CP-16
User Manual

COPYRIGHT and TRADEMARK

All rights reserved by APANTA LCC, Porland, Oregon, USA. No part of this document may be reproduced in any form or by any means without written permission from the product manufacturer. Changes are periodically made to the information in this document.   They will be incorporated in subsequent editions. The product manufacturer may make improvements and /or changes in the product described in this document at any time.

All the registered trademarks referred to this manual are belonging to their respective companies.

WARRANTY STATEMENT

Apantac LLC (herein after referred to as "Apantac") warrants to the original purchaser of the products manufactured by Apantac (the "Product,") will be free from defects in material and workmanship for a period of three (3) year from the date of shipment of the Product to the purchaser.

If the Product proves to be defective during the three (3) year warranty period, the purchaser's exclusive remedy and Apantac's sole obligation under this warranty is expressly limited, at Apantac's sole option, to:
   (a) repair the defective Product without charge for parts and labor or,
   (b) provide a replacement in exchange for the defective Product or,
   (c) if after a reasonable time, is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

Limitation of Liability

Apantac's liability under this warranty shall not exceed the purchase price paid for the defective product.   In no event shall Apantac be liable for any incidental, special or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If Apantac replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product.

Equipment manufactured by other suppliers and supplied by Apantac carries the respective manufacturer's warranty. Apantac assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Apantac.

This hardware warranty shall not apply to any defect, failure or damage:
   a) Caused by improper use of the Product or inadequate maintenance and care of the Product;
   b) Resulting from attempts by those other than Apantac representatives to install, repair, or service the Product;
   c) Caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment;

Table of Contents

1.0   WHAT'S IN THE BOX

1 x CP-16

1 x Rack Mount Kit

1 x RJ50 to DB9 cable with terminal block for GPI/Tally

1 x RJ45 to DB9 cablec for RS-232

1 x DC 5V 3.2A Power Adapter

1 x Manual

Important Note:

Default IP address: 192.168.1.151

2.0   Key Features

- – 16 programmable LED buttons
- – First 8 buttons can also be used a GPI triggers
- – Built-in web page setup, can be easily accessed by any web browser

3.0 Specifications

Description	16 Button Control Panel
Software	Built-in web interface
Connectors	
IP	100 Base-Tx, Ethernet TCP/IP on RJ45 port
GPIO	8 lines on 10-wire RJ50 port (adapter cable/breakout provided)
RS232	Serial on RJ45 connector (adapter cable provided). (Serial port use not currently available in firmware)
EMI/RFI	Complies with FCC Part 15, Class A, CE, EU, EMC, C-tick
Power	DC 5-Volt, 3.2 Amp power adapter
Size	440mm W x 125mm D x 44mm H (not including rack mounting 'rack-ears')
Mounting	Rack mount, 1 rack unit in height

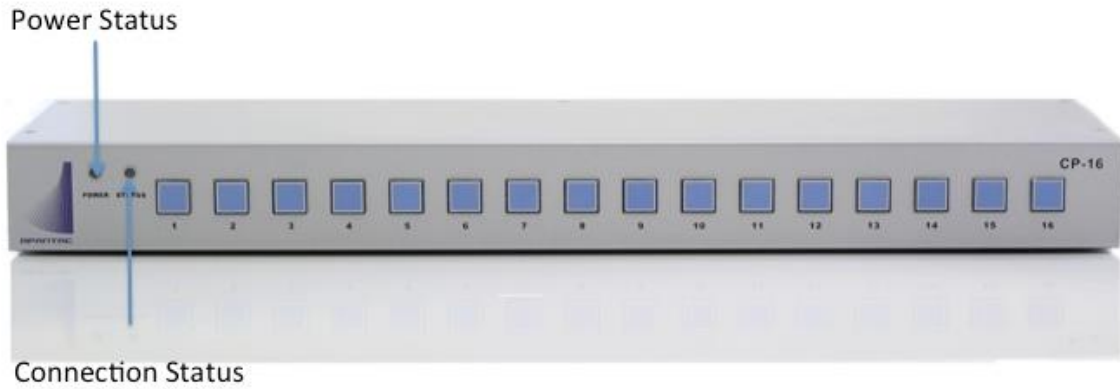# 4.0   Front/Rear Panels

4.1   Front Panel

Power Status

CP-16

Connection Status

Figure 4-1 CP-16 Front Panel

4.2   Rear Panel

IP Control   Reserved for Future Use

8 GPI that can be assigned   DC 5V 3.2 A
To the front buttons
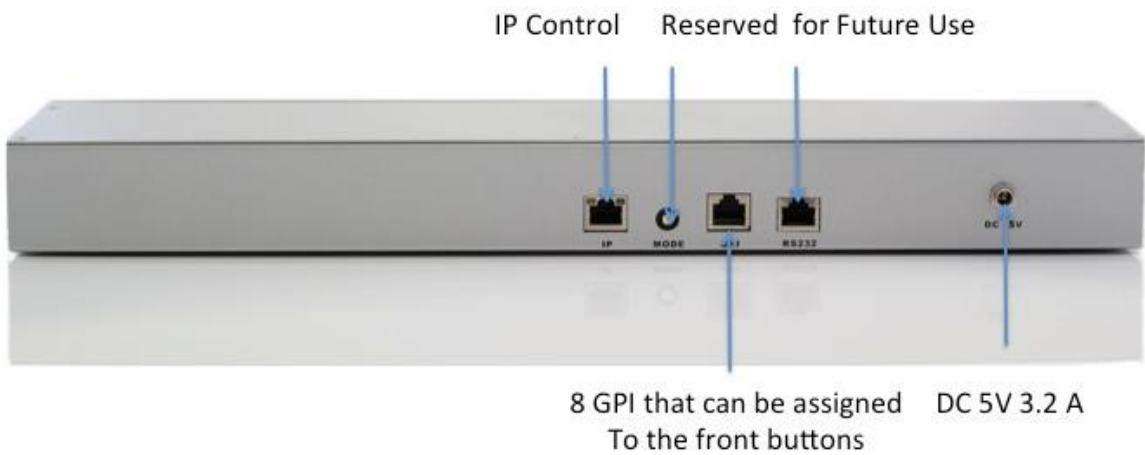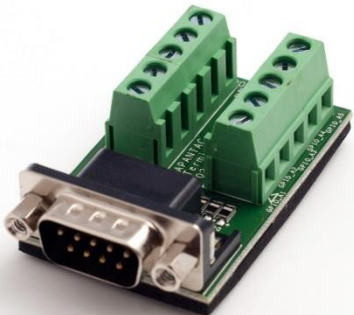
Figure 4-2: CP-16 Rear Panel

5.0   Accessories

Power Adapter	2 x Mounting Plate
RJ50 to DB9 Cable for GPI/O	RJ45 to DB9 Cable for RS-232
Terminal Block for GPI/O	

6.0   Installation

Ethernet Wiring


Apantac Multiviewers

CP-16

LAN

Configuration PC
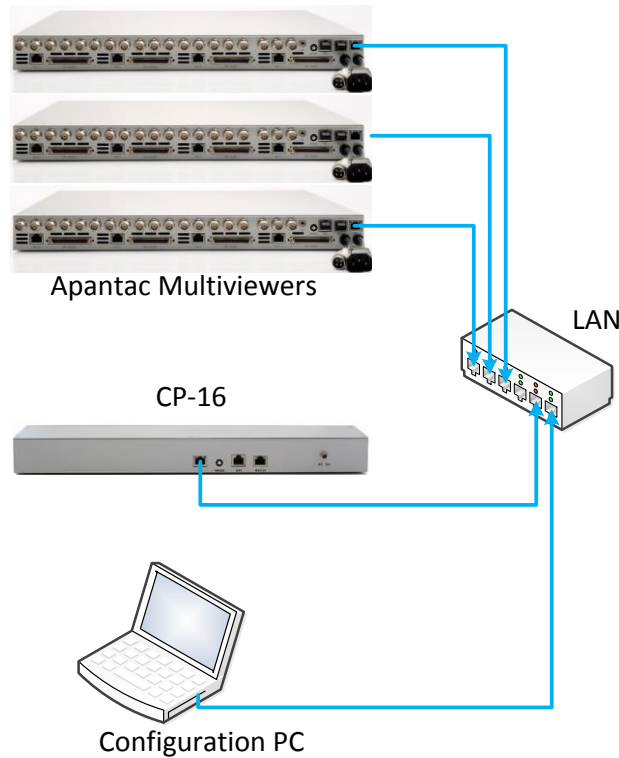
GPI/O Wiring

Connect the GPI port to the DB9 breakout wiring block using the RJ50-DB9 adapter cable.
(NOTE: The RJ50 connector has 10 contacts and a metal shielded end.)

GPI inputs can be provided by either relay contact closures or open-collector circuits of external equipment.   GPI connections must include the ground (GND) reference.   The input is activated when it is brought to the ground reference level.

GPO outputs provide a 5volt output level from the CP-16 when active, and ground level when inactive.

RJ50-DB9
Adapter Cable

GND 8 7 6

1 2 3 4 5
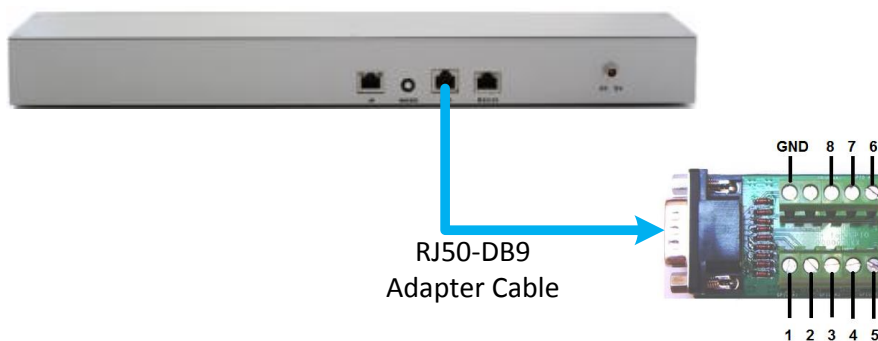
7.0   Configuration and Programming

7.1   Getting Started

The CP-16 is designed to control a single or multiple Apantac products that supports GPI or AXP protocol. This section will help you get the CP-16 up and running with the built-in web page setup as quickly as possible.

7.2   Connecting to the CP-16 with a Web Browser

The default address for the CP-16 is 192.168.1.151.   Open a web browser and type 192.168.1.151 in the URL address line.   When connected the login page will be displayed.

The default username is "apantac", the default password is "apantac".   The username and password are case sensitive.
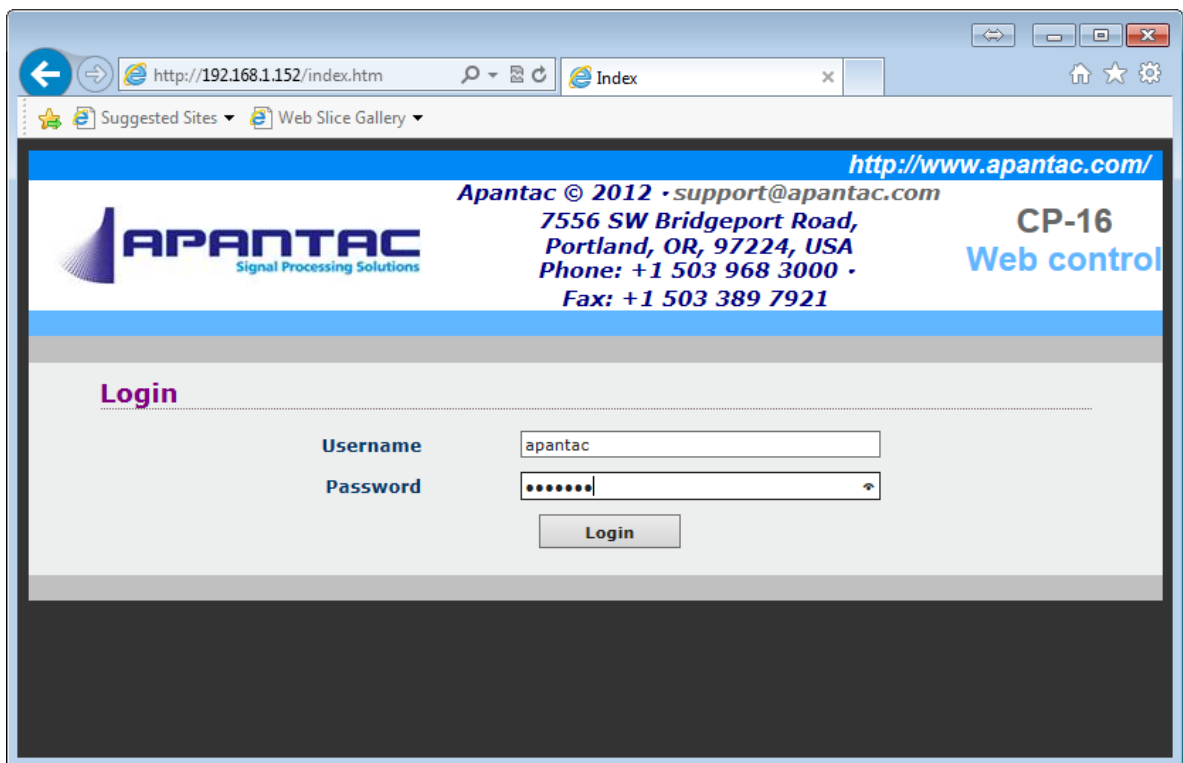
Figure 7.1:   CP-16 login page

7.3   CP-16 Administration Setup

After you logon to the CP-16 page, you will be able to access 3 tabs, Setup, Advance and Adminstration.   Click the Administration tab.

Figure 7.2:   Administration Tab, CP-16 settings

7.3.1   CP-16 Module Setup

The areas outlined in red in the figure 7.2 above pertain to the CP-16 module itself.

- **Username**
  The default username for logging on to these setup webpage is "apantac". This can be changed to your preference. Click the corresponding "Apply" button after entering your information.

- **Password**
  The default password for logging on to these setup webpage is "apantac". This can be changed to your preference. Click the corresponding "Apply" button after entering your information.

- **DHCP Client**
  DHCP can be Enabled or Disabled. Enabling DHCP will cause your network's DHCP server (server or router) to assign the CP-16 an IP Address of it's choice. Not knowing the assigned IP Address will make displaying the setup webpages difficult. If your I.T. department insists on DHCP, they should program their DHCP server (router) to assign a known, preselected IP Address to the CP-16 unit. To apply these changes click the 'Apply' button at the bottom of this webpage and then click the 'Reboot' button on the Setup tab.

  NOTE: If DHCP is Enabled, the following four network settings will be ignored. (Your Network's DHCP server will assign them.)

- **Static IP Address**
  The IP Address of the CP-16 module. This should be set to an address on the same subnet as the multiviewers it will control.

- **Static Subnet Mask**
  Default subnet masks depend on the class of your network.

Network class	Network IP addresses	Subnet Mask
Class A	`10.xxx.xxx.xxx`	`255.255.0.0`
Class B	`172.xxx.xxx.xxx`	`255.255.240.0`
Class C	`192.168.xxx.xxx`	`255.255.255.0`

- **Static Default Gateway**
  Not applicable when CP-16 and Multiviewers are on the same local subnet network.

- **Static DNS Server**
  Not applicable when CP-16 and Multiviewers are on the same local subnet network.

Accessible IP Setting

WARNING: If enabled, only computers with these IP addresses can login to the CP-16's webpages.

- **IP #1 through IP #4**

Enter the IP addresses of the computer's to be permitted to login to, access, and change the CP-16's settings.

- **Control**

This will enable or disable the 'Accessible IP Setting' function and settings.   See the above warning prior to enabling this function.

7.3.2 Multiviewer Connection Setup

The areas outlined in red in the figure below pertain to the CP-16 module connecting to the multiviewer.

Figure 7.3:   Administration Tab, Multiviewer settings

- **Connection Type**

  TCP or UDP protocol.   Default is TCP (Apantac Tahoma multiviewers utilize TCP protocol.)

- **Transmit Timer**

  Transmission timeout limit.   Default is '100'.   Change to 200 or 300 ms if experiencing trouble with the multiviewer not receiving commands and no other reason can be found.

- **Server / Client Mode**

  CP-16 to Multiviewer communication mode.   Default is 'Client' and cannot be changed.

- **Server Listening Port**

  Not applicable to the CP-16 functionality.   Default is '2009'.

- **Client Destination Host Name / IP**

  Enter the IP addresses of the Apantac Tahoma Multiviewer that the CP-16 will control.

- **Client Destination Port**

  The multiviewer TCP/IP port number.   Default is '101', do not change.   (Apantac Tahoma multiviewers utilize port 101 for receiving AXP command protocol.)

7.4   CP-16 Programming and GPIO Setup

The Setup tab provides for button programming and for GPIO setup.

Figure 7.4:   Setup Tab

7.4.1 Button Programming

When a button on the CP-16 is pressed it will send an ASCII text command to an Apantac Tahoma Multiviewer via TCP/IP protocol over Ethernet. The list of commands Apantac Tahoma Multiviewers will respond to is known as the "**A**pantac e**X**change **P**rotocol" or AXP for short. See the appendices for the list of AXP commands.

- **Preset Button Mode**

    AXP CMD or Reserved. Default is 'AXP CMD'. 'Reserved' is for future firmware options and currently performs no function.

- **GPIO Button Mode**

    See the next section.

- **AXP Ctrl 0 - AXP Ctrl 15**

    Type the desired AXP command here for buttons 1 through 16. Click the 'Apply' button at the bottom of the page, then the confirmation popup box to complete the programming change.

    AXP Examples:

    To load a preset configuration file stored within the multiviewer.

    ```
    Load |filename.pt1|
    ```

    To select an SDI embedded audio channel for monitoring output.

    ```
    Audio 0 SDI 1 1 1
    ```

    Multiple commands:

    ```
    Audio 0 SDI 1 1 1 |||  Label 0 5 1 . . . . |Audio pair 1|
    ```


A single button can send multiple commands.

Separate commands with **|||** .

This is the 'vertical-bar' key on your keyboard.

7.4.2   GPIO Control Setup

- **GPIO Button Mode**

  There are two options;   GPO and AXP CMD.

  GPO

  When this option is selected the GPIO port on the back of the CP-16 is configured for output.

  When buttons 1 through 8 are pressed the corresponding GPO wire on the port will go high (5 Volts).   Only the actively lit button will be high, the other GPO wires will be low (0 volts).

  The AXP command for the button will also be sent via TCP/IP to the multiviewer.   The GPO output can be used to trigger any external equipment.

  Apantac Tahoma Multiviewer's also have a GPIO port and the CP-16 GPO can be used to trigger these inputs if desired.   The multiviewer must be configured to respond to GPIO inputs.

  AXP CMD (GPI)

  When this option is selected the GPIO port on the back of the CP-16 is configured for input. An internal 5-volt source is provided through a 'pull-up' resistor.   All inactive inputs of the GPI port will be high.

  When the corresponding GPO wire on the port is brought low (shorted to the port's ground pin by an external relay or open-collector GPO of an external piece of equipment) the corresponding button will be selected (buttons 1 through 8).   The button will lite and the command will be sent via TCP/IP to the multiviewer.

7.5   CP-16 Advance tab

The Advance tab provides further administration setup and service.

- **Firmware Upgrade Settings**
  For use by authorized service personnel only.   Contact Apantac Technical Support prior to making any changes on this page.

- **Auto Warning Report Settings**
  When certain setup actions are performed an alternate webpage is displayed as standard warnings.   These are enabled by default and there are no reasons to alter these settings.

Appendix - I

Two Popular AXP Commands

NOTE: This is a partial listing of AXP commands.   For a complete listing see the separate "Apantac eXchange Protocol" document, available for download from our website.

Audio: Set audio monitoring output

Audio [VPM_ID][Type][Input_#][GROUP] [Channel/PAIR]

Parameters	Values	Description
[VPM_ID]	0 - 7	Video Processing Module ID number. Each VPM handles four video inputs. 0 : inputs 1.1 thru 1.4 1 : inputs 2.1 thru 2.4 ~ 7 : inputs 8.1 thru 8.4
[Type]	SDI/AES/AA	Type of audio format. SDI : embedded, AES or AA discrete input audio.
[Input_#]	1 - 4	(SDI type only) Video input number within the VPM.
[Group]	1 – 4	(SDI only) SDI embedded audio group number.
[Channel/Pair]	1 – 4 (SDI) 1 – 8 (AES or AA)	(SDI) channel number. (AES/AA) channel pair number.

Examples:

Command	Description
`Audio 3 SDI 1 2 3`	Select SDI input 1 from VPM 3, embedded Group 2, Channel 3 and 4 to be the monitoring output. Input 1 of VPM 3 is input 4.1
`Audio 1 AA 5`	Select Discrete Analog audio inputted into VPM 1 (second module), pair 5 (channels 9,10).
`Audio 0 AES 7`	Select Discrete Analog audio inputted into VPM 0 (first module), pair 7 (channels 13,14).

Load: Load a display configuration from a saved 'preset' file

    Load [FILE_NAME]

Parameters	Values	Description
[file_name]	The preset file name.	*The file name must be bracketed with "| |".

Examples:

| Command	Description
`Load |1_full.pt1|`	Loads preset name "1_full.pt1"

Appendix - II

Reset to Factory Defaults

1.   Connect RS232 port to your computer.   Use the RJ45-DB9 adapter cable included with accessories and a cross-over serial cable (or standard serial cable and cross-over adapter).

     Note: cross-over serial adapters or cables are also known as 'Null Modem' adapters or cables.

RJ45-DB9
Adapter Cable   Cross-over Serial Cable
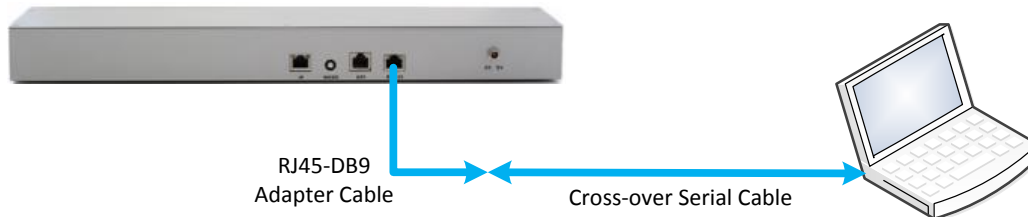
2.   Power on the CP-16 unit.

3.   Launch the "HyperTerminal" program on your PC.

4.   Configure HyperTermianl to use the serial port with the following setup.
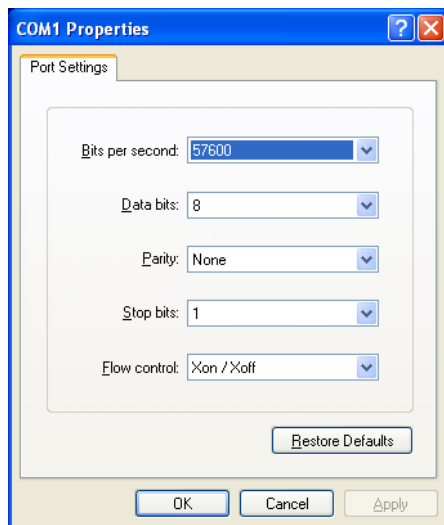
5.   Key in the factory reset command "**dft net** " then click Enter.

     (Note: insert a space after 'dft' and a space after 'net'),

6.   Power reset the CP-16 unit.

7.   You can now connect to the CP-16 unit using WEB page.

     - Factory reset CP-16 IP address: 192.168.1.151
     - Factory reset WEB login username: apantac
     - Factory reset WEB login password: apantac

Example and Notes...

Hyper-Terminal Program with CP-16 responses.

When successfully connected to the CP-16 unit, the CP-16 will repeatedly output the following message approximately every 5 seconds.

```
Make a TCP connection with host ip 192 168 1 151 at port 101
```

After typing the 'dft net ' command and pressing enter, the CP-16 will return the following acknowledgement.

```
AXP CMD(12)->

  **** CFG Default setting ****

Rx dft cfg dt.
```

You can now dis-connect and close HyperTerminal and reboot the CP-16 unit.

If HyperTerminal is left connected during the CP-16 reboot, it will receive a number of bootup messages, some of which are shown above.