



COLOR SELECTABLE LED T12 HYBRID TUBE (TYPE A/B)

WARNING, CAUTION, SAFETY AND INSTALLATION INSTRUCTIONS

WARNING

- Installation, service, and maintenance of luminaires should be performed by a qualified licensed electrician.
- Keep these instructions for future reference.
- Modifications to the product void the warranty.
- Installers should examine all parts that are not intended to be replaced by the retrofit kit for damage and replace any damaged parts prior to installation.
- Parts/components included:
 - Installation instructions
 - LED tube lamp
 - Luminaire marking labels. For Type B installation only. Apply the label on the luminaire after the retrofit kit has been installed. The label must be visible by the user after installation and during relamping.

CAUTION

- Suitable to replace fluorescent lamps as specified on the product label.
- Not intended for use with emergency exits.
- Suitable for damp locations.
- Do not make or alter any open holes in the wiring enclosure or fixture components during installation.
- IF THE LAMP OR LUMINAIRE EXHIBITS UNDESIRABLE OPERATION (BUZZING, FLICKERING, ECT...), IMMEDIATELY TURN OFF POWER, REMOVE LAMP FROM LUMINAIRE, AND CONTACT THE MANUFACTURER.
- Install this kit only in the luminaires that have the construction features and dimensions shown in the photographs and/or drawings and where the input rating of the retrofit kit does not exceed the input rating of the luminaire.
- **Type A Application (Plug & Play, Ballast Compatible):**
 - WHEN WORKING WITH ELECTRONIC BALLAST, CHECK THE COMPATIBILITY LIST FIRST. IF THE BALLAST IS NOT LISTED, PLEASE BYPASS THE BALLAST OR CONTACT THE MANUFACTURER. DO NOT INSTALL THE TUBES IF THE BALLAST IS NOT ON THE LIST.
 - DO NOT INSTALL THIS LAMP IN A PRE-HEAT LUMINAIRE.
 - THIS LAMP OPERATES ON ELECTRONIC AND MAGNETIC BALLASTS. IF LAMP DOES NOT LIGHT WHEN THE LUMINAIRE IS POWERED ON, REMOVE THE LAMP FROM THE LUMINAIRE AND CONTACT THE LAMP MANUFACTURER OR A QUALIFIED ELECTRICIAN.
 - TYPE A LAMP – Intended for direct substitution of a fluorescent lamp and operating from the integral ballast without any modifications to the fluorescent luminaire.
- If the tube is installed as Type B, the luminaire, once modified as a retrofit fixture, will no longer operate fluorescent lamps.
- **Type B Application (Direct Wire, Ballast-Free)**
 - DO NOT USE WITH DIMMERS.
 - For single-ended power input: To avoid potential fire or shock hazard, do not use this lamp in luminaires employing shunted bi-pin lamp holders. Shunted lamp holders are found only in fluorescent luminaires with Instant-Start ballasts. Instant-start ballasts can be identified by the words "Instant Start" or "I.S." marked on the ballast. This designation may be in the form of a statement pertaining to the ballast itself, or may be combined with the marking for the lamps with which the ballast is intended to be used, for example F40T12/IS. Contact the manufacturer for additional information.



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- Installers should not disconnect existing wires from lampholder terminals to make new connections at lampholder terminals. Instead, installers should cut existing lampholder leads away from the lampholder and make new connections to lampholder lead wires by employing applicable connectors.
- Type B Lamp – Intended for operation in luminaires with traditional fluorescent-type lampholders wired directly to the branch circuit. This includes both factory-wired luminaires as well as those converted for this purpose under a retrofit program.
- THE RETROFIT KIT IS ACCEPTED AS A COMPONENT OF A LUMINAIRE WHERE THE SUITABILITY OF THE COMBINATION SHALL BE DETERMINED BY AUTHORITIES HAVING JURISDICTION. PRODUCT MUST BE INSTALLED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH THE APPLICABLE AND APPROPRIATE ELECTRICAL CODES. THE INSTALLATION GUIDE DOES NOT SUPERSEDE LOCAL OR NATIONAL REGULATIONS FOR ELECTRICAL INSTALLERS.
- The tubes covered by this report are intended to retrofit surface mount with diffuser for these models, Type IC or Non-IC recessed mount listed fluorescent luminaires that use a maximum of four tubular lamps. The minimum lamp compartment dimensions are tabulated below:

Model	MINIMUM LAMP COMPARTMENT DIMENSIONS [Length x Width x Height] [inches]	Lamp Quantity
PLTPD1381	48 x 22.6 x 2.6	4

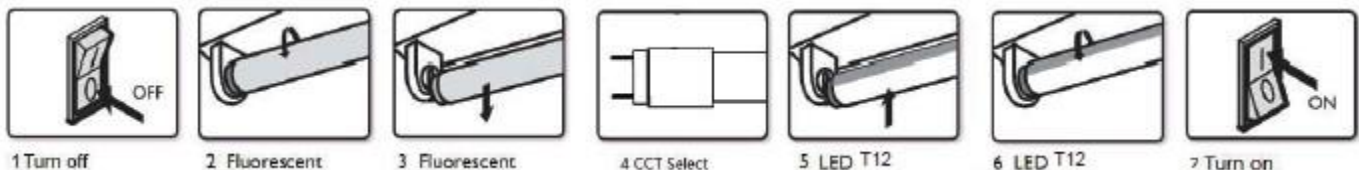
NOTICE

- Suitable for damp locations.

Installation Instructions

Type A Installation

1. Check the Ballast Compatibility list to verify if your ballast is compatible.
 - If your ballast is not listed, only install this tube as a Type B lamp according to the instructions listed in the Type B Installation section.
 - If your ballast is listed, continue with the instructions below.
2. Turn off power to the luminaire.
3. Remove the diffuser (if applicable).
4. Remove the existing fluorescent lamps from the luminaire.
5. Select the color temperature using the CCT switch on the LED lamp base.
 - Slide the CCT switch to the desired color temperature.
 - To prevent damaging the lamp, the LED tube must be powered off when selecting the color temperature.
6. Install the LED tube lamp.
7. Re-install the diffuser (if applicable).
8. Turn on power to the luminaire.



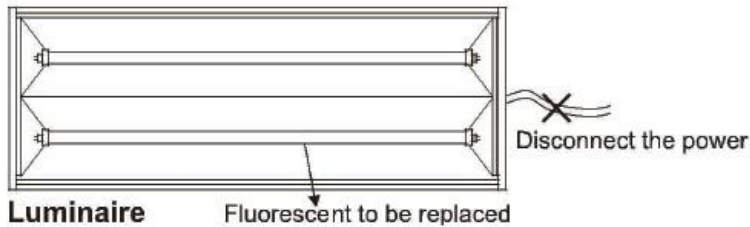


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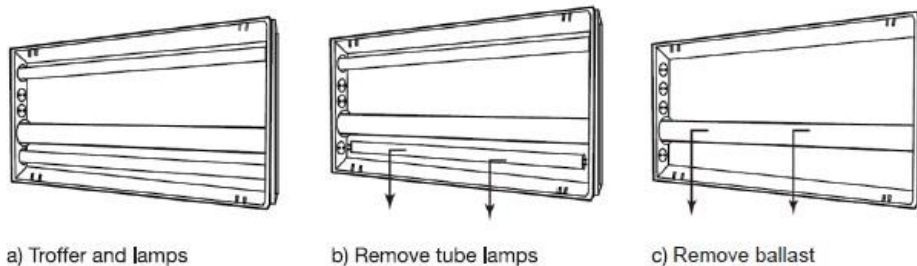
WARNING, CAUTION, SAFETY AND INSTALLATION INSTRUCTIONS

Type B Installation

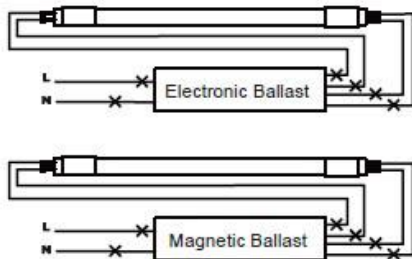
1. Disconnect power to the luminaire.
 - Disconnect power to the luminaire or circuit (if possible). Ensure all power is off by using a voltmeter or other method to confirm.



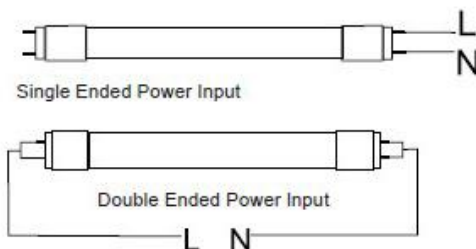
2. Remove the existing tube lamp(s)
 - a. Remove troffer lens (if applicable).
 - b. Remove existing fluorescent tube(s) by rotating them one-quarter turn and sliding the lamp(s) out.
 - c. Remove the ballast.



3. Retrofit the luminaire
 - i. Modify the circuit according to the wiring diagram below.
 - i. Disconnect the wires between the starter and the ballast according to the below figure. If no starter is present, simply disconnect the wire before and after the ballast.



- ii. Connect two wires to the branch circuit L and N according to the below figure.



Voltage Input: AC120-277V 50/60Hz



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4. Select the CCT

- Slide the CCT switch to the desired color temperature.



- To prevent damaging the lamp, the LED tube must be powered off when selecting the color temperature.

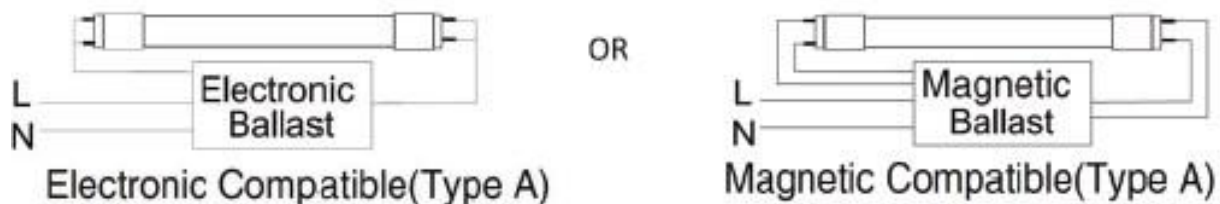
5. Insert the LED tubes.

- Read the label on the LED tube to ensure the powered end of the LED is aligned with the powered lampholder, then insert the LED lamp by sliding the pins into the sockets and rotate a quarter turn until the LED tube locks into place.
- The LED lamps are now fully installed.
- Attach the Replacement Marking and Cautionary Label to the fixture in a visible spot. Make sure to mark the type of wiring on the label (single or double-ended).
- Replace the diffuser (if applicable).

6. Restore power to the luminaire

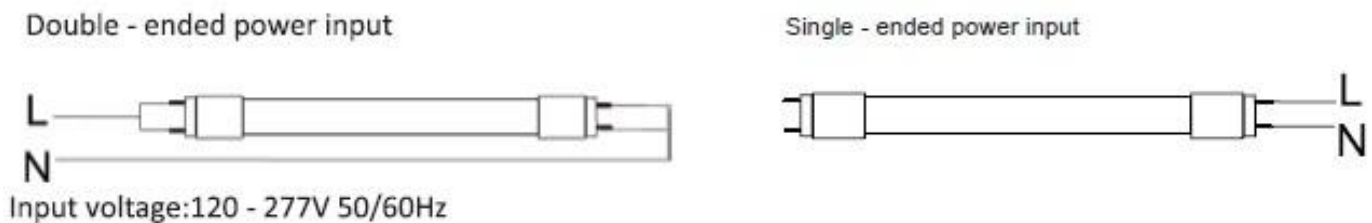
- Restore power to the luminaire/circuit and test the light. If necessary, adjust the position of the LED tubes.

Type A Wiring Diagram



Note: The wiring diagram should be the same with the ballast wiring diagram.

Type B Wiring Diagram



Note: For double-ended wiring installation, the sockets/lamp holders do not need to be changed (if they are in good condition) regardless of the type of sockets



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Ballast Compatibility List

T12 Type A 16W LED Tube Magnetic Ballast Compatibility List

No.	Ballast Brand	Model No.	Start Type	Max Loading	Compatibility (Y/N)			
					1 lamp		2 lamps	
					120V	277V	120V	277V
1	Universal	458-L-SLH-TC-P	Instant Start	1	Y	Y	N/A	N/A
2	SYLVANIA Osram	MB1x40/277 RS	Instant Start	1	Y	Y	N/A	N/A
3	Advance	R-140-1-TP	Instant Start	1	Y	Y	N/A	N/A
4	ADVANCE	R-2S40-1-TP	Instant Start	2	Y	Y	Y	Y
5	Universal	413-C-TC-P	Instant Start	1	Y	Y	N/A	N/A
6	ADVANCE	V-140-2-TP	Instant Start	1	Y	Y	N/A	N/A

T12 Type A 16W LED Tube Electronic Ballast Compatibility List

No.	Ballast Brand	Model No.	Start Type	Max Loading	Compatibility (Y/N)							
					1 lamp		2 lamps		3 lamps		4 lamps	
					120V	277V	120V	277V	120V	277V	120V	277V
64	IOTA	I-162 (Emergency)	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
65	IOTA	I-320 TBTS M20	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
66	IOTA	ISL-54 (Emergency)	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
67	KEYSTONE	KTEB-228HE-UV-PS-SL	Program Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
68	KEYSTONE	KTEB-232-UV-IS-N-P	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
69	KEYSTONE	KTEB-332-UV-IS-N-P	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
70	KEYSTONE	KTEB-432RIS-1-TP-SL	Instant Start	4	Y	N/A	Y	N/A	Y	N/A	Y	N/A
71	KEYSTONE	KT-EMRG-1400/B	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
72	KEYSTONE	KT-EMRG-1400-SL	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
73	KEYSTONE	KT-EMRG-1400-SL/B (Emergency)	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
74	KEYSTONE	KT-EMRG-500-SL/B	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
75	OSRAM	QHE 2X32T8/UNV ISH HT-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
76	OSRAM	QHE 2X32T8/UNV ISH HT-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
77	OSRAM	QHE 2X32T8/UNV ISH HT-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
78	OSRAM	QHE 2X32T8/UNV ISL-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
79	OSRAM	QHE 2X32T8/UNV ISL-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
80	OSRAM	QHE 2X32T8/UNV ISL-SC-1	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A



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81	OSRAM	QHE 2X32T8/UNV ISN-SC	Instant Start	2	N	N	Y	Y	N/A	N/A	N/A	N/A
82	OSRAM	QHE 2X32T8/UNV PSN-MC	Program Rapid	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
83	OSRAM	QHE 2X32T8/UNV PSX-MC	Program Rapid	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
84	OSRAM	QHE 3X32T8/UNV ISH HT-SC	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
85	OSRAM	QHE 3X32T8/UVN PSN-SC	Program Rapid	3	Y	Y	Y	Y	Y	Y	N/A	N/A
86	OSRAM	QHE 4X32T8/UVN ISL-SC	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
87	OSRAM	QTP 2X32T8/UNV ISN-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
88	OSRAM	QTP 3X32T8/UNV ISN-SC	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
89	OSRAM	QTP 4X32T8/UVN ISL-SC	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
90	OSRAM	QTP 4X32T8/UVN ISN-SC	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
91	PHILIPS	B50 (Emergency)	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
92	PHILIPS	LP600STU (Emergency)	Instant Start	2	N/A	N/A	Y	Y	N/A	N/A	N/A	N/A
93	PHILIPS ADVANCE	ICN-1P32-N	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
94	PHILIPS ADVANCE	ICN-2P32-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
95	PHILIPS ADVANCE	ICN-2P32-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
96	PHILIPS ADVANCE	ICN-2P60-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
97	PHILIPS ADVANCE	ICN-3P32-N	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
98	PHILIPS ADVANCE	ICN-4P32-N	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
99	PHILIPS ADVANCE	ICN-4P32-N	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
100	PHILIPS ADVANCE	IOP-2P32-HL-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
101	PHILIPS ADVANCE	IOP-2P32HL-SC	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
102	PHILIPS ADVANCE	IOP-2P32-LW-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
103	PHILIPS ADVANCE	IOP-2P59-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
104	PHILIPS ADVANCE	IOP-2PSP32-LW-N	Program Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
105	PHILIPS ADVANCE	IOP-2PSP32-N	Program Start	2	Y	N	Y	Y	N/A	N/A	N/A	N/A
106	PHILIPS ADVANCE	IOP-4PSP32-SC	Program Start	4	Y	Y	Y	Y	Y	Y	Y	Y
107	PHILIPS ADVANCE	IOPA-1P32-LW-N	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
108	PHILIPS ADVANCE	IOPA-2P32-LW-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A



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109	PHILIPS ADVANCE	IOPA-2P32-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
110	PHILIPS ADVANCE	IOPA-3P32-LW-N	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
111	PHILIPS ADVANCE	IOPA-3P32-LW-N	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
112	PHILIPS ADVANCE	IOPA-3P32-LW- SC	Instant Start	3	Y	N	Y	Y	Y	Y	N/A	N/A
113	PHILIPS ADVANCE	IOPA-3P32-N	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
114	PHILIPS ADVANCE	IZT-132-SC	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
115	PHILIPS ADVANCE	REL-2P32-SC	Instant Start	2	Y	N/A	Y	N/A	N/A	N/A	N/A	N/A
116	PHILIPS ADVANCE	REL-3P32-SC	Instant Start	3	Y	N	Y	N	Y	N	N/A	N/A
117	PHILIPS ADVANCE	REL-4P32-RH-TP	Instant Start	2	Y	N/A	Y	N/A	N/A	N/A	N/A	N/A
118	PLUSRITE	BAF232PS/MV	Instant Start	2	N	N	Y	Y	N/A	N/A	N/A	N/A
119	PLUSRITE	BAF432IS/MV	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
120	SUNLITE	40155- SU·SB/232/MV	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
121	SYLVANIA	QHE 1X32T8/UNV ISL-SC	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
122	SYLVANIA	QHE 1X32T8/UNV ISN-SC	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
123	SYLVANIA	QHE 2X32T8/UNV ISH-SC	Instant Start	2	Y	N	Y	Y	N/A	N/A	N/A	N/A
124	SYLVANIA	QHE 2X32T8/UNV PSL-SC	Instant Start	2	N	N	N	Y	N/A	N/A	N/A	N/A
125	SYLVANIA	QHE 4X32T8/UNV ISL-SC	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
126	SYLVANIA	QHE 4X32T8/UNV ISN-SC	Instant Start	4	Y	N	Y	N	Y	N	Y	Y
127	SYLVANIA	QTP 1X32T8/UNV ISN-SC	Instant Start	1	Y	Y	N/A	N/A	N/A	N/A	N/A	N/A
128	SYLVANIA	QTP 2X32T8 UNV ISN SC	Instant Start	2	Y	Y	N	N	N/A	N/A	N/A	N/A
129	SYLVANIA	QTP 2X32T8/347 ISN-SC	Instant Start	2	N	Y	N	Y	N/A	N/A	N/A	N/A
130	TCP	E3P32ISUNVE	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
131	TCP	E4P32ISUNVE	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
132	TRIAD	B232IUNV-C	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
133	TRIAD	B232IUNVEL-N	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
134	TRIAD	B232IUNVHEH-A	Instant Start	2	Y	Y	Y	Y	N/A	N/A	N/A	N/A
135	TRIAD	B332IUNVEL-A	Instant Start	3	Y	Y	Y	Y	Y	Y	N/A	N/A
136	TRIAD	B432IUNVHE-A	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y



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137	TRIAD	B432IUNVHP-A	Instant Start	4	Y	Y	Y	Y	Y	Y	Y	Y
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⚠ WARNING

- Before installing, servicing, or performing routine maintenance upon this equipment, follow these general precautions.
- To reduce the risk of death, personal injury, or property damage from fire, electric shock, falling parts, cuts/abrasions, and other hazards, read all warnings and instructions included with and on the fixture box and all fixture labels.
- Proper grounding is required to ensure safety.
- Power must be turned off at the breaker before installation or maintenance.
- 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.
- Wear gloves and eye protection at all times while installing, servicing, or performing maintenance on the luminaire, and avoid direct eye exposure to the light source while it is on.
- To prevent wiring damage or abrasion, do not expose wiring to edges of sheet metal or other sharp objects.
- Do not install damaged product. Inspect luminaire for damage that may have occurred during transit. If damaged, contact the manufacturer immediately.
- These instructions do not purport to cover all details or variations in equipment nor to provide every possible contingency to meet in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's or owner's purposes, contact the manufacturer.

⚠ ADVERTENCIA

- Antes de instalar, reparar o realizar el mantenimiento de rutina de este equipo, siga estas precauciones generales.
- Para reducir el riesgo de muerte, lesiones personales o daños a la propiedad por fuego, descarga eléctrica, caída de piezas, cortes / abrasiones y otros peligros, lea todas las advertencias y instrucciones incluidas con y en la caja del dispositivo y todas las etiquetas del dispositivo.
- Se requiere una conexión a tierra adecuada para garantizar la seguridad.
- Se debe apagar la energía en el disyuntor antes de la instalación o el mantenimiento.
- Este producto debe ser instalado de acuerdo con el código de instalación aplicable por una persona familiarizada con la construcción y operación del producto y los peligros involucrados.
- Utilice guantes y protección para los ojos en todo momento durante la instalación, el servicio o el mantenimiento de la luminaria, y evite la exposición directa de los ojos a la fuente de luz mientras está encendida.
- Para evitar daños o abrasiones en el cableado, no exponga el cableado a bordes de láminas de metal u otros objetos afilados.
- No instale un producto dañado. Inspeccione la luminaria en busca de daños que puedan haber ocurrido durante el tránsito. Si está dañado, comuníquese con el fabricante de inmediato.



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- Estas instrucciones no pretenden cubrir todos los detalles o variaciones en el equipo ni proporcionar todas las posibles contingencias a cumplir en relación con la instalación, operación o mantenimiento. Si desea obtener más información o si surgen problemas particulares que no están suficientemente cubiertos para los