

LG 3860SER01

ISDB-S SOFTWARE

INSTRUCTION MANUAL

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## 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 About Licenses

This software can only be used after its license key has been activated. After you have installed this software on a PC, connect the PC to an LG 3860, and then enter the license key from the PC. For details on installing the software and entering the license key, see the LG 3860 instruction manual.

The license key for this software can only be used on one LG 3860. You cannot install this software on multiple LG 3860s.

### 1.2 Operating Precautions

#### 1.2.1 About Turning the Power Off

When a PC and an LG 3860 are connected by a USB cable and you want to turn the devices off, be sure to turn the LG 3860 off before you turn the PC off.

#### 1.2.2 About the PC Setting

When you are controlling the LG 3860 from a PC, do not set the PC to power saving mode.

#### 1.2.3 About Transport Stream File Playback

If you play back a transport stream file from a PC that is handling an excessive load, the video or audio may be interrupted.

See section 6.3, "Transport Stream File."

#### 1.2.4 About the USB Connection

While the program is being transferred from the PC to the LG 3860, do not disconnect the USB connection between the PC and the LG 3860. If a disconnection of the USB cable or other problem causes the program transfer to be interrupted, transfer the program to the LG 3860 again.

If, while the LG 3860 is being controlled from a PC, the USB connection is mistakenly disconnected, an error message is displayed on the PC screen. If this happens, re-connect the USB connection, and then click the play button on the control application to begin transmitting the signal again.

### 1.3 Trademarks

The company and product names in this document are trademarks or registered trademarks of their respective holders.

## 2. SPECIFICATIONS

### 2.1 General

This product is a software application that can be used to transfer broadcast systems to the LG 3860 and control the LG 3860 from a PC. After a broadcast system has been transferred to the LG 3860, the LG 3860 can be used as an ISDB-S signal generator.

### 2.2 Features

- **USB 2.0**

Connect the LG 3860 to a PC through USB to transfer broadcast systems, play back user-defined transport streams, and configure transmission parameters.

- **Still Images**

Output two different still-image patterns seamlessly.

- **Audio Signals**

Select from three different audio patterns.

### 2.3 Specifications

#### 2.3.1 Channel Coding Section

Broadcasting System	Satellite digital television broadcast ISDB-S (ARIB STD-B20)
Transmission Parameters	
Modulation Format	8PSK, QPSK, BPSK
Coding Rate	2/3 (8PSK), 1/2, 2/3, 3/4, 5/6, 7/8 (QPSK), 1/2 (BPSK)
Roll-Off Factor	$\sqrt{0.35}$
Symbol Rate	28.86 Msps

#### 2.3.2 External TS Input Specifications

Input Packet Format	188 bytes, 204 bytes
Supported Stream	MPEG-2 TS (ISO/IEC13818-1)
Input Data Rate	0.2 to 75.0 Mbps
Supported Format	MPEG-TS, TS with TMCC (*1)
Number of PCRs That Can Be Updated	Up to 48
Update Parameter	PCR

\*1 See section 6.3, "Transport Stream File."

## 2. SPECIFICATIONS

### 2.3.3 RF Signal Generator

Output Level	39 to 99 dB $\mu$ V (75 $\Omega$ termination; in 1 dB steps) (*1)
Output Channel	Odd-numbered BS channels from channel 1 to channel 23, Even-numbered ND channels from channel 2 to channel 24, Lo (950 MHz), Hi (2150 MHz)
Frequency Bandwidth	34.5 MHz

\*1 This is the guaranteed operating range. The optimal range is 59 to 99 dB $\mu$ V (75  $\Omega$  termination). If signals in the range of 39 to 58 dB $\mu$ V (75  $\Omega$  termination) will be generated, we recommend that an external attenuator be connected to the LG 3860.

### 2.3.4 Internal Signal

Pseudo Random Signal	PN23, PN15 (*1)
Still-Image Pattern	Color bar, monoscope
Format	1920 $\times$ 1080i (HDTV)
Audio (Tone)	1 kHz (LR), 400 Hz (LR), 1 kHz (L) + 400 Hz (R) (*1)

\* The still-image patterns and formats may be changed.

\*1 The pseudo random signal and audio (tone) can be switched when the LG 3860 is connected to a PC.

### 2.3.5 C/N Generator

C/N Adjustment Range	5.0 to 30.0 dB (*1)
Resolution	0.1 dB

\*1 The C/N setting can be adjusted when a PC is connected.

### 2.3.6 PC Operating Environment

OS	Windows 7, Windows Vista, Windows XP SP3
CPU	Intel (R) Core™ 2 Duo, 1.6 GHz or more
Memory	1 GB or more
HDD	1 GB or more of free space
USB Port	1 USB 2.0 port

### 2.3.7 Standalone Operation of the LG 3860

Function Through the transferring of a broadcast system to the LG 3860, the LG 3860 can be used as a standalone ISDB-S signal generator.

#### RF Signal Generator

Output Level	39 to 99 dB $\mu$ V (75 $\Omega$ termination; in 1 dB steps)
Output Channel	Odd-numbered BS channels from channel 1 to channel 23, Even-numbered ND channels from channel 2 to channel 24, Lo (950 MHz), Hi (2150 MHz)

## 2. SPECIFICATIONS

Internal Signal	
Pseudo Random Signal	PN23, PN15
Still-Image Pattern	Color bar, monoscope
Format	1920×1080i (HDTV)
Audio (Tone)	1 kHz (LR), 400 Hz (LR), 1 kHz (L) + 400 Hz (R)
Presets	
Recall/Store	Stores and recalls presets (*1)
Alarm Display	Shown on the 7-segment display

\*1 If a preset recall range has been set through the use of the control application, presets from within that range are recalled.

### 2.3.8 Control Application

Function	Controls the LG 3860 from a PC over a USB connection
Broadcasting System	ISDB-S
RF Signal Generator	
Output Level	39 to 99 dBμV (75 Ω termination; in 1 dB steps; can be turned on and off)
Output Control	Modulation, carrier
Output Channel	Odd-numbered BS channels from channel 1 to channel 23, Even-numbered ND channels from channel 2 to channel 24, Lo (950 MHz), Hi (2150 MHz)
Internal Signal	
Pseudo Random Signal	PN23, PN15
Still-Image Pattern	Color bar, monoscope
Format	1920×1080i (HDTV)
Audio (Tone)	1 kHz (LR), 400 Hz (LR), 1 kHz (L) + 400 Hz (R)
C/N Generator	
C/N Adjustment Range	5.0 to 30.0 dB (in 0.1 dB steps; can be turned on and off)
Transport Stream File Operations	
	Select, playback, stop, etc.
Presets	
Recall/Store	Stores and recalls presets
Begin/End	Sets the beginning and ending preset numbers on the LG 3860
Load/Save	Collectively saves and writes 40 presets
Alarm Display	Can't connect to USB device, etc.

### 2.3.9 Licenses

License Activation	When the program is transferred to the LG 3860
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\* The license key for this software can only be used on one LG 3860.

## 2. SPECIFICATIONS

### 2.3.10 General Specifications

Environmental Conditions	Same as the LG 3860
Contents	License key (A4 sheet) ..... 1
	CD-ROM..... 1
	Instruction manual ..... 1

### 3. INSTALLATION

To use this software, follow the procedure below. For details, see the LG 3860 instruction manual.

#### 1. Install the encoding software.

Install the encoding software on your PC from the CD-ROM.

To update the encoding software, uninstall the old version, and then install the new version.

#### 2. Install the USB driver.

Install the USB driver on your PC.

This software supports Microsoft Windows XP SP3, Windows Vista, and Windows 7.

Follow the procedure below to install the USB driver on these operating systems.

The installation procedure explained here is for Windows XP SP3. Depending on your PC, your screens may differ slightly from the screen captures shown in this procedure, but the procedure remains the same.

##### a) Turn on the LG 3860.

##### b) Use a USB cable to connect the LG 3860 rear-panel USB port to a USB port on your PC.

Do not connect devices other than the LG 3860 to the other USB ports on your PC.

##### c) If the Windows Update connection window appears, select “No, not this time,” and click Next.



Figure 3-1 Windows Update connection window

- d) When the installation window appears, select “Install from a list or specific location,” and click Next.



Figure 3-2 Installation window

- e) When the following screen appears, select “Search for the best driver in these locations,” and click Browse.



Figure 3-3 Driver search window

- f) **Select the wxp folder of the encoding software that was installed during step 1, “Install the encoding software,” and then click OK.**

On Windows Vista or Windows 7, select the wlh folder.



Figure 3-4 Browse For Folder dialog box

- g) **Check that the full path displayed here is the folder that you selected in step f, and then click Next.**

When you click Next, the PC searches for and installs the driver. This process may take some time.



Figure 3-5 Driver folder confirmation window

- h) If any warnings that are related to the hardware installation appear, click Continue Anyway.**

This dialog box may not appear.



Figure 3-6 Hardware installation warning dialog box

- i) When the following window appears, the installation is complete. Click Finish.**



Figure 3-7 Installation complete window

### 3. Activate the license and transfer the program to the LG 3860.

Connect the LG 3860 to your PC, and activate the license.

After the license has been activated, you can use the LG 3860 as a standalone ISDB-S signal generator.

See section 5.3.5, "LG 3860" and chapter 4, "STANDALONE OPERATION OF THE LG 3860."

The LG 3860 can be controlled from a PC. By controlling the LG 3860 from a PC, you can play back external TS files and configure detailed settings that are used during LG 3860 standalone operation.

Use the application software LG 3860SER01 ISDB-S Remote Control to control the LG 3860. In this manual, this software is referred to as the "control application."

See chapter 5, "CONTROL APPLICATION."

## 4. STANDALONE OPERATION OF THE LG 3860

This chapter will explain how to operate the LG 3860 as a standalone device. To operate the LG 3860 in this manner, you must first connect the PC to the LG 3860 and transfer the ISDB-S signal generator program to the LG 3860.

See chapter 3, "INSTALLATION."

### 4.1 Panel Settings

#### 4.1.1 PATTERN

Press each of the front-panel PATTERN keys to play back the internal still-image patterns and PN signals.

See section 5.3.2, "Pattern."

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COLOR BAR:	A colorbar signal is transmitted.
MONOSCOPE:	A monoscope signal is transmitted.
PN:	A pseudo random signal is transmitted (PN23/PN15).
OTHERS:	Not used

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#### 4.1.2 CHANNEL

Press the front-panel CHANNEL key to select the output channel. When the channel is being selected, "CH" lights, and the output channel is displayed on the 7-segment LED.

Press the ▼ and ▲ keys to select the output channel. Hold down the ▼ or ▲ key to switch the setting quickly.

The following channels can be selected: odd-numbered BS channels from channel 1 to channel 23 and even-numbered ND channels from channel 2 to channel 24.

Use the BAND key to switch between BS and ND.

See section 6.1, "Channel Table."

#### 4.1.3 LEVEL

Press the front-panel LEVEL key to set the output level. When the level is being set, "dBμV" lights, and the output level is displayed on the 7-segment LED.

Press the ▼ and ▲ keys to select the output level. Hold down the ▼ or ▲ key to switch the setting quickly. You can set the output level to a value that is in the range of 39 to 99 dBμV (75 Ω termination) in steps of 1 dB.

#### 4.1.4 STORE/RECALL

You can save and recall 40 preset configurations (stored in preset addresses 00 to 39). For details, see the LG 3860 instruction manual.

If you use the control application to set the range of presets that can be recalled, you can only recall the presets within the range that you set.

Use the control application to save the following values to presets.

The Fixed Setting, PN Setting, and TS Setting Main Signal and Sub Signal settings

See sections 5.3.5, "LG 3860" and 5.4.2, "Preset No./Store/Recall."

- \* When the LG 3860 turns on, it transmits a signal based on the settings in the preset of the address specified by Begin No. within the preset recall range that you have set with the control application.

#### 4.2 Settings at Power On

When the LG 3860 turns on, it uses the settings that are stored in the first preset address (Begin No.). It also uses these settings if you disconnect the connection with the PC while using the control application. Immediately after you transfer the program to the LG 3860, the first preset address is number 00.

The factory default values of this preset are shown below.

Table 4-1 Factory default values of presets

Item		Factory Default
Transmission Parameters	Layer 1 Modulation	TC8PSK 2/3
	Layer 1 Slots	24
	Relative TS/TS-ID: 0	0x4010
	Layer 2 Modulation	TC8PSK 2/3
	Layer 2 Slots	24
	Relative TS/TS-ID: 1	0x4011
	Slot Alloc	Forward (filled toward the front)
PATTERN		COLOR BAR
	AUDIO	L: 1 kHz R: 400 Hz
CHANNEL		BS channel 1
LEVEL		70 dB $\mu$ V (75 $\Omega$ termination)

## 5. CONTROL APPLICATION

This chapter will explain the control application LG 3860SER01 ISDB-S Remote Control that you use to control the LG 3860 from a PC. To control the LG 3860 from a PC, you must first transfer the ISDB-S signal generator program to the LG 3860 from a PC.

See chapter 3, "INSTALLATION."

### 5.1 Starting and Ending Remote Control

- **Starting the control application**

Use a USB cable to connect the PC and LG 3860, and then follow the procedure below to start the control application.

On the taskbar, click Start, All Programs, LEADER, LG 3860SER01, and then click LG 3860SER01 ISDB-S Remote Control.

- **Starting remote control**

When one LG 3860 is connected to the PC, the LG 3860 is automatically detected by the control application when the application starts, and you can immediately control this LG 3860.

When more than one LG 3860 is connected to the PC, carry out the procedure below to select the LG 3860 to control. To control multiple LG 3860s from a single PC, run multiple control applications.

#### Controlling the first LG 3860

- If you have previously controlled one of the connected LG 3860s, that LG 3860 will be automatically detected.
- If you have not previously controlled one of the connected LG 3860s, the Connect list in the main window displays "Select." Remote control does not start until you select an LG 3860. Select the serial number of the LG 3860 that you want to control from the list.

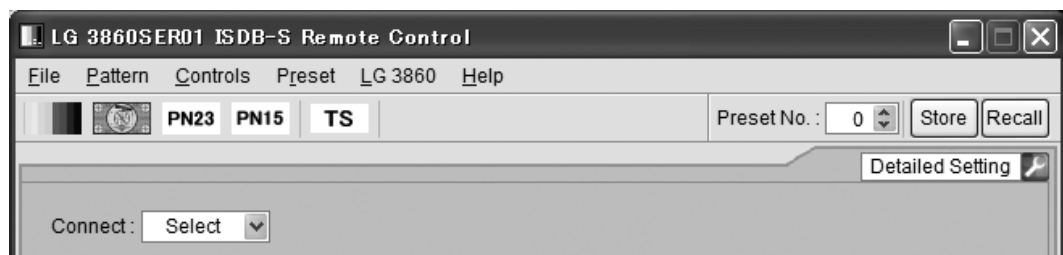


Figure 5-1 Main window

#### Controlling the other LG 3860s

For the other LG 3860s, the Connect list in the Main window will display Select again, and the serial numbers of LG 3860s that are not controlled will be displayed. Select the serial number of the LG 3860 that you want to control from the list.

If all the LG 3860s are being controlled and you start another control application, the following error message appears: "No Connection." If this happens, exit the control application.

You cannot play back transport stream files with the same file name on multiple control applications.

- **During remote control**


During remote control, The LG 3860 7-segment LED displays “PC.” When the LG 3860 is in this state, you cannot perform panel operations.

- **Ending remote control**

Exit the control application on the PC to enable panel operations on the LG 3860.  
After the LG 3860 is disconnected from the PC, the LG 3860 uses the settings in the preset specified by Begin No.

## 5.2 Window Explanation

The control application window is explained below.

The part containing the elements labeled 1 to 13 is referred to as the Main window. The part containing the elements labeled 15 to 20 is referred to as the Sub window. The Sub window is not displayed when you start the control application. To display the Sub window, click  (No. 14) in the lower right of the screen.

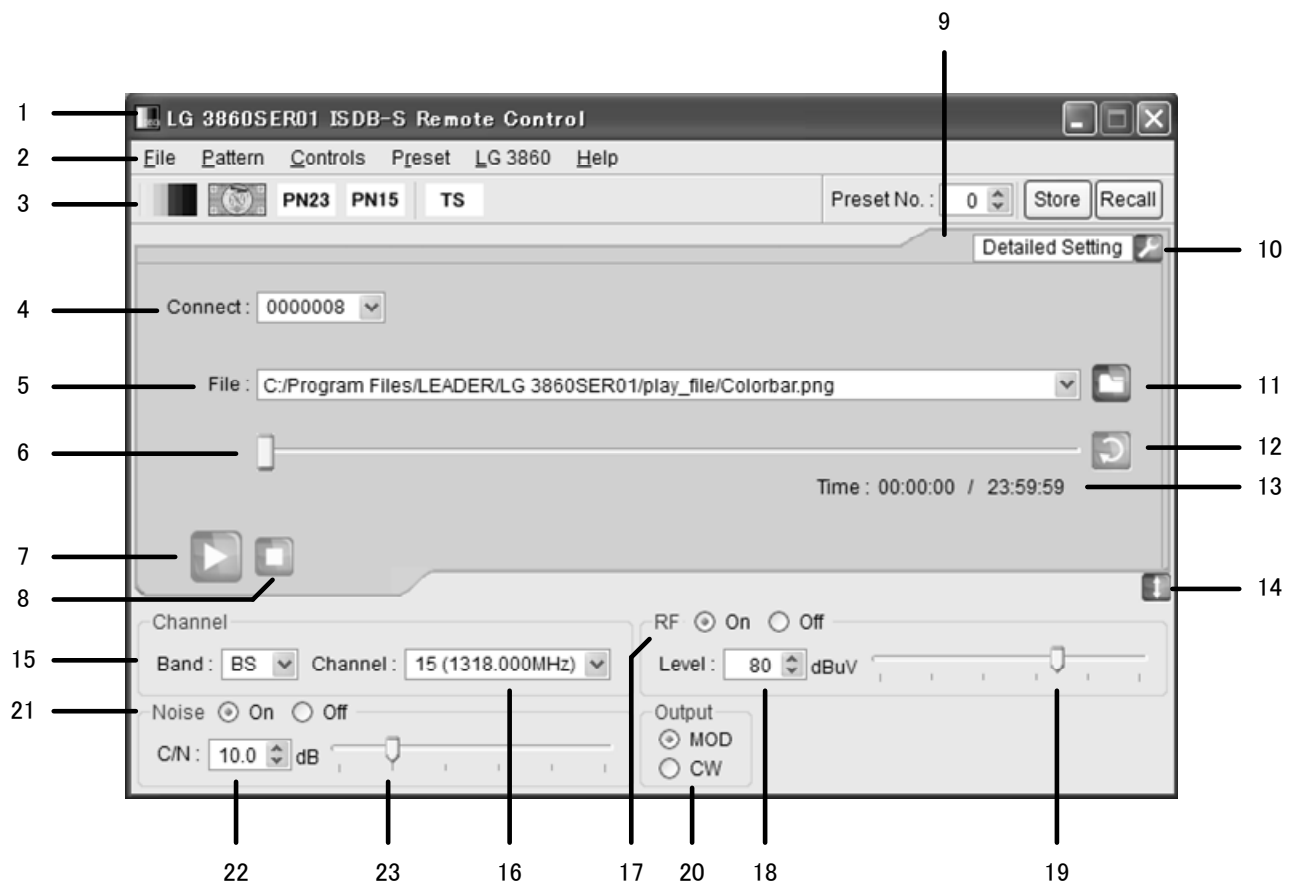


Figure 5-2 Window explanation

**1 Title**

The title of the control application is displayed here. As shown in the above figure, you can see that this is an ISDB-S application.

**2 Menu bar**

The menus that are used to configure various settings are displayed here.

See section 5.3, "Menu Bar."

Table 5-1 List of menus

Menu	Description
File	Click to select the playback file or to exit the application.
Pattern	Click to select the output pattern.
Controls	Click to select the LG 3860 that you want to control or to configure file playback settings.
Preset	Click to collectively store, write, and list presets.
LG 3860	Click to perform license activation, program transfer, preset-recall-range configuration, and to display information about the controlled LG 3860.
Help	Click to display information about the application.

**3 Toolbar**

Use the controls displayed here to select the output pattern, and store and recall presets.

See section 5.4, "Toolbar."

**4 Connect**

Select the serial number of the LG 3860 that you want to control. If no LG 3860 is selected, "Select" is displayed.

See section 5.5.1, "Connect."

**5 File**

The selected file is displayed here. You can also enter the full path directly.

See section 5.5.2, "File."

**6 Playback slider**

The playback status of the selected file is displayed here. You can skip parts of the file by moving the slider.

See section 5.5.3, "Loop/Slider/Time."

**7 Play button**

Starts the playback of the selected file. During file playback, this button switches to the pause button. You can operate the play button when a transport stream file has been selected.

See section 5.5.4, "Play/Pause/Stop."

**8 Stop button**

Stops the playback of the selected file. You can operate the stop button when a transport stream file has been selected.

See section 5.5.4, "Play/Pause/Stop."

**9 Alarm button**

This is displayed when any problem, such as an improper USB disconnection, occurs. Click this button to display a message. When you solve the problem, this button disappears.

**10 Detailed Setting**

Click to configure various settings for the selected file. The settings that you can configure differ depending on the selected file.

See section 5.5.5, "Detailed Setting."

**11 File button**

Click to select the playback file. You can also enter the full path in the text box directly or drag the file to the control application window.

See section 5.5.2, "File."

**12 Loop button**

Click to set the loop mode (repeat or only once) for the selected file.

You can operate the loop button when a transport stream file has been selected.

See section 5.5.3, "Loop/Slider/Time."

**13 Time**

The selected file's playback time and total playback time are displayed here.

See section 5.5.3, "Loop/Slider/Time."

**14 Sub-window show/hide button**

Shows or hides the sub window.

**15 Band**

Select the channel band from BS and ND when you are configuring the output channel.

See section 5.6.1, "Band."

**16 Channel**

Select the output channel.

See section 5.6.2, "Channel."

**17 RF**

Turn signal output on or off.

See section 5.6.3, "RF."

**18 Level**

Set the output level.

See section 5.6.4, "Level."

**19 Level slider**

Move the slider to set the output level.

See section 5.6.4, "Level."

**20 Output**

Set the output signal to modulation or carrier.

See section 5.6.7, "Output."

**21 Noise**

Turn noise on or off.

See section 5.6.5, "Noise."

**22 C/N**

Set the C/N.

See section 5.6.6, "C/N."

**23 C/N slider**

Move the slider to set the C/N.

See section 5.6.6, "C/N."

**5.3 Menu Bar****5.3.1 File**

Click the File menu to select the playback file or to exit the application.

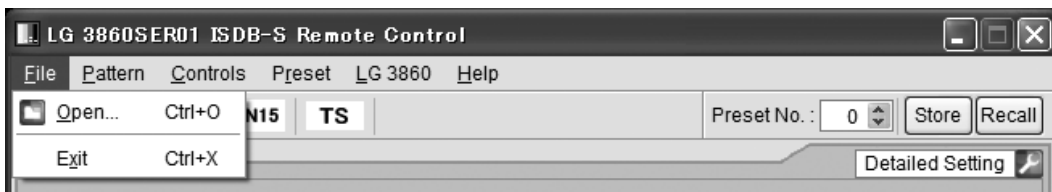


Figure 5-3 File menu

- **Open**

Displays the Open File dialog box. Select the playback file in this dialog box.

The selected file is immediately played back.

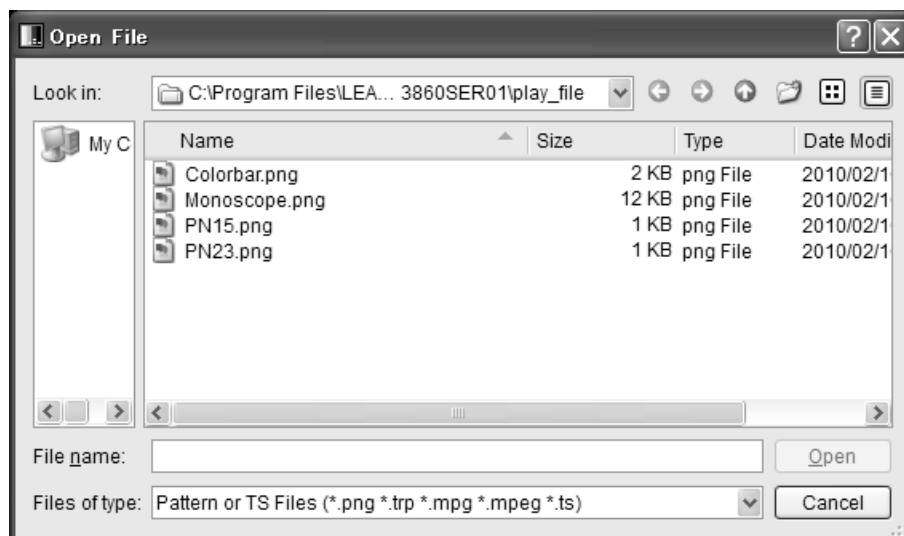


Figure 5-4 Open File dialog box

You can select a transport stream file or pattern file in the Open File dialog box. The four available pattern files are shown in the figure above. You cannot play back pattern files that you create.

You can also enter the full path in the File text box on the Main window to select a file. See section 5.5.2, "File."

- **Exit**

Exits the application. You can also exit the application by clicking the Close button in the upper right of the window.

### 5.3.2 Pattern

Click the Pattern menu to select the output pattern. The selected pattern is immediately played back.

You can also select the output pattern from the toolbar.

See section 5.4.1, "Pattern Buttons."

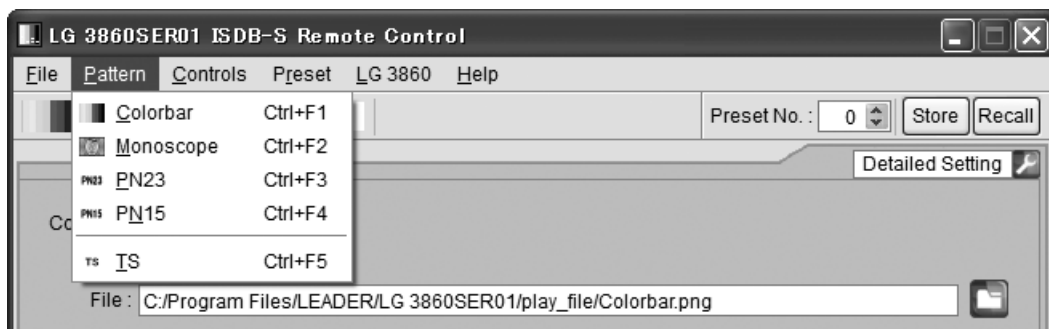


Figure 5-5 Pattern menu

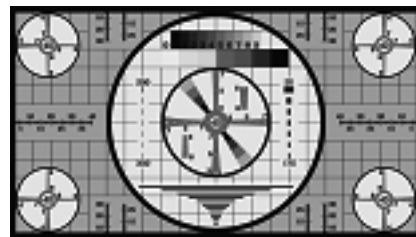
- **Colorbar**

A colorbar (simple animation) signal is played back.



- **Monoscope**

A monoscope signal is played back.



- **PN23**

A pseudo random signal (PN23) is played back.

- **PN15**

A pseudo random signal (PN15) is played back.

- **TS**

The previously selected transport stream file is played back. If no transport stream file has been selected, the Open File dialog box is displayed. Use this dialog box to select the file that you want to play back.

## 5.3.3 Controls

Click the Controls menu to select the LG 3860 that you want to control or to configure file playback settings.

You can select the file playback commands when a transport stream file has been selected.

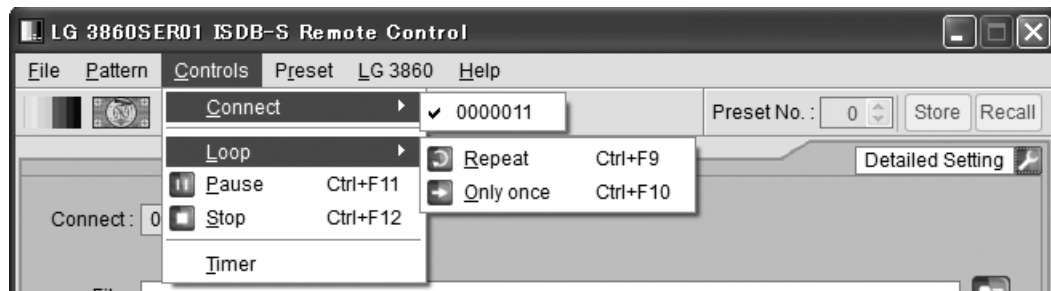


Figure 5-6 Controls menu

- **Connect**

Select the serial number of the LG 3860 that you want to control. A check mark is displayed next to the selected LG 3860.

You can also select the LG 3860 to connect to from the Connect list on the Main window.

See section 5.5.1, "Connect."

- **Loop**

Click to set the loop mode to Repeat or Only once for the selected file.

You can also click the loop button on the Main window to set the loop mode.

See section 5.5.3, "Loop/Slider/Time."

- **Play**

Starts the playback of the selected file. During playback, this command does not appear.

You can also click the play button on the Main window to play back the selected file.

See section 5.5.4, "Play/Pause/Stop."

- **Pause**

Pauses the playback of the selected file. While the playback is paused, this command does not appear.

You can also click the pause button on the Main window to pause the playback of the selected file.

See section 5.5.4, "Play/Pause/Stop."

- **Stop**

Stops the playback of the selected file.

You can also click the stop button on the Main window to stop the playback of the selected file.

See section 5.5.4, "Play/Pause/Stop."

- **Timer**

If a transport stream file has been selected, TS playback begins when the specified time and the time on the PC match. If the TS is already being played back, it is stopped and restarted.

To enable this setting, select the TS Start Time check box, and then enter the time that you want to start playback. You can specify a time from 00:00:00 to 23:59:59.

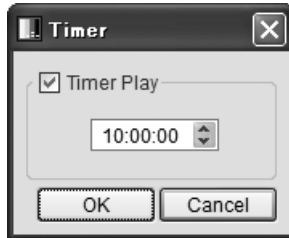


Figure 5-7 TS playback start time setup dialog box

#### 5.3.4 Preset

Click the Preset menu to collectively store, write, or list presets.

While a transport stream file is being played back, you cannot select these commands.

For an explanation of presets, see the LG 3860 instruction manual.

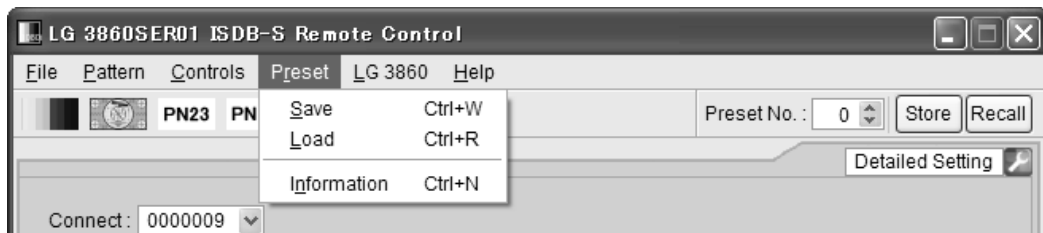


Figure 5-8 Preset menu

- **Save**

You can store presets 00 to 39 together in a single file. Set the filename and save location in the Save File dialog box, and then click Save.

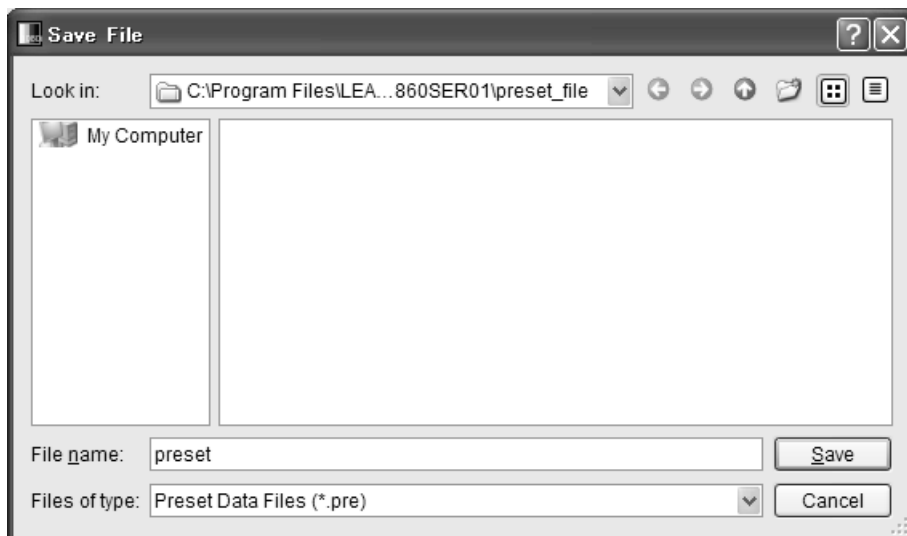


Figure 5-9 Save File dialog box

- **Load**

Click to load a preset data file (presets 00 to 39) that was previously saved through the Save command to the LG 3860 that you are controlling. Select the file in the Open File dialog box, and then click Open.

Note that any existing presets on the LG 3860 that you are controlling will be overwritten.

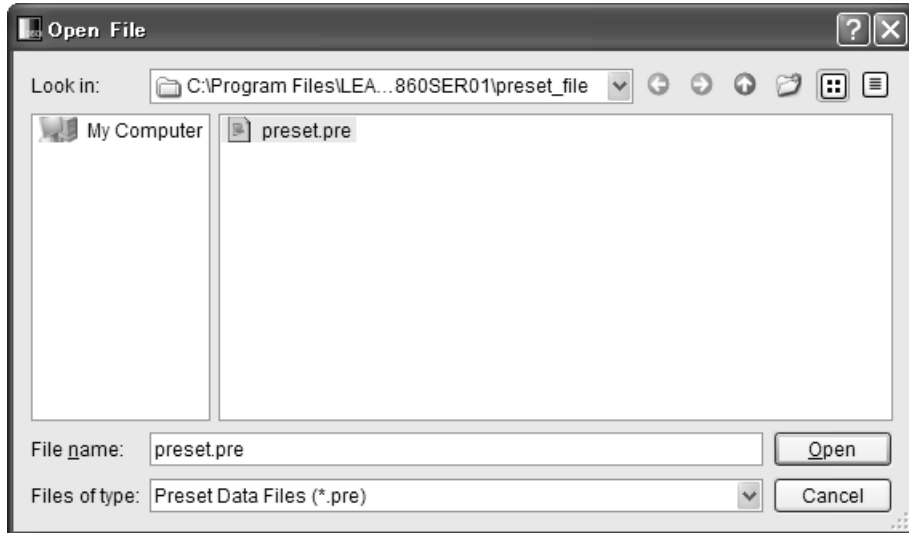


Figure 5-10 Open File dialog box

- **Information**

Displays a list of presets (00 to 39) that have been saved through the Save menu. Select the file in the Open File dialog box, and then click Open.

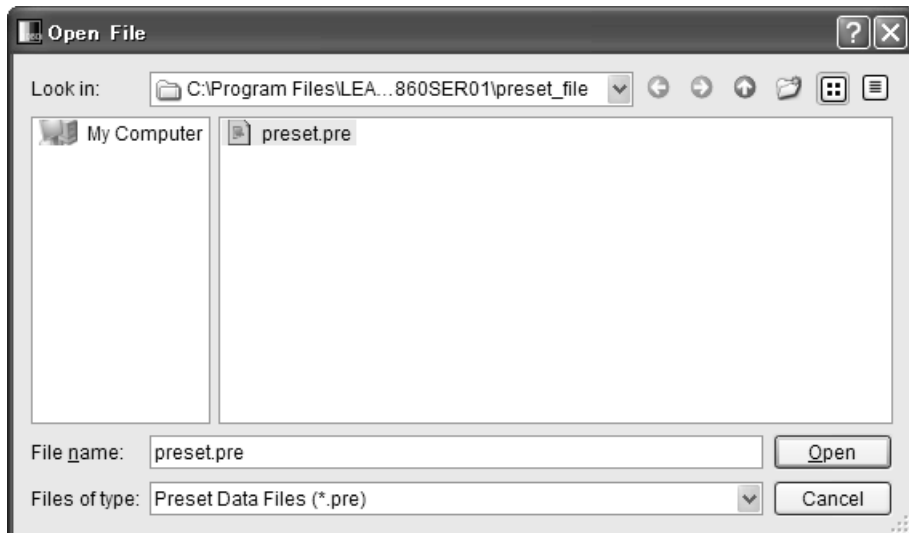


Figure 5-11 Preset selection dialog box

The Information window appears.

In this window, you can double-click items to change the preset settings.

After changing the settings, on the File menu, click Save to save the changes.

Click Open in the File menu to change the file to display in the list.

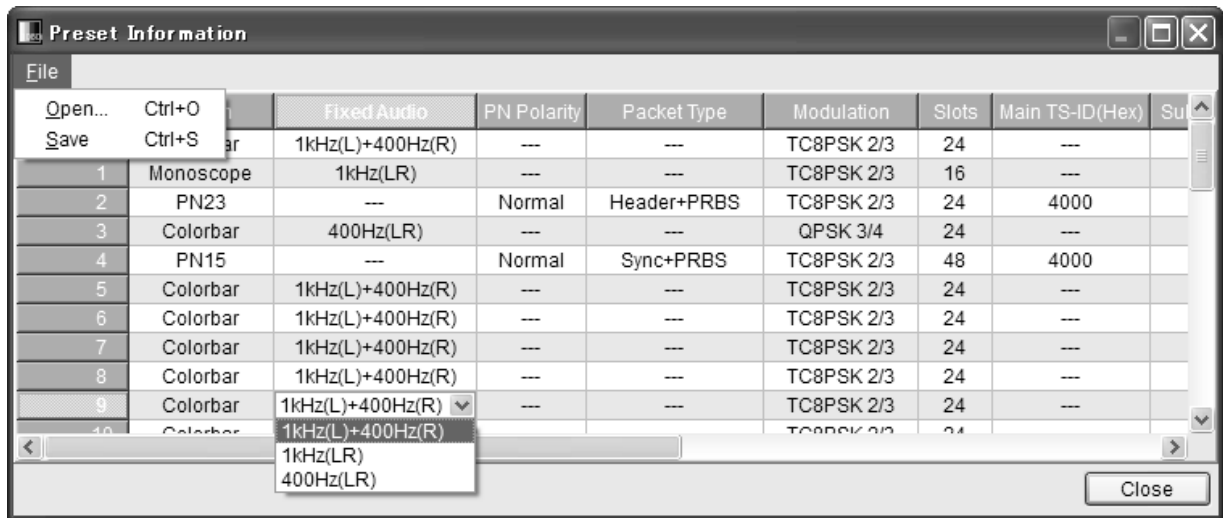


Figure 5-12 Information window

### 5.3.5 LG 3860

Click the LG 3860 menu to perform license activation, program transfer, preset-recall-range configuration, and to display information about the controlled LG 3860.

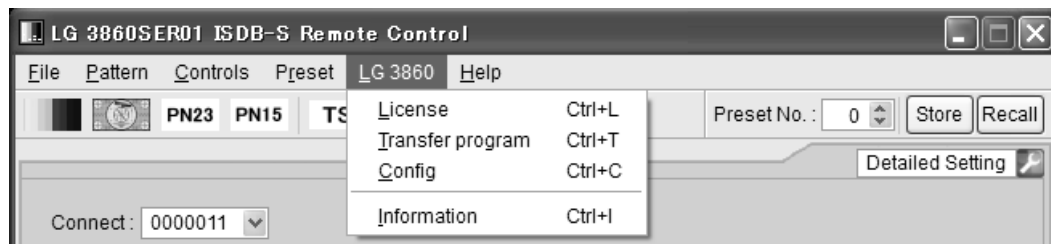


Figure 5-13 LG 3860 menu

- **License**

Click to activate your license key. To use the features of this product, you must first activate the license key. For details, see the LG 3860 instruction manual.

If the license key has already been activated on the LG 3860 that you are controlling, you cannot select this command.

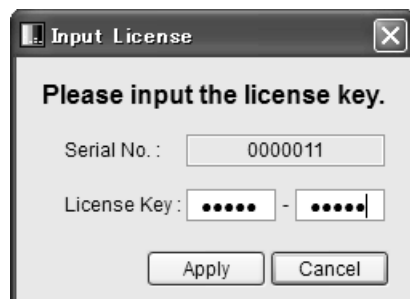


Figure 5-14 Input License dialog box

- **Transfer Program**

Click to transfer the program to the LG 3860 that you are controlling. After the program transfer is complete, you can use the LG 3860 as an ISDB-S signal generator.

(If the program has already been transferred to the LG 3860 that you are controlling, you cannot select this command.)

To begin transferring the program, click Execute in the Transfer Program dialog box. If your PC is connected to multiple LG 3860s, be sure that you have selected the LG 3860 that you want to transfer the program to from the Connect list on the Main window before you begin the program transfer.



Figure 5-15 Transfer Program dialog box

During the program transfer, do not turn the LG 3860 off or disconnect the USB cable. If a disconnection of the USB cable or other problem causes the program transfer to be interrupted, transfer the program to the LG 3860 again. It takes about 10 minutes to transfer the program.

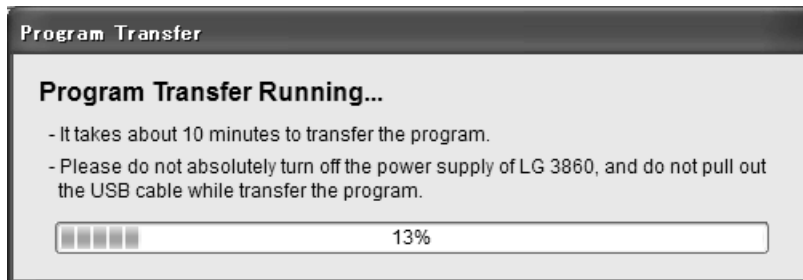


Figure 5-16 Dialog box while the program is being transferred

- **Config**

Set the preset recall range for when you operate the LG 3860 by itself. Enter the beginning and ending preset numbers in the Config dialog box, and then click OK. The factory default beginning and ending preset numbers are 0 and 39 respectively.

Specify an End No. value that is larger than the specified Begin No. value. If you specify a preset number that is outside of the range, the following error message appears: "Preset Begin/End Input Error." Enter an appropriate number.

The settings made here are invalid when you use the control application to recall presets. You can use the control application to recall all presets (preset numbers 0 to 39).

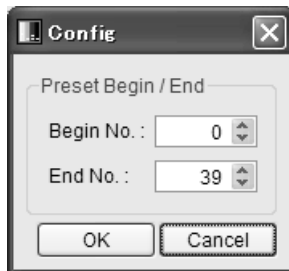


Figure 5-17 Config dialog box

- **Information**

Click to display the information of the LG 3860 that you are controlling.

While a transport stream file is being played back, you cannot select this command.

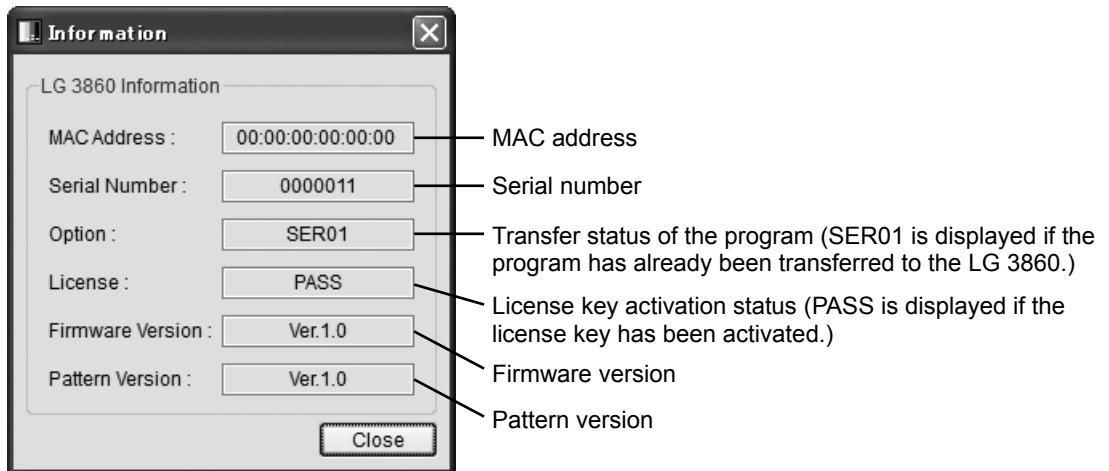


Figure 5-18 Information dialog box

## 5.3.6 Help

Click the Help menu to display the information about the application.

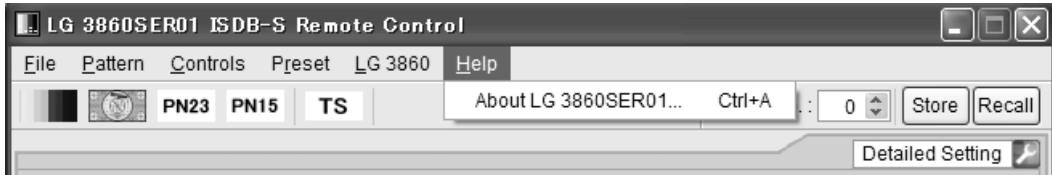


Figure 5-19 Help menu

- **About LG 3860SER01**

Click this to display a dialog box that contains information about the application, such as its version.



Figure 5-20 About LG 3860SER01 dialog box

## 5.4 Toolbar

### 5.4.1 Pattern Buttons

Click the button that corresponds to the output pattern that you want to select. The selected pattern is immediately played back.

You can also select the output pattern from the Pattern menu.

See section 5.3.2, "Pattern."



Figure 5-21 Pattern buttons

### 5.4.2 Preset No./Store/Recall

You can use the preset toolbar to store and recall presets.

The settings that are stored and recalled are the Pattern, Fixed Setting, PN Setting, TS Setting Main Signal and Sub Signal, Channel, and Level settings.



Figure 5-22 Preset toolbar

- **Storing presets**

To store a preset, on the toolbar, enter a preset number next to Preset No., and then click Store. When the following confirmation message appears, click Yes to store the preset on the LG 3860.



Figure 5-23 Confirmation dialog box

#### Notes

- You cannot store presets when you have selected a transport stream file.
  - Preset contents that are stored in the manner outlined above are retained even after the LG 3860 is turned off.
- **Recalling presets**
- To recall a preset, on the toolbar, enter a preset number next to Preset No., and then click Recall. The preset that has been stored on the LG 3860 is recalled, and the settings of the selected preset are displayed in the control application.

## 5.5 Main Window

### 5.5.1 Connect

Select the serial number of the LG 3860 that you want to control. The serial numbers of the LG 3860s that are connected to the PC are displayed in the list.

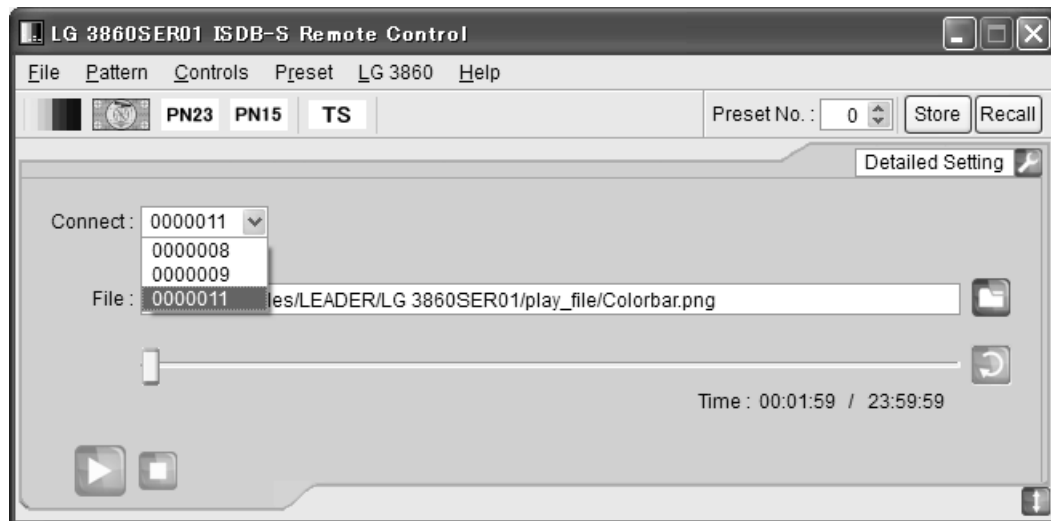


Figure 5-24 Displaying the list of LG 3860s that you can control

### 5.5.2 File

Select the file to play back. Use one of the following three methods to select the file. In addition to the methods listed here, you can also click the File menu to select the file. See section 5.3.1, "File."

- **Click the file button**



Click the file button, and then select the file from the Open File dialog box that appears. The selected file is immediately played back.

You can select a transport stream file or pattern file in the Open File dialog box. The four available pattern files are shown below. You cannot play back pattern files that you create.

Colorbar, Monoscope, PN23, PN15

- **Enter the full path directly into the text box**

You can directly enter the full path to the file in the text box in the Main window. If the file specified by the full path that you entered can be played back, it is played back immediately.

- **Drag a file to the application**

You can play back a file by dragging it to the control application window. However, you cannot drag files from the Open File dialog box.

### 5.5.3 Loop/Slider/Time

Use these elements to configure file playback settings.

- **Loop**

Click to set the loop mode (repeat or only once) for the selected file.

You can use the following loop buttons when a transport stream file has been selected.



Repeat



Only once

- **Slider**

The playback status of the selected file is displayed here. You can skip parts of the file by moving the slider.

- **Time**

The selected file's playback time and total playback time are displayed here.

### 5.5.4 Play/Pause/Stop

When a transport stream file has been selected, click these buttons to play back the file and pause and stop the playback.

- **Play**

Click the play button to start the playback of the selected file.

During file playback, this button switches to the pause button.



Play button

- **Pause**

Click the pause button to pause the playback of the selected file.

While file playback is paused, this button switches to the play button.



Pause button


- **Stop**

Click the stop button to stop the playback of the selected file.



Stop button

## 5.5.5 Detailed Setting

Click to configure various settings for the selected file. To display the dialog box for the selected settings, click the  button in the upper right of the window. The settings that you can configure differ depending on the selected file.

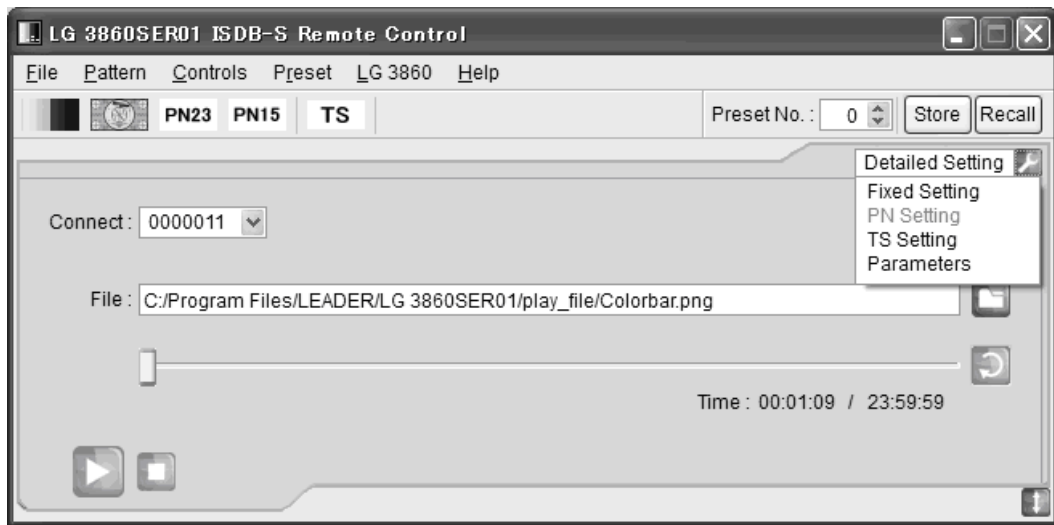


Figure 5-25 Detailed Setting list

- **Fixed Setting**

When an internal still-image pattern (excluding pseudo random signals) has been selected, use this dialog box to select the output audio. Click Apply to apply the settings.

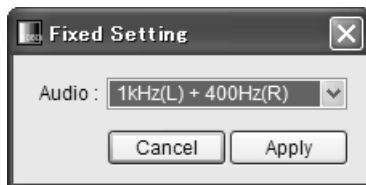


Figure 5-26 Fixed Setting dialog box

**Audio**


---

1kHz(L)+400Hz(R):	A tone signal (left: 1 kHz and right: 400 Hz) is generated.
1kHz(L,R):	A tone signal (left and right both 1 kHz) is generated.
400Hz(L,R):	A tone signal (left and right both 400 Hz) is generated.

---

- **PN Setting**

When an internal pseudo random signal has been selected, use this dialog box to select its polarity and its packet type.

Click Apply to apply the settings.

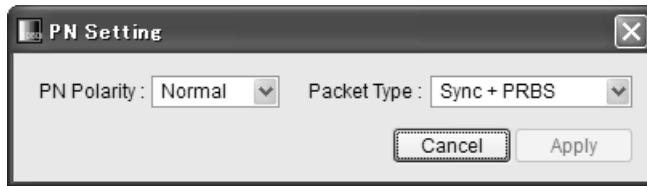


Figure 5-27 PN Setting dialog box

#### PN Polarity

Normal:	A polarity that enables error measurement on generic BER measuring instruments is used.
Inverted:	The inverse of the Normal polarity is used.

#### Packet Type

Sync + PRBS:	Sync (47hex) + 187-byte PN
Header + PRBS:	Sync (47 hex) + 1FFF (hex) + 10 (hex) + 184-byte PN

- **TS Setting**

Use this dialog box to configure transmission parameters.

Click Apply to apply the settings.

If the transmission rate (Useful Bitrate) that is based on the transmission parameters that you specify here will cause the selected file's rate (Source Bitrate) to overflow, the Useful Bitrate value will be displayed in red. In this situation, the selected file will not be generated correctly, so change the transmission parameters until the Useful Bitrate value is displayed normally (in black).

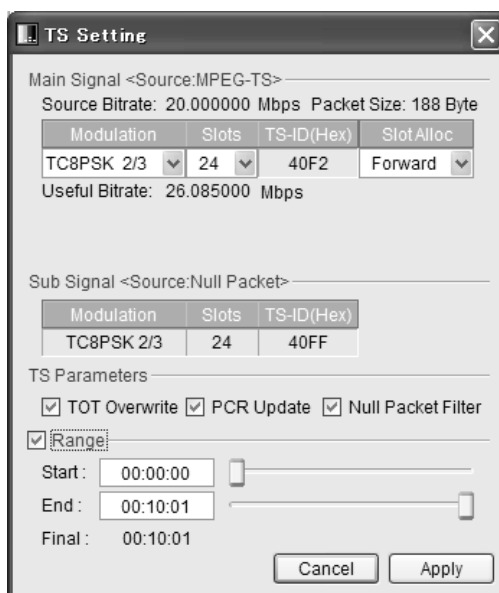


Figure 5-28 TS Setting dialog box

- **Main Signal**

Set the transmission parameters of the selected Source (Fixed Pattern, PN, or transport stream file).

**Modulation**


---

Select the modulation method.

[ BPSK 1/2 / QPSK 1/2 / QPSK 2/3 / QPSK 3/4 / QPSK 5/6 / QPSK 7/8 / TC8PSK 2/3 ]

---

\* This depends on the TS when you have selected a TS with TMCC.

**Slots**


---

Select the number of slots.

Because dummy slots are appended according to the modulation method, the minimum number of slots differs according to the modulation method.

---

\* This depends on the TS when you have selected a TS with TMCC.

**TS-ID**


---

When a fixed pattern has been selected:

The TS-ID is set automatically according to the output channel.  
See section 6.2, "Channel Number Table."

When a PN has been selected:

You can specify the TS-ID.

When a transport stream file has been selected:

The setting depends on the transport stream file.

---

**Slot Alloc**


---

Forward:                      The frame assignment position moves forward so that frames are filled toward the front.

Backward:                    The frame assignment position moves backward so that frames are filled toward the back.

---

**TS Mode (Only when a TS with TMCC has been selected)**


---

Auto:                          Output is generated using the TMCC in the TS.

MPEG-TS:                    Set the desired transmission parameters as an MPEG-TS.

---

- **Sub Signal**

If the number of Main Signal slots is less than 48, NULL packets are automatically inserted for the remaining slots.

- **TS parameters (Only valid when a transport stream file has been selected)**

**TOT Overwrite**


---

Select this check box to overwrite the TOT (Time Offset Table) in the TS according to the PC time settings. [ On / Off ]

---

\* This setting is not valid if there is no TOT in the TS.

### PCR Update

Select this check box to encode the TS into a TS with TMCC. Because the LG 3860 rearranges the packet order and inserts null packets during the conversion process, the PCRs must be overwritten. Therefore, normally turn this setting on. [ On / Off ]

\* This setting is not valid when you are using a TS with TMCC.

### Null Packet Filter

Select this check box to filter any packets that have the 0x1FFF PID from the TS. Removing unnecessary null packets provides you with an increased number of carrier modulation choices. [ On / Off ]

\* This setting is not valid when you are using a TS with TMCC.

- **Range (Only valid when a transport stream file has been selected)**

Select this check box to specify the playback range. Use the numeric keypad or the sliders to set the Start and End times.

If you set the range, and then select a different TS, the Range check box will be cleared. Clear this check box to play the TS file from its start to end. [ On / Off ]

\* If the bit rate cannot be calculated from the TS file, the modulation method is set to TC8PSK, the number of slots is set to 24, and the bit rate is then calculated.

Note the following regarding 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.
- The minimum time unit that you can use to specify the time is 1 second. The time setting is automatically calculated for packets.
- If an incomplete data byte exists at the start or end of the data, the LG 3860 ignores this data fraction and plays data back in units of packets.
- The number of packets that are played back is an integer multiple of the minimum number of slots of the selected modulation method.

Similarly, when you specify the playback range, the LG 3860 automatically truncates the fractional part so that the number of packets that are played back is an integer multiple of the minimum number of slots.

- **Parameters**

Select this to display the TMCC information of the transmission parameters that you configured with TS Setting.

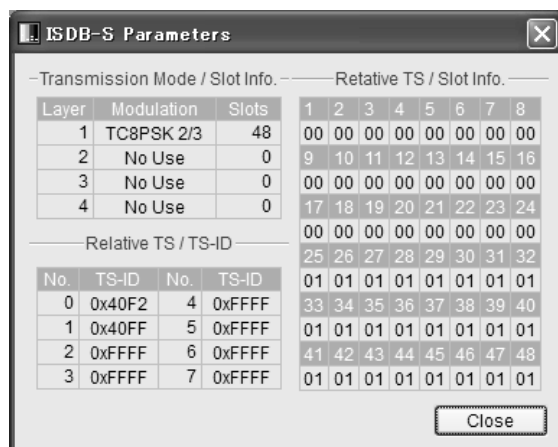


Figure 5-29 ISDB-S Parameters dialog box

**Transmission Mode / Slot Info.**


---

Displays the transmission mode and its number of slots

---

**Relative TS / TS-ID**


---

Displays the TS-IDs of relative TS0 to TS7 in hexadecimal notation

---

**Relative TS / Slot Info.**


---

Displays the frame assignments for the relative transport streams

---

## 5.6 Sub Window

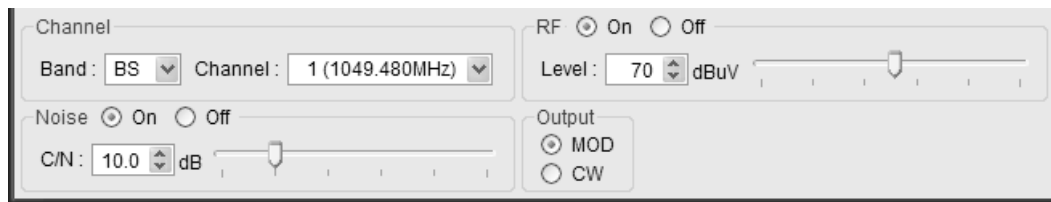


Figure 5-30 Sub window

### 5.6.1 Band

Select the channel band from BS and ND when you are configuring the output channel.

### 5.6.2 Channel

Select the output channel. For the channels that you can select, see section 6.1, “Channel Table.”

### 5.6.3 RF

Turn signal output on or off.

### 5.6.4 Level

Set the level of the output signal.  
Enter the value in the text box, or use the slider to set the level.

### 5.6.5 Noise

Turn noise on or off.

### 5.6.6 C/N

Set the C/N.  
Enter the value in the text box, or use the slider to set the level.

### 5.6.7 Output

Set the output signal to modulation (MOD) or carrier (CW).

## 6. APPENDIX

### 6.1 Channel Table

The BS and ND channel tables are shown below.

Table 6-1 Channel table

BS		ND	
CH	Frequency (MHz)	CH	Frequency (MHz)
Lo	950.000	-	-
1	1049.480	2	1613.000
3	1087.840	4	1653.000
5	1126.200	6	1693.000
7	1164.560	8	1733.000
9	1202.920	10	1773.000
11	1241.280	12	1813.000
13	1279.640	14	1853.000
15	1318.000	16	1893.000
17	1356.360	18	1933.000
19	1394.720	20	1973.000
21	1433.080	22	2013.000
23	1471.440	24	2053.000
-	-	Hi	2150.000

## 6.2 Channel Number Table

The BS and ND channel number tables when a fixed pattern is selected are shown below.

Table 6-2 Channel number table

Band	Slot Assignment	TS-ID	Channel Number		Service Provider Name	Service Name
			Hexadecimal	Decimal		
BS-1	Forward	0x4010	0097	151	ビーエス朝日	BS 朝日
	Backward	0x4011	00a1	161	BS-TBS	BS-TBS
BS-3	Forward	0x4030	00bf	191	WOWOW	WOWOW プライム
	Backward	0x4031	00ab	171	BS ジャパン	BS ジャパン
BS-5	Forward	0x4450	00c0	192	WOWOW	WOWOW ライブ
	Backward	0x4451	00c1	193	WOWOW	WOWOW シネマ
BS-7	Forward	0x4470	00c9	201	スター・チャンネル	スター・チャンネル 2
	Backward	0x4671	00ec	236	アニマックス	BS アニマックス
BS-9	Forward	0x4090	00d3	211	日本 BS 放送	BS11
	Backward	0x4092	00de	222	WHC	TwelV
BS-11	Forward	0x46b0	00ee	238	ビーエス FOX	FOXbs238
	Backward	0x46b1	00f1	241	スカパーエンタ	BS スカパー !
BS-13	Forward	0x40d0	008d	141	BS 日本	BS 日テレ
	Backward	0x40d1	00b5	181	BS フジ	BS フジ 181
BS-15	Forward	0x40f1	0065	101	NHK	NHK BS1
	Backward	0x40f2	0067	103	NHK	NHK BS プレミアム
BS-17	Forward	0x4310	0123	291	NHK 総合・東京	NHK 総合 1・東京
	Backward	0x4311	0126	294	日本テレビ	日テレ 1
BS-19	Forward	0x4730	00ea	234	グリーンチャンネル	グリーンチャンネル
	Backward	0x4731	00f2	242	ジェイ・スポーツ	J SPORTS 1
BS-21	Forward	0x4750	00fc	252	IMAGICA	IMAGICA BS
	Backward	0x4751	00f4	244	ジェイ・スポーツ	J SPORTS 3
BS-23	Forward	0x4770	00fb	251	釣りビジョン	BS 釣りビジョン
	Backward	0x4772	0102	258	ディズニー	D-Life
ND-2	-	0x6020	00ef	239	SPET	日本映画専門 chHD
ND-4	-	0x7040	0064	100	SPET	e2 プロモ
ND-6	-	0x7060	00dd	221	CS 映画放送	東映チャンネル
ND-8	-	0x6080	0037	55	SC サテライト放送	ショップチャンネル
ND-10	-	0x60A0	00e4	228	SPET	ザ・シネマ
ND-12	-	0x70c0	012f	303	シーエス・ワンテン	テレ朝チャンネル
ND-14	-	0x70e0	00fd	253	アクティブ・スポーツ	J スポーツ PlusH
ND-16	-	0x7100	0156	342	インタラクティブ・ヴィ	ヒストリーチャンネル
ND-18	-	0x7120	00f0	240	インタラクティブ・ヴィ	ムービープラス HD
ND-20	-	0x7140	0133	307	サテライトサービス	フジテレビ ONE
ND-22	-	0x7160	00a0	160	C-TBS	C-TBS ウェルカム
ND-24	-	0x7180	012C	300	シーエス日本	日テレプラス

### 6.3 Transport Stream File

With the LG 3860SER01, you can use an MPEG-TS (188 and 204 bytes) or a TS with TMCC as the transport stream file.

Transport streams with TMCC consist of the 204-byte transport streams that are defined in ARIB-TR-B15 and the 204-byte transport streams that are defined in ARIB STD-B20.

#### 6.3.1 TS with TMCC (S-TMCC)

The basic TMCC information must be inserted in the first 8 bytes of the 16-byte RS encoded block that follows the 188-byte TS packet.

The transmission mode, slot information, and TS-ID reflect the TMCC information.

With the proper settings, you can use these transport streams as MPEG-TS.

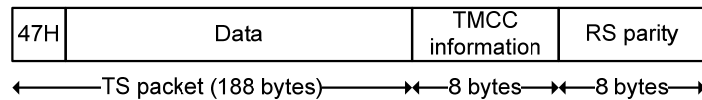


Figure 6-1 S-TMCC format

#### 6.3.2 TS with TMCC (M-TMCC)

The TMCC data must be inserted in the format positions indicated below.

The transmission mode, slot information, and TS-ID reflect the TMCC information.

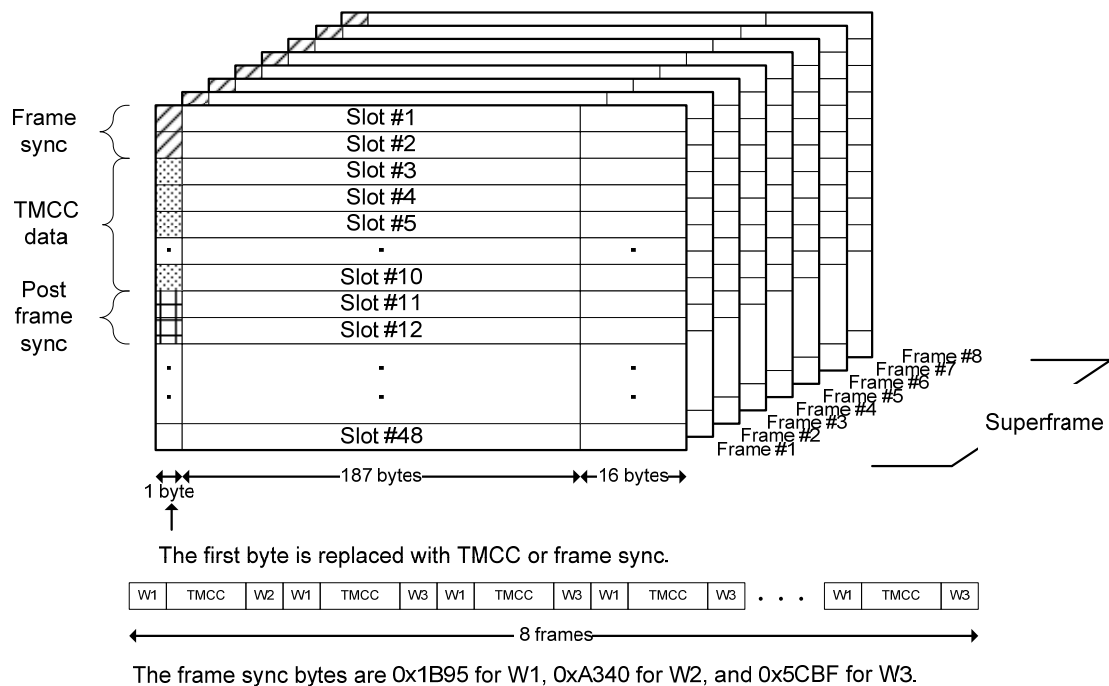


Figure 6-2 M-TMCC format

#### 6.3.3 MPEG-TS

This is a TS that is different from the S-TMCC and M-TMCC.

You can specify the transmission mode and the slot information.

The TS-ID reflects the PAT section.

## 6.4 Software Revision History

This manual was written for software version 1.3.

To check the software version number, click About LG 3860SER01 on the control application's Help menu.

- **Ver 1.3**

- Support has been added to the fixed patterns for the changes in the BS digital services that took place in October 2011 and for the changes in the TS-ID/channel numbers that are planned for April 2012.
- Output channel settings Lo (950 MHz) and Hi (2150 MHz) have been added.
- A noise addition function has been added.
- Support has been added for listing and editing presets in the preset menu.

- **Ver 1.2**

- Support has been added to the fixed patterns for the changes in the BS digital services that took place in April 2011 and for the changes in the TS-ID/channel numbers that are planned for October 2011.
- Support has been added for the switching that is defined in ARIB-STD-B20 when an S-TMCC that includes a TMCC switch is being played back.

# 所含有毒有害物质信息

部件号码：LG 3860SER01



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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)
本体部	×	○	○	○	○	○
<b>备注)</b> ○：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。						

**LEADER**

**LEADER ELECTRONICS CORP.**

2-6-33 Tsunashima-Higashi, Kohoku-ku, Yokohama 223-8505, Japan

PHONE:81-45-541-2123 FAX:81-45-541-2823 <http://www.leader.co.jp>