Distributed Room Controller (DRC) Smart Pack

Cat. No. DRD07-BL0, DRD07-BD0

WARNINGS:

- **TO AVOID FIRE, SHOCK OR DEATH: TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND TEST THAT THE POWER IS OFF BEFORE WIRING!**
- **TO AVOID PERSONAL INJURY OR PROPERTY DAMAGE, DO NOT** install to control a receptacle, or a load in excess of the specified rating.
- This device can be powered by two (2) circuits; the regular power branch circuit and the 24 hour night light/emergency branch circuit.
- Installation and servicing must be performed by an electrician or other qualified personnel.
- Servicing must be performed by qualified personnel.
- For indoor use only. Do not mount near gas or electric heaters.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- The provided label marked “EMERGENCY CIRCUITS” should be placed in a highly visible location if any DRC Smart Pack is part of the emergency power system so as to be readily identifiable as a component of the emergency system (applicable for all models excluding the DRD07-EDN).
- To avoid electrical overload, total connected load shall not exceed output rating.
- Equipment should be mounted in locations and at heights where it will not be subjected to tampering by unauthorized personnel yet be fully accessible to those authorized to perform maintenance or inspection.

CAUTIONS:

- Inspect and test all LumaCAN cables for compliance to the TIA568B standard for category cables prior to interconnecting devices and systems.
- The use of pass-through type RJ45 connectors is strictly prohibited. The use of shielded RJ45 connectors is not required.
- The overall installation and handling of the cabling system must comply with all standards and industry best practices for installations of category cables of this type.
- To be installed and/or used in accordance with electrical codes and regulations.
- Use this device with **copper** or **copper-clad wire only**.
- **READ, FOLLOW, AND SAVE THESE INSTRUCTIONS.**

DI-000-DRD07-02A

INSTALLATION INSTRUCTIONS **ENGLISH**

Product Description

The GreenMAX™ DRC Smart Pack contains 0-10VDC Dimming Control for LumaCAN networked systems. It interconnects to the network with RJ45 connectors via two onboard ports. An internal latching relay provides switched control of the load power to compliment the 0-10VDC Dimming. The switching circuit utilizes zero cross switching circuitry to minimize the effects of inrush current associated with LED drivers and electronic ballasts. This feature increases the life expectancy of the Smart Pack significantly. When connected to a GreenMAX DRC lighting control system for the first time, the smart pack will initiate the Auto-addressing feature so that it can become an active component in the system.

Installation

WARNING: TO AVOID FIRE, SHOCK OR DEATH, turn off power at circuit breaker or fuse and test that the power is off before wiring. Servicing must be done by qualified personnel.

NOTE: This is an ESD sensitive device. Use safe ESD handling procedures when installing.

Mechanical

1. Mount the GreenMAX DRC Smart Pack to a properly sized and suitable junction box as per the Mounting diagram. **(Figure 4)**

2. Mount to the junction box using the nipple and locknut provided.

3. Ensure the LumaCAN cable is properly installed on the strain-relief feature and RJ45 connectors are properly seated in the port.

0 - 10VDC Control Wiring

1. The 0-10VDC control loop requires the connection of the two designated conductors: one Violet and one Pink. Connect the Violet wire to the ‘+’ wire of the 0-10VDC line and the Pink to the Common using Class 1 or Class 2 methods. Refer to local electrical codes for all applicable instructions.

2. When product is used with a 120VAC power source and the 0-10VDC control wires are connected to CL3, CL3R or CL3P rated control cables (or permitted alternate), then silicone tubing or other non-conductive sleeve is required over the control wires for the entire wire length from the device to the location where the wires exit the box. Tubing is not required on the CL3, CL3R or CL3P between the wire connector and extending out of the electrical box.

3. When product is used with a 277VAC power source and the 0-10VDC control wires are connected to CL3, CL3R or CL3P rated control cables (or permitted alternate), then silicone tubing or other non-conductive sleeve is required over the control wires for the entire wire length from the device to the location where the wires exit the box. Tubing is also required on the CL3, CL3R or CL3P between the wire connector and extending out of the electrical box.

4. Silicone tubing should be NRTL (UL/CSA/ETL) recognized or equivalent to provide mechanical separation equal to 0.25 in. (0.64 cm) of free air.

5. Connectors joining 0-10VDC control wires should be approved listed connectors.

6. Wire connectors and wire tubing should be provided by the installation contractor.

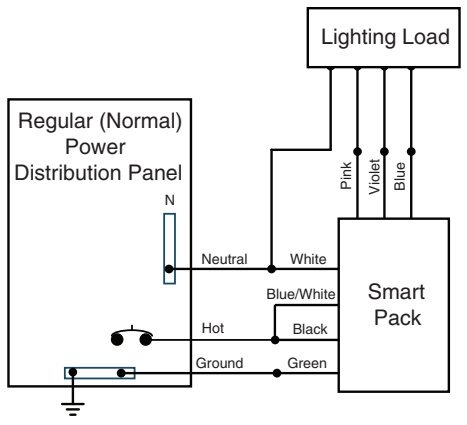
Line Voltage and Load Wiring

1. All conductors should be connected per the wiring diagram. **(Figure 1)**

2. Connectors joining line voltage and load conductors should be approved listed connectors.

3. Wire connectors should be provided by the installation contractor.

Figure 1. - Normal Power Only



LumaCAN

1. Two LumaCAN ports are provided to maintain the required ‘daisy chain’ topology of the LumaCAN network.

2. An End of Line (EOL) terminator is provided and installed in one of the ports of the Smart Pack at the Factory. Remove this terminator if the Smart Pack is in the middle of the LumaCAN segment. This will be confirmed by the need to plug in two Category cables into the Smart Pack, one in each port. If only one cable is required to be plugged in, the EOL shall remain in place. Both the first and the last device on a LumaCAN segment shall have an EOL terminator installed.

3. All field made RJ45 connectors shall comply with the TIA-568B standard. The use of pass-through type RJ45 connectors is prohibited. The use of shielded RJ45 connectors is not required.

4. Each Category cable used in the LumaCAN network shall be ‘map’ tested and validated prior to power-up of the system.

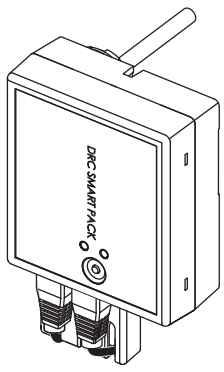
5. LumaCAN cables and connectors shall be installed as Class 2 and must comply with all local and national requirements governing installations of this type.

6. Upon power up, GreenMAX DRC Smart Pack will be in the ON state and then transition to the last dimming level prior to the loss of power. The default from the factory is ON Full after power up.

LumaCAN Cabling - CAT6

1. Form a loop with cable prior to inserting the RJ45 connectors in Smart Pack. Loop should comply with minimum bend radius requirements per industry standards for category cable installations. **(Figure 2)**

Figure 2. - CAT6 Cable Treatment



2. Retain CAT6 cable by installing a zip tie across the forks of the Smart Pack. Take care not to pinch or damage the network category cable. **(Figure 3)**

Figure 3. - CAT6 Retainment

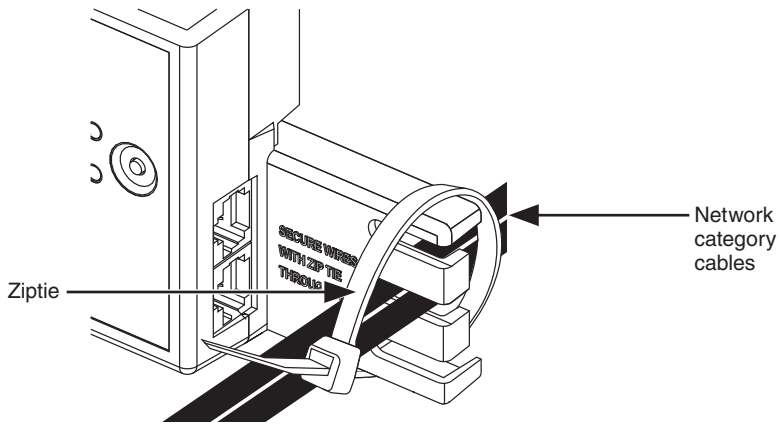
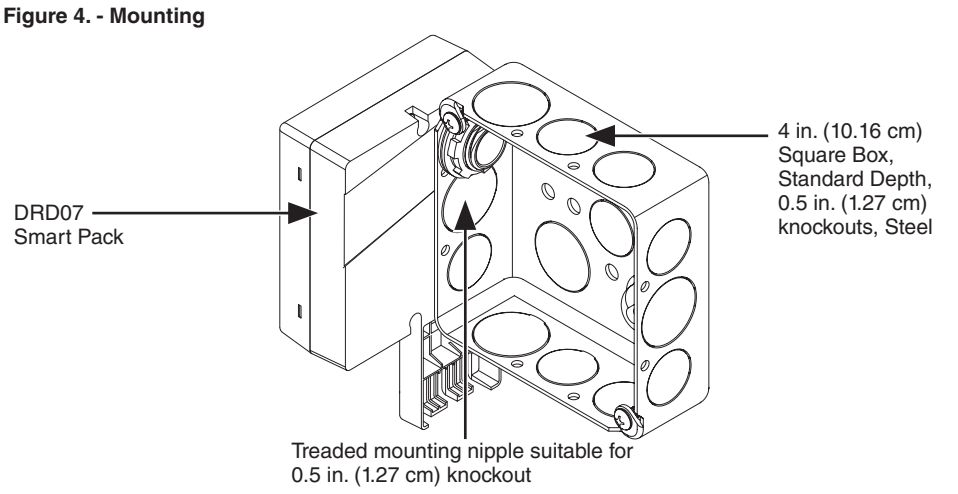


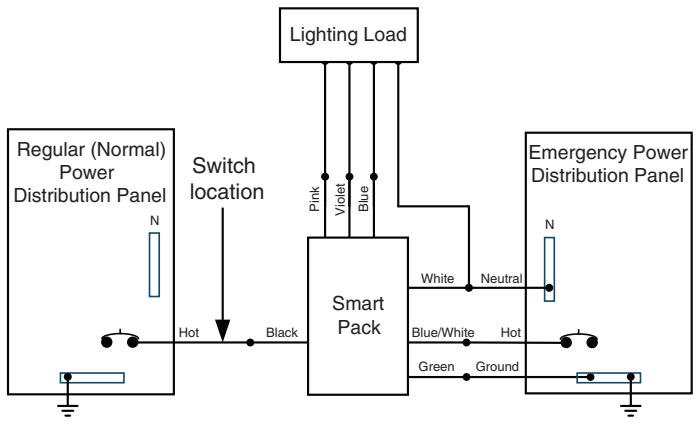
Figure 4. - Mounting



Emergency (DRD07-BD0 only)

The GreenMAX DRC Smart Pack can be used as a UL 924/CSA C22.2 No. 141 emergency bypass device ensuring that the relay is closed during power failure conditions. Availability of input power to power the load is the responsibility of others. The black wire is used to sense the presence of normal power. Upon loss of voltage on this conductor, the relay will close and the device will be in emergency mode. **Figure 5** illustrates the proper wiring for this function.

Figure 5. - Normal and Emergency Power



Operation

Test Button

The Test button can be used to verify the dimming capabilities and operation of the Smart Pack. This is best performed from the OFF state with the branch circuit breaker for the zone in the ON position (zone is energized).

If the load turns ON but no dimming capability is observed or if the load does not turn ON at all, the wiring must be inspected and verified to be in compliance with Manufacturer's instructions.

Test Button Operation

Test Button Sequence	DRD07-BL0	DRD07-BD0
Press 1 time	Relay closes, 1 second fade to 100%	
Press 2 times	Relay remains closed, 1 second fade to 50%	
Press 3 times	Relay remains closed, 1 second fade to 10%	
Press 4 times	Relay remains closed, 1 second fade to 0%	
Press 5 times	Returns to the "Press 1" state and repeats sequence	

Factory Reset

Hold down the test button for 20-25s. At 20s the Power LED starts blinking red, and releasing the button will factory reset the unit.

If the button is held for longer than 25s, the Power LED will stop blinking red, and releasing the button will not factory reset the unit.

Automatic System Configuration (DRC Controller Required)

When the GreenMAX DRC system is assembled and power is first powered up, components will automatically be addressed by the Room Controller. Once complete, a default configuration can be applied by starting from the mobile application. The system will then have the following functionality:

1. All switches have functionality per their labeling.

2. Occupancy Sensors turn the lights on to 50% when occupancy is detected and turn the lights off when vacancy is detected. Vacancy timeout is set to 30 minutes to occur in two stages, light output reduction to 30% after 15 minutes, then lights off after another 15 minutes.

Emergency (DRD07-BD0 Only)

WARNING: TO AVOID FIRE, SHOCK OR DEATH, turn off power at circuit breaker or fuse and turn off power at the emergency circuit and test that power from both circuits is off before wiring, servicing, or removing fixture. This fixture is powered by two (2) circuits from different sources; the regular (normal) power branch circuit and the emergency circuit.

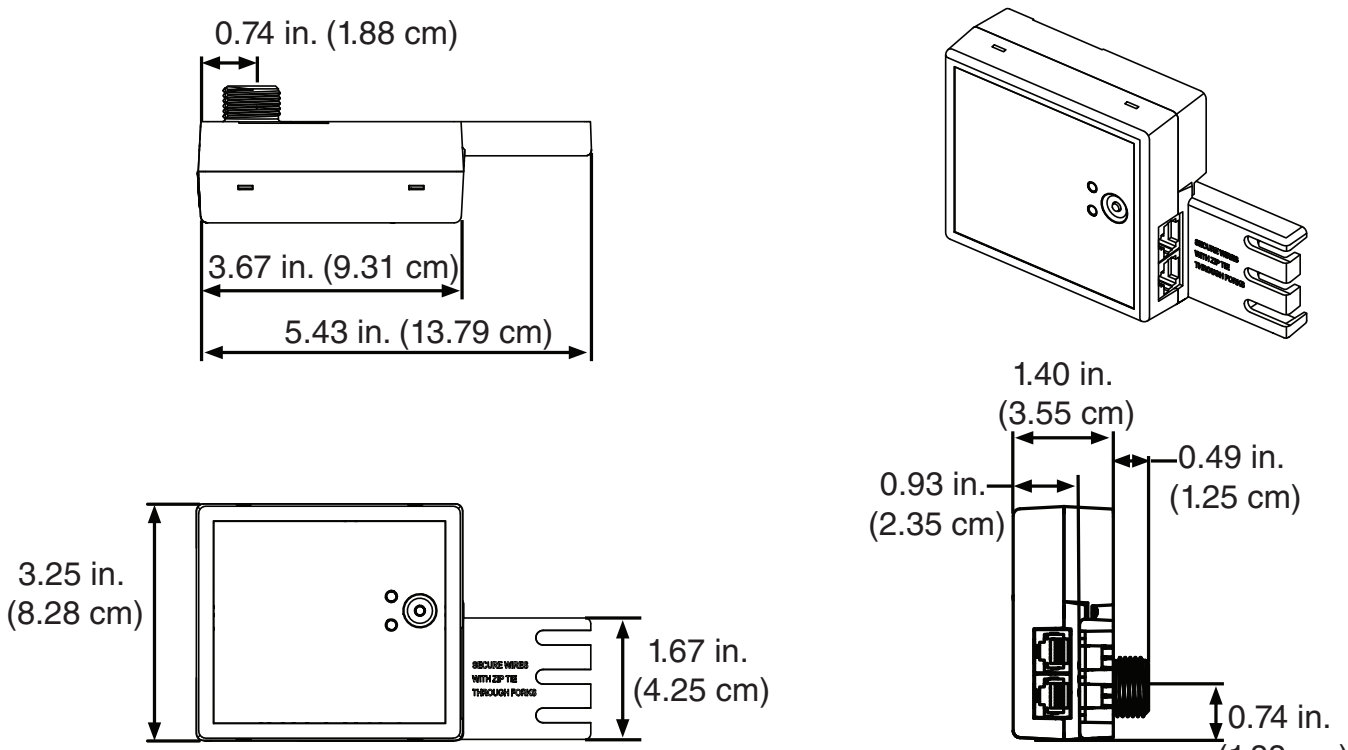
Emergency Self-test: NEC (NFPA 70) require regular testing of all emergency equipment. To perform a test of these products, a momentary-break type Test Switch shall be installed (not provided by Leviton). This switch must return the equipment to normal operation when released and be accessible to maintenance personnel without requiring tools to remove panels or barriers. The Test Switch shall be installed on the Regular (Normal) power conductor and shall open all ungrounded conductors to initiate the emergency function test.

The recommended location for a test switch of this type is shown in **Figure 5**.

Specification Table

Specification		DRD07-BL0	DRD07-BD0
Input Voltage/Frequency		12 - 24 VDC	120-277 VAC (+/- 10%), 50/60 Hz
Input Power	Max	40 mA, Requires Dim-to-Off driver	10A
	Standby	30mA	15mA
Connected Load	Load Ratings	n/a	10A Resistive 5A General Use 10A Electronic Ballast (LED)
	Motor Ratings	n/a	1/3 Hp motor
Output	0-10VDC Control Loop	10mA maximum sink	75mA maximum sink class 1 or class 2
Line/Load Wiring Color Codes		Red - input power	Black - control hot/normal power
		Black - input power, DC common	White - neutral
		Violet - 0-10V control (dim+)	Green - ground
		Pink - 0-10V control (dim-)	Blue/White - load line hot/ emergency power
			Blue - output load conductor
			Violet - 0-10V control (dim+)
			Pink - 0-10V control (dim-)
LED Indicators	Power LED	Slow Green Blink = Normal Operation	Slow Green Blink = Normal Operation
		Slow Amber Blink = Booting up	Slow Amber Blink = Booting up
		Fast Amber Blink = Loading Application	Fast Amber Blink = Loading Application
			Off (no light) = Emergency mode
		Fast Red Blink = Factory Reset	Fast Red Blink = Factory Reset
	Network LED	Green Blink = Network Activity Detected	
		Solid Green = No Network Activity	
		Fast Amber Blink = No LumaCAN Address	
		Solid Red = LumaCAN Error	
IP Rating		IP40	
Operational Temperature		32° to 131°F (0°- 55°C)	
Mounting		Standard metal 4 inch square junction box with minimum volume of 30.3 cu. inches or greater (4 in. x 4 in. x 2.13 in.) utilizing a 0.5 inch knockout on the box.	
LumaCAN Network	Build	LumaCAN3 protocol and devices only.	
		Daisy chain topology.	
		1600 feet per LumaCAN segment, multiple segments to max total of 10,000 feet.	
		Repeaters can be used to extend the network to the max overall length.	
		Limit of 110 LumaCAN addresses per LumaCAN segment to a maximum of 250 address per assembled system.	
		End of line terminations required at both ends of a LumaCAN segment.	
	Cabling	CAT6 (or better) cable is required.	
		The use of pass-through type RJ45 connectors is prohibited.	
		Shielded RJ45 connectors are not required.	

Dimensions



Patents covering this product, if any, can be found on Leviton.com/patents.

STATEMENT CAUTION

Changes or modifications not expressly approved by Leviton Manufacturing Co., could void the user's authority to operate the equipment.

FCC COMPLIANCE STATEMENT:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC STATEMENT

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Trademark Disclaimer

Leviton, the Leviton logo, GreenMAX, and the LumaCAN are trademarks of Leviton Manufacturing Co., Inc. Use herein of third party trademarks, service marks, trade names, brand names, and/or product names are for informational purposes only, are/may be the trademarks of their respective owners; such use is not meant to imply affiliation, sponsorship, or endorsement.

RF EXPOSURE AND CO-LOCATION:

To comply with FCC OET Bulletin 65 and ISED RF exposure limits for general population / uncontrolled exposure this device should be installed and operated with a minimum distance of 7.9 inches (20 cm) between the radiator and your body. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

FCC SUPPLIERS DECLARATION OF CONFORMITY

Smart Wallbox Sensors manufactured by Leviton Manufacturing, Inc., 201 N Service Road, Melville, NY, http://www.Leviton.com. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada ULC to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320.**

LIMITED 5 YEAR WARRANTY

For Leviton's limited 5 year product warranty, go to www.leviton.com. For a printed copy of the warranty, call 1-800-824-3005.

For Technical Assistance Call: 1-800-824-3005 www.leviton.com