

Smart-telecaster *Zao-S*

User's Guide

Zao-S User's Guide

STC-YZN-A-S series

[Introduction](#)

[Before You Start](#)

[Live Streaming](#)

[Functions](#)

[Others](#)

Online User's Guide

Please download from the following site:

<http://solitonsystems.com/products/solution/live-broadcasting/smart-telecaster-zao-s-2/>

Soliton Systems K.K.

1 For Your Safety

• This page contains important information to prevent users and others from harm, such as electric shock and injuries, as well as fire and other property damage that may result from incorrect use.

Please read all information before use.

Warning labels

The following warning labels are used in this document.



Failure to observe the instructions under this label will cause extremely hazardous situations which may result in serious injury or death.



Failure to observe the instructions under this label will cause unexpected hazardous situations which may lead to serious injury or death.



Failure to observe the instructions under this label will cause unexpected hazardous situations which may lead to personal injury or property damage.

Do not use if damaged

Stop using the device if damaged.

Do not use if abnormality occurred

When using the device, in case of;

- Strange noise
- Abnormal smell
- Smoke
- Excessive heat
- Objects or liquids getting inside the device

- ① Turn the power off, then
- ② Remove the power cable and the external battery.

DANGER In the event of a battery leak

A lithium-ion battery is included inside of the device. In the event of a battery leak from the device;

- ① Immediately move the device away from any cause of fire. Liquid or gas leaking from the battery may catch fire or burst.
- ② If the liquid should get in ones eyes, do not rub. Immediately wash out thoroughly with running water or any other clean water and seek medical help.
- ③ If the liquid should get in ones mouth, immediately wash out with running water and seek medical help.
- ④ If the liquid comes in contact with ones skin or clothes, thoroughly wash away with water.



Failure to observe the following instructions may cause hazards that lead to fire, serious injury or death.

- **Do not disassemble or modify the device.**
- **Do not damage or excessively bend/twist the power cable.**
- **Do not plug the AC adapter into an overloaded outlet.**
- **Do not leave the device under direct sunlight for a long time.**
- **Do not drop the device or subject it to strong shock.**
- **Do not place heavy objects on the device.**
- **Use the designated AC power adapter and battery equipment.**
- **Do not heat or throw the device into fire.**

2 Restrictions and Special Instructions

- ❑ The device may heat up when it is in continuous use, however this is not a malfunction.
- ❑ The accompanying AC adapter supports AC 100 V to 240 V (50Hz/60Hz), however the power cable is for use in Japan only. For use in other countries, a power cable appropriate for the area is required.
- ❑ Unplug the AC adapter when the device is not in use for a long time.
- ❑ This device contains a lithium-ion battery.



- ❑ This device is a Class A information technology equipment. Using this equipment within a residential area may cause radio interference. In this case, the user may be required to take appropriate measures.

VCCI-A





- ❑ Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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3 Introduction

3.1 Confirmation of packaged items

Item description	
Zao-S device (1) (Model No.: STC-YZN-A-S1/2) *The Zao-S device is shipped connected with the jacket by a screw in the back.	
Zao-S jacket (1) (Model No.: STC-YZN-D-JC) *The Zao-S device is shipped connected with the jacket by a screw in the back.	
HDMI disconnection prevention ring Large size (1), Small size (2) *Use to fix the HDMI cable connected with the device to the jacket.	
USB cable (3) *Use to connect the mobile connector of the device and a USB modem.	

Required items other than packaged items

- Exclusive AC adapter (Model No.: STC-YZN-D-AD)
- Power cable for the AC adapter
- HDMI cable
- Mini DIN – BNC SDI coaxial cable (for only STC-YZN-A-S1)
- *Mini-DIN (DIN1.0/2.3) terminal is equipped in the device.



Optional items

- USB modem
- USB Wi-Fi dongle
- 3.5 mm headphone
- Exclusive external battery pack (Model NO.: STC-YZN-D-BT)

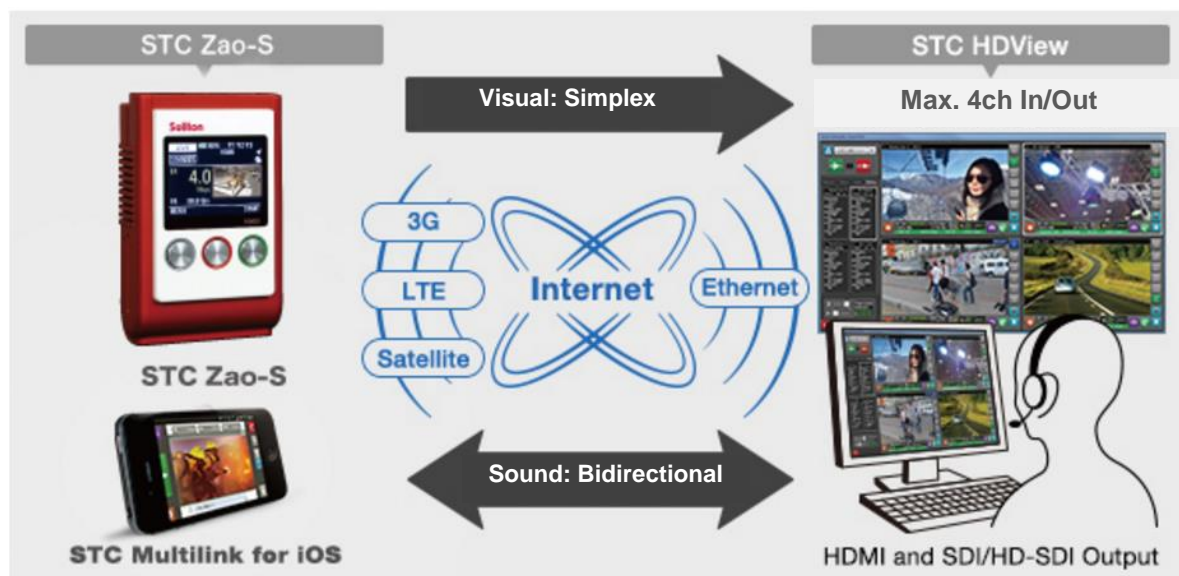


3.2 System configuration

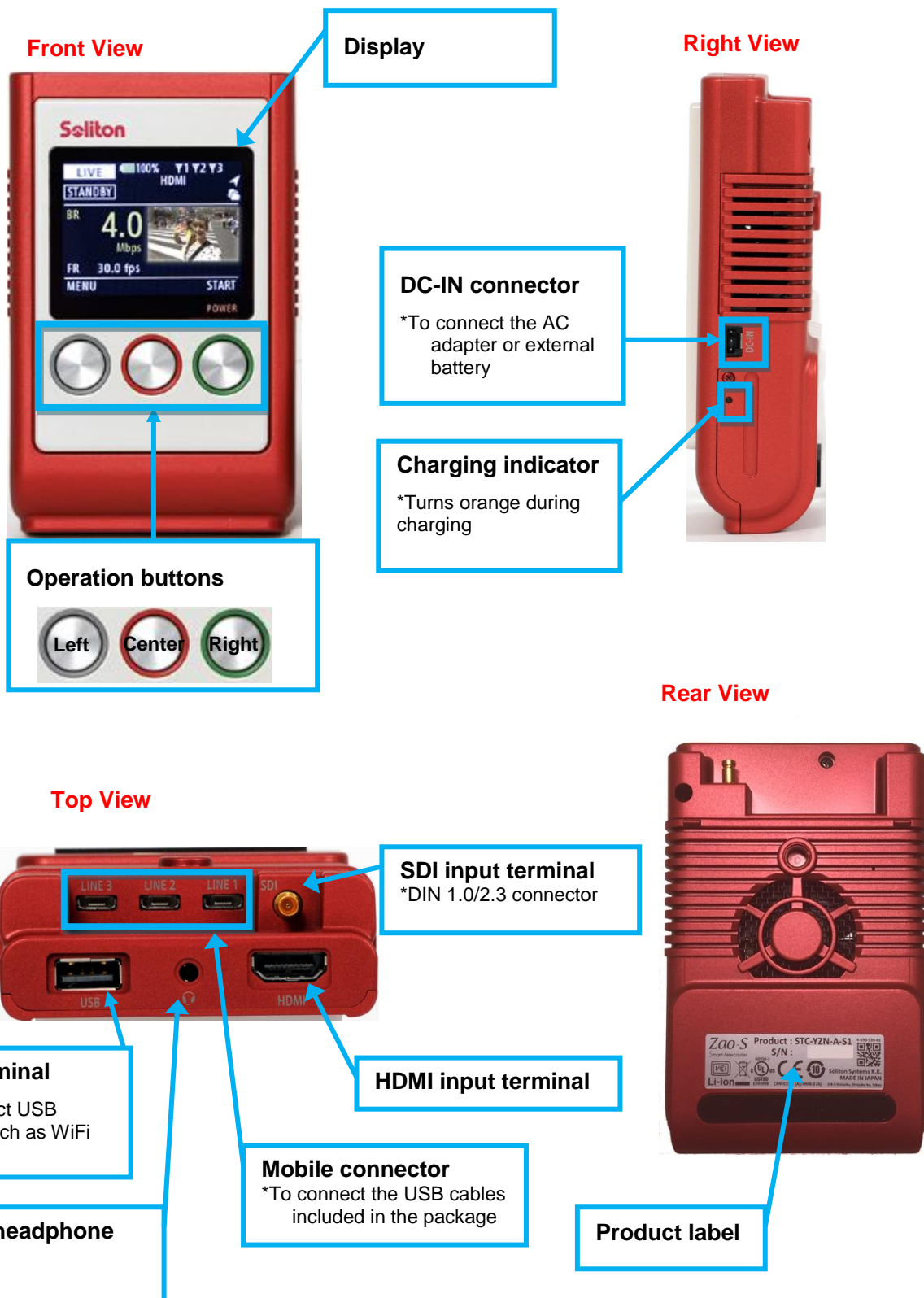
- Soliton Smart-Telecaster™ is a system to stream videos and audios in real time from a video camera to a remote location. The videos and audios connected to the transmitter system (Zao-S device) will be transmitted to the reception side (STC HDView [Windows PC app: sold separately]) via the Internet.

Up to four telecommunication lines (USB modems, etc.) may be connected to the device. Using multiple lines at the same time enables stable video transmission from a variety of locations in the world.

*For details on STC HDView, see the app's manuals.

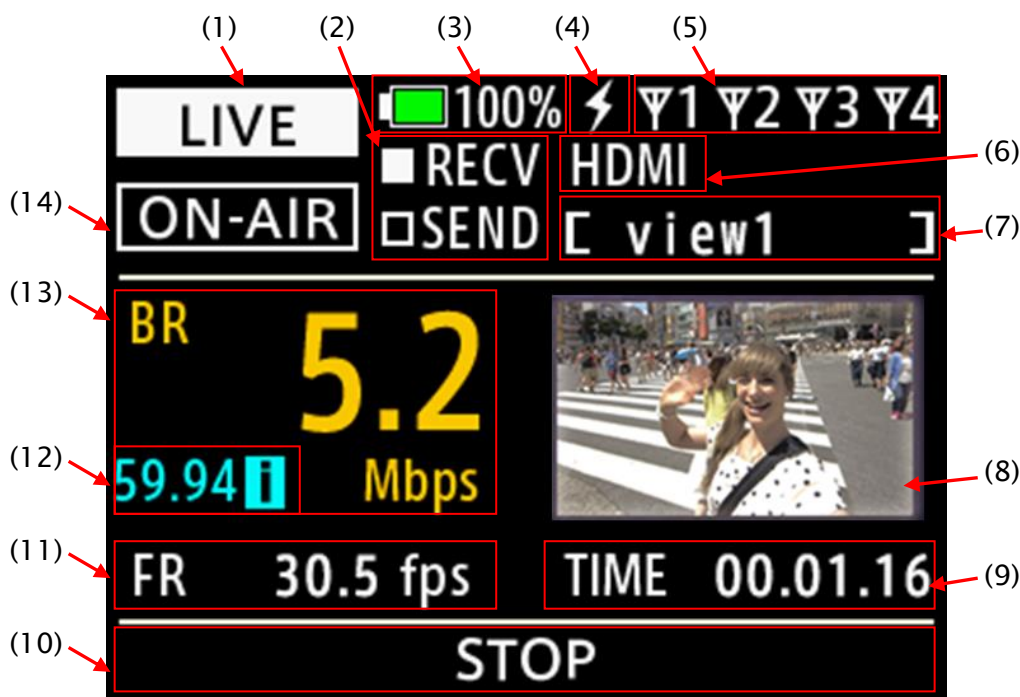


3.3 Names of parts



3.4 Indicators on display

Various status information is shown on the display.



- | | |
|---|---|
| <p>(1) Mode
Shows the current mode (LIVE mode/SETTING mode).</p> <p>(2) Communication indicator
RECV: data receiving
SEND: data sending</p> <p>(3) Battery remaining (0-100%)</p> <p>(4) External power supply connection status
Lit when external power supply (external battery, etc.) is connected.</p> <p>(5) Network connection status
Shows connection status for networks 1 to 4.</p> <p>(6) Visual input status
Shows visual input status (HDMI/SDI).
*SDI signals are taken when SDI and HDMI are connected.</p> <p>(7) Destination (receiver) name
Shows the name of the destination address the transmission is sent to. Name is assigned by the user.</p> | <p>(8) Pre-view display
Shows the current input visual.
*SDI signals are taken when SDI and HDMI are connected.</p> <p>(9) On-air time duration
Shows the duration of the time since connected.</p> <p>(10) Button navigation
Shows the functions of left/center/right buttons.</p> <p>(11) Frame rate of sending
Shows the frame rate of visuals currently on-air.</p> <p>(12) Frame rate of input visuals
Shows the frame rate of input visuals</p> <p>(13) Bit rate of sending
Shows the bit rate of the visuals currently on-air</p> <p>(14) Connection status
Shows various connection status.
(ON-AIR/CONNECTING/DISCONNECT).</p> |
|---|---|

4 Before You Start

4.1 Charging the battery

- With the power turned off, insert the AC adapter plug or external battery pack to the DC-IN connector on the device.
- Check to see that the charging indicator has turned orange.
- When the charging completed (100% charged), the charging indicator has turned off the light.

*Battery will not charge when the power is turned on.

*In case the device is right after turned on or the internal battery of the device is heated in a high temperature environment;

Battery will stop charging temporarily (charging indicator: flash)

Then the battery will resume charging automatically (charging indicator: solid light)

*See the charging indicator's lighting patterns as below for during charging.



DC-IN terminal

※To connect AC adapter or external battery pack

Charging indicator lighting patterns (orange color)		
Lighting pattern	Status	Charging
Turned off	Power is OFF / battery is fully charged	-
	Power is ON	-
Flash	Power is OFF / Charging is temporarily stopped (When the battery is heated)	×
Solid light	Power is OFF / On charging	○

Approximate charging time: 150 minutes

* For a fully discharged battery to finish charging, at room temperature (25°C).

4.2 Setting up the connections

Connections overview



Before You Start

4.2.1 Connect a camera

Receive visual signals from a camera by connecting SDI terminal / HDMI terminal.

- SDI connection

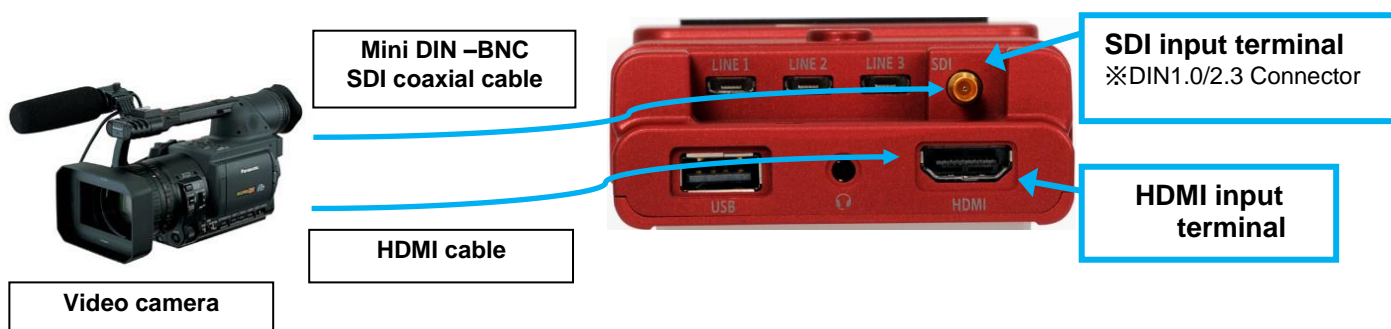
The device is equipped with a Mini DIN (DIN1.0/2.3) terminal (only STC-YZN-A-S1).

When connect with a camera, use Mini DIN ⇔ BNC SDI coaxial cable.

- HDMI connection

The device is equipped with a standard HDMI terminal.

If use a HDMI disconnection prevention ring (large or small) included in the package, HDMI cable and the jacket are fixed. [function to prevent from cable disconnection]



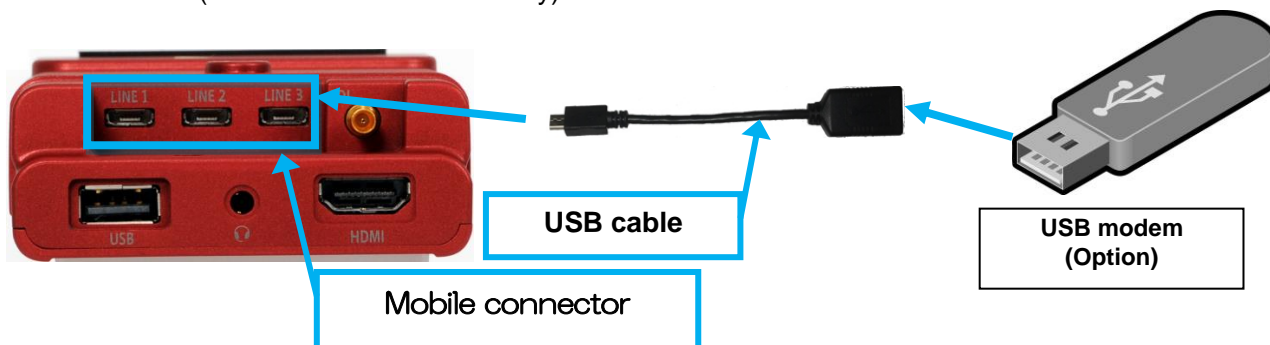
4.2.2 Connect USB modems

Connect the USB cable and USB modem to the mobile connector of the device.

Maximum of three USB modems can be connected.

*Please pay attention to the direction of the cable connector

(Please do not insert forcibly)



Before You Start

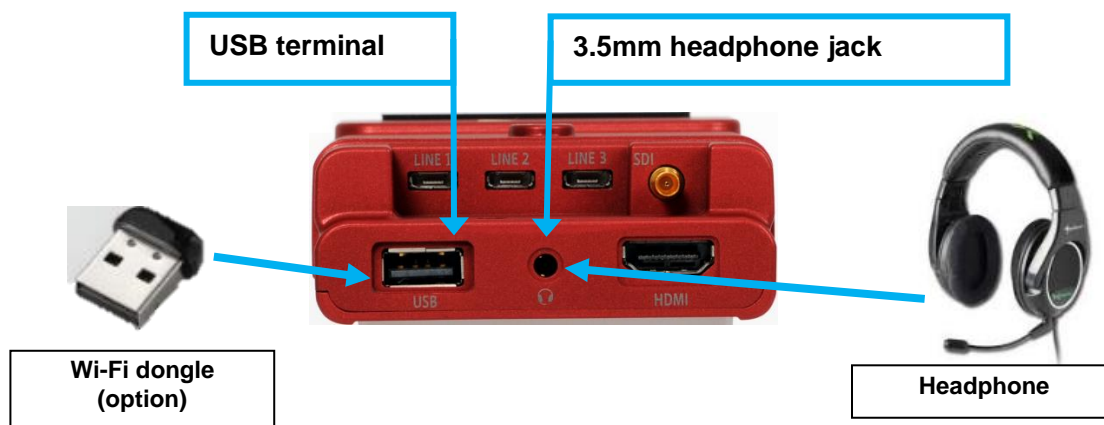
4.2.3 Connect a Wi-Fi dongle

In case using Smart-telecaster Zao Controller [Android / iOS application], connect a Wi-Fi dongle [option] to the USB connector of the device.

*Please download from Google Play Store / Apple Store to obtain Smart-telecaster Zao Controller [Android / iOS application] (free of charge).

4.2.4 Connect a headphone for incoming audio

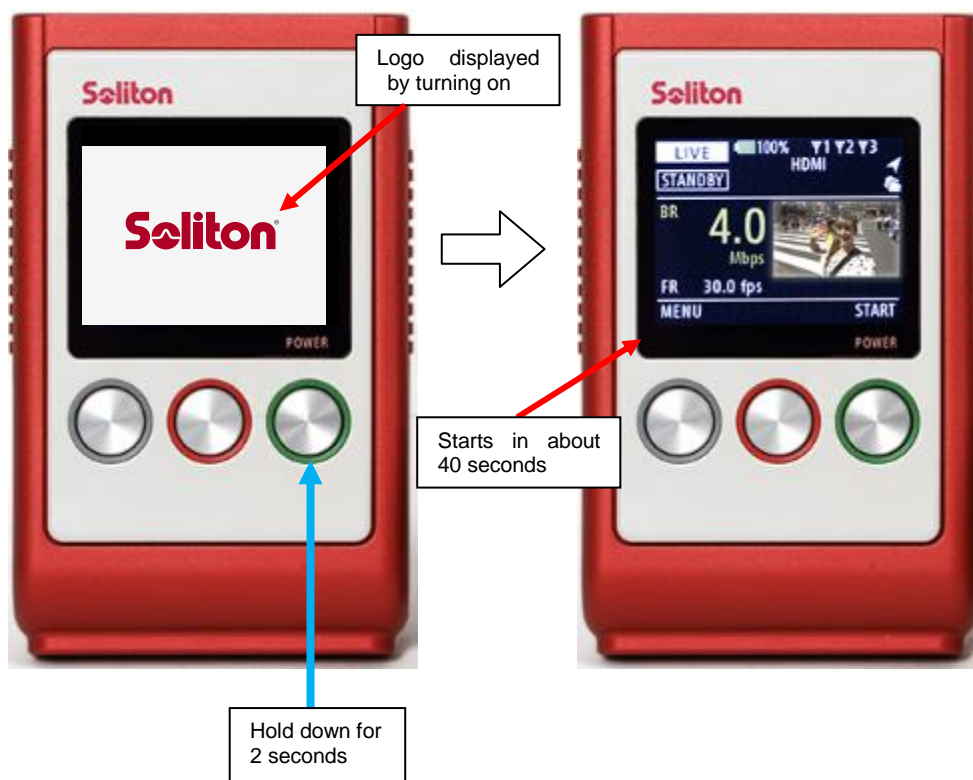
In case receiving sounds from the receiver (returning sound), connect a headphone/earphone.



4.3 Initial setting

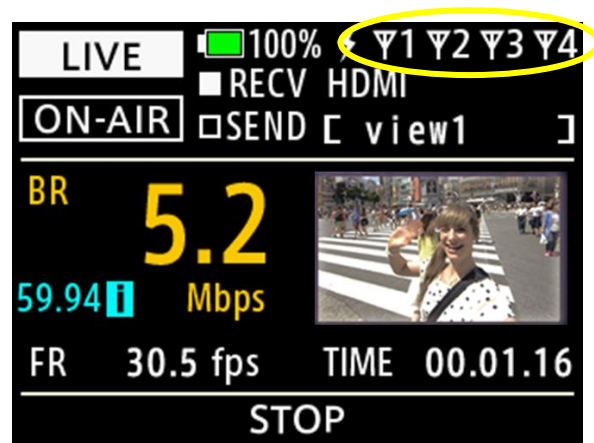
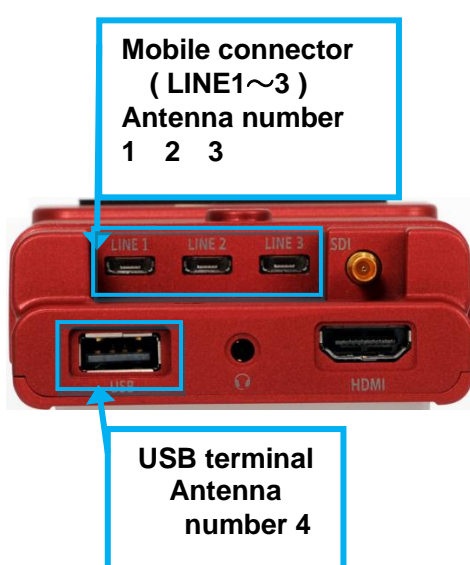
4.3.1 Turn the power on

Press the right [green] button (2 seconds) to turn the power on.



4.3.2 Check antenna (antenna signs)

Check to see that the antenna signs at the top of the display is showing
Please refer to the below for the numbers of antenna signs and location of terminals.



4.3.3 Enter destination (receiver) address

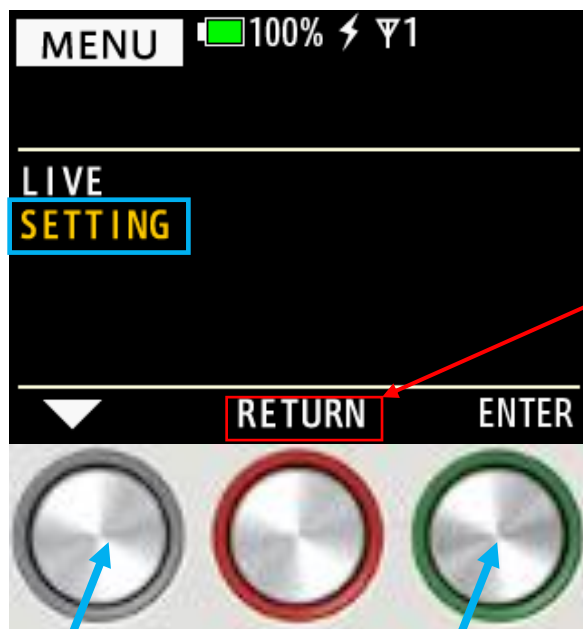
Set the IP address of the destination of the visual transmitting (receiver) .
Please press the buttons by following below guidance.



■ Button navigation
Shows functions of
Left/Center/Right operation
buttons

Before You Start

Press the Left button to select [MENU].



~Hint~
■ [RETURN] button
Back to the previous menu.

Press the Left button to select [SETTING] and press the Right button to [ENTER] the selection.



Check that [ADDRESS BOOK] is selected, then press the Right button to ENTER the selection.



~Hint~

■Maximum 5 Destination addresses (receivers) can be registered.

Use the Left button [▼] to move to [NEW] and press the Right button to [SELECT].



■ Alphanumeric enter bar
Select alphanumeric characters by left [◀] / center [▶], then press right [ENTER].

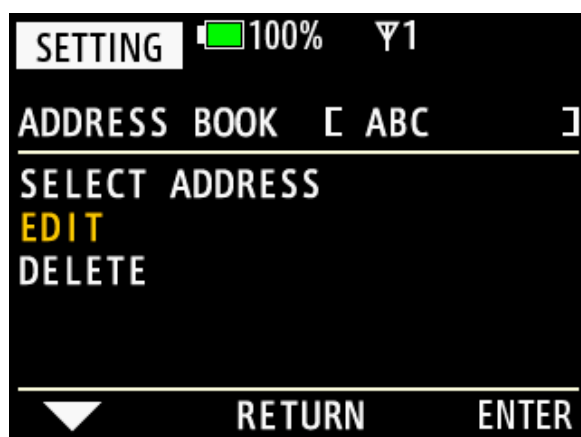
※ Available characters to input alphanumeric: A-Z, 0-9, [.] dot, [_] underscore, [-] hyphen, [] space
[DEL]: delete one character
[◀] / [▶]: move cursor to Left / right
[▼]: finish input (return)

Before You Start

Set the name, IP address, connection channel number of the destination (receiver).

- VIEW NAME ⇒ Enter any name to identify the destination (receiver) (up to 8 characters).
- IP ⇒ Enter IP address of the destination (e.g. 192.168.0.1)
- SELECT CH ⇒ Select the channel of STC HDView (channels 1 to 4).
When [NONE SELECT], connects to the available channel with the lowest number.

Once you complete the entry, press the Left button [RETURN] to return to [ADDRESS BOOK] edit screen.



Press [RETURN] to exit to the previous screen from [ADDRESS EDIT] screen.

4.3.4 Select the destination (receiver)

Select the entered destination (receiver) address as the receiver.

To select the entered destination (receiver) address, press the Left button [▼] twice and select [SELECT ADDRESS], then press the Right button [ENTER] In [ADDRESS BOOK] select screen.



~Hint~
Press the Left button[▼] to select. Cursor to be looped from the bottom to the top.

Before You Start

Thus, the setting of the destination (receiver) address has been completed.

Press the Center button [RETURN] to back to [LIVE] mode.

→Press the Center button [RETURN] four times with the order of:
[ADDRESSBOOK] < [SETTING] < [MENU].



Confirm that the entered destination (receiver) name is displayed.

~Hint~
When change the destination (receiver):
Press [MENU] > [SETTING] > [ADDRESS BOOK] to select the receiver name to be set, then enter [SELECT ADDRESS].

4.3.5 Set the frame rate

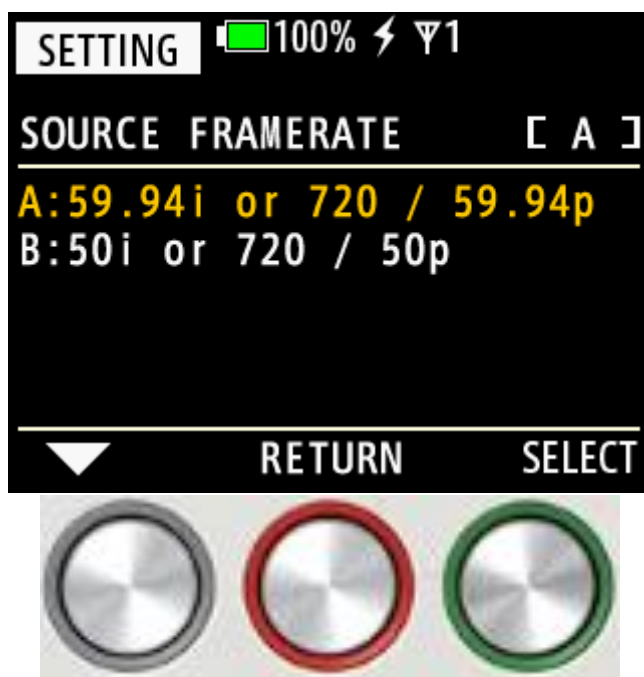
Select MENU > SETTING > SOURCE FRAMERATE



Press the Left button to select [MENU].



Press the Left button [▼] to select [SELECT SOURCE FRAMERATE] and press the Right button to [ENTER] the selection.



Use the Left button [▼] to select which frame rate to use and press the Right button [ENTER].

NTSC zone: A: 59.94i or 720 / 59.94p

PAL zone: B: 50i or 720 / 50p

After completing the setting, press [RETURN] button three times with the order of: [SOURCE FRAMERATE] < [SETTING] < [MENU].

4.3.6 Prepare PC on the receiving end

With the PC turned on, connected to the Internet, acquired IP address, start STC HDView.

*For the details of STC HDView, please refer to the manual.

Download at:

<http://solitonsystems.com>

5 Live Streaming (LIVE mode)

5.1 Start streaming



Confirm that the entered destination (receiver) name already set in 4.3.3 is selected.

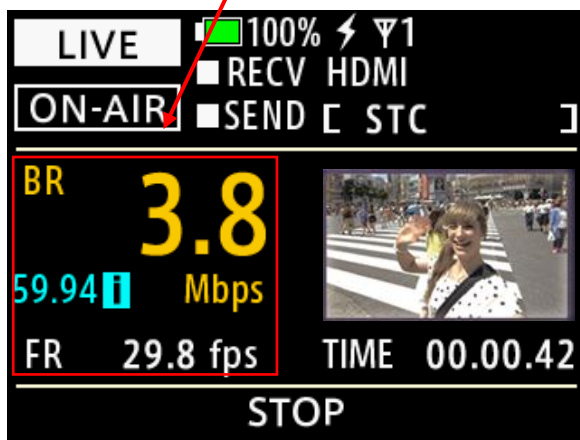
■When change the destination (receiver):
Press [MENU] > [SETTING] > [ADDRESS BOOK] to select the receiver name to be set, then enter [SELECT ADDRESS].

Confirm that the visual entry is correct.

Live Streaming

Press the Right button [START] to start live streaming.

Confirm the connection status (status) display is shown as, [STANDBY] > [CONNECTING] (flashing) > [ON-AIR].

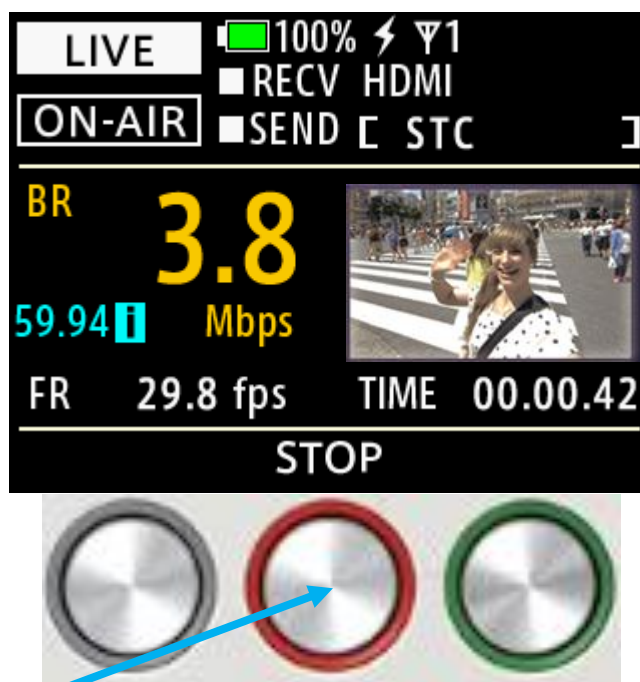


Upon ON-AIR starts, Bit Rate / Frame Rate will be increasing. It will reach to near the Target Bit Rate (set by the receiver) at 10-30 seconds, then the stable visual transmission will be performed.

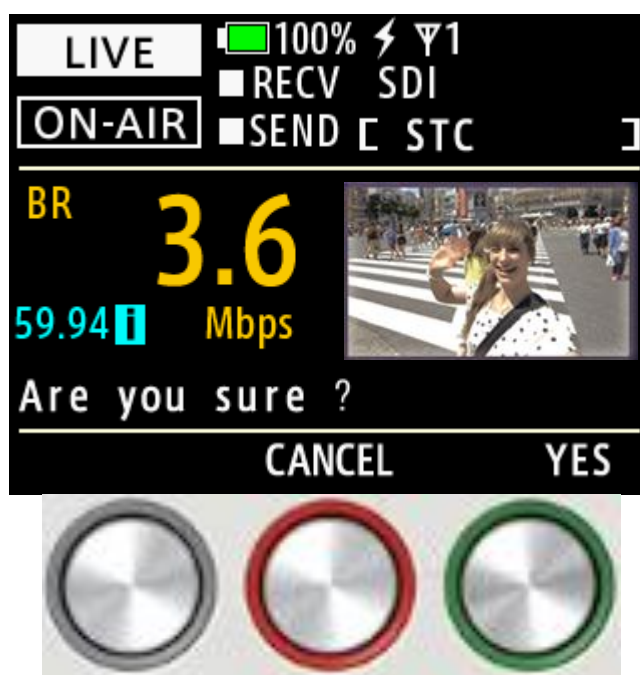
※Screen of the receiver
Confirm that the visual is transmitted to STC HDView (receiver).



5.2 Stop streaming



Press the Center button [STOP].



Confirmation message, "Are You Sure?" is shown.

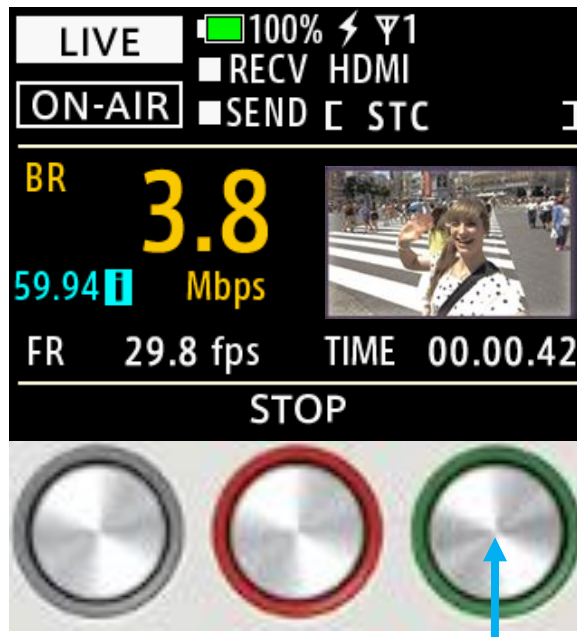
Press the Right button [YES] to stop the streaming.

Confirm that the display shows [DISCONNECT] (flashing) to [SATNDBY]

※To press the Center button [CANCEL] will continue the streaming.

5.3 Turn the power off

Press the right button (2 seconds) to POWER OFF.



~Hint~

POWER OFF operation can be done during any mode (LIVE / SETTING modes).

Press for 2 seconds to POWEROFF



Confirmation message, "Are You Sure?" is shown.

Press the Right button [YES] to POWER OFF.

Pressing the Center button [CANCEL] with return to the previous screen.

Trouble ?

- In case of no-reaction, freeze, etc. (in case that the above POWER OFF operation is not available), please refer to 7.3. Troubleshooting. (How to POWER OFF compulsory)

6 Functions

6.1 List of functions

6.1.1 Menu

MENU	
LIVE	
	STANDBY
	ON-AIR
SETTING	
	-ADDRESS BOOK
	ADDRESS(1~5)
	SELECT ADDRESS
	EDIT
	DELETE
	NEW
	-CONTROLLER MODE
	ON
	OFF
	-REMOTE SUPPORT MODE
	ON
	OFF
	-SELECT SOURCE FRAMERATE
	A : 59.94i or 720 / 59.94p
	B : 50i or 720 / 50p
	-FACTORY RESET
	CONFIRM
	-FIRMWARE UPDATE
	CONFIRM
	-INFORMATION

6.1.2 Menu details

Name of mode	Description
LIVE MODE	<ul style="list-style-type: none"> •Live streaming. - Shown right after the power is turned on. - Various kind of information is shown. - Video input preview is displayed. - [START] to start live streaming. - [STOP] to stop the live streaming. - [MENU] to move to [SETTING MODE]
SETTING MODE	<ul style="list-style-type: none"> • For settings, version confirmation, update, etc. - Set and select the destination (receiver). - Switch video input signal (NTSC/PAL). - Remote maintenance connection [SUPPORT MODE]. - Update of the device firmware - Initialize of the device setting. - Confirm the firmware version.

6.1.3 SETTING mode submenus

In SETTING mode, followings can be set and operated.

Item	Description
ADDRESS BOOK	<ul style="list-style-type: none"> •Select, edit or delete destination (receiver) address. - Register new destinations (receivers) (Up to 5 items). - Delete the registered destination (receiver) address. - Select a receiver address as the destination.
ADDRESS EDIT	<ul style="list-style-type: none"> •Edit address of the destination (receiver). <ul style="list-style-type: none"> / Name of receiver (In alphanumeric, up to 8 characters) / IP address / Connecting channel number (1 – 4ch) •Available characters are: <ul style="list-style-type: none"> - Alphanumeric in capital: A-Z, 0-9 - [.] dot, [_] underscore, [-] hyphen, [] space - Controlling characters: [◀] / [▶] move, [DEL]: delete one character, [▼]: finish input (return)
CONTROLLER MODE	<ul style="list-style-type: none"> • Configure Smart-telecaster Zao CONTROLLER. [Android / iOS apps]
REMOTE SUPPORT MODE	<ul style="list-style-type: none"> •Set to permit remote maintenance connection [SUPPORT MODE]. <ul style="list-style-type: none"> - Select by ON/OFF
SELECT SOURCE FRAMERATE	<ul style="list-style-type: none"> •Set frame rate of the video source. <ul style="list-style-type: none"> - A: 59.94i or 720 / 59.94p (NTSC) - B: 50i or 720 / 50p (PAL)
FACTORY RESET	<ul style="list-style-type: none"> •Delete all settings [return to the original settings from the factory].
FIRMWARE UPDATE	<ul style="list-style-type: none"> •Execute online firmware update.
INFORMATION	<ul style="list-style-type: none"> •Displays firmware version information. <ul style="list-style-type: none"> -Firmware version -SUID: Device unique number [Unique ID] -SSID: Wi-Fi network name for Smart-telecaster Zao Controller -PASSWORD: Password for WiFi network connection for Smart-telecaster Zao Controller.

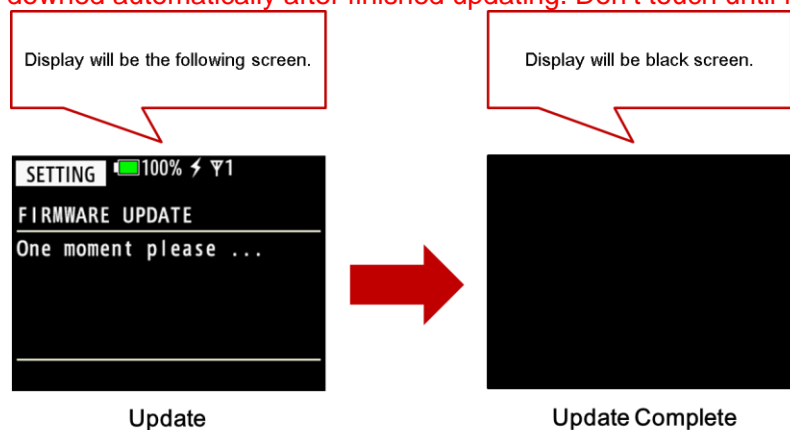
7 Firmware update procedure

※ Zao-S V1.0.2 update procedure and notice

- Please update via wired LAN cable.(Use the supplied USB-Ether conversion cable.)
- It is described in the page 22 of User's Guide.
- Please connect AC adapter before updating.
- Please update via wired LAN cable.(Use the supplied USB-Ether conversion cable.)
- If update using a modem, use the "usb" type or "eth" type.

※If check the modemu "type", see the upper right of controller.

- Please update according to screen operation of "FIRMWARE UPDATE" on the main menu.
- **Zao-S is shut downed automatically after finished updating. Don't touch until finished.**



- Please wait until finish updating (about 10-30 minutes).

◀ ※After updating, automatically shutdown . Don't touch Zao-S until shutdown.

8 Others

8.1 Specification

Input Signals

HD-SDI Input (DIN1.0/2.3 terminal)

※Only for STC-YZN-A-S1

HDMI Input (Standard HDMI terminal)

Video

1080/59.97i, 1080/50i

480/59.97i, 576/50i

Sound

Stereo (2ch): 48kHz

Encoding System

Video: H.265 Main Profile

Sound: Ogg Vorbis

Video bit rate: 200k~5Mbps

Input Signals

Pixels (HD) *Both NTSC and PAL

1920x1080 (Maximum)

960x1080 (Half-HD, full motion)

1920x540 (with field decimation)

1280x720, 960x540, 640x360, 620x720

Pixel (NTSC)

720x480 (Maximum)

360x480 (Half-SD, full motion)

720x240 (with field decimation)

Pixel (PAL)

720x576 (Maximum), 720x288

360x576 (Half-SD, full motion)

720x288 (with field decimation)

Frame Rate

Maximum 59.94 field/sec

(video input at 59.94i or 720/59.94p)

Maximum 50 field/sec

(video input 50i or 720/50p)

Sound Output

3.5 mm headphone jack × 1

Stereo (2ch): 48kHz/16bit

Communications

Networks Supported

WCDMA, LTE, wireless LAN, WiMAX, Wi-Fi,

BGAN

Error Correction

ARQ, packet sorting

Protocol

UDP/IP (RASCOW)

Encryption

AES256bit

Connection Authentication

Passphrase (up to 32 characters)

Multilink

3 links (maximum 4)

Auto Connection

Automatic connection at startup

Re-connection after abnormal disconnection

Modem Connector

USB2.0 (microAB terminal) × 3

USB2.0 (USB-A terminal) × 1

Power Voltage

DC15V (exclusive AC adapter)

DC14V (exclusive external battery pack)

Power Consumption

Approx. 20W (normal status / USB loaded)

Approx. 250uA (stand-by)

Internal Battery Duration

Approx. 60min.(normal status / USB loaded)

Internal Battery Charge Duration

Approx. 150min.

Approx. 250uA (at stand-by)

Device Size

W 77 mm × H 123 mm × D 35 mm

(protrusions not included)

Weight

Approximately 350 g

Temperature/Humidity ※non condensing

Operate time: 0~+40°C / 20~80%RH

Reserve time: -20~+60°C / 10~80%RH

8.2 Trademarks

- ❑ “Smart-telecaster Zao-S” and “Zao-S” are copyrighted works of Soliton Systems K.K. All related copyrights and other rights are the property of Soliton Systems K.K.
- ❑ All other company names and product names mentioned in this document are registered trademarks or trademarks of their respective companies.
- ❑ This product includes AES Library by Isao Mori.
- ❑ This product, in part or in its entirety, may not be copied, reproduced, or modified in any way.
- ❑ The details of this product are subject to change without prior notice for product improvement.
- ❑ The connection configurations shown in this document is purely for reference only and does not guarantee all combinations.

8.3 Troubleshooting

• In case the power does not turn on:

- ❑ Make sure the power is connected ([Page 9](#)).
- ❑ Make sure the battery is charged ([Page 9](#)).

• In case ON-AIR is unable:

- ❑ Make sure all equipment/devices are connected ([Page 10](#)).
- ❑ Make sure mobile communication is configured ([Page 10](#)).
- ❑ Check all settings ([Pages 12 to 18](#)).

• In case of freezing or unable to turn off the power:

- ❑ In case of no-reaction or freezing (unable to turn off),
→Please turn off compulsory as shown in the right.
- ❑ Initialize all settings with FACTORY RESET. ([Page 23](#))

• Others:

- ❑ The device may become hot when it is used continuously. This is not a malfunction. If it becomes too hot to touch, please contact us.
- ❑ Send questions to the contact information below by email.



Visit our website for FAQ and other information:

<http://solitonsystems.com/products/solution/live-broadcasting/smart-telecaster-zao-s-2/>

Contact information:

Mobile Broadcast Division, Soliton Systems K.K.

Shinjuku 2-4-3, Shinjuku, Tokyo **160-0022**

stc-mkt@list.soliton.co.jp