User Manual

JS-ICON™ Series
Dimmer Rack

JS-ICON™ 2410
JS-ICON™ 2413
JS-ICON™ 1220
JS-ICON™ 1210/620

JOHNSON SYSTEMS INC.

www.johnsonsystems.com

plasa
member

usitt

Intertek

Contents

Warranty

JS-ICON™ Series dimmer racks come with a standard two (2) year limited warranty. Extended warranties of up to 10 years are available at the time of purchase. For details visit 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 was originally 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).

JOHNSON SYSTEMS INC.
"PROGRESSIVE ALTERNATIVES IN LIGHTING CONTROL"

Introduction

JS-ICON™ Series wall-mount dimmer racks represent the ultimate value in hi-performance dimming! Next generation "system-on-a-chip" technology coupled with state-of-the-art inductor technology provides unsurpassed quality in professional grade SCR dimming.

Advanced next generation hardware and software designs reduce stand-by power consumption to less than 1 Watt, allowing for compliance with the International Energy Agency's "One Watt Initiative" for standby power consumption. This makes JS-ICON™ Series the "greenest" dimmer racks available!

Available in a number of different sizes and configurations, JS-ICON™ Series dimmer racks are designed for side-by-side installation and high density requirements. Intuitive LCD user interface combined with dual DMX inputs, analog inputs and contact closure inputs allow for industry wide application.
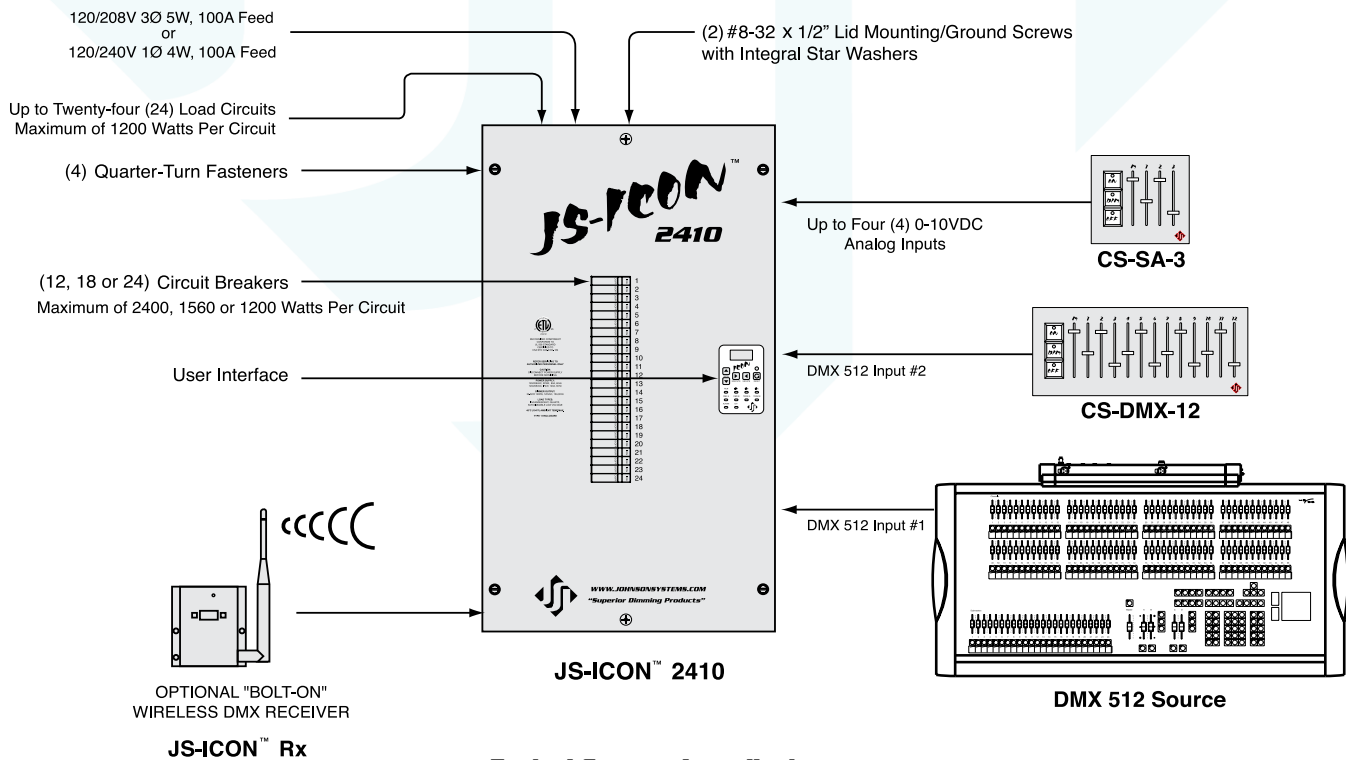
Removable cover allows for ease of installation and serviceability. On demand "MagLev®" thermal management technology produces superior cooling that is virtually silent making JS-ICON™ the natural choice for "quiet space" dimming installations. Exclusive "lamp warming" techniques extends lamp life considerably while maintaining industry leading performance!

- Available in multiple sizes and configurations.
- Unique power saving "stand-by" mode reduces power consumption to less than 1 Watt. Compliance with the "One Watt Initiative".
- Dims standard or low-voltage incandescent quartz lamps.
- Individual dimmer profile selection permits safe and silent non-dim control of fluorescent loads, HID lighting, motors, etc.
- Dual DMX512-A inputs with on-board protocol manager. Optional wireless DMX receiver.
- Unique "lamp warming" feature extends lamp life.
- Analog and dedicated dry contact BMS inputs for interface with HVAC, security and audio.
- LCD user interface for easy setup and monitoring.
- Over-heat and over-current protected.
- Non proprietary dimmer SCR's are 200% rated.
- On-demand 'MagLev®' thermal management technology produces superior cooling that is virtually silent.
- "Load Shed" inputs for power management and photocell interface.
- Up to 10 year product warranty available!

Characteristics

- Maximum Feeder Capacity: 100 Amp 120/208 VAC 3Ø 5 wire. Max. Rating 28.8kW. 100 Amp 120/240 VAC 1Ø 4 wire. Max. Rating 24.0kW.

- Power Termination: Power lug input. Terminal block output.

- Environment: Temperature Range: 23°F (-5°C) to 104°F (40°C) ambient. Humidity Range: 0% to 90% non-condensing.

- Dimmer Load Type: Incandescent quartz lamps and electronic (SCR dimmable) low voltage fixtures.

- Relay Load Type: Any to maximum circuit rating.

- Switch Type: 200% rated, non-proprietary SCR solid state relay.

- Choke Type: High performance, copper wound, hybrid core toroidal magnetic filter.

- Choke Rise Time: 2400W = 400µs; 1560W = 300µs; 1200W = 300µs.

- Physical: 30" x 17" x 6.8" (75 cm x 43 cm x 17 cm).

- Weight: All Models approximately 66 lbs. (30 Kg).

- Material: 18-gauge steel CRS.

- Finish: Textured fine black powder coat.

120/208V 3Ø 5W, 100A Feed
or
120/240V 1Ø 4W, 100A Feed

(2) #8-32 x 1/2" Lid Mounting/Ground Screws with Integral Star Washers

Up to Twenty-four (24) Load Circuits
Maximum of 1200 Watts Per Circuit

(4) Quarter-Turn Fasteners

Up to Four (4) 0-10VDC Analog Inputs

CS-SA-3

(12, 18 or 24) Circuit Breakers
Maximum of 2400, 1560 or 1200 Watts Per Circuit

DMX 512 Input #2

User Interface

CS-DMX-12

DMX 512 Input #1

OPTIONAL "BOLT-ON" WIRELESS DMX RECEIVER

JS-ICON™ Rx

JS-ICON™ 2410

DMX 512 Source

Typical System Installation

JS-ICON™ 2410 - Twenty-four (24) 10 AMP CCTS.

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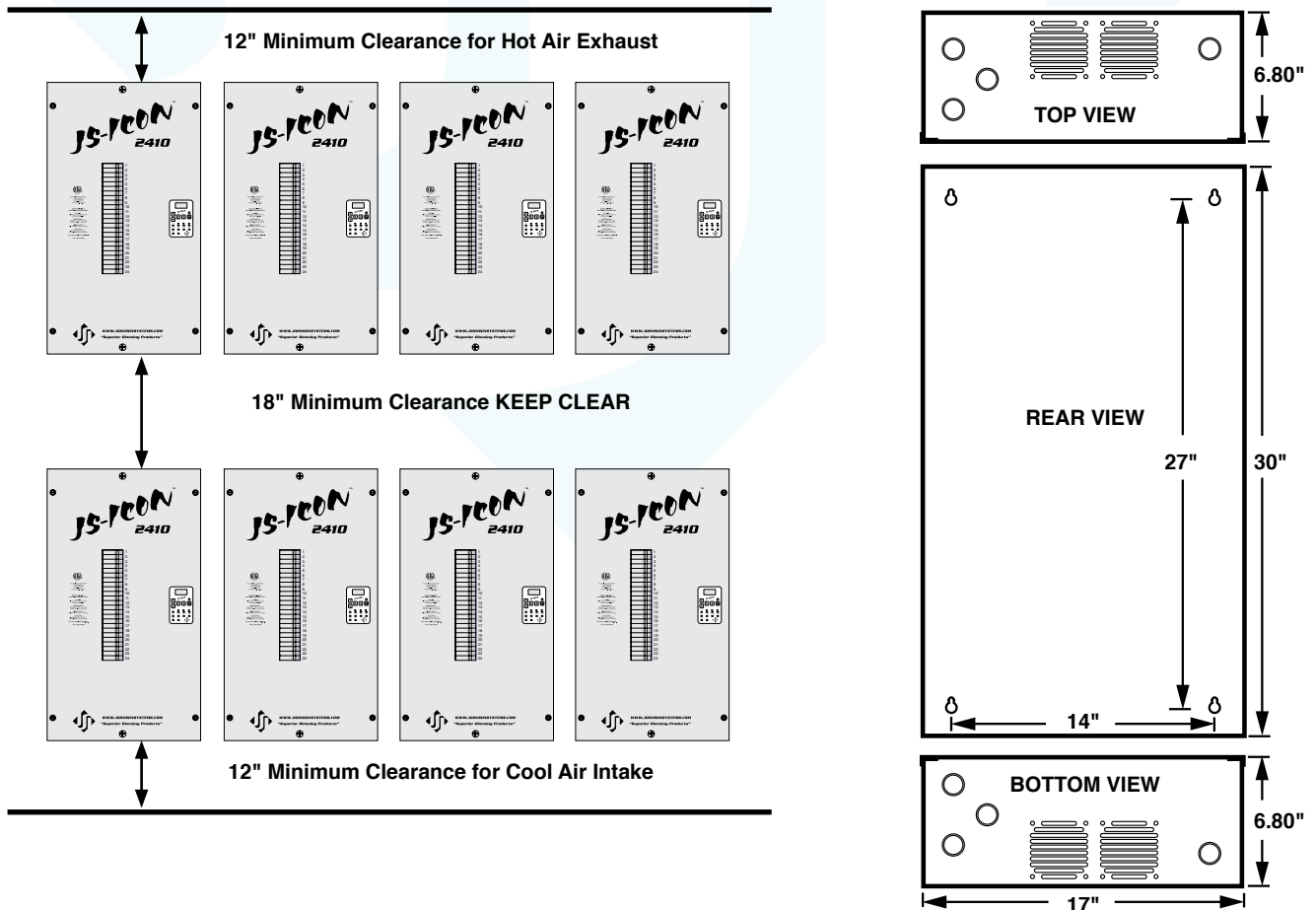
Installation

Mounting

The JS-ICON Series dimmer racks can be mounted to any wall surface capable of supporting its weight of approximately 66 lbs (30 kg) for each rack. Four 1/4" (6mm) screws or bolts are required to fasten the rack safely to the wall (see the drawing below for mounting locations and dimensions). To access the mounting locations, simply remove the lid. The lid is secured by two (2) #8-32 x 1/2" lid mounting/ground screws with integral star washers located at the top-center and bottom-center of the lid, as well as four (4) quarter-turn fasteners located in each corner. Use a #2 Philips screwdriver to remove the two (2) lid mounting/ground screws. To release the four (4) quarter-turn fasteners, use a flathead screwdriver to turn them a quarter-turn counter-clockwise. Once the lid mounting/ground screws are removed and the fasteners are released, the lid can be removed. When remounting the lid, it is **very important** to re-install and tighten the two (2) mounting/ground screws to ensure ground continuity from the main chassis/enclosure to the lid. The quarter-turn fasteners are easily locked into place by lining the slot up horizontally, and pushing it in with a thumb.

WARNING: Risk of electrical shock. Before the power supply is turned on, ensure the lid is securely fastened to the rack with the two (2) lid mounting/ground screws and four (4) quarter-turn fasteners. Never remove the lid when the power supply is turned on.

WARNING: Mount the dimmer racks only as indicated below. Failure to comply may cause thermal overheating.

12" Minimum Clearance for Hot Air Exhaust

18" Minimum Clearance KEEP CLEAR

12" Minimum Clearance for Cool Air Intake

TOP VIEW — 6.80"
REAR VIEW — 27", 30", 14"
BOTTOM VIEW — 6.80", 17"

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Power Supply Connection Details

The JS-ICON™ Series dimmer racks are capable of various 120V power supply configurations. The contractor termination section is located on the left-hand side. Knockouts on the top and bottom of the chassis are provided for wire/conduit entry to the power terminals. The phase power terminals are mounted directly onto copper bussbars, used to distribute current to each dimmers circuit breaker. The power terminals may be rotated up to 180 degrees to facilitate top or bottom wire entry. To rotate the power terminals, loosen the 1/4-20 x 1/2" mounting bolts (use a 7/16" wrench or socket), rotate terminals into place, and tighten the mounting bolts to 45-50 IN-LBS (5.0-5.6 NM).

WARNING: Wiring termination must be done by qualified personnel only!

WARNING: Be sure all power connections are tightened to specification before power supply is turned on.

Power Supply Configurations - Three Phase:

120/208 VAC, 3Ø, 5-Wire up to 100 Amps per phase. Maximum 28.8kW total. Use wire size #14 to #1/0 AWG. Strip insulation length to 0.65" (16.5mm). Torque power terminals (A, B, C) to 45-50 IN-LBS (5.0-5.6 NM).

Below is the dimmer phasing for each JS-ICON™ Series dimmer rack model:

JS-ICON™ 2410 and JS-ICON™ 2413 (Example shown to the left)
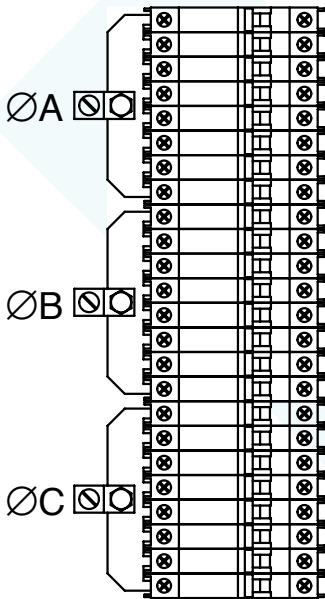
- Dimmers 1 to 8 are powered from Phase A.
- Dimmers 9 to 16 are powered from Phase B.
- Dimmers 17 to 24 are powered from Phase C.

JS-ICON™ 1220

- Dimmers 1 to 4 are powered from Phase A.
- Dimmers 5 to 8 are powered from Phase B.
- Dimmers 9 to 12 are powered from Phase C.

JS-ICON™ 1210/620

- Dimmers 1 to 8 are powered from Phase A.
- Dimmers 9 to 14 are powered from Phase B.
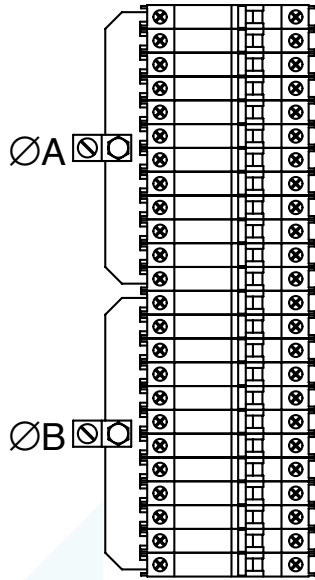- Dimmers 15 to 18 are powered from Phase C.

NOTE: Power supply requires an external disconnect.

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

ØA

ØB

ØC

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Power Supply Connection Details

Power Supply Configurations - Single Phase:

120/240 VAC, 1Ø, 4-Wire up to 100 Amps per phase. Maximum 24.0kW total. Use wire size #14 to #1/0 AWG. Strip insulation length to 0.65" (16.5mm). Torque power terminals (A, B, C) to 45-50 IN-LBS (5.0-5.6 NM).

Below is the dimmer phasing for each JS-ICON™ Series dimmer rack model:

JS-ICON™ 2410 and JS-ICON™ 2413 (Example shown to the left)
- Dimmers 1 to 12 are powered from Phase A.
- Dimmers 13 to 24 are powered from Phase B.

JS-ICON™ 1220
- Dimmers 1 to 6 are powered from Phase A.
- Dimmers 7 to 12 are powered from Phase B.

JS-ICON™ 1210/620
- Dimmers 1 to 12 are powered from Phase A.
- Dimmers 13 to 18 are powered from Phase B.

ØA

ØB

> **NOTE:** Power supply requires an external disconnect.
>
> **NOTE:** For connection use copper wire only, rated 167°F (75°C) minimum.

Three-Phase to Single-Phase Conversion

JS-ICON™ Series dimmer racks are normally shipped for three-Phase operation unless otherwise specified at the time of purchase. Please contact your supplier for a single-phase conversion kit if required. The following steps will need to be followed to convert the JS-ICON™ dimmer rack from three-phase to single-phase operation.

1. Remove the three-phase copper bussbars by loosening all of the screws terminals (use a medium sized #2 Philips or Flathead screwdriver) on the left-hand side of the circuit breakers.
2. Insert the supplied single-phase copper bussbars, and tighten all of the circuit breaker screw terminals to 20 IN-LBS (2.26 NM).
3. Reconnect the black #18 AWG wire (underneath) to the Phase A bussbar.
4. Reconnect the red #18 AWG wire (underneath) to the Phase B bussbar.
5. Tape off or use a marette to isolate the blue #18 AWG wire.
6. Remove two (2) of the phase power terminals (use a 7/16" wrench or socket) from the old three-phase bussbars, and fasten them to the new single-phase bussbars. Use the original mounting bolts and tighten to 45-50 IN-LBS (5.0-5.6 NM).
7. Note that the default phase patch will need to be reconfigured when the system is powered up. For more information, see "DEFAULTS" menu item on page 30.

> **WARNING:** *Be sure all power connections are tightened to specification before power supply is turned on.*

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**Load Circuit Neutral
Output Terminals**

Load Circuit Neutrals

Ground Input

**Load
Circuit
Grounds**

Power Supply Connection Details

Neutral Power Distribution Block

Neutral Input Terminal

- Use wire size #14 to #1/0 AWG. Strip insulation length to 0.65" (16.5mm).
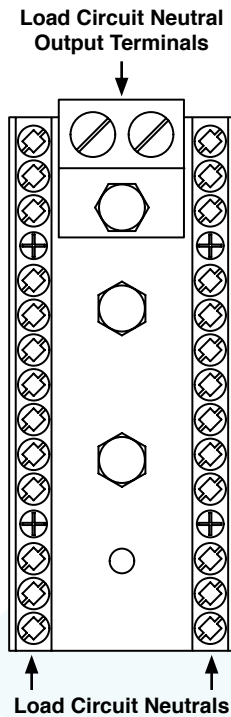- Torque neutral terminal(s) to 45-50 IN-LBS (5.0-5.6 NM).

Capable of single or dual rated neutral termination. The neutral terminal may be mounted on the top or bottom of the distribution block to facilitate top or bottom wire entry. To change the position of the neutral terminal, remove the 1/4-20 x 1/2" mounting bolt (use a 7/16" wrench or socket), move into place, and tighten the mounting bolt to 45-50 IN-LBS (5.0-5.6 NM).

Load Circuit Neutral Output Terminals

- Use wire size #14 to #8 AWG. Strip insulation length to 0.315" (8mm).
- Torque load circuit neutral terminals to 20-25 IN-LBS (2.3-2.8 NM).

Models JS-ICON™ 2410, JS-ICON™ 2413 and JS-ICON™ 1210/620 are supplied with 25 load circuit neutral terminals, while Model JS-ICON™ 1220 is supplied with 12.

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

Ground Connection Details

Ground Input Terminal

- Use wire size #14 to #1/0 AWG. Strip insulation length to 0.65" (16.5mm).
- Torque ground terminal to 45-50 IN-LBS (5.0-5.6 NM).

The ground input terminal may be rotated up to 360 degrees to facilitate top or bottom wire entry. To rotate the ground terminal, loosen the 1/4-20 lock-nut (use a 7/16" wrench or socket), rotate terminal into place, and tighten the lock-nut to 45-50 IN-LBS (5.0-5.6 NM).

Load Circuit Ground Output Terminals

- Use wire size #14 to #8 AWG. Strip insulation length to 0.315" (8mm).
- Torque load circuit ground terminals to 20-25 IN-LBS (2.3-2.8 NM).

Models JS-ICON™ 2410, JS-ICON™ 2413 and JS-ICON™ 1210/620 are supplied with 25 load circuit ground terminals, while model JS-ICON™ 1220 is supplied with 12.

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

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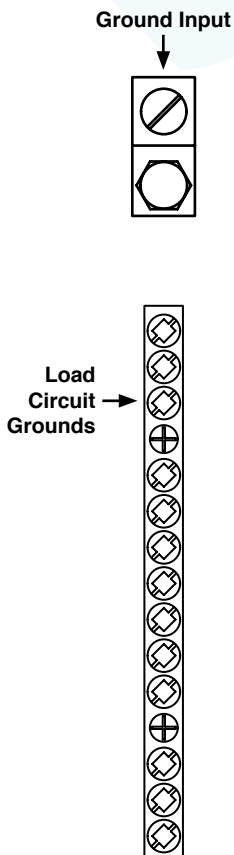
**Load Output
Terminal Blocks**

1	⊘	⊘	
2	⊘	⊘	
3	⊘	⊘	
4	⊘	⊘	
5	⊘	⊘	
6	⊘	⊘	
7	⊘	⊘	
8	⊘	⊘	
9	⊘	⊘	
10	⊘	⊘	
11	⊘	⊘	
12	⊘	⊘	
13	⊘	⊘	
14	⊘	⊘	
15	⊘	⊘	
16	⊘	⊘	
17	⊘	⊘	
18	⊘	⊘	
19	⊘	⊘	
20	⊘	⊘	
21	⊘	⊘	
22	⊘	⊘	
23	⊘	⊘	
24	⊘	⊘	

Dimmer Output

JS-ICON™ 2410	24 x 10 Amp (1200 Watt) dimmers.
JS-ICON™ 2413	24 x 13 Amp (1560 Watt) dimmers.
JS-ICON™ 1220	12 x 20 Amp (2400 Watt) dimmers.
JS-ICON™ 1210/620	12 x 10 Amp (1200 Watt) and
	6 x 20 Amp (2400 Watt) dimmers.

JS-ICON™ Series dimmer racks are designed for high performance dimming of standard incandescent, quartz, and dimmable (SCR/Leading-Edge) electronic low-voltage fixtures. The dimmer outputs may be configured for non-dimmed applications when switched (relay controlled) load outputs are required. Knockouts on the top and bottom of the chassis are provided for wire/conduit entry to the power terminals.

Load (Hot) Output Connection Details
Load output connections are terminated via DIN rail mounted terminal blocks.

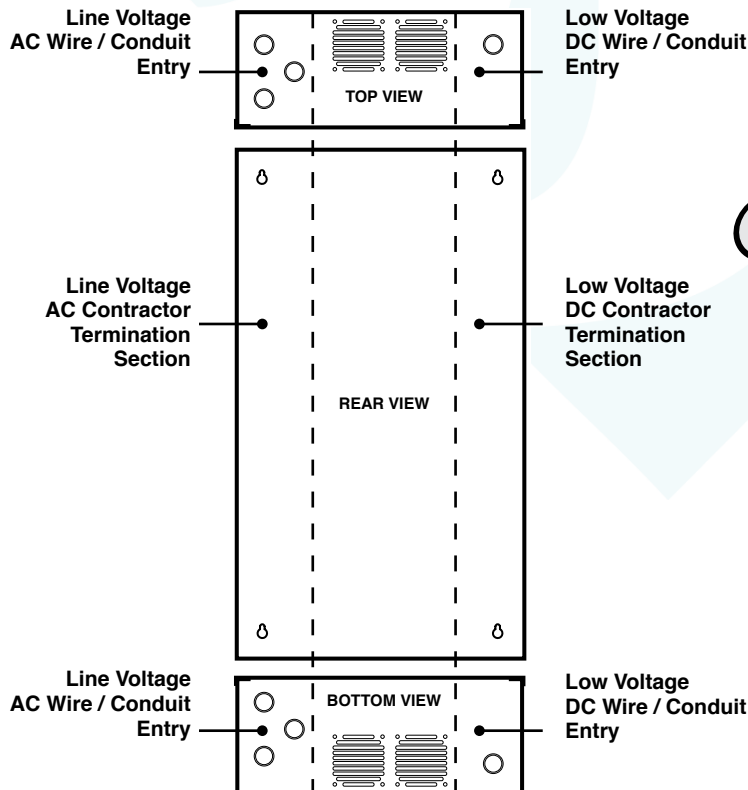## Models JS-ICON™ 2410 and JS-ICON™ 2413
- Use wire size #14 to #10 AWG. Strip insulation length to 0.315" (8mm).
- Torque load output terminal blocks to 5-7 IN-LBS (0.6-0.8 NM).

Model JS-ICON™ 1220
- Use wire size #14 to #8 AWG. Strip insulation length to 0.4" (10mm).
- Torque load output terminal blocks to 13-16 IN-LBS (1.5-1.8 NM).
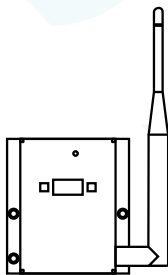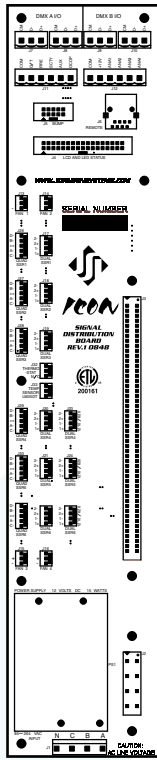
Model JS-ICON™ 1210/620
- For load output terminal blocks 1 to 12, use same specification as Model JS-ICON™ 2410.
- For load output terminal blocks 13 to 18, use same specification as Model JS-ICON™ 1220.
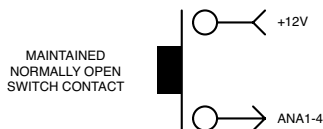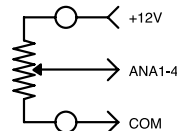
NOTE: For connection use copper wire only, rated for 167°F (75°C) minimum.

Line Voltage AC Wire / Conduit Entry

Low Voltage DC Wire / Conduit Entry

TOP VIEW

Line Voltage AC Contractor Termination Section

Low Voltage DC Contractor Termination Section

REAR VIEW

Line Voltage AC Wire / Conduit Entry

BOTTOM VIEW

Low Voltage DC Wire / Conduit Entry

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Signal Distribution Board
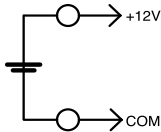
Control Input/Output

JS-ICON™ Series dimmer racks come with a variety of control input and output (I/O) capabilities. All I/O connections are terminated on the Signal Distribution Board, located on the right-hand side of the dimmer rack.

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

- Use wire size #28 to #12 AWG. Strip insulation length to 0.3" (7.5mm).
- Torque terminations to 3.6 IN-LBS (0.4 NM).

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

Dual DMX Input and Through

- DMX A terminates to J7 and J8 connectors.
- DMX B terminates to J9 and J10 connectors.
- 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!

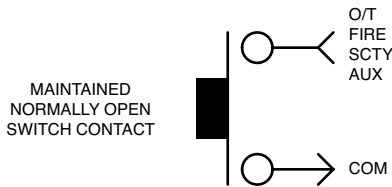## Models JS-ICON™ Rx and JS-ICON™ Tx

Wireless DMX is optional for all JS-ICON™ Series dimmer racks. SHoW DMX receiver (JS-ICON™ Rx) and transmitter (JS-ICON™ Tx) is sourced from City Theatrical, and has been selected for its reliability and ease of use. The JS-ICON™ Rx is specifically designed for easy adaptation to all JS-ICON™ products. The JS-ICON™ Rx comes complete with a wiring harness and mounting hardware. For more information visit: http://www.johnsonsystems.com/JS-ICON_Rx_Manual_by_City_Theatrical.pdf.

JS-ICON™ Rx

+12VDC Power Supply Output

- A regulated +12VDC power supply is available for powering external devices.
- Terminate on +12V and COM of J12 connector.
- External devices should not exceed the maximum combined current draw of 200mA.

0-10VDC Analog Inputs or Load Shed Contact Inputs

- Four (4) analog inputs terminate on J12 connector.
- AN1=Analog Input 1, AN2=Analog Input 2, AN3=Analog Input 3, AN4=Analog Input 4.
- Inputs can be configured for normal or load shed mode of operation.
- Inputs can be patched to any combination of dimmer output circuits.
- Programmed in the "ANA MODE" and "ANA PTCH" menus. See pages 22 and 23 for details.

+12V

COM

+12V

ANA1-4

COM

MAINTAINED
NORMALLY OPEN
SWITCH CONTACT

+12V

ANA1-4

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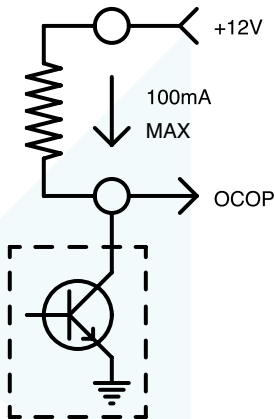
Over-Temperature Input (Normally Open)
- Terminate (O/T) on J11 connector.
- Disables all dimmer outputs when contact/switch is closed.
- Controlled via a maintained contact/switch to low-voltage common (COM).

Fire Alarm Input (Normally Open)
- Terminate (FIRE) on J11 connector.
- 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 25 for details.

Security Alarm Input (Normally Open)
- Terminate (SCTY) on J11 connector.
- Triggers selected channels to cycle on and off at a 1 Hertz rate.
- Controlled via a maintained contact/switch to low-voltage common (COM).
- Programmed in the "S-ALARM" menu. See page 25 for details.

Auxiliary Input (Normally Open)
- Terminate (AUX) on J11 connector.
- Triggers 1 of 24 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 24 for details.

Open Collector Output
- Terminate (OCOP) on J11 connector.
- 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 24 for details.

MADD-24 (Multiple Application Dimmer Driver)

The MADD-24 is the central electronic control system (aka brain) for all JS-ICON™ Series dimmer racks. The MADD-24 is located on the right-hand side of the dimmer rack, and mounts into card edge connectors located on the Signal Distribution Board. The MADD-24 can easily be removed by unscrewing two #4-40 mounting screws (use a small sized #1 Philips screwdriver) located on the top corners, and pulling it forward using both hands. When re-installing a MADD-24, be sure it is fully seated into the card edge connectors, and the two mounting screws are screwed in tight.

Located on the MADD-24 is a removable EEPROM memory module. The EEPROM memory module slides into the PORT1 connector located on the upper center of the board. The EEPROM memory module is used to backup important configuration settings and may be removed for safe storage. The EEPROM memory module can also be used for firmware updates. Refer to menu items "EEPROM", "FW-LOAD", "RESTORE" and "BACKUP" on page 27 to 29 for further details.

EEPROM Memory Module

LCD Display

Infrared LED

Programming
Switches

System
Status
LED Indicators
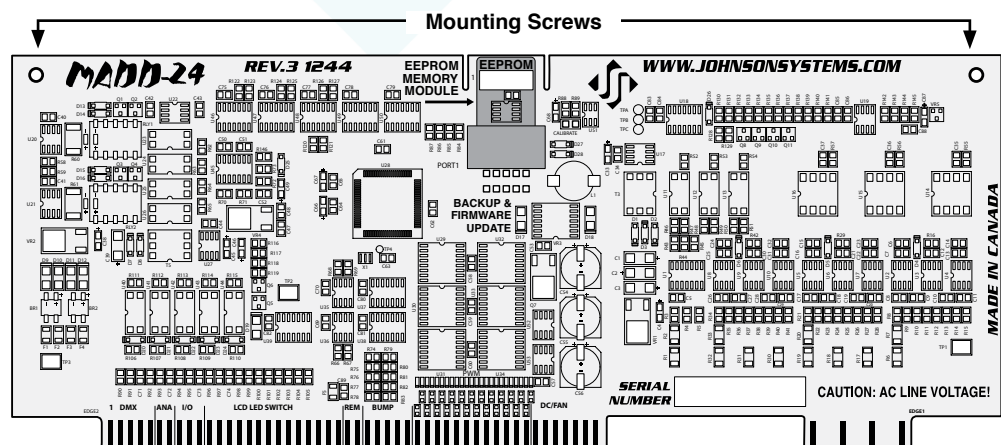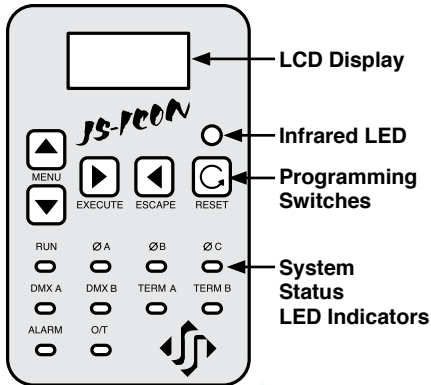
User Interface

The user interface provides access to all programming and configuration settings. System status is easily visible on the LCD display and LED indicators. All JS-ICON™ Series dimmer racks are equipped with a user interface connected to the Signal Distribution Board via a 34-pin ribbon cable.

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

All of 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 into E^{2}ROM.

LCD Display

The LCD display is capable of displaying 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 30 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 15 to 30.

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 is within the acceptable range of 100-130 VAC for each phase, and the zero-cross reference circuitry is functioning properly. The LED will flash slowly (once per second) when an under-voltage state of less than 100 VAC is sensed, and will flash quickly (twice per second) when an over-voltage of greater than 130 VAC is sensed.

DMX A and DMX B (Yellow)

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

TERM A and TERM B (Yellow)

Illuminates when *DMX is terminated* 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 whenever one of three *over-temperature* sensing inputs are triggered.

System Status - LCD Display

When DMX is being received, the top line of the LCD display shows the active DMX MODE ("PTY A", "PTY B", "MERGE", "DMX A+B", "2 ROOM" or "PATCH"). When DMX is not being received, the top line of the LCD display shows "MADD-24", unless the system is in standby mode, then "STANDBY!" is displayed.

The bottom line of the LCD Display shows the current status of the system, unless the system configuration menu items are being accessed. Below are descriptions for each status indication.

NO RX!

Displayed when DMX is not being received on either input, and 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".

^T_MXXX^T_MXXX

Same as above, except the "A" and "B" is replaced with "^T_M" to indicate if one or both of the 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 "^T_M048B512". Refer to menu items "DMXA TRM" and "DMXB TERM" on page 18 and 19 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 21 for further details.

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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 21 for further details.

SCENE:XX

Displays the scene (1 to 24) that is currently activated. Refer to menu item "L-BUTTON" on page 24 for further details.

A-SCENE!

Displayed when the auxiliary input is triggered. Refer to menu item "AUX IN" on page 24 for further details.

FIRE!!!

Displayed when the fire alarm input is triggered. Refer to menu item "F-ALARM" on page 25 for further details.

SECURITY

Displayed when the security alarm input is triggered. Refer to menu item "S-ALARM" on page 25 for further details.

EXT-TEMP

Displayed when the external over-temperature (O/T) input is triggered, or when the systems thermostat senses an over-temperature condition between 185°F (85°C) and 203°F (95°C). All dimmer outputs are disabled and the fans are turned on to full, until the external devices temperature drops to within specification.

REM-TEMP

Displayed when the systems remote temperature sensor measures an 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. Refer to menu item "REM TEMP" on page 26 to view the current remote temperature.

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. Refer to menu item "CTL TEMP" on page 26 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 130VAC, 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 27 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. Also displayed when an attempt is made to access factory only setup menus.

Quick Programming Reference to System Configuration Menu Items

1.	**SCENESET**	Enable and setup 24 different backup scenes.
2.	**FADETIME**	Set the fade time for each of the 24 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 24 dimmer (PWM) outputs to any DMX A input channel.
13.	**DMXB PAT**	Patch the 24 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.	**REGULATE**	Enable or disable the dimmer output voltage regulation.
20.	**ANA MODE**	Configure the analog inputs for normal or load shed mode.
21.	**ANA PTCH**	Patch the analog inputs to any combination of control channels.
22.	**ANA TEST**	View the control level for each of the analog inputs.
23.	**ANA FLTR**	Apply a noise filter on the analog inputs of up to 1 Volt.
24.	**ANA BLOC**	Enable or disable the analog inputs when DMX is being received.
25.	**STANDBY**	Enable or disable the power savings standby mode.
26.	**TEST INC**	Set the test increment units to percent or hexadecimal.
27.	**OC MODE**	Configure the input trigger parameters for the open collector output.
28.	**AUX IN**	Select which scene the auxiliary input will trigger/enable.
29.	**L-BUTTON**	Set the mode of the local buttons to scene, bump or disabled.
30.	**S-ALARM**	Select the level and control channels triggered by the security alarm input.
31.	**F-ALARM**	Select the level and control channels triggered by the fire alarm input.
32.	**Ø-PATCH**	Set the zero-cross phase reference for each dimmer control output circuit.
33.	**WARMING**	Turn the "lamp warming" feature on or off.
34.	**POLARITY**	Set the PWM output control polarity. Locked for factory use only!
35.	**LINE V**	View the RMS line voltage for each power phase.
36.	**LINE F**	View the line frequency of phase A.
37.	**REM TEMP**	View the temperature of the remote temperature sensor.
38.	**CTL TEMP**	View the temperature of the microcontroller.
39.	**RTIME**	View the total run time of the microcontroller.
40.	**HARD-KEY**	View the microcontroller's unique six-character hard-key code.
41.	**SERIAL#**	View the microcontroller's unique six-character silicone serial number.
42.	**VERSION**	View the microcontroller's firmware version.
43.	**EEPROM**	View the type of EEPROM memory module plugged in.
44.	**FW-LOAD**	Load new firmware into the MADD-24 via the EEPROM memory module.
45.	**RESTORE**	Restore parameters saved in the EEPROM memory module.
46.	**BACKUP**	Backup parameters and save them in the EEPROM memory module.
47.	**PRINTOUT**	Print various system configuration settings using a hand held infrared printer.
48.	**DEFAULTS**	Set various system configuration settings to the factory default.
49.	**LCD VIEW**	Adjust the contrast of the LCD Display for optimum viewing.

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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 appear 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 24 different backup scenes.*

When scene mode is activated the selected scene will be held with no timeout until the menu is exited. The 24 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>24	Press MENU (↕) to select a different scene from 01 to 24.
CTRL: ON	Control (CTRL) is ON via the selected scene.
CTRL:DMX	Control (CTRL) is via DMX and takes priority over scene mode.
CTRL:HLD	Control (CTRL) is via DMX status hold (HLD) and takes priority over scene mode.
SCENE>24	Press EXECUTE to activate the selected scene.
SCENE:24	The colon (:) flashes twice per second while fading to the selected scene.
SCENE:24	The colon (:) stops flashing when fade is complete and the selected scene is active.
SCENE>24	Press MENU (↕) to select a different scene from 01 to 24.
SCENE 24	Press EXECUTE to modify the selected scene.
C>01L 00	The second line on the LCD indicates the control channel (C) and level (L).
C>24L 00	Press MENU (↕) to select the control channel (C) to modify from 01 to 24.
C 24L>00	Press EXECUTE to toggle from channel (C>) to level (L>) selection.
C>24L 00	Press ESCAPE to toggle from level (L>) to channel (C>) selection.
C24L>FL	Press MENU (↕) to select the output level (L) for the selected channel from 00 to FL.
CLEAR???	Press EXECUTE to clear the selected preset, and set all channels to 00 level.
SURE ???	Press EXECUTE if you are sure to clear the selected preset.
DONE !!!	Indicates the selected preset has been cleared.
WAIT...	Press ESCAPE to exit and the menu and save programmed scene levels.
	Press ESCAPE to back-up within the menu, or exit/deactivate scene mode.
	Press RESET to exit scene mode without saving programmed scene levels.

NOTE: When scene mode is activated: DMX and DMX status hold (SH TIME) automatically takes precedence over scene mode. The analog input levels are merged (HTP) with the scene levels. If the analog inputs are configured for load shed mode the inputs will take precedence over the active scene. The security alarm (S-ALARM) input is merged (HTP) with the scene levels while the fire alarm (F-ALARM) input automatically takes precedence. The local buttons (L-BUTTONS) are temporarily set for scene mode and the auxiliary input (AUX IN) is enabled. Scene mode will only activate dimmers assigned to room "A".

2. FADETIME *Set the fade time for each of the 24 scenes from 0 to 99 seconds.*

The factory default is 5 seconds for all 24 presets.

Press EXECUTE to enter the menu.

S>01T 05	Displays the scene (S>01) and assigned fade time (T 05).
S>24T 05	Press MENU (↕) to select a different scene from 01 to 24.
S 24T>05	Press EXECUTE to toggle between scene (S>) and fade time (T>) selection.
S 24T>99	Press MENU (↕) to select a different fade time from 00 to 99 seconds.
	Press ESCAPE to exit the menu and save the selected fade time.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

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3. SNAPSHOT   *Record DMX levels into the backup scenes.*

Provides a quick and easy way to save control channel levels into each of the 01 to 24 backup scenes using a DMX source.

Press EXECUTE to enter the menu and activate snapshot mode.

SAVE >01	Press MENU (⬍) to select a different scene from 01 to 24.
SCENE>24	Press EXECUTE to store DMX levels in the selected scene.
SURE ???	Press EXECUTE if you are sure the DMX levels are set as intended.
DONE !!!	DMX levels have now been stored in the selected scene.
NO RX!	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.

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

D 01L>00	Displays the active dimmer (D) and the test level (L).
D 01L>50	Press MENU (⬍) to select the desired test level.
D 01L>FL	Press ESCAPE to toggle the test level from full-on (FL) and off (00).
D>01L FL	Press EXECUTE to toggle between the dimmer (D>) and the test level (L>).
D>ALL FL	Press MENU (⬍) to select the active dimmer from 01 to 24 or ALL.

Press ESCAPE or RESET to exit the menu.
The menu will automatically timeout after 2 minutes of inactivity.

5. MONITOR   *View the control level to each dimmer output.*

The dimmer control level is displayed as a 9-bit value from 000 to 512. This menu does not timeout automatically and will continue to monitor indefinitely.

Press EXECUTE to enter the menu and activate monitor mode.

D>01L000	Press MENU (⬍) to select the dimmer (D) output to monitor from 01 to 24.
D>24L512	Display shows dimmer 24 has full-on control.

Press ESCAPE or RESET to exit the menu.

NOTE: The control value will not reach 512 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 both DMX inputs.
DMXA>512		Press MENU (⬍) to modify and select the desired DMX start address.
DMXA>001		Press both MENU (⬍) simultaneously to toggle to DMX start address 001.
DMXA>025		Press EXECUTE to save the selected 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=>01	*	Press EXECUTE to advance to select the number of DMX-A channels.
#CHA=>24	*	Press MENU (⬍) to modify the number of DMX-A channels from 01 to 24.

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 timeout after 2 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.

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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 page 17 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.

8. 2 RM SET   *Set the two room assignment for each of the dimmer outputs.*

This menu is used to assign each of the 24 dimmer outputs to room "A" or room "B". Dimmer outputs assigned to room "A" are controlled via the DMX-A input. Dimmer outputs assigned to room "B" are controlled via the DMX-B input. This creates separation within the dimmer rack and makes a single dimmer rack function as though it is two independent dimmer racks. When used in conjunction with the DC PATCH menu, the dimmer rack can be configured for sequential DMX control of two rooms, even if the dimmer room assignments are not sequential.

DMX MODE must be set for 2 ROOM operation for this menu to function.

Press EXECUTE to enter the menu and activate 2 RM SET mode.

DIM 01 A   Displays the dimmer (DIM) output (01) and the room assignment (A).
DIM 24 A   Press MENU (⬍) to select a different dimmer output from 01 to 24.
DIM 24 B   Press EXECUTE to toggle the room assignment from A to B.

Press ESCAPE or RESET to exit the menu.

Any change in the configuration is automatically saved.

NOTE: Scene mode (SCENESET) will only activate/control dimmers assigned to room "A".
NOTE: DMX O/P must be set to OFFSET mode for this menu to function..

9. DMXA TRM   *Enable or disable termination on the DMX A input.*

Activates and deactivates a 120Ω termination resistor. DMX termination is indicated on the LCD display when DMX is being received. When the DMX A input is not terminated (DISABLED) the LCD display will read AXXXBXXX. When the DMX A input is teminated (ENABLED) the LCD display will read $_M^T$XXXBXXX.

ENABLED   Press EXECUTE to toggle termination from ENABLED to DISABLED.
DISABLED   Press EXECUTE to toggle termination from DISABLED to ENABLED.

Any change in the configuration is automatically saved.

NOTE: Ensure **only** the last (end-of-line) DMX receiving device is terminated!

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10. DMXB TRM *Enable or disable termination on the DMX B input.*

Activates and deactivates a 120Ω termination resistor. DMX termination is indicated on the LCD display when DMX is being received. When the DMX B input is not terminated (DISABLED) the LCD display will read AXXXBXXX. When the DMX B input is teminated (ENABLED) the LCD display will read AXXX^T_MXXX.

ENABLED   Press EXECUTE to toggle termination from ENABLED to DISABLED.
DISABLED   Press EXECUTE to toggle termination from DISABLED to ENABLED.

Any change in the configuration is automatically saved.

NOTE: Ensure **only** the last (end-of-line) DMX receiving device is terminated!

11. DMX O/P *Configure the on-board DMX protocol manager for offset or patch mode..*

OFFSET mode is typically used for the majority of systems, and is the factory default. OFFSET mode refers to the DMX start address, with each of the 24 dimmer (PWM) outputs addressed sequentially from the DMX start address.

PATCH mode provides full flexibility for addressing each of the 24 dimmer (PWM) outputs. Each of the 24 dimmer (PWM) outputs can be patched to (controlled from) any DMX input channel from 001 to 512, from either or both of the DMX A and DMX B inputs simultaneously

With DMX patch mode activated, any configuration within the ADDRESS, DMX MODE, 2 RM SET and DC PATCH menus is ignored, and the DMX patch configured within the DMXA PAT and DMXB PAT menus takes precedence.

When using the system in DMX patch mode, it is strongly recommended to printout the patch using a hand held infrared printer (Johnson System Inc., Part Number: JS-IP).

Press EXECUTE to enter the menu and configure the DMX mode.

DISABLED   This menu is disabled to help prevent inadvertent changes. Proceed to enable.
ENABLED   Press and hold MENU (⬆) and MENU (⬇) at the same time for 4-5 seconds.
OFFSET   Press EXECUTE to toggle the DMX mode from OFFSET to PATCH.
PATCH   Press EXECUTE to toggle the DMX mode from PATCH to OFFSET.

Press ESCAPE or RESET to exit the menu.
Any change in the configuration is automatically saved.

12. DMXA PAT *Patch the 24 dimmer (PWM) outputs to any DMX A input channel.*

There are two ways to configure the DMX patch. Each of the 24 dimmer (PWM) outputs can be manually (MANUAL) patched to a DMX input channel, or patched in blocks (BLOCK) of sequential dimmers and DMX channels.

For MANUAL patching, each of the dimmers are patched individually. First, the dimmer (DIM) output is selected, and then any DMX input channel from 001 to 512 is patched to the selected dimmer.

For BLOCK patching, a sequential range of dimmers are patched to a sequential range of DMX channels. First, the first dimmer number (DIM#) in the block is selected, then the DMX A start address (DMXA) for the block is selected, and then finally the number of dimmers (#DIM) in the block is selected. For example, if DIM# is 001, DMX is 001, and #DIM is 024, then all of the dimmer outputs, 001 thru 024 are addressed sequentially to DMX channels 001 thru 024.

For a more complex example, if DIM# is 007, DMX is 321, and #DIM is 012, then dimmer outputs 007 thru 018 are addressed sequentially to DMX channels 321 thru 344.

Using a combination of MANUAL and BLOCK patching methods can speed up configuration. Typically, a BLOCK of dimmers is first patched and then edited using the MANUAL patch.

The DMX patch should be cleared (CLEAR) before configuring the patch. Clearing the patch ensures all previously configured patch data is cleared (erased).

When DMXA PAT is utilized in conjunction with DMXB PAT, each of the 24 dimmer (PWM) outputs can be patched to (controlled from) any DMX input channel from 001 to 512, from either or both of the DMX A and DMX B inputs simultaneously.

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If a dimmer is patched to both DMX A and DMX B input channels, the DMX levels are merged and highest-takes-precedence (HTP).

Press EXECUTE to enter the menu and configure the DMX A patch.

Press MENU ( ) to scroll through and select the patching method.

MANUAL?	Press EXECUTE to patch each of the dimmers manually (MANUAL).
DIM DMXA	The top line shows the dimmer (DIM) and (DMXA) address headings.
001<999?	The second line shows the dimmer (DIM) and (DMXA) address values.
024<999?	Press MENU ( ) to select the dimmer (DIM) from 001 to 024 to patch.
001<999?	Press MENU ( ) and MENU ( ) at the same time to toggle back to 001.
001 999?	Press EXECUTE to advance and select the DMXA address for the dimmer.
001 999?	DMXA is initialized at 999 to indicate the dimmer is not patched.
001 999?	? indicates the DMXA address (513 to 999) is invalid and is not patched.
001 999?	The cursor (_) position indicates the DMXA digit to be edited.
001 999?	Press EXECUTE to move the cursor to the right, under the digit to be edited.
001 999?	Press ESCAPE to move the cursor to the left or to exit the menu.
001 512	Press MENU ( ) to select the DMXA address from 001 to 512.
001 999?	Press MENU ( ) and MENU ( ) at the same time to toggle back to 999.
	Repeat until all required dimmers are manually patched.
BLOCK?	Press EXECUTE to patch the dimmers in a sequential block (BLOCK).
DIM#:001	Press EXECUTE to select the first dimmer number (DIM#) in the block.
DIM#:024	Press MENU ( ) to edit the dimmer number (DIM#) from 001 to 024.
DIM#:001	Press MENU ( ) and MENU ( ) at the same time to toggle back to 001.
DMXA:001	Press EXECUTE to select the DMX A (DMXA) start address for the block.
DMXA:512	Press MENU ( ) to edit the DMX A (DMXA) start address from 001 to 512.
DMXA:001	Press MENU ( ) and MENU ( ) at the same time to toggle back to 001.
#DIM:001	Press EXECUTE to select the number of dimmers (#DIM) in the block.
#DIM:024	Press MENU ( ) to edit the number of dimmers (#DIM) from 001 to 024.
#DIM:001	Press MENU ( ) and MENU ( ) at the same time to toggle back to 001.
PROCEED?	Press EXECUTE to proceed.
SURE ???	Press EXECUTE to proceed.
DONE !!!	Indicates the sequential block patch has been completed.
	Repeat until all required blocks of sequential dimmers have been patched.
	Press ESCAPE to exit the menu.
CLEAR???	Press EXECUTE to clear the entire patch.
SURE ???	Press EXECUTE to proceed.
DONE !!!	Indicates the entire patch has been cleared.
	Press ESCAPE to exit the menu and save the selected patch.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 5 minutes of inactivity and save.

NOTE: Be sure to BACKUP any configuration changes!

NOTE: With DMX patch mode activated, any configuration within the ADDRESS, DMX MODE, 2 RM SET and DC PATCH menus is ignored, and the DMX patch configured within this menu takes precedence.

13. DMXB PAT   *Patch the 24 dimmer (PWM) outputs to any DMX B input channel.*

Refer to the DMXA PAT menu for further information.

The DMXA PAT menu is used to patch dimmers to DMX A input channels, while the DMXB PAT menu is used to patch dimmers to DMX B input channels.

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14. SH TIME   *Set the DMX status hold time from 0 to 99 minutes or infinite.*

When DMX is disconnected the system will hold the status of the last received DMX levels for the selected amount of time. When activated, the LCD display shows a countdown of the status hold time or infinite hold.

Press EXECUTE to enter the menu.

HTIME 00	Displays the current DMX status hold time (HTIME) setting.
HTIME 99	Press MENU (⬍) to set the desired hold time from 00 to 99 minutes.
HTIME XX	Press MENU (⬍) to set the desired hold time to infinite (XX).
HTIME 00	Press both MENU (⬍) switches to toggle back to status hold time of 00.

Press ESCAPE to exit the menu and save the desired DMX status hold time.
Press RESET to exit the menu without saving.
The menu will automatically timeout after 2 minutes of inactivity and save.

15. DC PATCH   *Configure the dimmer to channel patch for the dimmer rack.*

Each of the 24 dimmer (PWM) outputs can be assigned and patched to any of the 24 control channels. Multiple dimmer outputs may be patched to a single control channel. The dimmer to channel patch is used by other menu features to provide transparent control of the dimmer output circuits. JS-ICON™ Series dimmer racks are typically patched for 1 to 1 operation but may be altered for custom applications.

Press EXECUTE to enter the menu.

D01<C01	Displays the dimmer (D) output (01) and its current control channel (C) patch (01).
D24<C24	Press MENU (⬍) to select the desired dimmer output from 01 to 24.
D24 C24<	Press EXECUTE to toggle the pointer (<) to select the control channel to patch.
D24 C01<	Press MENU (⬍) to select the desired control channel from 01 to 24.
D24<C01	Press EXECUTE to toggle the pointer (<) to select another dimmer output.

Press ESCAPE to exit the menu and save the desired dimmer channel patch.
Press RESET to exit the menu without saving.
The menu will automatically timeout after 2 minutes of inactivity and save.

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

16. DIM CURV   *Configure the dimmer curve for each output.*

There are four different dimmer curve profiles that can be assigned to each individual dimmer output circuit. Square Law (SQ) curve is the industry standard and the default for all dimmers. Linear (LN) curve modifies the dimmer output for a linear relationship to the control input level. Direct Drive (DD) curve is not modified - meaning the control input level is directly proportional to the control output level. Non-Dim (ND) curve assigns the dimmer circuit to operate in a full-on or off state only, with no dimming. Dimmers set for non-dim (ND) will be triggered full-on at the ND-LEVEL setting

Press EXECUTE to enter the menu.

DIM01 SQ	Displays the dimmer (DIM) output (01) and its current dimmer curve.
DIM24 SQ	Press MENU (⬍) to select the desired dimmer number from 01 to 24.
DIM24 LN	Press EXECUTE to toggle to linear (LN) curve mode.
DIM24 DD	Press EXECUTE to toggle to direct drive (DD) mode.
DIM24 ND	Press EXECUTE to toggle to non-dim (ND) mode.

Press ESCAPE to exit the menu and save the desired dimmer curves.
Press RESET to exit the menu without saving.
The menu will automatically timeout after 2 minutes of inactivity and save.

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17. ND-LEVEL   *Set the non-dim trigger level threshold for each output.*

The non-dim trigger level threshold can be set for each of the 24 dimmer (PWM) outputs. The trigger level setting is only relevant when the dimmer curve profile is set to non-dim (ND). The trigger level can be set from 10% to 100% DMX control input, with 10% increments. There is 5% hysteresis to ensure there is no false triggering. When the trigger level is set to 10%, the output is turned full-on at 10% and off at 5%. When the trigger level is set to 100%, the output is turned full-on at 100% and off at 95%. The default trigger level is 10%.

Press EXECUTE to enter the menu.

D01<010%	Displays the dimmer (D) output (01) and the trigger level setting (010%).
D24<010%	Press MENU (▲▼) to select the desired dimmer output from 01 to 24.
D24>010%	Press EXECUTE to toggle the pointer (>) to set the non-dim trigger level.
D24>100%	Press MENU (▲▼) to set the trigger level from 10% to 100% DMX control.
D24<100%	Press EXECUTE to toggle the pointer (<) to select another dimmer output.

Press ESCAPE to exit the menu and save the desired trigger level settings.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

NOTE: DIM CURV must be set to ND for this menu to function.

18. VOUT LIM   *Set the maximum RMS output voltage for each dimmer.*

Limiting the maximum RMS voltage can greatly improve lamp life.

Press EXECUTE to enter the menu.

01<127.5	Displays the dimmer (01) and its current maximum output voltage level (127.5).
24<127.5	Press MENU (▲▼) to select the desired dimmer number from 01 to 24.
24>127.5	Press EXECUTE to toggle the pointer (< >) to select the output voltage level.
24>100.0	Press MENU (▲▼) to adjust the output voltage level in 0.5 Volt increments.
24<100.0	Press EXECUTE to toggle the pointer (< >) to select another dimmer number.

Press ESCAPE to exit the menu and save the desired dimmer curves.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

19. REGULATE   *Enable or disable the dimmer output voltage regulation.*

With the on-board output voltage regulation feature enabled the maximum RMS output is limited to 118 Volts. Voltage regulation automatically adjusts the internal control level to compensate for any line voltage fluctuations.

ENABLED	Press EXECUTE to toggle regulation from ENABLED to DISABLED.
DISABLED	Press EXECUTE to toggle regulation from DISABLED to ENABLED.

Any change in the configuration is automatically saved.

20. ANA MODE   *Configure the analog inputs for normal or load shed mode.*

Each of the four (4) analog inputs can be independently configured for normal (NORM) or load shed (SHED) mode of operation.

Normal (NORM) mode sets the analog input for 0-10VDC operation. The analog voltage level sensed sets the level for the selected dimmer outputs.

Load shed (SHED) mode is used as a power management interface to building management systems (BMS). Contact closure devices such as a photocell or maintained switch contact may be used to trigger the analog input. When a voltage of 5.5VDC to 12VDC is sensed on the analog input the selected dimmer outputs are disabled (set to zero output level). The selected dimmer outputs are enabled when the voltage sensed on the analog input drops to below 4.5VDC.

Press EXECUTE to enter the menu and set the mode for each analog input.

A01<NORM	Displays the active analog input (A01) and current mode setting (NORM).
A04<NORM	Press MENU (▲▼) to select the desired analog input to configure from 01 to 04.

	A04<SHED	Press EXECUTE to toggle from normal (NORM) to load shed (SHED) mode.
		Press ESCAPE to exit the menu and save the desired analog input modes.
		Press RESET to exit the menu without saving.
		The menu will automatically timeout after 2 minutes of inactivity and save.

21. ANA PTCH — *Patch the analog inputs to any combination of control channels.*

Press EXECUTE to enter the menu and activate analog patch mode.

A01<C01	Displays the active analog input (A01) and control channel (C01).
A04<C01	Press MENU (⬍) to select the desired analog input to patch.
A04>C01	Press EXECUTE to toggle the pointer (>) to select the control channel.
A04>C24	Press MENU (⬍) to select the desired control channel from 01 to 24.
A04>C24 *	Press EXECUTE to patch and flag (*) the control channel to the analog input.
A04<C24 *	Press ESCAPE to toggle the pointer (< >) to select another analog input.
	Press ESCAPE to exit the menu and save the desired analog patches.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

22. ANA TEST — *View the control level for each of the analog inputs.*

The analog voltage level for the 4 analog inputs can be tested and viewed as a percentage or hexadecimal value. The level displayed is proportional to the 0-10VDC analog input where 5VDC is 50%.

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

AI>01=00	Displays the active analog input (AI>01) and the level (00).
AI>04=00	Press MENU (⬍) to select the desired analog input to test.
AI>04=FL	Displays the analog input level from off (00) to full-on (FL).
	Press ESCAPE or RESET to exit the menu.

23. ANA FLTR — *Apply a noise filter on the analog inputs of up to 1 Volt.*

High frequency noise can sometimes be induced into the analog input lines. The analog filter is set in 1% increments where each percent (%) represents 0.1 Volts for a maximum filter level of 1 Volt, or 10%. For example, when the analog filter level is set at 5% (LEV:05%) all analog input levels at or below 0.5 Volts is ignored or filtered out.

LEV:00%	Displays the filter level (00%) in percent.
LEV:00%<	Press EXECUTE to enter the menu and adjust the analog filter level.
LEV:10%<	Press MENU (⬍) to select the desired filter level.
	Press ESCAPE to exit the menu and save the desired analog filter level.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

24. ANA BLOC — *Enable or disable the analog inputs when DMX is being received.*

When analog blocking (ANA BLOC) is enabled the analog inputs will be ignored when DMX is online. When analog blocking is disabled the analog inputs will be merged/ combined with the DMX inputs and functions in a highest-takes-precedence (HTP) mode of operation.

ENABLED	Press EXECUTE to toggle analog blocking from ENABLED to DISABLED.
DISABLED	Press EXECUTE to toggle analog blocking from DISABLED to ENABLED.
	Any change in the configuration is automatically saved.

25. STANDBY — *Enable or disable the power savings standby mode.*

When standby mode is enabled the microcontroller goes to sleep within 5 seconds of inactivity on the control inputs. The microcontroller wakes up again when a programming switch is pressed or when control is sensed on the control inputs. Note that there is a delay of 150 milliseconds for the microcontroller to wake up and restart normal run mode.

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ENABLED	Press EXECUTE to toggle standby mode from ENABLED to DISABLED.
DISABLED	Press EXECUTE to toggle standby mode from DISABLED to ENABLED.
	Any change in the configuration is automatically saved.

26. TEST INC   *Set the test increment units to percent or hexadecimal.*

The levels for the dimmer test (DIM TEST) and analog test (ANA TEST) features can be displayed as a percentage or hexadecimal value.

PERCENT	Press EXECUTE to toggle test increments from PERCENT to HEX VAL.
HEX VAL	Press EXECUTE to toggle test increments from HEX VAL to PERCENT.
	Any change in the configuration is automatically saved.

27. OC MODE   *Configure the input trigger parameters for the open collector output.*

The on-board open collector output is used to sink up to 100mA of current. It can be configured to be triggered via a selected DMX channel, analog input 4, or both. The open collector is triggered on at 55% control input and triggered off again at 45% control input. When analog and DMX (A+D) is selected to trigger the open collector the inputs are combine for highest takes precedence (HTP).

Press EXECUTE to enter the menu and configure the open collector output.

A+D< 001	Displays the active trigger mode as analog and DMX (A+D<) channel 001.
A+D> 001	Press EXECUTE to toggle the pointer (>) and select the DMX channel.
A+D> 512	Press MENU (⬍) to change and select the DMX channel from 001 to 512.
A+D< 512	Press EXECUTE to toggle the pointer (<) and select a different trigger mode.
DMX< 512	Press MENU (⬍) to select DMX input trigger mode.
ANA<	Press MENU (⬍) to select analog (ANA) input trigger mode.
OFF<	Press MENU (⬍) to deactivate (OFF) the open collector output.
	Press ESCAPE to exit the menu and save the desired settings.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

28. AUX IN   *Select which scene the auxiliary input will trigger/enable.*

When a contact is sensed on the auxiliary input the selected scene will be triggered and held until the contact is removed. The auxiliary input only functions when scene mode (SCENESET) is activated or when the systems local buttons (L-BUTTONS) are set for scene mode.

SCENE:01	Displays the scene (01) that will be triggered by the auxiliary input.
SCENE>01	Press EXECUTE to enter the menu and select a different scene.
SCENE>24	Press MENU (⬍) to change the selected scene from 01 to 24.
	Press ESCAPE to exit the menu and save the desired scene to be triggered.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

29. L-BUTTON   *Set the mode of the local buttons to scene, bump or disabled.*

JS-ICON™ Series dimmer racks normally have the local buttons disabled. Bump mode is used in conjunction with 24 bump button switches, not applicable with JS-ICON™ Series dimmer racks.

Setting the local buttons to scene mode puts the system in scene mode. With scene mode enabled, the selected scene will always be activated when DMX is not being received. The selected scene can be changed in the SCENESET menu. Scene mode enables the use of the auxiliary (AUX) input. A contact closure sensed on the over-temperature (O/T), fire alarm (FIRE) or security alarm (SCTY) input automatically takes precedence over scene mode.

DISABLED	Press EXECUTE to toggle the operation of the local buttons to disabled.
BUMP	Press EXECUTE to toggle the operation of the local buttons to bump mode.
SCENE	Press EXECUTE to toggle the operation of the local buttons to scene mode.
	Any change in the configuration is automatically saved.

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30. S-ALARM — *Select the level and control channels triggered by the security alarm input.*

When a contact is sensed on the security alarm input, selected control channels will cycle on and off at a 1 hertz rate. The level of the on cycle can be set from 0% to 100%. The security alarm input takes precedence over the DMX and analog inputs. The system will stay in security alarm mode until the contact is removed.

Press EXECUTE to enter the menu and configure the security alarm input.

L>FL:01*	Displays the output level (L>FL) of 100% and control channel (01*).
L>00:01*	Press MENU (↕) to change the output level from 00% to 100% (FL).
L>FL:01*	Press MENU (↕) at the same time to toggle the level back to 100% (FL).
L:FL>01*	Press EXECUTE to toggle the pointer (>) and select the control channel(s).
L:FL>24*	Press MENU (↕) to select the desired control channel from 01 to 24.
L:FL>24	Press EXECUTE to toggle the flag (*) for each desired control channel.

Press ESCAPE to exit the menu and save the desired settings.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

31. F-ALARM — *Select the level and control channels triggered by the fire alarm input.*

When a contact is sensed on the fire alarm input, the selected control channels are triggered on to the selected output level from 0% to 100%. The fire alarm input is merged with the DMX and analog inputs with highest takes precedence (HTP). The system will stay in fire alarm mode until the contact is removed.

Press EXECUTE to enter the menu and configure the fire alarm input.

L>FL:01*	Displays the output level (L>FL) of 100% and control channel (01*).
L>00:01*	Press MENU (↕) to change the output level from 00% to 100% (FL).
L>FL:01*	Press MENU (↕) at the same time to toggle the level back to 100% (FL).
L:FL>01*	Press EXECUTE to toggle the pointer (>) and select the control channel(s).
L:FL>24*	Press MENU (↕) to select the desired control channel from 01 to 24.
L:FL>24	Press EXECUTE to toggle the flag (*) for each desired control channel.

Press ESCAPE to exit the menu and save the desired settings.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

32. WARMING — *Turn the "lamp warming" feature on or off.*

The unique "lamp warming" feature is activated by a control level above 0% and lowers the in-rush current to the dimmer (cold lamp filament) by up to 70%. This results in significantly increased lamp filament life and lower long-term operating costs.

WARMING is set to ON by factory default, but may be turned OFF for some installation applications. With WARMING set to ON, a maximum delay of 245 milliseconds is introduced to "warm" the lamp when it is turned on. For fast chase effects the delay may be undesirable, in which case, the "lamp warming" feature can be turned off. Note that when standby mode is enabled the microcontroller goes to sleep within 5 seconds of inactivity on the control inputs, and there is delay of 150 milliseconds for the microcontroller to wake up and restart normal run mode. To ensure virtually instant dimmer control response, set STANDBY to DISABLED and WARMING to OFF.

Press EXECUTE to enter the menu and configure the lamp warming mode.

DISABLED	This menu is disabled to help prevent inadvertent changes. Proceed to enable.
ENABLED	Press and hold MENU (▲) and MENU (▼) at the same time for 4-5 seconds.
ON	Press EXECUTE to toggle the lamp warming mode from ON to OFF.
OFF	Press EXECUTE to toggle the lamp warming mode from OFF to ON.

Press ESCAPE or RESET to exit the menu.

Any change in the configuration is automatically saved.

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33. Ø-PATCH   *Set the zero-cross phase reference for each dimmer control output circuit.*

The defaults (DEFAULTS) menu is normally used to configure the phase patch for JS-ICON™ Series dimmer racks. This menu provides custom phase patching for non-standard applications. 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.

Press EXECUTE to enter the menu and configure the dimmer phase patch.

CH 01 ØA   Displays the dimmer output channel (CH 01) and patched Phase A (ØA).

CH 24 ØA   Press MENU (⬍) to change the dimmer output channel to patch from 01 to 24.

CH 24 ØB   Press EXECUTE to toggle the patch to Phase B (ØB).

CH 24 ØC   Press EXECUTE to toggle the patch to Phase C (ØC).

Press ESCAPE to exit the menu and save the desired settings.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

34. POLARITY   *Set the PWM output control polarity. Locked for factory use only!*

This menu is only used when swapping the MADD-24 controller between different models of JS-ICON™ Series dimmer racks.

Press EXECUTE to enter the menu and configure the polarity mode.

DISABLED   This menu is for factory use, and is disabled for the end user.

ENABLED   Press and hold MENU (⬇) and MENU (⬆) at the same time for 4-5 second.

MODE:1   Press MENU (⬍) to select mode 1 - for JS-ICON™ 1220 operation.

MODE:2   Press MENU (⬆) to select mode 2 - for JS-ICON™ 1210/620 operation.

MODE:3   Press MENU (⬍) to select mode 3 (not applicable with JS-ICON™ product).

MODE:4   Press MENU (⬍) to select mode 4 - for JS-ICON™ 2410 operation.

Press ESCAPE to exit the menu and save the desired settings.

Press RESET to exit the menu without saving.

The menu will automatically timeout after 2 minutes of inactivity and save.

35. LINE V   *View the RMS line voltage for each power phase.*

Press EXECUTE to enter the menu and view the line voltage of each phase.

ØA=120.0   Shows the line voltage of Phase A.

ØB=120.0   Press MENU (⬆) to view the line voltage of Phase B.

ØC=120.0   Press MENU (⬍) to view the line voltage of Phase C.

Press ESCAPE or RESET to exit the menu.

36. LINE F   *View the line frequency of phase A.*

60.0 Hz   Shows the frequency.

37. REM TEMP   *View the temperature of the remote temperature sensor.*

A thermostat measures the internal heat sink temperature.

+032°F   Shows the temperature in degrees Fahrenheit.

+000°C   Press EXECUTE to toggle units to degrees Celsius.

38. CTL TEMP   *View the temperature of the microcontroller.*

+91°F   Shows the temperature in degrees Fahrenheit.

+33°C   Press EXECUTE to toggle units to degrees Celsius.

39. RTIME   *View the total run time of the microcontroller.*

The run time counter keeps track of the total time the microcontroller is powered up. The maximum time is 99999 hours, 59 minutes, 59 seconds, or about 11.4 years. System operation is not effected when the maximum run time is reached and can be reset to zero at the factory.

RTIME SS   Shows the number of seconds (SS) of run time.

HHHHH:MM   Shows the number of hours (HHHHH) and minutes (MM) of run time.

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40. HARD-KEY — *View the microcontroller's unique six-character hard-key code.*

JS-ICON™ Series dimmer racks may be shipped with an invalid hard-key code of 000000. A valid hard-key must be entered before the run time (RTIME) counter reaches 2160 hours / 90 days. If the run time expires without a valid hard-key the LCD display will show a runtime counter error (RTC ERR!) and all dimmer control outputs will be disabled.

HARD-KEY	A dash (-) between hard and key represents a valid hard-key.
HARD KEY	A blank space between hard and key represents an invalid hard-key.
K:XXXXXX	Shows the unique six-character hard-key code (XXXXXX).
K:XXXXXX	Follow the procedure below to enter the menu and modify the hard-key.
K:XXXXXX	Press and hold EXECUTE and then ESCAPE at the same time for 4-5 seconds.
K>XXXXXX	A pointer (>) appears to indicate hard-key modification is activated.
K>XXXXXX	Press MENU (↕) to modify the first hard-key character.
K:>XXXXX	Press EXECUTE to advance to the second hard-key character.
K:>XXXXX	Press MENU (↕) to modify the second hard-key character.
K:X>XXXX	Press EXECUTE to advance to the third hard-key character.
K:X>XXXX	Press MENU (↕) to modify the third hard-key character.
K:XX>XXX	Press EXECUTE to advance to the fourth hard-key character.
K:XX>XXX	Press MENU (↕) to modify the fourth hard-key character.
K:XXX>XX	Press EXECUTE to advance to the fifth hard-key character.
K:XXX>XX	Press MENU (↕) to modify the fifth hard-key character.
K:XXXX>X	Press EXECUTE to advance to the sixth hard-key character.
K:XXXX>X	Press MENU (↕) to modify the sixth hard-key character.
	Press ESCAPE to exit the menu and save the desired hard-key code.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

NOTE: Be sure to record and file the hard-key code on page 31 for future reference.

41. SERIAL# — *View the microcontroller's unique six-character silicone serial number.*

XXXXXX — Shows the unique six-character serial number.

42. VERSION — *View the microcontroller's software version.*

VER X.X — Shows the microcontroller's software version.

43. EEPROM — *View the type of EEPROM memory module plugged in.*

All JS-ICON™ Series dimmer racks come with a removable EEPROM memory module located on the MADD-24 board. The EEPROM memory module inserts into the PORT1 connector located on the upper center of the board, and may be removed for safe storage.

The EEPROM type is programmed for parameter (P) or firmware (F) operation. A parameter EEPROM is used to backup all of the current configuration settings. A firmware EEPROM is used to update the current firmware version running on the MADD-24 microcontroller to the firmware version saved on the EEPROM.

The EEPROM memory module supplied with all JS-ICON™ Series dimmer racks is a parameter type with all of the factory default configuration settings saved onto it before shipping.

MADD24-P	Indicates the EEPROM memory module is for a MADD-24 microcontroller.
MADD24-P	Indicates the EEPROM type is programmed for parameter (P) operation.
XXXXXX	Press EXECUTE to display the silicone serial number parameter.
DISABLED	Press EXECUTE and menu feature is disabled for factory use only.
MADD24-F	Indicates the EEPROM type is programmed for firmware (F) operation.
VER X.X	Press EXECUTE to display the version (VER) of the firmware.
DISABLED	Press EXECUTE and menu feature is disabled for factory use only.
NONE!	Indicates the EEPROM memory module is not installed.

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44. FW-LOAD   Load new firmware into the MADD-24 via the EEPROM memory module.

If a firmware update is required, Johnson Systems Inc. may supply an EEPROM memory module with the latest firmware version. The firmware EEPROM memory module can be inserted into PORT1 on the MADD-24 board and the firmware can be loaded into the microcontroller.

Press EXECUTE to enter the menu.

DISABLED	This menu is disabled for inadvertent use. Proceed to enable.
ENABLED	Press and hold MENU (↓) and MENU (↑) at the same time for 4-5 seconds.
MEMCHECK	Automatically checks the EEPROM memory module for firmware type.
CRC-TEST	Automatically does a CRC test on the firmware code in the EEPROM.
>>>>>>>>	The CRC test in progress.
VER X.X	Displays the firmware version on the EEPROM memory module.
UPDATE??	Press EXECUTE to proceed.
SURE ???	Press EXECUTE to proceed.
UPDATING	Firmware update in progress.
WILL	Firmware update in progress.
AUTO	Firmware update in progress.
RESTART	Firmware update in progress.
PLEASE	Firmware update in progress.
WAIT....	When firmware update is complete the RUN LED flashes and system restarts.
NO MEM!	Displayed if an EEPROM memory module is not detected.
WRONG	Displayed if the wrong type (parameter) of EEPROM memory module detected.
MEM TYPE	Displayed if the wrong type (parameter) of EEPROM memory module detected.
WRONG	Displayed if the wrong product type of EEPROM memory module detected.
PRODUCT	Displayed if the wrong product type of EEPROM memory module detected.
CRC ERR!	Displayed if the CRC test fails and the EEPROM memory module is defective.

⚠ **WARNING:** Do not reset or turn the power off while the firmware is being updated. Doing so will cause unrecoverable loss of firmware data that is being loaded into the MADD-24 microcontroller.

45. RESTORE   *Restore parameters saved in the EEPROM memory module.*

All of the configuration setting parameters can be restored from the EEPROM memory module if they have been inadvertently changed or corrupted. This feature can also be used to load configuration setting parameters into a different or new control module. This reduces the configuration time for multi-system applications that require similar settings or when a replacement control module is required.

Press EXECUTE to enter the menu.

DISABLED	This menu is disabled for inadvertent use. Proceed to enable.
ENABLED	Press and hold MENU (↓) and MENU (↑) at the same time for 4-5 seconds.
MEMCHECK	Automatically checks the EEPROM memory module for parameter type.
OKAY....	The EEPROM memory module has been verified for parameter type.
PROCEED?	Press EXECUTE to proceed.
SURE ???	Press EXECUTE to proceed.
CRC-TEST	Automatically does a CRC test on the parameter code in the EEPROM.
WAIT	CRC test in progress.
VERIFY	CRC test in progress.
DONE!!	CRC test is done and the parameter restore automatically begins.
WILL	Parameter restore in progress.
AUTO	Parameter restore in progress.

RESTART	When parameter restore is complete, the system restarts.
SERIAL #	Displayed when the silicone serial number on the EEPROM memory module is a mismatch with the silicone serial number on the MADD-24 microcontroller.
PROCEED?	Press EXECUTE to proceed.
NO MEM!	Displayed if an EEPROM memory module is not detected.
WRONG	Displayed if the wrong type (parameter) of EEPROM memory module detected.
MEM TYPE	Displayed if the wrong type (parameter) of EEPROM memory module detected.
WRONG	Displayed if the wrong product type of EEPROM memory module detected.
PRODUCT	Displayed if the wrong product type of EEPROM memory module detected.
ERROR	Displayed when an error occurs. Waits for key press to restart RESTORE.

46. BACKUP   *Backup parameters and save them in the EEPROM memory module.*

All of the configuration setting parameters can be saved in the EEPROM memory module for backup. The backup parameters can then be restored if they have been inadvertently changed or corrupted. Once backup is complete the EEPROM memory module may be removed for safe storage. All JS-ICON™ Series dimmer racks are shipped with the factory default settings saved in the EEPROM memory module.

Press EXECUTE to enter the menu.

DISABLED	This menu is disabled for inadvertent use. Proceed to enable.
ENABLED	Press and hold MENU (▼) and MENU (▲) at the same time for 4-5 seconds.
MEMCHECK	Automatically checks the EEPROM memory module for parameter type.
SURE ???	Press EXECUTE to proceed.
WAIT	Automatically begins parameter backup and generates CRC value.
VERIFY	Automatically verifies parameter backup data and CRC value.
DONE!!	Parameter backup is done and saved in the EEPROM memory module.
NO MEM!	Displayed if an EEPROM memory module is not detected.
WRONG	Displayed if the wrong type (parameter) of EEPROM memory module detected.
MEM TYPE	Displayed if the wrong type (parameter) of EEPROM memory module detected.
WRONG	Displayed if the wrong product type of EEPROM memory module detected.
PRODUCT	Displayed if the wrong product type of EEPROM memory module detected.
DATA ERR	Displayed when a data error occurs. Waits for key press to restart BACKUP.

NOTE: Backup all JS-ICON™ Series dimmer racks when configuration is complete.

47. PRINTOUT   *Print various system configuration settings using a hand held infrared printer.*

All JS-ICON™ Series dimmer racks come equipped with an infrared (I/R) LED that provides the ability to printout all the system configuration settings, when used in conjunction with a hand held infrared printer (Johnson System Inc., Part Number: JS-IP). Point the hand held printer I/R LED directly at the JS-ICON™ User Interface I/R LED within 3 ft (1m).

Press EXECUTE to enter the menu.

Press MENU (▲▼) to scroll through and select which item(s) to printout.

SYSTEM?	Prints general system information and configuration settings.
ANALOGS?	Prints the channel patch for all 4 analog inputs.
Ø-PATCH?	Prints the phase patch for all 24 dimmer outputs.
CURVES?	Prints the dimmer curves for all 24 dimmer outputs.
F-ALARM?	Prints the configuration settings for the fire alarm input.
S-ALARM?	Prints the configuration settings for the security alarm input.
SCENE?	Prints the level settings for each of the 24 dimmers within the 24 scenes.
SCENE>01	Press EXECUTE to toggle the pointer (>) and select which scene to print.

SCENE>FL	Press MENU (⬍) to select the desired scene (01 to 24) or all scenes (FL).
V-LIMIT?	Prints the output voltage limit settings for each of the 24 dimmer outputs.
DCPATCH?	Prints the configuration settings for the dimmer to channel patch.
FD-TIME?	Prints the fade time settings for each of the 24 scenes.
2 ROOM?	Prints the two room assignment for each of the 24 dimmer outputs.
DMXAPAT?	Prints the DMX A patch for each of the 24 dimmer outputs.
DMXBPAT?	Prints the DMX B patch for each of the 24 dimmer outputs.
ND-LEVEL	Prints the non-dim trigger level threshold setting for each of the 24 dimmer outputs.
ALL?	Printout all items at once.
PRINTING	Press EXECUTE on any item to begin printing.
	Press ESCAPE or RESET to exit the menu.

48. DEFAULTS   *Set various system configuration settings to the factory default.*

Press EXECUTE to enter the menu.

Press MENU (⬍) to scroll through and select which item(s) to default.

ØPATCH1?	Phase patch for JS-ICON™ 2410 and JS-ICON™ 2413 with Three-Phase power.
	Dimmer phase assignment is AAAAAAAABBBBBBBBCCCCCCCC.
ØPATCH2?	Phase patch for JS-ICON™ 1220 with Three -Phase power.
	Dimmer phase assignment is AAAABBBBCCCC (13-24 are unused).
ØPATCH3?	Phase patch for JS-ICON™ 1210/620 with Three-Phase power.
	Dimmer phase assignment is AAAAAAAABBBBBBCCCC (19-24 are unused).
ØPATCH4?	Phase patch for JS-ICON™ 2410 and JS-ICON™ 2413 with Single-Phase power.
	Dimmer phase assignment is AAAAAAAAAAAABBBBBBBBBBBB.
ØPATCH5?	Phase patch for JS-ICON™ 1220 with Single-Phase power.
	Dimmer phase assignment is AAAAAABBBBBB (13-24 are unused).
ØPATCH6?	Phase patch for JS-ICON™ 1210/620 with Single-Phase power.
	Dimmer phase assignment is AAAAAAAAAAAABBBBBB (19-24 are unused).
ØPATCH7?	Patches all PWM output channels to ØA. Not used with JS-ICON™ product.
ØPATCH8?	Phase patch for DE90-3000 Series retrofit control systems.
ØPATCH9?	Phase patch for DE90-3000 Series retrofit control systems.
CURVES?	Sets all 24 dimmer curve profiles to Square Law curve.
ANA-OFF?	Clears the control channel patch for all 4 analog inputs.
V-LIMIT?	Sets the output voltage limit to full (127.5) on all 24 dimmer outputs.
DCPATCH?	Clears the dimmer to channel patch and configures it for 1:1 operation.
FD-TIME?	Sets the fade time at 5 seconds for all 24 scenes.
2 ROOM?	Sets the two room assignment to room "A" on all 24 dimmer outputs.
ND-LEVEL	Sets the non-dim trigger level threshold to 10% on all 24 dimmer outputs.
SURE???	Press EXECUTE to select the item to default. Are you sure?
DONE!!!	Press EXECUTE to set the selected default.
	Press ESCAPE or RESET to exit the menu.

49. LCD VIEW   *Adjust the contrast of the LCD Display for optimum viewing.*

Press EXECUTE to enter the menu.

ADJUST ⬍	Press MENU (⬍) to adjust the contrast.
	Press ESCAPE to exit the menu and save the desired LCD view.
	Press RESET to exit the menu without saving.
	The menu will automatically timeout after 2 minutes of inactivity and save.

JOHNSON SYSTEMS INC.
"PROGRESSIVE ALTERNATIVES IN LIGHTING CONTROL"

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tel: 403.287.8003 · fax: 403.287.9003
Toll free: 888-JS-RETRO [577-3876]
info@johnsonsystems.com

Important Hard-key Information

JS-ICON™ Series dimmer racks may be shipped with an invalid hard-key code of 000000. A valid hard-key must be entered before the run time (RTIME) counter reaches 2160 hours / 90 days. If the run time expires without a valid hard-key, the LCD display will show a runtime counter error (RTC ERR!) and all dimmer control outputs will be disabled.

Refer to menu item "HARD-KEY" on page 27 of the user manual for detailed instructions on how to enter a valid hard-key code. Be sure to record and file the valid hard-key code for future reference

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JSI Serial Number: _____   JSI Serial Number: _____

Silicone Serial Number: _____   Silicone Serial Number: _____

Hard-Key Code: _____   Hard-Key Code: _____

JOHNSON SYSTEMS INC.
"PROGRESSIVE ALTERNATIVES IN LIGHTING CONTROL"

Troubleshooting Reference

This manual is accurate at time of printing and subject
to revisions and technical updates as required without prior notice.

Please visit www.johnsonsystems.com for applicable updates.

Troubleshooting Reference

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to revisions and technical updates as required without prior notice.**

Please visit www.johnsonsystems.com for applicable updates.

JSI-ICON™ Series Dimmer/Relay Racks

JS-ICON™ 2410
24 x 10 Amp (1200 Watt) dimmers

JS-ICON™ 2413
24 x 13 Amp (1560 Watt) dimmers

JS-ICON™ 1220
12 x 20 Amp (2400 Watt) dimmers

JS-ICON™ 1210/620
12 x 10 Amp (1200 Watt)
+ 6 x 20 Amp (2400 Watt) dimmers

User Manual
JS-ICON™ Series Dimmers
Rev. 3

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