scene from 01 to 20.

SCENE>12 Press EXECUTE to activate the selected scene.

SCENE:12 The colon (:) flashes twice per second while fading to the selected scene.

SCENE:12 The colon (:) stops flashing when fading is complete, and the selected scene is active

SCENE>12 Press MENU (⬆️) to select a different scene from 01 to 20..

2. FADETIME

Set the SCENES Fadetimes.

The factory default is 5 seconds for all 20 presets.

Press EXECUTE to enter the menu.

TIME >05 Display the assigned fade time (T= 05 seconds).

TIME >99 Press MENU (⬆️) to change the Fade Time.

Press ESCAPE to exit the menu and save the selected fade time.

Press RESET to exit the menu without saving.

The menu will automatically time out after 5 minutes of inactivity and save.

3. SNAPSHOT

Record DMX levels into the backup scenes.

This is important if something happens to your console or front-end controls!

Provides a quick and uncomplicated way to save control channel levels into each of the 01 to 20 backup scenes using a DMX source.

SCENE 01

Press EXECUTE to enter the menu and activate snapshot mode.

SCENE 12

Displays the scene to save from 01 to 20.

RECORD 12

Press MENU (↩) to select a scene from 01 to 20.

SAVED 12

Press EXECUTE (→) to save the DMX levels in the selected scene.

NO RX!

DMX levels have now been saved in the selected scene.

DMX is not being received on either input, so a snapshot is not possible.

Press ESCAPE to back-up within the menu, or exit/deactivate snapshot mode.

Press RESET to exit/deactivate snapshot mode.

4. DIM TEST

Test the dimmer outputs one at a time, or all at once.

A technician's best friend! Used for troubleshooting the dimmer outputs and field wiring to the load.

D 01>00

Press EXECUTE to enter the menu and activate dimmer test mode.

D 01>00

Displays the active dimmer (D) and the test level (L).

D 60>00

Press EXECUTE to toggle between dimmer (D) and level (L) selection.

D ALL>00

Press MENU (↩) to select the dimmer (D) to test from 01 to 60.

D 01>00

Press MENU (↩) to select and test all (ALL) the dimmers at once.

D 01>FL

The cursor (>) position indicates dimmer (D) or level (L) selection.

D 01>FL

Press MENU (↩) to select the desired test level from 00% to 100% (FL).

D 01>FL

Press ESCAPE to toggle the test level between full-on (FL) and off (00).

Press EXECUTE to toggle the cursor (>) and select another dimmer to test.

Press ESCAPE or RESET to exit the menu.

The menu will automatically time out after 5 minutes of inactivity.

5. MONITOR

View the control level to each dimmer output.

The dimmer control level is displayed as a % value from 00 to FL. This menu does not timeout automatically and will continue to monitor indefinitely.

D>01L>00

Press EXECUTE to enter the menu and activate monitor mode.

D>60L>FL

Press MENU (↩) to select the dimmer (D) output to monitor from 01 to 60.

Display shows dimmer 60 has full-on (100%) control.

Press ESCAPE or RESET to exit the menu.

NOTE: The control level value will not reach FL or 100% when voltage output limiting is activated, or when regulation is enabled, and the line voltage is greater than 118 VAC.

6. ADDRESS

Set the DMX start address.

The DMX start address can be assigned from 001 to 512 and is common to both DMX inputs. When DMX MODE is set for DMX-A+B operation, each of the DMX inputs can be assigned to a separate DMX start address. The DMX inputs are merged, and DMX-B is offset by the number of DMX-A channels.

Press EXECUTE to enter the menu.

DMXA>001

Displays the current DMX start address for the DMX-A input.

DMXA>512

Press MENU () to modify and select the desired DMX start address.

DMXB>001

*Press EXECUTE to advance to select the DMX-B start address.

DMXB>512

*Press MENU () to modify and select the desired DMX start address.

#CHA>001

*Press EXECUTE to advance to select the number of DMX-A channels.

#CHA>60

*Press MENU () to modify the number of DMX-A channels from 01 to 60.

Press ESCAPE to exit the menu and save the selected DMX start address.

Press RESET to exit the menu without saving.

The menu will automatically time out after 5 minutes of inactivity and save.

NOTE: * DMX MODE must be set for DMX A+B operation to access this feature.

NOTE: DMX O/P must be set to OFFSET mode for this menu to function.

7. DMX MODE

Configure the mode of the on-board DMX protocol manager.

There are five different mode settings for the DMX protocol manager.

Priority A (PTY A) and Priority B (PTY B) modes are intended for the implementation of a backup DMX source. Priority A (PTY A) sets the DMX-A input as the priority and ignores the DMX-B input when the DMX-A input is active. Priority B (PTY B) sets the DMX-B input as the priority and ignores the DMX-A input when the DMX-B input is active.

Merge (MERGE) mode combines both DMX inputs with highest-takes precedence (HTP) operation. Merge mode allows for simultaneous DMX control of the dimmers from both inputs and is the default for the system.

Dual Universe DMX (DMX-A+B) mode provides a method to combine two universes of DMX within one system. It permits two independent DMX sources to be active on the DMX inputs, with each having a separate DMX start address.

The DMX inputs are merged, and DMX-B is offset by the number of DMX-A channels programmed via the ADDRESS menu (see ADDRESS - above for further details). This feature is typically used when a system is at the end of one DMX universe (DMX-A) and the beginning of another (DMX-B).

Two Room (2 ROOM) mode enables the room (A or B) assignment for each of the dimmer outputs via the 2 RM SET menu.

- PTY A Press EXECUTE to toggle into Priority A (PTY A) mode.
- PTY B Press EXECUTE to toggle into Priority B (PTY B) mode.
- MERGE Press EXECUTE to toggle into Merge (MERGE) mode.
- DMX-A+B Press EXECUTE to toggle into Dual Universe DMX (DMX-A+B) mode.
- 2 ROOM Press EXECUTE to toggle into Two Room (2 ROOM) mode.
- Press ESCAPE or RESET to exit the menu.
- Any change in the configuration is automatically saved.

NOTE: DMX O/P must be set to OFFSET mode for this menu to function.



















