CP-3100E
System Control Panel

User Guide

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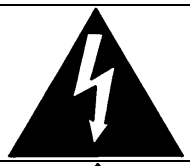
IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read these instructions
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT.

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

INFORMATION TO USERS IN EUROPE

NOTE

This equipment with the CE marking complies with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE	EN60065	Safety
	EN55103-1: 1996	Emission
	EN55103-2: 1996	Immunity

	EN504192 2005 Waste electrical products should not be disposed of with household waste. Contact your Local Authority for recycling advice

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment. Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

Evertz Microsystems Ltd FC For Commercial Use	Tested to comply with FCC Standards	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Release Version	Aug 2013

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1. OVERVIEW

The CP-3100E is the first of the VUE family of control panels and is optimized for single or multi-system control applications. The CP-3100E features one large touch screen for quick selection and navigation, four user defined buttons, and a single shaft encoder. The buttons can be configured to quickly change between modes or menus. The shaft encoder can be used for selection or navigation requirements.

The CP-3100 features two 10/100/1000 Ethernet ports supporting separate networks for isolating router based and SNMP based control applications. Using the VUE engine the panel enables operators to integrate the control of routing systems, multi-viewers, and terminal equipment.

Figure 1-1: CP-3100E Control Panel

2. INSTALLATION

2.1. REAR PANEL

Figure 2-1 shows the rear view of the CP-3100E control panel. The CP-3100E is a 3RU panel with various connection ports. The following sections describe the function of the connectors on the rear panel.

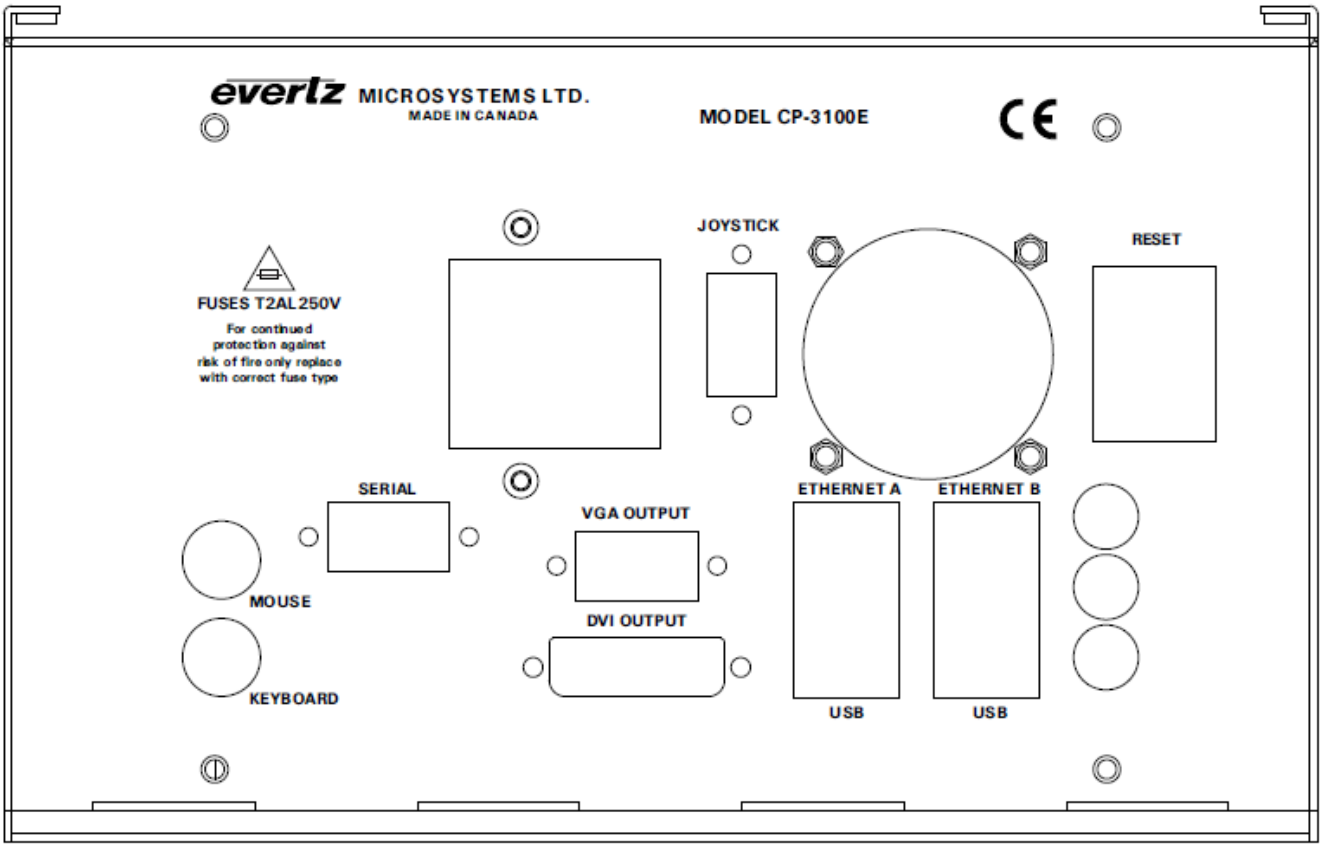


Figure 2-1: CP-2272E Rear Panel

MOUSE: N/A

KEYBOARD: N/A

DVI OUTPUT: N/A

SERIAL: Serial port 1, female 9 pin D connector that is used as the RS-232 console port.

VGA OUTPUT: N/A

JOYSTICK: Future Use

ETHERNET (A, B): This RJ45 connector is used for Network connections to the CP-3100E.

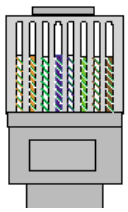
USB: N/A

RESET: Switch to reboot the unit

2.1.1. Ethernet Connection

The panel uses 10Base-T (10 Mbps), 100Base-TX (100 Mbps), 1000Base-TX (1000 Mbps) twisted pair Ethernet cabling systems. Ethernet Port A and Port B are not bonded redundant network connections.. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be "straight-through" with an RJ-45 connector at each end. Establish the network connection by plugging one end of the cable into the RJ-45 receptacle of the card and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pin-out information in Table 2-1. A colour coded wiring table is provided in Table 2-1 for the current RJ-45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-1: Standard RJ-45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ-45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins (a crossover cable made for one will also work with the other).
- Pairs may be solid colours and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the router and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. router and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The rear panel is fitted with two LEDs to monitor the Ethernet connection.

100: This Amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose Green LED indicates that the card has established a valid linkage to its hub, and it identifies whether the module is sending or receiving data. This LED will be ON when the module has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the module is sending or receiving data. The LED will be OFF if there is no valid connection.

The Ethernet ports on the CP-3100E are not redundant and are used to communicate to different subnets/networks.

2.1.2. Power Connections

The CP-3100E power supply operates on a 120/240VAC and automatically senses the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to the power entry module on the rear panel. The power cord should be minimum 18 AWG wire size; type SVT marked VW-1, maximum 2.5 m in length.

The IEC 320 power entry module combines a standard power inlet connector, two 5 x 20 mm fuse holders and an EMI line filter.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE GROUND PIN OF THE MAINS PLUG MUST BE MAINTAINED

2.2. MOUNTING

The CP-3100E is mounted using either the CP-3100E-RMB Rack mount bracket with one filler plate or the CP-3100E-TEK Rack mount bracket for mounting within a customer provided Tetronix scope cage. The CP-3100E-RMB rack mounting angles fits into a 16.41 inch by 5.20 inch by 8.70 inch (417mm x 132mm x 221mm) rack space.

Cooling is achieved by fan-assisted convection. Air is drawn into the left side, right side and top of the chassis and expelled as hot air from the rear of the chassis.

When installed in the equipment rack, ensure that the air flow is available to the left, right and top vents

3. TECHNICAL DESCRIPTION

3.1. CONTROL

Ethernet: Gigabit, 2 x RJ45

3.2. ELECTRICAL

Voltage: Auto ranging, 100 ↔ 240 VAC, 50/60 Hz
Power: 60W

3.3. COMPLIANCE

Safety: TUV Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC directive

3.4. PHYSICAL

Dimensions: 8.10” W x 5.20” H x 8.70” D

4. FRONT CONTROL PANEL

The CP-3100E is designed with one rotary shaft encoder, four LED buttons and one touch screen display. The rotary encoder is used to access and adjust panel settings.

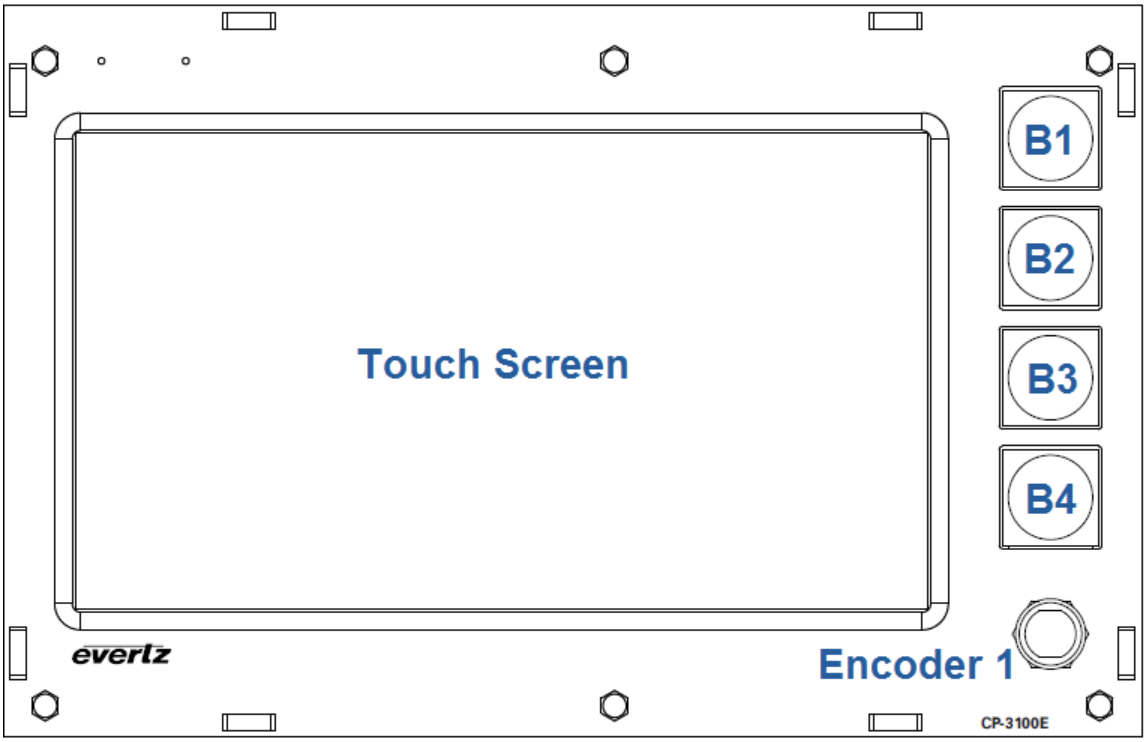


Figure 4-1: CP-3100E Front Control Panel

Please note that the labels in Figure 4-1 will NOT be displayed on the front panel of your CP-3100E device. The labels listed above are for reference purposes only when describing the panel controls in the following sections of the manual. The following chart describes the label and function of the associated button.

Labels	Description
Touch Screen	Touch screen display
B1 to B4	1 to 4 LED buttons
Encoder 1	Rotary encoder

5. HARDWARE TEST

5.1. ACESSING THE HARDWARE TEST

1. Push and hold the CP-3100E shaft encoder until the **Settings** menu appears.

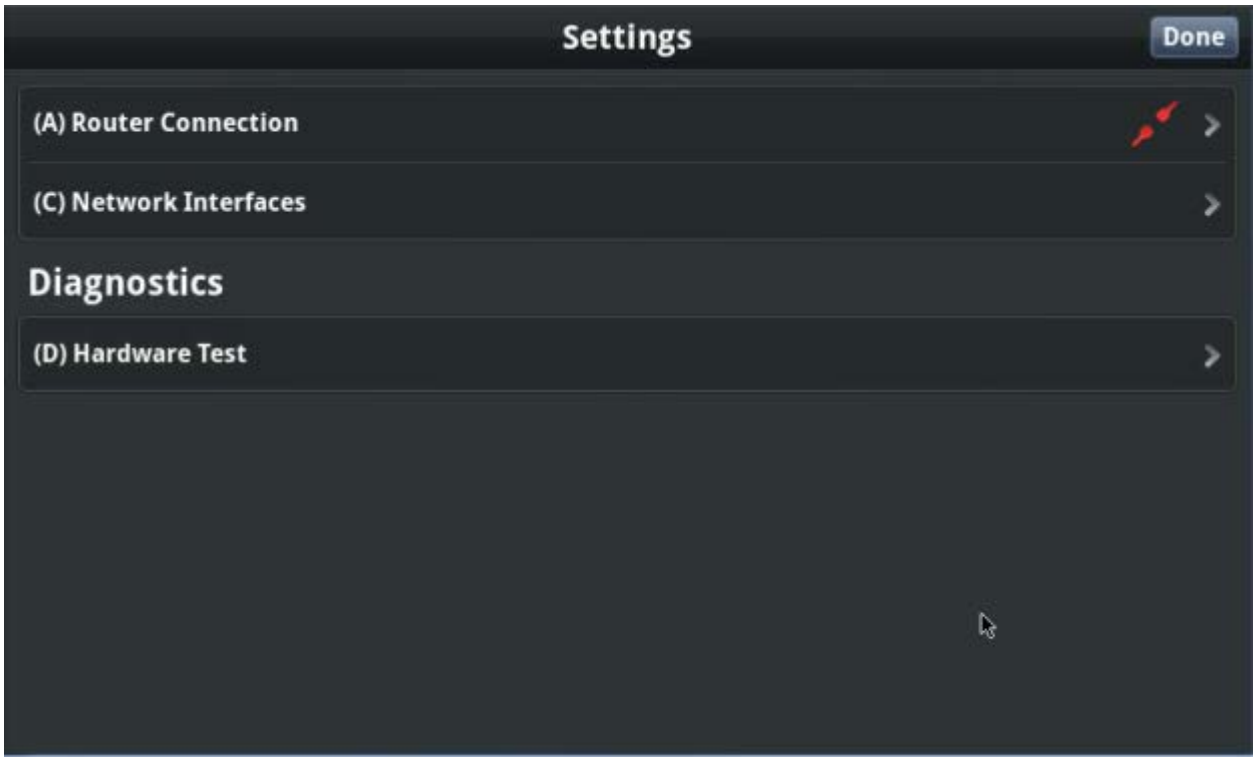


Figure 5-1: Settings Menu

2. To access the **Hardware Test** menu, select the menu option “Hardware Test”.
3. The “Hardware Test” will allow the following items to be tested:
    a. Shaft encoder depress and release
    b. Shaft encoder rotation
    c. Button colour
        i. Auto cycle all buttons and colours
        ii. All buttons specific colour
        iii. Specific button all colours

Figure 5-2: Hardware Test Menu

4. To exit the **Hardware Test** menu, press the **Settings** button in order to return to the **Settings** menu.

6. SYSTEM CONFIGURATION

6.1. SETTING AN IP ADDRESS

1. Push and hold the CP-3100E shaft encoder until the **Settings** menu appears.

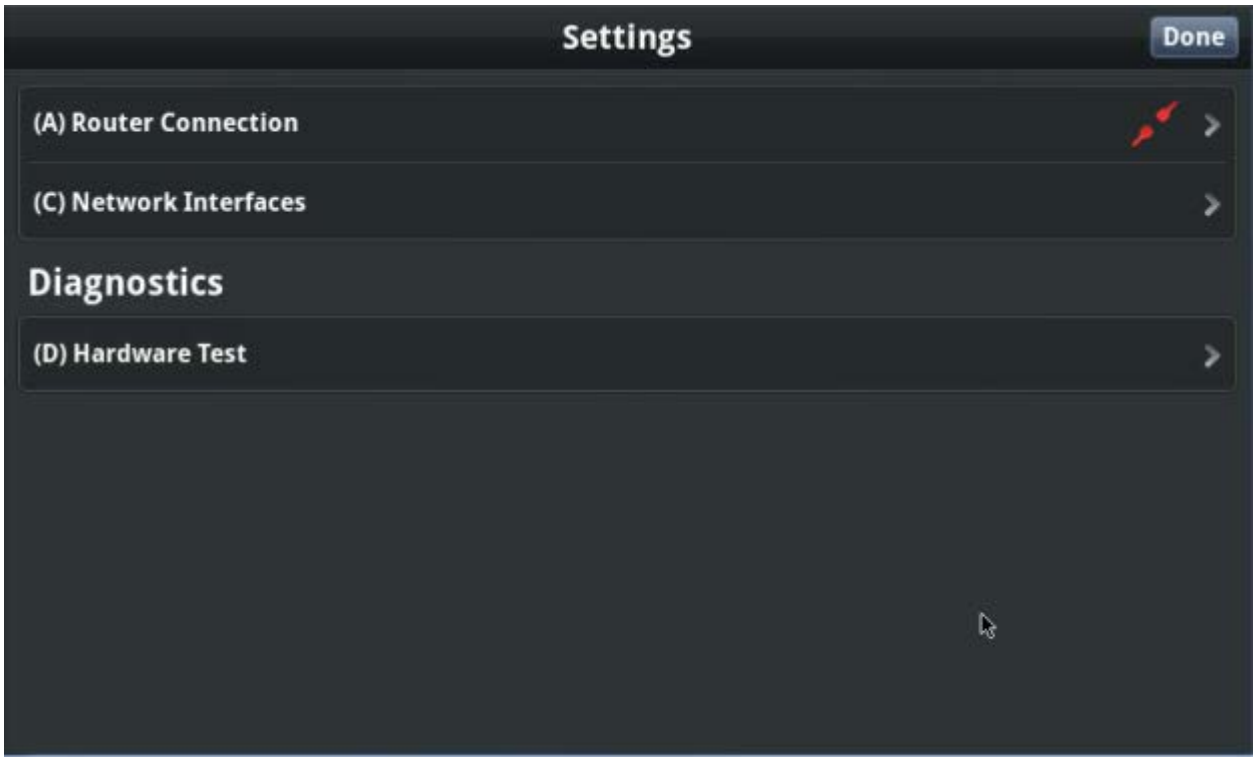


Figure 6-1: Settings Menu

2. To configure an IP Address on the CP-3100E, select the menu option “Network Interfaces”.

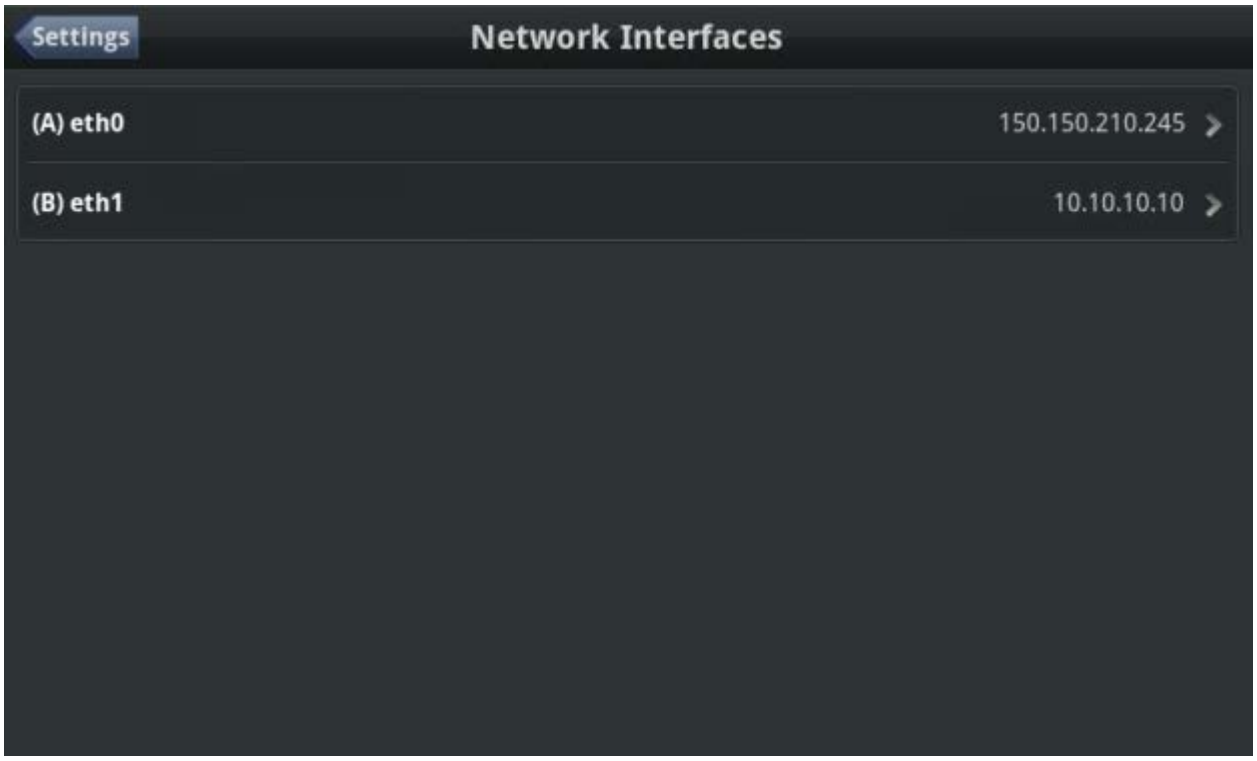


Figure 6-2: Network Interfaces Option

3. Select the menu option “eth0” to configure the “A” network port on CP-3100E.

Figure 6-3: eth0 Option

4. Select a cell to change and use the shaft encoder to increment or decrement the value displayed.

5. Select “Save” to save the changes made to the “A” Network Adapter.

6. Select “Network Interfaces”, then “Settings” to return back to the **Settings** menu.

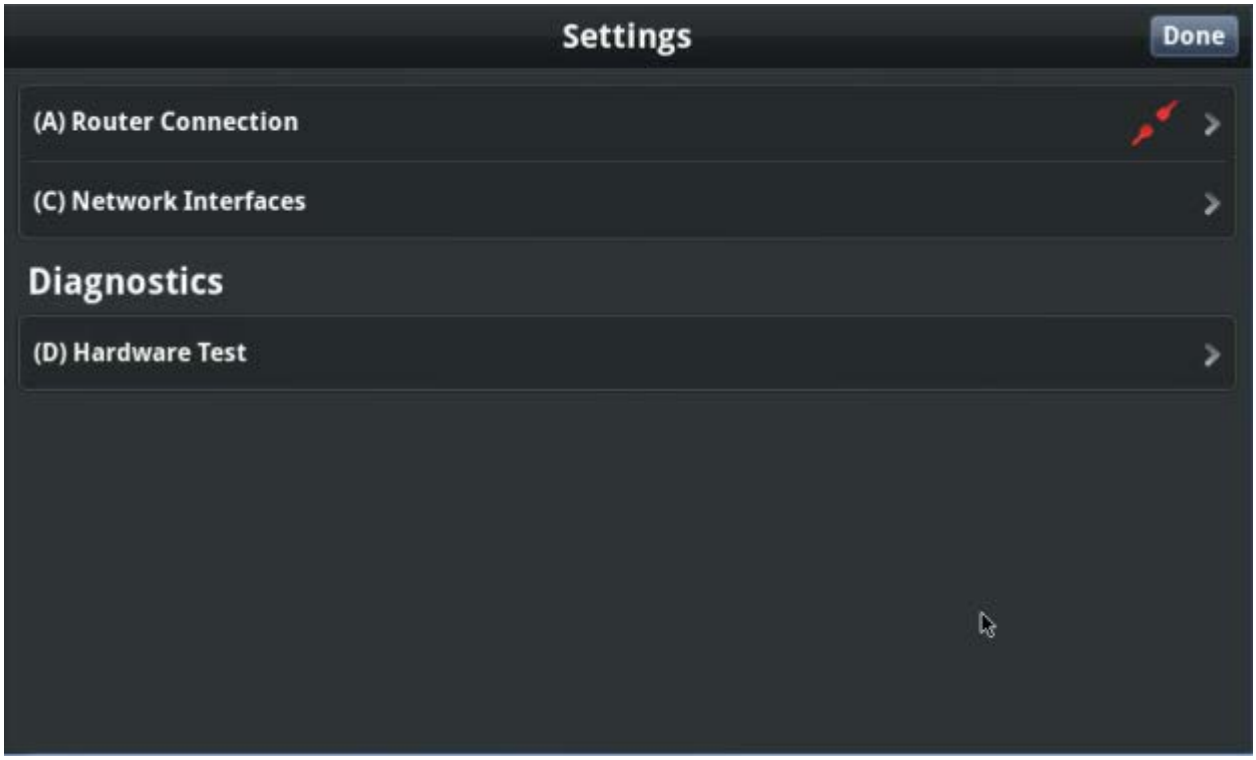


Figure 6-4: Return to Settings Menu

6.2. DEFINING A MAGNUM SYSTEM CONNECTION

To configure the CP-3100E to connect to a MAGNUM Control System, select the menu option “Router Connection”. The information defined on the “Router” configuration screen must match what is configured in the MAGNUM Control System. Refer to the MAGNUM Manual or section 7 in this document for more information.

1. Select the “Host” cells and define the IP address of the MAGNUM Cluster. Use the shaft encoder to increment or decrement the value displayed in the selected cell.

2. Select the “Port” cells and define the Port address as defined in MAGNUM. This is configured in MAGNUM / INTERFACES / MAGNUM.

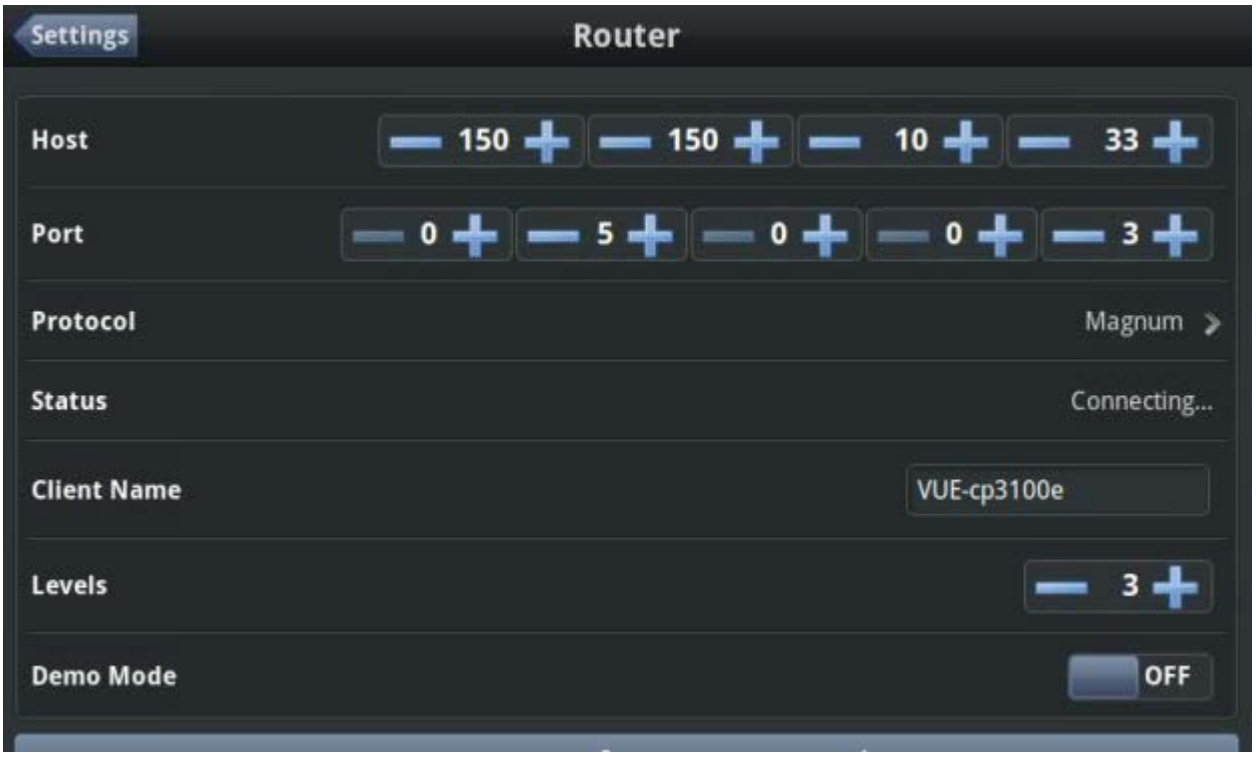


Figure 6-5: Router Configuration Option

3. Select the “Protocol” and then “Magnum”.

Figure 6-6: Select a Protocol

4. Select the “Settings” button when complete in order to return to the “Router” configuration screen.

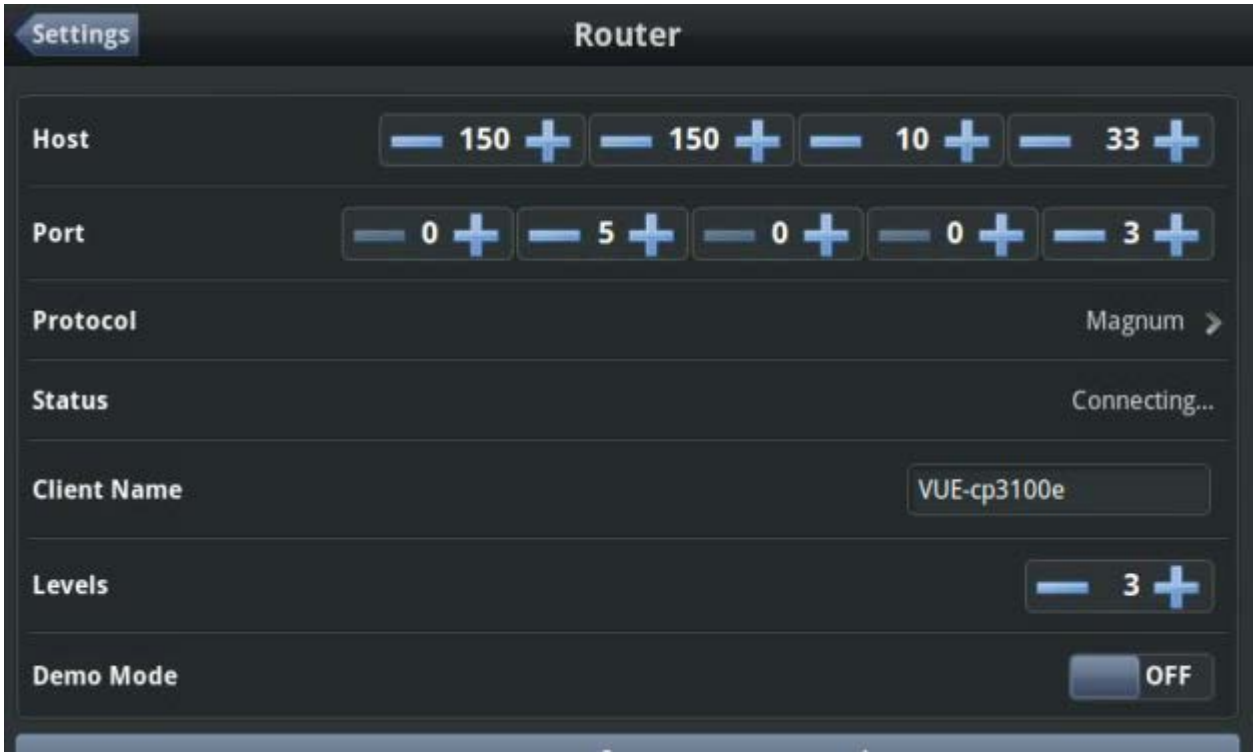


Figure 6-7: Return to the “Router” Menu

5. Set the number of Levels that the CP-3100E will be required to control based on the configuration defined for the interface in MAGNUM / INTERFACES / MAGNUM.

6. Swipe down up on the screen to select the “Save” button to save changes made to the “Router” configuration screen.

Figure 6-8: Select the Save Button

7. Select the “Settings” button and then select the “Router Connection” option.

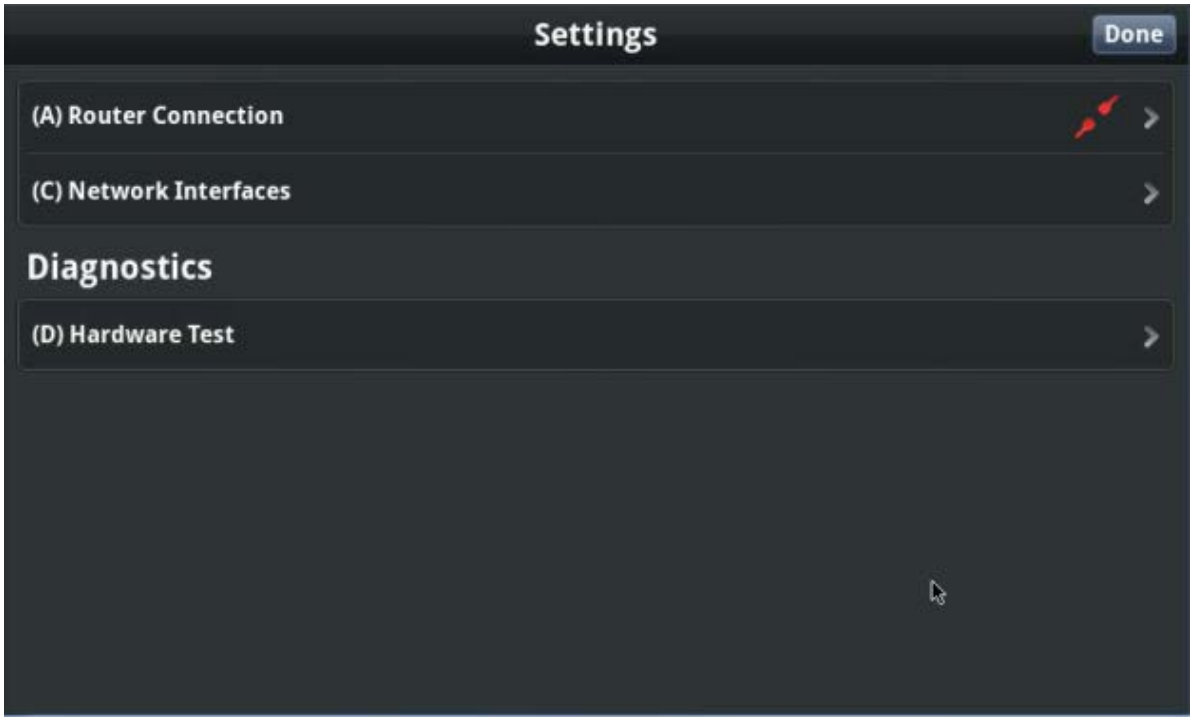


Figure 6-9: Settings Menu

Figure 6-10: Green Router Connection Status Icon

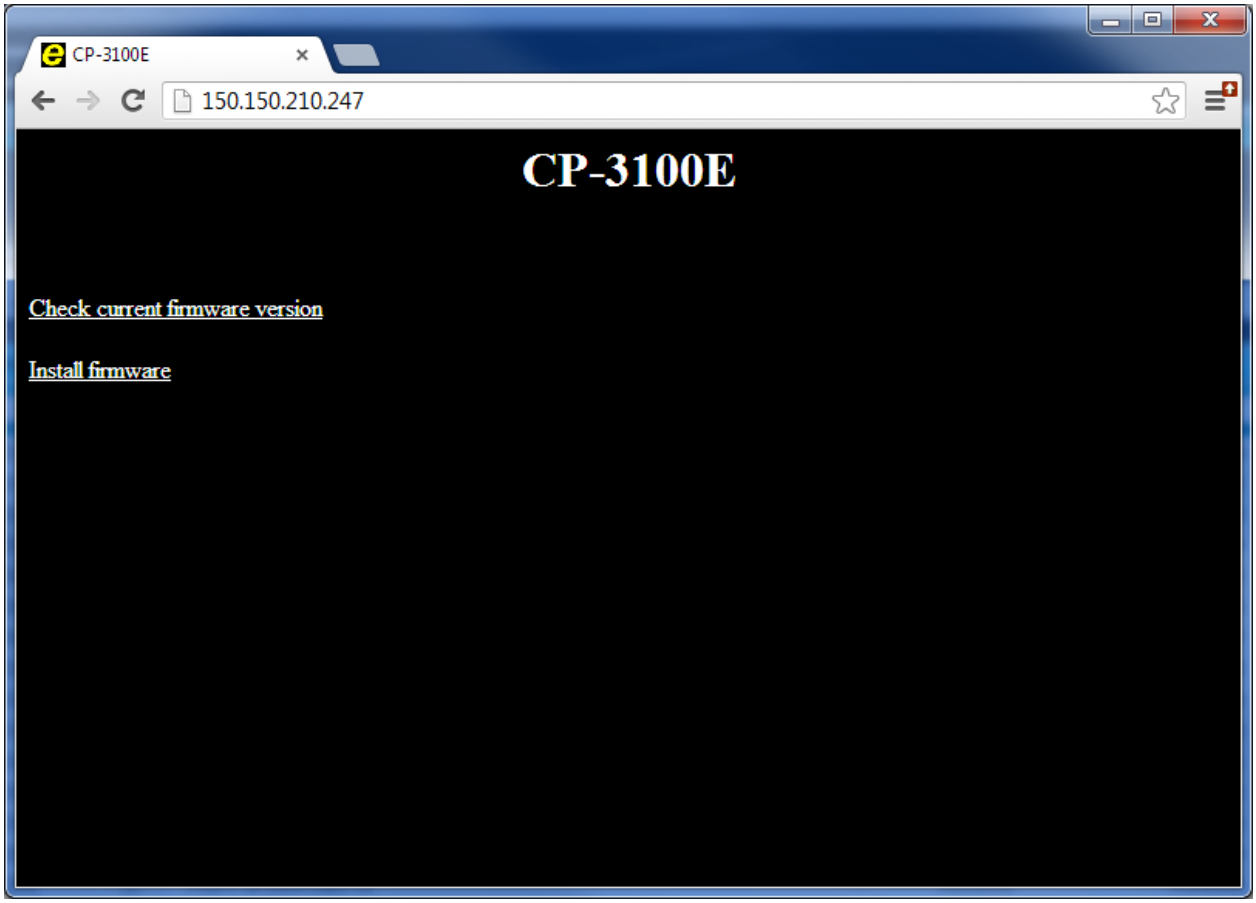
8. The “Router Connection” status icon will turn Green if the CP-3100E is able to establish a connection to the defined MAGNUM Control System.

9. Select “Done” to return to Operating Mode on the CP-3100E.

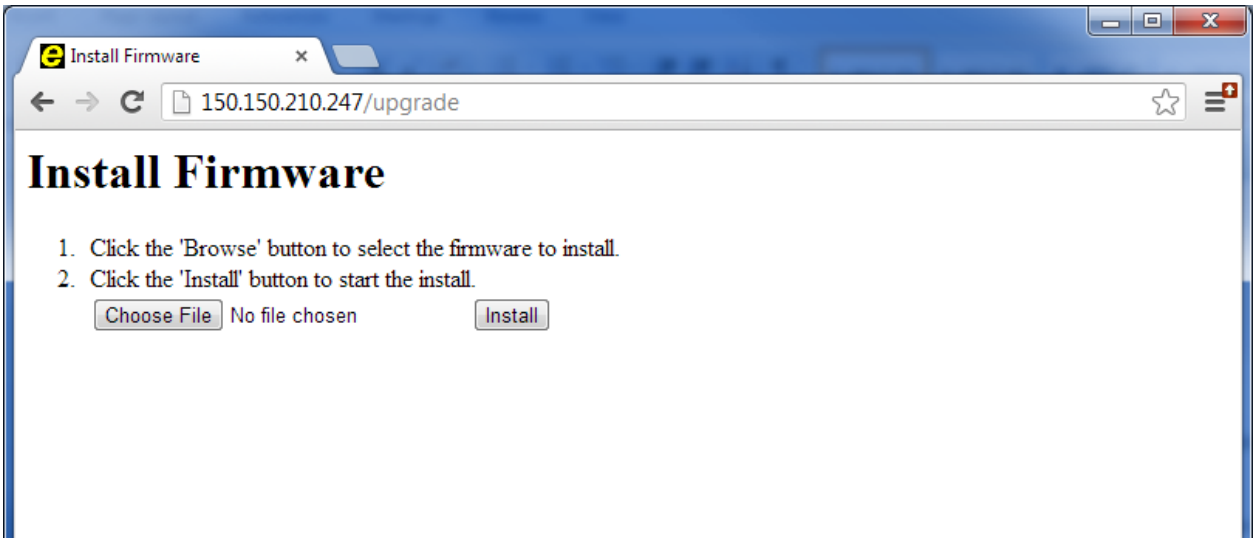
6.3. UPGRADING THE CP-3100E

To upgrade the CP-3100E, ensure that the CP-3100E has a valid IP address assignment and is accessible from a PC or Laptop with a web browser.

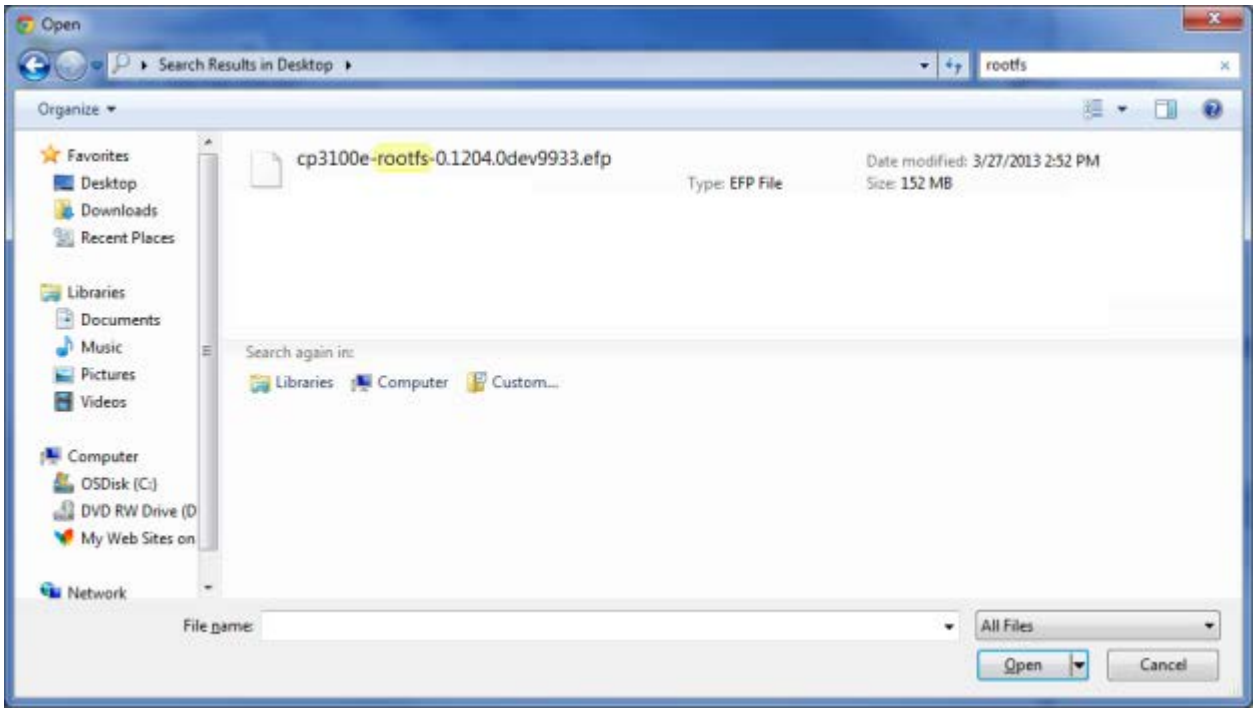
1. Launch the web browser on a PC or Laptop and enter the IP address in the URL of the CP-3100E to upgrade.



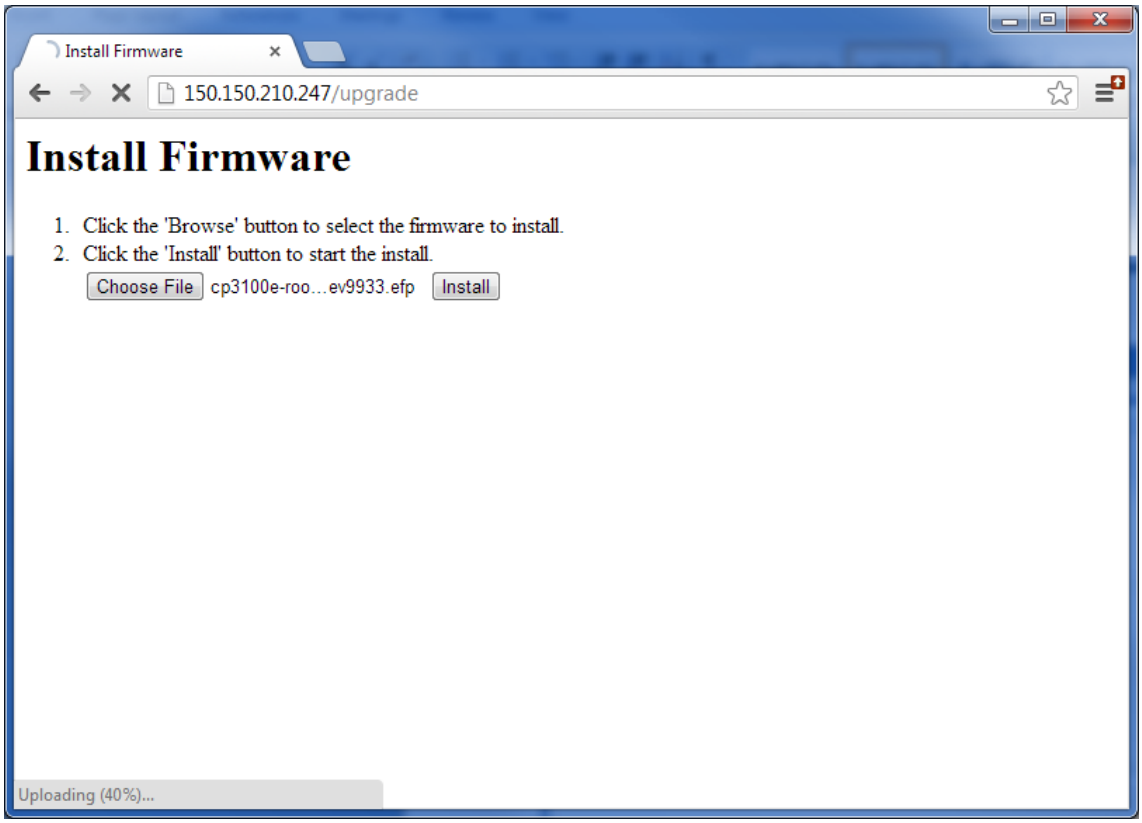
2. Select the “Install firmware” option.



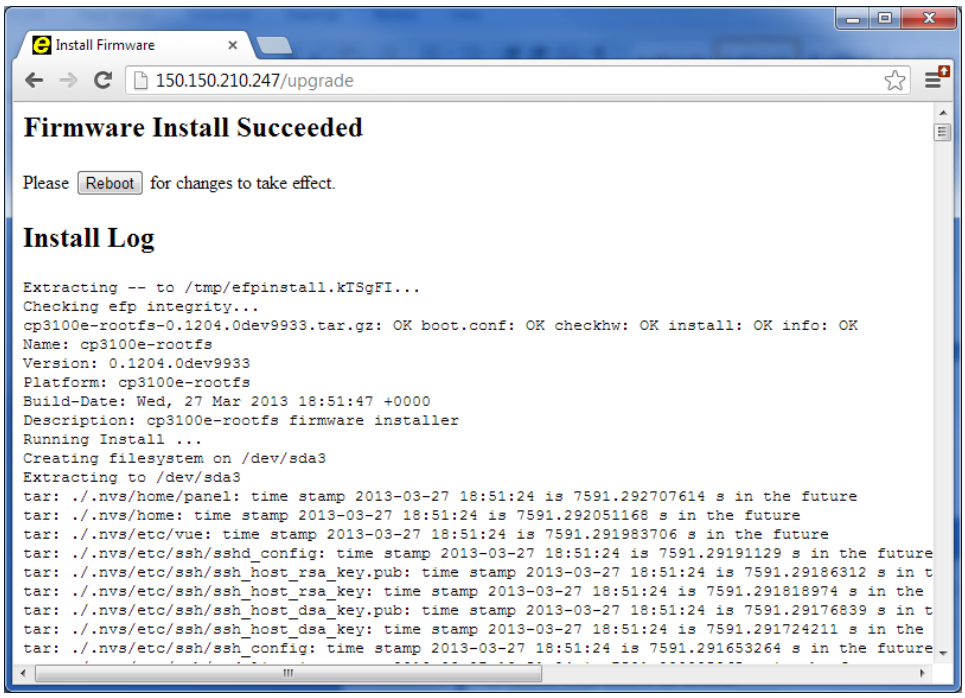
3. Select the “Choose File” button and select the upgrade file for the CP-3100E.

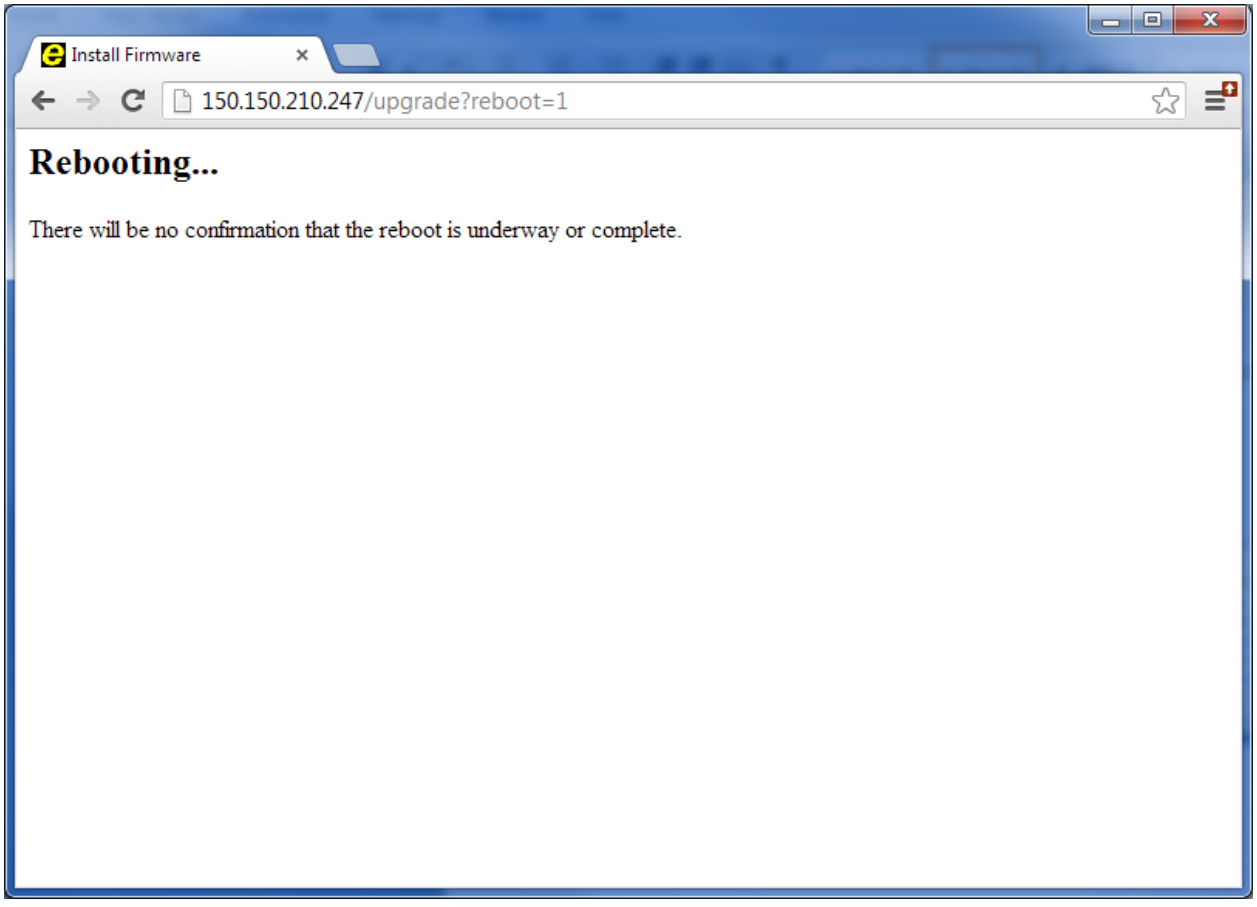


4. Select “Install” to begin the upgrade process.



5. After a successful upgrade, select “Reboot” to complete the process.





6. The CP-3100E will reboot automatically.

7. CREATING A MAGNUM INTERFACE

The CP-3100E requires a MAGNUM Interface to be created which will define the sources and destinations that the CP-3100E can control.

To create this interface:

1. Log in to the MAGNUM Control System.

2. Navigate to the Interfaces Tab / MAGNUM.

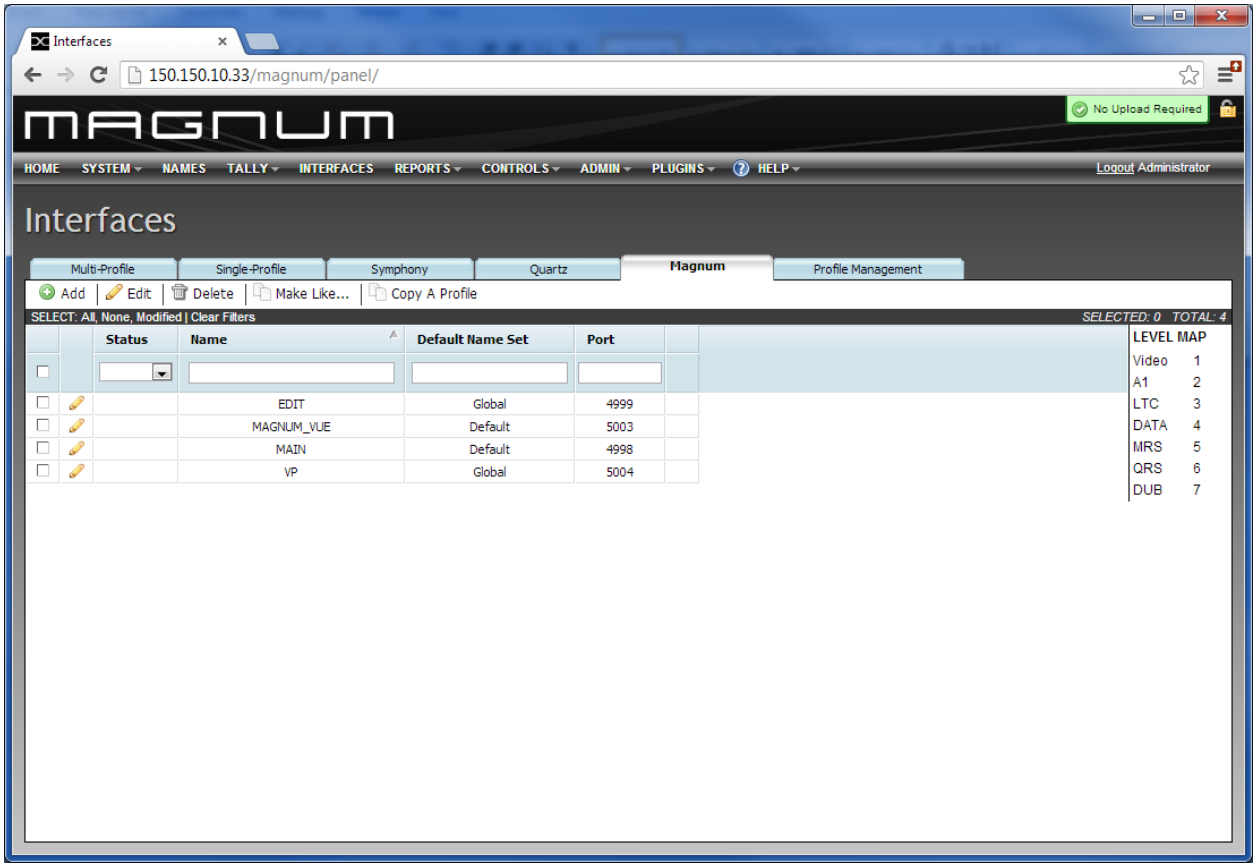


Figure 7-1: Interfaces Tab

3. Select the “Add” button to create a new MAGNUM Interface.

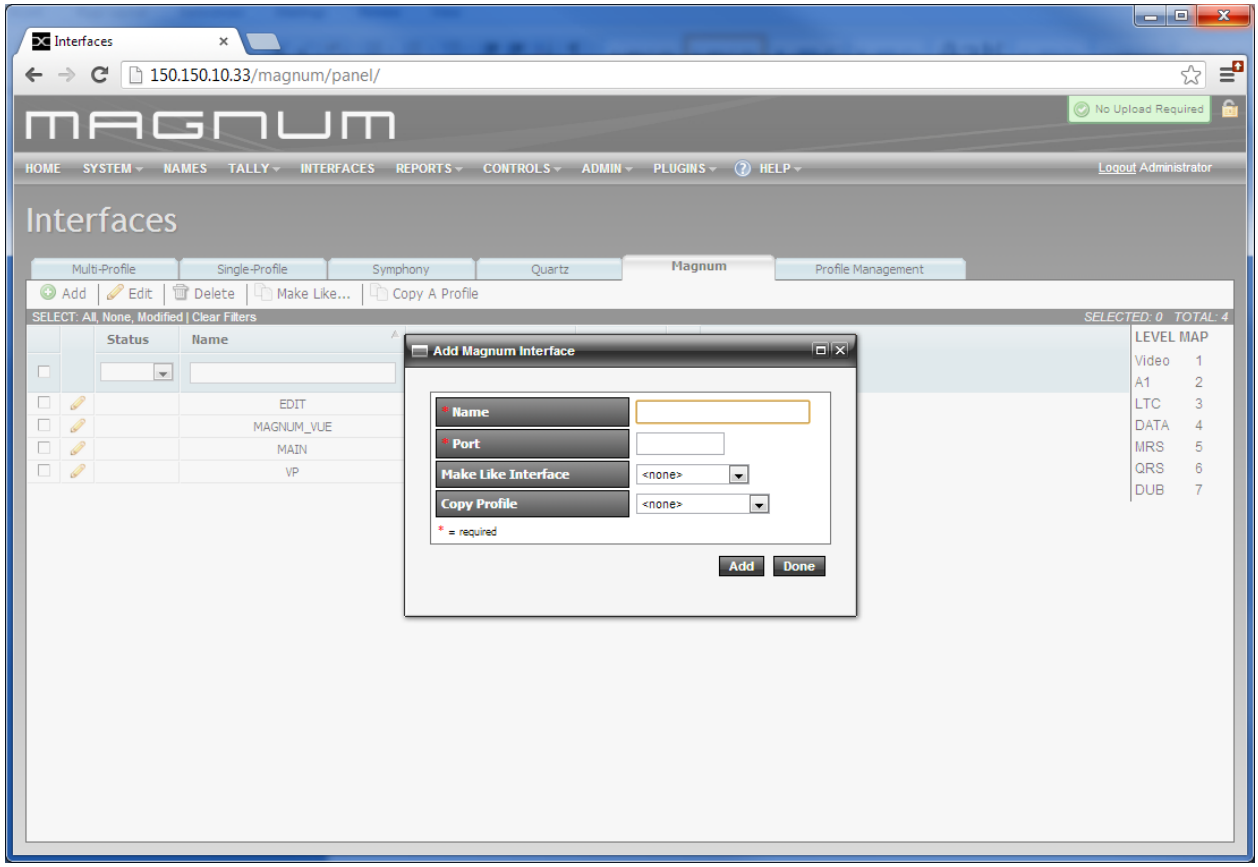


Figure 7-2: Add MAGNUM Interface

4. Enter a unique name (example CP-3100E location or position) that will help identify the interface.

5. Enter a unique port (Generally anything above 4000).

6. Select “Add” to create the interface.

7. Select “Done” to close the dialog box.

8. The newly added Interface will now appear on the Interfaces > MAGNUM page.

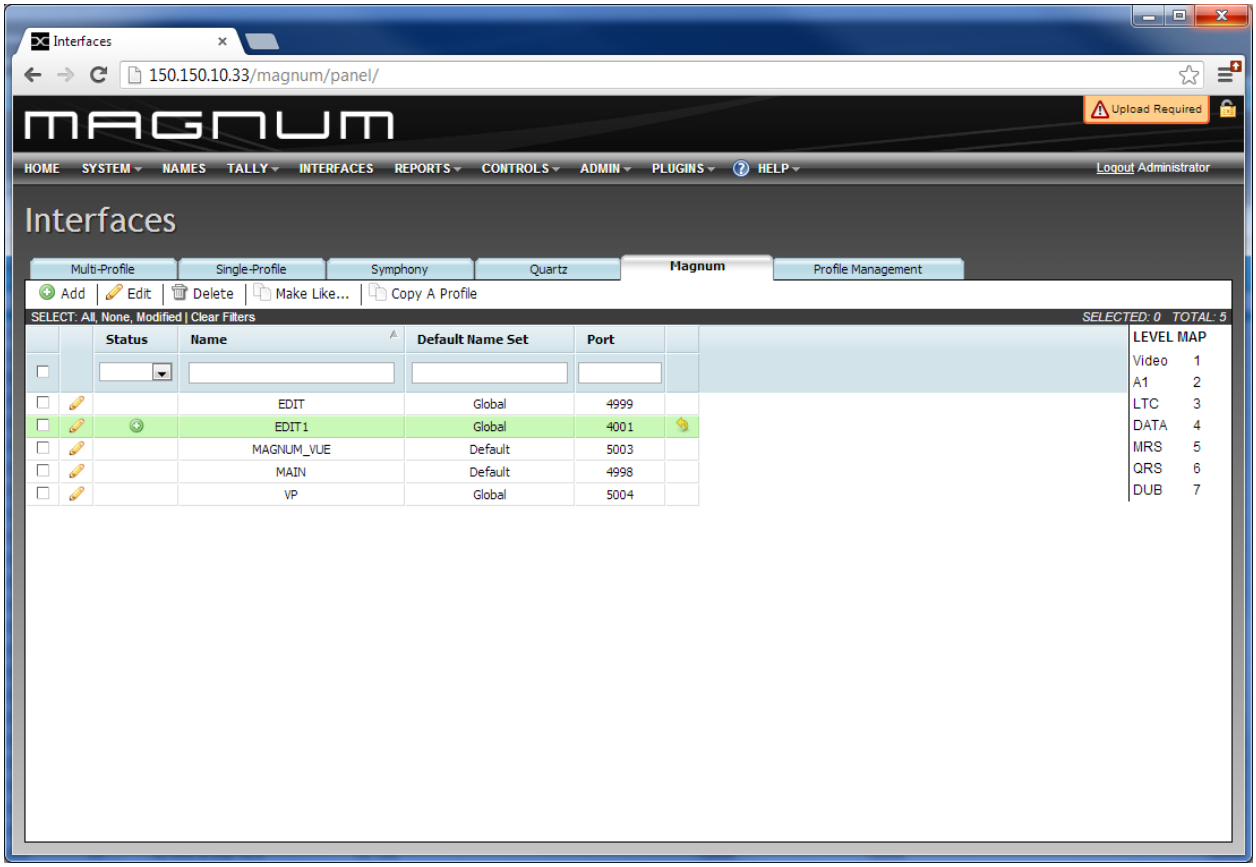


Figure 7-3: New Interface Will Be Added to List

9. To configure Source and Destinations for the newly created interface, click the “Pencil” icon beside the interface to edit.

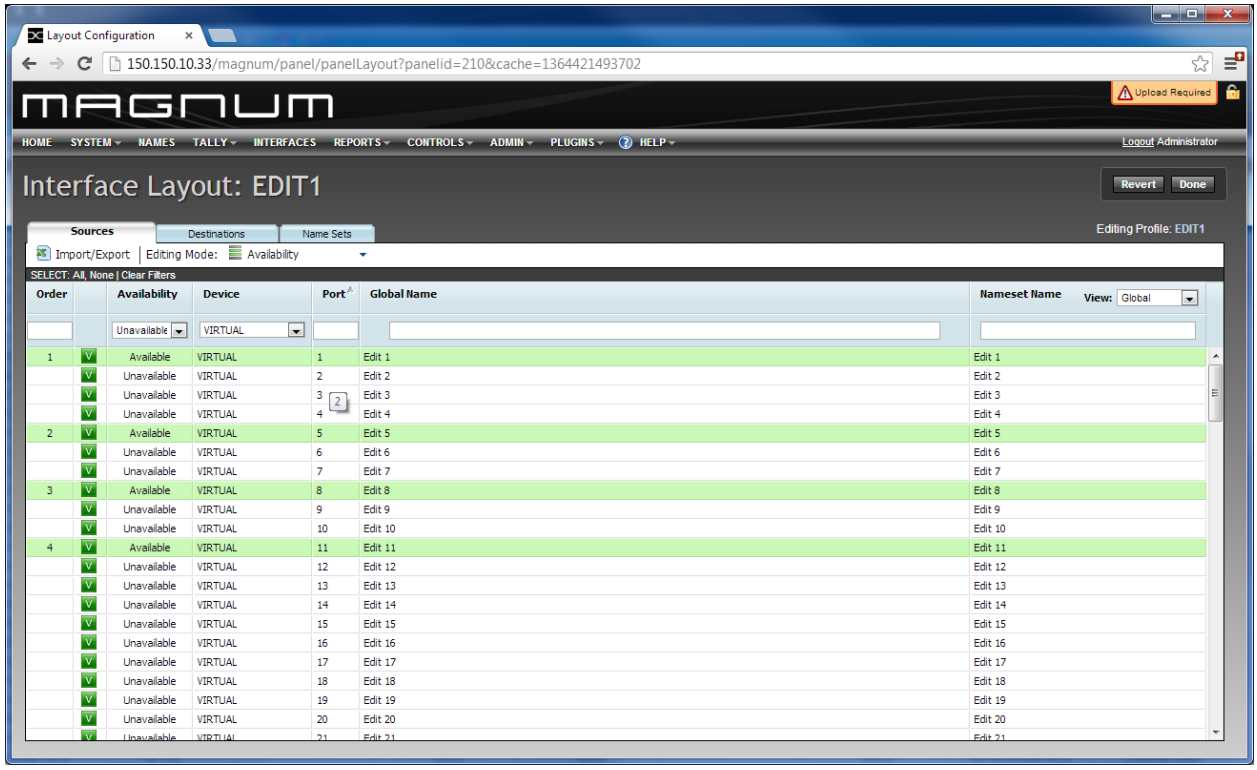


Figure 7-4: Source Tab

10. Use the Source and Destination tabs to switch between views. Use the filter options to filter the ports for selection. Click a port to make it available or unavailable in the interface.

11. To complete the changes select the “Save” button.

12. Select “Commit Changes” to complete the addition of the new interface.

8. CP-3100E OPERATION AND NAVIGATION

The CP-3100E requires a network connection to MAGNUM and a MAGNUM Interface which contains the sources and destinations that the CP-3100E can control. Once these two requirements are met the CP-3100E will display a control surface as shown in the example below:

Figure 8-1: CP-3100E Front Panel

At any time if **Encoder 1** is pressed and held, the CP-3100E **Settings** menu will appear.

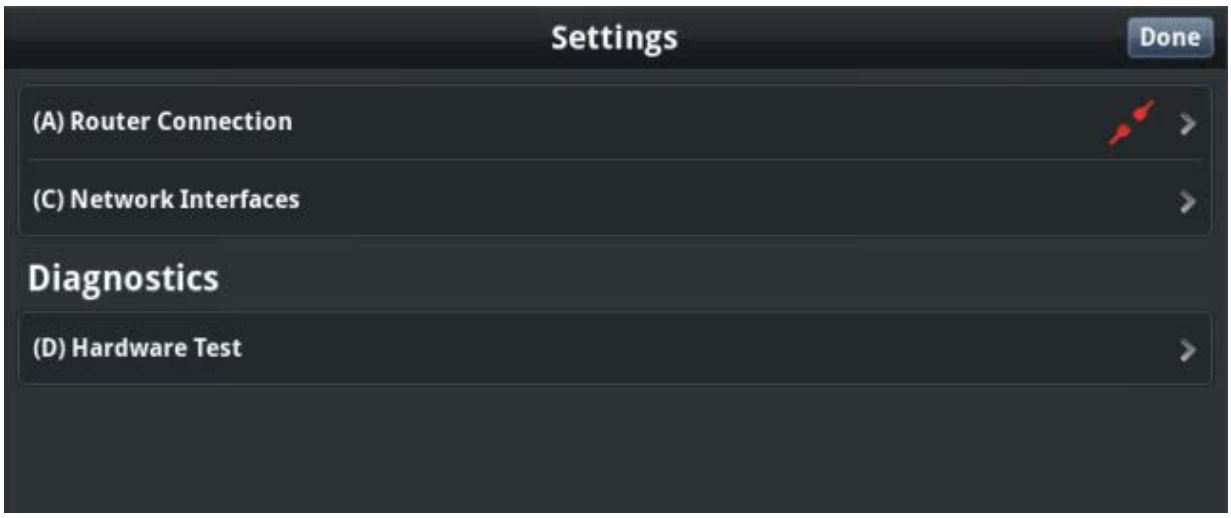


Figure 8-2: Settings Menu

The default operating mode and layout of the CP-3100E is as defined below:

Figure 8-3: Default Operating Mode

The “Current Destination” section shows the currently selected and active destination on the CP-3100E.

The “Current Source” section shows the current source on the destination that is shown in the “Current Destination” section.

The “Preset Source” section shows the Next or Preset source that will be routed to the destination shown in the “Current Destination” section when Button 4 is pressed.

The “Lock” button when pressed will lock the destination that is shown in the “Current Destination” section. Once the destination is locked, the CP-3100E will not be able to route on that destination. To unlock the destination simply press the “Lock” button again. If the destination is locked by another interface the “Lock” button will be illuminated and will not allow another interface to unlock it.

The “Protect” button when pressed will protect the destination that is shown in the “Current Destination” section. Once the destination is protected, the CP-3100E will be able to route on that destination but no other interfaces will be allowed. To unprotect the destination simply press the “Protect” button again. If the destination is protected by another interface the “Protect” button will be illuminated and will not allow another interface to unprotect it or route on it.

The “Dialer” is automatically built from the source and destinations names of the ports that have been assigned to the MAGNUM Interface that the CP-3100E is connected to.

Figure 8-4: Dialer

If “Current Destination” is highlighted, the “Dialer” will show the Prefixes available for Destination dial-up.

Figure 8-5: Current Destination

If “Preset Source” is highlighted, the “Dialer” will show the Prefixes available for Source dial-up.

Figure 8-6: Preset Source

The “Dialer” will switch between Destination Dialer Mode if the “Current Destination” window is selected or if **Button 2** is pressed on the CP-3100E. **Button 2** will also illuminate yellow when active.

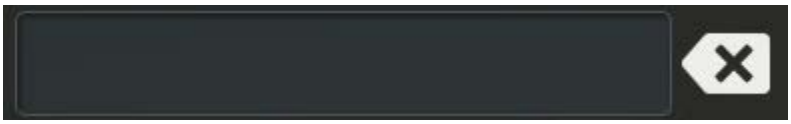
Figure 8-7: Button 2 Highlighted

Turning **Encoder 1** will scroll between additional Prefixes that may be available in Destination Dialer mode.

Selecting a “Prefix” button will cause the “Dialer” to switch to a numeric smart dialer mode whereas the numbers will automatically turn off or on based on matching characters to the available destination port names.

Figure 8-8: Numeric Smart Dialer

The characters will be displayed in the name building box at the top of the dialer as the user pushes buttons in the dialer. Pressing the X besides the characters in the box will clear the characters one at a time.



The results of matching port names to the characters typed will be displayed in the bottom left of the panel. **Encoder 1** can be used to scroll through the list. Touching the port name, pressing **Encoder 1**, or pressing **Button 4** will activate that destination in the “Current Destination” window and return the user to top level view of the CP-3100E.

Figure 8-9: Destination Dialer Mode

The user will not be able to Take a source if Destination Dialer mode is active. This avoids accidental routes when selecting different destinations.

Figure 8-10: Source Preset Dialer Mode

The “Dialer” will switch between Source Preset Dialer mode if the “Source Preset” window is selected or if **Button 3** is pressed on the CP-3100E. **Button 3** will also illuminate yellow when active.

Figure 8-11: Button 3 Highlighted

Turning **Encoder 1** will scroll between additional Prefixes that may be available in Source Dialer mode.

Selecting a Prefix button will cause the “Dialer” to switch to a numeric smart dialer mode whereas the numbers will automatically turn off or on based on matching characters to the available source port names.

Figure 8-12: Numeric Smart Dialer Mode

The name of the port will be displayed in the results box at the top of the dialer as the user pushes buttons in the dialer.

The results of matching port names will be displayed in the bottom left of the panel. **Encoder 1** can be used to scroll through the list. Touching the port name, pressing **Encoder 1**, or pressing **Button 4** will activate the Preset Source in the "Current Preset Source" window and will return the user to the top level view of the CP-3100E. The Preset Source can then be taken by pressing **Button 4** which will be illuminated red. Pressing **Button 4** again will toggle between the Preset Source and the Current Source on the active destination.

Figure 8-13: Button 4 Highlighted

To clear the Preset Source, press the X beside the Preset Source to clear it.