

## PREFACE

### About this Manual

The document provides basic information on installation and operational instructions for a qualified, trained installer. This manual provides information for the following luminaires:

- CDR150 Recessed Mount (new construction, remodeler, and sloped ceiling adapter)

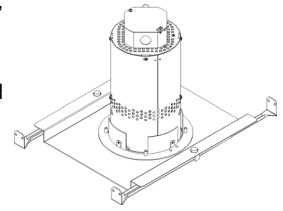
Additional product information can be found on our web site at [www.altmanlighting.com](http://www.altmanlighting.com). Please read all instructions before installing or using this product. *Retain this manual for future reference.*

### Have a question regarding this manual?

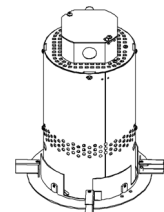
The material in this manual is for information purposes only and is subject to change without notice. Altman Lighting assumes no responsibility for any errors or omissions which may appear in this manual. Should you find an error, have a suggestion or question regarding your Altman Lighting product, we would love to hear from you.

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New Construction Models



Remodeler Models

**Note:** Information contained in this document may not be duplicated in full or in part by any person without prior written approval of Altman Lighting. Its sole purpose is to provide the user with conceptual information on the equipment mentioned. The use of this document for all other purposes is specifically prohibited.

### Our Commitment

Altman Lighting continually engages in research related to product improvement. New materials, production methods and design refinements are introduced into existing products without notice as a routine expression of the philosophy. For this reason any current Altman Lighting product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise noted.

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CDR150 LED Luminaires Installation Manual

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## CLEANING AND CARE



**WARNING!** All cleaning should be performed with power completely removed from the luminaire. Never remove protective covers when luminaire is powered. Wear appropriate protective eye wear and gloves when cleaning the fixture. All service and maintenance, other than described herein, should be performed by a qualified technician or Authorized Service Center. **AT NO TIME SHOULD THE LED BE TOUCHED.** The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.



**WARNING!** Under no circumstances should ammonia-based cleaners, acetone, or other harsh solvents be used on or near the CDR150 LED Luminaires. These types of cleaners or solvents can permanently damage the optics or housings of the fixture.

For all other service and maintenance issues, please contact your local Altman Lighting office or an Authorized Service Center.



**WARNING!** Disassembly (other than as described herein), alterations, unauthorized service, etc. will void the product warranty. Contact your local Altman Lighting office or an Authorized Service Center for technical support and service.

## IMPORTANT INFORMATION

### Product Safety Notices

When using electrical equipment, basic safety precautions should always be followed including the following:



- a. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
- b. Do not use outdoors unless the product is specified to operate in outdoor environments.
- c. Do not mount near gas or electric heaters.
- d. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- e. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- f. Do not use this equipment for other than intended use.
- g. Refer service to qualified personnel.

**SAVE THIS MANUAL FOR FUTURE REFERENCE.**

### Warnings



**WARNING: RISK OF ELECTRICAL SHOCK!** You must have access to a main circuit breaker or other power disconnect device before installing any wiring. Be sure that power is disconnected by removing fuses or turning the main circuit breaker off before installation. Installing the device with power on may expose you to dangerous voltages and damage the device. It is always recommended that a “lock out tag” device is installed on the appropriate circuit disconnect prior to beginning electrical work of any kind. A qualified electrician must perform this installation.

**WARNING:** Insulation between low-voltage supply and control conductors is provided by basic insulation.

**WARNING:** Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to personnel.

**WARNING:** This equipment is intended for installation in accordance with the National Electric Code® and local regulations. It is also intended for installation in indoor applications only. Before any electrical work is performed, disconnect power at the circuit breaker or remove the fuse to avoid shock or damage to the control. It is recommended that a qualified electrician perform this installation.

**WARNING:** This Lighting Fixture IS NOT for residential installation or use.

**WARNING:** The structure where fixture(s) is to be mounted must be capable of supporting the weight of the fixture and its accessories.

**WARNING:** The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.

**THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY:**

**A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.**

**CE PRODUIT DOIT ÊTRE INSTALLÉ SELON LE CODE D'INSTALLATION PERTINENT, PAR UNE PERSONNE.**

### FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Altman Lighting Product Warranty

### Warranty Term

Altman Lighting, Inc., a subsidiary of Altman Stage Lighting Company, Inc., herein referred to as Altman, warrants each new product (except for spare parts or products Altman does not manufacture) for a period of TWO (2) years from date of shipment to correct by repair or replacement any part defect due to faulty material or workmanship. Under these same terms products with an LED light source shall be warranted for a period of THREE (3) years.

Altman warrants for NINETY (90) days any spare part it manufactures. On spare parts or products Altman does not manufacture, including, but not limited to, lamps, sockets, lenses, roundels, electronics, ignitors, ballasts, etc.; Altman will grant the same warranty given Altman by its vendors.

Altman assumes no responsibility for damage or faulty performance caused by misuse, improper installation, careless handling or where repairs have been attempted by others.

This warranty is in lieu of all warranties or guarantees expressed or implied and no representative or person is authorized to assume Altman any other liability with the sale of Altman's products.

For complete warranty terms and conditions, please refer to our web site at [www.altmanlighting.com](http://www.altmanlighting.com).

### Warranty Service

In order to request warranty service, you must receive a Return Material Authorization (RMA) number prior to return.

Return shipments must be visibly marked with the RMA number; the product must be returned (*shipping prepaid*) to the factory at:

Altman Lighting Inc.  
 Attention: RMA # \_\_\_\_\_  
 57 Alexander Street  
 Yonkers, NY 10701

The return must be within THIRTY (30) days of receiving the RMA from Altman.

## POWER

### Power Requirements



**WARNING!** The CDR150 LED Luminaires should be connected to a constant circuit or a relay device. It should never be connected to a dimmer or circuit controlled by a dimmer unless the unit is specifically designed to do so (MAINS dimming models - 120VAC or 220VAC only). Read this section carefully on how to properly connect your fixture.



**WARNING!** All CDR150 LED Luminaires are shipped prewired from the factory. The wiring information in **Table 1** is shown for field wiring information and must be performed by a qualified and licensed electrician. Before performing any field wiring, refer to and read the warnings contained in "**Important Information**" on [page 2](#).



**WARNING!** DO NOT Daisy chain both MAINS DIMMABLE Luminaires with Luminaires that require CONSTANT POWER. When this luminaire is connected to a dimming system ONLY Mains Dimmable Luminaires of this type should be daisy chained together. Failing to follow these guidelines will result in unwanted dimming performance and damage to the luminaires.

### Connecting Power

Units are powered via a direct connection to the powered circuit. Field wiring of the fixture is straight forward. A total of three wires/ conductors need to be brought to the unit. The following wiring scheme, as shown in **Table 1**, is required for direct connection to the luminaire's power source. The unit can draw up to 145 Watts.

**Table 1: AC Input Wiring**

Wire Color (120V Models)	Purpose
Black	Main / (L)ine
White	(N)eutral
Green	Ground / Earth
Wire Color (100 - 240VAC Models)	Purpose
Brown	Main / (L)ine
Blue	(N)eutral
Green/Yellow	Ground / Earth



**IMPORTANT!** All fixtures covered in this manual must be connected to and properly grounded to a viable earth ground.

### MAINS Dimming Versions

CDR150 LED Luminaires are available in a 120VAC or 220VAC Mains Dim versions. Mains Dim models should be connected to a Phase cut dimmer either forward or reverse phase. Typical Phase Cut dimmers include SCR's (Silicon Controlled Rectifiers), IGBT's (Insulated Gate Bipolar Transistors), and TRIAC dimmers. Each Luminaire operates on 100 to 240 volts AC (+/- 10%, auto-ranging). Depending on supply voltage, each luminaire can draw up to 150 Watts. Each mains dimmable version is shipped preset for your dimming voltage either 115VAC or 220VAC.



**IMPORTANT!** For fixtures that are mains dim controlled, do not connect more than four (4) luminaires to the same dimmer. Connecting more than four luminaires to the same dimmer will result in undesired low-end dimmer response.

## MOUNTING

### Recessed / Ceiling Mount Models (CDR150)

The CDR150 recessed luminaire is available in three mounting options (as ordered) - new construction, remodeler and sloped ceiling. Minimum ceiling clearance for the CDR150 luminaire is 14 inches (355.6mm).



**CAUTION:** All CDR150 recessed luminaires are NON-IC rated - the fixture cannot be surrounded by or be in contact with insulation. If insulation is present in an application area where a NON-IC rated fixture is used, a minimum 3-inch (76 mm) clearance must exist on all sides of the fixture, and no insulation may be present across the top of the installed fixture. The unit must be installed where adjacent building structures are a minimum of 6 inches (153 mm) from the fixture.



- For new construction models, refer to information in **"New Construction Mount"** on page 4.
- For remodeler models, refer to information in **"Remodeler Mount"** on page 5.
- For remodeler models, refer to information in **"Sloped Ceiling Adapters"** on page 6.



**WARNING!** Make sure power to the junction box is completely disconnected. Failure to do so could lead to serious injury or death. Follow all warning and information contained in **"Important Information"** on page 2 and **"Power"** on page 3.

### New Construction Mount

New Construction Version

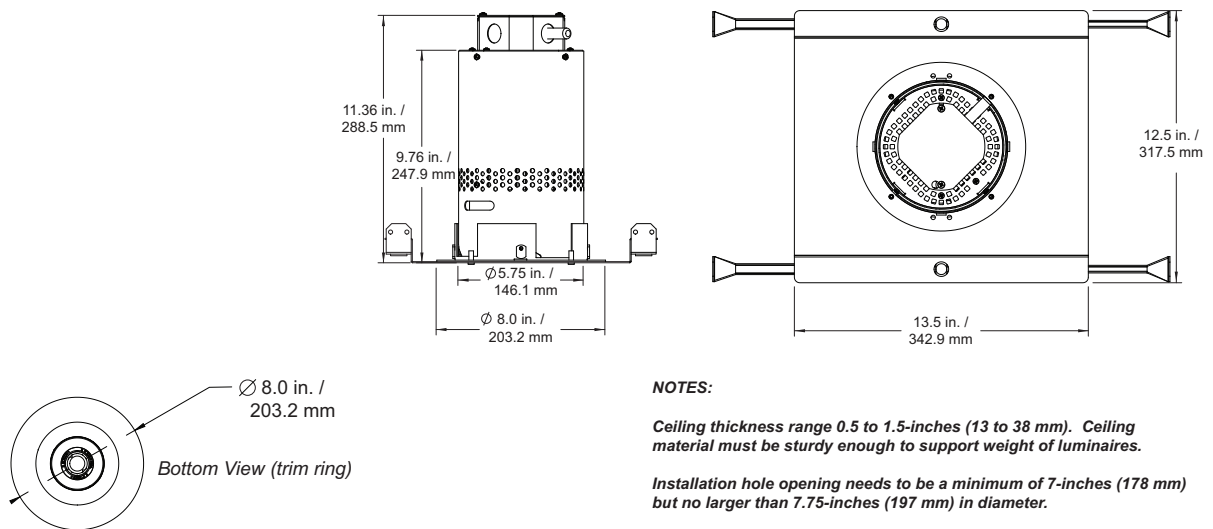


Figure 1: CDR150 New Construction Mount

**Note:** For certain drop ceilings, you may be required flip (invert) the mounting rails. This can be achieved by unscrewing the rail mount from the tray and reinstall with the rails sitting on top of the tray.

To install a CDR150 new construction mount fixture:

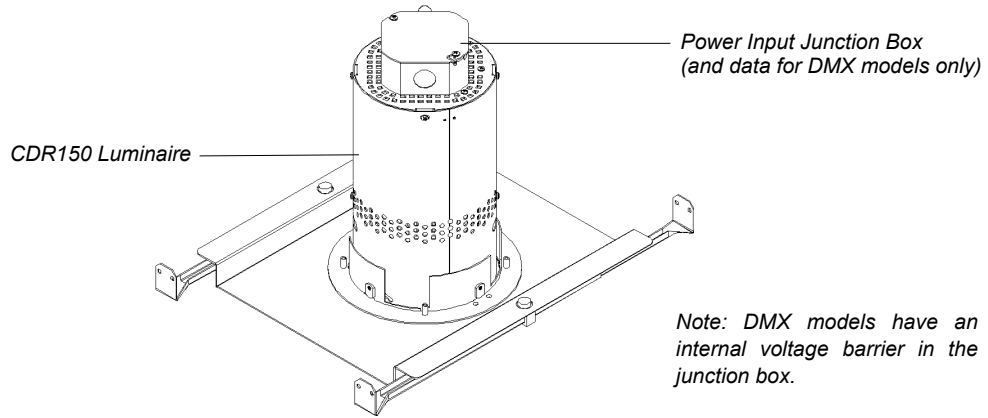


**WARNING!** Make sure power to the junction box is completely disconnected. Failure to do so could lead to serious injury or death. Follow all warning and information contained in **"Important Information"** on page 2 and **"Power"** on page 3.



**WARNING!** CDR150 new construction models must be installed with the provided mounting tray and mounting bars. Mounting bars must always be secured to structural ceiling members. You must adhere to your local and national codes for installation.

Step 1. Install CDR150 new construction mounting tray to joist work following the dimensions in **Figure 1 on page 4**.



**Figure 2: CDR150 Main Dim New Construction Model**

Step 2. Connect wiring following information contained in **"Connecting Power"** on page 3.



**WARNING!** On installations other than 120VAC, you MUST bypass the black thermal switch in the Junction Box (if present). It cannot be connected to any input voltage greater than 120VAC!

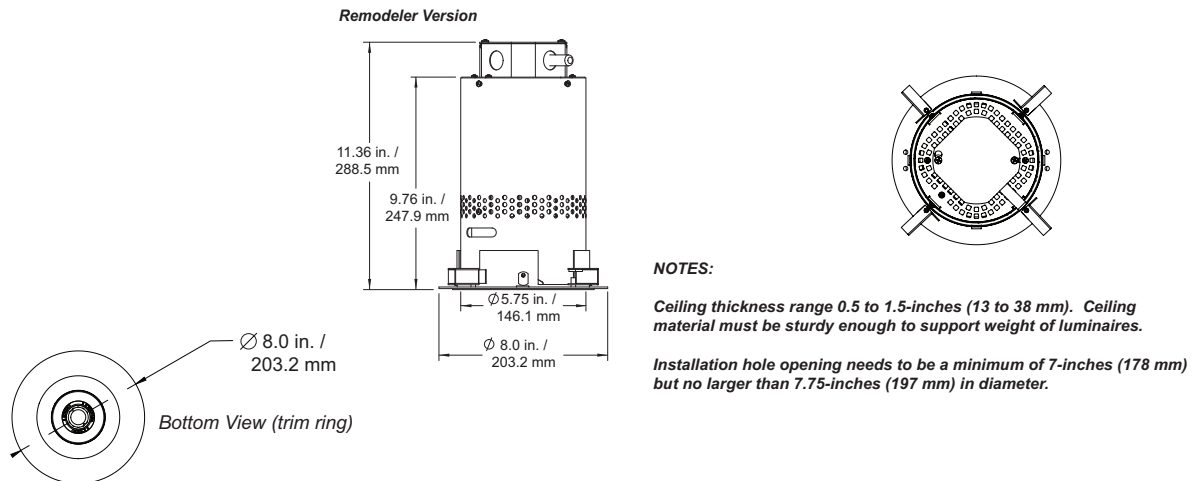
Step 3. *For DMX controlled models only*, connect DMX network following the information contained in **"Connecting to the DMX512 Network"** on page 8.

Step 4. Install trim ring using supplied springs.

**Note:** When installing the trim ring the proximity of the display panel buttons makes them easy to depress. In order to avoid any unwanted settings, please either remove power from the luminaire or lock out the display prior to trim ring installation. See **"Locked State"** on page 11 for more information.

Step 5. Install luminaire reflector.

**Remodeler Mount**



**Figure 3: CDR150 Remodeler Mount**

**To install a CDR150 remodeler mount fixture:**

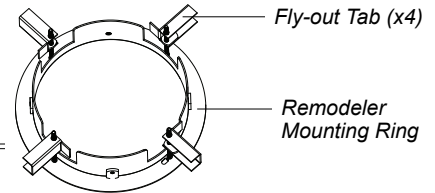


**WARNING!** Make sure power to the junction box is completely disconnected. Failure to do so could lead to serious injury or death. Follow all warning and information contained in **"Important Information"** on page 2 and **"Power"** on page 3.



**WARNING!** CDR150 remodeler models are not designed to be installed in drop ceilings. For drop ceilings, only new construction models can be used.

- Step 1. Find a suitable mounting location that will support the weight of luminaire.
- Step 2. Cut a hole in ceiling adhering to hole size information found in **Figure 3 on page 5**.
- Step 3. Position remodeler mounting ring (**Figure 4**) through hole and turn screws so fly-out tabs swing away from ring. Tighten each tab until the remodeler mounting ring is secured to ceiling.
- Step 4. Connect wiring following information contained in **"Connecting Power"** on page 3.



**Figure 4: Remodeler Mounting Ring**



**WARNING!** On installations other than 120VAC, you **MUST** bypass the black thermal switch in the Junction Box (if present). It cannot be connected to any input voltage greater than 120VAC!

- Step 5. *For DMX controlled models only* - connect DMX network following the information contained in **"Connecting to the DMX512 Network"** on page 8.
- Step 6. Mount luminaire assembly into remodeler mounting ring using supplied thumb screws.
- Step 7. Adjust luminaire height for ceiling thickness, aligning underside of ceiling with bottom of luminaire.
- Step 8. Install trim ring using supplied springs.

**Note:** When installing the trim ring the proximity of the display panel buttons makes them easy to depress. In order to avoid any unwanted settings, please either remove power from the luminaire or lock out the display prior to trim ring installation. See **"Locked State"** on page 11 for more information.

- Step 9. Install luminaire reflector.

### Sloped Ceiling Adapters

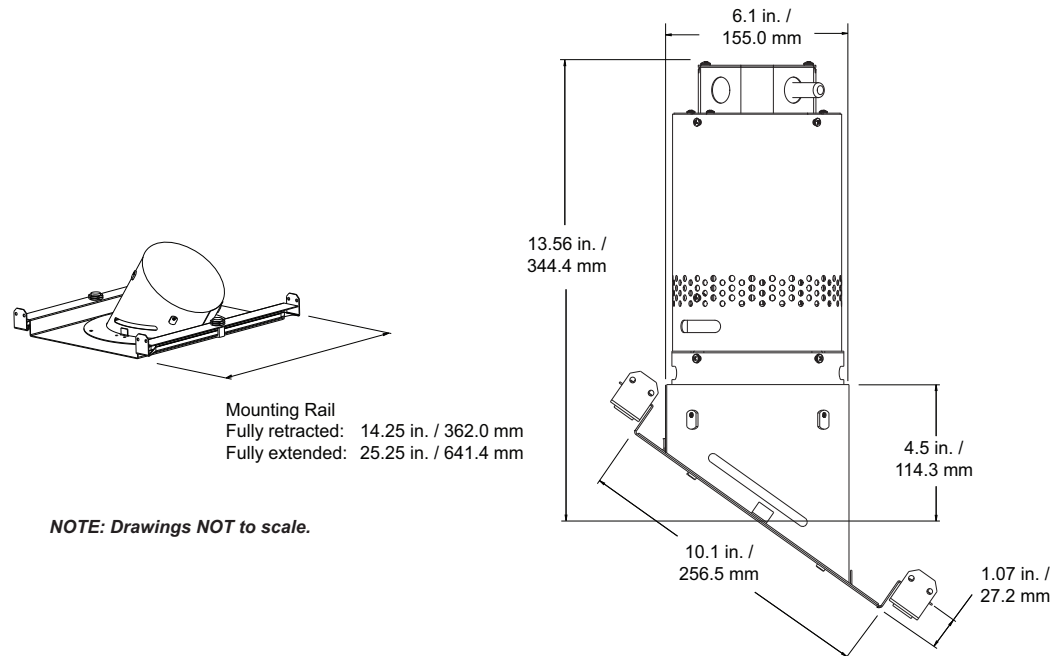
The Sloped Ceiling Adapters are designed for new construction projects only and should be located where proper support is provided to hold the weight of the adapter with its luminaire installed. The Sloped Ceiling Adapters are for Altman Lighting CDR70 and CDR150 recessed fixtures only.

**IMPORTANT!** When installing the long side of the Sloped Ceiling Adapter oval must be parallel to the angle of the ceiling.

**To install the sloped ceiling adapter:**

- Step 1. Using base of sloped ceiling adapter as a template, line up the base tray with the desired location for adapter installation. Use adapter tray as a template to draw out oval needed. Note, once installation is complete, the trim ring will completely cover the cut out.

- Step 2. Secure adapter to the joist work of structure using extension hanger arms (included with adapter tray). Ceiling or ceiling tiles are NOT to be used for support. Do not install luminaire into adapter at this time. Refer to **Figure 5** for additional information.



**Figure 5: CDR150 Sloped Ceiling Adapter**

- Step 3. Connect wiring following information contained in "**Connecting Power**" on page 3.



**WARNING!** On installations other than 120VAC, you **MUST** bypass the black thermal switch in the Junction Box (if present). It cannot be connected to any input voltage greater than 120VAC!

- Step 4. *For DMX controlled models only* - connect DMX network following the information contained in "**Connecting to the DMX512 Network**" on page 8.

**IMPORTANT!** Before installing luminaire into adapter, be careful to avoid contact with the luminaire's LED while holding the unit in place. Damage during installation is not covered under the luminaire's warranty.

- Step 5. After adapter tray is properly secured to structure and luminaire is wired, install luminaire into adapter tray using provided thumb screws (4 each). Do not completely tighten thumb screws at this time.
- Step 6. To adjust the height of luminaire (for ceiling thickness), rotate luminaire left or right. Once desired height is set, tighten thumb screws completely.
- Step 7. Install trim ring using trim ring's torsion springs into oval slots on side of sloped ceiling adapter. Note: Clip one side at a time and then gently squeeze the sides of the springs and push the trim ring into place. If trim ring is not snug to ceiling, repeat Step 6 to adjust luminaire height.

**Note:** When installing the trim ring the proximity of the display panel buttons makes them easy to depress. In order to avoid any unwanted settings, please either remove power from the luminaire or lock out the display prior to trim ring installation. See "**Locked State**" on page 11 for more information.

- Step 8. Install luminaire reflector.

#### Notes:

- For sloped ceiling models, one (1) sloped ceiling adapter is included with each unit ordered. Specify sloped ceiling adapter at time of ordering.
- Up to 25% beam clipping will occur, with the use of medium 51°, 64°, and 90° angle reflectors on the long axis of a sloped ceiling adapter. Please allow for standard 20% to 30% beam overlap when using the Sloped Ceiling Adapter accessory and these reflectors. For best performance in sloped ceiling applications and masking of beam, one of the following reflectors should be used: 20, 29, or 46 degree reflectors.

## NETWORKING (DMX MODELS ONLY)

### Connecting to the DMX512 Network

DMX controlled models offer either a connection block (Figure 6) inside the luminaire’s canopy or via cable mounted DMX 5-Pin Connections for portable units (refer to "RJ45 / XLR Connectors" on page 9).

Basic DMX512 installation consists of connecting multiple DMX controlled CDR150 LED Luminaires together (up to 32 Total devices per DMX string) in “daisy-chain” fashion. A cable runs from the DMX512 control source to the DMX INPUT connection on the first luminaire. From the DMX OUTPUT of the luminaire another cable runs to the DMX IN connection on the next luminaire (or DMX512 device to be controlled).



**IMPORTANT!** At the end of each DMX Daisy chain, it is highly recommended that a DMX TERMINATOR (Altman Lighting part number DMX-MPHX-TERM for the connectors shown in Table 2) is utilized on the last luminaire (or device) in the chain.

### Connection Block Terminal

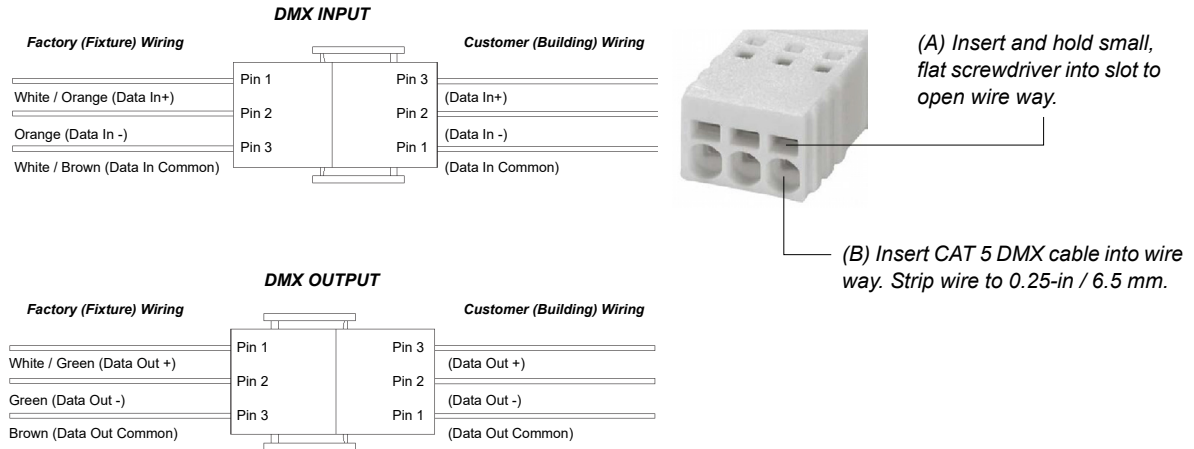
For direct connections, refer to Table 2 and Figure 6.

Table 2: DMX Connector Block Wiring

DMX Connection	Wire Color	Signal	Factory Wired	Connection	Customer Connection	Connection
DMX Input	White / Orange	Data In (+)	Male	Pin 1 (Left)	Female	Pin 3 (Right)
	Orange	Data In (-)		Pin 2 (Center)		Pin 2 (Center)
	White / Brown	Data In (Common)		Pin 3 (Right)		Pin 1 (Left)
DMX Output	White / Green	Data Out (+)	Female	Pin 1 (Left)	Male	Pin 3 (Right)
	Green	Data Out (-)		Pin 2 (Center)		Pin 2 (Center)
	Brown	Data Out (Common)		Pin 3 (Right)		Pin 1 (Left)

**Notes:**

- All pin information is read from left to right from the back of the connector (looking at wiring inlet).
- (DMX Version Ceiling mount) One (1) piece of Category 5 Belden 1592A cable for all data connectivity. Three (3) of the conductors are used for data input and three (3) conductors for data output. Note, the White/Blue & Blue conductors are not used. Both Data Input and Output utilize a Phoenix Contact 3 position terminal block for use with 20-24 AWG.



For additional connectors (sold separately):  
 Part number: 51-1709451 (Phoenix Contact Pluggable Terminal Block Male)  
 Part number: 51-1709459 (Phoenix Contact Pluggable terminal Block Female)

**IMPORTANT!** All units will come prewired from the factory with the Phoenix connector installed. These connectors are multi-use and highly recommended for DMX wiring use.

Figure 6: DMX Connector Wiring



## RJ45 / XLR Connectors

For information on RJ45 connectors for DMX Input / Output, refer to **Table 3** for RJ45 and XLR connector wiring.

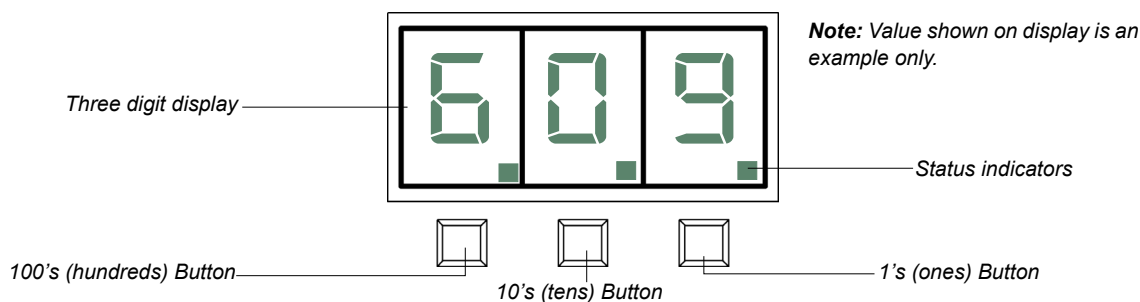
**Table 3: DMX RJ45 & XLR Connector Wiring**

DMX Connections - RJ45 and XLR Connectors		
DMX Signal	RJ45 Connector*	XLR Connector*
Common (Drain)	Pin 7	Pin 1
DMX -	Pin 2	Pin 2
DMX +	Pin 1	Pin 3

\* Only those pins shown are used. Remaining pins on RJ45 and XLR connectors are not used.

## DMX Setting and Operation

The DMX controlled version of the CDR150 luminaires have a three-digit display that provides set up, local control and addressing of the unit.



**Figure 7: CDR150 DMX Version Three Digit Display**

**Upon initial power up, the three digit display will go through the following sequence:**

- 1) Firmware Version: (vXX) where XX = Version number Displays for 2 seconds,
- 2) Absence of DMX: (oFF, HLd, PrE, FuL) [Default: oFF] Displays for 2 seconds. Refer to **"Absence of DMX"** on page 10 for more information.
- 3) Preset Level (L01 ~ L99) [Default: L99] Displays for 2 seconds. Refer to **"To Set High and Low End Trim Settings"** on page 11 for more information.
- 4) Locked State (Loc, unL) [Default: unL] Displays for 2 seconds. Refer to **"Locked State"** on page 11 for more information.
- 5) Control / Receive State (Con, rEC) [Default: rEC] Displays for 2 seconds. Refer to **"Control / Receive State"** on page 10 for more information.
- 6) DMX Termination: (l-l or ----) l-l = Termination on 120 ohm resistor active for DMX end of line termination; ---- = DMX Termination OFF [Default: ----] 999 = Termination OFF, 998 = Termination ON. Refer to **"DMX Termination"** on page 12 for more information.
- 7) Pxx Set: Personality (dimming curve) 601 = Linear, 602 = Incandescent fade 1, 603 = Incandescent fade 2. Refer to **"Dimming Curve"** on page 11 for more information.
- 8) Current DMX address: (001~512) – This is the DMX channel number. [Default: 001] Displays for 4 seconds. Refer to **"DMX Mode - Addressing"** for more information.

**Note:** When valid DMX is present the "Ones" decimal point will remain illuminated. When Luminaire has DMX termination ON the "Hundreds" Decimal point will blink.

If the unit is already powered, you can initiate information display sequence by performing the following button sequence:

**Wait a few seconds until the display goes blank or if the display is already blank:**

- 1) Press and hold the [TENS] button,
- 2) Press and hold the [HUNDREDS] button,
- 3) Release the [TENS] button,
- 4) Release the [HUNDREDS] button.

## DMX Mode - Addressing

If the display is blank pressing any button in any mode activates display and shows appropriate display information for the current operating mode.

- In DMX mode the dimming level is set via a DMX controller. This controller controls the luminaire via DMX 512A. This address can be from 001 - 512. To program a different DMX address:
- Press the Hundreds, Tens, and Ones, selection buttons to the desired DMX address number (001 to 512).
- The display goes blank and comes back again, confirming the new DMX address, display will be active for 4 seconds, then display goes blank [Default DMX address 001].

**Note:** When valid DMX is present the “Ones” decimal point will remain illuminated.

## Standalone Mode

When in Standalone mode, the CDR150 luminaires do not require a DMX control signal.

**To enter Standalone mode (or exit back to DMX mode):**

- 1) Wait a few seconds until the display goes blank, then do the following button sequence:
- 2) Press and hold the [ONES] button,
- 3) Press and hold the [TENS] button,
- 4) Release the [ONES] button,
- 5) Release the [TENS] button. When in Standalone mode the unit will ignore DMX input, once in Standalone mode the ONES and TENS indicator will remain lit.
- 6) Unit Preset level is set (0 to 100%) using [TENS] and [ONES] buttons: (00 to 99) (L00=0%), (L99=100% full).



**IMPORTANT!** Unit must be in Control State (below) in order for above output to take affect.

## Control / Receive State



**IMPORTANT!** Only one unit per DMX string should be set to Control State to avoid data conflict. When Units are set to standalone mode a DMX signal from a control console or architectural station will cause a DMX conflict. Do not set units to stand alone when connected to another DMX source.

When in Standalone Mode the CDR150 luminaires can also enter into a Control State. The luminaire will transmit its preset level on DMX channel 1, so it acts like a console to control the other units that are connected via DMX cable. If unit is in DMX Mode, Control State will do nothing.

When in Receive State, the unit only receives DMX, and if set to DMX channel 1, it will imitate the other unit that is set to Control State, if connected.

**To Toggle between Control and Receive state, perform the following button sequence:**

- 1) Wait a few seconds until the display goes blank,
- 2) Press and hold the [HUNDREDS] button,
- 3) Press and hold the [ONES] button,
- 4) Release the [HUNDREDS] button,
- 5) Release the [ONES] button;
- 6) Once in Control State the ONES, TENS, and HUNDREDS indicators will remain illuminated.
- 7) Display will blink and show Con (or rEC) for 4 seconds and then go to current mode display. [Default is Receive State]

## Absence of DMX

When connected to a DMX network, if there is a loss of signal, the following settings will affect the behavior of the CDR150 luminaires upon signal loss. This mode can be programmed by entering a number greater than 900. There are four (4) different options upon the loss of signal.

Address Setting	RDM	Display	Description
901	00	oFF	Off, dimmed to 0% [default setting]
902	01	HLd	Hold Last Look, retains last DMX level
903	02	PrE	Preset, Standalone preset level
904	03	FuL	Full on (100%)

**Note:** Upon loss of valid DMX, setting 904 will initiate an instant change in the light output from the DMX setting to FULL ON (100%) When this is done, after 2 sec, the display will change the [HUNDREDS] digit to [P], asking for confirmation of personality change. This is confirmed with a press of [ONES] button. Pressing any other button reverts back to 90X series display so that modification cannot be made.

Once confirmation is made, the display blinks and shows new Absence of DMX setting (oFF, HLd, PrE, FuL) for 4 seconds, then goes to current mode display.

## Locked State

When in Locked State, programming buttons will have no affect until they are unlocked. Note, the default state from the factory is unlocked.

**To Lock (or Unlock) the buttons, perform the following button sequence:**

Wait a few seconds until the display goes blank,

- 1) Press and hold the [ONES] button,
- 2) Press and hold the [HUNDREDS] button,
- 3) Release the [ONES] button,
- 4) Release the [HUNDREDS] button.
- 5) Display will blink and show Loc (or unL) for 4 sec and then go to current mode display.

## High End / Low End Trim Settings

Setting a High End Trim and Low End Trim settings will establish a fixture's maximum output (High End Trim) and minimum output levels (Low End Trim). These settings may be needed in instances where uniform output is needed to light a space but the fixtures are installed at different heights from the floor and are controlled by the same control zone or channel.

### To Display High and Low End Trim Settings

To see the Trim setting values, press and hold the 1's button anytime after the parameter sequence gets started. The trim settings will be displayed after the Personality parameter.

### To Return the High and Low End Trim Setting to Default

The High End and Low End Trim Settings can be set to default by powering up the fixture with the [TENS] and [ONES] buttons held down (after their release the fixture will display all power up settings).

### To Set High and Low End Trim Settings

The unit works off a 60-second timer when the fixture's DMX address is set to 513. Therefore, you must complete the settings within 60 seconds of entering the programming state (Steps 2 through 5 as described below). This timer is set up to ensure that the high and low trims cannot be set inadvertently during product set up.

**To enable the timer to set the High End Setting:**

- 1) Set the DMX address to "513". See "[DMX Mode - Addressing](#)" on page 9.
- 2) Press and hold the [HUNDREDS] button.
- 3) Press and hold the [TENS] button.
- 4) Release the [HUNDREDS] button.
- 5) Release and hold the [TENS] button.
- 6) Set the High End Trim. The value must be between 30 to 99. High End Trim 'scales' the input DMX Level. It also applies to the Preset Level and Loss of DMX (Preset)
- 7) After setting High End Trim setting, let unit stand for approximately one minute - after last button press - to save setting.

**To enable the timer to set the Low End Setting:**

- 1) Set the DMX address to "513". See "[DMX Mode - Addressing](#)" on page 9.
- 2) Press and hold the [TENS] button.
- 3) Press and hold the [ONES] button.
- 4) Release the [TENS] button.
- 5) Release and hold the [ONES] button.
- 6) Set the Low End Trim. The value must be between 00 to 29. Low End Trim 'scales' the input DMX Level. It also applies to the Preset Level and Loss of DMX (Preset).
- 7) After setting Low End Trim setting, let unit stand for approximately one minute - after last button press - to save setting.

## Dimming Curve

The CDR150 DMX Model will replicate one of three programmed dimming curves replicating linear and incandescent dimming.

Address Setting	RDM	Display	Description
601	0	P01	Linear
602	1	P02	Incandescent Fade 1 (default)
603	2	P03	Incandescent Fade 2 (fast bottom)

Once the address setting is selected, the luminaire will display P01, 02, or 03. Press and release the "ones" button a second time to confirm selection.

## DMX Termination

The CDR150 DMX model is supplied with a programmable DMX terminator built into the luminaire. In a DMX system it is recommended that the luminaire that is at the end of the DMX Daisy-chain is terminated using a 120 ohm resistor which the CDR150 luminaire offers in the settings.

Address Setting	RDM	Display	Description
998	0	---	Termination On
999	1	----	Termination Off (default)

## Common Problems - DMX Troubleshooting

### About DMX512A/RDM Standards

DMX512A (DIGITAL MULTIPLEX) is a standard for digital communication networks that are commonly used to control architectural and stage lighting. The ANSI standard of E1.11 employs a differential signal at its physical layer in conjunction with a variable size packet based communication protocol. The DMX512 standard requirements are:

- Maximum length: 1000 feet
- Wiring type recommended: Belden 9842, 9729,9829, Proplex, Cat5 UTP/STP as noted earlier in this install guide. A DMX network is only as good as its cable.
- Maximum units per bus: 32 (20 RDM devices) - breaking your DMX512 network links and units per data link into smaller segments is always more desirable
- 120 ohm termination at the end of each run, if a DMX512 network is not terminated, the DMX signal arrives at the far end of the chain and is "reflected" back up the line to the transmitter, also note that "over terminating" a DMX512 network is just as bad as this will overload the driver circuit. or recommended termination guidelines.
- All Devices in a DMX512 system must be connected in a "daisy chain" fashion and should never be run in a "WYE/2-fer" fashion. Utilization of DMX splitters and networked devices is always recommended when long runs or multiple DMX LANs are needed for One or more DMX networks. DMX splitters Permit a star layout without breaking the rules. Each output of the splitter is driving a new DMX512 link on the network. These generally have one (1) DMX input and multiple outputs. Please know that a repeater will be needed for each DMX universe.

### Common Data Issues with DMX Networks

- Too many devices on the line (Maximum units per bus: 32 DMX or 20 RDM devices)
- Improper termination on the line.
- DMX can "sometimes work" with the Data - (minus) missing.
- If a DMX splitter "cleans up" an issue check the system for ground loops.