KEYSTONE LIGHT MADE EASY

ComboDrive X3

PLUG & PLAY OR LINE VOLTAGE COMPATIBLE

WATTAGE	INPUT VOLTAGE	CRI	PF
13W	120-277V	>80	+0.90
FREQUENCY	INPUT CURRENT	COLOR	WARRANTY
50/60HZ	113mA at 120V 54mA at 277V	3000K/4000K/ 5000K/7000 6500K	5 Years

RoHS Compliant

Installation & Operating Instructions below

CAUTION: Before installing, make certain the AC power to the fixture is off.
CAUTION: The electrical rating of this product is 120-277V. Installer must confirm that there is 120-277V at the fixture before installation.
CAUTION: LEDs are extremely bright. Do not look directly at the LED light source for extended time as overexposure may cause harm to the eyes.

EASY CODE:
LE-164

CAT. NO.:
KT-LED13T8-48GC-8CSJ-X3

DIRECT REPLACEMENT (WITH EXISTING BALLAST)

1. Turn power off.
2. Remove lamps with diffuser, if applicable.
3. Remove existing fluorescent lamp(s) from the luminaire.
4. Install proper LED replacement lamp(s), one lamp for each fluorescent lamp removed.
5. Replace diffuser with new lamps in place, if applicable.
6. Turn power back on to illuminate.
* Warning: Check Keystone's Ballast Compatibility List before installation.

BY-PASS REPLACEMENT (WITH BALLAST REMOVED)

A. Disconnect power from fixture.
B. Remove lamps with diffuser.
C. Remove lens and wiring compartment, if applicable.
D. Identify ballast type and wiring configuration. Figure Ballast Configuration.
E. Identify what type of lamp holders are in fixture, non-shunted lamp holders or shunted lamp holders. Shunted lamp holders have a wire jumper between pins. Installation of Keystone Combo Drive X3 tubes can be used with shunted (S) or non-shunted (U) lamp holders with instructions to externally shunt.

Figure A Instant Start Configuration



Figure B Program Rapid Configuration



Figure C Rapid Start Configuration



Figure D Lamp Holder Types



Figure E Direct Drive LED Tube Connection Pins



F. Replace lamp.
G. Replace diffuser with new lamps in place, if applicable.
H. Apply power to fixture and check for illumination.

SINGLE-ENDED LINE VOLTAGE WIRING*

Note: For single-ended wiring installations, power is supplied only to end-cap between Slots A and B. Single-ended wiring is not compatible with Program Rapid Configuration.

1. Follow steps A-D (see By-Pass Replacement (with ballast removed), on page 2).
2. Cut all existing connections to ballast and remove ballast (see Figure A, on page 2, for typical ballast configuration).
Note: Single-ended wiring requires non-shunted lamp holders (see Figure B, on page 2, for lamp holder types).

3. On Side A of lamp holder, connect line voltage AC wire to pin marked L and connect line neutral AC wire to pin marked N (or the wiring as shown below (see Figure C, on page 2, for direct drive LED tube connection pins).



4. Complete all electrical connections with appropriate connectors/wire nuts as needed, per all local and national electrical codes.
Note: Wires should not be any exposed wires from sockets left unconnected.
5. Replace wiring compartment cover.
6. Ensure that installed lamp is aimed to line and neutral in the lamp holder and that lamp is facing proper direction for illumination.
7. Install lens or diffuser, if applicable.
8. Apply power to fixture and check for illumination.

Multiple lamps

1. Follow steps A-C (see By-Pass Replacement (with ballast removed), on page 2).
2. Cut all existing connections to ballast and remove ballast (see Figure A, on page 2, for typical ballast configuration).
3. Connect the line voltage AC wire to the first lamp holder's line socket.
4. Connect the neutral AC wire to the first lamp holder's neutral socket.
5. Connect the luminaire wiring to the next lamp holder's line and neutral sockets.
Note: Do not connect any wires to Side B of lamp holder.



6. Complete all electrical connections with appropriate connectors/wire nuts as needed, per all local and national electrical codes.
Note: Wires should not be any exposed wires from sockets left unconnected.
7. Replace wiring compartment cover.
8. Ensure that installed lamp is aimed to line and neutral in the lamp holder and that lamp is facing proper direction for illumination.
9. Install lens or diffuser, if applicable.
10. Apply power to fixture and check for illumination.

DOUBLE-ENDED LINE VOLTAGE WIRING

Single lamp

1. Follow steps A-D (see By-Pass Replacement (with ballast removed), on page 2).
2. Cut all existing connections to ballast and remove ballast (see Figure A, on page 2, for typical ballast configuration).
3. Identify what type of lamp holders are in fixture, shunted lamp holders or non-shunted lamp holders (see Figure D, on page 2).
4. On the end-cap on sheet holder, on Side B, connect line neutral AC wire to pins marked N1 and N2 on the end-cap as shown below (see Figure C, on page 2, for direct drive LED tube connection pins).

5. Complete all electrical connections with appropriate connectors/wire nuts as needed, per all local and national electrical codes. Note: Wires should not be any exposed wires from sockets left unconnected.
6. Ensure that installed lamp is aimed to line and neutral in the lamp holder and that lamp is facing proper direction for illumination.
7. Install lens or diffuser, if applicable.
8. Apply power to fixture and check for illumination.

Note: For double-ended wiring installations, the shunt wire must be installed on each end of the lamp.

4. Complete all electrical connections with appropriate connectors/wire nuts as needed, per all local and national electrical codes.
5. Ensure that installed lamp is aimed to line and neutral in the lamp holder and that lamp is facing proper direction for illumination.
6. Install lens or diffuser, if applicable.
7. Apply power to fixture and check for illumination.

Multiple lamps

1. Follow steps A-C (see By-Pass Replacement (with ballast removed), on page 2).
2. Cut all existing connections to ballast and remove ballast (see Figure A, on page 2, for typical ballast configuration).
3. Connect the line voltage AC wire to the first lamp holder's line socket.
4. Ensure that installed lamp is aimed to line and neutral in the lamp holder and that lamp is facing proper direction for illumination.
5. Install lens or diffuser, if applicable.
6. Apply power to fixture and check for illumination.



Safety and Electrical Parameters

Check that the product is suitable for your application. For example, type B or type BC replacement illustrated in luminaire that uses a maximum of 8 straight tubular lamps (or equivalent CFL) and the relevant dimensions of the luminaire are indicated below.

LED TUBE MODEL NO.	Lamp Compartment Width	Max. Lamps in Luminaire	Space Between Lamps
KT-LED13T8-48GC-8CSJ-X3	1-1/4" (31.75 mm)	8	3.5 in.

Check also that your product is suitable, too, for the luminaire and other parameters, see LED tube:

LED TUBE MODEL NO.	INPUT VOLTAGE	INPUT FREQUENCY	INPUT CURRENT	INPUT WATTAGE	TUBE LENGTH
KT-LED13T8-48GC-8CSJ-X3	120/277V	50/60Hz	0.113/0.054A	13W	48"

WARNING! Risk of fire or electric shock. Installed only in luminaires that have the construction features and dimensions shown in the photographs and/or drawing and where the input rating of the retrofit lamp does not exceed the input rating of the luminaire.

WARNING! Risk of fire or electric shock. Installer must assemble unsupported parts to luminaires presented like conceived/used per fabrication and dimensions indicated as not distinguished, if no decisions of your requests as assistance/ contrôle de interrompe d'après installation ne dépasse pas la puissance nominale du luminaire.

WARNING! To prevent wiring damages or abrasion, do not expose wiring to edges of sheet metal or other sharp objects.

WARNING! Do not exceed the maximum number of lamps.

WARNING! To avoid accidental fire or shock hazard, do not use this retrofit kit in luminaires employing inverted type lampholders. Note: 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 "IS" 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 more information, contact the CS luminaire retrofit kit manufacturer.

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ATTENTION! Risque d'incendie ou d'électrocution. Installer cet ensemble uniquement sur les luminaires présentant les caractéristiques de fabrication et les dimensions indiquées sur la photographie et / ou le dessin, si vous n'êtes pas qualifié, ne tentez pas l'installation d'un contacteur ou électricien qualifié.

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ATTENTION! Pour éviter d'endommager ou d'abîmer le câble par abrasion, ne pas placer par sur les bords de surfaces en tôle ou pres de tout autre objet coupant.

ATTENTION! Pour éviter tout incendie potentiel ou tout risque de choc, ne pas utiliser ce kit de rénovation dans luminaires utilisant des douilles d'culot à broches tordues. Remarque: les supports de lampe d'culot ne se trouvent que sur les luminaires fluorescents avec ballast de démarrage instantané. Les ballastes à démarrage instantané peuvent être identifiés par les mots Démarrage instantané ou IS, sur le ballast. Cette désignation peut être présentée sous la forme d'une déclaration relatives au ballast lui-même, ou peut être combinée avec le marquage pour les lampes dont le ballast est destiné à être utilisé. Pour plus de informations, contactez le fabricant du kit de rénovation de luminaire LED.

DO NOT INSTALL THIS LAMP IN A PRE-HEAT LUMINAIRE.

THIS LAMP ONLY OPERATES ON ELECTRONIC BALLASTS. IF LAMP DOES NOT LIGHT WHEN THE LUMINAIRE IS ENERGIZED, REMOVE LAMP FROM LUMINAIRE AND CONTACT LAMP MANUFACTURER FOR SPECIFIC INSTRUCTIONS.

TYPE A LAMP - Intended for direct substitution of a fluorescent lamp and operating from the ringed (ballast) without any modifications to the fluorescent luminaire.

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 electrical connections to lampholder leads by employing applicable connectors.

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 INSTALLATIONS.

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 the purpose under a retrofit program.

Do not replace a defective lamp in a luminaire with a lamp from a different manufacturer. Doing so may result in electrical components damage and/or installation failure.