



CB-2000 Controller

Configuration and User Guide

Calypso Systems CB-2000 Controller System Setup and User Guide v1.0

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Introduction

The CB-2000 is a networked button panel controller designed to deliver fully integrated and easy-to-use control of classroom A/V functions like power on/off, input switching, and volume. The network capability of the CB-2000 makes it easier for teachers to deliver a media-rich learning environment and provides unmatched administrative tools in an 8-button, wall-mounted, control panel.

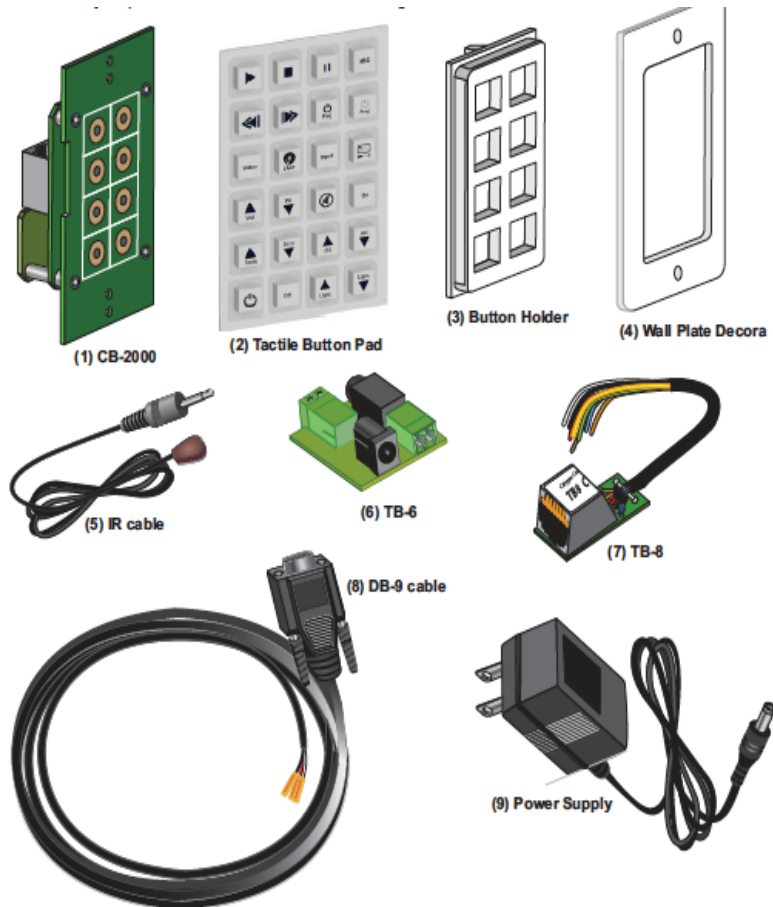
In The Classroom

The CB-2000 creates a seamlessly integrated, media-rich classroom environment by providing intuitive control of classroom instructional technology like projectors, audio amplifiers and document cameras. The network capability of the CB-2000 gives educators access to Calypso's Encore! desktop control software, which provides control to networked and non-networked devices used in the classroom and allows scheduled commands like power on/off to be sent to classroom A/V devices.

Installation and Administration

The CB-2000's embedded web server provides networked configuration to each device from any PC connected to the campus network. It eliminates the need for configuration software or wands. No longer does an installer need to visit each room for configuration. When connected to Calypso's CM-3000 networked audio controller, the CB-2000 receives power via the network eliminating the need for a 12V DC power supply. On-going administration and maintenance is simplified with Calypso's Maestro remote administration software, which allows administrators to more efficiently respond to tech support issues and extend maintenance budgets with features like scheduled projector shut-downs.

What's Included

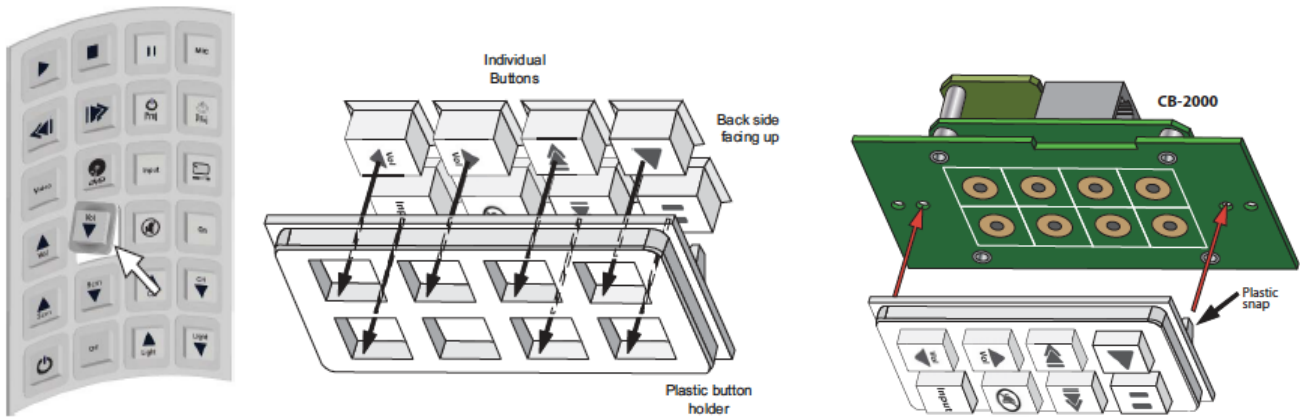


(1) 1 CB-2000, (2) 1 Tactile Button Pad, (3) 1 Button Holder, (4) 1 Wall Plate Decora, (5) 1 IR cable, (6) 1 TB-6 terminal block, (7) 1 TB-8 break-out block, (8) 1 5-ft. DB-9 cable, and (9) 1 500 mA Power Supply.

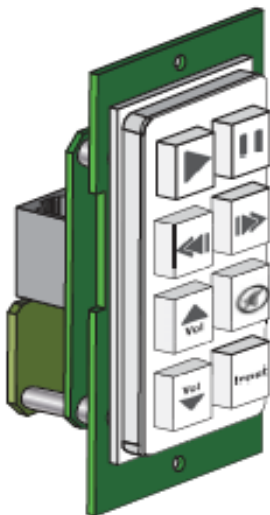
Set-Up

Assembling the Button Pad

- The CB-2000 comes with a set of 24 tactile, pre-labeled button “caps”. Choose eight buttons for assembling the button pad.
- Carefully tear away the perforated edge from the button sheet for each button. Arrange them in the array desired.
- Orient the plastic button holder so that the backside is facing up. Place the buttons face down into the holder in the preferred order. Assure the button orientation is correct.
- Align the CB-2000’s two holes with the plastic snaps on the button holder and snap together.



The assembly is now complete and should look like the depiction illustrated below (buttons may vary). It is now ready for powering up and configuration.

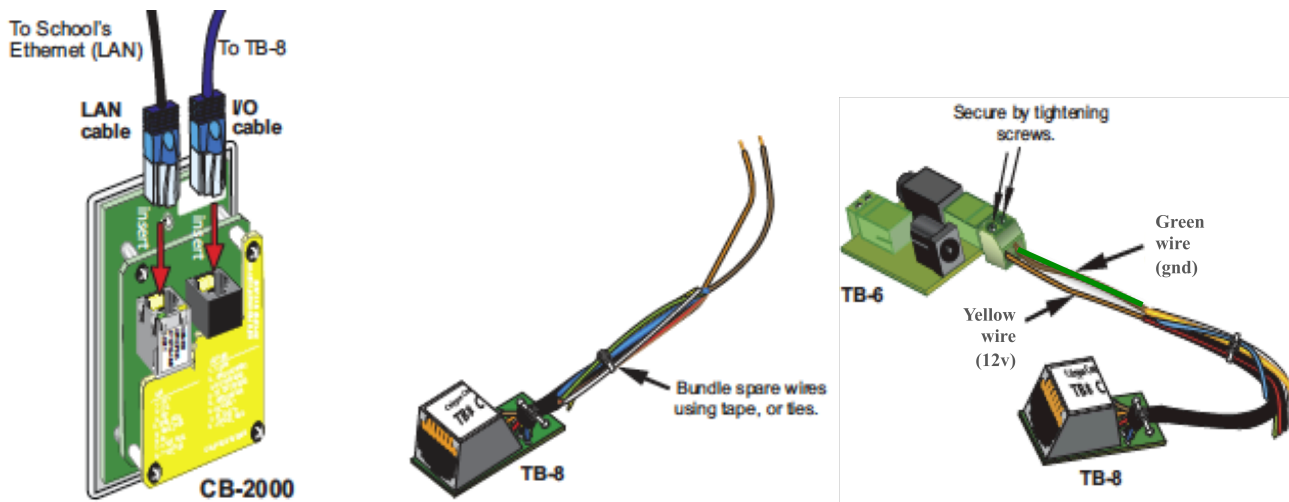


To configure the Calypso CB-2000, it must first receive power from an appropriate power source via its I/O port. The CB-2000 uses on-line web pages for setting up and configuring the device. Accordingly, an Internet connection is required for configuring the CB-2000. The following section describes how to power up your Calypso CB-2000 wall-mounted button panel.

Powering the CB-2000

The Calypso CB-2000 utilizes two RJ-45 ports located on the back of the product. The metallic colored port is the LAN port that accepts a standard CAT-5e cable. The other RJ-45 port is for I/O and also uses a standard CAT-5e cable for receiving power, and for transmitting IR and RS-232 signals (see illustrations below).

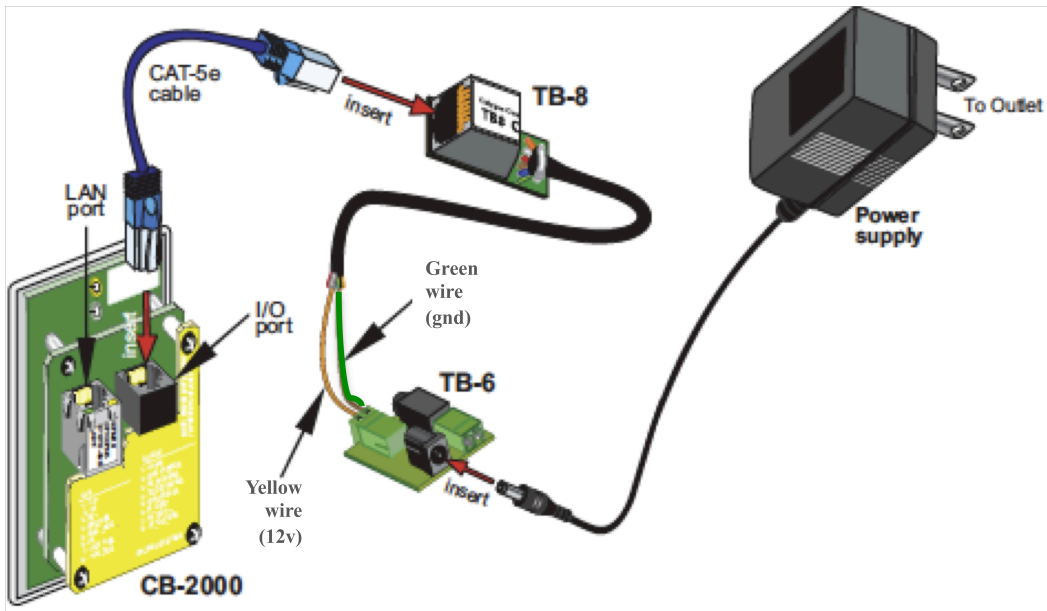
**DO NOT PLUG THE LAN CABLE INTO THE I/O PORT.
DAMAGE MAY RESULT TO THE DEVICE.**



The other end of the I/O cable plugs directly into the companion TB-8 break-out block (depicted above), which separates the signals across 8 colored-coded wires.

First, separate the brown and orange colored wires and remove approximately an 1/8 inch of the insulation at the ends exposing the bare wire (~1/8 in.). Bundle the un-spliced wire and secure them as shown above. Insert the orange lead wire (PWR) from TB-8 into the screw-down port of the 2-pin connector terminal. Firmly tighten the terminal screw. Next, take the brown wire (GND) and tighten it in the other connector port.

The CB-2000 ships with a 9VDC power supply and a TB-6 terminal block, which is used to send power through the TB-8 and CAT-5e cable (not included). The complete set up for sending power to the CB-2000 is provided in the illustration below. The final step is to connect the LAN cable to the LAN port for accessing the Internet.



TB-8 Pin-Out Guide

Pin #	Wire Color	Function
1	Orange	TX1
2	Brown	TX2
3	Red	RX1
4	White	RX2
5	Black	GND 1 (IR or GPI)
6	Yellow	GND 2 (Power)
7	Blue	IR Out+ or GPI
8	Green	12V or 9V

NOTE: This manual now represents REV 3 CB-2000 hardware, which supports 2 com ports. The wiring shown in this manual is not correct for the prior, REV 2 version of CB-2000, with a single com port. Examine the back of the CB2000 for a reference to TX2 and RX2 to confirm you are working with a REV 3 unit.

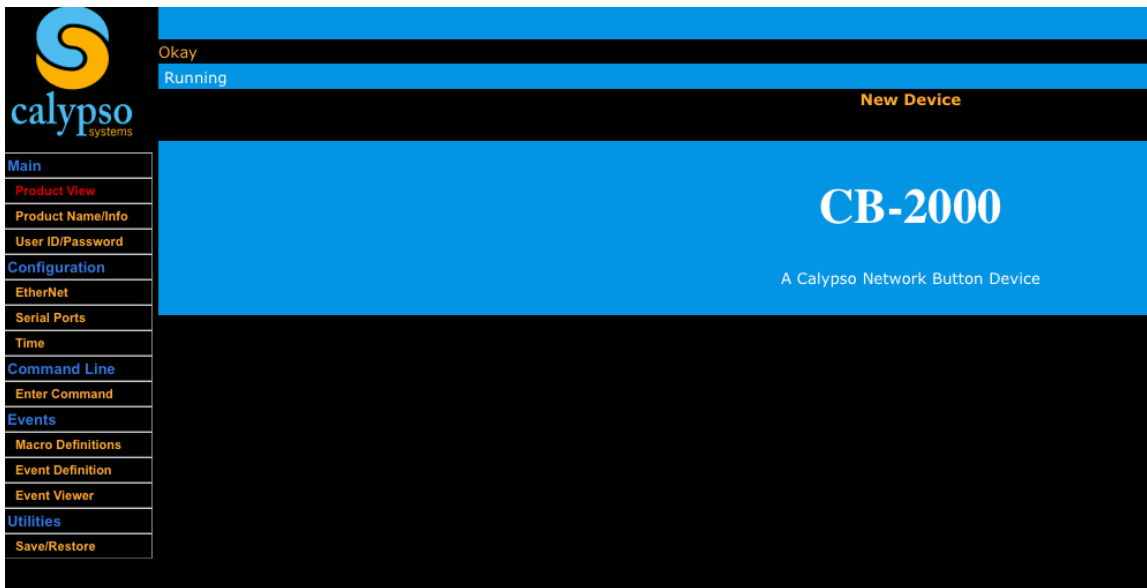
Connecting to the CB-50

The latest hardware revision of the CB-2000 (Rev3) accommodates a direct cable connection to the optional CB-50 rotary volume dial, which is commonly paired with the CB-2000 in a 2-gang Decora wall plate. Though not reflected in the CB-2000 drawings, the newest hardware revision has a 4-pin header located at the bottom, rear of the unit. The required ribbon cable is provided as part of the CB-50 kit. Simply connect the locking ribbon cable to have the CB-50 rotary dial automatically provide volume control commands through the CB-2000, when connected to a Calypso CA-1000, CM-3000 or other amplifier.

Configuration

Accessing the Configuration Web Page

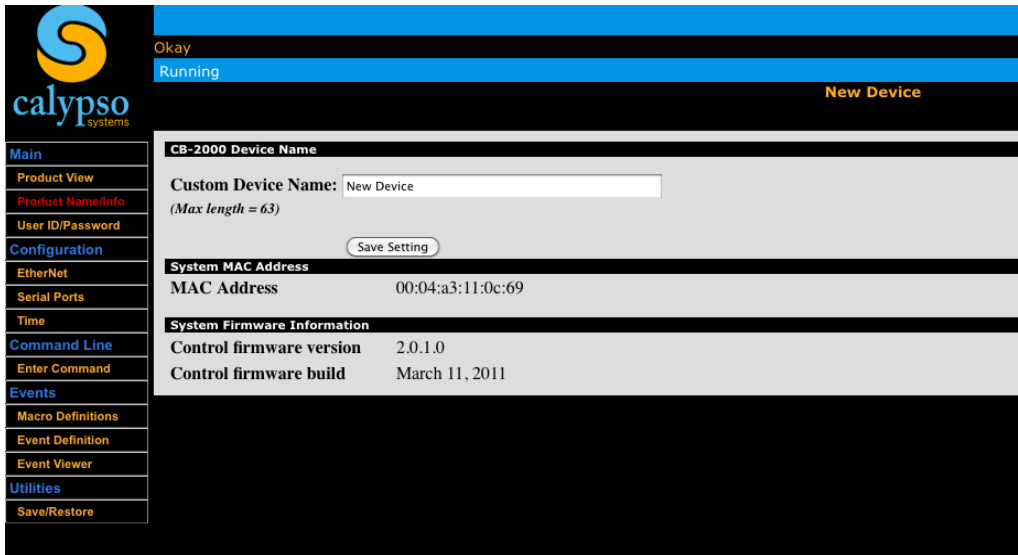
The CB-2000 is configured via built in web pages and the default IP address for the CB-2000 is **192.168.1.104**. On a computer connected to the LAN, type in the default CB-2000 IP Address **192.168.1.104** into your browser. **If the setup is correct**, the CB-2000 Product View web page will appear as shown below.



The *Product View web page is the main web page*. Clicking on the gold-colored links in the side bar (left side) displays information about the CB-2000, setting a password, configuration, entering command lines, events, and utilities. The following pages provide descriptions of each web page operation.

Product Name / Info

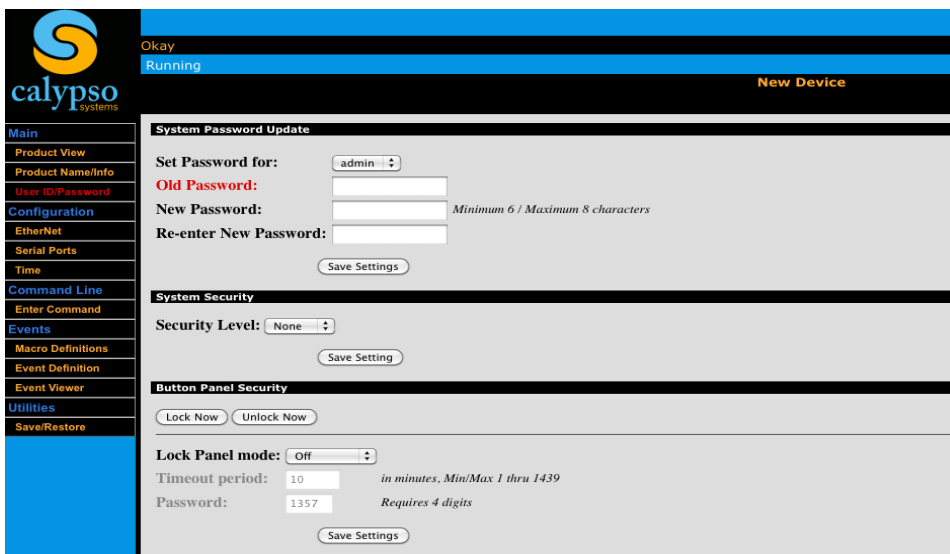
The *Product Name/Info web page* (illustrated below) is used to change the device name. Type in a Custom Device Name in the field provided and press “Save Setting”. A maximum 63 alpha-numeric name is permitted.



User ID / Password

To set or change the user ID and/or password, click on *User ID/Password*. The *Set Password for:* menu is always set to **Admin**. To set or change the password, type in the old password (default is “calypso”), then type in a new password in the next field. Re-enter the new password in the next field. To save, press the **Save Settings** button.

To avoid tampering, the CB-2000 buttons can be locked and unlocked by using the **Lock Now** or **Unlock Now** buttons. A locked panel is indicated on the CB-2000 by only the **OFF** button being lit. Other means of button security is provided by using the *Lock Panel mode*. The front panel can be manually locked with two buttons pressed simultaneously, or locked with a set timeout mode or both. To save your settings, press the **Save Settings** button. A default password **1357** is provided. It can be changed, but must be a 4-digit odd number. Type the password on the keypad of the CB-2000 to unlock it.



Ethernet

The *Ethernet* web page is used for configuring the CB-2000 for network communications; this page includes device settings for enabling/disabling DHCP, the IP address, the IP Subnet Mask, Router IP address, Primary NameServer IP address, and Secondary NameServer IP address. In addition, the Web Server Port, Remote Management Port, and Remote Port Idle Timeout are set on this web page. The MAC address is also available for viewing purposes only.

Okay
Running

New Device

calypso systems

Main
Product View
Product Name/Info
User ID/Password
Configuration
Ethernet
Serial Ports
Time
Command Line
Enter Command
Events
Macro Definitions
Event Definition
Event Viewer

Device network configuration

Automatic IP configuration (DHCP) (use with caution) 1

IP Address 192.168.1.104

IP Subnet Mask 255.255.255.0 2

Router IP Address 192.168.1.1 (recommended) 3

Primary NameServer IP Address 192.168.1.1 (optional) 4

Secondary NameServer IP Address (optional) 5

Save Settings 6

Select *Ethernet* listed in the side bar and the display shown above will appear. This view allows the network administrator to configure the CB-2000 for network communications. Note, that the default IP address setting for all CB-2000's is **192.168.1.104**. Each CB-2000 requires a unique IP address. (1) Type the specific IP Address into the available field. Use the *Automatic IP Configuration* Dynamic Host Configuration Protocol (DHCP) only if knowledgeable with its operation (by clicking on the box). (2) Next, enter the *IP Subnet Mask* for your computer network grouping. The default setting for this device is **255.255.255.0**. (3) Type the appropriate *Router IP Address* of your subnet in the next field. (4)(5) As an option, a *Primary NameServer IP Address* and a *Secondary NameServer IP Address* is provided. Use these fields if necessary for your application. The default for the *Primary Name Server IP Address* is **192.168.1.1**. (6) To save your settings, select the **Save Settings** button.

Device port configuration	
Web Server Port	<input type="text" value="80"/>
Remote Management Port	<input type="text" value="7262"/>
Remote Port Idle Timeout (mins)	<input type="text" value="Disabled"/> <input type="text" value="10"/>
<input type="button" value="Save Settings"/>	
System MAC Address	
MAC Address	00:04:a3:10:5e:ea

The *Device port configuration* and *System MAC Address* sections consist of defaults generally not required for modification. The *Web Server Port* (set at **80**) is not active and is for display purposes only. Next, the *Remote Management Port* is a Calling Name Presentation (CNAP) registered port set at **7262** for command-line (CNAP) functions only. It is used by external software to send commands to the controller. The *Remote Port Idle Timeout* field's default setting is **Disabled**. When active, it sets the duration (in minutes) before the controller releases the remote communication port after a period of inactive controller communication. If a special case arises where your system does require configuration, contact Calypso Technical Service for assistance.

Serial Ports

The *Serial Port* web page is for setting the parameters associated with the serial communications ports. Select the *Serial Port* link listed in the side bar shown below. Settings include the *COM Port* number (default is **1**), *Baud Rate* (default is **19200**), *Stop Bits* (default is **1 Bit**), and *Parity* (default is **No Parity**). The current settings can be viewed at the bottom of this web page. If different settings are required for your application (e.g. controlling a projector), modify them and then save them by pressing the **Save Settings** button at the bottom of the view.

Main	Serial Port configuration
Product View	COM Port: 1 ▾
Product Name/Info	Baud Rate: 19200 ▾
User ID/Password	Stop Bits: 1 Bit ▾
Configuration	Parity: No Parity ▾
EtherNet	Save Settings
Serial Ports	Serial Port settings
Time	COM Port Baud Rate Stop Bits Parity Mode
Command Line	1 19200 1 None RS232
Enter Command	
Events	

Time

Click on the *Time* button listed in the side bar and the display shown below will appear. This view allows the network administrator to update actual user time/date information. To enter time/date information manually, simply type the data into the fields provided. To retrieve the computer's current time/date, press the **Load Computer Time** button. Then, click on the **Save Settings** button to save these settings. To enable (or disable) the Day Light Saving (DST) mode, click on the box next to the *Honor the Daylight Saving Transition Table*. A message below the check box indicates whether DST is currently OFF or ON. A three-column table at the bottom of the view displays the current defined year and the next three years. No actual DST data can be changed with this interface. Contact Calypso Technical Service for DST modifications.

Main	Time Adjustment
Product View	Set time: 2010 Apr ▾ 26 9:41:04 (24 hour time) Load Computer Time
Product Name/Info	<i>(updated only on page refresh)</i>
User ID/Password	Save Setting
Configuration	<input checked="" type="checkbox"/> Honor the Daylight Saving Time transition table.
EtherNet	Daylight Saving Time is currently ON
Serial Ports	Year Date ON Date OFF
Time	2010 Mar 14 Nov 7
Command Line	2011 Mar 13 Nov 6
Enter Command	2012 Mar 11 Nov 4
Events	2013 Mar 10 Nov 3
Macro Definitions	
Event Definition	

Enter Command

The *Enter Command* web page allows for the manual entry of CB-2000 specific commands for testing purposes. Clicking on the *Enter Command* tab displays the view depicted below. The drop down menu supports several direct commands on two dialogs.

For IR, these are:

- **IR-Out Universal Command- #XROxx[F2] output**
- **Learn Universal IR code - #XRI1 [F2] input** (universal header uses fixed 40K , user can modify).

For Serial, these are:

- **Serial Transmit - #COMxx[“”] TX**
- **Serial Receive - #COMxx[] RX**

For test command:

- **Alarm Command #ALM[“ON”]**

For TCP:

- **NET Command (TCP) - #NET[F1,...]**

The screenshot shows the 'Enter Command' web page interface. On the left is a navigation sidebar with the following items: Main, Product View, Product Name/Info, User ID/Password, Configuration, Ethernet, Serial Ports, Time, Command Line, Enter Command (highlighted in red), Events, Macro Definitions, Event Definition, Event Viewer, Utilities, and Save/Restore. The main content area is split into two sections: 'Send Command' and 'Receive Command'. Each section contains a 'Clear Field' button. A dropdown menu is open, displaying a list of commands: (Select an entry), (Select an entry), Serial Transmit - #COMxx[“”];, Serial Receive - #COMxx[];, IR-Out Universal Command - #XROxx[F2];, Learn Universal IR code - #XRI1[F2];, NET Command (TCP) - #NET[F1...];, and Alarm Command - #ALM[“ON”];. At the bottom right of the main content area is a 'Send CMD' button.

For our example, we have selected from the drop down list - “**Learn Universal IR Code - #XRI1 [F2]**”. The illustration below depicts the *Learn Universal IR Code* selection from the drop down menu.

The screenshot shows a software interface with a grey background. At the top, there is a dropdown menu with the text "Learn Universal IR code - #XRI1[F2];" and a downward arrow. Below the dropdown is a text area containing "#XRI1 [F2];". To the left of this text area is a section titled "Send Command" with a "Clear Field" button. Below the "Send Command" section is a section titled "Receive Command" with a "Clear Field" button. At the bottom center of the interface is a "Send CMD" button.

The *Send Command* window is used for putting together and testing the commands that are to be sent (see illustration above). The *Receive Command* field is populated when it receives a response back from the CB-2000 after the command has been sent using the **Send CMD** button. In our example, it is **Learn Universal IR code - #XRI1[F2]**. The illustration below depicts the response.

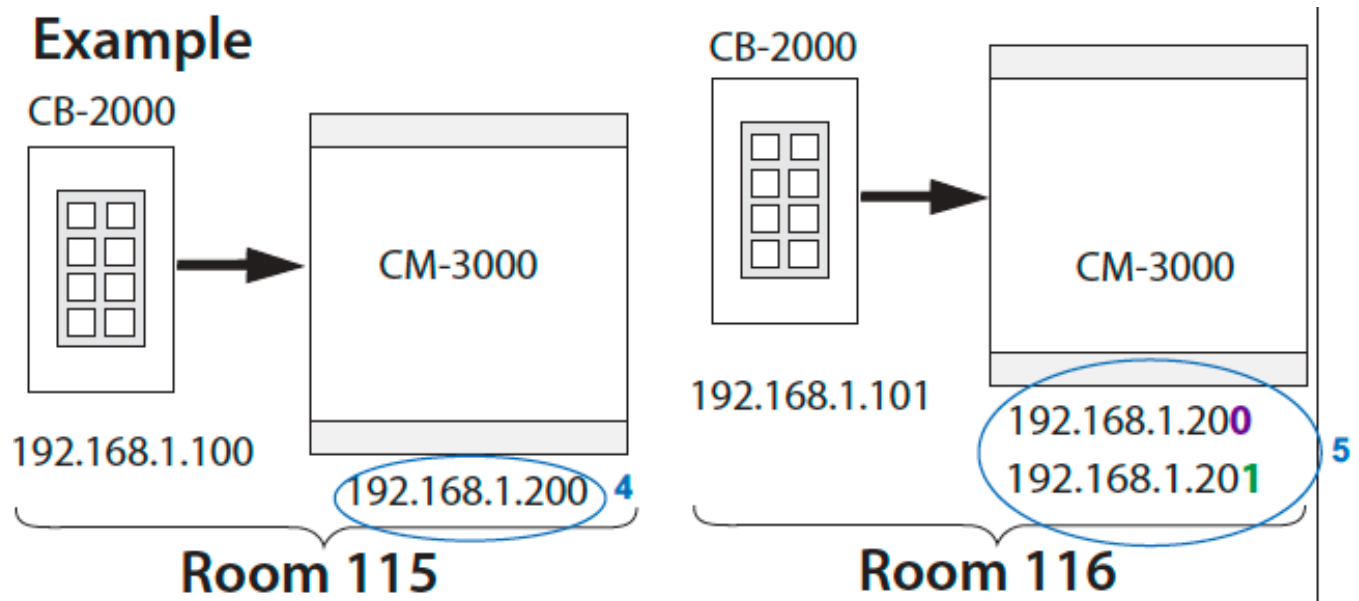
The screenshot shows the same software interface as above. The dropdown menu now displays "(Select an entry)" with a downward arrow. The text area below it contains "#XRI1 [F2];". The "Receive Command" section now contains a long hexadecimal string: "4000030001344D1108047B040804C70808047B040804AA04D903C70808047B0408047B040E047B0408047B0408047B040E047B040804BE08CCBB". The "Send CMD" button is still present at the bottom.

Events

Macro Definitions

Setting the *Macro Definitions* allows for the easy mass deployment of CB-2000 devices. The Macro table allows 16 user-defined labels and string substitutions.

Mac#	Macro Name	Macro Value Field
1	CM3000	192.168.1.201,P7262
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

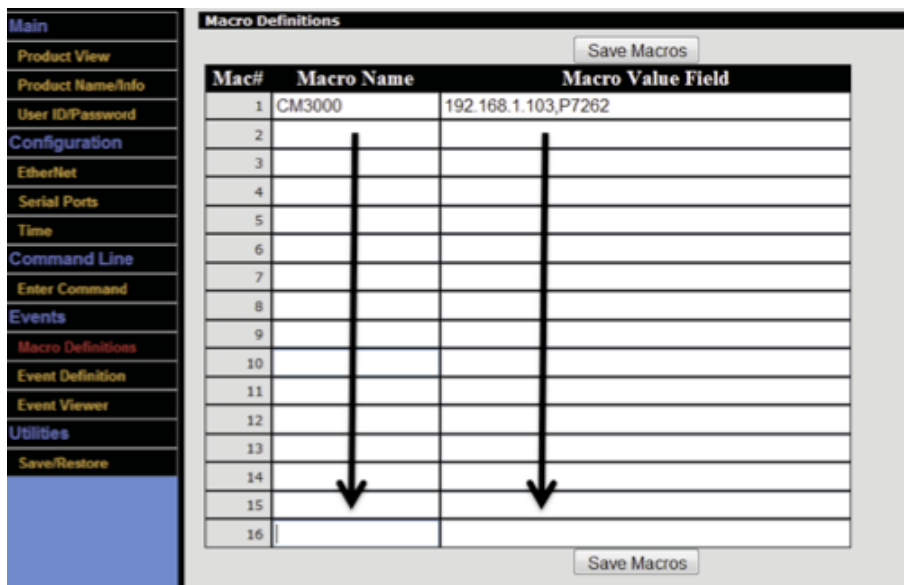


The example above illustrates the effectiveness of this feature where a *Macro Name* (2) is entered in the table. The macro name can be any unique name desired. However, the name should be easily recognizable and concise (or truncated). In the case above, the name “**CM3000**” was chosen, which is assigned to the IP Address and Port listed in the *Macro Value Field* (3). Note, that this macro string (3) incorporates the network parameters separated by a comma of the form I(x1),P(x2), where x1 and x2 are the IP address and Port respectively.

In the example above the macro string is “**192.168.1.201,P7262**”. Selecting the **Save Macro** button

archives the macro definitions and it can be downloaded as part of the saved configuration file for use on another CM-3000. Again, let's return to the example above. For configuration of the next CM-3000, the assigned IP Address: "192.168.1.200" (4) can be edited whereby only the unique digits require modifying. Only the digit "0" (in purple above) required changing to "1" (in green)(5).

Accordingly, other defined labels and string substitutions can be used in conjunction with the setup. Suppose volume (Vol up, Vol down) and a mute toggle command set is desired for the CB-2000 to control the corresponding audio device, like the CM-3000 (*Event Definitions* will be addressed in the next section; 3.5.2 *Event Definition*). Moreover, let's say a similar set up is planned for several other classrooms, in which some rooms have the CM-3000, and other rooms use ION-LT2 connected to some other amp. This is when the *Macro Definitions* provides a convenient mass substitution tool for the mass deployment of CB-2000 command sets.



Event Definition

The *Event Definition* web page defines how the CB-2000 should respond to events dealing with keypad button presses, the general purpose input (GPI), and timed events. Commonly supported action commands are NET, SERIAL, and IR univ output. There are 8 keypad button events and each button can have up to 4 actions set per button press. Each event can have a trigger option (button or GPI) for repeating on the button being held. The user can select individual events (1-16), paste new events, edit previous or next events, edit next empty or defined events. Once an event is (4 actions) updated they can be individually saved or tested. Click on the to select an action from the drop down menu (see illustration below).

Okay
Running

calypso systems

test lab

New Event: 1
(This overwrites any previous settings of New Event.)

Currently editing Event Number **1** **Button 1**

Event Description: Ch. Up

Trigger Options: Repeat on hold

Time Start: Enable: Hour: (mid) 0 Minute: 00

How to run the defined actions: All (in parallel) One per call (in series)

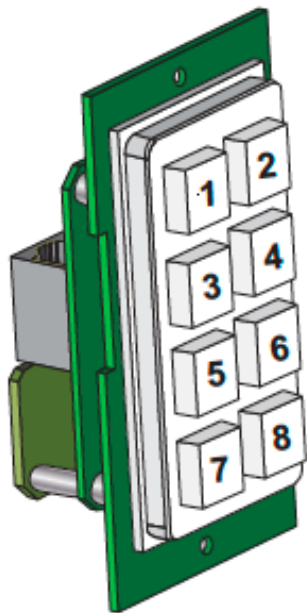
Action 1

(Select an entry)
 (Select an entry)
 NET Command (TCP) - #NET[F1.];
 Serial Transmit - #COMxx[\""];
 IR-Out Universal Command - #XROxx[F2];
 NOP Command - #NOP[\""];

Command

Action 2

(Select an entry)

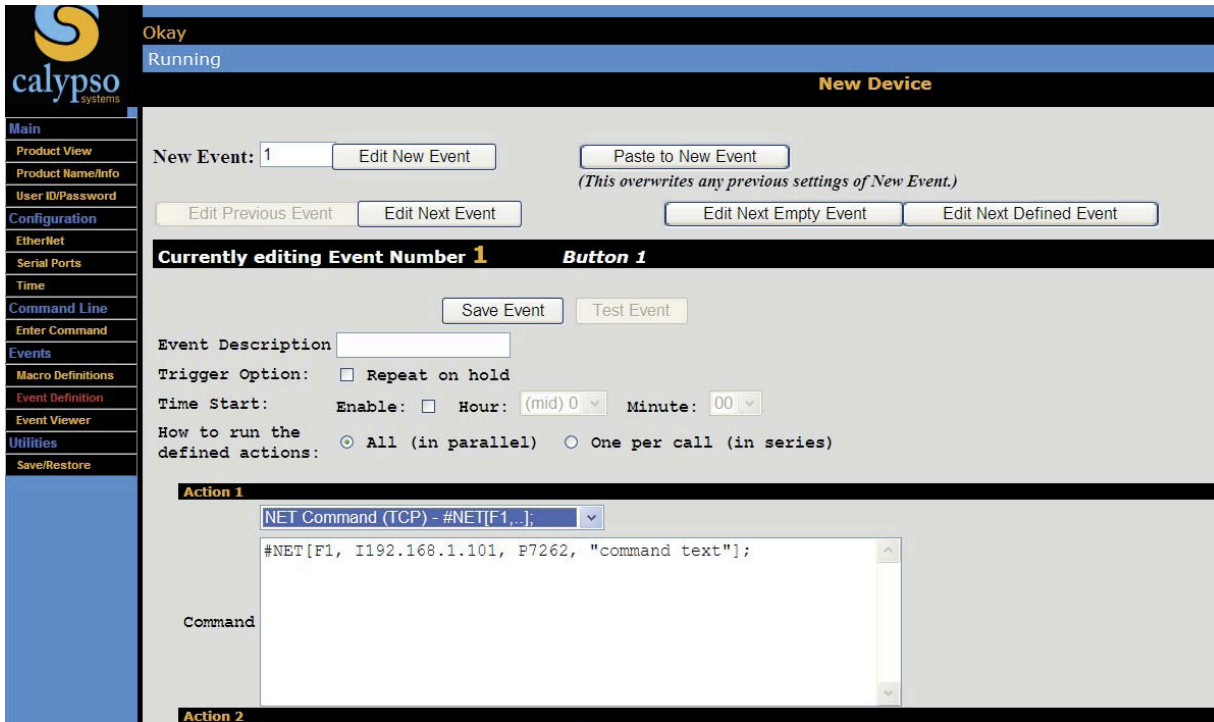


The 8 keypads on the CB-2000 can each be programmed up to 4 actions set per button press. Each event can be set to repeat when the button is held down.

CB-2000

In the following illustration, the “NET Command” has been selected (shown in the *Command* field) and is in a “general” format that requires modification for any specific application.

#NET[F1, 1192.168.1.101, P7267, “command text”];



In our example, we will assign the #1 button of the CB-2000 to control the audio channel input of the CM-3000. The CM-3000 has a total of 4 audio channel inputs (see CM-3000 User Guide). First, the IP address has already been defined under the *Macro Defintions* (see Section 3.5.1) as:

CM3000 = I192.168.1.200, P7267

The Macro Name “**CM3000**” will save us time when configuring the buttons on multiple CB-2000s. The following protocol is used when the macro name is inserted in the Command line above.

@{CM3000}

Also, the “**command text**” for our example is the audio command of the form:

#AUDxx[];

where xx is the subdevice. The CM-3000 has only one audio subdevice; “**1**”. So, the command becomes:

#AUD1[I+];

where “**I+**” is the increment UP of the input channel. Conversely, “**I-**” is the increment DOWN of the input channel. Thus, the entire command for changing audio channel inputs on the CM-3000 will be:

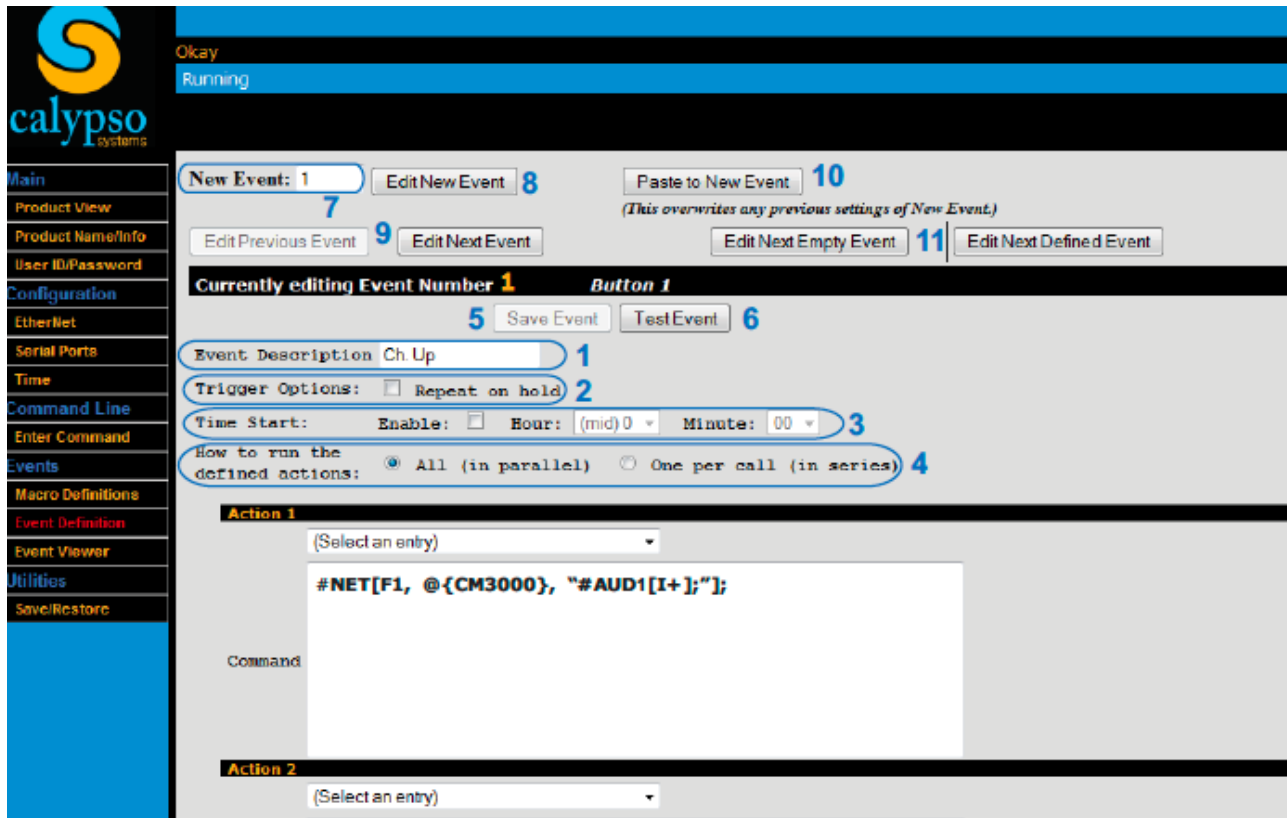
#NET[F1, @{CM3000}, “#AUD1[I+]”];

Other useful commands for the CB-2000 buttons are created similarly. Common commands for the CM-3000 are listed below.

Function	Command
Volume Up	#AUD1[M0,V+];
Audio Mute off Vol 25%	#AUD1[M0,V25];
Volume Down	#AUD1[M0,V-];
Mute Toggle	#AUD1[M+];
Mute Off	#AUD1[M0];
Mute On	#AUD1[M1];

Common commands for the CM-3000

Next, the event will require a name. In the illustration below, type in a name in the *Event Description* field (1). Here, we named the command “Ch. Up”.



Click on the **Trigger Options** box for repeating increments when the button is held down (2). In the illustration above, the checked **Trigger Options** box will increment the “Ch. Up” button when the button is held down. Select the **Time Start: Enable** box for scheduling actions (3). This allows the *Hour*

and *Minute* menus to be set. Any number between 0 and 23 can be selected for hours and 0 to 59 in minutes. Say, it is desired that the “**Ch Up**” is to be automatically activated at the time 8:15 AM. The corresponding *Hour* and *Minute* setting would be “**8**” and “**15**” respectively.

Enabling the radio button entitled- **How to run the defined actions** (4) allows actions (1-4) to run simultaneously (parallel) or one action per call (series). If the *One per call (in series)* is selected, each successive action will require a push of the button. At this point, if you are satisfied with your set up, save your work by clicking on the button (5). Test your set up by using the **Test Event** button (6). For the example above, testing the “**Ch Up**” command would increment the audio input channel on the CM-3000. This can be observed on the CM-3000 by its Input Channel LED lights sequentially lighting up with each click of the button (refer to CM-3000 documentation for further information).

At the top of the screen the new event is listed in the *New Event* field (7). The new event can be edited by pressing the **Edit New Event** button (8). Make sure your work is saved first before using this or the data will be lost. With saved data, the edit button will allow modification of the *Event Definitions*. The **Edit Next Event** and **Edit Previous Event** buttons (9) allows quick editing access for stepping through to the next or last button definitions (1 through 8). Save your work after editing each event.

The **Paste to New Event** button (10) is useful for copying the data of the current event page and pasting it to another event page. It will overwrite the data on the targeted event page. So, take precaution when using this function. The current event number can be confirmed in the black horizontal strip labeled- *Currently editing Event Number xx*. Simply, change the *New Event* field number (7) to the desired event and click on the **Paste to New Event** button. The content will be copied to the desired event page.

Selecting the **Edit Next Empty Event** button (11) allows quick navigation from the current event to the next empty event to be edited. Similarly, the **Edit Next Defined Event** button (11) allows quick navigation from the current event to the next defined event to be edited.

Event Viewer

The *Event Viewer* web page provides a summary of the CB-2000 event configuration.

The screenshot shows the Calypso systems web interface. At the top left is the Calypso logo. Below it is a navigation menu with items like Main, Product View, Product Name/Info, User ID/Password, Configuration, Ethernet, Serial Ports, Time, Command Line, Enter Command, Events, Macro Definitions, Event Definition, Event Viewer, Utilities, and Save/Restore. The main content area displays a table of events with columns for Event#, Event Description, Trigger, Time, Action 1, Action 2, Action 3, Action 4, and Test. The table contains 16 rows of event data. At the bottom of the table, there is a note: "* indicates button repeat enabled".

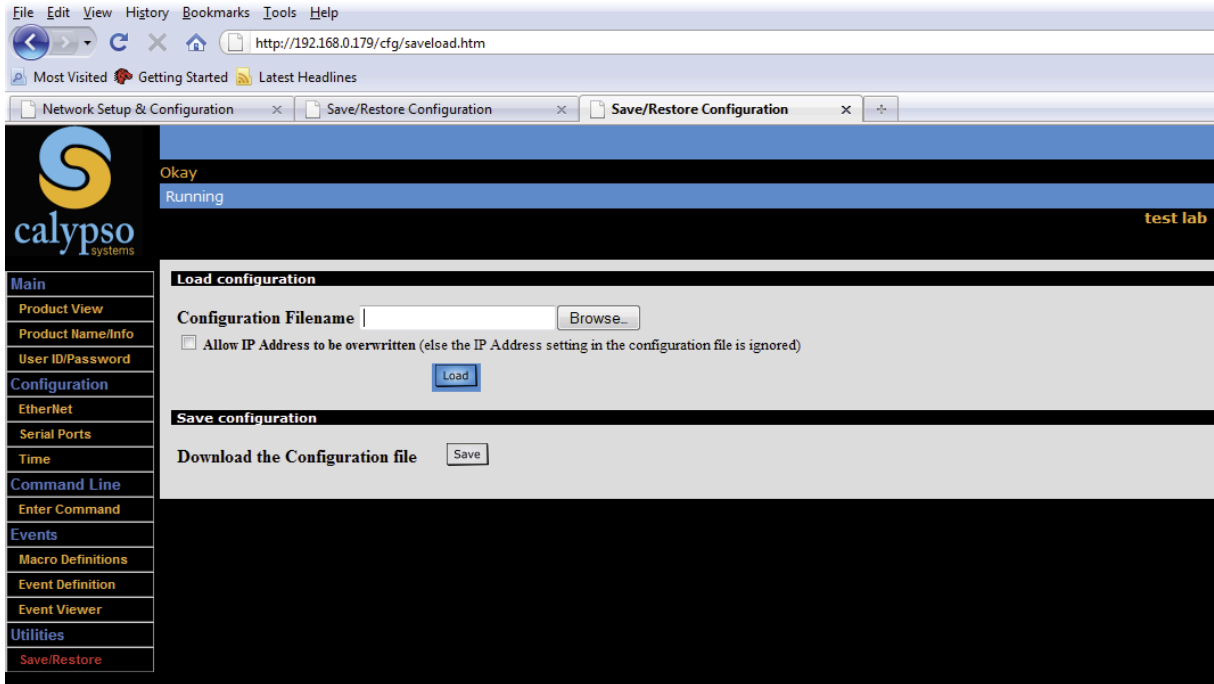
Evt#	Event Description	Trigger	Time	Action 1	Action 2	Action 3	Action 4	Test
1	Ch. Up	Button 1		#NET[F1, @-{AMP},	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
2	Ch. Dwn	Button 2		#NET[F1, @-{AMP},	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
3	Vol Up	Button 3 *		#NET[F1, @-{AMP},	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
4	Vol Dwn	Button 4 *		#NET[F1, @-{AMP},	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
5	Proj On	Button 5		#NET[F1, I192.16	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
6	Projector Off	Button 6		#NET[F1, I192.16	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
7	-Event 7-	Button 7		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
8	-Event 8-	Button 8		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
9	-Event 9-	Proj (In1)-open		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
10	-Event 10-	Proj (In1)-close		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
11	-Event 11-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
12	-Event 12-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
13	-Event 13-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
14	-Event 14-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
15	-Event 15-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>
16	-Event 16-	-		#NOP[];	#NOP[];	#NOP[];	#NOP[];	<input checked="" type="checkbox"/>

* indicates button repeat enabled

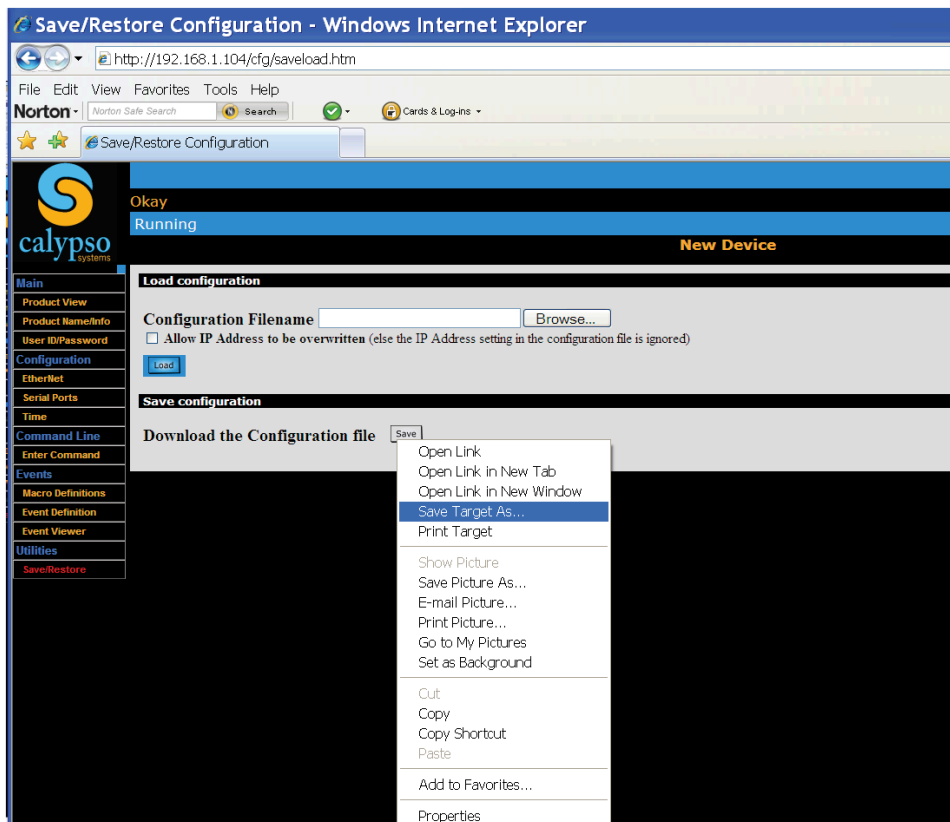
As depicted above, the *Event Viewer* web page lists the event #, event description, trigger label, repeat mode, timer setting/enable mode and all actions. To review an individual event, simply click on the *Event description* and the *Event definition* web page will open. The *Event Viewer* also provides the convenience of testing each event from this location instead of having to return to the *Event Definition* web page. To use this feature, simply click on the check box to test the event.

Save / Restore

The *Save/Restore* button is used for uploading and downloading the CB-2000's configuration. This feature is especially useful when setting up multiple units from a remote location. When selecting a configuration file to be loaded, the IP address can be selectively overwritten by checking the box. When the **Load** button is pressed, a confirmation dialog will be displayed prior to the *Product View* being displayed (only if *Allow IP Address to be overwritten* is not checked), as shown in the figure below.



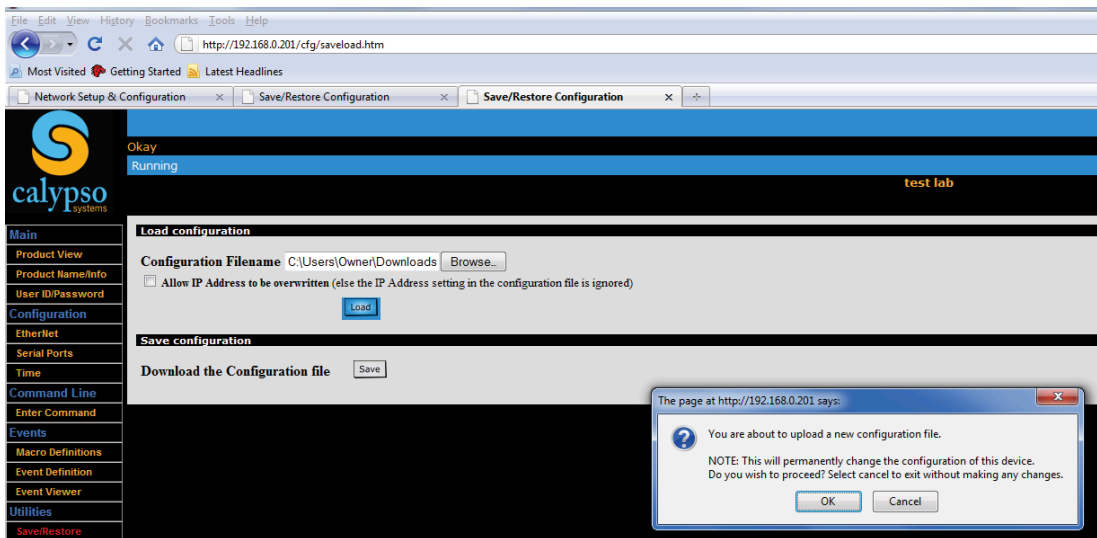
The **Save** button on this web page is used for saving the current CB-2000 configurations. To save your CB-2000 configuration work to a specific folder for the first time, place your cursor over the **Save** button and right-click on the mouse button. A menu list will appear as shown in the following illustration.



Navigate to the desired folder and type a file name in the field provided before saving. Press the **Save** button to save your configuration setup. Any modifications to the configuration file (after the first save) can be saved by simply clicking on the **Save** button. The saved configuration file can be used to configure other CB-2000s by using the **Load** button depicted above. First, disconnect the configured CB-2000 unit by unplugging the LAN RJ-45 connector. Before reconnecting the LAN cable to the un-configured CB-2000 read the Note below.

NOTE: DO NOT CONNECT LAN CABLE INTO I/O PORT! This may result in damage to the CB-2000.

Re-establish the configuration web pages by typing the default IP address (**192.168.1.104**) into the URL field of your browser. Select the **Save/Restore** button to open its web page. Use the **Browse** button to locate and select the configuration file and then press the **Load** button. The following dialog box opens alerting that a new configuration is about to be uploaded.



Before uploading, verify the IP address is correct. It is provided in the dialog header and also in the URL field above. Press the **OK** button to proceed and a load confirmation message will appear when the process is complete.

SPECIFICATIONS

The Calypso CB-2000 wall-mount button panel with a 10/100baseT network interface. The CB-2000 supports (8) front panel replaceable rubber buttons (Decora style wall plate), (2) serial RS-232C ports, and either a optional IR2+ output or Projector GPI input trigger (selectable via internal jumper). An IR Remote interfaces is used during IR learn mode. Power is supplied via Calypso voltage level (12VDC @ 100mA max) at either the Network LAN port RJ-45 jack (silver) or the RJ-45 I/O port jack (black). The Real Time Clock (RTC) has a 100 year range, starting at 2000 (Day, Month, Year) and Time 00:00:00 - 23:59:59 (HH:MM:SS). The RTC function also supports up to 10 forward and reverse Day Light Savings time entries. RTC device uses a LITHIUM battery back-up for Date/Time, roughly ~20+ years. The device mechanically fits inside a standard (1) gang electrical box and uses a external Decora style faceplate, two CB-2000 devices or combinations of CB-75 and/or CB-50 products can be mounted beside each other.

CAUTION: Do not pull the wiring from speaker or PCB. Care must be taken when removing the protective rear mount PCB. Speaker is soldered into main processor PCB.

Network Interface (RJ-45 metallic silver)

- 10/100base T
- Power of Ethernet supported using 12VDC standard from a Calypso power network supply system
 - 12VDC (+/- 2VDC) @ 100mA(max), power range depends on network activity (0.7 Watts to 1.2 Watts)
 - POE network connection has dual diode blocking to prevent I/O Port power from return on POE Port
- Dual visual LED's indicate standard activity and speed mode of connection
- CB-2000 supports the following network modes:
 - All device general configuration is supported via web pages and save/load file
 - Server interface Port:80, main web pages and CGI direct event triggering
 - Client TCP/IP or Client UDP stack for remote port commands (Port:7262 default) user definable

Main Trigger Event Database

- Supports (16) trigger events, with 4 actions per event
- (8) Button triggers
- (1) Projector GPI trigger (text label is called proj_gpi; can be generally used for any GPI function)
- (16) All events support 24 hour timer triggers
- Supported actions include IR universal OUT, Serial, NET commands, Alarm
- Command line menu supports IR Learn command

Button Features

- 0.5" (13mm) rubber button deflects roughly 0.1" (2.5mm) onto Gold plated contacts

- Buttons are programmable for single action execution on release or repeat hold
- Buttons support programmable single action, step each action or multiple actions

Panel Operational Interface (J3 – 10 pin)

- The actual top button panel uses a simple CY8 Cypress mini-controller with SPI interfaces
- The panel supports 8 LED's for feedback (off, solid, flash and auto dual brightness states)
- The panel supports 8 mechanical buttons, normally HIGH and pulled LOW when pressed
- Main power interface is 5 volts, SPI interface is 3.3 volts configured for main processor
- All control and return commands are defined in actual SPI interface driver supported by processor

Audio Speaker

- Provides start warning (jumper port reset) for IP reset
- Provides button beep user feedback (50ms @ 600 Hz)
- Provides pass code entry feedback if feature is enabled

Real Time Clock (RTC)

- Lithium battery CR2032
- 3 VDC @ 224mA, expected life 20 years
- RTC Date:
 - Ranges uses +/- century flag with 00-99 year range, we add 20xx century full year info
 - Data is stored as Day (01-31 range), Month (01-12) and Year (00-99)
- RTC Time
 - Clock is 24 hour format, Hours (00-23), Minutes (00-59) and Seconds (00-59)
- Internal RTC device is fed by a crystal controlled oscillator (32,768 Hz +/- 50 ppm)

Serial port control for external devices (RS-232C compatible, +/- 7.5 VDC)

- Serial ports are configured via web pages
- Baud Rates: 2400, 4800, 9600, 19200, 38400 and 5600
- Stop bits: 1 or 2
- Parity: Even, Odd, or No Parity
- IP Address Reset: Cross connect Tx and Rx, power module on, remove jumper within 4 seconds; a double beep indicates successful reset

IR Interface

- IR Output drivers
 - IROUT1+ interface is 5 VDC rail with 220 Ohm limiter (X2 – Pin 7)
 - IROUT_GND series 10 Ohm resistor
 - IROUT2+ interface is 5 VDC rail with 220 Ohm limiter (X2 – Pin 6)
 - Single cable/emitter driver cable length limit < 200 feet
 - Single cable/dual emitter driver cable length limit < 50 feet

General Purpose Input (GPI)

- All GPI devices use the same input limiter (10k Ohms) and internal 12 VDC reference circuit
 - Open circuit produces a HIGH state (12 VDC power reference, 3.3 VDC divider 251K/100K)
 - Close circuit (Ground) produces a LOW state
 - Debounce time 50 ms, latches state change, not level
 - GPI_Proj., J1 pin 1 & pin 2 short header (default) DPI routed to I/O_Port (X2) – pin 6, RJ-45 jack (black)
 - IR_OUT2+, J1 pin 2 & pin 3 short header IR_OUT@+ routed to IO_PORT (X2) – pin 6, RJ-45 jack (black)

Hardware:

- Dimensions: 4.375" x 2.125" x 1.0" (107mm x 54mm x 25mm)
- Ethernet Jack: RJ-45(1)
- I/O Port Jack: RJ-45 (1) [3 Tx/Rx/GND, 2 IR/GND, 2 PWR/GND, 1 GPI]
- J8 2x5mm (10-pin)
- IR Remote input for learning (range ~ 10 ft); suggested distance 1-2 feet

I/O Port Pin Out

Pin #	Wire Color	Function
1	Orange	TX1
2	Brown	TX2
3	Red	RX1
4	White	RX2
5	Black	GND 1 (IR or GPI)
6	Yellow	GND 2 (Power)
7	Blue	IR Out+ or GPI
8	Green	12V or 9V

LAN RJ-45 Pin Out

Pin #	Function
1	TX+
2	TX-
3	RX+
4	GND_POE
5	GND_POE
6	RX-
7	+12_POE
8	+12_POE

Warranty Statement

This Non-Transferable warranty is provided to original purchasing end user, herein referred as “customer”, of Calypso Systems product line defined as: WCM-RF, WCM-RFB2, CA-200, CA-1000, CB-50, CB-75, CB-85, CB-1000, CB-2000, CB-5000, CM-3000, CMP-500, Conductor, CSD-500, CSP-450, CSP-650, Encore!, ION-LT2, Maestro, TB-1, TB-5, TB-6, TB-8, and Calypso UPS herein referred as “product”. This warranty is applicable to product sold or distributed to customer by an authorized Calypso Systems Dealer, OEM, Value Added Reseller or sold directly to the end user by Calypso Systems, LLC. This warranty becomes effective from the moment the end user completes purchase and receives product. This warranty shall remain in effect for 3 years from the moment of purchase as long as the original customer of the product continues to own and use the product. This warranty does not apply to accessories such as power supplies and cables, which carry standard 12-month manufacturer warranties.

Terms

Calypso Systems warrants that product shall be materially free of defects in material and workmanship under normal use and service during the warranty period. In the event that Calypso Systems receives notice from the customer during the warranty period that product does not conform to this warranty, Calypso Systems shall, at its sole option, either repair or replace the non-conforming product. The warranty on the replacement or repaired product shall continue for the duration of the original warranty. All returned product becomes the property of Calypso Systems.

Procedures

A product may only be returned with the prior written approval of Calypso Systems. Such approval shall reference a Return Material Authorization number (RMA) issued by authorized Calypso Systems technical support personnel. Transportation costs, if any, incurred in connection with the return of a defective item to Calypso Systems shall be borne by the Customer. Transportation costs incurred in connection with the re-delivery of a repaired or replaced item to the Customer shall be borne by Calypso Systems. However, such costs shall be borne by the Customer if Calypso Systems, reasonably determines that the product is not defective. If Calypso Systems determines, in its sole discretion, that the allegedly defective product is not covered by the terms of the warranty provided hereunder, or that a warranty claim is made after the warranty period, the cost of repair by Calypso Systems, including all shipping expenses, shall be reimbursed by the Customer. Calypso Systems shall have no liability with respect to data contained in any system returned to Calypso Systems.

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