UC-550E+ MPEG-2/H.264 HD Encoder

SW Version: V1.65
HW Version: V1.4.0
Web NMS Version: V1.28
About This Manual

Intended Audience

This manual has been written to help the end user install, integrate, and use the UC-550 MPEG2/H.264 Encoder. Some chapters require prerequisite knowledge in electronics and broadcast technologies.

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Chapter 1 Introduction

1.1 Product Overview

The UC-550E+ MPEG-2/H.264 HD Encoder is equipped with multiple video (SDI, CVBS, YPbPr and HDMI) and audio (SDI Embedded, AES, RCA and XLR) input interfaces. Audio can be encoded in MPEG1 Layer II, HE-AAC and LC-AAC formats. A Multiplexing function is included which allows users to select incoming ASI streams to embed into the ASI/IP output.

1.2 Key Features

- MPEG-2 HD/SD and MPEG-4 AVC/H.264 HD/SD Video Encoding
- Support for 1080I, 720P, 480I, 576I and 352*288 Video Resolution
- MPEG1 Layer II, HE-AAC (v1&v2) and LC-AAC Audio Encoding
- Supports 2 Stereo or 4 Mono Audio Encoding
- Support AC3 Pass Through
- Support for EIA 608 and EIA 708 CC (Closed Captioning)
- Applicable for one Seg/ISDB-T utilization (2 Streams Outputting Simultaneously: 1 one-seg and 1 Main Stream)
- IP (MPTS/8*SPTS) Output; ASI Output
- GOP Structure Setting
- Supports CBR (Constant Bitrate) & VBR (Variable Bitrate) Control
- Supports UDP/RTP Media Transmission Protocols with Multicast/Unicast Output
- LCD / Front Panel Keyboard Control and TCIP Web Management
## 1.3 Specifications

| Input | 1×SDI, 1×CVBS, 1×YPbPr and 1×HDMI input  
2×XLR, 2×RCA and 1×AES inputs  
1×ASI input, BNC interface |
|-------|--------------------------------------------------|
| Video | Resolution  
1080i@60  
1080i @59.94  
1080i @50  
720p@59.94  
720p@50  
576i  
480i |
| Output | 1920×1080, 1440×1080, 1280×1080i  
1280×720, 960×720p  
720×576, 704×576, 640×576, 544×576, 528×576, 352×576  
720×480, 704×480, 640×480, 544×480, 528×480, 352×480 |
| Encoding | MPEG-2 HD/SD; MPEG-4 AVC/H.264 HD/SD |
| Bit-rate | 0.25Mbps~60.5Mbps |
| Rate Control | CBR/VBR |
| GOP Structure | Auto, IP, IPB, IPBB, IPBBBB, IPBBBBB |
| Aspect Ratio | 4:3; 16:9; 1:1; 2.35:1 |
| Chroma | 4:2:0; 4:2:2 (Applied to all resolution under MPEG2 compression) |
| Pretreatment | De-interlacing, noise reduction, sharpening |
| Video | Resolution | 96×96, 128×96, 128×128, 192×192, 352×240, 352×288, 416×240 |
| Encoding | MPEG-2; H.264; Auto (follow the main stream format: MPEG-2 or H.264) |
| Bit-rate | 0-1.0 Mbps |
| Audio | Aspect Ratio | 4:3; 16:9; Auto (follow the main stream) |
| Encoding | MPEG-1 Layer II, HE-AAC (v1&v2), LC-AAC |
| Sampling rate | 48KHz |
| Resolution | 24-bit |
| Bit-rate | 32Kbps~384Kbps |
| Multiplexing | 1 ASI input multiplexed with local 1 channels TS |
| Delay | 1400ms - 5000ms |
| Stream output | 2×ASI output ports, BNC interface  
MPTS/8*SPTS over UDP/RTP, 10/100 Base-T Ethernet interface (UDP/RTP multicast/unicast) |
| System function | LCD/keyboard and web management  
Language: English |
### General

<table>
<thead>
<tr>
<th>Dimension</th>
<th>482mm × 405mm × 44.5mm (W × D × H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx weight</td>
<td>4.5Kg</td>
</tr>
<tr>
<td>Temperature</td>
<td>0<del>45℃ (Operation), -20</del>80℃ (Storage)</td>
</tr>
<tr>
<td>Power requirement</td>
<td>AC 110V ± 10%, 50/60Hz / AC 220V ± 10%, 50/60Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>21W</td>
</tr>
</tbody>
</table>

### 1.4 Principle Chart

![Principle Chart](image)

Teletext pass through (closed caption)  
AC3 pass through  
HDMI/HD-SDI  
CVBS/YPbPr  
Stereo Audio 1  
Stereo Audio 2  
Encoder Module  
MPEG2 HD/SD &  
MPEG4 AVC/H.264 HD/SD  
MUX  
ASI  
TS  
ASI out  
IP out (MPTS/PSPTS)

### 1.5 Appearance and Description

#### Front Panel Illustration

- **LCD window**
- **LED Indicators**
- **Up, Down, Left and Right Navigation Buttons**
- **Enter Button**: Confirms Selection  
- **Menu Button**: Returns One Menu Level \ Cancels Selection  
- **Lock button**: Saves Configuration to Memory \ Locks or Unlocks the Front Panel Keys
Rear Panel Illustration

① SDI Input BNC Connector
② YPbPr & CVBS Input Connectors
③ AES, RCA and XLR Input Connectors
④ HDMI Input Connector
⑤ ASI Input BNC Connector
⑥ Management Ethernet Port for Web GUI \ NMS Control
⑦ DATA Port for TSIP (Transport Stream over IP) Output
⑧ ASI Output Connectors
⑨ Power Supply/Fuse
⑩ Grounding Point
Chapter 2 Installation Guide

This section will list the precautions and necessary conditions required to install and operate the UC-550E properly.

2.1 General Precautions

✓ Must be operated and maintained free of dust to preserve cooling airflow.
✓ The cover should be securely fastened at all times. Opening the top cover plate will void the product warranty. Do not open the top cover plate of the product while the power source is connected live under any circumstances.

2.2 Electric Precautions

✓ Ensure the power source of the product does not cause a power surge.
✓ Avoid operating in a humid environment.
✓ Ensure all power cords are in good condition.
✓ Ensure power switch is off during initial installation.

2.3 Device’s Installation Flow Chart

- Acquisition Check
- Installing Device
- Connecting Grounding Wire and Power Cord
- Connecting Signal Cable
- Setting Parameter
- Running Device
## 2.4 Environmental Requirement

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment-Rack Requirements</td>
<td>Product will require 1.2~1.5m between neighboring devices. Allow 0.8m of space from walls.</td>
</tr>
<tr>
<td>Datacenter Flooring</td>
<td>Electrically Isolated, Dust Free. Volume resistivity of ground anti-static material: 1X10^7~1X10^{10}\Omega, Grounding current limiting resistance: 1M\Omega (Floor bearing should be greater than 450Kg/m²)</td>
</tr>
<tr>
<td>Environment Temperature</td>
<td>5<del>40°C (sustainable), 0</del>45°C (short term), Installing air-conditioning is recommended.</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>20%~80% sustainable 10%~90% short term</td>
</tr>
<tr>
<td>Pressure</td>
<td>86~105KPa</td>
</tr>
<tr>
<td>Doors &amp; Window</td>
<td>Installing rubber strips for sealing door-gaps and dual pane glass windows are recommended.</td>
</tr>
<tr>
<td>Walls</td>
<td>Do not enclose the unit in spaces with poor airflow.</td>
</tr>
<tr>
<td>Fire Protection</td>
<td>Fire alarm system and extinguisher</td>
</tr>
<tr>
<td>Power</td>
<td>Ensure device, air-conditioning and lighting power are independent circuits. Device power requires AC 110V±10%, 50/60Hz or AC 220V±10%, 50/60Hz. Please carefully check sources before making connections.</td>
</tr>
</tbody>
</table>
2.5 Grounding Requirement

✓ Good grounding is essential for a reliable product lifespan.

✓ The grounding conductor should be made of copper in order to reduce high frequency impedance. The grounding wire must be as thick and short as possible.

✓ Users should make sure the two ends of the grounding wire have good electric conductivity and are rust-resistant.

✓ Separate grounding circuits from other devices.

✓ The area of conduction between grounding wire and the device’s frame should be no less than 25 mm².

Chapter 3 Front Panel Operation

The UC-550E can be fully controlled using the front panel menu buttons. The LCD consists of a 2-line 40-character back-lit dot-matrix screen. The front panel contains the UP, DOWN, LEFT and RIGHT Menu Navigation Buttons.

Keyboard Function Description

LEFT/RIGHT/UP/DOWN: Menu Navigation.

MENU: To cancel presently entered value and resume previous setting. Returns one menu level.

ENTER: Activate changes. Save settings to memory.
LOCK: Locks the screen / cancels the lock state. Saves unit settings to memory.

3.1 LCD Menus

**LCD Menu Path:**

- **Switch On**
  - Initializing
  - General Status
  - 1 Alarm Status
  - Error Type Check

- **2 Encode Setting**
  - 2.1 Audio Setting
    - 2.1.1 Audio Input
    - 2.1.2 Audio Bit rate
    - 2.1.3 Audio Format
    - 2.1.4 Audio Channel
    - 2.1.5 Audio Bit rate
    - 2.1.6 Audio Format
    - 2.1.7 Audio Channel
    - 2.1.8 Audio Bit rate
    - 2.1.9 Audio Format

  - 2.2 Video Setting
    - 2.2.1 Video Input
    - 2.2.2 Video Bit rate
    - 2.2.3 Aspect Ratio
    - 2.2.4 Chroma Sample
    - 2.2.5 Rate Ctrl Mode
    - 2.2.6 Closed Caption
    - 2.2.7 Video PID
    - 2.2.8 PCR PID
    - 2.2.9 PMT PID
    - 2.2.10 GOP Setting
    - 2.2.11 VBR Range

  - 2.3 Encode Setting
    - 2.3.1 Encode Mode
    - 2.3.2 Encode Type
    - 2.3.3 Resolution
    - 2.3.4 Encode Frame

  - 2.4 Encode Start
    - No / Yes
3.2 Initial Status

Boot-up and main menu information:

Encode Starting
>>>>>>>>>>>>>>>>>>>>>>>>>>>> 56%

Device Name
Output Bit Rate

UC-550E HD Encoder Rate: 12.34 Mbps
FMT: 720x576 50i PORT: HDMI

Signal’s encoded resolution format
Signal source port

Read Only
3.3 General Settings for Main Menu

Press the “LOCK” key on the front panel to enter the main menu. The LCD will display the following pages where user can configure the device settings:

User can press the UP/DOWN/LEFT/RIGHT buttons to navigate menu items. Pressing enter at the relevant menu options will bring up the following displays:

3.3.1 ALARM STATUS

Encoder error messages will be displayed here.

3.3.2 ENCODE SETTING

Enter “2 Encode Setting” to configure the Video/Audio input and encoding parameters.

3.3.2.1 Audio Setting

Audio Input

Press ENTER to enter menu 2.1.1 Audio Input. Displays the current audio encoding
format. Press “ENTER” again to enter the selected sub-menu, move the square bracket with LEFT/RIGHT keys to select the target setting and press “ENTER” again to confirm. Lastly, press “MENU” to return one menu item.

The current mode

Press ENTER key to go to the setting interface

Press LEFT/RIGHT keys to turn pages and elect the target mode.

If the audio\video source is either HDMI or SDI the device will automatically identify and match the corresponding interface.

**NOTE**

THE OPERATIONAL APPROACHES DEFINED ABOVE ARE APPLICABLE FOR ALL MENUS.

- **Audio Bit rate**
  Select audio bit rate. Available range is 32Kbps – 384Kbps.
Audio Format

Select applicable audio formats among items listed in the interface.

- If “None” is chosen for an audio format the system will not choose any audio streams to process and there will be no audio contained in the output data stream.
- If “AC3 Pass” is chosen the user will need to enable the pass-through function at menu “2.1.7 Pass through”.

Audio Channel

UC-550E+ HD Encoder supports both single and dual audio channels (Audio1 and Audio 2).

- Single: Only Audio group 1 will be enabled.
- Multi: Both Audio 1 and Audio 2 groups will be enabled.

Sample Rate

Currently only 48Khz is supported.
 **Code Mode**

Select audio mode: Stereo, L-Mono, and R-Mono.

![Audio Code Mode](image)

 **Pass Through**

If the user desires to pass through unmodified source AC3 audio, select “AC3 pass” as the audio format at menu “2.1.3 Audio Format” (select “ON” at this menu).

![Audio Pass Through](image)

 **Audio-1/2 PID**

The UC-550E+ HD Encoder supports both single and dual audio channels (Audio1 and Audio 2 groups). User can edit the audio PID at menus 2.1.8 and 2.1.9.

When the audio channel is set to single, only audio 1 PID is enabled. Otherwise if audio channel is set to multi, both audio1 and 2 PIDs are enabled.

Note: Values are in decimal.

![Audio-1 PID](image)

- Press ENTER key to begin editing.
- Press LEFT/RIGHT key to move the selected digit.
- Press UP/DOWN key to adjust the selected value.
- Press ENTER key again to confirm changes.

 **NOTE**

THE OPERATIONAL APPROACHES DEFINED ABOVE ARE APPLICABLE FOR ALL THE OTHER MENUS.
3.3.2.2 Video Setting

- 2.2.1 Video Input
- 2.2.2 Video Bit rate
- 2.2.3 Aspect Ratio
- 2.2.4 Chroma Sample
- 2.2.5 Rate Ctrl Mode
- 2.2.6 Closed Caption
- 2.2.7 Video PID
- 2.2.8 PCR PID
- 2.2.9 PMT PID
- 2.2.10 GOP Setting
- 2.2.11 VBR Range

**Video Input**

Press “ENTER” to enter menu 2.2.1Audio Input. The currently selected audio input interface will be displayed here.

<table>
<thead>
<tr>
<th>Video Input</th>
<th>YPbPr</th>
<th>HDMI</th>
<th>CVBS</th>
<th>[YPbPr]</th>
<th>SDI</th>
</tr>
</thead>
</table>

Users can change the input source by pressing the “ENTER” key and navigating to the desired source.

**Video Bit Rate**

User can choose within Bitrate range 0.25-60.50 Mbps. This is only applicable when unit is set for CBR.

- Video Bit rate
  - 12.00 Mbps

**NOTE:**

If VBR (Variable Bit Rate) is set as the rate-control mode, ensure the set video bit rate is within the VBR range (see 2.2.10).

**Aspect Ratio**

Select desired aspect ratio mode from options listed.
NOTE:
The UC-550E+ supports two Encoding Formats: **H.264** (MPEG4 AVC/H.264) and **MPEG2** (see 2.3.2). Mode “2.35x1” is only applicable for **H.264** encoding format.

- **Chroma Sample**
  Select Chroma Sampling mode.

- **Rate Control Mode**
  UC-550E+ supports both CBR (Constant Bit Rate) and VBR (Variable Bit Rate) bitrate control mode.

- **Closed Caption (CC)**
  **ON**: Inserts CC into the output stream
  **OFF**: No CC is inserted into the output stream

- **Video/PCR/PMT PID**
  Enter each sub-menu to edit the relevant PIDs.
  **NOTE**: All values are decimal.
GOP Setting

Select GOP (Group of Pictures) structure mode from the available options.

VBR Range

When the Rate Control Mode is set as VBR user can enter this menu to set the allowable range. The minimum rate is fixed to 1.00 Mbps. User can only set the maximum value.

3.3.2.3 Encode Setting

Encode Mode

User can choose between encoding the program automatically or manually at this menu.

Encode Type
UC-550E+ supports two Encode Formats: **H.264** (MPEG4 AVC/H.264) and **MPEG2**. User can choose which format at this menu.

![Encode Type](#)

- **Encode Type**
  - MPEG 2
  - H.264 [MPEG 2]

➤ **Resolution**

Enter this menu to set the desired video resolution.

![Encode Resolution](#)

- **Encode Resolution**
  - 576i
  - 720p
  - 1080i
  - 480i
  - 576i
  - 720p
  - 1080i

➤ **Encode Frame**

Enter this menu to set the desired video frame rate.

![Encode Frame](#)

- **Encode Frame**
  - 50
  - 59.94
  - 60

3.3.2.4 **Encode Start**

Select ‘Yes’ to begin encoding the program as set by user parameters.

![Encode Start?](#)

- **Encode Start?**
  - No
  - Yes

3.3.3 **OUTPUT SETTING**

Enter “3 Output Setting” to set the TS output parameters.

![3.1 TS Mux Option](#)

- **3.1 TS Mux Option**
  - 3.2 IP Null Packet
  - 3.3 IP Out Mode
  - 3.4 IP Out Address

![3.5 Audio Setting](#)

- **3.5 Audio Setting**
  - 3.6 Video Setting
  - 3.7 Encode Setting
  - 3.8 Encode Start

![3.9 Audio Setting](#)

- **3.9 Audio Setting**
  - 3.10 Video Setting

---
3.3.3.1 TS Mux Option

<table>
<thead>
<tr>
<th>TS Mux Setting</th>
<th>Encode</th>
<th>ASI</th>
<th>Mux</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Encode]</td>
<td>[Encode]</td>
<td>ASI</td>
<td>Mux</td>
</tr>
</tbody>
</table>

**Encode**: Encoded TS content only.

**ASI**: ASI sourced TS output only.

**Mux**: This option will allow the user to parse and filter selected programming from both Encoded and incoming ASI streams. Mux TS output will exit the ASI-OUTPUT ports.

3.3.3.2 IP Null Packet

User can decide whether to filter IP null packet at this menu.

<table>
<thead>
<tr>
<th>Filter IP Null Packet?</th>
</tr>
</thead>
<tbody>
<tr>
<td>[No]</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

3.3.3.3 IP Out Enable

UC-550E+ HD encoder supports program streaming output over IP (MPTS or SPTS) through the Ethernet DATA port.

<table>
<thead>
<tr>
<th>IP Out Mode</th>
<th>MPTS</th>
<th>SPTS</th>
<th>[MPTS]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled</td>
<td>MPTS</td>
<td>SPTS</td>
<td>[MPTS]</td>
</tr>
</tbody>
</table>

3.3.3.4 – 3.3.3.9

User can enter menus 3.3.3.4 – 3.3.3.9 to configure relevant TSIP configuration.

<table>
<thead>
<tr>
<th>IP Out Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>224.002.002.002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IP Out Mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>255.255.255.000</td>
</tr>
</tbody>
</table>
3.3.3.10 Output Bit rate

This menu is only applicable when TS Output is set to ‘MUX’ or ‘ASI’. It represents the total output bitrate. When unit is configured for ‘ENCODE’ TS output, bitrate will be selected in menu 2.2.

3.3.4 NETWORK SETTING
Enter “4 Network Setting” to set the network parameters.

4.1 IP Address 4.2 Subnet Mask
4.3 Gateway 4.4 MAC Address

IP Address
192.168.000.136

Subnet Mask
255.255.255.000

Gateway
192.168.000.001

MAC Address
00:11:22:33:55:11

This is the IP address used for connecting to Web management.

The MAC is read only on the front panel. It is can be modified in the Web management interface.

3.3.5 SAVE CONFIGURATION

User can enter the Save Configuration menu to save settings to memory. Unsaved changes will be lost if unit power is lost. Choose yes and press “ENTER” to confirm.

Save Configuration?
Yes  No

3.3.6 LOAD CONFIGURATION

User can choose to load last saved or default configuration.
3.3.7 VERSION

This menu will display the current unit firmware.

UC-550E HD Encoder
SW: XX.XX    HW: XX.XX
Chapter 4 WEB NMS Operation

4.1 Login

The default management IP address of this device is 192.168.0.136. This can be modified from the front panel in menu 4.1.

Connect the devices in a properly configured Local Area Network.

Use a web browser to connect to the device’s Graphical User Interface by inputting the device’s IP address in the browser’s address bar.

The following screen will allow the user to input login credentials. Both the default Username and Password are “admin”.

![Login Screen]

Figure-1

4.2 Operation

- **System Information**

  Once proper credentials are validated unit will display general status.
Encode Setting

Click “Encode Setting” on the left column to display interface Figure 3 & Figure 4. User can set the Audio/Video parameters by inputting a value or selecting a value in the pull-down list.

Red boxes and arrows in Figure 3 and Figure 4 display the hidden sub-menus under different settings.
Figure-3

Figure-4
Important Function Remarks:

If the following cursor appears, click to display additional information.

Be careful to apply this function: If the output video has problems, like there is ghost on the screen, users can apply this function to adjust lines or fields to debug.

Help Function

If the following cursor appears, click to display additional information.

Adjust Window Format Help

Adjust active window format.

WARNING: This param is advanced param, be careful when you set this param!

Auto: default
Adj 1 Bottom: Adjust bottom field for interface format.
Adj 1 Top: Adjust top field for interface format.
Adj P Frame: Adjust frame for progressive format.

Adjust Line Help

Adjust line number.

WARNING: This param is advanced param, be careful when you set this param!

-1: Adjust -1 line.
0: Adjust 0 line.
+1: Adjust +1 line.
+2: Adjust +2 line.
+3: Adjust +3 line.
- **Output Setting**

  Click “Output Setting” on the left column and it will display interface Figure-7. User can set the output parameters by inputting a value or selecting a mode in the pull-down list.
TS Mux Setting

Click “TS Mux Setting” on the left column to display interface Figure-8. This section is for filtering programs that are sourced from both the ASI Input and Encoder interfaces (HDMI/SDI/CVBS/YPbPr).

NOTE:

This mux section will be applicable on condition that “TS Mux” is chosen at the “Mux Output Option” in “Output Setting” (Figure 7).

Figure-8

Click “Refresh” button to refresh the input/output program list.

Select one program in the input box and click this button to transfer the selected program to the output box.

Similarly, user can click this button to remove the multiplexed programs from the right box.

click this button to parse the program list in each input channel.

Maximum time limitation to parse the input programs.
◆ Modify Program Information:

When one program is selected to output, user can **double-click** the program in the right box to reset the program information. It will trigger a dialog box as below (Figure 9):

![Figure-9]

Input the custom data and click **Apply** to confirm.

➢ SPTS Setting

UC-550E+ HD encoder supports 1 MPTS IP or 8 SPTS IP output. Click “SPTS Setting” on the left column and it will display interface Figure-10 where user can configure the SPTS output.

![Figure-10]
Select one program and click **Add** to add its SPTS information. (Figure 11)

![SPTS Setting](image)

Figure-11

Select one program and click **Config** to modify its SPTS information. (Figure 12)

![SPTS Setting](image)

Figure-12

Click **Apply** to confirm.

- **Save/Load Config**

  Click “Save/Load Config” on the left column and it will display interface Figure-13 where user can save or load existing configuration as per prompts.
Network Setting

Click “Network Setting” on the left column and it will display interface Figure-14 where user can check or reset the network parameters.

Update Software

Click “Update Software” on the left column to display interface Figure-15 where user can update the software for the device. Click browse button to find the update file on a local hard drive and click “Update” button to start updating.
Reboot System

Click “Reboot System” on the left column and it displays interface as Figure-16 where user can reboot the system as per prompts.

Modify Password

Click “Modify Password” on the left column and it displays interface Figure-12 where user can reset the login credentials as needed.
Figure-12
Chapter 5 Troubleshooting

UPCOM Technologies’ ISO9001 quality assurance system has been approved by the CQC Organization to guarantee all products’ quality and reliability. UPCOM products must pass testing and inspection before leaving the factory. The testing and inspection process covers all the Optical, Electronic, and Mechanical criteria. To prevent potential hazard, please strictly follow all operation instructions.

Upcom Technical support can be contacted by e-mailing support@upcom.com or calling 1-408-329-4158.

Preventative Measure

- Installing and operating the device in temperatures between 0-45 °C.
- Ensuring proper cooling airflow for the device.
- Carefully check the input AC for the proper power supply working range.
- Check all signal cables have been properly connected.
- Allow a 10-second interval between alternating power ON\OFF states.

Unplug the power cord if:

- Damaged power cord or socket.
- Any accidental liquid spillage on device.
- Any suspicion of short circuits.
- Physical damage.
- Long-term idle periods are planned.
- Performing any needed maintenance.
Chapter 6 Packing List

- UC-550E+ MPEG2/H.264 HD Encoder 1PC
- HDMI Cable 1PC
- SDI Cable 1PC
- YPbPr Cable 1PC
- CVBS Cable 1PC
- Audio Cables 2PCs
- Power Cord 1PC