DSR-6050 Commercial Integrated Receiver/ Transcoder Operator Guide

Document No.: 548272-001

MOTOROLA
Home and Networks Mobility

WARNING

The unauthorized modification of any transcoder and the sale and use of any such transcoder 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 transcoder 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 "Product Support" on page 55.

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 transcoder 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

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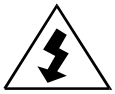
OPERATION PRECAUTIONS

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.

Table of Contents

Introducing the DSR-6050

The Motorola DSR-6050 Integrated Receiver/Transcoder is capable of transcoding MPEG-4 HD services into a MPEG-2 HD service output. The DSR-6050 is designed for use by television service providers and their programmers. After properly setting up the DSR-6050, it can receive authorization and control information from the satellite encoder operator.

Key Features

- MPEG-4 HD to MPEG-2 HD transcoding.
- A variable front-end allows the DSR-6050 to be used in either full or partial transponder mode.
- Eight L-band inputs.
- Demodulates DigiCipher® II signals.
- The user is able to select an input L-band frequency of 950 to 2150 MHz. The user can select any of the following code rates: 5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, and 7/8.
- The DSR-6050 is capable of storing multiple Virtual Channel Tables (VCTs) and Network Information Tables (NITs). One VCT may be selected at a time.
- Once the IRD has acquired an MPEG signal, the user can select a program from a list of programs as defined in the Program Association Table (PAT).
- Two video outputs. One for monitoring video and one for OSD video.
- VBI reinsertion on lines 10-22 supports data services such as North American Broadcast Teletext, SID/AMOL I and II, and Closed Caption.

- Operational modes include: DC-II MAN, DVB-MAN, DCII-AUTO, 8PSK-TC and 8PSK-DVBS2. Detailed modulator settings options will vary depending on the unit's operational mode setting.
- MPEG-2 video and Dolby® Digital/MPEG-2 Layer I audio are employed for video decode/decompression and audio compression respectively.
- Asynchronous Serial Interface (ASI) and Gig-E output for digital transport stream output. Both can be configured to display consistent PID mapping, regardless of service input.
- ASI input.
- Ethernet Port for SNMP control and/or IP data pass through.
- DTMF output and relay control of tape machines and other ad insertion equipment.
- Four Form-C relays used for fault alarm indication or uplink control.
- Memory to recall the operating configuration when power sags or is removed.
- Security features include Motorola DigiCipher II security technology. The DSR-6050 does not require a TVPass® card to operate with security. In the unlikely event that the code is broken, security can be renewed by inserting a card with a new code into the transcoder. Programmers may also utilize fingerprinting techniques to aid in piracy control.
- A two line, 40-character front panel with a Liquid Crystal Display (LCD).
- The DigiCipher II system allows for retune events in which a programmer sends over-the-satellite messages to specified transcoders 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 transcoder does not get lost.
- Asynchronous data output will be supported in the future phase.

2

Connecting the DSR-6050

Unpacking And Connecting The DSR-6050

Cable connections, described in this chapter, are made to the back panel of the DSR-6050.

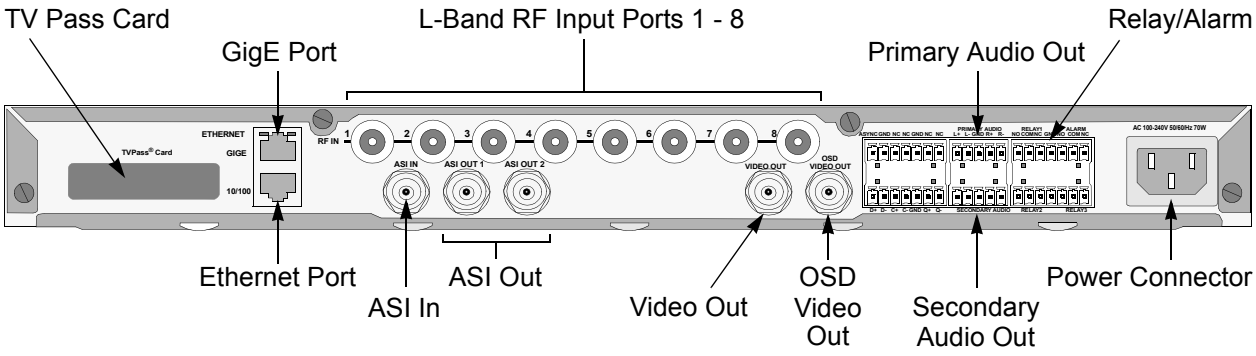
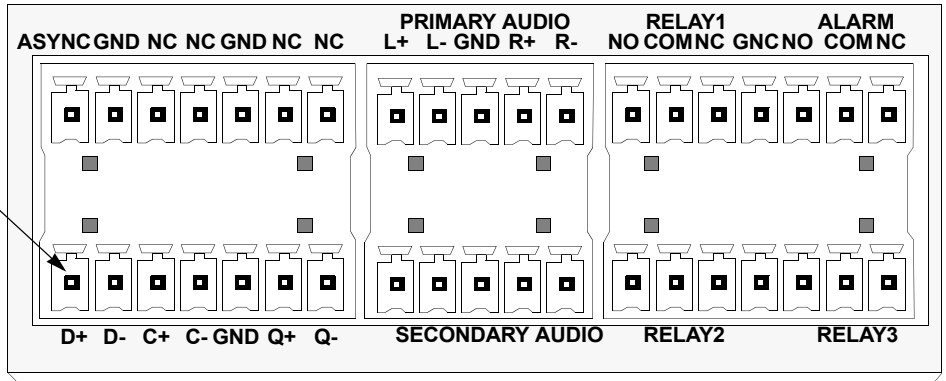
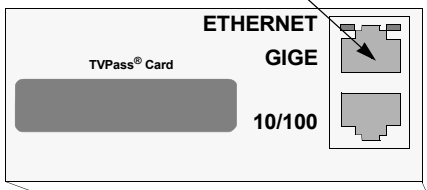


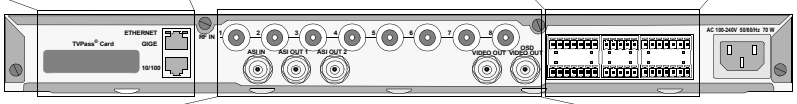
Figure 2-1: DSR-6050 Back Panel (Overview)

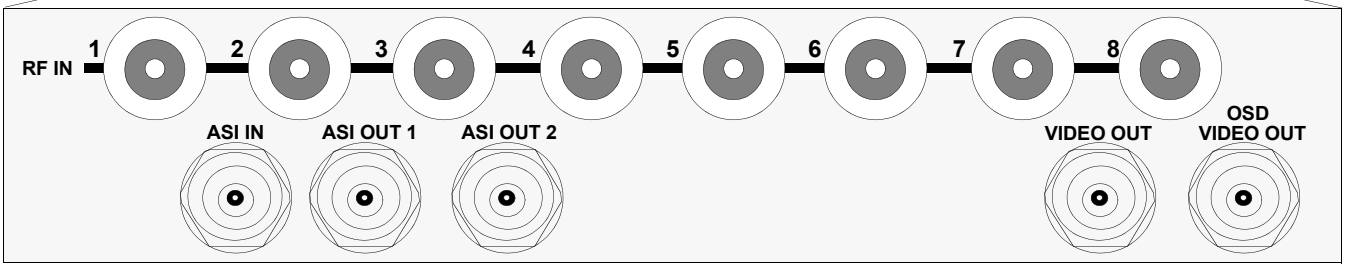
Note: D+, D-, C+, and C- are ISOC signals. D is Data, C is Clock, and Q+ and Q- are cue tone signals.



Note: GigE is supported in a future firmware release.







Note: ASI OUT 1 is used for MPEG 4 Passthrough. ASI OUT 2 is used for the Transcoded MPEG2 Transport stream.

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

Figure 2-2: DSR-6050 Back Panel (Detailed)

Unpacking And Mounting

The shipping carton contains the DSR-6050, quick disconnect terminals, a power cord, and this Operator Guide.

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

Connecting the DSR-6050

To Connect a DSR-6050 for a New DigiCipher II Service

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

Connect the desired L-Band (satellite antenna LNB or LNB signal splitter) source cable to any RF input Port 1 through 8. LNB DC power is available on Port 1, but must be turned on using a front panel Installation menu option.

An alternative input option is to connect an appropriate ASI source to the ASI input.

To view video and On-Screen Diagnostics (OSD) during installation, connect the OSD Video Output on the DSR-6050 to a 75-ohm video monitor or television with composite video input (standard definition).

DSR-6050 will generate time-specific ad insertion cue tones, using messages the programmer can include in the encoded signal. If these cue tones are needed and made available, connect the 600-ohm differential Cue Tone+, Cue Tone- and Ground terminals on the DSR-6050 to the device receiving the tones.

Plug the DSR-6050 into a power source. Verify that the LCD screen is lit.

Proceed with the installation using the front panel menus.

3

Operating the DSR-6050

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

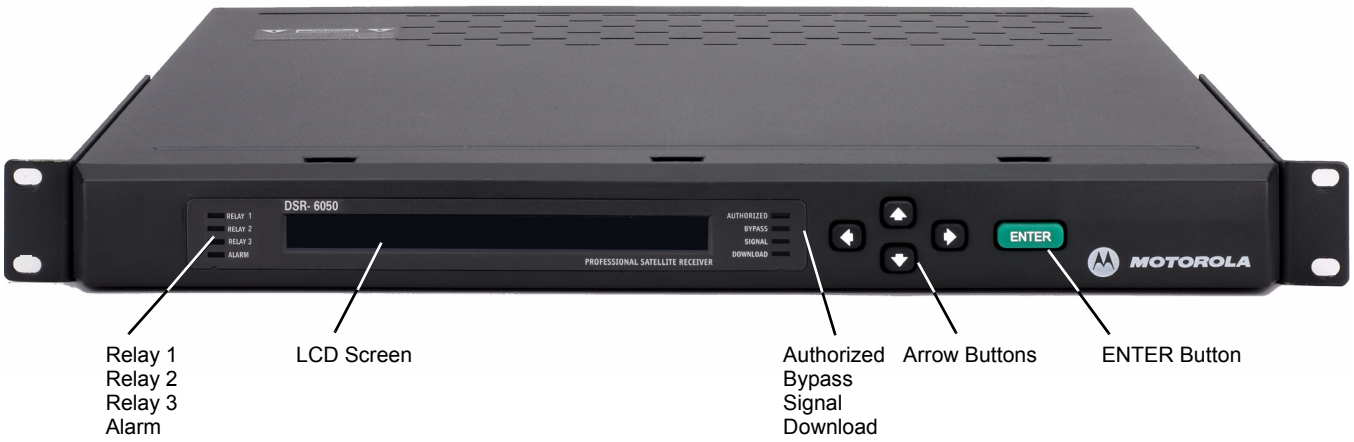
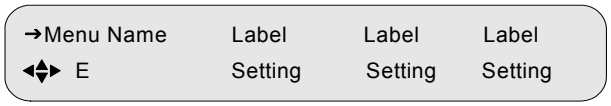


Figure 3-1: DSR-6050 Front Panel

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.

In addition to the menus on the LCD screen, the LED indicators show the transcoder's current status. The Signal LED is lit when the transcoder recognizes a valid carrier signal. The authorized LED is lit when the DigiCipher II signal LED is lit and either (1) the programmer has transmitted the access messages to allow the transcoder to decrypt the signal, or (2) the signal is unencrypted or fixed key.

If the IRD is in an alarm condition, the Alarm LED is lit.

Navigating The Menus

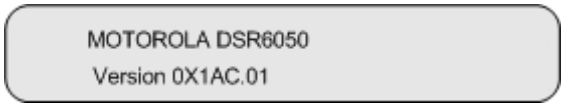
Even though the keypad options shown on the LCD screen may change for each menu and for each field, the control buttons basically do the same thing. The user may want to practice on a screen to become familiar with how the buttons work. Notice that:

- 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. When the ▲ ▼ symbol is left of the field, this indicates the ability to select from available or downloaded choices for that field. Placing the blinking cursor on those arrows and using those arrow buttons will reveal each of the available choices for that field, one at a time. To store 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-6050 is initially plugged in or after a factory reset. This menu identifies the model (MOTOROLA DSR-6050) and the currently installed firmware version. Example shown below:



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

The actual firmware version will be different.

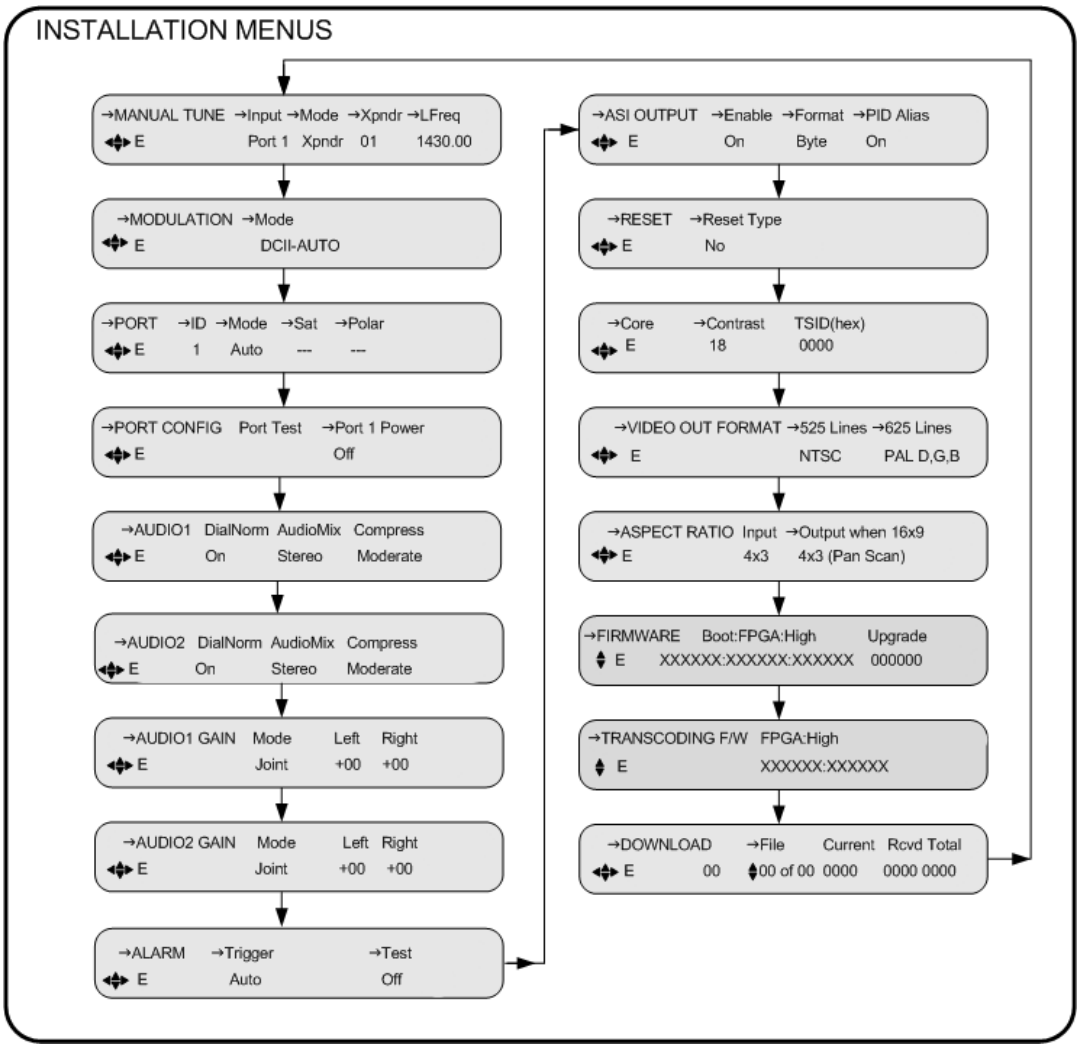
Main Menu

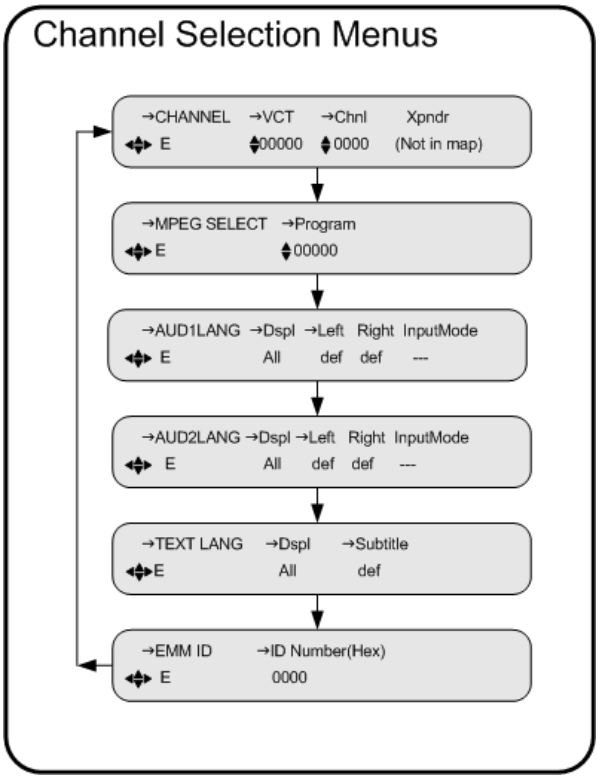
This menu is the top-level menu and can be navigated to from any other menu by pressing the ENTER button while the cursor is blinking next to the menu name. This menu allows the user to select any one of the five main menu groups: Installation menus, Channel menus, IP menus, Status menus, and Diagnostic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

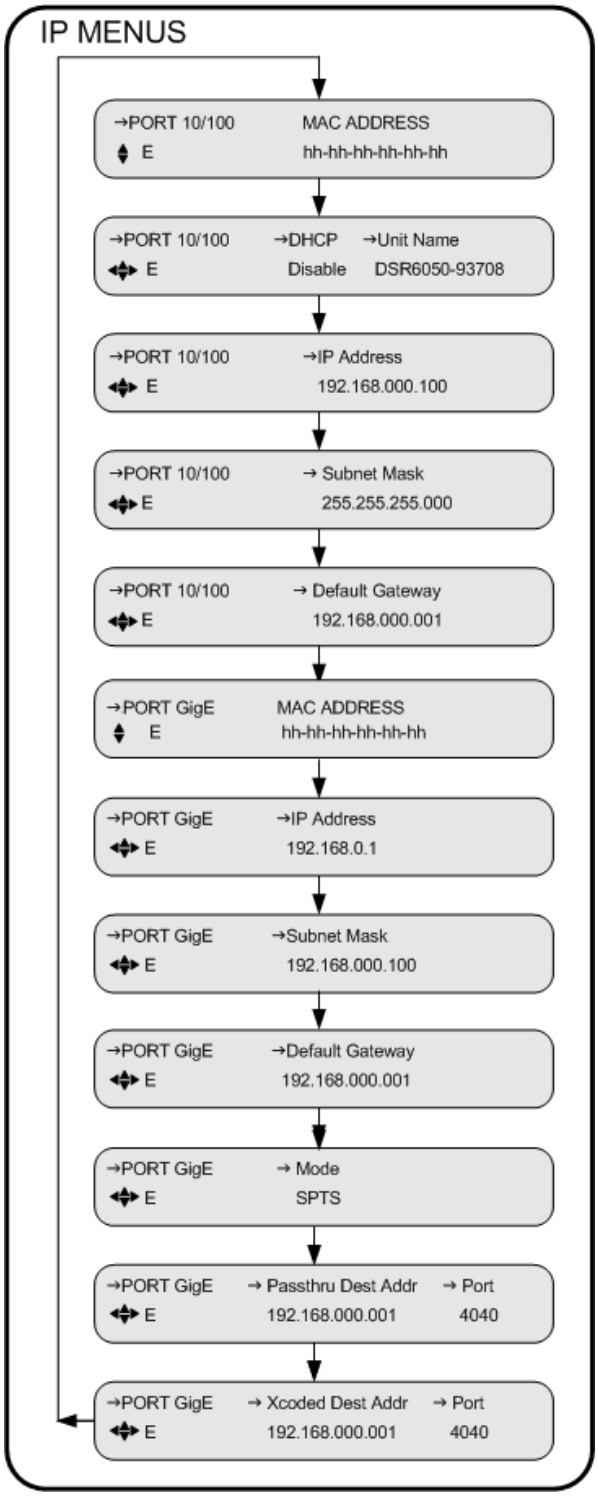
The DSR-6050 allows the user to scroll only to menus that are in the same group. To scroll to a menu that is in a different menu group, return to the main top-level menu and select the desired menu group.

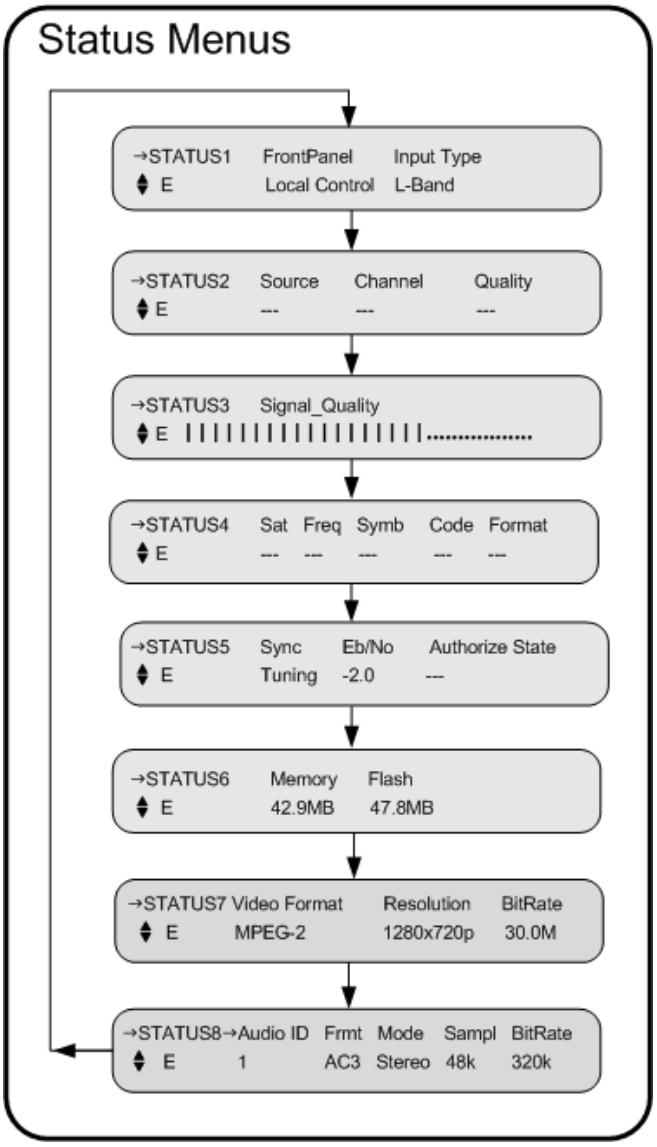
Overview of The LCD Panel Menu Tree

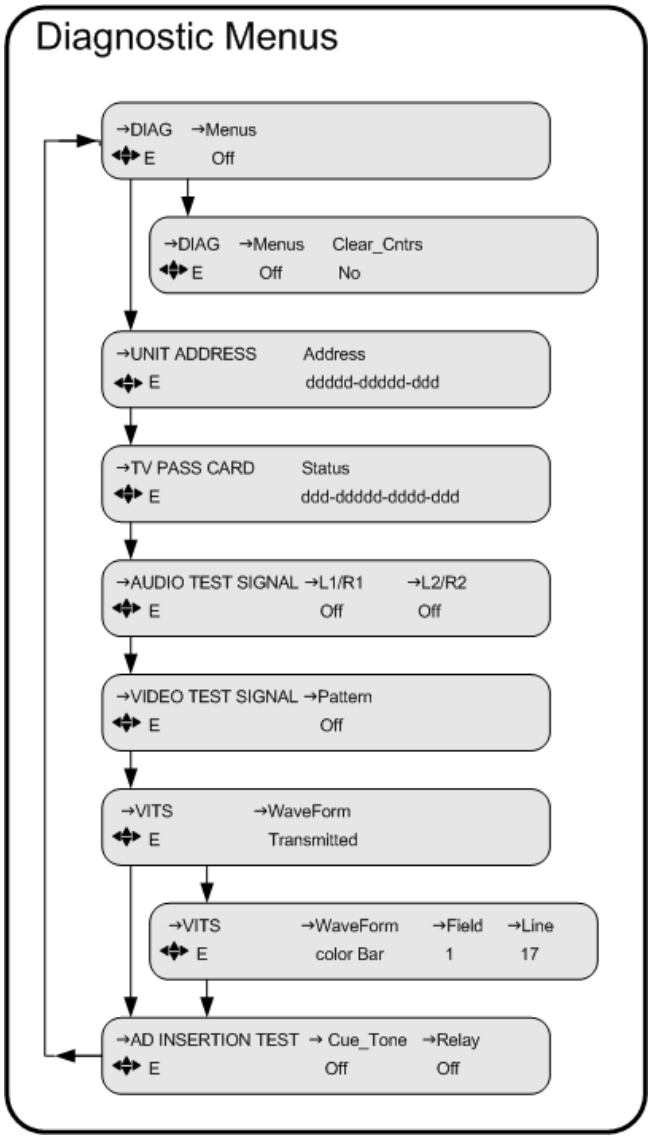
Pressing the ENTER button when the cursor is on a menu name causes the cursor to return to the main, top level menu. The charts on the following pages show the menus organized into five main groups: Installation menus, Channel selection menus, Status menus, IP menus, and Diagnostic menus.




Channel Selection Menus
→CHANNEL →VCT →Chnl Xpndr
E 00000 0000 (Not in map)
→MPEG SELECT →Program
E 00000
→AUD1LANG →Dspl →Left Right InputMode
E All def def ---
→AUD2LANG →Dspl →Left Right InputMode
E All def def ---
→TEXT LANG →Dspl →Subtitle
E All def
→EMM ID →ID Number(Hex)
E 0000


IP MENUS
→PORT 10/100 MAC ADDRESS
E hh-hh-hh-hh-hh-hh
→PORT 10/100 →DHCP →Unit Name
E Disable DSR6050-93708
→PORT 10/100 →IP Address
E 192.168.000.100
→PORT 10/100 → Subnet Mask
E 255.255.255.000
→PORT 10/100 → Default Gateway
E 192.168.000.001
→PORT GigE MAC ADDRESS
E hh-hh-hh-hh-hh-hh
→PORT GigE →IP Address
E 192.168.0.1
→PORT GigE →Subnet Mask
E 192.168.000.100
→PORT GigE →Default Gateway
E 192.168.000.001
→PORT GigE → Mode
E SPTS
→PORT GigE → Passthru Dest Addr → Port
E 192.168.000.001 4040
→PORT GigE → Xcoded Dest Addr → Port
E 192.168.000.001 4040


Status Menus
→STATUS1 FrontPanel Input Type
E Local Control L-Band
→STATUS2 Source Channel Quality
E --- --- ---
→STATUS3 Signal_Quality
E
→STATUS4 Sat Freq Symb Code Format
E --- --- --- --- ---
→STATUS5 Sync Eb/No Authorize State
E Tuning -2.0 ---
→STATUS6 Memory Flash
E 42.9MB 47.8MB
→STATUS7 Video Format Resolution BitRate
E MPEG-2 1280x720p 30.0M
→STATUS8 →Audio ID Frmt Mode Sampl BitRate
E 1 AC3 Stereo 48k 320k


Diagnostic Menus
→DIAG →Menus
E Off
→DIAG →Menus Clear_Cntrs
E Off No
→UNIT ADDRESS Address
E ddddd-ddddd-ddd
→TV PASS CARD Status
E ddd-ddddd-dddd-ddd
→AUDIO TEST SIGNAL →L1/R1 →L2/R2
E Off Off
→VIDEO TEST SIGNAL →Pattern
E Off
→VITS →WaveForm
E Transmitted
→VITS →WaveForm →Field →Line
E color Bar 1 17
→AD INSERTION TEST → Cue_Tone →Relay
E Off Off

Installation Menus

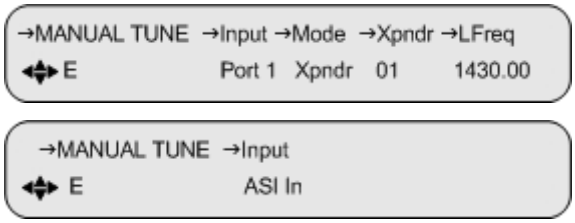
The purpose of the installation menus is to configure the ports and choose settings that remain fixed over a period of time. These settings include video output format, audio output format, Ethernet port addresses, and bypass mode operation. This section describes in detail each of the installation menus, 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-6050 displays the previously selected sub-menu.

Manual Tune Menu

Use this menu to begin to acquire a DigiCipher II system signal, by selecting a transponder frequency for any of the eight L-Band inputs. In addition, this menu allows a user to select the ASI input, as an alternative to RF ports 1-8.



Because many satellite broadcasters use standard C-band transponder center frequencies, selecting a transponder number is the default tuning mode. Use the Xpndr option in the Mode field and edit the Xpndr (transponder) field (described on page 14), for tuning such signals.

For offset-frequency C-band, fractional transponders, or Ku-band satellite broadcasts, use the LFreq option in the Mode field (described on page 14), and directly edit the L-band frequency field.

The DSR-6050 does not actually require any distinction between C-band and Ku-band satellite signals in order to tune and aquire a compatable signal. However, correct modulation information is necessary. For details on modulation, see "Modulation Menu" on page 14.

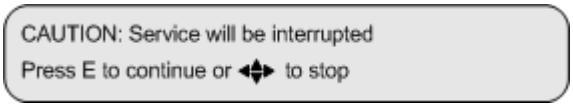
Input Field

The Input field displays the input to which the transcoder is currently tuned. It allows manual selection of Port 1 through Port 8 or the ASI input so that the DSR-6050 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-6050 displays values for Port 1. Press ENTER to confirm the selection and return to the top line of the menu. If Port 1 through Port 8 is selected, then move to the Mode field, Xpnr field, or Lfreq field. These fields are not visible when ASI In is selected.

The following screen prompts the user to confirm the selection.



If you press any arrow button (◀ ▶ ▲ ▼) at this point, the Caution screen disappears and the ManualTune 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 selection of the frequency plan type for the satellite signal to which the DSR-6050 is tuned. If the application is a North American C-band satellite center frequency, select the transponder number in the Xpnr field. Otherwise, use the L Freq option and the LFreq field. The L Freq option can be used for all current satellite LNB signals, including C-band and Ku-band.

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 and L Freq. 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 Xpnr field. The frequency in the LFreq field is set automatically based on internal transponder tables.

If L Freq is selected, the Xpnr field no longer appears because the transponder/frequency relationship is not known. Select a transponder frequency between 950 and 2150 MHz in the LFreq field. At this point, you cannot select a transponder in the Xpnr field. The default setting is Xpndr. This field is not available when the ASI In option in the Input field is selected.

Xpnr 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 Xpnr field cannot be edited if L Freq in the Mode field is selected. Press the ▸ button until the cursor is at the Xpnr 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-6050, 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

If the LFreq option in the Mode field is chosen, use this field, to directly tune the frequency. The LFreq field cannot be edited if Xpndr is chosen in the Mode field. 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. Select a frequency between 950 MHz and 2150 MHz and press the ENTER button to confirm a selection and move the cursor back up to the field label. The DSR-6050 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.

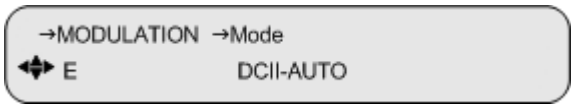
Contact the programmer or network operator for details about the satellite, transponder, and frequencies being used at purchase time. If one frequency is identified as the root transponder, using this frequency may expedite the download process during installation.

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

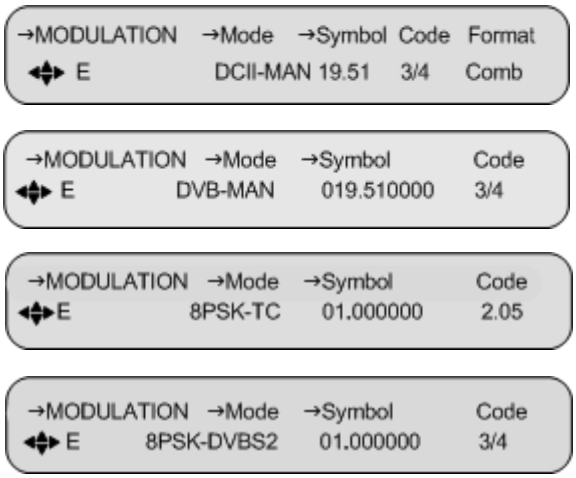
Modulation Menu

This menu is not available when the ASI In option is selected. That option is located in the Manual Tune menu (described on page 12).

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.



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



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-AUTO, DCII-MAN, DVB-MAN, 8PSK-TC, and 8PSK-DVBS2. 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-6050 only searches for what is displayed in the Symbol/Code/Format field. If DCII-AUTO is selected, the DSR-6050 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. For DCII Manual, use the ▲ ▼ buttons to 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

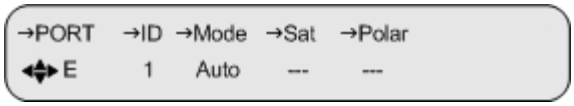
selected. When using the 8PSK-TC and 8PSK-DVBS2 modes, the Symbol field can be edited to any value up to 30.0000. DVB-MAN mode allows values up to 99.999. For each of these non-DCII modes, the Code field is independently selected from a list of supported values, by using the ▲ ▼ buttons. ¾ is the factory default.

Port Menu

Because the DSR6050 has eight RF input ports that can potentially be used to switch and tune signals from multiple satellite antenna LNBs, the DSR6050 demands there be an accurate association of the port with the Satellite and Polarity designators programmed in the Uplink encoder system(s) to which we plan to downlink from on each port.

Because accuracy is critical, a default AUTO mode has been created for automatically populating the satellite and polarity fields for the one port that is currently being tuned. This automatic population of the fields occurs upon entry of acceptable Channel information.

Leaving this menu unchanged, in AUTO mode, ensures success in getting initial authorization, decryption and output.



Using the Manual Port Mode setting and manually editing the Port Menu Satellite and Polarity fields should only be done when given detailed instructions by an Uplink Signal Provider. Any mismatch between what is entered into these fields and the Uplink encoder Satellite & Polarity designations for the services will prevent authorization decryption and service output. Satellite names and polarity designators for a given service do not necessarily reflect actual satellite names or even the correct polarity of the actual signal. These values are not goverened by Motorola.

This menu is not available when the ASI input option is selected. That option is described in the “Manual Tune” menu on page 12..

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 a port (1-8). The default is 1. 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.

Sat 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.

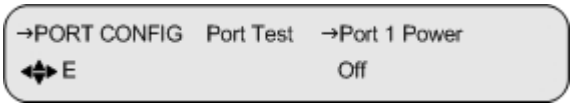
This field displays the satellite to which the port is related and is not editable when the Auto option in the Mode field is selected. This field displays dashes (---) when the port is not related to a satellite.

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 Polar 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.

Port Config Menu

Use this menu to configure LNB power for port 1.



Port Test Field

This field is currently not implemented.

Port1 Power Field

Use this field to direct power to the external Low Noise Block (LNB). Press the ▸ button until the cursor is at the LNB Power label, and press the ENTER

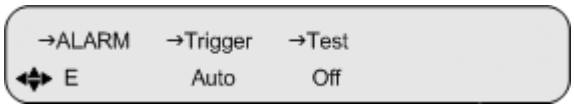
button to move into the field. Press the ▲ ▼ buttons to display the options: OFF and ON. The default is OFF. When the ON option is selected, the DSR-6050 supplies 20 VDC on the RF In Port 1 antenna input connector. See Figure 2-2 on page 2.

Audio1, Audio2 Menus and Audio1 Gain, Audio2 Gain Menus

DSR-6050 supports AC3 passthrough audio. Support for analog audio will be considered for a future release.

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-6050 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 looses lock when the input is RF (Loss of the Signal LED).
- The DSR-6050 cannot lock to the ASI input when the specified input is ASI.
- The DSR-6050 is unable to render video.
- The DSR-6050 is not authorized to access the selected service.

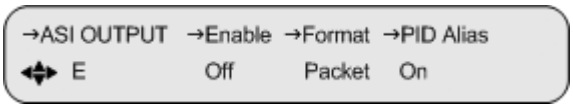
There are five choices: Auto, No Signal, No Video, No Auth (Authorization), and Disabled. Use this option to select which of the above conditions activates the alarm. The default setting is Auto.

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 ▲ ▼ 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 and to enable PID aliasing.



Enable Field

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

Format Field

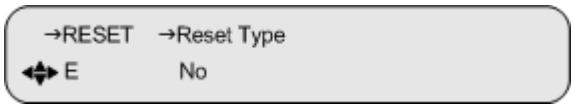
Press the ▶ button until the cursor is at the Format label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: Packet or Byte. The default is Byte. The Packet and Byte options specify the transport stream packet structure. When the ASI Output is enabled, the DSR-6050 outputs MPEG-2 transport stream packets, either as a burst of contiguous bytes (Packet option), or as individual bytes (Byte option).

PID Alias Field

PID Alias is not editable. It is always “ON”.

Reset Menu

Press the ▲ ▼ buttons until the Reset menu appears. This menu allows the user to execute factory defaults or power cycle resets.



Reset Type Field

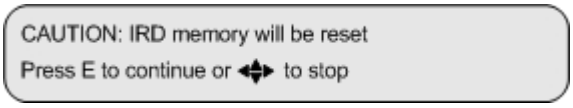
Press the ▶ button until the cursor is at the Reset Type label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: No, Factory Defaults, or Power Cycle. The default is No.

Factory Defaults Option

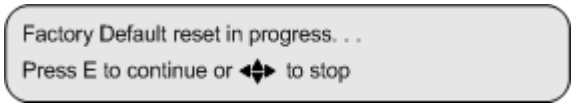
The Factory Defaults option allows the user to reset the system to the programming values originally set by the factory firmware.

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.

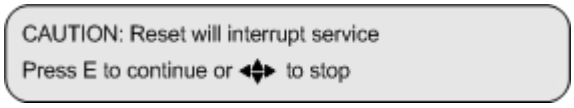


Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed. The following message displays.

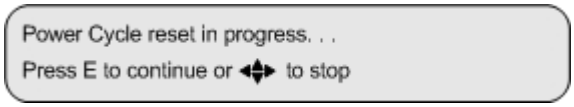


Power Cycle Option

The Power Cycle option reboots the DSR-6050 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.

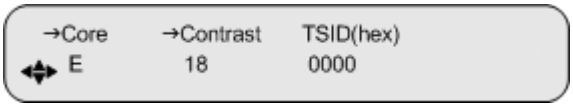


Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed. The following message displays.



Core Menu

Press the ▲ ▼ buttons until the Core menu appears. This menu allows the user to change the front panel LCD contrast.



Contrast Field

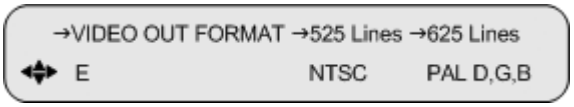
To adjust the LCD contrast, press the ▶ button until the cursor is at the Contrast label, and press the ENTER button to move into the field. Use the arrow buttons (◀ ▶ ▲ ▼) to select a value between 1 and 30, with 1 representing the least contrast and 30 the most. Adjust the contrast so that the LCD panel can be read clearly. Press the ENTER button to confirm the selection. The default is 18.

TSID Field

TSID field is not editable. It displays the current transport stream ID of the satellite signal.

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 transcoder 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 transcoder 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 transcoder outputs, and the NTSC or PAL M selection has no impact.



525 Lines Field

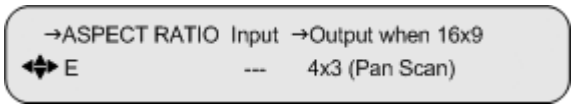
Press the ▶ button until the cursor is at the 525 Lines label, and press the ENTER button to move into the field. This field allows selection of the output format for 525-line video as either NTSC or PAL M. The default setting is NTSC. Use the arrow buttons (◀ ▶ ▲ ▼) to specify the desired option and 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 ▲ ▼ 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-6050 receives input of 4x3, the output is always 4x3.



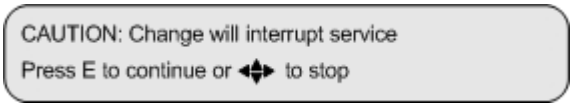
Input Field

The Input field displays the aspect ratio of video that the DSR-6050 is currently receiving. It is non-editable.

Output Field

Press the ▸ button until the cursor is at the Output label. Press the ENTER button to enter the field. There are multiple options: 4x3 (PanScan), 4x3 (Zoom), and 4x3 (Letterbox). Use the ▲ ▼ buttons to specify the desired option. The output default setting is 4x3 (PanScan). If 4x3 (PanScan) information is not available when the 4x3 4x3 (PanScan) option is chosen, the DSR-6050 outputs the center portion of the 16x9 image.

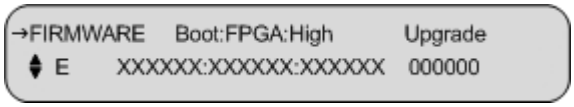
If you select a new aspect ratio, the following warning screen appears:



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

Firmware Menu

Press the ▲ ▼ buttons until the Firmware menu appears. This menu displays the DSR-6050'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

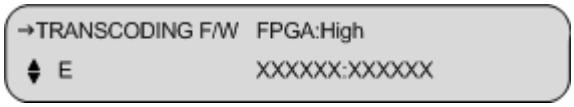
This field displays the version of boot, FPGA, and the high code. The boot code is loaded at the factory. The FPGA and high codes may be upgraded to later versions by a download that is delivered over the satellite signal from either the L-band or ASI input. The code versions are represented by a six-digit 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-6050 is rebooted. This field is non-editable.

Transcoding F/W Menu

Press the ▲ ▼ buttons until the TRANSCODING F/W menu appears. This menu displays the release information of the transcoding firmware. 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.

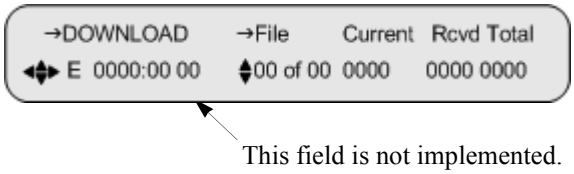


FPGA:High Field

This field displays the version of transcoding FPGA and high code. These codes 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.

Download Menu

Press the ▲ ▼ buttons until the DOWNLOAD menu appears. This menu allows the user to monitor the status of the current code download. This menu is used most commonly in troubleshooting.



During a background code download, the DSR-6050 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-6050 during the download of the file. This field is non-editable.

Rcvd Field

The Rcvd field indicates the number of segments that the DSR-6050 has received for the file selected in the File field. This field is non-editable.

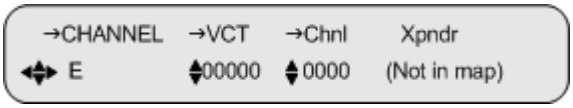
Total Field

The Total field indicates ID for the last segment of the file selected in the File field. This field is not editable.

Channel Menus

Channel Menu

Press the ▲ ▼ 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.



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 ▶ 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 ▲ ▼ 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 ◀ ▶ 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.

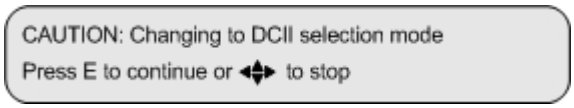
Channel Field

The Channel field allows selection of the virtual channel for the output service. The DSR-6050 supports channel values from 0000 to 4095. Press the ▶ button until the cursor is at the Channel 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 through 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 ◀ ▶ 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.

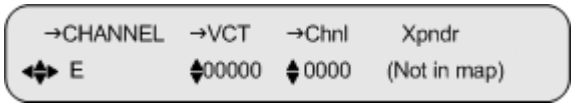
The DSR-6050 displays warning messages for the following conditions:

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

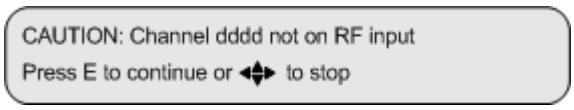


Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

- 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.



- 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 16*. The DSR-6050 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-6050 is unable to determine which port to use and the following warning message is displayed.



Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged.

Note: The DSR-6050 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. 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-6050 is already tuned to the appropriate L-band or ASI input signal.

Program Menu

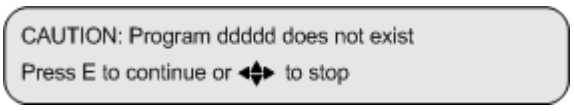
Press the ▶ button until the cursor is at the Program label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the ▲ ▼ buttons to scroll throughout the available MPEG programs. (If the current L-band or ASI input signal contains four 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. 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-6050 displays warning messages for the following 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.

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

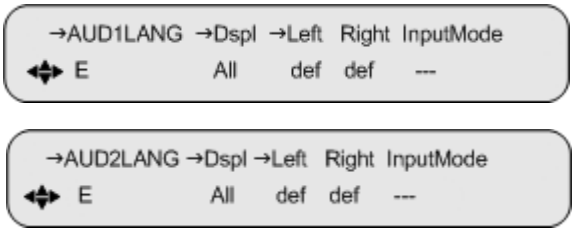


Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Aud1Lang, Aud2Lang Menus

While analog primary and secondary audio outputs are muted, the two Audio languages selected here determine which two audio elements will be present in the ASI 2 (MPEG2) transport stream output. Simply stated, this is where secondary audio is enabled on the ASI 2/MPEG2 output.

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-6050 may perform. Press the ▲ ▼ buttons until the AUD1LANG menu or AUD2LANG menu appears.



Note: The two digits in the Left, Right fields indicate the occurrence of the specified language. The range is between 00 and 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 use the arrow buttons to enter the three-letter code. You may wish to select languages that are not functional at this time but will be functional in the future. 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-6050 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 at the AudioMix field (described on page 18), 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 set the languate through the following three options: (1) Any language if the language is set to All, (2) the currently available languages if the Dspl is set to Avail, or (3) def (default) if the Dspl 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 field (described on page 18) is set to Surround, Stereo, or Mono and the user's choice for language is not available and the audio output is the default language.
- If the the AudioMix field (described on page 18) is set to Dual Mono and a language pair is not available that matches the user's choice for Left and Right languages, the DSR-6050 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-6050 uses the default language.
- There is an interaction between the Language (Lang) menu and the AudioMix field (described on page 18):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

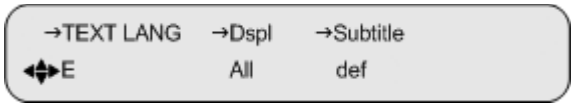
Language menu defaults to the first occurrence of a specified language (the one defined for the Left channel first, then for Right channel if there is no match for the Left). In this case, the same caution screen appears.

InputMode Field

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

Text Lang Menu

This Text Language menu has the Display field which allows the user to modify and view the status of the language for the subtitle display. Press the ▲ ▼ buttons until the Text Lang (Text Language) menu appears.



Dspl Field

This field has the following options:

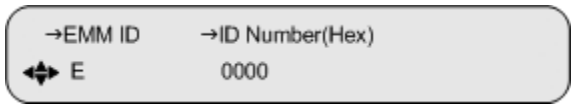
- The All option allows the user to enter the desired language which may or may not be present in that service. You may wish to select languages that are not functional at this time but will be functional in the future. Press the ENTER button to confirm the selection.
- The Avail (Available) option allows the user to scroll through the languages supported by the system while the cursor is in the field. 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 text 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-6050 chooses are described in the next section.
- 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 (0000).

Press the ▲ ▼ buttons until the EMM ID menu appears.



ID Number Field

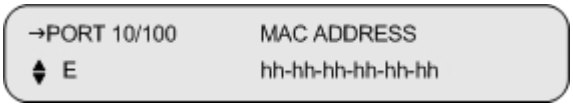
The ID Number field allows the user to change the ID number, which is represented in the hexadecimal format. Press the ▶ button until the cursor is at the ID Number label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is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

IP Menus

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

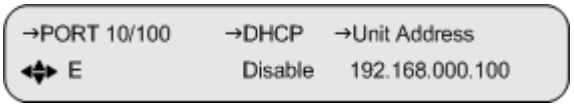
MAC Address Menu

Use the following procedure to view the MAC address for the lower Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the MAC Address menu appears. This menu displays the Ethernet port MAC address. The address is represented in a hexadecimal format and it is not editable.



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

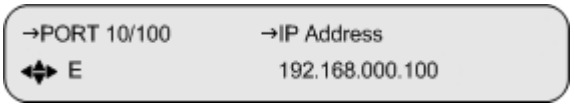
Enter the field and choose either Enable or Disable.

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. The default name is DSR6050-35111.

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-6050. 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.

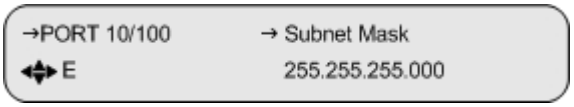


Press the ▶ button until the cursor is at the Address label, and press the ENTER button to move into the field. Press the ◀ ▶ and ▲ ▼ buttons to enter the desired address and then press ENTER to confirm the selection.

Subnet Mask Menu

Use the following procedure to set and view the Subnet Mask address for the lower Ethernet port on the back panel of the DSR-6050. 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.

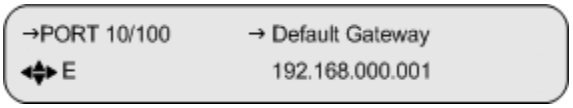
Contact the network administrator for details about configuring the Ethernet port for operation on your local network.



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

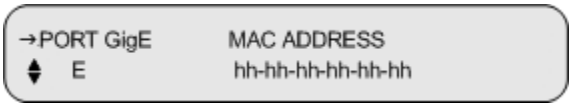
Use the following procedure to set and view the Default Gateway address for the lower Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the IP Gateway menu appears. This menu allows the user to enter an IP gateway address that the Ethernet port should use. The IP Gateway is 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.



Press the ▶ button until the cursor is at the Default Gateway address, 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.

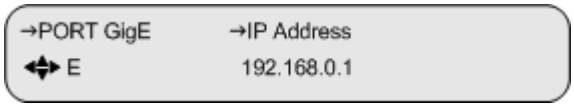
Port GigE MAC Address Menu

Use the following procedure to view the GigE MAC address for the upper Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the Port GigE menu appears. The address is represented in a hexadecimal format and it is not editable.



GigE IP Address Menu

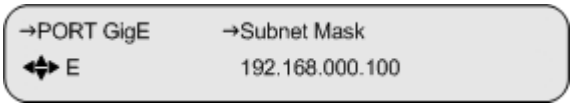
Use the following procedure to set and view the GigE IP address for the upper Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the GigE IP Address menu appears. This menu allows the user to enter an IP address for the GigE port. The address is represented in the common dotted-decimal 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 IP Address field, 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

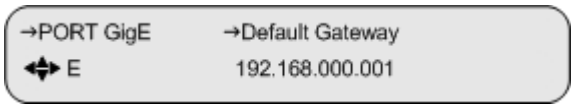
Use the following procedure to set and view the GigE Subnet Mask for the upper Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the GigE Subnet Mask menu appears. The GigE subnet mask is represented in the common dotted-decimal format. Contact the network administrator for 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

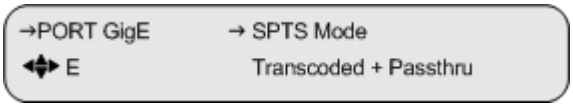
Use the following procedure to set and view the GigE Default Gateway address for the upper Ethernet port on the back panel of the DSR-6050. Press the ▲ ▼ buttons until the GigE Default Gateway Address menu appears. This menu allows the user to enter the GigE Default gateway address that the Ethernet 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

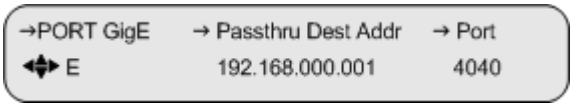
Press the ▲ ▼ buttons until the GigE SPTS Mode menu appears. This menu allows the user to select which single program transport streams (SPTS) are routed to the GigE port. The DSR-6050 builds a transport stream that contains the user-selected service. The compression format of the video and audio components in this service can be changed per instructions received from the programmer when the user selects the Transcoded option. The compression formats of this service is unchanged when the user selects the Passthru option. The DSR-6050 also allows the user to select both options, in which case two transport streams are routed to the GigE port. Both transport streams contain the same service, but the video and audio compression format has been changed for one transport stream.



Press the ▶ button until the cursor is at the SPTS Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the four options: Transcoded, Off, Passthru, and Passthru plus Transcoded. Press ENTER to confirm the selection.

GigE Passthru Dest Addr Menu

Use the following procedure to set and view the passthrough SPTS destination address. The passthrough single program transport stream is described in the section entitled "GigE Mode Menu." Press the ▲ ▼ buttons until the GigE Passthru Dest Addr menu appears. The pass-through SPTS destination address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the pass-through SPTS destination address on your local network.



Passthru Dest Addr Field

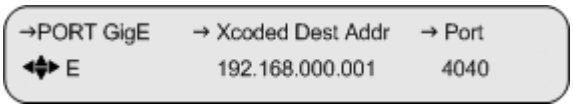
Press the ▶ button until the cursor is at the Passthru Dest Addr label, and press the ENTER button to move into the field. Use the arrow button (◀ ▶ ▲ ▼) to enter the desired address and then press the ENTER button to confirm the selection.

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 button (◀ ▶ ▲ ▼) to enter the desired port ID (Range: 00000 to 65535) and then press the ENTER button to confirm the selection. The default is 06000.

GigE Xcoded Dest Addr Menu

Use the following procedure to set and view the transcoded SPTS destination address. The transcoded single program transport stream is described in the section entitled "GigE Mode Menu." Press the ▲ ▼ buttons until the GigE Xcoded Dest Addr menu appears. The transcoded SPTS destination address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the transcoded SPTS destination address on your local network.



Xcoded Dest Addr Field

Press the ▸ button until the cursor is at the Xcoded Dest Addr 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.

Port Field

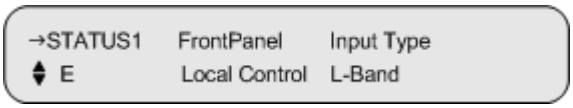
Press the ▸ button until the cursor is at the Port label, and press the ENTER button to move into the field. Use the arrow button (◂ ▸ ▲ ▼) to enter the desired port ID (Range: 00000 to 65535) and then press the ENTER button to confirm the selection. The default is 06000.

Status Display Menus

Status display menus provide information regarding the current status of the DSR-6050. 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-6050 reports as part of its operation.

Status1 Menu

Press the ▲ ▼ buttons until the Status1 menu appears.



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

This menu does not appear if the Input field (described on page 13) is set to ASI In. Press the ▲ ▼ buttons until the STATUS2 menu appears. This screen displays the source name, channel number, and the signal quality.

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 at your site to increase the dish size or improve the LNB to prevent occasional loss of output.

Status3 Menu

This menu does not appear if the Input field (described on page 13) is set to ASI In. Press the ▲ ▼ 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

This menu does not appear if the Input field (described on page 13) is set to ASI In. Press the ▲ ▼ 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.

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

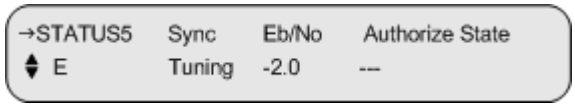
This field displays the code rate (error control coding for forward error correction) of the L-band signal.

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

This menu does not appear if the Input field (described on page 13) is set to ASI In. Press the ▲ ▼ buttons until the STATUS5 menu appears. This screen displays the sync, Eb/No and authorization state of the DSR-6050.



Sync Field

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

Eb/No Field

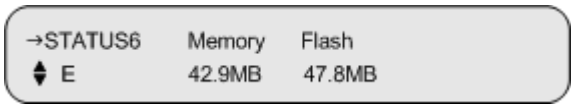
This field displays the Eb/No. Eb/No is a measure of signal to noise.

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 ▲ ▼ buttons until the STATUS6 menu appears. This screen displays the DSR-6050's Memory (free memory), and Flash.



Memory Field

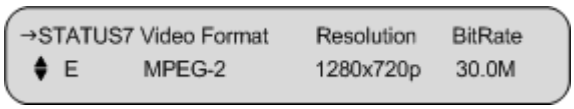
This status-only field displays the amount of free volatile memory in MB units that is available for use by the operating system.

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.

Status7 Menu

Press the ▲ ▼ buttons until the Status7 menu appears. This screen displays the video encoding configuration for the transcoded SPTS. The transcoded single program transport stream is described in the section entitled "GigE Mode Menu".



Video Resolution Field

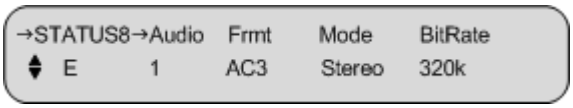
The Video Resolution field indicates the display resolution and scanning method of the transcoded video. this is represented as the numberof distinct pixels in thehorizontal dimension, the number of lines, and whetherthescan is progressive (p) or interlaced (i).

Bit Rate Field

The Bit Rate field indicates the data rate of the transcoded video.

Status8 Menu

Press ▲ ▼ the buttons until the Status8 menu appears. This screen displays the audio encoding configuration for the transcoded SPTS. The transcoded single program transport stream is described in the sectin entitled “GigE Mode Menu”.



Audio Field

Use this field to choose which audio channel to display the status. Press the ▶ button until the cursor is at the Audio field, then use the ▲ ▼ buttons to choose the first audio channel or the second audio channel. The default is 1. Press the ENTER button to confirm the selection and exit the field.

Format Field

The Format field indicates the compression format of the transcoded audio for the selected audio channel.

Mode Field

The Mode field indicates the mode (stereo or mono) of the transcoded audio for the selected audio channel.

Bit Rate Field

The Bit Rate Field indicates the data rate of the transcoded audio.

Diagnostics Menus

Use the DSR-6050's diagnostic menu to get additional information for troubleshooting. 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.

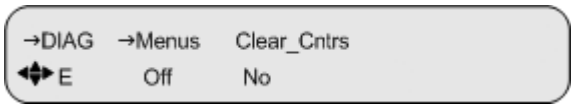
Caution: Turning on diagnostics changes the video or audio output, and these diagnostic screens or tones may be transmitted to the cable customers if the transcoder is connected to the cable plant.

Press the ▲ ▼ buttons until the DIAGNOSTICS menu appears.

Menus Field

The Menus field allows the user to enable or disable the on-screen diagnostics. Press the ▶ button until the cursor is at the Menus 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. The default is Off.

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



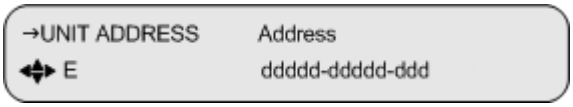
Clear Cntrs Field

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 transcoder 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.

Unit Address Menu

This menu is for display only and displays the DSR-6050's 16-digit electronic address (range: 000-00000-00000-000 to 999-99999-99999-999). The program provider uses this address to identify a specific DSR-6050 for authorization and to retune messages. The display enables the user to view the address from the front panel rather than reading the label on the back panel.

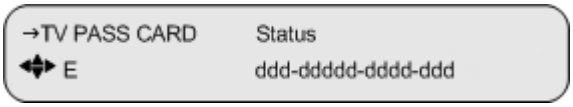
Press the ▲ ▼ buttons until the Unit Address menu appears.



TV Pass Card Menu

The DSR-6050 does not initially require a TV Pass Card, but if one is required, the program provider typically supplies one. The program provider uses the TV Pass Card address and decoder address to identify a specific DSR-6050 for authorization messages.

Press the ▲ ▼ buttons until the TV Pass Card menu appears.



The display enables the user to view the TV Pass Card address from the front panel of the DSR-6050. There are three Status field options:

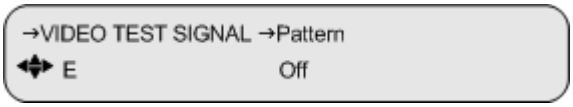
- Not Inserted
- xxx-xxxxx-xxxxx-xxx (a unique TV Pass Card address, range: 000-00000-00000-000 to 999-99999-99999-999)
- xxx-xxxxx-xxxxx-xxx Needs Mating.

Audio Test Signal Menu

DSR-6050 supports AC3 passthrough audio. Support for analog audio will be considered for a future release.

Video Test Signal Menu

Press the ▲ ▼ 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.

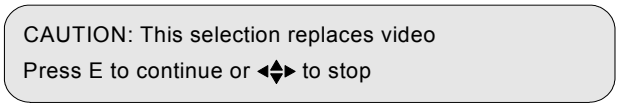


Pattern Field

Press the ▸ button until the cursor is at the Pattern label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the test patterns. Choose from the options listed below:

NTSC/PAL M Test Pattern Options
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.



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-6050 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 from the field.

VITS Menu

Press the ▲ ▼ 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 will revert back 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 ▶ button until the cursor is at the Waveform label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options. Choose from the options listed below:

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

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

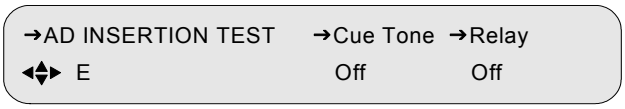
This field allows the user to select the field on which the VITS is reinserted by the transcoder. There are two choices, Field 1 or Field 2. Press the ▸ button until the cursor is at the Field label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to select the desired option 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-6050, 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 headed equipment.

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

Cue Tone Signal Field

The Cue Tone Sig (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-6050 generates a DTMF code (0-9*#ABCD) on the cue

tone output. This field returns to the default value (OFF) when the ENTER button is pressed to exit the field.

Relay Field

The Relay field lets the user individually turn ON and OFF each of the three ad insertion relays. Press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options. The available options are OFF, Relay 1 ON, Relay 2 ON, and Relay 3 ON. This field returns to the default value (OFF) when 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 IRD menu, Contrast field
No picture, no level indication.	No LNB signal port.	Connect LNB coax	See "Connecting the DSR-6050" on page 3.
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	

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

6

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 have been provided to perform calculations for both C-band and Ku-band transponders, or if the user is installing for a new satellite.

Table 6-1: Calculation for C-Band Transponders

Formula for C-band Frequency	Example calculation if downlink frequency is 3,740 MHz
5,150 MHz <minus> Frequency Downlink (DL) <equals> Frequency (C-band)	5,150 MHz -3,740 MHz 1,410 MHz

Table 6-2: Calculation for Ku-Band Transponders

Formula for Ku-band Frequency	Example calculation if downlink frequency is 12,019 MHz
Frequency Downlink (DL) <minus> 10,750 MHz <equals> Frequency (Ku-band)	12,019 MHz -10,750 MHz 1,269 MHz

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
Arabic	ara
Armenian	arm
Balinese	ban
Basque	baq
Batak	btk
Bengali	ben
Bhojpuri	bho
Bulgarian	bul
Burmese	bur
Catalan	cat
Chinese	chi
Croatian	scr
Cue (Tones)	cue
Czech	cze
Danish	dan
Dutch	dut

LANGUAGE	ABBREVIATION
Egyptian	egy
English	eng
Esperanto	epo
Faroese	fao
Finnish	fin
French	fre
German	ger
Greek	gre
Gujarati	guj
Hebrew	heb
Hindi	hin
Hiri Motu	hmo
Hungarian	hun
Indonesian	ind
Interlingua	ina
Iranian	ira

LANGUAGE	ABBREVIATION
Irish	iri
Italian	ita
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
Philippine (Other)	phi
Polish	pol
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

The Fast Fact Diagnostic Diagnostic screens (1 through 5) are a part of the Transcoder Firmware created during product development and based on the needs of the the particular unit. All values and information shown on the Fast Fact Diagnostic screens update when displayed, unless otherwise noted. Information about these screens is described here for documentation purposes only.

Notes:

1. *Hexadecimal numbers are displayed with none or more leading zeros (0) to pad to their individual field width.*

2. *Decimal numbers are right-justified in their individual display rectangle and are not padded with leading zeros (0).*

3. *Decimal numbers may be displayed without or with a trailing decimal point to distinguish them from hexadecimal numbers.*

4. *The default is no trailing decimal point.*

Viewing the Fast Fact Diagnostic Screens

The diagnostic screens (Figure 8-1 on page 62) are available via the On-Screen Display (OSD) video out using a video monitor connected to the OSD Video Out on the rear of the transcoder.

To view the OSD diagnostic screens, press the ▲ ▼ buttons on the front of the transcoder until the Diagnostic menu appears, and press the ENTER button to access the Diagnostic menu on the transcoder.

Press the ▲ ▼ buttons, navigate to the DIAGNOSTIC Menus option and press the right arrow key. Selecting ENTER while the cursor is on the Menus option allows access to the OSD diagnostic screens.

Use the ▲ ▼ buttons on the front of the transcoder to navigate between the Fast Fact Diagnostic screens while displaying the data to the OSD.

Note: Pressing the ENTER button on the front of the transcoder while viewing a particular OSD diagnostic screen allows for the continued display of the OSD diagnostic information while allowing the user to navigates thru other front panel menus.

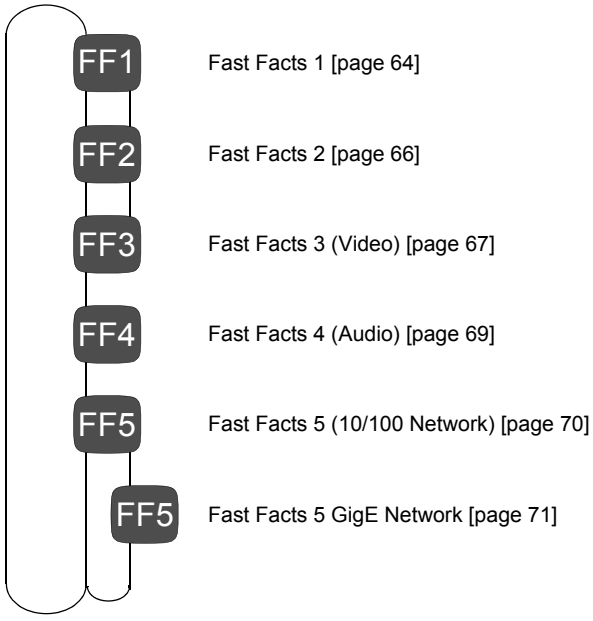


Figure 8-1: Fast Fact Diagnostic Screens

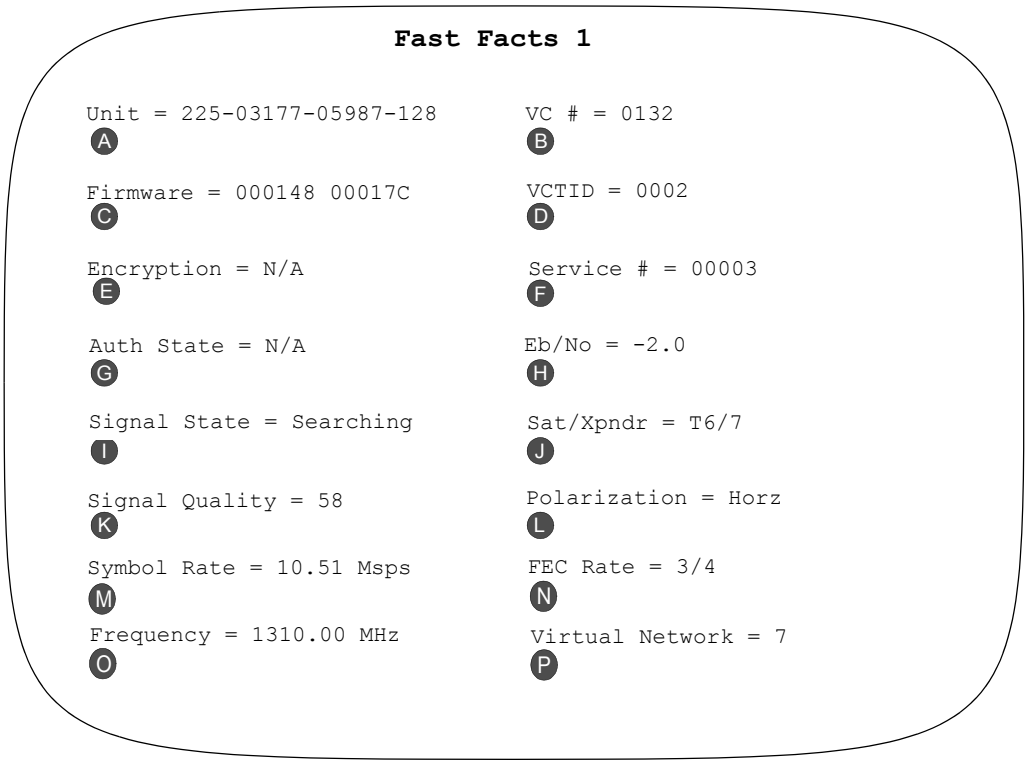
Fast Facts Screens

The Fast Facts screens are used as a method of viewing information and diagnostic data associated with the transcoder than what is shown in the transcoder's Diagnostic menu screens (refer to Diagnostic Menus).

The Fast Facts screens are composed of five screens; the first screen showing important general information as it relates to the transcoder, the second screen depicts the current port configuration, the third screen shows important video information, the fourth screen displays important audio information, and the fifth screens shows the Ethernet configuration.

Fast Facts 1

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

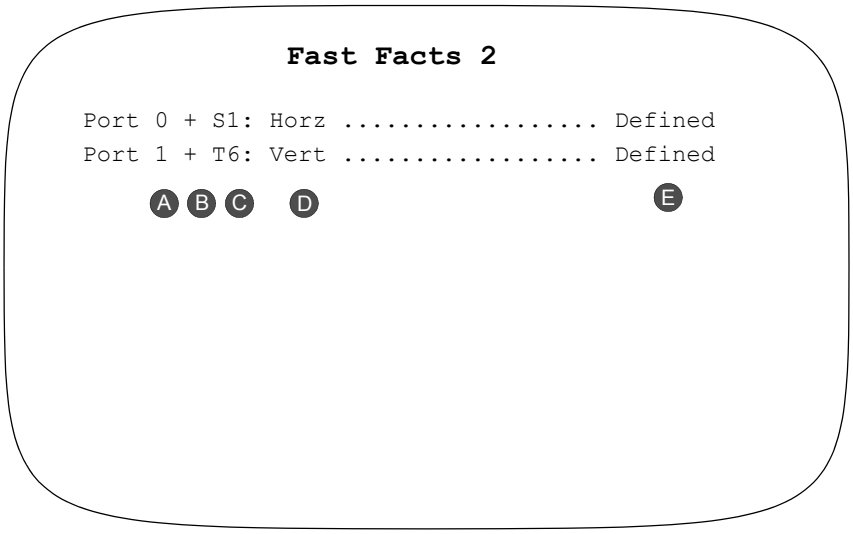


Field	Name	Definition
A	Unit	Displays the 16-digit Unit Address on the screen.
B	VC#	Shows the virtual channel number.
C	Firmware	Shows the firmware version in the boot sector of ROM and the application section.
D	VCT ID	Shows the current VCT ID.
E	Encryption	TBD
F	Service	Displays the service number for the current program.
G	Auth State	Current authorization state, such as encrypted, fixed key, etc.
H	Eb/No	Shows the Signal to Noise (Eb/No) of the signal.
I	Signal State	Shows the received signal state. It can either be "Locked" or "Searching" depending on whether the IRD is locked to a signal or not.

Field	Name	Definition
J	Sat/Xpndr	Displays the satellite name and transponder number. If the satellite name is null, then the satellite number is used.
K	Signal Strength/ Signal Quality	Puts up the Signal Quality if DCII; else, puts up the Signal Strength. Both values are normalized to be between 0 and 100%.
L	Polarization	Shows the polarization for the currently tuned-to transponder, either: Horz = Horizontal Vert = Vertical
M	Symbol Rate	Shows the current symbol rate.
N	FEC Rate	Displays the Forward Error correction (FEC) coding rate.
O	Frequency	Shows the current RF frequency.
P	Virtual Network	Current virtual network that the DSR6050 is tuned to.

Fast Facts 2

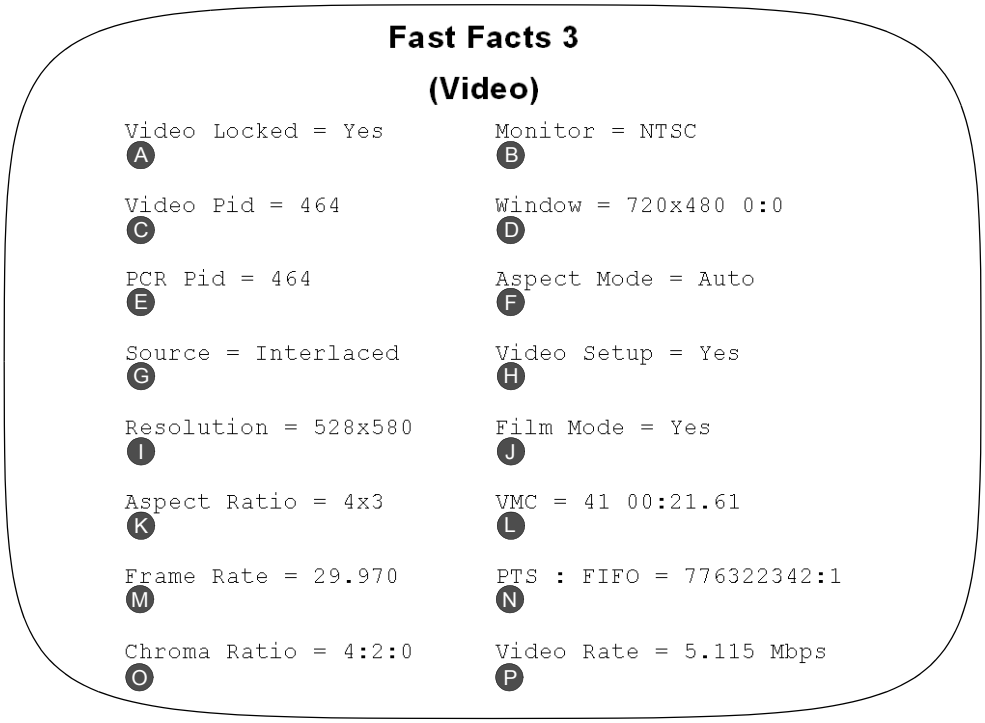
The Fast Facts 2 screen displays information relating to the port configuration of the transcoder.



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

Fast Facts 3

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

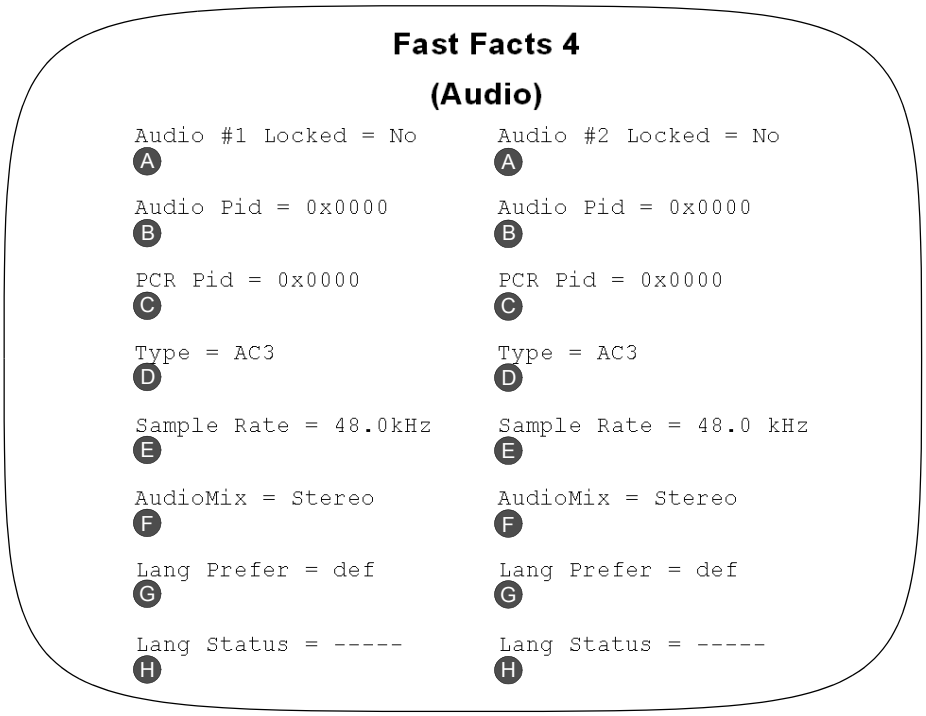


Field	Name	Definition
A	Video Locked	An indication of video lock status, if yes then the video for the transcoder is being received and locked. If No, then the video is not being received.
B	Monitor	The current output format of the video display.
C	Video PID	The current Program Identification (PID) number for the Video.
D	Window Dimensions	The current dimensions of the video display: Width x Height, Xpos : Ypos (or mute)
E	PCR Pid	The current Program Clock Reference (PCR) PID.
F	Aspect Mode	The current aspect mode for the incoming video.
G	Source Format	The source format: Interlaced or Progressive.
H	Video Setup	Indication if the video setup (pedestal) is active.
I	Resolution	Displays the Horizontal Size X Vertical Size of the received video.

Field	Name	Definition
J	Film Mode	Indication of if Film Mode is active or inactive.
K	Aspect Ratio	The aspect ratio of the video within the transport stream.
L	Video Mute Count (VMC)	The current video mute count.
M	Frame Rate	The frame rate code of the stream.
N	PTS : FIFO	The video Presentation Time Stamp (PTS) followed by the Picture FIFO Depth Count.
O	Chroma Ratio	The Chrominance format for the video within the transport stream.
P	Video Rate	The rate (in Mbps) of the video within the transport stream.

Fast Facts 4

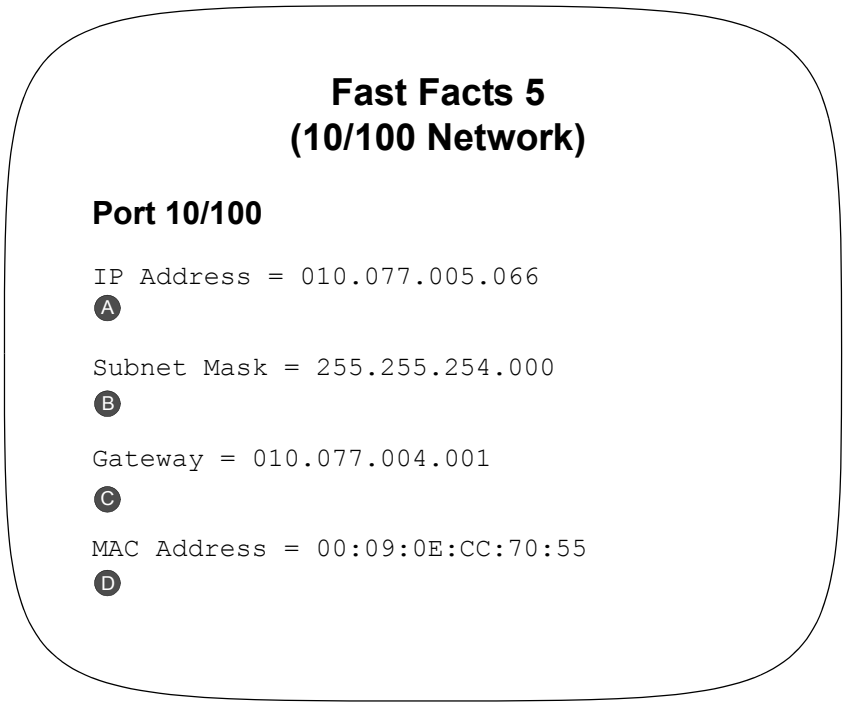
The Fast Facts 4 screen displays information relating to audio information. There are two columns of information displayed, one column for the first audio program, and the other column for the second audio program.



Field	Name	Definition
A	Audio Locked	An indication of audio lock status for both audio programs. If yes, then the audio for the transcoder is being received and locked. If No, then the audio is not being received.
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 (in kHz) of both audio programs.
F	Audio Mix	The audio processing 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)

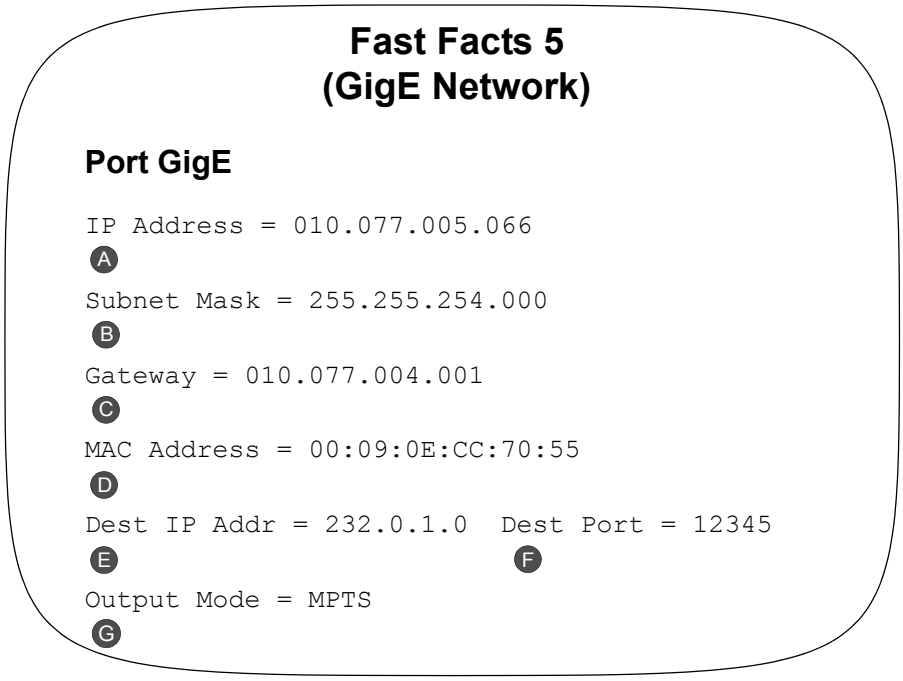
The Fast Facts 5 screen displays information relating to the Ethernet port (upper RJ45 port on rear of transcoder) configuration.



Field	Name	Definition
A	IP Address	Gives the current IP address of the unit.
B	Subnet Mask	The current subnet mask of the unit.
C	Gateway	The current gateway of the unit.
D	MAC Address	The MAC address of the unit.

Fast Facts 5 (Gigabit Ethernet)

The Fast Facts 5 (Gigabit Ethernet) screen displays information relating to Gigabit Ethernet port (lower RJ45 port on rear of transcoder) configuration.



Field	Name	Definition
A	IP Address	IP address of the GiGE ethernet.
B	Subnet Mask	Subnet mask of the GiGE ethernet.
C	Gateway	Gateway of the GiGE ethernet.
D	MAC Address	MAC Address of the GiGE ethernet.
E	Gateway	Gateway of the GiGE ethernet.
F	Dest IP Address	Destination IP address.
G	Dest Port	Destination port.
H	Output Mode	Displays the output mode for the GiGE ethernet port.

9

DSR-6050 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	13 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 ± 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 II Symbol Rates	3.25, 4.88, 7.32, 9.76, 11.71, 14.63, 19.51, and 29.27 Msps discrete steps
DigiCipher II Code Rates	5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8
8PSK-TurboCode 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

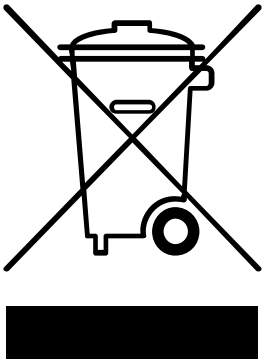
Electrical	
Power Requirements	90 to 250 VAC, 47/63 Hz, 70 W
LNB Power Supply	19-21 V minimum, 480 mA loaded

Connectors	
RF In	F-type (Qty 8)
Video Out	BNC (Qty 1)
OSD Video Out	BNC (Qty 1)
Alarm	Screw terminal (Qty 1)
Cue Tone (Labeled: Q+ and Q-)	Screw terminal (Qty 1)
Audio In	Screw terminal (Qty 1)
Audio Out	Screw terminal (Qty 2)
ISOC Data	Screw terminal (Qty 1)
ASYNC	(not implemented)
Contact Closure (Labeled: Relay 1, 2, and 3)	Screw terminal (Qty 3)
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	

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 el 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

Veuillez 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 region. 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.

Dbałość 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 colecionar e reciclar produtos eletro-eletrônicos. 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.

リサイクルによる環境保護

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。

재활용으로 환경 보호하기

Motorola 제품에 이 표시가 있는 경우, 해당제품을 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 insamlingssystem 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、電気的・電子的廃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。

Motorola 기기의 재활용

이 제품을 가정용 또는 사업용 폐기물과 함께 버리지 마십시오.유럽연합과 같은 일부 국가 또는 지역에서는 전기 및 전자 폐기물 용품을 수집하여 재활용하는 시스템이 구축되어 있습니다.해당지역에 구축되어 있는 절차에 관한 정보는 지역 관할당국에 연락하십시오.수집 시스템이 존재하지 않는 경우, 도움을 받기 위해 Motorola 고객서비스부로 연락하십시오.

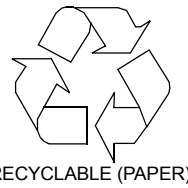
Motorola 设备的重复利用

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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