

**UHF PLL** Product Manual

# *SPT-IR / SPT-IT*



**REMOSET**<sup>®</sup>

2.4G RF Wireless Synchronization Technology

## One year product warranty

|                     |  |                         |  |
|---------------------|--|-------------------------|--|
| Product Model       |  | Equipment serial number |  |
| Customer name       |  | Contact number          |  |
| Address             |  |                         |  |
| Purchase date       |  |                         |  |
| Selling store stamp | Be sure to put store stamp and fill in purchase date for the warranty to be effective! |                         |  |

### Warranty description

1. Be sure to put the warranty label indicating purchase date on the bottom of equipment to ensure your interest in maintenance and service.
2. Product warranty, starting on the purchase date indicated on "warranty label", will last for one year; if the equipment does not have "warranty label", the warranty period is 15 months from the manufacturing date. If a microphone is broken but not sent back with the equipment, the warranty period is 15 months from the manufacturing date of the microphone.
3. Within the warranty period, if the equipment is broken under normal use as instructed in manual, please contact the original selling store for repair.
4. When the product is returned for repair, to facilitate proper determination of cause of malfunction and of whether repair fee is needed, please ship back the equipment and microphone together.
5. Within the warranty period, our company provides repair service at no cost except for the following conditions that parts and repair may be charged:
  - a. Damages due to natural disaster or irresistible outside forces.
  - b. Damages due to drop, water, moisture, corrosion, foreign objects, missing components.
  - c. The warranty does not cover consumable parts. (such as microphone capsule, ball grille etc.)
  - d. Those without "warranty label" on equipment or with "warranty label" being damaged and failing to identify warranty period.
6. Please keep the warranty properly. No replacement will be made if the warranty is missing.

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# 1. Notes for system operations

- Before connecting the power, check that the power requirement shown on the unit is the same as the power output on the adaptor supplied.
- Do not leave the unit at where the humidity and temperature are high.
- Dry your hands before operating the system.
- Keep the unit away from fire and heat source.
- Turn the volume to minimum at both the mixer and amplifier before setting up the system.
- When multiple transmitters are stacked at the same time, it is recommended to use the same group of frequency points to avoid frequency interference.
- Caution : The suitable environment for this product is with a temperature between -10°C (14°F) and +50°C (122°F).

## 2. Features

- The UHF band PLL frequency oscillation mode is used for the transmitter. The receiver utilizes a broadband 36MHz line design, with a total of six groups 1441 frequency points that can be selected, and a built-in mode of non-interference frequency.
- The SPT-1T transmitter combines JTS' patented 2.4GHz REMOSET wireless transmission technology with highly stable circuitry and signal performance, to synchronize frequency and channel settings to the SPT-1R receiver just by pressing a button. The SPT-1R can be used in a wide range of projects and performance venues.
- With the BNC dual antenna receiver terminal, it can increase the receiving distance and eliminate reception noise or radiated noise interference.
- The SPT-1R is compact, cable-free, and can be used by simply attaching it to the speaker. It provides users with six self-contained groups to avoid interference and perfectly reproduce all frequency bands.
- Problem of audio delay is easy to be solved, providing users with: metric feet (0~272 m), feet (0~892 feet) and time (0~800 ms ms) are converted to three settings for faithful audio signal performance.
- The wireless speaker transmission system transmits audio signals through the SPT-1T and receives them through the SPT-1R, eliminating complicated wiring problems and realizing wireless surroundings.
- Two channels, transmitting on different, non-interfering frequencies, can be used for left and right channel or individual channel transmission.

### 3. Specifications

#### 3-1 UHF PLL Auto Selector Receiver (True Diversity) // **SPT-IR**

|                               |  |
|-------------------------------|--|
| Model                         | <b>SPT-IR</b>  |
| Frequency Oscillation Mode    | Phase-locked loop (PLL)  |
| Carrier Frequency Range       | 470~960 MHz  |
| Number of Channels            | 2Channels  |
| Frequency Matching            | 2.4GHz RF <b>REMOSET</b> ®   |
| Antenna Selection             | True Diversity   |
| Signal Noise Ratio (S/N)      | >106dB(A)  |
| Total distortion rate (T.H.D) | <0.5%@1KHz   |
| Reception Sensitivity         | -95dBm,S/N>80dB  |
| False Rejection Ratio         | >80 dB   |
| Integrated Frequency Response | 50Hz~18KHz±2dB   |
| Antenna Connector             | Female BNC socket  |
| Function Display Method       | LCD  |
| Function Display Contents     | Group, channel, frequency, antenna A/B, AF indication, RF indication, pair ID, delay time (distance)             |
| Controllable Functions        | Power Switch, Group, Channel, Frequency, Reception Sensitivity, Key Lock, Delay Time, Display Settings, Language |
| Audio output level (MAX)      | Mini XLR Jack : +10dBu(Line) \ -10dBu(MIC)   |
| Audio Output Impedance        | 600Ω   |
| Silent mode                   | Noise muted and tone code lock   |
| Output Socket Type            | Balanced Mini XLR  |
| Power Supply                  | DCV INPUT 12V/0.5A   |
| Size (mm)                     | 365mm(L) x 70mm(W) x 30mm(H)   |
| Notes                         | In case of discrepancies in the specifications, please refer to the actual product itself.                       |

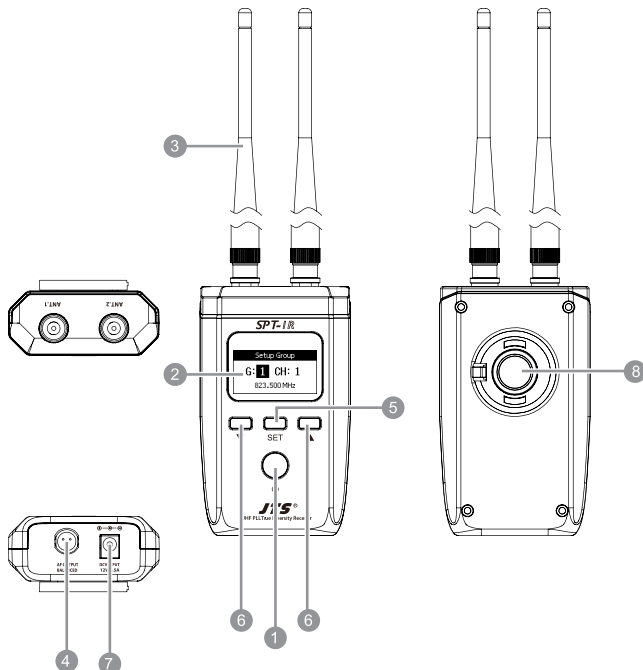
3-2 UHF PLL Transmitter // **SPT-IT**

|                            |  |
|----------------------------|--|
| Model                      | <b>SPT-IT</b>  |
| Frequency Oscillation Mode | Phase-locked loop (PLL)  |
| Carrier Frequency Range    | 470~960MHz   |
| Frequency Matching         | 2.4GHz RF <b>REMOSET</b> ®   |
| RF Power Output            | 10mW/50mW (according to local regulations)   |
| RF Stability               | <±10KHz@Fc   |
| Modulation Frequency Shift | ±48KHz   |
| Harmonic Radiation         | <-50dBc  |
| LCD Display Function       | Group, channel, frequency, mute, pair ID, volume   |
| Controllable Functions     | Power, Group, Channel, Frequency, Transmitted Power, Key Lock                              |
| Size (mm)                  | 200mm(L) x 480mm(W) x 46mm(H)  |
| Notes                      | In case of discrepancies in the specifications, please refer to the actual product itself. |

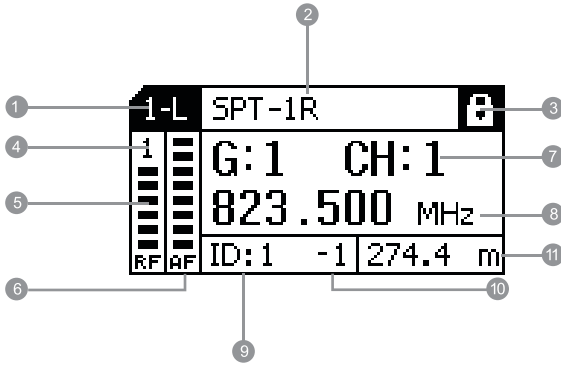
## 4. Description of parts

### 4-1 UHF PLL Auto Selector Receiver (True Diversity) // *SPT-IR*

- 1 **Power:** Press once to turn on; press and hold for two seconds to turn off.
- 2 **LCD screen:** displays the emitter setting parameters.
- 3 **Antenna:** Receiver Antenna
- 4 **Audio output connector:** 3P Mini XLR connector.
- 5 **SET key:** Set the content parameters, which includes frequency, group, channel, reception sensitivity, key lock, delay time, display settings, language.
- 6 **Up/down selector button:** Use "SET button" to change parameter setting.
- 7 **Power input socket:** DCV INPUT 12V/0.5A
- 8 **Retainer**



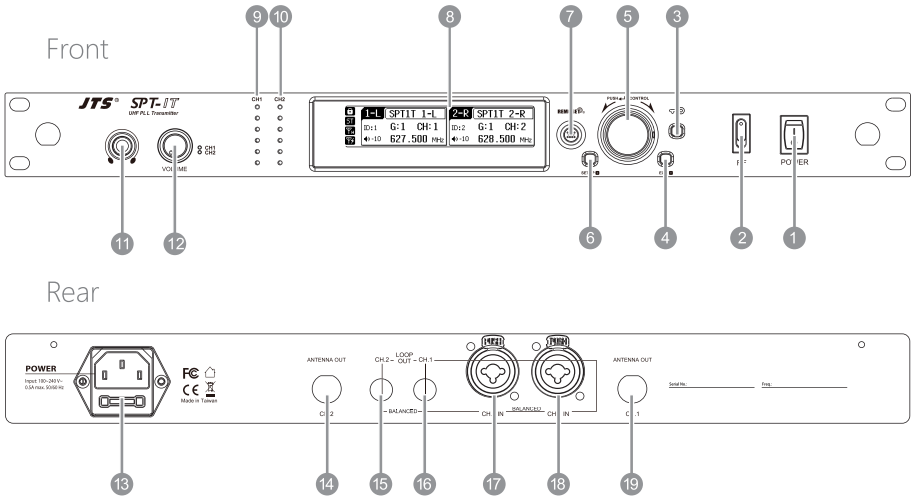
# SPT-1R LCD Display



- ① **Transmitter Channel Indication:** indicates the transmitter channel that corresponds to the transmitter via the frequency matching function
- ② **User's name**
- ③ **Pushbutton Lock**
- ④ **Receiver Antenna Indication**
  - 1 : ANT1
  - 2 : ANT2
  - ☒ : No signal
- ⑤ **RF reception strength indication**
- ⑥ **Audio indication**
- ⑦ **The current default group channel**
- ⑧ **The current frequency**
- ⑨ **Pair ID**
- ⑩ **Pair ID2**
- ⑪ **Delay time indication**



## 4-2 UHF PLL Transmitter // *SPT-1T*



- 1 **Power switch:** | refers to power "ON". ○ refers to power "OFF".
- 2 **RF switch:** Enables/disables the RF signal.
- 3 **Key Lock:** Press and hold for 2 seconds to lock all key functions. Press and hold again for 2 seconds to release the lock.
- 4 **EXIT key:** When the SPT-1T is in the "Setup Menu" environment, press EXIT to cancel the selection or exit the menu.
- 5 **Shuttle Knob:** When the SPT-1T is in the "Function Setting Menu" mode, rotate the shuttle knob to select the desired function up or down.  
Click the shuttle knob (or SETUP button) to enter the option, turn the shuttle knob to adjust the setting value.  
Press the [SETUP] button to save the settings.
- 6 **SETUP key:** Press and hold for about 2 seconds to enter the "Setup Menu"; press SETUP key to save the setting value after selecting and setting according to the "3-Flyer Knob".
- 7 **REMOSET key:** When the transmitter is set, press **REMOSET** 鍵 to send the signal to the receiver.
- 8 **LCD display:** See [Description of transmitter LCD display]

9 CH1 Volume indication

10 CH2 Volume indication

11 Ø6.3 mm stereo headphone jack

12 Volume control/monitoring channel indication:

Rotate: monitoring volume adjustment

Press: switching channels

CH1, CH2 on together: listen to both channels at the same time

CH1 on: listen to CH1 only

CH2 on: listen to CH2 only

13 AC Power Socket: 100~240VAC

14 CH.2 BNC antenna output socket

15 Balanced Loop Out Connector CH.2 Loop Out

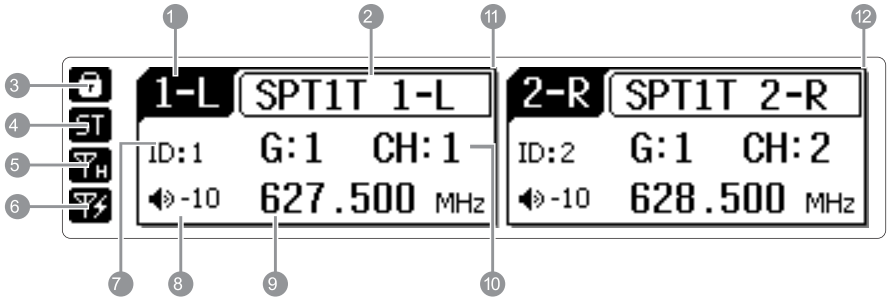
16 Balanced Loop Out Connector CH.1 Loop Out

17 Balanced XLR/Ø6.3mm Combined Input ( CH.2 Audio Input (Balanced) )

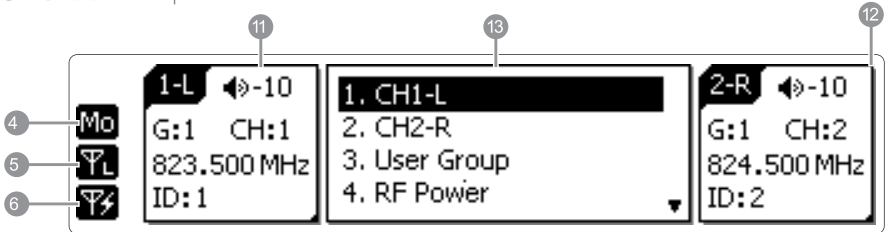
18 Balanced XLR/Ø6.3mm Combined Input ( CH.1 Audio Input (Balanced) )

19 CH.1 BNC antenna output socket

## SPT-IT LCD Display Content



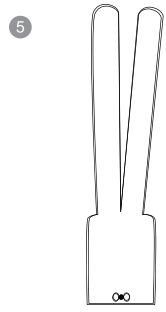
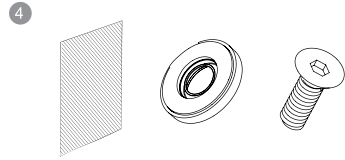
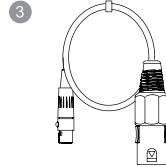
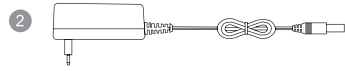
## SPT-IT Setup Screen



- 1 Transmitting Channel Indication
- 2 User's Name
- 3 Button Lock
- 4 Stereo/mix Status Indication  
**ST** : Stereo   **Mo** : Mixing
- 5 Transmitted Power Status Indication  
**TH** : High transmitting power   **TL** : Low transmitting power
- 6 RF Emission Status Indication  
**TX** : RF signals emission on   **TXx**: RF signals emission off
- 7 Pair ID
- 8 Volume
- 9 Frequency
- 10 Preset Group Channels
- 11 CH-1L Windows
- 12 CH-2R Windows
- 13 Setup Menu

### 4-3 Accessories

- 1 AC Power Cord (SPT-1T Accessory)
- 2 Switching Power Transformer (SPT-1R Accessory)
- 3 Ø 3.5mmX50cmCable (mini XLR female to XLR male/SPT-1R Accessory)
- 4 Velcro, Mount, Screws (SPT-1R Accessory)
- 5 Transparent Waterproof Cover (SPT-1R Accessory)



# 5. Connecting

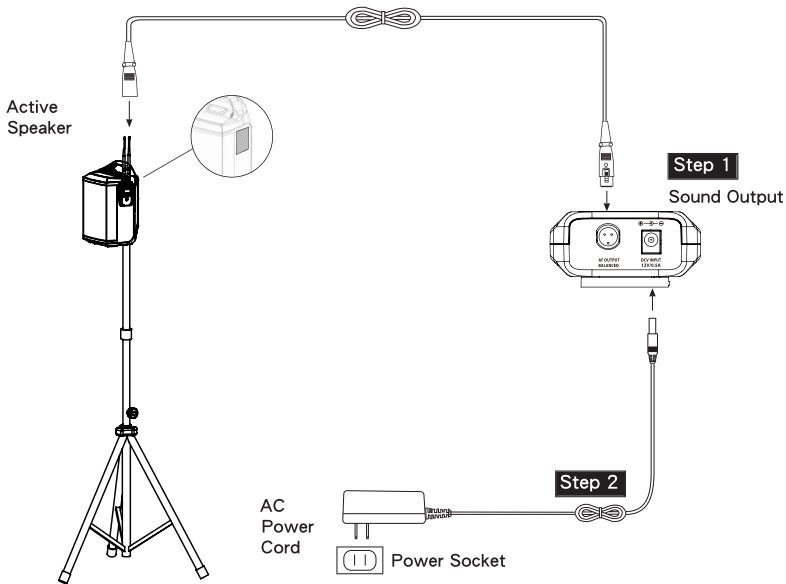
## 5-1 UHF PLL True Diversity connection and installation // *SPT-IR*

### 1. Connecting to the power supply

Connect to the power adapter: Plug the receiver into the DC socket first, and then plug the other end into the AC socket (100~240VAC).

### 2. Connect the audio signal cable

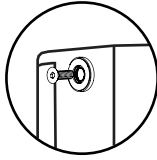
*SPT-IR* audio output connected to active speakers, MIXER or amplifier: connected to active speakers, MIXER or amplifier: *SPT-IR* of the "AF OUTPUT BALANCED" audio output. The other end is connected to the audio input of an active speaker, MIXER or amplifier.



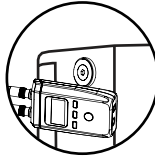
There are two ways to mount receivers to active speakers concerning **SPT-IR** as stated in the content below:

I. Method 1 (speaker with screws):

1. Turn out the screws on the side of the active speaker, lock the attached mount and screws into the screw holes of the speaker (as in Figure 1).
2. Connect the groove on the back of the **SPT-IR** receiver to the mounting bracket on the active speaker to complete the installation (as in Figure 2).



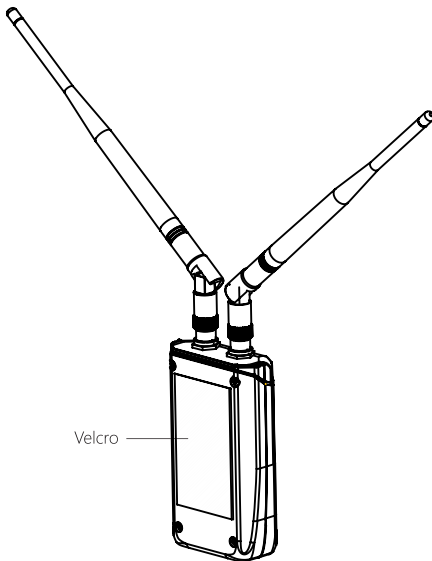
(Figure 1)



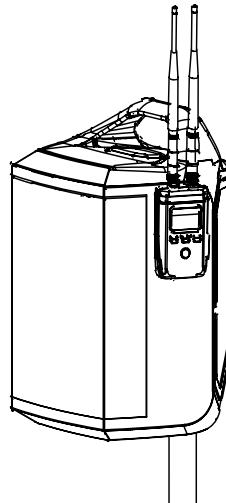
(Figure 2)

II. Method 2 (speaker without screws):

1. Glue the Velcro attached to the back of the **SPT-IR** receiver and the other piece is glued to the flat area of the speaker (as in Figure 1).
2. Attach the back of the **SPT-IR** receiver and laminate the other piece to the surface of the speaker to complete the installation (as in Figure 2).



(As shown in Figure 1)



(As shown in Figure 2)

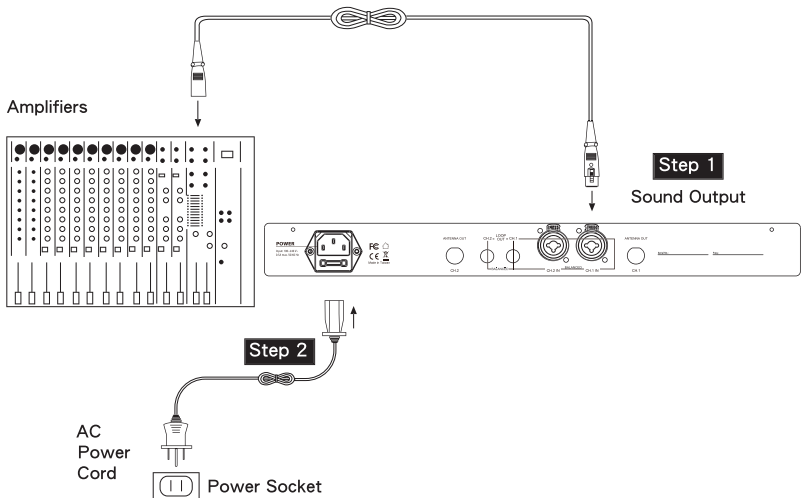
## 5-2 UHF PLL Transmitter Installation Figure // *SPT-1T*

### 1. Connecting to the power supply

Connect to the AC power cord: Plug the transmitter into the AC block first, and then plug the other end into the AC block (100~240VAC).

### 2. Connecting to the audio signal cable

Audio cable: XLR or Ø6.3mm audio cable, one end connects the audio source to the "SPT-1T OUTPUT BALANCED" audio input of the *SPT-1T* receiver, and the other end connects the MIXER to the audio output socket.



# 6. Instructions for use

## 6-1 How to use // *SPT-IR*

### Parameter

Press the SET button for 2 seconds to enter the setting mode; press the ▲/▼ button to select the item, and press SET again to enter the setting mode. Meanwhile, you can press ▲/▼ keys for parameter setting, press SET again to save the setting and exit.

### System Setup

1. Frequency
2. Group/Channel
3. Squelch
4. Remoset
5. Delay
6. User Name
7. Key Lock
8. Display Options
9. Language
10. Factory Reset
11. Exit

### ◎FREQ frequency setting

|                   |   |
|-------------------|---|
| 1MHz per unit     | Press the ▲/▼ keys to set the frequency |
| 0.025MHz per unit | Press the ▲/▼ keys to set the frequency |



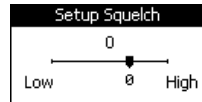
### ◎GROUP group/channel settings

|            |                              |
|------------|------------------------------|
| G Group    | Select the default group 1~6 |
| CH Channel | Select a default channel     |



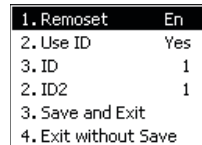
### ◎Receiving sensitivity

+5~ -10: The higher the value, the higher the reception sensitivity. (Default value is 0)



### ◎Frequency matching

|                |   |
|----------------|---|
| Enabled (En)   | Frequency can be matched to the transmitter     |
| Disabled (Dis) | No frequency can be matched to the transmitter. |



### ◎ID usage

|                |  |
|----------------|--|
| Enabled (En)   | The ID should be the same as the transmitter in order to match the frequency of the transmitter. |
| Disabled (Dis) | All transmitters can be matched to the transmitter regardless of the ID.                         |



⊙ID

ID: Pair ID

⊙ID2

Please refer to the "Remoset" section of the instruction manual (P.20)

⊙Save and leave

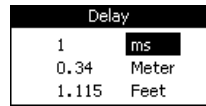
Save and leave: Save the settings and return to the main menu

⊙Leave without saving

Leave without saving: Return to the main menu without saving the setting

⊙Adjust the receiver audio delay time

Select the unit to be displayed first, either ms, meter or feet, and then press ▲/▼ to adjust the delay time.



⊙Edit User' s Name

Press the ▲/▼ keys to select a letter, number or symbol, press Set to fill in and set the next word.



⊙Key lock

|                  |   |
|------------------|---|
| Locked           | When the frequency pairing is completed, the receiver would stay in the Lock ON mode. |
| Unlock (default) | The receiver does not lock when the pairing is completed.                             |



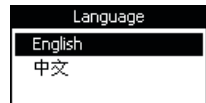
⊙Screen contrast/brightness

Screen Contrast: 0~9 (default 5)  
Screen Brightness: 0~9 (default 5)



⊙Language

|         |
|---------|
| English |
| 中文      |



©Restore the factory settings

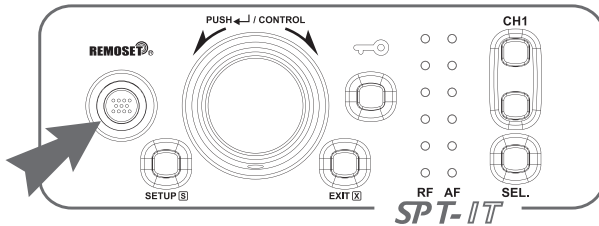
|              |                          |
|--------------|--------------------------|
| OK           | Restore factory settings |
| Cancellation | cancellation             |

This will erase all data from receiver's Internal Storage.

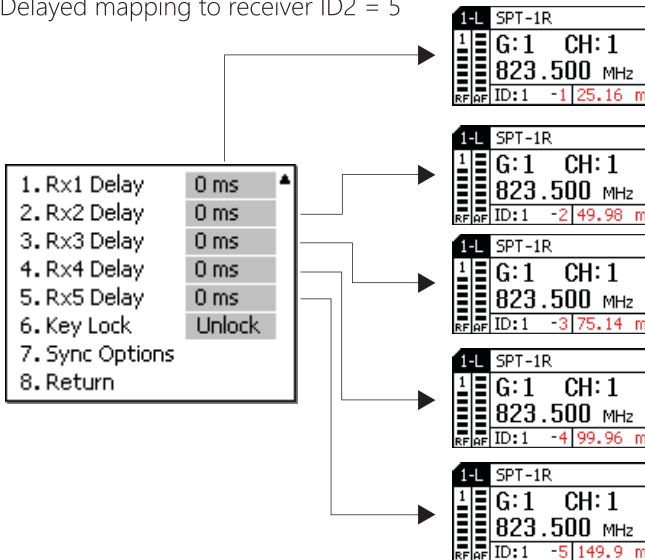
# Remoset

1. REMOSET function: Press the REMOSET button and the blue light will start flashing, indicating that the frequency data is being transmitted.
2. REMOSET success: The receiver screen flashes three times.
3. REMOSET failure: If the receiver does not respond, please check:
  - (1) Whether the "frequency range label" "attached" to the receiver and the transmitter is the same
  - (2) "Allowed" setting is required for the "FM function" in the receiver function menu.
  - (3) The receiver and transmitter "pair ID" settings must be the same.

\*When using the REMOSET function, please avoid using the REMOSET function with more than two transmitters at the same time. Avoid interfering with each other's REMOSET signals, which may result in a loss of frequency pairing.



4. SPT-1T can set 5 different delay times altogether, and simultaneously send them to 5 receivers, so that the 5 receivers can have their own delay time settings.
  - (1) Rx1 Delayed mapping to receiver ID2 = 1
  - (2) Rx2 Delayed mapping to receiver ID2 = 2
  - (3) Rx3 Delayed mapping to receiver ID2 = 3
  - (4) Rx4 Delayed mapping to receiver ID2 = 4
  - (5) Rx5 Delayed mapping to receiver ID2 = 5



## 6-2 How to use // *SPT-IT*

Press the SETUP key for 2 seconds to enter the setting mode. Use the shuttle knob to select the item, click the shuttle knob (or press the SETUP key) to enter the setting screen, rotate the shuttle knob to adjust the desired value or function, and click the SETUP key to save the setting value. Press the EXIT button to return to the previous page.

- 
1. CH1-L
  2. CH2-R
  3. User Group
  4. RF Power
  5. Stereo/Mono
  6. System Options
  7. Exit
- 

1. Frequency
  2. Group/Channel
  3. Volume
  4. Low Cut
  5. Remoset ID
  6. Remoset Config
  7. User Name
  8. Return
- 

▲ CH1-L, CH2-R Select a list

### ◎FREQ frequency setting

Adjust the left 3-digit frequency; rotate the shuttle knob to "+/- ". Click the shuttle knob after adjusting.

To adjust the right 3-digit frequency, turn the shuttle knob to "+/- ". After setting, press SETUP to save the setting value.



Set the frequency number in 1MHz and then in 0.025MHz.

### ◎Group/Channel Settings

Rotate the shuttle to select group "G:" group 1~6; press the shuttle knob after adjustment.

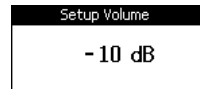
Rotate the shuttle knob to adjust the channel "CH:" up to 22 selectable channels and press the SETUP button to save the settings when finished.



Set the frequency number in 1MHz and then in 0.025MHz.

### ◎Volume

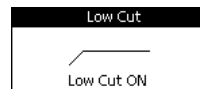
Adjustment range: -20dB ~ +20dB



The graph currently sets the sensitivity to Gain 0dB (default)

### ◎Bass decay

|     |                     |
|-----|---------------------|
| On  | Subwoofer decay     |
| Off | Non-decay (default) |



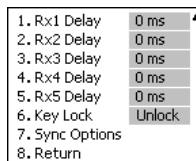
⊙ Pair ID

Pair ID: 0~255. This setting affects the usage of REMOSET; The pair ID settings of the receiver and transmitter must be the same to enable the REMOSET.



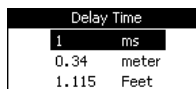
⊙ Pair Frequency Options

SPT-1T can set up 5 different audio delay times to synchronize to 5 receivers with different ID2s when using the pair function.



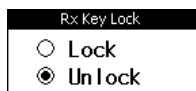
⊙ Adjust the receiver audio delay time

Select the unit to be displayed first. You can choose from milliseconds, meters and feet, then click the shuttle to adjust the time delay.



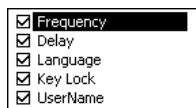
⊙ Key

|        |   |
|--------|---|
| Locked | When the frequency pairing is completed, the receiver should remain in the Lock ON mode.  |
| Unlock | The receiver would not be locked when the frequency pairing is completed. (Default value) |



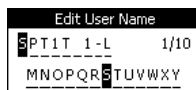
⊙ Synchronization options

Use the shuttle to select the REMOSET synchronous transmission setting item, and then press the shuttle button to perform the check.

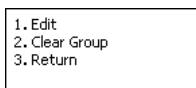


⊙ Edit User Name

Rotate the shuttle to select a letter, number or symbol, then click the shuttle to fill in and set the next word.



⊙ Customized groups



◎Editor's Custom Group

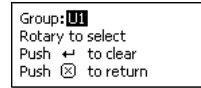
G: U1~U6 , CH : 1~24

Frequency: When displayed as ---.---MHz, this channel is not enabled.



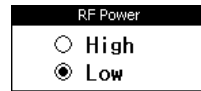
◎Clear custom groups

Select the group U1~U6 you want to delete, click SETUP. The program will confirm the group you want to delete again, click "Yes" to start deleting.



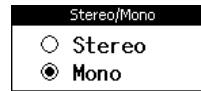
◎Radio Frequency Power

|      |                         |
|------|-------------------------|
| High | High transmitting power |
| Low  | Low Transmitted Power   |

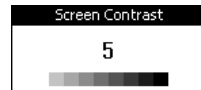


◎Stereo / Remix

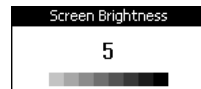
|        |   |
|--------|---|
| Stereo | CH-1L, CH-2R input audio with individual transmission |
| Remix  | CH-1L and CH-2R input audio are mixed and sent        |



◎Screen contrast ratio: 0~9 (default 5)



◎Screen brightness: 0~9 (default 5)

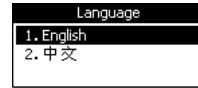


◎Indicator light brightness: 0~9 (default 5)



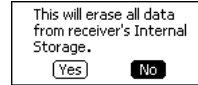
## ©Language

|         |
|---------|
| English |
| 中文      |



## ©Restore to factory

|              |                             |
|--------------|-----------------------------|
| OK           | Restore to factory settings |
| Cancellation | Cancellation                |



## 7. Notes for the product

- (1) To achieve the best reception of the signals, keep the receiver at least 3 meters apart from the transmitter.
- (2) Keep a distance of at least 50cm between the receiver, the transmitter and other metal objects.



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