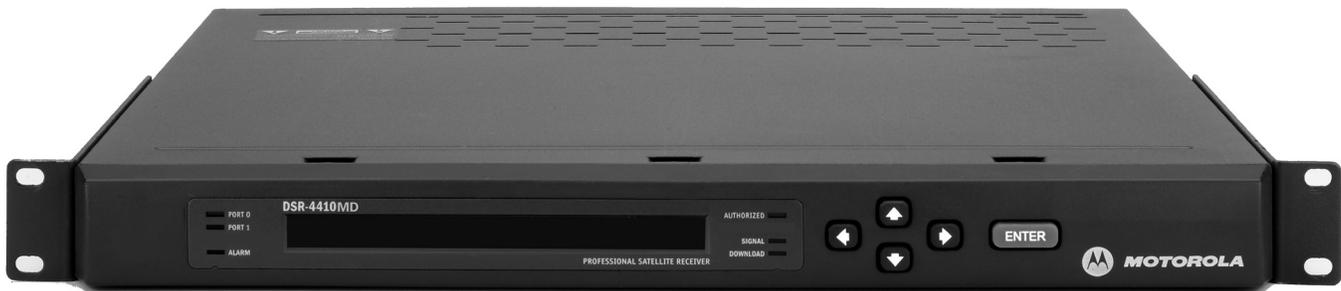


DSR-4410MD Commercial Satellite Multiplex Decrypter Operator Guide



WARNING

The unauthorized modification of any decoder and the sale and use of any such decoder is prohibited by law. Any such modification or alteration of this product or any unauthorized reception of television programming could subject the user and seller and party modifying the decoder to fines, imprisonment, and civil damages.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful, interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This digital apparatus does not exceed the Class A limits of radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Repairs and Assistance

For assistance on return or repair, see "If You Need Help" on page 61.

Note to CATV System Installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Warning

To prevent electrical shock, do not use the receiver electrical power plug (polarized) with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.

General Instrument Corporation doing business as
Motorola, Inc.
6450 Sequence Dr.
San Diego, CA 92121

DOCUMENT No: 536006-002 REV B 11/13/07

OPERATION PRECAUTIONS

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.



The lightning flash with the arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR FRONT). REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. THIS INSTALLATION SHOULD BE MADE BY A QUALIFIED SERVICE PERSON.		

ATTENTION

This commercial unit is intended for the decoding of DigiCipher® II television signals for commercial use. Possession of this device does not enable or entitle the possessor to receive DigiCipher II television signals. Contact program providers to obtain appropriate authorizations.

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Covered under one or more of the following General Instrument U.S. Patents: 4613901; 4634808; 4712238; 4792973; 4823399; 4864615; 4908859; 4933898; 5068724; 5083293; 5091782; 5093720; 5111504; 5144664; 5216295; 5216374; 5216503; 5235643; 5345408; 5376968; 5398237; 5406228; 5485577; 5517250; 5530400; 5537420; 5565922; 5566089; 5598415; 5606616; 5638128; 5675387; 5699124; 5703877; 5717461; 5742623; 5754659; 5771239; 5809538; 5844615; 5949795 and patents pending.

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Introducing the DSR-4410MD

The Motorola DSR-4410MD is a commercial Satellite Multiplex Decrypter designed for cable operators and other commercial satellite operations. After properly setting up the DSR-4410MD, it can receive authorization and control information from the satellite operator.

Key Features

- A variable front-end allows the DSR-4410MD to be used in either full or partial transponder mode.
- Manual tuning for either ASI input or two L-band inputs (ports).
- Demodulates DigiCipher® II signals.
- Operational modes include: DCII-MAN, DVB-MAN, DCII-AUTO, 8PSK-TC, and 8PSK-DVBS2. Modulation settings will vary depending on the units's Operational Mode setting.
- The user is able to select an input L-band frequency of 950 to 2150 MHz.
- The DSR-4410MD is capable of storing multiple Virtual Channel Tables (VCTs) and Network Information Tables (NITs). One VCT may be selected at a time.
- Once the Satellite Multiplex Decrypter has acquired an MPEG signal, the user can select a program from a list of programs as defined in the Program Association Table (PAT).
- One video output for OSD video. Outputs either 525-line NTSC/PAL M or 625-line PAL video formats, automatically matching based on the programmer's input format. (No conversion is done between 525-line and 625-line video.)
- VBI reinsertion on lines 10-22 supports data services such as North American Broadcast, Teletext, SID/AMOL I and II, and Closed Caption.

- Audio output consists of two stereo pairs. When the programmer provides multiple audio choices, the audio pair can be selected. Programmers can tag audio channels with a language so the receiver selects the audio material based on the specified language.
- MPEG-2 video and Dolby® Digital/MPEG Layer 1 audio are employed for video decode/decompression and audio compression respectively.
- Asynchronous Serial Interface (ASI).
- ASI input that decrypts and decodes the selected service.
- Ethernet port for SNMP control and/or IP data pass through.
- Memory to recall the operating configuration when power sags or is removed.
- Security features include Motorola DigiCipher II security technology.
- A two line, 40-character front panel with a time-out backlit Liquid Crystal Display (LCD).
- The DigiCipher II system allows for retune events in which a programmer sends over-the-satellite messages to specified receivers to change the service they output for a specified time period, then return to a specified service. During a retune event, the user is locked out from editing this menu to ensure that the receiver does not get lost when returning from the retune event.
- 8PSK (Phase Shift Keying) modulation with turbocodes for matched transponders.
- Support of GigE Transport Stream and GigE Digital Storage Medium Command and Control (DSMCC).
- Disaster Recovery for L-Band signal loss.
- Decrypts up to 64 Services.
- ASI input and output supports rates of 54, 81, and 160 Mbps.

Acronyms

The following acronyms are used within this manual:

ACP	Access Control Processor
ASI	Asynchronous Serial Interface
APL	Applied Physics Laboratory
BNC	Bayonet Navy Connector
CATV	Cable Television
CND	Cannot Duplicate
DSR	Digital Satellite Receiver

DTMF	Dual-Tone Multi-Frequency
DVB	Digital Video Broadcasting
EIA	Electronic Industries Association
EMM	Entitlement Management Message
FCC	Federal Communications Commission
GigE	Gigabyte Ethernet
GND	Ground
H/LHP	Horizontal/Left-Hand Polarization
IP	Internet Protocol
LED	Light Emitting Diode
LNB	Low-Noise Block Converter
MPEG	Motion Picture Experts Group
MPTS	Multiple Program Transport Stream
MSPS	Mega-symbols Per Second
NEC	National Electric Code
NTSC	National Television System Committee
OSD	On-Screen Display
PAL	Phase Alternation by Line
PID	Packet ID
RF	Radio Frequency
RSA	Return Service Authorization
RU	Rack Unit
SID/AMOL	Source Identification/Automatic Measurement of Lineups
SOC	System On Chip
TSID	Transport Stream Identification
VITS	Vertical Interval Test Signal
VBI	Vertical Blanking Interval
VCT	Virtual Channel Table
V/RHP	Vertical/ Right-Hand Polarization



Connecting the DSR-4410MD

Unpacking And Connecting The DSR-4410MD

Cable connections, described in this chapter, are made to the back panel of the DSR-4410MD.

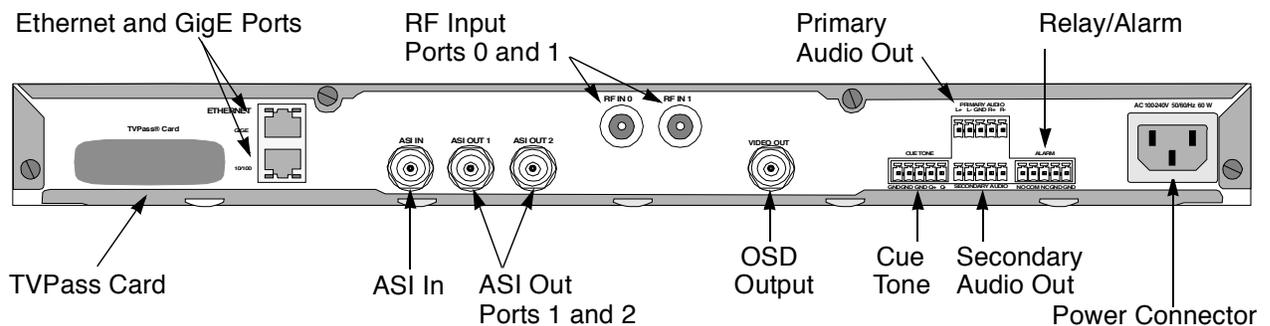
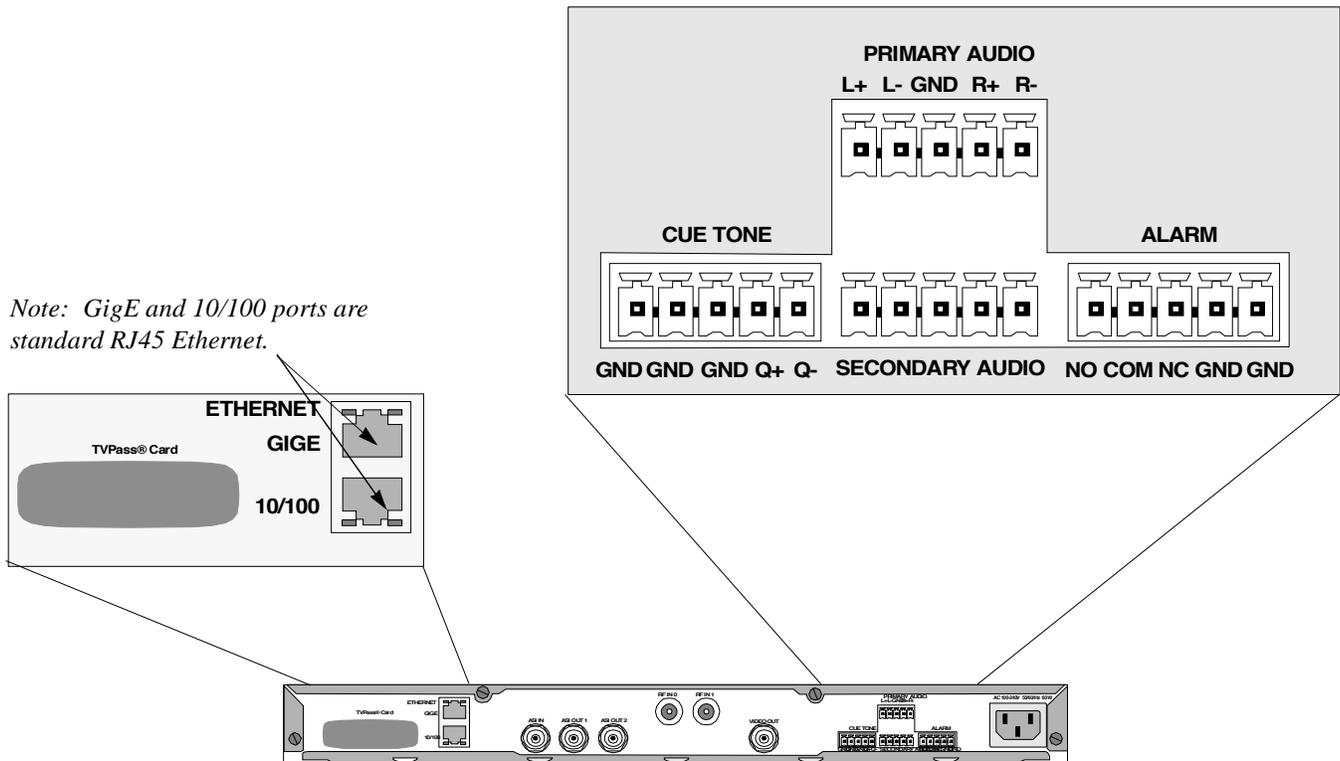


Figure 2-1: DSR-4410MD Back Panel (Overview)



Note: Additional audio and data connectors may be ordered through Phoenix Contact part numbers 1840447 / 1840528.

Figure 2-2: DSR-4410MD Back Panel (Detailed)

Unpacking And Mounting

The shipping carton contains the DSR-4410MD, two quick disconnect terminals, a power cord, and this Operator Guide.

The Satellite Multiplex Decrypter should be installed in an Electronics Industry Association (EIA) compliant 19-inch rack. It is recommended that the Satellite Multiplex Decrypters have 1 RU spacing, above and below, for airflow.

Connecting a DSR-4410MD for L-Band Input

To Connect a DSR-4410MD for a New DigiCipher II Service

First determine which satellite, transponder, Virtual Channel Table (VCT) number, virtual channel, and audio mode (stereo, surround, mono, or dual mono) is to be used. Contact the programmer for this system information so that the desired services can be received.

Connect the L-band inputs from the satellite dish antenna and Low Noise Block (LNB). The default for LNB power is Off. Choose one of the following polarity configurations:

- For a single polarity L-band satellite connection, connect the coax from the LNB (either horizontal or vertical) to Port 0 or Port 1.
- For installations using both polarities of a satellite, connect one LNB coax to each port. The polarity is programmable for the DSR-4410MD. The default polarity for Port 0 is ---.

To view video and On-Screen Diagnostics (OSD) during installation, connect the OSD Video Output on the DSR-4410MD to a 75-ohm video monitor.

To listen to audio during installation, connect the audio outputs to a local amplifier and speaker. A standard stereo system will suffice, but the lack of differential audio inputs may make the audio seem degraded. After the DSR-4410MD is authorized and outputting the desired service, reconnect these outputs to the channel modulator. Since these are differential pairs, it is recommended to use two pair shielded audio cables rather than the single wire and shield type.

For best quality audio, please take care to ground the shield on both the Satellite Multiplex Decrypter GND terminal and at the channel modulator end. Choose one of the following audio configurations:

- For services transmitted in stereo and used in your plant as stereo, connect the Left Audio Out terminals (L+ and L-) to the left audio inputs on the channel modulator, and connect the Right Audio Out terminals (R+ and R-) to the right audio inputs on the channel modulator.
- For services transmitted as a single mono, connect the Left Audio Out terminals (L+ and L-) to the audio inputs on the channel modulator. Right Audio Out terminals (R+ and R-) also contain the single mono. For more details about mono configurations, see the note on page 24.

DSR-4410MDs are able to generate cue tones when commanded over the satellite link. If these internally generated cue tones are used, connect the 600-ohm differential Cue Tone+ and Cue Tone- terminals on the DSR-4410MD to the device receiving the tones. The cautions on cable and grounding noted in the audio instructions also apply to cue tones.

Plug the DSR-4410MD into a power source. Verify that the LCD screen is lit.

Proceed with the installation using the front panel menus.



Operating the DSR-4410MD

All operations described in this chapter require use of the front panel, as shown in Figure 3-1.

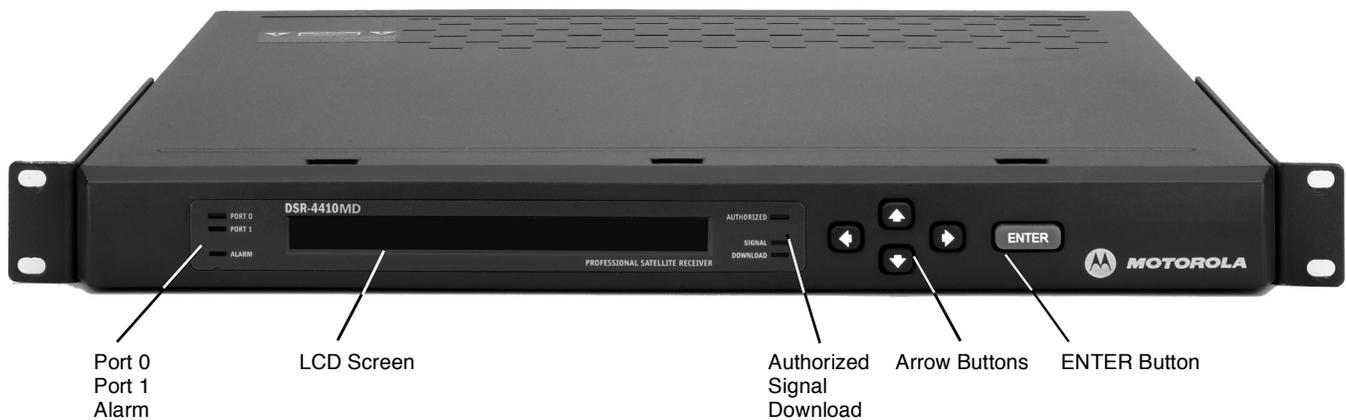


Figure 3-1: DSR-4410MD Front Panel

Using The Front Panel

The front panel LCD screen displays a series of menus that can be used to configure and control the system. The name of the current menu is always in the upper left corner of the screen for easy identification.

- Beneath every menu name are symbols representing key presses that are possible from the current cursor position in the menu. Note that the available keypad moves may change during the navigation between menu fields.



- The top row to the right of the menu name displays the name of each field available within that menu. These are called field labels and its setting is displayed directly below.
- Beneath each label is the current setting for each field.
- Some fields may be changed by the user and others are for display purposes only. Fields that can be changed have an arrow indicator just to the left of the field label. During left/right navigation, the cursor skips over the labels that cannot be changed.

The LCD is momentarily backlit with circuitry that turns off the backlighting approximately four minutes after the last button press or warning screen. To view the screen after backlighting has turned off, press any button once to turn on the backlighting.

In addition to the menus on the LCD screen, the LED indicators show the receiver's current status. The Signal light is lit when the receiver recognizes a valid carrier signal. The Authorized LED is lit when the Signal LED is lit and either the programmer has transmitted the access messages to allow the receiver to decrypt the signal or the signal is unencrypted or fixed key.

If the Satellite Multiplex Decrypter is in an alarm condition, the Alarm LED is lit.

Navigating The Menus

Even though the keypad options shown on the LCD screen may change for each menu and for each field, the control buttons basically do the same thing. The user may want to practice on a screen to become familiar with how the buttons work. Notice that:

- Pressing the **▲ ▼** buttons while the cursor is blinking next to the menu name (far left corner), causes the cursor to scroll to another menu.
- Pressing the **ENTER** button while the cursor is blinking next to the menu name (far left corner) causes the cursor to scroll to the Main, top-level menu.
- Pressing the **◀ ▶** buttons while in the top line of the menu causes the cursor to move between field labels (or the menu name and a field label). Pressing the **▶** button at the rightmost field label causes the cursor to wrap to the left side of the screen (to the menu name). Likewise, pressing the **◀** button when the cursor is at the menu name causes the cursor to wrap to the rightmost field label.
- When the cursor is blinking on a field label (top row), pressing the **ENTER** button causes the cursor to move below the label and enter into the field so the setting can be changed.
- When the cursor is below the label, the displayed directional controls in the left corner show what buttons can be pressed to change the setting in that field. Usually the **▲ ▼** buttons are used. Individual characters may be changed when the **▲ ▼** symbol is present in the field. The letters of the audio language, for example, are editable individually. To record changes in a field and move back up to the label line, press the **ENTER** button.

How To Use The Menus

About Menu

The front panel LCD displays the About menu when the DSR-4410MD is initially plugged in or after a factory reset. This menu identifies the model (MOTOROLA DSR-4410MD) and the currently installed firmware version.

A screenshot of the About menu display on the front panel LCD. The text is centered and reads: "MOTOROLA DSR-4410MD" on the first line and "Version 0xXXX.XX" on the second line.

MOTOROLA DSR-4410MD
Version 0xXXX.XX

This menu is displayed for only 30 seconds, then the front panel LCD displays the Main menu.

Main Menu

This menu is the top-level menu and can be accessed from any other menu by pressing the ENTER button while the cursor is blinking next to the menu name. This menu allows the user to select any of the five main menu groups: Installation menus, Channel menus, IP menus, Status menus, and Diagnostic menus.

A screenshot of the Main Menu display on the front panel LCD. The text is centered and reads: "DSR-4410MD" on the first line and "◀ ▶ E → Install → Channel → IP → Status → Diag" on the second line.

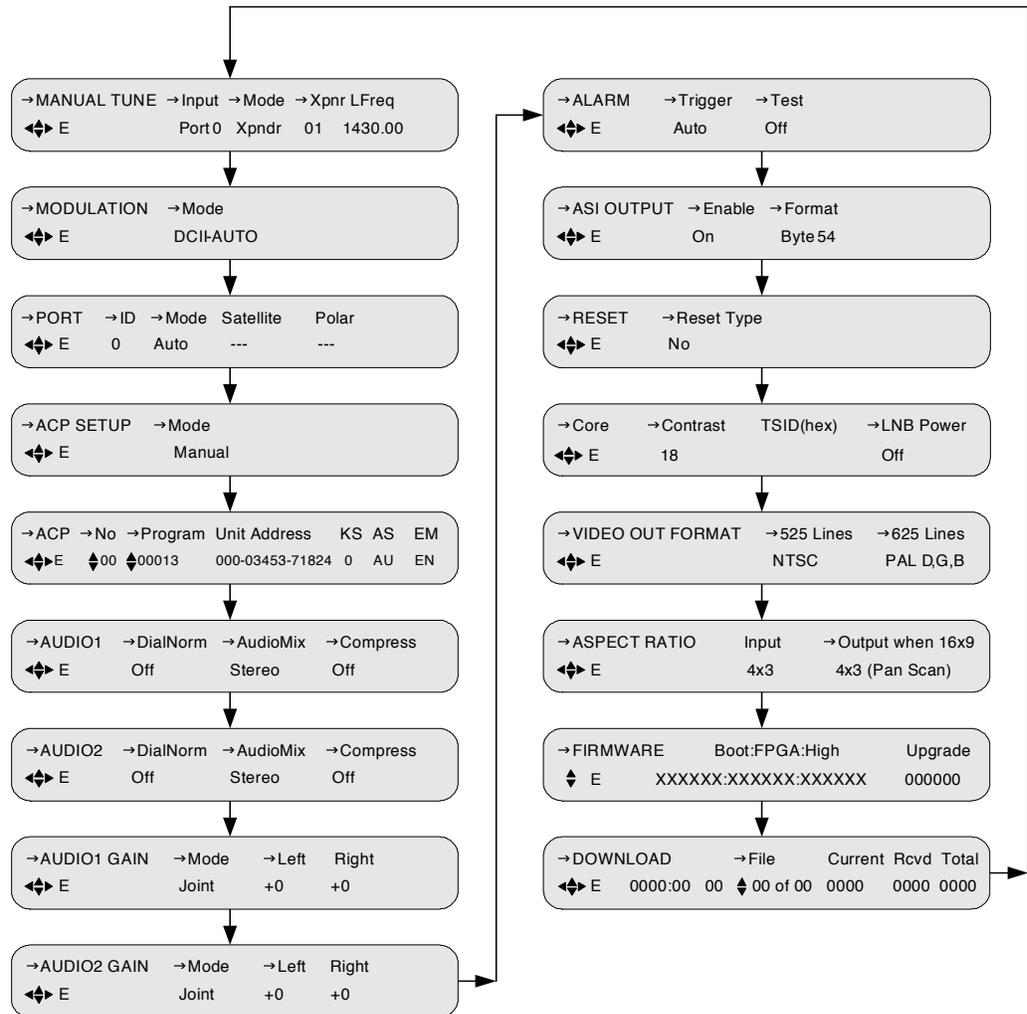
DSR-4410MD
◀ ▶ E → Install → Channel → IP → Status → Diag

The DSR-4410MD allows the user to scroll only to menus that are in the same group. To scroll to a menu that is in a different menu group, return to the main top-level menu and select the desired menu group.

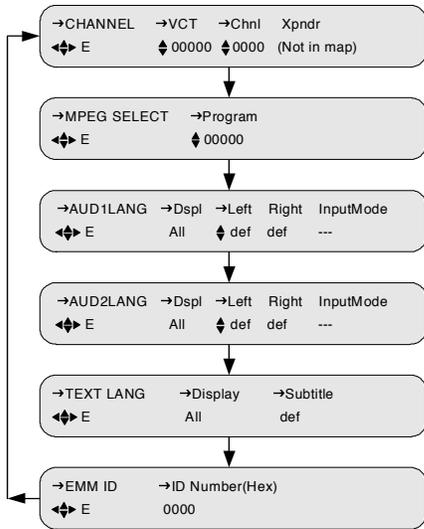
Overview of The LCD Panel Menu Tree

Pressing the ENTER button when the cursor is on a menu name causes the cursor to return to the main, top level menu. The charts on the following pages show the menus organized into five main groups: Installation menus, Channel selection menus, Status menus, IP menus (including the GigE), and Diagnostic menus.

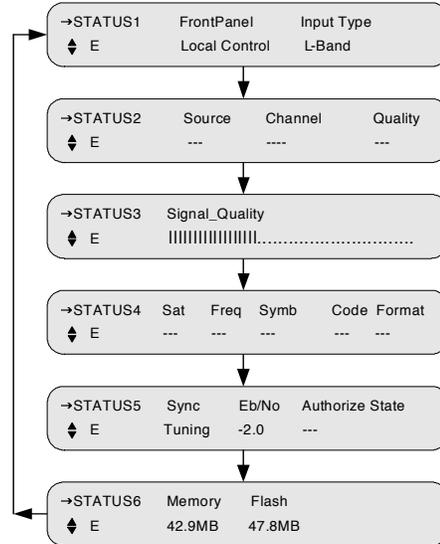
INSTALLATION MENUS



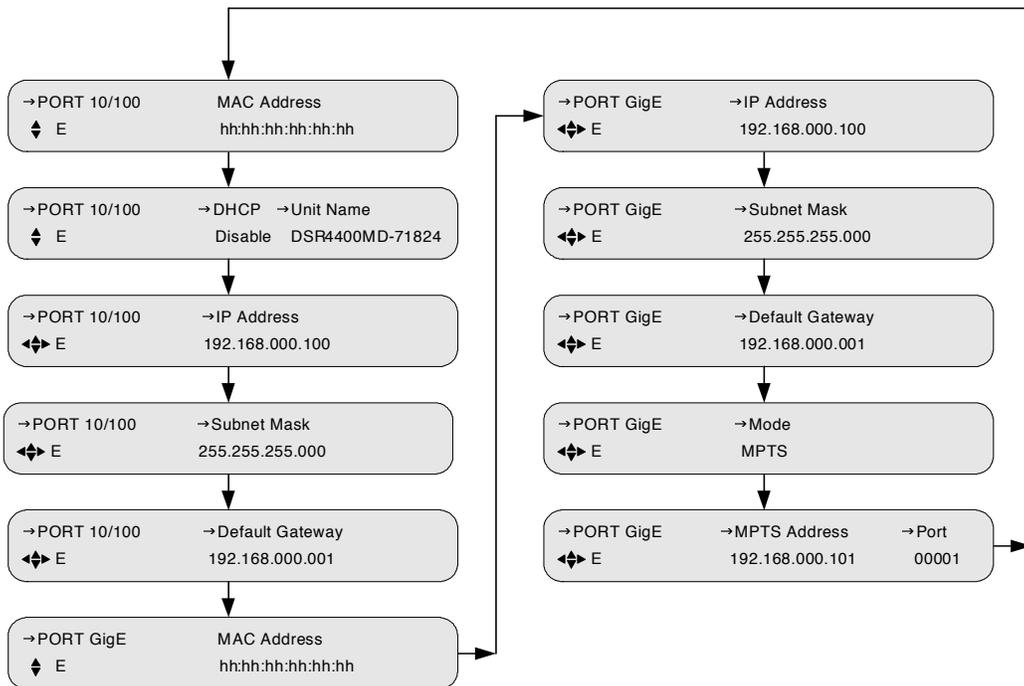
Channel Selection Menus



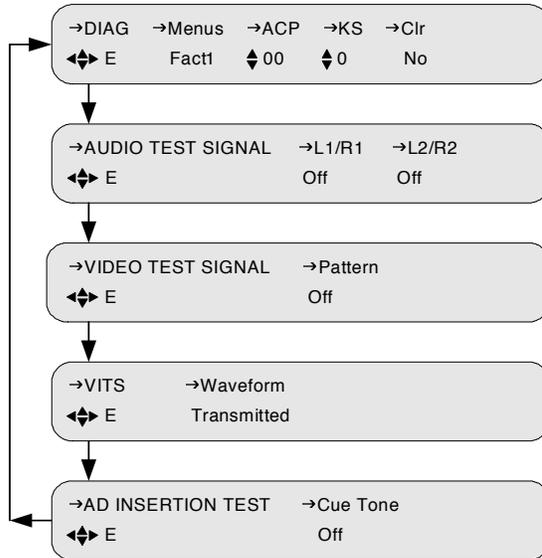
Status Menus



IP MENUS



Diagnostic Menu



Installation Menus

The purpose of the installation menus is to configure the ports and choose settings that remain fixed over a period of time. This section describes in detail each of the installation menus, fields, and options displayed on the LCD panel.

Return to the main top-level menu and then select the applicable menu group.

With the blinking cursor at the upper left, press ENTER button to return to the main top-level menu. Press the ◀ ▶ buttons until the cursor is at the Install label, and press the ENTER button. The DSR-4410MD displays the previously selected sub-menu.

Manual Tune Menu

Use this menu to initially acquire a DigiCipher II system signal and download virtual channel tables by selecting a transponder frequency for each of the two L-Band inputs, which are labeled Port 0 and Port 1.

```
→MANUAL TUNE →Input →Mode →Xpnr  LFreq
◀↔ E          Port 1 Xpndr  01    1430.00
```

```
→MANUAL TUNE →Input
◀↔ E          ASI In
```

In addition, this menu allows a user to select ASI In as the desired signal input to the DSR-4410MD.

However, when a port is selected, the user must additionally specify a C-band transponder or an L-band frequency and modulation format. For more details, see "Modulation Menu" on page 19.

Because many broadcasters use standard North American C-band frequency plans, you may select a transponder number for these broadcasts. Use the Xpnr option in the Mode field and the Xpndr (transponder) fields for these.

For offset C-band, a fractional transponder, or Ku-band satellite broadcast, use the LFreq option in the Mode field and directly enter the L-band frequency. The DSR-4410MD requires no distinction between Ku-band and C-band signals when selecting the L-band carrier frequency.

Input Field

The Input field displays the input to which the receiver is currently tuned. It allows manual selection of Ports 0 and 1 or the ASI input so that the DSR-4410MD can acquire the DigiCipher II system signal and automatically download network data required for operation. To select the input:

Press the **▶** button until the cursor is at the Input label and press the ENTER button.

Press the **▲ ▼** buttons to scroll to the input that is connected. Unless changed, the DSR-4410MD displays values for Port 0. Press ENTER to confirm the selection and return to the top line of the menu. If Port 0 or Port 1 is selected, then move to the Mode field, Xpndr field or LFreq field. These fields are not visible when ASI In is selected.

The following screen prompts the user to confirm the selection.

CAUTION: Service will be interrupted
Press E to continue or **◀▶** to stop

If you press any arrow button (**◀ ▶ ▲ ▼**) at this point, the Caution screen disappears and the Manual Tune menu reappears without any changes. But, to make a selection, press the ENTER button to set the port selection.

Mode Field

The Mode field allows tuning mode selection according to standard C-Band transponder center frequencies or using a specific L-Band frequency. If the broadcast uses a North American C-Band transponder center-frequency, simply select the transponder number in the Xpnr field (1-24). Otherwise, use the L Freq Mode option and the L Freq field to set the desired L-Band frequency. The L Freq option can be used with both C-band and Ku-band satellite antenna LNBs.

Press the **▶** button until the cursor is on the Mode label. Then press the ENTER button to move into the field. There are two choices, Xpndr or LFreq. Press the **▲ ▼** buttons to display the choice. Then press the ENTER button to confirm the selection.

If Xpndr is selected, choose a transponder in the Xpndr field. The frequency in the LFreq field is set automatically based on internal transponder tables.

If LFreq is selected, the Xpndr field is not shown. Select a transponder frequency between 950 and 2150 MHz in the LFreq field. At this point, you cannot select a transponder in the Xpndr field. The default setting is Xpndr. This field is not available when the ASI In option in the Input field is selected.

Xpndr Field

This field allows selection of an initial satellite transponder number and can only be used if the Xpndr option in the Mode field is selected. The Xpndr field cannot be edited if LFreq in the Mode field is selected. Press the **▶** button until the cursor is at the Xpndr label. Then press the ENTER button to move into the field.

Then press the **▲ ▼** buttons to select the desired transponder number. Since the associated transponder/frequency tables are stored in the DSR-4410MD, scroll through the transponder numbers and notice that the associated frequency (shown in the LFreq field to the right) automatically changed with the selection (970-1430 MHz). There are 24 transponder options, and when the transponder selection is displayed, press the ENTER button to confirm selection and move the cursor back up to the field label.

This field is not available when the ASI In option in the Input field is selected.

LFreq Field

Use this field for custom plans to directly tune the frequency, if the LFreq option in the Mode field is chosen. The LFreq field cannot be edited if Xpndr in the Mode field is chosen. Press the **▶** button until the cursor is at the LFreq label. Then press the ENTER button to move into the field.

Use the arrow buttons (**◀ ▶ ▲ ▼**) to select the desired frequency (between 950 MHz and 2150 MHz) and press the ENTER button to confirm a selection and move the cursor up to the field label. The DSR-4410MD requires 30 to 60 seconds to download the network data once the Signal LED is illuminated. Afterward, the user can view the Port Setup menu for the active port to select the satellite name from a list of available satellites (explained below in the Port Setup Menu section).

For those satellite carriers which are offset C-band or Ku-Band, use the L Freq option to enter the exact center frequency of a carrier, rather than using a nearby-but-not-exact C-band transponder center frequency. Long-term frequency tracking is best if the user enters a precise carrier center frequency.

Contact the programmer or network operator for details about the satellite, transponder, and frequencies being used at purchase time. If one frequency is identified as the root transponder, using this frequency may expedite the download process during installation.

This field is not available when the ASI In option in the Input field is selected.

Modulation Menu

This menu is not available when the ASI In option is selected. That option is located in the Manual Tune menu (described on page 16).

This menu, together with the Manual Tune menu, allows the user to initially acquire a DigiCipher II signal. Press the ▲ ▼ buttons until the Modulation menu appears. Press the ENTER button to continue.

```
→MODULATION →Mode
◀▶ E          DCII-AUTO
```

When either of the DCII-MAN, DVB-MAN, DCII-AUTO, 8PSK-TC, or 8PSK-DVBS2 options in the Mode field are selected, the user must additionally specify a Symbol/Code/Format combination.

```
→MODULATION →Mode      →Symbol Code Format
◀▶ E          DCII-MAN   19.51 3/4 Comb
```

```
→MODULATION →Mode      →Symbol      →Code
◀▶ E          DVB-MAN   19.510000   3/4
```

```
→MODULATION →Mode      →Symbol      →Code
◀▶ E          8PSK-TC   19.510000   3/4 2.11
```

Mode Field

Press the ▶ button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: DCII-MAN, DCII-AUTO, 8PSK-TC, 8PSK-DVBS2, or DVB-MAN. Select a mode and press ENTER to exit the field.

Note: In DCII-MAN or DVB-MAN (both manual) modes or 8PSK-TC or 8PSK-DVBS2, the DSR-4410MD only searches for what is displayed in the Symbol/Code/Format field. If DCII-AUTO is selected, the DSR-4410MD searches through all available combinations to acquire a signal, and then remains parked on a signal once it is acquired.

Symbol/Code/Format Field

Press the **▶** button until the cursor is at the Symbol label, and press the ENTER button to move into the field. Press the **▲ ▼** buttons to display the options. Using the **▲ ▼** buttons, scroll through the Symbol/Code/Format combinations. Select the combination provided by your programmer and press ENTER to return to top menu. This field is not available when the DCII-Auto option in the Mode field is selected.

Port Menu

These menus allow the user to associate the satellite and polarity with Ports 0 and 1. Press the **▲ ▼** buttons until the Port Menu appears.



Move the cursor to the ID field and use the **▲ ▼** buttons to specify either Port 0 or 1. Ports 0 and 1 may be set up manually or automatically, and each individually. The user enters the satellite and polarity information directly when the port is set up manually. Otherwise, when the port is set up automatically, the DSR-4410MD associates the port with the satellite and polarity information that matches the first virtual channel that is chosen (and acquired) after the user manually tunes that port. This menu is not available when the ASI In option is selected. That option is described in "Manual Tune Menu" on page 16.

ID Field

Use this field to choose which port to configure. Press the **▶** button until the cursor is at the ID field, then use the **▲ ▼** buttons to choose either port 0 or 1. The default is 0. Press the ENTER button to confirm the selection and exit the field.

Mode Field

Use the Mode field to select the mode for port setup. Press the **▶** button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the **▲ ▼** buttons to view the desired mode. There are two options, Manual and Auto. The default is Auto. Press the ENTER button to exit.

Satellite Field

Use this field to select a satellite name, when the Manual option in the Mode field is selected. Press the **▶** button until the cursor is at the Satellite label. Press the ENTER button to enter this field, use the **◀ ▶** buttons to select the character position to be changed. Then use the **▲ ▼** buttons to scroll through the character choices. The default is ---. Press the ENTER button to confirm selection and exit the field.

This field displays the satellite to which the port is related and is not editable when the Mode field is set to Auto. This field displays dashes (---) when the port is not related to a satellite.

Polar Field

Use this field to select a polarity when the Manual option in the Mode field is selected. Press the **▶** button until the cursor is at the Polarity label. Press the Enter button to enter this field and press the **▲ ▼** buttons to display the options: H/LHP (Horizontal/Left-Hand Polarity) or V/RHP (Vertical/Right-Hand Polarity). The default is ---. Select a polarity and press ENTER to exit the field.

ACP Setup Menu

This menu defines how MPEG services in the input multiplex are assigned to the ACPs for decryption.



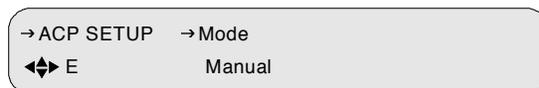
Mode Field

Press the **▶** key until the cursor is at the mode label and press the ENTER button to move into the field. Press the **◀▶** keys to display the options: Manual and Auto.

Automatic is the default mode. In this mode, assignment of services to the ACPs is done automatically by the Satellite Multiplex Decrypter. In this mode, service assignment is non-deterministic and is based on the order in which Program Map Tables (PMTs) are received and ACP availability.



When in manual mode, the user defines which services are assigned to each ACP. This is done through the ACP menu, which is described below.



ACP Menu

Use the ACP menu to assign services in the input multiplex to specific ACPs.

```
→ACP →No→Program Unit Address KS AS EM
◀▶E ◆00 00013 000-03453-71824 0 AU EN
```

The fields are defined below:

	No	The ACP Slot number (0 - 63). There are four ACP Slot numbers per unit address.
	Program	The MPEG service number.
	Unit Address	The unit address for the selected ACP Slot. This field is affected by the No field.
Read-only	KS	The Keystream number (0 - 3).
Read-only	AS	The authorization state for that service is indicated by the letters in the field. Common authorization states are: AU : Authorized NA : Not Authorized
Read-only	EM	The encryption mode for that service is indicated by the letters in the field. Common encryption modes are: ZK : Unencrypted (Zero Key) FP : Fixed Key Program encryption S : Fully Encrypted (Scrambled)

The ACP menu is always available, whether in automatic or manual service assignment modes. However, the Program field is only editable in manual mode. All five digits can be set or you may choose to use ▲ or ▼ to scroll through all the services in the input multiplex, as described in step 8 on page 23.

To manually assign a service to an ACP Slot:

1. Navigate to the ACP menu in the Installation menu and press ENTER.
2. Press ► to scroll to Mode and press ENTER.

Note: In manual mode, the Satellite Multiplex Decrypter clears all service assignments and only makes assignments or changes as a result of user input.

3. Press either ▲ or ▼ to change Auto to Manual and press ENTER.
4. Press ◀ to go to the ACP field.
5. Press ▼ to go to the ACP menu.
6. Press ► to scroll to No and press ENTER.
7. Press ▲ or ▼ to select the desired ACP Slot number (0 - 63) for service assignment and press ENTER.
8. Press ► to scroll to Program and press ENTER. The cursor will enter the field at the right-most digit.

To scroll through all available MPEG service numbers, press ► to wrap the cursor one position left of the left-most digit. Press ▲ or ▼ to scroll through all the available services.

Alternately, the MPEG service number can be entered directly by pressing either ◀ or ► and use ▲ and ▼ to change each digit. When the desired service number is shown in the Program field (through either the scrolling or direct entry method), press ENTER.

9. Repeat steps 7 - 11 for all other services to be manually assigned to ACPs.

Note: Each ACP is capable of decrypting up to four services and four ECM PIDs.

Note: All manual service assignments are stored in non-volatile memory and therefore maintained through power cycles. If an attempt is made to assign a service that is already assigned to another ACP, a warning message is displayed.

Audio1 and Audio2 Menus

Press the \blacktriangle \blacktriangledown buttons until an Audio1 menu or Audio2 menu appears. These menus have three fields that allow the user to customize the audio output based on options provided by the digital audio compression.



DialNorm Field

Press the \blacktriangleright button until the cursor is at the DialNorm label. This field allows the user to normalize speech levels to a constant level over all channels—raising or lowering the volume of the dialogue to a level that is appropriate for the background sound track. Press the ENTER button to move into the field. There are two options, On and Off. The default selection is On. Press the \blacktriangle \blacktriangledown buttons to change the setting. Press ENTER to confirm selection.

AudioMix Field

Press the \blacktriangleright button until the cursor is at the AudioMix label, and press the ENTER button to move into the field. This field allows selection of the audio downmix options. The choices are Stereo, Surround, Mono, or Dual Mono. Press the \blacktriangle \blacktriangledown buttons to display the options. The default setting is Stereo.

If Dual Mono is selected, a warning screen appears. The warning screen is needed because of possible conflicts between this menu and the channel selection menus that specify audio language. It appears if the user had previously used the Language menu (channel selection group) to select a single language for Mono or Stereo output and then changed to Dual Mono output.

Note: If the audio input mode is stereo and you are connecting to a mono modulator, you must set this field to Mono.

The DSR-4410MD now seeks to have a language defined for both left and right dual mono outputs.

CAUTION: Check audio language selection
Press E to continue or ◀▶ to stop

- By pressing the ENTER button (ignoring the caution and taking no action in the Lang menu of the channel selection group), the DSR-4410MD changes to Dual Mono, and uses the language previously selected for Mono (or Stereo) for both left and right.
- Conversely, if the user had previously selected Dual Mono output in two languages, but later changed to Stereo or Mono output in this menu, the output defaults to the Dual Mono language that is defined for the left channel.

Compress Field

Press the ▶ button until the cursor is at the Compress label, and press the ENTER button to move into the field. This field allows control of the degree of audio level compression. The options are Heavy, Moderate, and Off. The default setting is Moderate. Press the ▲ ▼ buttons to display the options. Press the ENTER button to confirm the selection.

Audio1 Gain and Audio2 Gain Menus

Press the ▲ ▼ buttons until the Audio1 Gain menu or Audio2 Gain menu appears. These menus allow adjustment of the analog audio signal output level from 0 to -20dB in 1dB increments.

→AUDIO1 GAIN	→Mode	→Left	Right
◀▶ E	Joint	+00	+00

→AUDIO2 GAIN	→Mode	→Left	Right
◀▶ E	Joint	+00	+00

The user may adjust the output levels of the left and right channels jointly. The output level of the right channel tracks the setting for the left channel when the output levels are adjusted jointly.

Mode Field

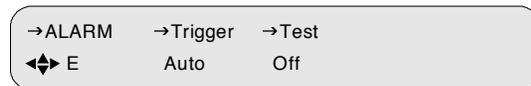
The Mode field allows the user to select the mode by which the user adjusts the Audio Gain port. Press the ▶ button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to view the desired mode. The default is Joint. Press the ENTER button to exit.

Left and Right Fields

The Left and Right fields allow adjustment of the output level of the Left and Right audio signals. Press the ▶ button until the cursor is at the desired label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to simultaneously adjust the output level for the left and right audio signals. The default setting is +00. Press the ENTER button to confirm the selections. The Right field is not editable when the Joint option is set for the Mode field.

Alarm Menu

Press the ▼ button until the Alarm menu is located. This menu allows the user to set up different bypass modes in case the DSR-4410MD goes into an alarm condition.



Trigger Field

Press the ▶ button until the cursor is at the Trigger label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options. The Trigger field allows the user to select the trigger condition for which the alarm is activated. When the alarm is activated, the Alarm LED illuminates and the alarm relay indicates an alarm condition. The alarm is activated for any of the following conditions:

- The tuner loses lock when the input is RF (Loss of the Signal LED).
- The DSR-4410MD cannot lock to the ASI input when the input is ASI.
- The DSR-4410MD is unable to render video.
- The DSR-4410MD is not authorized to access the selected service (Loss of the Authorized LED).
- The DSR-4410MD loses power.

There are five choices: Disabled, Auto, No Signal, No Video, No Auth (Authorization). Use this option to select which of the above conditions activates the alarm. The default setting is Auto.

Test Field

The Test field provides an alarm test. The alarm is activated when this field is set to On. The Test field returns to the default value (Off) when the field is exited.

ASI Output Menu

Press the \blacktriangle \blacktriangledown buttons until the ASI Output menu appears. This menu allows the user to configure the digital ASI output. It is used to define the format of the ASI output.



Enable Field

Press the \blacktriangleright button until the cursor is at the Enable label, and press the ENTER button to move into the field. Press the \blacktriangle \blacktriangledown buttons to display the two options: OFF or ON. The default is ON.

Format Field

Press the \blacktriangleright button until the cursor is at the Format label, and press the ENTER button to move into the field. Press the \blacktriangle \blacktriangledown buttons to display the options: Byte54, Pkt54, Pkt81, and Pkt160. The default is Byte 54. The Packet and Byte options specify the transport stream packet structure. When the ASI Output is enabled, the DSR-4410MD outputs MPEG-2 transport stream packets, either as a burst of contiguous bytes (Packet option), or as individual bytes (Byte option).

Reset Menu

Press the \blacktriangle \blacktriangledown buttons until the Reset menu appears. This menu allows the user to execute factory defaults or power cycle.



Reset Type Field

Press the \blacktriangleright button until the cursor is at the Reset Type label, and press the ENTER button to move into the field. Press the \blacktriangle \blacktriangledown buttons to display the options: No, Factory Defaults, or Power Cycle. The default is No.

Factory Defaults Option

The Factory Defaults option allows the user to reset the system to the programming values originally set by the factory firmware.

Caution: Selecting this reset option deletes all defined setups and downloaded information. This operation interrupts service output, so use it carefully.

Press the ENTER button. A warning message reminding you that all programming will be lost if the action proceeds.

CAUTION: IRD memory will be reset
Press E to continue or ⬅➡ to stop

Press any arrow button (⬅ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed. The following message displays.

Factory Default reset in progress. . .
Press E to continue or ⬅➡ to stop

Power Cycle Option

The Power Cycle option reboots the DSR-4410MD without losing internal user setup information or downloaded network information. Press the ENTER button and a warning message appears saying that the current service will be interrupted if the action proceeds.

CAUTION: Reset will interrupt service
Press E to continue or ⬅➡ to stop

Press any arrow button (⬅ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed. The following message displays.

Power Cycle reset in progress. . .

Core Menu

Press the \blacktriangle \blacktriangledown buttons until the Core menu appears. This menu allows the user to change the front panel LCD contrast, select where text (e.g., subtitles) is displayed, and turn on/off the LNB power output to Ports 0 and 1.

→Core	→Contrast	TSID(hex)	→LNB Power
↔ E	18	0000	Off

Contrast Field

To adjust the LCD contrast, press the \blacktriangleright button until the cursor is at the Contrast label, and press the ENTER button to move into the field. Use the arrow buttons (\blacktriangleleft \blacktriangleright \blacktriangleup \blacktriangledown) to select a value from 1 to 30, with 1 representing the least contrast and 30 the most. Adjust the contrast so that the LCD panel can be read clearly. Press the ENTER button to confirm the selection.

TSID Field

The Transport Stream ID (TSID) field displays the transport stream ID.

Video Out Format Menu

Press the **▲ ▼** buttons until the Video Out Format menu appears. It has two fields that allow modification of the output format. The receiver does not convert 525-line video to 625-line video or convert 625-line video to 525-line video. When the input to the uplink encoder is 525-line, the field here selects the receiver output to be NTSC or PAL M, and the 625-line field has no impact. When the input to the uplink encoder is a 625-line, the field selects the type of PAL the receiver outputs, and the NTSC or PAL M selection has no impact.



525 Lines Field

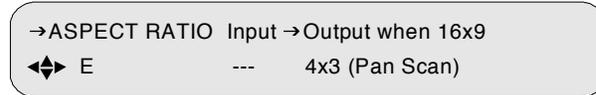
Press the **▶** button until the cursor is at the 525 Lines label, and press the ENTER button to move into the field. This field allows selection of the output format for 525-line video as either NTSC or PAL M. The default setting is NTSC. Use the arrow buttons (**◀ ▶ ▲ ▼**) to specify the desired option and press the ENTER button to confirm the selection.

625 Lines Field

Press the **▶** button until the cursor is at the 625 Lines label, and press the ENTER button to move into the field. This field allows selection of the output format for 625-line video as either PAL D, G, B; PAL I; or PAL N. The default setting is PAL D, G, B. Press the **▲ ▼** buttons to display the options. Press the ENTER button to confirm the selection.

Aspect Ratio Menu

Press the \blacktriangle \blacktriangledown buttons until the Aspect Ratio menu appears. It displays the current input aspect ratio and has one field that allows the output aspect ratio to be changed when the uplinked video has an aspect ratio of 16x9. If the DSR-4410MD receives input of 4x3, the output is always 4x3.



Input Field

The Input field displays the aspect ratio of video that the DSR-4410MD is currently receiving. It is non-editable.

Output Field

Press the \blacktriangleright button until the cursor is at the Output label. Press the ENTER button to enter the field. There are multiple options: 16x9, 4x3 ZOOM, 4x3 PAN (information in the video material directs which portion of the 16x9 image to output), and 4x3 LETTERBOX. Use the \blacktriangle \blacktriangledown buttons to specify the desired option. The output default setting is 16X9. If 4x3 PAN information is not available when the 4x3 PAN option is chosen, the DSR-4410MD outputs the center portion of the 16x9 image.

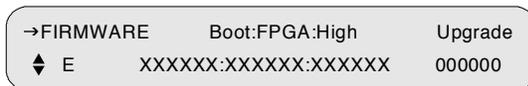
If you select a new aspect ratio, the following warning screen appears.



Press any arrow button (\blacktriangleleft \blacktriangleright \blacktriangle \blacktriangledown) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Firmware Menu

Press the \blacktriangle \blacktriangledown buttons until the Firmware menu appears. This menu displays the DSR-4410MD's firmware release information, which is equivalent to the product version number. This menu cannot be changed, but since the firmware is periodically updated, this menu confirms that the update was successful. This menu is used most commonly in troubleshooting.



Boot:FPGA:High Field

This field displays the version of boot, FPGA, and the high code. The boot and FPGA codes are loaded at the factory. The high code may be upgraded to later versions by a download that is delivered over the satellite signal (from either the L-band or ASI input). The code versions are represented by a six-digit hexadecimal number. This field is non-editable.

Upgrade Field

The Upgrade field displays the version of the upgrade code that is available. This field displays 000000 when no upgrade code is available. Available upgrades are installed the next time the DSR-4410MD is powered on. This field is non-editable.

Download Menu

Press the \blacktriangle \blacktriangledown buttons until the DOWNLOAD menu appears. This menu allows the user to monitor the status of the current code download.

→DOWNLOAD	→File	Current	Rcvd	Total
↔E	0000:00 00	↕ 00 of 00	0000	0000 0000

During a background code download, the DSR-4410MD collects the upgrade code in the background while concurrently decoding video and audio services. The user can select this menu anytime before, during, and after a background code download.

File Field

The File field consists of two sub-fields; the first sub-field is editable and selects, by index, a download file for monitoring. The second sub-field is non-editable and indicates the total number of files that have been downloaded and/or are available to be downloaded.

Current Field

The Current field pertains to the file selected in the File field and indicates the ID for the current segment received by the DSR-4410MD during the download of the file. This field is non-editable.

Rcvd Field

The Rcvd field indicates the number of segments that the DSR-4410MD has received for the file selected in the File field. This field is non-editable.

Note: Having completed the installation menus, move the cursor to the menu name. Then press the ENTER button to move to the main menu for the installation group. Now press the \blacktriangle \blacktriangledown buttons until the Channel Selection menu appears.

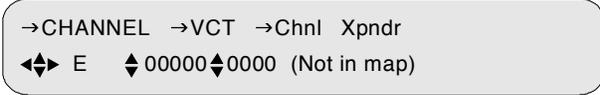
Total Field

The Total field indicates ID for the last segment of the file selected in the File field. This field is non-editable.

Channel Menus

Channel Menu

Press the \blacktriangle \blacktriangledown buttons until the Channel menu appears. This menu allows the user to select an active VCT, select the virtual channel, and view the name of the current transponder.



→CHANNEL →VCT →Chnl Xpndr
 $\blacktriangle\blacktriangledown$ E \blacktriangle 00000 \blacktriangledown 0000 (Not in map)

VCT Field

This field allows selection of a Virtual Channel Table (VCT) number. Contact the program provider for the correct VCT number to enter for that commercial system. Press the \blacktriangleright button until the cursor is at the VCT label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the \blacktriangle \blacktriangledown buttons to scroll throughout the available VCTs. (If the network has four VCTs, then only four VCTs appear in this field.) Press the ENTER button to confirm the selection.

This field also provides a second method for selecting the VCT. To do this, use the \blacktriangleleft \blacktriangleright buttons to select the digit to change and then, while the cursor is on that digit, press the \blacktriangle \blacktriangledown buttons to display the required value. Repeat this process for each applicable digit.

Chnl Field

The Chnl (Channel) field allows selection of the virtual channel for the output service. The DSR-4410MD supports channel values from 000 to 4095. Press the \blacktriangleright button until the cursor is at the Chnl label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the \blacktriangle \blacktriangledown buttons to scroll throughout the available virtual channels. (If the chosen VCT contains twenty-four virtual channels, then only twenty-four virtual channels appear in this field.) Press the ENTER button to confirm the selection.

This field also provides a second method for selecting the virtual channel. To do this, use the \blacktriangleleft \blacktriangleright buttons to select the digit to change and then, while the cursor is on that digit, press the \blacktriangle \blacktriangledown buttons to display the required value. Repeat this process for each applicable digit.

The DSR-4410MD displays warning messages for the following three conditions:

- A warning message is displayed when the user changes from a virtual channel to a MPEG program number.

CAUTION: Changing to DCII selection mode
Press E to continue or ◀▶ to stop

Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

- If the user selects a virtual channel that is not in the chosen VCT, then a warning message, (Not in map) is displayed to the right of the virtual channel.

→CHANNEL →VCT →Chnl Xpndr
◀▶ E ▲00000▼0000 (Not in map)

Then, if the user subsequently presses the ENTER button, another warning message displays.

CAUTION: Channel 0000 not present
Press E to continue or ◀▶ to stop

Note: The above warning message is only displayed when the user changes the channel from a valid virtual channel to a nonexistent virtual channel. This message is not displayed if the DSR-4410MD is not already acquired to a virtual channel, as would be the case when setting up the DSR-4410MD for future operation. In this example, the DSR-4410MD is pre-configured with a virtual channel before installation.

- Virtual channels identify satellite and polarity attributes. The RF input ports are set up with satellite and polarity attributes. For more details, see "Port Menu" on page 20. The DSR-4410MD uses these satellite and polarity attributes to determine which RF port to use. However, if the user selects a virtual channel that does not match the satellite and polarity attributes of either port, then the DSR-4410MD is unable to determine which port to use and the following warning message is displayed.

CAUTION: Channel 0000 not on RF input
Press E to continue or ◀▶ to stop

Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. The DSR-4410MD cannot decode the chosen virtual channel until a port is set up with the applicable satellite and polarity information.

Xpndr Field

This non-editable field displays the current (Xpndr) transponder name (alpha/numeric) that is downloaded. The DSR-4410MD displays dashes (---) when transponder information is not available. If the user selects a virtual channel that is not in the chosen VCT, then a warning message, (Not in map) is displayed to the right of the virtual channel.

MPEG Select Menu

This menu allows the user to select which service is displayed at the video and audio outputs by specifying the MPEG program number. Press the ▲ ▼ buttons until the MPEG Select menu appears. The MPEG program number can be used instead of a virtual channel, but only if the DSR-4410MD is already tuned to the appropriate L-band or ASI input signal.



Program Menu

Press the ▶ button until the cursor is at the Program label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the ▲ ▼ buttons to scroll throughout the available MPEG programs. (If the current L-band or ASI input signal contains four MPEG programs, then only four MPEG programs appear in this field.) Press the ENTER button to confirm the selection.

This field also provides a second method for selecting the MPEG program. To do this, use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the required value. Repeat this process for each applicable digit.

The DSR-4410MD displays warning messages for the following two conditions:

- A warning message is displayed when the user changes from a virtual channel to a MPEG program number. Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

CAUTION: Changing to MPEG selection mode
Press E to continue or ◀▶ to stop

- A warning message displays when an MPEG program number is selected which does not exist.

CAUTION: Program 00000 does not exist
Press E to continue or ◀▶ to stop

Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Aud1Lang, Aud2Lang Menus

These menus (Audio1 and Audio2 Language) have three fields that allow the user to modify and view the status of the language for the Audio1 and Audio2 outputs. This menu also allows the user to view the mode of the audio signal as it is received from the programmer and before any subsequent down mixing that the DSR-4410MD may perform. Press the ▲ ▼ buttons until the AUD1LANG menu or AUD2LANG menu appears.

→AUD1LANG →Dspl →Left Right InputMode
◀▶ E All def def ---

→AUD2LANG →Dspl →Left Right InputMode
◀▶ E All def def ---

Note: The two digits in the Left and Right fields indicate the occurrence of the specified language. The range is from 00 to 99. For example, use Eng13 for the 13th version of English. This feature is used when there are multiple dialects within a language.

Dspl Field

Press the **▶** button until the cursor is at the Dspl (Display) label, and press the ENTER button to move into the field. The Display field allows the user to select the options that are displayed in the Left (channel) and Right (channel) fields. There are three options: All, Avail, and Status. Press the **▲ ▼** buttons to specify the desired option.

The All option allows the user to scroll throughout the languages that exist in the database while in the Left and Right fields. You may wish to select languages that are not functional at this time but will be functional in the future - when they are present on the channel. Press the ENTER button to confirm the selection.

The Avail (Available) option allows the user to scroll through the languages supported by the system while the cursor is in the Left and Right fields. Furthermore, selection of this option allows the user to scroll through only the languages available for the active service. (If the active service has only three languages, as listed for the virtual channel or program, only three appear. If the user changes the service, the number of languages may also change.) Press the ENTER button to confirm the selection.

The Status option allows the user to view the actual audio language. The actual language can differ from the chosen language when the user's choice for language is unavailable. The rules that govern which language the DSR-4410MD chooses are described in the next section.

Left and Right Fields

Press the **▶** button until the cursor is at the Left label, and press the ENTER button to move into the field. If the user selects the Dual Mono downmix, Left and Right will have separately editable fields. Otherwise, they are controlled together as a pair from the Left field alone. These fields allow the user to scroll throughout the following three options: (1) all languages if the Display field is set to All, (2) the currently available languages if the Display is set to Avail, or (3) Def (default) if the Display field is set to either All or Avail. Press the **▲ ▼** buttons to specify the desired option. Press the ENTER button to confirm the selection.

When making choices, keep the following factors in mind:

- If Def (default) is selected, the Audio 1 and Audio 2 outputs default to the first and second language, respectively, that is listed for the service. It is suggested that programmers run their language listing so that this default is the language that matches the audio.
- If the AudioMix option is Surround, Stereo, or Mono, and desired language is not available, then the audio output is the default language.

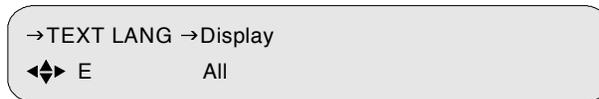
- If the AudioMix option is Dual Mono and a language pair is not available that matches the user's choice for Left and Right languages, the DSR-4410MD selects and outputs the first occurrence of the Left language choice. The system cannot take a Left from one audio pair and a Right from another. If there is no match for the Left language choice, the DSR-4410MD uses the default language.
- There is an interaction between the Language (Lang) menu and the AudioMix field of the Audio menu (installation menu group):
 - If the user had previously selected Stereo or Mono in the AudioMix field and a specific language as the audio output in the Lang menu, but later changes the AudioMix menu setting to Dual Mono, the Dual Mono changes in this menu to the same language specified for both Dual Mono channels and a caution screen displays. After changing the AudioMix menu to Dual Mono, reselect the languages desired here, in this menu.
 - If the user previously selected Dual Mono in the AudioMix field with two different languages as audio outputs in the Language menu, but later selects Stereo, Stereo Surround, or Mono in the AudioMix field, the output in this Language menu defaults to the first occurrence of a specified language (the one defined for the Left channel first, then for Right channel if there is no match for the Left). In this case, the same caution screen appears.

Input Mode Field

This read-only field indicates the incoming audio signal of the active service.

Text Lang Menu

This Text Language menu has two fields that allow the user to modify and view the status of the language for the subtitle display. Press the \blacktriangle \blacktriangledown buttons until the Text Lang (Text Language) menu appears.



Display Field

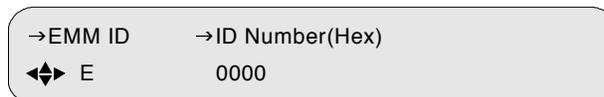
Refer to the Display field description under the Audio1 Language menu for the All, Available, and Status options. This field also has a fourth option, which is OFF. The OFF option disables subtitles.

EMM ID Menu

The Entitlement Management Message (EMM) ID menu allows for additional flexibility in access control. It allows the user to enter a new EMM provider ID number if provided by the programmer.

Caution: If you do not know what the EMM provider ID is, do not enter anything. Use the default setting of zero.

Press the \blacktriangle \blacktriangledown buttons until the EMM ID menu appears.



ID Number Field

The ID Number field allows the user to change the ID number, which is represented in the hexadecimal format. Press the \blacktriangleright button until the cursor is at the ID Number label, and press the ENTER button to move into the field. Use the \blacktriangleleft \blacktriangleright buttons to select the digit to change and then, while the cursor is on that digit, press the \blacktriangle \blacktriangledown buttons to display the required value. Repeat this process for each applicable digit. Press the ENTER button to confirm the selection.

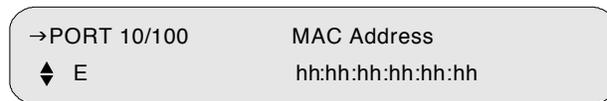
Note: Having completed the channel selection menus, move the cursor to the menu name. Then press the ENTER button to move to the Main, top-level menu. Press the \blacktriangleleft \blacktriangleright buttons until the cursor is at the Status label, and press the ENTER button. The DSR-4410MD now displays the Status1 menu.

IP Menus

Use the IP menu is to configure the 10/100 port.

MAC Address Menu

Use the following procedure to view the MAC address for the lower Ethernet port on the back panel of the DSR-4410MD. Press the ▲ ▼ buttons until the MAC Address menu appears. The address is represented in a hexadecimal format and it is not editable.



IP PORT 10/100 DHCP Menu

Press the ▲ ▼ buttons until the Port 10/100 DHCP menu appears. The front panel screen displays the DHCP and Unit Name fields. DHCP (Dynamic Host Configuration Protocol) allows the Satellite Multiplex Decrypter to obtain a set of IP parameters from a DHCP server. The DHCP server ensures that all these IP addresses are unique. This automates and facilitates the Satellite Multiplex Decrypter's access to the network. The management of the IP address pool, in this case, is handled by the server, and not by a human administrator.



DHCP Field

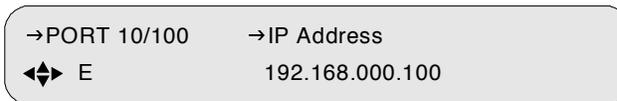
Enter the field and choose either Enable or Disable.

Unit Name Field

The Unit Name is fully editable. It is placed into the outgoing DHCP request and is used for registration. The Unit Name, in most cases, is only a suggestion to the DHCP server and may be updated with a different name upon receiving the DHCP registration reply. If an updated name is received from a DHCP server, the Unit Name will be adjusted to show this change and will replace the user-entered name.

IP Address Menu

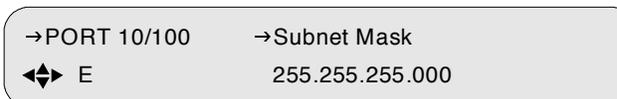
Use the following procedure to set and view the IP address for the lower Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the IP Address menu appears. This menu allows the user to enter an IP address for the Ethernet port. The address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.



Press the **▶** button until the cursor is at the Address label and press the ENTER button to move into the field. Press the **◀ ▶** and **▲ ▼** buttons to enter the desired address and then press ENTER to confirm the selection.

Subnet Mask Menu

Use the following procedure to set and view the Subnet Mask for the lower Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the Subnet Mask menu appears. This menu allows the user to enter a subnet mask for the Ethernet port. The subnet mask is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.



Press the **▶** button until the cursor is at the Address label, and press the ENTER button to move into the field. Use the arrow button (**◀ ▶ ▲ ▼**) to enter the desired address and then press the ENTER button to confirm the selection.

IP Gateway Menu

Use the following procedure to set and view the IP address for the lower Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the IP Gateway menu appears. This menu allows the user to enter an IP gateway address that the Ethernet port should use. The IP Gateway is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.

→PORT 10/100	→Default Gateway
↔ E	192.168.000.001

Press the **▶** button until the cursor is at the Address label, and press the ENTER button to move into the field. Use the arrow buttons (**◀ ▶ ▲ ▼**) to enter the desired address and then press the ENTER button to confirm the selection.

GigE Menus

Use the GigE menus is to configure the GigE port.

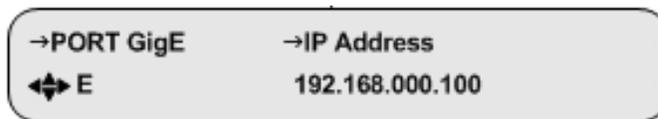
GigE MAC Address Menu

Use the following procedure to view the GigE MAC address for the upper Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the Port GigE menu appears. The address is represented in a hexadecimal format and it is not editable.

→PORT GigE	MAC Address
◆ E	hh:hh:hh:hh:hh:hh

GigE IP Address Menu

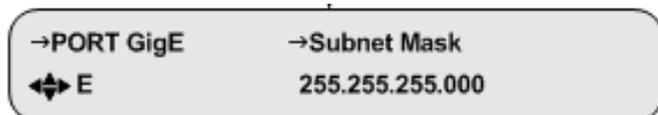
Use the following procedure to set and view the GigE IP address for the upper Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the GigE IP Address menu appears. This menu allows the user to enter an IP address for the GigE port. The address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.



Press the **▶** button until the cursor is at the Address label, and press the ENTER button to move into the field. Press the **◀ ▶** and **▲ ▼** buttons to enter the desired address and then press ENTER to confirm the selection.

GigE Subnet Mask Menu

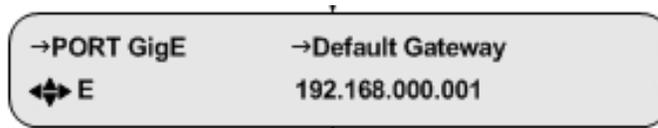
Use the following procedure to set and view the GigE Subnet address for the upper Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the GigE Subnet Mask menu appears. This menu allows the user to enter a subnet mask for the GigE port. The GigE subnet mask is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.



Press the **▶** button until the cursor is at the Subnet Mask label, and press the ENTER button to move into the field. Use the arrow button (**◀ ▶ ▲ ▼**) to enter the desired address and then press the ENTER button to confirm the selection.

GigE Default Gateway Menu

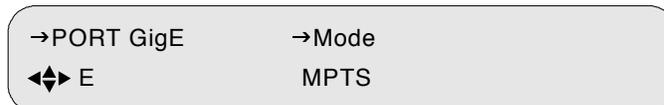
Use the following procedure to set and view the GigE Default Gateway address for the upper Ethernet port on the back panel of the DSR-4410MD. Press the ▲ ▼ buttons until the GigE Default Gateway Address menu appears. This menu allows the user to enter the GigE Default gateway address that the Ethernet port should use. The GigE Default Gateway is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.



Press the ▶ button until the cursor is at the Default Gateway label, and press the ENTER button to move into the field. Use the arrow buttons (◀ ▶ ▲ ▼) to enter the desired address and then press the ENTER button to confirm the selection.

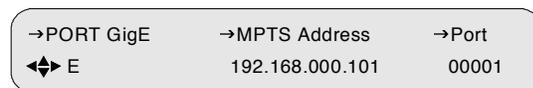
GigE Mode Menu

Setting the Mode to MPTS enables delivery of the MPEG-2 transport streams over Gigabit Ethernet interfaces using the Multiprogram Transport Stream protocol.



GigE MPTS Address Menu

Use the following procedure to set and view the GigE Multiple Program Transport Stream (MPTS) address for the upper Ethernet port on the back panel of the DSR-4410MD. Press the **▲ ▼** buttons until the GigE MPTS Address menu appears. This menu allows the user to enter the GigE MPTS address that the Ethernet port should use. The GigE MPTS is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.



MPTS Address Field

Press the **▶** button until the cursor is at the MPTS Address label and press the ENTER button to move into the field. Use the arrow buttons (**◀ ▶ ▲ ▼**) to enter the desired address and then press the ENTER button to confirm the selection.

Port Field

Press the **▶** button until the cursor is at the Port label, and press the ENTER button to move into the field. Use the arrow buttons (**◀ ▶ ▲ ▼**) to enter the desired port ID (Range: 00000 to 65535) and then press the ENTER button to confirm the selection.

Status Display Menus

Status display menus provide information regarding the current status of the DSR-4410MD. This menu lists important Satellite Multiplex Decrypter parameters. These fields are not editable, and the displayed information is either (1) the result of changes in an installation or channel selection menu, or (2) a parameter the DSR-4410MD reports as part of its operation.

Status1 Menu

Press the ▲ ▼ buttons until the STATUS1 menu appears.

→STATUS1	FrontPanel	Input Type
◆ E	Local Control	L-Band

Front Panel Field

The Front Panel field indicates whether the user is able to control the Satellite Multiplex Decrypter completely from the front panel or whether some front panel functions are disabled.

Input Type Field

The Input Type field indicates the input connector on which the active signal is received.

Status2 Menu

Press the ▲ ▼ buttons until the STATUS2 menu appears. This screen displays the source name, channel number, and the signal quality.

→STATUS2	Source	Channel	Quality
◆ E	---	----	---

Source Field

The Source field displays the source name, which was entered by the programmer or network operator at the encoder/uplink to identify the source. Dashes are displayed when no information is available.

Channel Field

The Channel field displays the selected virtual channel number (from the Channel menu). Dashes are displayed when no information is available.

Quality Field

The Quality field displays a number from 1 to 100 so that the quality level of the signal can be judged. The signal quality is also displayed as a large bar graph in the Status3 menu. If the signal is 50 or less, it is marginal. If it is 35 or less, take action to increase the dish size or improve the LNB to prevent occasional loss of output.

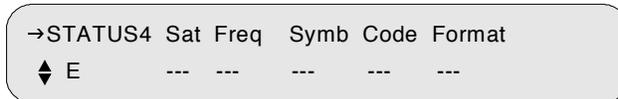
Status3 Menu

Press the \blacktriangle \blacktriangledown buttons until the STATUS3 menu appears. This screen displays the quality level of the signal as a large bar graph that expands to fill the entire LCD screen.



Status4 Menu

Press the \blacktriangle \blacktriangledown buttons until the STATUS4 menu appears. This screen displays the satellite name and signal tuning characteristics.



Sat Field

This field displays the satellite name from the downloaded network information. Dashes are displayed when no information is available.

Freq Field

This field displays the downlink frequency of the L-band signal. This may be different from the frequency that was initially set in the Manual Tune menu. Dashes are displayed when no information is available or that the ASI input is in use.

Symb Field

This field displays the symbol rate (megasymbols per second) of the L-band signal. Dashes indicate that no information is available or when the ASI input is in use.

Code Field

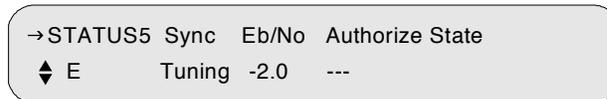
This field displays the code rate (error control coding for forward error correction) of the L-band signal. Dashes indicate that no information is available or the ASI input is in use.

Format Field

This field displays the format (combined or split) of the L-band signal. Dashes are displayed when no information is available or when the ASI input is in use.

Status5 Menu

Press the \blacktriangle \blacktriangledown buttons until the STATUS5 menu appears. This screen displays the Sync, Eb/No, and Authorization State of the DSR-4410MD.

**Sync Field**

This field displays the acquisition Sync state. The Sync state can be either Locked or Tuning.

Eb/No Field

This field displays the Eb/No. Eb/No is a measure of signal to noise.

Authorization State Field

This field displays the authorization state of the current selected channel. Authorization State indicates how the Satellite Multiplex Decrypter is authorized. If the Authorization State is Not Authorized, the field will alternate, and display a reason why it is not authorized (e.g., Not in Sync).

Status6 Menu

Press the \blacktriangle \blacktriangledown buttons until the STATUS6 menu appears. This screen displays the DSR-4410MD's memory (free memory), and Flash.



Memory Field

This status-only field displays the amount of free volatile memory in MB units that is available for use by the operating system.

Flash Field

This status-only field displays the amount of free non-volatile memory in MB units that is available for use by the operating system.

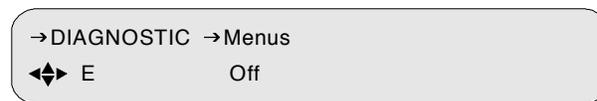
Diagnostics Menus

The DSR-4410MD's diagnostic menus allow the user to isolate problems to the DSR-4410MD or the satellite using the front panel. The menus also enable the user to test waveforms and use other diagnostic information displayed on an NTSC television monitor connected through the rear panel video output.

Caution: Turning on diagnostics changes the video or audio output, and these diagnostic screens or tones may be transmitted to the cable customers if the receiver is connected to the cable plant.

Diagnostics Menu

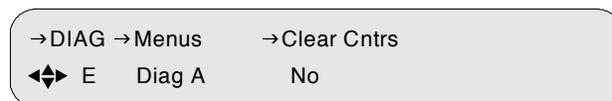
Press the ▲ ▼ buttons until the DIAGNOSTICS menu appears.



Menu Field

The Menu field allows the user to enable or disable the on-screen diagnostics. Press the ▶ button until the cursor is at the Menu label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to scroll to the televised screen of choice. Press the ENTER button to exit this field.

Notice that if the Menu field is ON, the Clear Cntrs (clear counters) field also appears.



Clear Cntrs Field

This field allows the user to reset selected counters to zero. This field is primarily for use with hotline troubleshooting, and it is recommended that it be used only when so directed and does not affect receiver operation, but it may give misleading troubleshooting results. To clear counters, press the ▶ button until the cursor is at the Cntrs label, and press the ENTER button to reset the counters to zero.

Audio Test Signal Menu

Press the \blacktriangle \blacktriangledown buttons until the Audio Test Signal menu appears. This menu allows the user to select an audio test signal for each of the two audio outputs: Audio1 and Audio2.



L1/R1 Field

This field allows the user to enable the Audio1 test signal. Press the \blacktriangleright button until the cursor is at the L1/R1 label. Press the ENTER button to enter the field. There are three options: (1) Off, (the default) (2) 1000 Hz at +16 dBm, and (3) 4040 Hz and 3960 Hz at +4 dBm. Test signals override any active service component. In order to terminate an audio test signal, scroll to OFF or exit the L1/R1 field.

Caution: Audio output to the customers may be interrupted.

L2/R2 Field

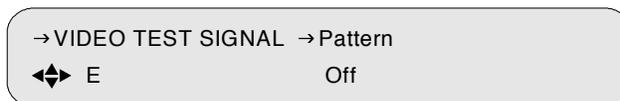
This field allows the user to enable the Audio 2 test signal. Press the \blacktriangleright button until the cursor is at the L2/R2 label. Press the ENTER button to enter the field. There are three options: (1) Off, (the default) (2) 1000 Hz at +16 dBm, and (3) 4040 Hz and 3960 Hz at +4 dBm. Test signals override any active service component.

Caution: Audio output to the customers may be interrupted.

In order to terminate an audio test signal, scroll to OFF or exit the L2/R2 field.

Video Test Signal Menu

Press the \blacktriangle \blacktriangledown buttons until the Video Test Signal menu appears. A full-field video test signal is available and the user can display different test patterns by selecting the Pattern field.



Pattern Field

Press the \blacktriangleright button until the cursor is at the Pattern label, and press the ENTER button to move into the field. Press the \blacktriangle \blacktriangledown buttons to display the test patterns. Choose from the options listed in Table 3-1.

Table 3-1: Test Pattern Options

NTSC/PAL M
Color Bar
IRE 100 Ramp
NTSC 7 Comb
Red Field
NTSC 7 Comp
5 Step Stair
Unmod Y Ramp
Off (Default)

Press the ENTER button and a warning message appears saying that the current video display will be interrupted if the action proceeds.

CAUTION: This selection replaces video
Press E to continue or ◀▶ to stop

Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Test signals override any active service component, and the DSR-4410MD displays diagnostics over the video test patterns if diagnostics are enabled. Disable the selected signals by displaying OFF or exiting the menu. Press the ENTER button to exit the field.

VITS Menu

Press the \blacktriangle \blacktriangledown buttons until the Vertical Interval Test Signal (VITS) menu appears. This menu allows the user to insert VITS on lines 17 or 18.



Waveform Field

Note: Upon exiting this submenu, the Waveform field reverts to the default value (Transmitted).

The Waveform field allows the user to insert a VITS from several internally stored patterns, from a pattern transmitted over the satellite link, or to turn off VITS insertion. Press the \blacktriangleright button until the cursor is at the Waveform label, and press the ENTER button to move into the field. Press the \blacktriangle \blacktriangledown buttons to display the options. Choose from the options listed in Table 3-2.

Table 3-2: VITS Pattern Field Options

NTSC/PAL M
Color Bar
100 IRE Ramp
NTSC 7 Comb
Red Field
NTSC 7 Comp
5 Step Stair
Unmod Y Ramp
Transmitted (Default)
Disabled

The Transmitted option (the default) indicates the signal is provided over the satellite link by the programmer, if one is present. Press the ENTER button to confirm the selection.

Note: If the Waveform option is neither Transmitted or Disabled, the Field and Line fields are displayed on the VITS menu.



Field Field

The Field field allows the user to select the field on which the VITS is reinserted by the receiver. There are two choices, Field 1 or Field 2. Press the **▶** button until the cursor is at the Field label, and press the ENTER button to move into the field. Press the **▲ ▼** buttons to select the desired option and press the ENTER button to confirm the selection.

Line Field

Press the **▶** button until the cursor is at the Line label, and press the ENTER button to move into the field. Press the **▲ ▼** buttons to display the options. The available line numbers are 17 or 18. The default is line 17. Press the ENTER button to confirm the selection.

Ad Insertion Test Menu

Ad insertion signals are generated by the DSR-4410MD, but controlled by the uplink programmer. Local cable companies use ad insertion signals to control and to queue the insertion of commercials in cable headends. There are two ways to provide ad insertion. One is a dedicated digital DTMF differential output for cue tones. The other ad is a dedicated contact closure relay. The Ad Insertion Test menu allows the user to turn cue tones and the relays on and off.



Caution: Output to the customers may be interrupted. When turned on, the ad insertion signals can be sent to the local headend equipment.

Press the **▲ ▼** buttons until the Ad Insertion Test menu appears.

Cue Tone Signal Field

The Cue Tone (Signal) field lets the user turn the cue tone test ON and OFF. Press the **▶** button until the cursor is at the Cue Tone Sig label, and press the ENTER button to move into the field. Press the **▲ ▼** buttons to display the options. If ON is selected, the DSR-4410MD generates a DTMF code (0-9*#ABCD) on the cue tone output. This test keeps repeating until the OFF option is selected or the ENTER button is pressed to exit the field.



Troubleshooting

Before contacting the Hotline, review Table 4-1 for problems and suggested solutions.

Table 4-1: Troubleshooting Solutions

Problem	Possible Cause	Solution	Reference
LCD blank, no LEDs lit.	No power to unit.	Plug in the unit	
LEDs illuminate, but LCD is blank or too dark to read.	LCD contrast out of adjustment.	Adjust LCD contrast	See "Contrast Field" on page 30.
No picture, no level indication.	No LNB signal port.	Connect LNB coax	See "Connecting the DSR-4410MD" on page 5.
Poor audio quality or low audio level.	Audio levels incorrect.	Adjust audio levels	
No video or Bypass Video is present.	Unit is in bypass mode.	Change to an available channel.	
No audio or Bypass Audio is present.	Unit is in bypass mode.	Change to an available channel.	
Will not acquire.	Port not configured.	Check port configuration and manual frequency tune	
Incorrect language.	Wrong language setting.	Check language screen settings	





Signal Flow

Figure 5-1 shows the DSR-4410MD signal flow.

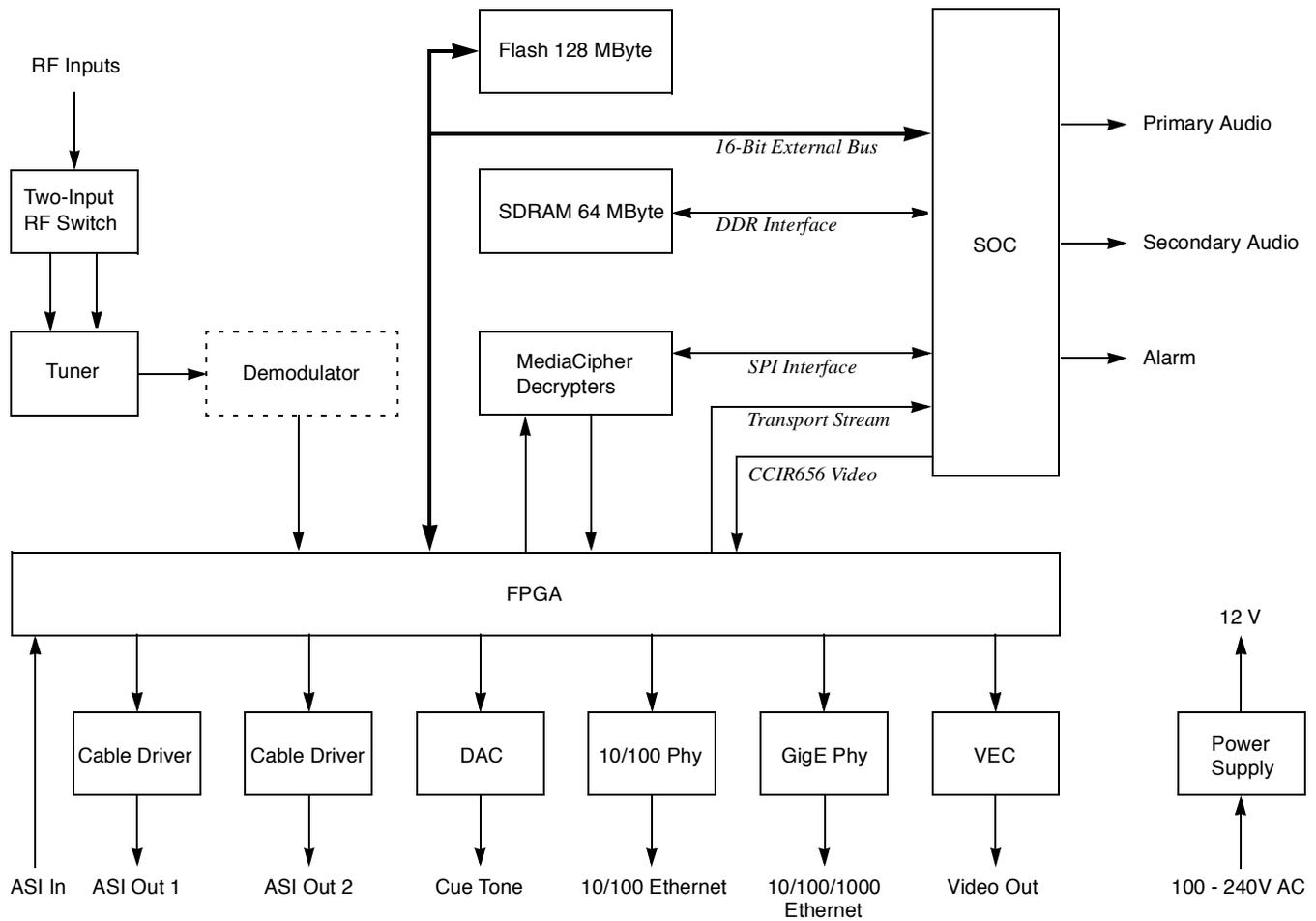


Figure 5-1: DSR-4410MD Signal Flow





Product Support

If You Need Help

For assistance with Motorola products only, contact the Motorola Technical Response Center (TRC), 24 hours a day, 7 days a week:

- Inside the U.S.: 1-888-944-HELP (1-888-944-4357)
- Outside the U.S.: 1-215-323-0044
- Motorola Online: <http://businessonline.motorola.com>
This offers a searchable solutions database, technical documentation, and low-priority issue creation and tracking.

Calling for Repairs

If repair is necessary, call Motorola's authorized repair vendor, World Wide Digital (WWD) at 1-800-227-0450 or 1-956-541-0600 for a Return for Service Authorization (RSA) number before sending the unit for repair. The RSA number must be prominently displayed on all equipment cartons. WWD is open from 8:00 AM to 5:00 PM Central Time, Monday through Friday.

When shipping equipment for repair, follow these steps:

1. Pack the unit securely.
2. Enclose a note describing the exact problem.
3. Enclose a copy of the invoice to verify the warranty status.
4. Label all cartons with the RSA number.
5. Ship the unit PREPAID to:

World Wide Digital
c/o Loera Customs Brokerage, Inc.
Attn: RSA # *****
5845 E. 14th Street, Suite D
Brownsville, TX 78521





Downlink/L-band Frequency Conversion Tables

A distributor or programmer can provide the latest C-band and Ku-band frequency plans at purchase time. If desired, the following formulas (Table 7-1 and Table 7-2) are provided to perform calculations for both C-band and Ku-band transponders, or if the user is installing for a new satellite.

Table 7-1: Calculation for C-Band Transponders

Formula for C-band Frequency	Example calculation if downlink frequency is 3,740 MHz
$5,150 \text{ MHz} <\text{minus}> \text{Frequency Downlink (DL)} <\text{equals}> \text{Frequency (C-band)}$	$\begin{array}{r} 5,150 \text{ MHz} \\ -3,740 \text{ MHz} \\ \hline 1,410 \text{ MHz} \end{array}$

Table 7-2: Calculation for Ku-Band Transponders

Formula for Ku-band Frequency	Example calculation if downlink frequency is 12,019 MHz
$\text{Frequency Downlink (DL)} <\text{minus}> 10,750 \text{ MHz} <\text{equals}> \text{Frequency (Ku-band)}$	$\begin{array}{r} 12,019 \text{ MHz} \\ -10,750 \text{ MHz} \\ \hline 1,269 \text{ MHz} \end{array}$





Language Abbreviations

Note: This list of languages was recommended to system operators as the appropriate identifiers for audio, subtitle, and text information. Refer to Language Menu operation.

Language	Abbreviation	Language	Abbreviation
Arabic	ara	Egyptian	egy
Armenian	arm	English	eng
Balinese	ban	Esperanto	epo
Basque	Baq	Faroese	fao
Batak	btk	Finnish	fin
Bengali	ben	French	fre
Bhojpuri	bho	German	ger
Bulgarian	bul	Greek	gre
Burmese	bur	Gujarati	guj
Catalan	cat	Hebrew	heb
Chinese	chi	Hindi	hin
Croatian	scr	Hiri Motu	hmo
Cue (Tones)	cue	Hungarian	hun
Czech	cze	Indonesian	ind
Danish	dan	Interlingua	ina
Dutch	dut	Iranian	ira
Irish	iri	Philippine (Other)	phi
Italian	ita	Polish	pol

Language	Abbreviation
Panjabi	pan
Japanese	jpn
Javanese	jav
Kashmiri	kas
Korean	kor
Kurdish	kur
Latin	lat
Malay	may
Mandar	mdr
Marathi	mar
Miscellaneous	mis
Mongolian	mon
Nepali	nep
Norwegian	nor
Otomian Lang.	oto
Pahlavi	pal
Persian	per

Language	Abbreviation
Portuguese	por
Rajasthani	raj
Romanian	rum
Russian	rus
Samoan	smo
Scots	sco
Sindhi	snd
Spanish	spa
Swahili	swa
Swedish	swe
Tagalog	tgl
Tamil	tam
Thai	tha
Urdu	urd
Vietnamese	vie
Welsh	wel



Diagnostics

Introduction

Diagnostic Data screens are developed by Firmware during implementation according to the needs of the system. All values update as required unless otherwise noted. Information about these screens is described here for documentation purposes only.

Hexadecimal numbers are displayed with none or more leading zeros (0) to pad to their individual field width. Decimal numbers are right-justified in their individual display rectangle and are not padded with leading zeros (0). In addition, decimal numbers may be displayed without or with a trailing decimal point to distinguish them from hexadecimal numbers. The default is no trailing decimal point.

Navigating the Diagnostic Screens

The diagnostic screens (Figure 9-1 on page 68) are available only via the composite video out with OSD (On Screen Display). Use the arrow and ENTER button to navigate to the DIAG menu and press ENTER. Using the up and down arrows, navigate to the DIAGNOSTIC Menu screen and press the right arrow key. Selecting ENTER while the cursor is on the Menu allows access to the different diagnostic screens. The up and down arrows will navigate amongst the different screens while displaying the data to the OSD. Pressing ENTER while on a diagnostic screen will allow for the continued display of the diagnostic data while the user navigates thru other front panel menus.

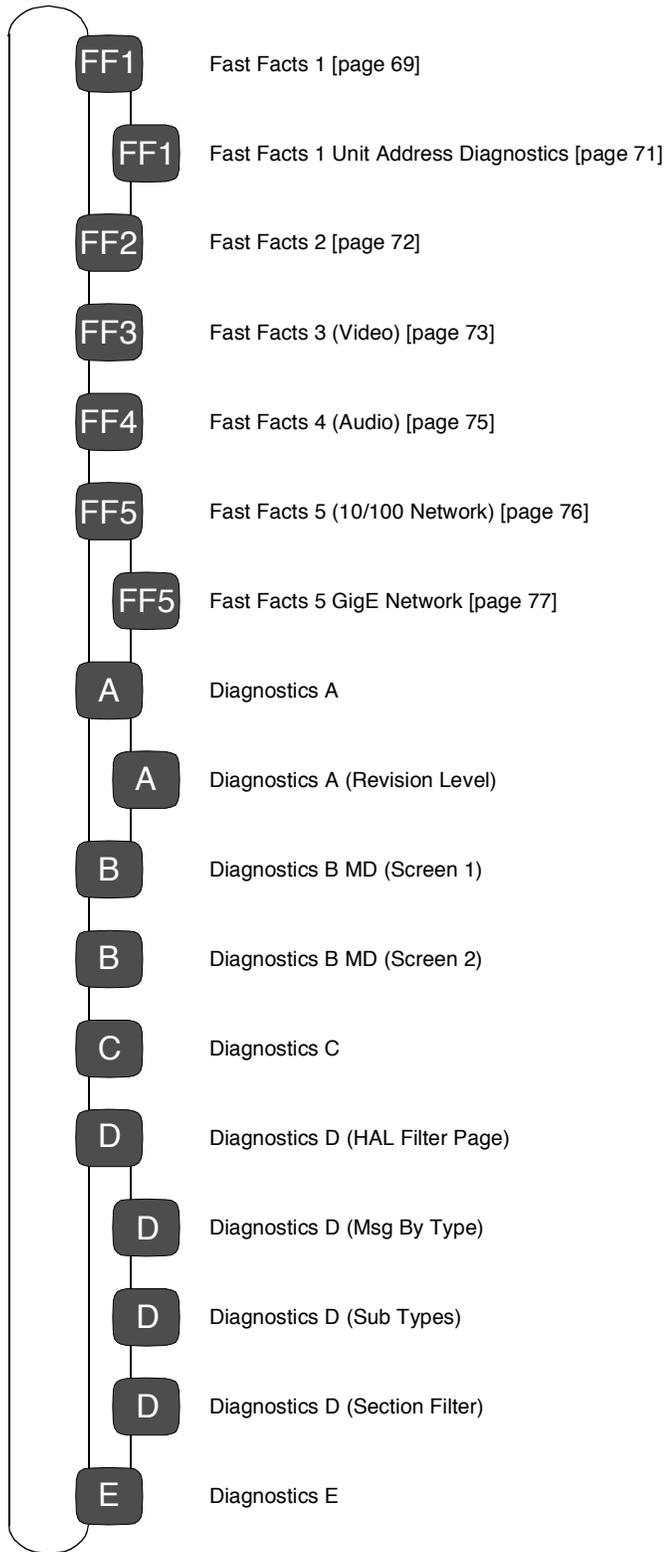


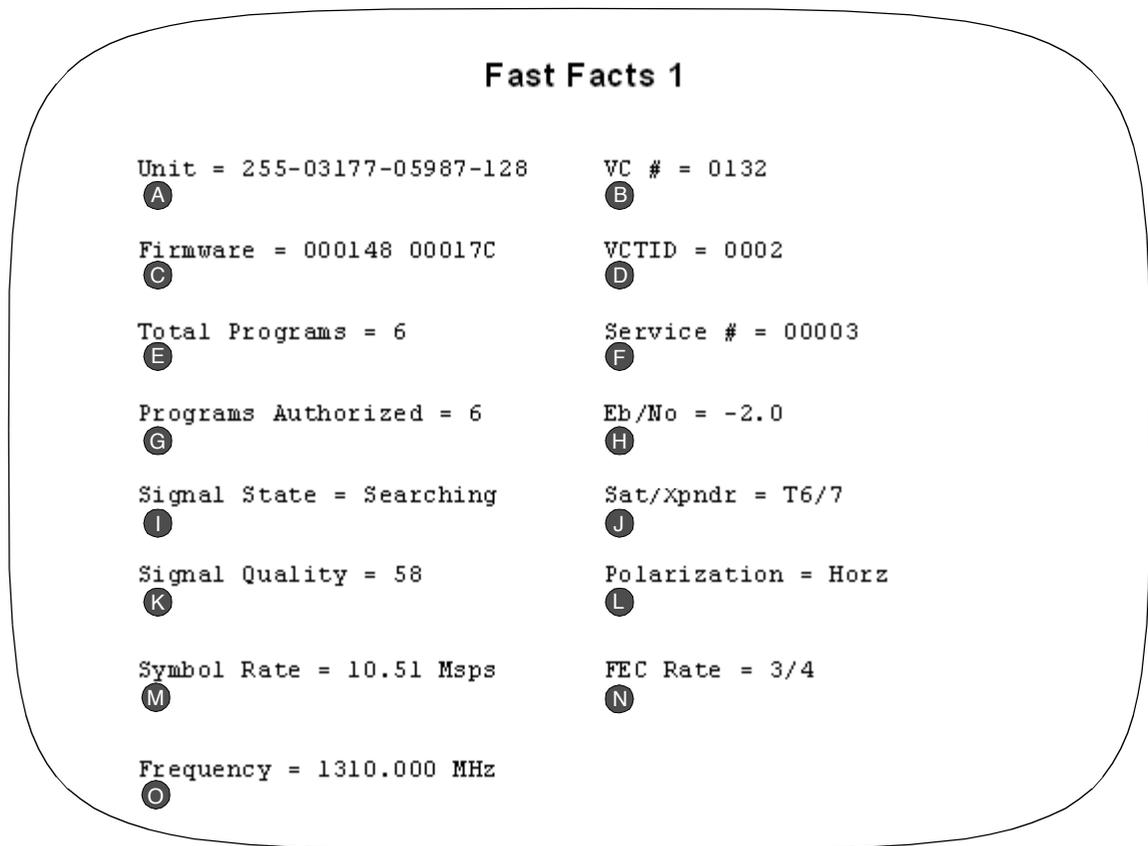
Figure 9-1: Diagnostic Screens

Fast Facts Screens

The Fast Facts screens are used as easier method of seeing diagnostic data than what is being shown in Diagnostic Screens A-E. The Fast Facts screens are composed of five screens; the first screen showing important general information, the second screen showing port configuration, the third showing important video information, the fourth showing important audio information, and the fifth showing Ethernet configuration.

Fast Facts 1

The Fast Facts 1 screen displays general information relating to the basic functionality of the unit.



Field	Name	Definition
A	Unit	Displays the Unit Address on the screen.
B	VC#	Shows the virtual channel number.
C	Firmware	Shows the firmware version in the boot sector of ROM and the application section.
D	VCT ID	Shows the current VCT ID.

Field	Name	Definition
Ⓔ	Total Programs	Displays the total number of services in the transport stream.
Ⓕ	Service	Displays the service number for the current program.
Ⓖ	Programs Authorized	Displays the number of programs that were decrypted.
Ⓗ	Eb/No	Shows the Eb/No of the signal.
Ⓘ	Signal State	Shows the signal state. It can either be “Locked” or “Searching” depending on whether the Satellite Multiplex Decrypter is locked to a signal or not.
Ⓜ	Sat/Xpndr	Displays the satellite name and transponder number. If the satellite name is null, then the satellite number is used.
Ⓚ	Signal Strength/Signal Quality	Puts up the Signal Quality if it is DigiCipher II. Otherwise, it puts up the Signal Strength. Both values are normalized to be between 0 and 100%.
Ⓛ	Polarization	Shows the polarization for the currently tuned-to transponder.
Ⓜ	Symbol Rate	Shows the current symbol rate.
Ⓝ	FEC Rate	Displays the coding rate.
Ⓞ	Frequency	Shows the current RF frequency.

Fast Fact1 (Unit Address Diagnostic Screen)

This diagnostic screen lists the unit addresses located on DSR-4410MD.

The ACP0 (Access Control Point) unit address is located on the back of the unit. The unit address labels for ACPs (1 through 15) are located on the bottom of the unit.

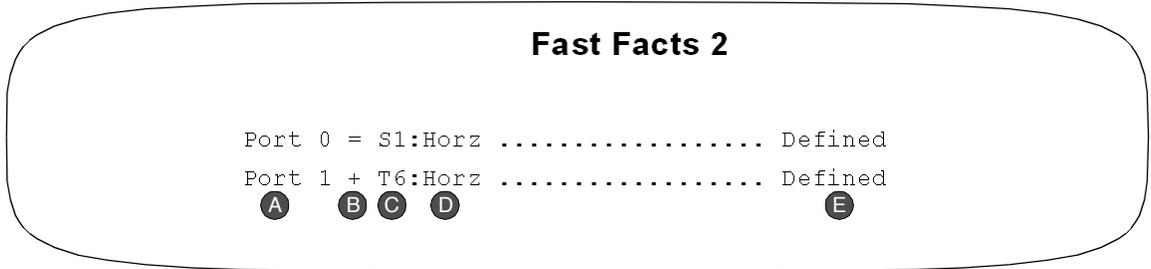
The first address (ACP0) is the “In Care Of” unit address that is needed for authorization by the programmer. The remaining 15 unit addresses are required for authorizing the multiplex. Each ACP is capable of decrypting four services.

Fast Facts1 (Unit address Diagnostics)

0	000-03141-42770-137	8	000-03141-42783-046
1	000-03141-42771-004	9	000-03141-42783-046
2	000-03141-42772-111	10	000-03141-42784-127
3	000-03141-42773-023	11	000-03141-42785-318
4	000-03141-42774-439	12	000-03141-42786-214
5	000-03141-42775-290	13	000-03141-42787-642
6	000-03141-42776-887	14	000-03141-42788-340
7	000-03141-42783-046	15	000-03141-42783-046

Fast Facts 2

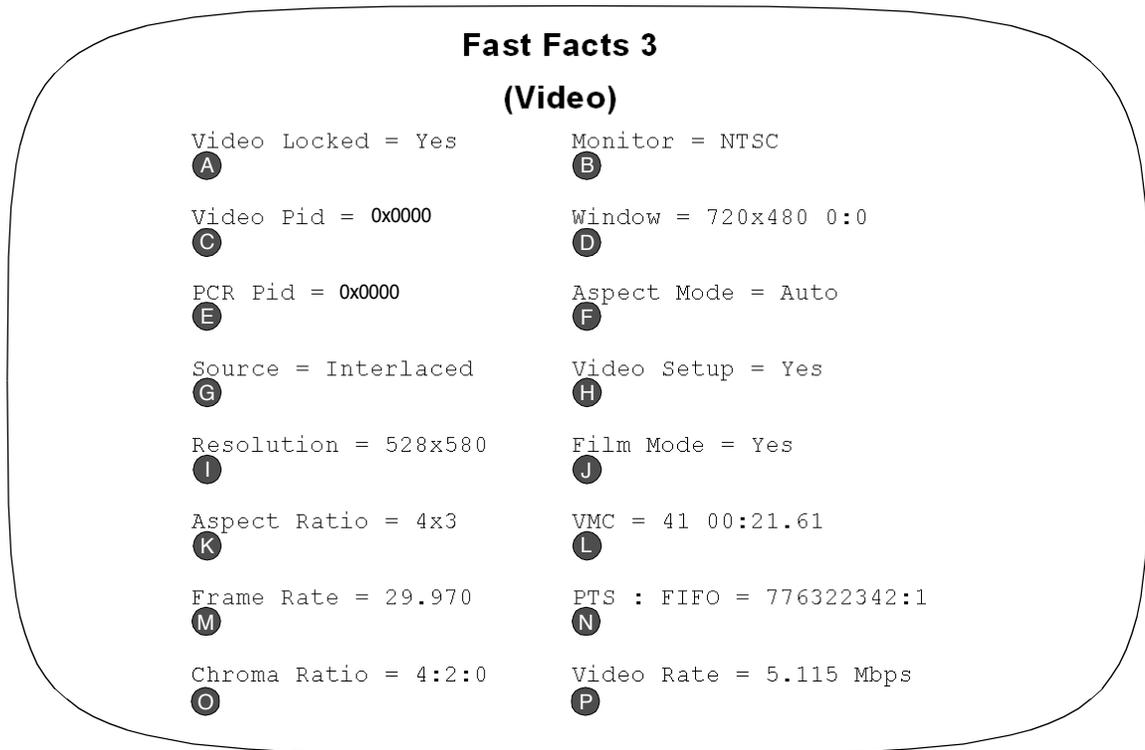
The Fast Facts 2 screen displays information relating to the port configuration of the unit.



Field	Name	Definition
A	Port number	The port number being described. 0-7
B	Active Status	+ is Active; = is Inactive.
C	Satellite Name	The name of the current satellite
D	Polarization	The polarity of the port Horz : Horizontal; Vert : Vertical
E	Configuration Status	The configuration status of the port: Defined, Undefined or Not Supported.

Fast Facts 3

The Fast Facts 3 screen displays information relating to video information.

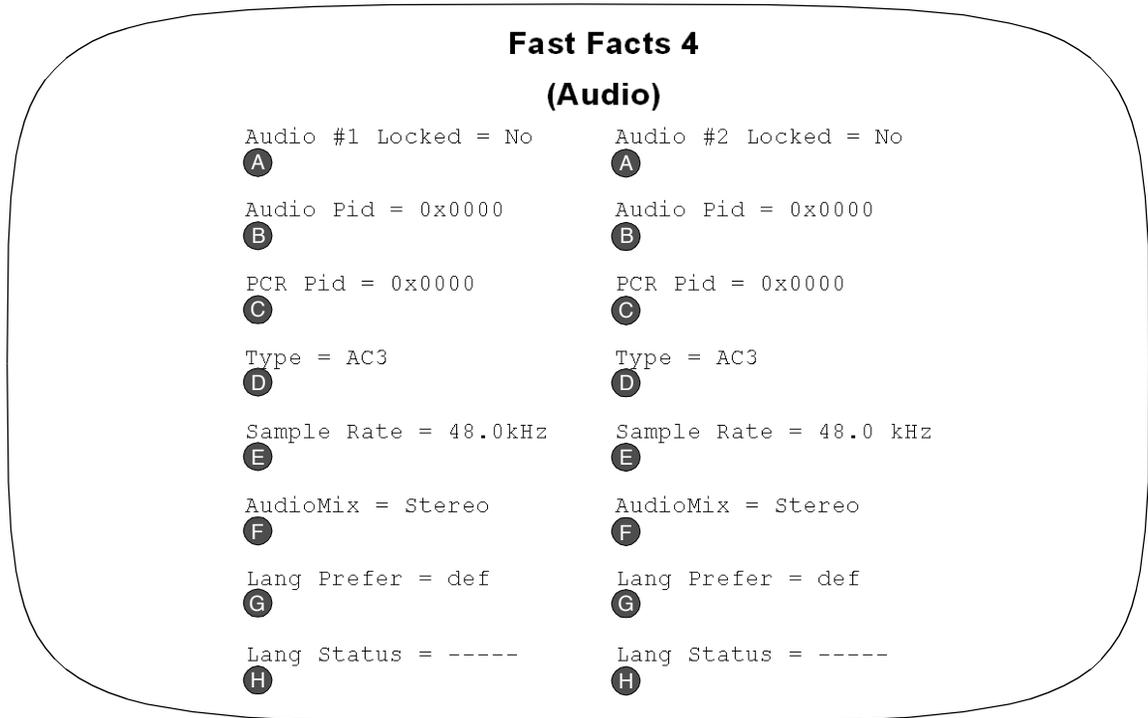


Field	Name	Definition
A	Video Locked	An indication of video lock or unlock
B	Monitor	The current output format of the video display
C	PID	The current PID in Hex
D	Window Dimensions	The current dimensions of the video display: Width x Height, Xpos : Ypos (or mute)
E	PCR Pid	The current PCR PID in Hex
F	Aspect Mode	The current aspect mode
G	Source Format	The source format: Interlaced or Progressive
H	Video Setup	Indication if the video setup (pedestal) is active
I	Resolution	Display Horizontal Size by Vertical Size
J	Film Mode	Indication of if Film Mode is active or inactive

Field	Name	Definition
Ⓚ	Aspect Ratio	The aspect ratio of the stream
Ⓛ	Video Mute Count (VMC)	The current video mute count
Ⓜ	Frame Rate	The frame rate code of the stream
Ⓝ	PTS : FIFO	The Video Presentation Time Stamp followed by the Picture FIFO Depth Count
Ⓞ	Chroma Ratio	The Chrominance format coming in the stream
Ⓟ	Video Rate	The rate of the video stream in Mbps

Fast Facts 4

The Fast Facts 4 screen displays information relating to audio information. There are two columns of information displayed, one column for the first audio program, and the other column for the second audio program.



Field	Name	Definition
A	Audio Locked	An indication of audio lock or unlock for both audio programs
B	Audio Pid	The current Audio Pid for both audio programs
C	PCR Pid	The current PCR Pid for both audio programs
D	Type	The audio stream type: MPEG, AAC, AC3, etc.
E	Sample Rate	The sampling rate of both audio programs in kHz
F	Audio Mix	The audio down-mix mode for both audio programs: Mono, Stereo, Surround, etc.
G	Language Preference	The preferred language setting for both audio programs.
H	Language Status	The language status for both audio programs

Fast Facts 5 (10/100 Network)

The Fast Facts 5 screen displays information relating to Ethernet configuration.

**Fast Facts 5
(10/100 Ethernet)**

Network Status: Link Down
Ⓐ

Address Type: Manually Configured
Ⓑ

MAC Address: 00:1A:AD:3E:60:01
Ⓒ

IP Address: 192.168.000.100
Ⓓ

Subnet Mask: 255.255.255.000
Ⓔ

Gateway: 192.168.000.001
Ⓕ

Field	Name	Definition
Ⓐ	Network Status	Gives the status of the 10/100 port (e.g., Link Down, Half Duplex, Full Duplex, and Link Unknown).
Ⓑ	Address Type	The Address Type of the unit.
Ⓒ	MAC Address	The MAC Address of the unit.
Ⓓ	IP Address	The IP Address of the unit.
Ⓔ	Subnet Mask	The Subnet Mask of the unit.
Ⓕ	Gateway	The Gateway Address of the unit.

Fast Facts 5 (Gigabit Ethernet)

The Fast Facts 5 (Gigabit Ethernet) screen displays information relating to Gigabit configuration.

Fast Facts 5 (Gigabit Ethernet)	
A	Network Status: Link Unknown
B	MAC Address: 00:16:B5:65:02:C9
C	IP Address: 192.168.54.100
D	Subnet Mask: 255.255.255.000
E	Gateway: 192.168.054.002
F	Dest IP Address: 192.168.054.200
G	Dest Port: 06000
H	Output Mode: MPTS

Field	Name	Definition
A	Network Status	Gives the status of the of the GIGA bit ethernet (e.g., Link Down, Half Duplex, Full Duplex, and Link Unknown).
B	MAC Address	MAC Address of the GIGA bit ethernet.
C	IP Address	IP address of the GIGA bit ethernet.
D	Subnet Mask	Subnet mask of the GIGA bit ethernet.
E	Gateway	Gateway of the GIGA bit ethernet.
F	Dest IP Address	Destination IP address.
G	Dest Port	Destination port.
H	Output Mode	Displays the output mode.





Specifications

RF	
Input Frequency Range	950 to 2150 MHz
Input RF Level	-25 to -65 dBm
RF Port Impedance	75 Ohms
RF Port Return Loss	8 dB minimum
Port-to-Port Isolation	40 dB minimum

Video	
Frequency response	± 0.9 dB (1 kHz to 4.2 MHz) NTSC ± 0.9 dB (1 kHz to 4.8 MHz) PAL +0/1.5 dB (4.8 MHz to 5.5 MHz) PAL
Video Level	1.0V p-p $\pm 10\%$
Chrominance-luminance Delay Inequality	± 40 nsec
Differential Gain	4.5% p-p maximum (10% to 90% APL)
Differential Phase	4.5% p-p maximum (10% to 90% APL)

Transmission Standard	
DigiCipher Symbol Rates	3.25, 4.88, 7.32, 9.76, 11.71, 14.63, 19.51, and 29.27 Msps discrete steps
DigiCipher Code Rates	5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8
8PSK-Turbo FEC Rates	2/3(1.92), 3/4(2.05), 3/4(2.11), 3/4(2.19), 5/6(2.30), 8/9(2.40)
DVB-S2 FEC Rates	3/5, 2/3, 3/4, 5/6, 8/9, 9/10

Audio	
Output level	+16.0 dBm \pm 1.0 dB into 600 Ohms, attenuation adjustable (0 to -15 dB)
Frequency Response	\pm 1.0 dB, 20 Hz to 20 kHz
Total Harmonic Distortion	1.25 dB pp or better at 1 kHz RE: +10 dBm, 20 Hz -20 kHz
S/N	85 dB or better at 1 kHz RE: + 16 dBm, measured at 20 Hz to 20 kHz
Isolation	80 dB, 1 kHz
Mono Level Balance	\leq 0.75 dB typical

Note: Audio and data connectors may be ordered through Phoenix Contact part numbers 1840447 / 1840528.

Electrical	
Power Requirements	90 to 250 VAC, 47/63 Hz, 60 W
LNB Power Supply	19-21 V minimum, 480 mA loaded

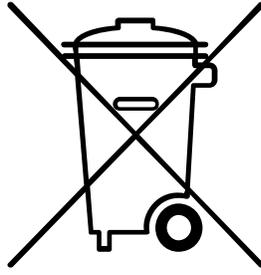
Connectors	
RF In	F-type (Qty 2)
OSD Video Out	BNC (Qty 1)
Alarm	Screw terminal (Qty 1)
Cue Tone (Labeled: Q+ and Q-)	Screw terminal (Qty 1)
Audio Out	Screw terminal (Qty 2)
ASI In	BNC connector (Qty 1)
ASI Out	BNC connector (Qty 2)

Mechanical	
Dimensions	H 3.1" (4.4 cm) W 19.0" (48.3 cm) D 20.50" (52 cm)
Weight	12 lbs.



Caring for the Environment by Recycling

When you see this symbol on a Motorola product, do not dispose of the product with residential or commercial waste.



Recycling your Motorola Equipment

Please do not dispose of this product with your residential or commercial waste. Some countries or regions, such as the European Union, have set up systems to collect and recycle electrical and electronic waste items. Contact your local authorities for information about practices established for your region. If collection systems are not available, call Motorola Customer Service for assistance.

Beskyttelse af miljøet med genbrug

Når du ser dette symbol på et Motorola-produkt, må produktet ikke bortskaffes sammen med husholdningsaffald eller erhvervsaffald.

Genbrug af dit Motorola-udstyr

Dette produkt må ikke bortskaffes sammen med husholdningsaffald eller erhvervsaffald. Nogle lande eller områder, f.eks. EU, har oprettet systemer til indsamling og genbrug af elektriske og elektroniske affaldsprodukter. Kontakt de lokale myndigheder for oplysninger om gældende fremgangsmåder i dit område. Hvis der ikke findes tilgængelige indsamlingssystemer, kan du kontakte Motorola Kundeservice.

Umweltschutz durch Recycling

Wenn Sie dieses Zeichen auf einem Produkt von Motorola sehen, entsorgen Sie das Produkt bitte nicht als gewöhnlichen Haus- oder Büromüll.

Recycling bei Geräten von Motorola

Bitte entsorgen Sie dieses Produkt nicht als gewöhnlichen Haus- oder Büromüll. In einigen Ländern und Gebieten, z. B. in der Europäischen Union, wurden Systeme für die Rücknahme und Wiederverwertung von Elektroschrott eingeführt. Erkundigen Sie sich bitte bei Ihrer Stadt- oder Kreisverwaltung nach der geltenden Entsorgungspraxis. Falls bei Ihnen noch kein Abfuhr- oder Rücknahmesystem besteht, wenden Sie sich bitte an den Kundendienst von Motorola.

Cuidar el medio ambiente mediante el reciclaje

Cuando vea este símbolo en un producto Motorola, no lo deseche junto con residuos residenciales o comerciales.

Reciclaje de su equipo Motorola

No deseche este producto junto con sus residuos residenciales o comerciales. Algunos países o regiones, tales como la Unión Europea, han organizado sistemas para recoger y reciclar desechos eléctricos y electrónicos. Comuníquese con las autoridades locales para obtener información acerca de las prácticas vigentes en su región. Si no existen sistemas de recolección disponibles, solicite asistencia llamando al Servicio al Cliente de Motorola.

Recyclage pour le respect de l'environnement

Lorsque vous voyez ce symbole sur un produit Motorola, ne le jetez pas avec vos ordures ménagères ou vos rebuts d'entreprise.

Recyclage de votre équipement Motorola

Veillez ne pas jeter ce produit avec vos ordures ménagères ou vos rebuts d'entreprise. Certains pays ou certaines régions comme l'Union Européenne ont mis en place des systèmes de collecte et de recyclage des produits électriques et électroniques mis au rebut. Veuillez contacter vos autorités locales pour vous informer des pratiques instaurées dans votre région. Si aucun système de collecte n'est disponible, veuillez appeler le Service clientèle de Motorola qui vous apportera son assistance.

Milieubewust recycleren

Als u dit symbool op een Motorola-product ziet, gooi het dan niet bij het huishoudelijk afval of het bedrijfsafval.

Uw Motorola-materiaal recycleren.

Gooi dit product niet bij het huishoudelijk afval het of bedrijfsafval. In sommige landen of regio's zoals de Europese Unie, zijn er bepaalde systemen om elektrische of elektronische afvalproducten in te zamelen en te recycleren. Neem contact op met de plaatselijke overheid voor informatie over de geldende regels in uw regio. Indien er geen systemen bestaan, neemt u contact op met de klantendienst van Motorola.

Dbalność o środowisko - recykling

Produktów Motorola oznaczonych tym symbolem nie należy wyrzucać do komunalnych pojemników na śmieci.

Recykling posiadanego sprzętu Motorola

Produktu nie należy wyrzucać do komunalnych pojemników na śmieci. W niektórych krajach i regionach, np. w Unii Europejskiej, istnieją systemy zbierania i recyklingu sprzętu elektrycznego i elektronicznego. Informacje o utylizacji tego rodzaju odpadów należy uzyskać od władz lokalnych. Jeśli w danym regionie nie istnieją systemy zbierania odpadów elektrycznych i elektronicznych, informacje o utylizacji należy uzyskać od biura obsługi klienta firmy Motorola (Motorola Customer Service).

Cuidando do meio ambiente através da reciclagem

Quando você ver este símbolo em um produto Motorola, não descarte o produto junto com lixo residencial ou comercial.

Reciclagem do seu equipamento Motorola

Não descarte este produto junto com o lixo residencial ou comercial. Alguns países ou regiões, tais como a União Européia, criaram sistemas para coletar e reciclar produtos eletroeletrônicos. Para obter informações sobre as práticas estabelecidas para sua região, entre em contato com as autoridades locais. Se não houver sistemas de coleta disponíveis, entre em contato com o Serviço ao Cliente da Motorola para obter assistência.

Var rädd om miljön genom återvinning

När du ser den här symbolen på en av Motorolas produkter ska du inte kasta produkten tillsammans med det vanliga avfallet.

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モトローラ製品にこの記号が表示されている場合、製品を家庭または商業廃棄物として処分しないでください。

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Motorola 제품에 이 표시가 있는 경우, 해당 제품을 가정용 또는 상업용 폐기물과 함께 버리지 마십시오.

重复利用，保护环境

如果 Motorola 产品上具有这个标识，请勿将产品丢弃到家庭或商业垃圾中。

注意環保問題

在你看到產品上有Motorola的標誌時，請勿以住家或商用的廢棄物方式處置。

Återvinning av din Motorola-utrustning

Kasta inte denna produkt tillsammans med det vanliga avfallet. Vissa länder eller regioner, som t.ex. EU, har satt upp ett system för insamling och återvinning av el- och elektronikavfall. Kontakta dina lokala myndigheter för information om vilka regler som gäller i din region. Om det inte finns något insamlingsystem ska du kontakta Motorolas kundtjänst för hjälp.

モトローラ装置のリサイクル

本製品を家庭または商業廃棄物として処分しないでください。欧州連合などの国または地域によっては、電氣的・電子的廢棄物を収集およびリサイクルするシステムがあります。お住まいの地域で決められている方法についての情報は、地方自治体にお問い合わせください。収集システムがない場合、モトローラ・カスタマーサービスまでお問い合わせください。

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Motorola 设备的重复利用

请勿将本产品丢弃到家庭或商业垃圾中。某些国家或地区，例如欧盟，已经建立起回收和重复利用电气与电子废弃物的体系。请与当地相关机构联系，获取有关所在地区相关规定的信息。如果当地尚未建立回收体系，请致电 Motorola 客户服务以寻求帮助。

Motorola 設備的回收

請勿以住家或商用的廢棄物方式處置。某些國家或地區，如歐盟，已對廢棄的電器和電子產品制訂回收以及再利用體制。請與您所在地的管理機構諮詢相關規定。若您所在的地區並未設置回收機制，請電 Motorola 客服部諮詢相關事宜。



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