

LEADER

LG 3810

RF SIGNAL GENERATOR

INSTRUCTION MANUAL

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GENERAL SAFETY SUMMARY

■ Read This before Using the Instrument

This instrument should only be used by persons with sufficient knowledge of electronics who thoroughly understand the contents of this manual.

This instrument is not designed or manufactured for households or ordinary consumers.




If a person without sufficient knowledge of electronics uses this instrument, it may be damaged, and the user may be injured. Such a person should not use this instrument unless they are supervised by a person who does possess such knowledge.

■ Note about Reading This Manual

The contents of this manual contain specialized terminology and may be difficult to understand. If you have any questions about the contents of this manual, please contact your local LEADER agent.

■ Symbols and Terms

The following symbols and terms are used in this instruction manual and on the instrument to indicate important warnings and notes.

| | |
|---|---|
| <p><Symbol></p>  | <p>This symbol appears in this instruction manual and on the instrument to indicate an area where improper handling could result in personal injury, damage to the instrument, or malfunction of the instrument or devices connected to it.</p> <p>When you encounter this symbol on the instrument, be sure to refer to the information in this instruction manual that corresponds to the area that the symbol marks.</p> |
| <p><Term></p>  WARNING | <p>Ignoring the precautions that this term indicates could lead to death or serious injury.</p> |
| <p><Term></p>  CAUTION | <p>Ignoring the precautions that this term indicates could lead to personal injury or damage to the instrument.</p> |

GENERAL SAFETY SUMMARY

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



■ Warnings Concerning the Case and Panels

Do not remove the instrument's case or panels for any reason. Touching the internal components of the instrument could lead to fire or electric shock.

Also, do not allow foreign materials, such as liquids, combustible matter, and metal, to enter the instrument. Turning the instrument ON when such materials are inside it could lead to fire, electric shock, damage to the instrument, or some other accident.

■ Warnings Concerning the Power Source

Do not use a power source with a voltage other than the rated power source voltage for the instrument. Doing so could lead to fire.

Confirm the voltage of the commercial power source before you connect the AC power cord. Only use a power source whose frequency is 50/60 Hz.

Only use the supplied power cord. Using any other power cord with this instrument could lead to fire. If the supplied power cord is damaged, stop using it, and contact your local LEADER agent.

Using a damaged power cord could lead to electrical shock or fire. When removing the plug from the power outlet, do not pull on the cord. Pull from the plug.

■ Warnings Concerning the Fuse

If the fuse has blown, the instrument does not operate. If the fuse has blown, turn OFF the power switch, and remove the power plug from the outlet. Changing the fuse while the cord is connected to the outlet could lead to electric shock. Only use a fuse with the designated rating. If it is unclear what caused the fuse to blow, if you believe the instrument caused the fuse to blow, or if you do not have an appropriate replacement fuse, contact your local LEADER agent.

GENERAL SAFETY SUMMARY

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



■ Installation Environment

• Operating Temperature Range

Use this instrument in a 5 to 40 °C environment. Using the instrument with its vents blocked or in a high temperature environment could lead to fire.

Drastic changes in temperature, such as might be caused by moving the instrument between two rooms with different temperatures, can damage the instrument by causing condensation to form within it. If there is a possibility that the instrument has condensation within it, wait for approximately 30 minutes before turning ON the power.

• Operating Humidity Range

Use this instrument in an environment whose relative humidity is 85 % or less where there is no threat of condensation forming.

Also, do not operate this instrument with wet hands. Doing so could lead to electric shock or fire.

• Do Not Operate in an Explosive Atmosphere

Using this instrument in an environment where flammable gasses, explosive gasses, or steam is emitted or stored could lead to an explosion or fire. Do not use the instrument in such an environment.

• Do Not Insert Foreign Materials

If foreign materials, such as metal, flammable objects, or liquid are allowed into the instrument (through the vents for example), fire, electric shock, damage to the instrument, or some other accident may result.

■ If You Notice Something Wrong during Operation

If you notice smoke, fire, a strange smell, or something else that is wrong with the instrument while you are operating it, stop operation immediately. Failing to do so could lead to fire. Turn OFF the power switch, and remove the power cord from the outlet. After making sure that fire has not spread anywhere, contact your local LEADER agent.

■ Warnings Concerning Grounding

The instrument has a ground terminal to protect the user and the instrument from electric shock. Ensure that the product is properly grounded for safe operation.

GENERAL SAFETY SUMMARY

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



- **Cautions Concerning the Input and Output Connectors**

To avoid damaging the instrument, only apply signals to the input connectors that conform to the specifications in this instruction manual.

Also, do not apply signals to the output connectors. Doing so could damage the instrument.

- **If You Will Not Use the Instrument for an Extended Period of Time**

If you will not use the instrument for an extended period of time, remove the power plug from the outlet.

GENERAL SAFETY SUMMARY

■ Calibration and Repairs

This instrument has been carefully examined at the factory to ensure that its performance is in accordance with the standards. However, because of factors such as parts wearing out over time, the performance of the instrument may degrade. To ensure stable performance, we recommend that you have the instrument calibrated regularly. Also, if the instrument malfunctions, repairs are necessary. For repairs and calibration, contact your local LEADER agent.

■ Routine Maintenance

When you clean the instrument, remove the power plug from the outlet.

Do not use thinner or benzene when you clean the instrument's case, panels, or knobs. Doing so could lead to paint chipping and the corrosion of plastic components. To clean the case, panels, and knobs, use a soft cloth with mild detergent, and wipe gently. While cleaning, make sure that foreign materials, such as water and detergent, do not enter the instrument. If liquid or a metal object enters into the instrument, fire or electric shock may result.

■ About the European WEEE Directive



This instrument and its accessories are subject to the European WEEE Directive. Follow the applicable regulations of your country or region when discarding this instrument or its accessories. (WEEE stands for Waste Electrical and Electronic Equipment.)

Follow the warnings and precautions that have been listed in this section to use the instrument correctly and safely. Precautions are also contained in various other sections of this instruction manual. To use the instrument correctly, be sure to follow those precautions as well.

If you have any questions or comments about this instruction manual, please contact your local LEADER agent.

1. INTRODUCTION

Thank you for purchasing this LEADER instrument. To use this instrument safely, read this instruction manual thoroughly, and make sure that you know how to use the instrument properly.

If some point about the operation of this instrument is still unclear after you have read this instruction manual, refer to the contact information on the back cover of the manual to contact LEADER, or contact your local LEADER agent.

After you have finished reading this manual, keep it in a convenient place so that you can refer to it when necessary.

1.1 Scope of Warranty

This LEADER instrument has been manufactured under the strictest quality control guidelines.

LEADER shall not be obligated to furnish the following free services during the warranty period.

1. Repair of malfunction or damages resulting from fire, natural calamity, or improper voltage applied by the user.
2. Repair of an instrument that has been improperly repaired, adjusted, or modified by personnel other than a factory-trained LEADER representative.
3. Repair of malfunctions or damages resulting from improper use.
4. Repair of malfunctions caused by devices other than this instrument.
5. Repair of malfunctions or damages without the presentation of a proof of purchase or receipt bill for the instrument.

1.2 Operating Precautions

1.2.1 Power Source Voltage and Fuse



WARNING

Confirm the voltage of the commercial power source before you connect the power plug to it.

Table 1-1 indicates the LG 3810's operating voltage range and the fuse rating.

Only use a power source that supplies a voltage within the operating voltage range and has a frequency of 50/60 Hz.

When replacing the fuse, turn OFF the power switch, and remove the power plug from the outlet.

Table 1-1 Operating voltage range and fuse rating

| Operating Voltage Range | Fuse Rating | LEADER Fuse Part Number |
|-------------------------|------------------|-------------------------|
| 90 to 250 V | 1.25 A, time-lag | 436 3570 010 |

1.2.2 Maximum Allowable Input Voltage



CAUTION

Table 1-2 indicates the maximum signal voltage that can be applied to the input connectors.

Do not apply excessive voltage to the connectors. Doing so may damage the instrument or lead to injury.

Table 1-2 Maximum allowable input voltage

| Input Connector | Maximum Allowable Input Voltage |
|----------------------|---------------------------------|
| FREQ STD 10MHz INPUT | 3.3 Vp-p |

1.2.3 Reverse Voltage and Excessive Input



CAUTION

Do not apply an external voltage to the output connectors.

If the cable touches a DC power supply, the internal attenuators may burn out.

Do not apply a signal that exceeds 3.3 Vp-p to the external input connector.

If a DC component whose absolute voltage is 2 V or greater is superimposed on the signal, use capacitors to remove the DC component.

1.2.4 Backing Up the Panel Settings Memory

Because the LG 3810 has a last-memory feature, when you turn the power OFF, the last panel settings that were in use are retained.

These panel settings are restored the next time that the LG 3810 is turned ON.

If you are using the LG 3810 for the first time or if you do not use the instrument for 5 years or longer from the time that you purchase it, the retained panel settings may be lost.

| Back Up the Panel Settings Memory |
|--|
| Due to misuse, malfunction, or repairs, the contents of the LG 3810's memory may be changed or lost. Be sure to make a backup of important information such as by recording the information on paper. |

1.2.5 Mechanical Shock

This instrument contains sensitive components, so it may be damaged if it is dropped or otherwise exposed to a strong shock.

1.2.6 Networks

Controlling an LG 3810 remotely through the instrument's Ethernet interface has only been confirmed to work in a local network environment. LEADER does not guarantee that you will be able to control an LG 3810 remotely through the instrument's Ethernet interface in any network environment.

1.2.7 Hard Disk Drive

The LG 3810 has a hard disk drive (HDD). The HDD is easily affected by factors such as vibration, mechanical shock, temperature, and humidity. The conditions of the operating environment may damage the data stored on the HDD or cause it to be lost. Pay attention to the following points when using the LG 3810.

- Do not apply vibration or mechanical shock to the LG 3810 when it is ON.
- Do not turn the power OFF when data is being written (data is being copied from the external USB device or over a LAN).
- Do not turn the LG 3810 OFF when you have remotely enabled its HDD write mode.
- Do not move the LG 3810 when it is ON or immediately after it has turned OFF.
- Do not turn the LG 3810 ON if condensation is present.

We have confirmed that stored data and the disk itself are not damaged if the LG 3810's power supply is interrupted during data playback. However, this may shorten the service life of the HDD, so we recommend that you stop playback before you turn OFF the LG 3810.

Depending on the environment and usage conditions, the HDD has a service life of a few years. When the HDD reaches the end of its service life, noise appears in decoded images and audio, and the LG 3810 may no longer playback data.

We recommend that you do not store important information in the LG 3810, but that you record a master version of the information to DVD or other media. If you will not use the LG 3810 for a long period of time, turn it OFF. Leaving it with the power ON may shorten the service life of the HDD.

1.3 Trademarks

Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

1.4 Notations Used in This Manual

The act of pressing and holding an LG 3810 panel key (operation button) for one second or longer is referred to as "press and hold."

In function key explanations, items enclosed in [] are options, and underlined items are factory default settings.

2. SPECIFICATIONS

2.1 General

The LG 3810 is an RF signal generator that enables you to install optional encoders that support the standards for a variety of digital broadcast systems.

The LG 3810 contains a TS generator, an encoder, a C/N generator, and an up converter. By changing the modulation method, you can easily transmit a modulation signal at a channel frequency in the VHF or UHF band.

The LG 3810 also contains a pseudo-random (PN) signal source and a BER counter, so you can use this one instrument to perform BER measurements of receivers and tuners.

In addition to using the internal TS signal source, you can also apply an external TS or playback a signal source from the internal HDD. This enables you to check images and audio that use an existing TS. By using the BER measurement feature, you can perform more comprehensive testing of receivers.

2.2 Features

- **All-in-One**

Because the LG 3810 contains the features of both a signal generator and a BER measuring instrument in a single case, you can use it to check video in transport streams used in actual broadcasts as well as perform BER measurements on front-end devices. The LG 3810 can also be used as a comprehensive signal generator for STB or tuner production lines.

- **Enables You to Specify the Digital Broadcast System**

You can install optional encoders that support the standards of the digital broadcast systems that you want to generate signals for. You can also insert additional options after the LG 3810 has been installed. You can easily specify the modulation method from the front panel, which uses a QVGA LCD to display the LG 3810's settings graphically.

- **Real-time MPEG-2 TS Encoding and Modulation**

The LG 3810 can encode and modulate, in real time, a transport stream that is applied to the DVB-ASI or SPI connector or that is saved to the HDD.

- **Enables You to Playback a Transport Stream That Runs for a Long Time from the HDD**

Because the LG 3810 has an 80 GB HDD, you can playback data that requires a large amount of storage memory, such as streams that contain HDTV contents and transport streams that run for a long time.

- **Enables You to Connect External HDDs or DVD Drives**

You can connect an external HDD or DVD drive to the one of the LG 3810's USB 2.0 ports and playback a TS directly from the HDD or DVD-ROM. You can copy TS data that has been recorded to a DVD-ROM or CD-ROM to the internal HDD. This enables you to use a variety of existing transport streams to check video and audio.

- **100 Presets**

You can store up to 100 presets in the LG 3810's internal memory. You can separate presets into up to 10 groups. This enables you to use presets for different purposes depending on the inspection that you want to perform.

2. SPECIFICATIONS

2.3 Specifications

2.3.1 Transmission Encoder

Option; sold separately

For details, see each option's specifications

2.3.2 RF Signal Generator

Frequency

Range

30 to 960 MHz

Resolution

1 kHz (When the frequency is being set)

Channels

Differs according to the broadcast system

Accuracy

$\pm 0.3 \times 10^{-6}$

Output

Range

-110.0 to +13.0 dBm (50 Ω termination)

-63.0 to +60.0 dBmV (50 Ω termination)

-3.0 to +120.0 dB μ V (50 Ω termination)

Resolution

0.1 dB

Impedance

50 Ω

Level Accuracy

± 1.2 dB

(When the output is CW, the level is 0 dBm, and C/N is OFF)

Output Control

On/Off^{*1}

Modulation/Carrier

Output Connector

N connector

Harmonics

-30 dBc

Spurious

-50 dBc

*1 Does not turn output OFF completely. The maximum attenuation is applied.

2.3.3 I/O and Signal Source

Internal Signal

Pseudo Random Signal

PN23 and PN15

Still Images^{*1}

Pattern (Common)

Colorbar, Ramp, and Monoscope

Audio (Tone)

1 kHz (LR), 400 Hz (LR), and 1 kHz (L) + 400 Hz (R)

Video

TS playback from disk and TS storage to disk

DVB-ASI Input

Input Connector

BNC

Input Impedance

75 Ω

Input Level

0.8 Vp-p

Transmission Rate

270 Mbps

2. SPECIFICATIONS

| | |
|-------------------------------|---|
| DVB-SPI Input | |
| Input Connector | D-sub 25 |
| Input Impedance | Differential, 100 Ω |
| Input Level | LVDS |
| Input Format | Automatic input switching between MPEG-2 TS and BER count |
| ASI, SPI Input Specifications | |
| Input Packet Format | 188 or 204 bytes |
| Supported Stream | MPEG-2 TS (ISO/IEC13818-1) |
| External REF Input | |
| Input Connector | BNC |
| Input Impedance | 50 Ω |
| Input Level | 3.3 Vp-p |
| Input Frequency | 10 MHz |
| REF Output | |
| Output Connector | BNC |
| Output Impedance | 50 Ω |
| Output Level | 3 dBm |
| Output Frequency | 10 MHz |
| IF Output | |
| Output Connector | BNC |
| Output Impedance | 50 Ω |
| Output Level | -22 dBm |
| Output Frequency | 140 MHz |

*1 The pattern and audio may differ depending on the installed optional encoders.

2.3.4 TS Source

| | |
|--|--|
| Internal HDD* ¹ | |
| Size and Format | 2.5 inches and IDE interface |
| Format | EXT3 |
| Capacity | 80 GB |
| Number of Drives | 1 |
| Compatible External HDDs (When using an external HDD)* ² | |
| Interface | USB 2.0 |
| Format | VFAT and NTFS (Read only) |
| Disk Spin Speed | 5400 rpm or higher |
| Maximum Connections | 2 (1 connection each on the front and back panels) |
| Compatible External DVD-ROM Drives (When using an external DVD-ROM Drive)* ² , * ³ | |
| Interface | USB 2.0 |
| Maximum Connections | 2 (1 connection each on the front and back panels) |

2. SPECIFICATIONS

Supported Stream

| | |
|---------------|--|
| Format | MPEG-2 TS |
| Packet Length | 188 or 204 bytes |
| File Size | Up to the maximum capacity of the disk |

Playback

| | |
|-------------------|---|
| Playback Bit Rate | 0.2 to 40 Mbps |
| Loop Playback | Available (Seamless loop playback is not supported) |
| Range Playback | Start and end times can be specified |
| Memory Playback | Selectable |

- *1 Copy TS data over an Ethernet or from the connected USB 2.0 storage media.
Real-time capturing of TS data is not supported.
- *2 The LG 3810 may not operate properly depending on its compatibility with the connected devices.
You cannot supply power to the LG 3810 over USB.
Only connect devices that have been confirmed to work with the LG 3810. For details, contact your local LEADER agent.
If you want to connect hard disk drives and DVD drives, you can connect one of each device.
- *3 Program streams are not supported, so you cannot load contents from commercial DVD software or media that has been recorded to conform to the same system onto the LG 3810.
Depending on the transport stream's bit rate and the state of its recording, the video may be distorted.
The LG 3810 is not equipped with a feature that enables you to write to DVDs.

2.3.5 C/N Generator

| | |
|----------------------|------------|
| C/N Adjustment Range | 0 to 40 dB |
| Resolution | 0.1 dB |

2.3.6 BER Counter

Input

| | |
|-----------------|---|
| Packet Length | 204 bytes (including 16 bytes of Reed-Solomon code) |
| Input Connector | Parallel LVDS (D-sub 25 pin) (Not a general-purpose BER counter) |

Go/No Go Test

| | |
|---------------------|--|
| Test Limits | Upper or lower limit of the BER |
| Test Result Display | GO or NO GO is displayed at the top of the panel |

2. SPECIFICATIONS

2.3.7 External Interface

USB Interface

Specifications

USB 2.0 (two ports on both the front and rear panels)

Ethernet Interface

Specifications

10BASE-T/100BASE-TX

GPIB Interface

Specifications

ANSI/IEEE Std 488.1-1978

Connector

24-pin rectangular connector

2.3.8 Display

Display

5.7-inch color-TFT LCD
QVGA (320 × 240)

2.3.9 General Specifications

Environmental Conditions

Operating Temperature

5 to 40 °C

Operating Humidity Range

85 %RH or less (no condensation)

Optimal Temperature

10 to 35 °C

Optimal Humidity

85 %RH or less (no condensation)

Operating Environment

Indoors

Elevation

Up to 2,000 m

Overvoltage Category

II

Pollution Degree

2

Power Requirements

Voltage

90 to 250 VAC

Frequency

50/60 Hz

Power Consumption

80 W max.

Dimensions

426 (W) × 132 (H) × 450 (D) mm
(excluding protrusions)

Weight

11 kg

Accessories

Power Cord.....1

Instruction Manual1

3. PANEL DESCRIPTION

3.1 Front Panel

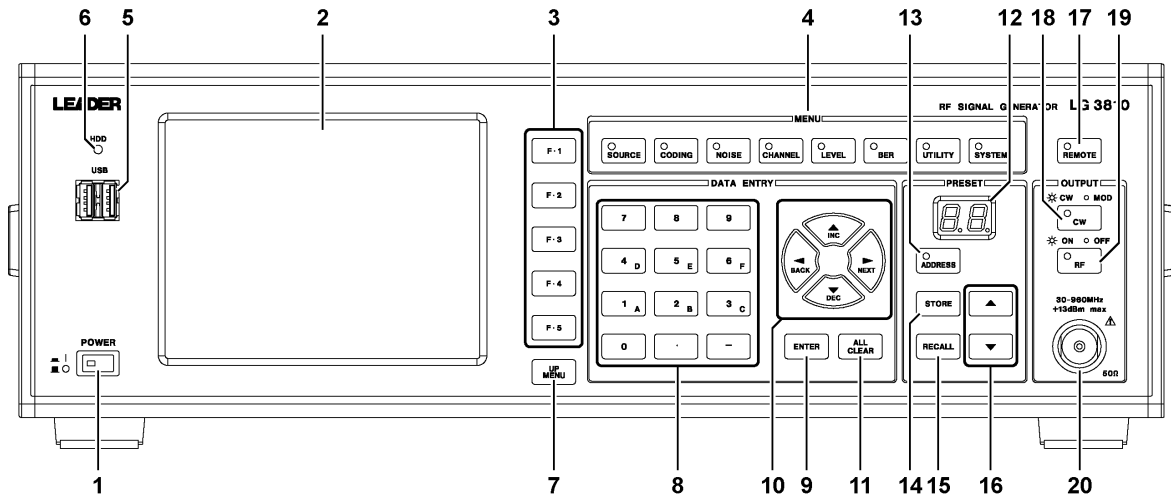



Figure 3-1 Front panel

Table 3-1 Front panel items and functions

| No. | Name | Function |
|-----|---------------|---|
| 1 | Power switch | This is the power switch. Push this switch in to turn the LG 3810 ON. Push this switch again (it snaps back to its pushed-out state) to turn the LG 3810 OFF. When you turn ON the power, the LG 3810 starts with the same settings that were set when it was last turned OFF. |
| 2 | LCD | Displays various settings and measured values. |
| 3 | Function keys | Used to configure the LG 3810. The functions that these keys represent are displayed on the LCD. They vary depending on the screen. |
| 4 | Menu | Used to configure the LG 3810. The menu contains the following eight keys. <ul style="list-style-type: none"> • SOURCE Select the input source. • CODING Specify settings for items such as the modulation parameter. • NOISE Specify whether or not to add C/N signals and the C/N value. • CHANNEL Specify the RF output channel. Alternatively, specify the RF frequency. • LEVEL Specify the output level. • BER Configure BER (Bit Error Rate) measurement settings. • UTILITY Configure LG 3810 settings. • SYSTEM Select the broadcast system. |

3. PANEL DESCRIPTION

| No. | Name | Function |
|-----|-----------------|--|
| 5 | USB ports | <p>These are USB 2.0 ports. You can use these ports to connect an external HDD and an external DVD-ROM that support USB 2.0. You can also connect devices that do not support USB 2.0, but there may be noise in the video or audio that you play back from the device depending on the data rate.</p> <p>When facing the front panel, the ports are Port A and Port B from the left side of the panel.</p> <p style="text-align: center;">USB</p>  <p>Port A ——— Port B</p> |
| 6 | HDD access lamp | Lights when the internal HDD is being accessed. When this lamp is lit, do not turn OFF the power. |
| 7 | UP MENU key | When a setup menu is displayed, press this key to confirm the current settings and return to the menu that is one level up. Press and hold this key to confirm the current settings and return to the top screen. |
| 8 | Numeric keypad | Used to specify values such as level, channel (frequency), and C/N value directly. Press the ENTER key to confirm the value that you have specified. |
| 9 | ENTER key | Confirms specified values. |
| 10 | Arrow keys | <p>▲(INC), ▼(DEC), ◀(BACK), and ▶(NEXT)</p> <p>Used to specify values such as level, channel (frequency), and C/N value. Increment or decrement values by the specified number of steps.</p> <p><< Difference between F2 ↑ and F4 ↓ and the ▲ and ▼ keys >></p> <p>F2 and F4 keys Increment or decrement values by the specified number of steps each time they are pressed. You must press these keys separately for each increment or decrement.</p> <p>▲ and ▼ keys Increment or decrement values by the specified number of steps each time they are pressed. You can hold these keys down to repeatedly increment or decrement the value.</p> |
| 11 | ALL CLEAR key | <p>Cancels numeric value input.</p> <p>On the TS FILE screen, this key switches the order of files.</p> <p>On the BER screen, this key starts and stops BER measurement.</p> <p>See sections 6.1.1, "TS File Screen" and 6.6, "BER."</p> |
| 12 | Address display | Displays the preset address number. |
| 13 | ADDRESS key | Specify the address that you want to save or load. |
| 14 | STORE key | <p>Saves the current settings to the specified address.</p> <p>See section 7.1, "Saving Presets."</p> |
| 15 | RECALL key | <p>Loads the settings of the specified address.</p> <p>See section 7.2.1, "Using the ADDRESS Key to Load Presets."</p> |

3. PANEL DESCRIPTION

| No. | Name | Function |
|-----|---------------------|---|
| 16 | ▲ and ▼ keys | Increment or decrement the address. Load presets. See section 7.2.2, “Using the ▲ and ▼ Keys to Load Presets.” |
| 17 | REMOTE key | When the LG 3810 is in remote mode, you can press this key to manually set the instrument to local mode. Pressing this key when the LG 3810 is in local mode has no effect. See section 8.6, “Remote and Local Modes.” |
| 18 | CW key | Each time that you press this key, the LG 3810 switches between carrier output (the key lights) and modulated output (the key turns OFF). |
| 19 | RF key | Each time that you press this key, the LG 3810 switches between RF output ON (the key lights) and RF output OFF (the key turns OFF). This key is linked to the F5 RF On/Off setting on the LEVEL screen. See section 6.5, “LEVEL.” |
| 20 | RF output connector | This is the RF output connector. |

3.2 Rear Panel

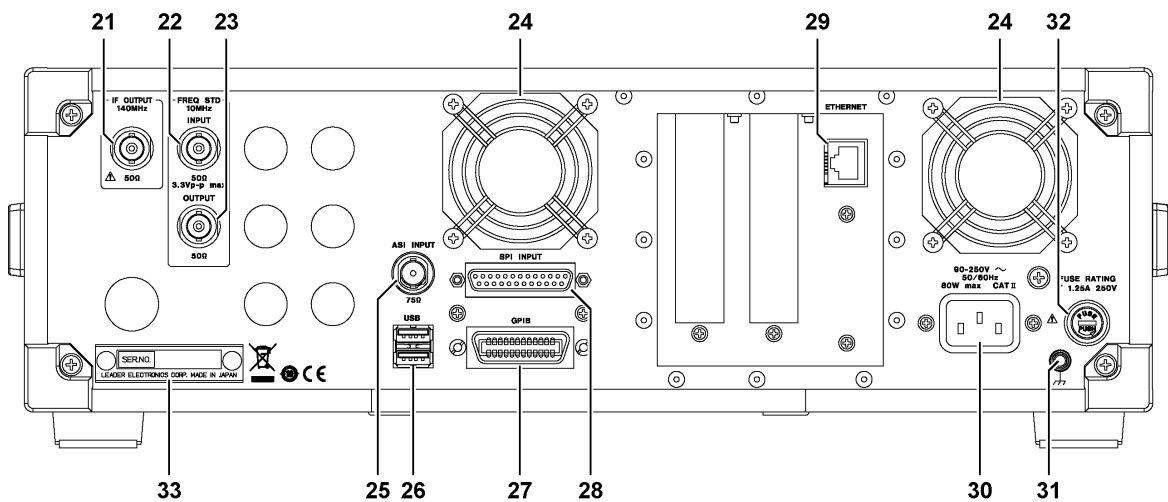



Figure 3-2 Rear panel

3. PANEL DESCRIPTION

Table 3-2 Rear panel items and functions

| No. | Name | Function |
|-----|---|--|
| 21 | IF output connector | This is the IF output connector (140 MHz). |
| 22 | External reference signal input connector | This is the reference signal input connector. When you want to synchronize the LG 3810 with other devices, apply a 10 MHz reference signal to this input. An alarm is displayed on the LCD if there is no reference signal. |
| 23 | Reference signal output connector | Used when you want to use the LG 3810's reference signal to synchronize other devices. |
| 24 | Cooling fan | These are the internal cooling fans (two locations). When you install the LG 3810, do not block the vents on both sides of the instrument and the fan exhaust holes. If either fan stops, an alarm is displayed on the LCD. If this occurs, stop using the LG 3810 immediately, and contact your local LEADER agent. |
| 25 | ASI input connector | This is one of the LG 3810's external TS input connectors. Apply DVB-ASI TS signals to this input. |
| 26 | USB ports | These are USB 2.0 ports. You can use these ports to connect an external HDD and an external DVD-ROM that support USB 2.0. You can also connect devices that do not support USB 2.0, but there may be noise in the video or audio that you play back from the device depending on the data rate. When facing the rear panel, the ports are Port C and Port D from the top of the panel. USB  |
| 27 | GPIO control connector | This is the GPIO control connector. See chapter 8, "GPIO." |
| 28 | SPI input connector | This is one of the LG 3810's external TS input connectors. Apply DVB-SPI TS signals to this input. An alarm is displayed on the LCD if no external TS signal is applied. |
| 29 | Ethernet port | This is the 10BASE-T/100BASE-TX control port. See chapter 9, "ETHERNET" |
| 30 | AC inlet | This is the AC inlet. Use the supplied power cord to connect this inlet to an AC power supply. |
| 31 | GND connector | This is connected to the LG 3810's chassis. This is the earth connector. |
| 32 | Fuse | The LG 3810's main fuse is inserted here. When you replace the fuse, pay attention to the fuse type and rating. |
| 33 | Serial number name plate | This displays the serial number. If you contact your local LEADER agent, be sure to notify them of the number written here. |

4. LICENSES

4.1 Purchasing Licenses

You can only use the optional encoder add-in software, which you install onto the LG 3810, on one LG 3810. You cannot install this software on multiple LG 3810s.

The LG 3810's firmware version and MAC address are necessary when you purchase licenses. Notify your local LEADER agent of both pieces of information.

To view the LG 3810's firmware version and MAC address, follow the procedures below on the UTILITY screen.

Example: Firmware: V.1.0. MAC Address: 00:09:0D:F0:00:FA.

● Viewing the Firmware Version

Press UTILITY under MENU to display the firmware version on the setup screen.

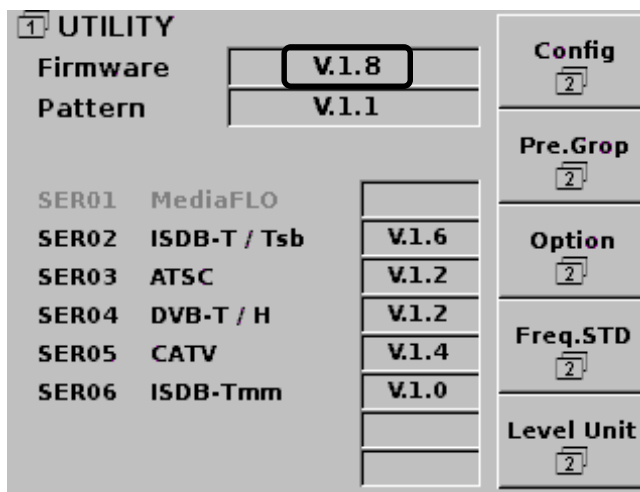


Figure 4-1 UTILITY screen

● Viewing the MAC Address

On the UTILITY screen, press **F1** Config to display the MAC address on the setup screen.

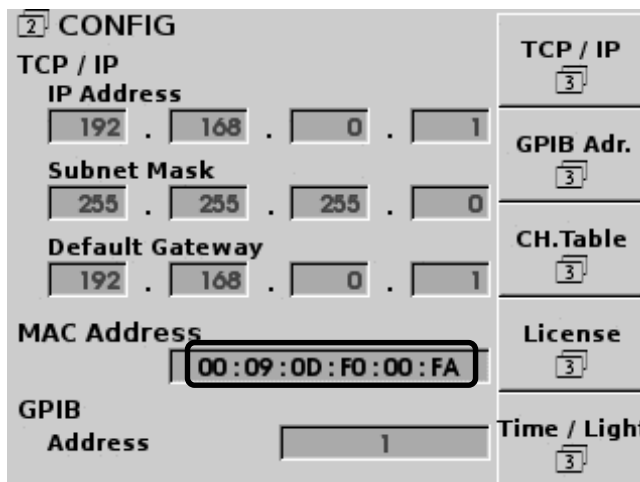


Figure 4-2 CONFIG screen

4.2 License Authentication

To enable the features of each optional encoder, enter the corresponding license key that you have purchased into the LG 3810. To authenticate a license, follow the procedure below.

1. **Press **UTILITY** under **MENU**.**

The UTILITY screen appears.

2. **Press **F1** **Config**.**

The CONFIG screen appears.

3. **Press and hold **F4** **License**.**

The LICENSE screen appears.

| 3 LICENSE | |
|-------------------|------------------------------------|
| SER01 (MediaFLO) | <input type="text"/> |
| SER02 (ISDB-T) | <input type="text" value="*****"/> |
| SER03 (ATSC) | <input type="text" value="*****"/> |
| SER04 (DVB-T / H) | <input type="text" value="*****"/> |
| SER05 (CATV) | <input type="text" value="*****"/> |
| SER06 (ISDB-Tmm) | <input type="text" value="*****"/> |
| | Value Input Select |

Figure 4-3 LICENSE screen

4. **Press **F5** **Value Input Select** to select the option that you want to install.**
5. **Using the numeric keypad, enter the 10-character license key, and press **ENTER**.**

On the screen, asterisk characters are used to display the license key.

If the license key is correct, "Success:Turn off power switch." is displayed.

If the license key is incorrect, "Fail:Turn off power switch." is displayed. Reenter a correct license key. For each option, if you enter an incorrect license key three times, you will no longer be able to enter license keys.

Additionally, please note that if you enter an incorrect license key for an option that has already been authenticated, the features of that option will be disabled.

6. **When the message "Success:Turn off power switch." is displayed, turn OFF the LG 3810.**

The option's features will be enabled the next time that you turn ON the LG 3810.

5. EXPLANATION OF THE LCD

5.1 Turning ON the Power and Starting the LG 3810

Use the supplied power cord to connect the power inlet to a commercial power source. When you press the power switch, the LG 3810 turns ON, and the system starts.

After a short time, the top screen (status screen) appears. The LG 3810 starts with the same settings that were in use before it was turned OFF.

5.2 Screen Components and Basic Operations

The LG 3810 displays a top screen and a variety of setup screens. Typical screens are shown in the following two sections.

5.2.1 Top Screen

The top screen displays a selection of the LG 3810's important settings. You can view detailed settings on each setup screen.

The top menu is displayed when:

- The LG 3810 is turned ON and starts.
- You press and hold UP MENU.
- You press ADDRESS.
- You load a preset by pressing RECALL or by pressing preset ▲ or ▼.
- You playback a TS file by pressing **F4** Play on the TS FILE screen.

See section 6.1.4, "Playing Back TS Files."

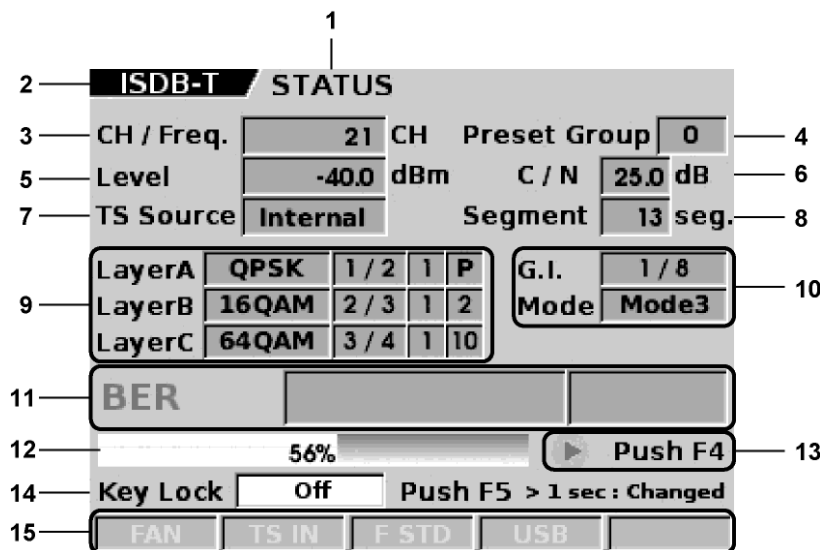


Figure 5-1 Top screen (when configuring the LG 38SER02)

1 Screen title

This shows that the displayed screen is the top screen (the status screen).

2 Broadcast system

This shows the digital broadcast system that the LG 3810 is currently using.

3 Channel or frequency

If the LG 3810 is set to generate a signal on a given channel, this shows the channel number. If the LG 3810 is set to generate a signal at a given frequency, this shows the frequency with units of MHz.

4 Preset group

This displays the preset group number.

5 Output level

This displays the output level. If output is turned OFF, this displays "---."

6 C/N level

This displays the C/N level. If C/N additions are turned OFF, this displays "---."

7 TS signal

This displays the selected TS signal. If "Internal" is displayed, the LG 3810 is using the internal HDD or an external USB device to generate the TS signal.

8 Segment

This displays the selected segment.

9 Carrier modulation (current)

This displays the current carrier modulation settings. This only displays the current settings. From the left, this displays carrier modulation, code rate, time-interleaving, and the number of segments. If "P" is displayed for the number of segments, the layer is a partial reception layer.

| | | | | |
|--------|--------------------|-------------------|---|--------------------|
| | Carrier modulation | Time-interleaving | | |
| LayerA | QPSK | 1 / 2 | 1 | P |
| LayerB | 16QAM | 2 / 3 | 1 | 2 |
| LayerC | 64QAM | 3 / 4 | 1 | 10 |
| | | Code rate | | Number of segments |

Figure 5-2 Carrier modulation display

10 Guard interval and mode (current)

This displays the current mode and guard interval. This only displays the current settings.

11 BER measurement display

This displays the measured BER (Bit Error Rate) and the GO/NO GO test result based on the thresholds.

12 Progress bar

The transport stream's progress is displayed as a progress bar and percentage. When a TS is being played back, the progress bar is displayed in yellow. When the TS is stopped, the progress bar is not displayed.

13 Playing/stopped display

This displays the playback state of the TS.

During playback, ► blinks. To stop the TS, press **F4**.

When the TS is stopped, ■ is displayed. To start playback, press **F4**.

14 Key lock

This displays the state of the panel key lock.

To change the panel key lock setting, press and hold **F5**.

Off All keys are enabled (factory default).

Part All keys except for **F5** (Key Lock), ADDRESS, the preset ▲ and ▼ keys, and RECALL are locked.

All All keys except for **F5** (Key Lock) are locked.

15 Alarm display

If there is a problem with the cooling fan, TS input, reference signal, or USB devices, the alarm is displayed here in yellow.

FAN

There is a problem with the rear panel cooling fans. If this alarm is displayed, stop using the LG 3810 immediately, and contact your local LEADER agent.

TS IN

When SPI/ASI is selected for the TS input, the LG 3810 monitors each input. Also, when BER measurements are being performed, the LG 3810 monitors the SPI input.

An alarm is displayed if:

- No signal is applied.
- A signal other than an MPEG-2 transport stream is applied.
- Five or more consecutive packets each whose header byte is not 0x47 are received.

F STD

This is the reference signal monitor. An alarm is displayed if:

- No signal is applied.
- A signal whose frequency is outside of the PLL circuit's lock range is applied.
- A signal whose input level is below the lower limit of the range is applied.

USB

This is the front and rear panel USB port monitor. "USB" is displayed in blue when you mount an external USB device. An alarm is displayed if an external USB device is removed while it is mounted on the LG 3810.

5.2.2 Setup Screens

If you press a key under MENU, the corresponding setup screen is displayed. Press UP MENU to return to the previous menu. If you repeatedly press UP MENU, you will return to the top most menu in the menu hierarchy. No matter which level is displayed, if you press and hold UP MENU, you will return to the top screen.

There are two methods to apply the settings that you have made. On the CODING screen (excluding the first menu in the CODING menu hierarchy), settings that you have made are applied when you press UP MENU to return to the previous menu, when you press and hold UP MENU to return to the top screen, or when you press another key under MENU to switch to a different setup screen. Other settings, such as level, channel (or frequency), and C/N value are applied immediately after they are entered.

● Setup screen example 1 (CODING screen)

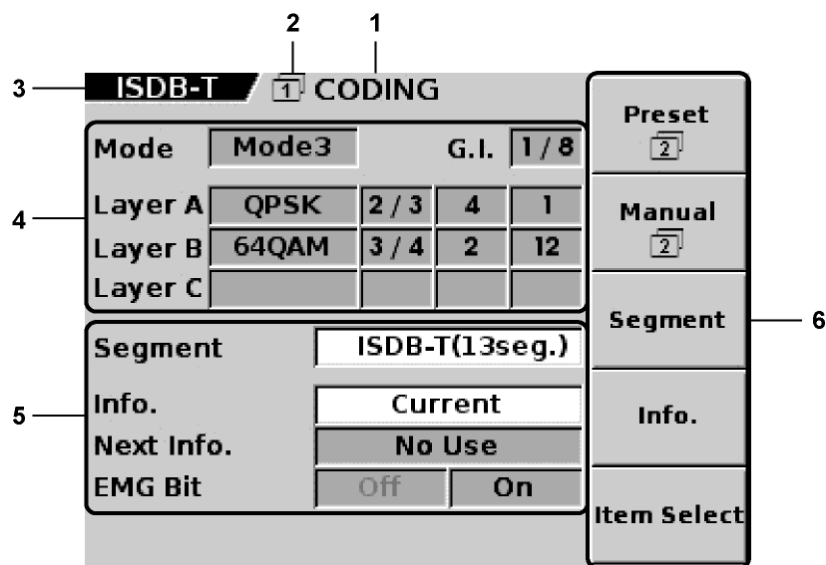


Figure 5-3 Setup screen example 1 (when configuring the LG 38SER02)

Table 5-1 Setup screen example 1—items and display details

| No. | Name | Display Details |
|-----|------------------|--|
| 1 | Screen title | This shows the screen's title. |
| 2 | Menu level | This shows the level of the menu in the menu hierarchy. |
| 3 | Broadcast system | This shows the digital broadcast system that the LG 3810 is currently using. This is not displayed on the UTILITY and SYSTEM screens, because these screens are common for all options. |
| 4 | Settings | This displays the selections and settings for the current screen. Selected items are displayed in blue. |

5. EXPLANATION OF THE LCD

| No. | Name | Display Details |
|-----|---------------|---|
| 5 | Selections | You can use the corresponding function keys to change the settings for items that are displayed in blue on a white background. Settings such as On/Off switch each time that you press the function key. The selected item is displayed in white on a blue background. |
| 6 | Function keys | This displays functions that are assigned to keys F1 to F5 . If you press a function key that has a number below its function, the lower level setup menu corresponding to this function will appear. |

● Setup screen example 2 (LEVEL screen)



Figure 5-4 Setup screen example 2 (when configuring the LG 38SER02)

Table 5-2 Setup screen example 2—items and display details

| No. | Name | Display Details |
|-----|-------------------|---|
| 7 | Numeric display | This displays the current setting. When you are using the numeric keypad to enter the value directly, the background color changes to dark gray and the value color changes to white. Press ENTER to confirm the value that you have specified. If the value is within the valid range, it is confirmed. |
| 8 | Step display | You can repeatedly update values by the step that is displayed by the step size. Press F2 and F4 to increment and decrement a value by the step size that you pressed F3 to set. You can also use the DATA ENTRY ▲ and ▼ keys to increment and decrement by the step size. |
| 9 | RF output control | Turns RF output ON or OFF. This setting is linked to the front panel RF key. |

5.3 MENU

The top screen (status screen) only displays the current settings; you cannot use it to change settings. To change settings, press a key under MENU to display the corresponding setup screen. (To return to the top menu from a setup screen, press and hold UP MENU.)

An overview of the settings that each menu key enables you to configure is given below.

| | |
|---------|--|
| SOURCE | TS input selection |
| CODING | Modulation method selection |
| NOISE | C/N value setting C/N addition control |
| CHANNEL | Output channel (or RF frequency) setting |
| LEVEL | Output level setting Output ON/OFF |
| BER | BER measurement control GO/NO GO test threshold setting |
| UTILITY | Various settings |
| SYSTEM | Broadcast system selection |

6. DETAILED SETTINGS

The screens used in this chapter are of an LG 3810 that only has an LG 38SER02 (ISDB-T Modulator) installed.

6.1 SOURCE

Press SOURCE under MENU to display the SOURCE screen.

This section will explain the TS file settings when Source is set to Internal. For details on other settings, see the section regarding SOURCE in each option's instruction manual.

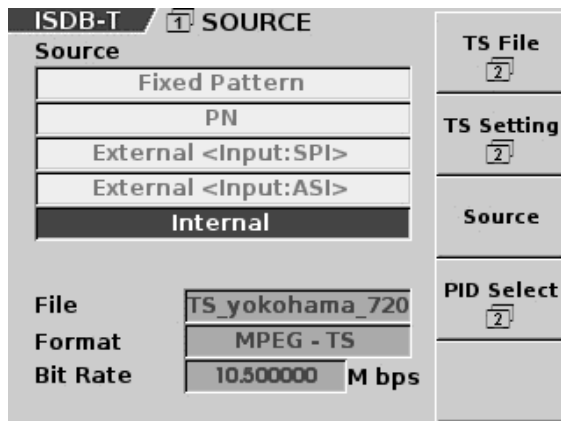


Figure 6-1 SOURCE screen

● Explanation of function keys

• **F1** TS File

Press to configure the TS file settings.

• **F2** TS Setting and **F4** PID Select

These menus differ depending on the system that is currently in use. For details, see each option's instruction manual.

• **F3** Source

Select the TS input that you want to use.

| | |
|---------------------|--|
| Fixed Pattern | Videos and audio that are stored in the LG 3810 are modulated and generated (factory default). |
| PN | PN23 or PN15 random signals are used. |
| External<Input:SPI> | The TS that is applied to the rear panel SPI input connector is used. |
| External<Input:ASI> | The TS that is applied to the rear panel ASI input connector is used. |
| Internal | A TS from the internal HDD or an external USB device is used. |

Notes regarding switching the source

- When the TS input is switched (between each fixed pattern, PN, SPI, ASI, and Internal), the receiver lock is released momentarily to reset the encoding circuit.
- The LG 3810 cannot receive data if an external TS (SPI or ASI) is selected and the TS IN alarm is lit on the top screen or a TS that exceeds the allowable rate for encoding is applied.

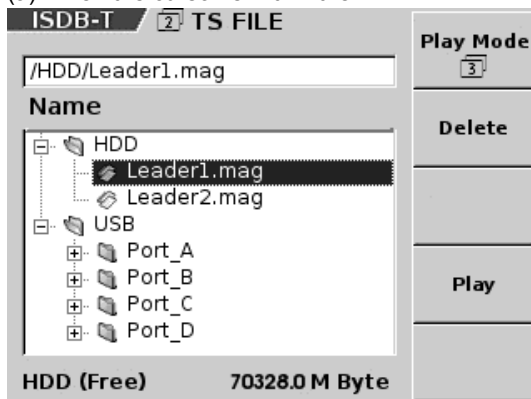
6.1.1 TS File Screen

On the SOURCE screen, press **[F1]** TS File to display the TS FILE screen.

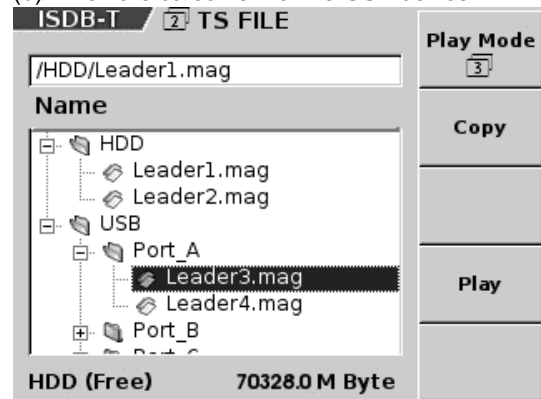
On the TS FILE screen, you can manipulate TS files and detect devices that are connected to the USB ports.

The function keys on the TS FILE screen differ depending on the cursor's position as shown below.

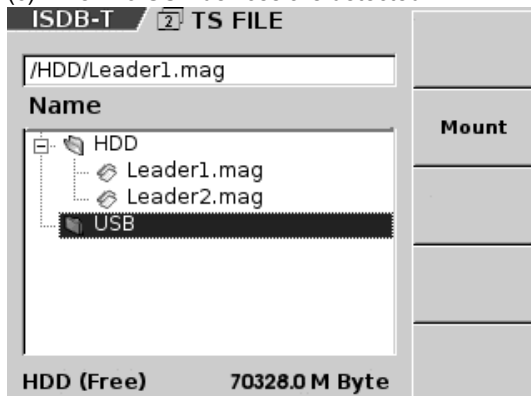
(a) When the cursor is within the HDD



(b) When the cursor is within a USB device



(c) When no USB devices are detected



(d) When USB devices have been detected

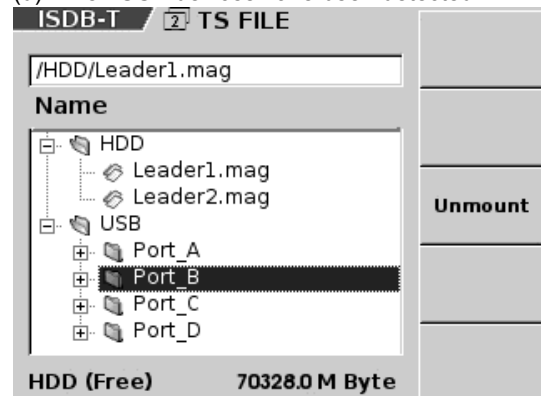


Figure 6-2 TS FILE screen

● **Explanation of the TS FILE screen**

• **TS file display**

This displays the name of the currently selected TS file.

• **Name**

This displays the files and folders on the internal HDD and the connected USB devices.

Files are listed alphabetically, but you can press ALL CLEAR on the front panel to switch between ascending and descending order.

Use the arrow keys on the front panel (the ▲, ▼, ◀, and ▶ keys) to move the cursor.

To open a folder, place the cursor on it, and press the right arrow key.

To close a folder, place the cursor on it, and press the left arrow key.

- **HDD (Free)**

This displays the internal HDD's free space.

- **Explanation of function keys**

- **F1 Play Mode**

Press to configure the TS file playback settings. If you select a file that cannot be played, and then press F1 Play Mode, this setting disappears.

See section 6.1.7, "PLAY MODE."

- **F2 Delete**

Deletes the selected file. To delete the file, press F4 Execute. To cancel the delete operation, press F2 Cancel.

This operation is available when you have selected a file that is stored on the HDD.

See section 6.1.6, "Deleting Files."

- **F2 Copy**

Copies the selected file from a USB device to the HDD. To copy the file, press F4 Execute. To cancel the copy operation, press F2 Cancel.

This operation is available when you have selected a file that is stored on a USB device.

See section 6.1.5, "Copying Files."

- **F2 Mount**

Detects an external USB device that is connected to the LG 3810 and displays its contents.

You can perform this operation when the LG 3810 has not detected an external USB device that is connected to it and the cursor is on "USB."

See section 6.1.2, "Connecting an External USB Device."

- **F3 Unmount**

Unmounts a connected USB device from the LG 3810.

You can perform this operation when the LG 3810 has detected an external USB device that is connected to it and the cursor is on "USB" or one of the USB ports.

See section 6.1.3, "Removing an External USB Device."

- **F4 Play**

Plays the selected file back. If you select a file that cannot be played, and then press F4 Play, the button that represents this operation disappears.

See section 6.1.4, "Playing Back TS Files."

6.1.2 Connecting an External USB Device

To use the files that are stored on a connected USB device, you must make the LG 3810 detect the USB device. There are two USB ports on the front and rear panels. These ports are named Port A to Port D as shown below.

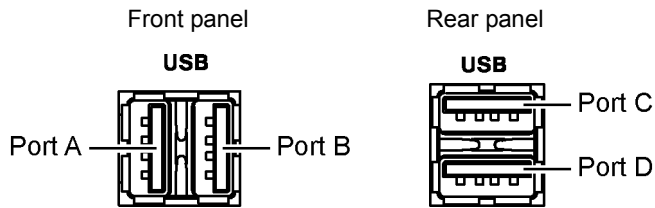


Figure 6-3 USB port names

To make the LG 3810 detect a USB device, on the TS FILE screen, select USB, and then press **F2** Mount.

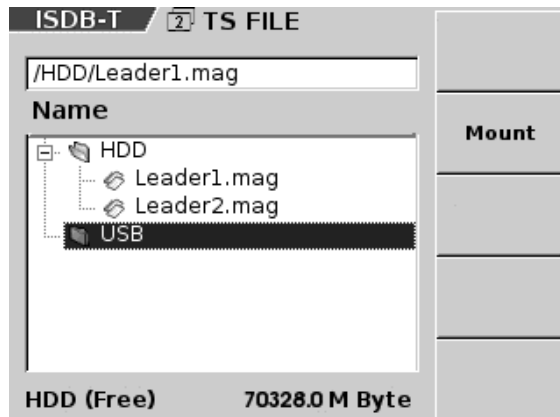


Figure 6-4 Mounting USB devices

When USB devices are being mounted, "Mount" blinks at the top of the screen.

When devices have been mounted, the files that each connected USB device contains are displayed.

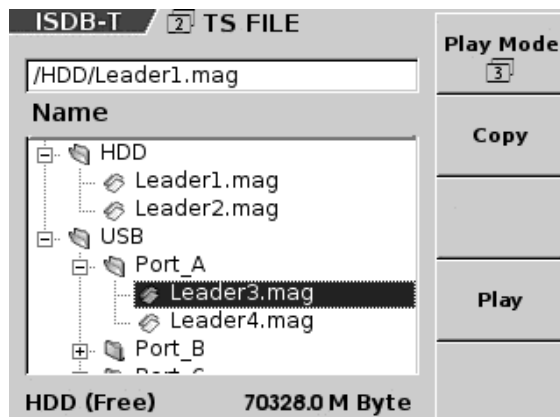


Figure 6-5 After mounting USB devices

About mounting external USB devices

- If you connect external USB devices to the LG 3810, and then turn its power ON, the LG 3810 starts with the connected devices already mounted.
- If you mount an external USB DVD-ROM drive with a disk already inserted, the DVD-ROM drive's eject button will be disabled. To change the disk, unmount the drive.
- You cannot mount external USB devices while you are playing back a TS file that is stored on the internal HDD or an external USB device. To mount other external USB devices, stop playing back the TS file.
- If the external USB device that contains the TS file that is being played back is removed from the LG 3810, the TS file playback stops. To reconnect the external USB device to the LG 3810, first unmount the disconnected device, and then mount it again.

6.1.3 Removing an External USB Device

To remove a USB device that is connected to the LG 3810, first unmount the USB device, and then physically remove it.

To unmount all the connected USB devices, move the cursor to USB, and then press **F3** Unmount.

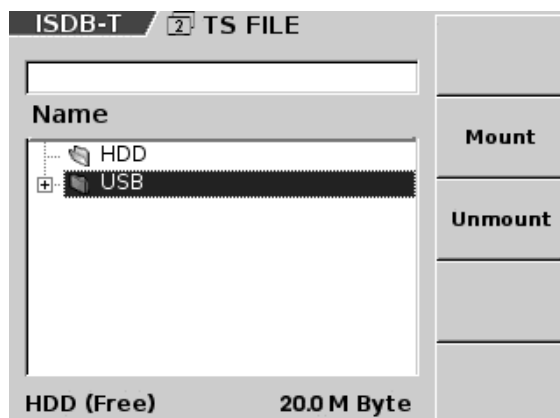


Figure 6-6 Unmounting USB devices 1

To unmount a specific connected USB device, move the cursor to the corresponding port name from Port_A to Port_D, and then press **F3** Unmount.

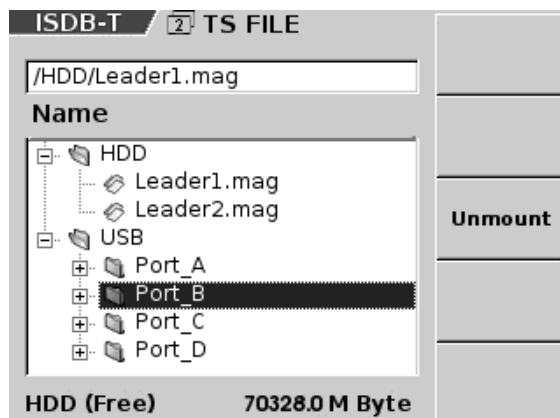


Figure 6-7 Unmounting USB devices 2

6.1.4 Playing Back TS Files

To play back a TS file, on the TS FILE screen, select the TS file that you want to play back, and then press **F4** Play.

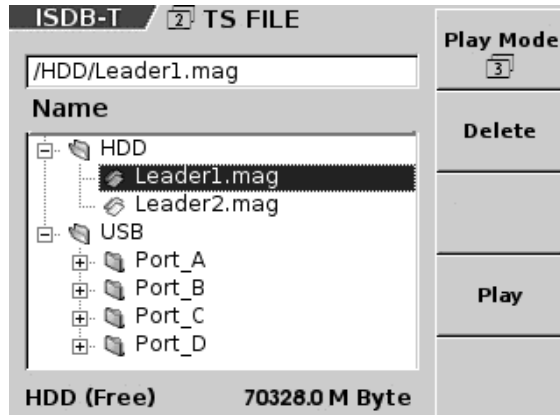


Figure 6-8 Playing back TS files

When you press **F4** Play, a simple analysis is performed on the selected TS file, as shown below.

- | | |
|-----------------------------|--|
| • Period of header bytes | Determines whether the header byte (0x47) exists in a period of 188 or 204 bytes. |
| • PCR packet search | Monitors for the PCR flag and retrieves multiple PCR packets that contain the same PID. |
| • Bit rate calculation | Calculates the bit rate from the difference between the retrieved PCR values and the number of data entries between the packets. |
| • Playback time calculation | Calculates the playback time from the calculated bit rate and the file data size. |

If, as a result of the analysis, the LG 3810 determines that this file can be played back, it returns to the STATUS screen and begins playback. To stop playback, on the STATUS screen, press **F4**.

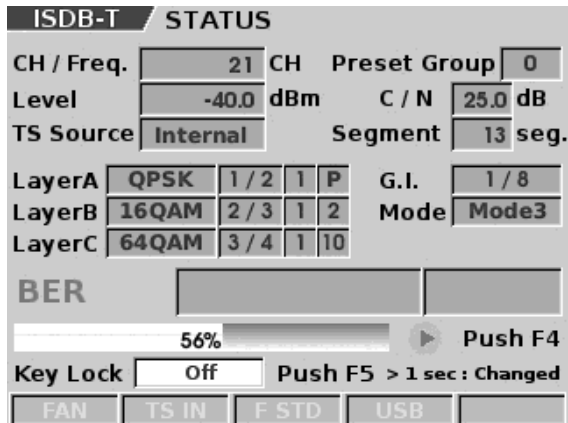


Figure 6-9 TS playback

If, as a result of the analysis, the LG 3810 determines that this file is not supported, **F1** Play Mode and **F4** Play disappear.

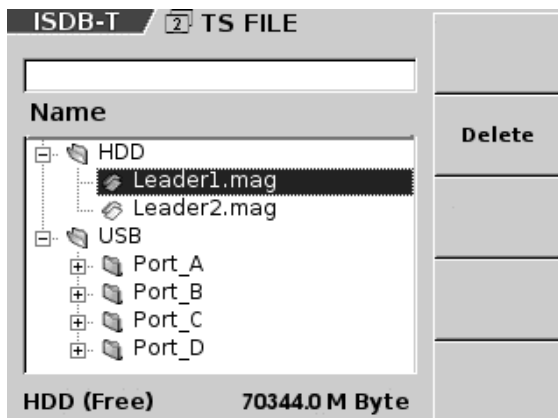


Figure 6-10 When a file cannot be played back

Notes regarding TS playback

There are the following conditions regarding what TS files can be played back on the LG 3810.

- The TS files that can be used must be either MPEG-2 TS format files that conform to ISO/IEC13818-1 or broadcast TS format files that are defined by ARIB STD-B31.
- Packet sizes of 188 or 204 bytes are supported. For broadcast TS files, only packet sizes of 204 bytes are supported.
- At least one type of PCR whose bit rate can be analyzed must be embedded in the file, and the bit rate that is calculated from the PCRs must be within the range of 0.2 to 40 Mbps. If no PCR is embedded in the TS, or if the calculated bit rate is outside of the specified range, the TS cannot be played back.
- If the playback time that is calculated from the analyzed bit rate and the file size is less than 5 seconds, the TS cannot be played back.

Additionally, even if the LG 3810 recognizes the TS as one that can be played back, if the TS does not meet the following conditions, it may not provide correct signal generation.

- The TS has a fixed rate. Transport streams whose bit rates change dynamically or transport streams that consist of a series of transport streams that have different bit rates are played back with the bit rate that is initially detected.
 - The TS may not be played back correctly depending on the state of its internal embedding. Additionally, for transport streams that have packets that are not the correct length in the middle of the packet stream, the signal is interrupted because the encoder must re-synchronize.
 - Up to eight PCRs can be updated. If PCR Update is ON, PCR values after the broadcast TS conversion are corrected. During loop playback or if the PCR values are reversed, the initial values are retrieved and corrected again.
 - Counting down of the modulation parameter (TMCC) is not supported for broadcast transport streams. When the parameter is changed, because the encoder resets, the modulated wave is interrupted. When playing back files that have a low bit rate of 1 Mbps or less, pay attention to the following:
 - There is a time lag of a few seconds to a few tens of seconds between when you press the play button and when TS playback actually begins.
 - The LG 3810 handles data in units of approximately 520 KB. If a file is smaller than 520 KB, the LG 3810 automatically specifies a number of times for the file to loop so that it exceeds 520 KB. Therefore, even if you play back the file in Once mode, it will loop more than once.
 - There may be a delay between when Play or Stop is displayed on the screen and when the output actually begins or stops.
 - Seamless playback is not supported. PTS/DTS and continuous counter updating are not carried out.
 - Only use devices that support USB 2.0 when you are playing back a TS from an external USB device.
 - If the external USB device that contains the TS file that is being played back is removed from the LG 3810, playback continues if the LG 3810 is performing RAM playback. If the LG 3810 is not performing RAM playback, it plays the file up to the point that the external USB device was removed and then stops playback (even if Loop playback is turned ON).
 - You can play back a TS directly from an external USB DVD-ROM drive, but because factors such as the bit rate of the TS being played back are affected by the type of disk used and the state of the recording, direct playback from a DVD-ROM drive is not guaranteed.
 - When you play back a TS from an external USB HDD, depending on the state of the recording of the TS data, noise may appear during playback of the video or audio. If this symptom appears, connect the external USB device to a PC and defragment the USB device, and then play back the file again.
 - You cannot use the LG 3810 to perform VFAT or NTFS format defragmentation of external USB HDDs.
-

6.1.5 Copying Files

You can copy files from a USB device to the HDD.

To copy a file, on the TS FILE screen, select the file that you want to copy from the USB device, and then press **F2** Copy.

If a file with the same file name already exists on the HDD, it is overwritten. The file is copied to the HDD root directory.

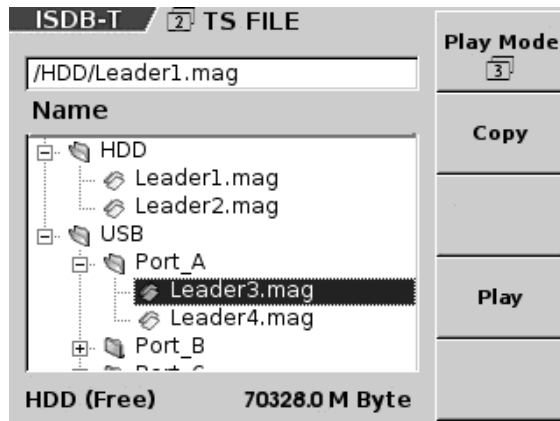


Figure 6-11 Copying files

When the copy confirmation screen appears, press **F4** Execute. To cancel the copy operation, press **F2** Cancel.

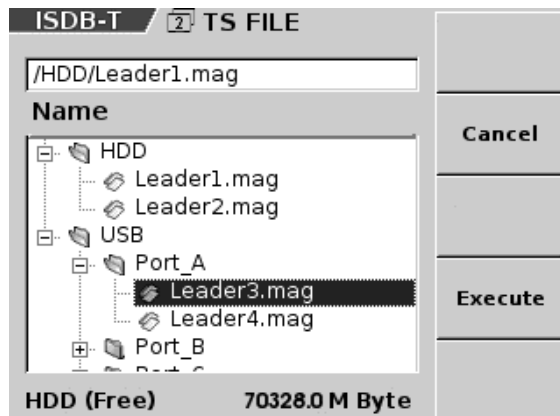


Figure 6-12 Confirmation screen

When a file is being copied, “Copy” blinks at the top of the screen, and the front panel HDD access lamp blinks. While a file is being copied, do not turn the power OFF, or remove the USB device. Doing so may damage the HDD or cause the LG 3810 to malfunction.

When the copy operation completes, “Copy: Success” is displayed at the top of the screen. If the copy operation fails because there is a problem with the external USB device or there is not enough free space on the internal HDD, “fail” is displayed.

6.1.6 Deleting Files

You can delete files that are stored on the HDD. (You cannot use the LG 3810 to delete files that are stored on external USB devices.)

To delete a file, on the TS FILE screen, select the file that you want to delete from the HDD, and then press **F2** Delete.

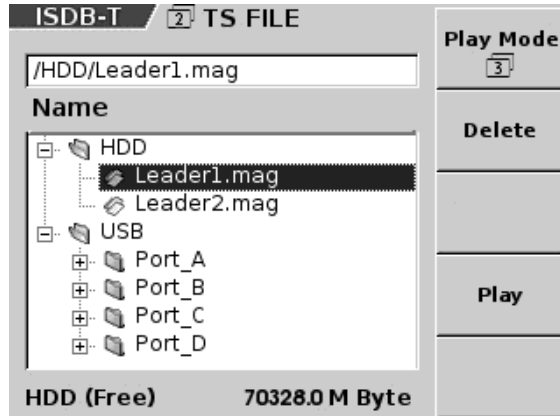


Figure 6-13 Deleting files

When the delete confirmation screen appears, press **F4** Execute. To cancel the delete operation, press **F2** Cancel.

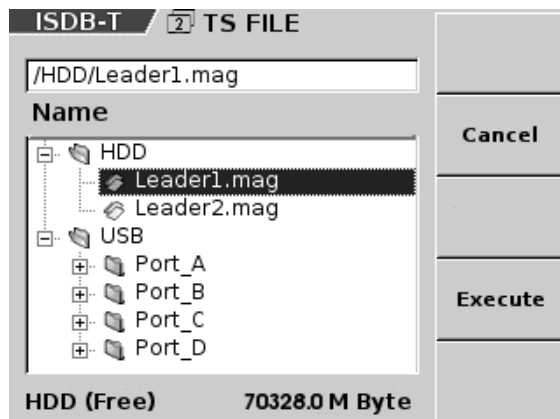


Figure 6-14 Confirmation screen

While a file is being deleted, do not turn the power OFF. Doing so may damage the HDD or cause the LG 3810 to malfunction.

When the delete operation completes, "Delete: Success" is displayed at the top of the screen.

If the deleted file was referred to by settings in presets, when you next load these presets, the file will no longer be selected. Reselect the file.

6.1.7 PLAY MODE

On the TS FILE screen, press **[F1]** Play Mode to display the following setup screen. Use this screen to specify the playback range of the files that you will play back and to specify the loop playback setting.

(When the PLAY MODE screen is displayed, the LG 3810 performs a simple analysis on the selected TS file.)

| ISDB-T [3] PLAY MODE | | Bit Rate |
|-----------------------------|---|------------|
| Bit Rate | 32.507937 M bps | [4] |
| Loop | <input type="button" value="Off"/> <input checked="" type="button" value="On"/> | Loop |
| RAM | <input type="button" value="Off"/> <input checked="" type="button" value="On"/> | RAM |
| Range | <input checked="" type="button" value="Enable"/> <input type="button" value="Disable"/> | Range |
| Start | | |
| End | | |
| Final | 000 h 02 m 56.1 s | |

Figure 6-15 PLAY MODE screen

● **Explanation of the PLAY MODE screen**

• **Bit Rate**

This displays the bit rate of the selected TS up to six decimal places.

• **Start**

When **[F4]** Range is set to Enable, this specifies the start point in the file for playback. Use the numeric keypad to specify the value, and then press ENTER to confirm it.

• **End**

When **[F4]** Range is set to Enable, this specifies the end point in the file for playback. Use the numeric keypad to specify the value, and then press ENTER to confirm it.

• **Final**

This displays the total playback time of the TS that is found from the file size and the PCR value that is retrieved from the simple analysis of the TS.

● **Explanation of function keys**

• **[F1] Bit Rate**

Specify the bit rate of the selected TS.

See section 6.1.8, "BIT RATE."

• **[F2] Loop**

Specify whether or not to perform loop playback of the selected TS. This is set to On by default.

[Off / On]

- **F3 RAM**

Specify whether or not to perform RAM playback of the selected TS. This is set to Off by default.

Off Data is modulated at the same time that it is transferred to the internal RAM. There is almost no delay between when playback is started and the modulated wave is generated (factory default).

On If the data that is being played back or the file size specified by **F4** Range is 419 MB or less, data is transferred to the internal RAM, and played back from there. There is a delay between when playback is started and the modulated wave is generated.

If the size of the playback data exceeds 419 MB, the LG 3810 performs the same as if **F3** RAM were set to Off.

If you want to play back a TS file for a long time, we recommend that you use data whose size makes RAM playback possible.

- **F4 Range**

Specify whether or not the selected TS will be played back over a specified range. This is normally set to Disable (playback the entire file from its beginning to end).

[Enable / Disable]

To specify a playback range, select Enable, use the numeric keypad to enter the Start and End values, and press Enter. Enter values for the times in the following order: hours, minutes, and seconds.

To switch between Start and End, press **F5** Value Input Select.

| ISDB-T | | 3 PLAY MODE | | Bit Rate |
|----------|--|--|--|--------------------|
| Bit Rate | 32.507937 M bps | | | 4 |
| Loop | <input type="button" value="Off"/> | <input checked="" type="button" value="On"/> | | Loop |
| RAM | <input type="button" value="Off"/> | <input checked="" type="button" value="On"/> | | RAM |
| Range | <input checked="" type="button" value="Enable"/> | <input type="button" value="Disable"/> | | Range |
| Start | 000 h 00 m 00.0 s | | | Value Input Select |
| End | 000 h 02 m 56.1 s | | | |
| Final | 000 h 02 m 56.1 s | | | |

Figure 6-16 PLAY MODE screen (when specifying the playback range)

- **F5 Value Input Select**

Switches the value being entered between Start and End. This setting is available when **F4** Range is set to Enable.

About the TS playback range

- The displayed time is calculated from the detected bit rate and the file size. Depending on the data, there may be a small degree of error in this calculation.
 - When you specify the range in terms of time, the range in terms of packets is automatically calculated. The minimum time unit that you can use to specify the time is 0.1 seconds.
 - If an incomplete data byte exists at the start or end of the data, the LG 3810 ignores this data fraction and plays data back in units of packets.
 - For broadcast transport streams, the number of packets that are played back is an integral multiple of the number of ISDB-T frame packets.
 - When you specify a playback range, if the specified number of packets is not a multiple of the number of frame packets, the LG 3810 automatically rounds down the number of packets to play back a number of packets that is a multiple of the number of frame packets.
 - You cannot specify a time that is less than 5 seconds.
 - You cannot specify a playback range of 1000 hours or more.
-

6.1.8 BIT RATE

On the PLAY MODE screen, press **F1** Bit Rate to display the following setup screen. Use this screen to configure the TS file playback mode.

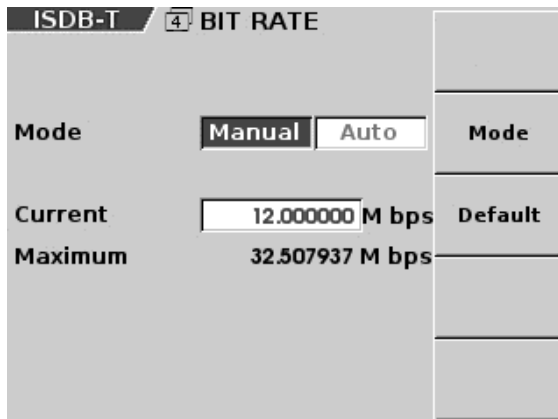


Figure 6-17 BIT RATE screen

● **Explanation of the BIT RATE screen**

• **Current**

This displays the playback bit rate for the currently selected TS file.

• **Maximum**

This displays the maximum bit rate for the currently selected modulation method.

● **Explanation of function keys**

• ****F2** Mode**

Specify the playback mode.

Manual The TS file is played back at a fixed bit rate.

Use the numeric keypad to specify the bit rate, and then press ENTER. You can specify a value from 0.2 to 40 Mbps. This is the factory default.

Auto The bit rate is calculated from the TS file and it is played back at this bit rate.

If the bit rate cannot be calculated from the TS file, Current displays “----,” and the TS file is played back at the maximum bit rate.

• ****F3** Default**

Current is set to the maximum bit rate.

This setting is available when **F2** Mode is set to Manual.

6.1.9 Performing File Operations over a LAN

The LG 3810 has a file server to enable you to control its internal HDD. You can use this feature to perform file operations on the LG 3810's internal HDD over a LAN from your PC.

To control the LG 3810, we recommend that you use a PC that conforms to the following guidelines.

| | |
|-------------|--|
| OS | Microsoft Windows 2000 (SP4) or XP (SP3) |
| CPU | Intel Pentium or Celeron or a compatible CPU |
| LAN | 10BASE-T/100BASE-TX port |
| Application | MS-DOS, DOS window, or command prompt |

Follow the procedure below to configure your PC and connect it to the LG 3810. The following settings are used as an example in this procedure.

| | |
|---------------------|---------------|
| IP address | 192.168.0.1 |
| Subnet mask | 255.255.255.0 |
| Default gateway | 192.168.0.1 |
| LG 3810 server name | LG3810 |
| Workgroup name | WORKGROUP |

1. Configure the TCP/IP settings

Match the LG 3810's TCP/IP settings to the network that you want to connect it to. For details on your network settings, such as TCP/IP, server name, and workgroup, consult your network administrator.

To display the TCP/IP screen, on the UTILITY screen, press **F1** Config to display the CONFIG screen, and then press **F1** TCP/IP. Specify the IP address, subnet mask, and default gateway, and then press UP MENU.

The screenshot shows a menu titled '3 TCP / IP'. Below it, the 'TCP / IP' settings are displayed. The 'IP Address' field is set to 192.168.0.1, the 'Subnet Mask' is set to 255.255.255.0, and the 'Default Gateway' is set to 192.168.0.1. Each field is represented by a series of boxes for individual digits. At the bottom right, there is a button labeled 'Value Input Select'.

Figure 6-18 TCP/IP screen

2. Connect the LAN cable

Use a LAN cable to connect the rear panel Ethernet port to your PC.

If you are connecting the LG 3810 to your PC in a one-to-one manner, use a crossover cable. If you are using a hub to connect the LG 3810 to your local network, use a straight cable.

3. Connect to telnet

On your PC, open a DOS window or a command prompt, and then enter the following commands.

```
C:\>telnet 192.168.0.1 <Enter>
LG3810 login   : lg3810 <Enter>
Password      : lg3810 <Enter>
```

After you have logged on to the LG 3810, the message "lg3810@LG3810:~\$" appears.

4. Set the file server name

The first time that you access the file server, use the "NAM" code to set the file server name. For example, if you want to set LG3810 as the file server name:

```
$ rem NAM LG3810 <Enter>
```

5. Set the workgroup name

The first time that you access the file server, use the "WGP" code to set the workgroup name. For example, if you want to set WORKGROUP as the workgroup name:

```
$ rem WGP WORKGROUP <Enter>
```

6. Enable the file server

Send the following command to enable the LG 3810's file server.

```
$ rem FSV ENABLE <Enter>
```

7. Enable the HDD write mode

If you want to write data to the internal HDD, use the "HDW" code to enable the HDD write mode.

```
$ rem HDW ENABLE <Enter>
```

Important notes regarding the HDD write mode

-
- Specify the file server name and the workgroup name when the file server is disabled.
 - When you have finished writing data to the HDD, be sure to send the "HDW" code to disable the HDD write mode (see step 9).
If you leave the HDD write mode enabled and turn the LG 3810 OFF, the next time it turns ON, the LG 3810 will perform a file system recovery, which takes several minutes to complete.
 - When you enable the HDD write mode, to concentrate the internal processor power on writing data to the internal HDD, stop performing standard operations on the LG 3810. While the HDD write mode is enabled, the following operations are not guaranteed.
Updating of the LCD panel (alarms, BER measured value, GO/NO GO, etc.)
RF signal generation when a TS is being played back from the HDD or an external DVD drive
 - When a file is being written to the HDD, all operations are not guaranteed.
-

-
- When you want to write a file to the HDD, be sure to stop playback, and then enable HDD write mode.
 - When a file is being written to the HDD, do not perform panel operations.
-

```
lg3810@LG3810:~$ rem NAM LG3810
lg3810@LG3810:~$ rem NAM ?
LG3810
lg3810@LG3810:~$ rem WGP WORKGROUP
lg3810@LG3810:~$ rem WGP ?
WORKGROUP
lg3810@LG3810:~$ rem FSV ENABLE
lg3810@LG3810:~$ rem HDW ENABLE
*** CAUTION!! *** Please Set << rem HDW DISABLE >> Before Power Off.
lg3810@LG3810:~$
```

Figure 6-19 Remote control from a DOS window

8. Search for the file server on your PC

Start Explorer on your PC, and then type the file server name (\\Lg3810\hdd) in the address bar to search for it.

When the PC finds the file server, the contents of the LG 3810's internal HDD are displayed in Explorer.

By dragging or copying and pasting files, you can perform operations such as writing data to the internal HDD, copying data to your PC, and changing file names.

(When the LG 3810 is connected to a PC in a one-to-one manner, the data rate is approximately 70 Mbps.)

Notes regarding file operations

- File names can consist of the following characters.
Alphanumeric characters A to Z, a to z, and 0 to 9
Symbols # \$ % + , . = [] ^ _ { } ~ -
 - Do not use the following characters. File names that contain these characters cannot be displayed.
Characters ! & ' () * / : ; < > ? \ | (the space character)
 - Files whose full paths exceed 240 characters in length cannot be loaded or played back. Keep this character length in mind when you design the folder hierarchy.
 - Each folder can store a maximum of 64 files. To copy more than 64 files, add new folders over then LAN, and then split the files that you want to copy into these folders.
 - To ensure that a file name fits on the LCD, file names, including the file name extension, should be a maximum of 20 characters.
 - The LG 3810 does not prevent you from copying files whose size exceeds the remaining free space on the internal HDD when you perform file operations over a LAN. If you copy a file whose size exceeds the remaining free space, the size of the file that is actually copied to the HDD and the file size that is shown on the file's properties will not match.
-

-
-
- If you cancel a copy operation while the file is being copied, the data that was copied up to that point remains on the internal HDD. Use Explorer or another file manager to delete the partial file.
 - If you write a file to the internal HDD whose file name already exists, the existing file is overwritten.
 - If you reorder files on the PC, the new order is not reflected on the LG 3810.
-
-

9. Finish writing to the HDD

When you are finished writing data to the HDD, be sure to use the HDW command to disable the HDD write mode.

```
$ rem HDW DISABLE <Enter>
```

● Changes to network parameters

When you change network parameters (including changing settings remotely), the timing for when the changes take effect is shown below.

| | |
|-----------------------------|--|
| IP address | When you press the UP MENU key |
| Subnet mask | When you press the UP MENU key |
| Default gateway | When you press the UP MENU key |
| File server name | When you use the “rem FSV ENABLE” command to confirm the setting |
| Workgroup name | When you use the “rem FSV ENABLE” command to confirm the setting |
| Enabling the file server | When you use the “rem FSV ENABLE” command to confirm the setting |
| Enabling the HDD write mode | Immediately after the setting is made |

6.2 CODING

For details on the CODING settings, see the section regarding CODING in each option's instruction manual.

6.3 NOISE

Press NOISE under MENU to display the following setup screen.

To specify a value, use the numeric keypad, the ▲, ▼, ◀, and ▶ keys, or **F2** ↑ and **F4** ↓.

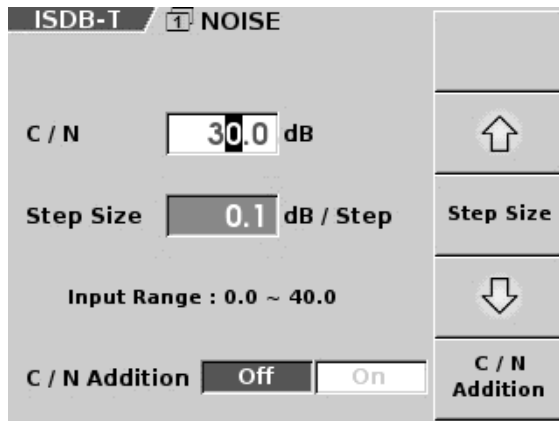


Figure 6-20 NOISE screen

● Explanation of function keys

- **F2** ↑
Increments the C/N value by the step size. The C/N value changes within the valid range.
- **F3** Step Size
Specify the step that the value will change by when you press **F2** ↑ or **F4** ↓.
[0.1 / 1.0 / 10.0]
- **F4** ↓
Decrements the C/N value by the step size. The C/N value changes within the valid range.
- **F5** C/N Addition
Turns C/N addition control ON or OFF.
[Off / On]

6.4 CHANNEL

Press CHANNEL under MENU to display the CHANNEL screen.

To specify a value, use the numeric keypad, the ▲, ▼, ◀, and ▶ keys, or **F2** ↑ and **F4** ↓. Each option may also have its own settings, so also see the section regarding CHANNEL in each option's instruction manual.

| Input Item = VHF, UHF or CATV | | Input Item = Frequency | |
|-------------------------------|------------|--------------------------------|------------|
| ISDB-T / 1 CHANNEL | | ISDB-T / 1 CHANNEL | |
| Table No. 1 | Japan | Table No. -- | --- |
| Channel 13 | ↑ | Channel --- | ↑ |
| Input Range : 1 ~ 62 | | | |
| Step Size CH / Step | | Step Size 0.001MHz / Step | Step Size |
| Frequency 473.143 MHz | ↓ | Frequency 030.000 MHz | ↓ |
| Input Range : 1 ~ 62 | | Input Range : 30.000 ~ 960.000 | |
| Input Item VHF,UHF | Input Item | Input Item Frequency | Input Item |

Figure 6-21 CHANNEL screen

● **Explanation of function keys**

- F1 Table No.**
 Select the channel table.
 This setting is not available when **F5** Input Item is set to Frequency.
- F2** ↑
 Increments the channel or frequency by the step size. The channel or frequency changes within the valid range.
- F3 Step Size**
 Specify the step that the value will change by when you press **F2** ↑ or **F4** ↓. This setting is not available when **F5** Input Item is set to VHF,UHF or CATV.
 [0.001MHz / 0.01MHz / 0.1MHz / 1/7MHz / 1.0MHz / 10.0MHz]
- F4** ↓
 Decrements the channel or frequency by the step size. The channel or frequency changes within the valid range.
- F5 Input Item**
 Select how the RF frequency is set.
 VHF,UHF Select this to specify a VHF or UHF channel directly (factory default).
 CATV Select this to specify the CATV channel directly.
 Frequency Select this to specify the frequency directly.

6.5 LEVEL

Press LEVEL under MENU to display the LEVEL screen.

To specify a value, use the numeric keypad, the the ▲, ▼, ◀, and ▶ keys, or **F2** ↑ and **F4** ↓.

For details on the output level units, see section 6.7.11, “LEVEL UNIT.”

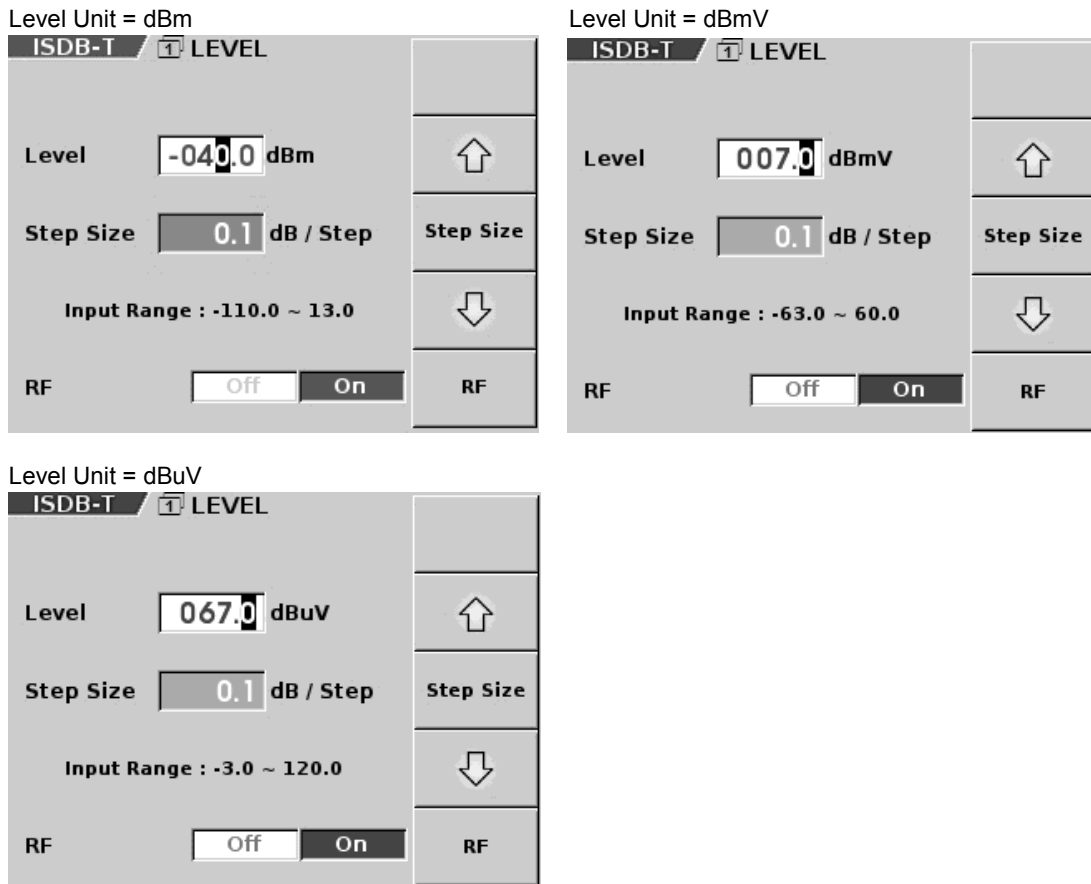


Figure 6-22 LEVEL screen

● **Explanation of function keys**

- **F2** ↑
Increments the level by the step size. The level changes within the valid range.
- **F3** Step Size
Specify the step that the value will change by when you press **F2** ↑ or **F4** ↓.
[0.1 / 1.0 / 10.0]
- **F4** ↓
Decrements the level by the step size. The level changes within the valid range.
- **F5** RF
Turns RF generation ON and OFF. This setting is linked to the front panel RF key.
[Off / On]

6.6 BER

Press BER under MENU to display the BER screen.

To specify a value, use the numeric keypad, the ▲, ▼, ◀, and ▶ keys, or **F2** ↑ and **F4** ↓. The BER measurement feature is enabled when **F3** Source is set to PN on the SOURCE screen.

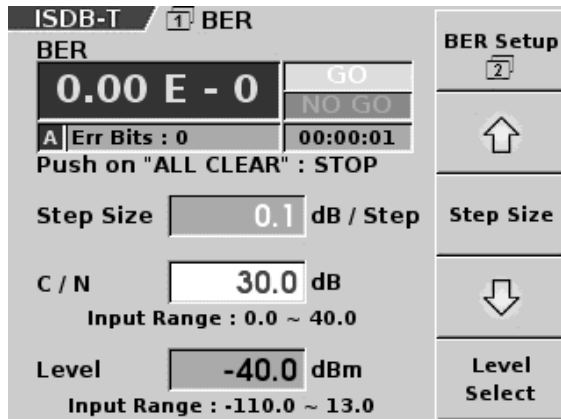


Figure 6-23 BER screen

● Explanation of the BER screen

• BER

The first row displays, from the left, the BER measured value and the GO/NO GO test result.

The second row displays, from the left, the layer that is currently being measured—only when you are setting an LG 38SER02 (ISDB-T Modulator)—the number of error bits, and the period of time in which the BER was calculated.

• Push on “ALL CLEAR”

Press ALL CLEAR when the BER measurement is stopped to start the BER measurement. The number of error bits is also reset.
Press ALL CLEAR during BER measurement to stop the BER measurement.

● Explanation of function keys

• **F1** BER Setup

Press to configure the BER measurement settings.
See section 6.6.1, “BER SETUP.”

• **F2** ↑

Increments the C/N value or output level by the step size. The C/N value changes within the valid range.

• **F3** Step Size

Specify the step that the value will change by when you press **F2** ↑ or **F4** ↓.
[0.1 / 1.0 / 10.0]

- **F4** ↓
Decrements the C/N value or output level by the step size. The C/N value changes within the valid range.
- **F5 C/N Select / Level Select**
Switches the value being entered between C/N and Level.
When **F5** C/N Addition is set to Off on the NOISE screen, you can only specify the Level, and this setting is not available.
When **F5** RF is set to Off on the LEVEL screen, you can only specify the C/N, and this setting is not available.

6.6.1 BER SETUP

On the BER screen, press **F1** BER Setup to display the BER SETUP screen.

| ISDB-T F2 BER SETUP | | |
|----------------------------|------------------|--------------------|
| Mode | Normal | Mode |
| Layer | A | Layer |
| Upper Limit | 0.00E - 0 | |
| Lower Limit | 2.00E - 4 | |
| Measurement Cycle | 00 h 00 m 01.0 s | Value Input Select |

Figure 6-24 BER SETUP screen

● Explanation of function keys

- **F2 Mode**
Select the measurement mode.

| | |
|---------|---|
| Normal | The BER is measured once per measurement cycle, and the display is updated (factory default). |
| Average | The BER is measured once per second, and a sliding average over the measurement cycle is calculated. The display is updated once per second. Any tenth-of-second values that are specified in the measurement cycle are ignored. Also, if the measurement cycle is less than 1 second, it is set to 1 second. |
- **F3 Layer**
Select the layer to measure. When the modulation settings specify that only layer A is modulated, you cannot select the layer. This setting is only available when you are setting an LG 38SER02 (ISDB-T Modulator).
[A / B / C]

- **F5 Value Input Select**

Select the item that you want to set. Use the numeric keypad to specify a value, and then press ENTER.

| | |
|-------------------|---|
| Upper | Set the upper limit of the GO/NO GO test (the value close to 0). |
| Lower | Set the lower limit of the GO/NO GO test (the value close to 1). (Selectable range: 0.00E-0, 1.00E-9 to 9.99E-1) |
| Measurement Cycle | Set the measurement cycle in terms of time (steps of 0.1 s). (The standard measurement cycle is 1.0 s.) (Selectable range: 0.1 s to 24 h) |

About configuring the BER setup

- The layers that can be measured differ, as shown below, depending on the Segment setting on the CODING screen.
This setting is only available when you are setting an LG 38SER02 (ISDB-T Modulator).
ISDB-T(13seg) Layer A, B, and C
(depending on the modulation setting)
ISDB-Tsb(1seg) and ISDB-Tsb(8-1seg) Only layer A
ISDB-Tsb(3seg) and ISDB-Tsb(8-3seg) Layer A or B
- Apply the TS to the SPI connector when you want to perform BER measurement.
When you are setting an LG 38SER02 (ISDB-T Modulator), configure the front end so that it generates the appropriate layer for the broadcast TS rate—32.507937 Mbps for ISDB-T(13seg).
- If no TS is applied to the SPI connector or if there are so many errors in the TS that synchronization cannot be obtained, the input alarm lights on the top screen.
- When the LG 3810 starts measuring, the measured value is displayed on the top screen and the BER screen. If the measured result is within the acceptable range, “GO” is displayed. Otherwise, “NO GO” is displayed.

6.7 UTILITY

Press UTILITY under MENU to display the UTILITY screen.

If you contact your local LEADER agent, inform them of the serial number that is printed on the rear panel and the firmware version that is displayed on this screen.

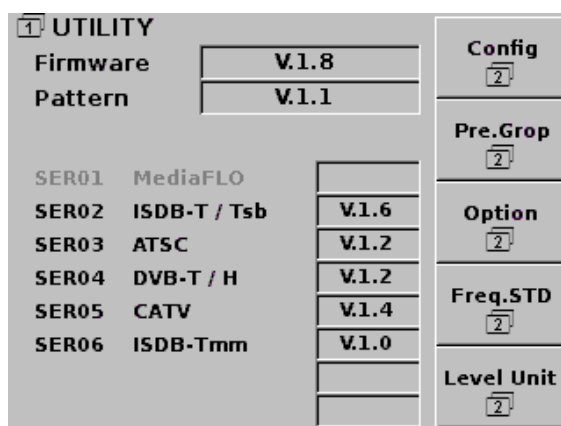


Figure 6-25 UTILITY screen

● **Explanation of the UTILITY screen**

• **Firmware**

This displays the version of the LG 3810's control software.

• **Pattern**

This displays the version of the fixed pattern.

• **SER01 to SER06**

These display the versions of the installed options. Options that are not installed are displayed in gray.

● **Explanation of function keys**

• **F1 Config**

Press to configure the LG 3810.

See section 6.7.1, "CONFIG."

• **F2 Pre. Group**

Press to configure the 10 preset groups that are used to group together similar presets from the 100 different presets. For each group, you can specify the range over which you can increment and decrement the selected preset.

See section 6.7.7, "PRESET GROUP."

• **F3 Option**

Press to display the installed options.

See section 6.7.9, "OPTION."

• **F4 Freq.STD**

Press to select the reference signal.

See section 6.7.10, "FREQUENCY STD."

• **F5 Level Unit**

Press to select the level unit.

See section 6.7.11, "LEVEL UNIT."

6.7.1 CONFIG

To display the CONFIG screen, on the UTILITY screen, press **F1** Config.

| 2 CONFIG | | |
|-------------------|-----|--------------|
| TCP / IP | | TCP / IP |
| IP Address | | F1 |
| 192 | 168 | 0 |
| Subnet Mask | | F2 |
| 255 | 255 | 0 |
| Default Gateway | | F3 |
| 192 | 168 | 0 |
| MAC Address | | License |
| 00:09:0D:F0:00:FA | | F4 |
| GPIB Address | | Time / Light |
| 1 | | F5 |

Figure 6-26 CONFIG screen

● **Explanation of function keys**

- **F1 TCP / IP**
Press to specify the IP address, subnet mask, and default gateway.
See section 6.7.2, "TCP/IP."
- **F2 GPIB Adr.**
Press to specify the GPIB address.
See section 6.7.3, "GPIB ADDRESS."
- **F3 CH.Table**
Press to configure the channel table.
See section 6.7.4, "CHANNEL TABLE."
- **F4 License**
Press to enter the license key for each option.
See section 6.7.5, "LICENSE."
- **F5 Time / Light**
Press to configure the LG 3810's clock and backlight settings.
See section 6.7.6, "TIME/LIGHT."

6.7.2 TCP/IP

To display the TCP/IP screen, on the CONFIG screen, press **F1** TCP / IP.

| | | | | |
|-----------------|---|-----|---|-----------------------|
| TCP / IP | | | | |
| TCP / IP | | | | |
| IP Address | | | | |
| 192 | . | 168 | . | 0 |
| . | . | . | . | 1 |
| Subnet Mask | | | | |
| 255 | . | 255 | . | 255 |
| . | . | . | . | 0 |
| Default Gateway | | | | |
| 192 | . | 168 | . | 0 |
| . | . | . | . | 1 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | Value Input Select |

Figure 6-27 TCP/IP screen

● **Explanation of function keys**

• ****F5** Value Input Select**

Select the value that you want to enter. (You can also use the ◀ and ▶ keys to select the value that you want to enter.)

Use the numeric keypad to specify the value, and then press ENTER to confirm it.

The settings that you specify on this screen are applied as soon as you press UP MENU and the CONFIG screen appears.

6.7.3 GPIB ADDRESS

To display the GPIB ADDRESS screen, on the CONFIG screen, press **F2** GPIB Adr.

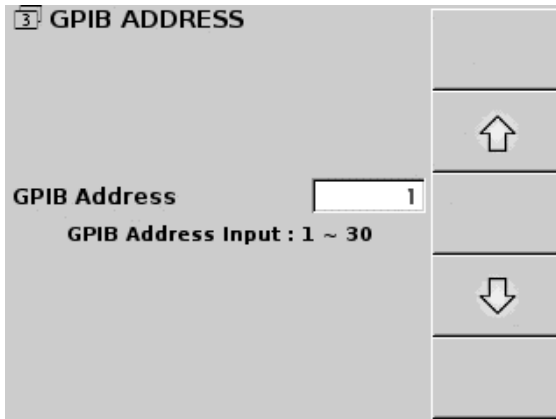


Figure 6-28 GPIB ADDRESS screen

● **Explanation of the GPIB ADDRESS screen**

To specify the value, use the numeric keypad, the ▲ and ▼ keys, or **F2** ↑ and **F4** ↓. The factory default value is 1.

The setting that you specify on this screen is applied when you restart the LG 3810.

● **Explanation of function keys**

- **F2** ↑

Increments the GPIB Address value. The GPIB Address value changes within the valid range.

- **F4** ↓

Decrements the GPIB Address value. The GPIB Address value changes within the valid range.

6.7.4 CHANNEL TABLE

To display the CHANNEL TABLE screen, on the CONFIG screen, press **F3** CH.Table.

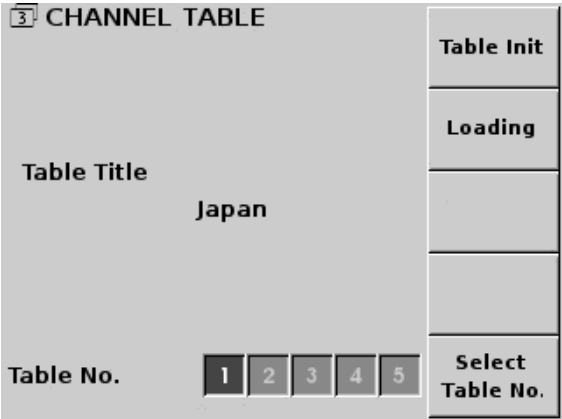


Figure 6-29 CHANNEL TABLE screen

● **Explanation of the CHANNEL TABLE screen**

- **Table Title**
This displays the name of the table that you select with **F5** Select Table No.

● **Explanation of function keys**

- **F1 Table Init**
Initializes the channel table data of the specified system.
When you press **F1** Table Init, the initialize screen is displayed. To initialize the channel table data, press **F4** Execute. To cancel the initialization, press **F2** Cancel.
When the initialization completes, the CHANNEL TABLE screen is displayed.

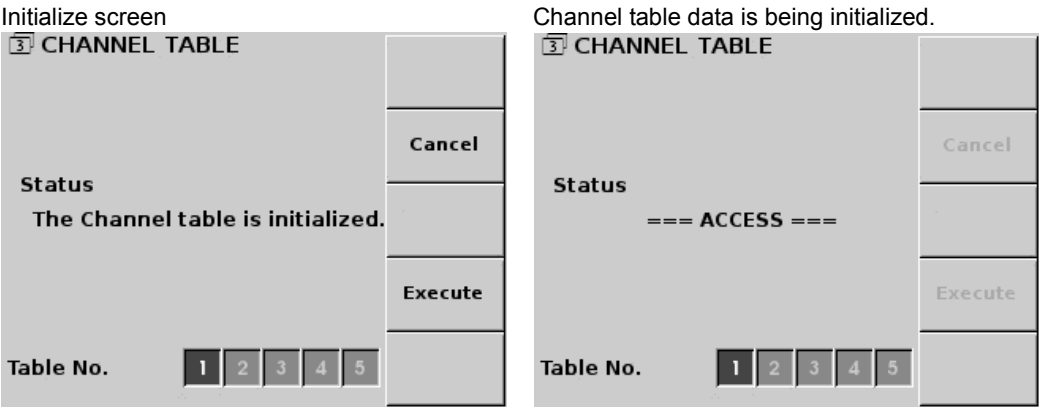


Figure 6-30 Initialization of channel data

- **F2 Loading**

Loads channel table data from external media into the table that you have specified by its table number. (See “Channel table specifications” later in this section.)

When you press **F2** Loading, the loading screen is displayed. To load the channel table data, press **F4** Execute. To cancel the load operation, press **F2** Cancel. When the load operation completes, the CHANNEL TABLE screen is displayed, and a message appears.

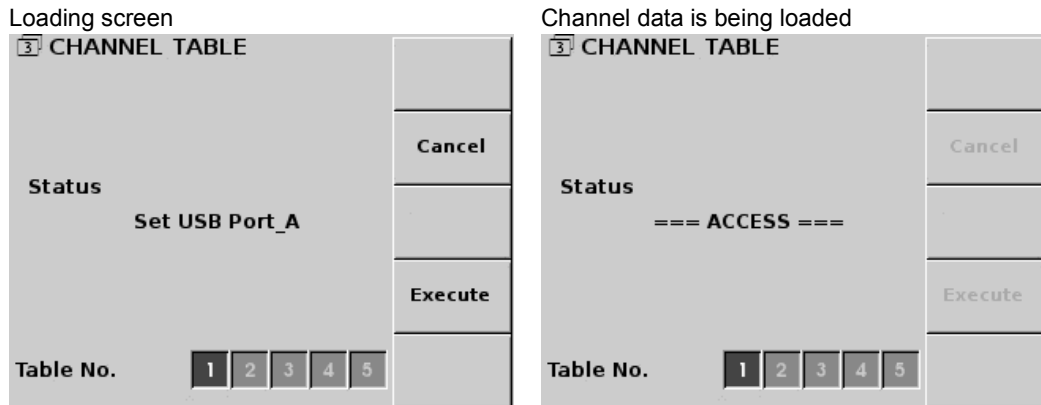


Figure 6-31 Loading channel data

About accessing channel tables on external media

- The following messages appear after the LG 3810 accesses external media.
When the load operation completes successfully Loading Table No.X :
Success
When the load operation fails Loading Table No.X : Fail
(Table No.X represents the table number that you have selected.)
 - When you load channel table data from external media, any existing channel data is discarded. However, if you press **F1** Table Init, you can reset the initial channel table data that was installed when the LG 3810 was shipped from the factory.
 - If a load operation from external media fails, check the following points.
You can only load channel table data from external media that is connected to USB Port A, which is on the front panel.
You cannot load channel table data that does not conform to the channel table specifications.
-

- **F5 Select Table No.**

Select the table number.

The selected table's title is displayed next to Table Title.

For the channel tables, see the section regarding CHANNEL in each option's instruction manual.

● Channel table specifications

To load channel table data onto the LG 3810, load one file that conforms to the following specifications for each table number.

File specifications

Create a folder with the name "lg3810" in the external media's root directory. Create a folder with the name "ser**" in the "lg3810" folder, and then create a folder with the name "channel" in the "ser**" folder.

Name channel table data files to match their table number as follows: "CH_0001.dat," "CH_0002.dat," "CH_0003.dat," "CH_0004.dat," and "CH_0005.dat." Place these files in the "channel" folder.

Connect the external media to USB Port A on the front panel, and then load the data that you have created (in the "lg3810" folder).

| | |
|------------|-----------------------------------|
| Table No.1 | /lg3810/ser**/channel/CH_0001.dat |
| Table No.2 | /lg3810/ser**/channel/CH_0002.dat |
| Table No.3 | /lg3810/ser**/channel/CH_0003.dat |
| Table No.4 | /lg3810/ser**/channel/CH_0004.dat |
| Table No.5 | /lg3810/ser**/channel/CH_0005.dat |

- *1 Use the folder name "ser**" to specify the option number that you will load. For example, for LG 38SER02, make the folder name "ser02."
- *2 The information given above outlines the normal file specifications. For detailed file specifications, see the section regarding CHANNEL in each option's instruction manual.

File format

Channel table data files are text files.

Write [LG3810 CHANNEL TABLE] as the identification header.

Write the target option's model number (mnemonic) in capital letters after "SYSTEM=."

Use up to 12 characters to write the table's name after "NAME=." The table title that you write here is displayed next to Table Title on the CHANNEL TABLE screen.

Write the channel classification, channel number, and frequency (in MHz) in this order and separated by commas.

Write "VHFUHF" or "CATV" for the channel classification.

The valid range for the channel number is 1 to 999.

The valid range for the frequency is 30.000 to 960.000 (MHz). Channels that do not meet the conditions listed above are invalid.

You can register up to 300 VHFUHF channels and up to 300 CATV channels for a total of 600 channels.

Example:

[LG3810 CHANNEL TABLE]

SYSTEM=SER02

NAME=Japan

VHFUHF,1,93.000

VHFUHF,9,201.000

CATV,13,111.000

CATV,14,117.000

VHFUHF,62,767.000

6.7.5 LICENSE

To display the LICENSE screen, on the CONFIG screen, press and hold **F4** License. The LG 3810 authenticates the 10-digit license keys for the options that you have purchased.

For details on how to authenticate license keys, see chapter 4, "LICENSES."

| 3 LICENSE | |
|--------------------|----------------------|
| SER01 (MediaFLO) | <input type="text"/> |
| SER02 (ISDB-T) | ***** |
| SER03 (ATSC) | ***** |
| SER04 (DVB-T / H) | ***** |
| SER05 (CATV) | ***** |
| SER06 (ISDB-Tmm) | ***** |
| Value Input Select | |

Figure 6-32 LICENSE screen

● **Explanation of function keys**

- **F5 Value Input Select**

Select the option whose license key you want to enter.

6.7.6 TIME / LIGHT

To display the TIME / LIGHT screen, on the CONFIG screen, press **F5** Time / Light.

Figure 6-33 TIME / LIGHT screen

● **Explanation of function keys**

• **F3 Value Input Select**

Specify the time and date. Use the numeric keypad to specify a value, and then press ENTER.

The time and date is not confirmed until you press **F4** Apply.

| | |
|--------|---|
| Year | Specify the year according to the Gregorian calendar. |
| Month | Specify the month. |
| Day | Specify the day. |
| Hour | Specify the hour. |
| Minute | Specify the minute. |
| Second | Specify the second. |

• **F4 Apply**

Applies the specified time and date. There may be a small delay between when you press this function key and when the LG 3810 actually applies the specified values.

• **F5 Backlight**

Configure the backlight's auto shutoff feature.

After the backlight turns OFF, press any panel key to light it once more.

| | |
|-----------------|---|
| On | The backlight is ON at all times (factory default). |
| Auto Off 1 min | The backlight turns OFF after 1 minute of inactivity. |
| Auto Off 5 min | The backlight turns OFF after 5 minutes of inactivity. |
| Auto Off 10 min | The backlight turns OFF after 10 minutes of inactivity. |

6.7.7 PRESET GROUP

To display the PRESET GROUP screen, on the UTILITY screen, press **F2** Pre. Group.

Figure 6-34 PRESET GROUP screen

● **Explanation of function keys**

• ****F1** Pre.Data**

Press to save presets to external media or load presets from external media.

See section 6.7.8, "PRESET DATA."

• ****F2** Direct Preset**

Turns the Direct Preset feature ON or OFF.

Off Pressing the preset **▲** and **▼** keys does not load presets.

This prevents the loss of the current settings due to pressing the **▲** or **▼** key by mistake (factory default).

On Pressing the **▲** and **▼** keys loads presets directly.

See section 7.2, "Loading Presets."

• ****F3** Group No.**

Specify the group number. You can set up to 10 groups by specifying their start and stop preset numbers. Each time you press **F3** Group No., the group number switches to the next number in the sequence. [0 to 9]

• ****F4** Begin/End Select**

Specify the start and stop preset numbers for the group number that you used **F3** Group No. to specify. Use the numeric keypad to specify a value, and then press ENTER to confirm it. Specify an End No. value that is larger than the specified Begin No. value.

If you attempt to save or load presets whose numbers are outside of the range specified by Begin No. and End No., the save or load operation will be invalid.

In the factory default settings, Begin No. is set to 0 and End No. is set to 99 for all groups.

6.7.8 PRESET DATA

To display the PRESET DATA screen, on the PRESET GROUP screen, press **F1** Pre. Data.

You can use this screen to save presets to external media or load presets from external media.

Use external media that can be connected to the LG 3810's USB ports. When you save or load presets, the LG 3810 automatically detects the external media. Save or load presets separately for each option.

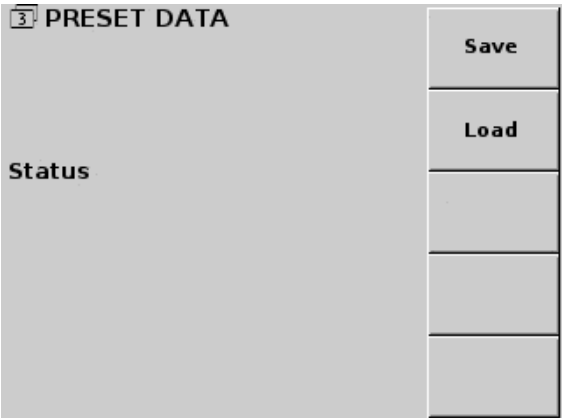


Figure 6-35 PRESET DATA screen

● Explanation of function keys

• **F1** Save

Saves presets number 0 to 99 to external media. (You cannot save individual presets.) A confirmation screen appears when you press **F1** Save. Connect an external media device to USB Port A, and then press **F4** Execute.

If the save operation completes successfully, the PRESET DATA screen appears, and “Success” is displayed. If “Fail” is displayed, check that there is sufficient free space on the external media device and that the file format is FAT.

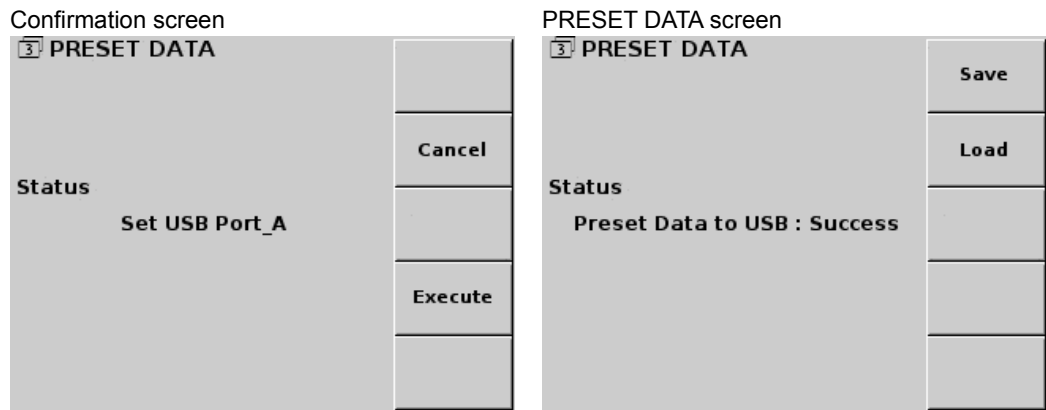


Figure 6-36 Saving presets

The folder structure on the external media device is shown below. Each of the preset data files (PR_0000.dat to PR_0099.dat) is 10 KB in size.

If presets have already been saved to the external media device, they will be overwritten.

```

└─ External media
   └─ Lg3810
      └─ ser***1
         └─ preset
            ├── PR_0000.dat
            ├── PR_0001.dat
            ├── ...
            └─ PR_0099.dat
  
```

*1 “***” represents the currently specified option number. For example, for LG 38SER02, this is “ser02.”

- **F2 Load**

Loads preset numbers 0 to 99 from external media. (You cannot load individual presets.)

A confirmation screen appears when you press **F1** Load. Connect an external media device to USB Port A, and then press **F4** Execute.

If the load operation completes successfully, the PRESET DATA screen appears, and “Success” is displayed. If “Fail” is displayed, check that the file format of the external media device is FAT.

Confirmation screen

| | |
|------------------------------|---------|
| 3 PRESET DATA | |
| Status Set USB Port_A | |
| | Cancel |
| | |
| | Execute |
| | |

PRESET DATA screen

| | |
|--|------|
| 3 PRESET DATA | |
| Status USB to Preset Data : Success | Save |
| | Load |
| | |
| | |
| | |

Figure 6-37 Loading presets

The presets that are saved to the external media device's “preset” folder are loaded (see the above figure).

If presets have already been saved to the LG 3810, they will be overwritten.

6.7.9 OPTION

To display the OPTION screen, on the UTILITY screen, press **F3** Option.

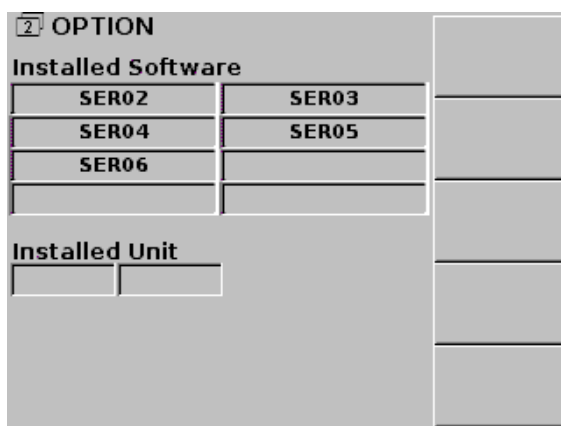


Figure 6-38 OPTION screen

● **Explanation of the OPTION screen**

• **Installed Software**

This displays the installed software options.

| Display | Model Number | Model Name |
|---------|--------------|--------------------|
| SER01 | LG 38SER01 | MEDIAFLO MODULATOR |
| SER02 | LG 38SER02 | ISDB-T MODULATOR |
| SER03 | LG 38SER03 | ATSC MODULATOR |
| SER04 | LG 38SER04 | DVB-T/H MODULATOR |
| SER05 | LG 38SER05 | CATV MODULATOR |
| SER06 | LG 38SER06 | ISDB-Tmm MODULATOR |

• **Installed Unit**

This displays the installed unit options.

6.7.10 FREQUENCY STD

To display the FREQUENCY STD screen, on the UTILITY screen, press **F4** Freq.STD.

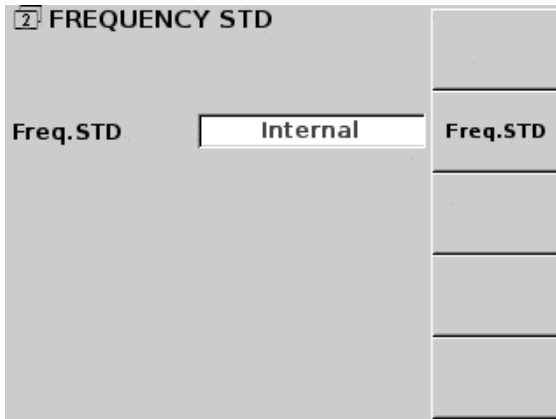


Figure 6-39 FREQUENCY STD screen

● **Explanation of function keys**

• **F2 Freq.STD**

Press to select the reference signal.

Internal The reference signal is set to the internal OCXO (factory default).

External The reference signal is set to the signal that is applied to the rear panel external input connector.

Notes regarding external REF

- When you switch the reference signal, because the hardware is reset, the signal stops for a fixed period.
- All the LG 3810 clock signals are generated from this reference signal, so the purity (phase noise characteristic) and deviation of the reference signal directly affect the encoded or modulated signal.
- ARIB STD-B29 and B31 specify the permissible IFFT sample frequency deviation to be ± 0.3 ppm. Subsequently, depending on the characteristics of the reference signal, the tuner may not be able to receive it. When applying an external reference signal, apply signals that are pure, stable, and precise.

The F STD alarm on the top screen is cleared when a comparatively wide range (approximately 50 ppm) of signals is applied, but the LG 3810 simply monitors the 10 MHz PLL circuit lock signal for this purpose. This does not guarantee the performance of the RF signal generation.

6.7.11 LEVEL UNIT

To display the LEVEL UNIT screen, on the UTILITY screen, press **F5** Level Unit.

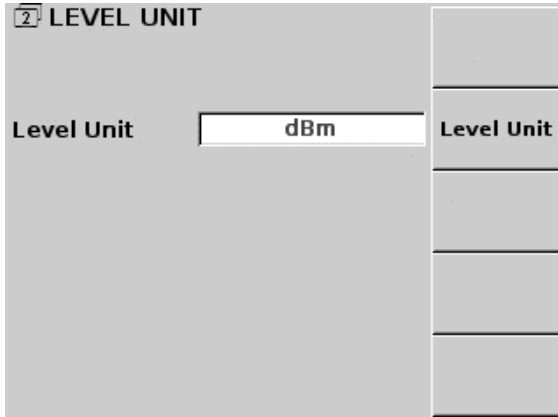


Figure 6-40 LEVEL UNIT screen

● **Explanation of function keys**

• **F2 Level Unit**

Select the output level unit. The levels that are shown on the STATUS, LEVEL, and BER screens all use the unit that you specify here.

- | | |
|------------|---|
| dBm | The standard value when the output is terminated with a 50 Ω load. 0 dBm is equal to 1 mW. The selectable range is -110 to +13 dBm. This is the factory default. |
| dBmV | The output level when the output is terminated with a 50 Ω load. 0 dBmV is equal to 1 mV. The selectable range is -63 to +60 dBmV. |
| dB μ V | The output level when the output is terminated with a 50 Ω load. 0 dB μ V is equal to 1 μ V. The selectable range is -3 to +120 dB μ V. |

6.8 SYSTEM

Press SYSTEM under MENU to display the SYSTEM screen.

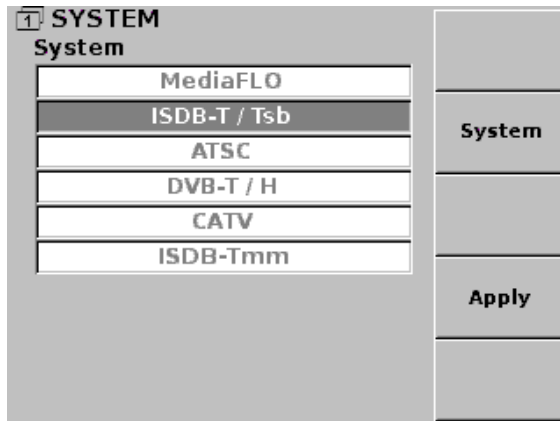


Figure 6-41 SYSTEM screen

● Explanation of function keys

• **[F2] System**

Select the system that you want to use from the various optional encoders that are installed in the LG 3810.

[MediaFLO / ISDB-T/Tsb / ATSC / DVB-T/H / CATV / ISDB-Tmm]

• **[F4] Apply**

Applies to the LG 3810 the system that you used [F2] System to specify. When you apply a system, the specified system's top screen (status screen) is displayed. This setting is available when the selected system's license has been authenticated.

* Do not turn the power OFF while you are switching the system. Doing so may cause the LG 3810's last memory feature to malfunction.

7. PRESETS

You can save up to 100 sets of settings and use the panel keys to load them.
Save or load presets separately for each option.

7.1 Saving Presets

To save a preset, follow the procedure below. The SOURCE, CODING, NOISE, CHANNEL, LEVEL, and BER settings will be saved. The UTILITY and SYSTEM settings will not be saved.

1. Configure the settings as you want to save them, and then press ADDRESS.

The preset number blinks.

2. Specify the address number that you want to save.

You can specify an address number from 00 to 99. Use the preset ▲ and ▼ keys or the numeric keypad to specify the address number.

If the current preset group has a Begin No. or End No. value specified, you cannot save the settings to an address number that is outside of this specified range.

See section 6.7.7, "PRESET GROUP."

3. Press STORE.

The preset number lights, and the ADDRESS key LED turns OFF.

To cancel saving the preset, press ADDRESS again.

7.2 Loading Presets

You can use either of the following two methods to load presets.

7.2.1 Using the ADDRESS Key to Load Presets

1. Press ADDRESS.

The preset number blinks.

2. Specify the address number that you want to load.

You can specify an address number from 00 to 99. Use the preset ▲ and ▼ keys or the numeric keypad to specify the address number.

If the current preset group has a Begin No. or End No. value specified, you cannot load the settings from an address number that is outside of this specified range.

See section 6.7.7, "PRESET GROUP."

3. Press RECALL.

The preset number lights, and the ADDRESS key LED turns OFF.

To cancel loading the preset, press ADDRESS again. (The preset is not loaded until you press RECALL.)

7.2.2 Using the ▲ and ▼ Keys to Load Presets

Press the ▲ and ▼ keys to load presets. To use this method to load presets, you have to set **F2** Direct Preset to On on the PRESET GROUP screen that you access from the UTILITY screen.

Presets are loaded as soon as you press the ▲ and ▼ keys. Note that any existing settings are lost when a preset is loaded.

See section 6.7.7, "PRESET GROUP."

8. GPIB

The LG 3810 is standard-equipped with a GPIB (IEEE 488) external control connector. You can use GPIB to configure the LG 3810's main settings.

Note

-
- The LG 3810 GPIB operation has been confirmed using a GPIB board (PCI-GPIB and PCMCIA-GPIB) manufactured by National Instruments Corporation. If you use products that are not manufactured by National Instruments Corporation to control the LG 3810, the operation of such devices may differ from what is explained in this manual. As such, we recommend that you use products that are manufactured by National Instruments to control the LG 3810.
-

8.1 Specifications

Compliant Standard ANSI/IEEE Std 488.1-1978
 LSI Used TMS9914A equivalent
 Code ASCII

8.2 Interface Capabilities

Table 8-1 Interface capabilities

| Capability | Subset | Description |
|----------------------|--------|---|
| Source handshaking | SH1 | Full capability |
| Acceptor handshaking | AH1 | Full capability |
| Talker | T8 | Basic talker, unaddress if MLA (My Listen Address) |
| Listener | L4 | Basic listener, unaddress if MTA (My Talk Address) |
| Service request | SR0 | No capability |
| Remote/local | RL2 | No LLO capability |
| Parallel polling | PP0 | No capability |
| Device clear | DC1 | Full capability |
| Device trigger | DT0 | No capability |
| Controller | C0 | No capability |
| Bus driver | E1 | Uses an open collector driver EOI and DAV use a state driver |

8.3 Interface Message Capabilities

Table 8-2 Interface messages and ASCII codes

| Upper 4 Bits Lower 4 Bits | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | |
|--|-----|-----------|-----|-----------|-----|------------------|-------|-----|----------------|-----|-------|-----|-----|-----|-----|-----|
| | ASC | MSG | ASC | MSG | ASC | MSG | ASC | MSG | ASC | MSG | ASC | MSG | ASC | MSG | ASC | MSG |
| 0 | NUL | | | | SPC | | 0 | | @ | | P | | ` | | p | |
| 1 | | GTL | | | ! | | 1 | | A | | Q | | a | | q | |
| 2 | | | | | " | | 2 | | B | | R | | b | | r | |
| 3 | | | | | # | | 3 | | C | | S | | c | | s | |
| 4 | | SDC | | DCL | \$ | | 4 | | D | | T | | d | | t | |
| 5 | | | | | % | | 5 | | E | | U | | e | | u | |
| 6 | | | | | & | | 6 | | F | | V | | f | | v | |
| 7 | | | | | ' | | 7 | | G | | W | | g | | w | |
| 8 | | | | | (| | 8 | | H | | X | | h | | x | |
| 9 | | | | |) | | 9 | | I | | Y | | i | | y | |
| A | LF | | | | * | | : | | J | | Z | | j | | z | |
| B | | | | | + | | ; | | K | | [| | k | | { | |
| C | | | | | , | | < | | L | | \ | | l | | | |
| D | CR | | | | - | | = | | M | |] | | m | | } | |
| E | | | | | . | | > | | N | | ^ | | n | | ~ | |
| F | | | | | / | | ? UNL | | O | | _ UNT | | o | | | |
| | | Addresses | | Universal | | Listen addresses | | | Talk addresses | | | | | | | |

8.4 GPIB Address

Selectable Range 1 to 30

Setting Method See section 6.7.3, "GPIB ADDRESS."

8.5 Clear and Reset

You can reset or clear the LG 3810 by transmitting a command to it or by performing a special operation. The responses to the various clear and reset commands are shown below.

● **IFC (Interface clear)**

In response to receiving the universal command IFC, the LG 3810:

- Clears the state of the specified talkers and listeners.
- Leaves the GPIB buffer and commands that are on standby as they are.
- Leaves the remote status setting as it is.
- Leaves the panel settings as they are.

● **DCL, SDC (Device clear)**

In response to receiving the universal command DCL or the address command SDC, the LG 3810:

- Clears the GPIB buffer and commands that are on standby.
- Leaves the interface (the state of the specified talkers and listeners) as it is.
- Switches to remote mode.
- Leaves the panel settings as they are.

● **Restarting the LG 3810**

When the LG 3810 is restarted, it:

- Clears the state of the specified talkers and listeners.
- Clears the GPIB buffer and commands that are on standby.
- Switches to local mode.
- Displays the top screen when it starts, regardless of the screen that was displayed before it was turned OFF.

8.6 Remote/Local

You can use the system controller or the front panel REMOTE key to switch the LG 3810 between remote and local mode. The LG 3810 is always in either local or remote mode. These modes are explained below.

● **Local mode**

The LG 3810 switches to local mode when:

- Its power is turned ON (immediately after it starts).
- The REMOTE key is pressed and the key's LED turns OFF.
- A GTL command is received.
- It is in remote mode and the remote mode is cleared.

● **Remote mode**

If REN is true and the LG 3810 is specified as a listener, it switches to remote mode.

When the LG 3810 switches to remote mode, the REMOTE key LED lights. When the LG 3810 is in remote mode, all panel keys except for the power switch and the REMOTE key are locked.

In this mode, control of the LG 3810 over Ethernet is enabled. Control through the remote connector is also enabled. Only connect the ETHERNET port or REMOTE connector to a PC or control device if you will use these non-GPIB interfaces to control the LG 3810.

8.7 Multi-Line Message Commands

This section will explain the types of multi-line message commands that the LG 3810 supports and whether or not a response is returned for each command.

Table 8-3 Responses to multi-line messages

| Type | Name | Description | Response? |
|--------------------|------|---|-----------|
| Universal commands | DCL | Clears the GPIB buffer. | Yes |
| | SPE | Enables serial polling. | No |
| | SPD | Disables serial polling. | No |
| | PPU | Disables parallel polling. | No |
| | LLO | Sets all devices to local lockout mode to prohibit manual operation. | No |
| Address commands | UNL | Unaddresses the specified listener. | Yes |
| | UNT | Unaddresses the specified talker. | Yes |
| | SDC | Clears the GPIB buffer. | Yes |
| | PPC | During parallel polling, assignment of the parallel polling line to the specified listener is enabled. | No |
| | GTL | Switches the specified device to local mode. | Yes |
| | GET | Triggers the specified device. | No |
| | TCT | When there are two or more controllers in a single system, control is passed to another controller that is specified by the talker. | No |

8.8 Program Message Format

To use the GPIB interface to configure the LG 3810, you have to send program messages to the LG 3810 from a controller.

Program messages are constructed from a single program code or multiple program codes. In a single program message, the LG 3810 can receive up to 255 bytes (including delimiters) of program codes written in ASCII characters.

When there are multiple program codes, any program codes that contain unspecified headers or parameters that are outside of the valid range will be ignored, but all other program codes will be executed.

8.9 Program Message Terminators

This section will list the delimiters that can be used to separate program messages. The LG 3810 supports the terminators that are shown below. The instrument ignores the CR character.

- LF
- LF+EOI
- EOI

Response message separator “,” (ASCII code 3Bh)

Response message terminator “CR+LF+EOI”

8.10 Program Code Format

Program codes are constructed from headers and the necessary number of data blocks.

- **Characters**

Use capital letters for the headers and data.

- **Separator between headers and data**

Insert a space (ASCII code 20h) between the headers and the data.

For queries, insert a space before the “?”.

- **Program message unit separator**

Use the semicolon (ASCII code 3Bh), to separate multiple messages when you transmit them all at the same time.

- **Program data separator**

Use the comma (ASCII code 2Ch), to separate multiple parameters.

8.11 List of Program Codes

For details on the program codes that can be used with the different options, see the section regarding GPIB in each option's instruction manual.

Table 8-4 List of setting codes

| No. | Header | Data | | Description | Unit |
|-----|--------|------|--------------|---|-------------|
| 1 | SY | n | 0 to 4 | Sets the segment | - |
| 2 | TS | n | 0 to 5 | Sets the TS input | - |
| | | p | 0 to 2 | TS input type or fixed video pattern | - |
| | | q | 0 to 3 | Fixed screen size or PN polarity | - |
| | | r | 0 to 2 | Fixed audio pattern or PN packet type | - |
| 3 | PD | n | 1 to 32 | Sets the PID number | - |
| | | p | 0 to 3 | Sets the layer | - |
| | | q | 0000 to 1FFF | Sets the PID value | Hexadecimal |
| 4 | UD | n | 1 to 3 | Sets the undefined PID layer | - |
| 5 | TR | n | 1 to 5 | Sets the TMCC preset pattern | - |
| 6 | EM | n | 0 or 1 | Sets the EMG bit | - |
| 7 | MD | n | 0 or 1 | Sets current or next | - |
| | | p | 1 to 4 | Sets the mode | - |
| 8 | GI | n | 0 or 1 | Sets current or next | - |
| | | p | 0 to 3 | Sets the guard interval | - |
| 9 | PH | n | 0 to 7 | Sets the phase correction (Tsb) | - |
| 10 | LA | n | 0 to 4 | Sets the layer A carrier modulation | - |
| | | p | 0 to 5 | Sets the layer A code rate | - |
| | | q | 0 to 5 | Sets the layer A time-interleaving length | - |
| | | r | P, 1 to 13 | Sets the number of layer A segments | - |
| 11 | LB | n | 0 to 4 | Sets the layer B carrier modulation | - |
| | | p | 0 to 5 | Sets the layer B code rate | - |
| | | q | 0 to 5 | Sets the layer B time-interleaving length | - |
| | | r | 1 to 12 | Sets the number of layer B segments | - |
| 12 | LC | n | 0 to 4 | Sets the layer C carrier modulation | - |
| | | p | 0 to 5 | Sets the layer C code rate | - |
| | | q | 0 to 5 | Sets the layer C time-interleaving length | - |
| | | r | 1 to 11 | Sets the number of layer C segments | - |
| 13 | CO | n | 0 to 1 | Sets C/N addition | - |
| 14 | CN | i | 0.0 to 40.0 | Sets the C/N value | dB |
| 15 | CU | - | - | Increments the C/N value | - |
| 16 | CD | - | - | Decrements the C/N value | - |
| 17 | CL | n | 0 to 2 | Sets the C/N value step | - |

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| No. | Header | Data | | Description | Unit |
|-----|--------|------|--|--|---------|
| 18 | BO | n | 0 or 1 | Sets the BER measurement | - |
| 21 | BU | ne | 0.00E-0 to 9.99E-1 | Sets the BER upper limit | - |
| 22 | BL | ne | 0.00E-0 to 9.99E-1 | Sets the BER lower limit | - |
| 23 | BI | i | 0.1 to 86400.0 | Sets the BER measurement cycle | Seconds |
| 24 | BH | t | 00H00M00.1S to 24H00M00.0S | Sets the BER measurement cycle | Time |
| 25 | BM | n | 1 to 3 | Sets the BER measurement layer | - |
| 26 | BF | n | 0 to 1 | Sets the BER measurement mode | - |
| 27 | BS | - | - | Resets the BER measurement | - |
| 30 | CH | n | 1 to 62 C13 to C63 | Sets the RF channel | - |
| 31 | RF | i | 30.000 to 960.000 | Sets the RF frequency | MHz |
| 32 | FU | - | - | Increments the frequency | - |
| 33 | FD | - | - | Decrements the frequency | - |
| 34 | DF | n | 0 to 5 | Sets the frequency | - |
| 35 | LM | i | -110.0 to 13.0 ^{*1} -115.0 to 8.0 ^{*2} -120.0 to 3.0 ^{*3} | Sets the output level | dBm |
| 36 | LV | i | -3.0 to 120.0 ^{*1} -8.0 to 115.0 ^{*2} -13.0 to 110.0 ^{*3} | Sets the output level | dBmV |
| 37 | LW | i | -63.0 to 60.0 ^{*1} -68.0 to 55.0 ^{*2} -73.0 to 50.0 ^{*3} | Sets the output level | dBuV |
| 38 | DU | - | - | Increments the output level | - |
| 39 | DD | - | - | Decrements the output level | - |
| 40 | DL | n | 0 to 2 | Sets the output level step | - |
| 41 | CK | n | 0 or 1 | Sets the reference signal | - |
| 42 | ST | n | 0 to 99 | Saves the specified preset | - |
| 43 | RC | n | 0 to 99 | Loads the specified preset | - |
| 44 | RU | - | - | Increments the address | - |
| 45 | RD | - | - | Decrements the address | - |
| 46 | RR | - | - | Returns the preset number to the start address | - |
| 47 | GR | n | 0 to 9 | Sets the group | - |
| 48 | GS | n | 0 to 9 | Sets the group | - |
| | | p | 0 to 98 | Sets the start address | - |
| | | q | 1 to 99 | Sets the stop address | - |
| 49 | CW | n | 0 or 1 | Sets the modulation | - |
| 50 | RO | n | 0 or 1 | Sets the RF output | - |

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| No. | Header | Data | | Description | Unit |
|-----|--------|------|--|-------------------------------------|-------------|
| 51 | IP | n | 0 or 1 | Sets the TS playback | - |
| 53 | IR | i | 0.200000 to 40.000000 | Sets the TS bitrate | - |
| 54 | IS | t | 000H00M00.0S to 999H59M59.9S CLR | Sets the playback start time | - |
| 55 | IE | t | 000H00M00.0S to 999H59M59.9S CLR | Sets the playback stop time | - |
| 56 | IB | n | 0 or 1 | Sets the range playback | - |
| 57 | IL | n | 0 or 1 | Sets the loop playback | - |
| 58 | IM | n | 0 or 1 | Sets the RAM playback | - |
| 59 | TT | n | 0 or 1 | Sets TOT overwrite | - |
| 60 | PI | n | 0 or 1 | Sets TS parameter overwrite | - |
| | | p | 0000 to FFFF | Sets the TS-ID | Hexadecimal |
| | | q | 0000 to FFFF | Sets the service ID | Hexadecimal |
| | | r | 1 to 12 | Sets the remote key ID | - |
| 61 | SC | n | 6 to 37 ^{*2} 3 to 40 ^{*3, *4} | Sets the subchannel | - |
| 62 | OC | n | 2 to 18 | Sets the occupied start subchannel | - |
| 63 | AL | n | 0 or 1 | Sets status screen display updating | - |
| 64 | SS | n | 1 to 6 | Sets the broadcast system | - |
| 65 | HDW | c | ENABLE or DISABLE | Sets the HDD write mode | - |
| 66 | FSV | c | ENABLE or DISABLE | Sets the file server | - |
| 67 | NAM | a | Up to 16 characters in ASCII code | Sets the file server name | - |
| 68 | WGP | a | Up to 16 characters in ASCII code | Sets the workgroup name | - |

*1 When ISDB-T (13seg), ISDB-Tsb (8-3seg), or ISDB-Tsb (8-1seg) is selected.

*2 When ISDB-Tsb (3seg) is selected.

*3 When ISDB-Tsb (1seg) is selected.

*4 When ISDB-Tsb (8-3seg) or ISDB-Tsb (8-1seg) is selected, see the LG 38SER02 instruction manual.

Table 8-5 List of query codes

| No. | Header | Data | Description | Response |
|-----|--------|-------|---|----------|
| 1 | SY | ? | Queries the segment | n |
| 2 | TS | ? | Queries the TS input | n,p,q,r |
| 3 | PD | n ? | Queries the PID layer | n,p,q |
| 4 | UD | ? | Queries the undefined PID layer | n |
| 6 | EM | ? | Queries the EMG bit | n |
| 7 | MD | n ? | Queries the encoding mode | n,p |
| 8 | GI | n ? | Queries the guard interval | n,p |
| 9 | PH | ? | Queries the phase correction (Tsb) | n |
| 10 | LA | ? | Queries the layer A modulation parameters | n,p,q,r |
| 11 | LB | ? | Queries the layer B modulation parameters | n,p,q,r |
| 12 | LC | ? | Queries the layer C modulation parameters | n,p,q,r |
| 13 | CO | ? | Queries the C/N addition | n |
| 14 | CN | ? | Queries the C/N value | i |
| 17 | CL | ? | Queries the C/N value step | n |
| 18 | BO | ? | Queries the BER measurement | n |
| 19 | BR | ? | Queries the BER value | ne |
| 20 | BJ | ? | Queries the BER value test | n |
| 21 | BU | ? | Queries the BER upper limit | ne |
| 22 | BL | ? | Queries the BER lower limit | ne |
| 23 | BI | n ? | Queries the BER measurement cycle (seconds) | i |
| 24 | BH | ? | Queries the BER measurement cycle (time) | t |
| 25 | BM | ? | Queries the BER measurement layer | n |
| 26 | BF | ? | Queries the BER measurement mode | n |
| 28 | BT | ? | Queries the BER calculation period | t |
| 29 | BW | ? | Queries the number of BER error bits | n |
| 30 | CH | ? | Queries the RF channel | n |
| 31 | RF | ? | Queries the RF frequency | i |
| 34 | DF | ? | Queries the frequency step | n |
| 35 | LM | ? | Queries the output level in dBm | i |
| 36 | LV | ? | Queries the output level in dBmV | i |
| 37 | LW | ? | Queries the output level in dBuV | i |
| 40 | DL | ? | Queries the output level step | n |
| 41 | CK | ? | Queries the reference signal | n |
| 47 | GR | ? | Queries the group | n |
| 48 | GS | n ? | Queries the start and stop addresses | n,p,q |
| 49 | CW | ? | Queries the modulation | n |

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| No. | Header | Data | Description | Response |
|-----|--------|------|--|----------|
| 50 | RO | ? | Queries the RF output | n |
| 51 | IP | ? | Queries the TS playback | n |
| 52 | II | ? | Queries the TS file information | n,p,t |
| 53 | IR | ? | Queries the TS bitrate | i |
| 54 | IS | ? | Queries the playback start time | t |
| 55 | IE | ? | Queries the playback stop time | t |
| 56 | IB | ? | Queries the range playback setting | n |
| 57 | IL | ? | Queries the loop playback setting | n |
| 58 | IM | ? | Queries the RAM playback setting | n |
| 59 | TT | ? | Queries the TOT overwrite setting | n |
| 60 | PI | ? | Queries the TS parameter overwrite setting | n,p,q,r |
| 61 | SC | ? | Queries the subchannel | n |
| 62 | OC | ? | Queries the occupied start subchannel | n,p |
| 63 | AL | ? | Queries status screen display updating | n |
| 64 | SS | ? | Queries the broadcast system | n |
| 65 | HDW | ? | Queries the HDD write mode | c |
| 66 | FSV | ? | Queries the file server | c |
| 67 | NAM | ? | Queries the file server name | a |
| 68 | WGP | ? | Queries the workgroup name | a |

8.12 Program Code Details

This section will explain in detail the program codes that were introduced in section 8.11, “List of Program Codes.” The notations used in this chapter are as follows.

| | |
|-----------|-------------------------------------|
| n p q r s | Natural number (including 0) |
| i j | Decimal fraction |
| ne | Exponent |
| a | Character represented in ASCII code |
| t | Time |
| c | Reserved character code |
| — | Space (ASCII code 20h) |

Terminators are omitted in the program code syntax given here. Append one of the terminators that are listed in section 8.9, “Program Message Terminators.”

Responses consist only of data; they do not include headers.

1 Segment (SY)

Function Selects or queries the segment
 Syntax SY_n (setting and response)
 SY_? (query)

* This is an option-specific program code. See the instruction manual for the option.

2 TS input (TS)

Function Selects or queries the TS that is inserted into the modulated wave
 Syntax TS_n(, p, q, r) (setting and response)
 TS_? (query)

* This is an option-specific program code. See the instruction manual for the option.

3 PID layer (PD)

Function Sets or queries the PID for each layer when the LG 3810 is using ASI or SPI external input
 Syntax PD_n, p(, q) (setting and response)
 PD_n_? (query)

* This is an option-specific program code. See the instruction manual for the option.

4 Undefined PID layer (UD)

Function Sets or queries the assignment for PIDs other than those specified by program code 3, “PD”
 Syntax UD_n (setting and response)
 UD_? (query)

* This is an option-specific program code. See the instruction manual for the option.

5 TMCC preset pattern (TR)

Function Selects the TMCC preset pattern

Syntax TR_n (setting)

| n | TMCC Preset Pattern |
|---|---------------------|
| 1 | Preset 1 |
| 2 | Preset 2 |
| 3 | Preset 3 |
| 4 | Preset 4 |
| 5 | Preset 5 |

6 EMG bit (EM)

Function Sets or queries the EMG bit in TMCC

Syntax EM_n (setting and response)

EM_? (query)

| n | EMG Bit |
|---|---------|
| 0 | OFF |
| 1 | ON |

7 Encoding mode (MD)

Function Sets or queries the encoding mode

Syntax MD_n, p (setting and response)

MD_n_? (query)

* This is an option-specific program code. See the instruction manual for the option.

8 Guard interval (GI)

Function Sets or queries the encoding guard interval

Syntax GI_n, p (setting and response)

GI_n_? (query)

* This is an option-specific program code. See the instruction manual for the option.

9 Phase correction (PH)

Function Sets or queries the encoding phase correction

Syntax PH_n (setting and response)

PH_? (query)

| n | Phase Correction |
|---|------------------|
| 0 | 0 |
| 1 | -1/8 |
| 2 | -2/8 |
| 3 | -3/8 |
| 4 | -4/8 |
| 5 | -5/8 |
| 6 | -6/8 |
| 7 | -7/8 |

- * The LG 3810 only processes this program code if it is received when the LG 3810 is set to perform sequential transmission of segments (8-1seg or 8-3seg). At all other times, this program code is ignored.

10 Layer A modulation parameters (LA)

Function Sets the layer A modulation parameters

Syntax LA_n, p, q, r (setting and response)
LA_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

11 Layer B modulation parameters (LB)

Function Sets the layer B modulation parameters

Syntax LB_n, p, q, r (setting and response)
LB_? (query)

- * The meaning of data items n, p, q, and r, is the same as in program code 10, "LA."

12 Layer C modulation parameters (LC)

Function Sets the layer C modulation parameters

Syntax LC_n, p, q, r (setting and response)
LC_? (query)

- * The meaning of data items n, p, q, and r, is the same as in program code 10, "LA."

13 C/N addition (CO)

Function Sets or queries the C/N addition setting that is specified with program code 14, "CN"

Syntax CO_n (setting and response)
CO_? (query)

| n | C/N Addition |
|---|--------------|
| 0 | OFF |
| 1 | ON |

14 C/N value (CN)

Function Sets or queries the C/N value that is added

Syntax CN_i (setting and response)
CN_? (query)

| i | C/N Value in dB |
|-------------|-----------------|
| 0.0 to 40.0 | - |

15 C/N value increment (CU)

Function Increments the C/N value by the current step value

Syntax CU (setting)

16 C/N value decrement (CD)

Function Decrements the C/N value by the current step value
 Syntax CD (setting)

17 C/N value step (CL)

Function Sets or queries the step that is used to increment or decrement the C/N value
 Syntax CL_n (setting and response)
 CL_? (query)

| n | C/N Value Step in dB |
|---|----------------------|
| 0 | 0.1 |
| 1 | 1.0 |
| 2 | 10.0 |

Note concerning program codes 18 to 29

Using these program codes to perform settings or queries when the TS input is set to anything other than PN is invalid.

18 BER measurement (B0)

Function Sets or queries the BER measurement
 Syntax BO_n (setting and response)
 BO_? (query)

| n | BER Measurement |
|---|-----------------|
| 0 | OFF |
| 1 | ON |

19 BER value (BR)

Function Reads the BER measured value
 Syntax ne (response)
 BR_? (query)

| ne | BER Value |
|--------------------|-----------|
| 0.00E-0 to 9.99E-1 | - |

* This program code is only valid when BER measurement is ON.

20 BER test (BJ)

Function Reads the GO/NO GO test result that is based on the measured value
 Syntax ne_n (response)
 BJ_? (query)

| ne | BER Measured Value |
|--------------------|--------------------|
| 0.00E-0 to 9.99E-1 | - |

| n | BER Test |
|---|----------|
| 0 | NO GO |
| 1 | GO |

- * This program code is only valid when BER measurement is ON.

21 BER upper limit (BU)

Function Sets or queries the upper limit that is used for the NO GO test

Syntax BU_ne (setting and response)

BU_? (query)

| ne | BER Upper Limit |
|--------------------|-----------------|
| 0.00E-0 to 9.99E-1 | - |

- * If you specify an upper limit that is lower than the current lower limit, the LG 3810 considers the parameter to be incorrect and ignores the program code.

22 BER lower limit (BL)

Function Sets or queries the lower limit that is used for the NO GO test

Syntax BL_ne (setting and response)

BL_? (query)

| ne | BER Lower Limit |
|--------------------|-----------------|
| 0.00E-0 to 9.99E-1 | - |

- * If you specify a lower limit that is greater than the current upper limit, the LG 3810 considers the parameter to be incorrect and ignores the program code.

23 BER measurement cycle (seconds) (BI)

Function Sets or queries the BER measurement cycle

Syntax BI_n, i (setting and response)

BI_n_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

24 BER measurement cycle (time) (BH)

Function Sets or queries the BER measurement cycle

Syntax BH_t (setting and response)

BH_? (query)

| t | BER Measurement Cycle |
|----------------------------|-----------------------|
| 00H00M00.1S to 24H00M00.0S | - |

25 BER measurement layer (BM)

Function Sets or queries the layer that is used for the BER measurement

Syntax BM_n (setting and response)

BM_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

26 BER measurement mode (BF)

Function Sets or queries the BER measurement mode

Syntax BF_n (setting and response)

BF_? (query)

| n | BER Measurement Mode |
|---|----------------------|
| 0 | Normal |
| 1 | Average |

27 BER measurement reset (BS)

Function Resets the BER measurement

Syntax BS (setting)

28 BER calculation period (BT)

Function Reads the BER calculation period

Syntax t (response)

BT_? (query)

| t | BER Calculation Period |
|----------------------------|------------------------|
| 00H00M00.1S to 24H00M00.0S | - |

* In contrast to the value that was specified for the BER measurement cycle (BI or BH), this program code returns the actual measurement time that was used to calculate the BER.

29 BER error bits (BW)

Function Reads the number of BER error bits

Syntax n (response)

BW_? (query)

* This program code is only valid when BER measurement is ON.

| n | Number of error bits |
|---|----------------------|
|---|----------------------|

30 RF channel (CH)

Function Sets or queries the RF channel (VHF, UHF, or CATV)

Syntax CH_n (setting and response)

CH_? (query)

| n | RF Channel |
|---------------------|------------|
| 1 to 62, C13 to C63 | - |

* If the LG 3810 is configured to use an RF frequency instead of channels, channel queries will be ignored.

31 RF frequency (RF)

Function Sets or queries the RF frequency

Syntax RF_i (setting and response)

RF_? (query)

| | |
|-------------------|--------------------|
| i | RF Frequency (MHz) |
| 30.000 to 960.000 | - |

- * If the LG 3810 is configured to use channels instead of frequencies, frequency queries will be ignored.

32 Frequency or channel increment (FU)

Function If the LG 3810 has been configured using an RF frequency, the frequency is incremented by the current step.

If the LG 3810 has been configured using an RF channel, the channel is incremented by 1.

Syntax FU (setting)

33 Frequency or channel decrement (FD)

Function If the LG 3810 has been configured using an RF frequency, the frequency is decremented by the current step.

If the LG 3810 has been configured using an RF channel, the channel is decremented by 1.

Syntax FD (setting)

34 Frequency step (DF)

Function Sets or queries the step that is used to increment or decrement the RF frequency

Syntax DF_n (setting and response)
DF_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

35 Output level in dBm (LM)

Function Sets or queries the output level in dBm

Syntax LM_i (setting and response)
LM_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

36 Output level in dBμV (LV)

Function Sets or queries the output level in dBμV

Syntax LV_i (setting and response)
LV_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

37 Output level in dBmV (LW)

Function Sets or queries the output level in dBmV

Syntax LW_i (setting and response)
LW_? (query)

- * This is an option-specific program code. See the instruction manual for the option.

38 Output level increment (DU)

Function Increments the output level by the current step
 Syntax DU (setting)

39 Output level decrement (DD)

Function Decrements the output level by the current step
 Syntax DD (setting)

40 Output level step (DL)

Function Sets or queries the step that is used to increment or decrement the output level
 Syntax DL_n (setting and response)
 DL_? (query)

| n | Output Level Step in dB |
|---|-------------------------|
| 0 | 0.1 |
| 1 | 1.0 |
| 2 | 10.0 |

41 Reference clock (CK)

Function Selects or queries the reference clock
 Syntax CK_n (setting and response)
 CK_? (query)

| n | Reference Clock |
|---|-----------------|
| 0 | Internal |
| 1 | External input |

42 Saving the specified preset (ST)

Function Saves the current settings to the specified preset number
 Syntax ST_n (setting)

| n | Preset Number |
|---------|---------------|
| 0 to 99 | - |

43 Loading the specified preset (RC)

Function Loads the specified preset
 Syntax RC_n (setting)

| n | Preset Number |
|---------|---------------|
| 0 to 99 | - |

44 Preset increment (RU)

Function Increments the preset number
 Syntax RU (setting)

45 Preset decrement (RD)

Function Decrements the preset number

Syntax RD (setting)

46 Returning the preset number to the start address (RR)

Function Returns the preset number to the start address

Syntax RR (setting)

47 Group (GR)

Function Selects or queries the group

Syntax GR_n (setting and response)

GR_? (query)

| | |
|--------|--------------|
| n | Group Number |
| 0 to 9 | - |

48 Start address and stop address (GS)

Function Sets or queries the group settings

Syntax GS_n, p, q (setting and response)

GS_n_? (query)

| | |
|--------|--------------|
| n | Group Number |
| 0 to 9 | - |

| | |
|---------|---------------|
| p | Start Address |
| 0 to 98 | - |

| | |
|---------|--------------|
| q | Stop Address |
| 1 to 99 | - |

* Specify a start address that is less than or equal to the stop address.

49 Modulation (CW)

Function Selects or queries the modulation

Syntax CW_n (setting and response)

CW_? (query)

| | |
|---|---------------------|
| n | Modulation |
| 0 | Modulated output |
| 1 | CW (carrier) output |

50 RF output (RO)

Function Selects or queries the RF output

Syntax RO_n (setting and response)

RO_? (query)

| | |
|---|----------------------|
| n | RF Output |
| 0 | Turns the output OFF |
| 1 | Turns the output ON |

Notes regarding program codes 51 to 58

- Using these program codes to perform settings or queries when the TS input is set to anything other than Internal is invalid.
- Performing settings or queries when the last selected file has been deleted or when the selected file's format is not supported by the LG 3810 is invalid

51 TS playback (IP)

Function Sets or queries the TS playback

Syntax IP_n (setting and response)
IP_? (query)

| n | TS Playback Setting |
|---|---------------------|
| 0 | Stop |
| 1 | Play |

52 TS file (II)

Function Queries the TS file information

Syntax n, p, t (response)
II_? (query)

| n | TS Classification |
|---|-------------------|
| 0 | MPEG-2 TS |
| 1 | ISDB-T TS |

| p | Packet Size |
|---|-------------|
| 0 | 188 bytes |
| 1 | 204 bytes |

| t | Total Playback Time |
|------------------------------|---------------------|
| 000H00M00.0S to 999H59M59.9S | - |

53 TS bitrate (IR)

Function Queries the bitrate of the TS to play back

Syntax i (response)
IR_? (query)

| i | Bitrate (MHz) |
|-----------------------|---------------|
| 0.200000 to 40.000000 | - |

54 Playback start time (IS)

Function Sets or queries the playback start time

Syntax IS_t (setting and response)
IS_? (query)

| t | Playback Start Time |
|------------------------------|--------------------------------|
| 000H00M00.0S to 999H59M59.9S | - |
| CLR | Clears the start and end times |

- * You cannot change this setting while a TS is being played back.
- * You cannot specify a value that exceeds the time that program code 53, "II," returns.
- * You cannot specify a value that makes playback stop time - playback start time a value that is less than 000h00m05.0s.
- * When you specify a playback start time, range playback is automatically enabled.

55 Playback stop time (IE)

Function Sets or queries the playback stop time

Syntax IE_t (setting and response)
IE_? (query)

| t | Playback Stop Time |
|------------------------------|--------------------------------|
| 000H00M00.0S to 999H59M59.9S | - |
| CLR | Clears the start and end times |

- * You cannot change this setting while a TS is being played back.
- * You cannot specify a value that exceeds the time that program code 53, "II," returns.
- * You cannot specify a value that makes playback stop time - playback start time a value that is less than 000h00m05.0s.
- * When you specify a playback stop time, range playback is automatically enabled.

56 Range playback (IB)

Function Sets or queries the range playback setting

Syntax IB_n (setting and response)
IB_? (query)

| n | Range Playback |
|---|----------------|
| 0 | Disabled |
| 1 | Enabled |

- * You cannot change this setting while a TS is being played back.
- * When you enable range playback, the playback start time is set to the minimum value, and the playback stop time is set to the maximum value.
- * If you use the "IS" or "IE" command to send "CLR," range playback is disabled.

57 Loop playback (IL)

Function Sets or queries the playback mode

Syntax IL_n (setting and response)
IL_? (query)

| n | Loop Playback |
|---|---------------|
| 0 | OFF |
| 1 | ON |

- * You cannot change this setting while a TS is being played back.

58 RAM playback (IM)

Function Sets or queries the RAM playback mode setting

Syntax IM_n (setting and response)

IM_? (query)

| n | RAM Playback |
|---|--------------|
| 0 | OFF |
| 1 | ON |

* You cannot change this setting while a TS is being played back.

59 TOT overwrite (TT)

Function Sets or queries the TOT overwrite feature

Syntax TT_n (setting and response)

TT_? (query)

| n | TOT Overwrite |
|---|---------------|
| 0 | OFF |
| 1 | ON |

60 TS parameters (PI)

Function Sets or queries the TS parameters

Syntax PI_n, p, q, r (setting and response)

PI_? (query)

| n | Parameter Overwrite |
|---|---------------------|
| 0 | OFF |
| 1 | ON |

| p | TS-ID |
|--------------|-------------|
| 0000 to FFFF | Hexadecimal |

| q | Service ID |
|--------------|-------------|
| 0000 to FFFF | Hexadecimal |

| r | Remote Key ID |
|---------|---------------|
| 1 to 12 | - |

* If parameter overwrite is OFF, the LG 3810 ignores any program codes that attempt to set the TS-ID, service ID, or remote ID.

61 Subchannel (SC)

Function Sets or queries the subchannel

Syntax SC_n (setting and response)

SC_? (query)

* This is an option-specific program code. See the instruction manual for the option.

62 Occupied start subchannel (OC)

Function Sets or queries the occupied start subchannel

Syntax OC_n (setting and response)

OC_? (query)

* This is an option-specific program code. See the instruction manual for the option.

63 Status screen display updating (AL)

Function Sets or queries status screen display updating

Syntax AL_n (setting and response)

AL_? (query)

| n | Status Screen Display Updating |
|---|--------------------------------|
| 0 | OFF |
| 1 | ON |

If you set this setting to OFF, the following screen is displayed.

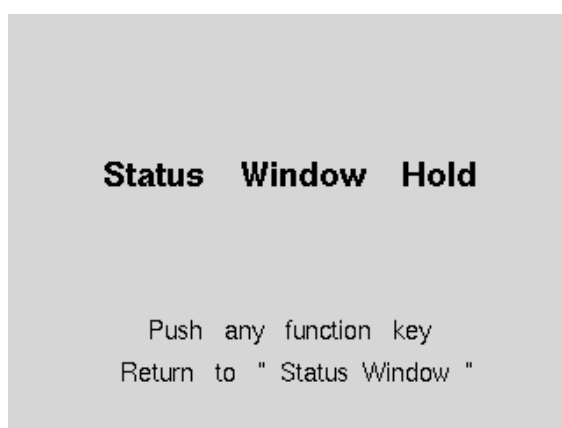


Figure 8-1 Status screen (updating turned OFF)

* To perform remote control continuously and at a high speed, turn updating OFF.

64 Broadcast system (SS)

Function Sets or queries the broadcast system

Syntax SS_n (setting and response)

SS_? (query)

| n | Broadcast System |
|---|------------------|
| 1 | SER01 (MEDIAFLO) |
| 2 | SER02 (ISDB-T) |
| 3 | SER03 (ATSC) |
| 4 | SER04 (DVB-T/H) |
| 5 | SER05 (CATV) |
| 6 | SER06 (ISDB-Tmm) |

* The LG 3810 only accepts this program code when the broadcast system license has been cleared. At all other times, this program code is ignored.

65 HDD write mode (HDW)

Function Sets or queries the HDD write mode

Syntax HDW_c (setting and response)

HDW_? (query)

| c | HDD Write Mode |
|---------|-------------------------|
| ENABLE | Enables the write mode |
| DISABLE | Disables the write mode |

* Be sure to set the write mode to DISABLE before you turn the LG 3810 OFF.

Notes regarding program codes 66 to 68

- These features are mainly designed for use with an Ethernet. For details, see chapter 9, "ETHERNET." You can also use GPIB to set and query these settings, but you cannot use GPIB to perform file operations.
- Note that the same string (shown below) is returned to the controller if you use the GPIB or Ethernet interface to send the HDW command to the LG 3810 to ENABLE the HDD write mode.

The string " *** CAUTION!! *** Please Set <<rem HDW DISABLE>> Before Power Off " and CR, LF (for a total of 67 characters) are returned to the controller.

66 File server setting (FSV)

Function Sets or queries the file server setting

Syntax FSV_c (setting and response)

FSV_? (query)

| c | File Server |
|---------|--------------------------|
| ENABLE | Enables the file server |
| DISABLE | Disables the file server |

* Each time that the LG 3810 turns OFF, the file server is disabled.

67 File server name (NAM)

Function Sets or queries the file server name

Syntax NAM_a (setting and response)

NAM_? (query)

| a | File Server Name |
|-----------------------------------|--------------------------------------|
| Up to 16 characters in ASCII code | Only capital letters of the alphabet |

68 Workgroup name (WGP)

Function Sets or queries the workgroup name

Syntax WGP_a (setting and response)

WGP_? (query)

| a | Workgroup Name |
|-----------------------------------|--------------------------------------|
| Up to 16 characters in ASCII code | Only capital letters of the alphabet |

9. ETHERNET

You can use the LG 3810's Ethernet port to configure its main settings remotely.

9.1 Connection Procedure

To connect the LG 3810 to an Ethernet, connect a 100BASE-TX STP cable to the LG 3810's Ethernet (ETHER) port.

If you are connecting the LG 3810 to your PC in a one-to-one manner, use a crossover cable.

If you are using a hub to connect the LG 3810 to your local network, use a straight cable.

Consult your network administrator, and configure the LG 3810 TCP/IP settings to match your local network environment.

You can control the LG 3810 over an Ethernet at the same time that the instrument is being controlled (remotely) through GPIB. If you want to only control the LG 3810 over an Ethernet, disconnect all other control cables from the instrument.

9.2 Operations on Your PC

Use TELNET^{*1} to control the LG 3810 remotely from a PC that is connected to your network. For information on how to start TELNET, see your PC's instruction manual.

All LG 3810 operations have been confirmed to work on Windows 2000 (SP4) and Windows XP (SP3). However, depending on compatibility with your PC's environment, some operations may not work.

When you start TELNET, "login:" is displayed. Enter "lg3810."

Next, "Password:" is displayed. Enter "lg3810."

(You cannot change the login name and password on the LG 3810.)

To execute commands, type "rem" followed by the program codes that were listed in Table 8-4 and Table 8-5. Additionally, you can query settings by appending "?" to commands.

● Example 1

To set the frequency to 500 MHz and the output level to -60 dBm, send the following commands.

"_" represents a space character. Insert a space between the header and data codes.

rem_RF_500 Enter

rem_LM_-60 Enter

● Example 2

To read the channel setting, send the following command.

"_" represents a space character. Insert a space between the header and data codes and before the "?" character.

rem_CH_? Enter

*1 Example of starting TELNET on Windows XP (the IP address assigned to the LG 3810 is 192.168.0.1)

1. On the taskbar, click Start, and then click Run.

2. Enter "TELNET 192.168.0.1."

10. CALIBRATION AND REPAIRS

This instrument has been carefully examined at the factory to ensure that its performance is in accordance with the standards. However, because of factors such as parts wearing out over time, the performance of the instrument may degrade. To ensure stable performance, we recommend that you have the instrument calibrated regularly. Also, if the instrument malfunctions, repairs are necessary. For repairs and calibration, contact your local LEADER agent.

Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码: LG 3810



此标志适用于在中国销售的电子信息产品, 依据2006年2月28日公布的《电子信息产品污染控制管理办法》以及SJ/T11364-2006《电子信息产品污染控制标识要求》, 表示该产品在使用完结后可再利用。数字表示的是环境保护使用期限, 只要遵守与本产品有关的安全和使用上的注意事项, 从制造日算起在数字所表示的年限内, 产品不会产生环境污染和对人体、财产的影响。产品适当使用后报废的方法请遵从电子信息产品的回收、再利用相关法令。详细请咨询各级政府主管部门。

产品中有毒有害物质或元素的名称及含量

| 部件名称 Parts | 有毒有害物质或元素 Hazardous Substances in each Part | | | | | |
|---------------|---|-----------|-----------|------------------|---------------|-----------------|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr (VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 实装基板 | × | ○ | ○ | ○ | ○ | ○ |
| 主体部 | × | ○ | ○ | ○ | ○ | ○ |
| 液晶显示模组 | × | ○ | ○ | ○ | ○ | ○ |
| 开关电源 | × | ○ | ○ | ○ | ○ | ○ |
| 风扇 | × | ○ | ○ | ○ | ○ | ○ |
| 外筐 | ○ | ○ | ○ | ○ | ○ | ○ |
| 线材料一套 | ○ | ○ | ○ | ○ | ○ | ○ |
| 附件 | ○ | ○ | ○ | ○ | ○ | ○ |
| 包装材 | ○ | ○ | ○ | ○ | ○ | ○ |
| 电池 | ○ | ○ | ○ | ○ | ○ | ○ |
| 硬盘驱动器 | × | ○ | ○ | ○ | ○ | ○ |
| | | | | | | |

备注)
○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 规定的限量要求以下。
×: 表示该有毒有害物质或元素至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

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