GI General Instrument[R]

DSR-4810

DigiCipher[R] II & MPEG-2
Commercial
Receiver/Decoder

Operator Guide

SAFETY CONSIDERATIONS

<table>
<tr><td rowspan="2">⚠</td><td colspan="2">**CAUTION**
RISK OF ELECTRICAL SHOCK
Do Not Open</td><td rowspan="2">⚡</td></tr>
<tr><td colspan="2">**AVIS – RISQUE DE CHOC ELECTRIQUE**
Ne Pas Ouvrir</td></tr>
</table>

⚡	This symbol means that dangerous voltages are present within the equipment. These voltages are not insulated and may be of sufficient strength to cause serious bodily injury if touched. This symbol may also appear on schematics.

⚠	This symbol calls attention to a critical procedure or means that refer you to the instruction manual for operating or service information. Only qualified service personnel are to install or service the equipment. This symbol may also appear in text and on schematics.

WARNING:	To reduce the risk of fire or electrical shock, do not expose this equipment to rain or moisture. To prevent electrical shock, do not use the receiver electrical power plug (polarized with an extension cord, receptacle or other outlet) unless the blades can be fully inserted to prevent blade exposure. The unauthorized modification of any decoder and the sale and use of any such decoder is prohibited by law. Any such modification or alteration of this product or any unauthorized reception of television programming could subject the user and/or seller and/or party modifying the decoder to fines, imprisonment and civil damages.

CAUTION:	To reduce the risk of electrical shock, do not remove cover. 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.

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.

MULTIPLE VOLTAGE EQUIPMENT:

The power cord included with your unit is for use with standard 125V AC supplies. If it is necessary to operate the product in the U.S.A. with a 220V AC supply, then a UL-Listed power cord must be used and the internal power supply jumper must be set. For countries outside the U.S.A. it is required to use a power cord that complies with the electrical standards established by that country.

See IMPORTANT SAFEGUARDS for additional safety instructions.

IMPORTANT SAFEGUARDS

1. **Read These Instructions First**: Read all safety and operating instructions before installing or operating this equipment.

2. **Retain This Instruction Manual**: Retain safety and operating instructions for future reference.

3. **Heed Warnings**: Adhere to all warnings on the equipment and in this manual.

4. **Follow Instructions**: Follow all operating and use instructions.

5. **Cleaning**: Unplug the equipment from the AC power source before cleaning.

   DO NOT use liquid or aerosol cleaners.

6. **Attachments**: ONLY use manufacturer recommended attachments. Use of other attachments may cause a hazard.

7. **Water and Moisture**: DO NOT operate the equipment in high-humidity areas.

8. **Accessories and Location**: DO NOT place this product on an unstable cart, stand, tripod, bracket or table. The product may fall causing serious injury and serious damage to the product. Use only with a cart, stand, tripod, bracket or table that is recommended by the manufacturer or sold with the product. Any mounting of the product should follow the manufacture's instructions and should use a mounting accessory recommended by the manufacturer.

9. **Ventilation:** DO NOT block or obstruct slots or openings in the equipment chassis. These openings provide ventilation, ensure reliable operation of the equipment and protect it from overheating.

10. **Environment**: NEVER place this equipment near or over a radiator or heat register.

    DO NOT operate this equipment in an area where proper ventilation is not provided.

11. **Power Sources**: ONLY operate this product from the type of power sources indicated in this manual or on the appropriate marking label.

12. **Grounding or Polarization**: This product may be equipped with a polarized AC line plug (i.e., a plug having one blade wider than the other). This plug will fit into the power outlet only one way. If you are unable to fully insert the plug into the outlet, try reversing the plug. If the plug should still fail to fit, contact an electrician to replace the obsolete outlet. This is a safety feature, DO NOT attempt to defeat the purpose of this safety feature.

13. **Power Cord Protection**: Route power cords so that they are not likely to be walked on or pinched by items placed on or against them. Pay particular attention to cords at plugs, outlets and the point where they exit from the product.

14. **Outdoor Antenna Grounding**: If an outside antenna or cable system is to be connected to the product, be sure the antenna or cable system is grounded as to provide some protection against voltage surges and build-up static charges.

    Section 810 of the National Electrical Code, ANSI/NFPA No. 70 provides information with respect to proper grounding of the lead-in wire to an antenna discharge unit, size of grounding conductor, location of antenna discharge unit, connection to grounding electrodes and requirements to grounding electrodes.

15. **Lightning**: For added protection for this product during a lightning storm, or when the product is left unattended and unused for long periods of time, unplug the product from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power line surges.

16. **Power Lines**: DO NOT locate the outside antenna in the vicinity of overhead power lines, or where it can fall into such power lines or circuits. When installing an outside antenna system, take EXTREME CARE to keep from touching such power lines or circuits as contact with them may be fatal.

17. **Overloading**: DO NOT overload wall outlets or extension cords as this can result in fire or electrical shock.

18. **Object** and Liquid Entry: NEVER push objects of any kind into the slots or openings of this product. Objects may be exposed to dangerous voltage points. This may also short out parts and may result in fire or electrical shock.

    DO NOT pour liquid of any kind into the slots or opening of this product.

19. **Servicing**: DO NOT attempt to service or repair this product yourself. There are no user serviceable parts in this product. Opening or removing the chassis covers may expose you to dangerous voltages. Refer all servicing to qualified technical personnel.

20. **Damage Requiring Repair**:
    - When the power supply cord or plug is damaged.
    - If the product has been exposed to water or rain.
    - If liquid of any kind has been spilled, or objects of any kind have fallen into the product.
    - If the product does not perform normally by following the operating instructions.
        - Adjust only those controls that are covered in this Operating Manual. An improper adjustment of other controls may result in damage or misalignment, often requiring extensive corrective action by a qualified technician.
    - If the product has been dropped or the chassis has been damaged.
    - If the equipment exhibits a distinct change in performance. (This may indicate a need for service.)

21. **Replacement Parts**: When replacement parts are required, make sure the qualified technician uses only those parts recommended by the manufacturer. Unauthorized use of parts or substitutions may result in fire, electrical shock or improper operation of the product.

22. **Safety Check**: Upon completion of any service or repair to the product, ask the qualified technician to perform safety checks to ensure the product is in proper working condition.

23. **Note to System Integrators**: This reminder is provided to call the system integrator's attention to Article 820-40 of the NEC. This article provides guidelines for proper grounding and, in particular, specifies that cable ground shall be connected to the grounding system of the building, as close as possible to the point of cable entry as practical.

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C H A P T E R 1

INTRODUCTION

General Instrument DSR-4810 digital satellite receiver is an integrated receiver/decoder (IRD) designed for broadcast networks and other commercial satellite operations. It is simple to use as it allows the program provider to perform many of the complex setup tasks. The receiver can then receive these instructions from the satellite as part of the downloaded digital signal. It can be configured to your exact needs using the front panel menus.

THE DSR-4810

The General Instrument DSR-4810 is hereinafter referred to as "unit."

The General Instrument DSR-4810 receives both HD and SD signals. Both HD and SD streams are reprocessed to the Digital Video Broadcast Asynchronous Serial Interface format at 270 Mbps. The ASI signal is output through a BNC connector.

SD transport streams can be processed at 4:2:2 P/ML and 4:2:0 MP/ML decompression.

The unit receives QPSK modulated signals at L-band frequencies of 950 to 2150 MHz through one of four input ports.

The DSR-4810 performs demodulation and FEC decoding of all standard DigiCipher® II symbol and convolutional coding rates, at information rates up to 40.46 Mbps. It also performs demodulation and FEC decoding of all standard DVB convolutional coding rates, at information rates of 3.25–45 Msps. Within the resulting transport stream, a single DigiCipher® II service designated by the user can be decrypted.

The unit will automatically tune to of four L-band inputs based on the Virtual Channel Tables sent from the UCS. The unit will use the Virtual Channel Tables for tuning between services.

DSR-4810 has video synchronization capability across multiple DSR-4810 units. It will accept a primary and secondary video input reference and synchronize the output audio and video to one of those references. It will also provide a video output reference for other units to use as a synchronization reference.

KEY FEATURES

Each unit contains the following key features:

■ The microprocessors and memory built into each unit decodes and decompresses the MPEG-2 video, audio, data and other information in the signal. This significantly decreases the amount of information to be transmitted thereby reducing bandwidth requirements. Broadcasters and programmers can transmit on one carrier any number of channels, limited only by the material transmitted and their particular network needs.

■ Based on MPEG-2 standards, we use virtual channel mapping to select the desired video, audio and other data streams out of the overall transmission.

■ Virtual channel information can be determined over the satellite at any time, allowing for dynamic changes in the network without requiring you to reconfigure the receiver.

■ Automatically handles fixed, limited-statistical and full-statistical multiplexing to provide the best video performance.

■ For audio compression, we use the Dolby$^®$ Digital compression techniques chosen by the North American Grand Alliance for High Definition Television and for the newest digital videodisk systems. The receiver automatically adjusts to the compression rate used for the audio. In the DVB mode, the unit is capable of processing DVB Musicam audio.

■ Non-volatile memory to indefinitely recall the operating configuration when power fluctuates, is interrupted or removed altogether.

■ Security features, including General Instrument's proven security system. Even though the unit does not require a TvPass™ Card to operate with security, in the unlikely event that the code is compromised, security can be renewed by simply inserting a card with a new code into the receiver.

■ A low profile, single rack unit design – only 1.75" EIA rack space.

■ Able to process and provide the broadcast engineer with a 4:2:2 Profile @ Main Level digital video output from a DigiCipher$^®$ II or DVB signal.

■ The front panel display and edit/select control are formatted to provide optimum resolution, execution and the most effective display of information necessary for operation.

■ Controllable or status monitored via either of two separate data interfaces, or by way of satellite network control.

■ The unit's EIA232/485 rear panel control interface can be configured to directly plug-and-play with your existing network control system.

■ Ability for network monitoring and control via a 10Base-T Ethernet connection.Offer output of ASI, digital video (i.e., SMPTE259 with embedded four-channel audio), digital audio, analog video, analog audio, VBI lines and closed captionWHAT ARE VIRTUAL CHANNELS?

WHAT ARE VIRTUAL CHANNELS

It is important to understand how virtual channels work before using the front panel menus.

When you manually tune to a transponder and select a programmer's VCT number and channel designation, the receiver will download the VCTs available on that transponder. For example, a programmer may have one VCT for his consumer network and a different VCT for his commercial customers. You can accept several VCTs in memory. When you download more tables, the table that is not used for the longest period of time is discarded first. The number of VCTs retained depends upon table size, but there is typically room for five or more commercial network tables.

The DigiCipher® II network and its VCT can be limited to part of one transponder, one entire transponder, many transponders on one satellite or many transponders on several satellites. The units have four antenna satellite input ports that can connect to antennas aimed at two different satellites. Since the VCTs include satellite and transponder (frequency) information, the receiver will change satellite and transponder as needed when the virtual channel on the front panel is changed. The receiver will give an error message on the front panel LCD if the VCTs prompt it to change to a satellite/transponder that it cannot find on the input ports.

At most, each virtual channel has only one video data stream. Some virtual channels have audio or data-only services. The virtual channel may have many audio elements, and they are selected by language: English (stereo implied) and French-Portuguese (mono-mono) are just a sample of the 256 possibilities. The IRDs have enough memory to accept a download of 64 languages in a network. In the case of mono-mono (French-Portuguese for example), the left output is the first mono (French), and the right output is the second mono (Portuguese). If you specify a language that is not available, the audio defaults to the first in the VCT list–usually selected by the programmer because it matches the video lip movements.

C H A P T E R   2

SPECIFICATIONS

GENERAL

Mechanical
Height:1.75"(44 mm) EIA Rack Space
Width: 19" (480 mm) EIA Rack Unit
Depth: 20" (503 mm)
Weight (estimate): 15 lb.

Power
Primary Input: 86/260V AC (Internally switchable)
Line Frequency: 50/60 Hz
Power Consumption: 50 W (estimate)

Environmental
Humidity Range (non-condensing):   0 to 90%
Temperature Range (operational): 0 to +40° C
Temperature Range (survivable): -20 to +50° C
Rack Spacing: 1.75" (44 mm) above and below the unit
Altitude: 0 - 8000 Feet

Input Configuration
QPSK Demodulator (DCII & DVB)
Input Signal: 3.25 to 45.0 Msps
Input Frequency Range: 950 to 2150 MHz
Tuning Steps: 125 kHz
Input Level: -65 to -25 dBm
FEC Operating Modes: 5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8 or Auto

ASI MPEG-2 Output
Transport Stream Output: Asynchronous Serial Interface (ASI)
Data Format: Continuous
Data Rate: 270 Mbit/sec
Output Level: 1.0 vp-p +0 –200mV
Output Cable Line Drive: 400 ft RG6

Analog Audio (Baseband Dolby AC3 Output)
Output Impedance (differential pair with ground): 60 ohms
Total Harmonic Distortion (into 600 Ohms load): <0.5% at 1 kHz
L/R Gain In-Balance: <0.2 dB
Output Signal to Noise Ratio (A weighted): >90 dB
Sampling Rates: 44.1 and 48.0 kbps
Dolby Compression Rates: 32 to 640 kbps

Digital Audio
Output Impedance (differential pair with ground): 110 ohms
Output Level (non adjustable): Unity Gain

Total Harmonic Distortion: <0.2% at 1 kHz
L/R Gain In-Balance: <0.5 dB
Output Signal to Noise Ratio (A weighted): >90 dB
Crosstalk all Channels: -80 dB

Analog Video DC-II Mode
Output Level: +/- 2% / 1.0VP-P
Frequency Response (30Hz to 4.2MHz): 0.5 dB
Luminance Nonlinear Distortion: 3%
Video/Audio Delay: +/-5 msec
Chroma Nonlinear Gain: 3%
Chroma Nonlinear Phase: 3%
Differential Gain (10% to 90% APL): 1.0
Differential Phase (10% to 90% APL): 1.0 degree
C/L Gain Inequality: 3.0%
C/L Intermodulation: 3.0%
Luminance SNR (Unified Wgt): >58
Field Time Distortion: 3.0%
Line Time Distortion: 3.0%
VBI: CC & GI Provided Lines
4:2:0 Video Resolutions: 704, 528, 353, 720 544x480
4:2:2 Video Bit Rates: 1 to 20 Mbit
4:2:0 Video Bit Rates: 1 to 15 Mbit
4:2:2 Video Resolutions: 720, 544x480 and 720x512
Film Mode: Off Only
Copy Protection: On/Off
Motion Prediction: Field and Dual Frame
B Frame Support: 2 and No B Frames

Digital Video
SMPTE259 Output Impedance: 75 ohm
Output Level: 800 mV (+/-50mV)
Output Jitter: <700 ps
Video/Audio Delay: +/- 5 msec
Embedded Audio (4 channel): ½ and ¾
4:2:0 Video Resolutions: 704, 528, 353, 720 544x480
4:2:2 Video Bit Rates: 1 to 20 Mbit
4:2:0 Video Bit Rates: 1 to 15 Mbit
4:2:2 Video Resolutions: 720, 544x480 and 720x512
Film Mode: Off Only
Copy Protection: On/Off
Motion Prediction: Field and Dual Frame
B Frame Support: 2 and No B Frames

Data Interfaces
Asynchronous Data Output: EIA 232 9.6 to 19.2 kbps
Remote Control: EIA 232/485 9.6 to 38.4 kbps
Ethernet: 10Base-T TCP/IP

C H A P T E R 3
INVENTORY AND INSTALLATION

To prevent damage and/or safety hazards, always handle the General Instruments DSR-4810 with care and only according to instructions as laid out in this Operations Manual.

INVENTORY

The shipping carton should contain the following items:

1. A DSR-4810 unit
2. A power cord
3. A set of decorative ear/screw covers
4. One (1) Allen wrench
5. Four (4) Allen screws
6. Two (2) Phoenix connectors (audio)
7. A Warranty Information Card
8. This Operations Manual
9. Other pertinent documentation and additional manual inserts

MOUNTING

The unit is designed for installation in a EIA standard 19-inch (480 mm) equipment rack. When mounting it in the rack, use pan or round head screws and washers in all four front panel mounting locations. This ensures a secure mount for the size and weight of the unit. You must supply screws matching your rack.

POSITIONING

- To prolong service life, pay special attention that the environment in which the DSR unit is being used is free of dust and other airborne particles.

- Make sure the DSR unit is operated in a temperature-controlled environment. Never place a DSR unit near a heat source.

- Allow a 1.75-inch (44 mm) air gap above and below receivers for cooling purposes, or alternate receivers with low-power consumption equipment that does not block the top-to-bottom air flow of the receiver chassis. Never install multiple units in such a way that the air intake from one unit aligns with the outlet of another.

- Do not install a DSR unit in areas of high humidity or where there is any danger of water infiltration.
- Do not run AC power cables and signal leads in the same duct so as to avoid magnetic interference from the high-voltage cable.

INITIAL RECEIVER SETUP

The procedure for first-time setup is as follows:

- Press the PROG button until *DSR-4810 SYSTEM MODE* appears on the top line of the LCD screen.
- Press and turn the EDIT knob to select *DC-II MANUAL MODE*.
- Press the RF IN button until *ANT SAT POL ------------* appears on the top line of the LCD screen. Use the EDIT knob to select the antenna input port number, satellite number and polarity (i.e., V/H/ANY) for the desired programmer's satellite feed.
- Press the RF IN button a second time until *ANT RF-FREQ SYM-RT FEC* appears on the top line of the LCD screen. Use the EDIT knob to set the RF center frequency in L-band or RF frequency, if the default L.O. (Local Oscillator) has been set. Now set the desired symbol rate and FEC.
- Press the RF IN button a third time until *ANT MODE LNB TONE L.O.* appears on the top line of the LCD screen. Use the EDIT knob to set the RF operating mode, LNB, Tone and L.O.

> Note: the below setting must be made for each of the four antenna inputs before use.

LNB	Voltage	Current
Off		
Low	14V DC	350 mA
High	20V DC	350 mA

Tone Frequency	On / Off
22 kHz	Manually enable for high-band LNB

L.O. Frequencies	Operating Mode	Receiver Tuning Range
5150MHz	C-band Frequency	3000MHz ~ 4200MHz Frequency Spectrum
10750MHz	KU Band Frequency	11700MHz ~ 12900MHz Frequency Spectrum
11250MHz	KU Band Frequency	12200MHz ~ 13400MHz Frequency Spectrum
OFF	L-band Frequency	950MHz ~ 2150MHz Frequency Spectrum

▪ Verify that RF Locked (located in the center of the front panel) is lit and that the signal meter has at least two LED bars lit. The BER threshold meter should have no more than three led bars lit.

   Note: If the BER threshold meter is completely lit and the SIG meter has no bars lit, without RF Lock, then the receiver is not locked to the desired RF carrier.

▪ With the receiver locked to a valid DC-II signal, press the PROG menu button until *VCT:00000:0000 MPG:00000* appears on the top line of the LCD screen. Use the EDIT knob to set the VCT and VC numbers to the correct setting for the program you are selecting.

   Note: As you enter the VCT number, the receiver will indicate VCT Not Defined. Complete the VCT number entry and wait until the receiver indicates VC Not in Table. When the receiver indicates VC Not in Table this means that the current VCT you entered is a valid table and is listed in the VC Map the receiver just received.

   – Enter the VC of the program your are selecting. As soon as any correct VC number in the map is entered the display will change to indicate the Source Name of the selected program. The MPEG program number will also be indicated.

      With the correct VCT and VC number entered, the receiver will proceed with decoding the video/audio and data information. Monitor the front panel Authorize LED. If the program is in the clear or fixed key encryption, the receiver will automatically authorize and display the video/audio. If the program is fully encrypted the Authorize LED will blink until the receiver is hit with an authorization signal.

C H A P T E R 4

FRONT PANEL CONTROLS AND MENU DISPLAY

FRONT PANEL

All operations described in this chapter require using the front panel, which includes manufacturer, model designation, menu controls, operational status, display and edit control and TvPass Card.

Figure 4-1

The Front Panel
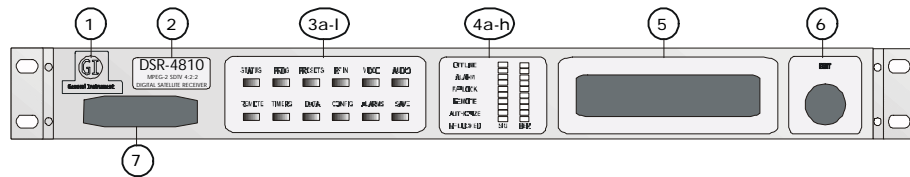
Table 4-1

The Front Panel

Key	Control	Type	Description
1	Company Designation	Label	Indicates Manufacturer or OEM Supplier
2	Model Designation	Label	Indicates model name & product description
3	Menu Control s	Group	Menu selection area
3a	STATUS – Green	Push Button	Displays satellite and programming information, or reverts to last saved setting if pushed while in edit mode
3b	PROG – Green	Push Button	Selects Virtual Channel Tables from Rom Tables
3c	PRESETS – Green	Push Button	Allows selection of PRESET Menu conditions as programmed by the user
3d	RF IN – Green	Push Button	Displays RF tuning parameters, antenna input & related satellite input data
3e	VIDEO – Green	Push Button	Displays video format settings
3f	AUDIO – Green	Push Button	Displays audio level and format settings
3g	REMOTE – Green	Push Button	Displays remote control port settings
3H	TIMERS – Green	Push Button	Displays date/time and allows setup of timed events
3I	DATA – Green	Push Button	Displays async data port settings and tuner data
3J	CONFIG – Green	Push Button	Displays firmware and hardware configuration data
3K	ALARMS – Red	Push Button	Displays alarm status and setting information
3L	SAVE – Red	Push Button	Saves new settings to receiver memory
4	Operational Status	Group	Displays current operating conditions
4a	Offline	Illuminated	Receiver is offline
4b	Alarm	Illuminated	Displays alarm condition
4c	F/P Lock	Illuminated	Front panel access & control is locked by the remote controller
4d	Remote	Illuminated	Unit is being controlled via remote
4e	Authorize	Illuminated	Unit is authorized for DigiCipher II input signal
4f	RF Locked	Illuminated	Receiver is locked to incoming signal
4g	Input Signal Meter	Bar Graph	Indicates input signal strength
4h	BER Meter	Bar Graph	Indicates received signal bit error rate
5	Display		See Chapter 6 for detailed menu operation
6	Edit Control	Rotary/Push Knob	Press to enable Edit function; rotate to select and change settings
7	TV Pass Card		Provided renewable security interface

Figure 4-2
The Front Panel

(6) Edit

(5) Display

(4h) BER Meter

(4g) Input Signal Meter

(4a) Offline: (4b) Alarm: (4c) F/P Lock: (4d) Remote: (4e) Authorize: (4f) RF Locked

(2) Model Designation

(1) Company Logo

(7) TvPass; Card
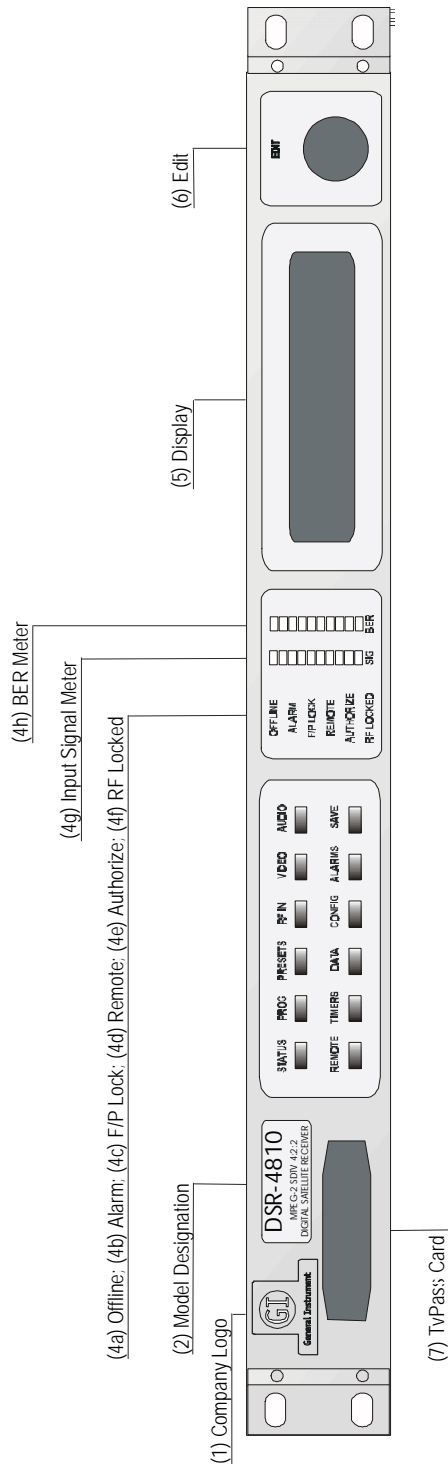
EDITING AND MENU CONFIGURATION

The Menu Control, Display and Edit Control functions operate in harmony allowing complete control of receiver operations. Refer Figure 5-1, Table 5-2 and Figure 5-2 for an illustration and description of the numerically referenced Menu Control buttons below.

TO EDIT MENU INFORMATION:

1. Press any Menu Control button (3); the menu display screen (5) presents the corresponding field labels.

2. Rotate the Edit knob (6) to move the cursor under the field label you wish to edit.

3. To enable the Edit function, press the Edit knob once; the word EDIT, located above the Edit knob, becomes illuminated.

4. Rotate the Edit knob to change the data for that particular field.

5. Once the desired setting is displayed, press the Edit knob to exit the editing mode; the lit word EDIT is extinguished.

6. The Save button (3l) is now illuminated.

7. To save the new setting to the receiver database, press the Save button. If the save button is not pressed within 10 seconds, the receiver will automatically press it for you and save the current settings.

NAVIGATING THE MENU DISPLAY

The Front Panel Menu Controls display a series of push buttons that you can use to configure and control your system. So you can always identify what you are looking at, the word above the active button is lighted. The names of the fields available in that menu are displayed on the screen located at the right side of the front panel. Below each field label is the current setting for that field.

Note: Within the LCD screen diagram, *0* is used as a placeholder for numeric characters and   is used as a placeholder for alpha characters.

STATUS MENU:

```
┌─────────────┐
│   STATUS    │
└─────────────┘
      │
     ◇ EXT 1
      │
┌─────────┐
│ Menu 1  │
└─────────┘
     │
    ( SAT )
    ( XPD )
    ( STATUS )
```
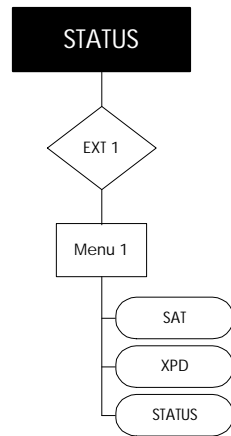
DISPLAY   EXT 1, MENU 1

```
┌────────────────────────────────┐
│ SAT XPD    PROGRAM              │
│ ─── ─────  ──────────────────   │
└────────────────────────────────┘
```
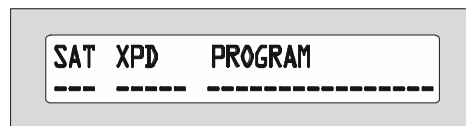
SAT

A three (3) character field showing the first three characters of the satellite_reference_name() as defined in the Satellite Text Message.

XPD

A five (5) character field showing the first four characters of the corresponding transponder_name() as defined in the Transponder Name Table®.

PROGRAM

A twelve (12) character field showing the first twelve characters of the name() as defined in the Source Name Table.

PROGRAMS MENU:
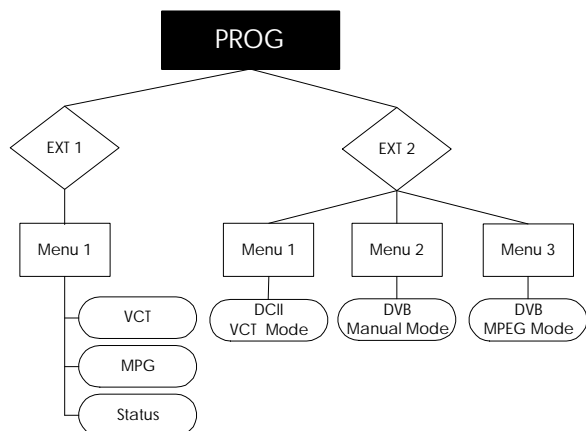
Note: The Programs Menu has multiple functions, which depend on the mode of operation that the unit is placed in.

DISPLAY   EXT 1, MENU 1


```
VCT:00000:0000  MPG:00000
  STATUS:----------------
```

VCT

Tunes to an operator requested service by entering the VCT ID (Dec) and the Virtual Channel Number (Dec).

- In DC-II Manual mode the desired VCT number and VC are directly entered.

- In DC-II VCT mode scrolling of the VCT-ID's and VCT-Num's is available from the stored Virtual Channel Map Tables. The Corresponding Service Numbers are updated in the MPEG field.

- In DVB mode the VCT and VC function is disabled, so the MPEG service number is used to select the desired program.

MPEG

In DC-II VCT mode this field displays the selected MPEG service number updated when VCT information is entered (note that this is a read only field in DC-II VCT mode)

■ Service Numbers are actively related to their Associated Virtual Channels. As such, the VCT is updated when a valid VCT definition exists.

In DC-II Manual or DVB mode this field permits scrolling to select programming available in the selected transport stream. The displayed program numbers are extracted from the MPEG Program Map Table or the DC-II defined Service Map Table.

Note: While in DVB mode, VCT information is not displayed.

STATUS

The top line of the LCD displays the current VCT / channel numbers and MPEG service number. The second line displays the current operating channel of the receiver.

DISPLAY   EXT 2, MEN U 1

```
DSR-4810      System Mode
MODE:DCII-VCT   Mode
```
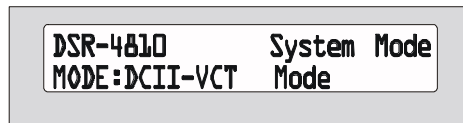
DC-II VCT MODE

Displays the current operational mode into which the unit was placed. The procedure for DC-II Manual mode set is as follows:

■ Press the PROG button until *DSR-4810 SYSTEM MODE* appears on the top line of the LCD screen. Press and turn the EDIT knob to select DC-II VCT mode.

■ Prior to being placed in DC-II VCT mode for the first time, the receiver must have been first tuned in DC-II Manual mode to select a valid RF signal and receive a virtual channel map. Proceed to DC-II-Manual mode, page 16 for instructions.

■ Once the receiver has a valid virtual channel map, scroll through the VCT field and select the desired virtual channel table number for the program you wish to select. The receiver will automatically tune to the desired program and start the decoding process.

Note: If the VCT number for the program you want is not listed, then you must go back to DC-II Manual mode and verify that the correct VCT and VC are available from the selected RF input.

DISPLAY   EXT 2, MENU 2

```
┌─────────────────────────────────┐
│ DSR-4810       System Mode      │
│ MODE:DCII-Manual Mode           │
└─────────────────────────────────┘
```
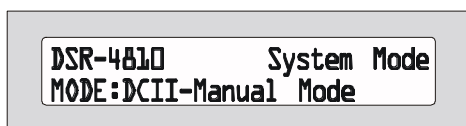
DC-II MANUAL MODE

Displays the current operational mode into which the unit was placed. DCII-Manual mode allows manual reception of DC-II satellite signals. It is used for first setup of the receiver, just after installation.

The procedure for first-time setup is as follows:

■   Press the PROG button until *DSR-4810 SYSTEM MODE* appears on the top line of the LCD screen.

■   Press and turn the EDIT knob to select *DC-II MANUAL MODE*.

■   Press the RF IN button until *ANT SAT POL* ------------ appears on the top line of the LCD screen. Use the EDIT knob to select the antenna input port number, satellite number and V/H polarity for the desired programmer's satellite feed.

■   Press the RF IN button a second time until *ANT RF-FREQ SYM-RT FEC* appears on the top line of the LCD screen. Use the EDIT knob to set the RF center frequency in L-band or RF frequency (if the default LNBC L.O. has been set). Now set the desired symbol rate and FEC.

■   Press the RF IN button a third time until *ANT MODE LNB TONE L.O.* appears on the top line of the LCD screen. Use the EDIT knob to set the RF demodulation mode to DC-II (LNBC voltage, LNBC Tone and LNBC L.O).

■   Verify that RF Locked (located in the center of the front panel) is lit and that the signal meter has at least two LED bars lit. The BER threshold meter should have no more than three led bars lit.

    Note: If the BER threshold meter is completely lit and the SIG meter has no bars lit, without RF Lock, then the receiver is not locked to the desired RF carrier.

■   With the receiver locked to a valid DC-II signal, press the PROG menu button until *VCT:00000:0000 MPG:00000* appears on the top line of the LCD screen. Use the EDIT knob to set the VCT and VC numbers to the correct setting for the program you are selecting.

    Note: As you enter the VCT number, the receiver will indicate VCT Not Defined. Complete the VCT number entry and wait until the receiver indicates VC Not in Table. When the receiver indicates VC Not in Table this means that the current VCT you entered is a valid table and is listed in the VC Map the receiver just received.

    –   Enter the VC of the program your are selecting. As soon as any correct VC number in the map is entered the display will change to

indicate the Source Name of the selected program. The MPEG program number will also be indicated.

With the correct VCT and VC number entered, the receiver will proceed with decoding the video/audio and data information. Monitor the front panel Authorize LED. If the program is in the clear or fixed key encryption, the receiver will automatically authorize and display the video/audio. If the program is fully encrypted the Authorize LED will blink until the receiver is hit with an authorization signal.

DISPLAY   EXT 2, MENU 3

```
DSR-4810       System Mode
MODE: DVB-MPEG Mode
```
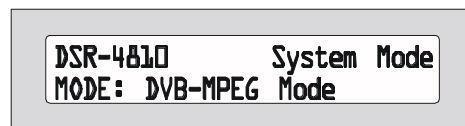
DVB-MPEG MODE

When in this mode all DC-II virtual channel selection features are ignored. The receiver's RF demodulation mode should be changed to DVB mode. The satellite number and V/H automatic functions are disabled. All other functions work the same as in DC-II Manual mode.

The audio will automatically switch between Dolby AC3 and Musicam audio signals.

PRESETS MENU:
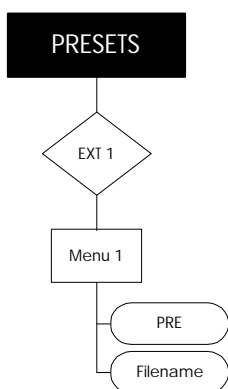
DISPLAY   EXT 1, MENU 1

```
┌─────────────────────────────────────┐
│ PRE      Filename                    │
│ #0   ----  ----------------          │
└─────────────────────────────────────┘
```

PRE

Selects a preset slot.

FILENAME

This field offers you the following two options 1) LOAD– allows you to type in an existing filename; 2) SAVE–allows you to create a new filename.

To create a new filename:

■   Press the PRESETS button until *PRE   FILENAME* appears on the top line of the LCD screen. Turn the EDIT knob to move the cursor under the center field of the LCD. Press and turn the EDIT knob to select *SAVE*.

■   Type in the new filename.

┌───┐
│ **Note: Do not save presets in VCT mode unless you know that you will** │
│ **not be changing the RF parameters.** │
└───┘

RF MENU:
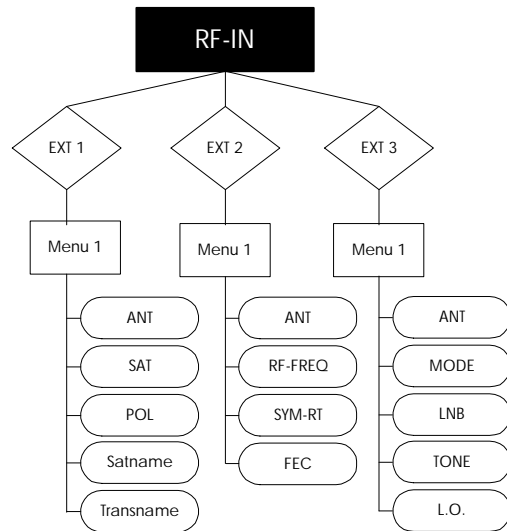
Note: The RF Menu has multiple functions, which depend on the mode of operation. The DSR-4810 has three modes of operation, and the function of each field as related to the mode of operation is shown below.

DISPLAY EXT 1, MENU 1

ANT
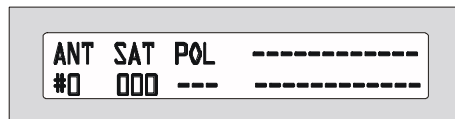
Displays the current antenna being used.

SAT

Displays the current satellite ID number assigned to this port.

Updates automatically while in DC-II VCT mode.

POL

Displays the current polarity selected (i.e., Horizontal, Vertical or Any) for the designated input port.

Updates automatically while in DC-II VCT mode.

SATNAME

(Fourth field on the top line of the LCD display.)

Contains the current satellite name, twelve (12) characters in length, identified by the DC-II-MSP Satellite Name Table.

Updates automatically while in DC-II VCT mode.

TRANSNAME

(Fourth field on the bottom line of the LCD display.)

Contains the current transponder name, twelve (12) characters in length, identified by the DC-II-MSP Transponder Name Table.

Updates automatically while in DC-II VCT mode.

DISPLAY EXT 2, MENU 1

```
┌─────────────────────────────┐
│  ANT   RF-FREQ SYM-RT FEC    │
│  #0    0000.0  00.000 0/0    │
└─────────────────────────────┘
```

ANT
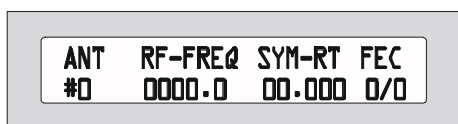
Displays the current antenna being used.

RF-FREQ

Displays the current RF-frequency defined for the current port. This field is in units of MHz and is capable of 125kHz steps.

Note: Due to space constraints the display will round up.

SYM-RT

Displays the current symbol rate defined for the current port. This field is in units of Mbps and is capable of 1 kbps steps.

FEC

Displays the current forward error correction (viterbi puncture rate) of the current port.

DISPLAY EXT3 2, MENU 1

```
ANT MODE  LNB TONE  L.O.
#0  ---   --- ---   ---
```

ANT

Displays the current antenna being used.

MODE

Displays the current input signal mode and type being used by the current port (i.e., DCII-C, DCII-I, DCII-Q, DCII-CO, DVB).

LNB

Defines the power level sourced by the current port to the LNB on the antenna.

LNB	Voltage	Current
Off		
Low	14 V DC	350 mA
High	20 V DC	350 mA

TONE

Displays the current setting of the 22kHz tone generation on the current port.

Tone Frequency	On / Off
22 kHz	Manually enable for high-band LNB

L.O.

Displays the current setting of the local oscillator being used on the current port.

L.O. Frequencies	Operating Mode	Receiver Tuning Range
5150 MHz	C-band Frequency	3000 MHz ~ 4200 MHz Frequency Spectrum
10750 MHz	KU Band Frequency	11700 MHz ~ 12900 MHz Frequency Spectrum
11250 MHz	KU Band Frequency	12200 MHz ~ 13400 MHz Frequency Spectrum
OFF	L-band Frequency	950 MHz ~ 2150 MHz Frequency Spectrum

VIDEO MENU:
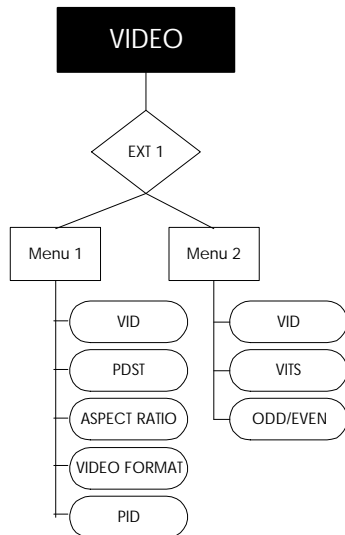
DISPLAY   EXT 1, MENU 1 (SHO WN WITHOUT VIDEO)

```
VID PDST  ----------    PID
     ----  ----------   ----
```
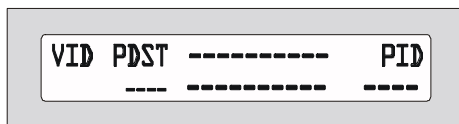
DISPLAY   EXT 1, MENU 1 (SHO WN WITH VIDEO)

```
VID PDST    000x000    PID
     Auto   0x0 0:0:0 0000
```

VID
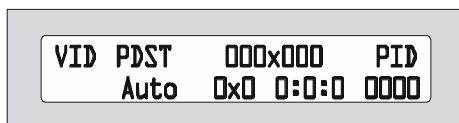
Displays the video parameters.

PDST

A four (4) character field allowing control of the pedestal setting. Options
are:

- Off – override: pedestal off
- On – override: pedestal on

■   Auto – pedestal setting determined by transport stream message.

> Note: The receiver should be left in AUTO mode for normal configuration.

Display Format: The source video format.

ASPECT RATIO

(Third field on the top line of the LCD display.)

Aspect ratio of the source video.

VIDEO FORMAT

(Fourth field on the bottom line of the LCD display.)

Video format of the source video.

PID

The PID carrying the video bit stream.

DISPLAY   EXT 1, MENU 2

```
┌──────────────────────────────┐
│ VID        VITS   ODD/EVEN    │
│            L#00   ---/---      │
└──────────────────────────────┘
```

VID
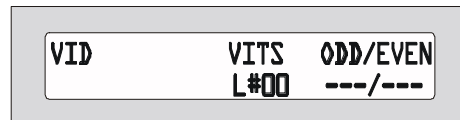
Displays the video parameters.

VITS

Selects a line number (10-20) where to insert the receiver generated VITS.

ODD/EVEN

Selects the video field and fixed pattern where the VITS will be inserted. Current selections are 1) NTC 7 Composit; 2) NTC 7 Combined; and 3) FCC Multiburst.

AUDIO MENU:

```
                        ┌─────────────┐
                        │    AUDIO    │
                        └─────────────┘
            ◇ EXT 1 ◇      ◇ EXT 2 ◇      ◇ EXT 3 ◇

            ┌────────┐     ┌────────┐     ┌────────┐
            │ Menu 1 │     │ Menu 1 │     │ Menu 1 │
            └────────┘     └────────┘     └────────┘

            (    AUD    )   (    AUD    )   (    AUD    )
            (AUDIO FORMAT)  (    LEV    )   (   DYNHI   )
            (   LANG    )   (  FORMAT   )   (   DYNLO   )
            (    PID    )   (  DEFLANG  )   (   EMBED   )
```

DISPLAY   EXT 1, MENU 1

```
┌─────────────────────────────────────┐
│ AUD ---------    LANG  PID           │
│ 0/0 ---------    ----  ----          │
└─────────────────────────────────────┘
```
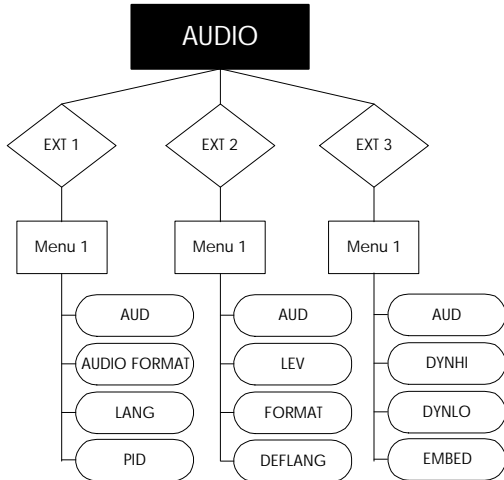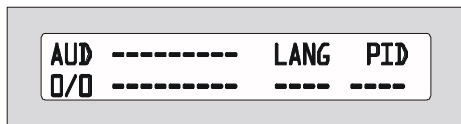
> Note: This menu displays the audio parameters as defined in the Synch Info and Bit Stream Information fields of the Dolby AC3 audio frame.

AUD

A three (3) character field that enables the user to display the audio parameters for the primary (1/2) and secondary (3/4) audio channels.

AUDIO FORMAT

A nine (9) character display showing the Dolby AC3 Audio Coding mode according to the following table:

Audio Coding Mode

acmod	Audio Coding Mode	nfchans	Channel Array Ordering
'000'	1+1	2	Ch1, Ch2
'001'	1/0	1	C
'010'	2/0	2	L, R
'011'	3/0	3	L, C, R
'100'	2/1	3	L, R, S
'101'	3/1	4	L, C, R, S
'110'	2/2	4	L, R, SL, SR
'111'	3/2	5	L, C, R, SL, SR

LANG

A four (4) character display of the language code according to the following table:

Language Code

Language Code (langcode)	Language	Display
0x09	English	ENG
0x0A	Spanish	SPA
0x0F	French	FRE

Note: If the language code is not available or not supported, the field will be filled with dashes.

PID

The PID carrying the encoded audio bitstream.

DISPLAY   EXT 2, MENU 1
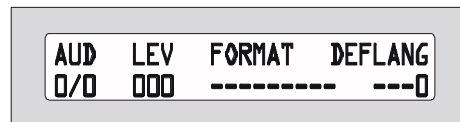
```
AUD   LEV   FORMAT   DEFLANG
0/0   000   --------   ---0
```

AUD

A three (3) character field that enables the user to display the audio control parameters for the primary (1/2) and secondary (3/4) audio channels.

LEV

A three (3) character display which enables the user to adjust the audio output level in increments of full scale. Output is reference to full scale with 0%=0 dBm, 100%=18 dBm with a 600 ohm load.

FORMAT

Allows user to select between a format overrides, (i.e., DUAL, MONO, STEREO or AC3SUR).

DEFLANG

Allows the user to enter a default language selection for the receiver to look for when changing virtual channels. If the receiver cannot find the selected default language, it will pick the universal language, if available, or the first two defined audio programs in the list.

DISPLAY   EXT 3, MENU 1

```
┌─────────────────────────────┐
│ AUD  DYNHI  DYNLO  EMBED     │
│ 0/0   ---    ---    ---      │
└─────────────────────────────┘
```

AUD

A three (3) character field that enables the user to display the audio control parameters for the primary (1/2) and secondary (3/4) audio channels.

DYNHI

Allows the user to enter dynamic range compression in Off, Low, Medium or High modes for the high level audio spectrum.

DYNLO

Allows the user to enter dynamic range compression in Off, Low, Medium or High modes for the low level audio spectrum.

EMBED

Controls the On/Off embedding of the program audio into the 4:2:2 SDI output.

REMOTE MENU:
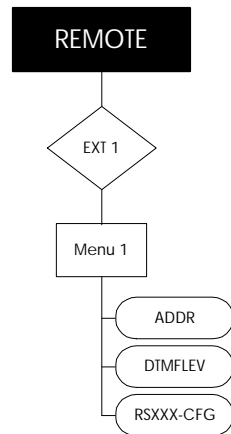
DISPLAY EXT 1, MENU 1
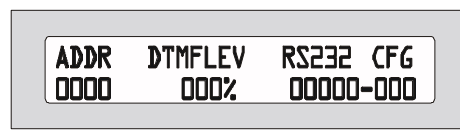
ADDR

Displays the current slave address of this unit.

■ The value is presented in HEX and is fully editable with a range from 0x0000 - 0xFFFF.

DTMFLEV

Controls the DTMF audio output level (100 is the default setting for +18 dBm at 600 ohm load).

RSxxx- CFG

Displays the currently active communication protocol, (e.g., RS232, RS485).

TIMERS MENU:

```
              ┌──────────────┐
              │   TIMERS     │
              └──────────────┘
               ╱          ╲
          ◇EXT 1◇      ◇EXT 2◇
              │            │
         ┌────────┐   ┌────────┐
         │ Menu 1 │   │ Menu 2 │
         └────────┘   └────────┘
              │            │
        (Timers Menu) (Unavailable)
```

DISPLAY   EXT 1, MENU 1

```
DSR-4810      Timers Menu
--- -- ----         --:--:--
```

DISPLAY   EXT 2, MENU 1

```
DSR-4810      Timers Menu
       --Unavailable--
```
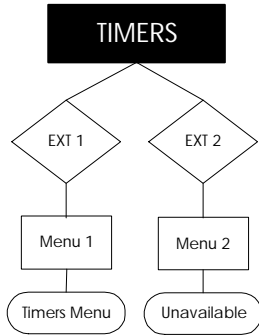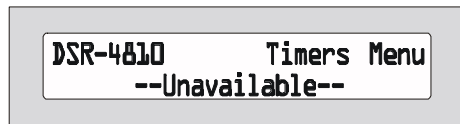
DATA MENU:
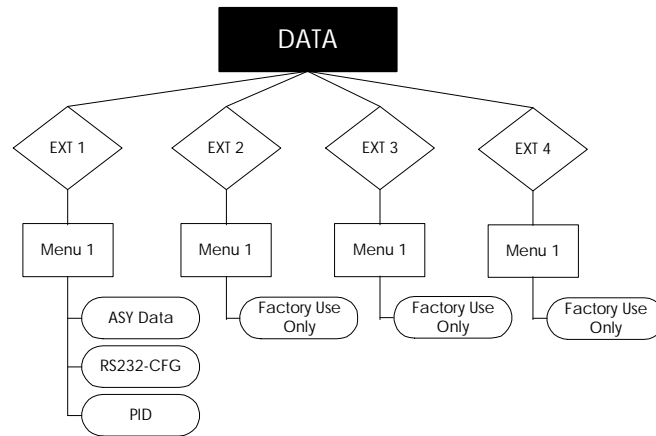
DISPLAY   EXT 1, MENU 1


```
ASY Data   RS232-CFG   PID
#0                -------- ----
```
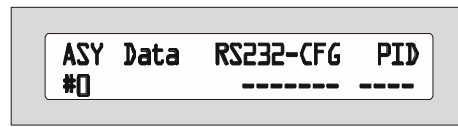
ASYNC DATA

Displays the Async Data Service information from the selected virtual channel. This is an automatic function and if no Async service is available, the RS232 is in OFF condition and the PID is blank.

DISPLAY   EXT 2, MENU 1


```
ACE:   0.0-00 0-0000-0000
TVP: 0-0.0-00 0-00
```

Factory use only — (solely for service personnel use.)

DISPLAY   EXT 3, MENU 1

```
DMX:85=>Wait: SMM
VID:  0%    AUD:   0%/   0%
```
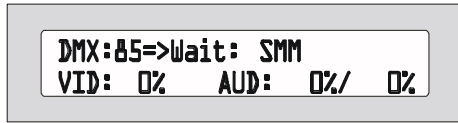
Factory use only — (solely for service personnel use.)

DISPLAY   EXT 4, MENU 1

```
Tuner   TEI:0x0000/0x0000
S:0x0000  B:0x0000  L:0x00
```

Factory use only — (solely for service personnel use.)

CONFIG MENU:

Note: Arrows on either side of the top line of text on the LCD screen indicate that the EDIT knob may be used to scroll either left **<=** , or right **=>** for additional menus.

```
                           ┌──────────┐
                           │  CONFIG  │
                           └──────────┘
              ┌────────────────┴──────────────────┐
          ╱EXT 1╲                              ╱EXT 2╲
       ┌────┬────┬────┬────┬────┐                  │
   ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐
   │Menu 1│ │Menu 2│ │Menu 3│ │Menu 4│ │Menu 5│ │Menu 1│
   └──────┘ └──────┘ └──────┘ └──────┘ └──────┘ └──────┘
   (GI ACE) (GI TVP) (REQTVP) (  FW  ) (  HW  )   Edit Option 1:
                                                   Test #0
                                                   Edit Option 2:
                                                   Test #1
                                                   Edit Option 3:
                                                   Test #2
                                                   Edit Option 4:
                                                   Test #3
                                                   Edit Option 5:
                                                   Test #4
                                                   Edit Option 6:
                                                   Test #5
                                                   Edit Option 7:
                                                   Test #6
```
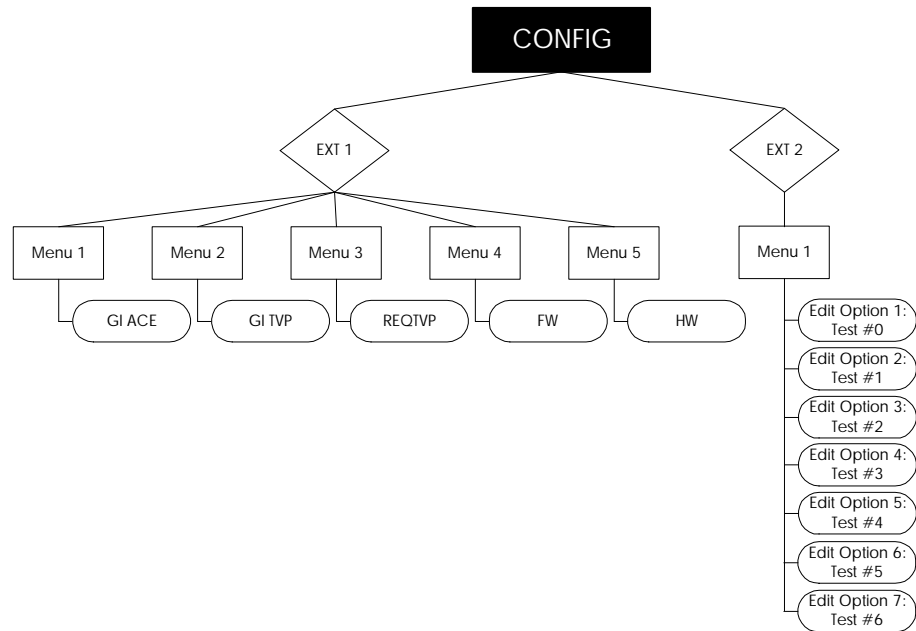
DISPLAY EXT 1, MENU 1

```
    Installed Hardware =>
GI-ACE: 000-00000-00000
```

GI-ACE

Displays the installed GI ACE serial number.

Note: The receiver must be tuned and RF Locked onto a valid GI satellite signal for the ACE number to become active.
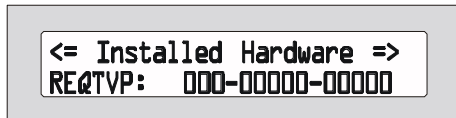
DISPLAY   EXT 1, MENU 2

```
┌─────────────────────────────┐
│ <= Installed Hardware =>    │
│ GI-TVP:   000-00000-00000   │
└─────────────────────────────┘
```

GI-TVP

Displays the currently installed (or required) GI-TV Pass module.

DISPLAY   EXT 1, MENU 3   (REQTVP)

```
┌─────────────────────────────┐
│ <= Installed Hardware =>    │
│ REQTVP:   000-00000-00000   │
└─────────────────────────────┘
```

REQTVP

Displays the required TVP card serial number if required.

DISPLAY   EXT 1, MENU 4

```
┌─────────────────────────────┐
│ <= Installed Hardware =>    │
│  FW:0000-0000-0000-0000     │
└─────────────────────────────┘
```
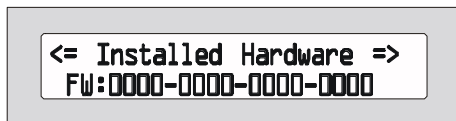
FW

Displays the current firmware version.
(For service personnel use only.)

DISPLAY   E XT 1, MENU 5

```
┌─────────────────────────────┐
│ <= Installed Hardware =>    │
│  HW:000000-000000000000     │
└─────────────────────────────┘
```
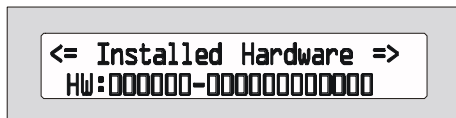
HW

Displays the current hardware version.
(For service personnel use only.)

DISPLAY EXT 2, MENU 1, EDI T OPTION 1

```
-- System Module Test --
Test #0:---   Video/VidEnc
```

The default video pattern is color bars at 1.0 vp-p. Use the blank area to turn
on/off the color bar pattern.

> Note: This will interrupt the receiver's current video output until user turns
> off the test signal. The 4:2:2 SDI cannot display the internal color bar pattern.

DISPLAY EXT 2, MEN U 1, EDIT OPTION 2

```
-- System Module Test --
Test #1:---   Aud#1/AudEnc
```

The default audio signal is 1KHz tone +18 dBm. Use the blank area to turn
the tone on/off for primary.

> Note: This will interrupt the receiver's current audio output until user turns
> off test signal. The 4:2:2 SDI will output audio test signals as embedded 1/2.

DISPLAY EXT 2, MENU 1, EDI T OPTION 3

```
-- System Module Test --
Test #2:---   Aud#2/AudEnc
```

The default audio signal is 1KHz tone +18 dBm. Use the blank area to turn
the tone on/off for secondary.

> Note: This will interrupt the receiver's current audio output until the user
> turns off the test signal. The 4:2:2 SDI will output the audio test signals as
> embedded 3/4.

DISPLAY   EXT 2, MENU 1, EDI T OPTION 4

```
┌─────────────────────────────┐
│ -- System Module Test --    │
│ Test #3:--- =- Unused -=     │
└─────────────────────────────┘
```

Currently unused test mode.

DISPLAY   EXT 2, MENU 1, EDI T OPTION 5

```
┌─────────────────────────────┐
│ -- System Module Test --    │
│ Test #4:--- DTMF Port        │
└─────────────────────────────┘
```

The default audio signal is a multi DTMF tone (12345) at +18 dBm. Use the blank area to turn on/off the tone.

Note: This will interrupt the receiver's current DTMF audio output until the user turns off the test signal.

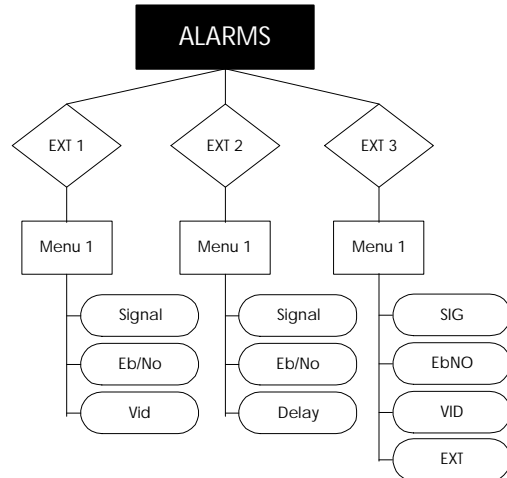*DISPLAY*   EXT 2, MEN U 1, EDIT OPTION 6

```
┌─────────────────────────────┐
│ -- System Module Test --    │
│ Test #5:--- Contact Port     │
└─────────────────────────────┘
```

This test will control the external two contact closures; when On forces them to close, when Off operates in an open condition.

DISPLAY   EXT 2, MEN U 1, EDIT OPTION 7

```
┌─────────────────────────────┐
│ -- System Module Test --    │
│ Test #6:--- Async Port       │
└─────────────────────────────┘
```

Outputs a~z and 0~9 @ 19.2 baud 8N1, no flow control.

ALARMS MENU:

Special Notes:

ALM OUT: A summary alarm that will close when one or more of the individual alarms (under the ALARMS Menu) becomes active. It is delayed in time by whatever default delay is selected in the ALARM Menu. The contact is normally open.

ALM IN: Will sense an external contact closure, cause the ALM OUT contact to close and give an indication to the RCP interface and front panel. The contact is normally open.

#1 & #2 Dry Contact Closures: For control of various pieces of hardware connected to the unit. Will close & open in response to control channel messages received from equipment at the Uplink facility. One application example is controlling ad insertion at cable head ends. Both contacts are normally open.

DISPLAY   EXT 1, MENU 1


```
 Signal     Eb/No      Vid
---/-00dB   ---/00dB--  ---
```
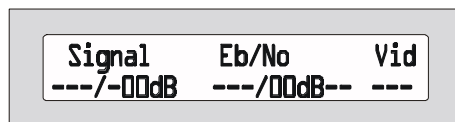
Displays the current condition of the alarms.

- Below the Signal heading is the real-time RF input signal level in -dBm. Next to the signal level is the alarm threshold. If the signal level is below -65dBm the meter will read Low. If the Signal is in alarm condition, brackets will be placed around the word <Signal>.

> Note: Do not operate the receiver if LOW is indicated. The receiver may achieve RF Lock, however, the signal might crash unexpectedly.

■ Below the Eb/No is the real-time Eb/No Signal reading. Next to it is the alarm threshold level. If the Eb/No level is below threshold, the reading will be Low. The alarm threshold can be set from 3.0 to 20 dB. If the Eb/No is in alarm condition, brackets will be placed around the word <Eb/No>.

> Note: The BER Meter on the front panel will indicate if the receiver is near threshold. Do not operate the receiver if half of the red LED's are lit. Unexpected crashing may occur.

■ Vid displays the current video output condition. If the Vid is in alarm condition, brackets will be placed around the word <Vid>.

DISPLAY EXT 2, MENU 1

```
 Signal    Eb/No    Delay
---/-00dB  ---/00dB-- -.-s
```
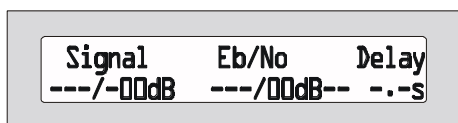
Allows the user to set the threshold levels for Signal and Eb/No. There is also an alarm delay setting for all alarm conditions. The setting can be adjusted from 0.0 to 9.9 seconds. This delay is used so that when changing channels, the alarms are not set immediately off.

DISPLAY EXT 3, MEN U 1

```
SIG   EbNO    VID    EXT
---   ---     ---    ---
```
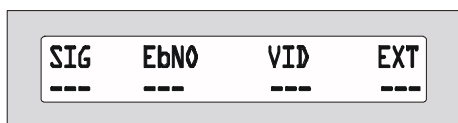
Allows user to turn on/off each of the alarm functions.

SAVE MENU:

```
┌──────────────┐
│              │
│     SAVE     │
│              │
└──────┬───────┘
       │
      ◇
  No Menus
      ◇
```
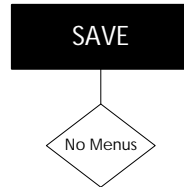
There is no menu associated with the Save button.

Press when illuminated to save the current setting.

C H A P T E R 5
REAR PANEL AND CONNECTORS

REAR PANEL

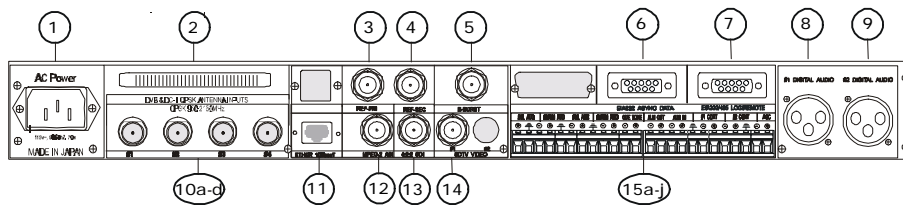All items in this section pertain to the rear panel of the DSR-4810.

Figure 5-1

Table 5-1

The Rear Panel

#	Control	Type	Description
1	AC Power Input	Line Power Connector	Primary 110V~, 50/60 Hz, 70 W
2		Bar Code/Label	Serial Number
3	REF-PRI	BNC Type Connector	4810 Video Sync Option
4	REF-SEC	BNC Type Connector	4810 Video Sync Option
5	B-BURST	BNC Type Connector	4810 Video Sync Option
6	RS 232 Async Data	dB 9 Pin Type Connector	9.6–19.2kbps
7	RS 232/485 Log Remote	dB 9 Pin Type Connector	Log Remote (Provides Remote Control Interface Access)
8	#1 Digital Audio	XLR Type Connector	AES/EBU Digital Audio Output
9	#2 Digital Audio	XLR Type Connector	AES/EBU Digital Audio Output
10	L-band RF Input	Group	DVB & DCII QPSK Antenna Inputs with +20V DC LNB voltage provided on the selected input port
10a	#1 RF Inplut	F Type Connector	950-2150 MHz L-band Input
10b	#2 RF Inplut	F Type Connector	950-2150 MHz L-band Input
10c	#3 RF Inplut	F Type Connector	950-2150 MHz L-band Input
10d	#4 RF Inplut	F Type Connector	950-2150 MHz L-band Input
11	Ethernet	RJ-45	Ethernet 10Base-T
12	ASI Output	BNC Type Connector	210 Mbit DVB Format
13	4:2:2 SDI	BNC Type Connector	SMPTE 259 Digital Video Output
14	#1 Baseband Video	BNC Type Connector	Baseband Video Output
15	Terminal Strip	Phoenix Connector	
15a	#1/L AUD		600 ohm Balanced Audio Output/Left
15b	#2/RM AUD		600 ohm Balanced Audio Output/Right/Mono
15c	#3/L AUD		600 ohm Balanced Audio Output/Left
15d	#4/RM AUD		600 ohm Balanced Audio Output/Right/Mono
15e	CUE TONE		DTMF Commercial Tone Output
15f	ALM OUT		Special Note: Normally OPEN. A summary alarm that will close when one or more of the individual alarms (under the ALARMS Menu) becomes active. Delayed in time by whatever default delay is selected in the ALARM Menu.
15g	ALM IN		Special Note: Normally OPEN. Will sense an external contact closure, cause the ALM OUT contact

			to CLOSE and give an indication to the RCP and front panel. May be used for "daisy chaining" of alarms between various equipment.
15h	#1 CONT		Dry Contact Closure, used only by systems that employ an Event Trigger System to control ad insertions at cable head-ends.
15I	#2 CONT		Dry Contact Closure, used only by systems that employ an Event Trigger System to control ad insertions at cable head-ends.
15j	AGC		AGC Voltage Output Range

Figure 5-2
The Rear Panel
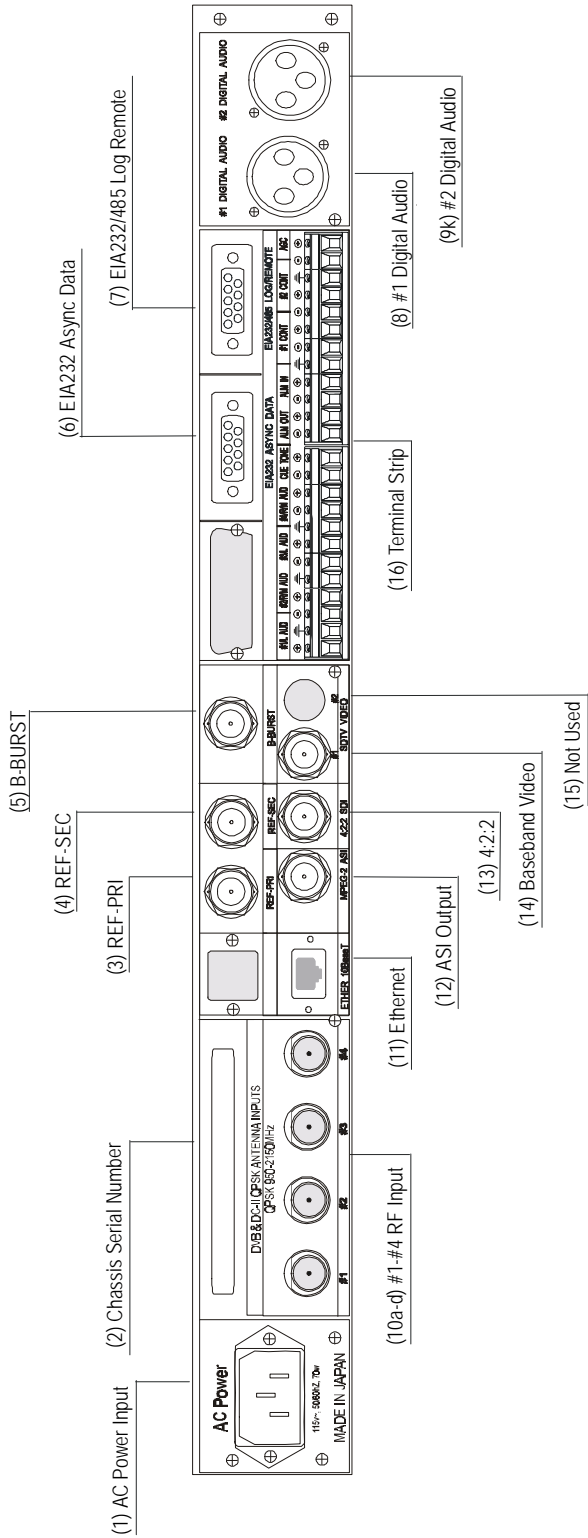
CONNECTING THE CONNECTORS

Signal connections are made via the rear panel. Refer to Figure 5-2 for a description of the rear panel connections.
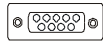
AC POWER INPUT

LINE POWER CONNECTOR

Make sure a supply socket is located near the equipment and easily accessible.
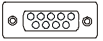
RS 232 ASYNC DATA

DB 9 PIN TYPE CONNECTOR

9.6–19.2 Kbps Async Data Port

Use a dB 9-pin connector with a metalized grounding shell and shielded cable to minimize signal egress and ingress caused by EMI
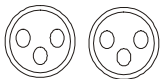
RS 232/485 Log/Remote

DB 9 PIN TYPE CONNECTOR

DSR units provide diagnostic and remote control compatibility via this RS compliant interface.

Use a dB 9-pin connector with a metalized grounding shell and shielded cable.

#1 & #2 DIGITAL AUDIO

XLR TYPE CONNECTORS

AES/EBU compliant digital audio interfaces.

Use an XLR connector with a metalized grounding shell.

#1-#4 RF INPUT

ETHERNET

F TYPE CONNECTORS

Use an RG6 CATV 75 ohm quadshield 100% coverage coaxial cable and quality 360° compression crimp F-connector to minimize signal egress and ingress caused by EMI.

ETHERNET

RJ-45

Standard 10Base-T Ethernet interface.

Use shielded category 5 cable, Ethernet cable.

ASI OUTPUT

BNC TYPE CONNECTORS

270 Mbit DVB asynchronous interface.

Outputs the entire transport stream with the selected program decrypted.

Use an RG6 CATV 75 ohm 100% coverage coaxial cable and quality 360° compression crimp BNC connector to minimize signal egress and ingress caused by EMI.

4:2:2 SDI

BNC TYPE CONNECTORS

SMPTE 259 digital video output with embedded audio.

Use an RG6 CATV 75 ohm 100% coverage coaxial cable and quality 360° compression crimp BNC connector to minimize signal egress and ingress caused by EMI.

TERMINAL STRIP

PHOENIX CONNECTORS

Provides access to all baseband video. Summary alarms and dry contact closures. Also has real-time AGC voltage output.

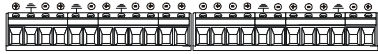Use two conductor shielded audio cables and ensure shield connects to ground.

Use an RG6 CATV 75ohm 100% coverage coaxial cable and quality 360° compression crimp BNC connector to minimize signal egress and ingress caused by EMI.

C H A P T E R   6
LANGUAGE ABBREVIATIONS

LANGUAGE	ABBREVIATION
Arabic	ara
Armenian	arm
Balinese	ban
Basque	baq
Batak (Indonesian)	btk
Bengali	ben
Bhojpuri	bho
Bihari	bih
Bulgarian	bul
Burmese	bur
Catalan	cat
Chinese	chi
Croatian	scr
Cue (Tones)	cue
Czech	cze
Danish	dan
Dutch	dut
Egyptian	egy
English	eng
Esperanto	epo
Faroese	fao
Finnish	fin
French	fre
German	ger
Greek	gre
Gujarati	guj
Hebrew	heb
Himachali	him
Hindi	hin
Hiri Motu	hmo
Hungarian	hun
Icelandic	ice
Indonesian	ind
Interlingua (International Auxiliary Language Assn.)	ina
Irinian	ira
Irish	iri
Italian	ita

LANGUAGE	ABBREVIATION
Japanese	jpn
Javaneses	jav
Kashmiri	kas
Korean	kor
Kurdish	kur
Latin	lat
Malay	may
Malayam	mal
Mandar	mdr
Marathi	mar
Miscellaneous Languages	mis
Mongolian	mon
Nepali	nep
Norwegian	nor
Otomian Languages	oto
Pahlavi	pal
Panjabi	pan
Persian	per
Philippine (Other)	phi
Polish	pol
Portuguese	por
Rajasthani	raj
Romanian	rum
Russian	rus
Samoan	smo
Scots	sco
Sindhi	cnd
Spanish	spa
Swahili	swa
Swedish	swe
Tagalog	tgl
Tahitian	tah
Tamil	tam
Thai	tha
Turkish	tur
Urdu	urd
Vietnamese	vie
Welsh	wel

C H A P T E R   7
PRODUCT SUPPORT & EQUIPMENT RETURNS

IF YOU NEED HELP

If you need assistance while working with the DSR-4850 call the General Instrument Technical Assistance Center (TAC) at 1-800-457-1210, 24 hours a day, 7 days a week.

REPAIRING PROCEDURES:

GI has established a streamlined process to ensure the rapid return of products when repair is required.

As a system operator, you must return the unit to General Instrument for repair.

After speaking with a technician at the TAC, if a Return Material Authorization (RMA) is deemed necessary a case number will be generated and forwarded to the repair facility.

The repair facility will issue the RMA to return the product to be worked on.

When shipping a product for repair, please follow these steps:

1. Pack the unit securely; making sure front panel rack ears are protected.
2. Enclose a note describing the problem.
3. Enclose a copy of the invoice showing warranty status.
4. Make sure the case number from the TAC is on the outside of the box.
5. Ship the unit prepaid to the repair facility indicated by the repair center (undetermined at this time.)

WARRANTY

LIMITED WARRANTY

Commercial Integrated Receiver Decoder

General Instrument Corporation ("General Instrument") hereby warrants for the benefit of purchasers of Commercial Integrated Receiver Decoders ("IRD") furnished herewith ("You"), that such IRDs shall be free from defects in material and workmanship for a period of twelve (12) months commencing from date of original purchase for commercial use. General Instrument's obligation under this limited warranty shall be limited to repairing, or at its option, replacing any such defective IRD, which shall be returned to General Instrument. A replacement unit need not be new.

This warranty shall apply only to IRDs which, after regular installation and normal usage, are found by General Instrument, in its reasonable determination, to have been defective or nonconforming within the warranty period.

The IRD warranty set forth above shall be void: (i) if any IRD label, marking or serial number has been defaced or removed; (ii) if any IRD has been abused, misused, improperly installed, damaged in shipment or by accident, negligence or unusual hazard; (iii) if any IRD has been altered, repaired or modified by anyone other than General Instrument without General Instrument's prior written approval; or (iv) if any IRD has had its housing opened.

General Instrument shall have no liability to any third person or entity in relation to any warranty or representation which purports to extend, alter, or modify the limited warranty terms set forth above. General Instrument shall not be responsible for delays in performance of its obligations under this limited warranty resulting from events outside its reasonable control

THE LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AS TO PERFORMANCE OF THE IRD, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. THE SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH BY GENERAL INSTRUMENT OF THIS LIMITED WARRANTY SHALL BE FOR GENERAL INSTRUMENT TO MAKE SUCH REPAIRS AND OR REPLACEMENTS AS ARE NECESSARY TO FULFILL SUCH WARRANTY. IN NO EVENT SHALL GENERAL INSTRUMENT BE LIABLE FOR ANY INDIRECT, EXEMPLARY, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION DAMAGES FOR LOSS OF AUDIO, VIDEO OR DATA SIGNALS, LOST PROFITS, NON-RECEIPT AND NON-DELIVERY OF PROGRAMMING, AND INTERRUPTION OF BUSINESS ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE IRD WARRANTED HEREIN, WHETHER BASED UPON BREACH OF WARRANTY, STATUTORY VIOLATION, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER LEGAL THEORY.

How to Obtain Warranty Service. To obtain warranty service, You must call or write General Instrument Technical Assistance Center within the applicable warranty period at: General Instrument Corporation, 6450 Sequence Drive, San Diego, CA 92121, 1-800-457-1210. The Technical Assistance Center is open 7 days a week, 24 hours a day.

When You call or write, explain the problem. Ask whether the IRD should be returned for service or retained by You for servicing in place. Ask for a Return Material Authorization (RMA) number and for the address to send the IRD if the IRD is to be returned. If You write, be sure to include a copy of your sales receipt or other proof of purchase date, a copy of your warranty, your phone number and return address. If the Technical Assistance Department instructs you to return the IRD, pack it safely and securely, preferably in the original shipping carton. Put the RMA number on the outside of the shipping carton. Enclose a letter explaining the problem. Be sure to include a copy of your sales receipt or other proof of purchase date, a copy of your warranty, and your phone number and return address. Ship it insured to the authorized service center specified by General Instrument. All packing, shipping and insurance to return the IRD to General Instrument must be prepaid by you. General Instrument Corporation shall pay return shipping charges.

Note: If the warranty on your IRD is expired, voided or inapplicable as determined by General Instrument Corporation in its reasonable discretion, General Instrument will not repair the IRD until You agree to pay for quoted charges. If You do not agree within 30 days to pay the quoted charges, the IRD will be returned to You unrepaired. You are responsible for transportation charges both ways on IRDs, which are not under warranty or on which the warranty has been voided or is inapplicable.