

LG 3860SER02

DVB-S/S2 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.

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 a DVB-S/S2 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 Broadcasting System

DVB-S (EN 300 421)

Modulation Format	QPSK
Coding Rate	
Inner Code	Convolutional coding R = 1/2, 2/3, 3/4, 5/6, 7/8
Outer Code	RS(204,188)
Roll-Off Factor	$\sqrt{0.35}$
Symbol Rate	1 to 35 Msps (in 0.0001 Msps steps)

DVB-S2 (EN 302 307)

Modulation Format	QPSK, 8PSK, 16APSK, 32APSK
Coding Rate	
Inner Code	
QPSK	LDPC coding R = 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
8PSK	LDPC coding R = 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
16APSK	LDPC coding R = 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
32APSK	LDPC coding R = 3/4, 4/5, 5/6, 8/9, 9/10
Outer Code	BCH coding
	(32400,32208) LDPC coding R = 1/2
	(38880,38688) LDPC coding R = 3/5
	(43200,43040) LDPC coding R = 2/3
	(48600,48408) LDPC coding R = 3/4
	(51840,51648) LDPC coding R = 4/5
	(54000,53840) LDPC coding R = 5/6
	(57600,57472) LDPC coding R = 8/9
	(58320,58192) LDPC coding R = 9/10
Frame Length	Normal (64800 bits)
Pilot Insertion	ON, OFF

2. SPECIFICATIONS

Roll-Off Factor	$\sqrt{0.35}$, $\sqrt{0.25}$, $\sqrt{0.20}$
Symbol Rate	1 to 35 Msps (in 0.0001 Msps steps)

* Broadcasting system and parameters can be switched when the LG 3860 is connected to a PC.

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

2.3.3 RF Signal Generator

Output Level	39 to 99 dB μ V (75 Ω termination; in 1 dB steps) (*1)
Output Frequency	950 to 2150 MHz
Frequency Resolution	10 kHz

*1 This is the guaranteed operating range. The optimal range is 59 to 99 dB μ V (75 Ω termination). If signals in the range of 39 to 58 dB μ V (75 Ω 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 / Frame	1920×1080i / 30 fps (HDTV), 1920×1080i / 25 fps (HDTV) (*1)
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, frame, 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) Celeron (R) M 1.4 GHz or more
Memory	512 MB or more
HDD	1 GB or more of free space
USB Port	1 USB 2.0 port

2. SPECIFICATIONS

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 DVB-S/S2 signal generator.
RF Signal Generator	
Output Level	39 to 99 dB μ V (75 Ω termination; in 1 dB steps)
Output Frequency	950 to 2150 MHz (in 10 kHz steps)
Internal Signal	
Pseudo Random Signal	PN23, PN15
Still-Image Pattern	Color bar, monoscope
Format / Frame	1920×1080i / 30 fps (HDTV), 1920×1080i / 25 fps (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	DVB-S, DVB-S2
Symbol Rate	1 to 35 Msps (in 0.0001 Msps steps)
Modulation Format	
DVB-S	QPSK
DVB-S2	QPSK, 8PSK, 16APSK, 32APSK
Coding Rate	
DVB-S	R = 1/2, 2/3, 3/4, 5/6, 7/8
DVB-S2	R = 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Pilot Insertion (DVB-S2)	ON, OFF
Roll-Off Factor (DVB-S2)	$\sqrt{0.35}$, $\sqrt{0.25}$, $\sqrt{0.20}$
RF Signal Generator	
Output Level	39 to 99 dB μ V (75 Ω termination; in 1 dB steps; can be turned on and off)
Output Control	Modulation, carrier
Output Frequency	950 to 2150 MHz (in 10 kHz steps)
Internal Signal	
Pseudo Random Signal	PN23, PN15
Still-Image Pattern	Color bar, monoscope
Format / Frame	1920×1080i / 30 fps (HDTV), 1920×1080i / 25 fps (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.

2. SPECIFICATIONS

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.

2.3.10 General Specifications

Environmental Conditions	Same as the LG 3860
Contents	CD-ROM (Software, instruction manual) 1
	License key (A4 sheet) 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

3. INSTALLATION

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

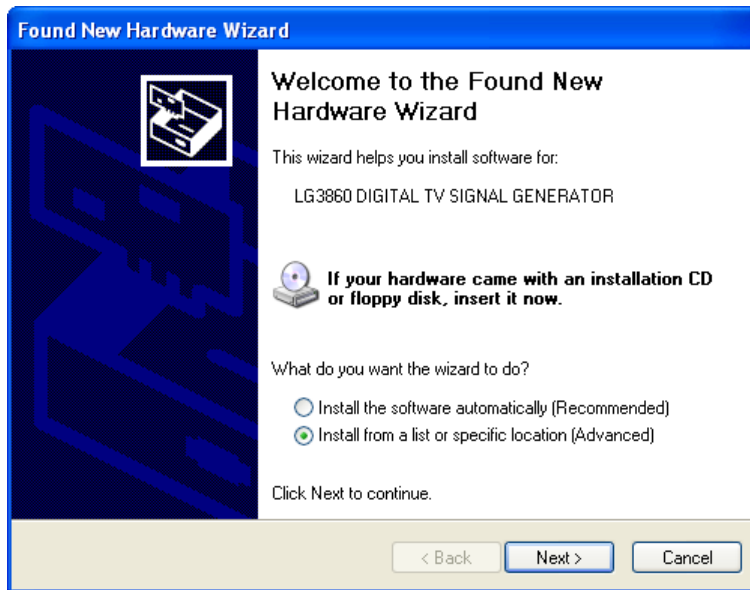


Figure 3-2 Installation window

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

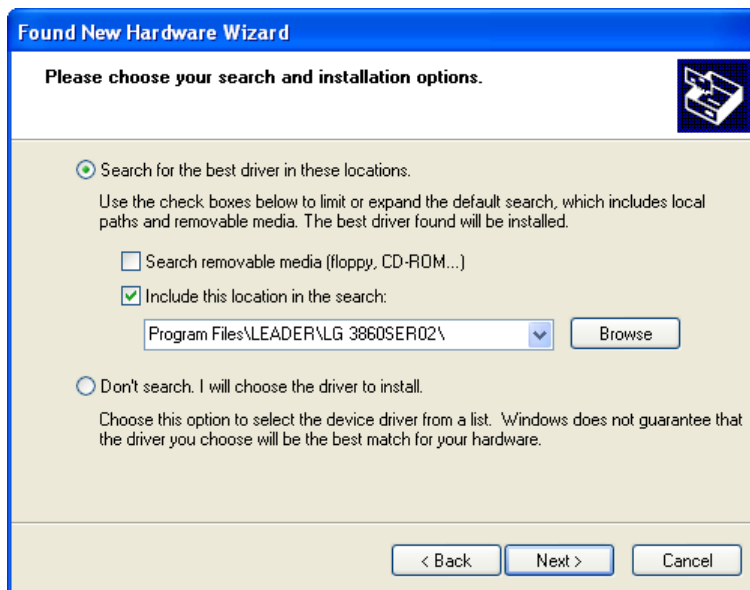


Figure 3-3 Driver search window

3. INSTALLATION

- 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.

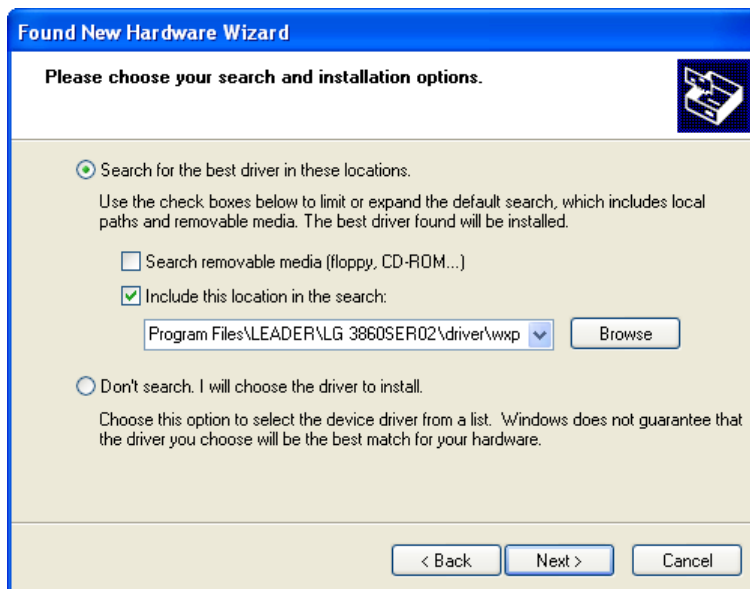


Figure 3-5 Driver folder confirmation window

3. INSTALLATION

- 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**.

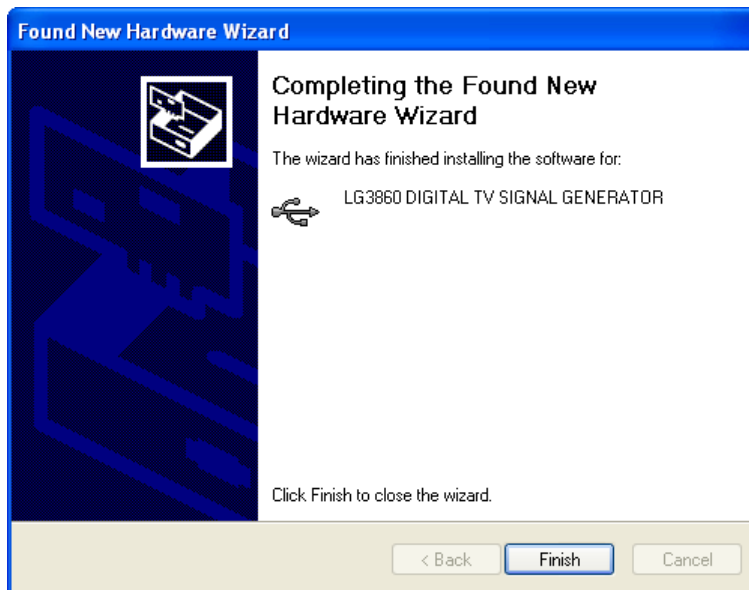


Figure 3-7 Installation complete window

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 DVB-S/S2 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 3860SER02 DVB-S/S2 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 DVB-S/S2 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."

COLOR BAR:	A colorbar signal is transmitted (30 fps/25 fps).
MONOSCOPE:	A monoscope signal is transmitted (30 fps/25 fps).
PN:	A pseudo random signal is transmitted (PN23/PN15).
OTHERS:	Not used.

4.1.2 CHANNEL

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

Set the output frequency in groups of two digits for 100 MHz, 1 MHz, and 10 kHz. Use the BAND key to select a group of two digits. For example, if you want to set the output frequency to 1234.56 MHz, set SAT 1 to 12, SAT 2 to 34, and SAT 3 to 56.

Press the ▼ and ▲ keys to select the output frequency. Hold down the ▼ or ▲ key to switch the setting quickly. You can set the output frequency to a value that is in the range of 950 to 2150 MHz.

4.1.3 BAND

Press the front-panel BAND key to switch between the output frequency digits.

SAT 1:	Selects the 100 MHz digit.
SAT 2:	Selects the 1 MHz digit.
SAT 3:	Selects the 10 kHz digit.

4.1.4 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 set 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.

4.1.5 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, TS Setting, and C/N

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	System	DVB-S2
	Modulation	8PSK 3/4
	Roll-off	Alpha 0.35
	Symbolrate	8.0000 Msps
	Pilots	Enabled
PATTERN		COLOR BAR (30 fps)
	AUDIO	L: 1 kHz R: 400 Hz
FREQUENCY		950MHz
LEVEL		70 dB μ V (75 Ω termination)
Noise		OFF
	C/N	10.0 dB

5. CONTROL APPLICATION

This chapter will explain the control application LG 3860SER02 DVB-S/S2 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 DVB-S/S2 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 3860SER02, and then click LG 3860SER02 DVB-S,S2 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.

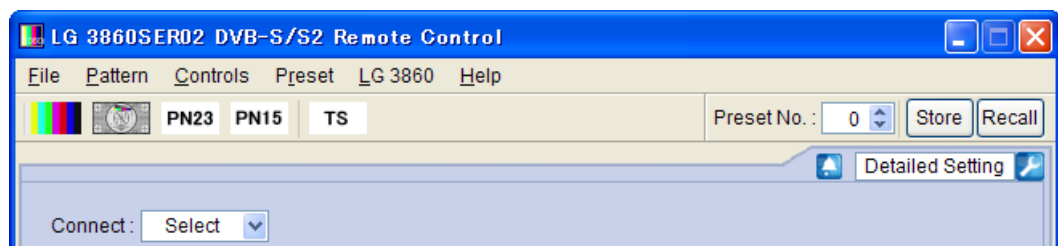


Figure 5-1 Main window

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.

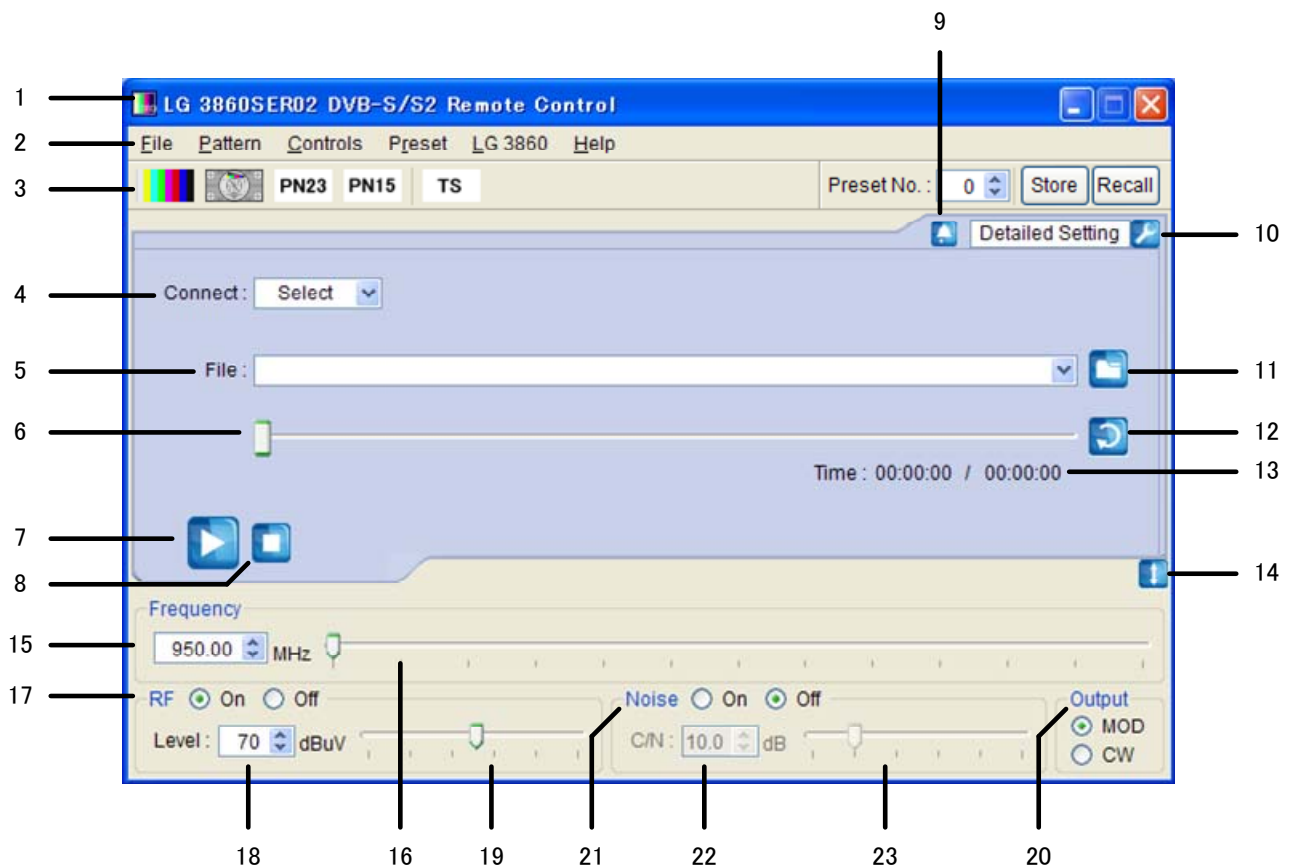


Figure 5-2 Window explanation

1 Title

The title of the control application is displayed here. As shown in the above figure, you can see that this is a DVB-S/S2 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 Frequency

Set the output frequency.

See section 5.6.1, "Frequency."

16 Frequency slider

Move the slider to set the output frequency.

See section 5.6.1, "Frequency."

17 RF

Turn signal output on or off.

See section 5.6.2, "RF."

18 Level

Set the output level.

See section 5.6.3, "Level."

19 Level slider

Move the slider to set the output level.

See section 5.6.3, "Level."

20 Output

Set the output signal to modulation or carrier.

See section 5.6.6, "Output."

21 Noise

Turn noise on or off.

See section 5.6.4, "Noise."

22 C/N

Set the C/N.

See section 5.6.5, "C/N."

23 C/N slider

Move the slider to set the C/N.

See section 5.6.5, "C/N."

5.3 Menu Bar**5.3.1 File**

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

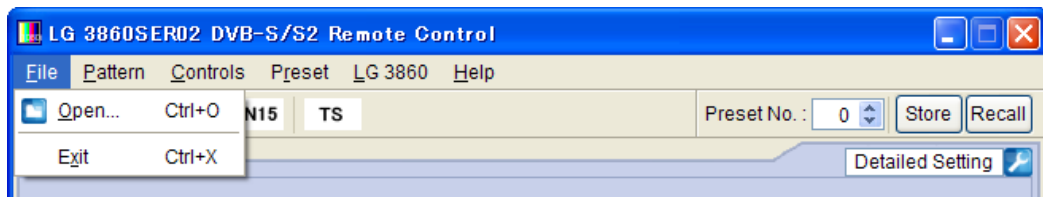


Figure 5-3 File menu

- **Open**

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

The selected file is immediately played back.

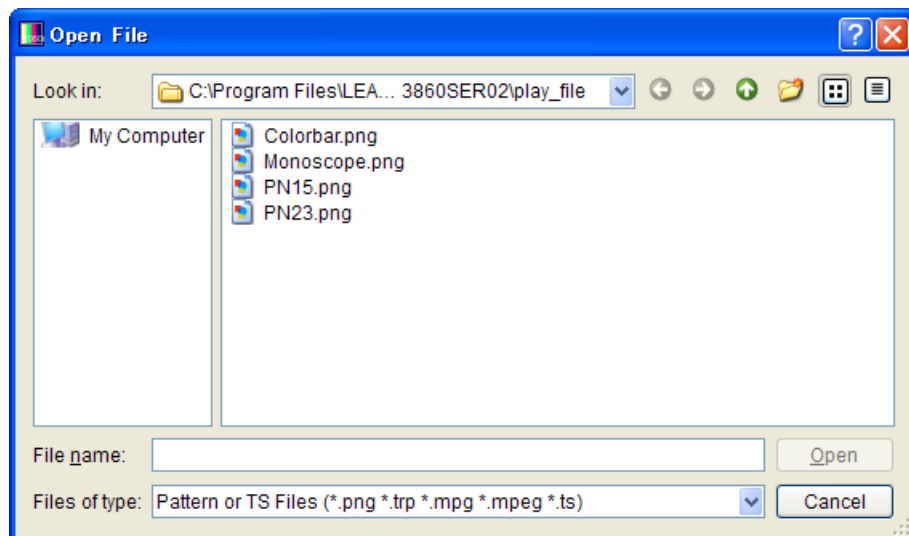


Figure 5-4 Open File dialog box

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."

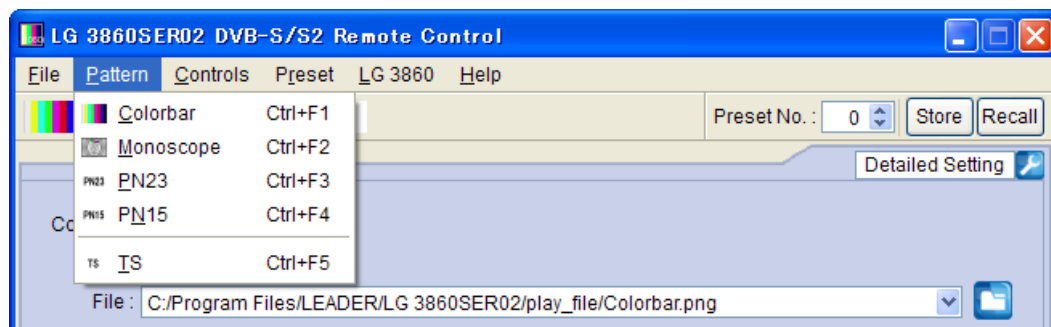
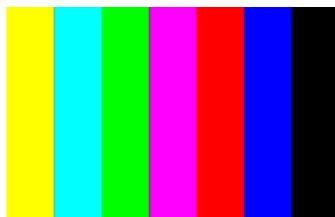


Figure 5-5 Pattern menu

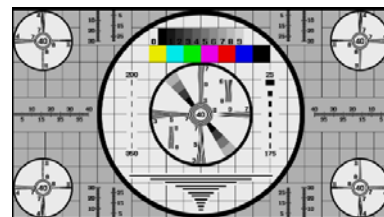
- **Colorbar**

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.

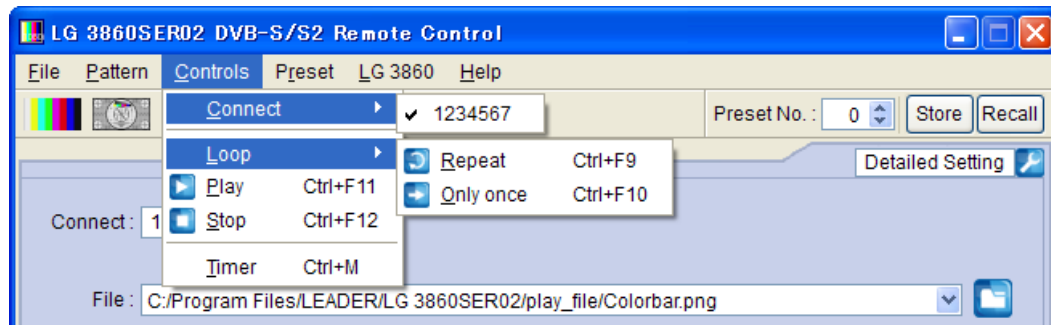


Figure 5-6 Controls menu

- **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.

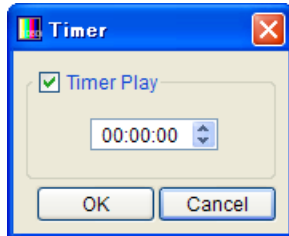


Figure 5-7 TS playback start time setup dialog box

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.

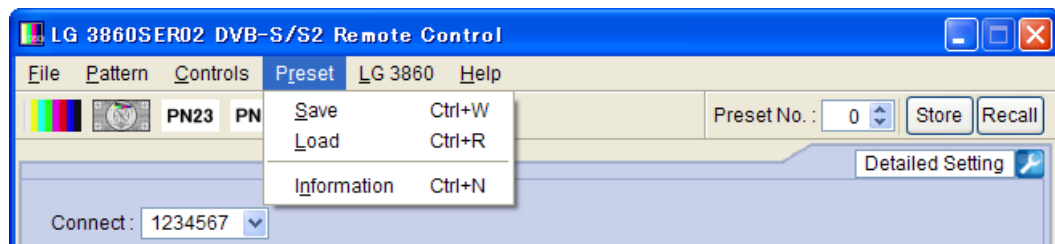


Figure 5-8 Preset menu

- **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.

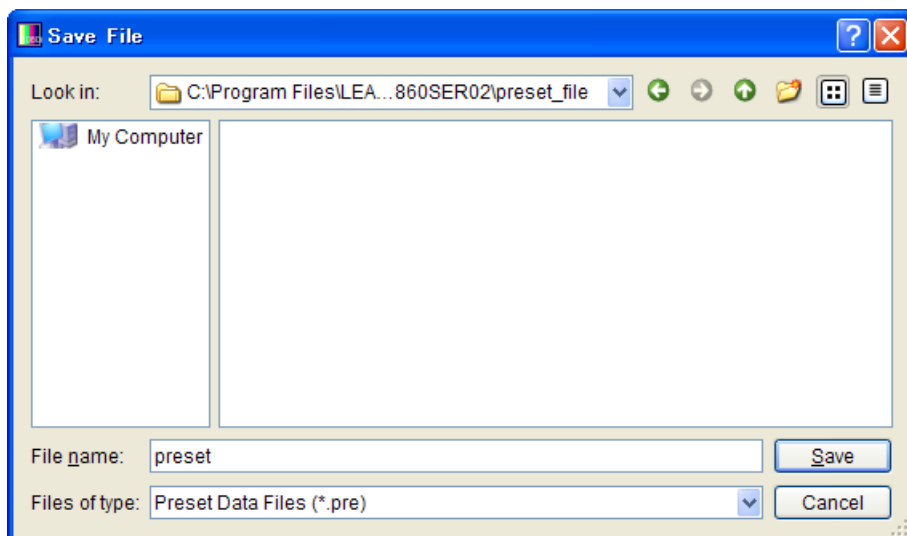


Figure 5-9 Save File dialog box

- **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.

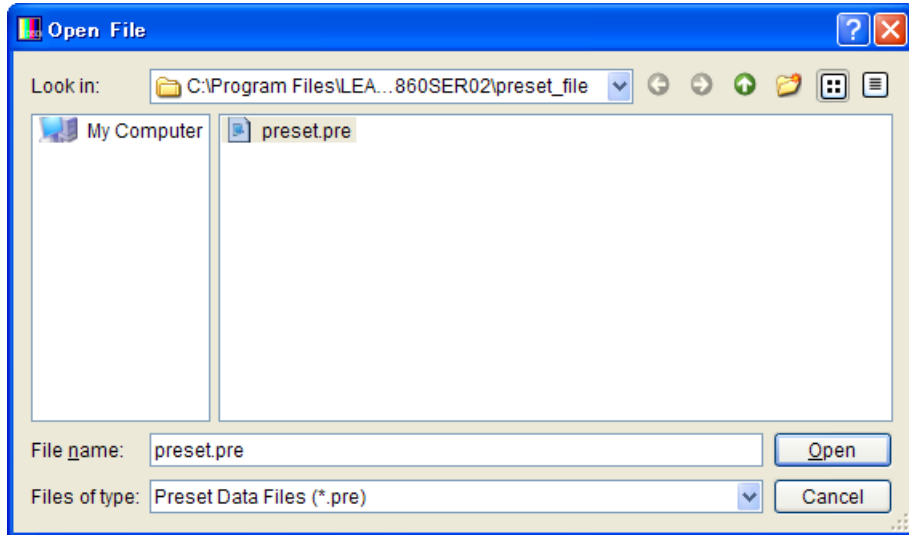


Figure 5-10 Open File dialog box

- **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.

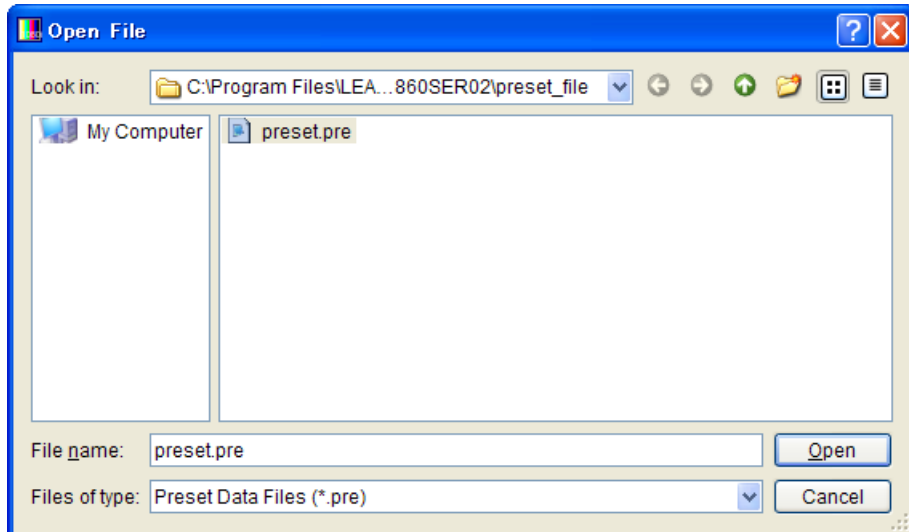


Figure 5-11 Preset selection dialog box

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.

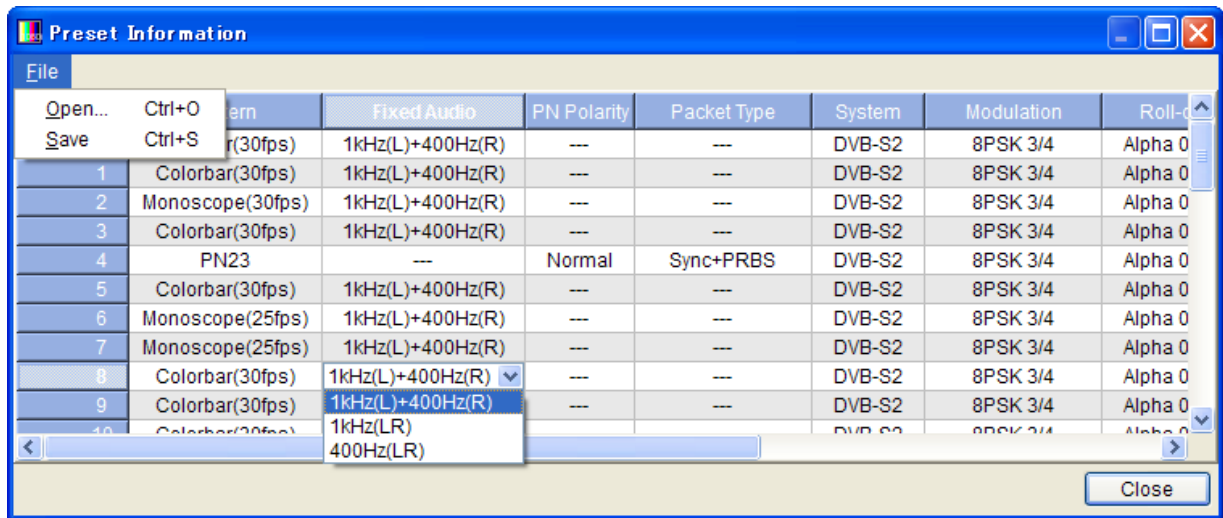


Figure 5-12 Information window

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.

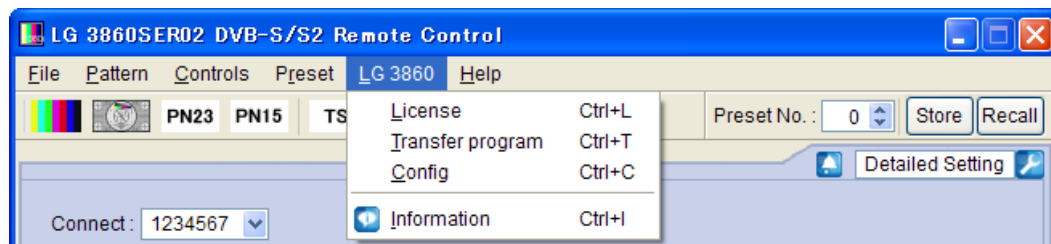


Figure 5-13 LG 3860 menu

- **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.

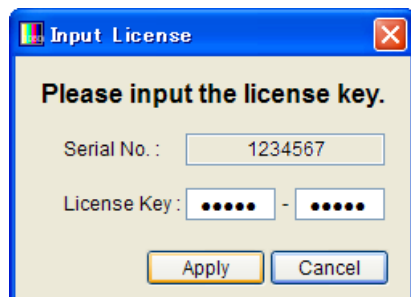


Figure 5-14 Input License dialog box

- **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 a DVB-S/S2 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.

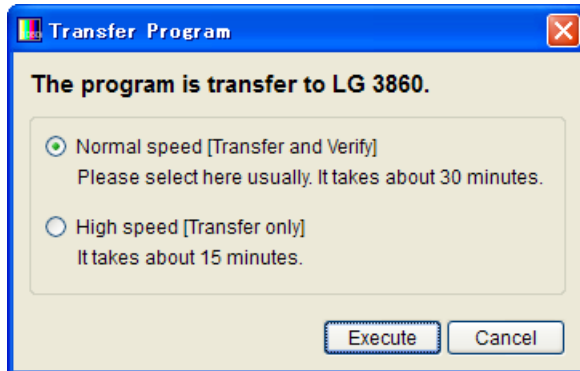


Figure 5-15 Transfer Program dialog box

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 30 minutes to transfer the program.

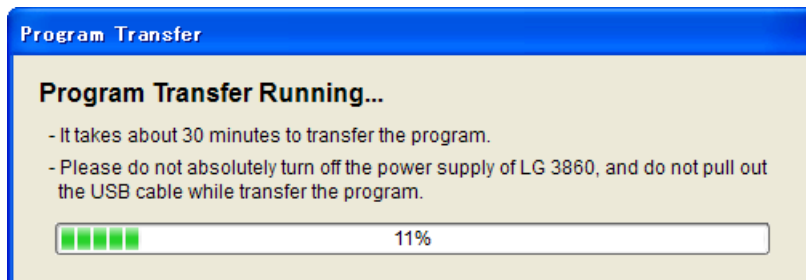


Figure 5-16 Dialog box while the program is being transferred

- **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).

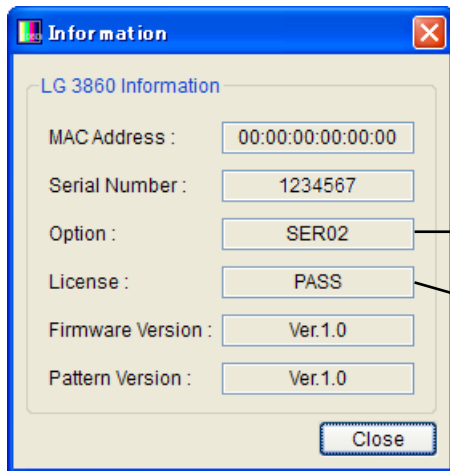


Figure 5-17 Config dialog box

- **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.



Transfer status of the program (SER02 is displayed if the program has already been transferred to the LG 3860.)

License key activation status (PASS is displayed if the license key has been activated.)

Figure 5-18 Information dialog box

5.3.6 Help

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

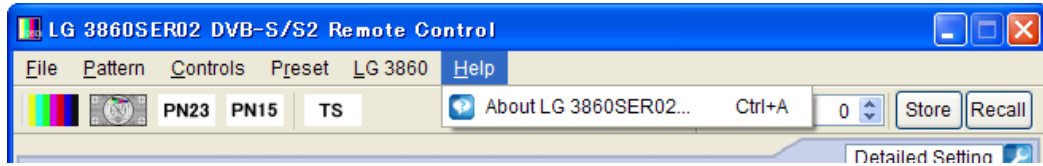


Figure 5-19 Help menu

- **About LG 3860SER02**

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



Figure 5-20 About LG 3860SER02 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."

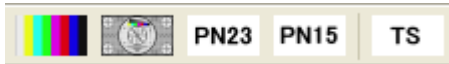


Figure 5-21 Pattern buttons

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, Channel, Level, and C/N.

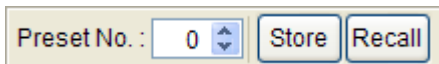


Figure 5-22 Preset toolbar

- **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.

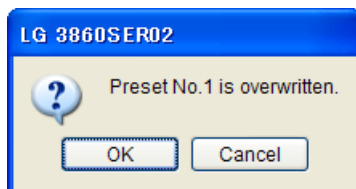


Figure 5-23 Confirmation dialog box

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.

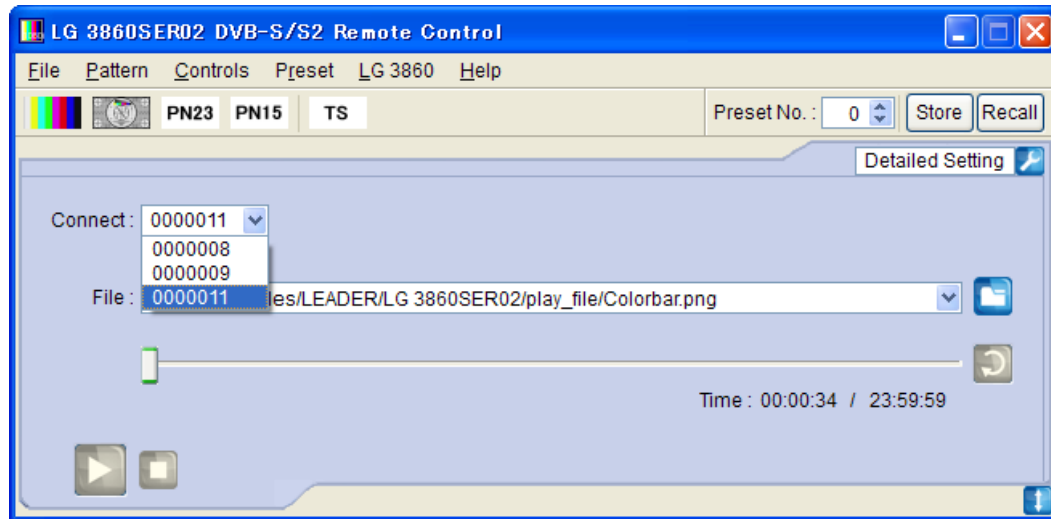


Figure 5-24 Displaying the list of LG 3860s that you can control

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.

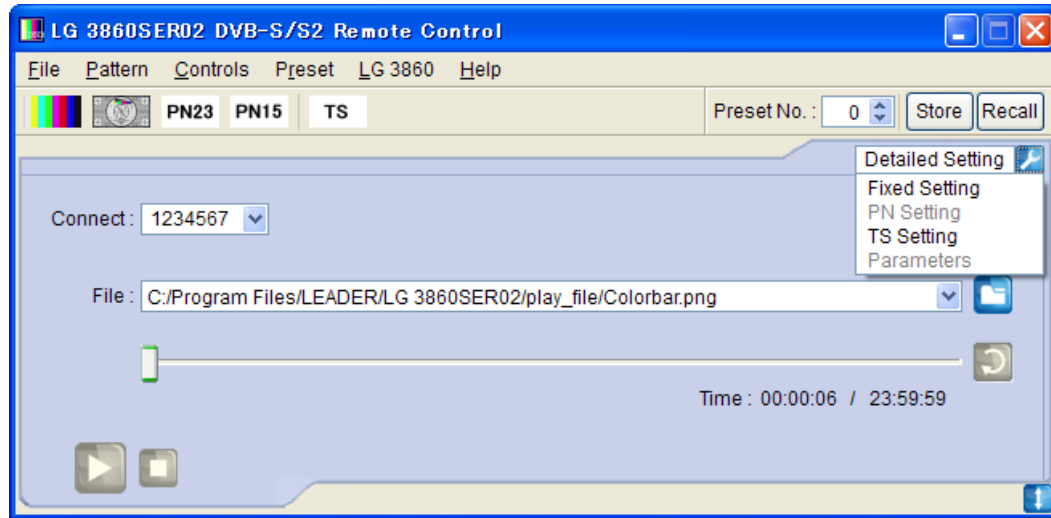


Figure 5-25 Detailed Setting list

- **Fixed Setting**

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

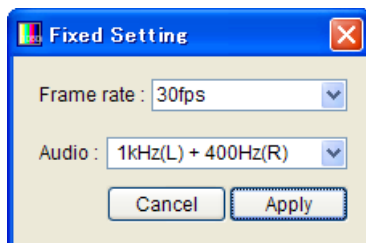


Figure 5-26 Fixed Setting dialog box

Frame rate

30fps:	A 30-frame pattern signal is generated.
25fps:	A 25-frame pattern signal is generated.

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.

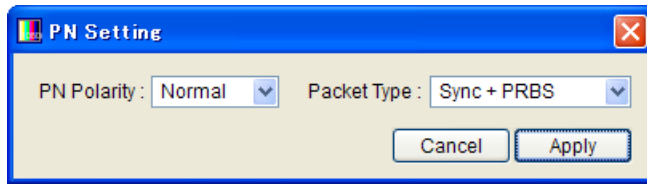


Figure 5-27 PN Setting dialog box

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).

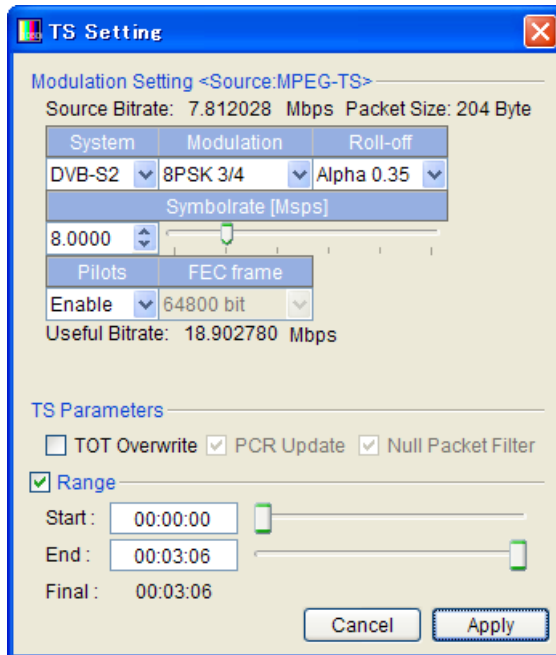


Figure 5-28 TS Setting dialog box

- **Modulation Setting**

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

System

Select the broadcasting system. [DVB-S / DVB-S2]

Modulation

Select the modulation method.

DVB-S: [QPSK 1/2 / QPSK 2/3 / QPSK 3/4 / QPSK 5/6 / QPSK 7/8]
DVB-S2: [QPSK 1/2 / QPSK 3/5 / QPSK 2/3 / QPSK 3/4 / QPSK 4/5 /
QPSK 5/6 / QPSK 8/9 / QPSK 9/10 / 8PSK 3/5 / 8PSK 2/3 /
8PSK 3/4 / 8PSK 5/6 / 8PSK 8/9 / 8PSK 9/10 / 16APSK 2/3 /
16APSK 3/4 / 16APSK 4/5 / 16APSK 5/6 / 16APSK 8/9 /
16APSK 9/10 / 32APSK 3/4 / 32APSK 4/5 / 32APSK 5/6 /
32APSK 8/9 / 32APSK 9/10]

Roll-off (only when DVB-S2 is selected)

Select the roll-off factor. [Alpha 0.35 / Alpha 0.25 / Alpha 0.20]

Symbolrate

Set the symbol rate. The unit is Msps. You can set the value to four decimal places. Enter the value in the text box, or use the slider to set the value. [1.0000 to 35.0000]

Pilots (only when DVB-S2 is selected)

Select whether pilots are used. [Enable / Disable]

FEC frame (only when DVB-S2 is selected)

Displays the frame length (normal). You cannot change this value. [64800 bit]

- **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

Updates PCR when transport streams are converted to framed transport streams with TMCC. This is fixed at "on." [On]

Null Packet Filter

Filters any packets that have the 0x1FFF PID from the TS. This is fixed at "on." [On]

- **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 bit rate is set to a fixed value. 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.
-

- **Parameters**

Parameters are not used on the LG 3860SER02.

5.6 Sub Window

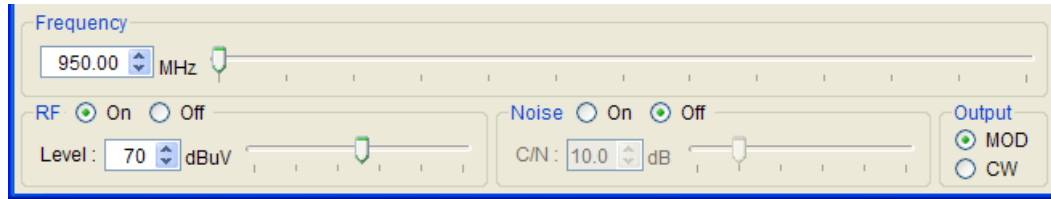


Figure 5-29 Sub window

5.6.1 Frequency

Set the the output frequency.

Enter the value in the text box, or use the slider to set the frequency.

5.6.2 RF

Turn signal output on or off.

5.6.3 Level

Set the level of the output signal.

Enter the value in the text box, or use the slider to set the level.

5.6.4 Noise

Turn noise on or off.

5.6.5 C/N

Set the C/N.

Enter the value in the text box, or use the slider to set the level.

5.6.6 Output

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

6. APPENDIX

6.1 Channel Number Table

The network ID, TS-ID, and service ID when a fixed pattern is selected are shown below.

Table 6-1 Channel number table

Network ID		TS-ID	Service ID (Channel Number)		Network Name	Service Name
Hexadecimal	Decimal		Hexadecimal	Decimal		
000A	10	0x3007	8257	33367 (599)	スカパー！HD サービス	スカパー！インフォ

所含有毒有害物质信息

部件号码: LG 3860SER02



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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	×	○	○	○	○	○
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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