

School Sound System

IP School Intercom, Paging, Audio Messaging, Bell Schedules and Program Audio Streaming

User Manual



Revision History

v1.07

www.paxproavgroup.com/terracom

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1 About this manual

This user manual will explicitly describe the hardware installation and the software configuration, provides installers and users the necessary information to setup and configure the system.

Firmware version:



1.1 Safety instructions

- Do not expose the device to extreme temperatures, direct sunlight, humidity, or dust, which could cause fire or electrical shock hazard.
- Keep away water or other liquids from the device. Otherwise fire or electrical shock may result.
- Connect the power cord only to the type stated in this manual or as marked on the unit. Otherwise fire and electrical shock hazard results.
- When disconnecting the power cord, always grab the plug. Never pull the cord. A damaged power cord is a potential risk of fire and electrical shock hazard.
- Avoid touching power plugs with wet hands. Doing so is a potential electrical shock hazard.
- Avoid placing heavy objects on power cords. A damaged power cord is a fire and electrical shock hazard.
- Do not drop or insert metallic objects or flammable materials into the unit as this may result in fire and electrical shock.
- Do not remove the device's cover, as there are exposed parts inside carrying high voltages that may cause an electrical shock. Contact your TERRACOM dealer if internal inspection, maintenance or repair is necessary.
- Do not try to make any modifications to the device. This is a potential fire and electrical shock hazard.
- Avoid the device's ventilation slots to be blocked. Blocking the ventilation slots is a potential fire hazard.
- To prevent the unit from falling down and causing personal injury and/or property damage, avoid installing or mounting the unit in unstable locations.
- Leave enough space above and below the unit to provide good ventilation of the device. If the airflow is not adequate, the device will heat up inside and may cause a fire.
- Operate the device in an environment with a free-air temperature of between -5°C and +55°C (-40°F and +131°F).
- Do not use benzene, thinner or chemicals to clean the device. Use only a soft, dry cloth.
- If the device is moved from a cold place (e.g., overnight in a car) to a warmer environment, condensation may form inside the unit, which may affect performance. Allow the device to acclimatize for about one hour before use.
- TERRACOM group reserves the right to update, amend, change or withdraw these functions and to introduce new functions at any time without notice.

1.2 Notice signs

Explanation of Graphical Symbols:

Wote: Containing additional information.

Caution: Equipment or property can be damaged, or persons can be injures if the alert is not

observed.

1.3 Copyright

All rights reserved. No part of this document may be reproduced or transmitted in any form by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher. The content and illustrations are subject to change without prior notice.

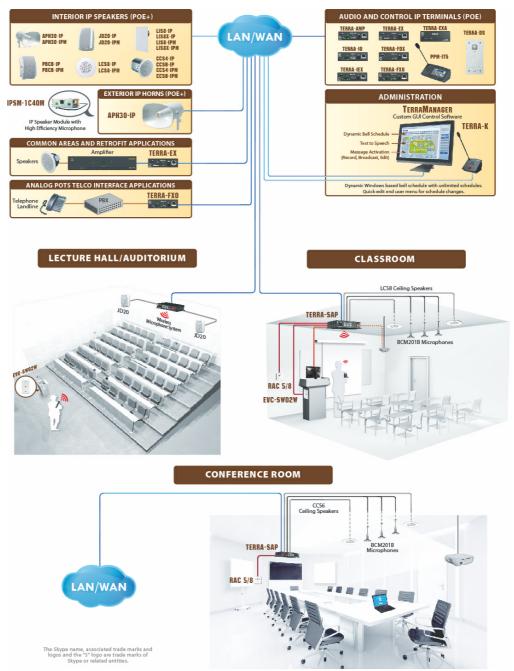
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2 System overview

2.1 School sound system

The School Sound System - a full audio over IP-based classroom solution including teaching, paging, messaging, bell scheduling, hands-free intercom & emergency communication. The system is browser-based programming and includes all the components you need to create a complete networked communications system over IP that will be an integral component to help your educational facility remain a safe and secure environment for students and faculty.

The system incorporates Terra-SAP mini audio DSP processor, a range of IP loudspeakers and BCM201W/BCM201B ceiling-mounted boundary microphones for in-classroom sound reinforcement complete with AEC and as the talkback microphone for hands-free intercom - all using the same speakers including automatic muting of the local program audio.



2.2 TERRA-SAP

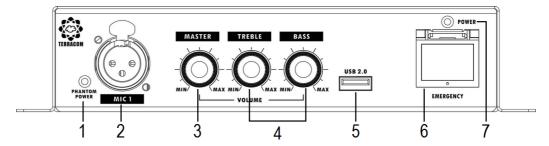
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The TERRA-SAP networkable processor is equipped with 20W x 2CH amplifier and also act as an audio hub for local connected devices such as mic/line inputs, the connection with audio-visual devices such as PC, projectors as well as contact input/outputs, a USB2.0 interface for music and/ or message storage or it can used as a record output to USB storage device. There is also a mini-USB input for connection to PC for use as web conferencing.

Local volume control and audio input selection can be managed using RAC5 or RAC8 source selector & volume control remote. In case of an emergency, press the supervised EVAC button on Terra-SAP in order to alert the central monitoring station to respond to an incident.



2.2.1 Front panel



- 1. Phantom power LED: This LED lights up when the phantom power DIP switch on rear panel is set as ON.
- 2. MIC 1: A XLR microphone input.
- 3. Master volume knob: A master volume knob to adjust the volume of loudspeakers which are connected to TERRA-SAP.
- 4. Two knobs for treble and bass adjustment.
- 5. USB 2.0: Connect a USB flash drive for music and/or message storage and playback (G.711, G.722, MP3 and WAV) or used as a record output to USB storage device.

The TERRA-SAP only supports the USB flash drive in FAT32 format with the storage capacity of below 2TB.

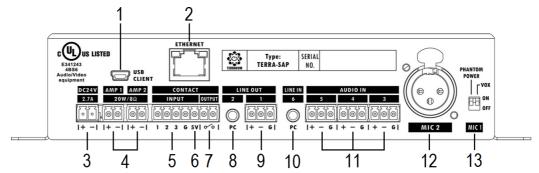
6. Evacuation button: Once this button is pressed, the system will enter emergency state. Its LED will light up and alert the central monitoring station. The TerraManager will display a pop-up warning window, allowing the control station to choose either to monitor or intercom. This two-state (ON/OFF) button can be programmed in <u>web browser > I/O Control</u>.

When updating the firmware from v1.xx to v2.xx, the EVAC LED indicator on the front panel of TERRA-SAP will flash, and please don't turn off the TERRA-SAP during updating in case unexpected error occurs. The update time is about 80 seconds.

7. Power LED: The LED lights up when TERRA-SAP is powered.

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2.2.2 Rear panel

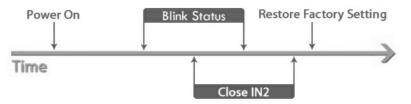


- 1. A Mini-USB interface to connect to PC/laptop for web conferencing such as Skype, WhatsApp etc., see <u>How-to Remote Conferencing</u> for details.
- 2. Ethernet port: Connect the TERRA-SAP to Ethernet network, allowing the system to be configured, controlled and monitored via web browser.
- 3. 24VDC input: Connect the supplied 24VDC power adapter (max. 2.7A) to TERRA-SAP.
- 4. Amp 1 & Amp 2: 20W x 2CH (class-D amp) amplifier outputs on 8 ohm load loudspeaker.

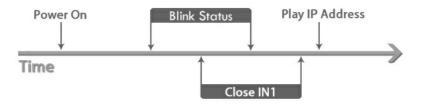
The amp output of TERRA-SAP is fed by 8 ohm load loudspeaker. However, if users wish to connect the 4 ohm speaker to the amp output of TERRA-SAP, please enable this [4 ohm speaker] setting on <u>TERRA-SAP web browser > Setup1 > Basic Setting > Amp</u>.

5. Three contact inputs: Three monitored control inputs are design to work with a simple contact such as EVC-SW01W/EVC-SW02W emergency call button, RAC 5/RAC 8 source selector and volume control remote and event triggering such as call/hang up, music play/stop, 3rd party command, record etc..

Reset the default factory setting: Short-circuit (close) the contact input 2-pin and G-pin will reset to the default factory setting (192.168.100.1 by default).



Read out the IP address: Press the red EVAC button on TERRA-SAP, and short-circuit (close) the contact input 1-pin and G-pin during the time that the LED of EVAC button is flashing, the system will read out the IP address via the connected loudspeakers.



- 5V: Provide 5V (200mA) for external device such as EVC-SW01W / EVC-SW02W call button or smoke detector.
- 7. Contact output: A relay contact output can be programmed to control an external device.
- 8. Line output: An audio line output (3.5mm TRS phone jack) to connect to an external device such as earphone, speaker or recording device, and listen and monitor the audio.

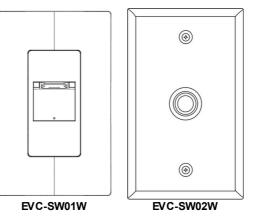
9. Line output: A screw-terminal balanced audio output allows to connect to external amplifier.

10.Line input: An audio line input (3.5mm TRS phone jack) for background music.

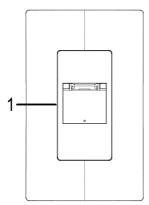
- 11.Audio mic inputs: Three screw-terminal balanced mic inputs for recording local sound and assignable intercom use by connecting to BCM201W/BCM201B pendant microphones, and allow the teacher and student to intercom with administration.
- 12.MIC 2: A XLR microphone input.
- 13.Phantom power/VOX DIP switch: A DIP switch for MIC 1/MIC 2 with 48VDC phantom power and voice activated (VOX). If MIC 1/MIC 2 requires phantom power supply, set the [Phantom Power] switch in ON position. If the microphone does not applicable for phantom power supply, leave the switch in OFF position.

2.3 EVC-SW01W/EVC-SW02W

The EVC-SW01W/EVC-SW02W supervised emergency call button is to alert the central station where they can verify, and response to incidents.



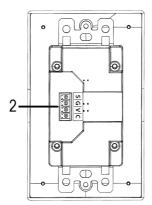
2.3.1 Front & rear panel



1. Evacuation button:

Once this button is pressed, the system will enter to emergency state. Its LED will light up and alert the central monitoring station.

The TerraManager will display a pop-up warning window, allowing the control station to choose either to monitor or intercom.



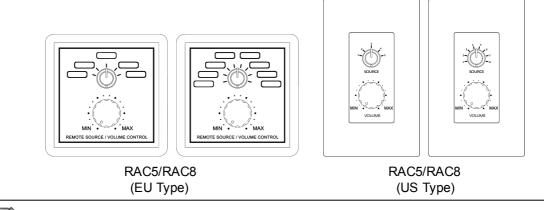
2. Control input:

4 euro-block connectors on EVC-SW01W to connect to the contact inputs of TERRA-SAP.

See <u>EVC-SW01W Wiring Connection</u> for details.

2.4 RAC 5/RAC 8

The RAC 5/RAC 8 can be used for adjusting audio level or switch audio channel remotely. The 5/8 steps knobs on RAC 5/RAC 8 can be programmed via TERRACOM web browser. The RAC 5/RAC 8 is available for US and EU type, and is powered by 24VDC.



See <u>RAC 5/RAC 8 Wiring Connection</u> for details.

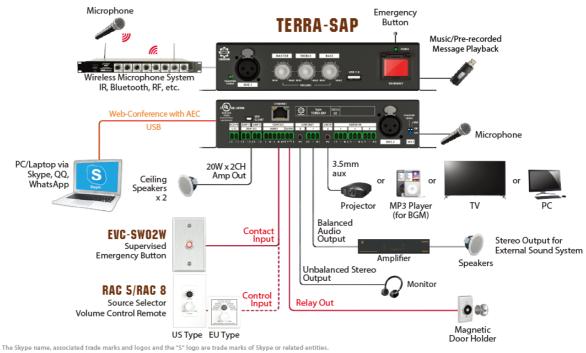
2.5 BCM201W/BCM201B

The BCM201W/BCM201B microphone is designed in high definition, omnidirectional microphone capsule, it can be connected to the balanced microphone input of TERRA-SAP amp processor, providing intercom and classroom & courtroom speech monitoring applications.

This microphone is available for white and black models.



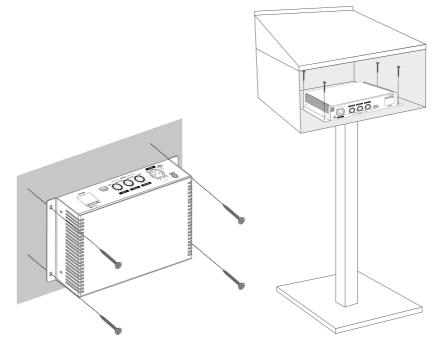
3 Hardware installation & connection



3.1 Mounting

Mount the TERRA-SAP mini audio DSP processor using the supplied mounting brackets and screws.

Mount under desk or on wall - no rack is required.

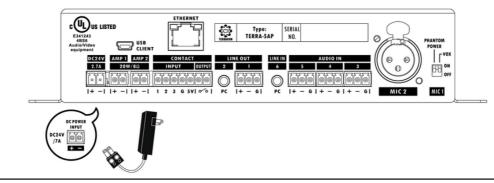


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3.2 Power supply

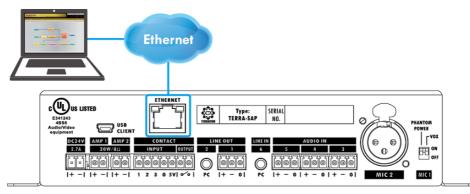
Use the supplied 24VDC power adapter to connect the TERRA-SAP to the power outlet. The Power LED on the front panel will glow green when power is applied.



If the TERRA-SAP unit is not powered for a period of time (approx. 23 days), the internal battery will be under low voltage, and result in incorrect system time of TERRA-SAP. Should the system time is incorrect, please connect the power supply of TERRA-SAP unit, and set the system setting or enable the NTP setting on TERRA-SAP web browser again.

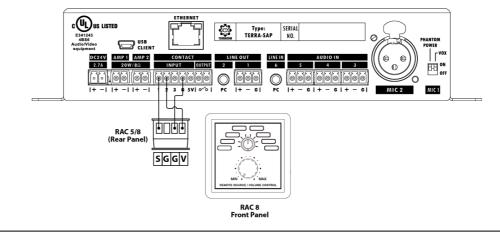
3.3 Ethernet connection (RJ45)

Use the supplied Ethernet cable (CAT5/6) to connect the TERRA-SAP to a PC/laptop. The web browser-based software shall provide all the necessary tools to setup, configure, control and monitor the TERRA-SAP.



3.4 RAC 5/RAC 8

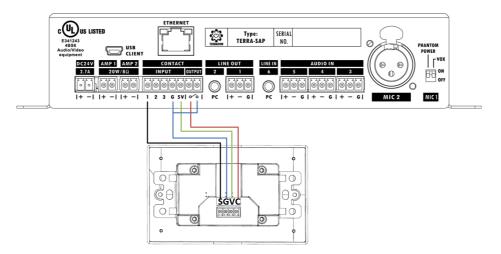
Connect the pins of RAC 5/RAC 8 to the contact input of TERRA-SAP, see the picture as below.



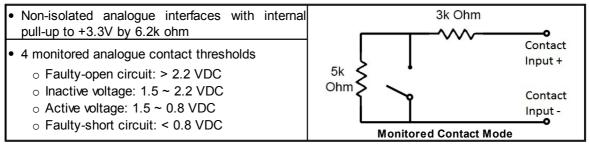
The RAC 5/RAC 8 is using in analogue connection. It can be influenced by nearby power cables or 100V speaker lines. To avoid this, please use STP CAT5/6/7 with metal shielded cable.

3.5 EVC-SW01W

Connect the pins of EVC-SW01W to the contact input and contact output of TERRA-SAP, see the picture as below.



Contact Input (4 status: active, inactive, open and short)



4 Configuration - Web Browser

More advanced configuration such as volume, PEQ, audio routing, monitor, control, event and bell scheduler and paging with priority management etc.. can be configured by a dedicated web browser.

If this is the first web configuration, please update the firmware to the latest version. Go to Update > Firmware for details.

4.1 Getting started

- 1. Connect the TERRA-SAP to network switch.
- 2. Open the web browser on your PC/laptop. The TERRA-SAP device is compatible with and optimized for the latest version of these web browsers:
 - Chrome (we recommend to use it)
 - Safari
 - Firefox
 - Opera
 - Edge

Minternet Explorer is not supported.

3. Enter the default IP address into the address bar, then you can open the webpages of TERRA-SAP device.

ietup1 Update Status DSP Alcout

Default setting	Web browser
IP address	192.168.100.1
Subnet Mask	255.255.255.0
Gateway	192.168.100.254

The School Sound System - a full audio over IP Assed Liasson 8. & courtisons solitone including learting paging mississipari class charge 8 scheduling, hands-free intercom 8 emergency communication, providing a sale and secure environment for students, staff judges, lawyers and visitors. The system incorporates Terns-SAP amp processor, a range of IP loudspeakers and RCM20TWIE-CRUCHB boundary microphone which can be used for both intercom and speech monitoring applications. The Terns-RAP entworkable orcessors is esuipode with 20W x 2CH



The TernaManager Granitical User Interface (GUI) software brings all together by desiliating full control, paging intercom nessagang, neccrding, streaming, audio control, dwice I/O monitoring, and bell scheduling with the greatest ases Communication anion messameline (Middle Middle and Control and Software and Software).

4.2 Login/logout

🔅 TERRACOM	SIP-based audio and a	control over local network and internet	Version 2.06, 2021/03/03 14:02:31 TERRA-SAP, TERRA_SAP_2@192.168.101.126 OUT:LINE IN / REC:None English
Login			
coym	User Name Password		Login Forget PW

Login/logout from TERRA-SAP web browser

- 1. Enter a valid user name and password.
- 2. To logout, click the [Logout] button located on the upper tab.



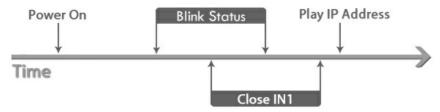
Forget Password

- Click [Forget PW] button if users forget the password, but you need to enter the user name first.
- Then a pwd. file will be downloaded into your PC/laptop, please send this pwd. file to our technical team to retrieve the password.

4.3 IP Address

If you lose the IP address of your TERRA-SAP device and cannot connect to the web browser, please see the following instruction.

- With only one device:
 - 1. Read Out the IP Address
 - 1) After plugging the 24VDC power input on TERRA-SAP, the red EVAC button on the front panel of TERRA-SAP will flash 5 times.
 - 2) Short-circuit (close) the contact input 1-pin and G-pin during the time of the red EVAC button is flashing, the system will read out the IP address via the connected loudspeakers. Make sure the loudspeakers is connected to the amplifier outputs of TERRA-SAP.



2. Using Packet Analyzer software

Download the free Packet Analyzer software such as Wireshark and set the filter as "ip.addr == 239.240.38.25", a list of all TERRACOM units connecting to your LAN will be displayed.

Atheros L1C PCI-E Ethernet Controller [Wireshark 1.6.7 (SVN Rev 41973 from /trunk-1.6)]					
<u>F</u> ile <u>E</u> d	it <u>V</u> iew <u>G</u> o	<u>C</u> apture <u>A</u> nalyze <u>S</u> t	atistics Telephony]	ools <u>I</u> nternals <u>H</u> elp	
			Q, ⇔ ⇔ ⊕ 7 1		
Filter: ip	.addr == 239.240	0.38.25		Expression Clear	
No.	Time	Source	Destination	Protocol	
21180	73.949788	192.168.100.130	239.240.38.2	5 IGMP	
21182	2 73.985037	192.168.101.178	239.240.38.2	5 IPv4	
21184	74.064949	192.168.101.216	239.240.38.2	5 UDP	
21185	74.099805	192.168.101.175	239.240.38.2	5 IPv4	
21186	5 74.103712	192.168.101.216	239.240.38.2	5 IPv4	

4.4 Network bandwidth and bitrate

The data rate over the network is calculated as below,

- Audio Streams: It is based on the number of audio stream channels and the audio format.
- Control Streams: Each TERRACOM device is estimated at 28kbps.

The total bitrate is calculated using the formula (in kbps) as below,

((number of products)* 28kbps) + ((number of streams) * stream bitrate)

The example below is using 8 Terra-FDX units + 2 TerraManager, and altogether use 10 channels audio streams (MP3 format) at same time.

((8+2) * 28) + (10 * 150) = 1780Kbps.

Audio Stream Format

- Mono:
 - o MP3: 150kbps
 - o G.722: 90kbps
 - o G.711ulaw: 90kbps
 - o G.722alaw: 90kbps
 - PCM16k: 280kbps
 - WAVE: 780kbps
- Stereo:
 - \circ MP3: 150kbps
 - o WAVE: 1560kbps

4.5 IP information

The TERRACOM products are using the following Multicast address (IGMP)

- 239.211.34.48: for ATEIS-NET status display
- 239.211.34.45~49: for IDA8 or BOUTIQUE IGMP address
- 239.240.38.25, Port 9000/9002: for Machines status
- 239.240.38.25, Port 8998: for Paging control
- 239.240.38.25, Port 8995: for Machines display status
- 239.241.100.0 ~ 239.241.100.255, Ports 2000 ~ 3000: for Audio steam
- 239.240.38.25, Port 9002: for BOUTIQUE protocol

The Local Host Ports of TERRACOM products

- 20: File Sync
- 21: File Sync
- 20: Web Server
- 80: website
- 123, 14500, 4096: NTP Server
- 161: SNMP protocol

- 5060: SIP call
- 6912: RTP address
- 8010: Third Party commands
- 26570: Remote Control
- 19760: for IDA8
- 19761: 3rd party control
- 19762: for IDA8
- 19770: for IDA8
- 19780: for IDA8
- 19781: for IDA8
- 19782: for IDA8
- 9002: BOUTIQUE
- 9999: TerraServer File Access

4.6 Setup1

4.6.1 Basic setting

Network

- DHCP: Enable/disable the DHCP (Dynamic Host Configuration Protocol).
 - IP Address: Click to change the IP address to fit your network.
 - $_{\odot}$ Subnet Mask: Depend on the LAN where the TERRA-SAP device is located.
 - $\circ\,$ Gateway Server: The IP address of the gateway server.
 - $_{\odot}$ DNS: Tick the checkbox to enable the DNS server and set the IP address.

♦ System Time

- NTP Client Service: Enable the NTP setting. If the NTP is activated, the system date/time of TERRA-SAP will be synchronized by NTP server.
- Timezone: The timezone of your Terracom devices.
 - + NTP Server IP: Set the IP address of NTP Server.
 - + Retrieve Internal: Set the internal to update the system time.
- Date/Time: If the NTP Client Server is disabled, user shall manually set the time and the timezone of your TERRA-SAP.

If the TERRA-SAP unit is not powered for a period of time (approx. 23 days), the internal battery will be under low voltage, and result in incorrect system time of TERRA-SAP. Should the system time is incorrect, please connect the power supply of TERRA-SAP unit, and set the system setting or enable the NTP setting on TERRA-SAP web browser again.

 $rac{1}{2}$ The changes in [System Time] will also affect the Scheduler function on web browser.

- Daylight Saving Service: Enable/disable the Daylight Saving Time function on TERRA-SAP.
 - $_{\odot}$ + Time difference: Define the time to be an hour/a minute earlier or more.
 - + Type: Choose [Date] or [Week] option to define the period of Daylight Saving Time.
 - o ++ Start Date / ++ End Date: Set the start/end date of Daylight Saving Time.

• ++ Start Time / ++ End Time: Set the start/end time of Daylight Saving Time.

Third Party Control

- Network Control Service: Enable/disable the Network Controls Service.
 - Network Port: Set the local network port.
 - $_{\odot}$ Network IGMP Enable: Enable/disable to use IGMP address, the default network port is 8010.
 - Network IGMP Address: Set the IGMP address.

* AMP

 4 ohm speaker: The 20W x 2CH amp output of TERRA-SAP is fed by 8 ohm load loudspeaker. However, if users wish to connect the 4 ohm speaker to the amp output of TERRA-SAP, please enable this [4 ohm speaker] setting, then the [Level] setting on <u>DSP > Amp Output</u> window page will be mandatory to set from -90dB ~ -6dB.

If the TERRA-SAP is fed by 8 ohm load speaker, the original parameter of [Level] setting on DSP > Amp Output window page is -90dB ~ 20dB.

♦ SIP

• Transfer Protocol: Select either TCP or UDP for the communication protocol between the TERRA-SAP and SIP Server. You can only choose one protocol at a time.

It is the transfer protocol of the TERRA-SAP and SIP Server should be the same.

- Firewall Traversal Mode: Use [TERRA Net] to relay the audio packet through TCP/UDP or use [SIP Server].
- + Username
 - TERRA Net: Set the calling name for SIP call, normally this username is defined in the telephone number.
 - SIP Server: Set the username (account) for using to connect to the SIP server, this username is the account you've registered on SIP server.
- + Password (SIP Server only): Enter the password for using to connect to the SIP server, this
 password is the one you've registered on SIP server.
 - ● ☑: Enable the checkbox to reveal the hidden password.
- SIP Server IP (SIP Server only): Set the IP address of SIP server which you've registered on SIP server.
- SIP Port: The network port for SIP protocol, set 5060 by default.
- RTP Port: The network port for RTP protocol for receiving and transmitting audio, set 6912 by default.
- Identification Send Interval (sec): The TERRA-SAP supports to paging to other TERRACOM devices via Internet Paging Server (IPS). Here you can set the time interval of sending IPS signal.

If the time interval is set higher, it can decrease the occupied bandwidth on network; but it will also cause the response time which IPS detects the TERRA-SAP become slower.

- Audio Codec: The supported audio codec for SIP (G.711, G.722 and PCM16K decoder).
- Global Priority: When TERRACOM devices are calling (SIP intercom) TerraManager, the order of which device can intercom with TerraManager shall be based on Global Priority setting. 1 is the highest priority, and 99 is the lowest priority.
- Time to Stop Ring: The SIP call will be hung up after the set time. If sets up as 0 second, it won't

stop ringing.

- Chime Volume: The volume of pre-chime/post-chime.
- Ring Volume: The volume of ring tone.
- SIP Auto Answer: Enable/disable to pick up the SIP call automatically.
- SIP Stop Ringing: Enable/disable to ring when receiving SIP call.
- Pre-Chime/Post-Chime: Support to program the pre-chime/post-chime setting when making SIP call and paging to chosen zones.
- Answer-Tone: Choose an audio tone which this tone will be played to your caller after the caller picks up the call.
- SIP Active/Inactive: Trigger an action after the SIP call has picked up or trigger an action after the SIP call ends. The triggered action can be the Contact Out, Command (string) and Multi Function.
- Ringing Active/Inactive: Trigger an action when the SIP ringtone starts ringing or trigger an action after the SIP ringtone ends. The triggered action can be the Contact Out, Command (string) and Multi Function.

4.6.2 Device

List the TERRACOM devices located in the same LAN or the devices which users add in manually. The different color on status of device will be indicated as below.

- Black: The devices that users manually add in.
- Grey: The devices are located in the same LAN, but they haven't been added into the Device List.

Name	URI	Туре	Zone	Tele Number	Status	Action
TERRA_SAP	TERRA_SAP@192.168.101.9:5060	TERRA-SAP	1		online	New / Edit / Delete
IT5_217	IT5_217@192.168.101.217:5060	PPM-IT5			online	Add
TK_13	TK_13@192.168.101.13:5060	TERRA-PPMK			online	Add
IDA8C11	IDA8C11@192.168.101.131:5060	IDA8C			online	Add
IDA8C11	IDA8C11@192.168.101.132:5060	IDA8C			online	Add
AMP_22	AMP_22@192.168.101.22:5060	TERRA-AMP			online	Add
DCP1000	DCP1000@192.168.102.107:5060	Unknown			online	Add
215	215@192.168.101.215:5066	PPM-IT5			online	Add
Machine	Machine@192.168.101.158:5060	Boutique			online	Add
AMP_114	AMP_114@192.168.101.114:5060	TERRA-AMP			online	Add
TK_15	TK_15@192.168.101.15:5060	TERRA-PPMK			online	Add
FXO_198	FXO_198@192.168.101.198:5060	TERRA-FXO			online	Add
EX_127	EX_127@192.168.101.127:5060	TERRA-EX			online	Add
DS_12	DS_12@192.168.101.12:5060	TERRA-DS			online	Add
Machine	Machine@192.168.102.77:5060	Boutique			online	Add
EX536_162	EX536_162@192.168.101.162:5060	TERRA-EX536			online	Add
TerraManager	TerraManager@192.168.100.18:5060	TerraManager			online	Add
176	176@192.168.101.176:5060	TERRA-FDX			online	Add
FDX_118	FDX_118@192.168.101.118:5060	TERRA-FDX			online	Add
IDA8CSW1	IDA8CSW1@192.168.102.218:5060	IDA8C			online	Add
TERRA_SAP	TERRA_SAP@192.168.101.8:5060	TERRA-SAP			offline	Add
OCCconsole2	OCCconsole2@192.168.100.147:5060	TerraManager			offline	Add
103	103@192.168.101.174:5060	TERRA-PPMK			online	Add

- Name: The name of device.
- URI: The URI of device.
- Type: The type of device.

• Zone: The paging zone of the device.

Manual The max. number of supported zones is 1024.

- Tele Number: The telephone number will be displayed when the TERRA-FXO device is connected.
- Status: The green button will indicate the device is in online status, and grey button indicates the device is in offline status.
 - o Online (green): Device is online (connected).
 - Offline (grey): Device is offline (disconnected).
 - o Paging: Device is currently paging.
 - o Phone: Device is currently in intercom.
- Action:
 - Add/New: Create a new device in the device list which the zone settings require to be different from the same device. For example, the zone setting of TERRA-FDX on first device is Zone 1, and on the second device is Zone 2, see Figure 1.

Name	TERRA_SAP
Product Type	TERRA-SAP 🔻
URI	TERRA_SAP@192.168.101.9:5060
ALL Zone	
Zone Number	All 1
Local Device 1	
	Save Cancel

Figure 1

- o Edit/Delete: Edit/delete the device.
- Create Device: Manually add a new device in the device list, see Figure 2.

Create Device		
Name	Enter a name	
Product Type	Other •	
URI	Example:name@192.168.100.1:5060	
		Save Cancel

Figure 2

4.6.3 Function libraries

The [Function Libraries] allows to set the functions and action for controlling the TERRA-SAP device. Follow the steps to create an action.

- 1. Path: TERRA-SAP web browser > Setup 1 > Function Libraries.
- 2. Select the function from drop-down box, and click [Add] button.

Basic Sett	ing Device Function	n Libraries Audio Matrix	Media Setting I/O Contro	Account Manager	Third Party	Scheduler	
Function Command (String)							
Name	Command (String) DSP Element Adjust	String		Interface			Action
ABC	Contact Out User Fault	123ABC@#\$		UDP 192.168.100.	.7:65534		Edit / Delete
EDF	Record Multi Function	456EDF%^&		UDP 192.168.100.	.7:65534		Edit / Delete

Function

- Command (String)
- DSP Element Adjust
- <u>Contact Out</u>
- User Fault
- Record
- Multi Function

4.6.3.1 Command (String)

TERRA-SAP sends command string to 3rd party devices such as TERRACOM device, IDA8 processor, BOUTIQUE controller etc..

Modify - Command (String))	
Name	Music ON	
String	%02h%03h%55h%A5h%70h%03h	(%XXh if Hex Code which XX is hexadecimal)
Interface	Ethernet UDP 🔻	
+IP Address	192.168.100.1	
+Port	9070	
+Sending Interval(ms)	100	
+Sending Time(s)	1	
		Save Cancel

- Name: The name of this [Command String] action.
- String: The code of the string will depend on the 3rd party devices. The picture above is an
 example of sending the command string in ASCII code to Ateis processors (IDA8, BOUTIQUE,
 UAP G2, ECS, LAP G2T), the Ateis processors use Hex code, then users need to change the
 string in Hex code to ASCII code. The Hex code is %XXh, the XX indicates the character of Hex
 code.

For TERRACOM device: accept in ASCII code. For BOUTIQUE processor: accept ASCII code. For ATEIS processor (IDA8, UAP G2 etc.): accept Hex code.

- Interface: Choose the protocol of sending the command string, Ethernet UDP by default.
- IP Address: Set the IP address of TERRACOM device.
- Port: The network port setting requires to be the same as the TERRACOM device, IDA8 device, BOUTIQUE device, see the table as below.

Defau	lt Port
Terracom device	8010
IDA8, ECS, LAP	19761
BOUTIQUE	8010

• Sending Interval (ms): The interval of sending the command string to TERRACOM device, IDA8

device, BOUTIQUE device.

 Sending Time(s): The device will stop sending the command string after receiving the answer string from the 3rd party device.

4.6.3.2 DSP Element Adjust

The [DSP Element Adjust] event is used for adjusting the DSP parameter such as the audio level of input source.

Firstly, click [Add] button to create a new parameter setting.

New - DSP Element Adjust					
Name					
Parameter Count	(0/1)				
No.	Target	Parameter	Mode	Value	Action
			Add		
		L			Save Cancel

♦ Mute On/Off

Ne	ew - DSP Element Ad	ljust						
	Name	sip mute on						
	Parameter Count	(1/1)						
	No.	Target		Parameter		Mode	Value	Action
	1	SIP Receive	~	Mute	~		OFF	✓ Delete
					4	Add		
								Save Cancel

Level Control

New - DSP Element A	djust				
Name	sip mute on				
Parameter Count	(1/1)				
No.	Target	Parameter	Mode	Value	Action
1	SIP Receive V	Level 🗸	Absolute 🗸	-60	Delete
		Add			

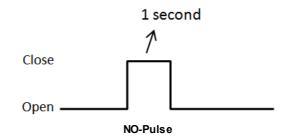
- Name: The name of this [DSP Element Adjust] action.
- Parameter Count: Display the number of the added parameter setting(s) and the max. number of parameter settings. Currently it can be used for controlling one DSP element setting only.
- Target: The [Target] combo box lists all the inputs/outputs of TERRA-SAP on [DSP Function] window. Choose a type of input/output which you wish to adjust the element of this chosen input/ output.
- Parameter: The type of elements include Mute and Level (dB).
- Mode: The [Mode] combo box will be activated when choosing [Level] option on [Parameter] combo box.
 - Absolute: The level adjustment will follow the value users set on [Value] grid, and change the current value to the same value as [Value] gird. For example, if the [Value] gird is set as -60dB, and the current level value is -50dB, and once this event is triggered, the level of input/ output will be change to -60dB.
 - Relative: The level adjustment will follow the value users set on [Value] grid, and increase/ decrease the level value when each time the event is triggered. For example, if the [Value] grid is set as -10dB, and the current level value is -35dB, and once this event is triggered, the current level value will be change to -25dB (-35dB minus -10dB = -45dB).
- Value: Set the parameter to the assigned value such as level control and mute on/off.
- Action: Click [Delete] button to delete the chosen parameter setting.

4.6.3.3 Contact Out

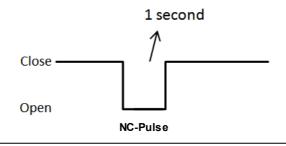
The contact output of TERRA-SAP can be programmed and send a pulse or a static closing/opening to an external device

1 🔻	
Open 🔻	
Close	
Open	Save Cance
Toggle	
	Open V Close Open

- Name: The name of this [Contact Out] action.
- Channel: The contact output channel on the rear panel of TERRA-SAP.
- Output:
 - \circ Open: The contact output's channel is opened when the action is triggered.
 - $_{\odot}$ Close: The contact output's channel is closed when the action is triggered.
 - \circ Toggle: Trigger the relay switch of contact output's channel between open and close.
 - NO-Pulse: The NO (normally open) contact is opened, and when the action is triggered, the contact is closed for 1 second.



 NC-Pulse: The NC (normally close) contact is closed, and when the action is triggered, the contact is opened for 1 second.



When choosing [NO-Pulse] or [NO-Pulse] option, please set the default state (open or close) of relay output on I/O Control window > Contact Output, see the picture below.

STATE	FUNCTI	ON	MODE	SECURITY
OFF	Command(St	ring) 🔻		
ON	Command(St	ring) 🔻		
ONTACT IN	PUT & OUTPUT			
INPUT	TYPE	MONITOR	POSITION	FUNCTION
IN1	Logic 🔻		OPEN	1
			CLOSE	
IN2	RAC Analog 🔻			
IN2 IN3	RAC Analog V		Active	Volume Con
			Active InActive	Volume Con Multi Functic
				Volume Con Multi Functic
IN3	Logic-Click V			Volume Con Multi Functic
IN3 OUTPUT	Logic-Click DEFAULT			Volume Con Multi Functic

4.6.3.4 User Fault

Create the user-defined fault (such as EVAC trigger/EVAC release etc.), and once this user-defined fault is being triggered/released, the fault can be displayed on the [Monitor] window of TerraManager software.

Setup1 Update Status	DSP About Logou	ıt			
Basic Setting Device	Function Libraries Audi	io Matrix Media Setting	I/O Control Account Manager	Third Party	
Function User Fault	~				
Name	String		Туре	Input Source	Action
Evac_R	EVAC Release		Release	Evac	Edit / Delete
Evac_T	EVAC Trigger		Trigger	Evac	Edit / Delete
					Add

New - User Fault -		
Name		
String		
Action	Release 🗸	
Input Source	Evac 🗸	
	Emergency(Evac)	Save
	Evac	Save Calicel
	Contact In	
	Channel 1	
	Channel 2	
	Channel 3	

- Name: The name of this [User Fault] action.
- String: The display message of TerraManager software > Monitor window.
- Action: The action (Trigger/Release) of this User Fault.
- Input Source: Select the source (EVAC button or Contact Input of TERRA-SAP) to trigger/release the [User Fault] action.

After completed the User Fault setting, please go to <u>I/O_Control_window</u> to continue configuring its control setting.

4.6.3.5 Record

Display the built-in Record function (Record Start/Record End) of TERRA-SAP, and allows users to assign the [Record Start]/[Record End]] action on <u>I/O Control > Record</u> window.

Setup1	Update	Status	s DSP	About	Logout					
Basic S	etting [Device	Function	Libraries	Audio Matrix	Media Setting	I/O Control	Account Manager	Third Party	
Functio	on Record	d	~							
Name										
Record	l Start									
Record	I End									

4.6.3.6 Multi Function

Create a group of action with multiple functions. There are three default functions - [Call Function], [Message Function] and [Hang up Function]. If users wish to use other functions such as [Contact Out], please create it on [Function Libraries] first, then the function you create will be listed on [Function] drop-down box.

ame	Multi Func	tion								
lumber	Function		Mode	S	ecurity	Source		Target/State		Delay(Sec)
1	Call	•	Paging	۲				TERRA_SAP	۲	0
2	Hang Up	Ŧ								0
3	Message Call	•	Intercom	•		Playlist 01	•	TERRA_SAP	۲	0
4	Contact Out	•								0
5		•								
6		•								

- Name: The name of this [Multi Function] action.
- Function: Select a function from the drop-down list, these functions will be triggered by the order of the list.
- Mode: Choose the calling mode (intercom/paging).
- Security: If the [Security] option is enable, the caller cannot hang up the call during paging unless the caller cancels the call itself.
- Source (message call only): Choose a playlist which you've created on Setup 1 > Media Setting.
- Target/State: Choose a TERRACOM device to paging/SIP intercom, play message etc..
- Delay (Sec): The delay time between the previous action and the next upcoming action in [Multi Function] list.

4.6.4 Audio matrix

The Audio Matrix allows to manage all audio input/output with the following functions:

- Audio routing with priority.
- Audio routing with RAC 5/8.
- · Volume control depends on audio source.
- Announcement has different volume with music.
- Send network stream.
- Play network stream.

up1 Upda	te Status	DSP At	bout														
ic Setting	Device Fi	unction Lib	raries Au	idio Ma	atrix	Media Se	tting I/	O Con	trol Third P	arty							
				LINE	5 олт (4	MP OUT)			6 STREAM (DUT			RAC CO				8 BUFFE
INPUT	MODE	PRIORIT	DISADLL	1(A)	2(B)	S/PDIF	MOD	E	IP AD	DRESS	PORT	SELEC	г	LE	/EL(d	IB)	BUFFE
SIP	Mono 🔻	1 🔻			N/A	N/A								FIX	•	0 🔻	RT 🔻
MESSAGE	Auto 🔻	1 🔻			N/A	N/A	OFF	•	239.240.100	0.1	9012	PRIORITY V	▼	FIX	•	0 🔻	
MONITOR	Mono 🔻	1 🔻			N/A	N/A								FIX	•	0 🔻	RT 🔻
NETWORK	Local 🔻	1 🔻			N/A	N/A						PRIORITY V	¥	FIX	•	0 🔻	RT 🔻
USB PC	Mono 🔻	1 🔻			N/A	N/A	OFF	•	239.240.10	0.1	9012	PRIORITY V	▼	FIX	•	0 🔻	
LINE IN	Mono 🔻	1 🔻			N/A	N/A	OFF	•	239.240.100	0.1	9012	PRIORITY V	▼	FIX	•	0 🔻	
	0 .	HODE			10 9	HOUTCAS	ST/ICECA	ST		:	STREAM U			12			
NET IN	י 9	MODE			10 [°]		ST/ICECAS	ST			STREAM UI DDRESS	11 PORT		12 NET1			
NET IN SOURCE 1		MODE AM UDP	•		10 °			ST			DDRESS	11		—	¥		
	STRE				10 °			ST		IP A	DDRESS	11 PORT		NET1	_		
SOURCE 1	STRE	AM UDP			10 [•]			ST		IP A	DDRESS	11 PORT	FIX	NET1	•		
SOURCE 1 SOURCE 2	SHOUTCA STRE	AM UDP	•		10 °			ST		IP A 239.240.100.1	DDRESS	9012	FIX FIX	NET1	v		
SOURCE 1 SOURCE 2 SOURCE 3	STRE SHOUTCA STRE STRE	AM UDP AST/ICECAST AM UDP	•		10 [•]			ST	[IP A 239.240.100.1 239.240.100.1	DDRESS	11 PORT 9012 9012	FIX FIX FIX	NET1	▼ ▼ ▼		
SOURCE 1 SOURCE 2 SOURCE 3 SOURCE 4	STRE SHOUTCA STRE STRE STRE	AM UDP AST/ICECAST AM UDP AM UDP	· • · · · · · · · · · · · · · · · · · ·		10 [•]			ST		IP A 239.240.100.1 239.240.100.1 239.240.100.1	DDRESS	11 PORT 9012 9012 9012	FIX FIX FIX FIX	NET1	* * *		
SOURCE 1 SOURCE 2 SOURCE 3 SOURCE 4 SOURCE 5	STRE SHOUTCA STRE STRE STRE STRE	am udp St/icecast am udp am udp am udp	· · · · · · · · · · · · · · · · · · ·		10 [°]			ST		IP A 239.240.100.1 239.240.100.1 239.240.100.1 239.240.100.1	DDRESS	11 PORT 9012 9012 9012 9012	FIX FIX FIX FIX FIX	NET1	T T T T		

Save Cancel

- 1. Input: The audio input sources.
 - SIP: SIP calls.
 - MESSAGE: Play message audio input.
 - MONITOR: The monitoring audio input from other TERRACOM devices.
 - NETWORK: Play network stream.
 - USB PC: The audio input from the connected PC via mini-USB port of TERRA-SAP.
 - LINE IN: The LINE IN-PC audio input of TERRA-SAP.
- 2. Mode:
 - Mono: Mono channel.
 - Auto: Auto play the message files from built-in playlist or external USB flash drive after the device is powered on.
 - Local: Receive the network stream (Source 1~8).
 - TM: Proceed audio routing via TerraManager (TM).
- 3. Priority: Set the priority of the SIP/MIC IN/LINE IN/MESSAGE/NETWORK.

Always set the the priority of SIP input as "1" (the highest priority), otherwise the SIP call will be left aside. The SIP includes Call, Paging Group and Pre-define Message.

The priority of source of will be based on the priority setting here. If the priority of input source is the same, the priority order will be followed by "first in first serve" basis.

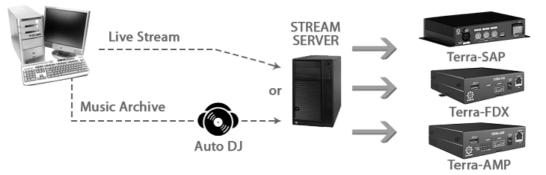
- 4. Disable: When enables the [Disable] option, the corresponded audio input source will no longer output even its priority is higher than other input sources.
- Line Out (AMP Out): Tick the checkbox to enable the audio output channels. The current audio outputs will be shown at the upper-right of the TERRA-SAP web browser. For example, it will display MESSAGE during message play.

Version 1.07, 2019/07/19 17:15:32 TERRA-SAP, TERRA_SAP@192.168.101.9 OUT:LINE IN / REC:None

- 6. Stream Out: Send the network streams.
 - Mode:
 - G.722, G.711, PCM16K, WAVE, MP3: Choose the audio encoder of LINE-IN and MESSAGE input.
 - TM: Choose [TM] to use the LINE IN input and MESSAGE input as the audio routing source of TerraManager (TM).
 - IP: Set the IP address which TERRA-SAP streams out the audio to network. TERRACOM device supports to receive the Multicast IP address.
 - Port: Set the network port for RTP protocol for transmitting audio.

Port 8990~9010 has been used by system, DO NOT use these ports on your design.

- 7. RAC Control
 - Select: Assign which contact input channel (IN1/IN2/IN3) of TERRA-SAP will be used for channel selection of RAC 5/8 (including the sources from NET1).
 - Level (dB): Either set a fixed level for an assigned source channel or control the level with the
 rotary knob of RAC 5/8, see <u>How-to: Use RAC for music/source selection and level control</u> for
 details.
- 8. Buffer: Set the buffer time (by second) before the receiving input sources. This function will be particularly helpful for a Terracom system which multiple Terracom devices are located in different area and lots of network switches are connected, this will cause a delay time for audio transmission for the devices located at remote area, then please set the Buffer in longer delay time. If user wants to play the message audio in real-time for example, please set [RT] Buffer.
- Mode: Choose a received type of network stream (Stream UDP or SHOUTcast/Icecast) on Source 1~Source 8.



- 10.SHOUTcast/Icecast URL: Set the URL, and receive the network radio using SHOUTcast or Icecast. It may cause the sound quality problem if the audio received from the SHOUTcast/Icecast isn't in 48k sampling. To use an Icecast Streaming Media Server, see Icecast for details.
- 11.Stream UDP: Set the IGMP IP address and its port, and receive the network streaming using Stream Multicast. The IDA8 and all the TERRACOM devices including TerraManager will use the [Stream UDP] type.
- 12.Net 1: Assign a RAC 5/8 and its channel, and use this RAC 5/8 to switch the network stream source (Source 1~Source 8).

IN1 indicates as the contact input channel 1 on the rear panel of TERRA-SAP.

Save Cancel

4.6.4.1 How-to: Use RAC for music/source selection and level control

 Go to <u>I/O Control > Contact Input & Output</u> and select a [RAC 5/8] for channel selection, and select [RAC Analog] for controlling the source level which is currently playing. Here we assign the [Channel Select] to IN1 and [Volume Control] to IN2, see Figure 1.

NPUT	TYPE	MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE	TARGET
IN1	RAC5 V]	Channel 1	Channel Sel 🔻				
			Channel 2	Channel Sel 🔻				
			Channel 3	Channel Sel 🔻				
			Channel 4	Channel Sel V				
			Channel 5	Channel Sel 🔻				
IN2	RAC Analog 🔻]		Volume Con 🔻				
IN3	Logic-Click V		Active	Multi Functic 🔻				MCall
			InActive	Multi Functic 🔻				MHangup
				Fi	gure 1			

IN1 indicates as the contact input channel 1 on the rear panel of TERRA-SAP.

- 2. Go to [Audio Matrix] window:
 - 2.1) Select: Assign [IN1] as RAC 5 source selector, and set the five steps of RAC 5 from [SELECT] drop-down box (incl. the sources from NET1).
 - 2.2) Level (dB): Assign [IN2] as RAC's level control knob, and set either a fixed level or control the level by the knob of RAC 5 from [LEVEL] drop-down box.

INPUT	MODE	PRIORIT			OUT (A	MP OUT)		STREAM OUT			RAC CO	NTROL		BUFFE
INPUT	MODE	PRIORIT	MUTE	1(A)	2(B)	S/PDIF	MODE	IP ADDRESS	PORT	RT SELEC		LEVEI	LEVEL(dB)	
SIP	Mono 🔻	1 🔻		-	N/A	N/A						FIX 🔻	15 🔻	RT 🔻
MESSAGE	Auto 🔻			-	N/A	N/A	G.711 ulaw V	239.240.100.1	9012	IN1 V	1 🔻	IN2 🔻		
MONITOR	Mono 🔻	1 🔻		-	N/A	N/A						FIX IN2		RT •
NETWORK	Local 🔻			-	N/A	N/A				IN1 V	2 🔻	IN2 V		RT •
USB PC	Mono 🔻			-	N/A	N/A	G.711 ulaw ¥	239.240.100.1	9012	IN1 V	3 🔻	IN2 🔻		
LINE IN	Mono 🔻			-	N/A	N/A	G.711 ulaw 🔻	239.240.100.1	9012	IN1 V	4 🔻	IN2 🔻		
						HOUTCAS	ST/ICECAST		STREAM UD	Р				
NET IN	M	IODE				U	IRL	If	ADDRESS	PORT		NET1		
SOURCE 1	STREA	M UDP V						239.240.10	0.1	9012	FIX	v v		
SOURCE 2	STREA	M UDP V						239.240.10	0.1	9012	FIX	• •		
SOURCE 3	STREA	M UDP V						239.240.10	0.1	9012	FIX	y y		
SOURCE 4	STREA	M UDP V						239.240.10	0.1	9012	FIX	T T		
SOURCE 5	STREA	M UDP V						239.240.10	0.1	9012	FIX	• •		
SOURCE 6	STREA	M UDP V						239.240.10	0.1	9012	FIX	• •		
SOURCE 7	STREA	MUDP V						239.240.10	0.1	9012	FIX	• •		
SOURCE 8	STREA	M UDP V						239,240,10	0.1	9012	FIX	T T		

Figure 2

4.6.4.2 How-to: Remote Conferencing

- 1. Connect the mini-USB interface of TERRA-SAP to PC/laptop.
- 2. Go to [Audio Matrix] window, and set the priority of USB PC input higher, so that it can use the audio output channels.
- 3. Enable [1(A)] checkbox of Line Out channel on USB PC input.

Setup1	Updai	te Stati	us	DSP /	\bout															
Basic Se	etting	Device	Fund	ction Li	brarie	s A	udio Ma	trix	Media Se	tting	1/0	Contro	ol Third Party							
			_					UT (A	MP OUT)				STREAM OUT			RAC CON	ITROL			0.05550
11	IPUT	MOD	5	PRIOR		MUTE	1(A)	2(B)	S/PDIF	м	IODE		IP ADDRESS	PORT	SELEC	т	L	EVEL(dB)	BUFFER
:	SIP	Mono	۲	1 •	·			N/A	N/A								FIX	۲	0 🔻	RT 🔻
ME	SSAGE	Auto	¥	1 🔻	·			N/A	N/A	0	FF	¥	239.240.100.1	9012	PRIORITY *	¥	FIX	٣	0 🔻	
мо	NITOR	Mono	¥	1 🔻	'			N/A	N/A								FIX	۲	0 🔻	RT 🔻
NET	WORK	Local	¥	1 🔻	'			N/A	N/A						PRIORITY *	7	FIX	۲	0 🔻	RT 🔻
US	6B PC	Mono	۲	1 7				N/A	N/A	0	FF	•	239.240.100.1	9012	PRIORITY V	7	FIX	۲	0 🔻	
LI	NE IN	Mono	¥	1 🔻	•			N/A	N/A	0	FF	۲	239.240.100.1	9012	PRIORITY V	▼	FIX	¥	0 🔻	

Media setting 4.6.5

4.6.5.1 Management

Display all the message files stored in the TERRA-SAP or USB flash drive.

Setup1 Update Status DSP About		
Basic Setting Device Function Libraries Audio Matrix Media Setting I/O	D Control Third Party	
Media : Management V		
Player	Memory	
	TERRA-SAP Memory Storage	
	Free: 60MB Total: 105MB	
00:00 00:02		-
	USB	
001gong.wav ×	Free: 15255MB Total: 15263MB	
File List	Playlist : Machine V	
TERRA-SAP Memory Storage:	Playlist 01	
🖻 🏴 USB Card:		
🖲 📄 System Volume Information — 🎵 006Jimmy Gets High 吉米超慜wav	<	·
- □□ 五月天 (Mayday) - 天使 (Angel).wav		
- Terracom Fun.dat	Playlist Name Playing Times 1	
Terracom Dum.dat	Set Path Playing Delay(sec)	
- 77 Rec190626_182614.wav	→ Times Delay(sec)	
	 	
	 € ↓ ↓ ↓ 	
	⊕	
	 (*) (*) (*) 	
	 Image: Control of the second se	
	 € 	
	 ⊕ ↓ ↓ 	
	 € ↓ ↓ 	
	÷ +	
	New	
Upload To Download 🕀 Create Folder 🚫 Delete		

If you wish to auto play the playlist after stored the playlist setting, remember to set the priority of USB input right after the SIP input at [Audio Matrix] window, so that the playlist will be auto played after stored the settings in Media Setting window.

* Player

- Preview the audio file on your PC:
- 1. Select an audio file on File List, and right click the audio file, then click [Listen], see the picture on the right.
- 2. And the audio file will be played automatically on [Player] window.

te TE	RRA-SAP	Memory Storage:	
-	2000020	3_175255_CONFIG.sap	
-5-	mixcs01(Deveniend	
-5-	001gong	Download	
-5-	006Jimm	Delete	av
	Lady Gaç		
		<u>Listen</u>	
		Modify Level	

31

Symbol	Function
	Play
	Stop
\bigcirc	Repeat
	Volume adjustment
×	Click 🖷 to mute, click 📲 to unmute
	Display the current audio file which is selected from the File List.
×	Remove the audio file from Player

✤ File List

- TERRA-SAP storage memory: List all the files which are stored in TERRA-SAP.
- JSB: List all the files which are stored in the external USB flash drive (format FAT32).

When the USB flash drive is connected to TERRA-SAP, it will automatically detect its file folder, and the files can be saved into playlist.

- 🗳 Upload: Upload an audio file under the selected folder.
- Represented by the select the audio file and click this [Download] button to download it.
- ① Create folder: Create a new folder under the selected folder.
- 🗵 Delete folder/file: Select the folder/file on the list, and click this button to delete it.

You can also right click [TERRA-SAP Memory Storage] or [USB] option to create/ delete the folder and download/upload the file, see the picture below.	Player
	в, Х
	File List
	TERRA-SAP Memory Storage 200007 Create Folder mixcs0 001gor Delete 006Jim Upload Vav Lady Gaga - Poker Face.wav
To modify the level of audio file, right click	File List
the file, then click [Modify Level] button to	TERRA-SAP Memory Storage: USB:
open a pop-up level setting window.	System Volume Information So
	testcase Set Level : Set Level :
	E.7: Download h:/Rec200511_103205.mp3
	CDI Delete Message Level O T
	grid Listen IP-5 Modify Level Apply Cancel

✤ Memory:

- Terms Display the storage memory (max. 105 MB) of TERRA-SAP.
- Display the storage memory of the USB flash drive (format FAT32) connected to TERRA-SAP.

✤ Playlist

	Playlist 01		
•			•
Play	/list Name	Playing Times	1
Set	Path	Playing Times	Delay(sec)
Ð		\$	\$
Ð			
Ð			
Ð			
Ð			
Đ			
Ð			
•			
⊕			
(+)			

- Playlist name: Rename the selected playlist.
- Playing times: Set the playing times of the selected playlist. The range of playing times is from 1~65535, 65535 indicates to repeat the the playlist endlessly.
- Delay (sec): Set the delay time (sec) for each audio song. If the audio file is set as 5 seconds for delay time, it will delay 5 seconds before playing a next audio file.
- 🕀 Add file into the playlist
- 🖯 Remove file from the playlist
- 📑 Select the playlist
- New: Create a new playlist, and set the name and the storage location (Machine/USB) of this playlist.

Example of creating a playlist

- 1) First, click [New] to create a new playlist.
- 2) Select the audio file you want to have it on your list, the list is located on the left side of the window.
- 3) Then click 🕀 button to add the audio file in, click \bigcirc button to remove it. And click [Save to Machine] button to complete the setting.

Media : Management V												
Player					Memory -							
	00:00	00:00	+ 		Playlist : (Machine V]	TERRA-SAP N Free: 60MB	1emory Storage Total: 105MB	;		
· · · · · · · · · · · · · · · · · · ·				×	B	Playlist 01	Х					
File List												•
■ TERRA-SAP Memory 20000203_17525 20000203_17525 mixcs01(請勿吸想	5_CONFIG.sap				Play	list Name	Playlist 01		Pla	aying Time	s 3	*
001gong.wav					Set	Path			Playing Times		Delay(s	ec)
	ligh 吉米超駭.wav				Ð					\$		\$
🖵 🏹 Lady Gaga - Poke	er Face.wav				Θ	c:/001gor	ng.wav		1	\$	0	\$
					Ð					\$		\$
					Ð							÷
					Ð					*		*
					Ð					-		‡
					A					\$		\$
				Add New	Playlist			×		\$		\$
										-		-
				Playlist I	Name					\$		\$
				Storage	Location	Machine	•	Add	New		ave To M	

4.6.5.2 Record

Before operating the [Record] function using TERRA-SAP, please configure the basic recording settings in this webpage.

Setup1 Update Sta	atus DSP	About	Logout					
Basic Setting Device	Function	Libraries	Audio Matrix	Media Setting	I/O Control	Account Manager	Third Party	
Media : Record	~							
Record Control			Start					
Record								
File Directory		c:/						~
Mode		Rewr	ite	~				
Format		mp3		~				
Audio Method		Loca		~				
Audio Source		Mess	age 🗸					
Mixer For Selecte	ed Mic Inp	uts						
Mic1M	1ic2		Mic In					
								save

Record Control

• Start: Click this button to start recording. The [REC ON] status will be shown on the top-right corner during recording.

🍪 TERRAC	0 M "	SIP-base	d audio and contro	l over local net	work and internet		Version 1.10, 2000/01/01 07:14: TERRA-SAP, TERRA_SAP@192.168 109.4 OUT:LINE IN REC:
Setup1 Update St	atus DSP Ab	out Logout					7
Basic Setting Device	e Function Libr	raries Audio Matrix	Media Setting	I/O Control	Account Manager	Third Party	/ ·
Media : Record Record Control	~	End					
File Directory		c:/					~
Mode		Rewrite	~				
Format		mp3	~				
Audio Method		Local	~				
Audio Source		Message 🗸					
Mixer For Select	ed Mic Inputs						
Mic1)	/lic2	Mic In					
							save
4							

• End: Click this button to stop recording. Then the recorded file will be listed on Media Setting

> Management. See the picture as below.

etup1 Upda	nte Statu	us DSP About	Logout	
asic Setting	Device	Function Libraries	Audio Matrix	Media Setting
Media : Mana Player	gement	~		
				45
		00:00	00:00	0
• • • • •				×
File List				
		mory Storage:		
	<pre>< tone.mp3</pre>			
		(mono.wav 071049.mp3		
		071152.mp3		
		071446.mp3		
		071459.mp3		
	ec000101_			

Record

 File directory: The file path where the recorded files will be stored. You can see the current memory storage of TERRA-SAP/external USB flash drive on Media Setting > Management, see the picture as below.

Setup1	Upda	e Stati	us DSP	About						
Basic S	etting				Audio Matrix	Media Setting	1/0			
Media		ement •								
- Player			I	00:00	00:02			- Memory		TERRA-SAP Memory Storage Free: 60MB Total: 105MB
	• 001g	ong.wav	,	0.00	00.02	×			E	USB Free: 15255MB Total: 15263MB
File Li			mory Stor	age:				Playlist	Playlist 01	

[Media Setting > Management] window

- Mode: When the memory storage is not enough, choose either [Rewrite] or [Stop] mode.
 - Rewrite: Rewrite the file from the first recorded file when the memory storage is full. If there are no other recorded files which can be deleted, the recording will be stopped.
 - Stop: Stop recording if the memory storage is full.
- Format: Choose which audio codec (Wav or MP3) the recorded file will be saved as.
- Audio method: Choose the audio source of recorded file either from [Local TERRA-SAP] or from [Network].
 - Local: Select the audio source (SIP, MESSAGE, LINE IN, USB PC etc.) which user wishes to record from the local TERRA-SAP device.

 Local Message 🗸	Audio Method Audio Source
incoodige 1	Mixer With Select Mic
Mic In	Mic1Mic2

Source from Local TERRA-SAP

- Mixer for Selected Mic Inputs: Record the audio from the chosen mic source(s).
 - ➢ Mic1Mic2: The Mic 1/Mic 2 audio input of TERRA-SAP device.
 - Mic In: The Mic 1/Mic 2/Mic 3 (Phoenix) of TERRA-SAP device.
- Network: Record the audio source from the network. Please set the [Network IP address] and [Network Port].

Audio Method	Network	·	
Network			
Network IP	239.240.100.1	Netowrk Port	9012
	Source from	Network	

4.6.5.3 Background Music

asic Setting	Device	Function Libraries	Audio Matrix	Media Setting	I/O Control	Third Party	
Media : Back BGM	ground Mu	sic 🗸					
Mode	On	ce	¥	Playlist		:=	

- Mode: The play mode of playlist.
 - $_{\odot}$ Once: Play all the audio files which are added in [Playlist] setting once.
 - o Repeat All: Play the audio files which are added in [Playlist] setting repeatedly in order.
 - Shuffle: Play the audio files which are added in [Playlist] setting randomly.
- Playlist: Click 🗉 to choose the playlist(s) you wish to be played.
- 1. Tick the checkbox of the playlist(s) you wish to be played.

BGM Playlist	×
Select All	
Playlist 01	
	OK Cancel
sic Setting Device Function Libraries	Audio Matrix Media Set

2. Please go to [Audio Matrix] window, and set the priority of MESSAGE Input higher than LINE IN, MONITOR, USB PC and NETWORK.

INPUT	HODE	DELODITY		LINE OUT (AMP OUT)			
	MODE	PRIORITY	MUTE	1(A)	2(B)	S/PDIF	
SIP	Mono 🔻	1 🔻		√	N/A	N/A	
MESSAGE	Auto 🔻	2 🔻		-	N/A	N/A	
MONITOR	Mono 🔻	3 ▼		-	N/A	N/A	
NETWORK	Local 🔻	4 ▼		√	N/A	N/A	
USB PC	Mono 🔻	4 ▼		√	N/A	N/A	
LINE IN	Mono 🔻	4 ▼		√	N/A	N/A	
	Versio	on 1.06, 2	2019	/07/1	1 13	33:15	
TERRA		ERRA S					
						:None	

3. If the playlist has been played successfully, the information of OUT (Output) will display as MSG (MESSAGE INPUT) on the top right corner. 36

asic Setting Device edia : Management V - Player -	Function Libraries	Audio Matrix	Media Setting	I/O Control	Third P	arty			
				Memory					
				mentory			75004 640 44-		
						_	TERRA-SAP Mem Free: 60MB Tot		
							Filee. OUMB TOL	al. TUSIND	
	00:00	00:00	5	Playlist : Ma	chine •	·			
			×	📑 Pla	ylist 01	Х			
ile List				4					
	ry Storage:								
	255_CONFIG.sap								
- 📕 mixcs01 🚛 🚽	煙飲食).mp3			Playlist	Name	Playlist 01		Playing Times	3
- 🎜 001gong.wav - 🎜 006Jimmy Gets	Uich 古塔树花 way			Set	Path			Playing Times	Delay(se
Lady Gaga - Po				•				÷	
••••••				Ð				÷	
	Playlist Name	Playlist 01		Playing	Times	3 🖕		\$	
	Set Path			Playing Times		Delay(sec)			
4	c:/001go	ng.wav		1		0		•	
4	•	-		4		\$		*	
	Đ					\$			
	Ð			4		Å		\$	
	Ð			4		4		2	- 5
	Ð			4		4 *		2 =	
	Ð			4		-		New Sa	ive To Mad
	Ð			4 7					
	Ð			4		-	Add New Playlist		
	Ð			4		\$	Playlist Name	V	
1				New	Sav	e To Machine	Storage Location	Machine 🔻	
							Storage Location	Wachine •	Ad
99	D	Create							
🖏 Upload 🌄	Download	Folder	X Delete						
_						_			
Basic Settin	g Device F	unction Libra	ries Audio	Matrix Med	lia Set	ting I/O C	ontrol Third Pa	arty	
Media : Se	etting 🔻 –								
BGM		6							
Mode	Once		•	Dia	ylist				
Mode	Once			- 10	ynac				
						-			
						BGM PI	aylist		
						Sele	ect All		
							Playlist 01		
							- aynor o'r		

4.6.5.4 How-to: Add audio files and create playlists for BGM playing

- 1. Click [Upload] to browse an audio file, and upload it into TERRA-SAP.
- 2. To create a new playlist, click [New] to add a new playlist first.
- 3. Select the audio file you want to have it on your list, the list is located on the left side of the window.
- 4. Then click \bigoplus button to add the audio file in, click \bigoplus button to remove it.
- 5. Click [Save to Machine] button to complete the setting.
- 6. Choose the play mode (play once/repeat/random) and play target setting (internal/external/detect by external). For example, set [Repeat All] mode for BGM playing.
- 7. Click 🗉 to choose one or multiple playlists as the BGM source.

4.6.6 I/O control

sic Setting		unction	Libraries /	udio Matrix	Media Setting	I/O Control Thi	rd Party			
STATE		инстіон	1	MODE	SECURITY		SOURCE		TARGET	
OFF	H	ang Up	•							
ON		Call	•	Intercom	▼					
	UT & OUTF	E	POSITION		UNCTION	MODE	SECURITY	SOURCE	TARG	ET
INPUT	TYP	E T	POSITION	Chanr			SECURITY	SOURCE	TARG	ET
INPUT IN1	TYP RAC5	E V log V	POSITION OPEN	Chanr Volu	nel Selection]	SECURITY	SOURCE	TARG	ET
INPUT IN1 IN2	TYP RAC5 RAC Ana	E V log V		Chanr Volu H	nel Selection 🔻			SOURCE	TARG	
INPUT IN1 IN2	TYP RAC5 RAC Ana	E Iog T	OPEN	Chanr Volu H	nel Selection 🔻 me Control 🔻 lang Up 🗸			SOURCE		
INPUT IN1 IN2 IN3	TYP RAC5 RAC Ana Logic	E log V V	OPEN	Chanr Volui H Call Message	nel Selection me Control iang Up Call			SOURCE		
INPUT IN1 IN2 IN3 OUTPUT	TYP RAC5 RAC Ana Logic	E log V V	OPEN	Chanr Volui H	nel Selection me Control tang Up Call Call Call			SOURCE		

Emergency Button

- State:
 - OFF: Trigger a Low to Hi (Release Trigger) action.
 - ON: Trigger a Hi to Low (Press trigger) action.
- Function: Select a function from the drop-down list, see the table as below.

Function
Call
Message Call
<u>Hang Up</u>
Music Play
Music Stop
Contact Out
Command (String)
Multi Function
Record

- Mode: Choose the calling mode (intercom/paging).
- Security: If the [Security] option is enable, the caller cannot hang up the call during paging unless the call receiver cancels the call itself.
- Source (Music Play/Music stop only): Choose a playlist which you've created on Setup 1 > Media Setting.
- Target: Choose a TERRACOM device to paging/SIP intercom, play message etc., or it can act as a Start action/Stop action for recording.

Contact Input

- Input: The contact input which will be used for triggering an action, IN1 means contact input channel 1.
- Type: Choose the type of interface which will be used for controlling the action, including logic and remote device (RAC 5/8, RAC Analog).
- Position:
 - o OPEN: Trigger a Low to Hi (Release Trigger) action.
 - o CLOSE: Trigger a Hi to Low (Press trigger) action.

Function
Call
Message Call
Hang Up
Music Play
Music Stop
Contact Out
Command (String)
Multi Function
Logic-Click
Music Selection & Music Stop (RAC)
Channel Selection (RAC)
RAC Analog (RAC)
Record

• Function: Select a function from the drop-down list, see the table as below.

Contact Output

- Output: The relay contact output of TERRA-SAP, it can be programmed to open or close the contact to an external device.
- Default: Set the default state (open or close) of logic relay outputs after the TERRA-SAP is powered.

4.6.6.1 Call/Hang Up

Call (Intercom/Paging)

Proceed intercom or paging call by using the connected LINE IN source on TERRA-SAP to a chosen TERRACOM device target when pressing (activated) the red EVAC button on the front panel of TERRA-SAP or the call button which is connected to the contact input of TERRA-SAP (IN1 means contact input channel 1).

✤ Hang Up

Hang up the intercom or paging call by pressing the emergency button on the front panel of TERRA-SAP or the connected button again to cancel intercom or paging.

STATE	FU	ICTION	MODE	SECURITY	SOL	JRCE	TAR	GET
OFF	Han	g Up 🔻 🔻						
ON	C	all 🔻	Intercom 🔻				EX_1	27 🔹
			Intercom					
			Paging					
		POSITION	FUNCTION		MODE		SOURCE	TARCET
NPUT	TYPE	POSITION	FUNCTION		MODE	SECURITY	SOURCE	TARGET
NPUT	TYPE	POSITION	FUNCTION Channel Selecti		MODE	SECURITY	SOURCE	TARGET
NPUT IN1	TYPE	•		on 🔻	MODE	SECURITY	SOURCE	TARGET
INPUT IN1 IN2 IN3	TYPE RAC5 RAC Analog	•	Channel Selecti	on 🔻	MODE	SECURITY	SOURCE	TARGET

- Mode: Choose the calling mode (intercom/paging).
- Security: If the [Security] option is enable, the caller cannot hang up the call during paging unless the call receiver cancels the call itself.

4.6.6.2 Message Call

The Message Call action allows to play the messages directly to a chosen TERRACOM device target when pressing (activated) the red EVAC button on the front panel of TERRA-SAP or the call button which is connected to the contact input of TERRA-SAP (IN1 means contact input channel 1).

Press the connected button again to stop the message playing.

STA	TE	FUNCTION	MODE		SECURITY	S	OURCE		TARGET	
OF	F	Hang Up	•							
0	N	Message Call	 Intercom 	•		Play	list 01	•	EX_127	•
	UT & OUTPUT									
ITACT INF	UT & OUTPUT -	POSITION	FUNCTION		MODE	SECURITY	SOURCE		TARGET	
		POSITION	FUNCTION Channel Selection	¥	MODE	SECURITY	SOURCE		TARGET	
INPUT	TYPE	•		T	MODE	SECURITY	SOURCE		TARGET	
INPUT	TYPE RAC5	•	Channel Selection		MODE	SECURITY	SOURCE		TARGET	

 Source: Select the playlist source which you have created on <u>Setup 1 > Media Setting ></u> <u>Management</u>.

4.6.6.3 Music Play/Stop

Play the music playlist (ON-state action) when pressing (activated) the red EVAC button on the front panel of TERRA-SAP or the call button which is connected to the contact input of TERRA-SAP (IN1 means contact input channel 1).

Press the emergency button on the front panel of TERRA-SAP or the connected button again to stop the message playing.

STATE	E FUN	CTION	EVAC	MODE	SECU	RITY	SOL	RCE	TARG	ET
OFF	Music	Stop 🗸]							
ON	Music	Play 🗸					G72	2 🗸		
ONTACT IN	PUT & OUTPUT									
INPUT	TYPE	MONITOR	POSITION	FUNC	TION	EVAC	MODE	SECURITY	SOURCE	TARGET
IN1	Logic	•	OPEN	Music S	stop 🗸					
			CLOSE	Music P	Play 🗸				G722 🗸	
IN2	RAC5	~	Channel 1	Channel S	Selecti 🗸					
			Channel 2	Channel S	Selecti 🗸					
			Channel 3	Channel S	Selecti 🗸					
			Channel 4	Channel S	Selecti 🗸					
			Channel 5	Channel S	Selecti 🗸					
IN3	RAC Analog	~		Level Co	ntrol 🗸					

- Music Play: Play the music based on the playlist source.
- Music Stop: Stop the music playing.
- Source: Select the playlist source which you have created on <u>Setup 1 > Media Setting ></u> <u>Management</u>.
- EVAC: When the [EVAC] option of Emergency Button and Contact IN1~3 is enabled, the TerraManager software will show the source name (either Emergency Button or Contact IN1~3) on Monitor window > EVAC tab > Status grid. In addition, when the TERRA-SAP is proceeding multiple EVAC paging, ONLY the latest EVAC call will be displayed on the EVAC tab of TerraManager software.

When playing the music playlist via the red EVAC button on TERRA-SAP, the [Music Play] function can **ONLY** be canceled via the red EVAC button. As well as the 2-state button which is connected to the contact input1~3 of TERRA-SAP, when the [Music Play] function is triggered, this function can **ONLY** be canceled via the connected 2-state button.

4.6.6.4 Contact Out

Program to control the external device by using the target you set on <u>Setup 1 > Function Libraries ></u> <u>Contact Out</u> via the 1 channel contact output of TERRA-SAP.

EMERGENCTE	SUTION						
STATE	FUNCTION	М	DDE S	SECURITY	SOURCE	TARGET	
OFF	Contact Out	-				OPEN .	•
ON	Contact Out	-				CLOSE	•

Make sure the hardware wiring between the contact output of TERRA-SAP and external amplifier such as fire alarm is connected.

4.6.6.5 Command (String)

Send the 3rd party command (string) to the external device using the target you set on <u>Setup 1 ></u> <u>Function Libraries > Command (String)</u> via the contact input and the emergency button of TERRA-SAP.

EMERGENCY	BUTTON				
STATE	FUNCTION	MODE	SECURITY	SOURCE	TARGET
OFF	Command(String)	•			MCall 🗸
ON	Command(String)	•			MHangup 👻

CONTACT IN	IPUT & OUTPU	Τ							
INPUT	TYPE	POSITION	FUNCTION		MODE	SECURITY	SOURCE	TARGET	
IN1	RAC5	•	Channel Selection	۲					
IN2	RAC Analog	•	Volume Control	۲					
IN3	Logic	 OPEN 		۲					
		CLOSE	Command(String)	T				Music ON	T

4.6.6.6 Multi Function

Trigger the Multi Function action (a group of action with multiple functions) using the target you set on <u>Setup 1 > Function Libraries > Multi Function</u> via the relay contact output of TERRA-SAP.

STATE	FUNCTION		MODE	SECURITY		SOURCE		TARGET	
OFF	Multi Function	•						MCall	
ON	Multi Function	•						MHangup	
CONTACT IN	IPUT & OUTPUT								
INPUT	ТҮРЕ	MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE	TARGET	
IN1	RAC5 V		Channel 1	Channel Sel 🔻					
			Channel 2	Channel Sel V					
			Channel 2	Channel Sel V					
			Channel 3	Channel Sel V					
			Channel 3	Channel Sel V					
IN2	RAC Analog V		Channel 3 Channel 4	Channel Sel V Channel Sel V					
IN2 IN3	RAC Analog V Logic V		Channel 3 Channel 4	Channel Sel V Channel Sel V Channel Sel V				MCall	Ţ

4.6.6.7 Logic-Click

The control inputs of TERRA-SAP can work with simple contact such as EVC-SW01W/EVC-SW02W emergency call button or other two-state button. For example, once the control input is connected to the two-state ON/OFF button, press the button to play the audio source (playlist), then press this button again to stop playing the audio source.

NPUT	TYPE	MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE	TARGET
IN1	Logic-Click V		Active	Music Play V			test v	
			InActive	Music Stop 🔻				
IN2	•							
IN3	*	7						

 Monitor: Once enabled, the open/short circuit monitoring will be activated. If the two-state ON/ OFF button is not connected to the contact input of TERRA-SAP, the [OPEN] status will be shown, see the picture as below.

INPUT	TYPE	M	IONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE	TARGET
IN1 < (OPEN ic-Click	•		Active	Music Play V			test	•
				InActive	Music Stop 🔻				
IN2		•							

 Position: Choose the corresponded functions when the contact input is under Active position / Inactive position.

4.6.6.8 Music Selection & Music Stop (RAC 5/8)

Assign a channel of RAC knob as [Music Selection] function, and use this function to quickly play an audio source (playlist) via RAC's knob. To stop playing the music, assign another channel of RAC knob as [Music Stop] function, and once switches to this knob position, the audio source shall be stopped.

CONTACT INPO									
INPUT	TYPE	MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE		TARGET
IN1	RAC5 V]	Channel 1	Music Selec V			test	T	
			Channel 2	Music Stop 🔻					
			Channel 3	Channel Sel 🔻					
			Channel 4	Channel Sel 🔻					
			Channel 5	Channel Sel 🔻					

4.6.6.9 Channel Selection (RAC 5/8)

The RAC Channel Selection allows to switch the source channel of SIP / MESSAGE / MONITOR / NETWORK / USB PC / LINE IN input via RAC 5/8.

 Go to [I/O Control] window, and choose a contact input channel (IN1 means contact input channel 1) for [RAC 5/RAC 8]. Then assign which channel knob(s) will be used for source channel selection.

CONTACT INF	PUT & OUTPU	т.—								
INPUT	TYPE		MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE		TARGET
IN1	RAC5	۲		Channel 1	Music Selec V		[aaa	۲	
				Channel 2	Music Stop 🔻					
				Channel 3	Channel Sel 🔻					
				Channel 4	Channel Sel 🔻					
				Channel 5	Channel Sel V					

2. Then go to [Audio Matrix] window, and set the same contact input channel and the corresponded source channel on [RAC Control] tab.

INPUT	MODE	PRIORITY	MUTE	LIN	E OUT OUT)			STREAM OUT		RAC CO	NTROL	BUFFER
				1(A)	2(B)	S/PDIF	MODE	IP ADDRESS	PORT	SELECT	LEVEL(dB)	
SIP	Mono 🔻	1 🔻		-	N/A	N/A					FIX 🔻 🛛 🔻	RT 🔻
MESSAGE	Auto 🔻			-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	IN1 🔻 3 🔻	FIX V 0 V]
MONITOR	Mono 🔻	1 🔻		-	N/A	N/A					FIX V 0 V	RT 🔻
NETWORK	Local 🔻			-	N/A	N/A				IN1 🔻 4 🔻	FIX V 0 V	RT 🔻
USB PC	Mono 🔻			-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	IN1 • 1	FIX V 0 V]
LINE IN	Mono 🔻	6 🔻		-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	PRIORITY 7 3	FIX 🔻 🛛 🔻]

4.6.6.10 RAC Analog (RAC 5/8)

Allow to control the level of the audio source (SIP, MESSAGE, MONITOR, NETWORK, USB PC, LINE IN) which is currently playing.

1. Go to [I/O Control] window, and choose a contact input channel (IN1 means contact input channel 1) for [RAC Analog]. Then choose [Volume Control] function, allowing to control the level which is

currently playing via the level knob of RAC 5/RAC 8.

- CONTACT IN								
INPUT	TYPE	MONITOR	POSITION	FUNCTION	MODE	SECURITY	SOURCE	TARGET
IN1	RAC5 🔻		Channel 1	Music Selectic •		[aaa 🔻	
			Channel 2	Music Stop 🔻				
			Channel 3	Channel Seler •				
			Channel 4	Channel Sele v				
			Channel 5	Channel Seler V				
IN2	RAC Analog 🔻			Volume Contr V				

2. Go to [Audio Matrix] window, and set the same contact input channel on RAC Control > Level (dB).

INPUT	MODE	PRIORITY	мите	LIN	E OUT	(AMP)		STREAM OUT		RAC CONTR	OL	BUFFER
				1(A)	2(B)	S/PDIF	MODE	IP ADDRESS	PORT	SELECT	LEVEL(dB)	
SIP	Mono 🔻	1 🔻		-	N/A	N/A					IN2 🔻	RT 🔻
MESSAGE	Auto 🔻			-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	IN1 🔻 3 🔻	IN2 🔻	
IONITOR	Mono 🔻	1 🔻		-	N/A	N/A					IN2 🔻	RT 🔻
IETWORK	Local 🔻			-	N/A	N/A				IN1 ▼ 4 ▼	IN2 🔻	RT 🔻
USB PC	Mono 🔻			-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	IN1 🔻 5 🔻	IN2 🔻	
LINE IN	Mono 🔻	6 🔻		-	N/A	N/A	G.711 ulav 🔻	239.240.100.1	9012	PRIORITY	IN2 🔻	

4.6.6.11 Record

Record the chosen audio source when pressing (activated) the red EVAC button on the front panel of TERRA-SAP or the 2-state call button which is connected to the contact input of TERRA-SAP (IN1 means contact input channel 1).

 ${rac{1}{2}}$ To stop the recording, press the emergency button on the front panel of TERRA-SAP or the connected 2-state button again.

 $rac{1}{2}$ The chosen audio source (SIP, MESSAGE, LINE IN, USB PC, NETWORK etc.) needs to be programmed on Media Setting > Record webpage first.

STATE	FUNCTION		EVAC	MODE	SECURITY	SOURCE	TARGET
OFF	Record	~					End
ON	Record	~					Start

	INPUT	TYPE	MONITOR	POSITION	FUNCTION	EVAC	MODE	SECURITY	SOURCE	TARGET	
	IN1	Logic 🗸		OPEN	Record V					End	~
				CLOSE	Record V					Start	~
	IN2	Logic-Click 🗸		Active	Record V					End	~
1				InActive	Record V					Start	~
	IN3	V									
	OUTPUT	DEFAULT									
	OUT1	Open 🗸									

4.6.6.12 User Fault

CONTACT INPUT & OUTPUT

Assign the [User Fault] to an input source (EVAC button or Contact Input of TERRA-SAP), then select the trigger/release action from [Target] drop-down list.

The trigger/release action of [User Fault] needs to be configured on Setup 1 > Function Libraries > User Fault first.

Make sure the input source (EVAC button or Contact Input of TERRA-SAP) you set on [Function] Libraries] window is matched with the settings on [I/O Control] window.

STATE	FUNCTION	E	VAC MC	DDE SECURITY	·	SO	URCE		TARGET
OFF	User Fault	~							Evac_R
ON	User Fault	*							Evac_T
NTACT INF	PUT & OUTPUT								
INPUT	TYPE	MONITOR	POSITION	FUNCTION	EVAC	MODE	SECURITY	SOURCE	TARGET
IN1	Logic 🗸		OPEN	User Fault 🗸					Evac_R
			CLOSE	User Fault 🗸					Evac_T
IN2	*								
IN3	- *								
OUTPUT	DEFAULT								
OUT1	Open 🗸								

After completed the [User Fault] setting on [I/O control] window, when the fault is being triggered, it shall display on the [Monitor] window of TerraManager software, see the picture as below.

Fault Device Log EVAC Redur	ndant		
Device	Туре	Message	
TERRA_SAP(192.168.100.127)	(1,1)	▼ EVAC Trigger	

4.6.7 Account Manager

Except the [ADMIN] user ID, multiple sets of user ID can be created in [Account Manager] function, and have access to the TERRA-SAP web browser.

Setupi Update Status DSP About Logout	
Basic Setting Device Function Libraries Audio Matrix Media Setting VO Cont	rol Account Manager Third Party
Management	User Information
Select Function Change a user's setting v	ID
Change a user's Setting	admin
User's ID	
User's Old Password	
User's New Password	
Re-enter To Confirm	
	Edit

Management

- Add a user's ID
- Change a user's setting
- Delete a user's ID
- User Information

ID: Display the name of user ID.

Level: Display the authorization level of the user.

The default [User Name] is admin and its [Password] is admin. The admin user ID cannot be deleted, but its password can be user-defined.

4.6.7.1 Add a user's ID

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Basic Setting Device Function Libraries Audio Matrix Media Setting I/O Control Account Manager Third Party Management	Management User Information Select Function Add a user's ID Change a user's Setting ID New User's ID ID New User's Password ID	etup1 Update Statu	s DSP	About	Logout					
Select Function Add a user's ID Change a user's Setting New User's ID New User's Password	Select Function Add a user's ID Change a user's Setting New User's ID New User's Password	asic Setting Device	Function	Libraries	Audio Matrix	Media Setting	I/O Control	Account Manager	Third Party	
Change a user's Setting New User's ID	Change a user's Setting New User's ID	Vanagement						User Information		
Change a user's Setting New User's ID	Change a user's Setting New User's ID	Select Function	Add	d a user's ID) 🗸			ID		
New User's ID New User's Password	New User's ID New User's Password	Change a user's Catting						admin		
New User's Password	New User's Password		_		_0_					
Re-enter To Confirm	Re-enter To Confirm	New User's Password								
		Re-enter To Confirm								6

- 1. Enter the User ID and the password.
 - The password must contain at least one number or letter, and cannot leave blank on Password field.
 - Letters are case sensitive, and always filled in capital letters.
- 2. Click [Add] button.

4.6.7.2 Change a user's setting

Setup1 Updat	te Statu	is DSP	About	Logout					
Basic Setting	Device	Function	Libraries	Audio Matrix	Media Setting	I/O Control	Account Manager	Third Party	
Management -							User Information	•	
Select Function	on	Cha	ange a use	r's setting 🗸			ID	U	
Change a use	'e Satting						admin		
<u> </u>	s setting	·					ateis		
User's ID		adr	nin						
User's Old Pa	issword								
User's New P	assword					Q.			
Re-enter To C	Confirm						Password		
									- 6
									E

- 1. Select the user ID first.
- 2. Modify the password.
- 3. Click [Edit] button.

4.6.7.3 Delete a user's ID

I	Setup1 Upda	ate Stat	us DSP	About	Logout					
	Basic Setting	Device	Function	n Libraries	Audio Matri	x Media Setting	I/O Control	Account Manager	Third Party	
	Management							User Information —		
	Select Funct	ion	De	elete a usei	's ID 🗸 ✔	-		ID		
	Character	J. C. Min				-0		admin		
	-Change a use	a s setun	9					ateis		
	Delete ID		ate	eis			✓			
										2
										Delete

- 1. Select an user ID.
- 2. Click [Delete] button to delete it.

4.6.8 Third party

Set the 3rd party commend to allow other devices to control the TERRA-SAP.

Please enable [Network Controls Service settings] and set [+Network Port] on <u>Steup1 > Basic</u> <u>Setting > Third Party Controls</u> first.

Setup1 Upda	ate	Status	DSP	About					
Basic Setting	De	vice F	unction	Libraries	Audio Matrix	Media Setting	I/O Control	Third Party	
New Third Pa	arty -								
			L				_		
Name			C C	CMDSTR					
Name Function					am Select 🔹	SOURCE	1 🔻		

- Name: The [Name] field is the command string for triggering an action via 3rd party control.
- Function:

Int	erface	Function
Connection	Settings	
Ethernet (UDP)	UDP Port = 8010 (default)	 <u>Bypass Control</u> <u>Bypass Read</u> <u>Mute Control</u> <u>Mute Read</u> <u>Level Control</u> <u>Level Read</u> <u>Netstream Select</u>

• Enable State: To enable or disable this 3rd party command. If this field is set disable, the Terracom device will not execute the function even receives the command.

4.6.8.1 Netstream Select

Set the 3rd party commend, and choose to receive the network audio stream. Every Terracom device provides 8 sets of [NET SOURCE], the setting of every [NET SOURCE] can be configured on <u>Setup1</u> > <u>Audio Matrix</u>.

Name	CMDSTR			
Function	Netstream Select 🔹	SOURCE 1	•	
Enable State	Enable 🔻			

• Command:

To choose to receive which network (NET1 or NET2) and which audio stream source channel (1~8) in a quicker way, send string:n-c commend string behind the [Name] string.

Command	Meaning	Range
:0.0	n indicates the number of network (NET)	1~2
:n-c	c indicates the source channel	1~8

Command - Netstream Select:

From the example picture above, if you wish to receive the network audio stream, please send a commend string: CMDSTR. The TERRA-SAP device will send back in ASCII code as below.

- o 200 (ASCII Code) indicates OK (received).
- 400 (ASCII Code) indicates NG (the 3rd party command sent from 3rd party device is not the same as [Name] field).
- Example:

If users do not wish to send the 3rd party commend from [NET 1 SOURCE 1~8] and [NET 2 SOURCE 1~8] one by one, send string:n-c command string.

- 1. Assume the value of Name is "TARGET".
- 2. To choose to receive the [NET 2 SOURCE 7], the command string is TARGET:2-7.

4.6.8.2 Mute Control/Read

Mute Control: Set the 3rd party commend to mute/unmute the audio source (SIP/MSG Player/ Monitor/Network/USB Receive/Line In/Mic1~Mic5/AMP Out/Line Out/USB Receive). The audio sources are located at <u>Setup1 > Audio Matrix</u>.

lame	CMDSTR:Mute on			ļ	
unction	Mute Control	~	SIP	~	
Enable State	Enable	\checkmark			

Mute Read: Set the 3rd party commend to read back the mute/unmute status.

lame	CMDSTR		J	
unction	Mute Read 🗸	SIP	~	
Enable State	Enable 🗸			

Example - Mute Control

Assume the value of Name is "TARGET".

- $_{\odot}\,$ There are 2 type of commands to mute on/mute off the SIP audio source.
 - 1. TARGET:Mute on --> The SIP source will change to [Mute on] status. TARGET:Mute off --> The SIP source will change to [Mute off] status.
 - TARGET --> The SIP source will change to [Mute on] or [Mute off] (Toggle). If the current status is mute, the status will switch to unmute after received the 3rd party command. If the current status is unmute, the status will switch to mute after received the 3rd party command.

• Example - Mute Read

Assume the value of Name is "TARGET".

- o To read back the [Mute on] / [Mute off] status of SIP audio source:
 - 1. Select the SIP source from drop-down box. The command string is TARGET.
 - 2. Then the TERRA-SAP will reply TARGET: Mute ON or TARGET: Mute OFF.

4.6.8.3 Record

Set the 3rd party commend to record the chosen audio source (SIP, MESSAGE, LINE IN, USB PC, NETWORK etc.).

It he chosen audio source needs to be programmed on Media Setting > Record webpage first.

Name	CMDSTR				
Function	Record	~	Start	~	
Enable State	Enable	~			

• Command - Record Start/Stop:

From the example picture above, if you wish to record the chosen audio source, please send a commend string: CMDSTR. The TERRA-SAP device will send back in ASCII code as below.

- o 200 (ASCII Code) indicates OK (received).
- 400 (ASCII Code) indicates NG (the 3rd party command sent from 3rd party device is not the same as [Name] field).

4.6.8.4 Bypass Control/Read

Bypass Control: Set the 3rd party commend to bypass the audio source. The source includes SIP, MSG Player, Monitor, Network, USB Receive, Line In, Mic1~Mic5, AMP Out, Line Out, USB Transmit, AGC-SIP, AGC-MSG Player, AGC-Monitor, AGC-Network, AGC-USB Receive, AGC-Line In, AGC-Mic 1, AGC-Mic 2.

Name	CMDSTR:Bypass on]	
unction	Bypass Control 🗸	SIP	~	
Enable State	Enable 🗸			

Bypass Read: Set the 3rd party commend to read back the [Bypass on] / [Bypass off] status of the audio source.

lame	CMDSTR		J	
unction	Bypass Read 🗸	SIP	~	
Enable State	Enable 🗸			

Example - Bypass Control

Assume the value of Name is "TARGET".

- $_{\odot}$ There are 2 type of commands to bypass on/bypass off the SIP audio source.
 - 1. TARGET:Bypass on --> The SIP source will change to [Bypass on] status. TARGET:Bypass off --> The SIP source will change to [Bypass off] status.
 - 2. TARGET --> The SIP source will change to [Bypass on] or [Bypass off] (Toggle).

If the current status of SIP source is non-bypass, the status will switch to bypass after received the 3rd party command. If the current status of SIP source is bypass, the status will switch to non-bypass after received the 3rd party command.

• Example - Bypass Read

Assume the value of Name is "TARGET".

- o To read back the [Bypass on] / [Bypass off] status of SIP audio source:
 - 1. Select the SIP source from drop-down box. The command string is TARGET.
 - 2. Then the TERRA-SAP will reply TARGET: Bypass ON or TARGET: Bypass OFF.

4.6.8.5 Level Control/Read

Level Control: Set the 3rd party commend to adjust the level of audio source. The source includes SIP, MSG Player, Monitor, Network, USB Receive, Line In, Mic1~Mic5, AMP Out, Line Out, USB Transmit, AGC-SIP, AGC-MSG Player, AGC-Monitor, AGC-Network, AGC-USB Receive, AGC-Line In, AGC-Mic 1, AGC-Mic 2.

Please note t	the level control of AGC	AGC	Factory Setting
source refers	to the [Maximum Gain]	Active Bypass	
parameter on	AGC component.	Threshold	-10 ¢ dB
		Sampling Time	100 🗘 ms
		Attack Time	300 ¢ ms
		Release Time	500 \$ ms
		Hold Time	500 \$ ms
		Target Level	5 ¢ dB
		Maximum Gain	6 ¢ dB
		AGC Gain	7 dB

ame	CMDSTR:Increase]
unction	Level Control 🗸	SIP	~
nable State	Enable 🗸		
nable State	Enable V		

Save Cancel

Source Control & Range:

The table below indicates all the audio sources and the corresponded adjustable range. There are 2 kinds of way to adjust the level:

- o Add [:Increase] or [:Decrease] command string, and the specific level range behind the listed source.
- o Add [:xx] command string, and the level of audio sources will be changed to the same level as the level on 3rd party command.

Source	Command	Level Range	Unit (dB)
	:Increase :Decrease	-90dB ~ 20dB	1
SIP, MSG Player, Monitor, Network, USB Receive, Line In,	: <mark>xx</mark> (xx -> dB value)	-90dB ~ 20dB	1
Mic1~Mic5, USB Receive	:Bypass on :Bypass off :Mute on :Mute off	-	-
AMP Out, Line Out, USB	:Increase	-90dB ~ 20dB	1

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Source	Command	Level Range	Unit (dB)
	:Decrease		-
	:Bypass on		
Transmit	:Bypass off		
	:Mute on	-	-
	:Mute off		
	:Increase	0dB ~ 30dB	1
AGC-SIP, AGC-MSG Player,	:Decrease		'
AGC-Monitor, AGC-Network,	:Bypass on		
AGC-USB Receive, AGC-Line In,	:Bypass off		
AGC-Mic 1, AGC-Mic 2	:Mute on	-	-
	:Mute off		

• Examples - Level Control

Assume the value of Name is "TARGET".

- To increase 1dB level of MIC input, select MIC source from drop-down box. The command string is TARGET:Increase
- To set the level of MIC input as 5dB, select MIC source from drop-down box. The command string is TARGET:5
- To mute the Line Out output, select Line Out source from drop-down box. The command string is TARGET:Mute on
- To bypass the AGC-SIP, select AGC SIP source from drop-down box. The command string is TARGET:Bypass on

Level Read: Set the 3rd party commend to read back the level of audio source.

lame	CMDSTR			ļ	
unction	Level Read	~	SIP	~	
Enable State	Enable	\checkmark			

• Example - Level Read

Assume the value of Name is "TARGET".

- $_{\odot}$ To read back the level of SIP audio source:
 - 1. Select the SIP source from drop-down box. The command string is TARGET.
 - 2. Then the TERRA-SAP will reply <u>TARGET:Level xx</u>. xx indicates as the current level of audio source.

If the audio source is currently being muted, the TERRA-SAP will still reply the current level of audio source to 3rd party device.

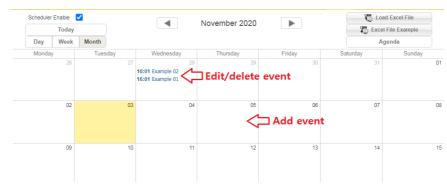
4.6.9 Scheduler

The Scheduler allows to schedule the events such as messages playing, commands triggering etc..

Setup Update Stat	us DSP At	bout Logo	ut				
Basic Setting Device	Function Li	braries Au	idio Matrix Media Setti	ng I/O Control Accou	nt Manager Third Party	Scheduler	
Scheduler Enable	✓			November 2020		to Lo	bad Excel File
Toda	У					Exc	el File Example
Day Wee	k Month						Agenda
Monday	Tues		Wednesday	Thursday	Friday	Saturday	Sunday
2			28 16:01 Example 02 16:01 Example 01	29	30	31	01
0:	2	03	04	05	06	07	
D:	9	10	11	12	13	14	15
11	5	17	18	19	20	21	22
2	3	24	25	26	27	28	29
3)	01	02	03	04	05	06

- Scheduler Enable: Tick this checkbox to enable the scheduler function.
- Today: Click to go back to the area which displays today's schedule.
- Day/Week/Month: Choose from the three types of display window template on scheduler. The default window is Month.
- The Load Excel File: Click to load an excel sheet with the listed events you want to create on Scheduler.
- The Excel File Example: Click to download the excel file of event examples. The listed events must be followed by the order on the excel sheet.
- Agenda: Switch to [Agenda] template for editing schedules.

4.6.9.1 Add/edit/delete



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- Add: Double click the date you wish to add a event, then the Event window will be opened (see Figure 1).
- Edit: Double click the event you wish its parameters to be modified (see Figure 1).
- Delete: Double click the event you wish to delete first, and click [Delete] button on the Event window to delete it (see Figure 1).

Schedule name	Scheduler 1	Repeat	
Enable		Start time	▲ 00 ♥ 00 ♥
Start at	2020-11-04		Add
Event			
Description			Ŧ



- o Enable: Tick this checkbox to enable this event.
- \circ Start at: Click the date to open a calendar window, and select a date to start this schedule
- Event: Display which event is affiliated to the schedule action, see Event for details.
- Description: Memo area.
- o Repeat: Tick this checkbox to enable the [Recurrence] function (repeat event).
- o Recurrence event: The event can be repeatable by daily, monthly, weekly and yearly.

Recurrence	O Daily	Repeat Every 1 week next days	No end date
	Weekly	Monday Tuesday Wednesday	O End by 2020-12-04
	O Monthly O Yearly	Thursday Friday Saturday Sunday	

 $_{\odot}$ Start Time: Add/remove the activation time. The format is HH:MM.

The criteria of the event name and description:

- Event name: Contain a max. number or letter of 40.
 - o Description: Contain a max. number or letter of 100.

4.6.9.2 Edit repeated event

Edit the date of the repeated event individually or edit in a whole set. See the steps below:

Recurrence	O Daily Repeat Every 1 week ne Weekly Monday Tuesday Triursday Friday Yearly Sunday Sunday	Wednesday	No end date End by 2020-12-04
Enable		Start time	08:00 ^ 08 V 00 V Add
Start at Event	2020-11-12 usb in -8dB	~	Remove
Description			.

- 1. First, enable [Repeat] option on the event window, and click [Save] to save this schedule setting.
- 2. Double click this event on scheduler window again, it will pop-up a message window as the picture below. Here you can choose either to edit a series event or edit in occurrence.

00:00 Scheduler 1		Edit series	Edit occurrence	Cancel	
16 00:00 Scheduler 1	17	18	19	20	
23 00:00 Scheduler 1	24	25	26	27	
30 00:00 Scheduler 1				04	

- · Edit. series: Edit the date of a series repeated event
- Edit occurrence: Edit the date with the selected event Individually.

4.7 Update

4.7.1 Firmware

♦ Update the TERRA-SAP firmware to the latest version. Follow the steps as below:

- 1. Click [Browse File...] button to choose the firmware path specified to the one corresponding to the TERRA-SAP device.
- 2. Click [Update] to proceed this action.
- 3. At last, click [Reboot] button to apply to the TERRA-SAP device.

Please note the v2.xx firmware of TERRA-SAP **CANNOT** be downgraded to v1.xx firmware. The v1.xx firmware can be updated to v2.xx firmware.

When updating the firmware from v1.xx to v2.xx, the EVAC LED indicator on the front panel of TERRA-SAP will flash, and please don't turn off the TERRA-SAP during updating in case unexpected error occurs. The update time is about 80 seconds.

Setu	p1	Update	Status	DSP	About		
Firm	ware	Config	guration	Reboo			
	F	irmware					
		F	Please sele	ect a file		Choose File No file chosen	Update
						WARNING	
						Upgrading firmware may take a few minutes. Please do not power off or unplug your machine.	
						Please do not power on or unplug your machine.	

Setup1 Update Status DSP About		
Firmware Configuration Reboot		
Firmware		
Please select a file	瀏覽 TERRA SAP v1.06.xdu	Update
	W A R N I N G Upgrading firmware may take a few minutes. ease do not power off or unplug your machine.	
Progress 100%		
	Update Successful. Do you want to reboot now?	
	Yes No	

4.7.2 Configuration

🄅 TERRACOM"	SIP-based audio and control over local network and internet	Version 2.06, 2021/03/03 13:30:14 TERRA-SAP, TERRA_SAP_2@192.168.101.126 OUT:LINE IN / REC:None
Setup Update Status DSP About Log	jout	English 🗸
Firmware Configuration Reboot		
Download Configuration		
Click the "Download" button to download	d the configuration backup file to your computer.	Download
Upload Configuration		
Please select a file to upload.	Choose File No file chosen	Upload
Language		
Please select language file to upload.	Choose File No file chosen	Upload
Device Factory Setting		
Restore device to factory setting.		Recovery
	WARING	
On	ly upload files backed up using this firmware and from the sam Do not upload any files that were not created by this i	

- Download Configuration: Click [Download] button to download the current configuration file to the selected path of PC/laptop.
- Upload Configuration: Click [Browse File...] button to choose a configuration file from the selected path of PC/laptop, then click [Upload] button to load this configuration file to TERRA-SAP device.
- Language: Support multi-language function on TERRA-SAP web browser.
- Firstly, to create a custom language file (.lang), please <u>Contact Us</u> for the Multilang Tool software, this software allows your local sales to edit and translate the texts displayed on TERRA-SAP web browser, and export it in a .lang file (eg: Machine_Languages_V1.00.lang). See the following 4 steps to generate the custom language file as below.

anguage/Font Family 🔻 Select All		
✓ 000:English	Browse 013:Spanish	Browse
001:French	Browse 014:Indonesian	Browse
002:German	Browse 015:Malay	Browse
003:Italian	Browse 016:Thai	Browse
004:Dutch	Browse 017:Indian	Browse
005:Russian	Browse 018:Hindi	Browse
006:T-Chinese	Browse 019:Burmese	Browse
007:S-Chinese	Browse 020:Greek	Browse
008:Korean	Browse 021:Swedish	Browse
009:Japanese	Browse 022:Norwegian	Browse
010:Arabic	Browse 023:Danish	Browse
011:Finnish	Browse 024:Portuguese	Browse

Multilang Tool software

• Step-1: Firstly, click [Import] button to import a .lang file (eg: Machine_Languages_V1.00. lang). This lang file shall be provided by Ateis Technical Team (see <u>Contact Us</u>).

		Language/Font Family	·			
		Select All				
		000:English	NotoSans-CondensedBold.ttf	Browse	013:Spanish	Browse
		001:French		Browse	014:Indonesian	Browse
		002:German		Browse	015:Malay	Browse
		003:Italian		Browse	016:Thai	Browse
MultiLang Tool v2.0		004:Dutch		Browse	017:Indian	Browse
Language/Font Family 👻		005:Russian		Browse	018:Hindi	Browse
Language/Font Family		006:T-Chinese		Browse	019:Burmese	Browse
Language/Font Family		007:S-Chinese	77755778677.ttf	Browse	020:Greek	Browse
Mapping Text		008:Korean		Browse	021:Swedish	Browse
Import	Browse	009:Japanese		Browse	022:Norwegian	Browse
Export		010:Arabic		Browse	023:Danish	Browse
	Browse	011:Finnish		Browse	024:Portuguese	Browse
Options	Browse	012:Vietnamese		Browse	025:Polish	Browse
Inc. o. e. e.	5.0.00		Distriction of the statement		ببسماله مغما مسمسه	

Import

Display the current translated language

• Step-2: Select a language by ticking its checkbox. And click [Browse] button to choose a font from PC/laptop.

✓ 000:English	NotoSans-CondensedBold.ttf	Browse	013:Spanish	Brows
✓ 001:French		Browse	014:Indonesian	Brows
002:German		Browse	015:Malay	Brows
003:Italian		Browse	016:Thai	Brows
004:Dutch		Browse	017:Indian	Brows
005:Russian		Browse	018:Hindi	Brows
006:T-Chines	se	Browse	019:Burmese	Brows
✓ 007:S-Chines	e ???55??B6??.ttf	Browse	020:Greek	Brows
008:Korean		Browse	021:Swedish	Brows
009:Japanese		Browse	022:Norwegian	Brows
010:Arabic		Browse	023:Danish	Brows
011:Finnish		Browse	024:Portuguese	Brows
012:Vietnam	ese	Browse	025:Polish	Brows

 Step-3: Then click [Mapping Text] button to edit and translate texts displayed on TERRA-SAP web browser.

55

		MultiLang Tool v2.0		- • •
		Mapping Text 👻		
		● 007:S-Chinese ▼ Line break character:\n		Copy OriginalText
		Original Text	Correspond Text	
		1 Delete	删除	â
		2 IP address format is invalid.	IP地址格式无效。	
		3 Stop	停止	
		4 Preset	预设	
🖳 MultiLang Tool v2.0		5 Memory	存储器	
		6 Repeat	重复	
Language/Font Family 💌		7 String	字符串	
and the second sec		8 String can not be more than 512 characters long.	字符串的长度不能超过512个字符。	
Language/Font Family		9 Export all the logs to a file	导出所有日志成一个文件	
Mapping Text		10 Name length over then 40 byte	名称长度超过40个字节	
		11 Account Manager	账户管家	
Import	Browse	12 All Channel	所有通道	
Export		13 Ringing Inactive	间铃薯停	
	Browse	14 Re-enter To Confirm	再交回车以确认	
Options		15 Scheduler Enable	任务计划开启	~
	Browse			
Mapping Text	t i	Edit t	he translate texts	

• Step-4: Click [Export] button to export the .lang file, this .lang file shall include the translated texts users have edited in Multilang Tool software.

Language/Font Family	•	
Language/Font Family		
Mapping Text		
Import	NotoSans-CondensedBold.ttf	Browse
Export		Browse
Options		Browse
	Export	browse

2. After exported the .lang file from Multilang Tool software, please go to TERRA-SAP web browser > Update window, and click [Choose File...] button on [Language Setting], then choose this lang file from the selected path of PC/laptop. After that, click [Upload] button to uploaded this lang file to TERRA-SAP and web browser.

Setup Update Status DSP About Logout	English
Firmware Configuration Reboot	
Download Configuration Click the "Download" button to download the configuration backup file to your computer.	Download
Upload Configuration Please select a file to upload. Choose File No file chosen	Upload
Language Please select language file to upload. Choose File No file chosen	Upload
Device Factory Setting Restore device to factory setting.	Recovery

3. A [Reboot] pop-up window shall be displayed, click [Yes] button to reboot the TERRA-SAP and web browser.

	Yes	No
Do You Want Reboot Device ?		
192.168.101.126		

The new language file (.lang) which the local sales or users have updated here will overwrite the default language file (.lang) stored in the TERRA-SAP. Users can find th lang file from Setup1 > Media Setting > Management.

i (ERF	RACO	M		SIP-ba	sed a	udio and	control over
Setup U	Ipdate	Status	s DSP	About L	ogout			
Basic Set	ting	Device	Functio	on Libraries	Audio Ma	itrix	Media	Setting
Media : Player	Manaç	gement	~					
			C	00:00	00:00	+	¢	
								×
File List		-SAP Men	ory Stor	ade:				
÷-	Ter	raCom_La Machine_	inguage_	-				

4. Then choose the language from the drop-down list located at the top-right corner on Menu window.



Device Factory Setting: Click [Recovery] button to restore the TERRA-SAP to factory setting.

4.7.3 Reboot

Click [Reboot] to reboot the TERRA-SAP device.

4.8 Status

4.8.1 TERRA System

Display the general information of the TERRA-SAP device.

RA System Log File			
REAM OUT			
Name	Mode	IP Address	Port
Message	N/A	N/A	N/A
Line IN	N/A	N/A	N/A
USB PC	N/A	N/A	N/A
evice Information		SIP	
DHCP	DISABLE	Username	TERRA_SAP
MAC Address	00-22-13-ff-b4-7b	SIP Port	5060
IP Address	192.168.101.9	RTP Port	6912
Subnet Mask	255.255.252.0	Audio Codec	G.722
Gateway	192.168.100.249		
DNS	0.0.0.0		
H/W Board	2		

4.8.2 Log File

A System	Log File					
Re	ad	100	Log	Export	the listed logs to a file	Export all the logs to a file
	_					
NO.					Description	
1	2019/7/16	08:59:46 NTF	P:192.168.100.163 Re	ecv:1 Timeout:168		
2	2019/7/16	07:59:50 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
3	2019/7/16	06:59:48 NTF	P:192.168.100.163 Re	ecv:0 Timeout:348		
4	2019/7/16	05:59:50 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
5	2019/7/16	04:59:48 NTF	P:192.168.100.163 Re	ecv:0 Timeout:342		
6	2019/7/16	03:59:47 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
7	2019/7/16	02:59:46 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
8	2019/7/16	01:59:43 NTF	P:192.168.100.163 Re	ecv:0 Timeout:348		
9	2019/7/16	00:59:43 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
10	2019/7/15	23:59:43 NTF	P:192.168.100.163 Re	ecv:0 Timeout:342		
11	2019/7/15	22:59:42 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
12	2019/7/15	21:59:40 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
13	2019/7/15	20:59:39 NTF	P:192.168.100.163 Re	ecv:0 Timeout:343		
14	2019/7/15	19:59:39 NTF	P:192.168.100.163 Re	ecv:0 Timeout:212		
15	2019/7/15	18:59:37 NTF	P:192.168.100.163 Re	ecv:1 Timeout:0		
16	2019/7/15	17:59:35 NTF	P:192.168.100.163 Re	ecv:1 Timeout:0		
17	2019/7/15	16:59:35 NTF	P:192.168.100.163 Re	ecv:1 Timeout:0		
18	2019/7/15	15:59:33 NTF	P:192.168.100.163 Re	ecv:1 Timeout:0		
19	2019/7/15	14:59:32 NTF	P:192.168.100.163 Re	ecv:1 Timeout:130		
20	2019/7/15	13:59:30 NTF	P:192.168.100.163 Re	ecv:1 Timeout:0		
21	2019/7/15	13:35:08 IP A	ttack:192.168.100.14	1		
22	2019/7/15	12:59:29 SIP	Mode:TERRA Net			
23	2019/7/15	12:59:24 Mes	sage Player: None			
24			isk Mount Success			
25		12:59:24 Pov				
26		12:58:52 Pov				
27			P:192.168.100.163 Re	ecv:1 Timeout:0		
28			Mode:TERRA Net			
29			sage Plaver: None			
30			isk Mount Success			

- Read: Click this button to read the logs of device. Click this button again to read the entries of log based on the setting on the right field. For example, if the setting of entries of log is 100, click [Read] button to read from 1 to 100 logs; click [Read] button again, then the list will show 1~200 logs on the list.
- Already read: List the total entries of log displayed on the window.
- Reset: Click this button to reset the log list. The [Already Read] log will also be reset.
- Clear: Click this button to clear the entries of log displayed on the window. The [Already Read] log will remain from the last [Read] count.
- Export the listed logs to a file: Export the device logs displayed on current log list to a text file.
- Export all the logs to a file: Export all the device logs to a text file.

4.8.3 Control Calibrate

✤Logic: Display the calibration result (value between 0~255) of contact input channel on TERRA-SAP, it is commonly used for a two-state push button or an analog knob on RAC 5/RAC 8.

etup1 Update <mark>Status</mark> DSP About L	ogout		
RRA System Control Calibrate Log File			
Logic			
Name	Now	Maximum	Minimum
Channel 0.	253	255 Record	0 Record
	253	255 Record	0 Record
Channel 1.	200	200 Record	o Record

*RAC: The RAC 5/RAC 8 are the remotes which features the wall-mount volume display and source

selection for Terracom system. When the channel selection on RAC 5/8 does not work correctly, the [RAC] calibration function allows users to manually set the range of each level value on RAC 5/ RAC 8.

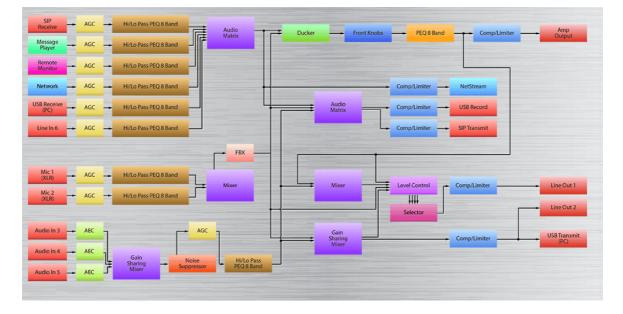
	lame	Level1	Level2	Level3	Level4		Level5
Cha	annel 0.	0 ~ 50	50 ~ 100	100 ~ 133	133 ~ 155	1	70 ~ 193
Cha	annel 1.	0 ~ 50	50 ~ 100	100 ~ 133	133 ~ 155		70 ~ 193
Cha	annel 2.	0 ~ 50	50 ~ 100	100 - 133	133 ~ 155		70 ~ 193
RAC-8							
Name	Level1	Level2	Level3 Level4	Level5	Level6	Level7	Level8
Channel 0.	0 ~ 40	40 ~ 75	75 ~ 102 102 ~	122 122 ~ 136	136 ~ 148 1	48 ~ 157	170 ~ 193
	0 40	40 ~ 75	75 ~ 102 102 ~	122 122 ~ 136	136 ~ 148 1	48 ~ 157	170 ~ 193
Channel 1.	0 ~ 40						

If the level value are too close or overlap with other level value, please set the value manually. To set the correct values, please see the example picture as below.

- Channel 1: The Level1 (17~22) on Channel 1 does not overlap the Level2 (51~59), and so does other values on Channel 1.
- Channel 2: The Level1 (16~20) on Channel 2 is overlapped the Level2 (20~39), and so does other values on Channel 2, therefore, please adjust the level values again.

Name	Level1	Level2	Level3	Level4	Level5
Channel 1	17 ~ 22	51 ~ 59	60 ~ 87	99 ~ 107	118 ~ 122
Channel 2	16 ~ 20	20 ~ 39	38 ~ 69	69 ~ 109	108 ~ 129

4.9 DSP function



4.9.1 Input

The DSP settings of input sources including SIP Receive, Message Player, Remote Audio (Monitor), Network, USB Receive (PC) and Line In. The control window of the source settings are identical, see as below.

59

INPUT					Facto	ory Setting
Signal In	Overload	Mute	Bypass			
•	•					
Leve	el	_			11	¢ dB
Overload T	hreshold	_		_	11	¢ dB
Volun	ne				11	dB

- Signal in LED: Light up when the level of mic input is above -30 dB.
- Overload LED: Light up when the level of input source is above the Overload Threshold (dB).
- Mute: Mute/unmute the source input, the LED will light in red while the input channel is muted.
- Bypass: Bypass the input signal to the output of Input component, the [Level] setting will be disabled.
- Level (dB): The input level of this source channel/mic channel.
- Overload threshold (dB): This threshold value is to determine the input signal is overloaded or not.
- Volume (dB): Display the real-time volume of input by meter.
- Factory setting: Click to restore all settings to factory default value.

4.9.1.1 SIP Receive

The input of SIP intercom call.

The setting window of SIP Receive is identical to Input component.

4.9.1.2 Message Player

The message input source which users have added from Media Setting > Setting.

Mute Bypass		
	 11	¢ dB
	 11	¢ dB
	11	dB
	-26	dB

- L-Volume (dB): Display the real-time volume of left input channel by meter.
- R-Volume (dB): Display the real-time volume of right input channel by meter.

In the setting window of Message Player is identical to Input component.

4.9.1.3 Remote Monitor

The monitoring audio input from other TERRACOM devices.

The setting window of Remote Monitor is identical to <u>Input</u> component.

4.9.1.4 Network

The audio input from network streaming.

NPUT					Facto	ory Settin
Signal In	Overload	Mute	Bypass			
Leve	el	_		 C	11	¢ dB
Overload Th	hreshold	_		 E	11	¢ dB
L - Volu	ume				11	dB
R - Volu	ume	- 111			-26	dB

- L-Volume (dB): Display the real-time volume of left input channel by meter.
- R-Volume (dB): Display the real-time volume of right input channel by meter.

The setting window of Network is identical to Input component.

4.9.1.5 USB Receive (PC)

The input of the audio from PC/laptop such as the music player, skype call etc..

NPUT					Fac	tory Settin
Signal In	Overload	Mute	Bypass			
•	•					
Leve	el	-			11	¢ dB
Overload TI	hreshold	-		_	11	¢ dB
L - Volu	ume				11	dB
R - Vol	ume	- 111			-26	dB

- L-Volume (dB): Display the real-time volume of left input channel by meter.
- R-Volume (dB): Display the real-time volume of right input channel by meter.

The setting window of USB Receive (PC) is identical to Input component.

4.9.1.6 Line In 6

The LINE IN-PC audio input of TERRA-SAP device.

The setting window of Line In 6 is identical to Input component.

4.9.1.7 Mic 1/Mic 2 (XLR)

The Mic 1/Mic 2 audio input of TERRA-SAP device.

Signal In	Overload	Mute	Bypass	Phantom	Sensiti	vity	
0	•				12	•	
Leve	əl	_			•	11	¢.
Overload T	hreshold	-		-	- [11	¢.
Volun	ne					11	c

- Signal in LED: Light up when the level of mic input is above -30 dB.
- Overload LED: Light up when the level of input source is above the Overload Threshold (dB).
- Mute: Mute/unmute the source input, the LED will light in red while the input channel is muted.
- Bypass: Bypass the input signal to the output of Input component, the [Level] setting will be disabled.
- Phantom: Enable the [Phantom] button if the mic input requires 48VDC phantom power supply.

If the microphone does not applicable for phantom power supply, please disable this button, otherwise, the mic might burn potentially.

- Sensitivity: The preamplifier gain of input to pick up the level.
- Level (dB): The input level of this source channel/mic channel.
- Overload threshold (dB): This threshold value is to determine the input signal is overloaded or not.
- Volume (dB): Display the real-time volume of input by meter.
- Factory setting: Click to restore all settings to factory default value.

4.9.1.8 Audio In 3/4/5 (Phoenix)

The Audio In 3/Audio 4/Audio 4 (Phoenix) of TERRA-SAP device.

The setting window of Audio In 3/4/5 (Phoenix) is identical to Mic 1/Mic 2 (XLR) component.

4.9.2 AGC

With Automatic Gain Control (AGC), the input signal can be increased or decreased to a target level automatically. The AGC will effectively reduce the volume if the signal is too strong or raises the volume when the signal is weak. You can adjust the gain automatically by setting a target level.

GC		Fact	ory Settin
Active Bypass			
Threshold		-10	¢ dB
Sampling Time	-	100	¢ ms
Attack Time		300	🗘 ms
Release Time	-	500	¢ ms
Hold Time		500	¢ ms
Target Level		5	¢ dB
Maximum Gain		6	¢ dB
AGC Gain		7	dB

- Active LED: Light up when the AGC is activated.
- Bypass: Bypass the input signal to the output of AGC component.
- Threshold (dB): When the audio input level is above this Threshold value, the AGC function will be activated.

 $rac{1}{2}$ Don't set the threshold too low, otherwise it will hear unexpected sounds such as ambient noise.

• Sampling time (ms): The time interval which measures the input level.

If the sampling time is too long, it will make the AGC too insensitive on the short peaks.

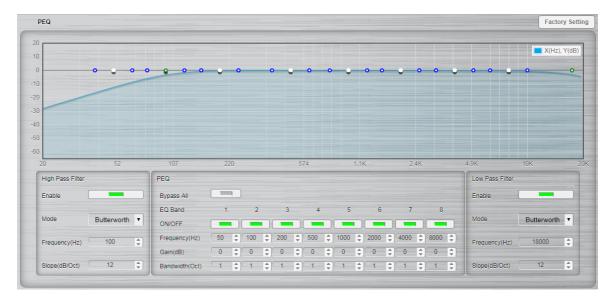
- Attack time (ms): The attack time is the fade-in time when the AGC starts to reach the target level.
- Release time (dB): The release time is the fade-out time it takes to release the gain (dB) when AGC is no longer working.
- Hold time: As opposed to the release time. When the mic channel signal continues below the [Threshold] after this Hold time, it will start to fade-out the gain. A correct setting of hold time can avoid inopportune deactivation such as the pause in speech.
- Target level (dB): The target level that the AGC attends to reach.
- Maximum gain (dB): The maximum gain for AGC to increase.

In order to keep natural audio sound, please avoid setting the max. gain too high.

- AGC gain (dB): Display the gain that the AGC increases/decreases the signal of input.
- Factory setting: Click to restore all settings to factory setting.

4.9.3 Hi/Lo Pass PEQ 8 Band

This components combines Hi/Low pass filter and PEQ together. It offers a dynamical graphical control window to easily know the overall results.



✤ High/low pass filter

This DSP component passes the high/low frequency and attenuate the frequency lower/higher than its cutoff frequency.

- Enable: Enable the filtering.
- Mode: The type of filtering (Linkwitz-Rilet, Butterworth, Bessel).
- Frequency (Hz): The frequency of cut.
- Stope (dB/Oct): The slope of attenuation.
- ♦ 6 band PEQ

PEQ (Parametric Equalizer) is a multi-band variable equalizers which controls the three primary parameters: gain, center frequency and bandwidth, making more precise adjustments to sound than other equalizers. The gain of each band can be controlled, the center frequency can be shifted, and bandwidth ("Q") can be widened or narrowed.

- Bypass all: Disable the PEQ function.
- ON/OFF: Activate/disable the selected EQ band.
- Frequency (Hz): Set the central frequency of a band.
- Gain (dB): Set the PEQ gain (attenuate or increase the selected frequency band).
- Bandwidth (Oct): Set the width around the frequency (Q factor) of selected frequency band.
- Graphical control window

The parameters which are mentioned above can also be adjusted by a graphical control window. Once the parameters change, the graph will move together, and vice versa. It will show the result for the parameters.

- Axis-X: Frequency of output signal (Hz).
- Axis-Y: Level of EQ gain (dB).
- Blue control point: Adjust bandwidth.
- White control point: Adjust EQ gain (using vertical direction) and frequency (using horizontal direction).
- Green control point: Adjust the frequency of High/Low Pass filter.

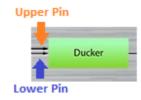
Factory setting: Click to restore all settings to factory setting.

4.9.4 Ducker

The Ducker lowers the level of one audio signal (SIP/Message Player/Remote Audio/Network/USB Receive/Line In) based upon the level of a second audio signal (MIC1/MIC). A typical application is paging over background music: A ducker senses the presence of audio from a XLR microphone and triggers a reduction in the output level of the music signal for the duration of the paging signal. It restores the original level once the paging is over.

DUCKER				Facto	ory Setting
Active Bypass					
Threshold		-		-45	¢ dB
Attack Time	-			2	ms
Response Time				10	\$ ms
Hold Time	_		_	2000	🗘 ms
Release Time		-		1500	🗘 ms
Attenuation Depth	_			-26.6	‡] dB
Speech Gain		-		-21.9	¢ dB

 Active: Light up when the Ducker is activated while the signal has been detected on MIC1/MIC2 channel (lower pin).



- Bypass: Disable the Ducker function.
- Threshold (dB): The threshold of detection on MIC1/MIC2 channel (lower pin). The SIP/Message Player/Remote Audio/Network/USB Receive/Line In channel (upper pin) is attenuated when the MIC1/MIC2 channel (lower pin) goes above this threshold.

It is a void the unexpected attenuation, don't set a threshold level too low.

- Attack Time (ms): The fade-in time of MIC1/MIC2 channel (lower pin) when the Ducker is activated.
- Response Time (ms): The time between the level detection of MIC1/MIC2 channel (lower pin) and the beginning of the Ducker's activation on SIP/Message Player/Remote Audio/Network/USB Receive/Line In channel (upper pin).

Don't set the "response time" too long, otherwise you won't hear the beginning of MIC1/MIC2 channel (lower pin).

• Hold Time (ms): The time interval during the signal of MIC1/MIC2 channel is below the Threshold.

Set enough "Hold time" to avoid the unexpected background level during the speeches breaks.

• Release Time (ms): The fade-out time of MIC1/MIC2 channel (lower pin) when the Ducker is not

activated.

- Attenuation Depth (dB): The level of SIP/Message Player/Remote Audio/Network/USB Receive/ Line In channel (upper pin) when the Ducker is activated.
- Speech Gain (dB): The level of MIC1/MIC2 channel (lower pin) when the Ducker is activated.
- Factory setting: Click to restore all settings to factory setting.

4.9.5 Front Knobs

Display the current master level/bass sound level/treble sound level of mic 1/mic 2 (XLR), and provide the low/high shelving filter which implements a first order response and cut to the frequency above/ lower than a certain point.

		evel (dB)		quency (Hz) Level (dB				vel (dB)	
20	52 Master	107	220 ass(Low Shelving Filter)—	574	1.1K	2.4K ligh Shelving Filter)	4.9K	10K	21
0									
50									
0									
0									
20									
0							0		
0									
0								X (H	z), Y(dB)

- Master
 - o Bypass: Disable the master level setting function of mic 1/mic 2 (XLR) on TERRA-SAP.
 - Level (dB): Display the current master level of mic 1/mic 2 (XLR) on TERRA-SAP, if the master volume knob has been adjusted, this level value will be changed dynamically.
- Bass (Low Shelving Filter)
 - Bypass: Disable the bass sound setting function of mic 1/mic 2 (XLR) on TERRA-SAP.
 - o Cut-Off Frequency (Hz): The frequency of cut.
 - Level (dB): Display the current bass sound level of mic 1/mic 2 (XLR) on TERRA-SAP, if the bass sound knob has been adjusted, this level value will be changed dynamically.
- Treble (High Shelving Filter)
 - Bypass: Disable the treble sound setting function of mic 1/mic 2 (XLR) on TERRA-SAP.
 - o Cut-Off Frequency (Hz): The frequency of cut.
 - Level (dB): Display the current treble sound level of mic 1/mic 2 (XLR) on TERRA-SAP, if the treble sound knob has been adjusted, this level value will be changed dynamically.
- Graphical control window

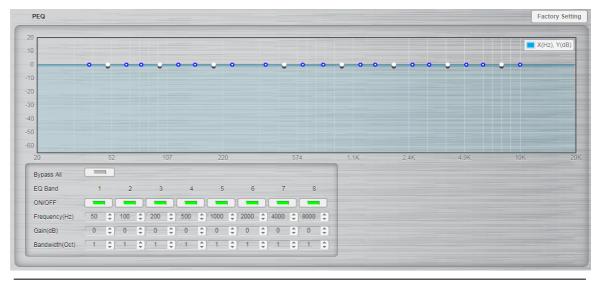
The parameters which are mentioned above can also be adjusted by a graphical control window. Once the parameters change, the graph will move together, and vice versa. It will show the result for the parameters.

- Axis-X: Frequency of output signal (Hz).
- Axis-Y: Level of response gain (dB).
- Green control point (Bass/Treble): Adjust the cut-off frequency of Bass Low Shelving Filter/ Treble High Shelving Filter.

Factory setting: Click to restore all settings to factory setting.

4.9.6 PEQ 8 Band

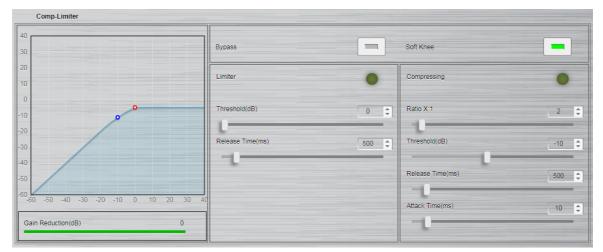
PEQ (Parametric Equalizer) is a multi-band variable equalizers which controls the three primary parameters: gain, center frequency and bandwidth, making more precise adjustments to sound than other equalizers. It is commonly used in audio recording and live sound reinforcement. The gain of each band can be controlled, the center frequency can be shifted, and bandwidth ("Q") can be widened or narrowed.



The setting window of Mic In 1/2/3 (Phoenix) is identical to <u>Hi/Lo Pass PEQ 8 Band</u> component.

4.9.7 Comp/Limiter

Comp-limiter is a combination of the Compressor and the Limiter Component.



- Bypass: Disable the Comp-limiter function.
- Soft Knee: Enable/disable the "Soft Knee" mode. This element controls whether the bend in the
 response curve is a sharp angle or has a rounded edge. A soft knee slowly increases the
 compression ratio as the level increases and eventually reaches the compression ratio set by
 user. A soft knee reduces the audible change from uncompressed to compressed, especially for

Output Level (dB) Threshold Input Level (dB)

higher ratios where the changeover is more noticeable.

Enable to smoothly increase the audio level to reduce distortion.

- Limiter:
 - o Limiter LED: Light up when the limiting is activated.
 - o Threshold (dB): Activate the Limiter function when input level above this value.
 - $_{\odot}$ Release time (ms): The time it takes to release gain reduction.
- Compressing:
 - Compressing LED: Light up when the compression is activated.
 - Ratio X:1: Set the compression ratio, which the compressor will compress the input level by this compression ratio setting to be the output level.
 - o Threshold (dB): Activate the Compression function when input level above this value.
 - Release time (ms): Set the time it takes to release the compressor gain. The Release Time is the period when the compressor is increasing gain to the level determined by the ratio or to 0 dB, once the level has fallen below the threshold.
 - Attack time (ms): Set the time it takes to respond to the input signal. The Attack Time is the period when the compressor is decreasing gain to reach the level that is determined by the ratio.

The attack time can decide the sensitivity of compressor. The longer of Attack Time is, the slower of the compression it will take, and vice versa.

- Gain reduction (dB): Indicate the current amount of gain reduction.
- Graphical Window
 - o Axis-X/Y: Input/output signal level (dB).
 - o Blue control point: Threshold (Compressor).
 - Red control point: Threshold (Limiter).
- Factory setting: Click to restore all settings to factory setting.

4.9.8 FBX (Feedback)

The Feedback component will evaluate the feedback characteristics of the audio system and adjust the necessary filters to suppress the feedback.

Bypass All	Ho	old All	Manual /	All		Reset All	Stop De	tect	
]					
Lock Time (Sec.)		Detect Le	vel (dB)			Depth (dB)		
60		\$	-25			•	-35		\$
Number	1			Loc	:k	•			
Bypass			Hold			Manual]	
Frequency (Hz)	20	\$	Bandwidth (Oct.)	0.01	\$	Gain (dB)	0	\$	
Frequency Level (Hz)	137.7	В	andwidth Level (Oct.)	0.45		Gain Level (dB)	-12.45		
Number	2			Loc	:k	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	\$	Bandwidth (Oct.)	0.01	¢	Gain (dB)	0	\$	
Frequency Level (Hz)	20	В	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	3			Loc	ĸ	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	0	Bandwidth (Oct.)	0.01	¢	Gain (dB)	0	\$	
Frequency Level (Hz)	20	в	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	4			Loc	k	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	t	Bandwidth (Oct.)	0.01	¢	Gain (dB)	0	5	
Frequency Level (Hz)	20	В	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	5			Loc	k	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	¢	Bandwidth (Oct.)	0.01	¢	Gain (dB)	0	\$	
Frequency Level (Hz)	20	В	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	6			Loc	:k	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	\$	Bandwidth (Oct.)	0.01	\$	Gain (dB)	0	\$	
Frequency Level (Hz)	20	В	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	7			Loc	k	•			
Bypass			Hold			Manual]	
Frequency (Hz)	20	\$	Bandwidth (Oct.)	0.01	\$	Gain (dB)	0	\$	
Frequency Level (Hz)	20	В	andwidth Level (Oct.)	1		Gain Level (dB)	0		
Number	8			Loc	k	•			
Bypass			Hold			Manual			
Frequency (Hz)	20	*	Bandwidth (Oct.)	0.01	¢	Gain (dB)	0	\$	

- Bypass all: Disable all filters.
- Hold all: Reserve the value of all filters. Enable this button if you don't want to release all the detected frequency after the [Lock Time].
- Manual all: Enable all the parameters of filters such as "Frequency", "Bandwidth" and "Gain" to be adjusted manually. This will disable the automatic detection.
- Reset all: Release all the detected frequency.
- Stop detect: Stop the process of feedback detection.
- Lock time (sec.): Set the time to keep the value of filter active when feedback is detected.

If the feedback phenomenon appears randomly for a short time, it's better to set appropriate [Lock Time] and not to use [Hold] function.

- Detect level (dB): Set the level to begin detecting the feedback.
- Depth (dB): Set the maximum level to suppress the frequency.
- Lock LED: Light up when a detected feedback frequency is being erased and locked it down for a notch filter.
- Bypass: Disable the selected filter.
- Hold: Reserve the value of selected filter. Enable this button if you don't want to release the detected frequency after the [Lock Time].

The default setting will keep the [Hold] option enabled, but if a portable/wireless microphones are in use, it is recommended to disable the [Hold] option in order to catch the filters dynamically.

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- Manual: Enable the "Frequency", "Bandwidth" and "Gain" to be adjusted manually. This will disable the automatic detection at the selected band.
- Frequency (Hz)/Bandwidth (Oct)/Gain (dB): Manually set the Frequency/Bandwidth/attenuation of notch filter for attenuating the feedback.
- Frequency level (Hz): Display the the locked frequency.
- Bandwidth level (Oct.): Display the bandwidth of the locked notch filter.
- Gain level (dB): Display the attenuation of the locked frequency.
- Factory setting: Click to restore all settings to factory default value.

4.9.9 Output

The channel of audio output.

OUTPUT				Fact	ory Se	ttir
Signal Out	Overload	Mute				
0	•					
Leve	el			0	\$	dE
Overload T	hreshold	-	 - 0	10	\$	dE
Volun	ne			6		dE

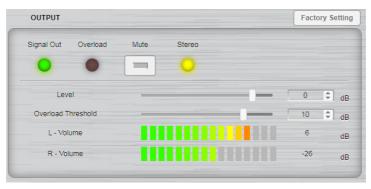
- Signal out LED: Light up when the signal level of output > -30 dB.
- Overload LED: Light up when the channel level is above the Overload Threshold (dB).
- Mute: Mute/unmute the output signal, the LED will light in red while the output channel is muted.
- Level (dB): The level of output channel.

The 20W x 2CH amp output of TERRA-SAP is fed by 8 ohm load loudspeaker. However, if users enable the [4 ohm speaker] setting on <u>Setup1 > Basic Setting > Amp</u>, the [Level] setting on DSP > Amp Output window page will be mandatory to set from -90dB ~ -6dB. If the TERRA-SAP is fed by 8 ohm load speaker, the original parameter of [Level] setting on DSP > Amp Output window page is -90dB ~ 20dB.

- Overload threshold (dB): This threshold value is to determine the output signal is overloaded or not.
- Volume (dB): Display the real-time volume of output by meter.
- Factory setting: Click to restore all settings to factory default value.

4.9.9.1 Amp Out

The internal amplifier output of TERRA-SAP device.



- L-Volume (dB): Display the real-time volume of left input channel by meter.
- R-Volume (dB): Display the real-time volume of right input channel by meter.

It is identical to <u>Output</u> component.

4.9.9.2 Net Stream

The audio output from network streaming.

The setting window of Net Stream is identical to <u>Output</u> component.

4.9.9.3 USB Record

The audio output of USB recording on TERRA-SAP device.

In the setting window of USB Record is identical to <u>Output</u> component.

4.9.9.4 SIP Transmit

The output of SIP intercom call.

It is identical to <u>Output</u> component.

4.9.9.5 Line Out 1/2

The LINE Out 1 (PC)/Line Out 2 (Phoenix) audio output of TERRA-SAP device.

The setting window of Line Out 1/2 is identical to <u>Output</u> component.

4.9.9.6 USB Transmit (PC)

The audio output from PC/laptop such as the music player, skype call etc..

The setting window of USB Transmit (PC) is identical to <u>Output</u> component.

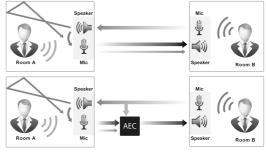
4.9.10 AEC

AEC (Acoustic Echo Cancellation) is to eliminate the echoes when under a full-duplex teleconferencing. When the near-end microphone picks up the audio from the far-end via the near-end loudspeaker, it will remove the echoes.

For example, see the figure on the right.

If Room A and Room B are under teleconferencing, speech from Room B transmits via Room A's open microphone with reverberation, and is sent right back to Room B. This process will continue again and again.

With the patented RAPIDOTM AEC algorithm, this will filter out all the echo from Room A, preventing Room B's microphone from transmitting it back to Room B.



AEC					Fa	ctory Setting
Talk E	cho	Reset				
•	0					
ERLE			11	dB		
Near-end Volum	ie		11	dB		
Far-end Volume	е		11	dB		
AEC Coefficien	t		Perform	•		
Non-linear Proces	sing		Medium	•		
Microphone Thres	hold	-			 5	¢ dB
Reference Level Thr	eshold	-		_	 5.6	¢ dB

- Talk LED: This LED lights up when the signal is detected.
- Echo LED: This LED lights up when the echo is detected.
- Reset: When the echo cancellation does not function well as intended, click this button to reset.
- ERLE (dB): ERLE (Echo Return Loss Enhancement) is the attenuation value (dB) of acoustical echo achieved by AEC.

The bigger ERLE value indicates more echo is being removed, which means the AEC function is working harder. For example, an ERLE "30.0 dB" is better than ERLE "20 dB".

- Near-end volume (dB): The audio level of the near-end audio signal.
- Far-end volume (dB): The audio level of the far-end audio signal.
- AEC coefficient: Choose [Perform], [Bypass] or [Hold].
 - Perform: Enable the AEC function.
 - o Bypass: Disable the AEC function.
 - $_{\odot}$ Hold: Hold the AEC coefficient which stops at the end.
- Non-linear processing (NLP)
 - \circ Off: Disable the non-linear processing function. Please note that some echo may occur.
 - o Soft: For minor acoustical echo environments.
 - o Medium: For most applications (recommended).
 - o Aggressive: For very difficult acoustical echo environments.

If the Aggressive option is enabled, the NLP will remove the far-side echo powerfully, but it may attenuate some of the near-end signal as well.

Microphone threshold (dB): The threshold value of microphone.

If the value is too high, it will render the echo cancellation nonfunctional. In contrast, if the value is too low, it may not be good to keep the AEC coefficients at speaking volume.

· Factory setting: Click to restore all settings to factory setting.

4.9.11 Gain Sharing Mixer

The Gain Sharing Mixer is able to mix multiple input signals into one signal output automatically. This component attenuates all inputs by dividing the sum of all volume level to the volume level of each input.

The activation of the channel(s) is depended on threshold value and the priority setting. It adjusts the signal output level on depending on the numbers of activated input channels. This function can be worked in conference applications or houses of workshop where the mixing has to be executed automatically.

Gain Sh	aring Mixer			Fac	ctory Settin
Open Mi No Lin		Threshold(dB) -50	Hold Time(r 500	ns) Gain En	hance(%)
Output 1	Mute	Level(dB)			
Input	Mute	Level(dB)	Priority	Volume(dB)	Gate On
1		0 \$	1 🔻	-80.8	•
2		0 🗘	1 •	-90	•

- Open mic. limits: Set the number of the open (activated) microphone for this component.
- Threshold (dB): Set the threshold level to activate the channel when the level of mic input is above this value (default -70dB).
- Hold time (ms): The time to keep the gate open after no audio input is continually detected.
- Gain enhance %: Set the gain sharing percentage of the mixed output. If set a higher gain sharing percentage, the mic in bigger volume will become much bigger, and the mic in small volume will become much smaller.
- Output mute: Mute or umute the mixed output signal.
- Output level (dB): The volume level of the channel's output signal.
- Input mute: Mute or unmute the selected input channel.
- Input level (dB): Increase or decrease the selected input level of channel.
- Priority: Set the priority of mic input if there's too many inputs are activated, then the lower priority of mic will not be mixed if the number of total mic is more than the number you set on [Open Mic. Limits]. 1 is the highest.
- Volume (dB): Display the current volume of mic input.
- Gate on: Light on when the mic is activated.
- Factory setting: Click to restore all settings to factory setting.

4.9.12 Noise Suppressor

Allow to reduce the background noise, and improve the audio input quality of Mic 1/Mic 2/Mic 3.

Noise Reduction	Noise Reduction		Factory Setting	
Bypass				
Threshold		-45	¢ dB	
Volume		0	dB	

- Bypass: Bypass the input signal to the output of Noise Suppressor component.
- Threshold (dB): The background noise is analysed and calculated for reduction data based on this threshold setting.
- Volume (dB): Display the volume of microphone input.
- Factory setting: Click to restore all settings to factory setting.

4.9.13 Level Control

Adjust the volume level of the input signal.

Level Control		Factor	ry Setting
CH Bypass Mute		Input Leve	el(dB)
1 🔳 🔳	 _	0	\$
2	 _	0	\$
3	 _	0	\$
4	 _	0	\$
Output Level(dB)	 _	0	\$

- CH1: SIP input + Message input + Remote Audio input + Network input + USB Receive input + Line In input + Mic1/2 (XLR)
- CH2: SIP input + Message input + Remote Audio input + Network input + USB Receive input + Line In input + Mic1/2 (XLR) + Mic 1/2/3 (Phoenix)
- CH3: Mic1/2 (XLR)
- CH4: Mic1/2 (XLR) + Mic 1/2/3 (Phoenix)
- Bypass: Bypass the input signal to the output of Level Control component.
- Mute: Mute the input of Level Controller component.
- Input level: Adjust the level of an input channel.
- Output level: Adjust the output level of CH1~CH8.
- Factory setting: Click to restore all settings to factory setting.

4.9.14 Selector

Select which input channel is routed to the signal output.

SELECTOR	Factory Setting		
Source In	AMP Out 🔻		

- Source in
 - AMP Out: SIP input + Message input + Remote Audio input + Network input + USB Receive input + Line In input
 - All Inputs: SIP input + Message input + Remote Audio input + Network input + USB Receive input + Line In input + Mic1/2 (XLR) + Mic 1/2/3 (Phoenix)
 - Teacher's Mics: Mic1/2 (XLR)
 - All Mics: Mic1/2 (XLR) + Mic 1/2/3 (Phoenix)
- Factory setting: Click to restore all settings to factory setting.

4.10 About

4.10.1 Copyright

Setup1 Update Status DSP About

Copyright

The School Sound System - a full audio over IP-based classroom & courtroom solution including teaching, paging, messaging, class change & scheduling, hands-free intercom & emergency communication, providing a safe and secure environment for students, staff, judges, lawyers and visitors. The system incorporates Terra-SAP amp processor, a range of IP loudspeakers and BCM201W/BCM201B boundary microphone which can be used for both intercom and speech monitoring applications.

The Terra-SAP networkable processor is equipped with 20W x 2CH amplifer and also acts as an audio hub for local connected devices such as mic/line inputs, USB interface for message/music storage and playback, and the connection with audio-visual devices such a projectors as well as logic input/outputs. Local volume control and audio input selection can be managed using RAC5 or RAC8 source selector & volume control remote. In case of an emergency, press the supervised EVAC button on Terra-SAP in order to alert the central monitoring station to respond to an incident.



The TerralManager Graphical User Interface (GUI) software brings all together by facilitating full control, paging, intercom, messaging, recording, streaming, audio routing, device I/O monitoring, and bell scheduling with the greatest ease. Communication between administrative staff and classroom or judges can be quickly established whether it is a district wide school & court intercom, paging, messaging/BGM distribution on multiple stores, and so on.

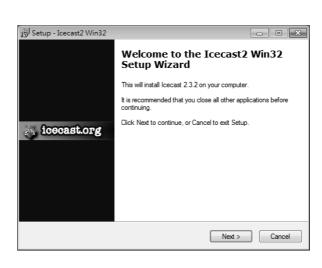
5 Tools

5.1 Icecast

This chapter shows how to use Icecast server, Edcast and Winamp to stream audio to Terracom.

- Program Installation
- Icecast Server:

You can find the newest version on <u>lcecast website</u>. Here we use lcecast 2 for Windows (32bit) and follow the steps of setup wizard to install.



• Winamp Media Player:

You can find the newest version on <u>Winamp website</u>, follow the steps to install.

🗿 Winamp Installer	
WINAMP	Welcome to the Winamp installer
	Winamp allows you to listen, watch and manage music, videos, podcasts and internet radio.
	Features include:
	 Wirelessly sync media to the Winamp for Android app
	 Control playback in the browser with Winamp Toolbar
	 Clean up media metadata with the Auto-Tag feature
	Build playlists using the Automatic Playlist generator
	Listen and subscribe to over 30,000 podcasts
	Next > Cancel
覺 EdCast DSP For Winar	np Setup: License Agreement 📃 📼 💌
EdCast DSP is release	sed under the GNU Public License

• EdCast:

EdCast supports 48k sample rate and it's exactly what we need for Terracom. Here we use EdCast DSP for Winamp.

🛱 EdCast DSP For Winamp Setup: License Agreement 🛛 🔲 📄	×
EdCast DSP is released under the GNU Public License	
OddcastV3 DSP Plugin uses the following software :	
Ogg Vorbis http://www.vorbis.com - BSD License	
LAME 	
BASS	e
Cancel Nullsoft Install System v2,40 I Agree	

✤ Setting the Icecast Server:

After installing the lcecast, double click its icon to open the server.

If you want to stream MP3, tick the checkbox of LAME encoder dll (for MP3 recording).

覺 EdCast DSP For Winamp Set	tup: Installatio	on Options	- • ×
This will install EdCast DSP	Winamp		
Select components to install:	 EdCast DS BASS Audi OggFLAC I Vorbis 1.1 LAME enco AAC encode 	o DLLs DLLs DLLs oder dll (for Mi	P3 encoding)
Space required: 2.0MB			
Cancel Nullsoft Install S	ystem v2,40	< <u>B</u> ack	<u>N</u> ext >
믜 EdCast DSP For Winamp Set	tup: Complet	ed	
Completed			
17			
Output folder: C:\Program Files (x Extract: libOggFLAC.dll 100% Extract: libFLAC.dll 100% Output folder: C:\Program Files (x Extract: ogg.dll 100% Extract: vorbis.dll 100% ExecShell: open http://www.rarev ExecShell: open http://www.rarev Completed	(86)\Winamp wares.org/mp3.		
Cancel Nullsoft Install S	ystem v2,40	< <u>B</u> ack	Close
Elecast2 Version 2.x Ele Configuration About			×
Start Server Application Star		ver Status copped	Hide To Systray
Server Status Source Level Stats Global Statistics			
Server Has Been Running For Nota Stat Type Name	running	Value	
	111	1.000	
,			

To set the port and password, click the "Configuration > Edit Configuration" to open a text file.

- Find the line <port>9866</port> and choose a port which should be an even number and NOT in the range 8000~9000.
- Find the text between the section <authentication>ID and password</authentication>, this will be required in EdCast's setting fields.

Ц

Once the setting is done, click the [Start Server] button, the server will start running as shown in the picture on the right.

• You can click the [Hide To Systray] button to hide the window.

e Configuration A	bout		
icecast.org			
	Server	Statue .	Hide To Systray
	tart Server on		11200 10 20,0000)
L BOY BOLLON A	pplication Startup Runn	inig	
rver Status Source Level	1966		
TAGE PERIOR POLICE PEAGE			
Global Statistics			
	E 0 D 0 H 0 M	. 02 0	
Server Has Been Running	For 0 Days, 0 Hours, 0 Minute:	s, 23 seconds	
Chat Tame	Name	Value	
SIRE I VDC			
Stat Type Global Stat		0	^
	stats_connections stats	-	î
Global Stat	stats_connections	-	Î
Global Stat Global Stat	stats_connections stats	-	
Global Stat Global Stat Global Stat	stats_connections stats sources	0 0 0	
Global Stat Global Stat Global Stat Global Stat	stats_connections stats sources source_total_connections source_relay_connections	0 0 0 0 0	E
Global Stat Global Stat Global Stat Global Stat Global Stat	stats_connections stats sources source_total_connections	0 0 0 0 0	E
Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat	stats_connections stats sources source_total_connections source_relay_connections source_client_connections		E
Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat	stats sources source_total_connections source_relay_connections source_client_connections server_id	0 0 0 0 0 0 0 1 cecast 2.3.2	E
Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat	stats sources source_total_connections source_telay_connections source_tient_connections server_id location listeners	0 0 0 0 0 1 cecast 2.3.2 Earth	E
Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat	stat_connections stats source_total_connections source_total_connections source_client_connections server_id location	0 0 0 0 0 1 cecast 2.3.2 Earth	
Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat Global Stat	state_connections state sources_total_connections source_relay_connections source_client_connections server_ida location listeners Listener_connections	0 0 0 0 0 0 1 0 1 0 0 1 0 2 8 2 3 2 8 2 3 2 8 2 8 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E
Global Stat Global Stat	stats sources source_total_connections source_total_connections source_client_connections server_id location listeners listener_connections host	0 0 0 0 0 1cecast 2.3.2 Earth 0 0 1cecalhost	E

- Set Winamp Media Player and EdCast plug-in:
- Assign the DSP plug-in of Winamp media player and set the parameters of EdCast.
- Right click on the Winamp panel and choose "Options > Preferences"

	Nullsoft Winamp		y Fath stereo		
	Play View file info Bookmarks	Alt+3			
 ✓ ✓ ✓ 	Main Window Playlist Editor Equalizer Video	Alt+W Alt+E Alt+G Alt+V	58151 		
	Options	+	F	references	Ctrl+P
	Playback	•	S	kins	Þ
	Visualization Skins	•		ïme elapsed ïme remaining	Ctrl+T toggles Ctrl+T toggles
	Winamp Help	F1	A	lways On Top	Ctrl+A
	Exit	Alt+F4	0	Oouble Size	Ctrl+D
ADD	REM SEL MISC	• II ■ N ▲ 01:06	V E	asyMove	Ctrl+E
				Repeat Shuffle	R S

 Once the Winamp Preference window opens, choose the item "edcast DSP v3 [dsp_edcast.dll]" in the "DSP/Effect" under the "Plug-ins" section.

🤣 Winamp Preferences		×
Winamp Pro General Preferences - File Types - Neal Options - Playlist - Missing Files - Titles - Playback - Video - Localization - Global Hotkeys - Jump To File - Extras Skins - Classic Skins Plug-ins - Output - Visualization - DSP/Effect - General Purpose	DSP/Effect plug-in The plug-in selected below will be active, and will usually modify the sound being played. Select (none) if you do not wish to use a DSP/Effect plug-in. (none) eccast DSP V3 [dsp_edcast.id]) Nullsoft SHOUTcast Source DSP v2.3.2 [dsp_sc.dl] Plug-in module: edcast DSP v3	3
Close	Configure active plug-in Uninstall plug-in Get plug-in	<u>IS</u>

• Now double click the item to open the EdCast's setting window, it appears as shown in the picture on the right.

🕑 edcast	- • ×
About	
Metadata Edit	
L R	Peak Meter
dB -60 -45 -30 -15	-0
Live Recording	
	
AutoConnect	
Connect Add Encoder	
Encoder Settings Transfer Rate	
Recording from DSP	

- Click [Add Encoder] button and set the encoder, only the Basic Setting matters the stream.
 - Sampling rate: The sample rate must be 48k or the Terracom would not play the files.
 - Encoder type: Choose MP3. Here we use the MP3 Lame encoder found on a website.
- Copy the file into the Winamp program directory.
 - Server IP: Use the default value "localhost" if you're running the server on your PC.
 - Server Port: Set the port in the lcecast server's configuration window.
 - Encoder password: Set the password in the Icecast server's configuration window.
 - Mountpoint: This item is required for icecast, so we assign a "/test" for it.

🖉 Configuration	
Basic Settings YP Settings Adv	vanced Settings OK Cancel
General Settings	
Bitrate	320 Use bitrate
Quality	0
Samplerate	48000
Channels	2 *1 for Mono, 2 for Stereo 🔲 Joint Stereo
Encoder Type	MP3 Lame 🔻
Server Type	lcecast2 -
Server IP	localhost
Server Port	9866
Encoder Password	psd0000
Mountpoint	/test * Required for Icecast servers
Reconnect Seconds	10

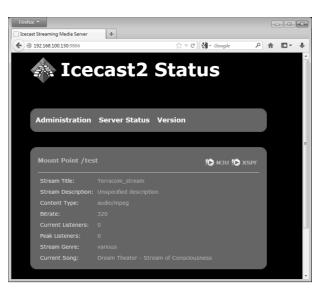
- Click [Connect] button to start the encoder, the stream will start after few seconds.
- You can right-click to disconnect, configure or delete the encoder as shown in the picture on the right.

edcast - • × About Metadata Edit Dream Theater - Vacant Peak L R Mete dB -60 -45 -30 -15 -0 Live Recording -÷ X AutoConnect Disconnect Add Encoder Encoder Settings Transfer Rate 171 Kbps (/test) MP3: 320kbps/48000Hz/S Disconnect Configure Delete Recording from DSP

✤ Icecast Web Interface:

You can direct your browser to http://192.168.xxx.xxx:9866/ (replace 192.168.xxx.xxx with your own IP address when it's localhost) and browse through the web interface.

The Current Song showing the dynamic changes with your Winamp player.



Receiving stream from Icecast Server:

Go to Terracom's "Auido Matrix" webpage and set as shown in the picture below, remember to add the "Mountpoint" which is set in the EdCast plug-in setting window.

In the "Setup > Basic Setting" page as mentioned before, you can set the "Stream Buffer" time.

N/W IN	MODE	SHOUTCAST/ICECAST	STREAM MUL	TICAST	
N/W IN	MODE	URL	IGMP IP	PORT	
SOURCE 1	SHOUTcast/icecast	http://192.168.100.130:9866/test			IN1 💌 4 💌
SOURCE 2	SHOUTcast/icecast	http://192.168.100.61:9878/jms			IN1 💌 5 💌
SOURCE 3	Stream Multicast 🔹		239.240.100.2	4444	IN1 💌 6 💌
SOURCE 4	Stream Multicast 🔍		239.240.100.3	4444	IN1 💌 7 💌

6 Maintenance

Cleaning

A Make sure to unplug the main power supply of TERRA-SAP device prior to cleaning.

The panels and chassis can be cleaned with a soft cloth and mild non-abrasive cleaning solution.

Avoid cleaning powders or scrubbing pads, as these will scratch and dull the paint. Do not apply liquid directly to the surface. Dampen the cloth with the cleaning solution and wipe gently.

Dust removal

After used the unit for a long-time, especially in dusty environments, the heat sinks may become clogged with dust. This will interfere with cooling from the air inlets, and lead to higher temperature operation and reduced life.

Dust can be most easily removed by brushing or directing an air jet between the fins of the heat sinks.

User maintenance

User maintenance should be done by qualified personnel only.

△ Dangerous mains voltages are present inside the units. Unplug the main power supply before you do any maintenance.

Users can inspect if any broken connectors, ground, cable connections, or loose screws on the outside of TERRA-SAP device.

If any loose parts rattle around on the inside when the TERRA-SAP device is turned over in all directions, please shut down the TERRA-SAP device immediately, as a loose part could lodge in a dangerous place and cause further damage or shock hazard.

✤ Require service

If the TERRA-SAP device isn't working properly or the proper operation cannot be restored, the TERRA-SAP device may require service from TERRACOM Technical Support. This must be examined by qualified technical personnel, to avoid shock hazard or improper repairs. Please contact your dealer or <u>TERRACOM Feedback</u>.

7 Troubleshooting

* Forget the IP address of your TERRA-SAP device and cannot connect to the web browser.

Short-circuit (close) the contact input 1-pin and G-pin, the IP address will be read out via the connected speakers.

- The TERRA-SAP device cannot connect to network.
 - 1. Check if the Ethernet cable has loosen or not connected, the LED of Ethernet connector shall light up.
 - 2. Check if the Status LED on the front panel has flashed four times.

No sound or audio from speakers.

- 1. Check if the volume meter of Output component has changed in real-time. If yes, the audio setting might be wrong. If no, see Step 2.
- 2. Check if the wiring of speaker lines is connected correctly and tightly.

Can't Access the USB

- 1. Make sure the file system on the USB is FAT32.
- 2. If the USB driver has not been safely removed, there might be a file with .db-journal extension created. Delete that file and insert the USB key to the TERRA-SAP device again.

When the [AMP Over Current] status is detected on TERRA-SAP device, it will be recorded on TERRA-SAP web browser > Log List. See the following troubleshooting of [AMP Over Current]:

- 1. Firstly, the internal amp of TERRA-SAP will automatically reboot (max. 6 times).
- 2. If this [AMP Over Current] status is still present, the TERRA-SAP will shut down the internal AMP (internal prevention mode), and the [AMP Over Current] warning will be recorded on TERRA-SAP web browser > Log List. Then the internal AMP will be rebooted again after 1 minute.
- 3. If this [AMP Over Current] status is still present, the TERRA-SAP will continue the operation on Step 1~Step 2 until the [AMP Over Current] status has solved.
- 4. If the [AMP Over Current] status is solved, the [AMP OK] log shall be recorded on Log List.

8 Technical data

8.1 TERRA-SAP

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• Electrical

DC power input:	21VDC ~ 26VDC
Max. power consumption:	60W
Rated loaded capacitance:	680 nf

• Internal power amplifier

Rated output power:	20W x 2CH (8 ohm load)
Frequency response:	20Hz ~ 20kHz (±3 dB) @ 0 dBu
THD+N:	<0.5%@24dBu gain
SNR:	>94dB

• Audio characteristics (general)

A/D-D/A bit resolution:	24 bit
Sampling rate:	48 kHz
Frequency response:	20 Hz ~ 20 kHz (±1.5 dB) @ 0 dBu
SNR:	> 92 dB

• Audio characteristics (mic)

EIN:	< -110 dBrA @ 12 dB gain
Input impedance:	10k ohm
Input gain range (MIC-1&2):	6~18 dBu (adjustable)
Maximum input level (mic):	-3 dBu @ 6dB gain
CMRR:	> 66 dB @ 12dB gain, -12dBu (1 kHz) in
THD+N:	< 0.05 % @ 12dB gain, -12dBu (1 kHz) in
Crosstalk:	> 70 dB @ 6dB gain, -6dBu (10 kHz) in
Phantom power:	48 VDC, 7 mA

• Audio characteristics (euro-block line in & line out)

Input gain range:	12/24/36/48 step (fixed)
Input impedance:	10k ohm
Output impedance (balanced):	20 ohm
Maximum input level (line in):	-12dBu @ 12dB gain
Maximum output level (line out):	0dBu @ 0dB gain

• Audio characteristics (phone jack line in & line out)

Input impedance:	5k ohm
Output impedance (balanced):	6 ohm
Maximum input level (line in):	-3dBu @ 0dB gain
Maximum output level (line out):	0dBu @ 0dB gain

Network

	RJ45 connector, STP CAT5/6)
Speed: 100Mbp	s

Storage

Туре:	NAND Flash
Size:	100MB

• Contact outputs

Maximum voltage:	100 VDC
Maximum current:	0.5A

• Contact inputs

	Non-isolated analogue interfaces with internal pull-up to +3.3V by 6.2k ohm
Contact mode	Monitored analogue contact thresholds Faulty-open circuit: > 2.2 VDC Inactive voltage: 1.5 ~ 2.2 VDC Active voltage: 1.5 ~ 0.8 VDC Faulty-short circuit: < 0.8 VDC

• Mechanical

Dimensions (W x H x D):	215 x 45 x 130 mm (9 x 2 x 5.1 inch)
Weight:	0.5 kg (1.1 lb)
Colour:	RAL 7016

• Environmental

Operating temperature:	-5 °C ~ +55 °C (+23 °F ~ +131 °F)
Storage temperature:	-40 °C ~ +70 °C (-40 °F ~ +158 °F)
Relative humidity:	20% to 95%
Air pressure:	600 to 1100 hPa
Heat dissipation:	68 BTU/hr

• Certification

•	CE/EMI: EN 55013/CISPR13 (pending)
•	CE/EMS: EN 61000-4-2(ESD) (pending)

8.2 EVC-SW01W/EVC-SW02W

• Controls and Indicators

Front panel:	Call button with illuminated LED
Rear banel.	4 euro-block connectors on EVC-SW01W to connect to the contact inputs of TERRA-SAP

• Electrical

Max. power consumption:	< 0.2W

Relay outputs

Maximum voltage:	100 VDC
Maximum current:	0.5A

• Control inputs

	Non-isolated analogue interfaces with internal pull-up to +3.3V by 6.2k ohm
Contact mode	Monitored analogue contact thresholds Faulty-open circuit: > 2.2 VDC

 Inactive voltage: 1.5 ~ 2.2 VDC Active voltage: 1.5 ~ 0.8 VDC Faulty-short circuit: < 0.8 VDC
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Mechanical

	EVC-SW01W: 70 x 114 x 30 mm (2.6 x 4.5 x 1.9 inch) EVC-SW02W: 72 x 119 x 40 mm (2.9 x 4.7 x 1.6 inch)
	EVC-SW01W: 45 x 105 mm (W x H) EVC-SW02W: 25 mm (diameter)
Weight:	0.1 kg (0.2 lb)
i Finien.	EVC-SW01W: plastic ABS panel EVC-SW02W: stainless steel panel with metal call button

• Environmental

Operating temperature:	-5 °C ~ +55 °C (+23 °F ~ +131 °F)
Storage temperature:	-40 °C ~ +70 °C (-40 °F ~ +158 °F)
Relative humidity:	20% to 95%
Air pressure:	600 to 1100 hPa
Heat dissipation:	68 BTU/hr

8.3 BCM201W/BCM201W

Electrical

Phantom power requirement:	9 VDC ~ 48 VDC
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• Audio characteristics (general)

Frequency response:	50 ~ 18 kHz
Capsule sensitivity:	-42 (±3) dBu @ 1 kHz (0 dBu=1VPa)
Dynamic range:	113 dB
Maximum SPL:	128 dBA @ 30 cm
SNR:	58 dB(A)
Output impedance:	130 ohm

• Microphone characteristics

Capsule type:	Electret condenser
Capsule directivity:	Omnidirectional

• Mechanical

Dimensions (W x H x D):	 Diameter: 20 mm (0.8 inch) Length: 100 mm (3.9 inch) Mic shield cover diameter: 75 mm (3 inch) Mic cable length: 300 mm (11.8 inch)
Weight:	0.1 kg (0.2 lb)
Color:	White/Black
Finish:	ABS plastic
Installation:	Flush-mount or pendant

Environmental

Operating temperature:	-5 °C ~ +55 °C (+23 °F ~ +131 °F)
Storage temperature:	-40 °C ~ +70 °C (-40 °F ~ +158 °F)
Relative humidity:	20% to 95%

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9 Contact information



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