Source 4WRD II
HPL to LED Retrofit (UL)

Installation and User Manual

Version 1.1.2

To view a list of ETC trademarks and patents, go to

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Introduction

The Source 4WRD II LED is a replacement for a standard Source Four burner assembly. It converts the HPL source to a white-light LED and provides a significant reduction in power consumption.

Retrofit kit, shown installed on a Source Four fixture body
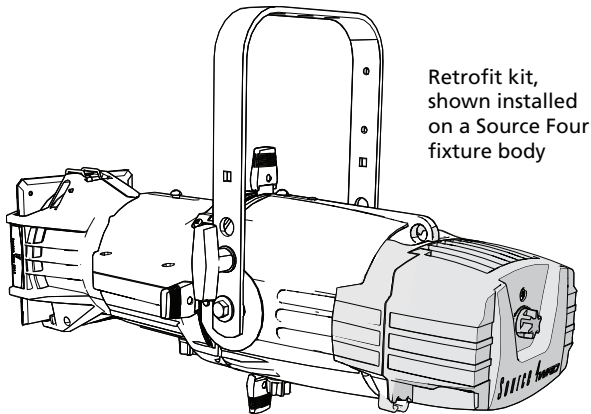
The following Source 4WRD II options are available in 80 CRI, 90 CRI (Gallery), and 90 CRI Daylight (Gallery) variants:

- **Source 4WRD II LED retrofit kit:** Used to modify an existing Source Four HPL incandescent fixture to a white LED fixture. The Source 4WRD II LED can also be used with the Source 4WRD PAR or PARNel Fixture Body to create a Source 4WRD II PAR or PARNel fixture. For more information, see the Source 4WRD II PAR and PARNel datasheet at etcconnect.com.
- **Source 4WRD II Light Engine:** Combines the Source Four incandescent fixture body with the Source 4WRD II LED. Available only with 80 CRI and 90 CRI (Gallery) variants.

Note: *The Source 4WRD II LED retrofit kit is not compatible with Source Four LED, Fresnel, PAR, PARNel, or jr fixtures.*

Help from ETC Technical Services

If you are having difficulties and your problem is not addressed by this document, try the ETC support website at support.etcconnect.com or the main ETC website at etcconnect.com. If none of these resources are sufficient, contact ETC Technical Services directly at one of the offices identified below. Emergency service is available from all ETC offices outside of normal business hours.

When calling for help, take these steps first:

• Prepare a detailed description of the problem
• Go near the equipment for troubleshooting
• Find your notification number if you have called in previously

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Safety

The Source 4WRD II fixture is intended for professional use only. Read the entire manual before using this equipment.

WARNING: Note the following safety warnings before use:

- Do not mount the fixture on or near a flammable surface.
- Do not use this fixture with a damaged power lead. If the power lead (cord set) is damaged, it must be replaced.
- Mount and support the fixture only by the primary suspension holes in the yoke.
- Suspend the fixture from a suitable structure using only hardware rated for the weight of the fixture.
- In addition to primary suspension, attach a safety cable (ETC Model 400SC or other approved safety cable or device) to the fixture housing. An appropriate attachment point (hole) is provided in the protruding tab on the fixture housing.
- Disconnect the unit from power and DMX and allow the fixture to cool before removing or installing accessories, and before all cleaning and maintenance.

AVERTISSEMENT : Prendre connaissance des avertissements de sécurité suivants avant toute utilisation :

- Ne pas installer le projecteur sur ou à côté d'une surface inflammable.
- Ne pas utiliser ce projecteur avec un cordon d'alimentation endommagé. Si le cordon d'alimentation (câble) est abîmé, il doit être remplacé.
- Installer et accrocher le projecteur uniquement par les trous de fixation principaux de la lyre.
- Accrocher le projecteur à une structure convenable en utilisant seulement du matériel adapté au poids du projecteur.
- En plus de l'accroche principale, fixer une élingue de sécurité (modèle ETC 400SC ou autre câble/dispositif de sécurité certifié) au corps du projecteur. Un point d'accroche (trou) approprié est prévu dans la patte qui ressort du boîtier du projecteur.
- Déconnecter l'alimentation et le DMX et laisser le projecteur refroidir avant d'enlever ou installer l'optique découpe ou les autres adaptateurs, et avant tout nettoyage et entretien.

WARNING: Note the following warnings before use:

- The Source 4WRD II LED is not user serviceable. Field modification of the Source 4WRD II LED will void your ETC warranty.
- Do not use the fixture below 5°C (41°F).
- Minimum storage temperature is 5°C (41°F). When the fixture has been stored or transported in cold temperatures, allow it to warm to room temperature for a minimum of 1 hour before applying power. Applying power to a cold fixture will cause damage to the fixture and void the ETC warranty.
- Do not use this fixture if a glass lens is deeply scratched or cracked. Damaged lenses must be replaced.
- To prevent wiring damage, or abrasion, do not expose wiring to edges of sheet metal or other sharp objects.
- Use the fixture in dry locations only, where humidity does not exceed 90 percent (non-condensing). These fixtures are not intended for outdoor use.

Specifications

For full product specifications, see the Source 4WRD II LED datasheet at etcconnect.com.

Electrical

- 114–125 VAC 60 Hz power input
- 150 W draw at full
- Recommended 2 fixtures per dimmed circuit (D20 module)
- Maximum of 14 fixtures per non-dimmed circuit (R20 module)
- If using in DMX mode: Connect fixture to relay, constant power, or dimmer with regulation off and parked at full
- Inrush:
  - 120 V: 30 A (first half-cycle)
  - 240 V: 12 A (first half-cycle)

Typical Power Consumption

Mode	Power	Current
Idle: DMX Mode	1.2 W	.03 A
Idle: AC Mode	0 W	0 A
Full Intensity	150 W	1.26 A

Environment

- Ambient operating temperature: 5°C–40°C (41°F–104°F)
- Minimum storage temperature: 5°C (41°F)
- Maximum recommended ambient operating temperature: Ta=50°C (122°F)
- Maximum anticipated external surface temperature: Tmax=63°C (145°F) at Ta=50°C (122°F)
- External Temperature (steady state achieved) at 25°C (77°F) ambient: 38°C (100°F)

Weight

- Source 4WRD II LED retrofit kit only: 1.69 kg (3.73 lb)
- Source 4WRD II LED installed on 26° fixture with yoke and C-clamp: 6.39 kg (14.08 lb)

Optical

Compatible with all ETC Source Four lens tubes.

Retrofit the Fixture

WARNING: RISK OF FIRE OR ELECTRIC SHOCK! Installing the Source 4WRD II LED retrofit kit requires knowledge of luminaire electrical systems. If you are not qualified, do not attempt installation. Contact a qualified electrician.

AVERTISSEMENT : RISQUE D'INCENDIE OU DE DÉCHARGE ÉLECTRIQUE! Installer le nécessaire de conversion Source 4WRD II LED nécessite une connaissance des systèmes électriques de projecteurs. Si vous n'êtes pas qualifié, ne tentez pas l'installation. Faire appel à un électricien qualifié.

Note: *THE RETROFIT KIT IS ACCEPTABLE AS A COMPONENT OF A LUMINAIRE WHERE THE SUITABILITY OF THE COMBINATION SHALL BE DETERMINED BY AUTHORITIES HAVING JURISDICTION.*

LEDs

Retrofit kit

RJ45 data in and data thru

User interface and navigation buttons
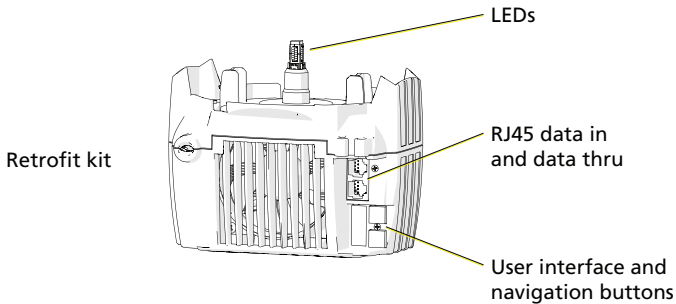
Wire the Power Connector (If Needed)

If you ordered a Source 4WRD II retrofit without a power connector, wire the connector in accordance with all national and local electrical codes:

• Brown = Live
• Blue = Neutral
• Green/Yellow = Protective earth

Remove Incandescent Lamp Housing

1. Unplug the Source Four incandescent fixture and place it on a flat, stable surface.
2. Loosen the brass thumb screw located above the beam adjustment knob. The lamp housing is now loose.
3. Remove the lamp housing from the fixture body.
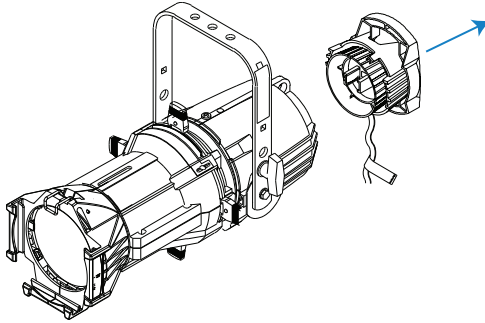
Note: *The burner assembly is no longer needed. If you would like ETC to recycle the burner assembly, contact ETC Technical Services for more information. See* Help from ETC Technical Services on page 2.

Install the Source 4WRD II Retrofit

WARNING: RISK OF FIRE OR ELECTRIC SHOCK! Install this kit only onto luminaires that have the construction features and dimensions shown in the images in this document and where the input rating of the retrofit kit does not exceed the input rating of the luminaire.

AVERTISSEMENT : RISQUE D'INCENDIE OU DE DÉCHARGE ÉLECTRIQUE! N'installer ce kit que sur les projecteurs qui ont les caractéristiques de construction et les dimensions indiquées sur les images de ce document et où la puissance électrique nécessaire à la conversion n'excède pas la puissance maximale du projecteur.

WARNING: Do not make or alter any open holes in an enclosure of wiring or electrical components during kit installation.

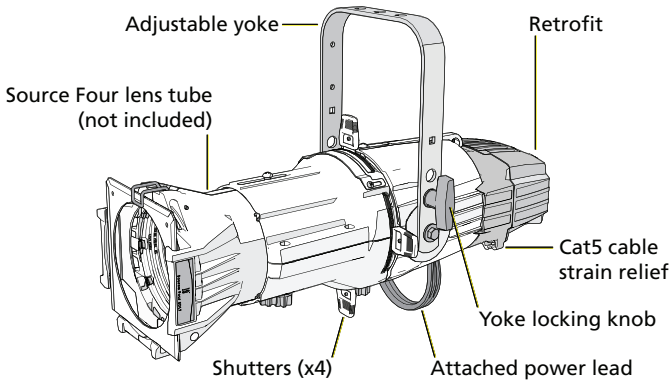**CAUTION:** *Do not touch or clean LED emitters with anything other than oil-free canned air.*

Tools required:

- Adjustable wrench
- #2 Phillips screwdriver

1. Use oil-free canned air to clean the LED emitters before you install the retrofit. Do not touch the LED emitters.
2. With the fixture resting securely on a flat surface, attach the supplied threaded post to the back end of the fixture body. Use an adjustable wrench to tighten the threaded post one-quarter turn past finger tight.
3. Gently slide the Source 4WRD II LED onto the fixture body and threaded post while guiding the LED tower into the lamp housing hole, as shown in the following image. Take care to prevent contact between the LEDs and the reflector.

Insert threaded
post here

Tighten
screw

Z-adjustment
knob

Source Four
fixture body

Lamp
housing
hole
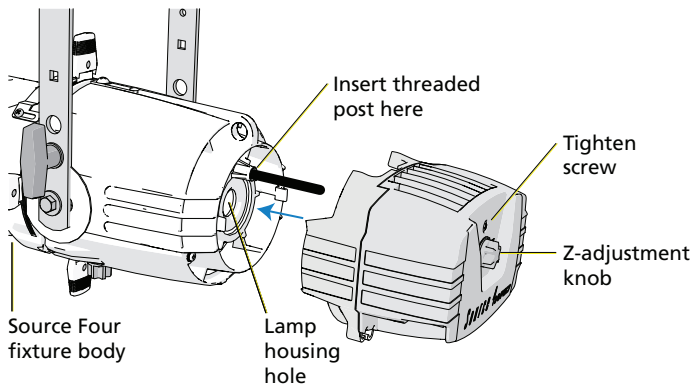
4. Use a #2 Phillips screwdriver to tighten the screw located on the
   back end of the Source 4WRD II LED, directly above the
   Z-adjustment knob.
5. Pull gently to verify secure attachment.
6. Set the Z-adjustment using the Z-adjustment knob. See *Set the Z-
   adjustment on page 15*.

Install the Fixture

Adjustable yoke

Retrofit

Source Four lens tube
(not included)

Cat5 cable
strain relief

Yoke locking knob

Shutters (x4)

Attached power lead

Attach C-clamp and Safety Cable

The C-clamp attaches the fixture to the mounting pipe and allows you to adjust the position of the mounted fixture. ETC recommends using 1.5 in schedule 40 pipe.

1. Tightly fasten the C-clamp to the yoke with the provided yoke bolt and lock washer.
2. Place the C-clamp on mounting pipe, and then tighten the pipe bolt to secure it.
3. Loosen the C-clamp pan screw and rotate the yoke to the desired position.
4. Tighten the pan screw to lock the fixture.
5. Connect the safety cable.
6. Tighten the C-clamp pipe bolt to 15–20 ft-lb (20–27 Nm), approximately finger tight plus up to one-quarter turn.

⚠️ **CAUTION:** *Do not exceed 25 ft-lb (33 Nm) while tightening the C-clamp pipe bolt. Do not use excessive force.*

7. Tighten the yoke pivot bolt to 5–10 ft-lb (6–7 Nm), approximately finger tight plus up to one-eighth turn.

⚠️ **CAUTION:** *Do not exceed 15 ft-lb (20 Nm) while tightening the yoke pivot bolt. Do not use excessive force.*

Connect Cables

You can control the fixture using AC power or DMX. Configure the fixture to use the appropriate control method on the user interface. See *Configure the Fixture on page 14*.

WARNING: Do not use or store the Source 4WRD II fixture below 5°C (41°F). When the fixture has been stored or transported in cold temperatures, allow it to warm to room temperature for a minimum of 1 hour before applying power. Applying power to a cold fixture will cause damage to the fixture and void ETC warranty.

Note: *For optimum performance, make sure that your dimmer is out of regulated mode. See Line-dimming on the next page for recommended dimmer settings.*

Note: *Connecting both power and data from a SmartBar 1 to a Source 4WRD II fixture may cause flickering.*

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1. If you are using DMX control: Connect one RJ45 data cable for data-in and one for data-thru, as needed. Use the strain relief at the bottom of the fixture to support the data cables. Leave a loop of data cable between the connector and the strain relief to ensure that the connection point is not stressed.
   - To order an RJ45-to-female XLR adapter, use ETC part number W6538.
   - To order an RJ45-to-male XLR adapter, use ETC part number W6539.
2. If you are using DMX control and this is the last fixture in the line, terminate the fixture with a 120 Ohm resistor. Please contact your ETC customer service representative to purchase ETC part number N4086. See *Help from ETC Technical Services on page 2*.
3. Connect the fixture to the power source.

DMX Dimming

When dimming via DMX, consider the following:

- When using DMX over Cat5, use Cat5e or better.
- Cable distance for full DMX daisy chain must not exceed 300 m (1000 ft).
- Up to 32 fixtures can be connected together into a daisy chain.
- The fixture cannot be controlled via Ethernet protocols and should not be directly connected to an Ethernet system.
- When DMX data is lost, the LED emitters turn off.
- The fixture uses a single DMX channel for intensity control.

DMX pinout

Pin	Description	Pin	Description
1	DMX +	5	Not connected
2	DMX -	6	Not connected
3	Not connected	7	Common (shield)
4	Not connected	8	Not connected

Line-dimming

When line-dimming the fixture, set the parameters as shown in the following tables to ensure that the dimmer is out of regulated mode. (You may need to adjust dimmer settings for optimal fixture control).

In addition to the recommended settings in the following tables, you may need to increase the SCR Off Time from the default setting. Contact ETC for assistance in changing the SCR Off Time, or any other CEM classic, CEM+, or CEM3 settings. See *Help from ETC Technical Services on page 2*.

For the most current information on additional dimmer performance testing for both ETC and non-ETC dimmers, please visit the ETC website:

https://support.etcconnect.com/ETC/Fixtures/Source_Four/Source_ 4WRD%2F%2FSource_4WRD_PAR/Dimmer_Settings_for_Use_with_ Source_4WRD

Note: *When line-dimming the fixture, performance may vary based on the control settings of the dimmer. For this reason, ETC recommends using line-dimming for level-setting or for architectural dimming. ETC recommends testing the Source 4WRD II fixture on all existing dimmers that you want to use.*

Use DMX mode when high-performance, live, dynamic dimming is required.

CEM+ and CEM3

Parameter	CEM+	CEM3
Curve	Mod Square	Mod Square
Threshold	1%	1%
Min Scale	6 V	1%
Max Scale	140 V	100%
Regulation	OFF	OFF
Preheat	Disabled	Disabled
DC Prevent	ON	ON
Inrush Prevent	OFF	OFF
Scale Load	100	100

CEM Classic v2.x

Parameter	Value
Mode	Normal
Boost	117

CEM Classic v3.x

Parameter	Value
Mode	Normal
Curve	Mod-Square
Scale	140
Threshold	Normal

Configure the Fixture

The two-button, seven-segment display shows the DMX address, AC mode, or the manually-set level. Use the up and down navigation buttons to configure the fixture.

Up and down navigation buttons

User interface

- **Set a DMX address:** Use the up and down arrows to navigate to the desired DMX address number (1–512).
- **Set the fixture to use line-dimming (AC mode):** Use the down arrow to navigate one number below DMX address 1. The display will read **AC**.
- **Manually set a level:** Use the down arrow to navigate one number below **AC**. The display will read **L-FL** (Level = Full). Use the down arrow to decrease the level to a percentage of full (**L-99** = 99%, **L-98** = 98%, etc.). You can set levels from 0%–100% (full).
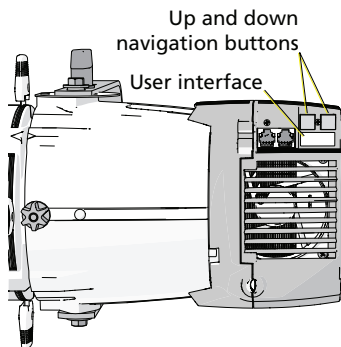
RDM Values

| Parameter	RDM PID	Value
Manufacturer ID	0x6574	Electronic Theatre Controls
Model ID	0x0800	ETC Source 4WRD II (120 V)
DMX Start Address	0x00F0	Range = 1–512
Personality ID	0x00E0	1 = DMX 2 = AC Dimming 3 = Local Control

Focus the Fixture

Set the Z-adjustment

Use the Z-adjustment knob located on the rear of the fixture to adjust the field of the LED light for specific applications.

1. Turn on the fixture and aim it at a flat surface.
2. Slide the fixture barrel toward or away from the Source 4WRD II LED to create a hard-edged beam of light.
3. Turn the knob toward PEAK or FLAT until you achieve the desired field.

Z-adjustment knob

PEAK   FLAT
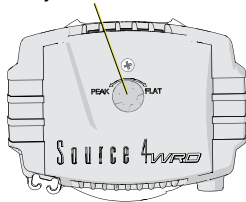
Source 4WRD

Ideal beam of uniform light

Adjust toward PEAK to blend overlapped beams

Adjust toward FLAT to improve sharp focus

Note: *The Source 4WRD PAR or PARNel Fixture Body optics are optimized for PEAK focus. When using the Source 4WRD II LED in a Source 4WRD PAR or PARNel Fixture Body, turn the Z-adjustment knob toward PEAK until the knob becomes loose, and then tighten the Z-adjustment knob an additional quarter turn. This sets the LED light source into the appropriate position within the fixture.*

Adjust the Yoke Position

Change the Height Position

1. Remove the yoke locking knobs, washers, and hex bolts from either side of the fixture.
2. Raise or lower the fixture to the desired position within the yoke.
3. Reinstall the yoke's hex bolts, washers, and locking knobs.
4. Tighten the yoke knobs to secure the yoke in position.

General use position   Low clearance position
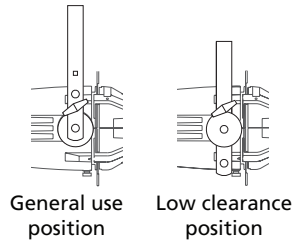
Set the Angle within the Yoke

1. Loosen the yoke locking knob. **Do not** remove the knob.
2. Tilt the fixture to the desired position.
3. Tighten the yoke locking knob to secure in position.

Yoke locking knob
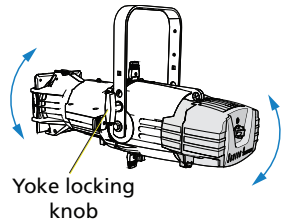
Shape the Beam

You can shape the beam by using the shutters, a pattern, an optional drop-in iris, and by rotating the barrel.

Use the Accessory Holder

The accessory holder is equipped with a spring-loaded retaining clip that prevents color frames and accessories from falling out.

⚠️ **WARNING: Make sure all color frame accessories are locked in position with the retaining clip before hanging the fixture.**

AVERTISSEMENT : S'assurer que tous les porte-filtres sont verrouillés en place à l'aide du verrouillage de la cassette avant de suspendre le projecteur.

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1. Release the retaining clip by pushing it sideways while gently pulling backwards.
2. Insert the color frame or accessory.
3. Lock the retaining clip by pushing sideways while gently pushing forward.

Retaining clip
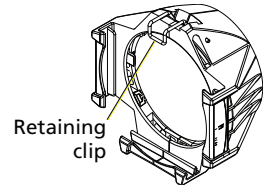
Use a Pattern

The pattern holder slot is on the top side of the barrel and in front of the shutters. It accommodates A-size, B-size, and glass pattern holders. Because the Source 4WRD II fixture aperture is 3 inches wide, ETC recommends A-size patterns for maximum effectiveness.

A-size pattern holder: Holds 7.6 cm (3 in) diameter patterns

7.93 cm (3.12 in) diameter

9.4 cm (3.7 in)

7 cm (2.75 in) diameter

9.4 cm (3.7 in)
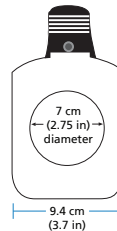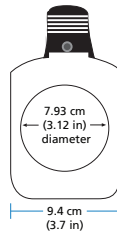
B-size pattern holder: Holds 6.35 cm (2.5 in) and 7 cm (2.75 in) diameter patterns

Troubleshoot the Source 4WRD II

The following error codes may be seen on the Source 4WRD II user interface. For more troubleshooting assistance, see *Help from ETC Technical Services on page 2*.

- **OtP** (OTP) indicates that the fixture has gone into over-temperature protection. Allow the fixture to cool, and then reset the fixture to clear the code.
  - **For DMX mode:** Return the DMX control to 0.
  - **For AC mode:** Remove the fixture from power for five seconds and then restore power.

- **UtP** (UTP) indicates that the fixture has gone into under-temperature protection. Allow the fixture to warm to a minimum of 5°C (41°F).

- **Flashing DMX address** indicates loss of DMX.

- **Dark screen** indicates loss of power or fixture time-out. In the event of time-out, press any button to wake the user interface. If this fails to wake the user interface, troubleshoot the power loss:
  - Verify that all cables are fully seated and that power is applied to the fixture.
  - If a working Source 4WRD II LED is available, exchange the Source 4WRD II LED with the working Source 4WRD II LED to further isolate any issues.
  - If the fixture still does not respond, contact ETC Technical Services for additional troubleshooting steps or to arrange a repair. See *Help from ETC Technical Services on page 2* for contact information.
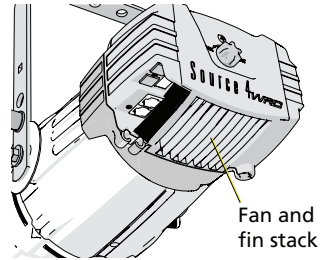
Clean and Maintain the Fixture

Clean the Fixture

⚠️ **CAUTION:** *Do not touch or clean LED emitters with anything other than oil-free canned air.*

- Use oil-free canned air to clean the LED emitters prior to installation and prior to storage.
- Use oil-free canned air to clean the fan and fin stack as part of regular fixture maintenance.

Fan and fin stack

Store the Retrofit

- When not installed on a fixture, store the Source 4WRD II LED in its original packaging or in a dust-resistant plastic bag.
- Store the Source 4WRD II LED at temperatures of 5°C (41°F) or higher.
- If you must store the Source 4WRD II LED below 5°C (41°F), make sure it is in an upright position as shown. Allow it to warm to room temperature for a minimum of one hour before applying power.
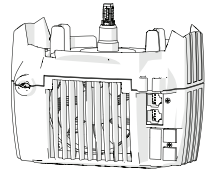
Store with LEDs facing up

Clean the Lenses

WARNING: **Do not use ammonia-based cleaners or other harsh commercial cleaners. Clean lens and reflector only as directed.**

Commercially available glass cleaning agents should be avoided as they may contain ammonia, other harsh chemical detergents or abrasive agents. These cleaners may damage the glass surface and the Anti-Reflective coatings. Do not immerse or soak the glass in any cleaning solution.

Note: *To clean the inside of lenses, you must remove the lenses from the lens tube. For instructions on removing the lenses, see the Source Four Assembly Guide, which is available for download at* **etcconnect.com**.

Replace lenses if they contain visible damage (cracks or deep scratches) that may impair their effectiveness.

1. Remove the lens tube from the fixture barrel:
   a. Remove the beam focus knob and retaining bolt from the top of the barrel and set aside.
   b. Slide the lens tube out of the barrel.
2. Remove any dust with a blast of oil-free air or wipe with a clean, lint-free cloth. You can use isopropyl alcohol, distilled water, or a 50%-50% mixture of each to clean the glass surface.
3. Slide the lens tube back into the barrel with the color frame retaining clip on top. Reinstall the beam focus knob and retaining bolt.

Clean the Reflector

⚠ **WARNING: Unplug the fixture and allow it to cool before you clean the reflector.**

AVERTISSEMENT : Débrancher le projecteur et le laisser refroidir avant de nettoyer le réflecteur.

To quickly clean the reflector, remove the lens tube and clean the dust from the reflector with a blast of oil-free air. You may also wipe the reflector with a clean lint-free cloth. If either method is not sufficient, follow these steps.

1. To protect the lamp housing during cleaning, remove the LED lamp housing by loosening the attachment screw and pulling the housing straight out. (See image on *page 8*.)
2. Remove the barrel rotation knob located at the bottom of the barrel. Use a Phillips screwdriver to remove the retaining bolt located on top of the reflector housing.
3. Rotate the barrel 45° in either direction. Carefully remove the barrel from the reflector housing.
4. Remove any dust with a blast of oil-free air or wipe with a clean, lint-free cloth. You can use isopropyl alcohol, distilled water, or a 50%-50% mixture of each to clean the glass surface.
5. Insert the barrel into the reflector housing with the iris/pattern slot on top. Align the triangles on both parts.
6. While gently pressing in, rotate the barrel 45° clockwise until it sets into position, and then rotate the barrel counterclockwise 45°. The barrel should be firmly attached and the triangles should be aligned.
7. Reinstall the barrel rotation knob and tighten the retaining bolt.
8. Reinstall the LED lamp housing and tighten the attachment screw. See *Install the Source 4WRD II Retrofit on page 8*.

Clean 5° and 10° Polymer Lenses

To quickly clean the lenses, remove dust with a blast of oil-free air. If this is not sufficient, follow these steps.

> ⚠️ **CAUTION:** *Handle polymer lenses by their edges only. Never rub anything dry on a polymer lens.*

1. Remove the beam focus knob at the bottom of the barrel. Remove the lens tube from the barrel.
2. Use a Phillips screwdriver to remove the brackets that hold the lens in place. Remove the lens from the tube.
3. Dip the lens in a clean isopropyl alcohol/water mixture (9 parts water to 1 part isopropyl alcohol).
4. Use a soft moistened nylon bristle brush to wash the smooth side of the lens in a linear (non-circular) motion.
5. Use the same brush to lightly wash the ridged side of the lens by following its ridges.
6. Dip the lens in a clean isopropyl alcohol/water mixture (9 parts water to 1 part isopropyl alcohol).
7. Dry the smooth and ridged surfaces with an air gun. Make sure that the air flow moves liquid away from you.
8. Inspect the lens for dirt. Repeat steps 3–7 if necessary.
9. Set the lens back in the lens tube with the ridged side facing the front of the tube. Reinstall the lens brackets.
10. Slide the lens tube back into the barrel with the retaining clip for the color frame on top. Reinstall the beam focus knob.