

# **860 DSP & 860 DSPi Multifunction Interactive Cable Analyzer**

## **Section IV: Setup Functions**

# Setup Function Overview



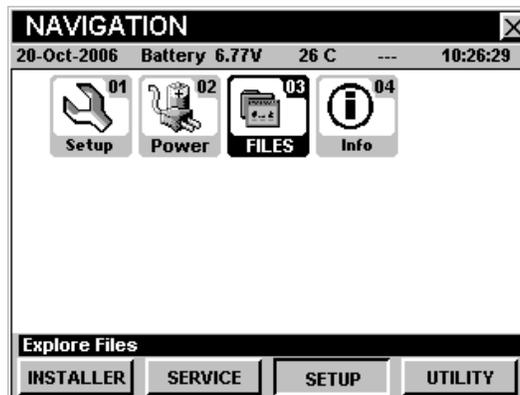
## Introduction

The instrument enables you to select from numerous instrument setup and procedures. The instruments features several Setup Functions which come with the instruments and may have one or more optional functions.

This section will provide you with instructions on how to utilize the functions available in the **Setup** Menu of the instrument:



**Note:** The labels and the arrangement of the icons in this section are the default settings of the instrument. The user's display appearance may be customized and therefore may differ from the **Setup** menu shown in this section. WorkBench software is required for customizing. See the WorkBench operation manual for more details.



Mode	Description	860 DSP Option	860 DSPi Option
 Instrument Setup	Allows you set the general preferences for data display and data functionality.	Standard	Standard
 Power Management	Allows you to change power management settings for Power Scheme, Processor Speed, Backlight Level, Unit Off Timer and Backlight Timer.	Standard	Standard

Mode	Description	860 DSP Option	860 DSPi Option
 File Explorer	Allows you to perform file maintenance functions such as previewing and deleting files.	Standard	Standard
 Instrument Information	Provides information about the 860 DSPi system's operation capabilities.	Standard	Standard

Each mode of the instrument can be accessed by selecting the corresponding icon as shown in the previous table. Some modes may be inaccessible based on the options that have been installed on the instrument. Optional modes for the 860 DSP and 860 DSPi are indicated by an option code that is described in detail in **Section I: The Basics, Chapter 7: Optional Software and Hardware**.

This section assumes you are at least familiar with the basic operation of the navigational tools used in the instrument, so be sure to review **Section I: The Basics, Chapter 4: Basic Navigation** before proceeding through this section.



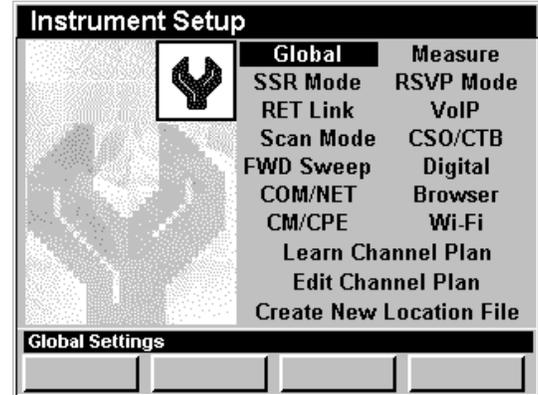
# Instrument Setup Mode



## Introduction

There are several settings that can be accessed from the **Instrument Setup** Mode. The basic 860 DSP and 860 DSPi come equipped with the **Instrument Setup** Mode as a standard feature.

To select the parameter that you wish to setup, use the ◀ ▶ buttons to highlight the desired setting and then press the **Ent** button.



**Note:** Although the instrument will cycle through the settings in order and this chapter follows that order, you **DO NOT** have to setup the parameters in this order.

When a setup parameter is selected, the instrument will display a new window to enter data by using the alphanumeric keypad or the ◀ ▶ ▲ ▼ buttons.



**Note:** If your instrument does not include all of the features shown in this chapter, go on-line to [www.trilithic.com](http://www.trilithic.com) to update your firmware for free. This will allow you to use all of the newest features that are included in this mode.



**Note:** All changes that are made in the **Instrument Setup** Mode, will take affect immediately unless otherwise noted.



**Note:** Depending on options installed on you instrument, you may not need to setup all the parameters shown. Optional setup items will be “grayed out” if you do not have them installed on your instrument. To view the installed functions on your instrument, see Chapter 5: Instrument Information Mode.



**Note:** It is possible to lock users out of the **Instrument Setup** Mode by using the WorkBench Software.



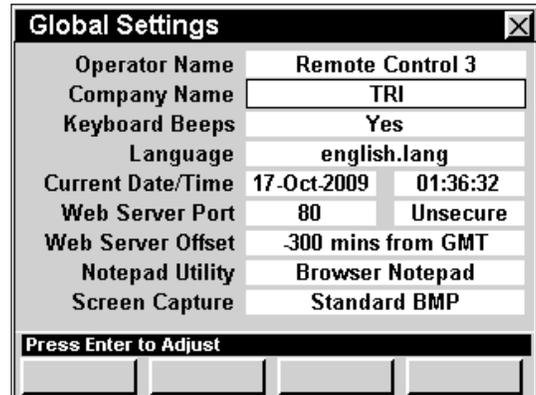
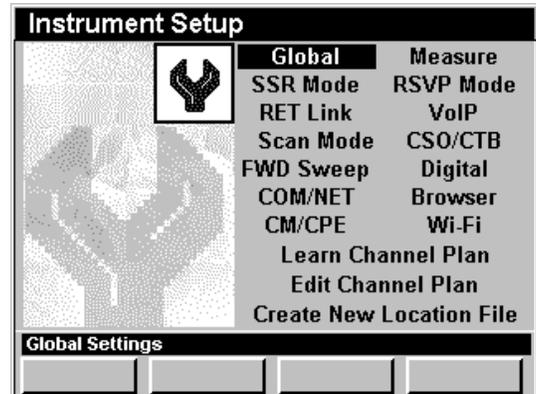
## Global Settings

This section will show you how to adjust your instrument's **Global Settings**. The **Global Settings** window allows you to assign various global characteristics to your instrument. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Global Settings** including:

- Operator Name
- Company Name
- Keyboard Beeps
- Current Language
- Current Date and Time
- Web Server Port
- Web Server Port Security
- Web Server Offset
- Notepad Utility
- Screen Capture





## Operator Name

The **Operator Name** setting allows you to personalize your instrument with your name. It will be displayed on the introduction screen when your instrument is turned on. This information will also be added to every data log.

To change the operator name, use the ◀ ▶ buttons to highlight the **Operator Name** field, press the **Ent** button, enter the operator name using the alphanumeric keypad, and then press the **Ent** button. As many as 32 characters can be entered, however only 24 characters will be displayed.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust

## Company Name

The **Company Name** setting allows you to personalize your instrument with your company's name. It will be displayed on the introduction screen when your instrument is turned on. This information will also be added to every data log.

To change the company name, use the ◀ ▶ buttons to highlight the **Company Name** field, press the **Ent** button, enter the company name using the alphanumeric keypad, and then press the **Ent** button.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust

## Keyboard Beeps

Your instrument is equipped with an audio speaker for you to hear various functions, including keyboard beeps whenever you push any button. The default for keyboard beeps is **YES**.

To change this setting, use the ◀ ▶ buttons to highlight the **Keyboard Beeps** field, and then use the **Ent** button and/or ▲ ▼ buttons to select **Yes** or **No**.

- Select **Yes** to hear the keyboard beeps.
- Select **No** to mute the keyboard beeps.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust



## Language

Your instrument can be equipped to work in various languages. The default language is English. Contact the factory for other language options.

If you have other language options available on your instrument, you can change the default language.

Use the ◀ ▶ buttons to highlight the **Language** field, and then use the Ent button or ▲ ▼ buttons to select the default language.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust



**Note:** You must restart your instrument for this change to take effect.

## Current Date

You can program your instrument to display the current date in the status bar of your display screen.

To change the current date, use the ◀ ▶ buttons to highlight the left-most field next to **Current Date/Time**, press the Ent button, enter the current date using the alphanumeric keypad, and then press the Ent button.

The date should be entered using the mm/dd/yyyy format.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust



**Note:** The date will automatically save once all of the numbers in the mm/dd/yyyy format are entered. If you enter an invalid date, the current date will not change.



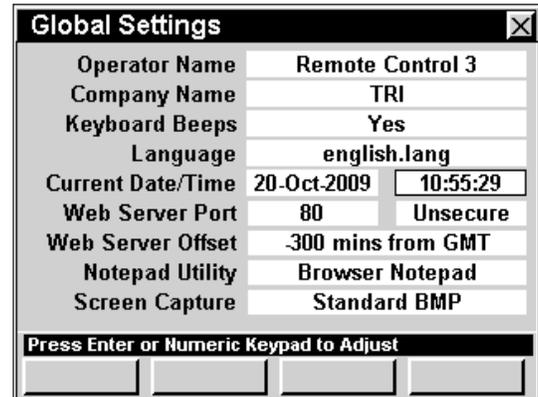
## Current Time

You can program your instrument to display the current time in the status bar of your display screen.

To change the current time, use the ◀ ▶ buttons to highlight the right-most field next to **Current Date/**

**Time**, press the Ent button, enter the current time using the alphanumeric keypad, and then press the Ent button.

The time should be entered using the hh:mm:ss format. Note that the time is in 24-hour, or military format.



**Note:** The time will automatically save once all of the numbers in the hh:mm:ss format are entered. If you enter an invalid time, the current time will not change.

## Web Server Port

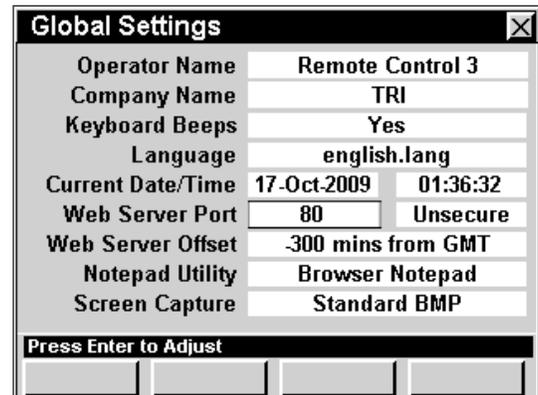
Your instrument may be equipped with **Remote Control Mode**.

The **Web Port** setting allows you to specify the port in which your instrument will be communicating with the network and if the port is Secure or Unsecure.

The web server default port is set to Port 80.

To change the web port, use the ◀ ▶ buttons to highlight the **Web Server Port** field, and use the ▲ ▼ buttons to increment the value by 1, or press the Ent button, enter the number of the desired web port using the alphanumeric keypad, and then press the Ent button.

To change the web port security, use the ◀ ▶ buttons to highlight the **Web Server Port** (Secure/Unsecure) field, and use the ▲ ▼ and/or Ent buttons to change the security of the web port.



**Note:** You must restart your instrument for this change to take effect.



## Web Server Offset

Web browser's uses Greenwich Mean Time (GMT) for the universal time while browsing Internet pages. This effects both the internal **Web Browser Mode** and **Remote Control Mode**.

The **Web Server Offset** setting allows you specify the time difference between your current time and GMT. The default is set for -300 minutes (5 hours behind GMT).

To change the web server offset, use the ◀ ▶ buttons to highlight the **Web Server Offset** field, and use the Ent or ▲ button to decrease the time difference in 5 minute increments or use the ▼ button to increase the time difference in 5 minute increments.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust

## Notepad Utility

Your instrument may be equipped with a legacy notepad and/or web browser notepad.

The **Notepad Utility** setting allows you specify the type of notepad to use. The default for the notepad is **Legacy Notepad**.

To change the type of notepad, use the ◀ ▶ buttons to highlight the **Notepad Utility** field, and use the Ent button and/or the ▲ ▼ buttons to change between **Legacy Notepad** and **Browser Notepad**.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust



**Note:** The **Legacy Notepad** can only open text files. Whereas, the **Browser Notepad** can open text files and HTML files.



## Screen Capture

The **Screen Capture** setting sets the file type for capturing and saving screen shots while using various measurement functions.

The following three file types are available:

- **Standard BMP** - Large file size.
- **Direct LCD** - Medium file size, approximately 50% smaller than **Standard BMP**.
- **Compressed BMPZ** - Very small file size, approximately 90% smaller than **Standard BMP**.

The default screen capture type is set to **Compressed BMPZ**.

To change the screen capture type, use the ◀ ▶ buttons to highlight the **Screen Capture** field, and use the Ent button and/or the ▲ ▼ buttons to change between **Standard BMP**, **Direct LCD**, and **Compressed BMPZ**.

Global Settings	
Operator Name	Remote Control 3
Company Name	TRI
Keyboard Beeps	Yes
Language	english.lang
Current Date/Time	17-Oct-2009 01:36:32
Web Server Port	80 Unsecure
Web Server Offset	-300 mins from GMT
Notepad Utility	Browser Notepad
Screen Capture	Standard BMP

Press Enter to Adjust



**Note:** Choosing a smaller file size will allow you to save more screen captures on you instrument at any one time.



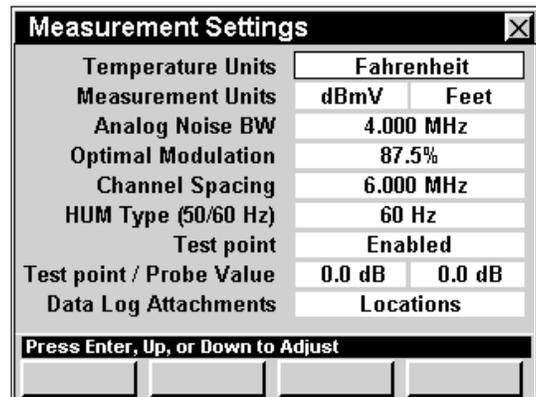
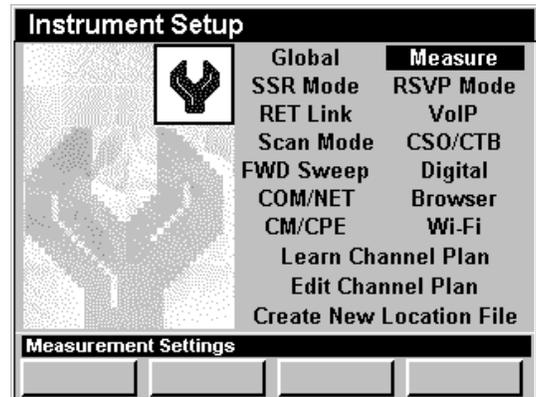
## Measurement Settings

This section will show you how to adjust your instrument's **Measurement Settings**. The **Measurement Settings** window allows you to assign various measurement characteristics to your instrument. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

This section will provide you with a basic understanding of how to modify the **Measurement Settings** including:

- Temperature Units
- Measurement Units
- Analog Noise BW
- Optimal Modulation
- Channel Spacing
- Hum Type (50/60 Hz)
- Screen Capture Type
- Test point
- Test point / Probe Value
- Data Log Attachments





## Temperature Units

Your instrument is equipped to display temperature readings in two temperature units; **Celsius** or **Fahrenheit**. The default unit for temperature is **Celsius**.

To change the temperature units, use the buttons to highlight the **Temperature Units** field, and use the button and/or the buttons to change between **Celsius** and **Fahrenheit**.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input checked="" type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB   0.0 dB
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>

## Measurement Units

Your instrument is equipped to display three different measurement units; **dBmV**, **dBμV**, and **dBm** in either **feet** or **meters**. The default unit for measurement is **dBmV**.

To change the **dBmV**, **dBμV**, and **dBm** measurement units, use the buttons to highlight the **Measurement Units** field, and use the button and/or the buttons to change between **dBmV**, **dBμV**, and **dBm**.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input checked="" type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB   0.0 dB
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>

To change the **feet** and **meter** measurement units, use the buttons to highlight the **Measurement Units** field, and use the button and/or the buttons to change between **feet** and **meter**.

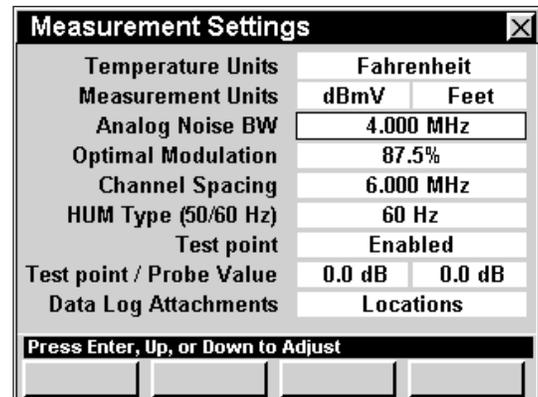
Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input checked="" type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB   0.0 dB
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>



## Analog Noise BW

The **Analog Noise BW** setting is the noise bandwidth used when computing C/N for analog TV channels. The default analog noise bandwidth is **4.000 MHz**.

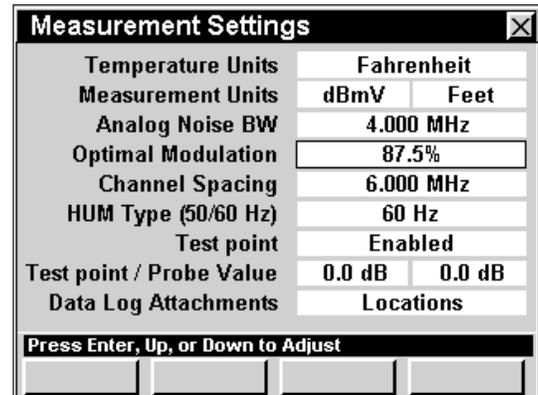
To change the analog noise bandwidth, use the buttons to highlight the **Analog Noise BW** field, and use the buttons to change the bandwidth in 0.05 MHz increments, or press the button, enter the bandwidth using the alphanumeric keypad, and then press the button.



## Optimal Modulation

The **Optimal Modulation** setting sets the marker on the % modulation bar graph. It is also used to compute signal level in SECAM L. The default percent modulation is set at **87.5%**.

To change the optimal modulation, use the buttons to highlight the **Optimal Modulation** field, and use the or button to increase the percent modulation in 0.1% increments or use the button to decrease the percent modulation in 0.1% increments.





## Channel Spacing

The **Channel Spacing** setting is used as one of the frequency step sizes you can select when tuning by frequency. The default channel spacing frequency is **6 MHz**.

To change the channel spacing, use the ◀ ▶ buttons to highlight the **Channel Spacing** field, and use the Ent or ▲ button to change the channel spacing in 0.025 MHz increments or press the Ent button, enter the channel spacing using the alphanumeric keypad, and then press the Ent button again.

## Hum Type (50/60 Hz)

This frequency is used when measuring power line related Hum. You can set the AC power frequency for either **50** or **60 Hz**. The default AC power frequency is **60 Hz**.

To change the number of AC power frequency, use the ◀ ▶ buttons to highlight the **Hum Type (50/60 Hz)** Field, and use the Ent or ▲ ▼ buttons to change between **50** and **60 Hz**.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	dBmV   Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB   0.0 dB
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	dBmV   Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB   0.0 dB
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	



## Test point

The **Test point** setting allows you to enable and disable the constant offset that will be added to all measurements made in **Level, QAM, Tilt, Scan, Spectrum Analyzer, C/N,** and **CSO/CTB** Modes in order to have the unit automatically adjust the data to overcome test point losses. The default setting is **Disabled**.

To enable and disable test point compensation, use the buttons to highlight the **Test point** field, and use the button and/or the buttons to change between **Disabled** and **Enabled**.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	<input checked="" type="checkbox"/> Enabled
Test point / Probe Value	<input type="text" value="0.0 dB"/> <input type="text" value="0.0 dB"/>
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>

## Test point / Probe Value

The **Test point / Probe Value** setting allows you to set the constant offset for the test point and/or probe that will be added to all measurements made in **Level, QAM, Tilt, Scan, Spectrum Analyzer, C/N,** and **CSO/CTB** Modes in order to have the unit automatically adjust the data to overcome test point losses. The default settings are **0.0 dB**.

To change the offset value for the test point, use the buttons to highlight the left-most field next to **Test point / Probe Value**, use the or button to increase the offset value in 0.1 dB increments or use the button to decrease the offset value in 0.1 dB increments.

To change the offset value for the probe, use the buttons to highlight the right-most field next to **Test point / Probe Value**, use the or button to increase the offset value in 0.1 dB increments or use the button to decrease the offset value in 0.1 dB increments.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	<input type="checkbox"/> Enabled
Test point / Probe Value	<input type="text" value="0.0 dB"/> <input type="text" value="0.0 dB"/>
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	<input type="checkbox"/> dBmV <input type="checkbox"/> Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	<input type="checkbox"/> Enabled
Test point / Probe Value	<input type="text" value="0.0 dB"/> <input type="text" value="0.0 dB"/>
Data Log Attachments	Locations
Press Enter, Up, or Down to Adjust	
<input type="text"/>	<input type="text"/>



## Data Log Attachments

The **Data Log Attachments** setting allows you to choose whether to assign a location and/or task to any data logs that you wish to save. The default setting is **None**.

To choose whether to assign a location and/or task to any data logs that you wish to save, use the ◀ ▶ buttons to highlight the **Data Log Attachments** field, and use the Ent button and/or the ▲ ▼ buttons to change between **None**, **Locations**, **Tasks**, and **Locations+Tasks**.

Measurement Settings	
Temperature Units	Fahrenheit
Measurement Units	dBmV    Feet
Analog Noise BW	4.000 MHz
Optimal Modulation	87.5%
Channel Spacing	6.000 MHz
HUM Type (50/60 Hz)	60 Hz
Test point	Enabled
Test point / Probe Value	0.0 dB    0.0 dB
Data Log Attachments	Locations

Press Enter, Up, or Down to Adjust



**Note:** For more information on saving data logs, see **Section I: The Basics**, [Chapter 6: Basic Function Menu Options](#), [Save Data Log](#).



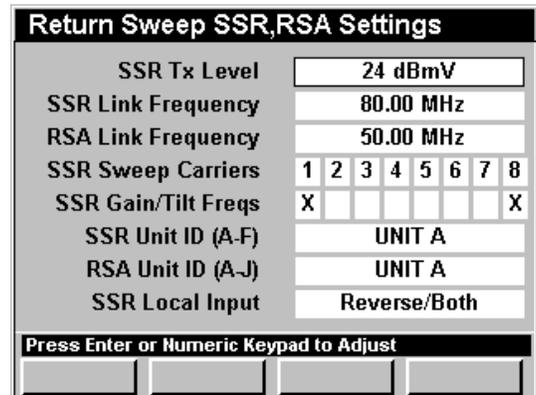
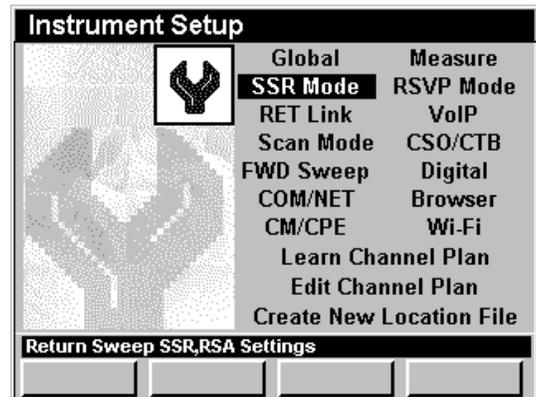
## SSR Mode Settings

This section will show you how to adjust your instrument's **SSR Mode Settings**. The **Return Sweep Settings** window allows you to assign return sweep settings to your instrument. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **SSR Mode Settings** including:

- SSR Tx Level
- SSR Link Frequency
- RSA Link Frequency
- SSR Sweep Carriers
- SSR Gain/Tilt Frequencies
- SSR Unit ID (A-F)
- RSA Unit ID (A-J)
- SSR Local Input



**Note:** SSR Mode is an optional function of the 860 DSP and 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **SSR Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.





## RSA Link Frequency

The RSA in the hub communicates with field units via a downstream “link” carrier. The frequency of this carrier is set at the hub, and the **RSA Link** setting of the 860 DSP or 860 DSPi must match it. The default link frequency is **80.00 MHz**.

To set the 860 DSP or 860 DSPi to receive the “link” carrier, use the ◀ ▶ buttons to highlight the **RSA Link Frequency** field, and use the ▲ ▼ buttons to change the link frequency in 0.05 MHz increments, or press the Ent button, enter the link frequency using the alphanumeric keypad, and then press the Ent button.

Return Sweep SSR,RSA Settings								
SSR Tx Level	24 dBmV							
SSR Link Frequency	80.00 MHz							
RSA Link Frequency	50.00 MHz							
SSR Sweep Carriers	1	2	3	4	5	6	7	8
SSR Gain/Tilt Freqs	X							X
SSR Unit ID (A-F)	UNIT A							
RSA Unit ID (A-J)	UNIT A							
SSR Local Input	Reverse/Both							
Press Enter or Numeric Keypad to Adjust								





## SSR Unit ID (A-F)

Up to six field units may communicate with a particular SST at one time. Each unit is identified by a single character, “A” through “F”. No two units connected to the same SST can use the same ID character.

To set the unit ID, use the ◀ ▶ buttons to highlight the **SSR Unit ID (A-F)** field, and use the Ent button and/or the ▲ ▼ buttons to cycle through the desired unit ID.

Return Sweep SSR,RSA Settings								
SSR Tx Level	24 dBmV							
SSR Link Frequency	80.00 MHz							
RSA Link Frequency	50.00 MHz							
SSR Sweep Carriers	1	2	3	4	5	6	7	8
SSR Gain/Tilt Freqs	X							X
SSR Unit ID (A-F)	UNIT A							
RSA Unit ID (A-J)	UNIT A							
SSR Local Input	Reverse/Both							
Press Enter, Up, or Down to Adjust								
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>								



**Note:** Trilithic RSVP Installer Reverse Testers, 860 DSPs, and 860 DSPi's running the **RSVP** Mode always have the Unit ID of **Unit F**. If you have any of these devices running the **RSVP** Mode on your system, **DO NOT** set the **SSR Unit ID** to **Unit F**.

## RSA Unit ID (A-J)

Up to 10 field units may communicate with a particular RSA at one time. Each unit is identified by a single character, “A” through “J”. No two units connected to the same RSA can use the same ID character.

To set the unit ID, use the ◀ ▶ buttons to highlight the **RSA Unit ID (A-J)** field, and use the Ent button and/or the ▲ ▼ buttons to cycle through the desired unit ID.

Return Sweep SSR,RSA Settings								
SSR Tx Level	24 dBmV							
SSR Link Frequency	80.00 MHz							
RSA Link Frequency	50.00 MHz							
SSR Sweep Carriers	1	2	3	4	5	6	7	8
SSR Gain/Tilt Freqs	X							X
SSR Unit ID (A-F)	UNIT A							
RSA Unit ID (A-J)	UNIT A							
SSR Local Input	Reverse/Both							
Press Enter, Up, or Down to Adjust								
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>								



## SSR Local Input

When using the **Compare** Function in **SSR Mode** the 860 DSP or 860 DSPi needs access to both the upstream and downstream path.

The downstream connection allows the instrument to receive the link data carrier from the SST in the hub; the reverse connection is used to inject reverse sweep signals.

The SSR Local Input selects which connector the instrument will use to sample the Local Ingress in order to compare it against the SST Ingress Sample taken at the head end.

The 860 DSP or 860 DSPi can accommodate either arrangement.

To set the local input, use the buttons to highlight the **SSR Local Input** field, and use the button and/or the buttons to change between **SLM / Forward** or **Reverse / Both**.

Return Sweep SSR, RSA Settings								
SSR Tx Level	24 dBmV							
SSR Link Frequency	80.00 MHz							
RSA Link Frequency	50.00 MHz							
SSR Sweep Carriers	1	2	3	4	5	6	7	8
SSR Gain/Tilt Freqs	X							X
SSR Unit ID (A-F)	UNIT A							
RSA Unit ID (A-J)	UNIT A							
SSR Local Input	Reverse/Both							
Press Enter, Up, or Down to Adjust								



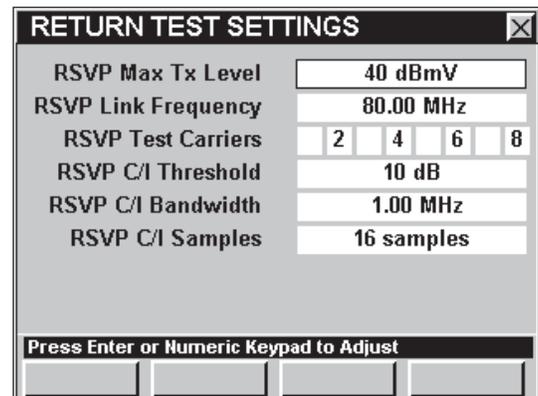
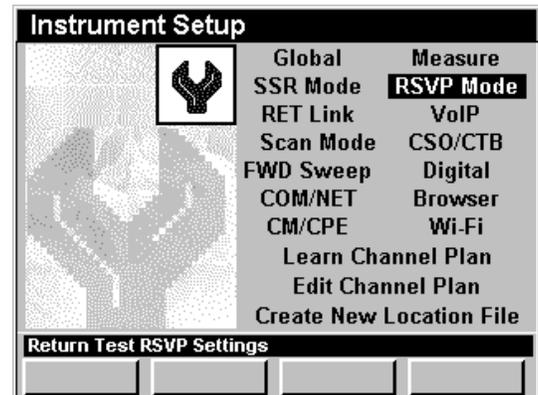
## RSVP Mode Settings

This section will show you how to adjust your instrument's **RSVP Mode Settings**. The **Return Test Settings** window allows you to assign return test settings to your instrument. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **RSVP Mode Settings** including:

- RSVP Max Tx Level
- RSVP Link Frequency
- RSVP Test Carriers
- RSVP C/I Threshold
- RSVP C/I Bandwidth
- RSVP C/I Samples



**Note:** RSVP Mode is an optional function of the 860 DSP and 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **RSVP Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.



## RSVP Maximum Tx Level

The maximum acceptable level of the test signals transmitted to an SST by the 860 DSP or 860 DSPi can be set between **20 dBmV** and **55 dBmV**. During the RSVP test, the 860 DSP or 860 DSPi determines what level is needed to communicate with the SST in the hub. The default maximum transmit level is **40 dBmV**.

Transmit levels that exceed the **RSVP Max Tx Level** setting are an indication of reverse path transmission problems, and will cause a **FAIL** message.

To change the maximum acceptable level of the test signals transmitted to an SST by the 860 DSP or 860 DSPi, use the ◀ ▶ buttons to highlight the **RSVP Max Tx Level** field, and use the ▲ ▼ buttons to change the value in 1 dBmV increments, or press the **Ent** button, enter the maximum signal level using the alphanumeric keypad, and then press the **Ent** button.

RETURN TEST SETTINGS	
RSVP Max Tx Level	40 dBmV
RSVP Link Frequency	80.00 MHz
RSVP Test Carriers	2 4 6 8
RSVP C/I Threshold	10 dB
RSVP C/I Bandwidth	1.00 MHz
RSVP C/I Samples	16 samples

Press Enter or Numeric Keypad to Adjust



**Note:** For tests using **RSVP** Mode to be accurate, it is necessary to set the reference level of the SST in the hub to the appropriate level. Consult your Guardian SST manual for more details.



## RSVP Link Frequency

The SST in the hub communicates with field units via a downstream “link” carrier. The frequency of this carrier is set at the hub, and the **RSVP Link Frequency** setting in the 860 DSP or 860 DSPi must match it. The default link frequency is set to **80.00 MHz**.

To set the 860 DSP or 860 DSPi to receive the “link” carrier, use the ◀ ▶ buttons to highlight the **RSVP Link Frequency** field, and use the ▲ ▼ buttons to change the value in 0.05 MHz increments, or press the Ent button, enter the link frequency using the alphanumeric keypad, and then press the Ent button.

RETURN TEST SETTINGS	
RSVP Max Tx Level	40 dBmV
RSVP Link Frequency	80.00 MHz
RSVP Test Carriers	2 4 6 8
RSVP C/I Threshold	10 dB
RSVP C/I Bandwidth	1.00 MHz
RSVP C/I Samples	16 samples

Press Enter or Numeric Keypad to Adjust



**Note:** If the **SSR Mode** and **RSVP Mode** are installed on your instrument, the link frequency can be set to different frequencies, one for **SSR Mode** and one for **RSVP Mode**.

## RSVP Test Carriers

The **RSVP Mode** transmits up to eight test signals at frequencies which are set in the SST in the hub. The settings are transmitted to field units as part of the regular data transmissions at the **RSVP Link Frequency**. All of the frequencies can be active during a test, but it is more usual for a smaller number to be active.

To set the test carriers, use the ◀ ▶ buttons to highlight the **SSR Test Carriers** field, and use the Ent button and/or the ▲ ▼ buttons to change between **ON** (number displayed) or **OFF** (blank, no number displayed).

RETURN TEST SETTINGS	
RSVP Max Tx Level	40 dBmV
RSVP Link Frequency	80.00 MHz
RSVP Test Carriers	2 4 6 8
RSVP C/I Threshold	10 dB
RSVP C/I Bandwidth	1.00 MHz
RSVP C/I Samples	16 samples

Press Enter, Up, or Down to Adjust



## RSVP C/I Threshold

The **RSVP C/I Threshold** sets the limit that **RSVP Mode** will use to determine if the Carrier/ (Noise + Ingress) ratio is acceptable (**PASS**) or inadequate (**FAIL**). You can select from **1 to 80 dB**. The default threshold value is set to **10 dB**.

To set the threshold, use the ◀ ▶ buttons to highlight the **RSVP C/I Threshold** field, and use the ▲ ▼ buttons to change the value in 1 dB increments, or press the **Ent** button, enter the threshold value using the alphanumeric keypad, and then press the **Ent** button.

RETURN TEST SETTINGS				
RSVP Max Tx Level	40 dBmV			
RSVP Link Frequency	80.00 MHz			
RSVP Test Carriers	2	4	6	8
RSVP C/I Threshold	10 dB			
RSVP C/I Bandwidth	1.00 MHz			
RSVP C/I Samples	16 samples			
Press Enter, Up, or Down to Adjust				



**Note:** The **RSVP C/I Threshold** is typically set for the desired C/I for the set top or cable modems that you use.

## RSVP C/I Bandwidth

Ingress measurements, like noise measurements, are typically referenced to a particular measurement bandwidth. Your instrument can be set to automatically perform this correction. You can select from **0.100 to 8.00 MHz**. The default bandwidth value is set to 1.00 MHz.

To set the bandwidth, use the ◀ ▶ buttons to highlight the **RSVP C/I Bandwidth** field, and use the ▲ ▼ buttons to change the value in 0.10 MHz increments, or press the **Ent** button, enter the bandwidth value using the alphanumeric keypad, and then press the **Ent** button.

RETURN TEST SETTINGS				
RSVP Max Tx Level	40 dBmV			
RSVP Link Frequency	80.00 MHz			
RSVP Test Carriers	2	4	6	8
RSVP C/I Threshold	10 dB			
RSVP C/I Bandwidth	1.00 MHz			
RSVP C/I Samples	16 samples			
Press Enter, Up, or Down to Adjust				



**Note:** The **RSVP C/I Bandwidth** is typically set for the desired C/I for the set top or cable modems that you use.



## RSVP C/I Samples

To improve the repeatability of measurements, the instrument repeats the C/I measurement from 8 to 16 times and averages the data before comparing it to the **RSVP C/I Threshold**. The default number of samples is **16 samples**.

The number of samples is settable. Lower numbers give test results the most quickly. Larger values offer more measurement stability at the cost of more measurement time.

To set the number of samples, use the ◀ ▶ buttons to highlight the **RSVP C/I Samples** field, and then use the **Ent** button and/or the ▲ ▼ buttons to change the value in 1 sample increments.

RETURN TEST SETTINGS				
RSVP Max Tx Level	40 dBmV			
RSVP Link Frequency	80.00 MHz			
RSVP Test Carriers	2	4	6	8
RSVP C/I Threshold	10 dB			
RSVP C/I Bandwidth	1.00 MHz			
RSVP C/I Samples	16 samples			

Press Enter, Up, or Down to Adjust

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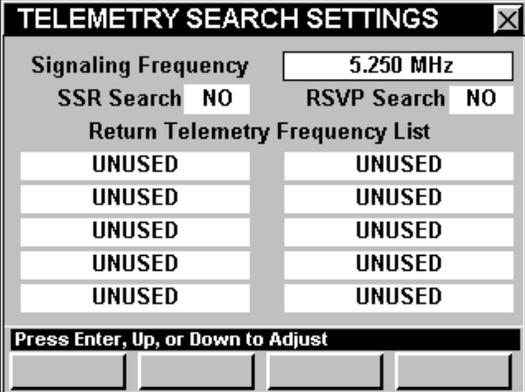
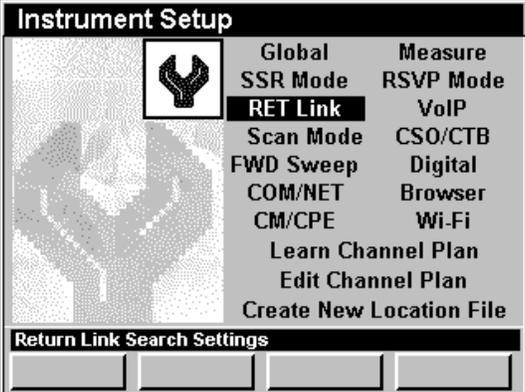
## RET Link Settings

This section will show you how to adjust your instrument's **RET Link Settings**. The **Telemetry Search Settings** window allows you to assign up to 10 link frequencies. There are two common methods for setting up a system with many 9581 SSTs. The first method uses a single common link frequency and the second method uses different telemetry frequencies in different parts of your system. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **RET Link Settings** including:

- Method 1 - Manual Link Frequency
- Method 2 - Automatic Return Telemetry Frequency Search
- RSVP Search (reserved for future use)



**Note:** **SSR Mode** and **RSVP Mode** are optional functions of the 860 DSP and 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **SSR Mode** or **RSVP Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order these options and start using them today.



## Method 1 - Manual Link Frequency

The first method uses the settings from the **SSR Mode** or **RSVP Mode** Settings and the Return Telemetry Frequencies should be set to **UNUSED**. This way all head end units transmit their telemetry data on a single frequency no matter what node you are on in your system. In this configuration, you can pre-configure the instrument with the single frequency and it will work anywhere in your system.

TELEMETRY SEARCH SETTINGS			
Signaling Frequency	5.250 MHz		
SSR Search	NO		
RSVP Search	NO		
Return Telemetry Frequency List			
UNUSED	UNUSED		
Press Enter, Up, or Down to Adjust			



## Method 2 - Automatic Return Telemetry Frequency Search

The second method works by the instrument signaling the 9581 SST on the signaling telemetry frequency and looking at each data stream for this signal to appear. Once a signal is found, that telemetry frequency is made the current default frequency and the unit uses it.

To enable the automatic frequency search, you must first enter a return telemetry frequency.

To enter a return telemetry frequency, use the buttons to highlight any of the **Return Telemetry Frequency List** fields, use the buttons to change the value in 0.05 MHz increments, or press the button, enter the value using the alphanumeric keypad, and then press the button. You can choose from **50 MHz to 92 MHz**.

To set the return telemetry frequency to **UNUSED**, press the button, press the button, and then press the button.

Once you have entered at least one return telemetry frequency, use the buttons to highlight the **SSR Search** field, and then use the button and/or the buttons to change between **Yes** and **No**.

TELEMETRY SEARCH SETTINGS	
Signaling Frequency	5.250 MHz
SSR Search	NO
RSVP Search	NO
Return Telemetry Frequency List	
92.00 MHz	UNUSED
UNUSED	UNUSED
Press Enter or Numeric Keypad to Adjust	

TELEMETRY SEARCH SETTINGS	
Signaling Frequency	5.250 MHz
SSR Search	YES
RSVP Search	NO
Return Telemetry Frequency List	
92.00 MHz	UNUSED
UNUSED	UNUSED
SST-9581 R4 Normal Mode Only	



**Note:** The SSR Search method only works in **SSR** Mode using the 9581 SST with R4 firmware.



**Note:** The RSVP Search method is not currently supported.



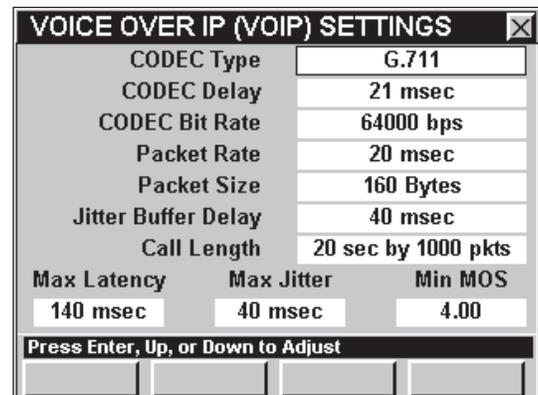
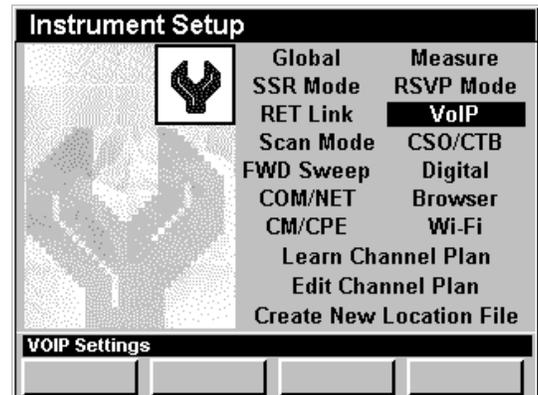
## VoIP Settings

This section will show you how to adjust your instrument's **VoIP Settings**. The **Voice over IP (VoIP) Settings** window allows you to set the parameters required to test VoIP signals.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **VoIP Settings** including:

- Codec Type, Delay, and Bit Rate
- Packet Rate and Size
- Jitter Buffer Delay
- Call Length
- Maximum Latency
- Maximum Jitter
- Minimum MOS



**Note:** VoIP Mode is an optional function of the 860 DSP. To view the installed functions on your instrument, see **Section IV: Setup Functions**, [Chapter 5: Instrument Information Mode](#). If you do not have VoIP Mode installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.

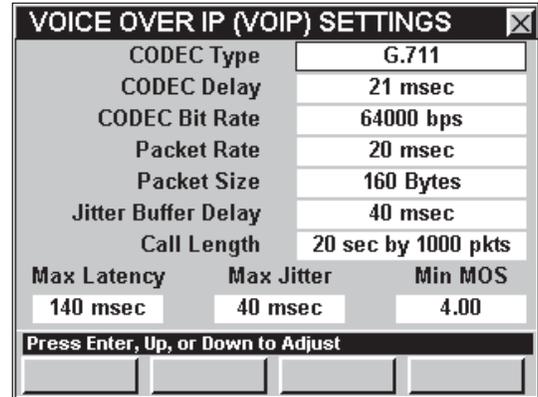


## Codec Type, Delay, and Bit Rate

The **CODEC Type**, **CODEC Delay**, and **CODEC Bit Rate** settings cannot be changed manually by the user.

These settings will automatically change based on changes to the **Packet Rate** and **Packet Size** settings.

The value of the **CODEC Bit Rate** will be followed by an asterisk (\*) when the **Packet Rate** and **Packet Size** settings have been changed to a value that does not meet the **CODEC Type** specifications.



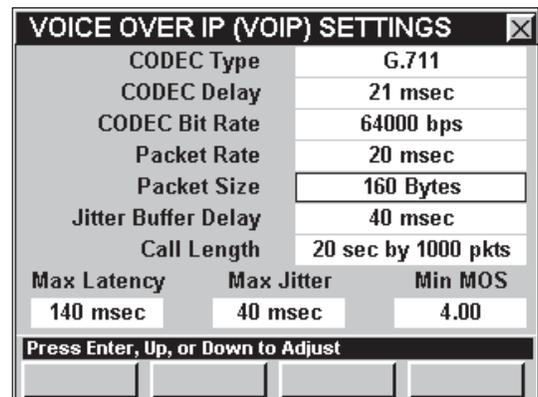
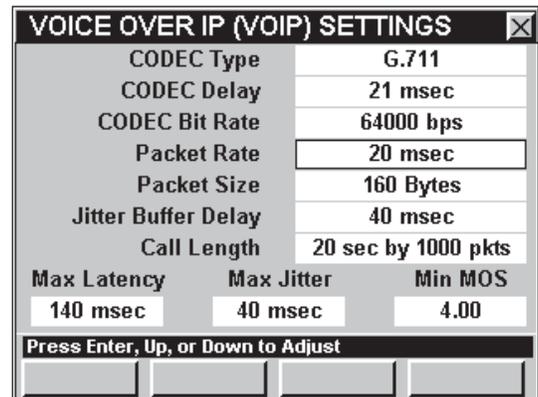
## Packet Rate and Size

These settings allow you to change the data packet size and the rate at which data packets are sent and received. When changing the value of this setting be careful not to select values that do not meet the **CODEC Type** specifications.

You can choose a **Packet Rate** between 20 and 200 msec. The default **Packet Rate** is **20 msec**.

You can choose a **Packet Size** between 20 and 1000 Bytes. The default **Packet Size** is **160 Bytes**.

To change the number of packet rate or size, use the buttons to highlight the **Packet Rate** or **Packet Size** field, and then use the or button to increase the value in 10 unit increments or use the button to decrease the value in 10 unit increments.



**Note:** Trilithic does not recommend changing these settings. These settings should be adequate for performing all VoIP testing.



## Jitter Buffer Delay

This setting allows you to change the amount of time that the instrument temporarily stores arriving packets in order to minimize delay variations. If packets arrive too late then they are discarded.

To change the delay, use the ◀ ▶ buttons to highlight the **Jitter Buffer Delay** field, and use the Ent or ▲ button to increase the value in 5 msec increments or use the ▼ button to decrease the value in 5 msec increments.

VOICE OVER IP (VOIP) SETTINGS	
CODEC Type	G.711
CODEC Delay	21 msec
CODEC Bit Rate	64000 bps
Packet Rate	20 msec
Packet Size	160 Bytes
Jitter Buffer Delay	40 msec
Call Length	20 sec by 1000 pkts
Max Latency	140 msec
Max Jitter	40 msec
Min MOS	4.00
Press Enter, Up, or Down to Adjust	

## Call Length

This setting allows you to change the length of the VoIP test call. You can choose a call length between 10 sec by 500 pkts and 40 sec by 2000 pkts. The default setting is **20 sec by 1000 pkts**.

To change the delay, use the ◀ ▶ buttons to highlight the **Call Length** field, and use the Ent or ▲ button to increase the value in 1 msec by 50 pkts increments or use the ▼ button to decrease the value in 1 msec by 50 pkts increments.

VOICE OVER IP (VOIP) SETTINGS	
CODEC Type	G.711
CODEC Delay	21 msec
CODEC Bit Rate	64000 bps
Packet Rate	20 msec
Packet Size	160 Bytes
Jitter Buffer Delay	40 msec
Call Length	20 sec by 1000 pkts
Max Latency	140 msec
Max Jitter	40 msec
Min MOS	4.00
Press Enter, Up, or Down to Adjust	

## Maximum Latency

This setting allows you to change the maximum amount of time between the start of the VoIP test and when the first data packets are received. You can choose a latency between 0 and 400 msec. The default setting is **140 msec**.

To change the latency, use the ◀ ▶ buttons to highlight the **Max Latency** field, and use the Ent or ▲ button to increase the value in 5 msec increments or use the ▼ button to decrease the value in 5 msec increments.

VOICE OVER IP (VOIP) SETTINGS	
CODEC Type	G.711
CODEC Delay	21 msec
CODEC Bit Rate	64000 bps
Packet Rate	20 msec
Packet Size	160 Bytes
Jitter Buffer Delay	40 msec
Call Length	20 sec by 1000 pkts
Max Latency	140 msec
Max Jitter	40 msec
Min MOS	4.00
Press Enter, Up, or Down to Adjust	



## Maximum Jitter

This setting allows you to change the maximum allowable jitter. You can choose a maximum jitter between 0 msec and 400 msec. The default setting is **40 msec**.

To change the value, use the ◀ ▶ buttons to highlight the **Max Jitter** field, and use the Ent or ▲ button to increase the value in 5 msec increments or use the ▼ button to decrease the value in 5 msec increments.

VOICE OVER IP (VOIP) SETTINGS	
CODEC Type	G.711
CODEC Delay	21 msec
CODEC Bit Rate	64000 bps
Packet Rate	20 msec
Packet Size	160 Bytes
Jitter Buffer Delay	40 msec
Call Length	20 sec by 1000 pkts
Max Latency	140 msec
Max Jitter	40 msec
Min MOS	4.00

Press Enter, Up, or Down to Adjust

## Minimum Mean Opinion Score (MOS)

This setting allows you to change the minimum desired quality of the voice signal. You can choose a desired signal quality level between 2.00 and 5.00. The default setting is **4.00**.

To change the value, use the ◀ ▶ buttons to highlight the **Min MOS** field, and use the Ent or ▲ button to increase the value in 0.10 increments or use the ▼ button to decrease the value in 0.10 increments.

VOICE OVER IP (VOIP) SETTINGS	
CODEC Type	G.711
CODEC Delay	21 msec
CODEC Bit Rate	64000 bps
Packet Rate	20 msec
Packet Size	160 Bytes
Jitter Buffer Delay	40 msec
Call Length	20 sec by 1000 pkts
Max Latency	140 msec
Max Jitter	40 msec
Min MOS	4.00

Press Enter, Up, or Down to Adjust



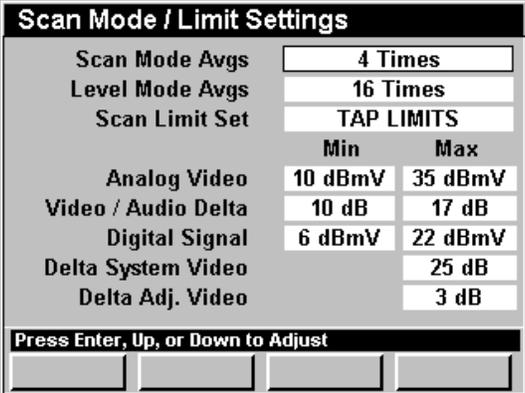
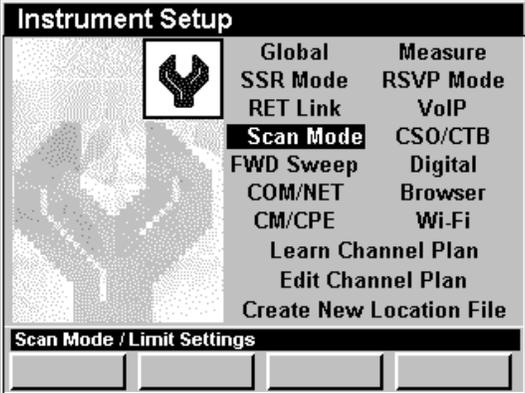
# Scan Mode Settings

This section will show you how to adjust your instrument's **Scan Mode Settings**. The **Scan Mode/Limit Settings** window allows you to assign scan test limits to your instrument. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Scan Mode Settings** including:

- Scan Mode Averages
- Scan Limit Set and Setting Limits



 **Note:** Scan Mode is an optional function of the 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have Scan Mode installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.



## Multi Ch Averaging

You can set your rate of averaging for **Scan Mode** directly from this setup menu. You can select from **1, 2, 4, 8, 16, 32, 64, 128, 256, 512, or 1024 Times**. The default to average is **4 Times**.

To change the number of averages, use the ◀ ▶ buttons to highlight the **Multi Ch Averaging** field, and use the Ent button and/or the ▲ ▼ buttons to increment through the possible average rates.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	TAP LIMITS	
	Min	Max
Analog Video	8 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		

## Single Ch Averaging

You can set your rate of averaging for **Scan Mode** directly from this setup menu. You can select from **1, 2, 4, 8, 16, 32, 64, 128, 256, 512, or 1024 Times**. The default to average is **4 Times**.

To change the number of averages, use the ◀ ▶ buttons to highlight the **Single Ch Averaging** field, and use the Ent button and/or the ▲ ▼ buttons to increment through the possible average rates.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	TAP LIMITS	
	Min	Max
Analog Video	8 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		

## Scan Limit Set and Setting Limits

The **Scan Limit Set** setting allows you to toggle between the four different limit modes you can set. You can select from **TAP LIMITS**, **SET LIMITS**, **BLOCK LIMITS**, and **USER LIMITS**.

Each limit mode allows you to define amplitude standards your system must meet at the specified location. The corresponding limits are shown below the **Min** and **Max** column headings and will change to the current set limit as you toggle through the various limit modes.

To change the limit mode, use the   buttons to highlight the **Scan Limit Set** field, and use the  button and/or the   buttons to increment through the possible limit modes.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	TAP LIMITS	
	Min	Max
Analog Video	8 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		



## Tap Limits

The **TAP LIMITS** mode allows you to define amplitude standards your system must meet at the Tap.

When the instrument performs a channel scan to this limit it will tell you immediately if any channel fails the criteria you have set.

To meet a minimum limit the measured values must be equal to or greater than the minimum limit. To meet a maximum limit the measured values must be less than or equal to the maximum limit.

Scan Mode / Limit Settings			
Multi Ch Averaging	4 Times		
Single Ch Averaging	128 Times		
Scan Limit Set	TAP LIMITS		
	Min	Max	
Analog Video	8 dBmV	60 dBmV	
Video / Audio Delta	10 dB	17 dB	
Digital Signal	-20 dBmV	60 dBmV	
Delta System Video		10 dB	
Delta Adj. Video		3 dB	
Press Enter, Up, or Down to Adjust			

- **Min and Max Analog Video** - sets the range for analog video channel levels.
- **Min and Max Video / Audio Delta** - sets the minimum and maximum allowable video to audio level difference.
- **Min and Max Digital Signal** - sets limits for digital channel levels.
- **Max Delta System Video** - sets the maximum difference allowed between the lowest and highest levels measured for the analog video channels.
- **Max Delta Adjacent Video** - sets the maximum level variation between any two adjacent video carriers.

To change the amplitude standards your system must meet at the Tap, change the **Scan Limit Set** field to **TAP LIMITS**.

To change a limit, use the ◀ ▶ buttons to highlight desired limit field, and use the Ent or ▲ ▼ button to increase the limit in one unit increments or use the ▼ button to decrease the limit in one unit increments.



## Block Limits

The **BLOCK LIMITS** mode allows you define amplitude standards your system must meet at the ground block.

When the instrument performs a channel scan to this limit it will tell you immediately if any channel fails the criteria you have set.

To meet a minimum limit the measured values must be equal to or greater than the minimum limit. To meet a maximum limit the measured values must be less than or equal to the maximum limit.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	BLOCK LIMITS	
	Min	Max
Analog Video	6 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		

- **Min and Max Analog Video** - sets the range for analog video channel levels.
- **Min and Max Video / Audio Delta** - sets the minimum and maximum allowable video to audio level difference.
- **Min and Max Digital Signal** - sets limits for digital channel levels.
- **Max Delta System Video** - sets the maximum difference allowed between the lowest and highest levels measured for the analog video channels.
- **Max Delta Adjacent Video** - sets the maximum level variation between any two adjacent video carriers.

To change the amplitude standards your system must meet at the ground block, change the **Scan Limit Set** field to **BLOCK LIMITS**.

To change a limit, use the ◀ ▶ buttons to highlight desired limit field, and use the Ent or ▲ ▼ button to increase the limit in one unit increments or use the ▼ button to decrease the limit in one unit increments.



## Set Limits

The **SET LIMITS** mode allows you define amplitude standards your system must meet at the TV set outlet.

When the instrument performs a channel scan to this limit it will tell you immediately if any channel fails the criteria you have set.

To meet a minimum limit the measured values must be equal to or greater than the minimum limit. To meet a maximum limit the measured values must be less than or equal to the maximum limit.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	SET LIMITS	
	Min	Max
Analog Video	0 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		

- **Min and Max Analog Video** - sets the range for analog video channel levels.
- **Min and Max Video / Audio Delta** - sets the minimum and maximum allowable video to audio level difference.
- **Min and Max Digital Signal** - sets limits for digital channel levels.
- **Max Delta System Video** - sets the maximum difference allowed between the lowest and highest levels measured for the analog video channels.
- **Max Delta Adjacent Video** - sets the maximum level variation between any two adjacent video carriers.

To change the amplitude standards your system must meet at the TV set outlet, change the **Scan Limit Set** field to **SET LIMITS**.

To change a limit, use the ◀ ▶ buttons to highlight desired limit field, and use the Ent or ▲ button to increase the limit in one unit increments or use the ▼ button to decrease the limit in one unit increments.



## User Limits

The **USER LIMITS** mode allow you to define amplitude standards your system must meet at a user defined point in your system.

When the instrument performs a channel scan to this limit it will tell you immediately if any channel fails the criteria you have set.

To meet a minimum limit the measured values must be equal to or greater than the minimum limit. To meet a maximum limit the measured values must be less than or equal to the maximum limit.

Scan Mode / Limit Settings		
Multi Ch Averaging	4 Times	
Single Ch Averaging	128 Times	
Scan Limit Set	USER LIMITS	
	Min	Max
Analog Video	-10 dBmV	60 dBmV
Video / Audio Delta	10 dB	17 dB
Digital Signal	-20 dBmV	60 dBmV
Delta System Video		10 dB
Delta Adj. Video		3 dB
Press Enter, Up, or Down to Adjust		

- **Min and Max Analog Video** - sets the range for analog video channel levels.
- **Min and Max Video / Audio Delta** - sets the minimum and maximum allowable video to audio level difference.
- **Min and Max Digital Signal** - sets limits for digital channel levels.
- **Max Delta System Video** - sets the maximum difference allowed between the lowest and highest levels measured for the analog video channels.
- **Max Delta Adjacent Video** - sets the maximum level variation between any two adjacent video carriers.

To change the amplitude standards your system must meet at a user defined point in your system, change the **Scan Limit Set** field to **USER LIMITS**.

To change a limit, use the ◀ ▶ buttons to highlight desired limit field, and use the Ent or ▲ ▼ button to increase the limit in one unit increments or use the ▼ button to decrease the limit in one unit increments.



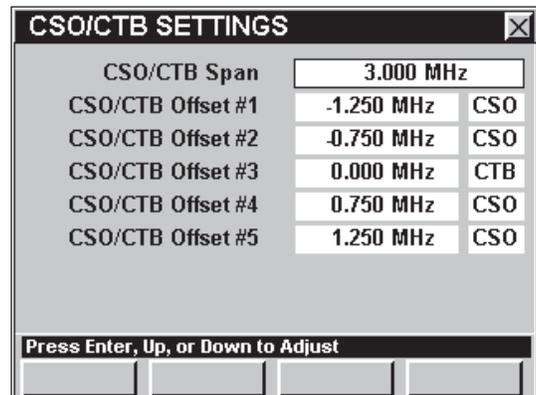
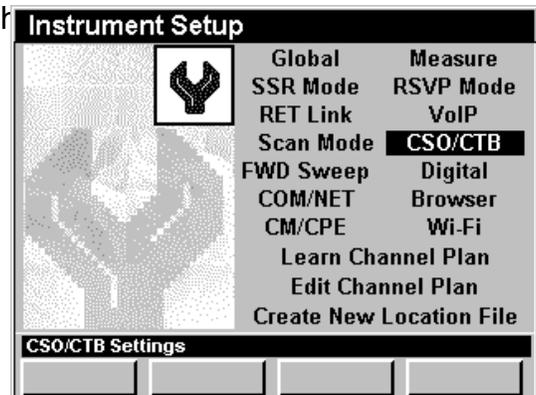
## CSO / CTB Settings

This section will show you how to adjust your instrument's **CSO/CTB Settings**. The **CSO/CTB Settings** window allows you to define the offsets from the video carrier for measuring CSO and CTB. The offsets for CSO and CTB depend on your channel plan. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of h including:

- CSO/CTB Span
- CSO/CTB Offset #1
- CSO/CTB Offset #2
- CSO/CTB Offset #3
- CSO/CTB Offset #4
- CSO/CTB Offset #5



**Note:** **CSO/CTB** Mode is an optional function of the 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions**, [Chapter 5: Instrument Information Mode](#). If you do not have **Advanced CSO/CTB** Mode installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.



## CSO/CTB Span

The **CSO/CTB Span** setting allows you to set the total frequency span included in a CSO/CTB measurement. Set this greater than 2 times the largest CSO/CTB offset. The default span is set at **3.000 MHz**.

To change the CSB/CTB Span, use the buttons to highlight the **CSO/CTB Span** field, and use the buttons to change the span in 0.050 MHz increments, or press the button, enter the bandwidth using the alphanumeric keypad, and then press the button.

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Span** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, \*Edit Channel Plan Settings\*](#) for more information on the channel plan you are using.



## CSO/CTB Offset #1

The **CSO/CTB Offset #1** settings allows you to set the #1 of 5 CSO/CTB offsets. The default offset is set at **-1.250 MHz** and is designated **CSO**.

To change the value of the CSB/CTB Offset, use the buttons to highlight left-most field next to **CSO/CTB Offset #1**, use the buttons to change the offset in 0.050 MHz increments, or press the button, enter the offset using the alphanumeric keypad, and then press the button.

To change the CSO/CTB designation, use the buttons to select the right-most field next to **CSO/CTB Offset #1**, and then use the or button to toggle between **CSO** and **CTB**.

CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust

CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Offset #1** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, \*Edit Channel Plan Settings\*](#) for more information on the channel plan you are using.



## CSO/CTB Offset #2

The **CSO/CTB Offset #2** settings allows you to set the #2 of 5 CSO/CTB offsets. The default offset is set at **-0.750 MHz** and is designated **CSO**.

To change the value of the CSB/CTB Offset, use the buttons to highlight left-most field next to **CSO/CTB Offset #2**, use the buttons to change the offset in 0.050 MHz increments, or press the button, enter the offset using the alphanumeric keypad, and then press the button.

To change the CSO/CTB designation, use the buttons to select the right-most field next to **CSO/CTB Offset #2**, and then use the or button to toggle between **CSO** and **CTB**.

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Offset #2** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, Channel Plan Settings](#) for more information on the channel plan you are using.



## CSO/CTB Offset #3

The **CSO/CTB Offset #3** settings allows you to set the #3 of 5 CSO/CTB offsets. The default offset is set at **0.000 MHz** and is designated **CTB**.

To change the value of the CSB/CTB Offset, use the buttons to highlight left-most field next to **CSO/CTB Offset #3**, use the buttons to change the offset in 0.050 MHz increments, or press the button, enter the offset using the alphanumeric keypad, and then press the button.

To change the CSO/CTB designation, use the buttons to select the right-most field next to **CSO/CTB Offset #3**, and then use the or button to toggle between **CSO** and **CTB**.

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Offset #3** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, Channel Plan Settings](#) for more information on the channel plan you are using.



## CSO/CTB Offset #4

The **CSO/CTB Offset #4** settings allows you to set the #4 of 5 CSO/CTB offsets. The default offset is set at **0.750 MHz** and is designated **CSO**.

To change the value of the CSB/CTB Offset, use the ◀ ▶ buttons to highlight left-most field next to **CSO/CTB Offset #4**, use the ▲ ▼ buttons to change the offset in 0.050 MHz increments, or press the **Ent** button, enter the offset using the alphanumeric keypad, and then press the **Ent** button.

To change the CSO/CTB designation, use the ◀ ▶ buttons to select the right-most field next to **CSO/CTB Offset #4**, and then use the ▲ ▼ or **Ent** button to toggle between **CSO** and **CTB**.

CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust

CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Offset #4** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, Channel Plan Settings](#) for more information on the channel plan you are using.



## CSO/CTB Offset #5

The **CSO/CTB Offset #5** settings allows you to set the #5 of 5 CSO/CTB offsets. The default offset is set at **1.250 MHz** and is designated **CSO**.

To change the value of the CSB/CTB Offset, use the ◀ ▶ buttons to highlight left-most field next to **CSO/CTB Offset #5**, use the ▲ ▼ buttons to change the offset in 0.050 MHz increments, or press the **Ent** button, enter the offset using the alphanumeric keypad, and then press the **Ent** button.

To change the CSO/CTB designation, use the ◀ ▶ buttons to select the right-most field next to **CSO/CTB Offset #5**, and then use the ▲ ▼ or **Ent** button to toggle between **CSO** and **CTB**.

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust

CSO/CTB SETTINGS		
CSO/CTB Span	3.000 MHz	
CSO/CTB Offset #1	-1.250 MHz	CSO
CSO/CTB Offset #2	-0.750 MHz	CSO
CSO/CTB Offset #3	0.000 MHz	CTB
CSO/CTB Offset #4	0.750 MHz	CSO
CSO/CTB Offset #5	1.250 MHz	CSO

Press Enter, Up, or Down to Adjust



**Note:** You should set your **CSO/CTB Offset #5** according to the channel plan you are using. See the [Chapter 2: Instrument Setup Mode, Channel Plan Settings](#) for more information on the channel plan you are using.



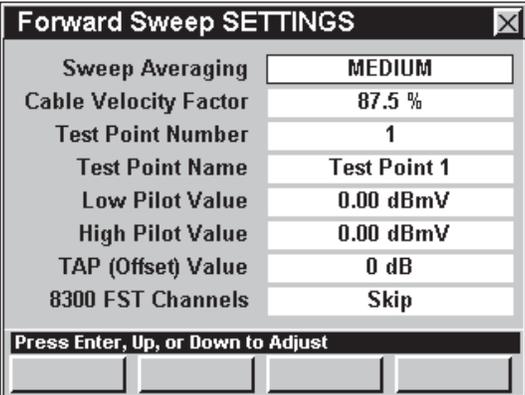
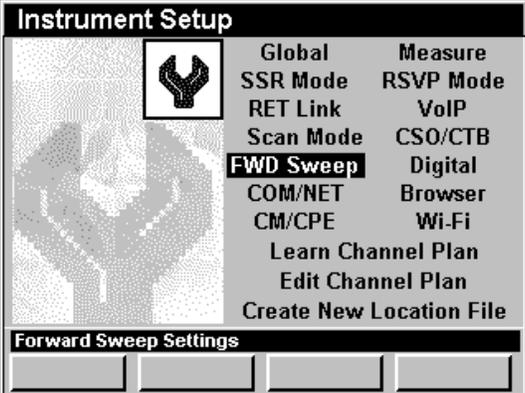
# FWD Sweep Settings

This section will show you how to adjust your instrument's **FWD Sweep Settings**. The **Forward Sweep Settings** window allows you to assemble and name the various configurations of the test points you will encounter when performing a test in **Sweep Mode**. This allows you to call up standard configurations when sweeping, rather than having to reenter sweep settings each time you connect to a test point. These settings are unique to your instrument and will remain constant throughout every operation you perform.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

This section will provide you with a basic understanding of how to modify the **FWD Sweep Settings** including:

- Sweep Averages
- Cable Velocity Factor
- Test Point Number and Name
- High and Low Pilot Carrier Level
- TAP (Offset) Value



 **Note:** To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **Sweepless Sweep Mode** or **Forward SpeedSweep Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order these options and start using them today.

 **Note:** You should set your **FWD Sweep Settings** according to the channel plan you are using. See the **Chapter 2: Instrument Setup Mode, Channel Plan Settings** for more information on the channel plan you are using.



## Sweep Averaging

This setting is used to average the values of several consecutive sweeps to reduce display jitter. You can select from **Disabled**, **Low**, **Medium**, and **High**. The default averaging is **Medium**.

To change the number of averages, use the ◀ ▶ buttons to highlight the **Sweep Averaging** field, and use the Ent button and/or the ▲ ▼ buttons to increment through the possible averages.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip
Press Enter, Up, or Down to Adjust	



**Note:** You can also change the sweep averaging directly while using **Sweep Mode**; see **Section III: Service Functions, Chapter 8: Sweep Mode, [Setting Averaging Type](#)**.

## Cable Velocity Factor

This setting is used to calculate the distance to fault measurement in **Sweep Mode**. This calculates the approximate distance to a serious line fault by analyzing VSWR patterns in the sweep response. The default cable velocity factor is **87.5%**.

To change the cable velocity factor, use the ◀ ▶ buttons to highlight the **Cable Velocity Factor** field, and use the Ent or ▲ button to increase the cable velocity factor in 0.1% increments or use the ▼ button to decrease the cable velocity factor in 0.1% increments.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip
Press Enter, Up, or Down to Adjust	



## Test Point Number and Name

You will need to enter “profiles” for each type of node and amplifier you will be servicing.

You can enter up to 9 test point configurations. If a profile has not been previously named, it will carry the label, **Test Point <#>**, where <#> can be 1 through 9.

Each name should be a designation for a type of node or amplifier you will be sweeping (“Acme 3”, “Mega 5”). When sweeping, selecting the setup information stored under this name will set the instrument to the amplitude and coupler values that are appropriate for this device.

To change the test point number, use the ◀ ▶ buttons to highlight the **Test Point Number** field, and use the **Ent** or ▲ button to increase the test point number or use the ▼ button to decrease the test point number.

To change the test point name, use the ◀ ▶ buttons to highlight the **Test Point Name** field, press the **Ent** button, enter the operator name using the alphanumeric keypad, and then press the **Ent** button.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip

Press Enter, Up, or Down to Adjust

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip

Press Enter to Adjust



## Low and High Pilot Value

The **Low Pilot Value** and **High Pilot Value Settings** allow the user to set the sensitivity and display parameters of the instrument so that when amplifiers are set to the proper gain and tilt, the sweep trace coincides with the middle horizontal line of the sweep graph.

Set the pilot amplitudes to those that you would expect when the named device is properly aligned.

These settings will be used to determine node and amplifier gain errors.

To change the low pilot value, use the ◀ ▶ buttons to highlight the **Low Pilot Value** field, and use the Ent or ▲ button to increase the low pilot value in 0.25 dBmV increments or use the ▼ button to decrease the low pilot value in 0.25 dBmV increments.

To change the high pilot value, use the ◀ ▶ buttons to highlight the **High Pilot Value** field, and use the Ent or ▲ button to increase the high pilot value in 0.25 dBmV increments or use the ▼ button to decrease the high pilot value in 0.25 dBmV increments.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip
Press Enter, Up, or Down to Adjust	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip
Press Enter, Up, or Down to Adjust	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	



**Note:** The low pilot is the first (lowest frequency) carrier marked as a Tilt channel in the channel plan you select when using the **Sweep Mode**. The high pilot is the last (highest frequency) Tilt carrier in the plan.



**Note:** The value you enter should be the value AHEAD of the test point coupler. The coupler loss will be accounted for in the **TAP (Offset) Value** section that follows.



## TAP (Offset) Value

Test points connect through directional couplers within the node or amplifier. The Tap values are typically 20 dB or 30 dB, though additional losses may be included in your connections.

This setting is the total loss in the connection between the amplifier, or node, test point and the input to the 860 DSP or 860 DSPi, and must include the coupling loss of the test point, and any pads or other in-line hardware.

This setting is individually settable for each test point profile, and is included in the information the instrument uses to center the graph of an aligned amplifier to the center graticule of the sweep display.

You should repeat this process to define all of the amplifier and node test points you will be connecting to before sweeping your distribution system.

To change the offset value, use the ◀ ▶ buttons to highlight the **TAP (Offset) Value** field, and use the ▲ ▼ buttons to change the offset value in 1 dB increments, or press the Ent button, enter the offset value using the alphanumeric keypad, and then press the Ent button.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip

Press Enter or Numeric Keypad to Adjust

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**Note:** The **TAP (Offset) Value** is used in **Sweep** Mode only. All other modes use the Test Point Compensation **Function** Menu Option.



## 8300 FST Channels

This setting allows the user to enable and disable the 8300 FST channels when using **Sweep** Mode. While performing the sweep test with the 8300 FST channels disabled, the instrument will skip the 8300 FST channels that are defined in the channel plan. While performing the sweep test with the 8300 FST channels enabled, the instrument will use the 8300 FST channels that are defined in the channel plan.

To enable and disable the 8300 FST channels, use the ◀ ▶ buttons to highlight the **8300 FST Channels** field, and use the **Ent** button and/or the ▲ ▼ buttons to change between **Skip** and **Use**.

Forward Sweep Settings	
Sweep Averaging	Medium
Cable Velocity Factor	87.5 %
Test Point Number	1
Test Point Name	Test Point 1
Low Pilot Value	0.00 dB
High Pilot Value	0.00 dB
TAP (Offset) Value	0 dB
8300 FST Channels	Skip

Press Enter, Up, or Down to Adjust

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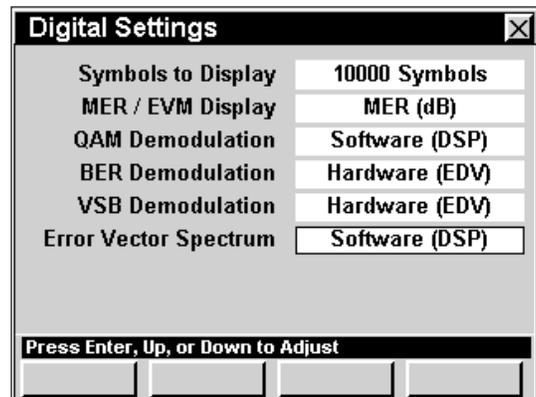
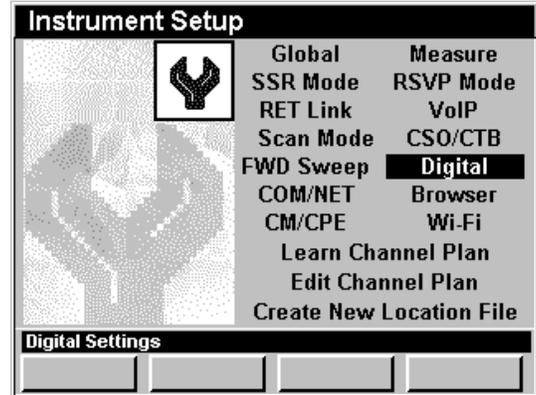
## Digital Settings

This section will show you how to adjust your instrument's **Digital Settings**. The **Digital (QAM) Settings** window allows you to set the parameters that affect the digital display when using **QAM Lite Mode** or **QAM Mode**.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

This section will provide you with a basic understanding of how to modify the **Digital Settings** including:

- Symbols to Display
- MER / EVM Display
- QAM Demodulation
- BER Demodulation
- VSB Demodulation
- Error Vector Spectrum



**Note:** **QAM Lite Mode** is a standard function of the 860 DSPi and **QAM Mode** is an optional function of the 860 DSP and 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **QAM Lite** or **QAM Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.



**Note:** In order for **QAM Mode** to tune channels correctly, you must designate which channels are digital and the modulation used for each channel. See the **Chapter 2: Instrument Setup Mode, Edit Channel Plan Settings** for more information on the channel plan you are using.



## Symbols To Display

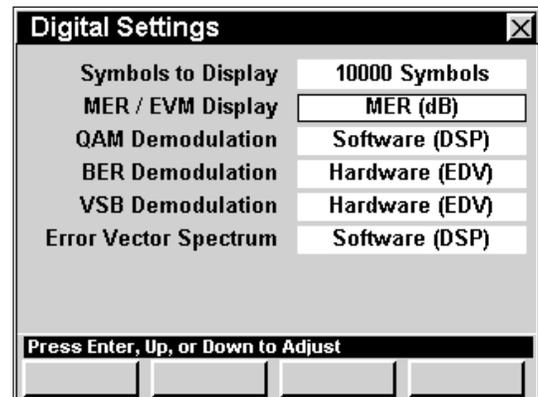
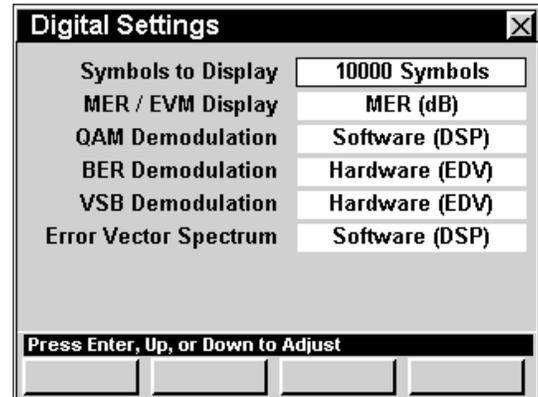
This setting allows you to set the number of symbols that are displayed on a constellation screen to make the constellation more or less dense. You can select from **1,000** to **30,000 Symbols**, or **DWELL** (infinite symbols).

To change the number of symbols, use the ◀ ▶ buttons to highlight the **Symbols to Display** field, and use the Ent or ▲ button to increase the time symbols in 1000 symbol increments or use the ▼ button to decrease the symbols in 1000 symbol increments.

## MER / EVM Display

This setting allows you to select whether the instrument displays **MER (dB)** or **EVM (%)**.

To change how the instrument displays digital measurements, use the ◀ ▶ buttons to highlight the **MER / EVM** field, and use the Ent button and/or the ▲ ▼ buttons to change between **MER (dB)** and **EVM (%)**.



**Note:** The **QAM Demodulation** Setting must be set to **Software (DSP)** in order for the instrument to allow the selection of **EVM (%)** for the **MER / EVM Display** Setting.

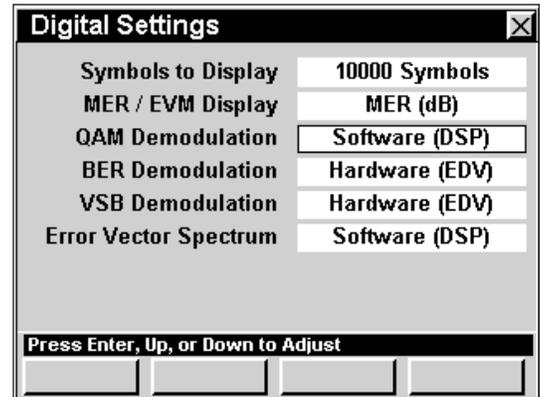


## QAM Demodulation

This setting allows you to select whether the instrument performs hardware or software QAM demodulation.

To change the QAM Demodulation, use the ◀ ▶ buttons to highlight the **QAM Demodulation** field, and use the Ent button and/or the ▲ ▼ buttons to change between **Hardware (EDV)** and **Software (DSP)**.

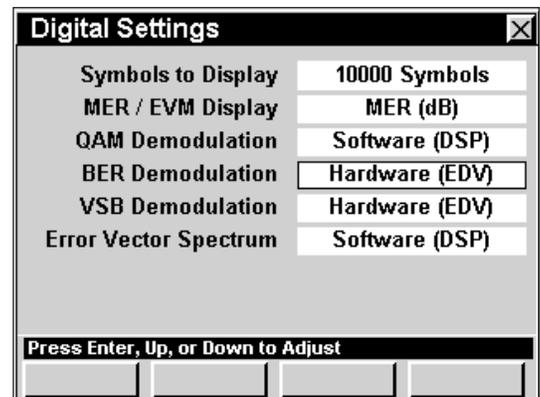
With **Hardware (EDV)** selected, the 860 DSP or 860 DSPi relies on an internal card to perform QAM demodulation calculations. With **Software (DSP)** selected, the 860 DSP or 860 DSPi performs QAM demodulation calculations using its internal software. **Hardware (EDV)** demodulation is more accurate, but slower than **Software (DSP)** demodulation.



## BER Demodulation

This setting allows you to select whether the instrument performs hardware or software BER demodulation.

To change the BER Demodulation, use the ◀ ▶ buttons to highlight the **BER Demodulation** field, and use the Ent button and/or the ▲ ▼ buttons to change between **Hardware (EDV)** and **Internal Modem**.

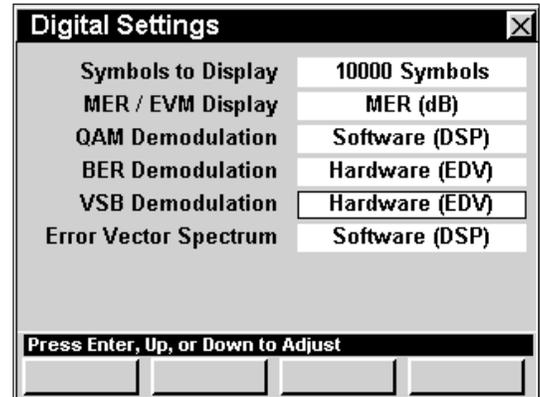




## VSB Demodulation

This setting allows you to select whether the instrument performs hardware or software 8 VSB demodulation.

To change the 8 VSB Demodulation, use the ◀ ▶ buttons to highlight the **VSB Demodulation** field, and use the **Ent** button and/or the ▲ ▼ buttons to change between **Hardware (EDV)** and **Software (DSP)**.



**Note:** Software demodulation for 8 VSB is not currently available.

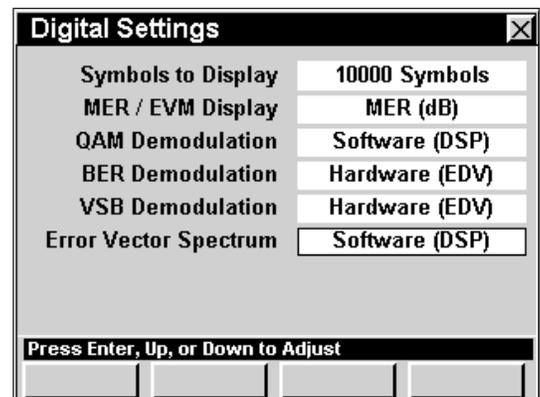


**Note:** Hardware demodulation for EVS is not currently available.

## Error Vector Spectrum

This setting allows you to select whether the instrument performs hardware or software Error Vector Spectrum (EVS) demodulation.

To change the Error Vector Spectrum, use the ◀ ▶ buttons to highlight the **Error Vector Spectrum** field, and use the **Ent** button and/or the ▲ ▼ buttons to change between **Hardware (EDV)** and **Software (DSP)**.



**Note:** Software demodulation for EVS is not currently available.



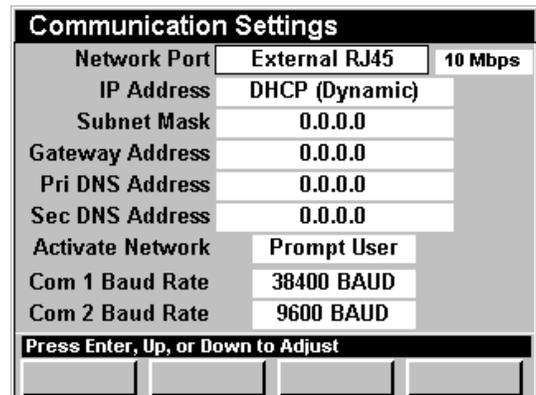
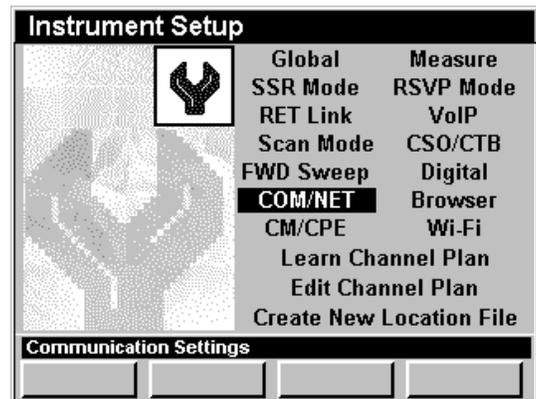
## COM/NET Settings

This section will show you how to adjust your instrument's **COM/NET Settings**. The **Communications Settings** window allows you to set the communication parameters that affect connecting the instrument using your ethernet connection. The basic 860 DSPi comes equipped with the ethernet connection as a standard feature. In order to use the ethernet communications on your 860 DSP, the instrument must be equipped with Ethernet Option (CI-1, CI-2, CI-3, CI-4, or CI-5).

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

This section will provide you with a basic understanding of how to modify the **COM/NET Settings** including:

- Network Port
- Connection Speed
- My IP Address
- Subnet Mask
- Gateway Address
- Primary DNS Address
- Secondary DNS Address
- Activating Network
- Com 1 and Com 2 Baud Rate



**Note:** Contact your IT Department or Network Group to see if you should use a static IP (fixed) address or get a dynamic IP address from a network server. You will also need to know a valid gateway for your system if you plan to access devices outside your network.



## Network Port

This setting allows you to select the method of external communication.

- **Internal Modem** - This option uses the cable modem built into the 860 DSPi to communicate through the RF input.
- **External RJ45** - This option uses the RJ45 connector with an ethernet cable to communicate with another device.

To change the method of external communication, use the ◀ ▶ buttons to highlight the **Network Port**

field, and use the Ent button and/or the ▲ ▼ buttons to change between **Internal Modem** and **External RJ45**.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter, Up, or Down to Adjust		

## Connection Speed

This setting allows you to select the speed at which to communicate when using external communication. You can choose from **10 Mbps** or **100 Mbps** connections speeds. The default connection speed is **10 Mbps**.

To change the connection speed, use the ◀ ▶ buttons to highlight the field to the right of the **Network Port** field, and use the Ent button and/or the ▲ ▼ buttons to change between **10 Mbps** and **100 Mbps**.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter, Up, or Down to Adjust		



## My IP Address

This setting is a unique number which identifies your instrument on an Ethernet, IP network. You may need to check with your network administrator to determine what IP address is needed. The default setting is **DHCP (Dynamic)**.

To change the IP address, use the ◀ ▶ buttons to highlight the **My IP Address** field, press the **Ent** button, enter the IP address using the alphanumeric keypad, and then press the **Ent** button. The format of the IP address is made up of four, 3-digit numbers separated by periods.

To set the IP address to **DHCP (Dynamic)**, enter **0.0.0.0**.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter or Numeric Keypad to Adjust		



**Note:** If you need to connect your instrument to a different subnetwork, your network administrator will need to supply a valid IP address.



**CAUTION:** If you are using DHCP and **Activate Network** is set to **On Startup**, you will have up to two minutes after you turn on your instrument to connect it to the network. After this time, the instrument will give up looking for a DHCP server and will disable network functions.

## Subnet Mask

This setting is a unique number which identifies the range of IP addresses that are on your subnetwork. You may need to check with your network administrator to determine what address is needed. The default setting is **0.0.0.0**.

To change the subnet mask, use the ◀ ▶ buttons to highlight the **Subnet Mask** field, press the **Ent** button, enter the address using the alphanumeric keypad, and then press the **Ent** button. The format of the address is made up of four, 3-digit numbers separated by periods.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter or Numeric Keypad to Adjust		



## Gateway Address

This setting is a unique number which identifies the IP address of the network device on your subnet which allows you to communicate with devices outside of your network. The default setting is **0.0.0.0** which indicates that there is no gateway and the gateway will be discovered through DHCP.

To change the gateway address, use the ◀ ▶ buttons to highlight the **Gateway Address** field, press the Ent button, enter the address using the alphanumeric keypad, and then press the Ent button. The format of the address is made up of four, 3-digit numbers separated by periods.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter or Numeric Keypad to Adjust		



**Note:** If you need to connect your instrument to a different subnetwork, your network administrator will need to supply a valid gateway address.



## Primary and Secondary DNS Addresses

The primary and secondary DNS addresses are unique numbers which identify the server address of the network device which resolves network names to IP Addresses. The default for these parameters is **0.0.0.0**.

To change the primary or secondary DNS address, use the ◀ ▶ buttons to highlight the **Pri DNS Address** or **Sec DNS Address** field, press the **Ent** button, enter the address name using the alphanumeric keypad, and then press the **Ent** button. The format of the DNS address is made up of four, 3-digit numbers separated by periods.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter or Numeric Keypad to Adjust		

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter or Numeric Keypad to Adjust		

## Activating Network

This setting is used to set how the network connection is activated.

To change how the network is activated, use the ◀ ▶ buttons to highlight the **Activate Network** field, and use the **Ent** button and/or the ▲ ▼ buttons to change between **Prompt User** and **On Startup**.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter, Up, or Down to Adjust		



## Com 1 and Com 2 Baud Rate

This setting is used to set the transfer rate for the external serial ports. You can choose from **9600**, **19200**, **38400**, **57600**, and **115200 BAUD**.

To change the transfer rate, use the buttons to highlight the **Com 1 Baud Rate** or **Com 2 Baud Rate** field, and use the button and/or the buttons to increment through the possible transfer rates.

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter, Up, or Down to Adjust		

Communication Settings		
Network Port	External RJ45	10 Mbps
IP Address	DHCP (Dynamic)	
Subnet Mask	0.0.0.0	
Gateway Address	0.0.0.0	
Pri DNS Address	0.0.0.0	
Sec DNS Address	0.0.0.0	
Activate Network	Prompt User	
Com 1 Baud Rate	38400 BAUD	
Com 2 Baud Rate	9600 BAUD	
Press Enter, Up, or Down to Adjust		



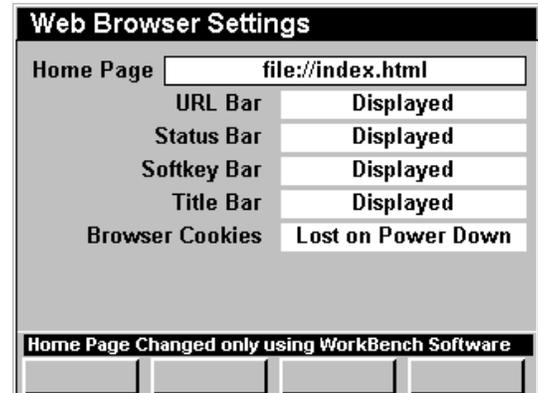
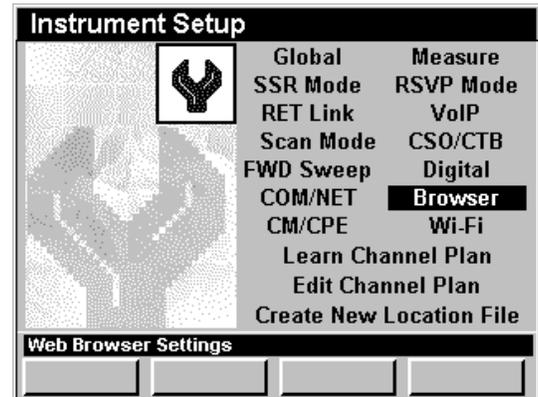
## Browser Settings

This section will show you how to adjust your instrument's **Browser Settings**. The **Web Browser Settings** window allows you to set the display settings that are used in **Web Browser Mode**.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Browser Settings** including:

- Home Page
- Display Settings
- Browser Cookies



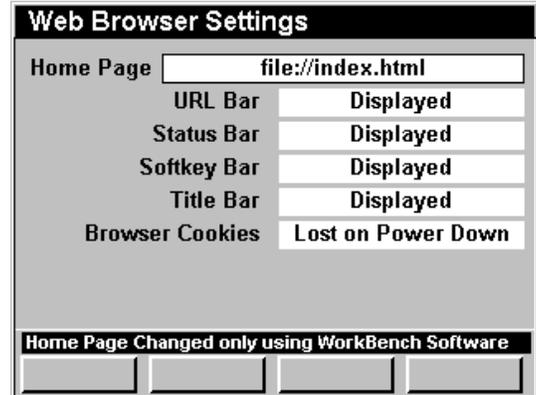
**Note:** **Web Browser Mode** is an optional function of the 860 DSP and 860 DSPi. To view the installed functions on your instrument, see **Section IV: Setup Functions, Chapter 5: Instrument Information Mode**. If you do not have **Web Browser Mode** installed in your instrument, you may call Trilithic at (800) 344-2412 to order this option and start using it today.



## Home Page

The web browser is limited to accessing the web pages listed on its internal home page (index.html) located on drive B.

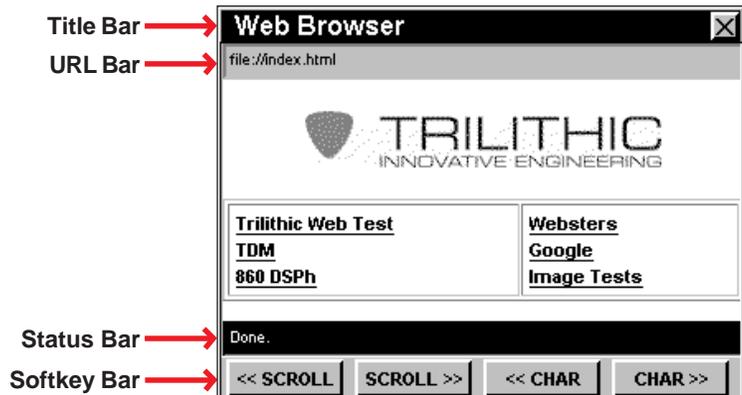
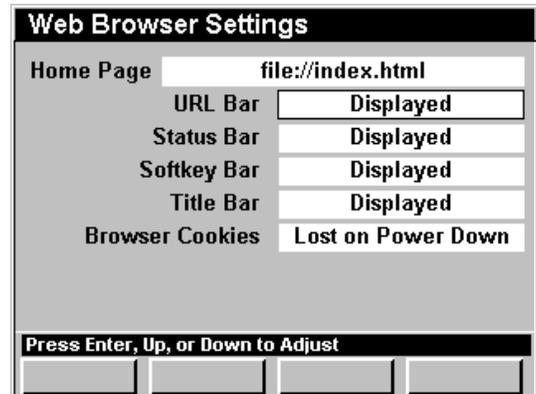
You will need to use the WorkBench software to edit the index.html file. This will allow you to add or change the web pages accessible from the home page. See your WorkBench operation manual for further instructions.



## Display Settings

These settings allow you to change the appearance of your web browser screen by hiding or displaying the **URL Bar**, **Status Bar**, **Softkey Bar**, or **Title Bar**.

To change the appearance of your web browser screen, use the buttons to highlight the desired field, and use the button and/or the buttons to change between **Displayed** and **Hidden**.



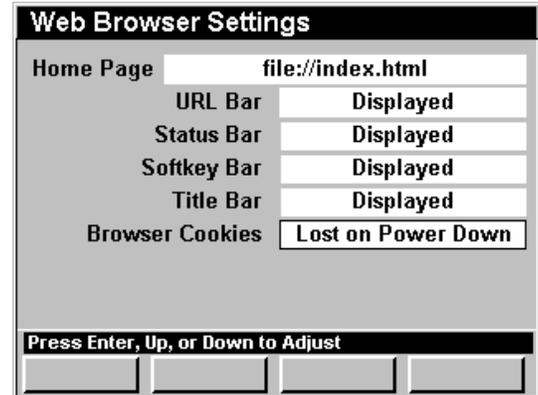
**Note:** You will need to restart your instrument for these changes to take effect.



## Browser Cookies

This setting allows you to choose whether to save or discard web browser cookies when the unit is turned off.

To change the action taken on shutdown of the instrument, use the ◀ ▶ buttons to highlight the **Browser Cookies** field, and use the **Ent** button and/ or the ▲ ▼ buttons to change between **Saved on Power Down** and **Lost on Power Down**.





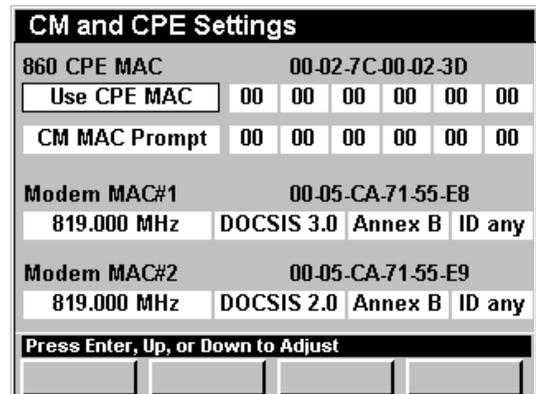
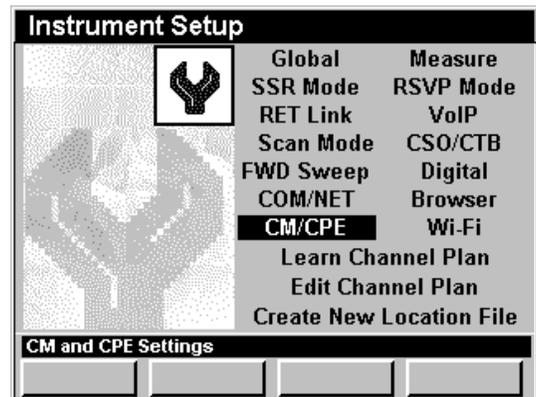
## CM/CPE Settings

This section will show you how to adjust your instrument's **CM/CPE Settings**. The **CM and CPE Settings** window allows you to set the parameters required to use your cable system's DOCSIS network via the instrument's internal cable modem. The basic 860 DSPi comes equipped with an internal cable modem as a standard feature. The internal cable modem is not available for the 860 DSP in any configuration.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

This section will provide you with a basic understanding of how to modify the **CM/CPE Settings** including:

- 860 DSPi CPE MAC Address
- Internal Cable Modem CPE MAC Address
- Downstream MAC Frequency
- Show Modem Info





## 860 DSP CPE MAC Address

To have access to your cable system’s DOCSIS network you may need to use the CPE MAC address of a device that has been provisioned correctly.

This can be done two ways, by provisioning the CPE MAC address of the 860 DSPi on the cable modem network or by spoofing an existing device’s CPE MAC address using the 860 DSPi.

Provisioning an 860 DSPi or spoofing a device’s CPE MAC address is essential to get the cable modem to work properly on DOCSIS networks that requires PCs to be authenticated.

The CPE MAC address is a unique number which identifies your 860 DSPi on a cable system’s DOCSIS network. A CPE MAC address is of the form **12-34-56-78-9A-BC** and is unique for every device on the network.

### Provisioning an 860 DSPi

To use the CPE MAC address of your 860 DSPi to connect to the cable system DOCSIS network, use the ◀ ▶ buttons to highlight the field below **860 CPE MAC**, and use the Ent button and/or the ▲ ▼ buttons to change the setting to **Use CPE MAC**.

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
Use CPE MAC	00	00	00	00	00	00
CM MAC Prompt	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID	any		
Modem MAC#2	00-05-CA-71-55-E9					
819.000 MHz	DOCSIS 2.0	Annex B	ID	any		
Press Enter, Up, or Down to Adjust						



**Note:** You may have your IT Department or System Administrator provision the CPE MAC address of the 860 DSPi on your cable system’s DOCSIS network before this method will work.



## Spooing an External Device

The following two methods can be used to spoof the CPE MAC address of an external device that is provisioned correctly on the cable system's DOCSIS network;

- **Spoo CPE MAC** - Use this setting if you plan on spoofing the same external devices's CPE MAC address each time you logon to the network.
- **Spoo Prompt** - Use this setting if you plan on spoofing a different external devices's CPE MAC address each time you logon to the network.

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
<b>Spoo CPE MAC</b>	00	00	00	00	00	00
<b>Spoo CM MAC#1</b>	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
819.000 MHz	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						



**Note:** You can't permanently change the CPE MAC address of the 860 DSPi, but you can temporarily override the CPE MAC address of the 860 DSPi by spoofing an external device's MAC address.

### Spoo CPE MAC

To spoof the same external device each time you logon to the network, use the ◀ ▶ buttons to highlight the field below **860 CPE MAC**, and use the Ent button and/or the ▲ ▼ buttons to change the setting to **Spoo CPE MAC**.

When you select **Spoo CPE MAC**, use the ◀ ▶ buttons to highlight the fields next to **Spoo CPE MAC**, use the ▲ ▼ buttons to increase or decrease the value, or press the Ent button, enter the value using the alphanumeric keypad, and then press the Ent button. Repeat this procedure for each field next to **Spoo CPE MAC**.

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
<b>Spoo CPE MAC</b>	00	00	00	00	00	00
<b>Spoo CM MAC#1</b>	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
819.000 MHz	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						

When **Spoo CPE MAC** is selected, the 860 DSPi will use the same external devices's CPE MAC address to logon to the network each time the 860 DSPi is asked to logon using the internal cable modem.



## Spoof Prompt

To spoof a different external device each time you logon to the network, use the ◀ ▶ buttons to highlight the field below **860 CPE MAC**, and use the Ent button and/or the ▲ ▼ buttons to change the setting to **Spoof Prompt**.

If you select **Spoof Prompt**, the **Enter PC MAC to Spoof** window will appear when the 860 DSPi is asked to logon to the network using the internal cable modem.

To enter the external devices's CPE MAC address, use the ◀ ▶ buttons to highlight the address fields, and use the ▲ ▼ buttons to increase or decrease the value, or press the Ent button, enter the value using the alphanumeric keypad, and then press the Ent button again. Repeat this procedure for each address field.

CM and CPE Settings	
860 CPE MAC	00-02-7C-00-02-3D
Spoof Prompt	00 00 00 00 00 00
Spoof CM MAC#1	00 00 00 00 00 00
Modem MAC#1	00-05-CA-71-55-E8
819.000 MHz	DOCSIS 3.0 Annex B ID any
Modem MAC#2	00-05-CA-71-55-E9
819.000 MHz	DOCSIS 2.0 Annex B ID any
Press Enter, Up, or Down to Adjust	

NAVIGATION				
18-Apr-2007	Charge 14.44V 28 C RDY 10:43:29			
01	02	Adv 03	04	05
<b>Enter PC MAC to Spoof</b> [X]				
00 00 00 00 00 00				
OK				
WWW	Auto Test	Auto Test	Results	
Ping				
INSTALLER	SERVICE	SETUP	UTILITY	



**Note:** The 860 DSPi will automatically populate the **Enter PC MAC to Spoof** window with the last CPE MAC address that you used to logon to the network using the internal cable modem.



## Internal Cable Modem MAC Address

To have access to your cable system’s DOCSIS network you may need to use the MAC address of a modem that has been provisioned correctly.

This can be done two ways, by provisioning the MAC address of the 860 DSPi’s internal cable modem on the cable modem network or by spoofing an existing cable modem’s MAC address using the 860 DSPi.

Provisioning the internal cable modem of an 860 DSPi or spoofing a cable modem’s MAC address is essential to get the cable modem to work properly on DOCSIS networks.

The MAC address is a unique number which identifies the internal cable modem of your 860 DSPi on a cable system’s DOCSIS network. A MAC address is of the form **12-34-56-78-9A-BC** and is unique for every device on the network.

### Provisioning the 860 DSPi’s Internal Cable Modem

To use the MAC address of your 860 DSPi’s internal cable modem to connect to the cable system DOCSIS network, use the ◀ ▶ buttons to highlight the field below **Modem MAC#1** and **Modem MAC#2**, and use the Ent button and/or the ▲ ▼ buttons to change the setting to **Use CM MAC#1**, **Use CM MAC#2**, or **CM MAC Prompt**.

Choosing **Use CM MAC#1** or **Use CM MAC#2** will allow you to use the MAC address of internal cable modem number 1 or 2 exclusively to connect to the network.

CM and CPE Settings						
860 CPE MAC		00-02-7C-00-02-3D				
Use CPE MAC	00	00	00	00	00	00
Spoof CM MAC#1	00	00	00	00	00	00
Modem MAC#1		00-05-CA-71-55-E8				
819.000 MHz	DOCSIS 3.0	Annex B	ID	any		
Modem MAC#2		00-05-CA-71-55-E9				
819.000 MHz	DOCSIS 2.0	Annex B	ID	any		
Press Enter, Up, or Down to Adjust						

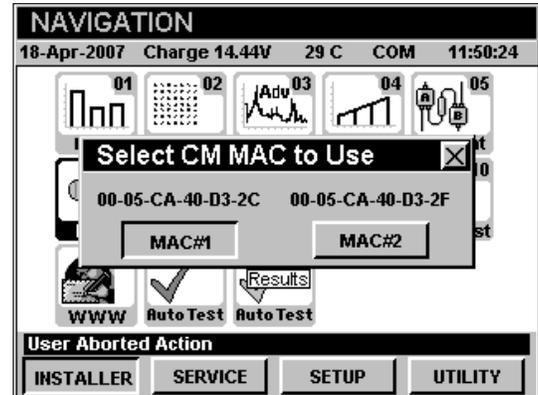


**Note:** If your system is using BPI (Base Line Privacy), you must have your IT Department or System Administrator provision the MAC address of the 860 DSPi’s internal cable modem on your cable system’s DOCSIS network before this method will work.



If you select **CM MAC Prompt**, the **Select CM MAC to Use** window will appear when the 860 DSPi is asked to logon to the network using the internal cable modem.

To select which internal cable modem to use, use the ◀ ▶ buttons to select the **MAC#1** or **MAC#2** button, and then press the **Ent** button.



### Spooing an External Cable Modem

The following two methods can be used to spoof the MAC address of an external cable modem that is provisioned correctly on the cable system's DOCSIS network;

- **Spoo CM MAC#1 or Spoo CM MAC#2** - Use these settings if you plan on spoofing the same external cable modem's MAC address each time you log on to the network. You can spoof a cable modem using either internal cable modem of the 860 DSPi.
- **Spoo Prompt** - Use this setting if you plan on spoofing a different external cable modem's MAC address each time you log on to the network.

CM and CPE Settings	
860 CPE MAC	00-02-7C-00-02-3D
Spoo Prompt	00 00 00 00 00 00
Spoo CM MAC#1	00 00 00 00 00 00
Modem MAC#1	00-05-CA-71-55-E8
819.000 MHz	DOCSIS 3.0 Annex B ID any
Modem MAC#2	00-05-CA-71-55-E9
819.000 MHz	DOCSIS 2.0 Annex B ID any
Press Enter, Up, or Down to Adjust	



**Note:** You can't permanently change the MAC addresses of the 860 DSPi's internal cable modems, but you can temporarily override the MAC addresses of the 860 DSPi's internal cable modems by spoofing an external cable modem's MAC address.



## Spoof CM MAC#1 or Spoof CM MAC#2

To spoof the same external cable modem each time you logon to the network, use the buttons to highlight the field below **Modem MAC#1** and **Modem MAC#2**, and use the button and/or the buttons to change the setting to **Spoof CM MAC#1** or **Spoof CM MAC#2**.

When you select **Spoof CM MAC#1** or **Spoof CM MAC#2**, use the buttons to highlight the fields next to **Spoof CM MAC#1** or **Spoof CM MAC#2**, use the buttons to increase or decrease the value, or press the button, enter the value using the alphanumeric keypad, and then press the button. Repeat this procedure for each field next to **Spoof CM MAC#1** or **Spoof CM MAC#2**.

When **Spoof CM MAC#1** or **Spoof CM MAC#2** is selected, the 860 DSPi will use the same cable modem's CPE MAC address to logon to the network each time the 860 DSPi is asked to logon using the internal cable modem.

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
Use CPE MAC	00	00	00	00	00	00
Spoof CM MAC#1	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
819.000 MHz	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
Use CPE MAC	00	00	00	00	00	00
Spoof CM MAC#2	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
819.000 MHz	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						



**Note:** Spoofing is not allowed on systems where DOCSIS 1.1 has been implemented and BPI is activated due to security reasons.



## Spoof Prompt

To spoof a different cable modem each time you logon to the network, use the ◀ ▶ buttons to highlight the field below **Modem MAC#1** and **Modem MAC#2**, and use the Ent button and/or the ▲ ▼ buttons to change the setting to **Spoof Prompt**.

If you select **Spoof Prompt**, the **Enter CM MAC to Spoof** window will appear when the 860 DSPi is asked to logon to the network using the internal cable modem.

To enter the cable modem's MAC address, use the ◀ ▶ buttons to highlight the address fields, use the ▲ ▼ buttons to increase or decrease the value, or press the Ent button, enter the value using the alphanumeric keypad, and then press the Ent button. Repeat this procedure for each address field.

CM and CPE Settings	
860 CPE MAC	00-02-7C-00-02-3D
Spoof Prompt	00 00 00 00 00 00
Spoof CM MAC#1	00 00 00 00 00 00
Modem MAC#1	00-05-CA-71-55-E8
819.000 MHz	DOCSIS 3.0 Annex B ID any
Modem MAC#2	00-05-CA-71-55-E9
819.000 MHz	DOCSIS 2.0 Annex B ID any
Press Enter, Up, or Down to Adjust	

NAVIGATION				
18-Apr-2007	Charge 14.44V 28 C COM 10:47:02			
01	02	Adv 03	04	05
<b>Enter CM MAC to Spoof</b> [X]				
00 00 00 00 00 00				
OK				
WWW	Auto Test	Auto Test	Results	
Ping				
INSTALLER	SERVICE	SETUP	UTILITY	



**Note:** The 860 DSPi will automatically populate the **Enter CM MAC to Spoof** window with the last cable modem MAC address that you used to logon to the network using the internal cable modem.



## Modem MAC Frequency

This settings allows you to accelerate the modem logon process by entering the center frequency of the downstream DOCSIS carrier. You can select from **91.000** to **1000.000 MHz**, or **Search** (search all frequencies).

To change the search frequency, use the buttons to highlight the **Modem MAC#1** or **Modem MAC#2** field, and use the buttons to change the downstream frequency in increments equal to your channel spacing, or press the button, enter the downstream frequency using the alphanumeric keypad, and then press the button.

To search all the downstream frequencies, set the **Modem MAC#1** or **Modem MAC#2** field to **Search** by entering **0**.

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
Use CPE MAC	00	00	00	00	00	00
Use CM MAC#1	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
Search	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						

CM and CPE Settings						
860 CPE MAC	00-02-7C-00-02-3D					
Use CPE MAC	00	00	00	00	00	00
Use CM MAC#1	00	00	00	00	00	00
Modem MAC#1	00-05-CA-71-55-E8					
819.000 MHz	DOCSIS 3.0	Annex B	ID any			
Modem MAC#2	00-05-CA-71-55-E9					
Search	DOCSIS 2.0	Annex B	ID any			
Press Enter, Up, or Down to Adjust						

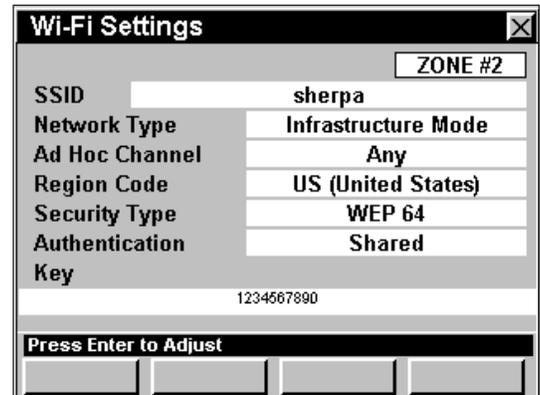
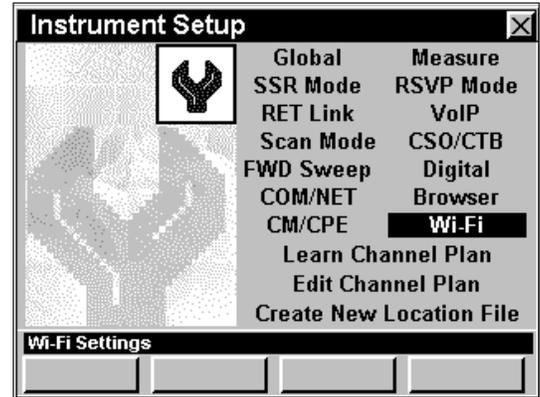


## Wi-Fi Settings

The user can configure up to 3 default Wi-Fi configurations (called zones) using the **Setup** menu. The zone selected when the user leaves setup is the newly active zone that the meter will attempt to use the next time Wi-Fi is activated.

To configure the Wi-Fi zone, use the ◀ ▶ buttons to highlight Wi-Fi on the Instrument Information screen and press the **Ent** button. You may also select the desired modulation type by pressing the corresponding alphanumeric button.

Use the ◀ ▶ buttons to highlight the desired Wi-Fi zone parameter setting and press the **Ent** button to change the value.





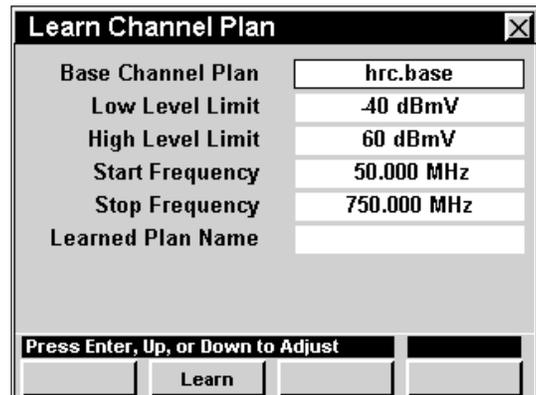
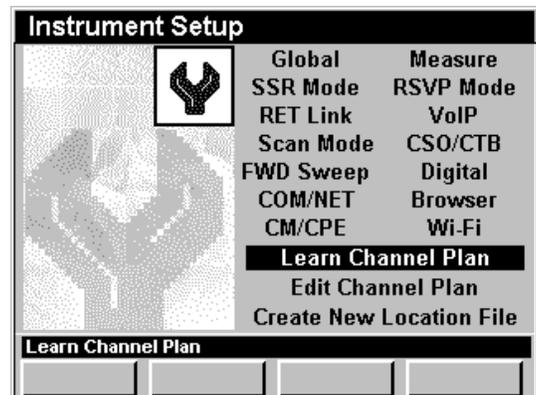
## Learn Channel Plan Settings

Although the instrument comes ready-to-use from the factory, you will need to identify your channel plan on the instrument before you begin using it. This section will show you how to adjust your instrument's **Learn Channel Plan Settings**. The **Learn Channel Plan Menu** window allows you to set the parameters required to quickly identify and learn a channel plan configuration on a system.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Learn Channel Plan Settings** including:

- Base Channel Plan
- Low and High Level Limit
- Start and Stop Frequency
- Learned Plan Name



**Note:** Although you can build basic channel plans in the instrument, it is more convenient to use the WorkBench software to create complex channel plans. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.



## Base Channel Plan

To create a channel plan or to use an existing base channel plan without modifications, you will need to select the plan from the list of the unit's default plans.

Your instrument is equipped with several default base channel plans which may include NCTA, IRC, HRC, U2, U1, PAL\_D, PAL\_B, NCTA870, or NCTA1000. You may use either an existing base plan or create your own customized channel plan.

To set the base channel plan, use the buttons to highlight the **Base Channel Plan** field, and use the button and/or the buttons to increment through the possible base channel plans.

When the base channel plan that you want to model your learned channel plan from is displayed, use the buttons to highlight the **Learned Plan Name** field, press the button, enter the channel plan name using the alphanumeric keypad, and then press the button.

Learn Channel Plan	
Base Channel Plan	hrc.base
Low Level Limit	-40 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	

Press Enter, Up, or Down to Adjust

Learn

Learn Channel Plan	
Base Channel Plan	pal_bg_bh.base
Low Level Limit	-38 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	_plan

Press Enter to Adjust

Learn



## Low and High Level Limits

The **Low Level Limit** setting is used to set the minimum level required to qualify as an active channel. Set this value from 5 to 10 dB below the levels on the system test point you will use to learn your channel plan.

The **High Level Limit** setting excludes signals higher than the set limit. Use this only if you have high level signals that you want to eliminate from your Learned Plan.

To change the limits, use the ◀ ▶ buttons to highlight the **Low Level Limit** or **High Level Limit** field, and use the Ent or ▲ button to increase the level in 1 dBmV increments or use the ▼ button to decrease the time difference in 1 dBmV increments.

Learn Channel Plan	
Base Channel Plan	pal_bg_bh.base
Low Level Limit	-38 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	_.plan

Press Enter to Adjust

Learn

Learn Channel Plan	
Base Channel Plan	pal_bg_bh.base
Low Level Limit	-38 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	_.plan

Press Enter to Adjust

Learn



**Note:** Digital signals will be measured using a 300 kHz bandwidth, causing them to measure about 10 dB low. You will need to set the **Low Level Limit** to accommodate this.



**Note:** Be sure the **High Level Limit** is set at least 5 to 10 dB above the highest signal level you expect to see.



## Start and Stop Frequency

The **Start Frequency** parameter sets the lowest frequency to scan for the active channels and the **Stop Frequency** sets the highest frequency to scan. It is important to set the **Start Frequency**. You only need to set the **Stop Frequency** if you intentionally want to eliminate active channels at the high end of the frequency spectrum.

To change the frequency range, use the buttons to highlight the **Start Frequency** or **Stop Frequency** field, and use the buttons to change the frequency in 1.000 MHz increments, or press the button, enter the frequency using the alphanumeric keypad, and then press the button.

Learn Channel Plan	
Base Channel Plan	pal_bg_bh.base
Low Level Limit	-38 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	_.plan

Press Enter to Adjust

Learn

Learn Channel Plan	
Base Channel Plan	pal_bg_bh.base
Low Level Limit	-38 dBmV
High Level Limit	60 dBmV
Start Frequency	50.000 MHz
Stop Frequency	750.000 MHz
Learned Plan Name	_.plan

Press Enter to Adjust

Learn



**Note:** Any channels lower than the set **Low Level Limit** or higher than the set **High Level Limit** **WILL NOT** be included when the instrument learns the channel plan. Accordingly, any channels below the **Start Frequency** or above the **Stop Frequency** **WILL NOT** be included when the instrument learns the channel plan.

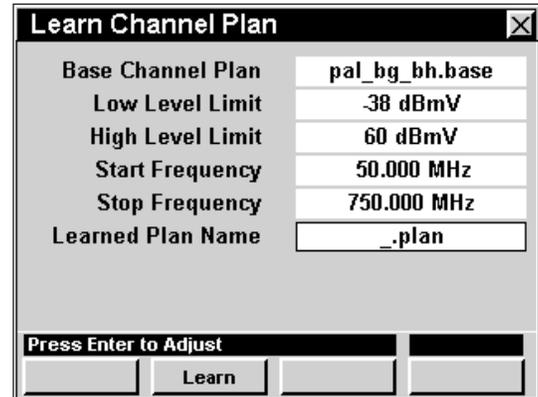


## Learn Channel Plan

Once you have completed making modifications to the new channel plan's parameters, press the  Softkey.

In the message bar at the bottom of the screen you will see the instrument download, scan and read your current channel plan.

When the tests are completed, your instrument will store the learned channel plan in its nonvolatile memory so you can access it from the operation menus.



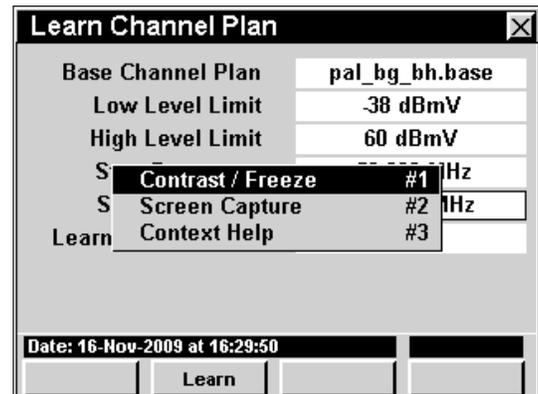
**CAUTION:** Even if you make no modifications to a base channel plan, you still must select the base channel plan, assign a unique name to it and then have your instrument “learn” the plan in order for the unit to access the plan in the operation menus.

## Function Menu Options

The **Function** Menu can be accessed by pressing the  button while in the **Learn Channel Plan Menu** window.

The following **Function** Menu Options can be accessed while the **Learn Channel Plan Menu** window and are described in **Section I: The Basics, Chapter 6: Basic Function Menu Options**:

- Contrast / Freeze
- Screen Capture
- Context Help





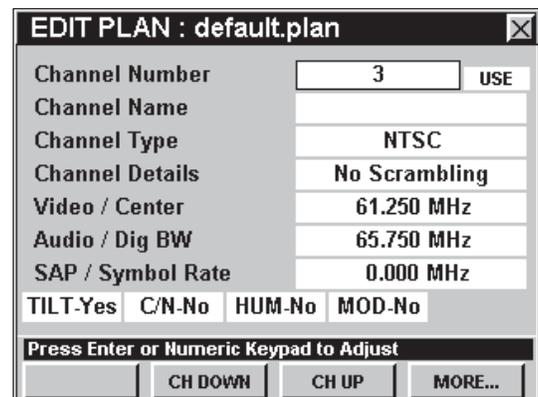
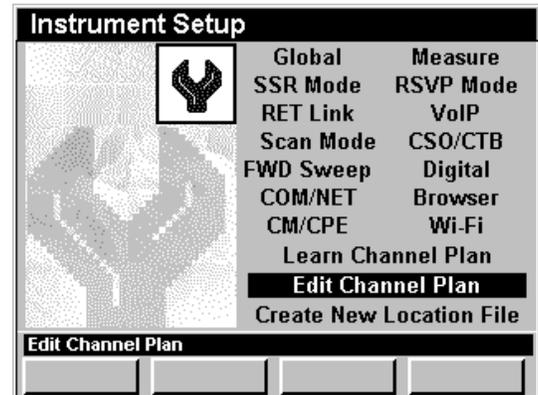
## Edit Channel Plan Settings

Although the instrument comes ready-to-use from the factory, you may need to edit a channel plan. This section will show you how to adjust your instrument's **Edit Channel Plan Settings**. The **Edit Channel Plan Menu** window allows you to edit the channel plan parameters that are configured on your system.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Edit Channel Plan Settings** including:

- Loading a Channel Plan to Edit
- Saving Channel Plans
- Deleting Channel Plans
- Selecting a Channel Number and Channel Usage
- Changing Channel Name
- Channel Type
- Channel Details
- Video / Center
- Audio / Digital Bandwidth
- SAP Symbol Rate
- Tilt, C/N, HUM, and Percent Modulation Settings



**Note:** If you want to edit a channel plan stored in your instrument, you should use **Edit Channel Plan Settings** to set up your digital channel specifications **AFTER** you have used **Learn Channel Plan Settings**.



**Note:** Although you can build basic channel plans in the instrument, it is more convenient to use the companion software WorkBench to create complex channel plans. For instructions regarding setup using WorkBench, please refer to the WorkBench operation manual.

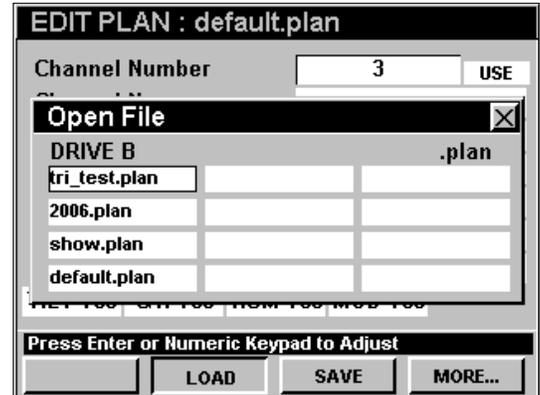


## Loading a Channel Plan to Edit

In order to edit a channel you will first need to select which channel plan you want to edit.

Press the **Load** softkey, use the buttons to highlight an available channel plan on your instrument, and then select the **Ent** button.

The basic parameters for the specified channel plan will be displayed in the edit fields.

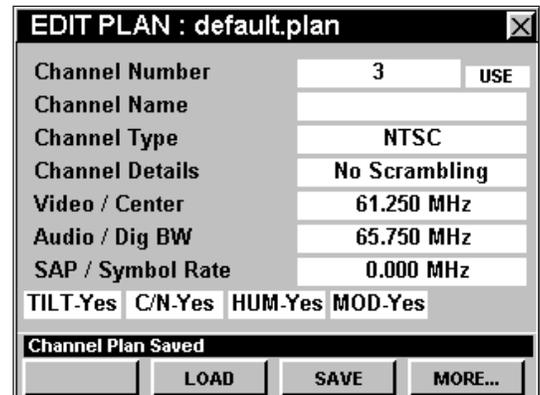


**Note:** You may have to use the **MORE...** softkey to be able to see the **Load** softkey.

## Saving Channel Plans

To save a channel plan with the same name after you have made any desired changes to a channel plan, press the **Save** softkey. "Channel Plan Saved" will be displayed in the message bar.

You may save changes at any time by pressing the **Save** softkey. However, it is only necessary to save changes before the instrument is turned off.



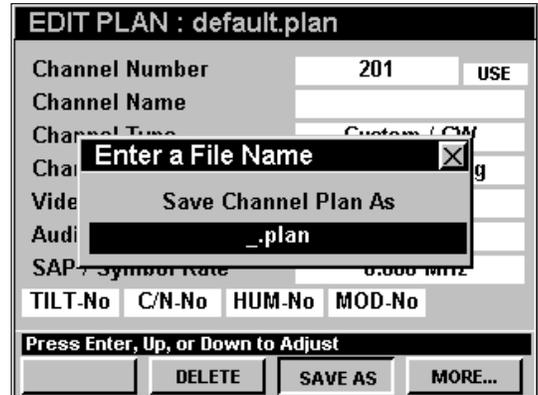
**Note:** You may have to use the **MORE...** softkey to be able to see the **Save** softkey.



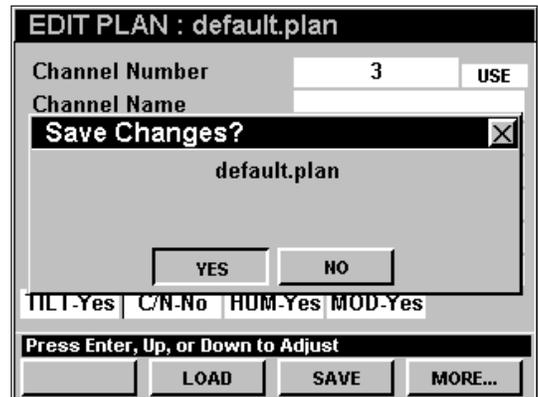
**CAUTION:** Any changes made and not saved will be lost when the instrument is turned off.



To save a channel plan with a new file name after you have made any desired changes to a channel plan, press the **Save As** softkey, enter the file name using the alphanumeric keypad, and then press the **Ent** button.

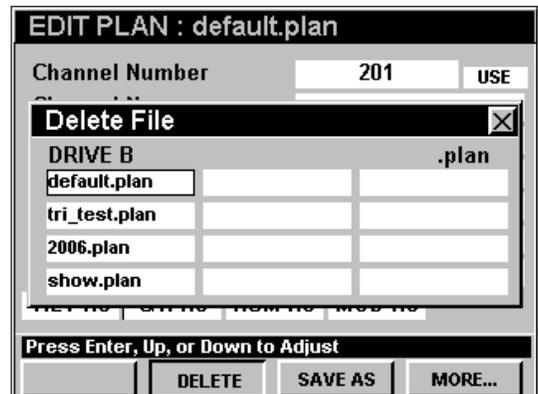


If you have made any changes to a channel plan and you press the **Bk** button while in the **Edit Plan** window, you will be prompted to save your channel plan. Use the **Left** **Right** buttons to select either **Yes** or **No**, and then press the **Ent** button.



## Deleting Channel Plans

To delete a channel plan, press the **Delete** softkey, use the **Left** **Right** **Up** **Down** buttons to highlight an available channel plan on your instrument, and then select the **Ent** button.



**Note:** You may have to use the **MORE...** softkey to be able to see the **Delete** softkey.



## Selecting a Channel Number and Channel Usage

To select a channel for editing, use the ◀ ▶ buttons to highlight left-most field next to **Channel Number**, use the ▲ ▼ buttons to change the channel number in one channel increments, or press the Ent button.

To enable and disable channel numbers, use the ◀ ▶ buttons to highlight right-most field next to **Channel Number**, use the ▲ ▼ buttons to change between **USE** and **SKIP**.

Channel Number	3	USE
Channel Name		
Channel Type	NTSC	
Channel Details	No Scrambling	
Video / Center	61.250 MHz	
Audio / Dig BW	65.750 MHz	
SAP / Symbol Rate	0.000 MHz	
TILT-Yes	C/N-No	HUM-No MOD-No
Press Enter or Numeric Keypad to Adjust		
	CH DOWN	CH UP MORE...



**Note:** When editing any parameter, you can use the Ch Up or Ch Down softkeys to change the channel number within a selected channel plan.

## Channel Name

You may label each channel for easier identification (such as HBO, DISN, USA, TBS, etc.). To edit the channel name, use the ◀ ▶ buttons to select the **Channel Name** field, press the Ent button, enter the channel name using the alphanumeric keypad, and then press the Ent button.

Channel Number	3	USE
Channel Name	_____	
Channel Type	NTSC	
Channel Details	No Scrambling	
Video / Center	61.250 MHz	
Audio / Dig BW	65.750 MHz	
SAP / Symbol Rate	0.000 MHz	
TILT-Yes	C/N-No	HUM-No MOD-No
Enter Text String ( )		
	CH DOWN	CH UP MORE...



**Note:** The channel name supports only eight characters so make sure you use letters which will accurately identify the channel for you.



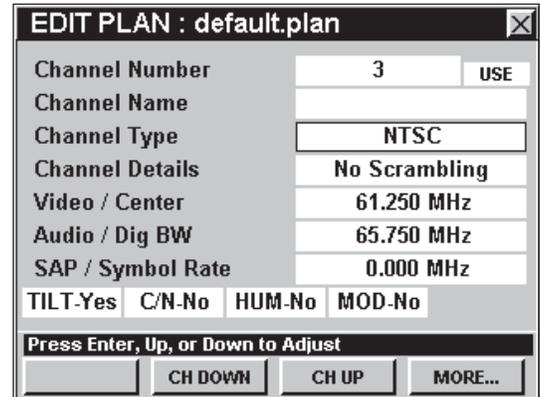
**Note:** When editing any parameter, you can use the Ch Up or Ch Down softkeys to change the channel number within a selected channel plan.



## Channel Type

The following channel types are available for your instrument; **Custom / CW, Digital, NTSC, PAL B, D, G, H, I, K, N, and M, SECAM B, D, G, H, I, K, and L.**

To change the channel type, use the ◀ ▶ buttons to highlight the **Channel Type** field, and use the **Ent** button and/or the ▲ ▼ buttons to increment through the possible channel types.



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.

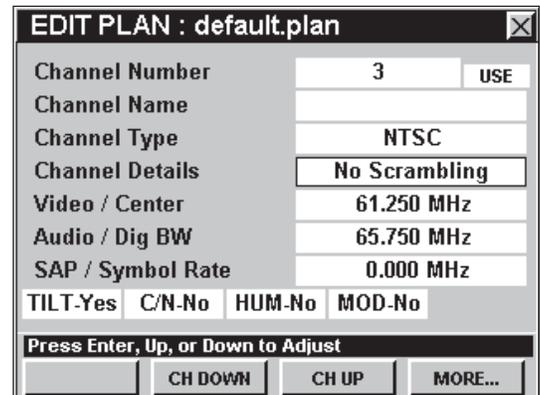
## Channel Details

The following channel details are available for your instrument when the **Channel Type** field is set to anything but **Digital**; **No Scrambling, Sync Suppressed, Sync Sup. w/o field, Sync Sup. w/o Vert., and Split Sync w/o Sup.**

The following channel details are available for your instrument when the **Channel Type** field is set to **Digital**; **QPSK-Annex A, 16, 32, 64, 128, and 256 QAM-Annex A, 64 and 256 QAM-Annex B.**

To change the channel details, use the ◀ ▶ buttons to highlight the **Channel Details** field, and use the

**Ent** button and/or the ▲ ▼ buttons to increment through the possible channel details types.



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.



## Video / Center

To edit the video carrier frequency for analog channels or channel center frequency for digital channels, use the ◀ ▶ buttons to highlight the **Video / Center** field, press the **Ent** button, enter the frequency using the alphanumeric keypad, and then press the **Ent** button.

Channel Number	3	USE
Channel Name		
Channel Type	NTSC	
Channel Details	No Scrambling	
Video / Center	61.250 MHz	
Audio / Dig BW	65.750 MHz	
SAP / Symbol Rate	0.000 MHz	
TILT-Yes	C/N-No	HUM-No MOD-No
Press Enter or Numeric Keypad to Adjust		
	CH DOWN	CH UP MORE...



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.

## Audio / Dig BW

To edit the audio frequency for analog channels or the digital bandwidth for digital channels, use the ◀ ▶ buttons to highlight the **Audio / Dig BW** field, press the **Ent** button, enter the frequency using the alphanumeric keypad, and then press the **Ent** button.

Channel Number	3	USE
Channel Name		
Channel Type	NTSC	
Channel Details	No Scrambling	
Video / Center	61.250 MHz	
Audio / Dig BW	65.750 MHz	
SAP / Symbol Rate	0.000 MHz	
TILT-Yes	C/N-No	HUM-No MOD-No
Press Enter or Numeric Keypad to Adjust		
	CH DOWN	CH UP MORE...



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.



## SAP / Symbol Rate

To edit the secondary audio programming carrier frequency or symbol rate of digital modulation, use the ◀ ▶ buttons to highlight the **SAP / Symbol Rate** field, press the **Ent** button, enter the frequency using the alphanumeric keypad, and then press the **Ent** button.

EDIT PLAN : default.plan	
Channel Number	3 USE
Channel Name	
Channel Type	NTSC
Channel Details	No Scrambling
Video / Center	61.250 MHz
Audio / Dig BW	65.750 MHz
SAP / Symbol Rate	0.000 MHz
TILT-Yes	C/N-No HUM-No MOD-No
Press Enter or Numeric Keypad to Adjust	
	CH DOWN CH UP MORE...



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.

## Tilt, C/N, HUM, and Percent Modulation Settings

The Tilt, C/N, Hum, Percent Modulation settings are all enabled and disabled in the same way.

To change the desired setting, use the ◀ ▶ buttons to highlight the **Tilt**, **C/N**, **Hum**, or **MOD** field, and use the **Ent** button and/or the ▲ ▼ buttons to change between **Yes** and **No**.

EDIT PLAN : default.plan	
Channel Number	3 USE
Channel Name	
Channel Type	NTSC
Channel Details	No Scrambling
Video / Center	61.250 MHz
Audio / Dig BW	65.750 MHz
SAP / Symbol Rate	0.000 MHz
TILT-Yes	C/N-No HUM-No MOD-No
Press Enter, Up, or Down to Adjust	
	CH DOWN CH UP MORE...



**Note:** C/N, HUM, and Modulation are used for analog video only.



**Note:** When editing any parameter, you can use the **Ch Up** or **Ch Down** softkeys to change the channel number within a selected channel plan.



**Note:** These tests are used in conjunction with **Auto Test** Macros.

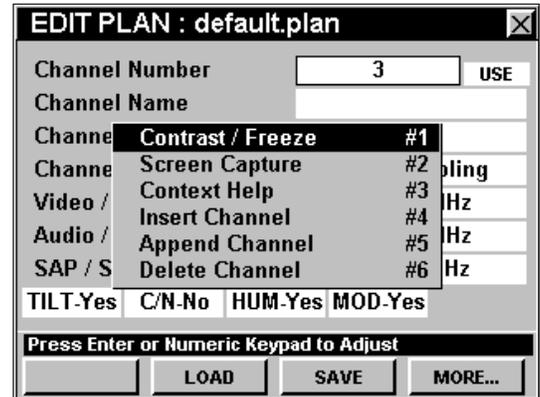


## Function Menu Options

The **Function** Menu can be accessed by pressing the **Fn** button while in the **Edit Plan Menu** window.

The following **Function** Menu options can be accessed while the **Edit Plan Menu** window:

- Contrast / Freeze
- Screen Capture
- Context Help
- Insert Channel
- Append Channel
- Delete Channel



### Basic Function Menu Options

The following functions are described in **Section I: The Basics, Chapter 6: Basic Function Menu Options**:

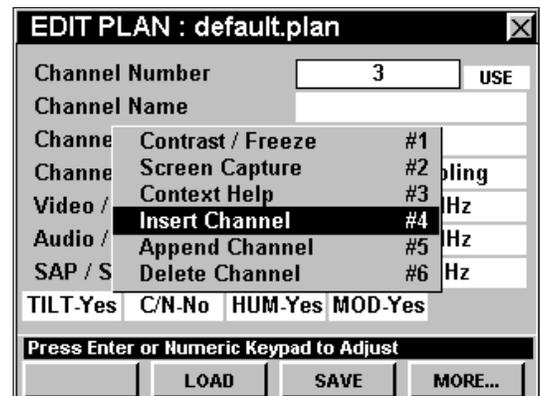
- Contrast / Freeze
- Screen Capture
- Context Help

### Insert Channel

If needed you can insert a new channel into your channel plan.

To use this option, press the **Fn** button, use the **▲** **▼** buttons to highlight **Insert Channel**, and then press the **Ent** button. You may also select **Insert Channel** by pressing **4**.

The new channel will be inserted in the first available channel location below the currently selected channel number.



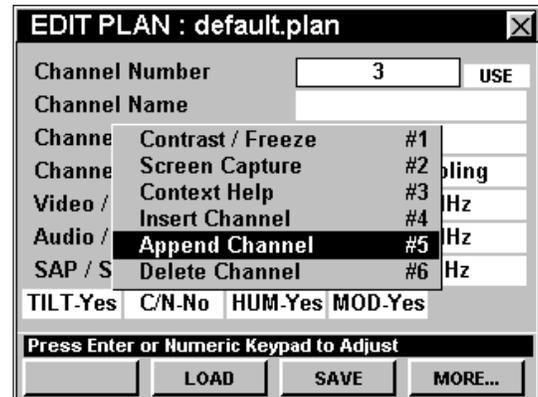


## Append Channel

If needed you can append a new channel to the end of your channel plan.

To use this option, press the **Fn** button, use the **▲▼** buttons to highlight **Append Channel**, and then press the **Ent** button. You may also select **Append Channel** by pressing **5**.

The new channel will be appended to the end of the selected channel plan.

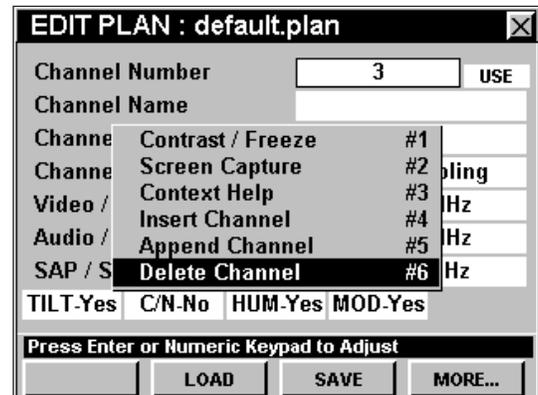


## Delete Channel

If needed you can delete an existing channel from your channel plan.

To use this option to delete the currently selected channel, press the **Fn** button, use the **▲▼** buttons to highlight **Delete Channel**, and then press the **Ent** button. You may also select **Delete Channel** by pressing **6**.

The new channel will be appended to the end of the selected channel plan.





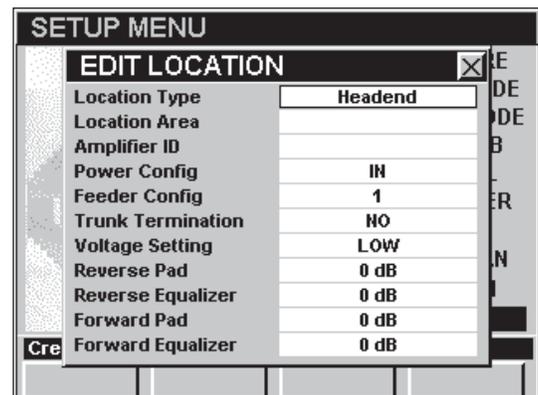
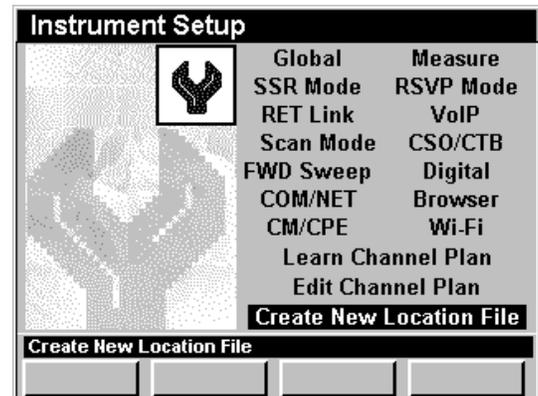
## Create Location Settings

Although the instrument comes ready-to-use from the factory, you may need to store unique specifications for certain locations in your system. This section will show you how to adjust your instrument's **Create Location Settings**. The **Edit Location** window provides a method to tag data loss with information about the location at which the data is taken. These are helpful settings, but are not required.

These parameters can be set directly from your instrument or using WorkBench. For instructions regarding setup using WorkBench, please refer to the WorkBench Operation Manual.

This section will provide you with a basic understanding of how to modify the **Create Location Settings** including:

- Selecting a Location Type
- Location Area and Amplifier ID
- Power Configuration
- Feeder Configuration
- Trunk Termination
- Voltage Setting
- Reverse Pad
- Reverse Equalizer
- Forward Pad
- Forward Equalizer
- Saving Location Settings

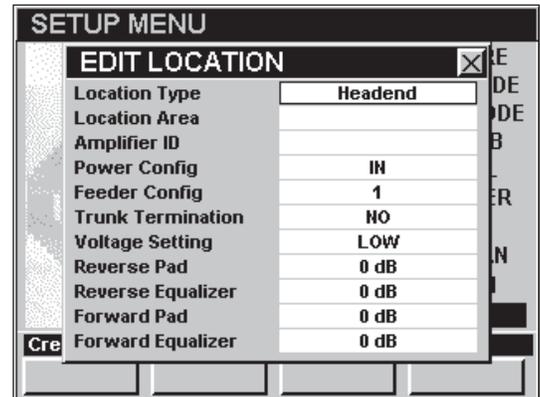




## Location Type

You can identify a particular location in your cable system for future reference. The location type may include: **Headend**, **Trunk Amp**, **Line Extender**, **Fiber Node**, or **Field Test**. Use the **Field Test** for any location that does not fall into a specific type.

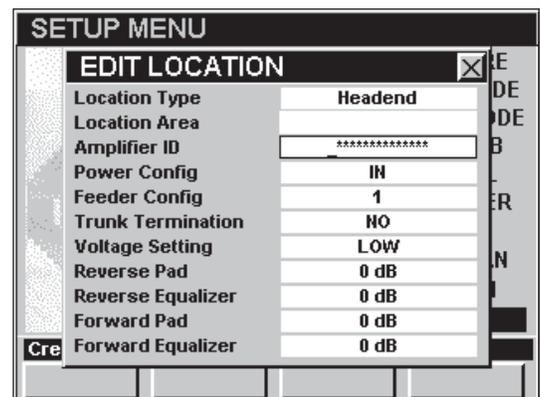
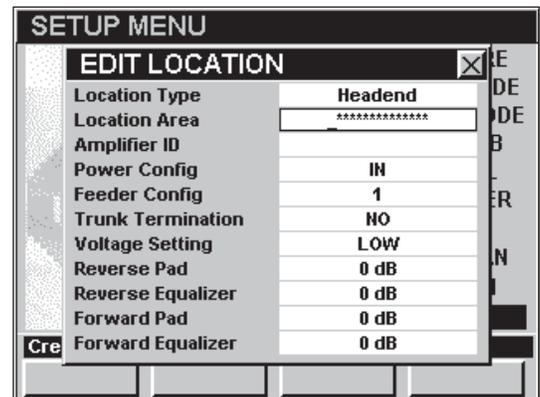
To change the location type, use the ◀ ▶ buttons to highlight the **Location Type** field, and use the ▲ ▼ buttons to increment through the possible location types.



## Location Area and Amplifier ID

You may also want to create a unique name for the location area and the amplifier ID.

To change the location area or amplifier ID, use the ◀ ▶ buttons to highlight the **Location Area** or **Amplifier ID** field, press the Ent button, enter the name using the alphanumeric keypad, and then press the Ent button.

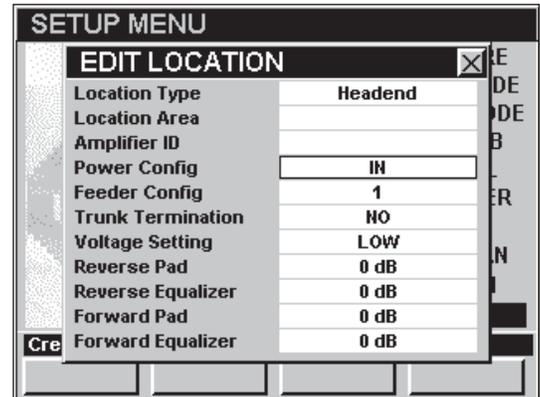




## Power Configuration

You can specify the power configuration for this location. The following power configurations are available for your instrument; **In**, **Out** or **Through**.

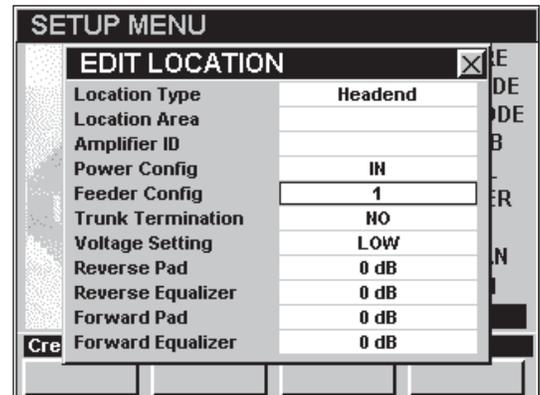
To change the power configuration, use the ◀ ▶ buttons to highlight the **Power Config** field, and use the ▲ ▼ buttons to increment through the possible power configurations.



## Feeder Configuration

You can specify the feeder configuration for this location. The feeder configuration can be specified as any number between **1** and **9**.

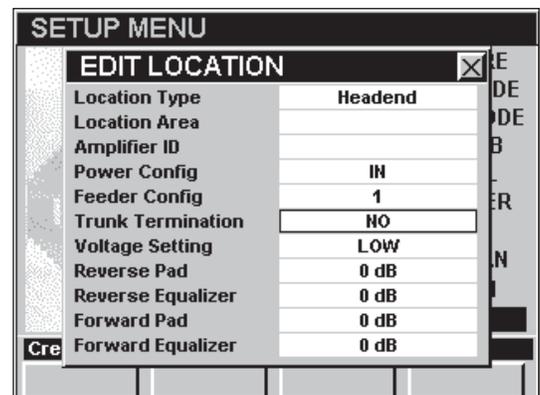
To change the feeder configuration, use the ◀ ▶ buttons to highlight the **Feeder Config** field, and use the ▲ ▼ buttons to increment through the possible feeder configurations.



## Trunk Termination

You can specify if this location has a trunk termination.

To specify whether this location has a trunk termination, use the ◀ ▶ buttons to highlight the **Trunk Termination** field, and use the ▲ ▼ buttons to change between **Yes** and **No**.

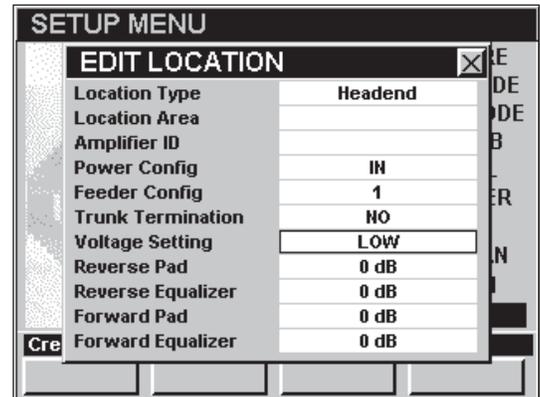




## Voltage Setting

You can specify the voltage setting for this location. The following voltage settings are available for your instrument; **Low, Medium, or High**.

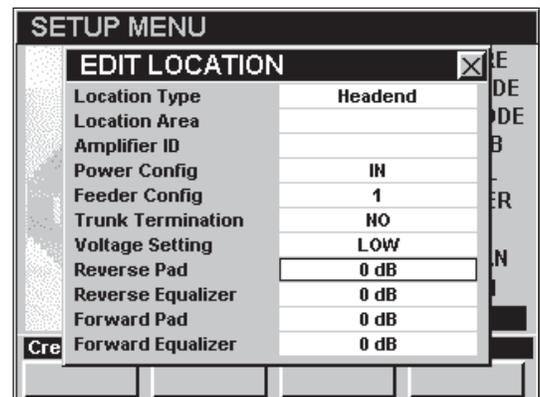
To change the voltage setting, use the ◀ ▶ buttons to highlight the **Voltage Setting** field, and use the ▲ ▼ buttons to increment through the possible voltage settings.



## Reverse Pad

You can specify the reverse pad setting for this location.

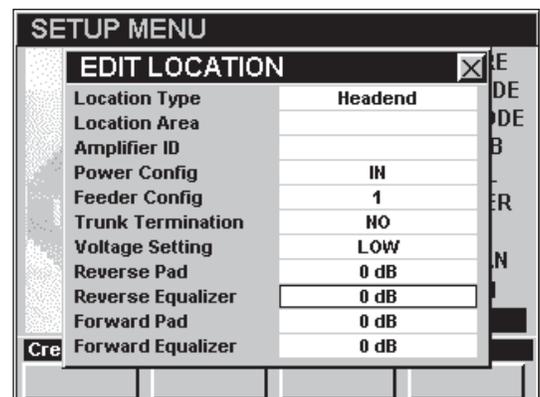
To change the reverse pad settings, use the ◀ ▶ buttons to highlight the **Reverse Pad** field, and use the ▲ ▼ buttons to change the setting in 1 dB increments.



## Reverse Equalizer

You can specify the reverse equalizer setting for this location.

To change the reverse equalizer settings, use the ◀ ▶ buttons to highlight the **Reverse Equalizer** field, and use the ▲ ▼ buttons to change the setting in 1 dB increments.

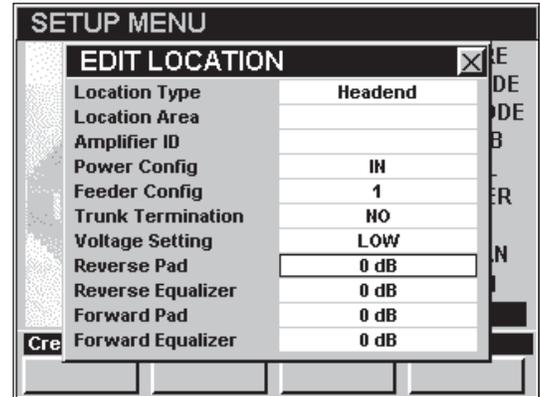




## Forward Pad

You can specify the forward pad setting for this location.

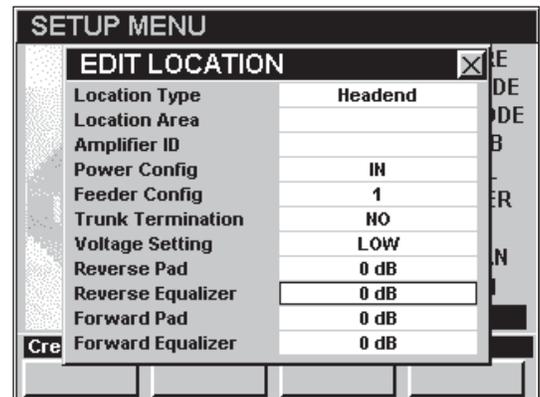
To change the forward pad settings, use the buttons to highlight the **Forward Pad** field, and use the buttons to change the setting in 1 dB increments.



## Forward Equalizer

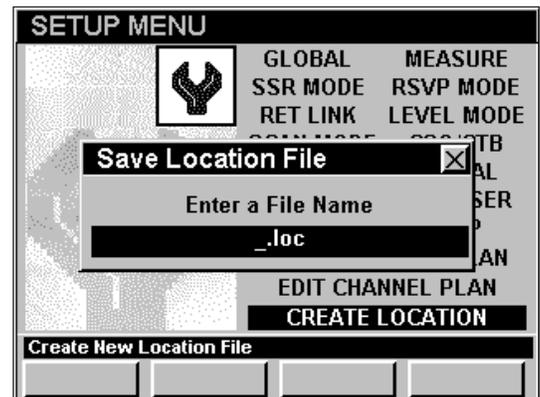
You can specify the forward equalizer setting for this location.

To change the forward equalizer settings, use the buttons to highlight the **Forward Equalizer** field, and use the buttons to change the setting in 1 dB increments.



## Saving Location Settings

When you are done changing all of the location settings, press the button. The Save Location File window will appear, use the alphanumeric keypad to enter the file name of the location file, and then press the button.



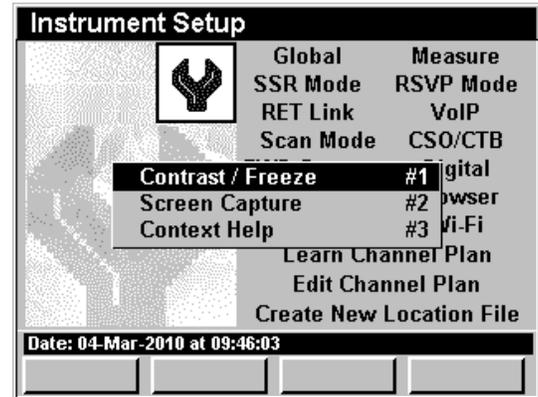


## Function Menu Options

The **Function** Menu can be accessed by pressing the **Fn** button while in the **Instrument Setup** Mode.

The following **Function** Menu Options can be accessed while in **Instrument Setup** Mode and are described in **Section I: The Basics, Chapter 6: Basic Function Menu Options**:

- Contrast / Freeze
- Screen Capture
- Context Help





# Power Management Mode

3

## Introduction

Your instrument is equipped with both a battery and an AC power adaptor. The battery life is approximately four hours for continuous operation and can be extended when used intermittently.

The **Power Management** Mode allows you to better manage the power consumption of your instrument to prolong the time needed between charging. The basic 860 DSP and 860 DSPi come equipped with the **Power Management** Mode as a standard feature.

This section will provide you with the basic understanding of how to use **Power Management** Mode including:

- Choosing Power Scheme
- Processor Speed
- Backlight Level
- Unit Off Timer
- Backlight Timer
- USB Power
- Function Menu Options

Power Management	
19-Oct-2009 Chrg 14.26V 77 F IP 09:40:53	
Power Scheme	Custom
Processor Speed	2X
Backlight Level	Off
Unit Off Timer	12 Minutes
Backlight Timer	Disabled
USB Power	Off



**Note:** If your instrument does not include all of the features shown in this chapter, go on-line to [www.trilithic.com](http://www.trilithic.com) to update your firmware for free. This will allow you to use all of the newest features that are included in this mode.

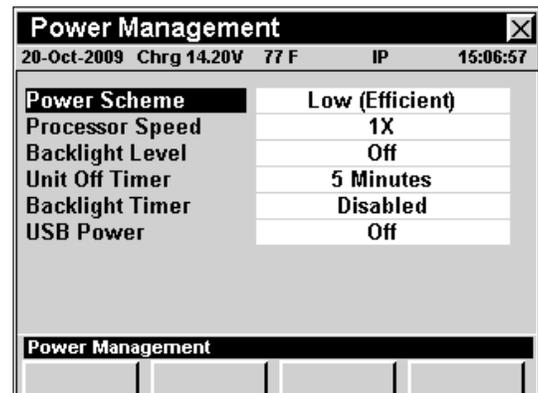
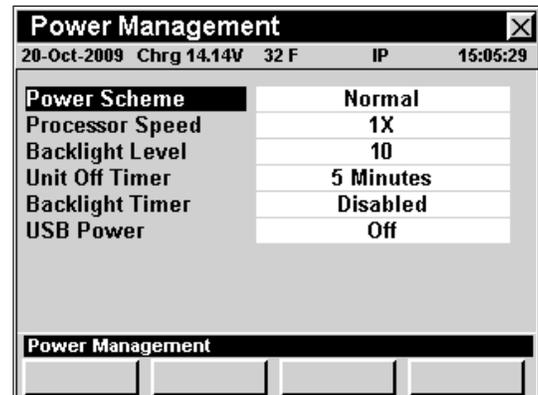
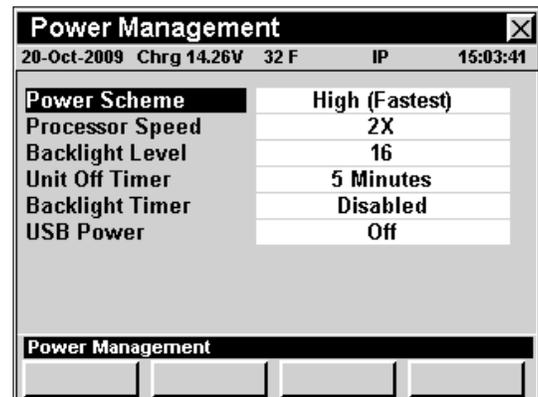


## Choosing a Power Scheme

This setting allows you to choose from pre-configured power schemes in order to conserve battery usage.

To change the power scheme, use the ◀ ▶ buttons to highlight the **Power Scheme** field, and use the ▲ ▼ buttons to increment through the possible power schemes. You can select from **High (Fastest)**, **Normal**, **Low (Efficient)**, and **Custom**.

- **High (Fastest)** - This setting allows the instrument to operate using all options at their highest capacity and fastest speed. This is ideal when the AC power adaptor is plugged into AC power. The default settings of this power scheme are; **Processor Speed = 2X** and **Backlight Level = 16**.
- **Normal** - This setting is the typical power scheme. The default settings of this power scheme are; **Processor Speed = 1X** and **Backlight Level = 10**.
- **Low (Efficient)** - This setting is your most efficient option. If you need to use the instrument for an extended period of time before recharging, this option will extend your battery life. The default settings of this power scheme are; **Processor Speed = 1X** and **Backlight Level = OFF**.
- **Custom** - This setting allows you to **customize your power management settings** by manually setting the **Processor Speed** and **Backlight Level** yourself.



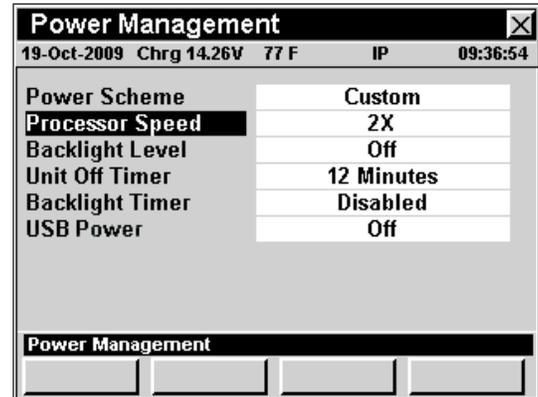


## Setting Processor Speed

The processor speed is the level at which your instrument should process data. The processor speed can only be changed when the **Power Scheme** is set to **Custom**.

To change the processor speed, use the ◀ ▶ buttons to highlight the **Processor Speed** field, and use the ▲ ▼ buttons to change between **1X** and **2X**.

- **1X** - This setting is used to conserve battery power.
- **2X** - This is the default setting.

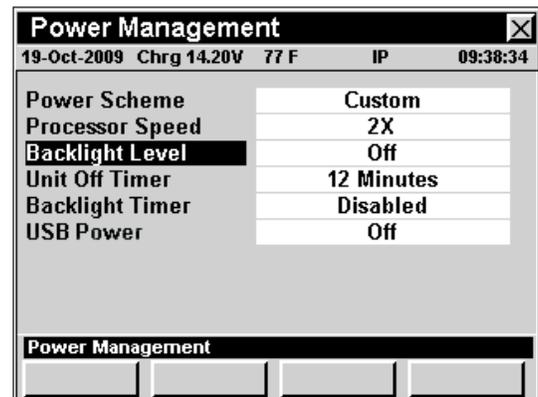


## Setting Backlight Level

This setting is the level of brightness of your instrument's display. The backlight level can only be changed when the **Power Scheme** is set to **Custom**. On older instruments, you can choose a backlight level between **Off** and **28**. On newer instruments, you can choose a backlight level of **On** or **Off**.

To change the backlight level, use the ◀ ▶ buttons to highlight the **Backlight Level** field, and use the ▲ ▼ buttons to increment through the possible backlight levels.

- If you are working outdoors in direct light choose a lower number.
- If you are working inside or in dark environments choose a larger number.



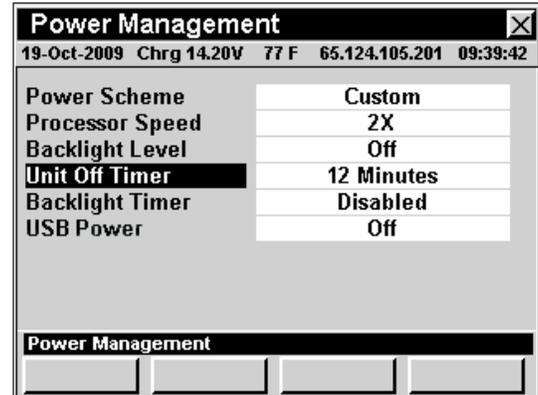


## Unit Off Timer

This setting is used to turn off your instrument after it has been idle for a specified period of time.

In order to conserve battery power, it is recommended to change this setting to automatically turn off the instrument within a particular amount of idle time. You can choose from **Disabled** to **240 minutes**.

To change the unit off timer, use the ◀ ▶ buttons to highlight the **Unit Off Timer** field, and use the ▲ ▼ buttons to change the time in 1 minute increments.



**Note:** Although this option will turn off your instrument after a specified period of time, when you power it on again, for your convenience it will bring you to the exact same screen it was on when it powered off.



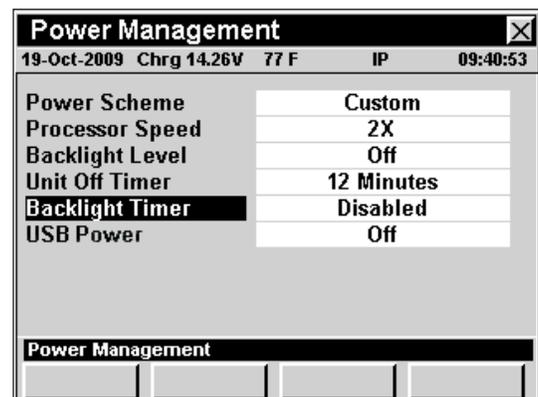
**Note:** This timer setting does not apply when the instrument is being powered through the charge cube.

## Backlight Timer

This setting is used to turn off the display screen's backlight after your instrument has been idle for a specified period of time.

In order to conserve battery power, it is recommended to change this setting to automatically turn off the display screen's backlight within a particular amount of idle time. You can choose from **Disabled** to **240 minutes**.

To change the backlight timer, use the ◀ ▶ buttons to highlight the **Backlight Timer** field, and use the ▲ ▼ buttons to change the time in 1 minute increments.



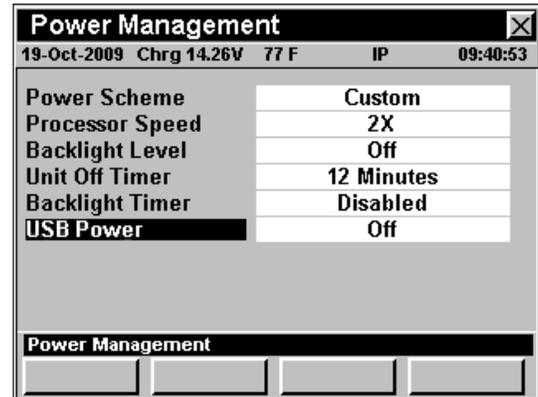
**Note:** This timer setting does not apply when the instrument is being powered through the charge cube.



## USB Power

This setting is used to turn the USB power on and off.

To toggle the instrument USB power between on and off, use the ◀ ▶ buttons to highlight the **USB Power** field, and use the ▲ ▼ buttons to toggle between on and off.

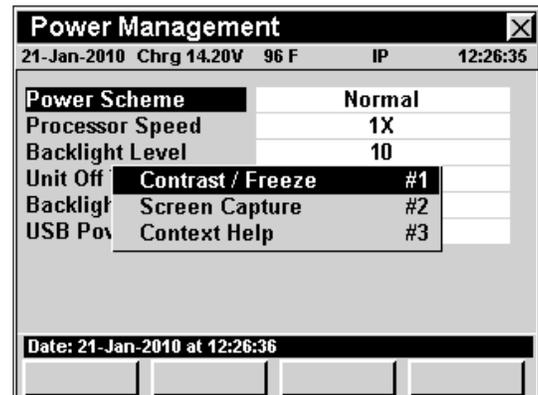


## Function Menu Options

The **Function** Menu can be accessed by pressing the **Fn** button while in the **Power Management** Mode.

The following **Function** Menu options can be accessed while in **Power Management** Mode and are described in **Section I: The Basics**, [Chapter 6: Basic Function Menu Options](#):

- Contrast / Freeze
- Screen Capture
- Context Help





# Explore Files Mode

4

## Introduction

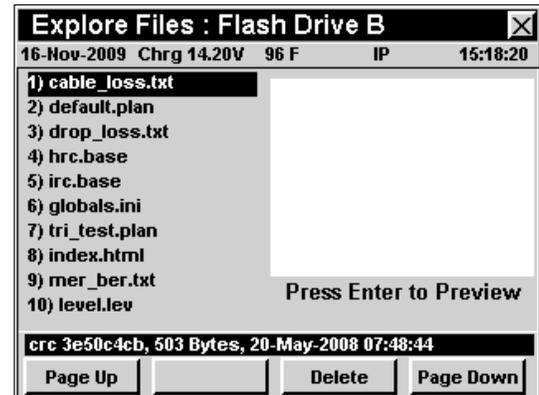
The **Explore Files** Mode allows you to view the data log files and unit configurations that are saved on **Flash Drive B**. These files include; learned channel plans, screen saves, data logs and text files. The basic 860 DSP and 860 DSPi come equipped with the **Power Management Mode** as a standard feature.



**Note:** Your instrument has two drives, **Flash Drive B** is accessible, **Flash Drive A** is reserved for the instrument's firmware and calibration files and is not accessible.

This section will provide you with the basic understanding of how to use **Explore Files** Mode including:

- Previewing Files
- Deleting Files
- Supported File Types
- Function Menu Options



**Note:** If your instrument does not include all of the features shown in this chapter, go on-line to [www.trilithic.com](http://www.trilithic.com) to update your firmware for free. This will allow you to use all of the newest features that are included in this mode.



## Previewing Files

The **Explore Files** Mode displays a list of files stored on **Flash Drive B**.

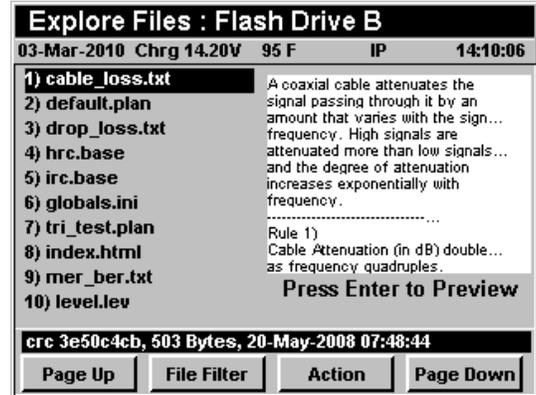
Use the buttons to navigate through the list.

The instrument will display 10 files in the list on a screen at one time. You can page back a forth through the list using the **Page Up** or **Page Down** softkeys.

To preview a file, highlight the desired file name then press the button.

A thumbnail preview will appear giving you information about the files contents.

The file parameters are displayed in the message bar at the bottom of the screen.

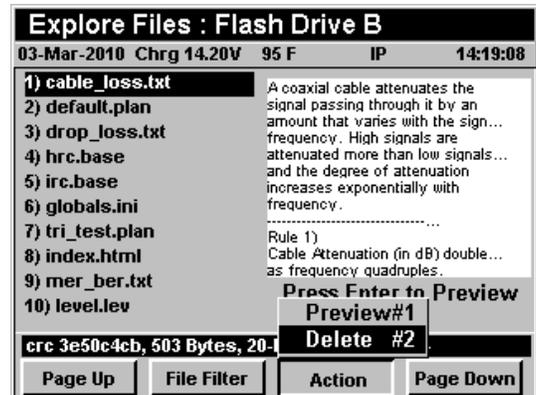


**Note:** Some file types cannot be previewed, including log files.

## Deleting Files

To delete a file, use the buttons to highlight the desired file name then press the **Action** softkey.

- The Preview/Delete function menu will open.
- Use the buttons to select **Preview**, and then press the button.



**Note:** Before deleting a file be sure to preview the file and consult the file types list to be sure that you have the selected the correct file.



## Supported File Types

The following is a list of extensions the 860 DSP uses for saving information:

Extension	File Type
.base	Base Channel plan (contains all channels for a given plan used for learning a channel plan)
.ber	BER Data Log
.bmpz	Compressed Bitmap Screen Save
.c2n	C/N Data Log
.cso	CSO/CTB Data Log
.dat	Temporary Cache files used by the web browser
.dom	% MOD Data Log
.fdr	FDR Data Log
.fm	FM Deviation Data Log
.fswp	Sweep Data Log
.gif	Web graphic file
.html	Web browser Source File
.hum	hum Data Log
.ini	User settings (deleting this file returns the 860 to factory default)
.lcd	Screen save
.jpg	Web graphic file
.leak	Leakage Data Log
.lev	Level Data Log
.log	Macro results
.mac	Autotest macro (deleting this file will remove the macro)
.ping	PING Data Log
.plan	Learned or user edited channel plan



<b>Extension</b>	<b>File Type</b>
.png	Web graphic file
.qam	QAM Data Log
.qaml	QAM Light Data Log
.qevs	QAM EVS Data Log
.rout	Trace Route Data Log
.rsa	RSA Sweep Data Log
.rswp	SSR Data Log
.rtst	RSVP Data Log
.scan	Scan Data Log
.spec	Spectrum Data Log
.sref	Sweep Reference
.stat	CM Stat Data Log
.thru	Thru Put Data Log
.tilt	TILT Data Log
.traf	TrafficControl Data Log
.txt	Text
.vits	VITS Data Log
.vrtp	VoIP Data Log
.wifi	Wi-Fi Survey Data Log
.wlog	Web Browser Data Log

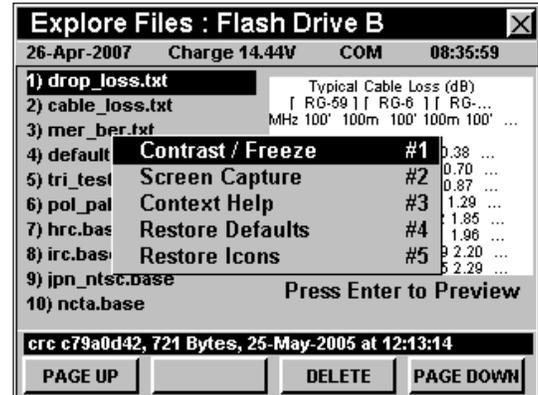


## Function Menu Options

The **Function** Menu can be accessed by pressing the **Fn** button while in the **File Explorer** Mode.

The following **Function** Menu Options can be accessed while in **File Explorer** Mode:

- Contrast / Freeze
- Screen Capture
- Context Help
- Restore Defaults
- Restore Icons



### Basic Function Menu Options

The following functions are described in **Section I: The Basics, Chapter 6: Basic Function Menu Options**:

- Contrast / Freeze
- Screen Capture
- Context Help

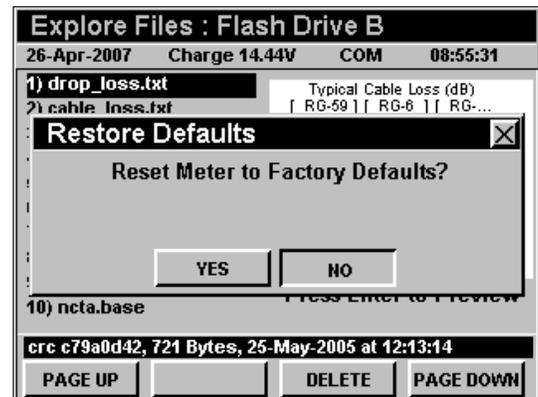
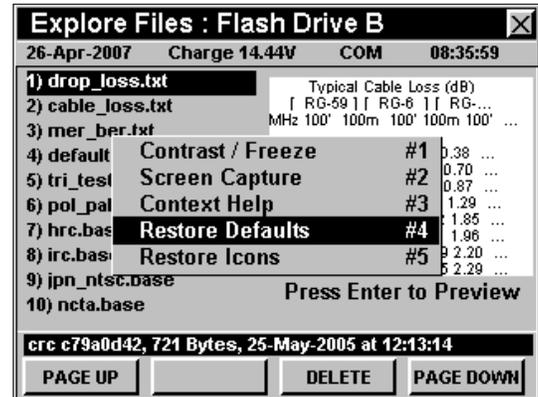


## Restore Factory Default Settings

If needed you can reset your instrument to the original factory default settings.

To use this option, press the **Fn** button, use the **▲** **▼** buttons to highlight **Restore Defaults**, and then press the **Ent** button. You may also select **Restore Defaults** by pressing **4**.

- The **Function** Menu will close and the **Restore Defaults** window will open.
- Use the **◀** **▶** buttons to select **Yes** or **No**, and then press the **Ent** button.



**CAUTION:** Setting to factory defaults will delete most user settings such as active channel plan, limits, display units etc.

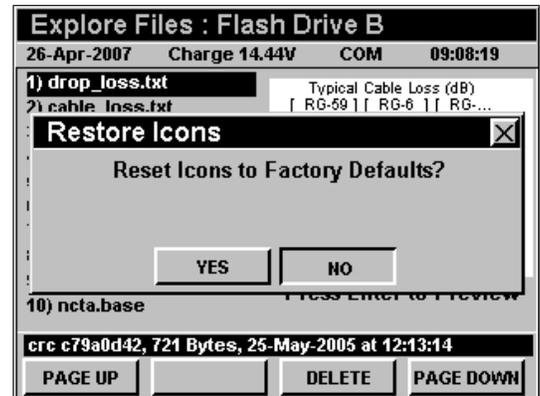
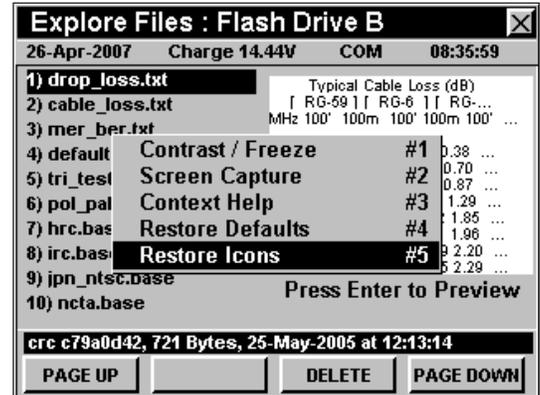


## Restore Icons

If needed you can reset your icons to the original factory default icons.

To use this option, press the **Fn** button, use the **▲** **▼** buttons to highlight **Restore Icons**, and then press the **Ent** button. You may also select **Restore Icons** by pressing **5**.

- The **Function** Menu will close and the **Restore Icons** window will open.
- Use the **◀** **▶** buttons to select **Yes** or **No**, and then press the **Ent** button.



**Note:** Icons can be customized using the WorkBench companion software. For instructions, see your WorkBench Operation Manual.



**Note:** After a firmware upgrade, you may need to restore icons to see any new icons.



**CAUTION:** Restoring icons will delete any user set icons. **YOU WILL NOT BE ABLE TO RETRIEVE ANY CUSTOMIZED ICONS AFTER REVERTING TO FACTORY DEFAULT SETTINGS.**



# Instrument Information Mode

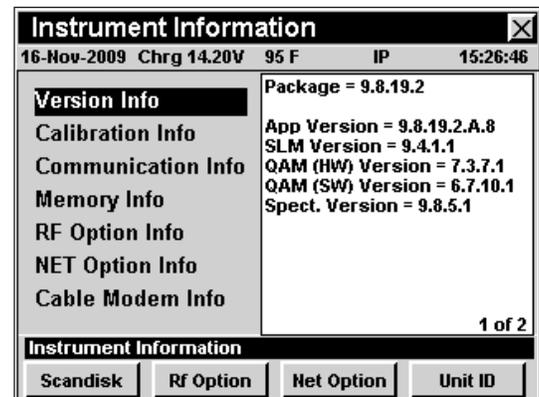


## Introduction

The **Instrument Information** Mode allows you to view information specific to your instrument such as firmware revision version, calibration date and options installed in your instrument. This is a useful resource when upgrading your instrument or just referencing communications specifications. The basic 860 DSP and 860 DSPi come equipped with the **Instrument Information** Mode as a standard feature.

This section will provide you with the basic understanding of how to use **Instrument Information** Mode including:

- Version Info
- Calibration Info
- Communications Info
- Memory Info
- RF Option Info
- NET Option Info
- Cable Modem Info
- Performing a ScanDisk
- Activating Rf Options
- Activating Net Options



**Note:** All information displayed in the **Instrument Information** Mode is static and is to be used as a reference only. To edit any settings you will need to use the **Instrument Setup** Mode.



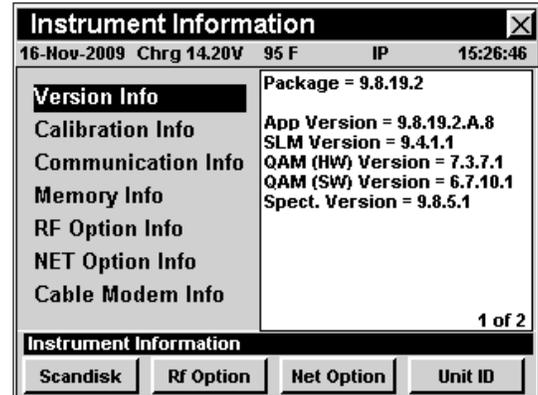
**Note:** If your instrument does not include all of the features shown in this chapter, go on-line to [www.trilithic.com](http://www.trilithic.com) to update your firmware for free. This will allow you to use all of the newest features that are included in this mode.



## Version Info

The **Version Info** field provides details on the version of firmware installed in your instrument. This information will be helpful if you are updating your firmware or upgrading your instrument's option package.

To view the version info of your instrument, use the ◀ ▶ buttons to highlight the **Version Info** field.

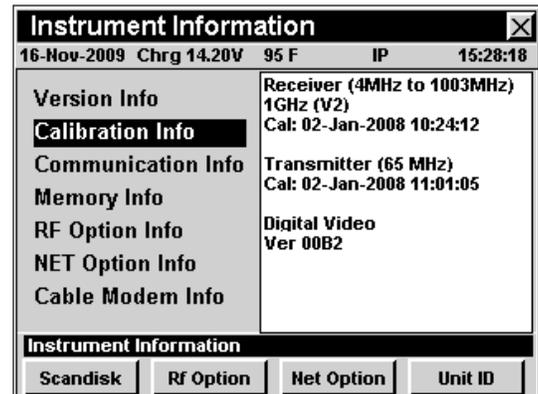


**Note:** When you download firmware updates from the web site or using WorkBench software, this information will be automatically updated.

## Calibration Info

The **Calibration Info** field provides recorded details of the last time your instrument was calibrated. This information will be helpful if you are sending your instrument in to the factory for periodic maintenance.

To view the calibration info of your instrument, use the ◀ ▶ buttons to highlight the **Calibration Info** field.



**Note:** When your instrument is sent in for calibration, this information will be automatically updated. You should schedule your instrument for calibration every two years.



## Communication Info

The **Communication Info** field displays details on the MAC address and various IP and server setup information on your instrument. This information is helpful for quick reference of your current communications settings.

To view the communication info of your instrument, use the ◀ ▶ buttons to highlight the **Communication Info** field.

Instrument Information	
16-Nov-2009	Chrg 14.20V
95 F	IP
15:29:02	
Version Info	CPE: 00-02-7C-00-02-3D
Calibration Info	CM#1: 00-05-CA-44-4E-28
<b>Communication Info</b>	CM#2: 00-05-CA-44-4E-2B
Memory Info	Wi-Fi: 00-0B-6B-77-91-14
RF Option Info	IP: 10.2.8.124
NET Option Info	DHCP: 10.2.8.1
Cable Modem Info	Subnet: 255.255.255.0
	Gateway: 10.2.8.1
	DNS (Pri): 10.2.8.18
	DNS (Sec): 65.124.104.29
	COM1: 38400 Baud
	COM2: 9600 Baud
	USB: V1.1
Instrument Information	
Scandisk	Rf Option
Net Option	Unit ID



**Note:** This information can be edited from the **Instrument Setup Mode** and will be automatically updated.

## Memory Info

The **Memory Info** field displays details of the memory available and used on your instrument. This information displays the amount of hard disk space available on your instrument.

To view the memory info of your instrument, use the ◀ ▶ buttons to highlight the **Memory Info** field.

Instrument Information	
16-Nov-2009	Chrg 14.20V
95 F	IP
15:29:32	
Version Info	16777216 Bytes RAM Total
Calibration Info	4020336 Bytes RAM Free
Communication Info	Drive A: (0.5 MB)
<b>Memory Info</b>	164 of 192 Files Free
RF Option Info	19% Capacity Free
NET Option Info	Drive B: (1.5 MB)
Cable Modem Info	91 of 192 Files Free
	35% Capacity Free
	Refresh Sector: 1497
Instrument Information	
Scandisk	Rf Option
Net Option	Unit ID



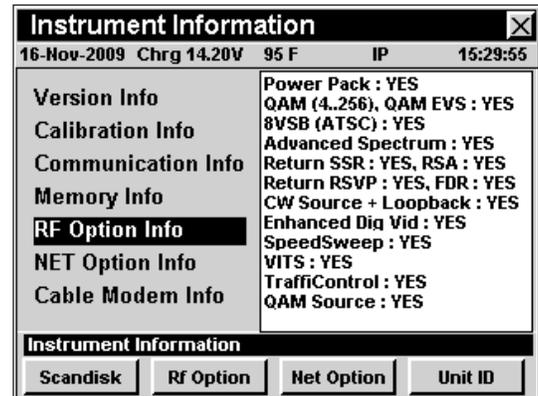
**Note:** This information is automatically updated as files are saved and stored in the instrument.



## RF Option Info

**RF Option Info** displays details of the current RF options available on your instrument. This information provides a reference of the types of RF options available to use and the types of RF options you can install on your instrument.

To view the RF option info of your instrument, use the ◀ ▶ buttons to highlight the **RF Option Info** field.



**Note:** Options can be added after the initial purchase. For more information, call your sales representative or Trilithic at 800-344-2412.

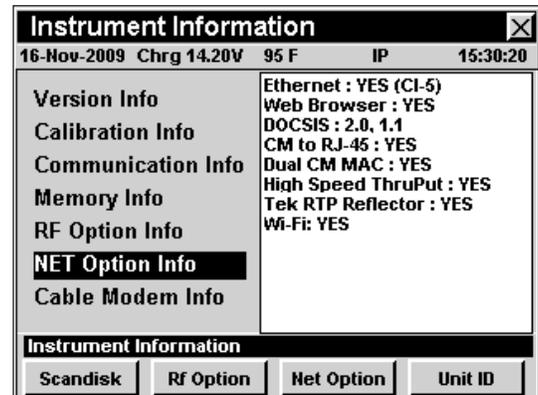


**Note:** This information is automatically updated as options are added to your instrument.

## NET Option Info

**NET Option Info** displays details of the current NET options available on your instrument. This information provides a reference of the types of NET options available to use and the types of NET options you can install on your instrument.

To view the NET option info of your instrument, use the ◀ ▶ buttons to highlight the **NET Option Info** field.



**Note:** Options can be added after the initial purchase. For more information, call your sales representative or Trilithic at 800-344-2412.



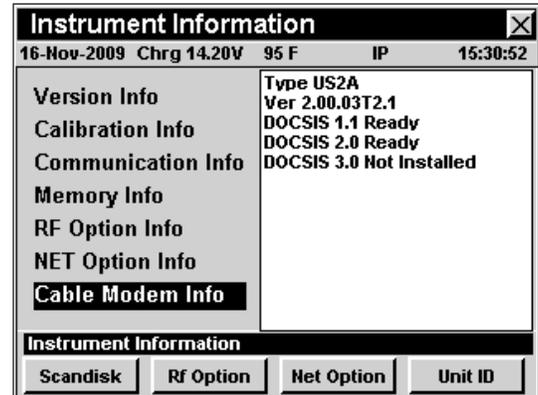
**Note:** This information is automatically updated as options are added to your instrument.



## Cable Modem Info

If you have the internal cable modem installed in your instrument, and the internal cable modem is selected as the communication device, the **Cable Modem Info** field will display details on your internal cable modem settings. This information is helpful for quick reference of your current modem settings.

To view the cable modem info of your instrument, use the buttons to highlight the **Cable Modem Info** field.

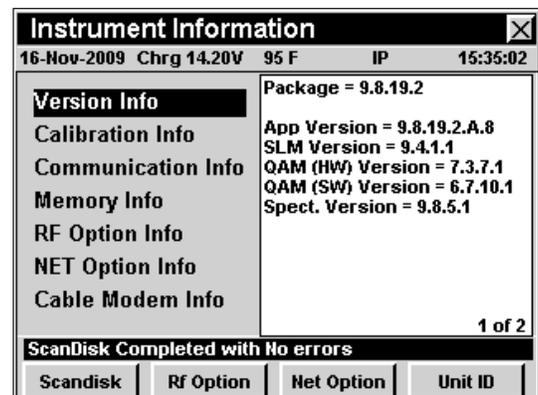
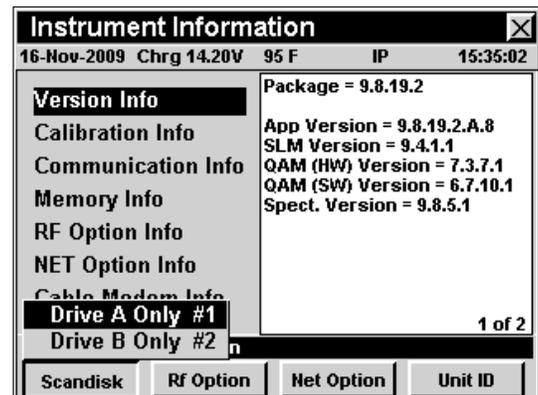


## Performing a ScanDisk

To scan your **Flash Drive A** or **Flash Drive B** for errors, press the **Scandisk** softkey, use the buttons to highlight **Drive A Only** or **Drive B Only**, and then press the **Ent** button. You may also select **Drive A Only** or **Drive B Only** by pressing or .

The following messages may appear in the message bar at the bottom of the screen;

- **ScanDisk Complete with No errors** - This will be displayed if there are no errors on the selected drive.
- **ScanDisk Completed, Requires Firmware Upgrade** - This will be displayed if there are errors on the **Flash Drive A**. Some configuration files may be corrupted, it is recommended that you upgrade your firmware. In some instances the instrument's calibration files may be corrupted. If this occurs, you will need to return your instrument to the factory for re-calibration.
- **ScanDisk Completed, Requires Reconfiguration** - This will be displayed if there are errors on **Flash Drive B**. Normally, no user intervention is needed. In some instances a customized setting or channel plan may be corrupted. If this occurs, you will need to reconfigure that feature.



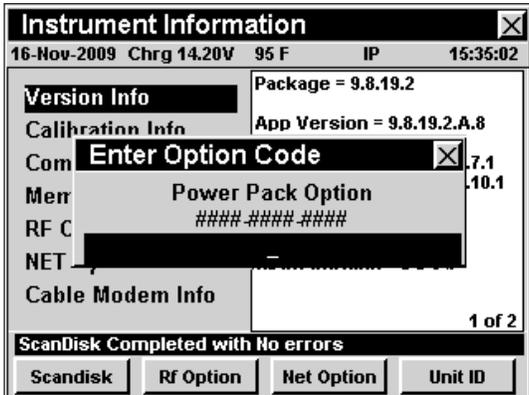
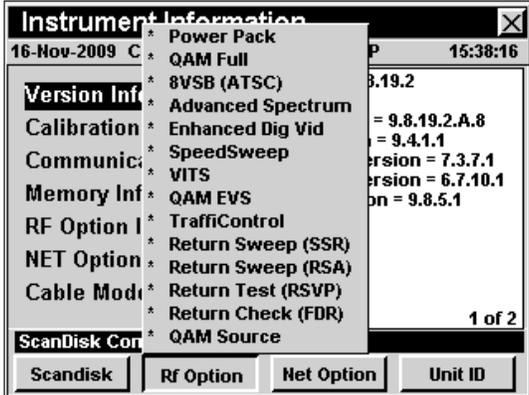


# Activating Rf Options

If you purchased an option after your instrument was initially shipped, you will need to activate the option on your instrument.

Press the **Rf Option** softkey to display a list of all the Rf options available on your instrument. Active Rf options are indicated by an asterisk (\*) next to the option name.

Use the **▲ ▼** buttons to highlight the name of the option to be activated and press the **Ent** button. The **Enter Option Code** window will appear. Enter the option code using the alphanumeric keypad, and then press the **Ent** button. The **Enter Option Code** window will only appear when the highlighted option has not yet been installed.



**Note:** Options may also require additional hardware be installed. Check with your sales representative or call Trilithic at 800-344-2412 for more information.

**Note:** The option code is a unique activation number that is specifically generated for your instrument. You should have received this code with your order for new options. If you are missing this code, contact Trilithic at 800-344-2412.

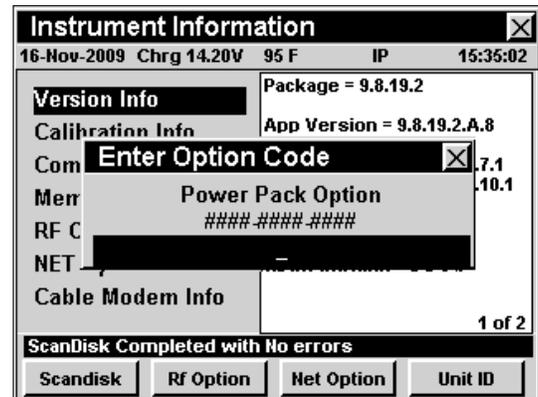
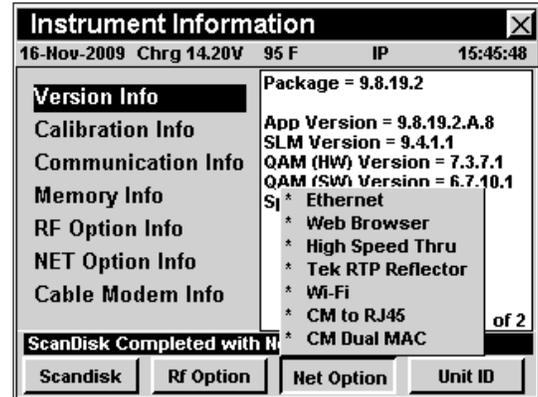


## Activating Net Options

If you purchased an option after your instrument was initially shipped, you will need to activate the option on your instrument.

Press the **Net Option** softkey to display a list of all the Net options available on your instrument. Active Net options are indicated by an asterisk (\*) next to the option name.

Use the **▲** **▼** buttons to highlight the name of the option to be activated and press the **Ent** button. The **Enter Option Code** window will appear. Enter the option code using the alphanumeric keypad, and then press the **Ent** button. The **Enter Option Code** window will only appear when the highlighted option has not yet been installed.



**Note:** Options may also require additional hardware be installed. Check with your sales representative or call Trilithic at 800-344-2412 for more information.



**Note:** The option code is a unique activation number that is specifically generated for your instrument. You should have received this code with your order for new options. If you are missing this code, contact Trilithic at 800-344-2412.



## Unit ID

The Unit ID option allows you to see the instrument serial number.

To use this option, press the **Unit ID** softkey. The unit serial number will be displayed. To exit the window press the **Ent** button.



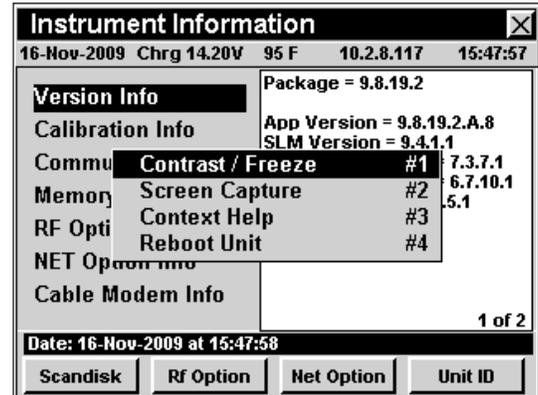


## Function Menu Options

The **Function** Menu can be accessed by pressing the **Fn** button while in the **Instrument Information** Mode.

The following **Function** Menu options can be accessed while in **Instrument Information** Mode:

- Contrast / Freeze
- Screen Capture
- Context Help
- Reboot Unit



### Basic Function Menu Options

The following functions are described in **Section I: The Basics, Chapter 6: Basic Function Menu Options**:

- Contrast / Freeze
- Screen Capture
- Context Help

### Reboot Unit

If needed you can reboot your instrument.

To use this option, press the **Fn** button, use the **▲▼** buttons to highlight **Reboot Unit**, and then press the **Ent** button. You may also select **Reboot Unit** by pressing **4**.

