Symphony
REMOTE DRIVER SYSTEM

Installation Guide/Owner's Manual
Symphony DMX System

Technical Support: 313-259-6400, Press 5

KIRLIN
ARCHITECTURAL LIGHTING

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1.0 SCOPE

The KIRLIN Symphony DMX System is intended for installation and use in areas with large spaces and where servicing lights is difficult. The system includes a Symphony DMX Remote Driver System, and Symphony 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 Symphony DMX 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 REQUIREMENTS & 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 Symphony DMX Remote Driver System 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 Symphony Lighting System.

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

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

Must use Kirlin supplied drivers and light fixtures to maintain warranty.

Requires #16 AWG minimum twisted pair shielded wire for all driver wiring.
All system wiring must have a UL electrical rating of 300V.

The maximum total wire length from the enclosure to light fixture is 250 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 System 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
DMX	ANSI E1.11 – 2008 (R2013), USITT DMX512-A, ANSI E1.20 – 2010
Surge protection	ANSI 62.41 1991 category B1: 2.5kV DM, 2.5kV CM @ 30 Ohm DMX input 0.5kv DM
Restriction of hazardous substances	RoHS3 (Directives 2011/65/EU-2015/863/EU)

5.0 ELECTRICAL REQUIREMENTS (Per LED Driver)

Nominal input voltage range AC	120 - 277V
Absolute input voltage range AC	108 - 305V
Input frequency range	50 - 60Hz
Maximum wattage	50W
Efficiency at full load	85%
Power factor at full load	> 0.95
THD at full load	< 20%
Maximum inrush current	< 100mA^{2}s @ 120V / 60Hz < 100mA^{2}s @ 277V / 60Hz
Surge protection	2kV differential mode (DM) 2kV common mode (CM)
Maximum standby power	0.5W

6.0 DIMMING CONTROL CHARACTERISTICS

Control protocol	DMX 512-A
Dimming range	100% - 0.1%, off
Dimming curve	Logarithmic*

**Can be programmed to different curves via RDM.*

7.0 BEFORE YOU BEGIN

Before You Begin

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

Electrical Requirements

- This driver system 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 system is rated for dry locations only and is designed to be wall mounted.
- This driver system is rated for operation at a maximum ambient temperature of 25ºC.
- Allow sufficient spacing around enclosure 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 +50°C
Fixture acoustic noise	< 19dBa
Driver acoustic noise - steady state	< 24dBa (Class A)
All components	Dry location only

8.0 SYSTEM OVERVIEW: SYM-DMXPS

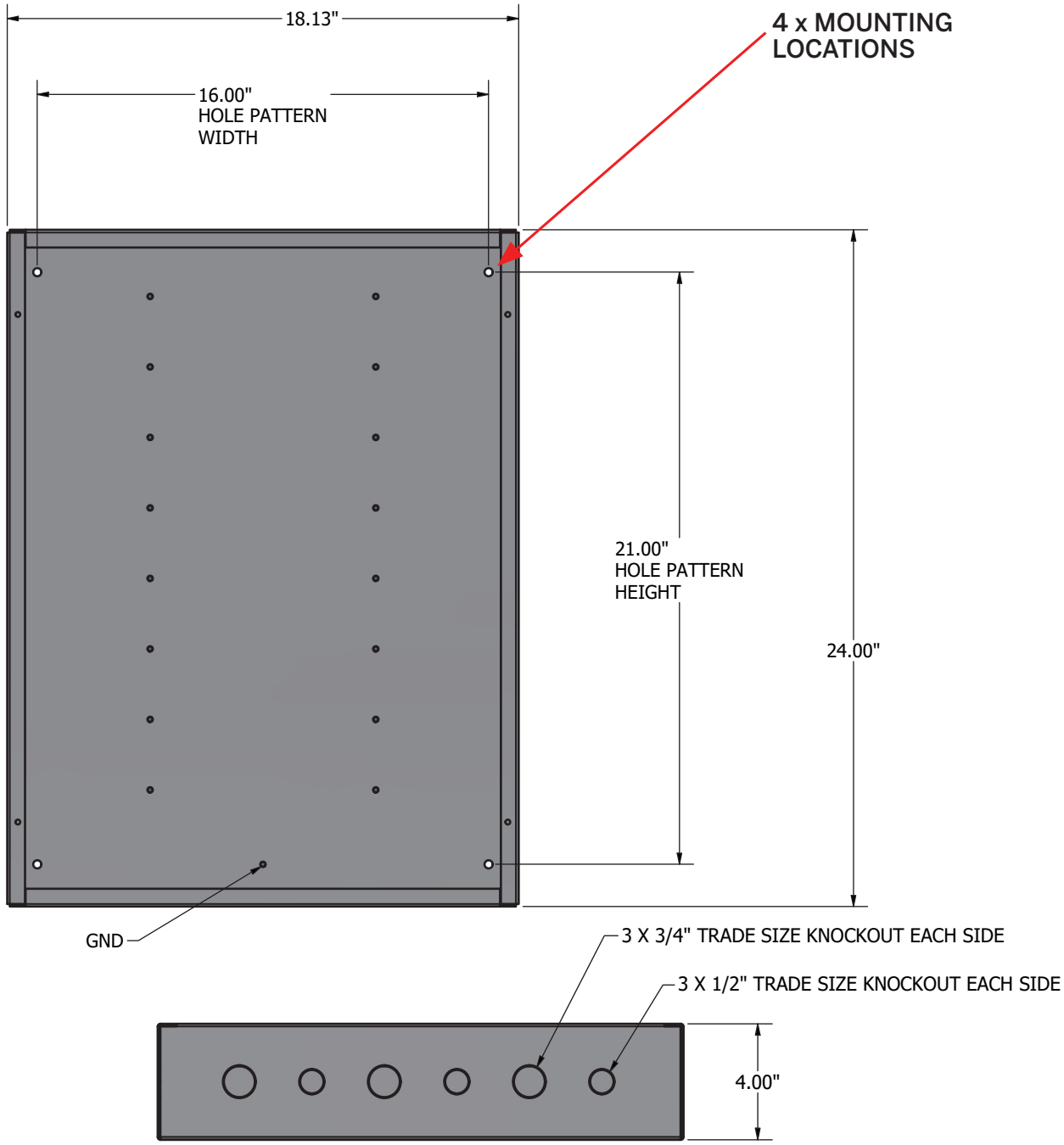
SYM-DMXPS: Driver Cabinet

- 24"x 18"x 4.5" carbon steel enclosure supports up to **8 Remote 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.

9.0 CABINET INSTALLATION

Mounting

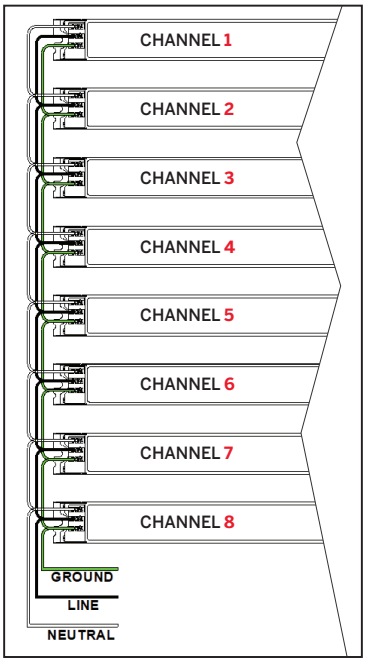
1. Loosen the 4 screws that mount the cover panel; lift cover to align key hole slots, remove and set aside.
2. Place the enclosure in the desired location and mount using the 4 designated mounting locations.
3. After system installation is complete, replace the cover panel and tighten the 4 mounting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



9.0 CABINET INSTALLATION (continued)

Line Voltage Input Connections

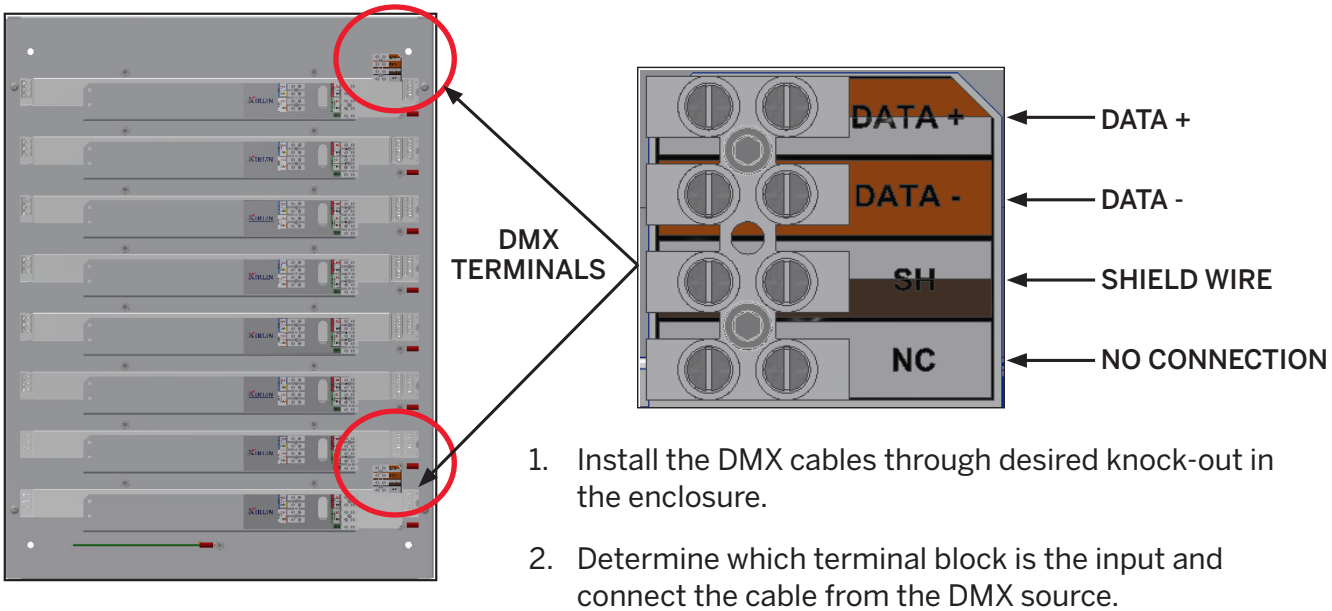
NOTE: Each enclosure ships with jumper wires installed to speed up installation. All system wiring must have a UL electrical rating of 300V minimum.



1. Install the AC feed through the desired knock-out in the enclosure.
2. Connect the AC Input Line, Neutral, and Ground wires to the supplied leads.

DMX Connections

NOTE: Either DMX terminal block can be used for Input or Output. Use of the 120 Ω resistor is required at the end of the DMX chain, supplied by others.

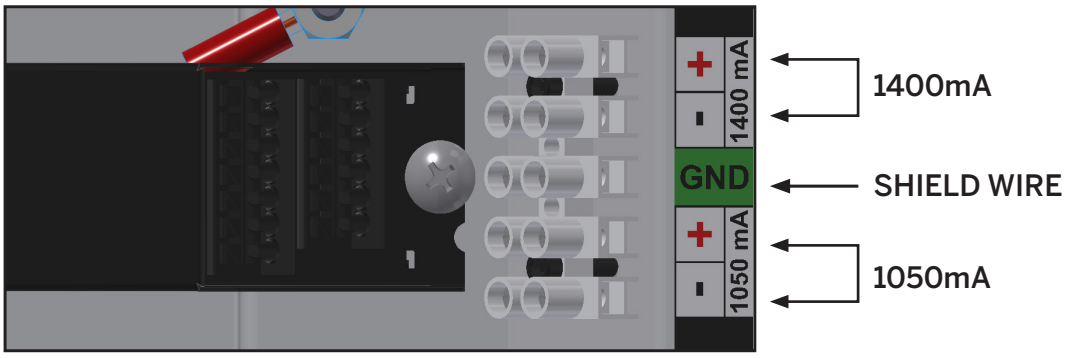


1. Install the DMX cables through desired knock-out in the enclosure.
2. Determine which terminal block is the input and connect the cable from the DMX source.
3. Connect 120 Ω terminating resistor or DMX output cable to next cabinet, if applicable.

9.0 CABINET INSTALLATION (Continued)

Output Connections

NOTE: Requires #16 AWG minimum twisted pair shielded wire. All system wiring must have a UL electrical rating of 300V minimum. See section 14.0 for cabling recommendations.



1. Install the LED load wires through the desired knock-out in the enclosure.

2. Connect the twisted shielded pair wires to the terminal block as shown. Each fixture has a Light Description Value (ie. -2500L) that can be used in conjunction with the table below to determine wiring and drive current connection. **DO NOT** connect the shield wire from driver cabinet to external ground bar. Make sure the fixture is connected to the proper proper drive current output.

3. Use the fixture schedule table on the back of the enclosure cover to record address and fixture information as needed.

9.0 CABINET INSTALLATION (Continued)

LED Load Configurations

Light Description	LED Channel Module	
	1400mA	1050mA
-1500L Luminaire	Up to 2 fixtures in series per channel (Diagram 1)	
-2500L Luminaire	1 fixture per channel (Diagram 2)	
-4000L Luminaire		1 fixture per channel (Diagram 2)
-5000L Luminaire	2 channels per fixture (Diagram 3)	
-6500L Luminaire	2 channels per fixture (Diagram 3)	

Diagram 1

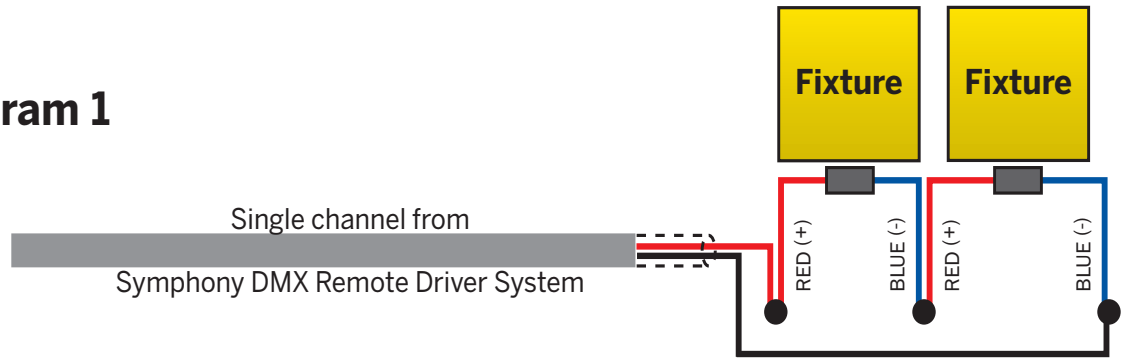


Diagram 2

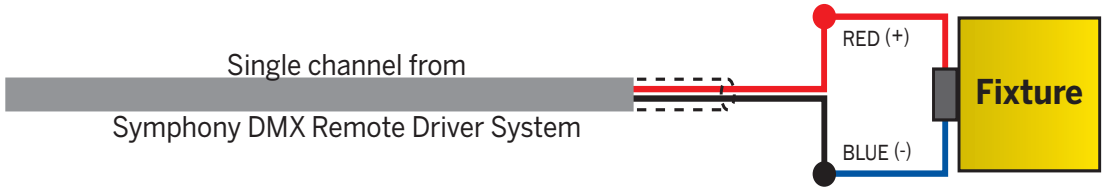
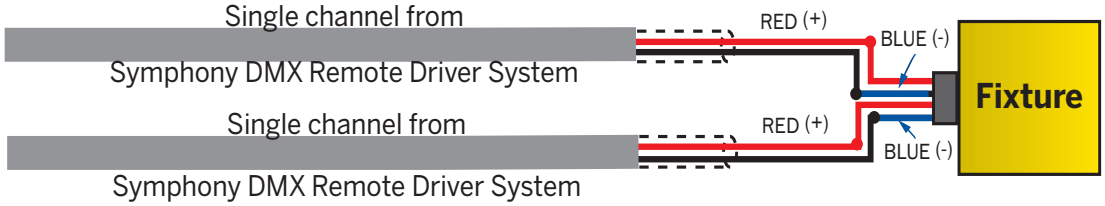


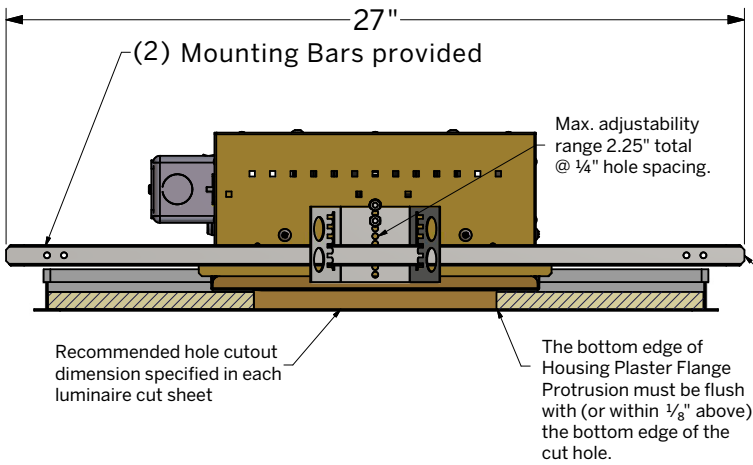
Diagram 3

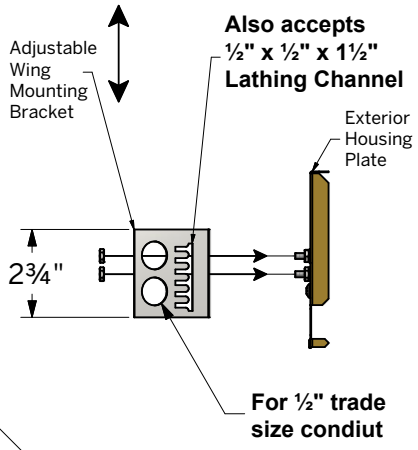


10.0 DOWNLIGHT FIXTURE INSTALLATION

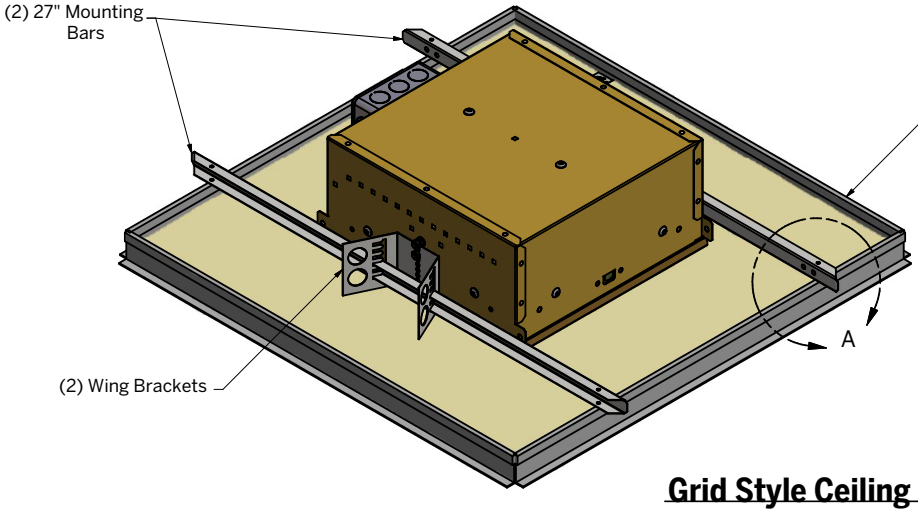
Standard Mounting Hardware Installation Instructions

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

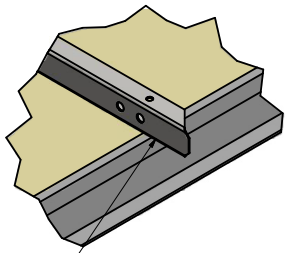




Typical Commercial Installations



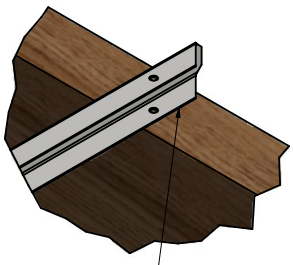
Detail A

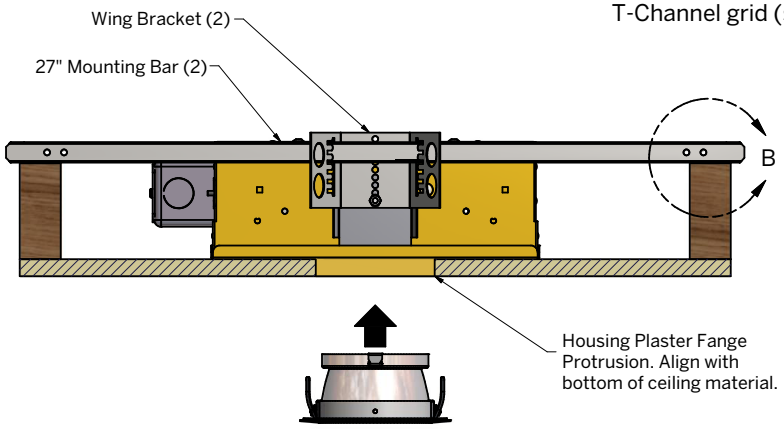


Grid Style Ceiling Installation

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).

Detail B





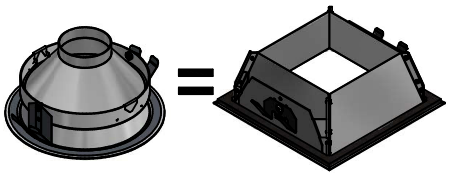
Install trim assembly after installing luminare housing

Drywall/Plaster Ceiling Installation

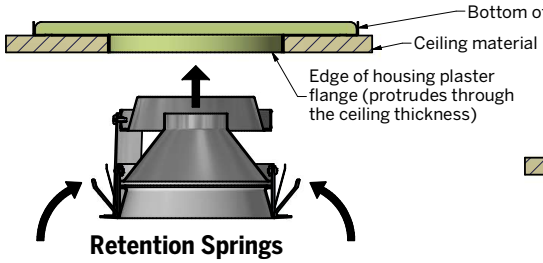
Be sure to adjust vertical position of mounting bars within the bracket so that they rest on adjacent ceiling joists (secure to joists as required).

10.0 DOWNLIGHT FIXTURE INSTALLATION (Continued)

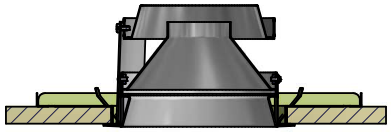
Trim Installation Guide



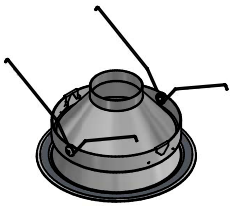
All installation methods shown are the same for round trims and square trims. (Round trims shown for reference)

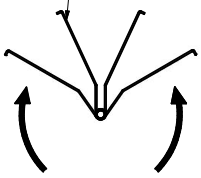


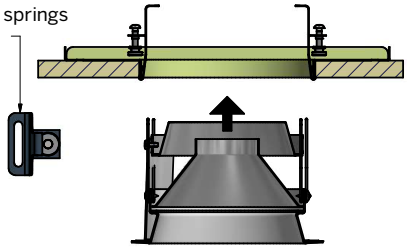
Retention Springs



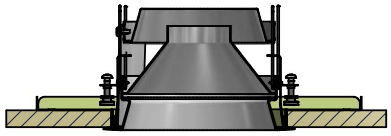
Installed Condition





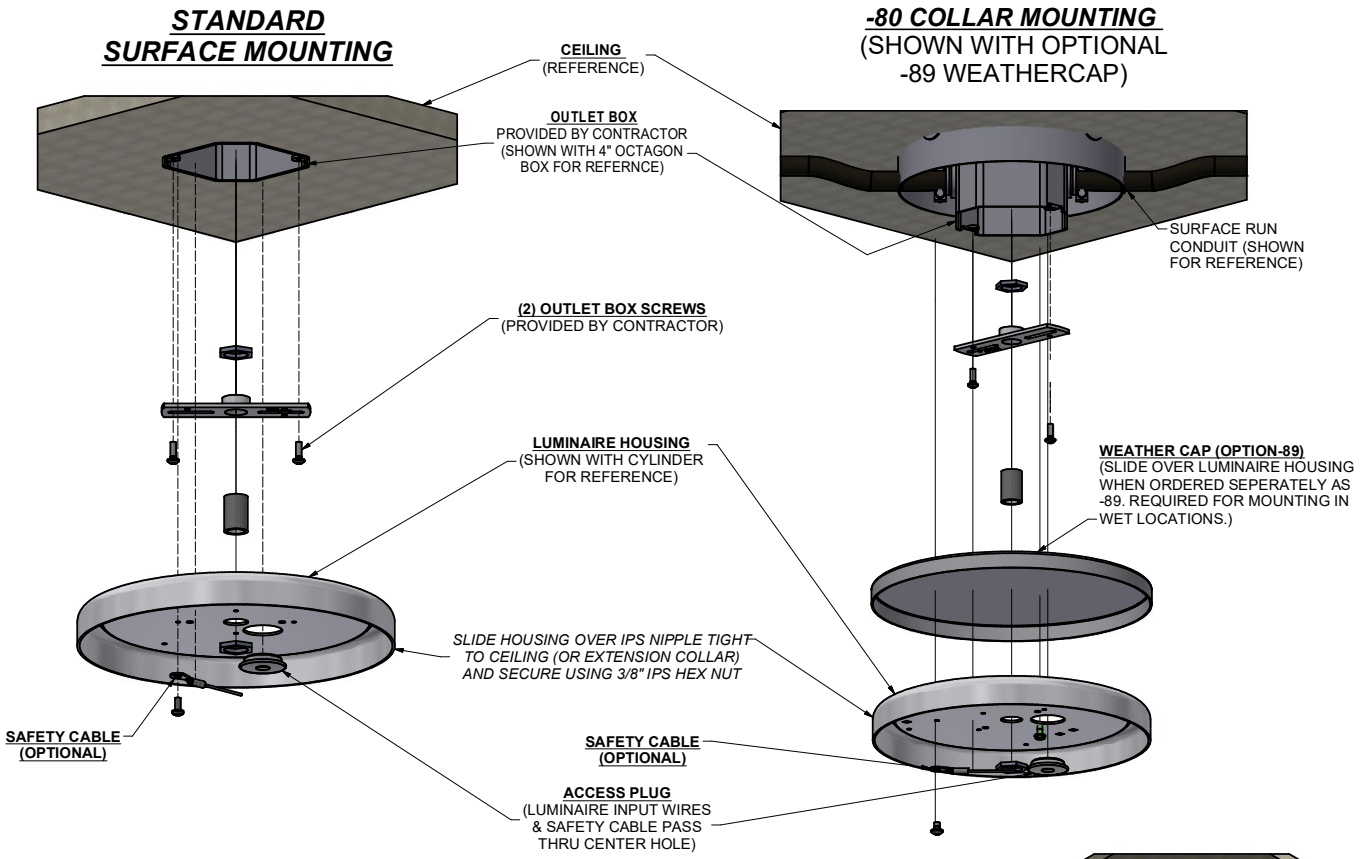


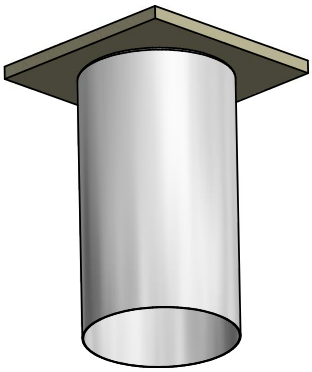
Torsion Springs



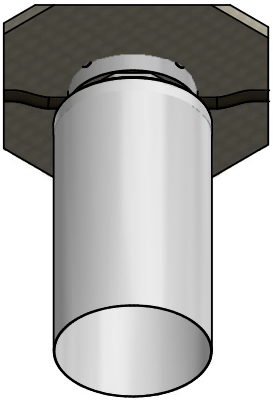
Installed Condition

11.0 SURFACE FIXTURE INSTALLATION



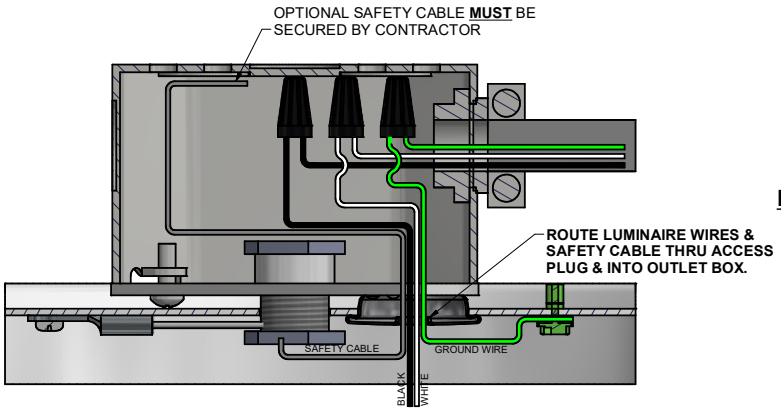


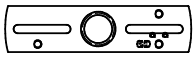
FULLY ASSEMBLED
(REFERENCE)



FULLY ASSEMBLED
(REFERENCE)

VIEW OF WIRES IN THE JUNCTION BOX





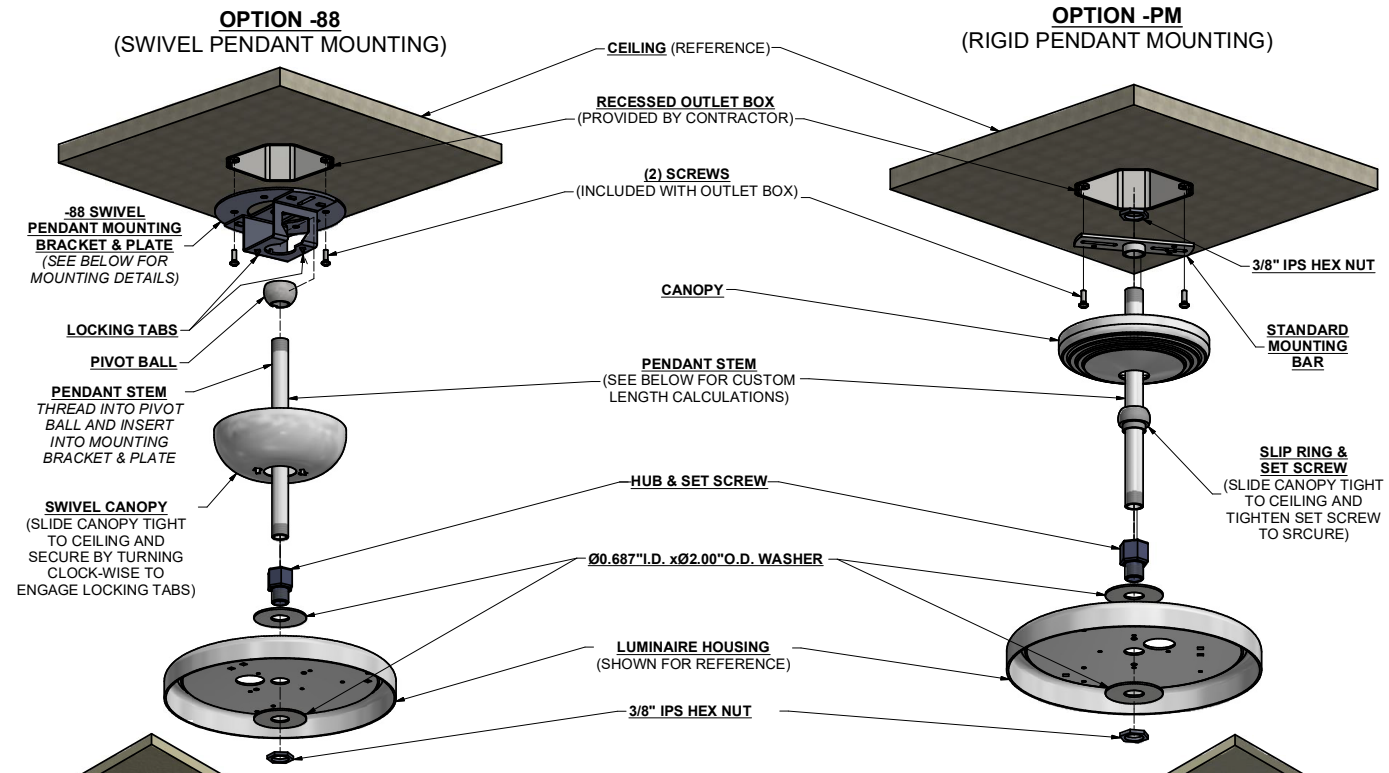
STANDARD MOUNTING BAR WILL MOUNT DIRECTLY TO THE FOLLOWING STANDARD OUTLET BOXES:
4" OCTAGON
3-1/2" OCTAGON

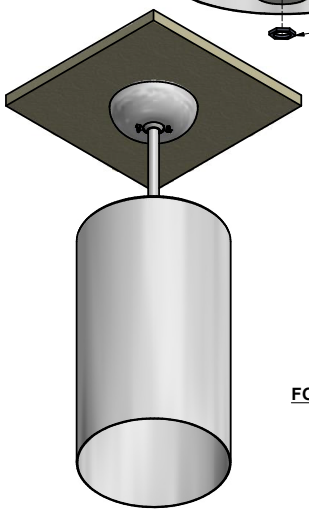
!!CAUTION!!
DO NOT BRING BUILDING WIRE INTO LUMINAIRE.

LUMINAIRE LEADS ***MUST*** TERMINATE IN OUTLET BOX MOUNTED IN CEILING ABOVE AS SHOWN

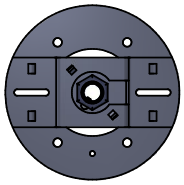
ALL COMPONENTS SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED

11.0 SURFACE FIXTURE INSTALLATION (Continued)



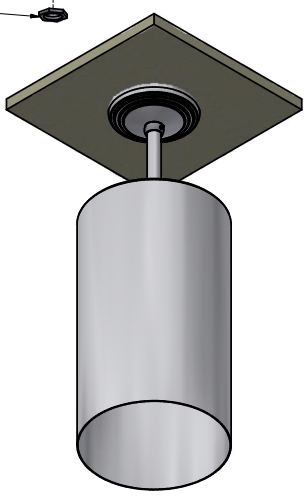


FULLY ASSEMBLED
(REFERENCE)



-88 MOUNTING BRACKET & PLATE WILL MOUNT DIRECTLY TO THE FOLLOWING STANDARD OUTLET BOXES:
4" OCTAGON
3-1/2" OCTAGON

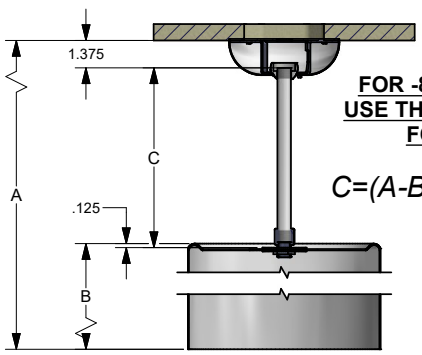
-PM MOUNTING BAR WILL MOUNT DIRECTLY TO THE FOLLOWING STANDARD OUTLET BOXES:
4" OCTAGON
3-1/2" OCTAGON



FULLY ASSEMBLED
(REFERENCE)

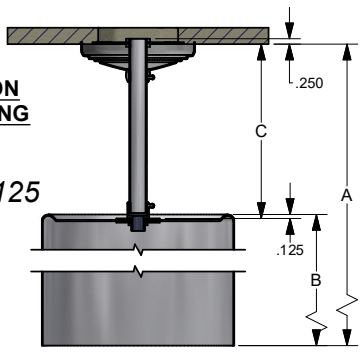
ALL COMPONENTS ARE SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED

USE TO DETERMINE CUSTOM PENDANT LENGTH FOR THE -87 OPTION



FOR -88-87 OPTION USE THE FOLLOWING FORMULA

C=(A-B-1.375)+.125



FOR -PM-87 OPTION USE THE FOLLOWING FORMULA:

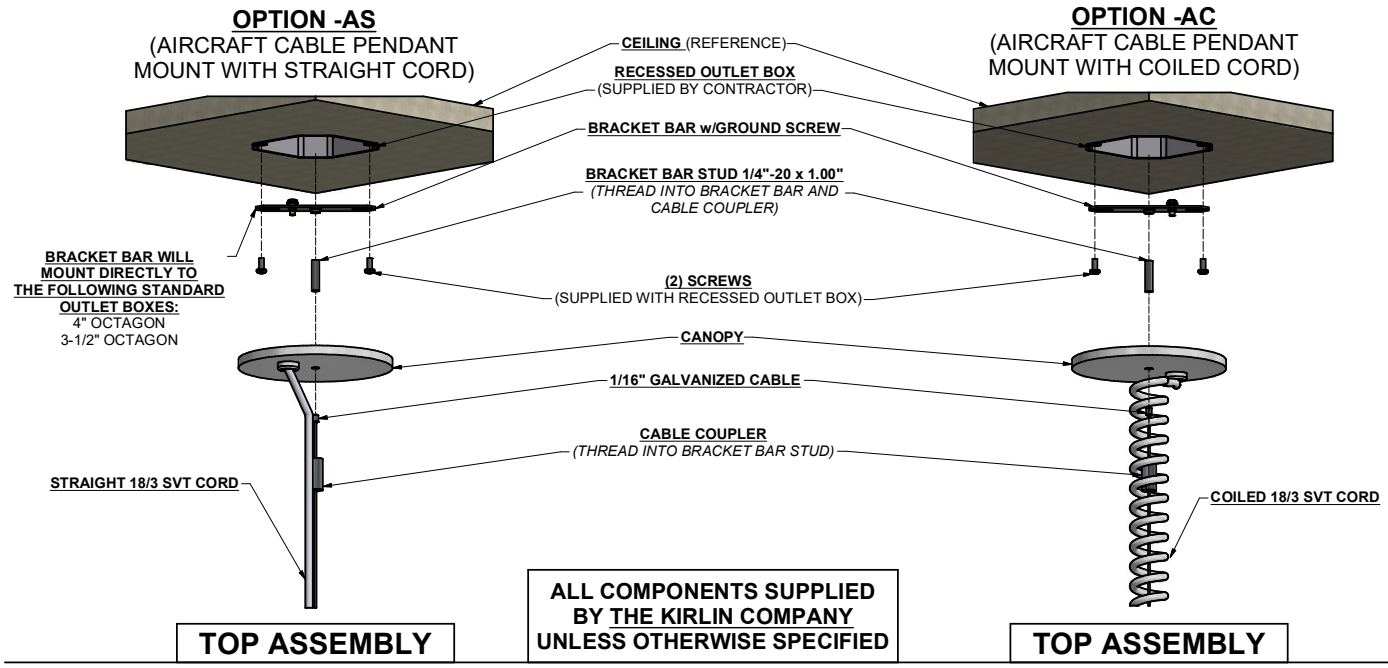
C=(A-B)+.250+.125

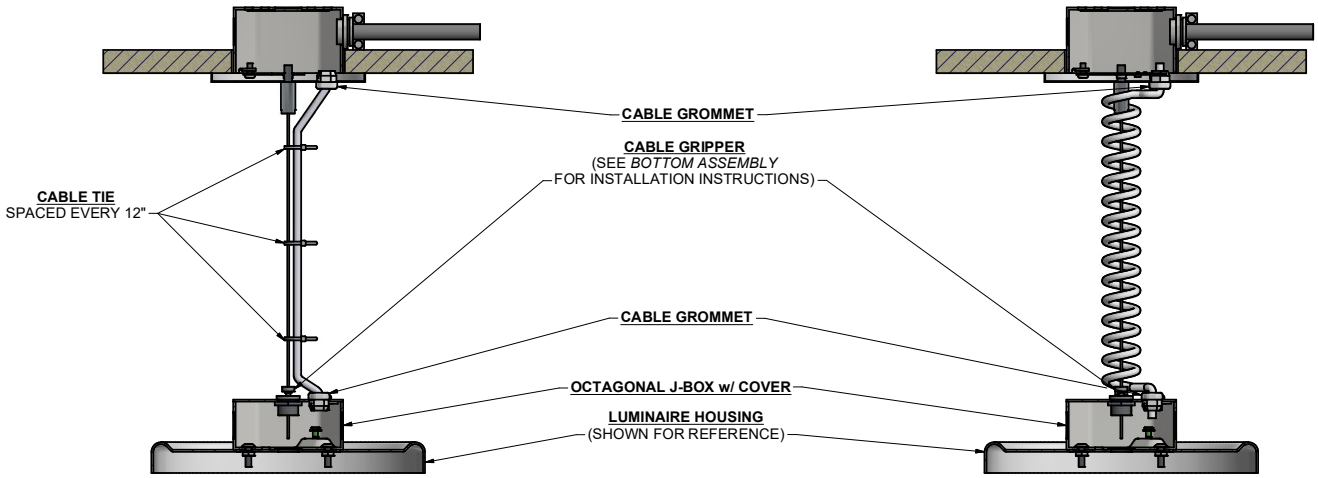
A= *OVERALL HEIGHT*

B= *LUMINAIRE HEIGHT*

C= *CUSTOM PENDANT LENGTH*

11.0 SURFACE FIXTURE INSTALLATION (Continued)

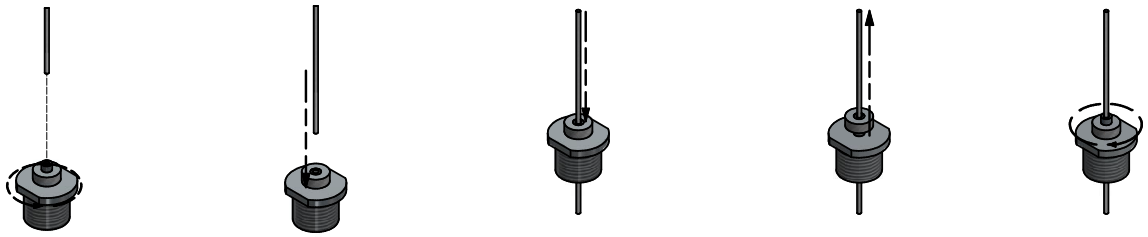




BOTTOM ASSEMBLY

(SOME COMPONENTS HAVE BEEN REMOVED FOR CLARITY)

PLEASE REFERENCE FULLY ASSEMBLED VIEW FOR ALL COMPONENTS



VIEW A

LOOSEN GRIPPER LOCK NUT TO UNLOCK

VIEW B

DEPRESS GRIPPER LOCK NUT

VIEW C

INSERT CABLE INTO GRIPPER TO DESIRED HEIGHT WHILE DEPRESSING GRIPPER LOCK NUT

VIEW D

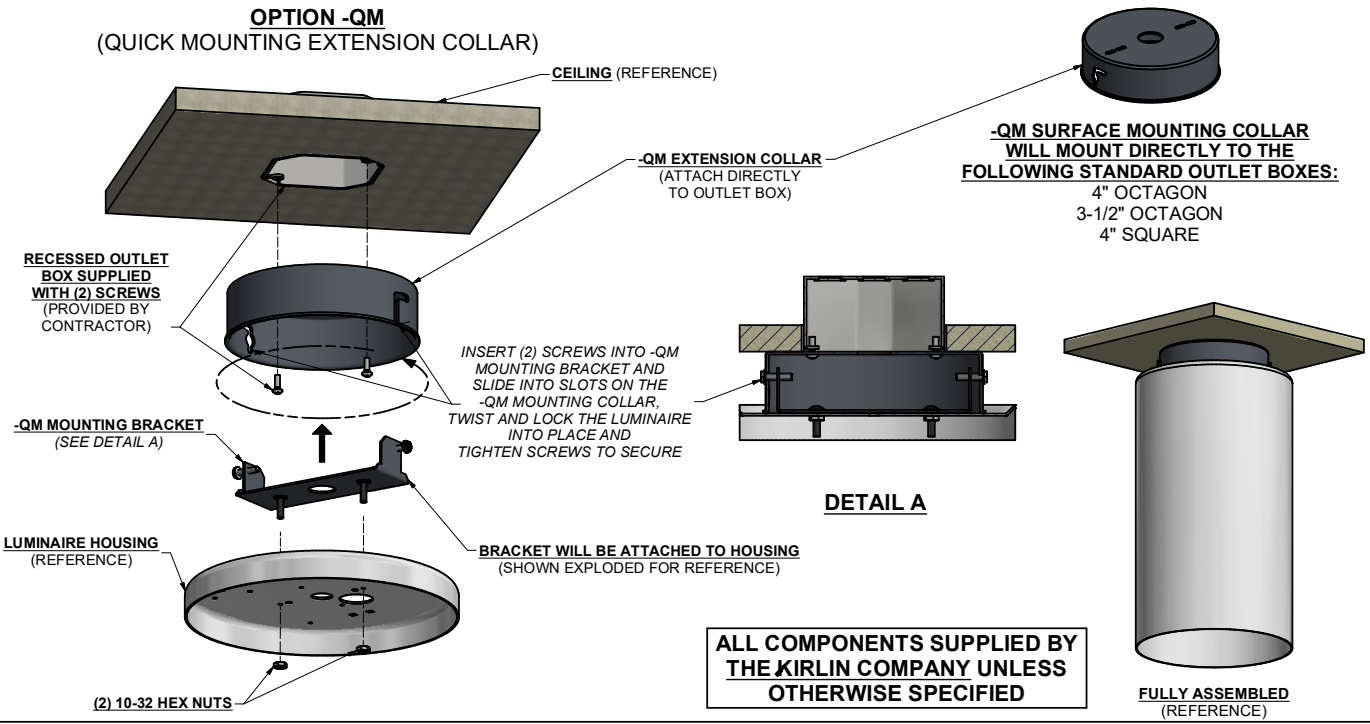
RELEASE GRIPPER LOCK NUT WHEN DESIRED HEIGHT IS ESTABLISHED

VIEW E

TIGHTEN GRIPPER LOCK NUT TO LOCK INTO POSITION

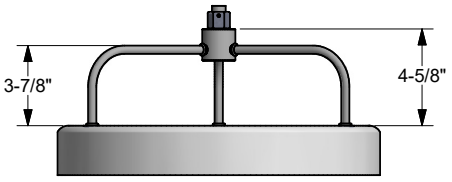
11.0 SURFACE FIXTURE INSTALLATION (Continued)

OPTION -QM
(QUICK MOUNTING EXTENSION COLLAR)

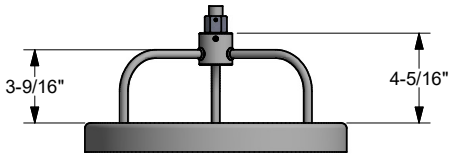


ALL COMPONENTS SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED

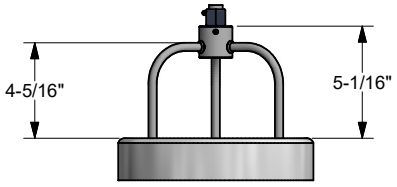
MOUNTING OPTIONS FOR DIRECT / INDIRECT INDOOR LUMINAIRES



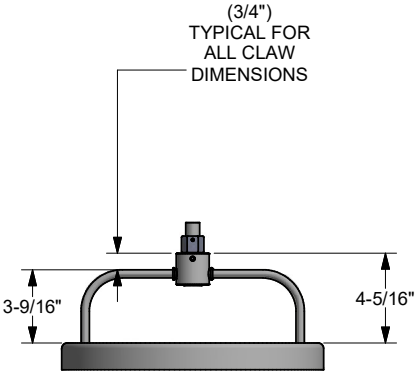
TRIPOD CLAW DIMENSIONS FOR A STANDARD 14.5" x 24.5" CYLINDER



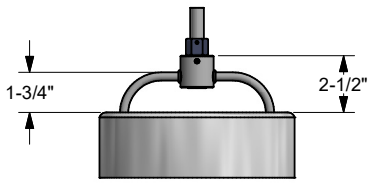
TRIPOD CLAW DIMENSIONS FOR A STANDARD 12" x 16" CYLINDER



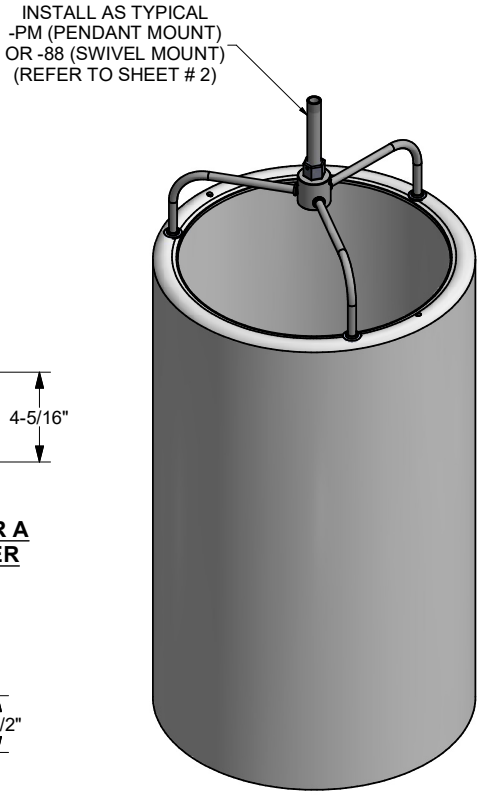
TRIPOD CLAW DIMENSIONS FOR A STANDARD 9" x 13.5" CYLINDER



BIPOD CLAW DIMENSIONS FOR A STANDARD 12" x 16" CYLINDER



BIPOD CLAW DIMENSIONS FOR A STANDARD 9" x 13.5" CYLINDER

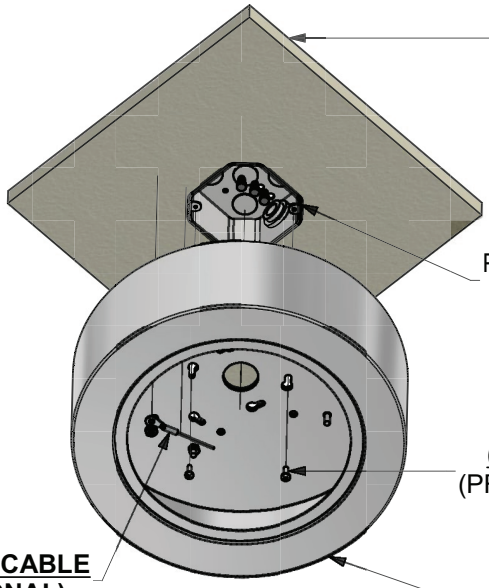


DIRECT / INDIRECT MOUNTING CYLINDER REFERENCE

12.0 12 x 4 FIXTURE INSTALLATION

DIRECT RECESSED MOUNTING OUTLET BOX

ALL COMPONENTS SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED



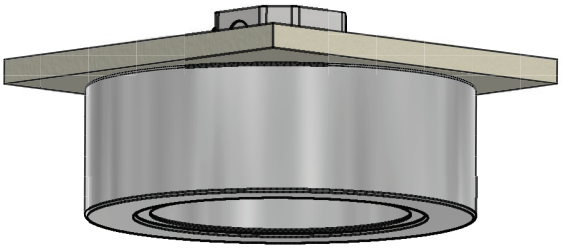
CEILING
(REFERENCE)

OUTLET BOX
PROVIDED BY CONTRACTOR
(SHOWN WITH 4" OCTAGON BOX FOR REFERNCE)

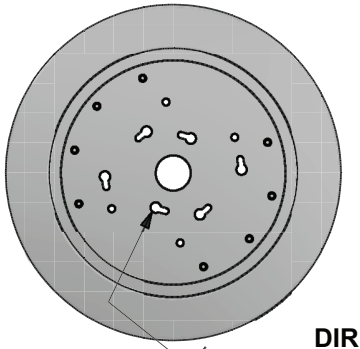
(2) OUTLET BOX SCREWS
(PROVIDED BY CONTRACTOR)

SAFETY CABLE (OPTIONAL)

Ø12" x 4" LUMINAIRE CYLINDER



FULLY ASSEMBLED
(REFERENCE)

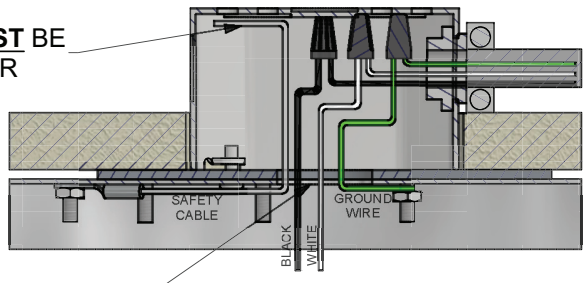


NOTE:
ONLY REMOVE THE KEYWAY GASKET NEEDED FOR MOUNTING

DIRECT MOUNTING (Ø4" x 12" CYL.) WILL MOUNT DIRECTLY TO THE FOLLOWING STANDARD OUTLET BOXES WITH A KEYWAY OR HOLE PATTERN IN HOUSING:
4" OCTAGON
3-1/2" OCTAGON
4" SQUARE
4-11/16" SQUARE

VIEW OF WIRES IN THE JUNCTION BOX

OPTIONAL SAFETY CABLE **MUST** BE SECURED BY CONTRACTOR



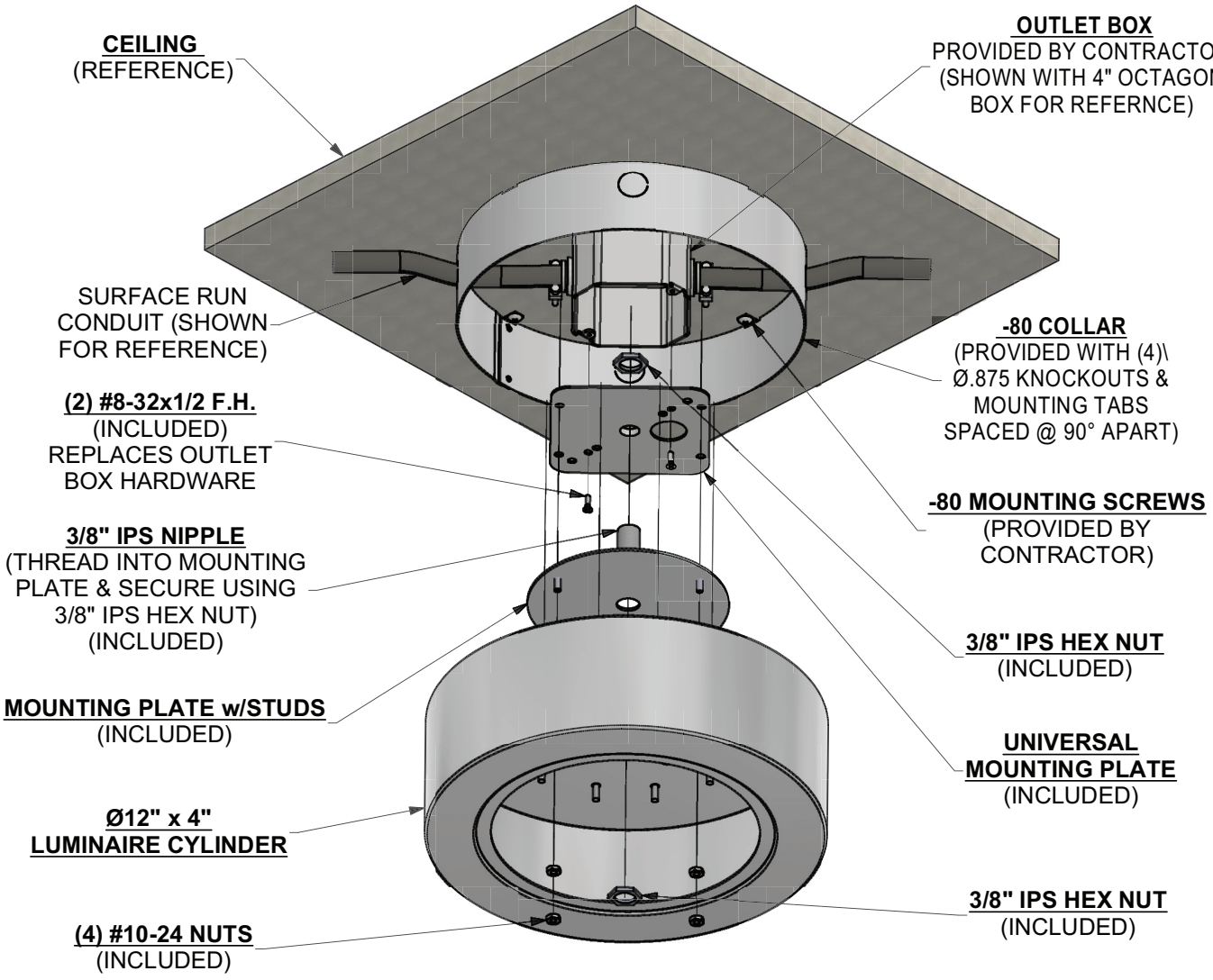
ROUTE LUMINAIRE WIRES & SAFETY CABLE THRU CENTER HOLE & INTO OUTLET BOX.

!!CAUTION!!
DO NOT BRING BUILDING WIRE INTO LUMINAIRE.

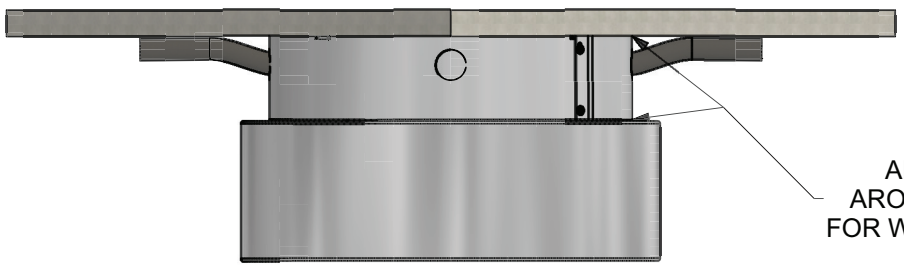
LUMINAIRE LEADS ***MUST*** TERMINATE IN OUTLET BOX MOUNTED IN CEILING ABOVE AS SHOWN

12.0 12 x 4 FIXTURE INSTALLATION (Continued)

DIRECT SURFACE MOUNTING OUTLET BOX WITH OPTION -80



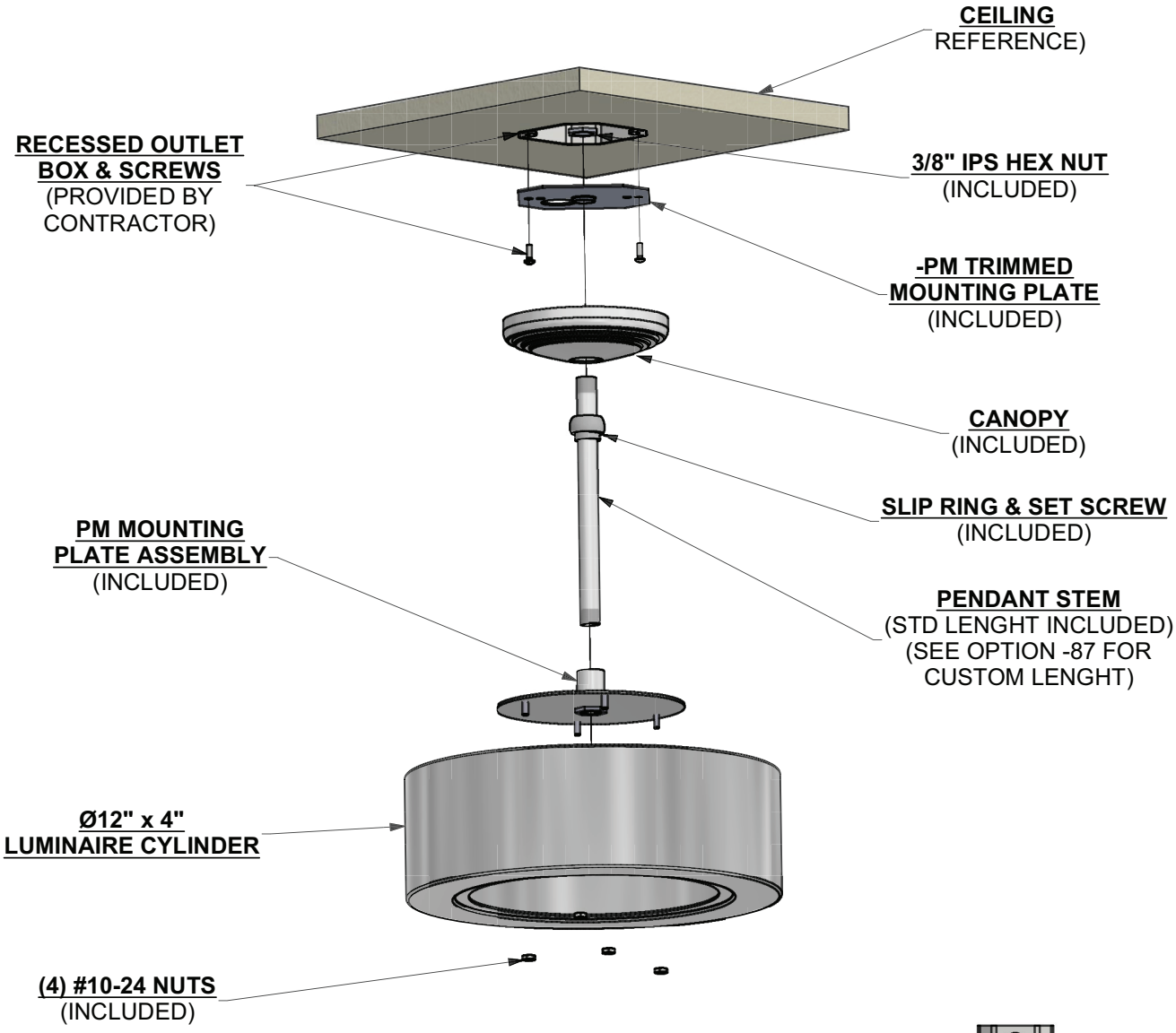
ALL COMPONENTS SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED



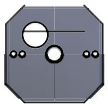
FULLY ASSEMBLED
(REFERENCE)

12.0 12 x 4 FIXTURE INSTALLATION (Continued)

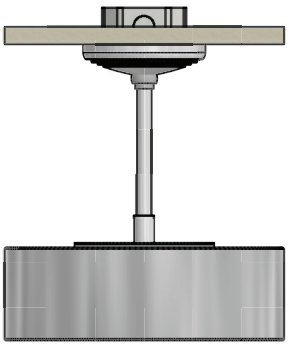
DIRECT RECESSED MOUNTING OUTLET BOX WITH OPTION -PM



ALL COMPONENTS SUPPLIED BY THE KIRLIN COMPANY UNLESS OTHERWISE SPECIFIED



-PM TRIMMED MOUNTING PLATE
WILL MOUNT DIRECTLY TO THE FOLLOWING STANDARD OUTLET BOXES:
3-1/2" OCTAGON
4" OCTAGON



FULLY ASSEMBLED
(REFERENCE)

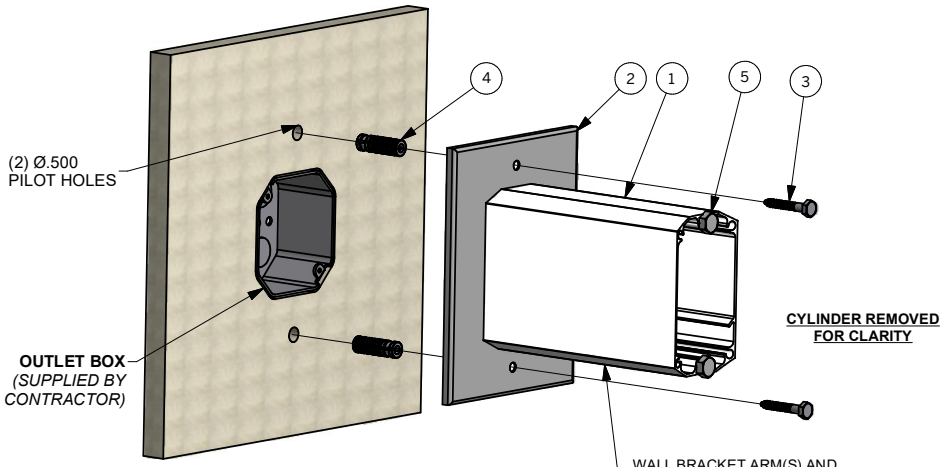
13.0 WALL BRACKET FIXTURE INSTALLATION

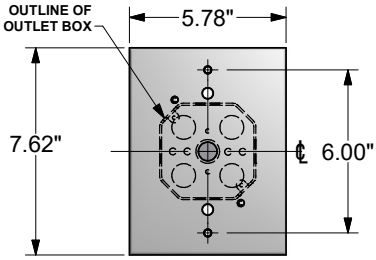
MOUNTING STYLE #1

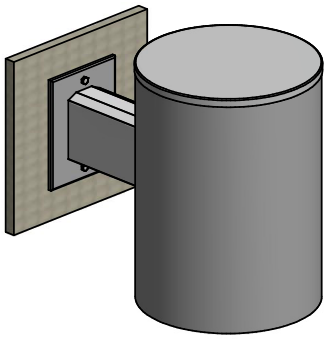
(WALL ANCHOR MOUNT - SINGLE ARM)

LUMINAIRES MOUNTED IN THIS STYLE ARE ***HEAVY***!!

DO NOT ATTEMPT TO MOUNT DIRECTLY TO J-BOX!!!







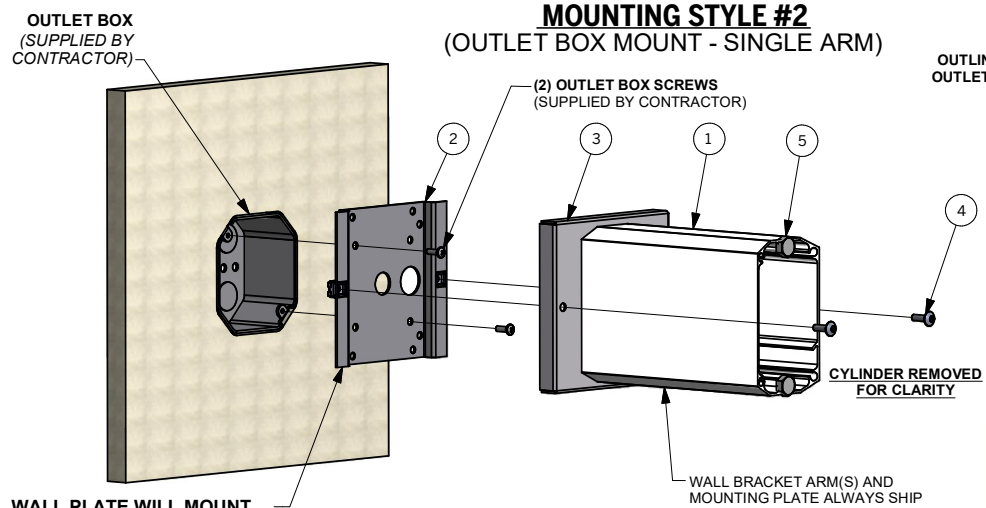
FULLY ASSEMBLED
(SHOWN WITH
CYLINDER FOR REFERENCE)

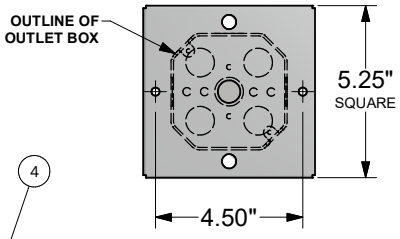
ALL COMPONENTS SUPPLIED BY **THE KIRLIN COMPANY** UNLESS OTHERWISE SPECIFIED

Parts List		
ITEM	QTY	DESCRIPTION
1	1	WALL BRACKET ARM
2	1	WALL MOUNTING PLATE
3	2	LAG BOLT 1/4 X 1.75
4	2	LAG SHIELD (ANCHOR)
5	4	SCREW: 3/8-16 x 1"

MOUNTING STYLE #2

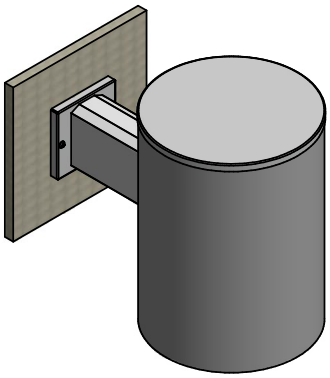
(OUTLET BOX MOUNT - SINGLE ARM)





WALL PLATE WILL MOUNT DIRECTLY TO THE FOLLOWING OUTLET BOXES:

4" OCTAGON
3-1/2" OCTAGON
4" SQUARE
4-11/16" SQUARE



FULLY ASSEMBLED
(SHOWN WITH
CYLINDER FOR REFERENCE)

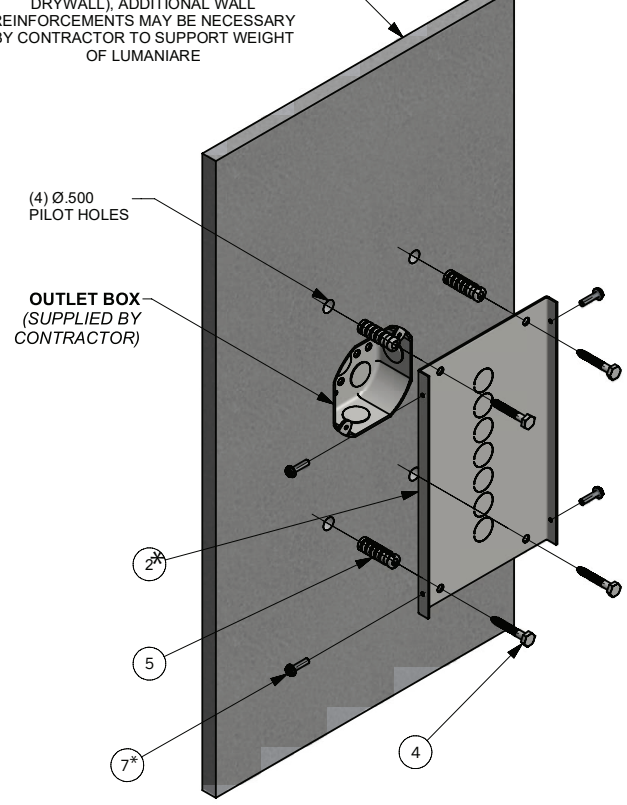
ALL COMPONENTS SUPPLIED BY **THE KIRLIN COMPANY** UNLESS OTHERWISE SPECIFIED

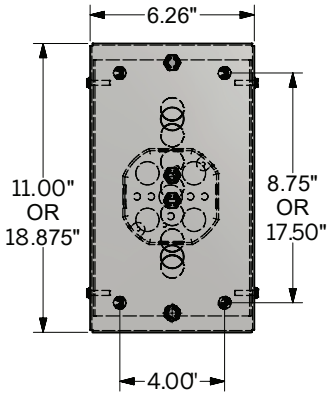
Parts List		
ITEM	QTY	DESCRIPTION
1	1	WALL BRACKET ARM
2	1	OUTLET BOX MOUNTING PLATE
3	1	WALL PLATE COVER
4	2	SCREW: 10-24 X .625
5	4	SCREW: 3/8-16 x 1"

13.0 WALL BRACKET FIXTURE INSTALLATION (Continued)

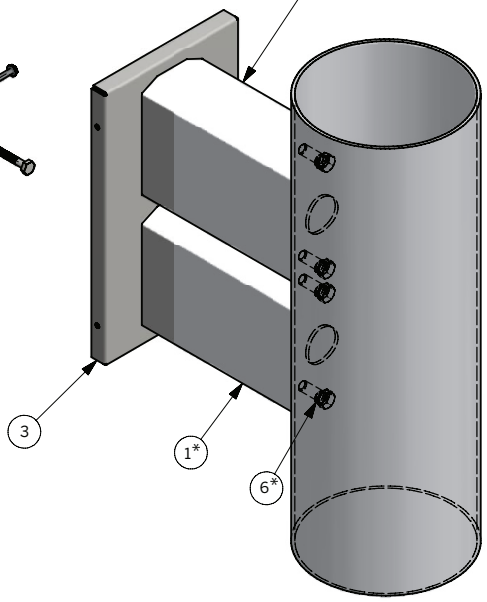
IMPORTANT
FOR SOME SURFACES (I.E. SHEETROCK, DRYWALL), ADDITIONAL WALL REINFORCEMENTS MAY BE NECESSARY BY CONTRACTOR TO SUPPORT WEIGHT OF LUMANIARE

MOUNTING STYLE #3
LUMINAIRES MOUNTED IN THIS STYLE ARE ***HEAVY!!***
DO NOT ATTEMPT TO MOUNT DIRECTLY TO J-BOX!!!





WALL BRACKET ARM(S) AND MOUNTING PLATE ALWAYS SHIP FROM KIRLIN ATTACHED TO LUMINAIRE. IN SOME DESIGNS, THE ARM(S) WILL CONTAIN ELECTRICAL COMPONENTS.

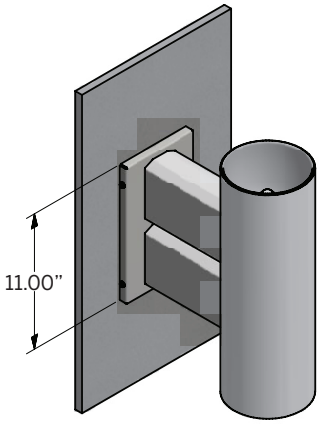


ALL COMPONENTS SUPPLIED BY **THE KIRLIN COMPANY** UNLESS OTHERWISE SPECIFIED

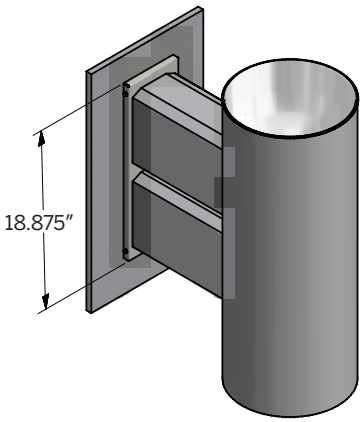
Parts List

ITEM	QTY	DESCRIPTION
1 *	2	WALL BRACKET ARM
2 *	1	WALL MOUNTING PLATE
3	1	WALL PLATE COVER
4	4	LAG BOLT: 1/4 x 1.75
5	4	LAG SHIELD (ANCHOR)
6 *	8	SCREW:3/8-16 x 1"
7 *	4	SCREW: 10-32 x .750

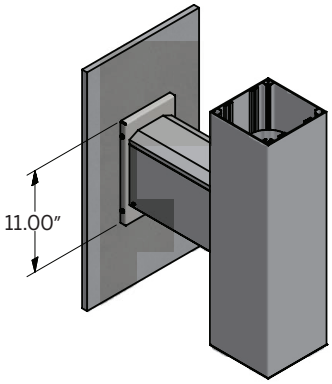
* = ACTUAL PART MAY DIFFER IN SIZE/QUANTITY



DOUBLE SMALL ARM ASSEMBLY (AS SHOWN ABOVE)



DOUBLE LARGE ARM ASSEMBLY



SINGLE LARGE ARM ASSEMBLY

FULLY ASSEMBLED VIEWS
(SHOWN WITH VARIOUS DESIGNS FOR REFERENCE)

14.0 OUTPUT CABLING TO FIXTURES

Output cabling must be #16 AWG (minimum) twisted pair shielded wire to minimize cross talk between channels and minimize Electromagnetic Interference (EMI). Total cable length must not exceed 250'.

Output Wire Requirements and Recommendations

ALL WIRES MUST BE: #16 AWG minimum, twisted pair shielded with drain wire, UL rated for 300V

Recommended Wire					
CMP Versions (PLENUM)			CM Versions (OPEN AIR)		
Belden	#16 AWG	Part # 83702	Belden	#16 AWG	Part # 8719
ADC	#16 AWG	Part # 911602SD			

15.0 DMX CONFIGURATION

The Symphony DMX system is designed to be programmed via RDM at the time of commissioning. There are various setting that can be adjusted from their factory default. This includes the dimming curve and address.

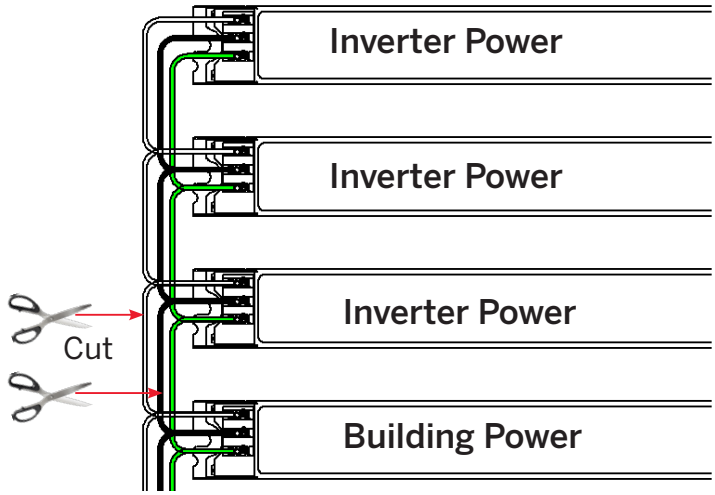
The system has 2 DMX failure modes that should be noted:

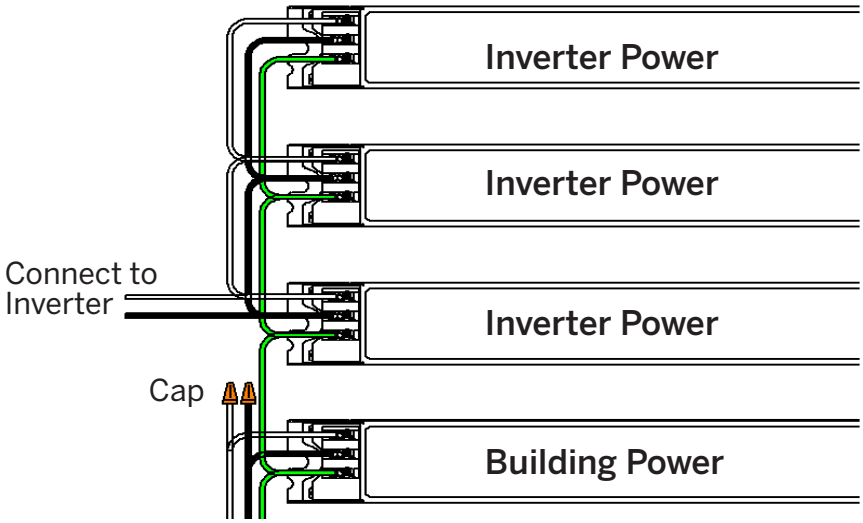
1. If the system powers on with no DMX signal, the output of all connected light fixtures will be 100%.
2. If the system is on and then DMX signal fails, the output of all connected light fixtures will be their last state.

16.0 INVERTER CONNECTIONS

EMI-03120

The **EMI-03120** will power up to 3 channels during a power failure. The input Line and Neutral wiring is daisy-chained at the factory to simplify installation, but can be cut to isolate modules that are to be connected. Please see the installation manual supplied with the **EMI-03120** for its specific wiring diagrams.



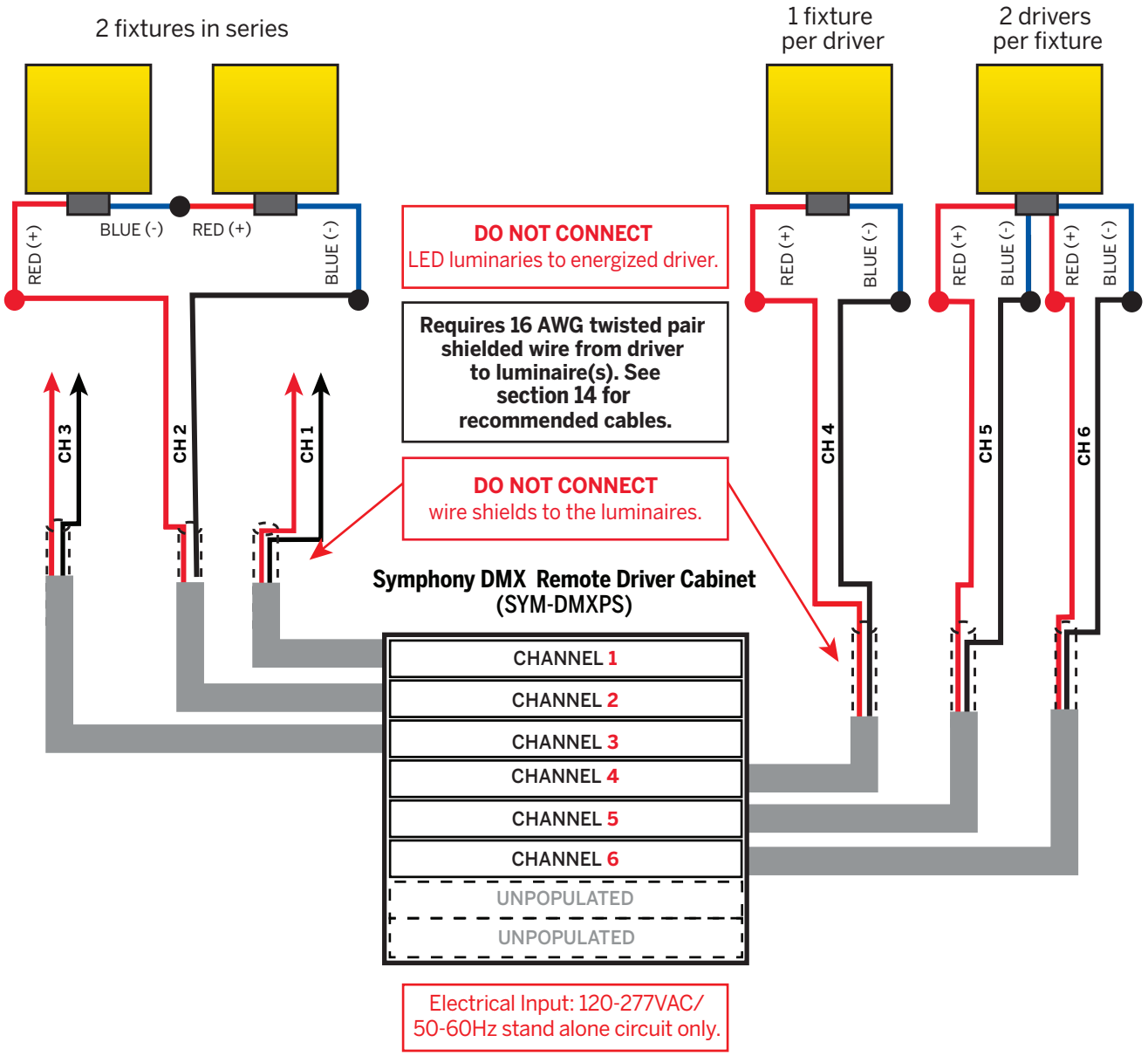


EMI-21220

The **EMI-21220** will power up to 8 channels or 1 full cabinet during a power failure. Please see the installation manual supplied with the **EMI-21220** for its specific wiring diagrams.

17.0 SYSTEM WIRING EXAMPLE

Light Description	LED Channel Module	
	1400mA	1050mA
-1500L Luminaire	Up to 2 fixtures in series per channel	
-2500L Luminaire	1 fixture per channel	
-4000L Luminaire		1 fixture per channel
-5000L Luminaire	2 channels per fixture	
-6500L Luminaire	2 channels per fixture	



18.0 TROUBLESHOOTING

Fixtures Do Not Illuminate

1. Verify that a valid DMX controller is connected and operating properly. If the system was turned off by a DMX controller and then DMX signal fails, the fixtures will stay at the last state. The system will also yield full output if powered on with no DMX signal. Disconnecting DMX input and output wires at the terminal blocks and power cycling the system for 1 minute will determine if the system is operating properly.
2. Check all assigned RDM addresses.
3. Verify that the system is powered on. Use of an AC volt meter can be used to verify proper line voltage at each driver's input.
4. Confirm that all input and output connections are correct and secure. All wiring from the driver to the LED fixture(s) is polarized; reversed connections may result LED light failure.
5. Verify that the number of fixtures per channel, drive current selection, and wiring connections are correct per diagram located on panel cover or section 9.0 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 and driver. Voltages should be approximately 55VDC. Lower voltages my indicate a short in the wiring or a failed driver.

Fixtures Are On, But Can't Change Output

1. Verify that a valid DMX controller is connected and operating properly. If the system DMX signal fails, the fixtures will stay at the last state. The system will also yield full output if powered on with no DMX signal. Disconnecting DMX input and output wires at the terminal blocks and power cycling the system for 1 minute will determine if the system is operating properly.

Fixtures Are Pulsing, Strobing or Flickering

1. Confirm the installed parts are approved Kirlin parts.
2. Check all wire connections. The most common reason for pulsing/strobing fixtures is a loose wire connection.
3. Verify that #16 AWG (minimum) twisted pair shielded wire is used and properly grounded.
4. Confirm that the supply line to the system is a dedicated circuit (all fixtures flickering at the same time).

For additional assistance, contact factory at 313.259.6400.