# ETC Installation Guide
## ColorSource Linear v1.7

## Overview

The ColorSource Linear is an affordable LED fixture that uses the RGB-L (red, green, blue, and lime) color system to provide a rich, bright light.

The fixture is available in three lengths:
- ColorSource Linear 1 (0.5 meter)
- ColorSource Linear 2 (1 meter)
- ColorSource Linear 4 (2 meter)

The ColorSource Linear is available in both original and Deep Blue variants. The Deep Blue uses an array that offers richer, more saturated blues and stronger magentas in exchange for the more jewel-toned blues like sky or turquoise. For more information, see the ETC website at etcconnect.com.
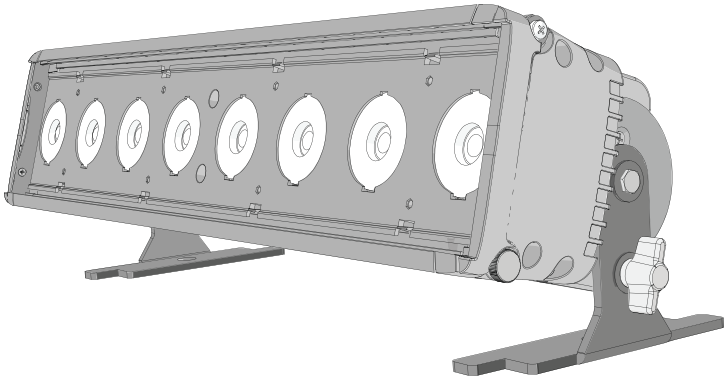


**Note:** *Features described in this document require the latest version of software. For information on updating fixture software, see Update the Fixture Software on page 14.*

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## Safety

For professional use only. Read the entire manual before using this equipment.

⚠️ **CAUTION:**
- *Risk of eye injury. Do not stare directly into the light.*
- *Do not operate in proximity to flammable materials.*

🛑 **WARNING: Disconnect the fixture from power and DMX and allow it to cool before performing any cleaning and maintenance.**

# IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed including the following:

# READ AND FOLLOW ALL SAFETY INSTRUCTIONS

- Do not use outdoors.
- Do not let power supply cords touch hot surfaces.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than intended use.

# SAVE THESE INSTRUCTIONS

ℹ️ **Note:** *The light source in this luminaire is not user-replaceable, and must be replaced only by a qualified technician. Contact ETC Customer Support for assistance.*

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## Environment

The ColorSource Linear operates in ambient temperatures of 0°C–40°C and comes with a variable-speed fan. The ColorSourceLinear is for indoor use only.

- Maximum recommended ambient operating temperature: Ta = 40°C (104°F)
- Maximum anticipated external surface temperature at 40°C ambient: Tmax = 80°C (176°F)
- External temperatures after 5 minutes of full-brightness operation at 25°C (77°F) ambient: 36°C (97°F)
- External Temperature (steady state achieved) at 25°C (77°F): 48°C (118°F)

## Electrical

- Operates between 100 V and 240 VAC at a frequency of 50/60 Hz.
- Maximum power consumption:
    - Linear 1: 120 W
    - Linear 2: 240 W
    - Linear 4: 480 W

- Up to 9 cells (0.5 m segments) may be linked via power thru connector.
- Up to 10 cells (0.5 m segments) total per circuit when used with an R20 Relay Module or Unison Echo Relay Panel. Consult breaker trip curves when used with other equipment. Requires power from a non-dimmable source.
- Inrush (Linear 1/Linear 2/Linear 4):
    - 120 V: 35 A/35.6 A/67.5 A (first half-cycle)
    - 240 V: 49 A/85.6 A/153 A (first half-cycle)

## Typical Power Consumption

| Linear 1 | 100 V | | 120 V | | 230 V | |
|---|---|---|---|---|---|---|
| | Power | Current | Power | Current | Power | Current |
| Idle | 1.63 W | 0.03 A | 1.55 W | 0.03 A | 1.43 W | 0.03 A |
| Direct at Full | 107 W | 1.07 A | 105 W | 0.88 A | 104 W | 0.46 A |

| Linear 2 | 100 V | | 120 V | | 230 V | |
|---|---|---|---|---|---|---|
| | Power | Current | Power | Current | Power | Current |
| Idle | 2.86 W | 0.06 A | 2.98 W | 0.06 A | 2.56 W | 0.06 A |
| Direct at Full | 210.83 W | 2.12 A | 208.67 W | 1.75 A | 204.5 W | 0.91 A |

| Linear 4 | 100 V | | 120 V | | 230 V | |
|---|---|---|---|---|---|---|
| | Power | Current | Power | Current | Power | Current |
| Idle | 5.28 W | 0.11 A | 5.24 W | 0.11 A | 4.65 W | 0.12 A |
| Direct at Full | 424.17 W | 4.27 A | 419.33 W | 3.52 A | 409.17 W | 1.82 A |

# Accessories

You can use several half-meter optional accessories with ColorSource Linearfixtures, including:

- Secondary lenses (horizontal, vertical, and round)
- Barn doors (7414K1020)
- Louver (7414K1019)

For information on installing secondary lenses, see *Install Secondary Lenses on page 15*.

## Accessories for Linear 2 and Linear 4

For the Linear 2 and Linear 4 fixtures, order one accessory for each 0.5 meter segment (cell) of the fixture. For example, for a Linear 2 fixture, order two barn door accessory kits to fit the full length of the fixture.

Spacers for secondary lenses are included with the fixture. Use these spacers to hold the accessories in position when multiple lenses are used in the Linear 2 and Linear 4 fixtures. The spacers are positioned between the 0.5 meter lenses.

Contact your local dealer for more information.

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# Installation
## Mounting

The ColorSource Linear ships with a pair of floor trunnions for mounting.

> ℹ **Note:** *Ensure that the trunnions are installed with the feet inward so that fixtures can be lined up end-to-end, if needed.*

You also have the option of using clamps with the trunnions to hang the fixture. Attach the clamps to the holes in the trunnion feet (see figure on ).

The ColorSource Linear 1 has two additional mounting options. Contact your local dealer for more information.
- Yoke with C-clamp (7414K1017)
- Double yoke with C-clamp for mounting two fixtures (7414K1018)

## Safety Cable

Two safety cable anchor points are provided on the fixture housing.

The anchor points also include two cutouts that can be used for cable strain relief.

## Connectors

- **Power:** Two powerCON® connectors for power in and thru
- **Data (DMX512/RDM):** Two five-pin XLR connectors OR two RJ45 connectors for data in and thru



C-clamp attachment point

Safety cable anchor point

Cutout for cable strain relief
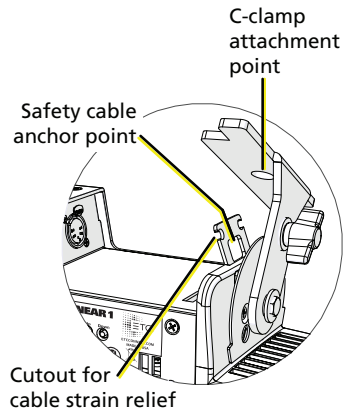
Conversion cables are available from ETC. Please contact your ETC customer service representative and request part number W6538 for RJ45 to female XLR or part number W6539 for RJ45 to male XLR.

### Connector locations

- **Linear 1:** Power connectors on one side of the fixture and data connectors on the other
- **Linear 2 and Linear 4:** Power and data connectors on each end (to facilitate daisy-chaining)

> ℹ **Note:** *This fixture is not Ethernet/data network compatible.*

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**Note:** *The ColorSource Linear is not self terminating. You must terminate the last fixture in line with a 120 Ohm resistor. XLR terminators are not available from ETC.*

*To purchase an RJ45 terminator, please contact ETC customer service and request part number N4086.*

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# Set Up the Fixture

See the fixture illustrations below and on the following page for reference.

1. Plug the power cord into the powerCON In connector on the rear of the fixture.
2. Make any power-thru cable connections prior to applying a power source.
3. Make any DMX connections, and if the fixture is the last in a DMX line, terminate the fixture. See *Connectors on the previous page*.
4. Plug the power cord into the power source.
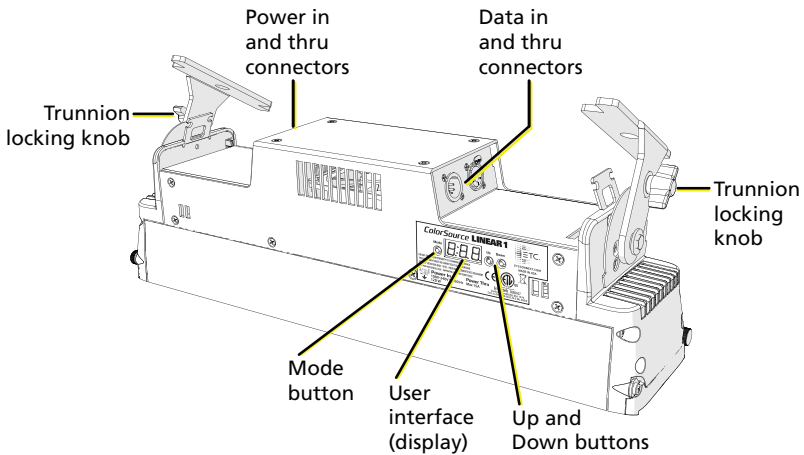


Linear 1

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**Power and data connectors are paired on each side to facilitate daisy-chaining**
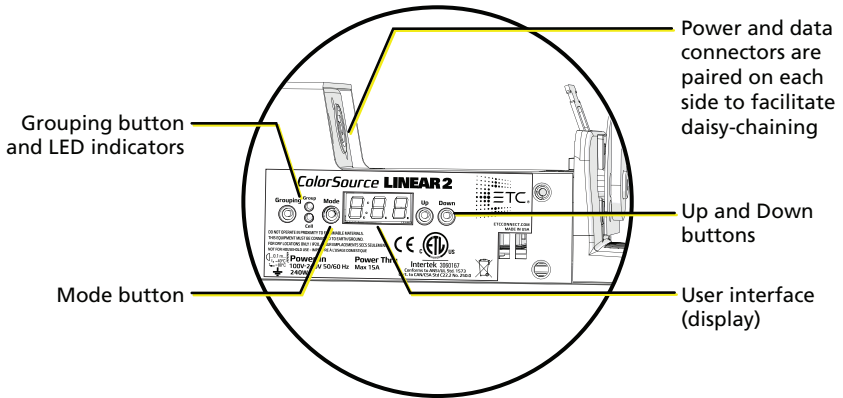
**Grouping button and LED indicators**

**Up and Down buttons**

**Mode button**

**User interface (display)**

Linear 2 and Linear 4

## Power Up

Press any button to wake the display. The display shows the DMX address. See *Set the DMX Address below*.

You can press the **Mode** button to access the Presets/Sequences menu. See *Play Presets and Sequences on page 12*.

## Adjust the Tilt

The fixture can be tilted up and down as needed.

1. Loosen, but do not remove the two trunnion locking knobs.
2. Tilt the fixture to the desired angle.
3. Tighten the trunnion locking knobs.

## Set the DMX Address

1. Press any button to wake the display. The display shows the DMX address.
2. Use the **Up** and **Down** buttons to select the DMX address for the fixture.

You can also use RDM for DMX addressing. See *Use RDM*.

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### Change the DMX Control Mode

You can set the DMX control mode for the fixture to one of four available mode options.

1. Press any button to wake the display. The display shows the DMX address.
2. Press and hold the **Mode** button for 3 seconds. The display shows the current DMX control mode.
3. Press the **Up** button or **Down** button to change the DMX control mode:
   - **5ch**: 5-channel mode (intensity, red, green, blue, and strobe). This is the default mode.
   - **dir**: Direct emitter control (intensity, red, green, blue, indigo, lime, and strobe).
   - **1ch**: 1-channel mode controls the intensity of preset 1 (defaults to 3200 K White).
   - **rgb**: RGB mode (red, green, and blue).
4. Press the **Mode** button to confirm your selection.

The display will automatically return to the DMX address after 10 seconds of inactivity, and edits to the DMX control mode will not be saved. This cancels unsaved changes.
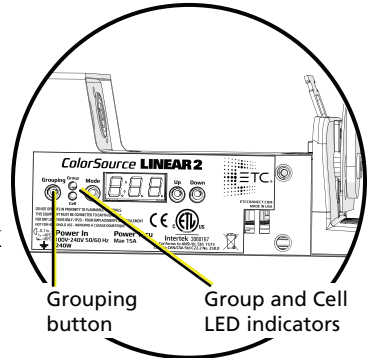
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### Set the Grouping Mode

The ColorSource Linear 2 and the ColorSource Linear 4 fixtures have two Grouping modes:

- **Group:** Entire array functions as a single fixture.
- **Cell:** Each 0.5 m segment (or "cell") of the array functions as a distinct fixture with a separate DMX start address.



Grouping button          Group and Cell LED indicators

To set the Grouping mode, press the **Grouping** button until the LED indicator for the chosen mode illuminates.

In Cell mode, each cell is assigned a DMX address based on the DMX address of the fixture (see *Set the DMX Address on page 7*) and the current DMX control mode (see *Change the DMX Control Mode on the previous page*). For example, if you set the DMX address on the fixture to 100, set the DMX mode to 5-channel, and set the Grouping mode to Cell, the starting DMX address of the first cell will be 100 and the starting DMX address of the second cell will be 105.

### DMX Control Channels

#### Linear 1 and Linear 2/Linear 4 in Group Mode

| DMX Channel | 5ch (5 channel) | dir (Direct) | 1ch (1 Channel) | rgb (RGB) |
|---|---|---|---|---|
| 1 | Intensity | Intensity | Intensity | Red |
| 2 | Red | Red | | Green |
| 3 | Green | Green | | Blue |
| 4 | Blue | Blue/Indigo* | | |
| 5 | Strobe** | Lime | | |
| 6 | | Strobe** | | |

*Original ColorSource Linear fixture uses blue in channel 4; Deep Blue fixture uses indigo in channel 4.

**Use DMX values of 0 or 255 for no strobe. Use values of 1–254 to increase the strobe rate from 1 per second up to 33 per second.

## Linear 2 in Cell Mode

| DMX Channel | 5ch (5 Channel) | | dir (Direct) | | lch (1 Channel) | | rgb (RGB) | |
|---|---|---|---|---|---|---|---|---|
| 1 | | Intensity | | Intensity | Cell 1 | Intensity | | Red |
| 2 | | Red | | Red | Cell 2 | Intensity | Cell 1 | Green |
| 3 | Cell 1 | Green | | Green | | | | Blue |
| 4 | | Blue | Cell 1 | Blue/Indigo* | | | | Red |
| 5 | | Strobe** | | Lime | | | Cell 2 | Green |
| 6 | | Intensity | | Strobe** | | | | Blue |
| 7 | | Red | | Intensity | | | | |
| 8 | Cell 2 | Green | | Red | | | | |
| 9 | | Blue | | Green | | | | |
| 10 | | Strobe** | Cell 2 | Blue/Indigo* | | | | |
| 11 | | | | Lime | | | | |
| 12 | | | | Strobe** | | | | |

*Original ColorSource Linear fixture uses blue in channel 4; Deep Blue fixture uses indigo in channel 4.

**Use DMX values of 0 or 255 for no strobe. Use values of 1–254 to increase the strobe rate from 1 per second up to 33 per second.

### Linear 4 in Cell Mode

| DMX Channel | 5ch (5 Channel) | | dir (Direct) | | Ich (1 Channel) | | rgb (RGB) | |
|---|---|---|---|---|---|---|---|---|
| 1 | Cell 1 | Intensity | Cell 1 | Intensity | Cell 1 | Intensity | Cell 1 | Red |
| 2 | | Red | | Red | Cell 2 | Intensity | | Green |
| 3 | | Green | | Green | Cell 3 | Intensity | | Blue |
| 4 | | Blue | | Blue/Indigo* | Cell 4 | Intensity | Cell 2 | Red |
| 5 | | Strobe** | | Lime | | | | Green |
| 6 | Cell 2 | Intensity | | Strobe** | | | | Blue |
| 7 | | Red | Cell 2 | Intensity | | | Cell 3 | Red |
| 8 | | Green | | Red | | | | Green |
| 9 | | Blue | | Green | | | | Blue |
| 10 | | Strobe** | | Blue/Indigo* | | | Cell 4 | Red |
| 11 | Cell 3 | Intensity | | Lime | | | | Green |
| 12 | | Red | | Strobe** | | | | Blue |
| 13 | | Green | Cell 3 | Intensity | | | | |
| 14 | | Blue | | Red | | | | |
| 15 | | Strobe** | | Green | | | | |
| 16 | Cell 4 | Intensity | | Blue/Indigo* | | | | |
| 17 | | Red | | Lime | | | | |
| 18 | | Green | | Strobe** | | | | |
| 19 | | Blue | Cell 4 | Intensity | | | | |
| 20 | | Strobe** | | Red | | | | |
| 21 | | | | Green | | | | |
| 22 | | | | Blue/Indigo* | | | | |
| 23 | | | | Lime | | | | |
| 24 | | | | Strobe** | | | | |

*Original ColorSource Linear fixture uses blue in channel 4; Deep Blue fixture uses indigo in channel 4.

**Use DMX values of 0 or 255 for no strobe. Use values of 1–254 to increase the strobe rate from 1 per second up to 33 per second.

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### Data Loss Behavior

When DMX data is lost, the fixture does one of the following actions:

- If you selected a preset or sequence, that preset or sequence automatically plays.
- If no preset or sequence is active in the background, the fixture goes dark and the DMX start address flashes on the user interface.

## Play Presets and Sequences

The fixture has twelve factory-configured presets and five factory-configured sequences. When you play a preset or sequence on a fixture, the same preset number or sequence number plays on any connected fixtures that are not receiving DMX. You can re-record presets and sequences through an RDM device or manually on the fixture. See *Re-record Presets on the facing page*.

When a Linear 2 or Linear 4 fixture is in Cell mode, you can re-record a preset with each cell having a distinct set of values. See *Set the Grouping Mode on page 9*.

1. Press the Mode button to activate the Presets/Sequences menu. The last active preset or sequence plays automatically. (If DMX data is present, the current preset or sequence plays in the background and DMX data continues to take priority.)
2. Press the Up button or Down button as needed to scroll through the available presets and sequences.
3. To stop the selected preset or sequence, press the Mode button a second time. The display will revert to show the DMX start address.

### Pre-configured Presets

| Preset | Name | Preset | Name |
|--------|------|--------|------|
| 1 | 3200 K White | 7 | Magenta |
| 2 | 5600 K White | 8 | Yellow |
| 3 | Red | 9 | Orange |
| 4 | Green | 10 | Light Yellow |
| 5 | Blue | 11 | Light Blue |
| 6 | Cyan | 12 | Light Pink |

### Pre-configured Sequences

| Sequence | Name |
|---|---|
| 1 | Rainbow Fast |
| 2 | Rainbow Slow |
| 3 | Warm Colors Fast |
| 4 | Cool Colors Fast |
| 5 | Random |

### Re-record Presets

1. Using DMX, set the desired levels for the new preset.
2. Press the Mode button to access the Presets/Sequences menu.
3. Press the Up button or Down button to navigate to the preset number that you want to re-record.
4. Press and hold the Mode button for 3 seconds to confirm the preset selection. The user interface will show a 3-second countdown. The preset number blinks once to confirm that the preset has been recorded.

> **Note:** *When the fixture is in Direct mode (**dir**) or 1-channel mode (**1ch**), you cannot re-record presets.*
>
> *When you re-record presets with the fixture in RGB mode (**rgb**), the intensity is set to full and the strobe is turned off.*
> *See Change the DMX Control Mode on page 8.*

### Adjust the Intensity of Presets

1. Ensure that DMX data is not present.
2. Press the Mode button to access the Presets/Sequences menu, and then press the Up button or Down button to select the preset that you want to edit.
3. Press and hold the Mode button for 3 seconds. The display shows **L=** followed by either an intensity level from **0- 99** or **FL** for full.
4. Press the Up button or Down button to change the intensity level of the preset in real time.
5. Press the Mode button to confirm your selection and return to the Presets/Sequences menu.

The display will automatically return to the Presets/Sequences menu after 10 seconds of inactivity, and edits to the preset intensity will not be saved.

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### Lock the User Interface

After you have set up the fixture, you can lock the user interface to prevent additional changes.

1. Press and hold the **Up** button and **Down** button simultaneously for 3 seconds. The display will show **Loc** to indicate that the user interface is locked.
2. To unlock the user interface, press and hold the **Up** button and **Down** button simultaneously for 3 seconds.

### Update the Fixture Software

ETC recommends using UpdaterAtor software to manage software updates. For more information on UpdaterAtor, see the *UpdaterAtor Software Quick Guide*, which you can download for free from etcconnect.com.

When you add a ColorSource fixture running a newer software version or update a ColorSource fixture to a newer software version using UpdaterAtor, you can use that fixture to push the newer software version to all connected ColorSource fixtures, except for ColorSource Spot jr fixtures. ColorSource Spot jr fixtures can only update (and be updated by) other ColorSource Spot jr fixtures.

1. Remove power and DMX In from the master fixture that is running the software version that you want to push to other fixtures.
2. Press and hold the **Up** button and **Down** button simultaneously while restoring power.
3. The display will show **Udt rdY** to indicate the update mode is selected.
4. Press the **Mode** button to start the update process.
    - The display will alternate between **Udt** and the percentage complete while updating.
    - The master fixture will reboot once the update is complete.
5. Reconnect DMX In on the master fixture.

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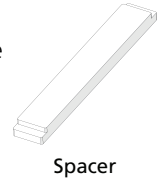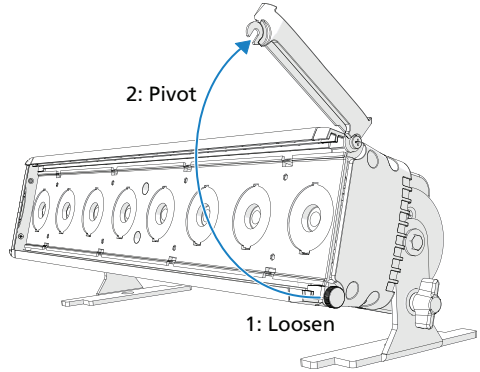
## Install Secondary Lenses

You can use several optional accessories with the ColorSource Linear, including secondary lenses (horizontal, vertical, and round). You can use either a single lens or two lenses simultaneously, and you can install them from either end of the fixture.
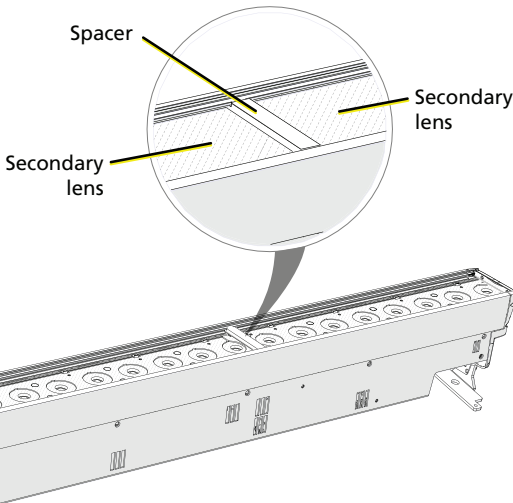
For the Linear 2 and Linear 4 fixtures, order one accessory for each 0.5 meter segment (cell) of the fixture.



2: Pivot

1: Loosen

Spacers for secondary lenses are included with the fixture. Use these spacers to hold the accessories in position when multiple lenses are used in the Linear 2 and Linear 4 fixtures.



Spacer

1. Loosen the thumbscrew on the access panel on either end of the fixture.
2. Pivot the access panel until you can access the slots above the LEDs.



Spacer

Secondary lens

Secondary lens

3. Slide the secondary lens (or lenses) into either of the slots above the LEDs.
4. For the Linear 2 and Linear 4 fixtures, position spacers between the lenses for the cells (in the same slot as the lenses). See image at left.
5. Pivot the access panel back into place and tighten the thumbscrew.

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### Restore Factory Defaults

Press and hold the **Mode** button, **Up** button, and **Down** button simultaneously for 5 seconds. The DMX start address will blink once to confirm that defaults have been restored.

### Error Codes

There are three error codes that may be shown on the user interface.

- **CAL** : Screen toggles between **CAL** and **Err** to indicate a problem with the color calibration. The fixture will need to be returned to the ETC factory; contact your local dealer to set up a repair.
- **OtP**: Screen toggles between **OtP** and **Err** to indicate that the fixture has gone into over-temperature protection mode to avoid damaging the fixture. Once the fixture has self-cooled, the error will automatically clear.
- **CbL** : Screen toggles between **CbL** and **Err** to indicate that a control card or the internal cabling is damaged or unplugged. Verify that internal cables are properly connected. If the error persists, the fixture will need to be returned to the ETC factory; contact your local dealer to set up a repair.
- **no  APP**: Screen toggles between **no** and **APP** to indicate that the upgraded fixtures have a software issue. Reload software to clear the error. If the error persists, contact ETC.

### Use RDM

#### RDM and Grouping Modes

Linear 2 and Linear 4 fixtures in Cell mode contain 2 sub-devices (Linear 2) or 4 sub-devices (Linear 4). Use DMX_BLOCK_ADDRESS to set the DMX address of the first cell, and the remaining cells will be numbered sequentially from that starting value.

RDM also allows you to use nonsequential DMX addresses, if desired. The fixture displays "---" for the DMX address to indicate nonsequential DMX addressing. If you set up nonsequential DMX addresses and then change the DMX address at the fixture, however, the fixture will return to sequential DMX addressing.

Linear 2 and Linear 4 fixtures in Group mode do not use sub-devices.

### RDM Values

| Parameter | Fixture | Value | Description |
|---|---|---|---|
| Manufacturer ID | All | 0x6574 | Electronic Theatre Controls |
| Model ID | Linear 1 | 0x0209 | |
| | Linear 1 Deep Blue | 0x020A | |
| | Linear 2 | 0x020D | |
| | Linear 2 Deep Blue | 0x020E | |
| | Linear 4 | 0x0211 | |
| | Linear 4 Deep Blue | 0x0212 | |
| DMX Start Address | All | 0x00F0 | Range = 1–512 |
| DMX Personality | Linear 1 | 0x00E0 | 1 = 5 Channel<br>2 = Direct<br>3 = 1 Channel<br>4 = RGB |
| | Linear 2 in Group mode | | |
| | Linear 4 in Group mode | | |
| | Linear 2 in Cell mode | | 5 = 5 Channel Multi-Cell<br>6 = Direct Multi-Cell<br>7 = 1 Channel Multi-Cell<br>8 = RGB Multi-Cell |
| | Linear 4 in Cell mode | | |
| Output Frequency | Linear 1 | 0x8123 | 0 = Standard (1.2 kHz)<br>1 = High (25 kHz) |
| | Linear 2 in Group mode | | |
| | Linear 4 in Group mode | | |

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## Quick Reference
### DMX Control Channels

#### Linear 1 and Linear 2/Linear 4 in Group Mode

| DMX Channel | 5ch (5 channel) | dir (Direct) | 1ch (1 Channel) | rgb (RGB) |
|---|---|---|---|---|
| 1 | Intensity | Intensity | Intensity | Red |
| 2 | Red | Red | | Green |
| 3 | Green | Green | | Blue |
| 4 | Blue | Blue/Indigo* | | |
| 5 | Strobe** | Lime | | |
| 6 | | Strobe** | | |

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- **no APP**: Screen toggles between **no** and **APP** to indicate that the upgraded fixtures have a software issue. Reload software to clear the error. If the error persists, contact ETC.