



# CM-800 / CM-800S Network Media Device

Configuration Guide

# Calypso Systems CM-800 Network Media Device Configuration Guide v1.0

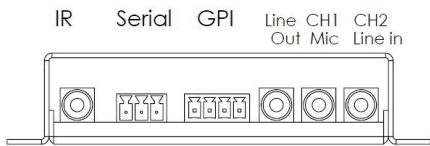
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## Introduction

The primary purpose of the CM-800 is to provide connectivity between the Calypso **Conductor** IP-based paging, intercom, bells and emergency communications, and standard 70v amplifiers and speakers frequently used to bring audio messaging to common areas, such as hallways, gymnasiums, playgrounds and cafeterias. As such, the CM-800 converts 8KHz-sampled audio to line level audio output, suitable for use as an input to standard, 3<sup>rd</sup> party amplifiers. In addition, the CM-800 provides serial, IR, GPI and GPO (relays) connectivity for local or networked device control and monitoring and offers an optional 30W amplifier module (CM-800S) for driving speakers directly. As such, the CM-800 is an extraordinarily diverse and useful component for a wide range of audio and control applications.

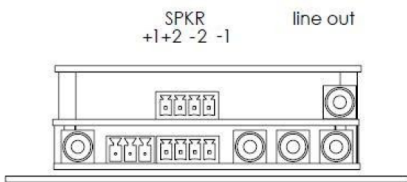
When not streaming audio the CM-800 mixes, samples and plays line level audio from two inputs at 48kHz. A unique configuration feature of the CM-800 is the ability to detect audio at the inputs and automatically stream this audio over the network. Accordingly the unit can be used to convert a standard analog paging system into an IP-based, streaming solution.



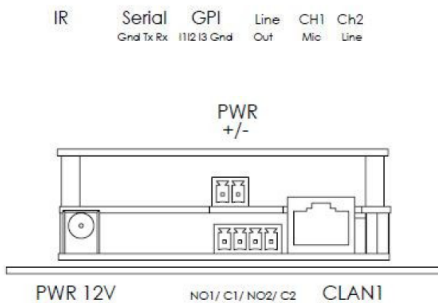
CM-800 Front View



CM-800 Rear View



CM-800S Front View



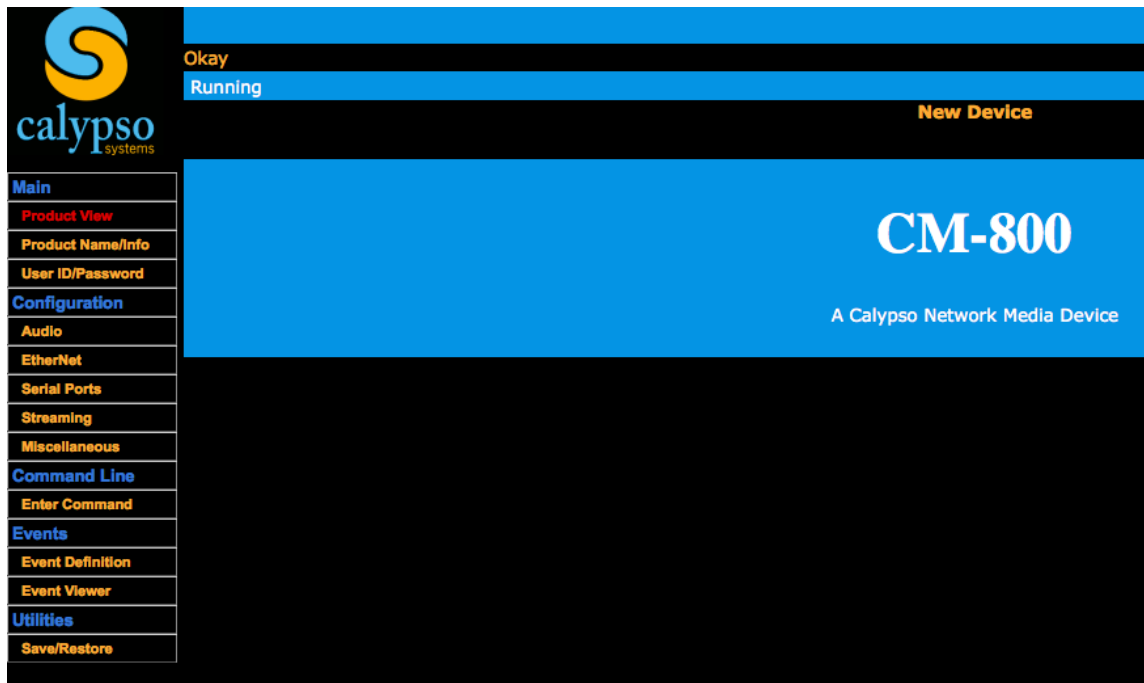
CM-800S Rear View

## Configuration

As with all Calypso networked attached devices, the CM-800 is configured via a standard browser interface, served directly by the CM-800 itself. Note that this interface is intended to be solely by dealers and other authorized and trained technical personnel. It is not intended for end-user viewing.

### Accessing the Configuration Web Page

The CM-800 is configured via built in web pages; the default IP address is **192.168.1.103**. On a computer connected via Ethernet to the CM-800, type the default CM-800 IP Address **192.168.1.103** into your browser. **If the setup is correct**, the CM-800 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 CM-800, 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* is used to change the device name. Type a Custom Device Name in the field provided and press “Save Setting”. A maximum 63 alphanumeric name is permitted.

Okay  
Running New Device

**CM-800 Device Name**

Custom Device Name:   
(Max length = 63)

**System MAC Address**

MAC Address: 00:04:a3:12:ed:3a

**System Firmware Information**

Control firmware version: 1.0.0.0  
Control firmware build: June 20, 2011

**Navigation Menu:**  
Main  
Product View  
Product Name/Info  
User ID/Password  
Configuration  
Audio  
EtherNet  
Serial Ports  
Streaming  
Miscellaneous  
Command Line  
Enter Command  
Events  
Event Definition  
Event Viewer  
Utilities  
Save/Restore

## User ID / Password

To set or change the user ID and/or password, click on *User ID/Password*. The *Set Password for:* option 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. To save, press the **Save Settings** button.

Okay  
Running New Device

**System Password Update**

Set Password for:

Old Password:

New Password:  *Minimum 6 / Maximum 8 characters*

Re-enter New Password:

**System Security**

Security Level:

**Navigation Menu:**  
Main  
Product View  
Product Name/Info  
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## Audio

This web page is used to define device settings for startup output volume, gain settings for the Line and Microphone channels, and to add 20db of boost to the Microphone input. A PA startup volume is set on this page in addition to the PA restore time (PA to local audio switching based on PA silence). A VOX level can be set as a threshold when streaming audio from the CM-800 onto the network. Auto streaming is enabled or disabled here, also with a VOX threshold (trigger level).

The screenshot displays the 'Audio configuration' page in the Calypso Systems web interface. The page is divided into several sections:

- Output Volume:** Startup volume is set to 20.
- Inputs:** Line and Mic inputs are shown with their respective settings. Line is enabled with a gain of 4. Mic is enabled with a gain of 16 and a boost of On.
- Other Settings:** PA volume is 20, PA restore time is 2.0 sec, Vox Level is 128, and the automatic streaming trigger is disabled. Trigger Level is 100 and Silence Timeout is 2.0 sec.

A 'Save Settings' button is located below the Other Settings section. At the bottom, an 'Audio settings' table summarizes the current configuration:

Input	Enabled	Gain	Boost
Line	x	4	
Mic		16	on

Start Vol	PA Vol	PA Restore	Vox level	Auto Stream	Trigger Level	Silence Timeout
20	20	2.0 sec	128	disabled	--	--

## Ethernet

The *Ethernet* web page is used for configuring the CM-800 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.

The screenshot displays the Calypso systems web interface. At the top left is the Calypso Systems logo. The top navigation bar includes 'Okay', 'Running', and 'New Device'. A left sidebar contains a menu with items: Main, Product View, Product Name/Info, User ID/Password, Configuration, Audio, EtherNet, Serial Ports, Streaming, Miscellaneous, Command Line, Enter Command, Events, Event Definition, Event Viewer, Utilities, and Save/Restore. The main content area is divided into three sections:

- Device network configuration:**
  - Automatic IP configuration (DHCP)  (use with caution)
  - IP Address: 192.168.1.103
  - IP Subnet Mask: 255.255.255.0
  - Router IP Address: 192.168.1.1 (recommended)
  - Primary NameServer IP Address: 192.168.1.1 (optional)
  - Secondary NameServer IP Address: (optional)
- Device port configuration:**
  - Web Server Port: 80
  - Remote Management Port: 7262 (changing this will automatically reset the device)
  - Remote Port Idle Timeout (mins): Disabled (dropdown) | 10 (input)
- System MAC Address:**
  - MAC Address: 00:04:a3:12:cd:3a

'Save Settings' buttons are present at the end of the network and port configuration sections.

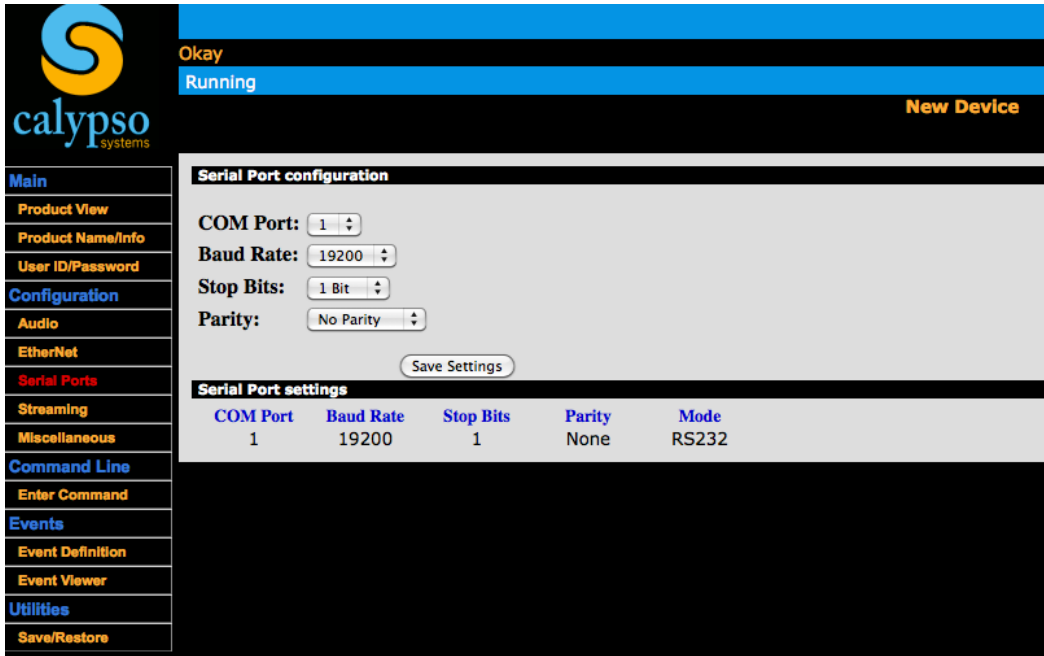
The default IP address setting for all CM-800's is **192.168.1.103**, however each CM-800 requires a unique IP address. Modify the IP addressing by typing the assigned IP Address into the available field. Use the *Automatic IP Configuration* Dynamic Host Configuration Protocol (DHCP) only if knowledgeable with its operation (by clicking on the box). Next, enter the *IP Subnet Mask* for your computer network grouping. Type the appropriate *Router IP Address* of your subnet in the next field. As an option, a *Primary NameServer IP Address* and a *Secondary NameServer IP Address* may be provided. The default for the *Primary Name Server IP Address* is **192.168.1.1**. To save your settings, select the **Save Settings** button.

The *Device port configuration* and *System MAC Address* sections consist of values that are generally not modified. The *Web Server Port* (set at **80**) is not active and is for display purposes only. 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

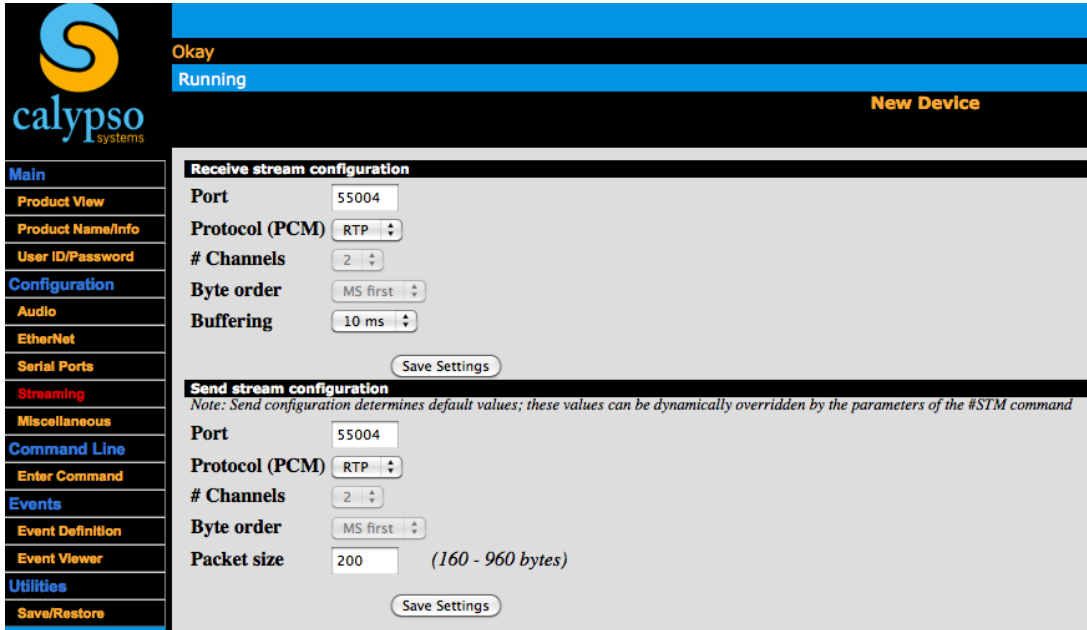
your application (e.g. controlling a projector), modify them and then save them by pressing the **Save Settings** button at the bottom of the view.



## Streaming

The streaming audio data format is set on this web page. To send or receive streaming audio, the Port, Protocol (PCM), #Channels, Byte order, Buffering length to receive, and Packet size to send must be defined. RTP is a network data protocol required for use with Calypso's Conductor software application; Raw is a transfer protocol where only the audio data is transmitted, and is useful for use with 3<sup>rd</sup> party software applications like Bell Commander, where audio data similar to data found in a wav file needs to be received by the CM-800. To reduce internal processing bandwidth the buffering length can be increased up to 30ms. In addition, to reduce Internet bandwidth the Packet size can be increased up to 960 bytes. We highly recommend that you check with Calypso Technical Services prior to changing the defaults.





## Miscellaneous

The Miscellaneous web page (see Figure 9) is used to configure the Intercom/PA stream mode, PTT (push-to-talk) configuration, IR configuration and Rotary switch assignment (ex CB-50). In addition, this page is used to run the PA signal detection calibration.

Select the Intercom device check box if an intercom microphone (e.g., CB-85) is being used with the CM-800. Select the Master device selection checkbox and assign the PTT mode to “After Push” or “Always” if the CM-800 is to be used as a master device (e.g., office paging unit). Note that “master” units will not play (decode) PA announcements. PTT mode settings include:

- Disabled – streamed conversations from this device are always handled hands free
- After Push – streamed conversations from this device initially start out hands free until the PTT is activated, then the streamed conversation will require PTT activation
- Always – streamed conversation always requires a PTT activation.

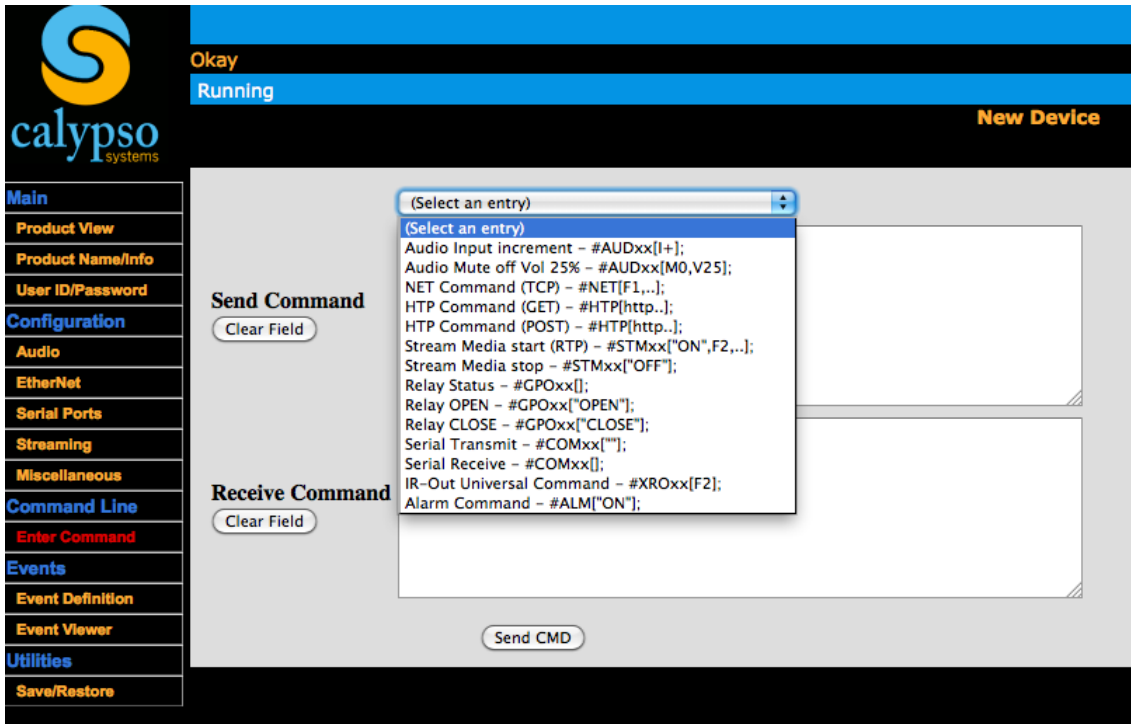
Three GPI's are supported on the CM-800. GPI 3 is most commonly used to interface with the button on the Calypso CB-50 rotary audio encoder. GPI 1 and 2 can be alternately assigned via the GPI mode drop down box as required. See the corresponding trigger events 7 and 8, discussed below.

The screenshot displays the Calypso systems web interface. At the top left is the Calypso Systems logo. The top navigation bar includes 'Okay', 'Running', and 'New Device'. A left sidebar menu lists various system sections: Main, Product View, Product Name/Info, User ID/Password, Configuration, Audio, EtherNet, Serial Ports, Streaming, Miscellaneous, Command Line, Enter Command, Events, Event Definition, Event Viewer, Utilities, and Save/Restore. The main content area is divided into three configuration sections:

- Intercom/PA Stream Mode configuration:**
  - Intercom device (indicates a device with a microphone or INTERCOM module attached)
  - Master device (indicates a device used primarily to *send* media streams)
- Routing for outgoing streams:**
  - Sent from Line input
  - Sent from Mic input
  - Buttons: Save Settings, Reset
- Push-to-talk configuration:**
  - PTT Mode: After push (initially handsfree) [dropdown]
  - Switch assignments:
    - GP In 1
    - GP In 2
    - GP In 3 / Button
  - Button: Save Settings
- General Purpose Input configuration:**
  - GPI Mode: 3 GP Inputs [dropdown]
  - Button: Save Settings

## Enter Command

The Enter Command web page allows for the manual entry of CM-800 outbound commands for testing a specific CM-800 or a system of CM-800's (ex. paging from a master to a client). The drop down list contains typical commands for dealing with the serial port, IR, the amplifier, streaming audio, general purpose outputs, and alarms. The Send Command window is used to assemble commands in their proper protocols. The Receive Command window is used for retrieving a response back from CM-800 after a command has been sent using the Send CMD button.



## Event Definition

The Event Definition web page specifies how the eight available I/O events are defined. The eight events include General Purpose Inputs 1 through 3 with trigger actions on open and close and events 7 and 8 for when the auto stream GPI feature is selected. Events 1-6 can have an event description and an alarm sound with duration. Pre-defined actions are provided in the action drop down box list. Note, events 1 and 3 are disabled under rotary encoder operation and events 2 and 4 are used for the volume up and down trigger actions.

### Event Viewer

The Event Viewer web page displays the eight events and their associated parameters. In addition to testing individual event triggers by clicking on the Test check box, the definition web page for a particular event can be accessed here by simply clicking on the event description (see Event Definition).

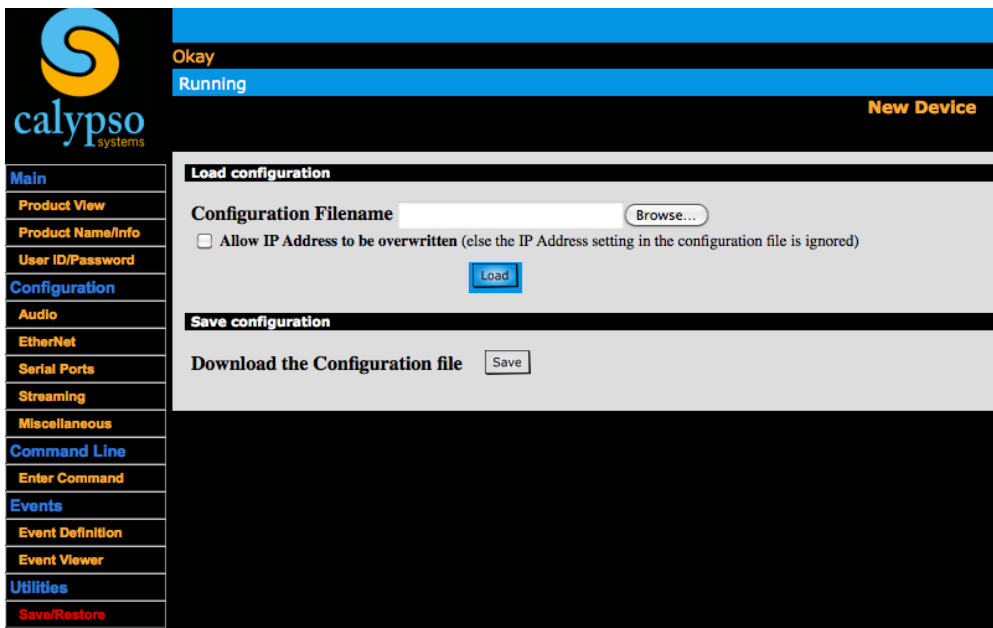
Evt#	Event Description	Trigger	Flag/Alarm	Action	Test
1	<a href="#">-Event 1-</a>	GP In 1-open	None	#NOP[];	<input checked="" type="checkbox"/>
2	<a href="#">-Event 2-</a>	GP In 1-close	None	#NOP[];	<input checked="" type="checkbox"/>
3	<a href="#">-Event 3-</a>	GP In 2-open	None	#NOP[];	<input checked="" type="checkbox"/>
4	<a href="#">-Event 4-</a>	GP In 2-close	None	#NOP[];	<input checked="" type="checkbox"/>
5	<a href="#">-Event 5-</a>	GP In 3-open	*None	#NOP[];	<input checked="" type="checkbox"/>
6	<a href="#">-Event 6-</a>	GP In 3-close	*Warn 2(2s)	#NOP[];	<input checked="" type="checkbox"/>
7	<a href="#">-Event 7-</a>	AutoStream-stop	n/a	#NOP[];	<input checked="" type="checkbox"/>
8	<a href="#">-Event 8-</a>	AutoStream-start	n/a	#NOP[];	<input checked="" type="checkbox"/>

**\* indicates assigned to handle push-to-talk switching**

## Save / Restore

The *Save/Restore* button is used for uploading and downloading the CM-800'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).

The **Save** button on this web page is used for saving the current CM-800 configurations. To save your CM-800 configuration work to a specific folder for the first time, place your cursor over the **Save** button and right-click on the mouse button.



The screenshot displays the Calypso Systems web interface. At the top left is the Calypso Systems logo. The main navigation menu on the left includes: Main, Product View, Product Name/Info, User ID/Password, Configuration, Audio, EtherNet, Serial Ports, Streaming, Miscellaneous, Command Line, Enter Command, Events, Event Definition, Event Viewer, Utilities, and Save/Restore. The main content area is titled 'Load configuration' and features a 'Configuration Filename' input field with a 'Browse...' button. Below this is a checkbox labeled 'Allow IP Address to be overwritten (else the IP Address setting in the configuration file is ignored)'. A 'Load' button is positioned below the checkbox. The 'Save configuration' section below contains a 'Download the Configuration file' label and a 'Save' button. The interface has a blue header with 'Okay' and 'Running' status, and a 'New Device' button on the right.

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.

## SPECIFICATIONS

### Hardware:

- Case dimensions: 3.84 x 2.5 x .913 (CM-800), 3.84 x 2.5 x 1.2 (CM-800S)
- Ethernet jacks: RJ45 (1)
- Audio Input plug: 3.5mm (tip, ring, sleeve)
- Mic/Line Input plug: 3.5mm (tip, ring, sleeve)
- Amplifier Line Out plug: 3.5mm (tip, ring, sleeve)
- General purpose relay outputs (2): 4 position, 3.81 mm terminal block header
- General purpose inputs (3): 4 position , 3.81mm terminal block header
- IR output plug: 3.5mm
- Amplifier Speaker Out connector (CM-800S): 4 position, 3.81mm terminal block header
- Serial COM Port: 3 position, 3.81mm terminal block header

### Electrical:

- Micro-controller with flash based memory
  - 64 pin micro-controller with built in DMA operating at 8MHz
- 4 Mbit external flash memory for non-volatile storage of the built-in web pages
- One 10/100 based Ethernet port
  - LAN 1 provides the necessary signals for network communications
- Error and operational Status LED control
- CODEC for playing and streaming audio
- Microphone/Line input
  - Microphone differential input (channel 1)
    - Sleeve (negative)
    - Tip (positive)
    - Ring (not used)
  - Line input (channel 2) unbalanced stereo
    - Sleeve – Ground
    - Tip – Left line in
    - Ring – Right line in
- Stereo mono unbalanced/balanced audio output
  - Vout max. 5Vpp stereo output
    - Sleeve – Ground
    - Tip – Left channel (or mono +)
    - Ring – Right channel (or mono -)
- IR output
  - Sleeve - Ground
  - Tip - IR output driver
  - Ring (not used)

- Serial receive/transmit communications
  - Standard RS232 serial communications port
    - Pin 1, Receive (RX1)
    - Pin 2, Transmit (TX1)
    - Pin 3, Ground (GND via 5 ohm resistor) (hard ground via jumper 5 pins 1 and 2)
- Two general purpose outputs (24V@0.5A max)
  - Relay 2 can be jumper configured for +12V in/out using J4 and J6
    - Pin 1, Relay 1 - Normally open (+12V in/out via J4)
    - Pin 2, Relay 1 - Common (GND via J6)
    - Pin 3, Relay 2 - Normally open
    - Pin 4, Relay 2 - Common
- Three general purpose inputs
  - Pin 1, General purpose input 1 (optional rotary encoder input)
  - Pin 2, General purpose input 2 (optional rotary encoder input)
  - Pin 3, General purpose input 3 and rotary encoder button
  - Pin 4, Ground

### **Optional 30W amplifier module (CM-800S)**

- Two test jumpers
  - J1, All call streaming
  - J2, Play audio tone (next built in tone played)
- 12VDC@3.5A Power Adapter
  - Current and short circuit protected
- Speaker Connector (Mono, both SPKR 1 and 2 have the same output)
  - Pin 1, + SPKR 1
  - Pin 2, + SPKR 2
  - Pin 3, - SPKR 2
  - Pin 4, - SPKR 1

## 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, CA-1000, CB-50, CB-75, CB-85, CB-2000, CM-800, CM-800S, CB-5000, CM-3000, CMP-500, Conductor, CSD-500, CP-450, CP-650, Encore!, ION-LT2, Maestro, TB-1, TB-5, TB-6, TB-8, and PD-20W 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.

### Exclusions

The foregoing warranties and remedies are for the Customer’s exclusive benefit and are non-transferable. Any and all warranties shall be void regarding System components that are damaged or rendered unserviceable by: (1) acts or omissions of non-Calypso Systems personnel; (2) misuse, theft, vandalism, fire, water, or other peril; (3) alterations of or additions to the System or any element thereof performed by personnel not certified by Calypso Systems to perform such alterations and additions or (4) the Customer’s failure to operate the product in conformance with Calypso Systems published operating parameters, including environmental specifications.

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