



Installation Guide/Owner's Manual

Technical Support: 313-259-6400, Press 5

1.0	Scope	2
2.0	Owner/User Responsibility	2
3.0	Safety & Important Information	2-3
4.0	Standards & Compliance	3
5.0	Electrical Requirements	4
5.1	Electrical Specification	4
6.0	Dimming Control Characteristics	4
7.0	Before You Begin	4-5
8.0	System Overview	5-6
9.0	Cabinet Installation	7-9
10.0	Filter Installation	10
10.1	Dimensions: RFI-3100D	10
10.2	Dimensions: RFI-4100D	11
10.3	Typical Mounting	12
10.4	Input Requirements	13
10.5	Channel Connections Table	13
10.6	Filter Mounting and Cabling	13
11.0	Downlight Fixture Installation	14-15
12.1	Linear Fixture Installation: Grid	16-21
12.2	Linear Fixture Installation: New Construction	22-23
12.3	Cove Fixture Installation	24-25
12.4	Undercabinet Fixture Installation	26-27
13.0	Scenic Panel Installation	28-29
14.0	Inverter Connections	30
15.0	Compatible 0-10V Dimmers & Controls	30
16.0	System Wiring/Examples	31-33
17.0	Troubleshooting	34
18.0	User Notes	35-36



INSTALLATION GUIDE/OWNER'S MANUAL

1.0 SCOPE

The KIRLIN SmartLED™ system is intended for installation and use with an MRI system. The system includes a SmartLED™ MRI Cabinet, SmartLED™ Driver Module, SmartLED™ Filter, and SmartLED™ Luminaire (sold separately) that work in harmony to provide a quality lighting experience.

This manual provides general installation, use, and application guidelines. Specifications are subject to change without prior notice.

This lighting system is Class 2 low voltage and can be installed in plenum or non-plenum locations in accordance with required local, state, provincial, country and NEC/CEC regulations. Only output cables marked with "CMP" may be installed in plenum locations.

2.0 OWNER/USER RESPONSIBILITY

It is the responsibility of the contractor, installer, buyer, owner and user to install, maintain, and operate the KIRLIN SmartLED™ System in accordance with all applicable laws, regulations and local electrical safety authority requirements.

This product is only to be installed by a qualified electrician.

IMPORTANT!

Thoroughly read the entire instructions guide and warnings before beginning installation. The instructions provided are intended to assist in the installation and service of the corresponding product. Failure to follow the instructions may result in product malfunction, damage, injury or death. Contact your Kirlin service representative for replacement parts and procedures.

3.0 SAFETY & IMPORTANT INFORMATION



Risk of fire or electric shock. Ensure all power is turned off during installation process. Refer to wiring diagrams to prevent damages and malfunctions.



The SmartLED™ driver module may only be connected and installed by a qualified electrician. This system requires knowledge of luminaires and electrical systems. If not qualified, do not attempt installation or maintenance. All applicable regulations, legislation, and building codes must be observed. Incorrect installation of the LED driver can cause irreparable damage to the SmartLED™ driver module, filter and the connected LEDs.

Pay attention when connecting the LEDs: polarity reversal results in no light output and often damages the LEDs and/or filter.



Connecting fixtures with power **ON** will "hot plug" the LEDs and cause damage.



Must use Kirlin supplied driver modules, RF filters, and light fixtures to maintain warranty.



Requires #16 AWG minimum twisted pair for linear fixtures and #18 AWG minimum twisted pair shielded wire for all other driver module and filter output wiring. All system wiring must have a UL electrical rating of 300V.

3.0 SAFETY & IMPORTANT INFORMATION (Continued)



Wire shields INSIDE room **MUST** be connected to room shield grounding bar; **DO NOT CONNECT** wire shields to the fixtures.



Wire shields OUTSIDE room **MUST** be connected to driver module GND; **DO NOT CONNECT** wire shields to room shield or to filter.



Unused filter channel output wires should be individually capped.



The maximum total wire length from the module to filter and filter to fixture(s) is 50 feet.



To prevent wiring damage or abrasion, do not expose wiring to edges metal or other sharp objects.

4.0 STANDARDS & COMPLIANCE

This Low Voltage Luminaire complies with UL 2108	
UL Listed, Class P, Class 2	UL 1310 UL 8750
Conducted emissions	FCC title 47 CFR part 15 class B
Radiated emissions	FCC title 47 CFR part 15 class B
Electrostatic discharge	EN 61000-4-2
0-10V	IES/EN 60929 annex E NOTE: From 0.6V to 10V drivers comply with IEC/EN 60929 annex E. Below 0.6V SmartLED™ driver modules comply with ABL 0-10V Design Spec v1.2 enabling standby mode.
Surge protection	ANSI 62.41 1991 category B1: 2.5kV DM, 2.5kV CM @ 30 Ohm 0-10V input 0.5kv DM, 1kV CM surge
Restriction of hazardous substances	RoHS3 (Directives 2011/65/EU-2015/863/EU)

5.0 ELECTRICAL REQUIREMENTS (Per Installed DVR Module)

Nominal input voltage range AC	120 - 277V
Absolute input voltage range AC	108 - 306V
Input frequency range	50 - 60Hz
Maximum wattage	50W (DVR-XXXXA) 75W (DVR-XXXXB)
Efficiency at full load	85%
Power factor at full load	> 0.95
THD at full load	< 20%
Maximum inrush current	< 200mA ² s @ 120V / 60Hz < 200mA ² s @ 277V / 60Hz
Surge protection	2kV differential mode (DM) 2kV common mode (CM)
Maximum standby power	0.5W

5.1 ELECTRICAL SPECIFICATION (Per Filter Channel)

Electrical Specifications			
Voltage		60	Vdc max.
Current		3	Amps max.
Turn on delay	Time required for stabilization of all outputs	2	Sec. typical

6.0 DIMMING CONTROL CHARACTERISTICS

Control protocol	0-10V
Dimming range	100% - 0.4%, off
Dimming curve	Linear

7.0 BEFORE YOU BEGIN

Before You Begin

- Shut **OFF** power at fuse box or circuit breaker before installation, inspection or removal.
- Properly ground cabinet to main earth ground.
- To reduce the risk of fire or electric shock, **NEVER** interconnect or short output terminations.

7.0 BEFORE YOU BEGIN (Continued)

Electrical Requirements

- This driver cabinet is intended for connection to a 20A branch circuit and an appropriate disconnect device shall be provided as part of the building installation.
- All secondary output circuits are class 2 low voltage.

Mounting and Environmental Requirements

- This driver cabinet is rated for dry locations only and is designed to be wall mounted.
- This driver cabinet is rated for operation at a maximum ambient temperature of 25°C.
- Allow sufficient spacing around driver cabinet for convection air flow.

Environmental Conditions

Enclosure is intended for use in ambient temperature of 25°C max.

Module operating ambient temperature (Ta) range	-20°C to +40°C
Filter operating ambient temperature (Ta) range	-10°C to +60°C
Driver acoustic noise - steady state	< 24dBa (Class A)
All components	Dry location only

8.0 SYSTEM OVERVIEW: SMART LED™ SYSTEM

MRI-CABNT: Driver Cabinet

- 24"x 18"x 4.5" carbon steel enclosure supports up to **8 SmartLED™ Driver Modules**.
- Wall mounted enclosure fabricated from 16 gauge steel. Includes flat, removable cover fastened with plated steel screws. Cover design permits easy removal without extracting cover screws. Mounting holes on back of cabinet. Removable knockouts on all four sides.
- Certifications and Compliance: NEMA 1 rating, UL Listed.



8.0 SYSTEM OVERVIEW: SMART LED™ SYSTEM (Continued)

DVR Driver Module

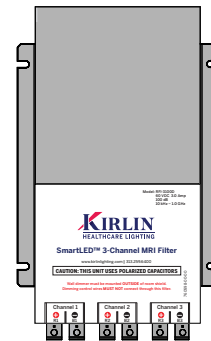
Driver module provides power and 0-10V dimming control for SmartLED luminaires. See luminaire specification sheets for exact DVR modules that are compatible with specific fixtures.



SmartLED™ RFI-3100D Filter

For use with SmartLED™ MRI Luminaires and Driver Modules

- Allows lighting power to be delivered into the MRI suite.
- Removes RFI/EMI from electrical circuits entering the MRI suite.
- Fewer filters required. Each RFI-3100D filters three channels (circuits).



DC MEDICAL RFI (3 CHANNEL) FILTER

SmartLED™ RFI-4100D Filter

For use with SmartLED™ MRI Luminaires and Driver Modules

- Allows lighting power to be delivered into the MRI suite.
- Removes RFI/EMI from electrical circuits entering the MRI suite.
- Fewer filters required. Each RFI-4100D filters four channels (circuits).

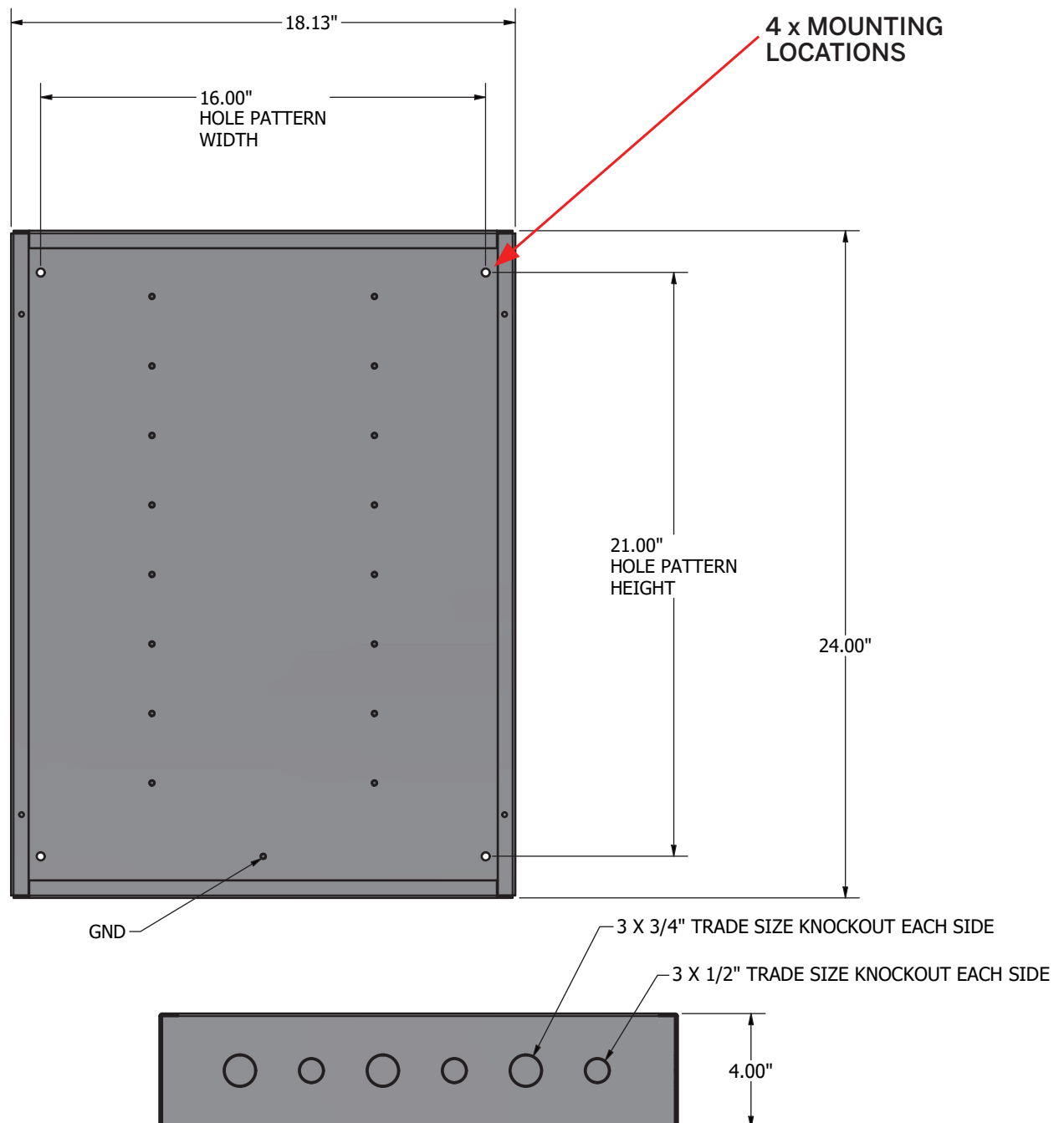


DC MEDICAL RFI (4 CHANNEL) FILTER

9.0 CABINET INSTALLATION

Mounting

1. Loosen the 4 screws that mount the cover panel; lift cover to align key hole slots, remove and set aside.
2. Place the enclosure in the desired location and mount using the 4 designated mounting locations.
3. After system installation is complete, replace the cover panel and tighten the 4 mounting screws.



9.0 CABINET INSTALLATION (Continued)

Install Modules

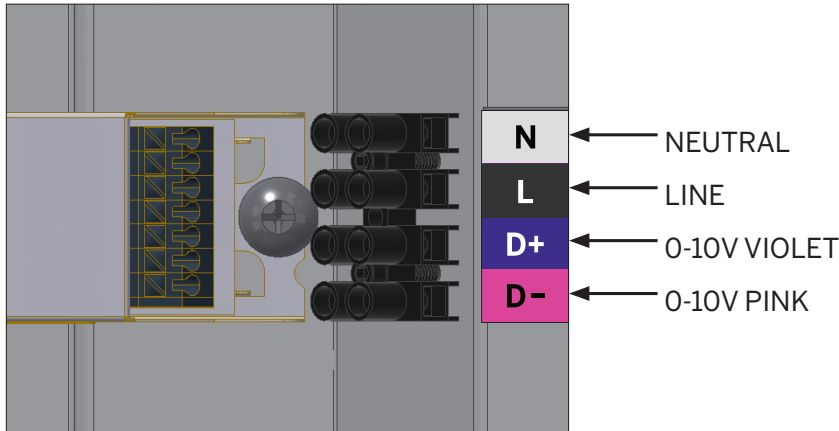
1. Each module is mounted in the cabinet via two threaded studs. Remove the keps-nuts installed on each stud, insert module, and replace both keps-nuts.
2. Repeat for each module to be installed.



9.0 CABINET INSTALLATION (Continued)

Line Voltage Input Connections

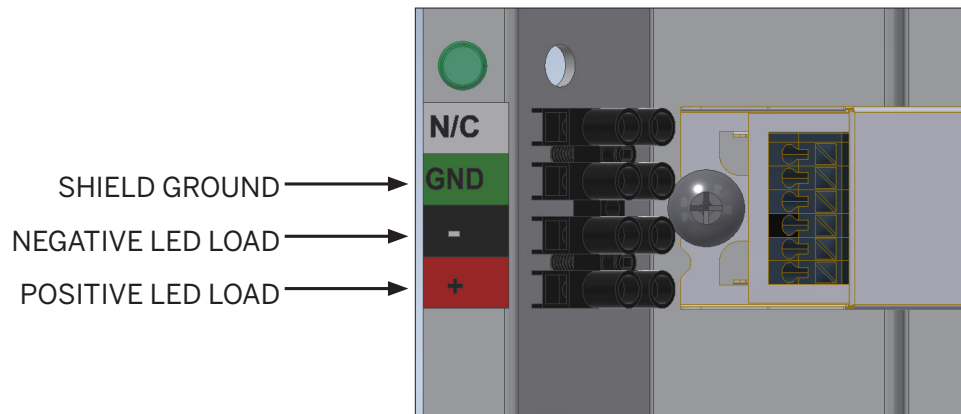
NOTE: Each enclosure ships with a jumper wire kit to allow fast & easy installation. The kit allows installer to customize dimming & switching zones by daisy chaining modules as needed. All system wiring must have a UL electrical rating of 300V minimum.



1. Install the AC line through the desired knock-out in the cabinet.
2. Install the 0-10V dimming wires in the desired knock-out in the cabinet.
3. Connect the AC Line and neutral wires to the terminal block as shown.
4. Connect the AC Ground wire to the supplied green ground wire located in the cabinet.
5. Connect the 0-10V violet and pink dimming wires.

Output Connections

NOTE: Requires #18 AWG minimum twisted pair shielded wire. All system wiring must have a UL electrical rating of 300V minimum. See section 16.0 for cabling recommendations.

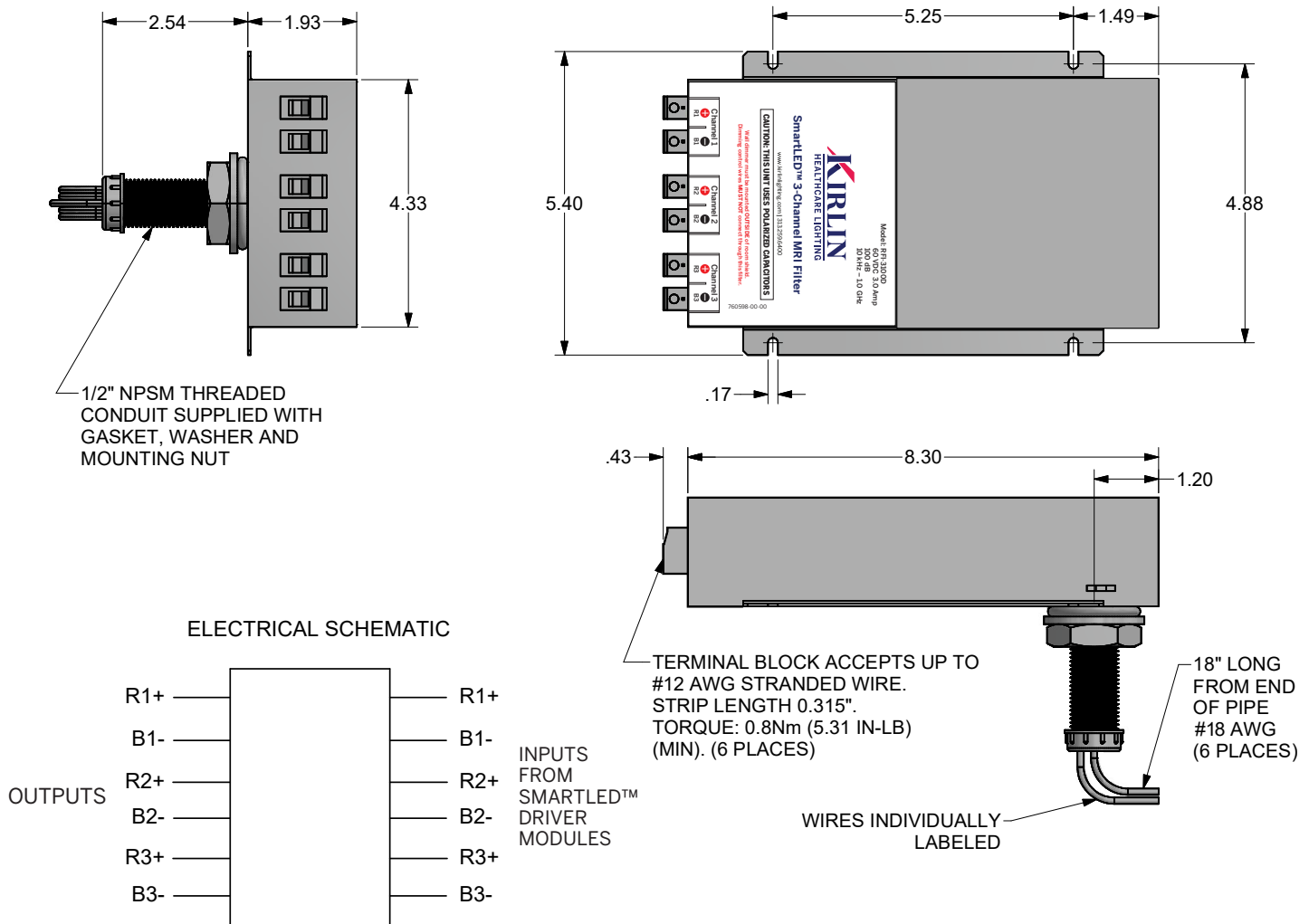


1. Install the LED load wires through the desired knock-out in the cabinet.
2. Connect the twisted shielded pair wires to the terminal block as shown. Each driver has a load description value that indicates the fixture load it will support. **DO NOT** connect shield wire from driver cabinet to room shield ground bar or filter.

10.0 FILTER INSTALLATION

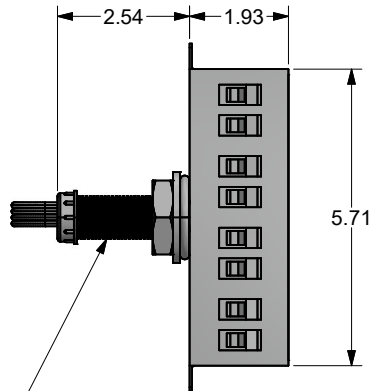
The filter is installed on the exterior of the room shield. All wiring between driver modules and fixtures must pass through filter.

10.1 DIMENSIONS: RFI-3100D (3-CHANNEL FILTER)

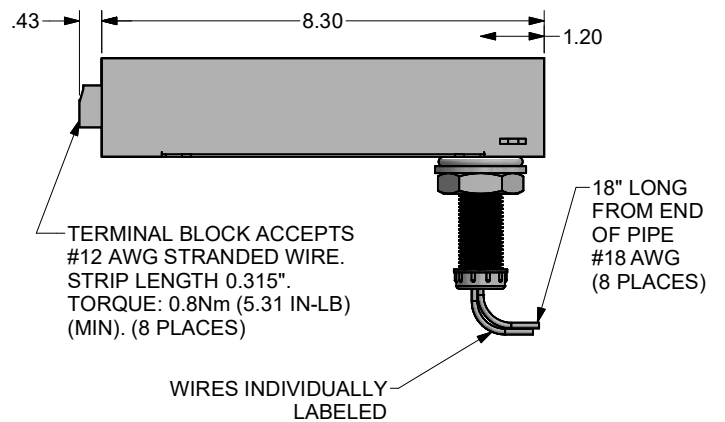
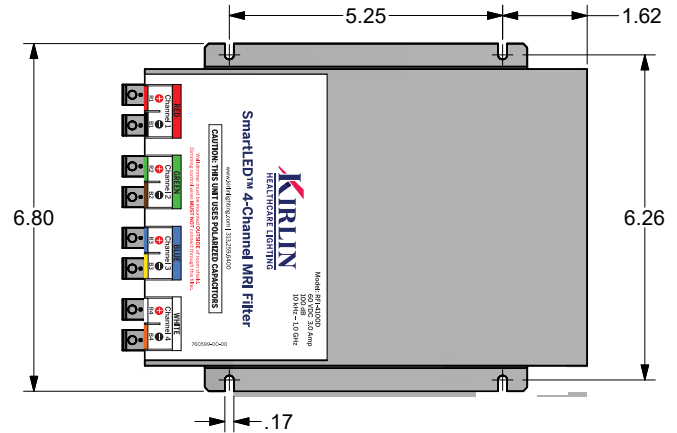


10.0 FILTER INSTALLATION (Continued)

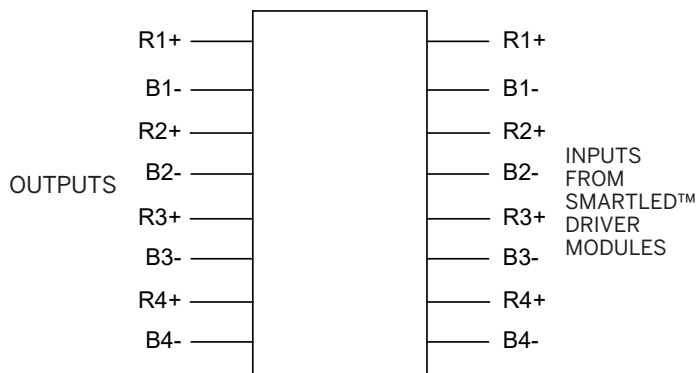
10.2 DIMENSIONS: RFI-4100D (4-CHANNEL FILTER)



1/2" NPSM THREADED CONDUIT SUPPLIED WITH GASKET, WASHER AND MOUNTING NUT

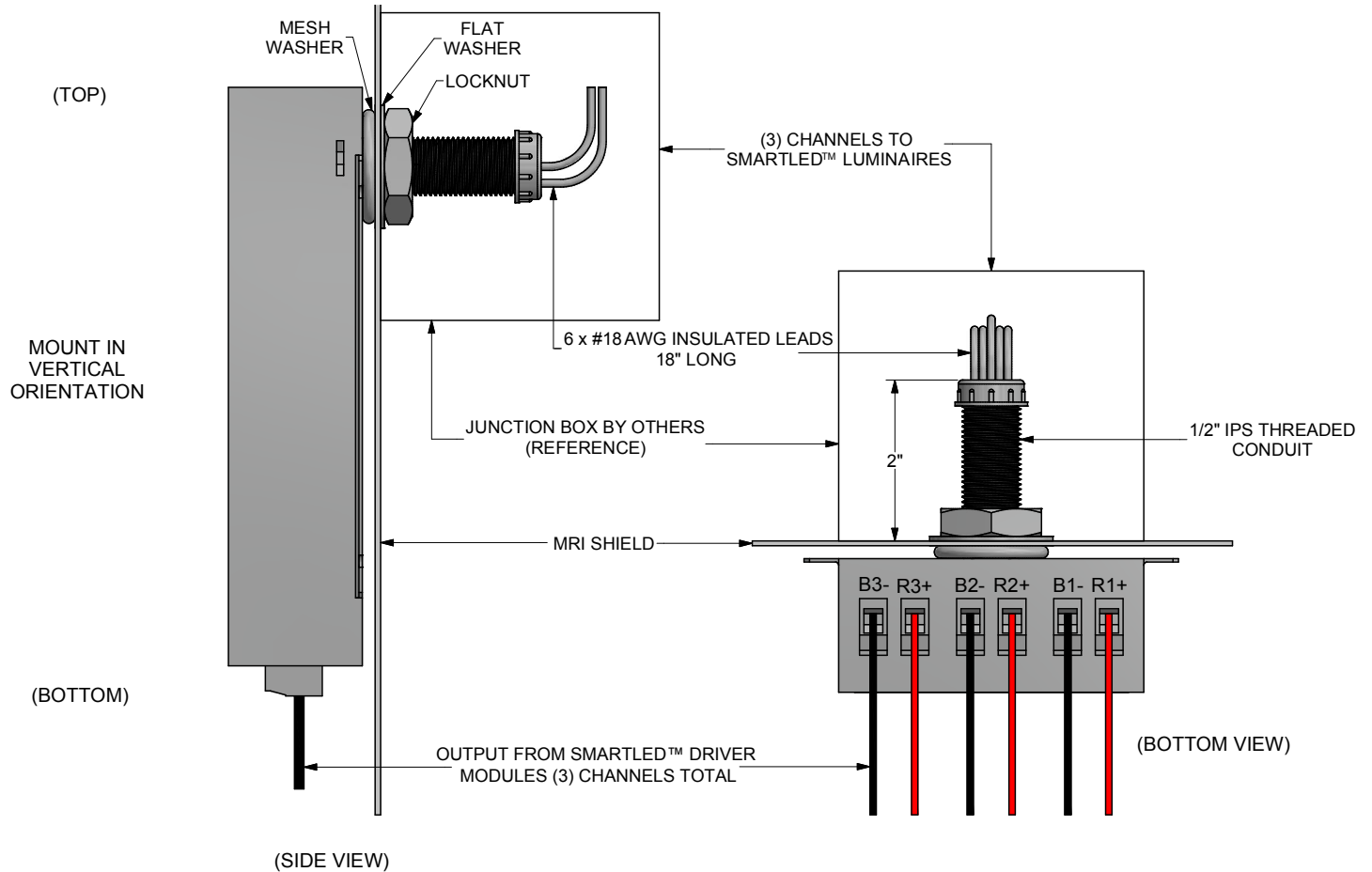


ELECTRICAL SCHEMATIC



10.0 FILTER INSTALLATION (Continued)

10.3 TYPICAL MOUNTING EXAMPLE: RFI-3100D



10.0 FILTER INSTALLATION (Continued)

10.4 INPUT REQUIREMENTS

- **WARNING: DO NOT** connect shield wire from driver cabinet to room shield ground bar or filter.
- This filter unit is intended for connection to a branch circuit provided from a Kirlin SmartLED™ MRI Driver Cabinet **ONLY. DO NOT** connect this filter to any other equipment or damage will occur.
- When connecting SmartLED™ filter, observe '+' and '-' polarity connections to prevent damage to filter.
- All connections in/out of filter are Class 2 low voltage.

10.5 CHANNEL CONNECTIONS TABLE

Model		Channel	Polarity	Wire Color	Wire Marking
RFI-4100D	RFI-3100D	1	+	Red	R1+
			-	Black	B1-
		2	+	Red	R2+
			-	Black	B2-
		3	+	Red	R3+
			-	Black	B3-
		4	+	Red	R4+
			-	Black	B4-

10.6 FILTER MOUNTING and CABLING

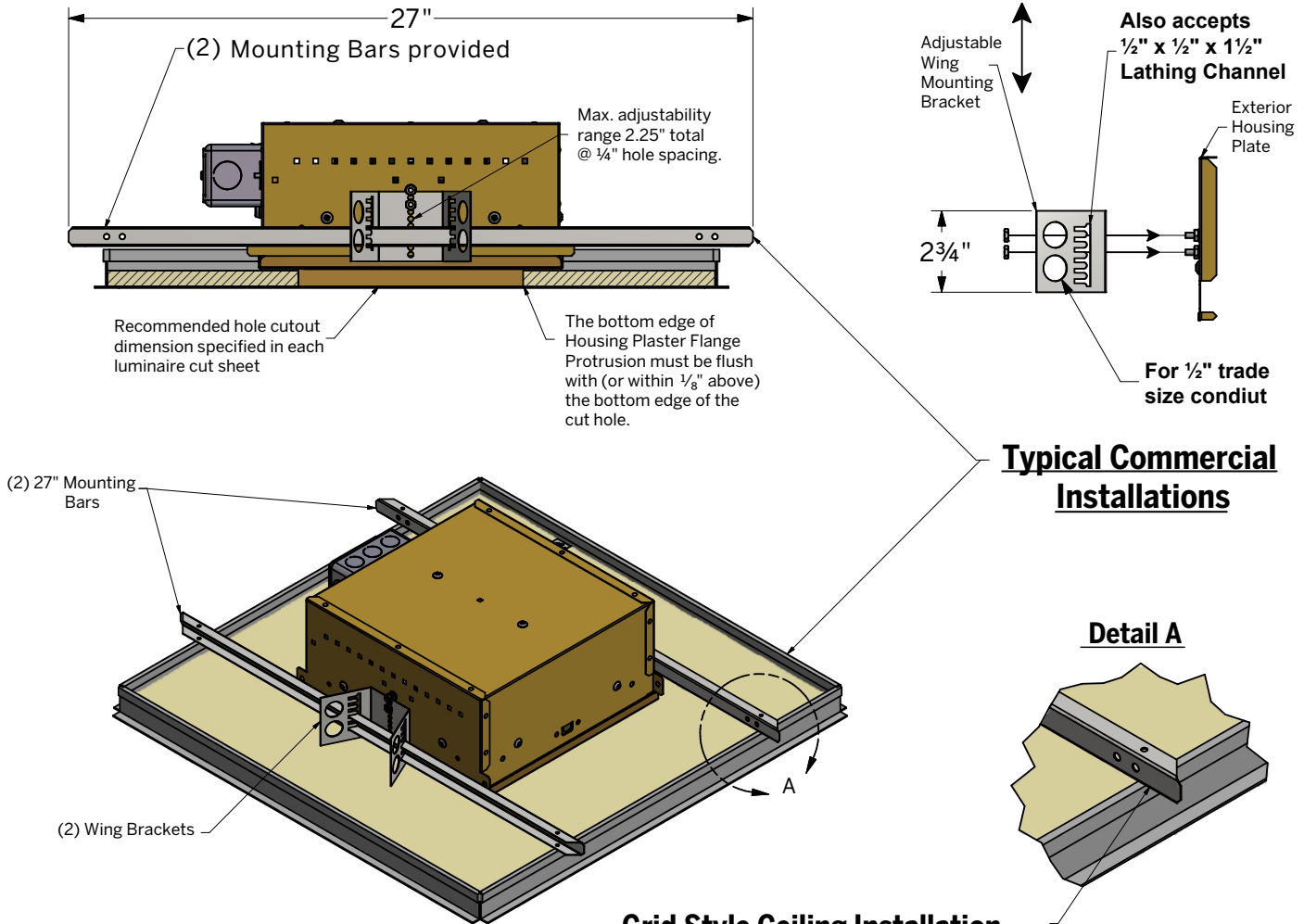
1. Mount filter on exterior of room shield with wiring nipple passing through wall shielding.
2. Install nut and washer on wiring nipple to secure filter.

Output cabling must be #18 AWG (minimum) twisted pair shielded wire to minimize cross talk between channels and minimize Electromagnetic Interference (EMI). See section 16.0 for output wire requirements and recommendations.

11.0 DOWNLIGHT FIXTURE INSTALLATION

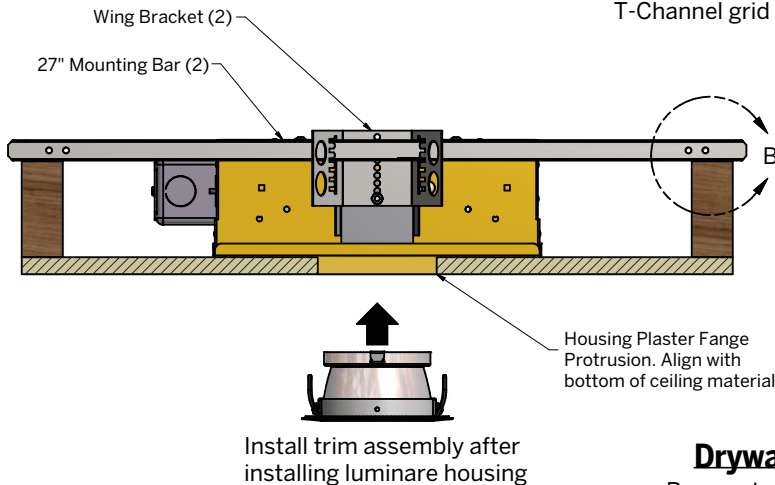
Standard Mounting Hardware Installation Instructions

(2) 27" Mounting Bars & (2) Wing Brackets with combined vertical adjustability of 4.0"



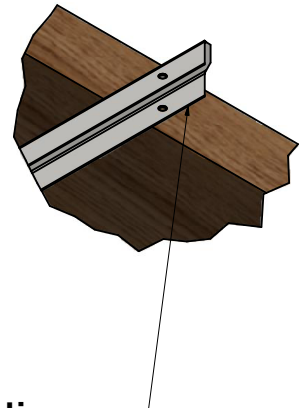
Grid Style Ceiling Installation

Be sure to adjust vertical position of mounting bars within the bracket so that they rest on adjacent T-Channel grid (secure to grid as required).



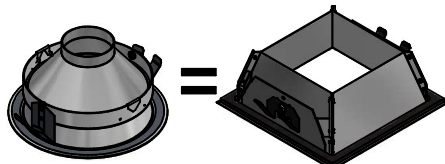
Drywall/Plaster Ceiling Installation

Be sure to adjust vertical position of mounting bars within the bracket so that they rest on adjacent ceiling joists (secure to joists as required).

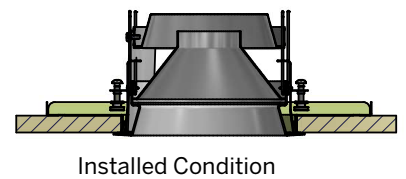
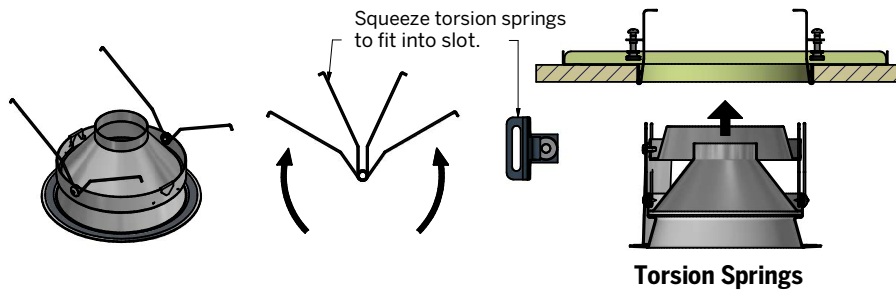
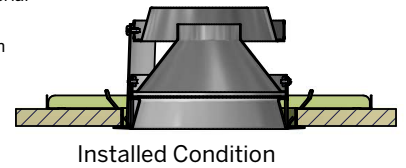
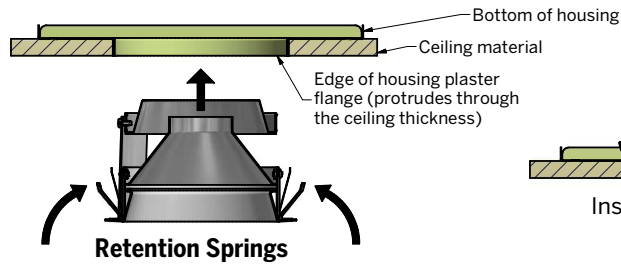


11.0 DOWNLIGHT FIXTURE INSTALLATION (Continued)

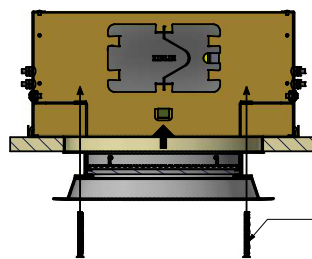
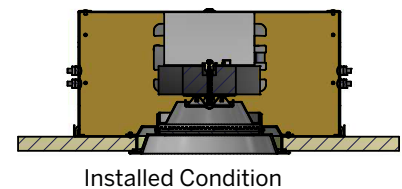
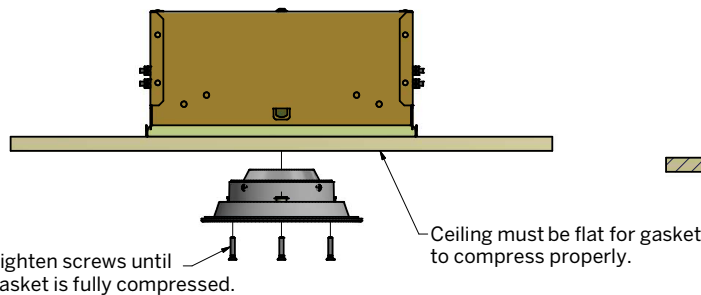
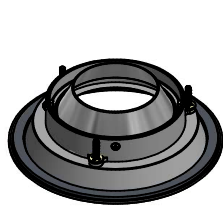
Trim Installation Guide



All installation methods shown are the same for round trims and square trims.
(Round trims shown for reference)

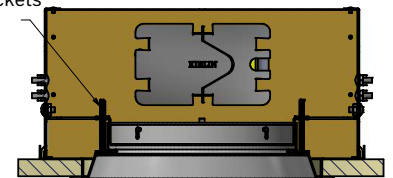


IP65/IP66 Designs

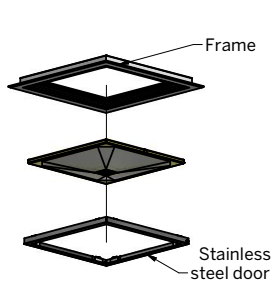


Tamperproof fasteners. Secure trim assembly to brackets inside luminaire housing.

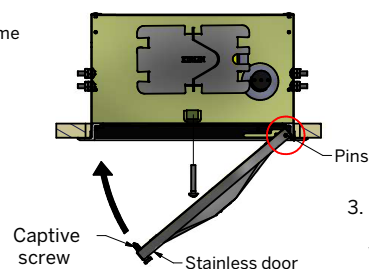
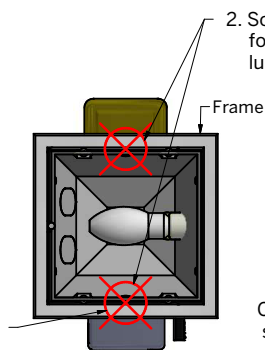
Use provided security key to properly install tamperproof fasteners.



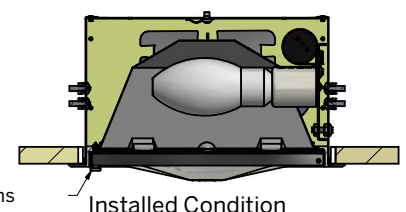
Vandal Designs



1. Screw the frame into housing.



3. Retain door & lens assembly to frame with provided captive door screw.



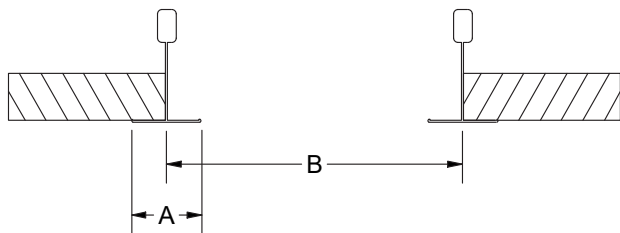
Square K-Door & Lens Designs

12.1 LINEAR FIXTURE INSTALLATION: GRID

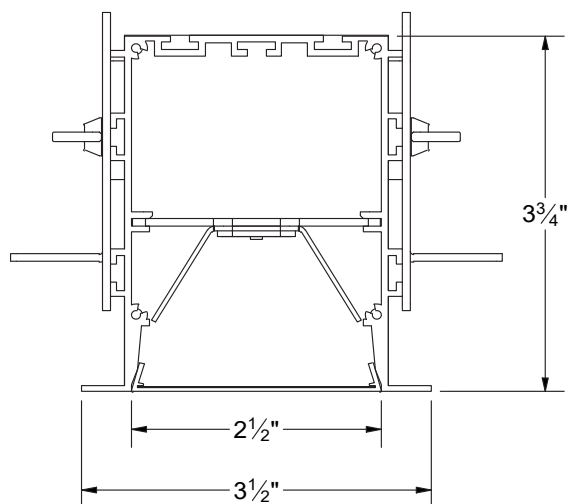
MRL-02SWM (Static White) Installation Instructions

Grid Configuration

Grid Spacing - Width



Grid Size (A)	Grid Width Center to Center (B)
$\frac{9}{16}"$	$3\frac{5}{8}"$
$\frac{15}{16}"$	4"



Housing Size Reference

Grid Spacing - Length

Fixture Length (Actual)	Grid Size (A)	Grid Length on Center
2 FT (23 $\frac{7}{8}"$)	$\frac{9}{16}"$	24"
	$\frac{15}{16}"$	24"
4 FT (47 $\frac{7}{8}"$)	$\frac{9}{16}"$	48"
	$\frac{15}{16}"$	48"
6 FT (71 $\frac{7}{8}"$)	$\frac{9}{16}"$	72"
	$\frac{15}{16}"$	72"
8 FT (95 $\frac{7}{8}"$)	$\frac{9}{16}"$	96"
	$\frac{15}{16}"$	96"
10 FT (119 $\frac{7}{8}"$)	$\frac{9}{16}"$	120"
	$\frac{15}{16}"$	120"
12 FT (143 $\frac{7}{8}"$)	$\frac{9}{16}"$	144"
	$\frac{15}{16}"$	144"

(For lengths longer than 12 FT contact factory)

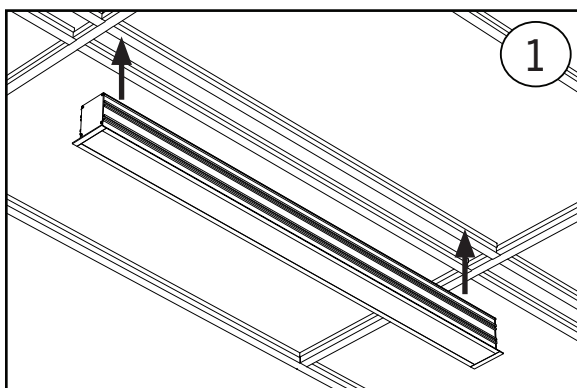
12.1 LINEAR FIXTURE INSTALLATION: GRID (Continued)

Output Cabling to Fixtures

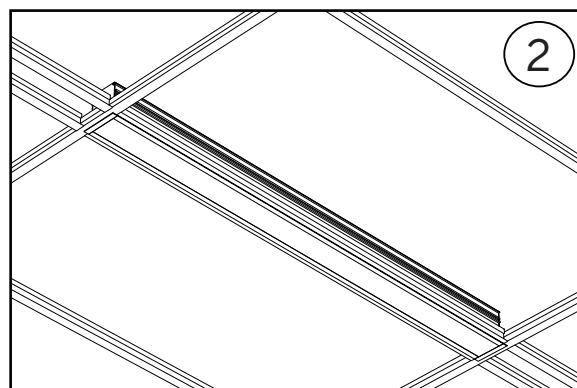
Output cabling must be #18 AWG (minimum) twisted pair shielded wire to minimize cross talk between channels and minimize Electromagnetic Interference (EMI). See section 16.0 for output wire requirements and recommendations.

Grid Installation - From Below

- Installed occupancy side, flange fully visible from below
- For lengths over 4 ft, sections must be joined prior to being placed into ceiling (follow steps on pg. 19).



Prepare ceiling grid to the specified size. Then raise the fixture from below into the ceiling grid opening.

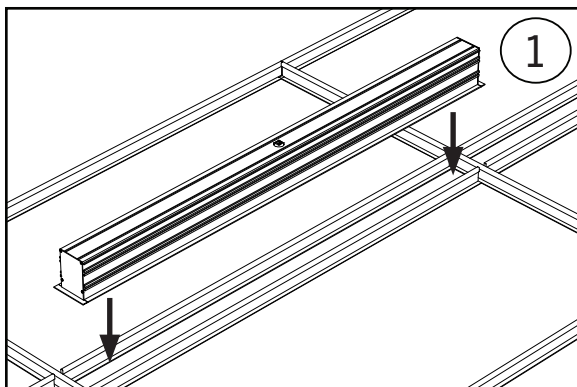


Support fixture from below ensuring trim sits flush against and square to the ceiling grid.

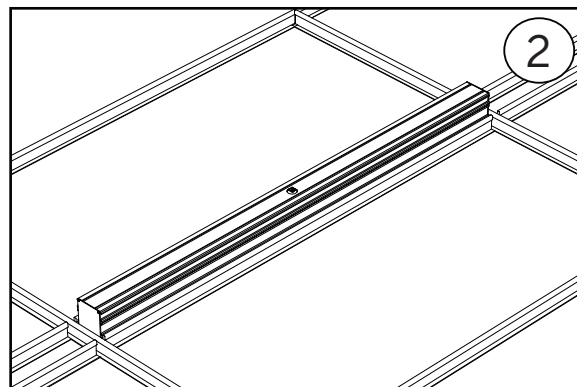
(Removing adjacent ceiling tiles is necessary to install fixture.)

Grid Installation - Drop-In

- Installed plenum side, flange mostly contained behind grid
- For lengths over 4 ft, sections must be joined prior to being placed into ceiling (follow steps on pg. 19).



Prepare ceiling grid to the specified size. Then lower the fixture from above into the ceiling grid opening.

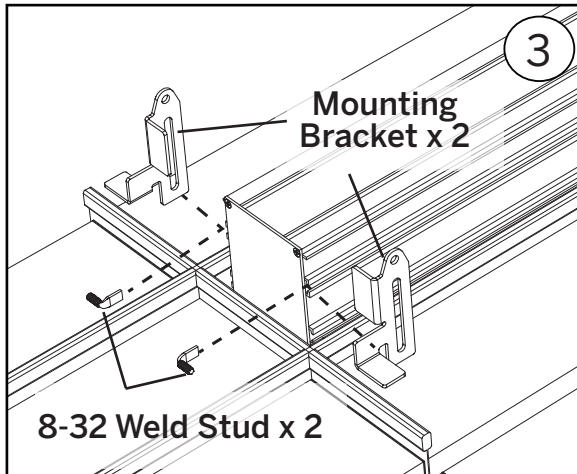


Ensure fixture trim sits flush on top of and square to ceiling grid.

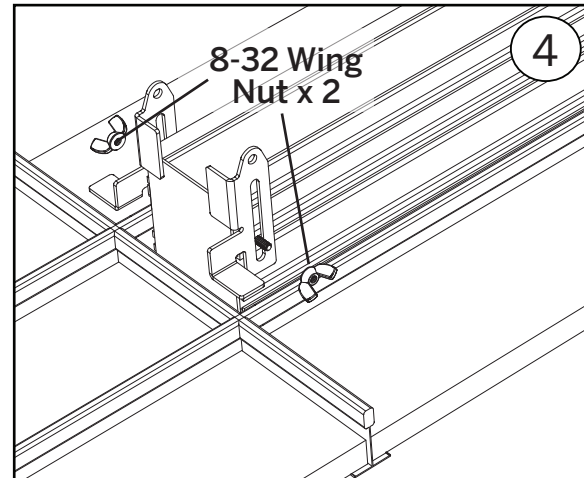
(Removing adjacent ceiling tiles is necessary to install fixture.)

12.1 LINEAR FIXTURE INSTALLATION: GRID (Continued)

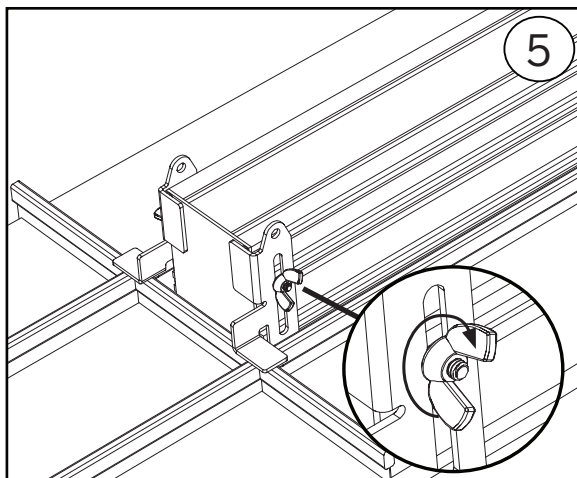
Fixture Bracket Mounting



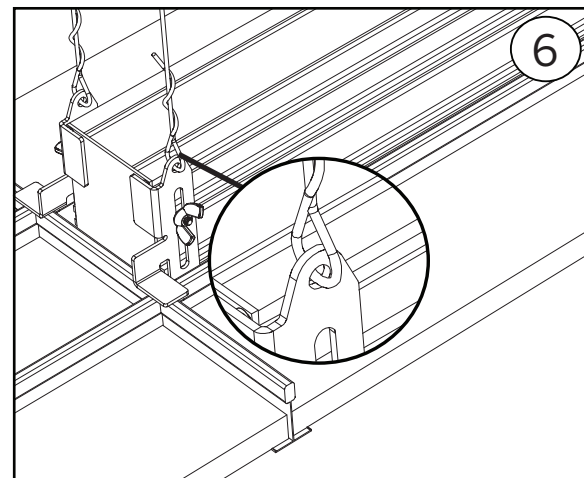
Insert 8-32 weld studs into housing channels (further from trim flange). Then place left and right mounting brackets onto housing with weld stud thread through slot.



Slide mounting bracket flanges against top of ceiling grid. Secure mounting brackets to fixture using 8-32 wing nuts.



With the mounting bracket flanges on top of the ceiling grid, ensure fixture flange sits flush with ceiling substrate. Adjust as necessary and ensure wing nuts are fully tightened.



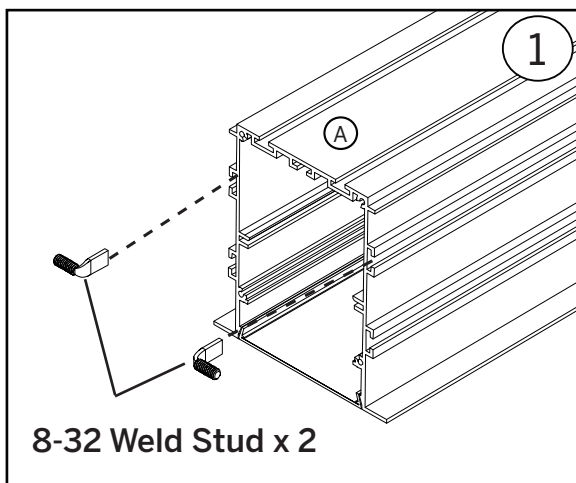
Secure fixture to ceiling above, as shown, using hanger wire (provided by others).

(REPEAT STEPS FOR BOTH ENDS OF FIXTURE)

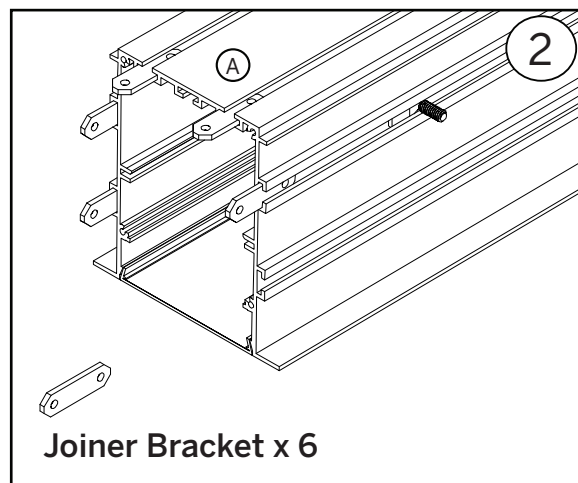
12.1 LINEAR FIXTURE INSTALLATION: GRID (Continued)

Joining Segments Over 4 Foot

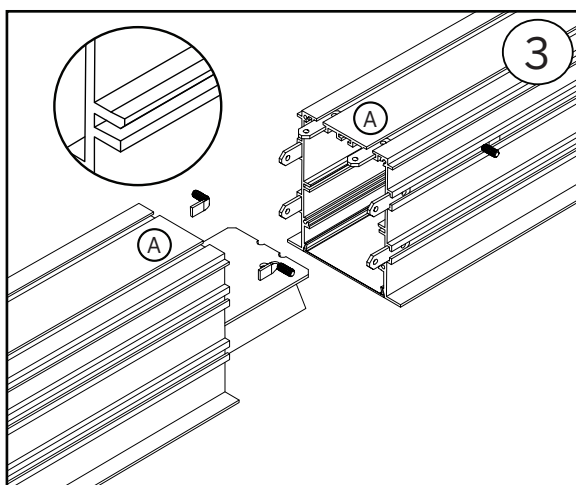
- For lengths over 4 ft, sections must be joined prior to being placed into ceiling.
- Sections shall be joined together matching the letters marked on segments, for example: (A to A) and (B to B).



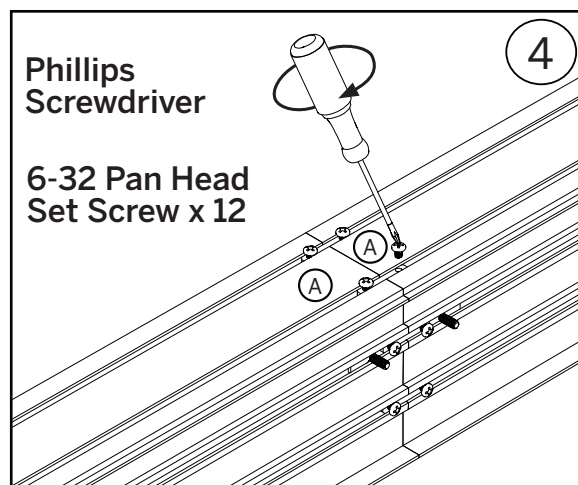
On the first section, slide 8-32 weld studs into the housing channels (further from trim flange).



Insert joiner brackets halfway into all housing channels.



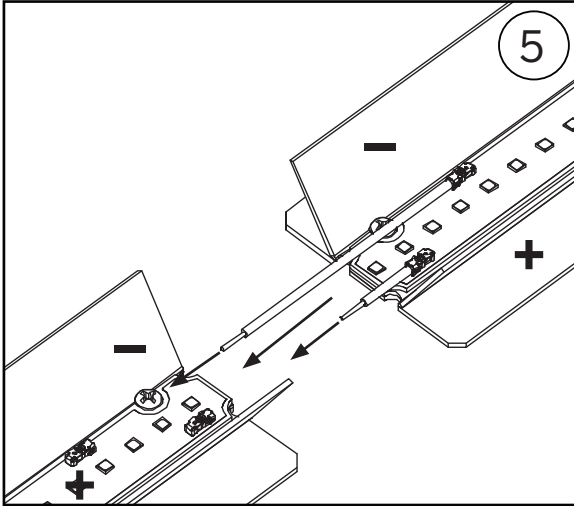
Slide 8-32 weld studs into the second sections housing channels (further from trim flange). Check that the proper housings are being joined (A to A). Then slide the two sections together inserting the LED liner into the interior channel. Slide all 6 joiner brackets into the opposite sections channels.



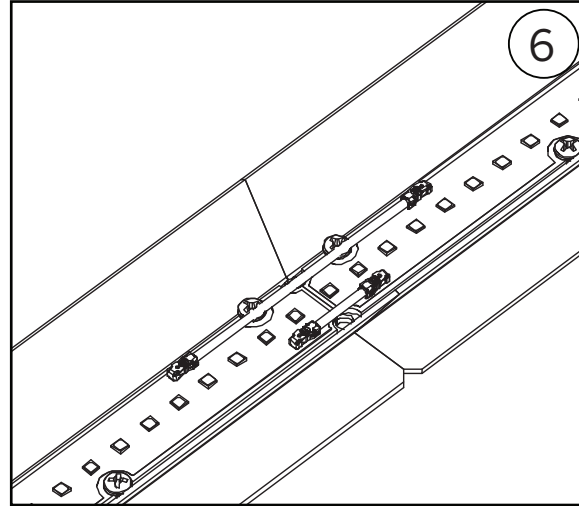
Ensure housing sections and interior LED liners sit flush together. Then check that joiner brackets are centered between both sections. Screw in and tighten pan head set screws into the joiner brackets.

12.1 LINEAR FIXTURE INSTALLATION: GRID (Continued)

Joining Segments Over 4 Foot (Continued)



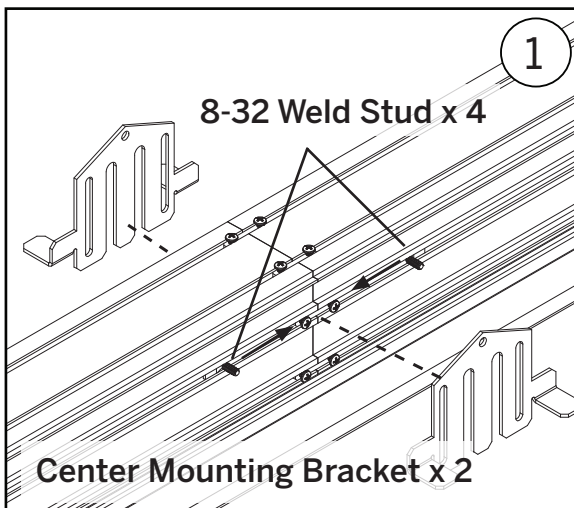
Insert wire into connections on opposite LED board. LED boards are wired in parallel, connect the positive terminals together and the negative terminals together.



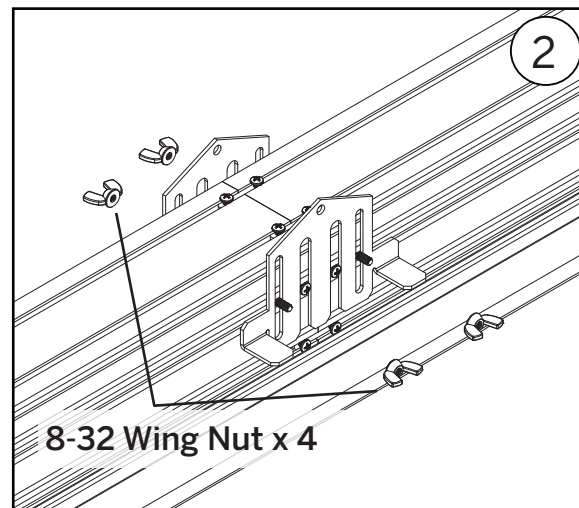
Ensure the proper connections are made and the LED liners are sitting flush together. Wires should not cross

(AFTER SECTIONS ARE JOINED FIXTURE CAN BE INSTALLED INTO CEILING)

Fixture Bracket Mounting: For Segments Over 4 Foot



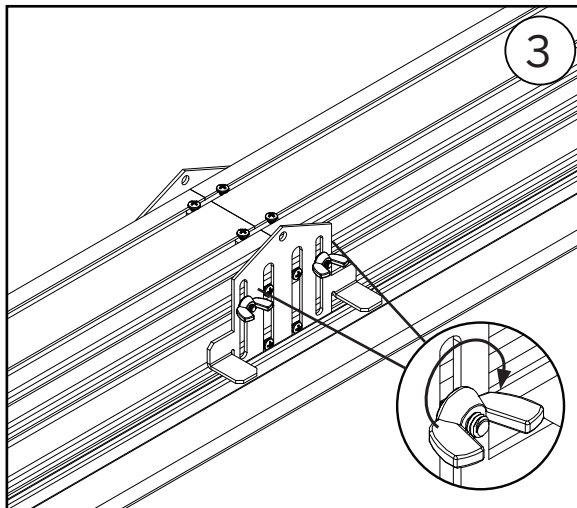
Slide 8-32 weld studs against joiner brackets. Then place center mounting brackets onto housing with weld stud thread through slots.



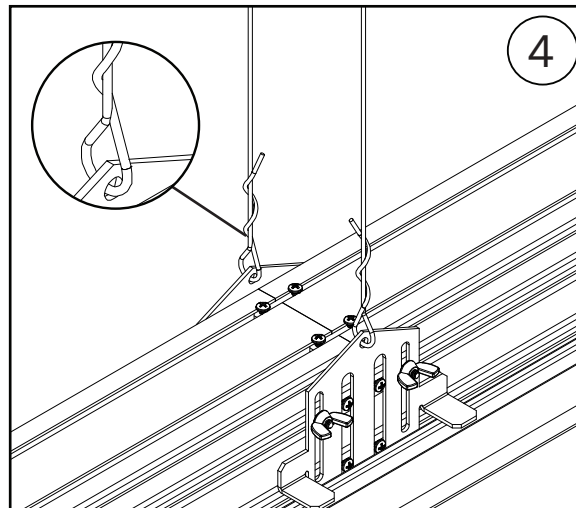
Slide mounting bracket flanges against top of ceiling grid. Secure mounting brackets to fixture using wing nuts.

12.1 LINEAR FIXTURE INSTALLATION:GRID (Continued)

Fixture Bracket Mounting: For Segments Over 4 Foot (Continued)



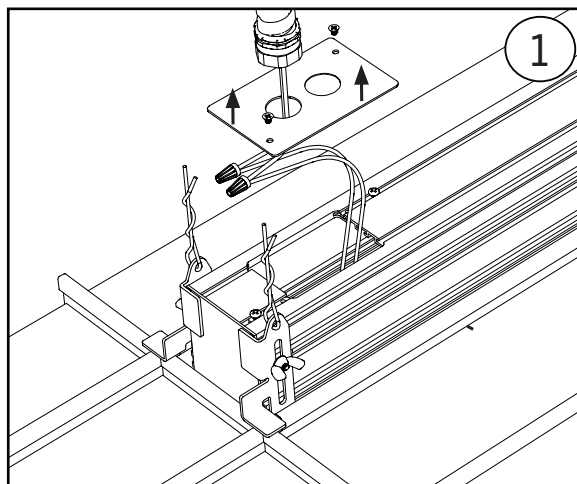
With the mounting bracket flanges on top of the ceiling grid, ensure flange trim sits flush with ceiling substrate. Adjust as necessary and ensure wing nuts are fully tightened.



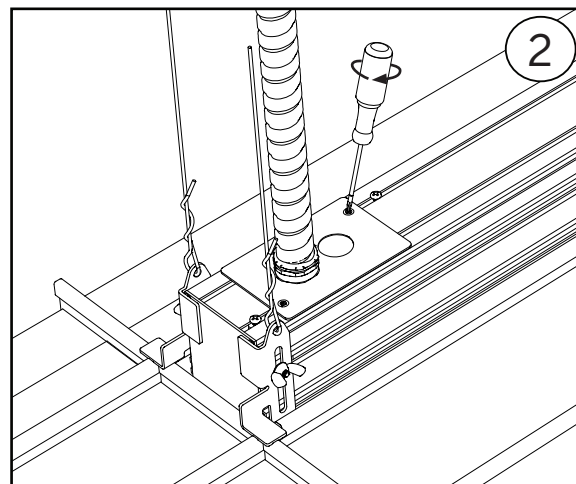
Secure fixture to ceiling above, as shown, using hanger wire (provided by others).

Wiring - MRL-02SWM

POWER MUST BE OFF. DO NOT POWER ON UNTIL SYSTEM IS FULLY WIRED!!



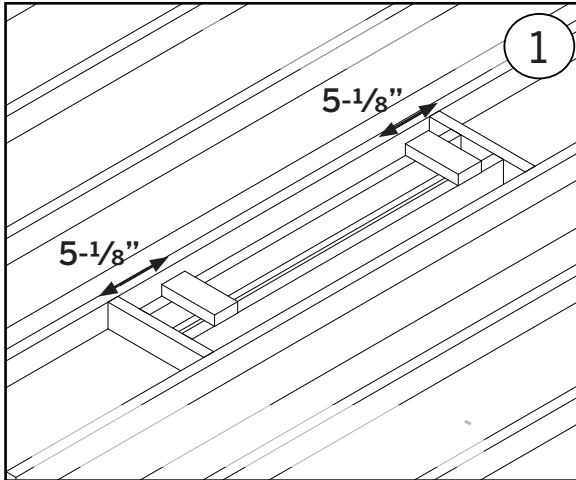
Loosen 6-32 pan head fasteners x 2 to remove wiring cover plate on backside of fixture. Then connect positive and negative wires from filter to fixture. Match wires for two and four foot sections accordingly.



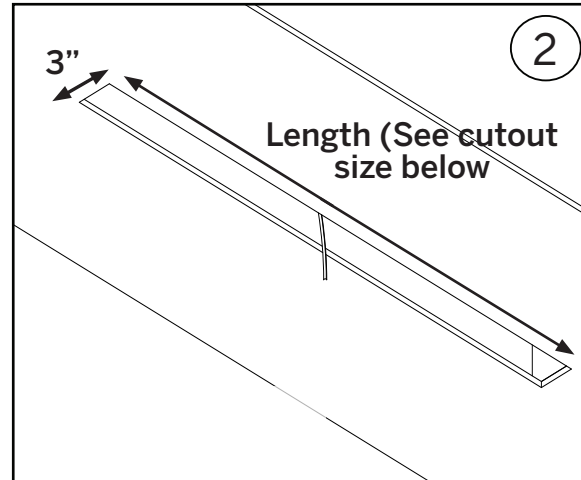
Connect conduit (supplied by others) to cover plate from incoming wires and remount plate to fixture.

12.2 LINEAR FIXTURE INSTALLATION: NEW CONSTRUCTION

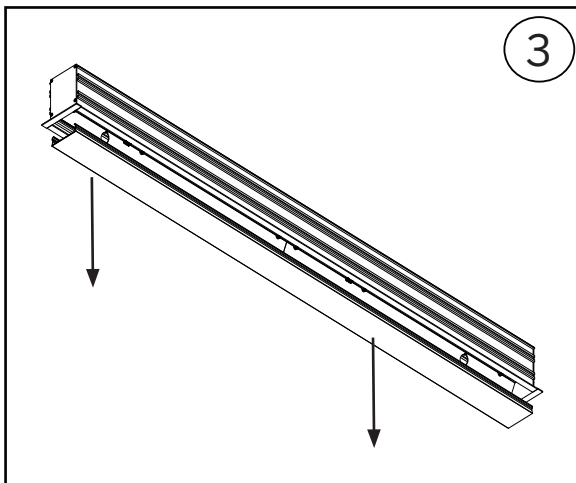
Hard Ceiling/New Construction Configuration



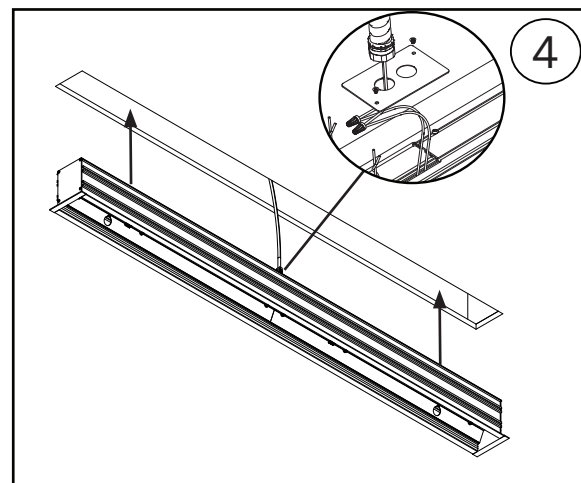
Prepare framing above ceiling. Center of cross members to be $36 \frac{7}{8}$ " apart and $5 \frac{1}{8}$ " from end of cutout on either side. Route shielded CAT 5e cable through framing to allow access from below.



Per fixture length, install drywall with cutout sizes below. For other lengths, consult factory.
 2 FT: $23 \frac{1}{8}$ " x 3"
 4 FT: $47 \frac{1}{8}$ " x 3"
 Ensure wiring and conduit is accessible from below.



Prior to installing fixture, remove lens with included suction cup tool.

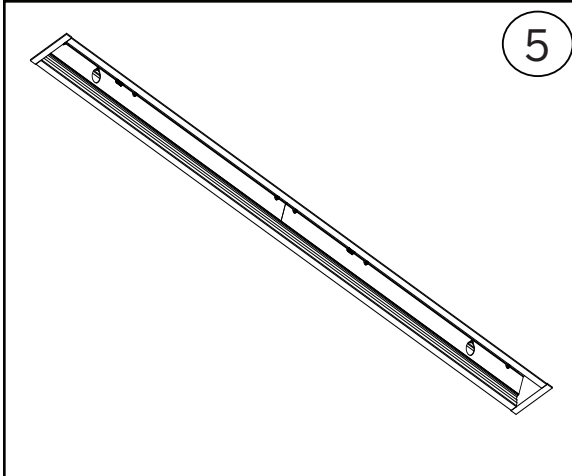


Loosen 6-32 pan head fasteners x 2 to remove wiring cover plate on backside of fixture. Then connect positive and negative wires from filter to fixture. Match wires for two and four foot sections accordingly.

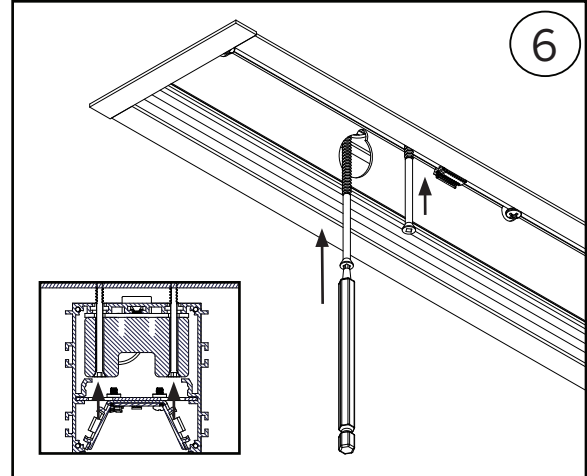
Connect conduit (supplied by others) to cover plate from incoming wires and remount plate to fixture.

12.2 LINEAR FIXTURE INSTALLATION: NEW CONSTRUCTION (Continued)

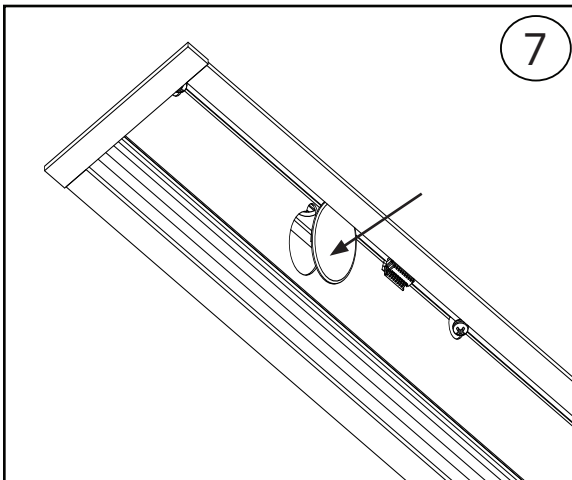
Hard Ceiling/New Construction Configuration



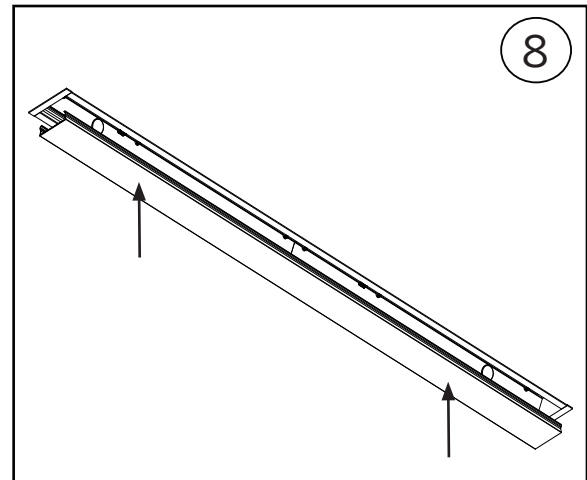
Support fixtures from below, ensuring trim sits flush against ceiling.



Using the included drill bit, install mounting screws into joist through openings in fixture. DO NOT overtighten, otherwise housing may flex.



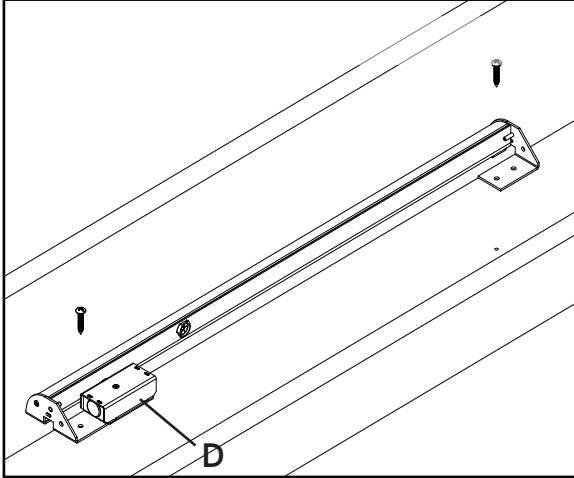
Push included snap-in plugs over each opening in fixture.



Reinstall lens. Ensure lens is fully pressed in along entire length of fixture.

12.3 COVE FIXTURE INSTALLATION

2 Foot Fixture Installation

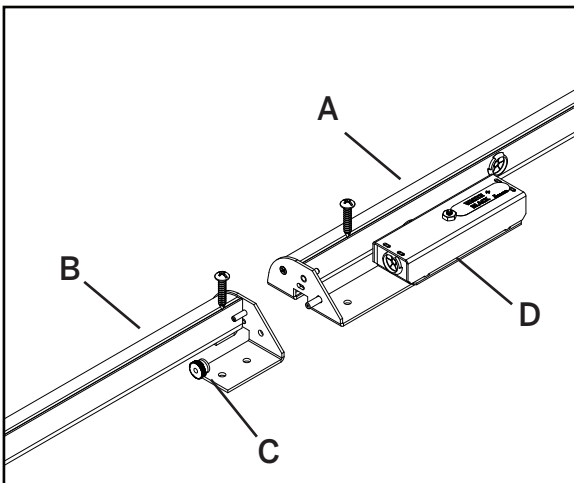


Place the linear cove light where desired in cove.

Drill holes for #8 hardware (supplied by others) and mount linear cove light.

Route input to connector Box (D) per the wiring on the next page.

4 Foot Fixture Installation

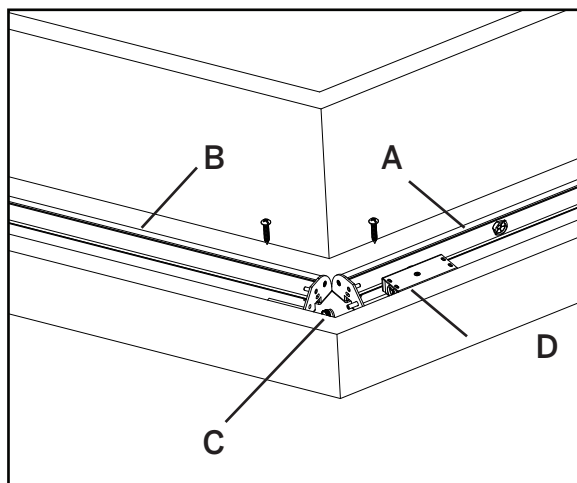


CONTINUOUS APPLICATION

For continuous applications, use the included #8-32 thumb nut (C) to join Fixture A (fixture with a connector box) to Fixture B (fixture without a connector box) if not already joined together.

Drill holes for #8 hardware (supplied by others) and mount the linear cove light.

Route input wiring to the Connector Box (D) per the wiring on the next page.



CORNER APPLICATION

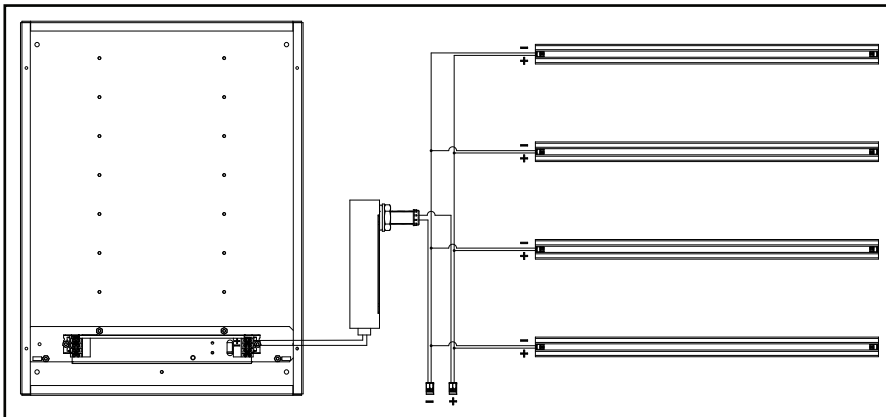
For corner applications, remove the included #8-32 thumb nut joining Fixture A (fixture with a connector box) to Fixture B (fixture without a connector box) and discard.

Drill holes for #8 hardware (supplied by others) and mount the linear cove light.

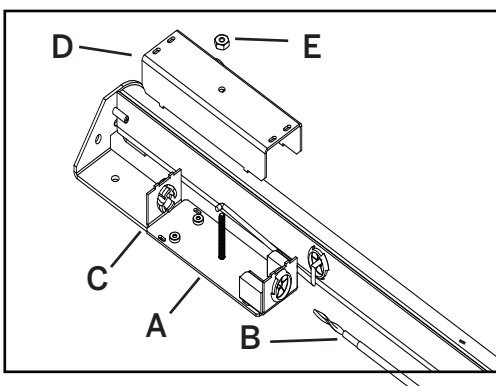
Route input wiring to the Connector Box (D) per the wiring on the next page.

12.3 COVE FIXTURE INSTALLATION (Continued)

Static White Wiring Details



Note: Cove installations commonly include multiple fixtures powered by one DVR driver module. For specific fixture-to-driver mappings, consult MCL-01SWM spec sheet.



1. Remove Connector box cover (D) from Connector Box (A)

2. Route minimum 16 AWG twisted shielded pair wire (B, supplied by others) from SmartLED driver modules, through filters, through grommet into connector box cover.

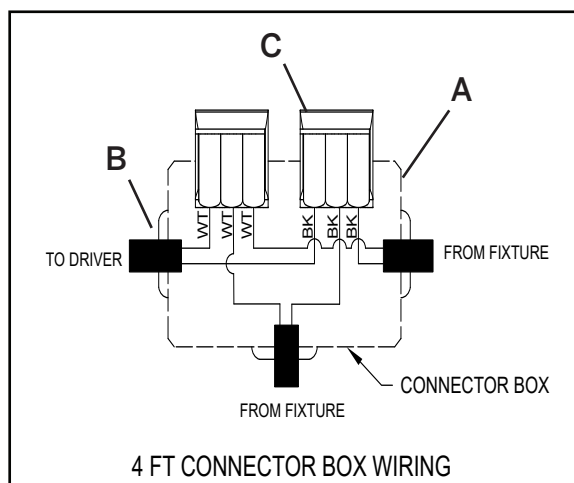
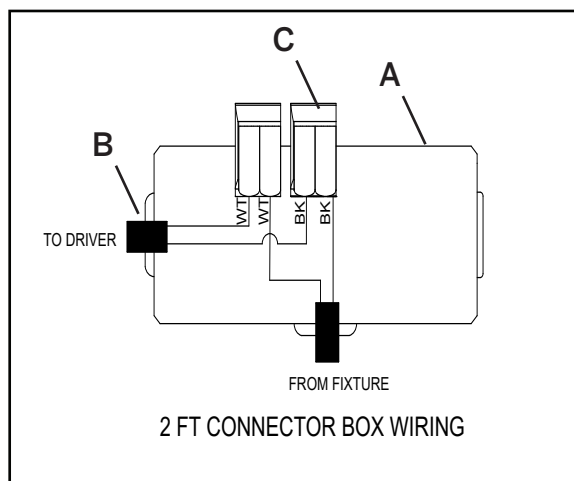
3. Connect the black wire from twisted pair to the black “-” lever-loc (C) and the white wire from the twisted pair to the white “+” lever-loc (C). Do not use the shield.

4. Reinstall Connector box cover (D) to Connector box (A) using Connector box hardware (E).

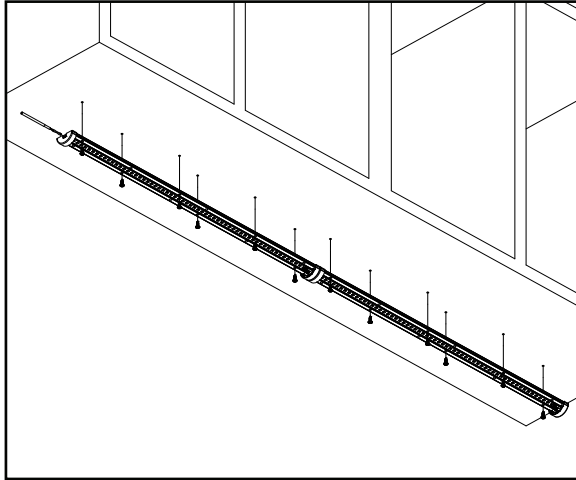
Do not move the wire or fixture while energized.

Disconnect the power to fixture prior to handling.

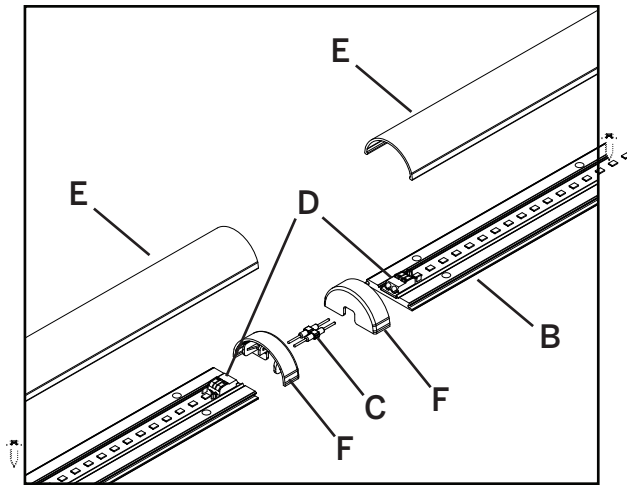
Discharge any static prior to handling.



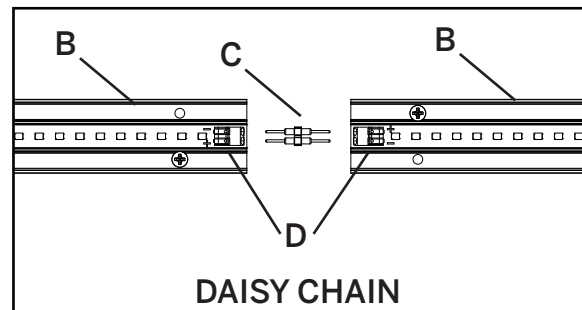
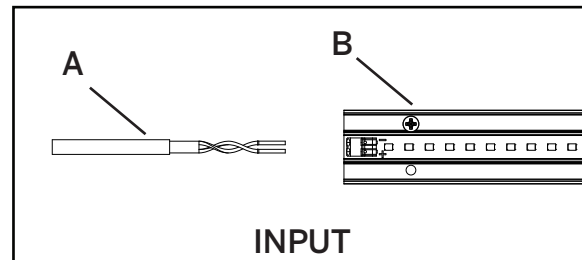
12.4 UNDERCABINET FIXTURE INSTALLATION



1. Locate mounting surface (A).
2. Remove lens for access to mounting holes.
3. Drill holes for #6 hardware (supplied with fixture) at every other hole in the undercabinet fixture (B).
4. Mount Undercabinet light with hardware provided (C).
5. Route minimum 16 AWG twisted shielded pair input wire from SmartLED MRI driver module, through filter, to J-box (supplied by others) (D).

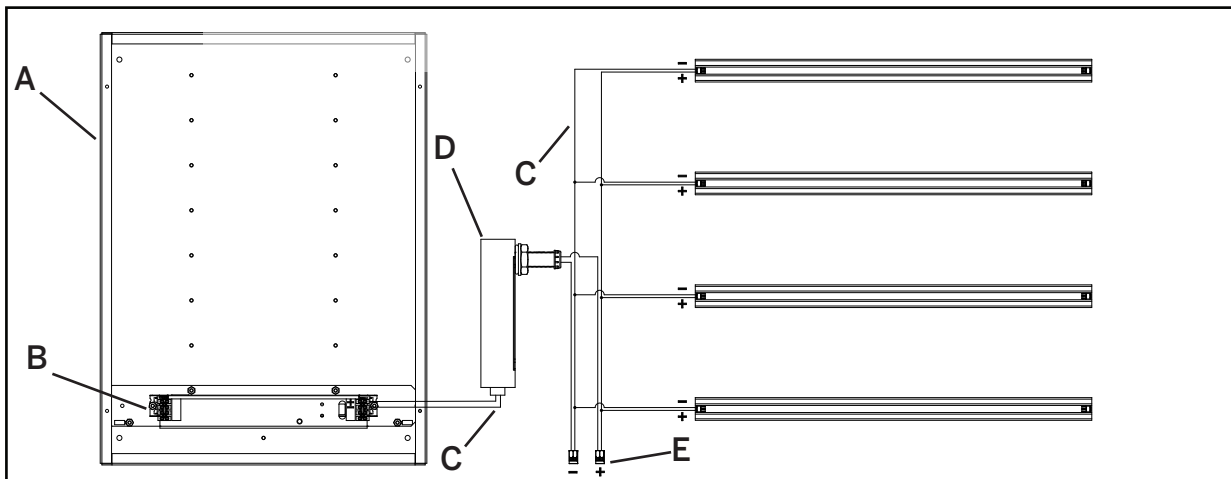


1. Twisted shielded input wire (A) must be solid core, tinned ends or ferruled ends. Do not connect the twisted pair shield.
2. Use 2 Pin Strip interconnect (C, provided) to daisy chain linear undercabinet lights (B) together. Maximum run of 8 feet (4 segments).
3. Insert 2 Pin LED Strip interconnect (C) into the undercabinet's linear C.B. connectors (D), making note of + / - connections.
4. After installation, attach the lens to the linear undercabinet light (E).
5. Attach end caps (F).



12.4 UNDERCABINET FIXTURE INSTALLATION (Continued)

Static White Wiring Details



A. Driver Cabinet

B. SmartLED 0-10V Dimming Driver Module

C. 16 AWG twisted pair shielded wire

D. MRI Filter

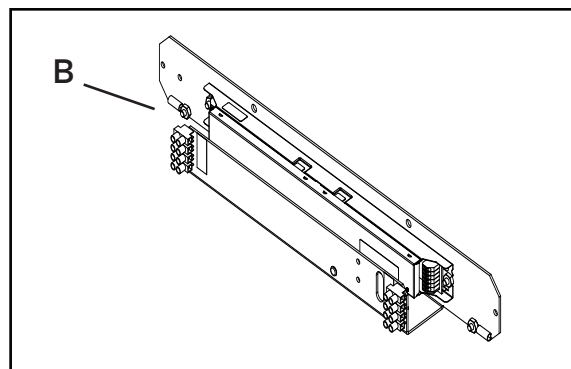
E. Wire Connector

Note: Undercabinet installations commonly include multiple fixtures powered by one DVR driver module. For specific fixture-to-driver mappings, consult MUL-01SWM spec sheet.

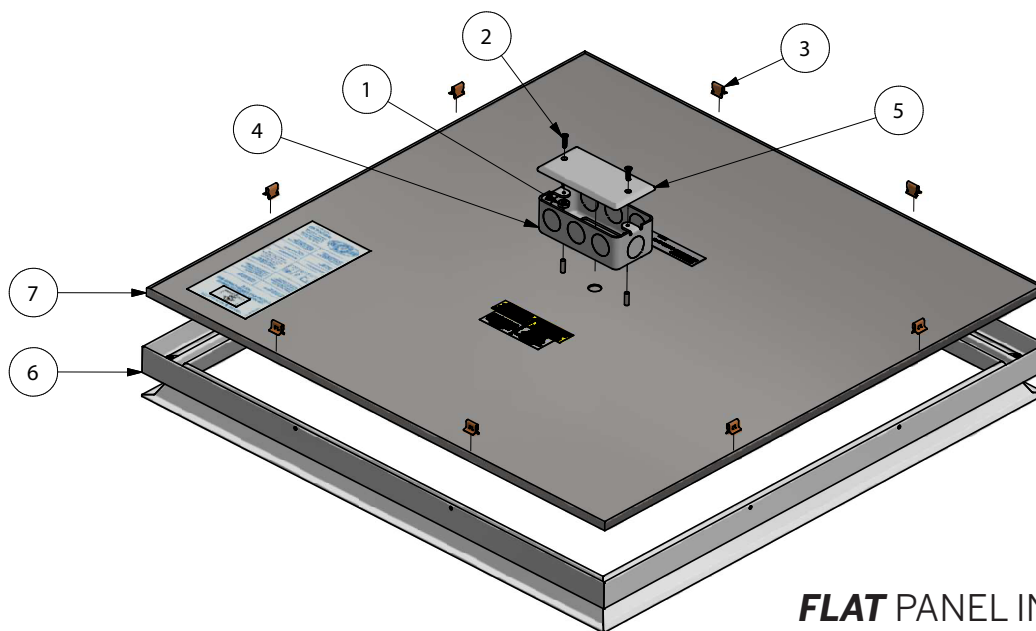
Do not move the wire or fixture while energized.

Disconnect the power to fixture prior to handling.

Discharge any static prior to handling.

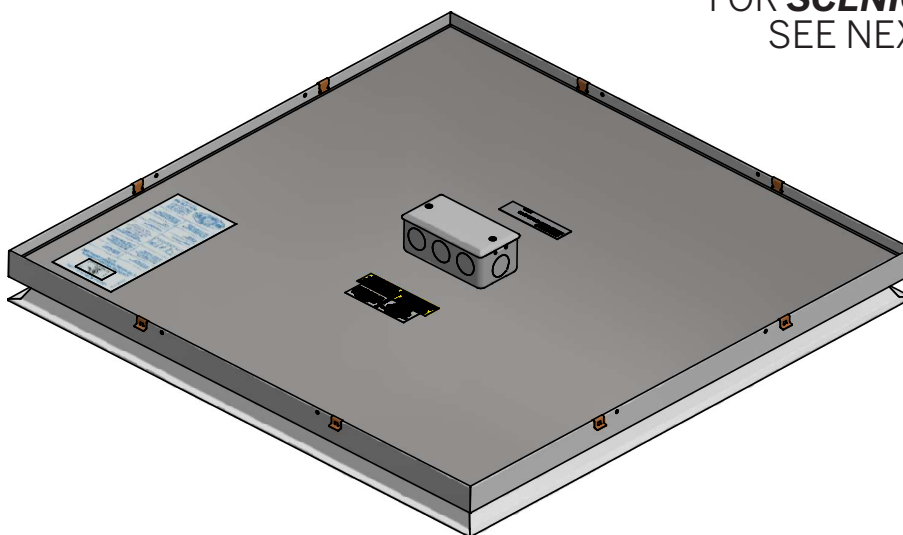


13.0 SCENIC PANEL INSTALLATION



FLAT PANEL INSTALLATION

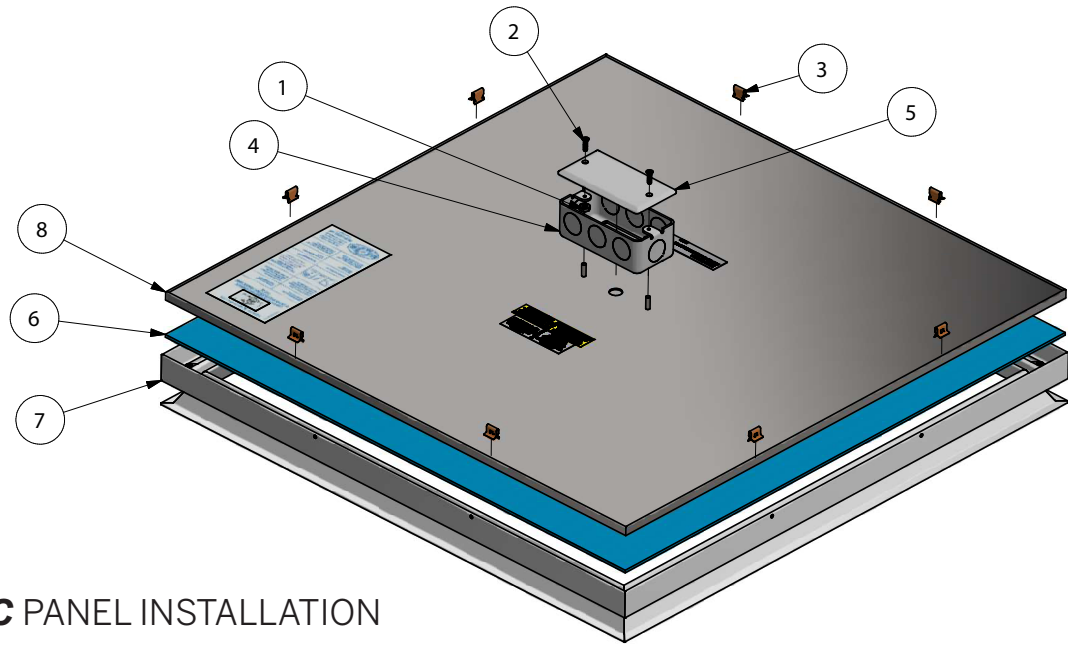
FOR **SCENIC** PANELS
SEE NEXT PAGE



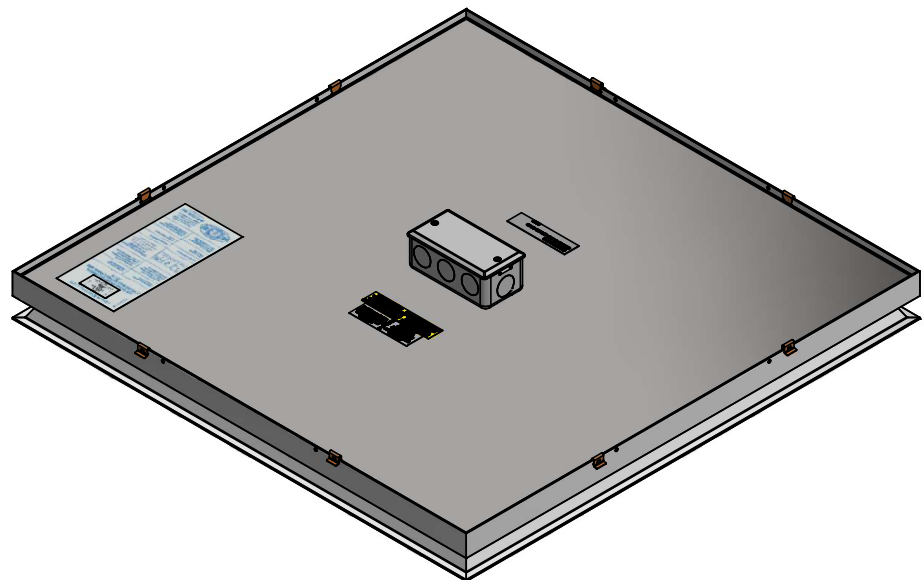
ASSEMBLE PANEL AS SHOWN IN THE VIEWS ABOVE
REFER TO 674522-00-SS WIRING DIAGRAM.

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	501032-00-00	SS-NUT 10-24 HEX
2	2	503031-00-00	SS-SCR 6-32x1/2 PH FL HD MS
3	8	507014-00-BC	SMALL MRI RETAINING CLIP
4	1	509424-00-00	ALUMINUM MRI J-BOX
5	1	509425-00-00	ALUMINUM MRI J-BOX COVER
6	1	740325-00-XX	TRIM-FLARE: 23.75" SQ
7	1	850455-XX-00	2 X 2 MRI FLAT PANEL

13.0 SCENIC PANEL INSTALLATION (Continued)



SCENIC PANEL INSTALLATION



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	501032-00-00	SS-NUT 10-24 HEX
2	2	503031-00-00	SS-SCR 6-32x1/2 PH FL HD MS
3	8	507014-00-BC	SMALL MRI LENS RETAINING CLIP
4	1	509424-00-00	ALUMINUM MRI J-BOX
5	1	509425-00-00	ALUMINUM MRI J-BOX COVER
6	1	725755-XX-YYY	Acr Clr Digital Lens: .118 x 23.56 SQ
7	1	740325-00-XX	TRIM-FLARE: 23.75" SQ
8	1	850455-XX-YY	MRI FLAT PANEL ASSEMBLY

14.0 INVERTER CONNECTIONS

EMI-03120

The **EMI-03120** will power up to (3) 50W DVR modules or (2) 75W (DVR-XXXXB) DVR modules during a power failure. Please see the installation manual supplied with the **EMI-03120** for its specific wiring diagrams.

EMI-21220

The **EMI-21220** will power up to (8) 50W (DVR-XXXXA) DVR modules or (5) 75W (DVR-XXXXB) DVR modules during a power failure. Please see the installation manual supplied with the **EMI-21220** for its specific wiring diagrams.

15.0 COMPATIBLE 0-10V DIMMERS & CONTROLS

COMPATIBLE 0-10V DIMMERS and SWITCHES		
Dimmer Manufacturer	Type	Dimming Curve
Busch-Jaeger	2112U-101	Logarithmic
Jung	240-10	Logarithmic
Leviton Lighting Controls	IllumaTech - IP710-DLZ / IP710-LFZ	Logarithmic
Lightolier Controls	ZP600FAM120	Logarithmic
Lutron Electronics	Diva: DVTV, DVSTV, NFTV /Nova-T; NTSTV	Linear
Merten	5729	Logarithmic
Pass & Seymour	CD4FB-W	Logarithmic
WattStopper	DCLV2	Logarithmic
Sensor Switch	n O EZ	Linear
Synergy	ISD BC	Logarithmic

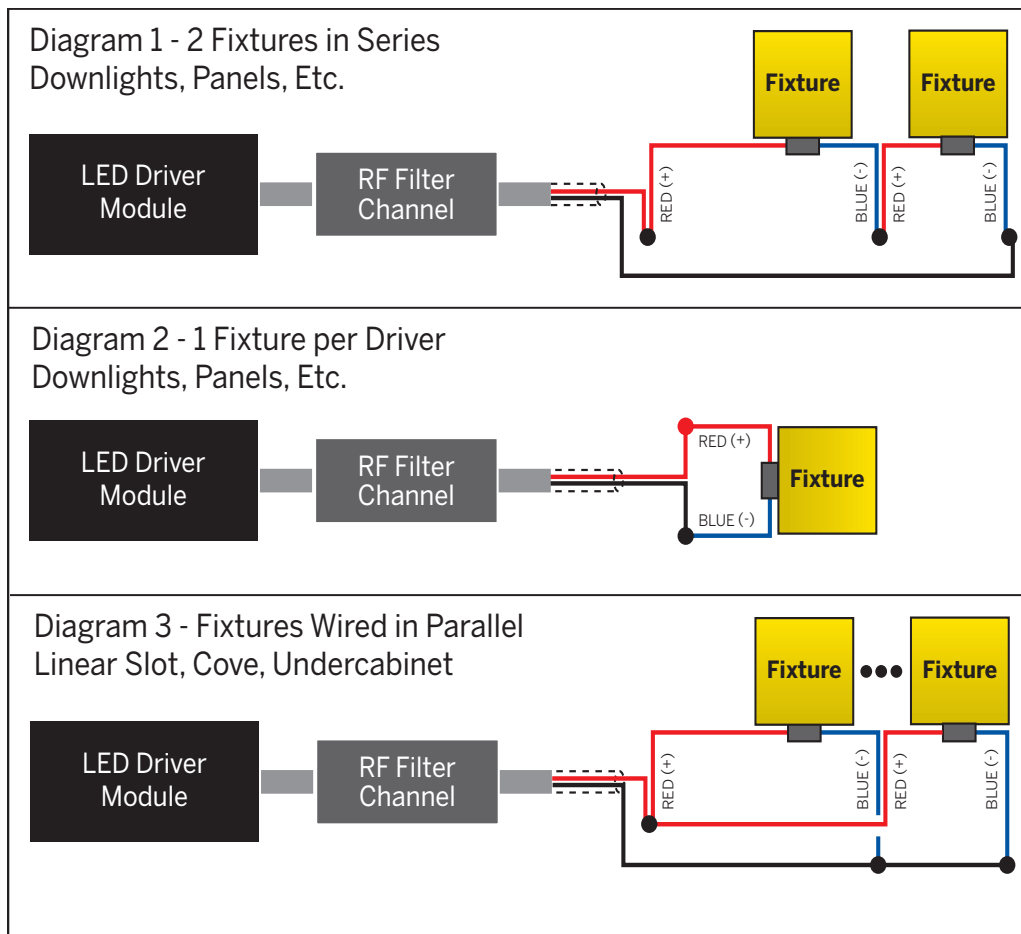
COMPATIBLE DIMMING CONTROL SYSTEMS	
Control Manufacturer	Type
Lutron Electronics	GraphicEye - GRX-TVI w GRX3503, Linear Energy Savr Node - QSN-4T16-S, TVM2 Module
Crestron	GLX-DIMFLV8, GLXP-DIMFLV8, GLPAC-DIMFLV4-*, GLPAC-DIMFLV8-*, GLPP-DIMFLVEX-PM, GLPP- 1DIMFLV2EX-PM, GLPP-1DIMFLV3EX-PM, DIN-AO8, DIN- 4DIMFLV4, CLS-EXP-DIMFLV, CLCI-1DIMFLV2EX
ABB	SD/S 2.16.1

Note: Some dimmers may cause reduced stability at the lowest dim level setting; this is normal and maybe resolved by increasing the lowest dim level setting if your selected dimmer allows.

16.0 SYSTEM WIRING/EXAMPLES

LED Load Configurations

See luminaire specification sheets for exact DVR modules that are compatible with specific fixtures and the quantity of fixtures a module will support.



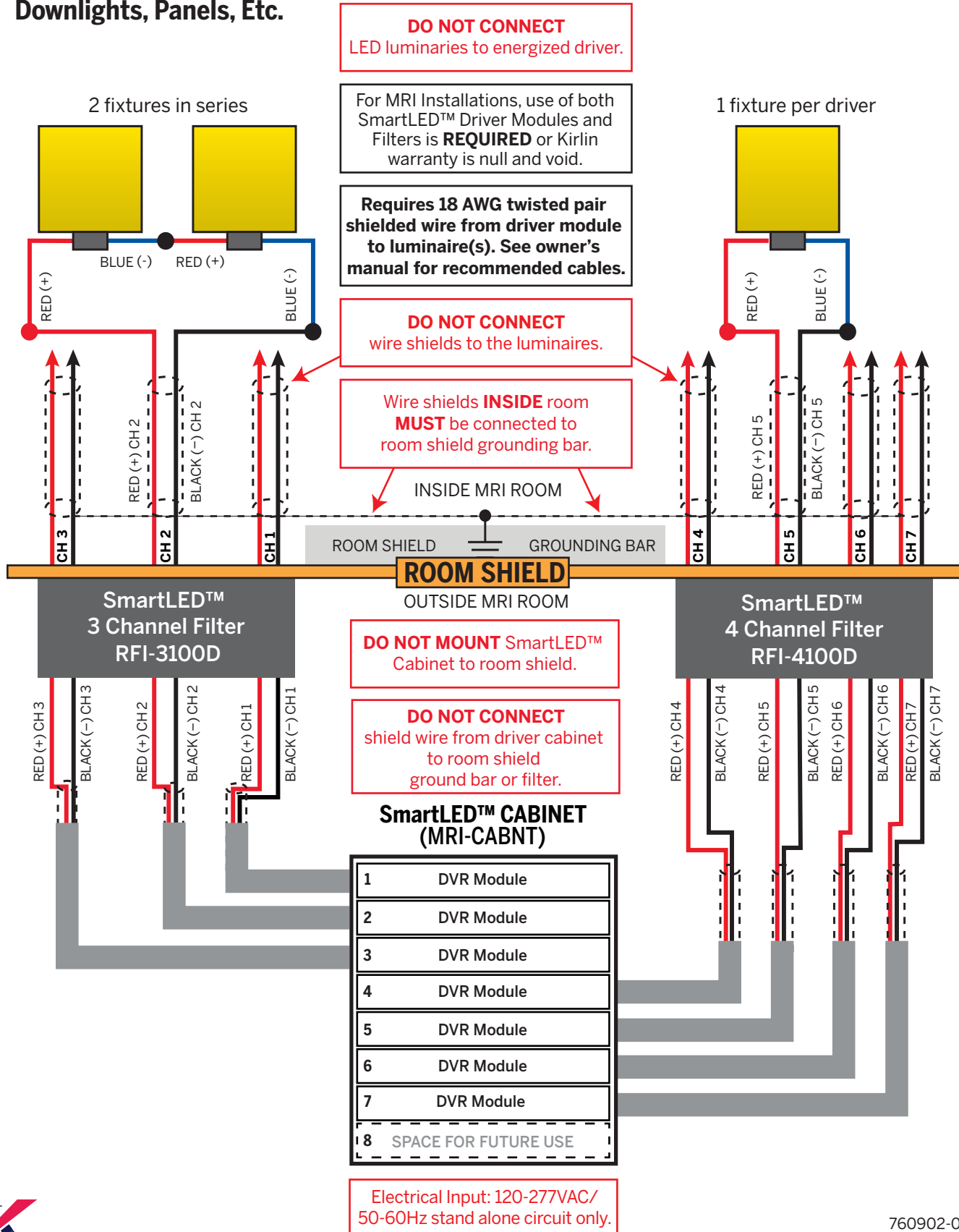
Output Wire Requirements and Recommendations

ALL WIRES MUST BE: #18 AWG minimum, twisted pair shielded with drain wire, UL rated for 300

RECOMMENDED WIRE					
CMP Versions (PLENUM)			CM Versions (OPEN AIR)		
Belden	#18 AWG	Part # 82760	Belden	#18 AWG	Part # 8760
Belden	#16 AWG	Part # 83702	Belden	#16 AWG	Part # 8719
ADC	#18 AWG	Part # 911802SD			
ADC	#16 AWG	Part # 911602SD			

16.0 SYSTEM WIRING/EXAMPLES (Continued)

Downlights, Panels, Etc.



16.0 SYSTEM WIRING/EXAMPLES (Continued)

Linear Slot, Cove, Undercabinet

One **6FT** section of fixture
(2 foot + 4 foot) wired in parallel on
one circuit with **DVR-1050A**

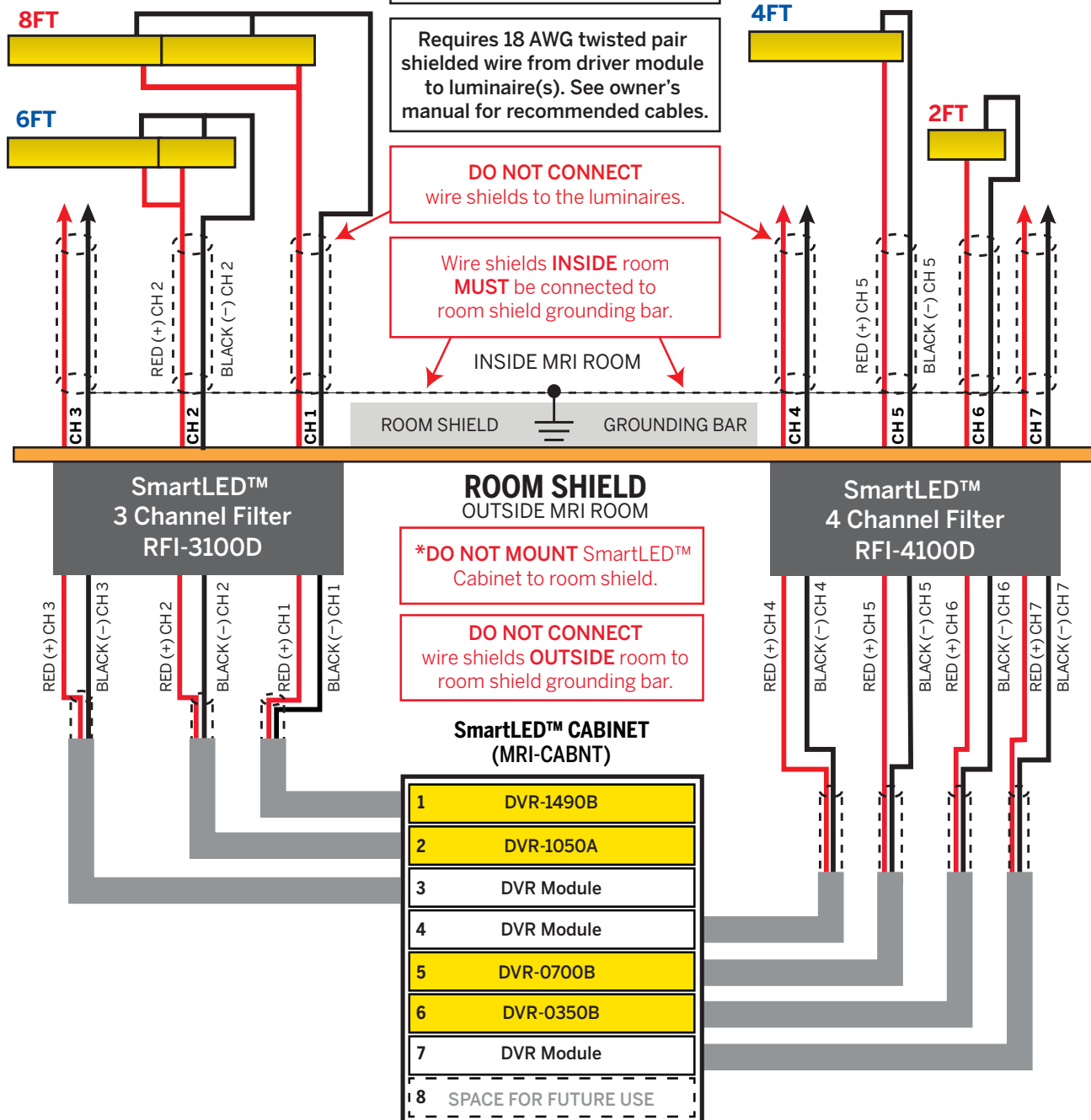
One **8FT** section of fixture
(4 foot + 4 foot) wired in parallel on
one circuit with **DVR-1490B**

DO NOT CONNECT
LED luminaries to energized driver.

For MRI Installations, use of both
SmartLED™ Driver Modules and
Filters is **REQUIRED** or Kirlin
warranty is null and void.

One **4FT** section of fixture
(or two 2FT sections) on one
circuit with **DVR-0700B**

One **2FT** section of fixture
on one circuit with **DVR-0350B**



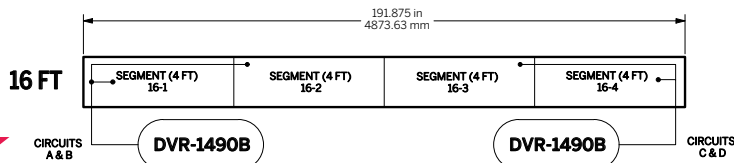
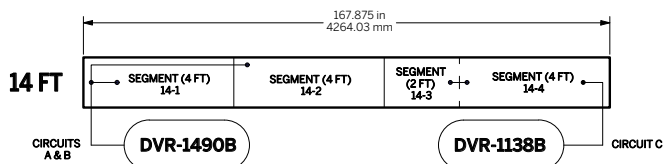
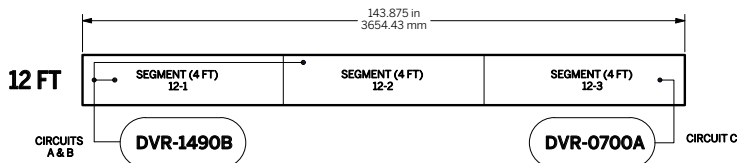
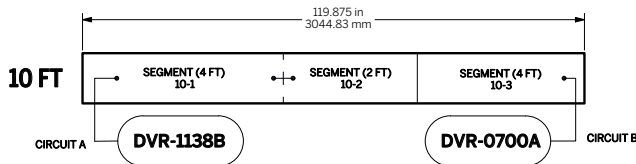
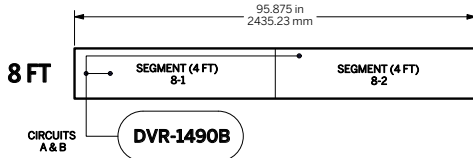
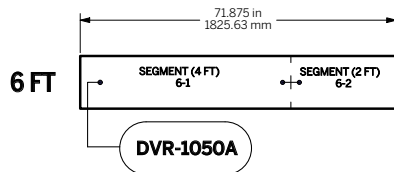
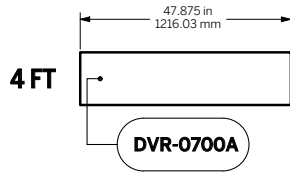
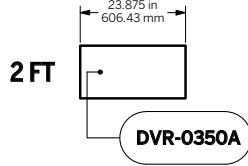
16.0 SYSTEM WIRING/EXAMPLES (Continued)

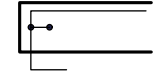
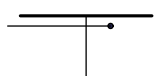
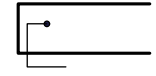
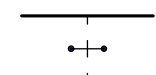
MRL-02SWM Linear Slot Driver Wiring Configuration

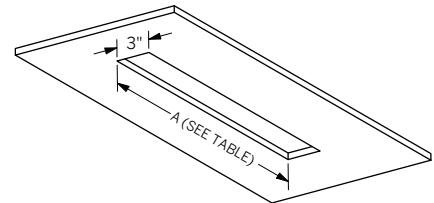
Not to scale

For run lengths longer than 16 FT, please contact the factory.

Note: MRI Installations require use of SmartLED DVR driver modules and filters. DVR driver modules to be installed in MRI-CABNT per specification requirements.



SYMBOL KEY	
Symbol	Definition
	SINGLE INPUT FROM FILTER CONNECTED TO TWO FIXTURE CIRCUITS
	MAKE CONNECTION FROM INPUT TO LED BOARD AT SEGMENT SEAM
	SINGLE INPUT FROM FILTER CONNECTED TO ONE FIXTURE CIRCUIT
	MAKE CONNECTION BETWEEN LED BOARDS AT SEGMENT SEAM



Cutout Dimensions	
Fixture Length	Cutout Length (A)
2 FT	23-1/8"
4 FT	47-1/8"
6 FT	71-1/8"
8 FT	95-1/8"
10 FT	119-1/8"
12 FT	143-1/8"
14 FT	167-1/8"
16 FT	191-1/8"

17.0 TROUBLESHOOTING

Fixtures Do Not Illuminate

1. Check to make certain that the dimmer is not set to its lowest position (depending on dimmer module, the system may dim to "off").
2. Verify that the cabinet is powered on. Each module has an LED indicator that will illuminate continuously when power is applied.
3. Confirm the installed RFI filter(s) are approved Kirlin parts. Use of any other filter without factory approval is not recommended and may void warranty.
4. Confirm that all input and output connections are correct and secure. RFI filters and all wiring from the driver module to the LED fixture(s) is polarized; reversed connections may result in filter and/or LED light failure.
5. Verify that the number of fixtures per module and wiring connections are correct per diagram located on panel cover or section 15.0 of this manual.
6. Disconnect the LED fixture(s) not illuminating at the fixture junction box. Use a DC volt meter to measure the voltage at the fixture, filter output, filter input, and driver module. Voltages should be approximately 55VDC. Lower voltages may indicate a short in the wiring or a failed driver module.

Fixtures Are Pulsing, Strobing or Flickering

1. Confirm the installed RFI filter(s) are approved Kirlin parts. Use of any other filter without factory approval is not recommended and may void warranty.
2. Check all wire connections. The most common reason for pulsing /strobing fixtures is a loose wire connection.
3. Verify that #18 AWG (minimum) twisted pair shielded wire is used and properly grounded.
4. Verify the installed 0-10V dimmer is approved for use in section 15.0 of the owner's manual.
Note: Some dimmers may cause reduced stability at the lowest dim level setting; this is normal and maybe resolved by increasing the lowest dim level setting if your selected dimmer allows.
5. Confirm that the supply line to the cabinet is a dedicated circuit (all fixtures flickering at the same time).

Fixtures Do Not Dim (Full Output Only)

1. Verify the installed 0-10V dimmer is approved for use in section 15.0 of the owner's manual.
Note: Some dimmers may cause reduced stability at the lowest dim level setting; this is normal and maybe resolved by increasing the lowest dim level setting if your selected dimmer allows.
2. Check all dimming wire connections for a disconnected splice or open connection.

Fixtures Are Stuck in Dim (Low Output Only)

1. Verify the installed 0-10V dimmer is approved for use in section 15.0 of the owner's manual.
Note: Some dimmers may cause reduced stability at the lowest dim level setting; this is normal and maybe resolved by increasing the lowest dim level setting if your selected dimmer allows.
2. Check all dimming wire connections for a short between the violet and gray wire or a reversed connection.

For additional assistance, contact factory at 313.259.6400.

18.0 USER NOTES