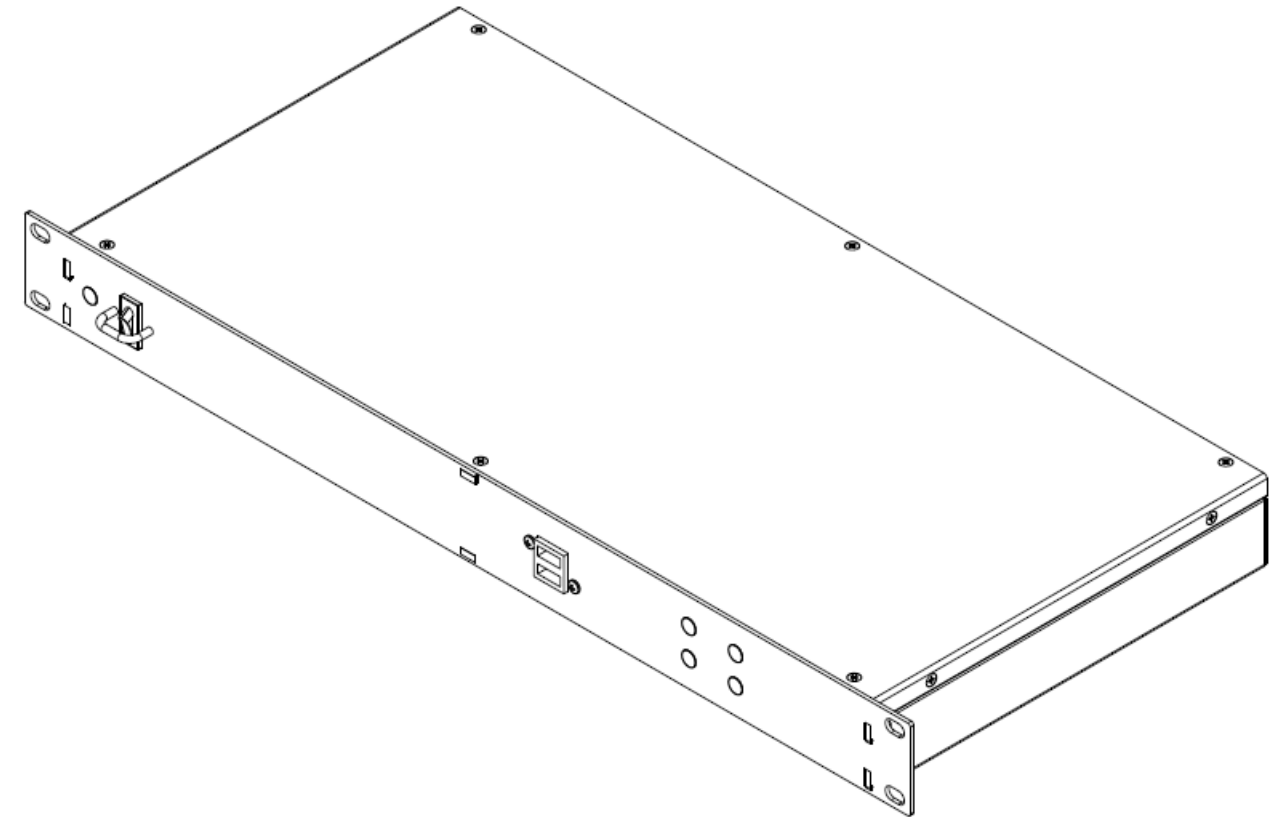


Marshall Electronics

NCB-2010

Network Control Box for IMD Monitors



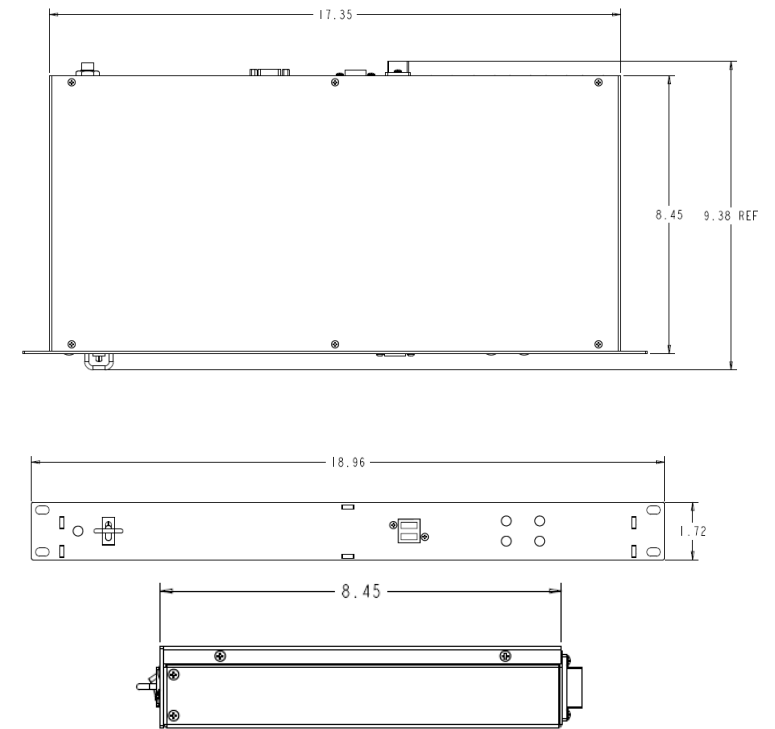
Marshall Electronics, Inc.
1910 East Maple Ave.
El Segundo, CA 90245
Tel: (800) 800-6608 / (310) 333-0606 • Fax: 310-333-0688
www.LCDRacks.com • sales@lcdracks.com

2010-0813

Operating Instructions

Specifications (continued)

Dimensions



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Warranty

Marshall Electronics warranties to the first consumer that this **NCB-2010 Network Control Box** will, under normal use, be free from defects in workmanship and materials, when received in its original container, for a period of one year from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer. This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty. *It is considered normal for a minimal amount of pixels, not to exceed three, to fail on the periphery of the display active viewing area.* Marshall Electronics reserves the option to refuse service for display pixel failure if deemed unobtrusive to effective use of the monitor by our technicians. No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above. Due to constant effort to improve products and product features, specifications may change without notice.

Specifications

■ CONTROL INPUT

Connector

1 x RJ12 (Modular 6P6C)

Physical Layer

RS-485 / 422

Data Protocols

Image Video:

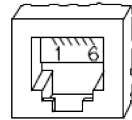
Start Bits 1
 Data Bits 7
 Parity Even
 Stop Bits 1
 Baud Rate 38400

TSL v3.1/v4.0 Protocol:

Start Bits 1
 Data Bits 8
 Parity Even
 Stop Bits 1
 Baud Rate 38400

Pinout

Pin No.	Signal
1	N/C
2	Ground
3	Rx+
4	Rx-
5	Ground
6	N/C



■ MONITOR OUTPUTS

Connectors

4 x RJ12 (Modular 6P6C)

Physical Layer

RS-422 / 485

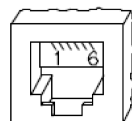
Data Protocol

MEI

Start Bits 1
 Data Bits 8
 Parity None
 Stop Bits 1
 Baud Rate 57600

Pinout

Pin No.	Signal
1	Rx-
2	Ground
3	Tx+
4	Tx-
5	Ground
6	Rx+



■ NETWORK CONNECTION

Connector

1 x RJ45 (Modular 8P8C)

Physical Layer

10BASE-T or 100BASE-T Ethernet

Data Protocol

TCP/IP

■ ELECTRICAL

Power Consumption 3.0A @ 12VDC (36 W)

Voltage Requirement 12 VDC

V-PS12-5V-1 Power Supply:

Input 100V-240V, 1.5A, 50-60Hz
 Output 12VDC, 5A, 60W Max

■ MECHANICAL

Dimensions (w x h x d): See Dimensions Specifications

Rack Height: 1RU

Weight: 5 lbs

Operating Temperature 32°F to 104°F (0°C to 40 °C)

Storage Temperature -4°F to 120°F (-20°C to 50°C)

RoHs

Do not dispose. Return to Manufacturer or Authorized Recycle Facility.

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OSD	IMD	CCMonitor	Off, On		
		IMDState	Off, On		
		Set IMD Intensity	0-100		
		Send IMD Alignment	Left, Center, Right		
		Send IMD Color	Red, Green, Yellow/Amber		
		Send IMD String	1-16 characters		
		Send IMD Name	1-16 characters		
	Tally	Get IMD Name			
		Show IMD, Show IMD Name, Show IMD Address			
		Tally01 [Left]	Off, Red, Green, Yellow/Amber		
Tools	Keypad	Tally01 [Text]	Off, Red, Green, Yellow/Amber		
		Tally01 [Right]	Off, Red, Green, Yellow/Amber		
		Menu, Select, ↑, ↓, F1, F2, Power			
	Ping	Color, Brightness, Contrast	+, -, Default		
		Channel 1 / SDI 1, Channel 2 / SDI 2, Channel 3, Channel 4, Quad / Layout, DVI			
		Load	User1, User2, User3, User4, User5, User6, Factory		
		Save	User1, User2, User3, User4, User5, User6		
		Log			
		Status	System	Healthy, Warning, Critical	
				Web version	This will change with updated firmware releases
Firmware version	This will change with updated firmware releases				
Device	Hardware version		NCB01-2003-B1		
	Change Current ID Name				
	Get Version X		Software, Keypad, FPGA1, FPGA2		
	Get Software Version				
	Get Protocol Version				
	Get Keypad Version				
	Get Model Number				
Network	Protocol Standby, System Reset				
	Set Power State	Off, On			
	MAC Address				
	IP Address				
	Broadcast Address				
Netmask					
Gateway					

Table of Web Interface Commands

Main	Display	Image	Brightness	Get, set
			Contrast	Get, set
			Color	Get, set
			ColorTemp	55k, 65k, 93k, Linear, User1, User2
			Red Offset	Get, set
			Red Gain	Get, set
			Blue Offset	Get, set
			Blue Gain	Get, set
			Green Offset	Get, set
			Green Gain	Get, set
			Analog Phase	Get, set
		Window	4:3, Scaled 4:3, 16:9, Centered 16:9	
			Set Window Layout	Single, Quad, HPOP3, VPOP3
			Set Source	SDI, DVI
			Set Window Source	Window 1, Window 2, Window 3, Window 4, Channel 1, Channel 2, Channel 3, Channel 4
			Set Framelock	
			Set Marker	Off, 95%, 93%, 90%, 88%, 80%, 1.85:1, 2.35:1, 4:3, 14:9, 13:9
			Set Center	Off, On
			Set Background	Transparent, 50% Gray, Black
			Set Curtain Color	White, Black, Blue, Red, Green
			Reset Test Mode	
		Debug	SetBlueOnly	Off, On
			Monochrome	Off, On
		Waveform	Set Waveform Mode	YUV Overlay, YUV Parade, RGB Overlay, RGB Parade
			Set Waveform Scale	Off, Millivolts, %IRE, Auto
			Waveform Color	Off, On
			Waveform Limits	Off, On
			Min / Max	0000-1023
			Line Mode	Off, On
			Set Line Number	0000-0000
			Set Vectorscope Targets	Off, 75%, 100%
			Set Overlay Position	Off, Bottom, Top
			Set Overlay Transparency	000-100
			Config	(Baud Rate)
		Set Protocol		Image Video, TSL
		Pass-Through		On, Off
		Read		Protocol Type, Protocol Status
		StatusDisplay		Off, On
		Timecode		Off, LTC, VITC
		AudioMonitor		Off, On

Product Overview

The NCB-2010 Network Control box is a comprehensive remote control solution for Marshall's IMD (In-Monitor Display) line of monitors. The NCB-2010 offers complete control of each monitor's menu settings and adjustments such as contrast, color, curtain color, aspect ratio, and more. The NCB-2010 can control up to 255 monitors individually by ID#, or up to 512 monitors simultaneously on a global scale. The NCB-2010 also enables the use of third party UMD controllers such as Image Video or TSL, while maintaining remote control of the monitor's settings and adjustments. The NCB-2010 is operated with a web interface via a standard TCP/IP network connection. No special application or additional software is needed other than a standard web browser.

Features

Full Remote Control

The NCB-2010 offers complete control of all monitor settings and adjustments, such as brightness, color, contrast, aspect ratio, screen markers, curtain color, IMD text, etc.

Control Entire Video Walls or Individual Monitors

The NCB-2010 can send global commands to affect all monitors in a video wall, or individual commands to affect single monitors identified by ID#.

Support for Third Party UMD Protocols

The NCB-2010 accepts and transmits Image Video or TSL v.3.1 and v4.0 protocol commands, while maintaining full remote control of the monitors settings and adjustments.

No Additional Software Needed

As the NCB-2010 is operated with a built-in web interface via a standard TCP/IP network, no special application or additional software is needed other than a standard web browser.

Installation and Power-On

■ Unpacking

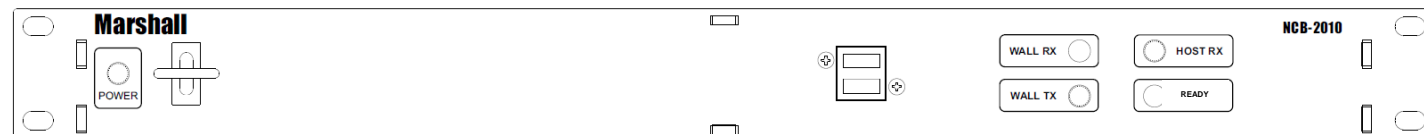
Carefully unpack the NCB-2010 and verify that the following items are included:

- NCB-2010 Network Control Box
- V-PS12-5V-1 Power Supply with 2-Pin Twist Lock Connector
- Operating Instructions

Inspect the unit for any physical damage that may have occurred during shipping. Should there be any damage, immediately contact Marshall Electronics at (800) 800-6608. If you are not located within the continental United States, call +1 (310) 333-0606.

■ Rack Installation

The NCB-2010 can be mounted in any standard EIA 19" equipment rack. If additional equipment is installed directly above and below the NCB-2010 in a rack, adequate ventilation of the rack is required to prevent overheating.



■ Power-On Procedure

Plug the V-PS12-5V-1 power supply into an AC power source (100-240 V @ 50/60 Hz). Attach the 2-pin twist lock connector to the back of the unit. Using the Power switch on the front of the unit, turn the NCB-2010 to the 'ON' position.

Allow the NCB-2010 to boot properly before attempting to access the Web Interface. During booting, the READY LED will remain lit. On completion of the boot process, the READY light will blink.

Help

The Help section contains Contact Information for Marshall Electronics, Inc.

Contact Information

The Contact Information page is shown below:



Please contact Marshall Electronics with any questions, comments or concerns.

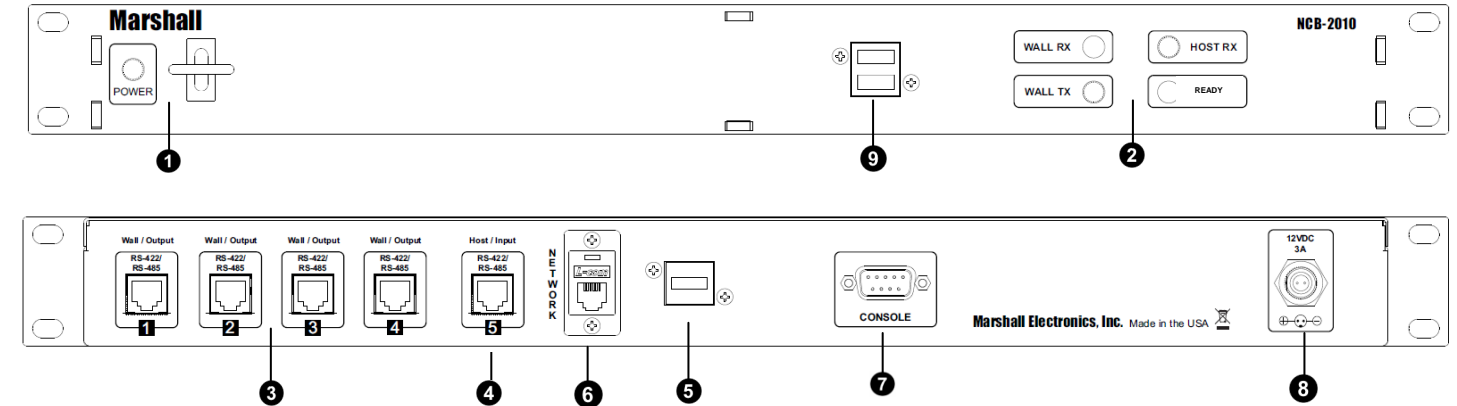
Network

The Network Settings page is shown below:

Network Settings				
MAC Address	0:50:c2:99:88:cd			
IP Address	192	168	0	222
Broadcast Address	192	168	0	255
Netmask	255	255	255	0
Gateway	192	168	0	1
	<input type="button" value="Set"/>			

- **MAC Address** –Indicates the MAC Address of your NCB-2010. This cannot be changed.
- **IP Address** – This field shows the current IP Address of the NCB-2010. You can change this by typing the desired IP address in the text field and pressing Set below the Gateway field. You will be prompted to begin a new instance of the NCB-2010 Web Interface with the new IP Address. Please consult your IT department for information on valid IP address ranges on your network before you change this.
- **Broadcast Address** – This field shows the current Broadcast Address of the NCB-2010. You can change this by typing the desired Broadcast address in the text field and pressing Set below the Gateway field. Please consult your IT department for information on valid Broadcast addresses ranges on your network before you change this.
- **Netmask** – This field shows the current Netmask used by the NCB-2010. You can change this by typing the desired Netmask in the text field and pressing Set below the Netmask field. Please consult your IT department for information on selecting an appropriate Netmask.
- **Gateway** – This field shows the current Gateway used by the NCB-2010. You can change this by typing the desired Gateway in the text field and pressing Set below the Gateway field. Please consult your IT department for information on selecting an appropriate Gateway.

Front and Rear Panel Features



1 **POWER LED and Rocker Switch**

The POWER LED indicates whether the NCB-2010 is in the ON or OFF state. The rocker switch controls the power state of the NCB-2010. The rocker switch is protected in order to avoid accidental tripping of the switch.

2 **RX – TX – READY LEDs**

The Wall / Host RX and TX LEDs indicate whether data is being received (RX) or transmitted (TX) by the NCB-2010. The Wall RX / TX LEDs indicate that information is being received and transmitted to IMD equipped monitors. The Host RX LED indicates that the NCB-2010 is receiving and transmitting information. During the boot process, the READY LED will remain lit. When the NCB-2010 is ready to operate, the READY LED will blink.

3 **RS-485 / 422 Port 1-4**

The RS-485 / 422 ports send MEI protocol commands to Marshall's IMD line of monitors. Up to 128 screens can be connected to each port. These ports also pass Image Video or TSL v3.1/v4.0 protocol commands from the RS-485 / 422 Port 5, embedded in the MEI protocol.

4 **RS-485 / 422 Port 5**

The RS-485 / 422 port 5 is a Control Input that receives Image Video or TSL v3.1 or v4.0 protocol commands from an external controller. These commands are then embedded in MEI protocol and sent to the IMD monitors.

5 **USB Peripheral Port**

Use the USB peripheral ports to connect a USB Mouse and USB keyboard to the NCB-2010 system while in Console / Debugging mode.

6 **Ethernet**

The Ethernet port is an RJ-45 network interface used to connected the NCB-2010 to a standard TCP/IP network. The NCB-2010 is operated via an embedded web interface

7 **Console**

The Console port is used for debugging purposes. Please contact Marshall Electronics for instructions on how to use this port.

8 **Power Input**

Connect the 12VDC input to the 2-Pin twist lock power input connector. *Note that the NCB-2010 takes about 3 minutes to start up after power on, before the unit is functional.*

IMPORTANT: If using a power source other than the included power supply, be sure that the polarity of the DC input is correct:



9 **USB Peripheral Ports**

Use the USB peripheral ports to connect a USB Mouse and USB keyboard to the NCB-2010 system while in Console / Debugging mode. This is also a bootable USB port when used with a USB Memory Stick containing NCB-2010 Firmware.

Connecting to the NCB-2010

Overview

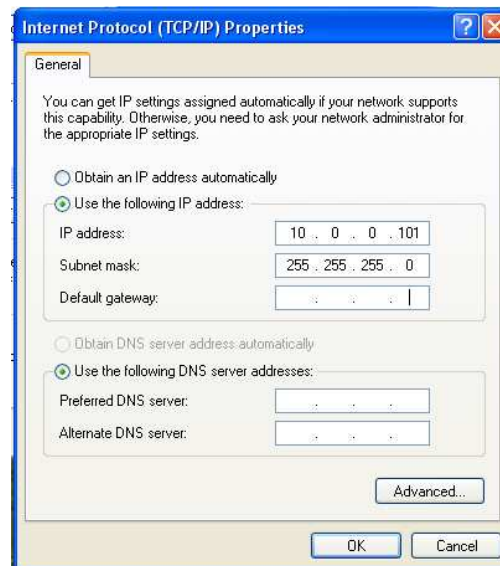
The NCB-2010 can be operated by any computer with a web browser, via a TCP/IP network connection. No additional software is needed. The NCB-2010 may be connected directly to a single computer, or connected to a local area network and accessed by multiple computers. **The NCB-2010 is shipped with the default IP address 10.0.0.254.**

The following procedures describe the two ways to connect to the NCB-2010.

Connecting the NCB-2010 to a Single Computer

To use the NCB-2010 for the first time, you will most likely need to connect the NCB-2010 directly to a single computer. After this connection is made, you can change the unit's IP address to be suitable for your network.

1. Connect the NCB-2010 to a Windows-based computer using a cross-over ethernet cable.
2. Supply power to the NCB-2010 with the included power supply. Set the rocker switch on the front of the unit to ON (|).
3. In Windows, open the **Network Connections** control panel. (Start > Control Panel > Network Connections)
4. A **Local Area Connection** should be listed. Right-Click on Local Area Connection, and select **Properties**.
5. Scroll down the list in the Local Area Connection Properties, click on **Internet Protocol (TCP/IP)**, and click the **Properties** button. Before making any changes to your Internet Protocol properties, contact your IT department for guidance.
6. The computer attached, either directly or indirectly, to the NCB-2010 will have to be setup with an IP Address 10.0.0.xxx, where xxx could be any number from 2 to 253 and Subnet mask 255.255.255.0, as shown in the image below:

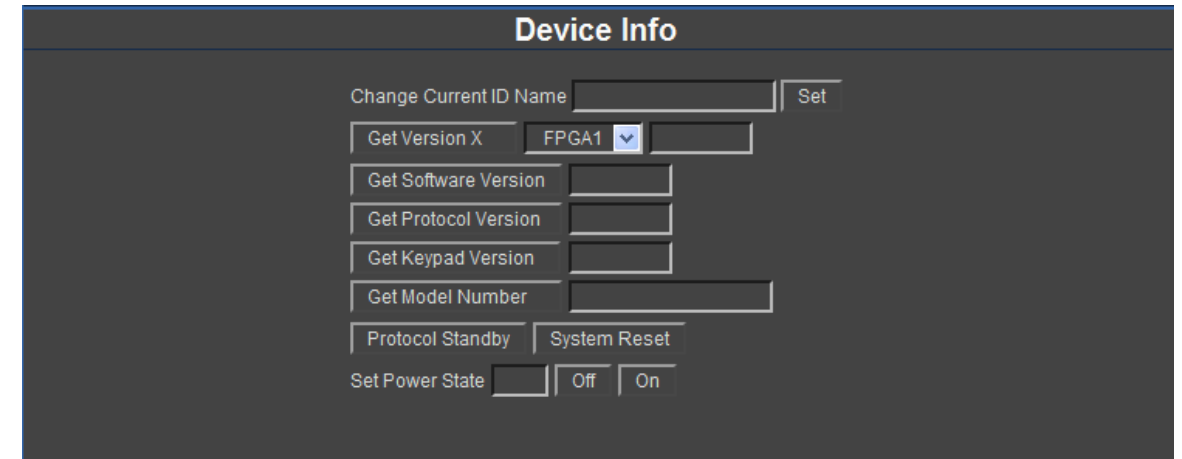


7. If your IP address is not obtained automatically, please note down your settings before making any changes. Contact your IT department for assistance.

- **Hardware version** – Provides the current Hardware version of the NCB-2010.

Device Info

The Device Info page is shown below:

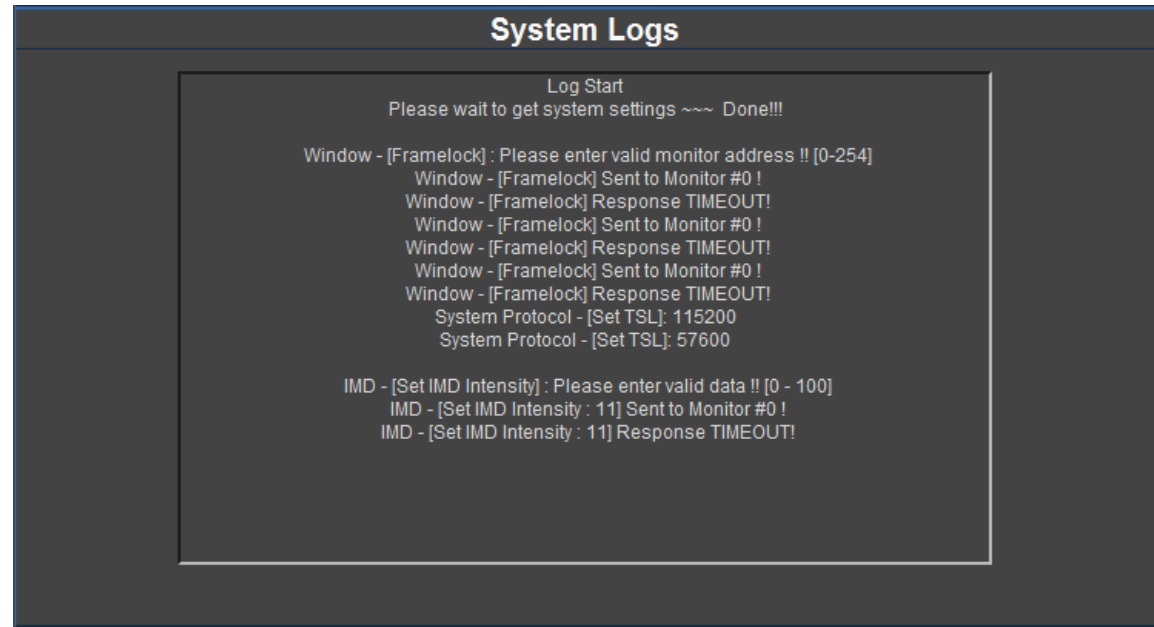


The Message Box shows the current status of commands being sent and acknowledged, as well as any error messages.

- **Change Current ID Name** – Allows you to set a name to a particular monitor ID on the NCB-2010 target monitor pull down menu by typing a name in the text field. Only one ID Name can be changed at one time. The monitor selected in the target monitor pull down menu will be changed when the Set button is pressed.
- **Get Version X** – Retrieves the Software, Keypad, FPGA1 or FPGA2 versions of the monitor ID selected in the target monitor pull down menu. This information can only be retrieved from one monitor at a time. If your monitor does not have a second FPGA, the NCB-2010 will respond with an error.
- **Get Protocol Version** – Retrieve the Protocol version of the monitor ID selected in the target monitor pull down menu. This section applies to the Marshall Electronics protocol version embedded in your Marshall Electronics monitor.
- **Get Keypad Version** – Retrieve the Keypad version of the monitor ID selected in the target monitor pull down menu.
- **Get Model Number** – Retrieve the monitor Model number of the monitor ID selected in the target monitor pull down menu.
- **Protocol Standby** – This sets the monitor selected in the target monitor pull down menu on Protocol Standby, or RS-422 Ignore mode. This will render your Marshall Electronics monitor unable to respond to any RS-485 / 422 command. A message will appear on your monitor screen indicating Protocol Standby. The monitor must be physically reset in order to return normal operation.
- **System Reset** – Resets the monitor selected in the target monitor pull down menu.
- **Set Power State** – Sets the Power state, Off or On, of the monitor selected in the target monitor pull down menu.

System Logs

The System Logs page is shown below:



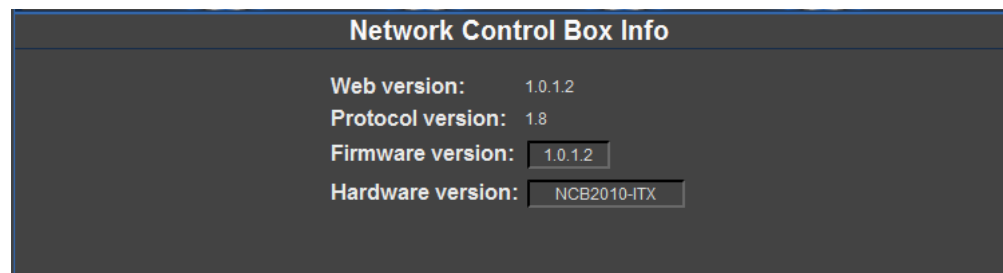
The System Logs page is a log of all Status and Error messages displayed by the NCB-2010 for the currently active Web Interface Page. The Log is cleared from the Web Interface after the end of each session. Although the log is cleared in the Web Interface, a permanent log is kept on board the NCB-2010's memory. This permanent log can be accessed for troubleshooting purposes.

Status

The Status section of the NCB-2010 Web Interface Menu allows you to retrieve information about the software and hardware versions of the NCB-2010,

Network Control Box Info

The Network Control Box Info page, labeled System in the Web Interface Menu, is shown below:



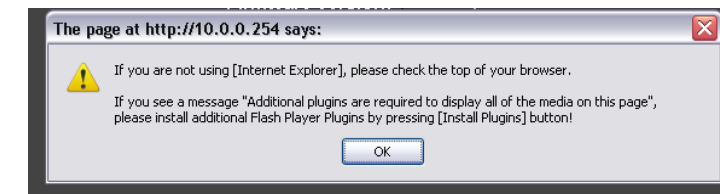
The message boxes are populated automatically at the startup of the Web Interface. The message boxes show you the following information:

- **Web version** –Provides the current Web version of the NCB-2010.
- **Protocol version** – Provides the current implementation of the MEI Protocol in use on the NCB-2010.
- **Firmware version** – Provides the current Firmware version of the NCB-2010.

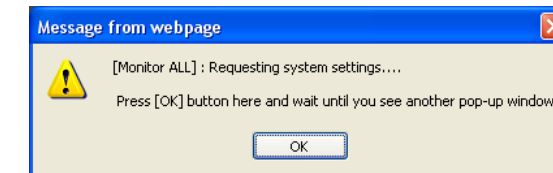
Connecting to the NCB-2010 (continued)

Connecting the NCB-2010 to a Single Computer (continued)

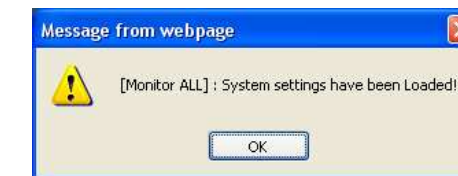
8. Click **OK** in the **Internet Protocol (TCP/IP) Properties** window, and then click **Close** in the **Local Area Connection Properties** window.
9. Open any web browser application (Internet Explorer, Firefox, etc.)
10. Enter the NCB-2010 Web Interface address. In the default case, it is <http://10.0.0.254/>. Make sure the READY LED is blinking on the NCB-2010 before attempting to access the web interface.
11. Please check that you have the Shockwave Flash Player plug-in (Version 10.0 or above) in order to use this webpage. You may see the following prompt when accessing from your web browser:



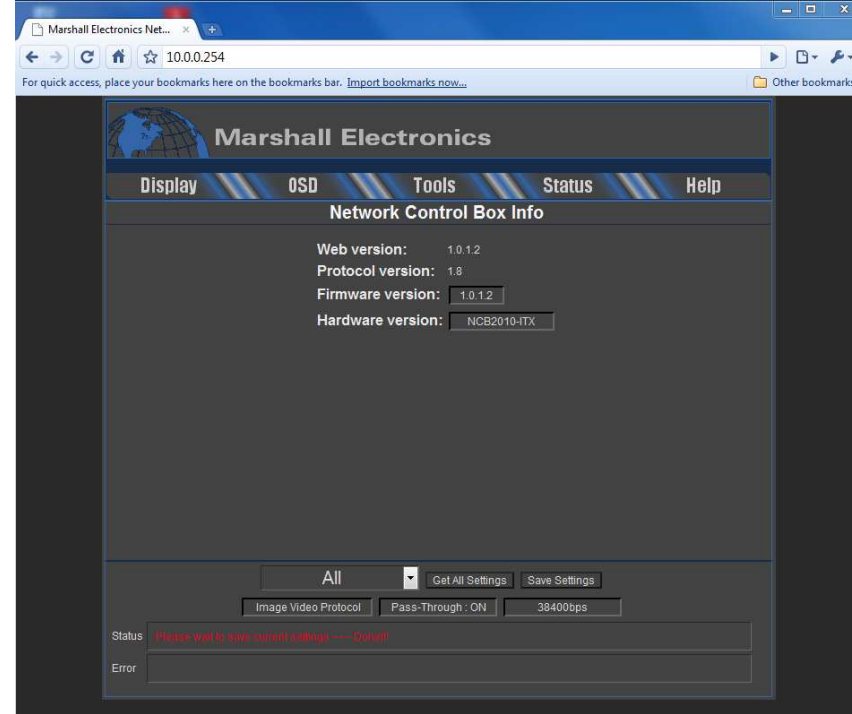
12. Click OK after the system has requested settings, as shown below:



13. If all system settings are loaded correctly, the following dialog will appear. Click OK.



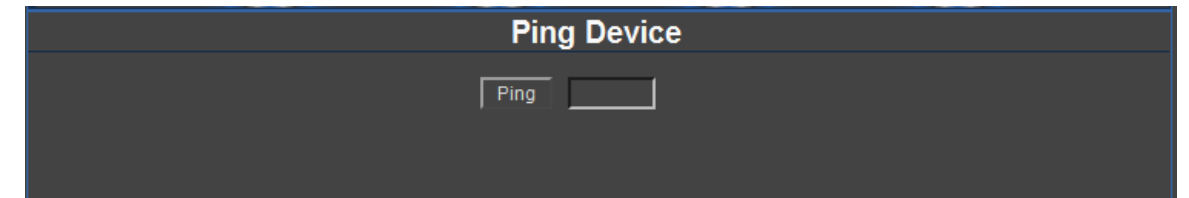
14. If successfully connected, the web interface of the NCB-2010 will be shown in the browser windows as shown below.



- **Keypad Commands (Menu, Select, ↑, ↓, F1, F2, F3, F4, Power)** – These commands simulate pressing keypad buttons on a monitor. The entire on-screen menu can be navigated using these commands alone.
- **Color, Brightness and Contrast (+, -, Default)** – Use these commands to manually increment or decrement the value of the corresponding control by 1 unit. Use the Default button to set these values to their default value.
- **Channel 1/ SDI 1, Channel 2 / SDI 2, Channel 3, Channel 4, Quad / Layout, DVI** – Use these settings to select a particular channel to view in full-screen mode, or the Quad button to return to toggle between different Layouts. Use the DVI button to toggle your Channel 4 between a regular input or the DVI-I input on your QV monitor, or to select the DVI input on the DLW monitors. Please check the Operating Instructions of your monitor to determine if you have access to all of these settings.

Ping Device

The Ping Device page is shown below:



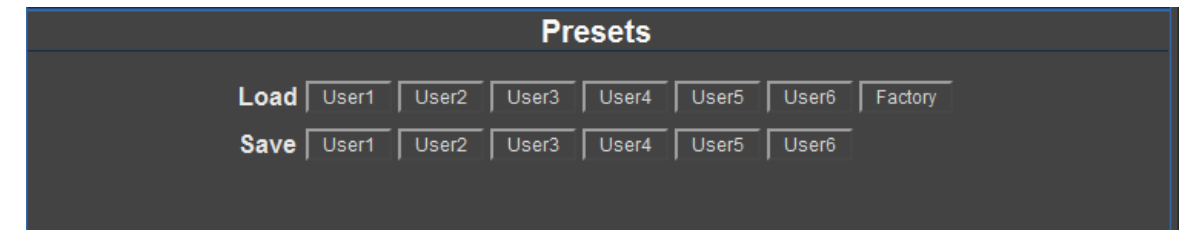
- **Ping (Healthy, Warning, Critical)** – Test a command and response with a monitor.

***Note:** After you have successfully connected to the NCB-2010, you may want to configure your NCB-2010 to work off of a network. The next section will detail how to change your IP Address to facilitate connecting your NCB-2010 to a Local Area Network.

Before you can connect to the NCB-2010 via a Local Area Network, the settings made to your computer's Local Area Connection properties for direct connection from your PC to the NCB-2010 may need to be undone. Please contact your IT department if your normal Local Area Connection settings need to be recalled.

Presets

The Presets page is shown below:



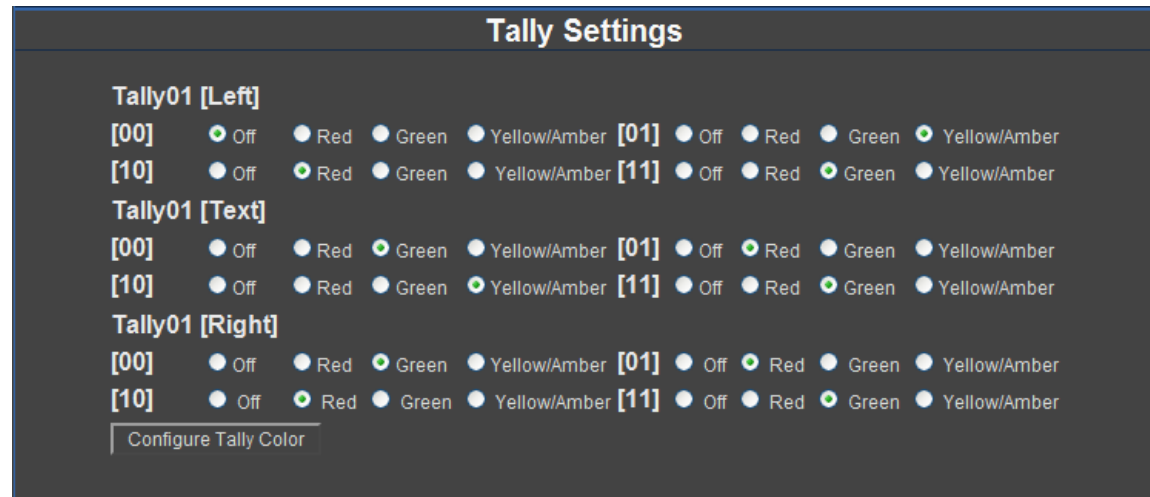
Use the buttons shown above to load and save presets in each monitor. Note that these controls affect the presets in each monitor only. There are no presets in the NCB-2010 itself.

- Load (Load presets User1 – User6, or Factory Default Settings)
- Save (Save the current settings on each monitor to presets User1 – User6)

- **Send / Get IMD Name** – Set the IMD Name (S/N) of a monitor. Use the Get command to get the IMD Name (S/N) of the selected monitor.
- **Show IMD** – Show the fixed string on a monitor.
- **Show IMD Name** – Show the IMD Name on a monitor.
- **Show IMD Address** – This command displays the current address of each monitor screen connected to the NCB-2010.

Tally Settings

The Tally Settings page is shown below:



Use the Radio buttons to configure the Tally colors triggered with your TSL text and tally commands. Please refer to the Operating Instructions of your TSL Tally equipment used in your equipment.

Tools

The Tools section of the NCB-2010 Web Interface Menu allows you to see a replicated version of the IMD monitor keypad, and also allows you to Ping your monitors, access settings and view System Logs for troubleshooting purposes.

Keypad Controls

The Keypad Controls page is shown below:



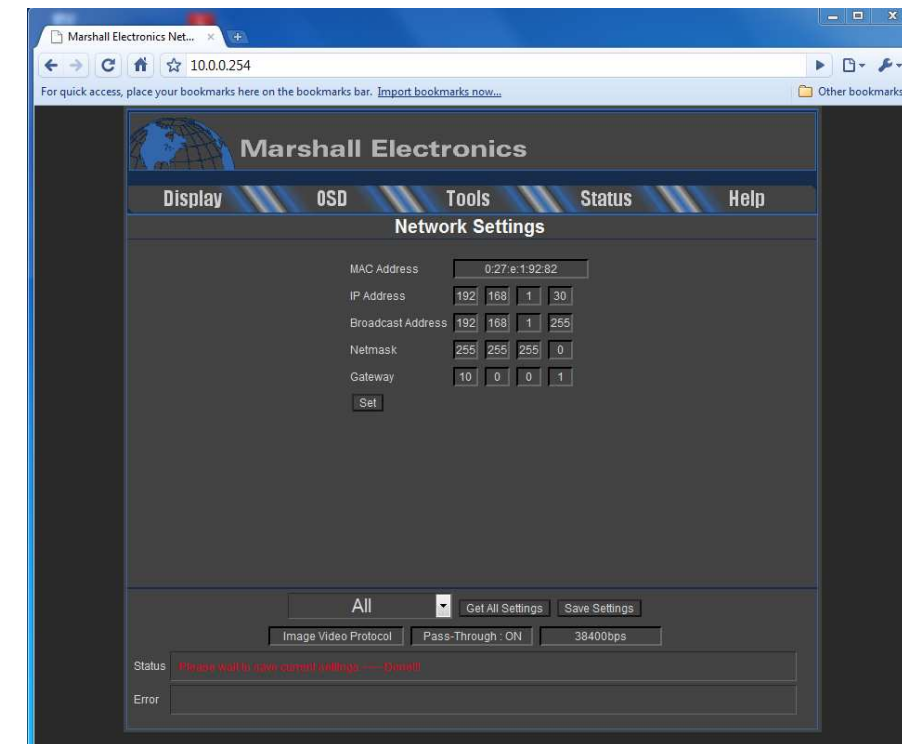
Changing the IP Address of the NCB-2010

Overview

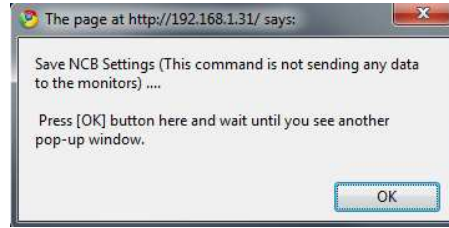
The NCB-2010 is shipped with a default IP address of **10.0.0.254**. This IP address can be changed through the web interface. **Note that the existing IP address must be known to make this change. If the existing IP address is unknown, please contact Marshall Electronics for assistance.**

Procedure

1. Connect the NCB-2010 to your network or directly to your Windows-based PC, with a standard Ethernet patch cable as described in the previous procedure.
2. Verify connection of the NCB-2010 by loading the web interface in a browser window, at the current IP address.
3. In the web interface, hover over the Status tab and select the Network button. You will reach the Network Settings page.



4. In the Network Settings page, enter the desired IP Address in the IP Address field and click the Set button.
5. You will be prompted to close your web browser (or tab) and access the web interface at the new IP Address you selected.
6. If you would like to permanently apply these settings, click the Save Settings button in the lower part of the NCB Web Interface. You will see the following prompt. Click OK.

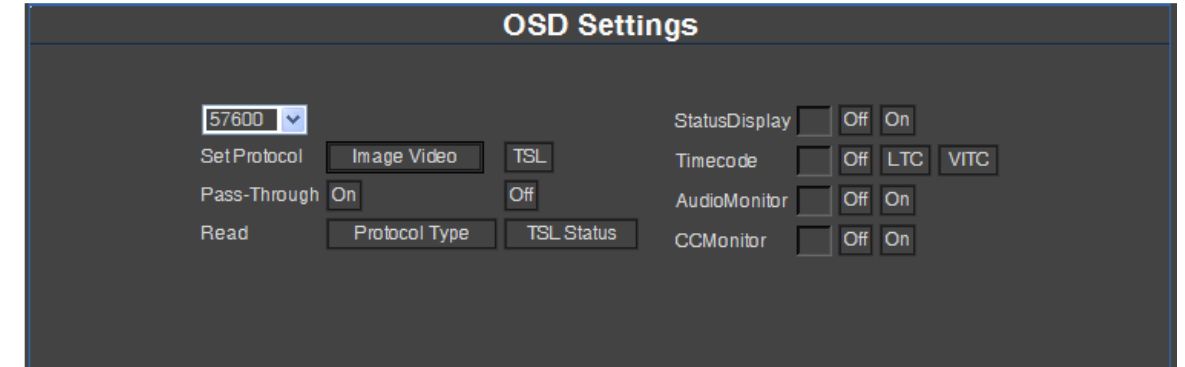


7. The next popup you see will tell you that your settings are now saved.

Note: The NCB-2010 saves any new applied settings every hour, automatically. If you have made an immediate change and would like to save these settings, please use the Save Settings button as described in Step 6.

OSD Settings

The OSD Settings page is shown below:



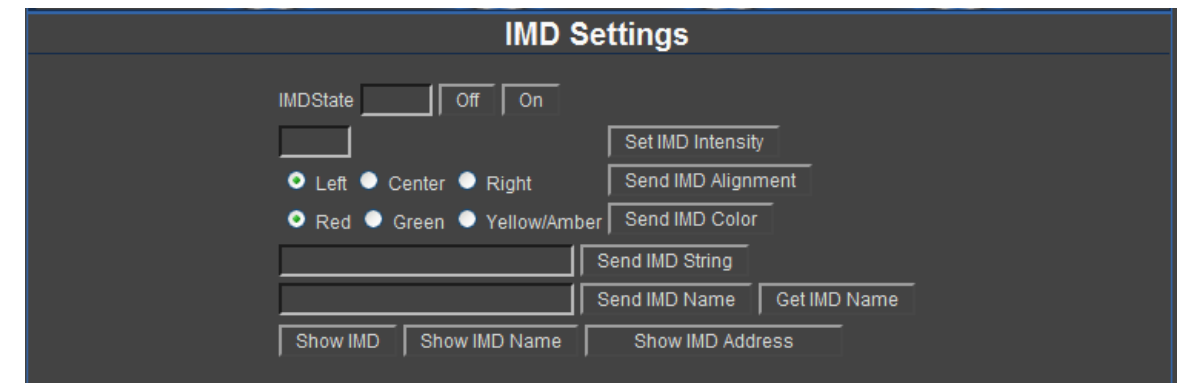
- **Set Protocol (Image Video, TSL)** – Select the protocol type to be passed through the NCB-2010. The drop down menu above the Set Protocol text is the Baud Rate of the selected protocol. The Baud Rate selected when a Protocol Button is pressed is the Baud Rate that is enforced. *Note that this option must be set according to the protocol that is applied to the RS-485 / 422 Port 5 on the NCB-2010.*
- **Pass-Through (On, Off)** – Enable or disable the pass-through of Image Video or TSL protocol.
- **Read Protocol Type** – Refresh the Protocol Type display in the Target Monitor page.
- **Read TSL Status** – Read the TSL error status. Results are displayed in the Message Box at the bottom of the page.

Use the right-hand section of the page to **configure the OSD** with following commands:

- Status Display (Off, On)
- Timecode (Off, LTC, VITC)
- Audio Monitor (Off, On)
- CCMonitor (Off, On)

IMD Settings

The IMD Settings page is shown below:

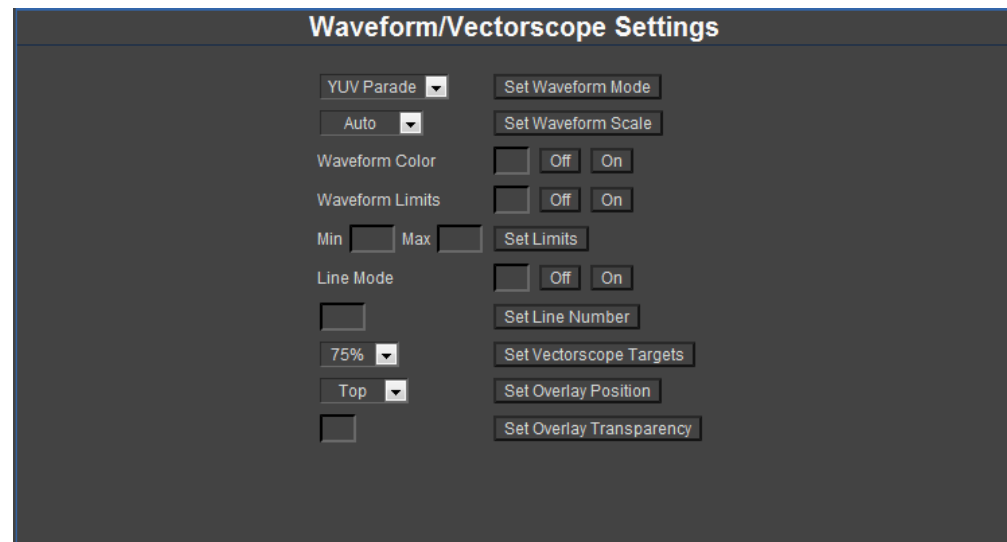


- IMD State (Off, On) – Set to ON to allow the monitor to show **IMD**, **IMD Name** and **IMD Address**.
- **Set IMD Intensity (0-100)**
- **Send IMD Alignment (Left, Center, Right)** – Set the fixed string alignment of a monitor.
- **Send IMD Color (Red, Green, Yellow/Amber)** – Set the fixed string color of a monitor.
- **Send IMD String** – Set the fixed string in a monitor.

- **Blue Mode** (Off, On)
- **Monochrome Mode** (Off, On)
- **PixelToPixel Mode** (Off, On)

Waveform Mode

The Waveform/Vectorscope Settings are shown below. Note, this section of the NCB-2010 Web Interface will only work with Marshall Electronics' line of DLW monitors. For further information on these settings, please consult the Operating Instructions on your DLW Series monitor:



Use the buttons above to send the following commands:

- **Set Waveform Mode** – Set the display mode for the Waveform monitor on all DLW Series monitors. You can select between YUV Overlay, YUV Parade, RGB Overlay or RGB Parade.
- **Set Waveform Scale** – Set the measurement scale on your DLW Series monitors. Select between Off, Millivolts, %IRE and Auto.
- **Waveform Color** – Use this setting to apply color to the Waveform monitor data.
- **Waveform Limits** – Use this setting to apply the Limit mode to the Waveform monitor.
- **Min / Max Limit Values** – Set your Minimum and Maximum Limit values for the data on the Waveform monitor.
- **Line Mode** – Use this to turn Line Mode Off and On on the Waveform monitor.
- **Set Line Number** – Use this, along with Line Mode, to set the Line Number to be analyzed on the Waveform monitor.
- **Set Vectorscope Targets** – Use this to set the target locations for the Vectorscope. Choose between Off, 75% and 100% targets.
- **Set Overlay Position** – Use this setting to set the position of the Audio, Vectorscope and Waveform monitor charts when viewing video in Full Screen mode on the DLW Series monitors. Choose between Off, Bottom and Top.
- **Set Overlay Transparency (0 – 100)**– Use this to set the Transparency of the Audio, Vectorscope and Waveform monitor charts when viewing video in Full Screen mode on the DLW Series monitors.

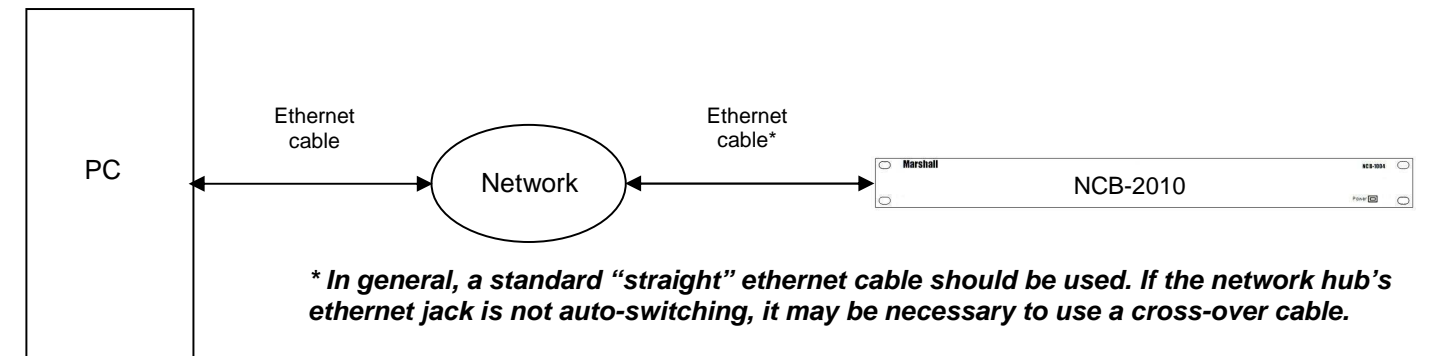
OSD

The OSD section of the NCB-2010 Web Interface Menu allows you to adjust the OSD, IMD and Tally settings of your IMD monitors.

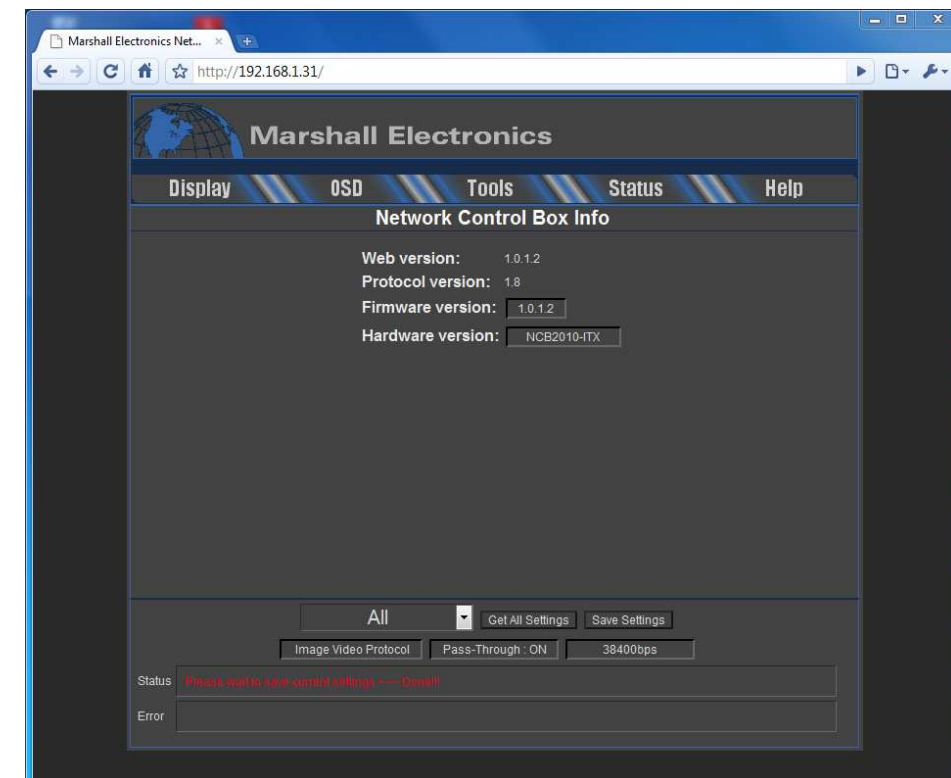
Connecting the NCB-2010 to a Local Area Network

Before you can connect to the NCB-2010 via a Local Area Network, the settings made to your computer's Local Area Connection properties for direct connection from your PC to the NCB-2010 may need to be undone. Please contact your IT department if your normal Local Area Connection settings need to be recalled.

1. Connect the NCB-2010 to the network, using a standard ethernet cable:



2. Using any computer connected to the network, enter the unit's IP address in a web browser to access the NCB-2010 web interface.
3. If successfully connected, the web interface of the NCB-2010 will be shown in the browser windows as shown below:



System Configuration

Overview

The NCB-2010 can be used in three different system configurations. The following diagrams show the different configurations:

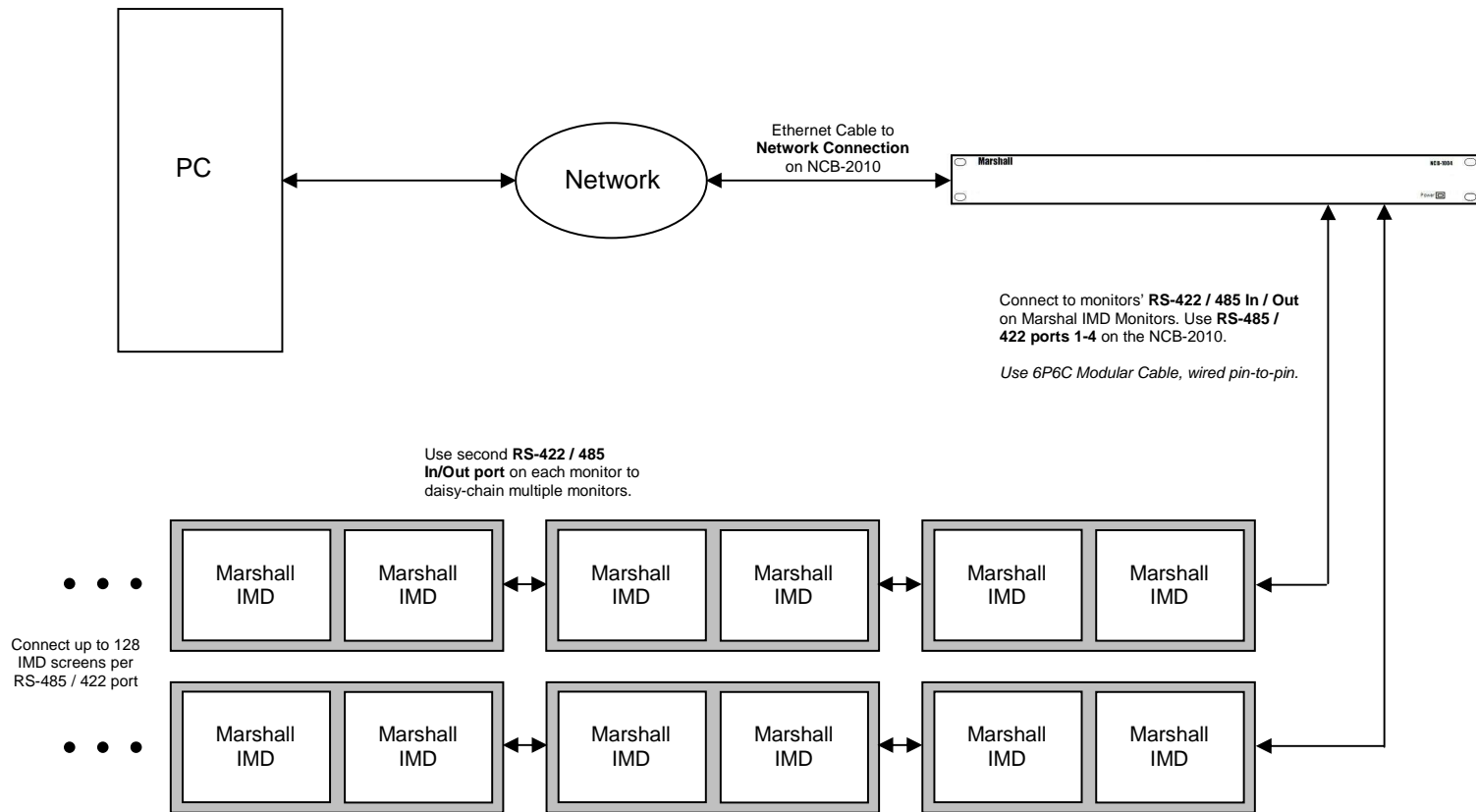
Basic Remote Control of IMD Monitors

■ Overview

Use the following configuration for basic remote control of Marshall IMD series monitors. This setup allows remote control of all features in the on-screen menu of each IMD monitor.

■ Wiring Diagram

Use the following configuration for basic remote control of Marshall IMD series monitors.



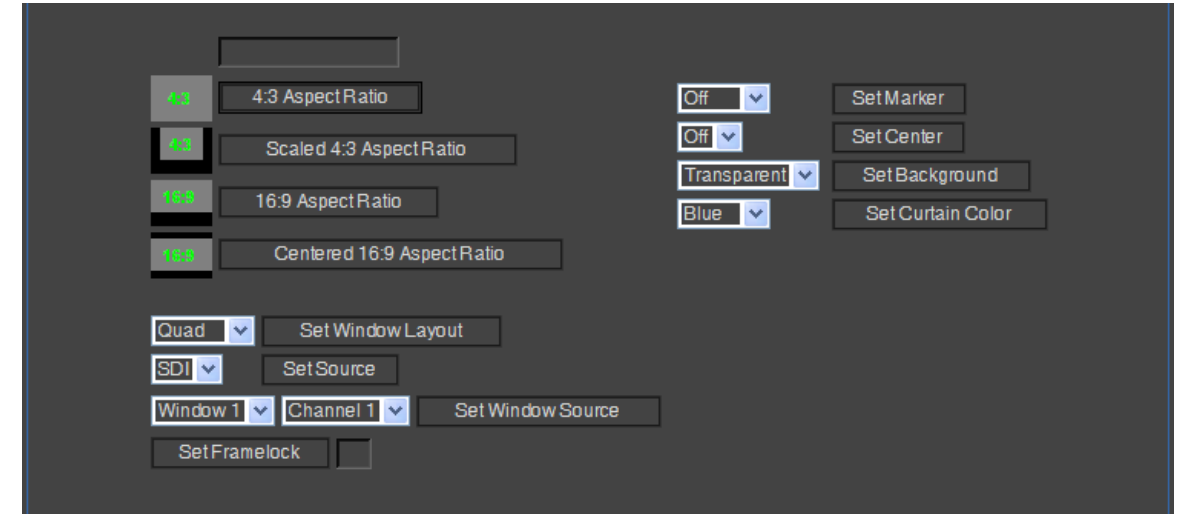
■ Monitor Configuration

The following settings are required on each IMD monitor:

IMD Protocol: **MEI**
 IMD Baud Rate: **57600**
 ID#: **Each monitor must have a unique ID# for remote control of individual monitors.**

Window Settings

The Window Settings page is shown below:

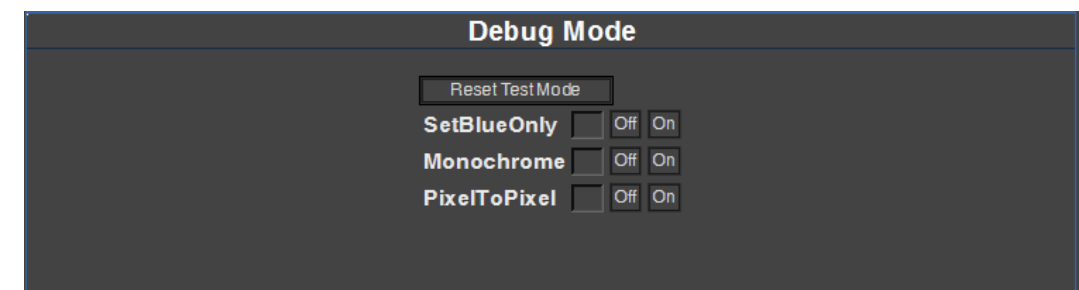


Use the buttons and menus shown above for the following settings:

- **Aspect Ratio** – Set the Aspect Ratio of a screen to 4:3, Scaled 4:3, 16:9 and Centered 16:9.
- **Screen Markers** – Set the display screen markers to Off, 95%, 93%, 90%, 88%, 80%, 1.85:1, 2.35:1, 4:3, 14:9, 13:9.
- **Set Background** – Set the background transparency of the Screen Markers to Transparent, 50% Gray or Black.
- **Curtain Color** – Set the curtain color to White, Black, Blue, Red or Green.
- **Window Layout** – Set the window layout of QV (Marshall Electronics' line of Quad Viewer monitors) to Single, Quad, HPOP3, VPOP3, or DUAL. You may also set DLW (Marshall Electronics' line of Waveform / Vectorscope capable monitors) to MULTI, VECTOR, or WAVE mode. Please check the Operating Instructions of your monitor to determine if you have access to this setting.
- **Source** – Set a select channel to display from either the SDI, DVI or SDI2 input. Please check the Operating Instructions of your monitor to determine if you have access to this setting.
- **Window Source** – Set the arrangements of your Channel inputs to a particular window. Please check the Operating Instructions of your monitor to determine if you have access to this setting.
- **Framelock** – Set a Framelock reference channel from your monitor. This setting is determined by the selected Channel in the Window Source setting.

Debug Mode

The Debug Mode page is shown below:



Use the buttons above to send the following commands:

- **Reset Test Mode** – This command turns Blue mode, Monochrome Mode, and PixelToPixel mode OFF.

Protocol Pass-Through Status

On the bottom of the frame, three windows show the protocol, pass-through and baud-rate status:

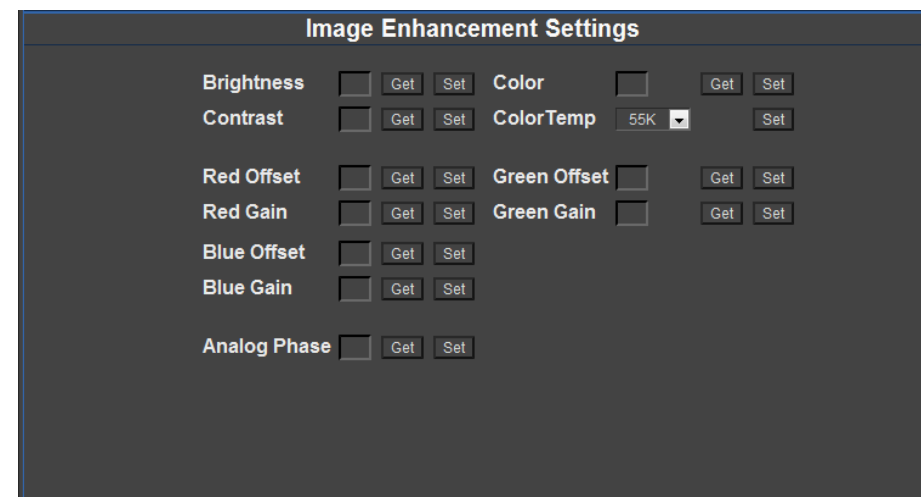
- The first window displays “Image Video Protocol” or “TSL Protocol,” according to which protocol is selected for pass-through in the OSD Configuration & IMD page.
- The second window displays “Pass-Through: ON” or “Pass-Through: OFF,” according to the pass-through setting in the OSD Configuration & IMD page.
- The third window displays the Baud Rate of the protocol selected in the first window.

Display

The Display tab on the NCB-2010 Web Interface menu allows access to the Image Enhancement settings, Window adjustment settings and the image Debug options. .

Image Enhancement

The Window Management page is shown below:



Use the buttons and menus shown above for the following settings:

- **Brightness, Contrast and Color Value (0-100)** – Use the SET command to assign a fixed value to the corresponding control. Use the GET command to read the current value of a control.
- **ColorTemp Setting** – Set the color temperature preset.
- **Red / Blue / Green Gain and Offset Value (0-100)** – Use the SET command to assign a fixed value to the Red, Blue or Green Gain or Offset of the image. Use the GET command to read the current value of a control.
- **Analog Phase (0-31)** – Use the SET command to assign a fixed value to the Analog Phase command. Appropriate values range from 0-31. This setting will ONLY work with monitors with DVI-I inputs. Please see your monitors Operating Instructions for more information.

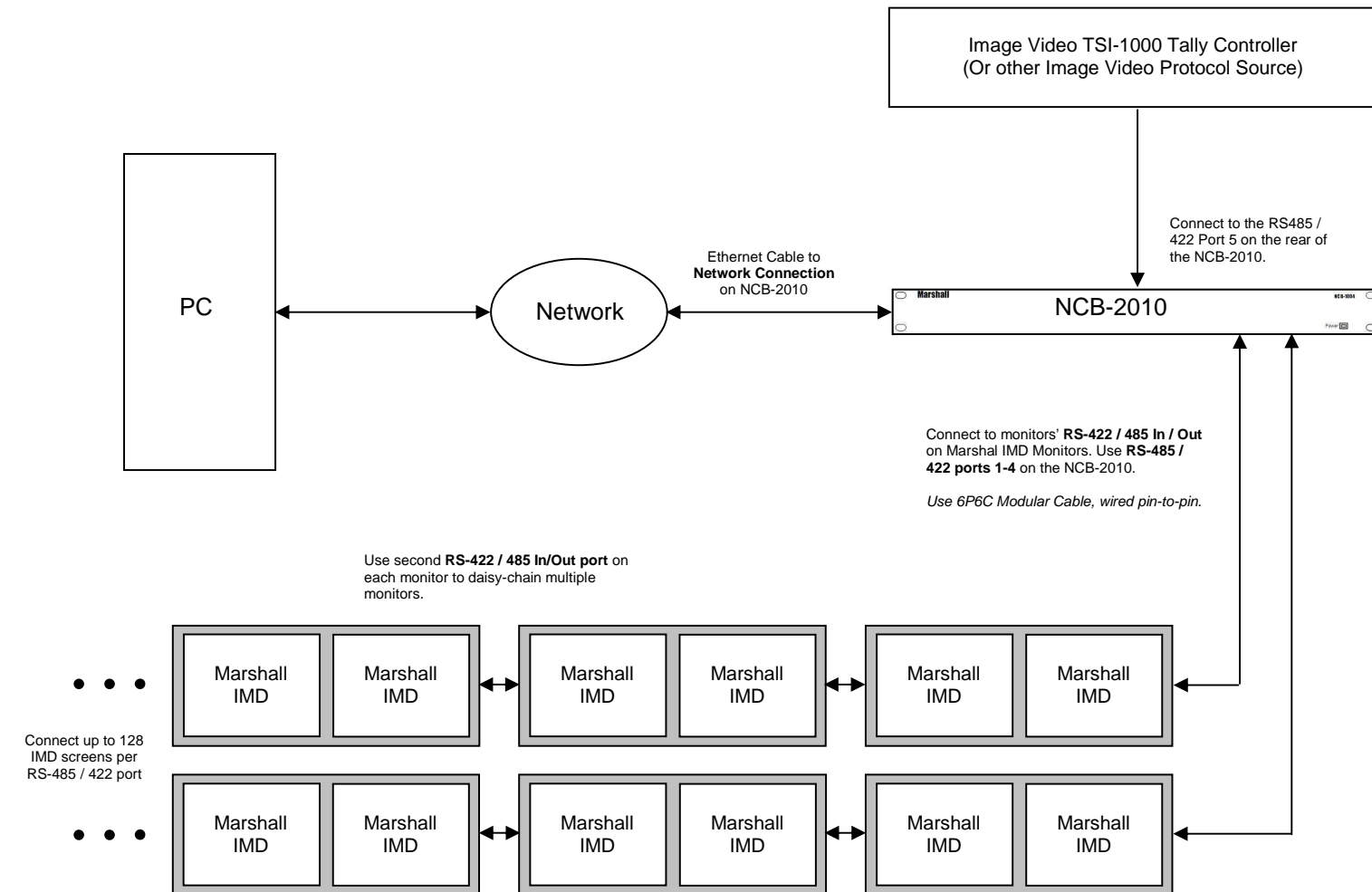
System Configuration (continued)

Remote Control with Image Video Pass-Through

Overview

Use the following configuration for basic remote control of Marshall IMD series monitors, while also passing through Image Video protocol. This setup allows remote control of the IMD monitor and pass-through of Image Video text and tally commands from an Image Video TSI-1000 or other Image Video protocol source.

Wiring Diagram



Monitor Configuration

The following settings are required on each IMD monitor:

IMD Protocol:	MEI-Image Video
IMD Baud Rate:	57600
ID#:	Each monitor's ID# will be set automatically by Image Video controller.
IMD Name (S/N):	Each monitor must have a unique string in this field.

In this configuration, Pass-Through must be set to “ON” and to “Image Video” in the OSD Settings page of the web interface.

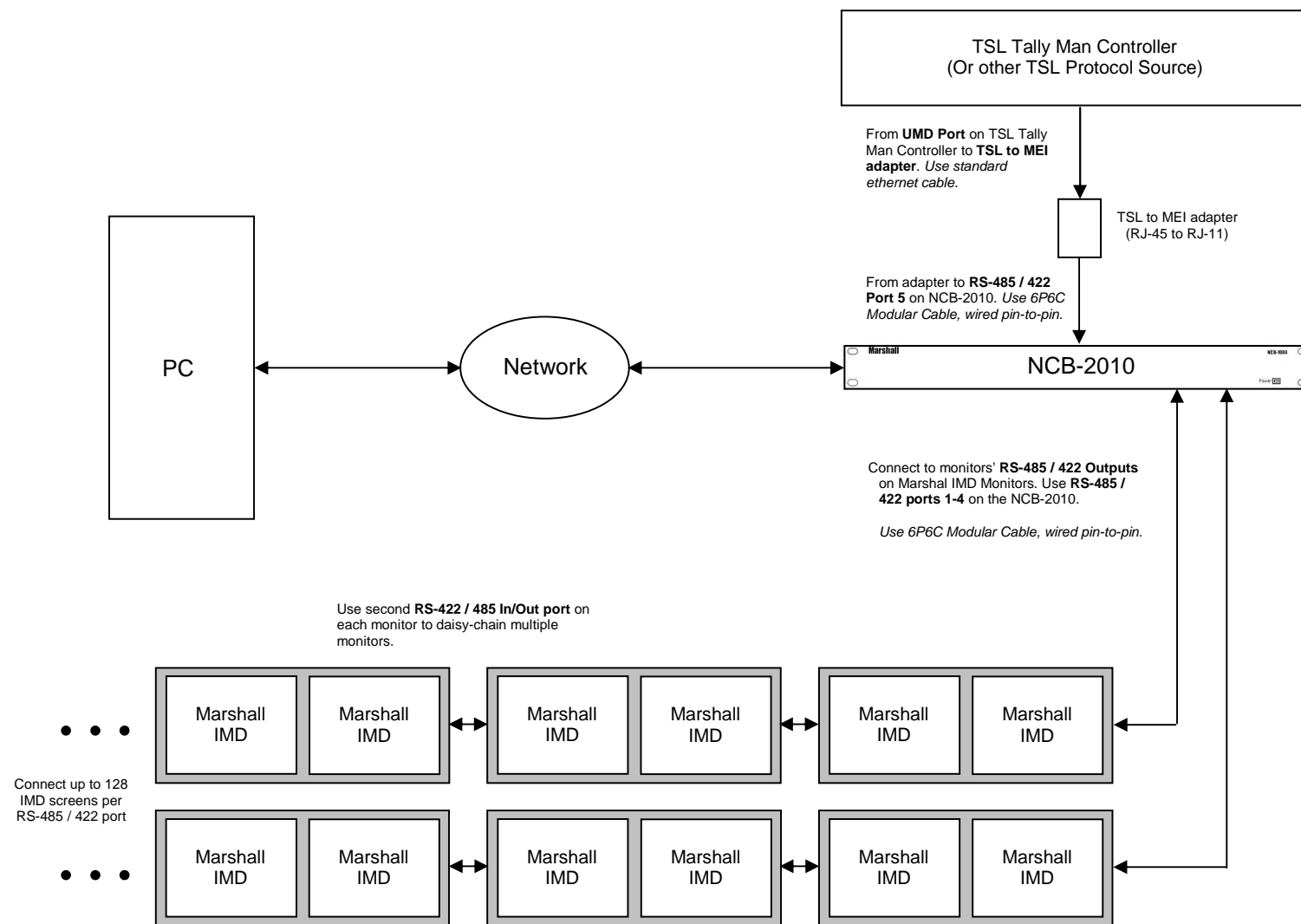
System Configuration (continued)

Remote Control with TSL Pass-Through

Overview

Use the following configuration for basic remote control of Marshall IMD series monitors, while also passing through TSL v3.1/v4.0 protocol. This setup allows remote control of the IMD monitor along with pass-through of TSL text and tally commands from a TSL Tally Man controller or other TSL protocol source.

Wiring Diagram



Monitor Configuration

The following settings are required on each IMD monitor:

IMD Protocol: **MEI**
 IMD Baud Rate: **57600**
 ID#:

Each monitor must have a unique ID# for remote control of individual monitors.

In this configuration, Pass-Through must be set to "ON" and to "TSL" in the OSD Settings Page of the web interface.

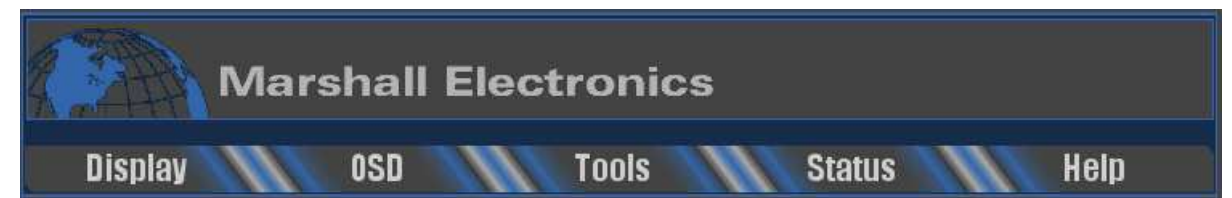
Web Interface

Overview

The web interface is used to operate the NCB-2010. Once the NCB-2010 is connected to a network, access the web interface by entering the units IP address in any web browser on any computer on the network. The web interface allows remote control of all on-screen menu features of individual monitors or all monitors connected, controls the pass-through of Image Video or TSL protocol, and allows for configuration of the NCB-2010 network settings.

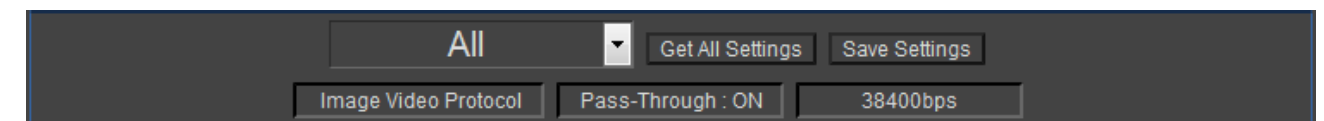
NCB-2010 Web Interface Menu

The NCB-2010 Web Interface Menu allows for quick navigation of all of the NCB-2010's feature and configuration options.



Target Monitor

The target monitor frame is always visible at the bottom of the NCB-2010 web interface page.



Target Monitor

In the Pull Down menu, choose which monitors to address:

- When the "All" option is selected, all commands will be globally sent to all IMD monitors connected to the NCB-2010.
- When the specific monitor ID option is selected, all commands will be sent only to the IMD monitor with the ID# in the adjacent field.

Note that to control individual monitors, each monitor must be pre-assigned a unique ID#. Also note that GET commands do not work in "All" mode.

Get All Settings

Click the Get All Settings button to force the NCB-2010 to recall all settings for a Target Monitor. This includes the Current ID Name, Software Version, Protocol Version, etc. When used with the All text in the Target Monitor section, any updates in the Network Control Box Info page (Web version, Protocol version, etc.) will be gathered and updated.

Save Settings

Click the Save Settings button to force the NCB-2010 to save all settings changed on the NCB-2010. The NCB-2010 also automatically saves any changes in the system every hour when on.