

**ECO800UP and ECO802UP  
Field Upgrades for the  
ECO8000 Series Automatic Changeover Unit  
Instructions**

[www.tektronix.com](http://www.tektronix.com)



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**Tektronix**

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# Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, additional information is provided at the end of this section. (See page 3, *Service safety summary*.)

## General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

### To avoid fire or personal injury

**Use proper power cord.** Use only the power cord specified for this product and certified for the country of use.

Do not use the provided power cord for other products.

**Ground the product.** This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, make sure that the product is properly grounded.

Do not disable the power cord grounding connection.

**Power disconnect.** The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

**Observe all terminal ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product.

**Do not operate without covers.** Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

**Do not operate with suspected failures.** If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

**Do not operate in wet/damp conditions.** Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

**Do not operate in an explosive atmosphere.**

**Keep product surfaces clean and dry.** Remove the input signals before you clean the product.

**Provide proper ventilation.** Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.

Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

**Provide a safe working environment.** Always place the product in a location convenient for viewing the display and indicators.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.

Use only the Tektronix rackmount hardware specified for this product.

## Service safety summary

The *Service safety summary* section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

**To avoid electric shock.** Do not touch exposed connections.

**Do not service alone.** Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

**Disconnect power.** To avoid electric shock, switch off the product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

**Use care when servicing with power on.** Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

**Verify safety after repair.** Always recheck ground continuity and mains dielectric strength after performing a repair.

## Terms in this manual

These terms may appear in this manual:



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**WARNING.** *Warning statements identify conditions or practices that could result in injury or loss of life.*

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**CAUTION.** *Caution statements identify conditions or practices that could result in damage to this product or other property.*

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## Symbols and terms on the product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.



When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbol(s) may appear on the product:



CAUTION  
Refer to Manual



Protective Ground  
(Earth) Terminal



# ECO8000 Series field upgrades

This document provides instructions for installing field upgrades for the Tektronix ECO8000 Series Automatic Changeover Units.

## Covered upgrades

The following ECO800UP and ECO802UP field upgrades are described in this document:

- **Option DPW:** Adds a second, hot-swappable redundant (backup) Power Supply module.
- **Option LTC:** Enables four LTC channels on the Primary and Backup LTC/SPG connectors and enables the LTC OUT connector.

## Included procedures

These instructions include the following procedures:

- *How to install and configure Option DPW* (See page 8.) describes how to install the backup Power Supply module into an ECO8000 or ECO8020 instrument and how to configure one of the Power Supply modules to be the preferred (active) supply.
- *How to install Option LTC* (See page 14.) describes how to enter the option key that is required to enable Option LTC.

## Firmware upgrades

An upgrade of the instrument firmware is not required as part of the field upgrades covered by this document.

Tektronix releases software and firmware updates for products to add new features and to fix product problems. You can find the latest firmware for your product at the Tektronix Web site ([www.tektronix.com/software](http://www.tektronix.com/software)).

The instructions for how to upgrade the instrument firmware are located in the *ECO8000 Series Quick Start User Manual*. (See page 7, *Product documentation*.)

## Standard accessories

The following accessories are shipped with the field upgrade kit:

- *ECO8000 Series Field Upgrade Instructions* (this document)  
Tektronix part number: 075-1054-00
- Option DPW only: Power Supply module with the power cord option you ordered (see list below)
- Option LTC only: Document listing the unique module ID and Option Key for the instrument you are upgrading

### International power cord options

All of the available power cord options listed below include a lock mechanism to keep the power cord attached to the instrument.

- Opt. A0 – North America power (standard)
- Opt. A1 – Universal EURO power
- Opt. A2 – United Kingdom power
- Opt. A3 – Australia power
- Opt. A5 – Switzerland power
- Opt. A6 – Japan power
- Opt. A10 – China power
- Opt. A11 – India power
- Opt. A12 – Brazil power
- Opt. A99 – No power cord

## Product documentation

The user documentation for your product is listed in the following table. Check the Tektronix Web site for the latest version of the documents ([www.tektronix.com/downloads](http://www.tektronix.com/downloads)).

**Table 1: ECO8000 Series product documentation**

Document	Tektronix Part Number	Description	Availability	
			Print	Web
Quick Start User Manual	071-3221-xx (English)	Describes how to install the instrument and provides basic operating information	✓	✓
	077-0873-xx (Japanese)			✓
	077-0874-xx (Russian)			✓
Technical Reference	077-0875-xx	Provides detailed operating information		✓
Specifications and Performance Verification	077-0876-xx	Lists the product specifications and provides procedures for verifying the performance of the instrument		✓
Service Manual	077-0880-xx	Describes how to service the instrument to the module level (such as circuit boards and fuses)		✓
Declassification and Security Instructions	077-0879-xx	Describes how to clear or sanitize the data storage (memory) devices in the product for customers with data security concerns.		✓
Release Notes	077-0878-xx	Describes the new features, improvements, and limitations of the instrument firmware		✓
Video Sync Pulse Generator and Electronic Changeover Unit System Integration Technical Reference	077-0877-xx	Provides information for system integrators who are designing systems for high-definition (HD) and standard-definition (SD) digital video content where Tektronix electronic changeover units and video sync pulse generators are to be deployed.		✓

## How to install and configure Option DPW

This section provides the following information on how to install the Option DPW backup Power Supply module into an ECO8000 Series instrument:

- Guidelines for preventing component damage
- Instructions for installing or replacing the Power Supply module
- Instructions for how to configure the preferred (active) supply

### Required equipment

No equipment is required to install the backup Power Supply module.

### How to prevent component damage



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**CAUTION.** *Electrostatic discharge (ESD) can damage components on the Power Supply module. To prevent ESD or other component damage, follow the steps below when installing, removing, or handling the Power Supply module:*

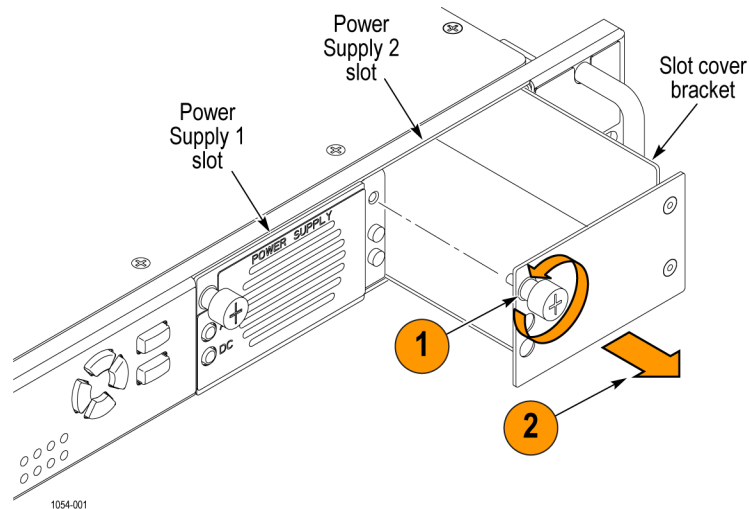
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- Do not touch module components or connector pins.
- Avoid handling modules in areas that have a floor or work-surface covering capable of generating a static charge.

## How to install the backup Power Supply module

Perform the following steps to install the backup Power Supply module or to replace a failed supply:

1. If your instrument was shipped with only one Power Supply module, remove the slot-cover bracket from the Power Supply 2 slot by turning the front-panel retaining screw counterclockwise, and then pulling the slot-cover bracket out of the instrument as shown in the following figure. Proceed to step 3.



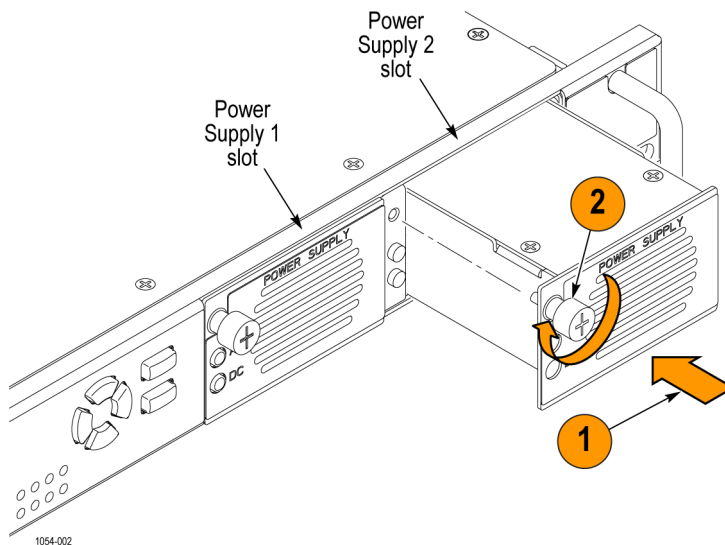
**Figure 1: Removing the slot-cover bracket from the Power Supply 2 slot**

2. If your instrument already has two Power Supply modules installed, remove the faulty Power Supply module by unscrewing the front-panel retaining screw, and then pulling the module out of the instrument as shown above.



**CAUTION.** To prevent an unexpected shutdown of the instrument, be sure to remove the correct Power Supply module if you are replacing a faulty module. (See page 11, Power Supply module LED states.)

3. Insert the backup or replacement supply module into the instrument until it latches into place, and then turn the retaining screw clockwise to secure the module in the chassis.



**Figure 2: Installing the backup or replacement Power Supply module**

4. If necessary, connect the power cable for the Power Supply module you installed.
5. Check that the status LEDs of the Power Supply module you just installed. Both LEDs should be bright green or dim green. (See page 11, *Power Supply module LED states*.)
6. If desired, change the preferred supply configuration. (See page 12, *To configure the preferred (active) supply*.)

## Power Supply module LED states

The following table shows the states of the two LEDs on a Power Supply module.

**Table 2: LED states on a Power Supply module**

<b>Power Supply state</b>	<b>AC LED state</b>	<b>DC LED state</b>
Normal, Active	Green	Green
Normal, Backup	Green	Dim Green
AC < 75v, DC Supply running	Red	Green
AC < 75v, DC supply failed	Red	Red
AC OK, DC supply failed	Green	Red
Marginal Low or High DC, Active		Orange
Marginal Low or High DC, Backup		Yellow
Load Test Fail - Backup		Red
Load Test Fail – Active		Orange
Fan Fail - Active		Orange
Fan Fail - Backup		Red
Supply not installed, AC present	Green	Off
Supply not installed, AC absent	Off	Off

## To configure the preferred (active) supply

When two Power Supply modules are installed in the instrument, one is configured as the primary supply and the other is configured as the backup supply. In the event that the primary supply fails, the backup supply automatically provides power to maintain instrument operation.

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**NOTE.** *The preferred supply configuration only applies if two Power Supply modules are installed and both of the supplies are connected to a power source. If there are two Power Supply modules installed but one of the supplies has a failure, the good supply will be used to power the instrument regardless of the preferred supply configuration.*

*The recommended usage strategy is to configure one supply as preferred, and use the second supply only in case the first supply has a failure. This usage strategy allows the backup supply to have the maximum remaining life when it is needed.*

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Perform the following steps to configure which Power Supply module is the preferred (active) supply:

1. Check the status of the front-panel DC LED indicators on both supplies:
  - Bright green indicates the current preferred (active) supply
  - Dim green indicates the current inactive (backup) supply

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**NOTE.** *If the color of the LED indicators is other than bright or dim green, service the faulty Power Supply module before proceeding.*

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2. Check the temperature weighted hours of the installed supplies:

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**NOTE.** *It is recommended that you configure the supply with the most temperature weighted hours to be used as the primary preferred supply. This allows for the newer supply to be preserved so it can provide the best possible backup should the primary supply fail. For more information about temperature weighted hours, see the ECO8000 Series Quick Start User Manual.*

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- a. Press the up (▲) or down (▼) arrow button to select **SYSTEM CONFIG**, and then press the **ENTER** button to access the **SYSTEM CONFIGURATION** menu.



- b. Press the up (▲) arrow button to select **DIAGNOSTICS**, and then press the **ENTER** button to access the DIAGNOSTICS submenu.
  - c. Press the up (▲) or down (▼) arrow button to select **PS1 HOURS**. The second line of the display lists the number of hours the supply has been the active supply.
  - d. Press the right (▶) arrow button to select **PS1 TW HOURS**. The second line of the display lists the number of temperature weighted hours of the first supply. Note the number of hours of hours shown.
  - e. Press the down (▼) arrow button to select **PS2 HOURS**.
  - f. Press the right (▶) arrow button to select **PS2 TW HOURS**. The second line of the display lists the number of temperature weighted hours of the second supply. Note the number of hours of hours shown.
  - g. Press the **BACK** button to exit the DIAGNOSTICS submenu and return to the SYSTEM CONFIGURATION menu.
3. If the Power Supply module with the greatest number of temperature weighted hours is not the currently the preferred supply, then continue this procedure. Otherwise, you do not need to change the preferred supply configuration.
  4. If you want to change the preferred supply configuration, press the up (▲) or down (▼) arrow button to select **PREFERRED SUPPLY**.
  5. Press the left (◀) or right (▶) arrow button to display the supply you want to be the primary (active) supply: PS1 or PS2. The second line of the display shows the selected supply and its status: **Active**, **Preferred** or **Inactive**.

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**NOTE.** *When viewed from the front of the instrument, PS1 is the left Power Supply module and PS2 is the right Power Supply module.*

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6. If status of the desired supply is Inactive, press the **ENTER** button to change the status to Active, Preferred. The front-panel DC indicator for the selected supply should change from dim green to bright green.

## How to install Option LTC

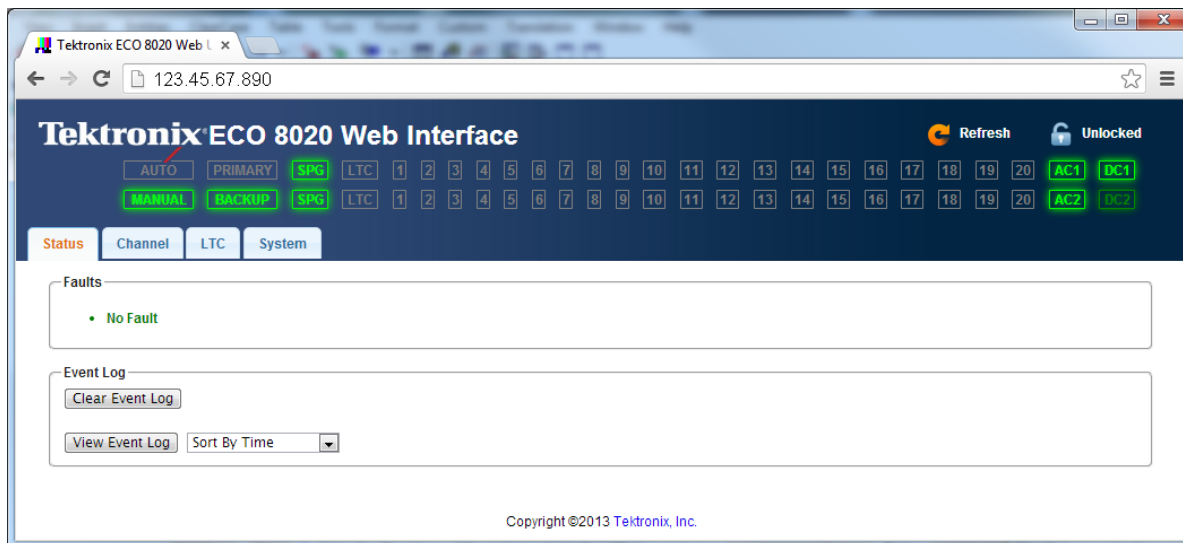
To enable the LTC software option, you must enter the option key supplied with this kit. The supplied option key applies only to the instrument for which you provided the serial number and MAC address when you ordered the upgrade. You will need to enter the new option key only once.

Locate the option key document that was supplied with this upgrade, and then use one of the following two methods to enter the new option key. Procedures are provided for each entry method.

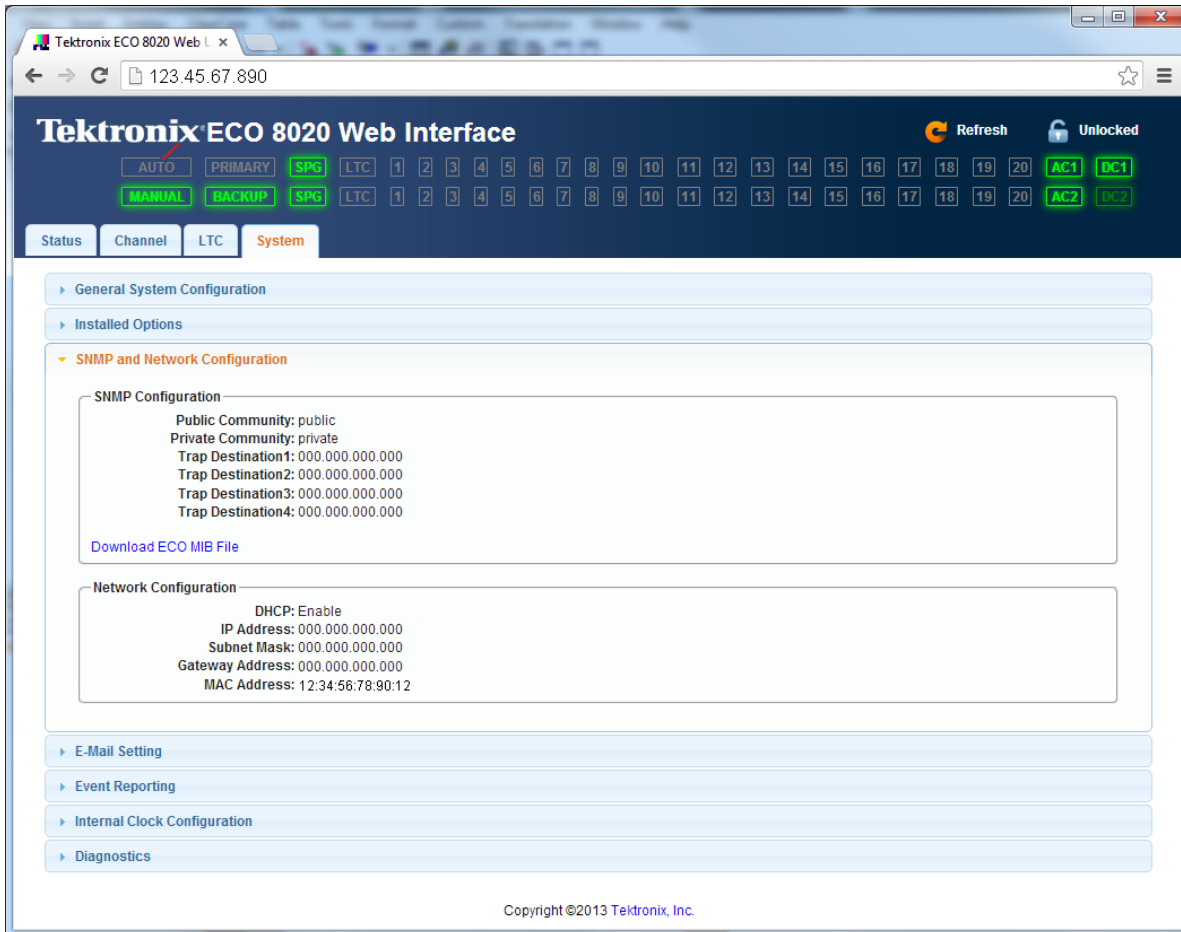
- **Web Interface.** This method is preferred if your instrument is connected to an Ethernet network and you can access the instrument from a computer on the same network.
- **Instrument front panel.** Use this method if your instrument is not connected to an Ethernet network or if you cannot access the instrument from a computer on the same network.

## Entering the option key using the Web Interface

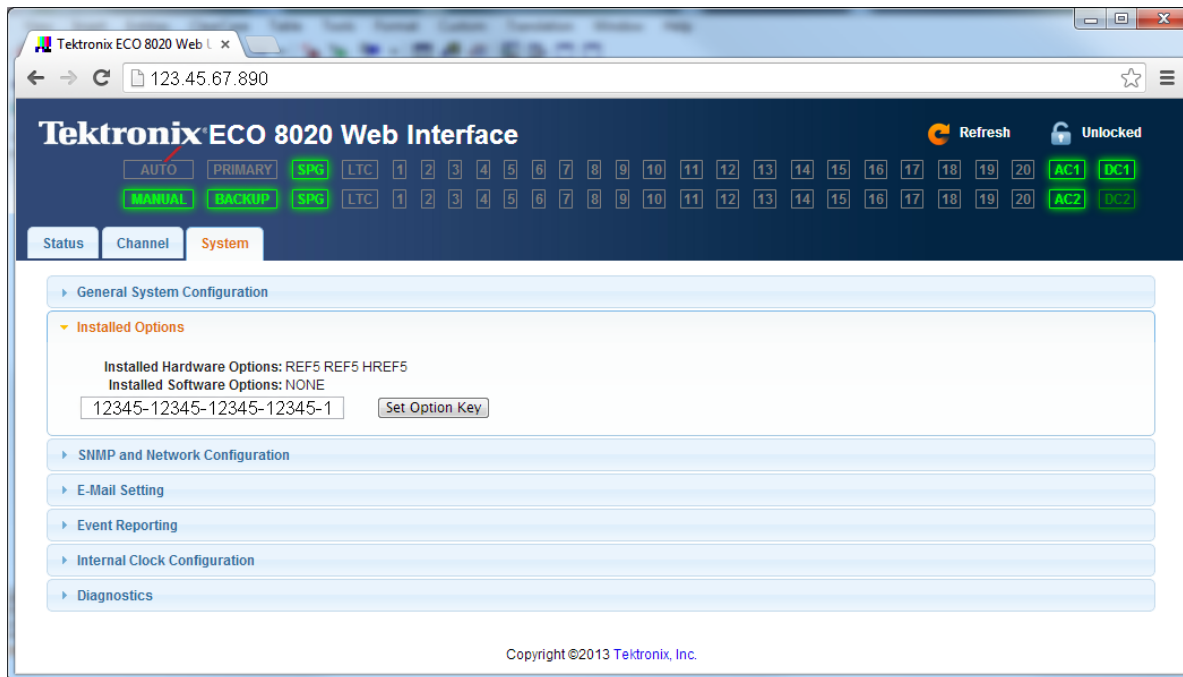
1. Use the instrument front panel to locate the IP address of the instrument you are upgrading:
  - a. Press the up (▲) or down (▼) arrow button to select **SYSTEM CONFIG**, and then press the **ENTER** button to access the SYSTEM CONFIG menu.
  - b. Press the down (▼) arrow button to select **NETWORK CONFIG**, and then press the **ENTER** button to access the NETWORK CONFIG submenu.
  - c. Press the up (▲) or down (▼) arrow button to select **IP ADDRESS**.
  - d. Make a note of the address listed on the second line of the display.
  - e. Press the **BACK** button to exit the NETWORK CONFIG submenu.
2. Open the Web Interface for the instrument you are upgrading:
  - a. Open a Web browser on a computer connected to the same network as the instrument.
  - b. Enter the IP address of the instrument into the URL box and press **Enter** to open the Web Interface for the instrument. Shown below is the Web Interface for an ECO8020.



3. Verify that you are upgrading the correct instrument:
  - a. In the Web Interface, click the **System** tab and then click **SNMP and Network Configuration**.
  - b. Verify that the MAC address listed on the display matches the MAC address listed on the option key document supplied with this upgrade kit.

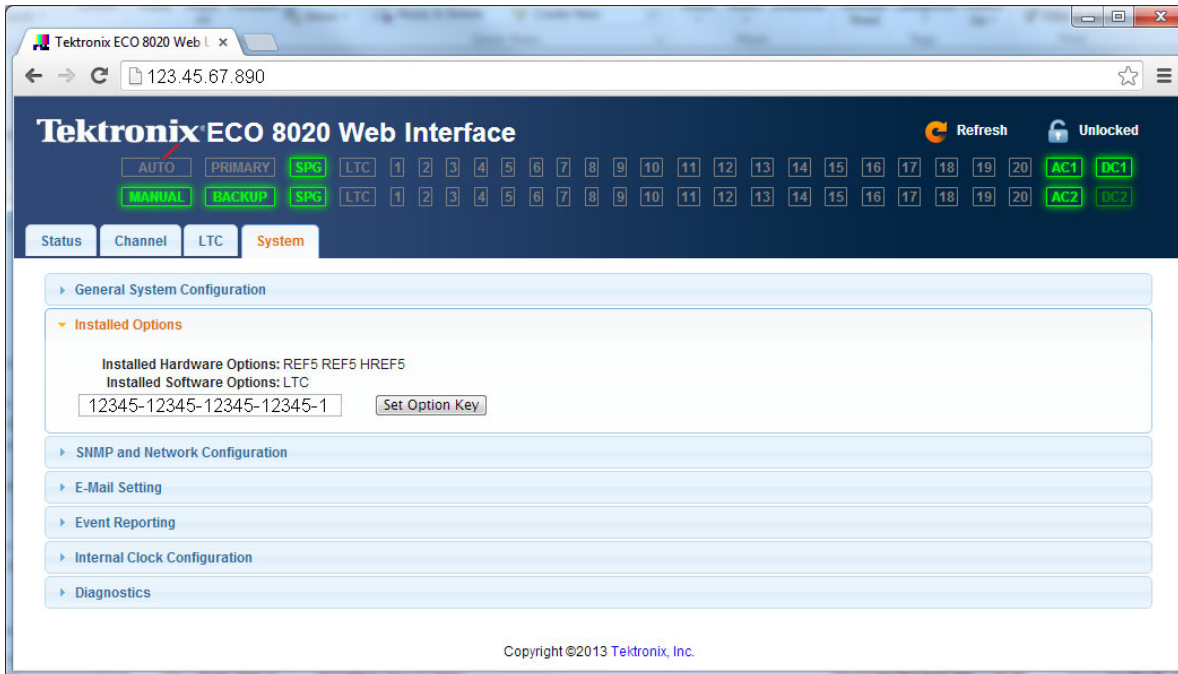


4. Enter the new option key:
  - a. Click **Installed Options** to open the display shown below.



- b. If Option LTC is not installed, **NONE** is listed after the **Installed Software Options** parameter as shown above.
- c. In the option key box, enter all of the characters of the new option key including the dashes.
- d. Click the **Set Option Key** button to enable the new option key. The Web Interface will reload and return to the initial display.

5. Verify that Option LTC is enabled:
  - a. In the Web Interface, click the **System** tab and then click **Installed Options**.
  - b. Verify that **LTC** is listed after the **Installed Software Options** parameter as shown below. This verifies that Option LTC has been enabled.



- d. If Option LTC is not enabled, verify that you are updating the correct instrument and that you entered the new option key correctly.

## Entering the option key using the front panel

1. Verify that you are upgrading the correct instrument:
  - a. Press the up (▲) or down (▼) arrow button to select **SYSTEM CONFIG**, and then press the **ENTER** button to access the SYSTEM CONFIG menu.
  - b. Press the down (▼) arrow button to select **NETWORK CONFIG**, and then press the **ENTER** button to access the NETWORK CONFIG submenu.
  - c. Press the up (▲) or down (▼) arrow button to select **MAC ADDRESS**.
  - d. Verify that the MAC address listed on the display matches the MAC address listed on the option key document supplied with this upgrade kit.
  - e. Press the **BACK** button to exit the NETWORK CONFIG submenu.
2. Press the up (▲) or down (▼) arrow button to select **INSTALLED OPTION**, and then press the **ENTER** button to access the OPTIONS submenu.
3. The second line of the display lists the software options installed in the instrument. If Option LTC is not installed, **NONE** is shown on the second line of the display.
4. Press the up (▲) or down (▼) arrow button to display **OPTIONS : KEY**. The option key takes the form “XXXXX-XXXXX-XXXXX-XXXXX-XXXXX-X”, with each “X” representing an alphanumeric character. The second line of the display shows the first portion of the existing option key as shown below.
 

▶▶ OPTIONS : KEY  
XXXXX-XXXXX-XXXXX-X

321-010
5. Enter the new option key:
  - a. Press the **ENTER** button to enter the option key edit mode. The underscore character ( ) appears under the first character of the option key.
  - b. Use the up (▲) or down (▼) arrow button to select the first character of the option key.
  - c. Use the left (◀) or right (▶) arrow button to move the underscore character to the next character in the option key.
  - d. Enter all of the option key characters, and then press **ENTER** button to confirm the selection.
  - e. Press the **BACK** button to exit the OPTIONS submenu.

6. Verify that Option LTC is enabled:
  - a. Use the up (▲) or down (▼) arrow button to select **INSTALLED OPTION**, and then press the **ENTER** button to access the **OPTIONS** submenu.
  - b. Verify that **LTC** is displayed in the second line of the display. This verifies that Option LTC has been enabled.

▶▶OPTIONS : ENABLED LTC
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- c. If Option LTC is not enabled, verify that you are updating the correct instrument and that you entered the new option key correctly.