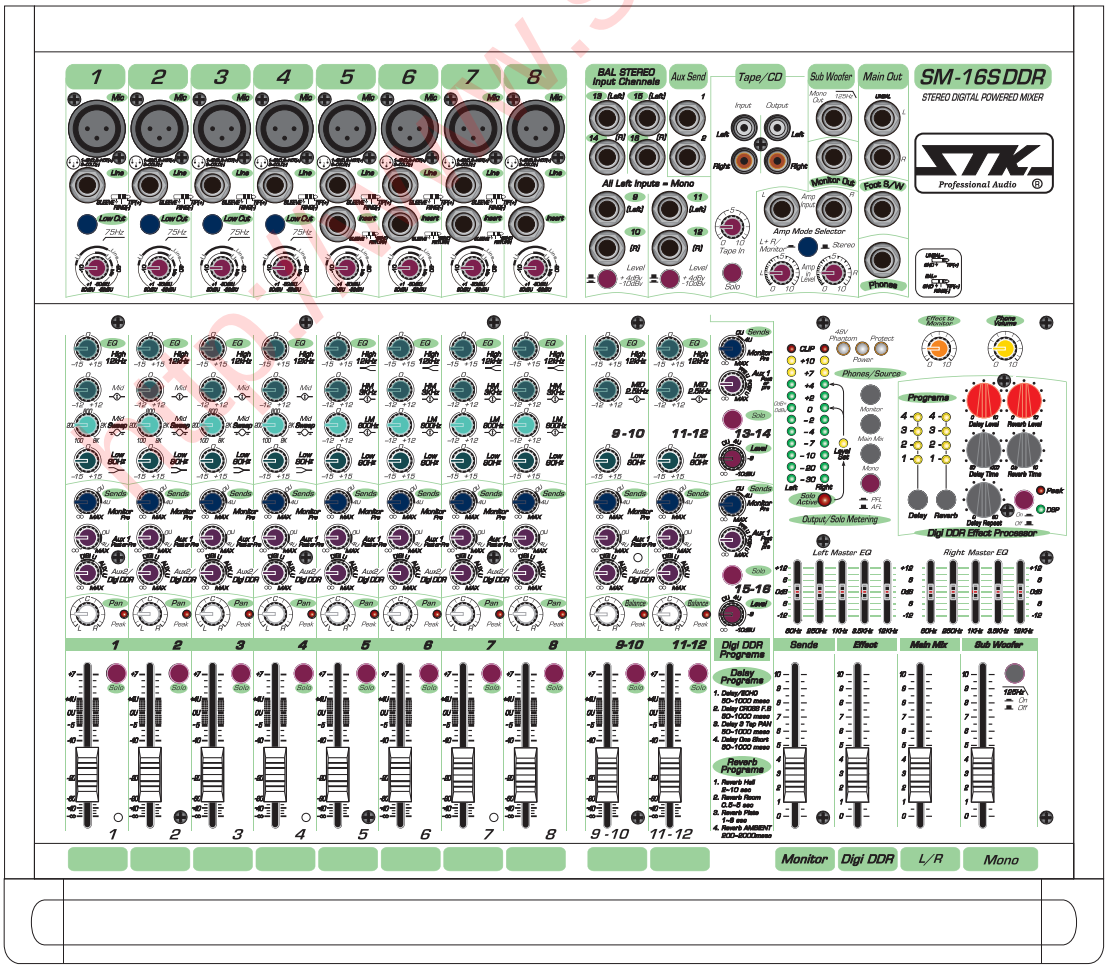
PROFESSIONAL AUDIO

ENGINEERING AND MANUFACTURING

SM-16SDDR, FDR / VM-16SDDR, FDR
VM-14SDDR, FDR

Professional Console Powered Mixer

OWNER'S MANUAL



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1. Introduction

Congratulations and thank you for choosing a STK professional console powered mixer.

The new SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR powered stereo mixing consoles are professional quality products combining a full featured mixing console with stereo graphic equalizers, digital signal processing and integrated stereo power amplifications. The mixer and equalizer/amplifier sections can be electronically separated allowing complete flexibility in a variety of applications. The products features oversized heat sinks along with two speed, direct air cooling for trouble free operation under the most adverse conditions. In addition, these three kind models have a bar graphic LED display to performance conditions. While providing powerful, accurate and reliable performance along with outstanding value, your STK new SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR powered mixing console has been designed for many years of dependable service. These powered mixers ideal for portable PA systems for venues and medium large live sound club, meeting room, sanctuary, or outdoor gathering. Please take the time to read this manual before operation so that you fully understand and correct use of this fine products.

2. Important Safety Instructions

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Heed Warnings
All warnings on this appliance and in the operating instructions should be adhered to.

4. Follow Instructions
All instructions should be followed.

5. Water and Moisture
This appliance should not be used near water- for example, near a bathtub, sink, laundry tub, in a wet basement, near a swimming pool, etc.

6. Heat
This appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

7. Power Sources
This appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For appliances intended to operate from battery power, or other sources, refer to the operating instructions.

8. Polarization
If the appliance is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other), this plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

9. Grounding
If the appliance is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This is safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

10. Power Cord Protection
Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

11. Damage Requiring Service
Unplug this appliance from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the appliance.
c. If the appliance has been exposed to rain or water.
d. If the appliance does not operate normally by following the operating Instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to its normal operation.
e. If the appliance has been dropped or the cabinet has been damaged.
f. When the appliance exhibits a distinct change in performance-this indicates a need for service.

12. Servicing
Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Important Safety Instructions

13. Listening for a Lifetime

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. STK PROFESSIONAL and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing "comfort level" adapts to a higher volume of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level :

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level :

- Set the dial and leave it there.
- Pay attention to the different levels in various recordings.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

Some common decibel ranges :

Level	Example
30	Quiet library, Soft whispers
40	Living room, Refrigerator, Bedroom away from traffic
50	Light traffic, Normal ConversationAir
60	Conditioner at 20 ft., Sewing machine
70	Vacuum cleaner, Hair dryer, Noisy Restaurant
80	Average city traffic, Garbage disposals, Alarm clock at 2 ft.

3. Warranty Information

UNPACKING

As a part of our system of quality control, every STK product is carefully inspected before leaving the factory to insure flawless appearance.

After unpacking, please inspect for any physical damage. Save the shipping carton and all packing materials, as they were carefully designed to reduce the possibility of transportation damage should the unit again require packing and shipping.

In the event that damage has occurred, immediately notify your dealer so that a written claim to cover the damage can be initiated with the carrier. The right to any claim against a public carrier can be forfeited if the carrier is not promptly notified and if the shipping carton and packing materials are not available for inspection by the carrier. Save all packing materials until the claim has been settled.

STK Customer Service Department

3F, 15, Majang-ro 543beon-gil, Gyeyang-gu, Incheon, Republic of Korea (Zip 21104)
TEL : +82-(0)32-525-1788~1790
FAX : +82-(0)32-525-1784
E-mail : stkcom@stkpro.com
www.stkpro.com

STK LIMITED 1 YEAR WARRANTY

STK electronics are warranted to be free from defects in materials and workmanship under normal use for a period of 1 year from date of original purchase.

During that period, STK will at its option, repair or replace materials at no charge if product has been delivered to STK by a STK dealer or STK Service Center together with the original sales receipt or other proof of purchase.

Warranty excludes fuses, exterior finish, normal wear, failure due to abuse, or operation outside of specified ratings. Warranty applies to original purchaser only.

This warranty gives you specific legal rights which vary from state to state.

For more information about warranty repair, please contact : Customer Service Dept., The STK Professional Audio.

FOR YOUR RECORDS

All of us at STK thank you for your expression of confidence in STK products. The unit you have purchased is protected by a limited 1 year warranty. To establish the warranty, be sure to fill out and mail the warranty card attached to your product.

For you own protection, fill out the information below for you own records.

Model Number : _____ Serial Number : _____

Dealer : _____ _____

_____ Date Of Purchase : _____

Phone : _____ Salesman : _____

Other Information :

_____

_____

_____

_____

4. Connecting Your System

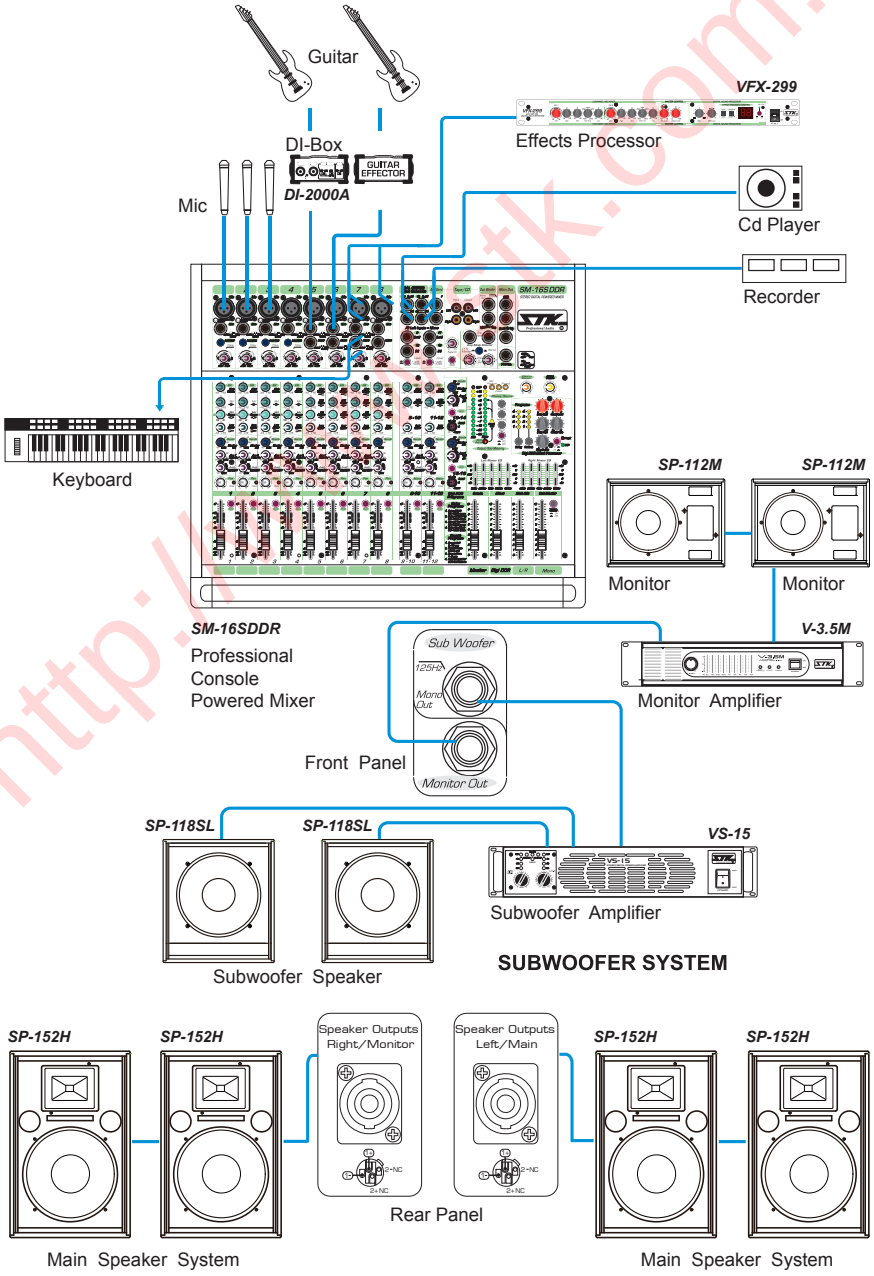
A. System Hookups

Note : The Connecting of the SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR console powered mixer is nearly identical, this system hookups will help you to understand and get the most out of all these 3 kind powered mixers. Before you begin your connections, you must decide how you will configure your sound system, mono or stereo. Below are system variations that can be used with your powered mixer. Carefully consider all of them to decide which system you will use.

Note : The STK console powered Mixers feature flexible patching options which make possible more variations of setup than are presented here. Once familiarized with the unit's capabilities, you should be able to achieve practically any setup you desire.

1. Powered Stereo With Sub Woofer System Hook Diagram

Powered Stereo With Sub Woofer System : Set the Amp Assign switch to the stereo (out) position.
The basic stereo with sub woofer setup: One or more parallel speaker systems connected to each of the left and right sides of the output operating in stereo. And connect the sub woofer output jack on the front panel directly to the input jack of your sub woofer power amplifier. : Addition of an externally powered monitor system.(See following Hookup diagram)



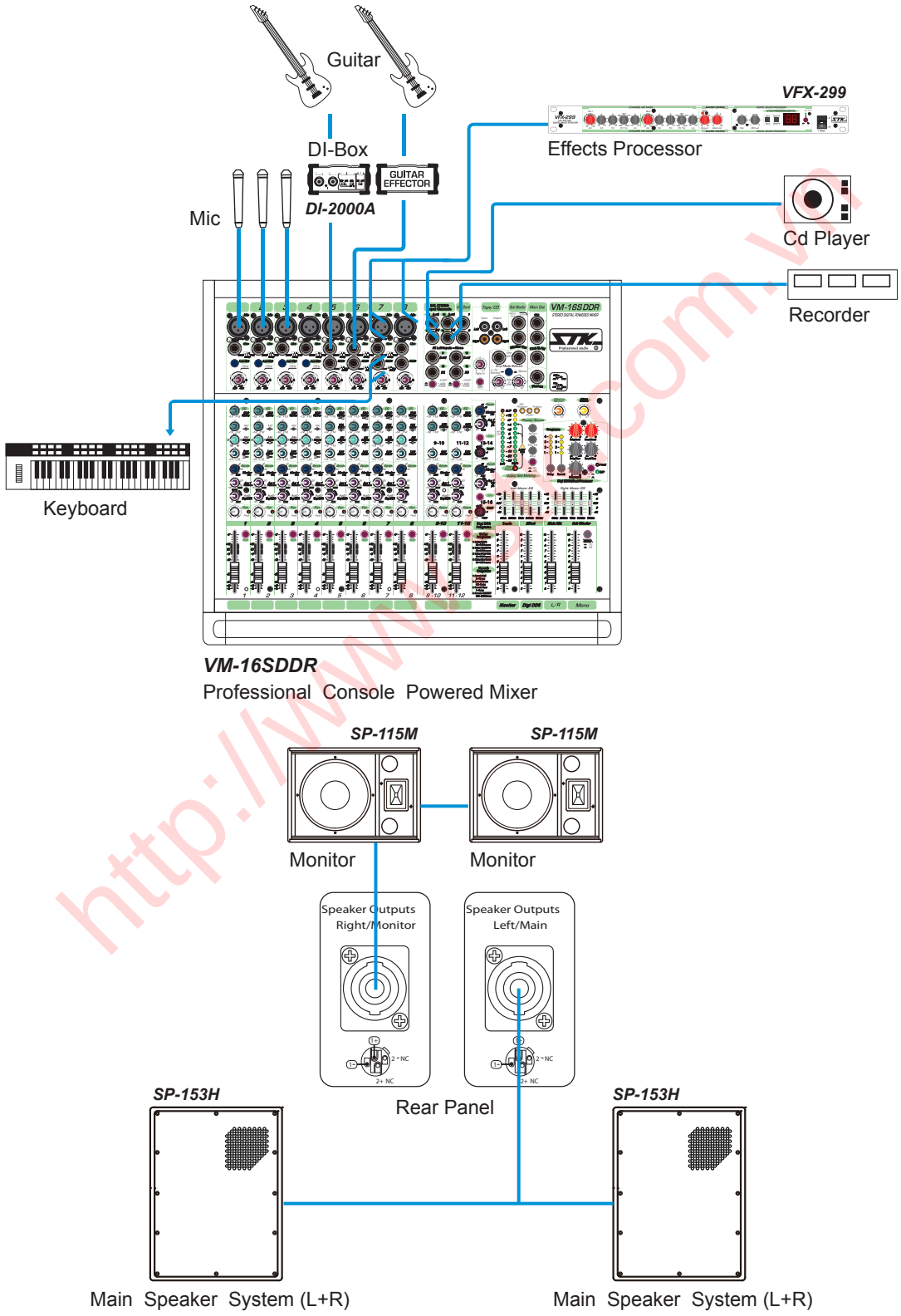
FOR CLUB

4. Connecting Your System

2. Powered Main+Monitors System Hookup Diagrams

Powered Main(L+R) + Monitor system : Set the Amp Assign switch to the L+R/Monitor (in) position.

Now that you have decided which mode and type of system operation you will use, The basic Main(L+R)+Monitor setup : One or more parallel speaker systems connected to the left side for Main, and one or more parallel speaker systems connected to the right side for Monitor system.(See following Hookup diagram)



FOR HOUSE OF WORSHIP

4. Connecting Your System

B. CONNECTORS

Your SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR professional console powered mixers uses several types of input and output connectors.

1. XLR Input jacks

Electronically balanced inputs accept a standard XLR male connector. Pin1=ground, pin2=hot or positive(+) and pin3=cold or negative (-) (see Figure a). These connectors should be utilized for low impedance microphones. If you are using a high impedances microphone, it will likely have a cord with a 1/4 connector on it. In this case, it would be appropriate to plug such microphones into a line input, however performance, and gain may be lessened. for best performance. We recommend you invest in one of the many higher quality, law impedance mics available on the market, or alternatively, purchase an impedance matching transformer from your dealer.

2. TS 1/4″Phone Input Jacks

These tip / sleeve(TS) jacks accept an unbalanced line level signal using a normal male phone plug. (See Figure b)
TS Jacks and plugs are used in many different applications, always unbalanced. The tip(+) is connected to the audio signal and the sleeve to ground (earth).

3. TRS 1/4″ Phone Stereo Jacks

The 1/4"phone stereo jacks are 1/4"three conductor jacks. 1/4"Tip is send (or hot) Ring is return(or cold) and sleeve is ground(TRS).
The 1/4" stereo Jacks can be used a channel insert jacks : post-gain, and pre-EQ or stereo channel balanced inputs: tip is hot(+) ring is cold(-) sleeve is ground. (See Figure c)

4. Speaker Output Jacks

The speaker output jacks are 1/4"two conductor jacks. Their power output and function are dependent upon the particular unit that you are using. (See Figure d)
The tip is connected to the speaker-level audio signal positive and sleeve to negative not ground (earth).
Use speaker cables with a minimum conductor size for the length you need as listed in below.

Minimum AWG	4 Ohm	8 Ohm
18	3m(10ft)	7.6m(25ft)
16	7.6m(25ft)	15m(50ft)
14	7.6m(25ft)	23m(75ft)
12	15m(50ft)	38m(125ft)
10	30m(100ft)	60m(200ft)

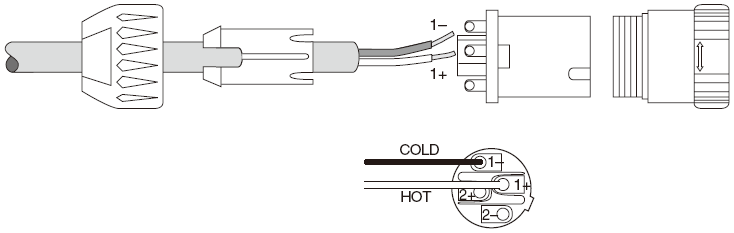
Min Metric WG	4 Ohm	8 Ohm
12	3m(10ft)	8m(26ft)
14	8m(26ft)	15m(50ft)
16	8m(26ft)	25m(82ft)
20	15m(50ft)	40m(131ft)
25	30m(100ft)	60m(200ft)

For cable lengths over 60m(200ft) at 8 ohms, and over 30m(100ft) at 4 ohms, the conductor sizes needed for less than 0.5dB power losses are rarely practical for physical and cost reasons. As a practical compromise for these situations the recommended conductor gauge is 10AWG or 25 metric.

The Speakons, Speakon connectors are purpose-built for low voltage, high current applications.
Each connector incorporates two pair of conductors, labeled 1+, 1-, by convention, single.
When attaching NL4FC mating connectors, be sure to insert the connector to its full depth, then turn the connector 45°clockwise to lock it in place. wire the speakon connectors as shown below.

- **Connection Table**

Output Function	Pins
Left	1+, 1-
Right	1+, 1-

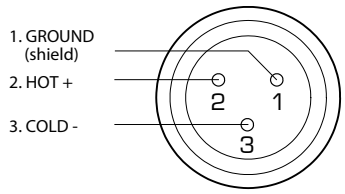


4. Connecting Your System

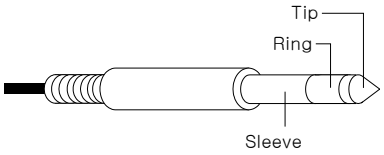
4. RCA Phone Jacks

The RCA jacks accept unbalanced male pin connectors. (See Figure e)
The tip is connected to the audio signal and the sleeve to ground (earth).

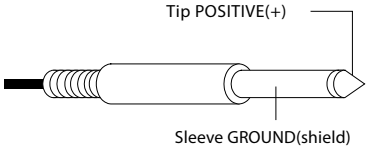
a. Female 3 Pin XLR Connector



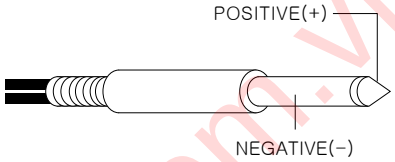
c. Balanced 1/4'' Stereo Connector



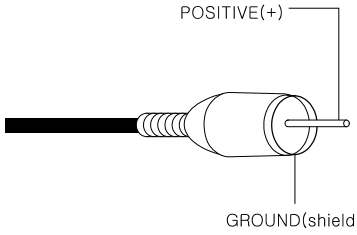
b. Unbalanced 1/4'' Connector



d. Speaker Jack



e. RCA Jack



5. Operating Your System

For Powered Stereo with Sub Woofer System Hook Diagram.

A. Connections

1.Power Switch OFF

Be sure the rear panel power switch is off before making any connections.

2. Connect the mains power

Push the line cord securely into the IEC connector on the rear panel, connect it to an AC outlet.

3. Connect the input devices into the one or more input channels.

Plug a balanced microphone into one of the mic XLR connectors on the front panel. Or other line level signal source(key board or guitar DI box) into one of the 1/4” line input phone jacks.

4. Connect the input devices into the Stereo input channels 7-8(VM-14SDDR)/9-10(SM,VM-16SDDR) and more stereo channels :

Using standard 1/4"shielded cables, connect the desired devices into the stereo input channels:
Keyboards, drum machines, tape programs and others.

5. Connect the tape and CD player

If you are feeding a signal from a tape or CD player into your power mixer, using a stereo RCA cable, Connect the output jacks of the player to the tape in jacks on the front panel. If you wish to record the output of your power mixer, using a stereo RCA cable, connect the tape out jack on the front panel to the input jacks of the CD or tape recorder.

5. Operating Your System

6. Connect the external effects device

If you are utilizing an external effects device, using standard 1/4"shielded cables, connect the Aux send jack on the top of front panel to the input jack of the effects device and connect the output jack of the effects device to the stereo input channels (VM-14SDDR :11-12 or 13-14/SM,VM-16SDDR : 13-14 or 15-16) inputs jack on the front panel.

7. Connect the passive speakers

Using heavy gauge(more than 18 gauge) unshielded 1/4"speaker cables or speakon jack cables, connect your left and right main speaker systems to the each side of two parallel speaker output jacks on the rear panel. The total speaker impedance load of your speaker systems connected must be 4 ohms or greater. If you plug two speakers parallel, each speakers must be 8 ohms or greater. Don't use guitar cords for speaker cables it will be too hot. If you are not certain of your total speaker impedance load, contact your dealer for assistance.

WARNING: Operating your SM-16SDDR/VM-16SDDR/VM-14SDDR powered mixer at an output impedance less than 4 ohms, and then can damage your unit and void your warranty!

8. Connect the subwoofer system (Optional)

If you are utilizing a separate subwoofer system, using a standard 1/4" shielded cable, connect the subwoofer jack to the Input jack of the your subwoofer Amplifier; using a heavy gauge unshielded 1/4" speaker cable, connect the subwoofer to the subwoofer Amplifier output jack.

9. Connect the external Monitor Equalizer

If you are utilizing an external graphic equalizer for the monitors, using a standard 1/4"shielded cable, Connect the monitor out jack on the front panel to the input jack of your external monitor equalizer.

10. Connect your external Monitor Power Amp

If you are utilizing an external equalizer for the monitors, using a XLR cable or a standard 1/4"shielded cable, connect the output jack of your monitor equalizer to the input jack of your monitor power amp.

If you are not using an external monitor equalizer, connect the monitor out jack on the front panel directly to the input jack of your monitor power amplifier.

11. Connect the Monitor speakers

Using heavy gauge unshielded 1/4"speaker cables, connect your monitor speakers to the output jacks of the monitor power amplifier. make sure that the total impedance load of your monitor speakers is not less than the recommended minimum impedance that your monitor power amp can safely handle.

B. Ready, steady, Getting sound!

1. The channel level fader, monitor, and EFX/DSP controls fully down.
2. Set all the EQ controls to the center, including the graphic EQ sliders.
3. Slide down the main level and main monitor fader, and Amp In Level controls fully down.
4. For each mono channel, the gain control knobs turn to the around AM 10:00 Counterclockwise(line unity gain)position if you are using a line-level source. Turn to the around PM 13:30 clockwise(mic unity gain) if you are using a microphone or other low-level source.
5. For condenser mics, turn on the phantom power switch on the rear panel. If you are using both condenser and dynamics, don't worry. Phantom power will not hurt most dynamics. Check the microphone user manual if you are not sure.
6. For each stereo channel, press out the level switch (low gain) if you are using a line-level source. Press in the level switch(high gain) if you are using other low-level source.
7. Play something into the selected input and sliding up the channel level fader to -5 or U(unity). This could be an instrument, a singing or speaking voice, or a line input such as a CD player or tape recorder output. Be sure that the volume of the input source is the same as it would be during normal use. If it isn't, you might have to readjust these levels during the middle of the set.
8. The amp in level controls turn to 5 or more but not to max(about 70%) then slowly sliding up the main(L/R) level control fader, and main monitor level control fader(if you decided Powered Main+Monitors system) until you hear the signal in your speakers. The Amp In Level controls just before internal power amp input circuit and it is similar to your external power amp volume control knobs. you will likely have to re-adjust this later, but for now, this setting will allow you to hear your powered stereo system and decide what further adjustments are necessary.
9. Repeat steps 4 to 7 for the remaining channels.
10. Adjust the levels to get the best mix. Keep the level controls fully down on unused channels.

5. Operating Your System

C. Graphic Equalizer use

The SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR is equipped with a dual 5-band equalizer that can be configured to affect master output and each main speaker output. You should think of the graphic equalizer as an extended "Tone Control." the built-in graphic equalizer(s) divide the audio spectrum into 5 segments or bands. You can raise or lower the level of each individual band by adjusting the slider on that band. Any environment has its own set of acoustics, even outdoors. Some environments will reflect or absorb certain frequencies more than others. a graphic equalizer allows you to attenuate ranges of frequencies that are too strong and boost others that are too weak, or, in other words, to "Equalize" the five different bands in their relationship to each other.

1. Set all of the 5 EQ sliders at 0(middle)position, where there is a detent.
2. Adjust the Equalizer. Try to adjust the Graphic Equalizer until the system sounds the way you think it should. Try to ascertain which areas of the audio spectrum are too strong and which are too weak. Adjust the Graphic Equalizer to compensate for these differences. Make further adjustments to the Graphic Equalizer to compensate for any feedback problems that may exist. See the Professional Operating Tips section of this manual for more detailed instructions on this procedure.

D. Protection Circuit

The STK console powered mixer is designed full circuit protection and have protect indicator LED(red) on the front panel. The protect LED indicates that there is a problem either in the amplifier's external connections, load or temperature conditions or its internal functions. If one of these situations occurs, the amplifier senses the problem and automatically switches into its "Protect Mode". The LED will light to warn you of the trouble and the amplifier will stop working. If the LED lights and stays on, switch the unit off. If you feel that you have been able to correct the fault condition that caused the unit to go into the protect mode, switch the powered mixer on again. If you have successfully removed the fault condition, the amplifier will run normally.
CAUTION: If the protect LED remains lit when attempting to resume operation, DO NOT USE THE UNIT. Take your STK console powered mixers to an authorized service facility or contact your dealer for help.

E. MONITOR OPERATION

The idea behind a monitor system is to provide a completely independent mix of your input signals to your monitor speakers so that the performers can hear what they are doing and perform their best.
Because of speaker placement, program material, and several other factors, it is rare that the monitor mix will be the same as the main mix.

1. Set the Master Main Mix Level Fader Control to Zero

Since the monitor mix is completely separate from the main mix, all of the monitor settings will be initially made with the master level control set to the zero position.

2. Set the Master Monitor Send Level Fader Control to Zero

3. Set the input Level of the External Monitor Equalizer(if applicable)

If you are using a separately powered monitor system, set the input level control of the equalizer to about 60%. you will need to check this setting later to be sure there is no clipping or distortion.

4. Set External Monitor Amplifier(if applicable)

If you are using a separately powered monitor system, set the input level control of the external amplifier to about 60%. You will need to check this setting later to be sure there is no clipping or distortion.

5. Set the master Monitor send Level Control

Set the master monitor send fader control to 8 or 9(near line level out) on the front panel. You will likely have to re-adjust this later, but for now, this setting will allow you to hear your monitor system and decide what further adjustments are necessary.

6. Set the channel Monitor Controls

Decide which channels you want to include in the monitor mix. set a nominal level on each of these channels using the channel monitor control. Slowly raise the level on each individual channel until the optimum volume is achieved or, in the case of a

microphone channel until you begin to hear feedback.
If you start to hear feedback, quickly reduce the monitor control of that channel back to 0 or until the feedback stops. Carefully raise the control again, stopping before the point at which you experienced feedback.

7. Adjust the Monitor Equalizer

Make any adjustments necessary if you are utilizing an external graphic equalizer for the monitors , you will adjust the external monitor equalizer.

8. Make final adjustments to the monitor system

After you have properly set the graphic equalizer, Make any further adjustments to the monitor system that are necessary. When you have completed all adjustments to the monitor system, you can raise the level of the master main mix level fader control for the main system.

F. CARE AND MAINTENANCE

Your STK console powered mixer is built to provide years of dependable service under demanding circumstances. It requires no internal maintenance but a common sense approach to its use will help you enjoy long and reliable operation. Here are some tips:

1. Power Requirements

Your powered mixer is capable of 110-120V AC or 220-240V AC operation allowing world-wide usage. It is pre-wired at the factory for the correct voltage in your country. It is possible to change the mains voltage but it is an internal operation that can only be performed by an experienced technician. Contact your dealer or service center for more information.

2. Periodic Cleaning

Keep the unit clean by wiping frequently with a damp, soft cloth. Use a mild detergent cleaner if necessary, Applied to the cloth, but not directly to the mixer. Do not use solvents or the other chemicals to clean the unit. A large (dry) paint brush is useful to remove cumulated dust from between the many control knobs on the mixer. If you accidentally spill liquid onto or into the unit, disconnect the power cord and allow the unit to dry thoroughly before attempting to use it.

3. Connecting Cables

Use only high quality connecting cables with your STK console powered mixer. Faulty or suspicious cables should be replaced to avoid possible deterioration of your sound quality.

4. Connections

Check cable connections frequently, if you move your equipment often, check input and output jack condition to be sure they have not sustained any transportation damage, in temporary installations, such as live performances, check all cable connections before each performance In permanent installations, verify the operation of all cables and connections often. It is much easier to dead with a poor cable or connection before a performance or recording session than during it.

Other Notes

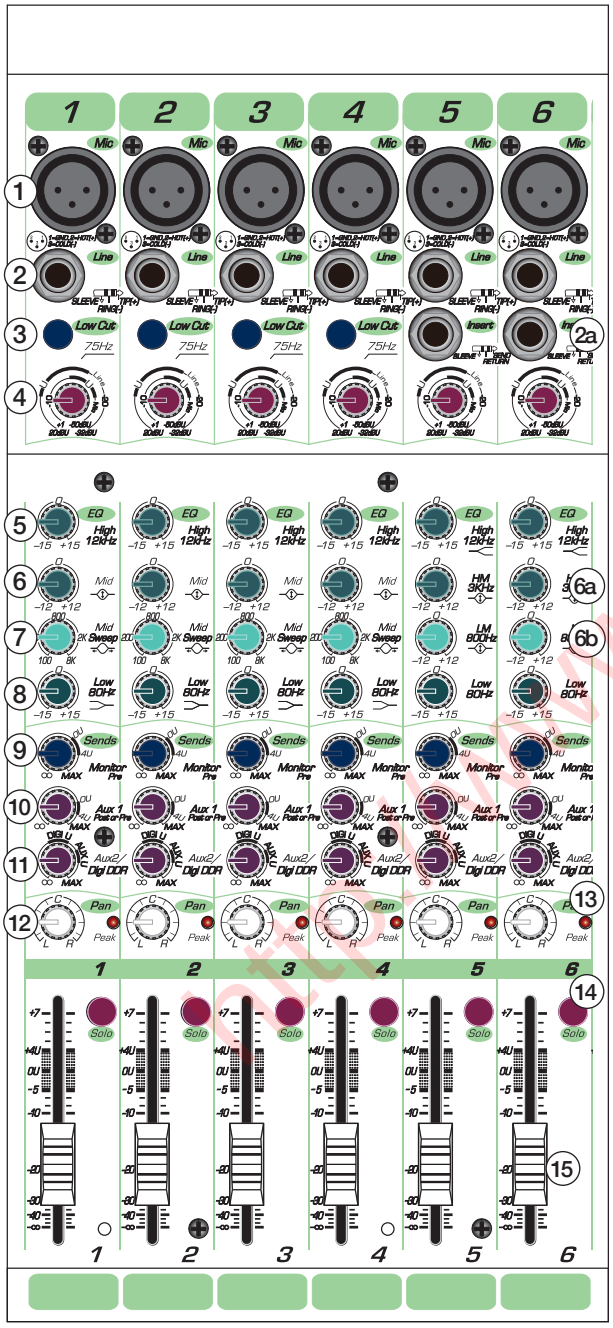
- When shutting down, turn off any external amplifiers or powered speakers first. When powering up, turn on any external amplifiers or power speakers last.
- This SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR has been inspected and tested prior to being shipped. During unpacking, carefully check that you have received all the required accessory. this is also the time to check the main unit for damage. If any damage is noticed , promptly report this to your shipping carrier. Save the shipping boxes and all packing materials in case the unit needs to shipped for service.

6. Panel Descriptions

FRONT PANEL SECTION

A. Monaural Input Channel

Note: The operation of the SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR console powered mixer is nearly identical. This manual will help you to understand and get the most out of all STK console powered mixers.



1. Mic Inputs

The microphone input to each channel strip is made through a standard 3-pin female Mic connector, XLR(3-pin)balanced input accepts microphone-level signal, XLR pin 1 is "Shield", pin 2 is "Hot" and Pin 3 is "Cold". The mic input will handle any kind of mic level you can toss at them, without over loading.

2. Line Inputs

The Line In connection for each channel strip is located just under MIC connector, and is made through a ¼" TRS (Tip-Ring-Sleeve) phone jack. ¼" connector tip is "Hot" ring "Cold" and sleeve is "Shield". Plugging a guitar into a line input can result in the loss of high frequencies, causing an unnatural and dull sound. Normally, you must use a STK direct box between a guitar and a mixer's input, which serves to convert the impedance of the guitar from high to low.

2a. Channel Insert Jack

Allows interface to external signal processing devices, or direct channel output. 1/4" connector Tip is Send, Ring is Return and Sleeve is Ground.

This patch point allows you to insert a compressor, equalizer or any other signal processing device into 5.6.7.8(VM-14SDDR : CH5.6) input channel strips of VM,SM-16SDDR.

3. Low Cut Switch

75Hz 18dB/octave low-cut filter eliminates unwanted subsonic frequencies, while still allowing full use of the Low Equalization(8). We recommend that you use the Low Cut filter on every microphone except bass application sound (drum, bass guitar, recording of thunder-volt)

4. Line Trim/Mic Gain

Simultaneously adjusts the mic input gain to accept signals from -10dBu to -50dBu, and trims the line input to accept signals from +10dBu to -40dBu. Before start input level setting, Please read “set the level” as followings.

Set the Levels :

To set the channel GAIN controls, it's not even necessary to hear what you're doing at the outputs of the mixer. If you want to listen while you work, plug headphones into the PHONES jack on the front panel, then set the PHONES knob about one-quarter of the way up. The following steps must be performed one channel at a time.

1. Push in the channel's SOLO (14) switch. Make sure the SOLO MODE (21) switch is down (PFL).
2. Play something into the selected input. This could be an instrument, a singing or speaking voice, or a line input such as a CD player or tape recorder output. Be sure that the volume of the input source be an instrument, a singing or peaking voice, or a line input such as a CD player or tape recorder output. Be sure that the volume of the input source is the same as it would be during normal use. If it

isn't, you might have to readjust these levels during the middle of the set.

3. Adjust the channel's GAIN(4) control so that the LEDs on the RIGHT meter (16) stay around "0" and never go higher than "+10."

5. High Equalization

This control gives you up to 15 dB boost or cut at 12kHz, and it is also flat at the center detent. Use it to add sizzle to cymbals, and an overall sense of transparency or edge to the keyboards, vocals, guitar, and bacon frying. Turn it down a little to reduce sibilance, or to hide tape hiss.

6. Mid Equalization: Level

Provides ±12dB of Cut/Boost to the midrange frequency signals. The frequency range affected depends on the setting of the mid EQ frequency control (7). . MID range EQ is often thought of as the most dynamic because the frequencies that define any frequencies particular sound are almost always found in this range. The mid EQ range(100Hz to 8kHz)includes the male or female vocal range as well as the fundamentals and harmonics for many instruments.

6a. HI Mid Equalization: Level

The high MID EQ section is a peaking/dipping equalizer with a fixed center frequency of 3KHz. Provides ±12dB of cut or boost centered. The high MID EQ range includes the female vocal range as well as the fundamentals and harmonics for many instruments.

6b. LOW Mid Equalization: Level

The low MID EQ section is a peaking/dipping equalizer with a fixed center frequency of 800Hz. Provides ±12dB of cut or boost centered. The low MID EQ range, which include the male vocal range and the fundamentals of some mid lower instruments(bass guitar,kick drum,lower brass).

7. Mid Equalization: Frequency

Adjusts the center frequency of the peak/dip midrange control (6) from 100Hz to 8kHz. This determinies the center frequency for EQ filter, and allows you to zero in on the precise narrow band of frequencies you want to have affected by the MID EQ.

8. Low Equalization

Provides ±15dB of shelving equalization control to boost or cut low frequency signals 80Hz and below. This frequency represents the punch bass drums, bass guitar, fat synth patches, and some really low voice singers.

Note : Use in conjunction with the low cut switch, you can boost the low EQ without injecting tons of infrasonic debris Into the mix.

9. Monitor Send

This control provides continuously variable adjustment of the channel EQ input signal sent to the monitor mixing buss. It is totally independent of the other channel controls.

10. Aux1 Send

Adjusts the amount of the channel input signal supplied to the Aux1 output. Aux1 send is pre or post-EQ and factory-configured for post-fader operation.

11. Aux2/EFX

The channel Aux2/EFX control provides continuously variable adjustment of the post fader signal sent to the DSP of DIGI EFFECT, as well as to the effects send circuitry for line level Aux2 output.Carefully adjust each control to set up the DIGI EFFECT or Aux2 output. The controls off when turned fully down, deliver unit gain at the center detent, and can provide up to 15dBof gain turned fully up.

12. Pan

Sends the post fader signal to the left and right master outputs. In the center position, the signal is equally sent to both the left and right master outputs.

13. Peak Indicator LED

The red LED near the pan pot is marked Peak, and that stands for Overload. The channel strip overload circuit constantly checked at a critical point in the channel strip, just after the EQ circuit. If the channel strip amplifiers are begin too loud into overload, Peak light will flash bright red. You need to find out which source is too high and make things right. Start by returning down the Gain control until the Peak LED no longer light.

14. Solo Switch

A solo switch the signal selected for listening in the headphones, allowing the channel to be heard alone, pre-fader or post-fader, according to the position of the solo mode switch (21).

15. Channel Fader

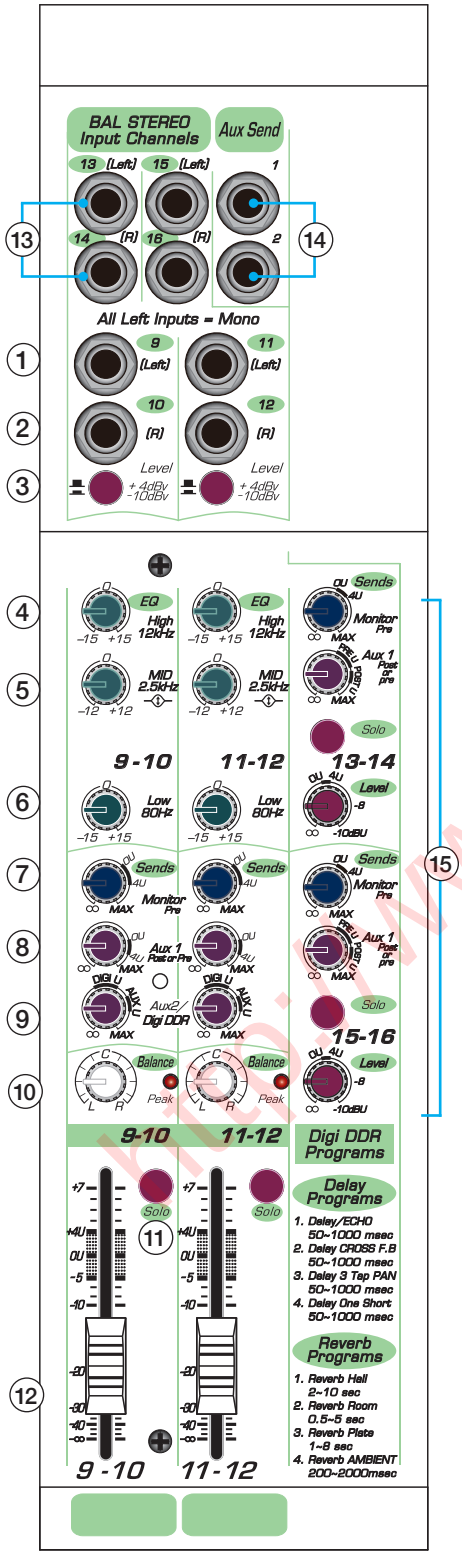
Provides continuously variable control of the channel output level to the left and right master outputs.

The fader controls the channel's level… from off to unity gain at the "U" marking, on up to 4dB of additional gain. This "U" stands for "unity gain," meaning no change In signal level. Once you have adjusted the input signal to line-level, you can set the control at "U" and your signals will travel through the mixer at optimal levels. What's more, all the labels on our level controls are measured in decibels(dB), so you'll know what you're doing level-wise if you choose to change a control's settings.

6. Panel Descriptions

FRONT PANEL SECTION

B. Stereo Input Channel



1. Left (Mono) Input

Accepts 1/4" TRS (tip/ring/sleeve) balanced input or TS (tip/sleeve) unbalanced sources at line level. 1/4" connector tip is "Hot", ring is "Cold" and sleeve is "Shield". Input is routed to the left output bus.

In the absence of a plug in the right input (2), the left input signal is also provided to the right input, that the channel functions as a mono channel.

2. Right Input

Similar to the left input (1), any inputs to this connector are only routed to the right output bus.

3. Level Switch

Determines the nominal input level required at the stereo line inputs for full level. Selections are +4dB and -10dB.

This switch attenuates the input signal by 14dB when connecting a line level device to channels 7-10(VM-14SDDR),9-12(VM,SM-16SDDR). This is the first control that the input signals meet. It allows you to choose the level depending on the type of input source you have connected. If it is incorrectly, then the input signals may overload the mixer, causing distortion, or it may come too low, and be lost in noise.

4. High Equalization

Provides ±15dB of shelving equalization control to boost or cut high frequency signals 12kHz and above. Affects both left and right channel input signals.

5. Mid Equalization

Provides ±12dB of Cut/Boost to the midrange frequency channels. This control is centered at 2.5kHz. Affects both left and right channel input signals.

6. Low Equalization

Provides ±15dB of shelving equalization control to boost or cut low frequency signals of 80Hz and below. Affects both left and right channel input signals.

7. Monitor Send

Adjusts the amount of mono-summed channel input signal supplied to the monitor output. Monitor send is post-EQ and pre-fader.

8. Aux1 Send

Adjusts the amount of mono-summed channel input signal supplied to the Aux1 output. Aux1 send is pre or post-EQ and factory-configured for post-fader operation.

For pre-fader modification of Aux1 Send, please see contact STK PROFESSIONAL AUDIO.

9. Aux2 Send/EFX

Determines the amount of post EQ, post fader signal sent simultaneously to the DSP of Digi EFX, as well as to the effects send circuitry for line level Aux2 output.

10. Balance

When turned to the right, gradually attenuates the left

channel input signal. When turned to the left, gradually attenuates the right channel input signal.

11. Solo Switch

A solo switch the signal selected for listening the headphones, allowing the stereo channel to be heard alone, pre-fader or post-fader, according to the position of the solo mode switch(21).

12. Channel Fader

Provides continuously variable control of the channel output level to the left and right master outputs.
The fader controls of the Mono input channel/stereo input channel is nearly identical. Please refer to mono channel fader(15).

13. CH11-12/13-14(VM-14SDDR),CH13-14/15-16(VM,SM-16SDDR) inputs for expanded more stereo channels

This will help to expand two more stereo input channels. Allows 1/4" line level stereo inputs directly to the left and right mixing buss, there also feed of the monitor and aux1 sends.When no plug is inserted into the right jack, the left input is also provided to the right master output for mono operation.

14. Aux Sends 1&2

The Aux1send phone jack outputs the pre or post fader signal(factory-configured for post-fader operation) and Aux 2 send outputs fixed post signal. Provides the unbalanced, line-level, for connection to external effects or monitor systems. The AUX 2 signal adjusted by the AUX2/EFX control of each channel. will be sent to the EFFECT bus, and output from this jack. The processed output of the internal DIGI EFFECT does not come out of here, but is added internally to the main out or monitor out.

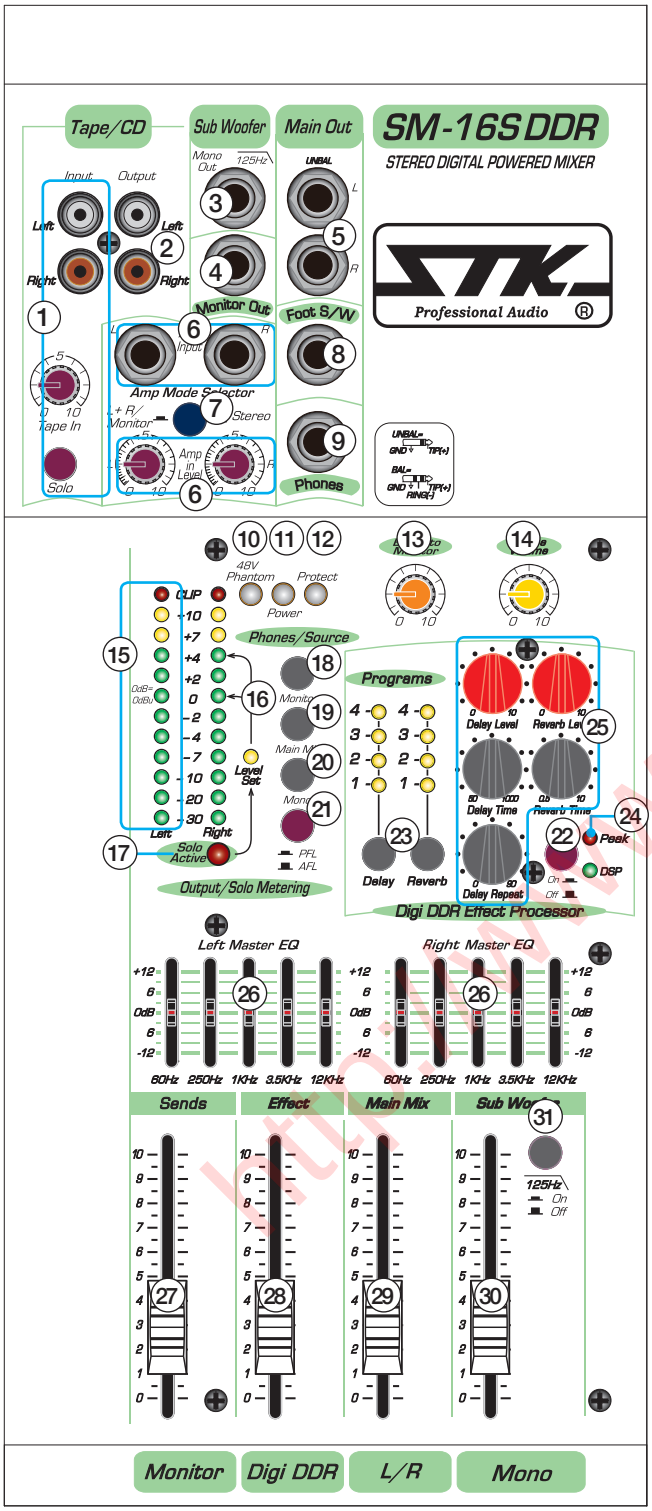
15. Channel Strips and Controls for CH 11-12/13-14(VM-14SDDR),CH13-14/15-16(VM,SM-16SDDR) Inputs

These inputs channel is expanded stereo inputs to use your additional external line level source, or use to stereo Aux inputs, or stereo effect returns. These channel strips each controls and route the signals is are nearly identical to the near stereo channel 9-10. Have channel output level controls, also have independent level controls for the monitor, aux1. The Aux1send phone jack outputs the pre or post fader signal(factory-configured for post-fader operation) ,and it can be used as effect send returns. These two stereo input channels are also feature Solo switches.

6. Panel Descriptions

FRONT PANEL SECTION

C. Master Section



1. Tape Input (Left/Right)

Allows a stereo tape machine, CD player or similar device to be attached via unbalanced RCA connections, and auditioned in the headphone output. To route the tape input to the headphone output. The tape input have input level controls also feature Solo switches

2. Tape Output (Left/Right)

Derived directly from the left/right master output, master EQ input signal pre main fader, allows convenient connection, via unbalanced RCA jacks, to any tape or CD/ recording device.

3. Subwoofer Output Jack

This line level subwoofer output allow you to conveniently add supplemental bass to your system.

The signal is derived from the summed left+right master output and the summed master output is can routed through a 125Hz low pass filter by on off select switch(31).This is usually patched to the inputs of an external power amplifier running a passive subwoofer, or directly to a powered subwoofer.Whatever adjustment you make to the main mix.

4. Monitor Output

Delivers the monitor output mix, through the monitor sends output level control(27).

The monitor output phone jack outputs the monitor bus signal after the monitor send master control, this could be passive stage monitors powered by an external amplifier, or can be connected to the input of a powered monitor speaker.

5. Main Output

These two 1/4"connectors provide a direct feed from the final output of the master stereo main mix.

The level of these is controlled by the main left and right level fader control.

The main output jack out the main bus signal after the 5-band graphic equalizer and main master level fader control, and can be connected to the input of a larger mixer, or a more powerful amplifier. Can also be used to feed an external effect processor, or external active crossover for powered sub woofer systems. This output play the same signal as the rear panel speaker- level outputs, only at line-level.

6. Amp Input Jacks And Amp in Level

Amp In Jacks : This input provides direct access to the built-in power amplifier for a preamplified signal source.Use of this input disconnects the power amplifier from the main mixing buss, post graphic EQ,and allows external input use of the internal power amplifier.

Amp in Level : Provides continuously variable control of the internal power amp output to the passive speakers.The controls just before power amp input signal, after amp in jacks. Turn to full left the amp output no power and turn to full right the amp output is max power, beginning time this

6. Panel Descriptions

level control set is around center and then to control main mix fader level setting, then you will likely have to re-adjust this level control to increase internal power amp outputs.

7. Amp Mode Selector & Level

This switch lets you choose which signals paths from the mixer section are sent to the internal power amplifiers. This allows considerable flexibility in the use of the SM-16SDDR/VM-16SDDR/VM-14SDDR powered mixer. For example, if you already have high power main amplifier with main passive speaker(or high powered type main loudspeakers), you could use these internal power amplifiers to run passive stage monitors.

Stereo Amp Mode(not pushed in) : The speaker outputs from Left/Main is the left side of the main mix post graphic EQ, and speaker outputs from Right/Monitor is the right side of the main mix post graphic EQ . Choose this position to play a straight stereo show.

Mains/Monitor Mode (pushed in) : Left side Left/Main is the mono main mix, and right side Right/Monitor is the monitor mix. In this setup ,you could run a mono PA system on one channel, and a passive stage monitor system on the other.

Do not change the position of the power amp mode switch when the mixer is powered on.

8. DSP Footswitch Jack

The DSP Footswitch jack is a standard 1/4″ size accommodating a monaural ON/OFF Footswitch that enables/disable the internal digital effects. If the internal DSP have already been muted(off) with the front panel ON/OFF switch(22) then the foot switch has no effect.

9. Headphone Output

This is where you plug in your stereo headphones. It is a 1/4" TRS stereo jack and provides from phones/source signal that is routed to the phones amps, as determined by the phones/source matrix (18,19,20,21).The volume is controlled with the PHONES out level (14).

(TIP=LEFT,RING=RIGHT,SLEEVE=CHASSIS)

WARNING: To avoid damage to your hearing, do not operate the headphones or sound system at excessively high volume. Continue exposure to high volume sound can cause frequently selective or wide range hearing loss. Also, headphone minimum impedance is higher than 30 ohms. (nominal 150 to 330ohms)

10. Phantom Power Indicator LED

This LED glows green when the phantom power circuit has been engaged(4.on rear panel)

11. Power LED

This LED glows green to indicate that the unit has been switched on and that AC power has been applied.

12. Protect LED

Your STK power mixer is equipped with a built-in output protection circuit. This LED glows red when there is a system problem and the amplifier has shut down to protect itself and any attached equipment from damage due to an electronic fault or improper usage. The first thing you should do is check all of your connections for proper wiring.

13. Effect To Monitor Control

This control used to route signal from output of the internal DIGI EFFECT to the monitor output jack, this control is used to add effects to the stage monitors.

14. Headphone Out Level

This controls the volume at the phones output(9),from off(0) to maximum gain(max)

15. Meter Assembly

Allows visual monitoring of whichever signals are assigned to headphone outputs. When any signal is in AFL solo mode, that signal's level is shown on the left and right meters. When any signal is in PFL solo mode, the right meter shows that signal's input level.

The meter input signals from phones/source, if nothing is selected in the phones/source matrix (18.19.20.21) and no channels are in SOLO, the meters won't do anything. To display a signal level, a source must be selected in the phones/source matrix, which feeds the PHONES (9) outputs. The meters reflect the program level of the selected source prior to the PHONES level controls. When a channel is soloed, the meters change to reflect the level of that channel's signal level, pre-or post-fader, depending on the SOLO MODE (21) setting.

16. Level Set Indicator and levels

The level set indicator lights when PFL Solo mode is active, indicating that the right meter is displaying whichever signals are assigned headphone outputs. The meters display the main L/R output signals, or the solo(PFL) signals if activated by any solo switches. When a channel is soloed, the meters change to reflect the level of that channels signal level, and the meters indicate before phones knobs giving you the real facts at all times, even if you are not listening at all.

17. Solo Active Indicator

Lights to indicate that AFL or PFL solo mode is activated on one or more input channels.

18. Phone Source Select: Monitor

Directs the monitor outputs to the headphone output, and to the Right meter assemply.

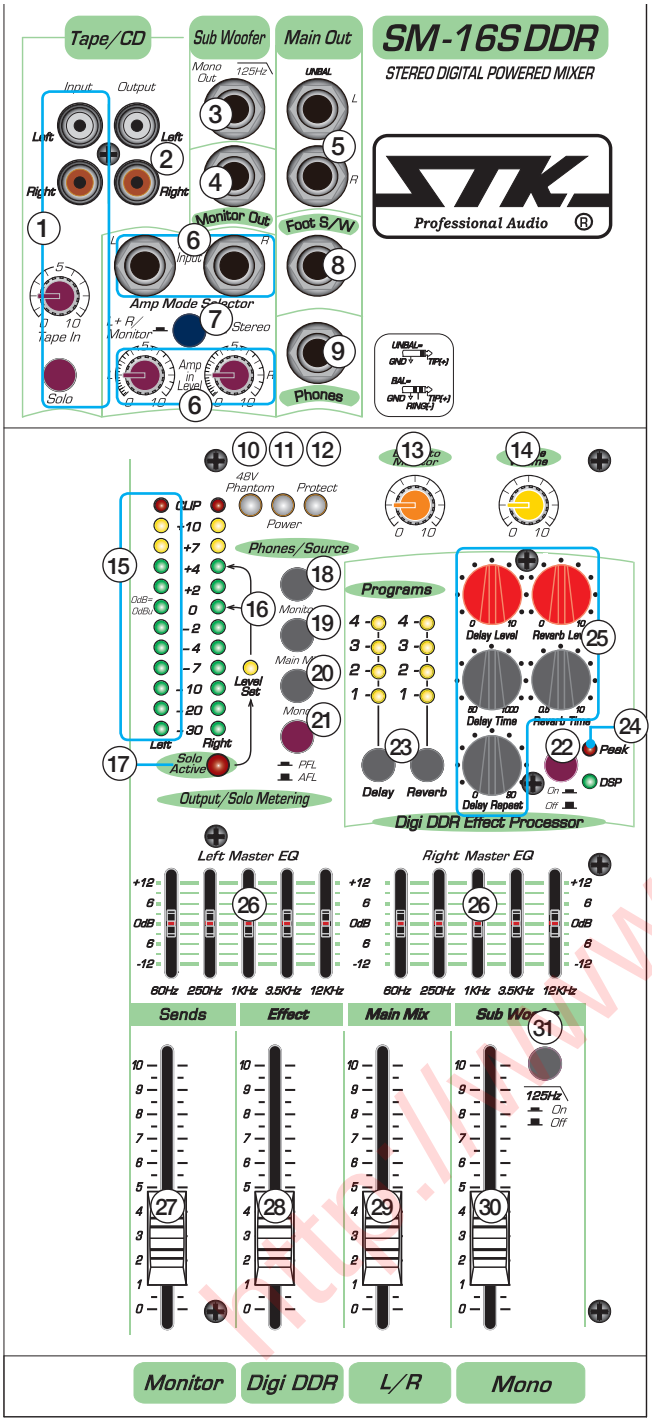
19. Phone Source Select: L/R Master

Directs the left and right master outputs to the head-phone output, and to the meter assembly.

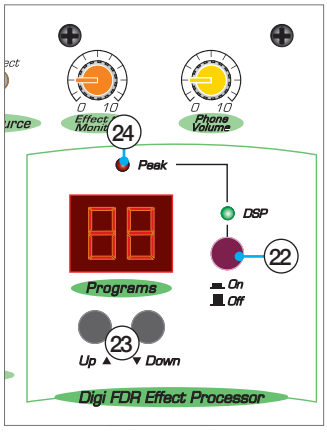
20. Phone Source Select: Mono Output

Directs the mono output to the headphone output, and to the Left meter assembly.

6. Panel Descriptions



SM-16SDDR



SM-16SFDR

FRONT PANEL SECTION

C. Master Section

21. Solo Mode Switch.(PFL/AFL)

Controls whether solo feature is 1) After-fader listen (AFL) up position.2) Pre-fader listen (PFL) down position. Engaging a channel's SOLO switch will cause this dramatic turn of events: That existing main input signals selections are replaced by the SOLO signal, the SOLO signal, appearing at the headphones, and at the right meter(left and right meters when in AFL solo mode).The audible SOLO sound levels are then controlled by the phone level control knob(14), but the SOLO levels appearing on the meters are not controlled by the phone level control knob.

You want to see the actual channel level on the meters regardless of how loud you're listening. With the SOLO MODE switch in the down position, you're in PFL mode, meaning Pre-Fader Listen. This mode is required for the "set the levels" procedure(4. MonoCH) and is handy for quick spot-checks of channels. Especially ones that have their faders turned down. With this switch down, you're in AFL mode, meaning After-Fader Listen. You'll hear the stereo output of the soloed channel- it will follow the channel's GAIN, EQ, FADER and PAN settings. It's similar to muting all the other channels, but without the hassle. Use AFL mode during mix down. In PFL Mode. Remember, PFL mode taps the channel signal before the fader.

22. DSP On/Off Switch

This push control activates/deactivates the internal DIGI EFFECT. The LED will turn on as a reminder that DSP signal is mute off.

23. Digital Effect Program Select Switch.

VM-14SDDR, VM-16SDDR, SM-16SDDR

Determine the application program of desired effect sound. These Program Key allows for the selection of each 4 different types of reverb and delay programs with variable times by each potentiometers (25).

Delay Program Select: 1) Delay. 2) Delay 3 Tap Pan. 3) Delay Cross Feedback. 4) Delay One Short.

Reverb Program Select: 1) Reverb Hall. 2)Reverb Room. 3) Reverb Plate 4) Reverb Ambinet.

VM-14SFDR, VM-16SFDR, SM-16SFDR : Determine the application program of desired effect sound. These Program Key allows for the selection of 99 different types of Effect sounds.

Reverb Effect Programs.

Reverb Hall : Number 01(2.0 sec) to number 08(10.0 sec).
Reverb Room : Number 09(1.0 sec) to number 14(4.0 sec).
Reverb Plate : Number 15(1.0 sec) to number 20(4.0 sec).
Ambient : Number 21(0.5 sec) to number 25(1.6 sec).

6. Panel Descriptions

Gated Reverb : Number 26(75msec) to number 31(300msec).
Reverse Reverb : Number 32(75msec) to number 37(300msec).

Karaoke(Echo) Programs

Karaoke 1(Delay + Reverb) : Number 38(155msec) to number 41(220msec).
Karaoke 2(Delay + Reverb) : Number 42(155msec) to number 45(220msec)
Echo & Hall : Number 46(0.25/2.5 sec) to number 50(0.5/5.0 sec)
Karaoke 3(Echo + Reverb) : Number 51(100msec) to number 61(800msec)

Delay Effect Programs

Single Delay : Number 62(50msec) to number 69(500msec)

Modulation Effect Programs

Chorus : Number 70(fast) to number 78(slow/4.0sec)
Flanger : Number 79(fast) to number 87(slow/4.0sec)
Tremolo : Number 88(fast) to number 93(slow/4.0sec)
Wah-Wah : Number 94(fast) to number 99(slow/4.0sec)
*Note: The Chorus, Flanger, Wah-Wah speed definition is as Slow 0.5Hz/Medium 2.5Hz/Fast 5Hz.
*Note: The Tremolo speed definition is as Slow 1.66Hz/Medium 2.5Hz/Fast 5Hz.
*Note: For all each effect number time details are please refer to the last specification page.

24. DSP Peak indicator

The purpose of the red PEAK LED is indicate, when digital effect input signal is dangerously close to clipping. This LED will flicker when DSP input signal level reaching the DIGI EFFECT processor is in a good operating range. The LED turn on level is -7dB before clip that you still have margin but if continuously turn on this LED, then the DIGI EFFECT processor is being overloaded with too strong signal. Turn down the knobs(CH Aux2/EFX) if it is. Just sometimes LED turn on signal level is best for good DIGI EFFECT sound. The signal levels going into the DSP are affected by channel Aux2/EFX controls, and the channel level fader controls. Check the LED if you alter these controls.

25. DIGITAL EFFECT Time controls

ONLY FOR VM-14SDDR, VM-16SDDR and SM-16SDDR.
The each Effect program parameters controlled by these linear potentiometer, the all controls are no scratch effects or distorted audio sound appears during parameter variations .
Effect Parameters Control.
Dealy.Reverb Level Control : This level controls the each Delay and Reverb output signal level from the DSP.
Delay time control : This control adjust the delay time range. Turn to full right the delay time range are 1000msec, and turn to full left the delay time range are 50msec.
Reverb time control : This control adjust the reverb time range. Turn to full right the reverb time range are 10sec, and turn to full left the reverb time range are 50msec.
Delay Repeat control : This control adjust the delay feedback range. Turn to full right the feedback amounts are 90%,and turn to full left the feedback amounts are 0%.

FEATURES

The STK PROFESSIONAL AUDIO DIGI EFFECT processors gives the power to create original sounds with a wide range of effects. Each effect patch(effect setting) can be stored in the internal memory, calling up any patch is quick and easy by linear potentiometer.

APPLICATIONS

* Longtime delay and repeat for moslem church.
* Very clean and bright echo feedback and delay for european karaoke vocal sound.

26. Graphic Equalizer(Left Master)

This 5 band stereo graphic equalizer adjust the left and right main mix output, it affects the line-level outputs(5.3), as well as the main speaker-level outputs. Each sliders allows you to adjust the level of its frequency band, with up to 12dB boost or cut, and no change in level at the center(0 dB) position. The EQ section comes before the main level and meter assembly. Therefore, as you adjust the EQ, you can keep an eye on the meters in case you over-do it and take the levels into overload. The graphic EQ is provided for overall system tonal control and acoustic feedback control.

27. Monitor Master Level Control

This fader control provides independent overall adjustment of the signal to Monitor Output, and to the Monitor amplified output, when in Main+Monitor mode.

28. Digital Effect Master Control

This master EFECT fader control adjust the level of the internal DIGI EFFECT signal fed to main buses.

29. MAIN Mix L/R Level Control

This fader Control adjusts the main bus signal for post 5 band stereo EQ. And this setting is output to left and right main out jack output . This control also affects main meter assembly, internal power amplifier inputs , and the speaker –level outputs. This gives you ultimate control over your audience. Adjust carefully, with your good eye on the meters to prevent overloading, and your good ear to the levels to make sure audience is happy.

30. Mono Master Level (Subwoofer)

Provides continuously variable control over the signal to the mono output. The Mono Master fader control is a sum of the left and right mix buses, buffered with its own output amplifiers, post main mix L/R fader control.

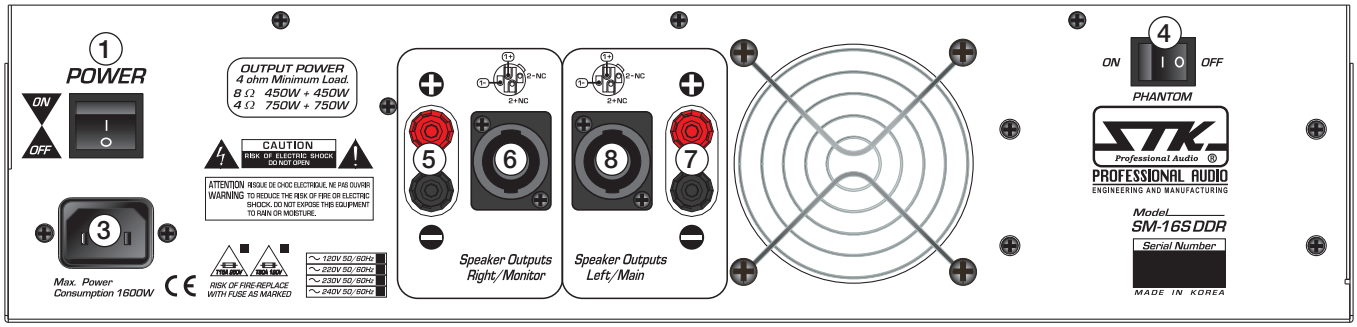
31. Subwoofer Switch

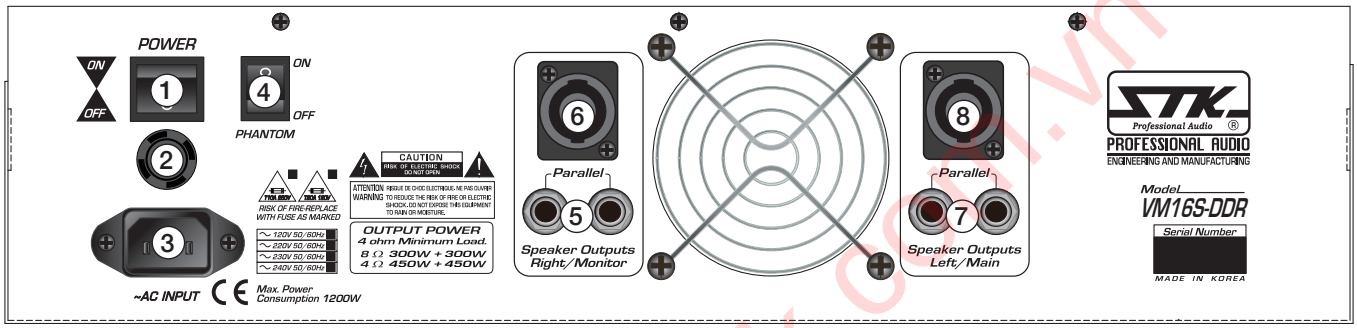
This push control activates/deactivates of the low pass filter to subwoofer output jack. the low pass frequency is 125Hz.

6. Panel Descriptions

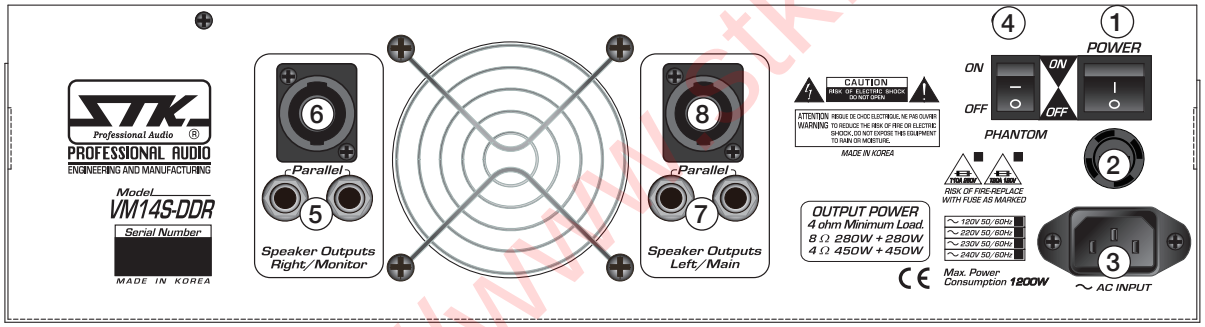
D. REAR PANEL SECTION

SM-16SDDR





VM-16SDDR



VM-14SDDR

1. Power Switch

This switch controls the AC mains power to your SM-16SDDR, FDR/VM-16SDDR, FDR/VM-14SDDR, FDR console powered mixer. Power is on when the switch is in the on(up) position and is confirmed when the power LED indicator is illuminated on the front panel.

Note : Before turning on or off the mixer. It is a good idea to turn down the main master and monitor master controls. As a general guide, you should turn on your STK console power mixer first, before any external power amplifiers or powered speakers, and turn it off last. This will reduce the possibilities of any turn-on, or off thumps in your speakers.

2. Fuse

VM-16SDDR, FDR/VM-14SDDR, FDR : The fuse is located in the fuse holder.

SM-16SDDR, FDR : The fuse is located on the SMPS primary filter circuit board the inside of the unit.

WARNING: To avoid possible equipment damage and/or personal injury, the fuse should always be replaced with the same type and rating. Using improper fuses will void the warranty. The power mixers should always be disconnected from AC outlet prior to fuse changing. If the fuse repeatedly fails, the unit should be referred to qualified service personal for repair.

Type and rating.

VM-16SDDR, FDR/VM-14SDDR, FDR:

T 20A 250V for 100V-120V AC mains power.

T 10A 250V for 220V-240V AC mains power.

SM-16SDDR, FDR:

T 30A 250V for 100V-120V AC mains power.

6. Panel Descriptions

T 15A 250V for 220V-240V AC mains power.

3. IEC Socket

This is where you connect the supplied AC line cord to provide AC power to the SM-16SDDR/VM-16SDDR/VM-14SDDR console powered mixer. This socket accepts the supplied 3-prong IEC AC power cord. before you plug AC power cord into the powered mixer, make sure that the voltage of your unit is the same voltage as your local AC mains supply. Use only the power cord supplied. Also, disconnecting the plug's ground pin is dangerous. Please don't do it.

4. Phantom Power Switch

This switch control provides 48V of DC power to the independent channel XLR inputs for the use of condenser microphone without external battery. The LED will turn on as a reminder that phantom power is engaged on the front pannel.
Never plug single-ended(unbalanced)microphones, or ribbon mics into the mic input jacks if phantom power is on.

5.6. Right/Monitor Speaker Output Jack

These two parallel speaker output jacks accept standard 1/4″ two-conductor phone plugs(SM-16SDDR: 5-way binding post) or NL4FC matching speakon connectors, providing maximum rated power at 4 ohms or at 8 ohms. Load impedances less than 4 ohms will not draw additional power and may cause the unit to go into protect mode. Only passive loudspeakers should be connected to these speaker-level outputs.

Warning : failure to correct this can result in damage to your unit !

The function of these jacks depends upon the position of the Amp mode select assign switch(located on the master section of the front control panel). If the Amp mode select assign switch is in the stereo position (not Pushed in), the unit is in the left & right mode. The power amplifier driving these outputs then gets its signal from right main bus, the output level is controlled by the master level control, and the right 5-band EQ is used for final equalizing of the right side. If the Amp mode select assign switch is in the L+R/monitor position(pushed in), the unit is in the Main+Monitor mode. The power amplifier driving these outputs then gets its signal from the monitor circuit. The output level is controlled by the monitor level control, the left 5-band EQ is not affected of the monitor speakers.

7.8. Left/Main Speaker Output Jack

These two parallel speaker output jacks accept standard 1/4″ two-conductor phone plugs(SM-16SDDR: 5-way binding post) or NL4FC matching speakon connectors , providing maximum rated power at 4 ohms at 8ohms. Load impedances less than 4 ohms will not draw additional power and may cause the unit to go into protect mode. Only passive loudspeakers should be connected to these speaker-level outputs.

Warning: failure to correct this can result in damage to your unit!

The function of these jacks depends upon the position of the Amp mode select assign switch is in the stereo position (not Pushed in), the unit is in the left & right mode. The power amplifier driving these outputs then gets its signal from left main bus, the output level is controlled by the master level control,and the left 5-band EQ is used for final equalizing of the left side. If the Amp mode select assign switch(7) is in the L+R/ monitor position(pushed in), the unit is in the Main+Monitor mode. The signal from the right and left buses is combined and feeds the power amplifier that drive these output jacks. The output level is controlled by the mono fader level control post L/R main mix fader and post left/right stereo 5-band EQ.

7. Troubleshooting

There is no power

- Make sure the power cord is firmly connected to the back of the unit and to the power outlet.If using a power strip/surge-protector, make sure that it is plugged in and switched on.
- If using a power strip/surge-protector, make sure that it is plugged in and switched on.

There is no sound

- Make sure the MASTER and input CHANNELS level controls VOLUME knobs are set to an audible level.
- If using microphones, make sure they are connected properly and cables are not defective.
- If using an external player, make sure they are connected properly and cables are not defective.
- If an external effects device is connected, make sure it is powered on.

The sound has static

- Check the EQ settings. You may have set the EQ settings too high.
- You may have a line-level signal connected to the Mono CH mic inputs. Connect only mics on XLR connectors and connect only music instruments to the each channels 1/4" line input jacks.

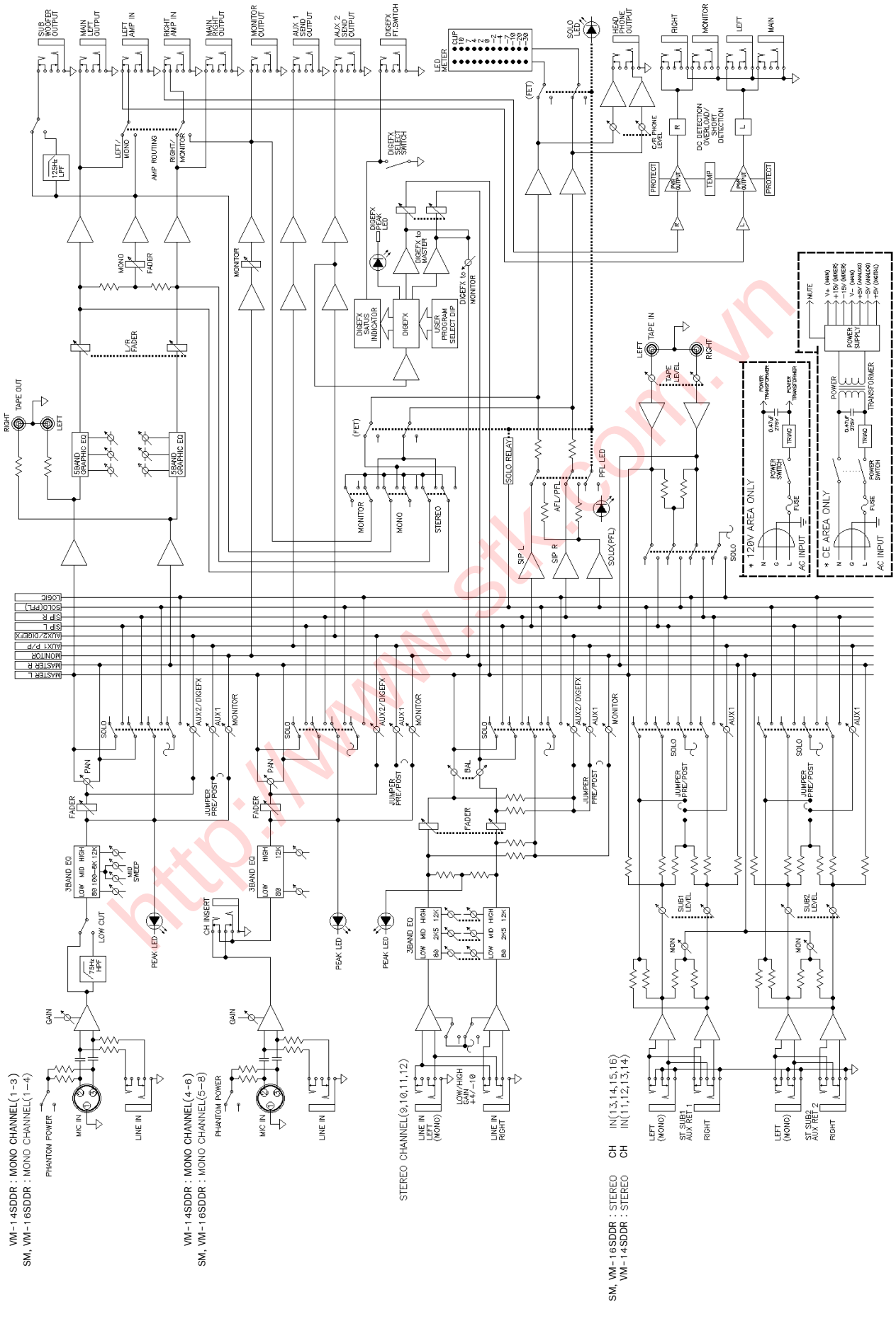
Noise

- Make sure everything is connected firmly and properly.
- Make sure there are no defective cables.
- Turn the channel levels down, one by one. If the sound disappears, it's either that channel or whatever is plugged it, so unplug whatever that is.If the noise disappears, it's from your whatever.

Bad output

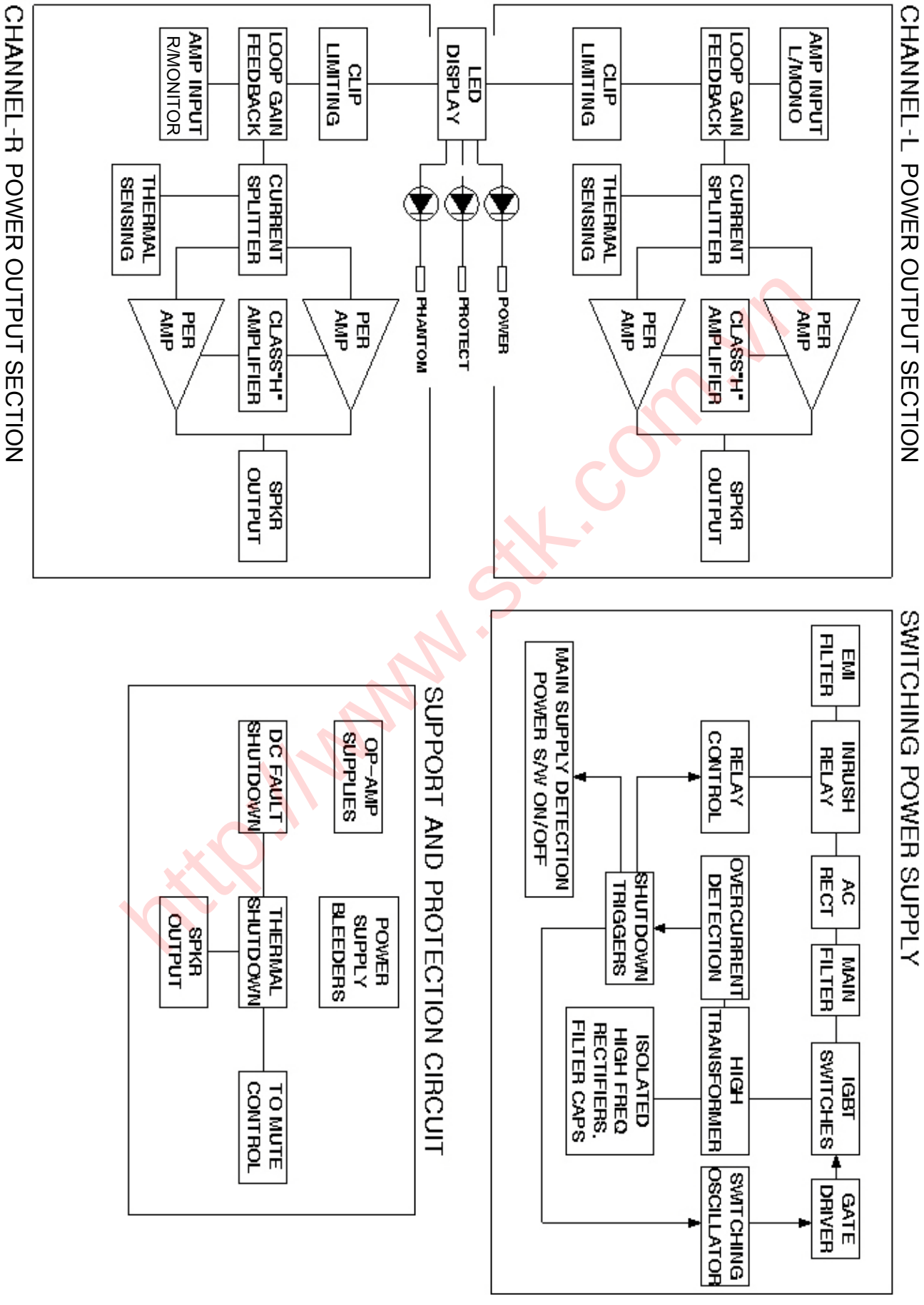
- Make sure graphic EQ's set to reasonable level.
- Unplug anything from the main line-level outputs, or other line level outputs, such as the Mon out, Aux and Efx out, just in case one of your external pices has a problem.
- If the internal power amplifier clipping, you may be overdriving the amplifiers. Check the loudspeaker average load impedance is not less than 4 ohms. Check the speaker wiring.

8. Block Diagram



8. Block Diagram

SM-16SDDR, FDR ONLY



9. Specifications

■ General Specifications

Model			SM-16SDDR, FDR	VM-16SDDR, FDR	VM-14SDDR, FDR
Output Power 1㎑ @ EIA THD 8 Ω per channel 4 Ω per channel			 2 x 450 W 2 x 750 W	 2 x 290 W 2 x 430 W	 2 x 290 W 2 x 430 W
Total Harmonic Distortion f=1kHz, Rated Output			0.05%		
Frequency Response 20 Hz~20 kHz, 8 Ohm, 1 watt CH IN to Main OUT @+4dBu			 +1, -2 dB +1, -2 dB		
Hum and Noise 20 Hz~20 kHz, Rs=150Ohm,			-128 dB Equivalent input noise -70 dB Residual output noise (SP OUT) -97 dB Residual output noise (MAIN OUT)		
Crosstalk at 1kHz			60 dB at 1 kHz, adjacent channel inputs. 60 dB at 1 kHz, Input to Output.		
Equalization Mono Channel			**CH 1 - CH 4 & CH 5 - CH 8**		**CH 1 - CH 6**
	High ± 15 dB		12KHz Shelving	12KHz Shelving	12KHz Shelving
	Mid ± 12 dB	Hi Mid	100Hz-8KHz Sweep Peaking	3KHz Peaking	100Hz-8KHz Sweep Peaking
		Low Mid		800Hz Peaking	
	Low ± 15dB		80Hz Shelving	80Hz Shelving	80Hz Shelving
Equalization Stereo Channel			**CH 9.10 - CH 11.12**		**CH 7.8 - CH 9.10**
	High ± 15 dB		12KHz Shelving		12KHz Shelving
	Mid ± 12dB		2.5KHz Peaking		2.5KHz Peaking
	Low ± 15dB		80Hz Shelving		80Hz Shelving
Low Cut Filter			18 dB / Oct 75 Hz CH 1, 2, 3, 4		18 dB / Oct 75 Hz CH 1, 2, 3
Graphic Equalization			± 12 dB maximum boost or cut in stereo 5 bands. 60, 250, 1k, 3.5K,12kHz : peaking.		
Protection circuit			Short circuit current limit, Thermal protection DC protection at speaker output, Power ON/OFF transient, AC line fuse.		
Indicators			12 digit level meter(mix out level) Protect (Red) Power (Green) Phantom (Yellow) CH peak, Solo Active, DSP On, 8 Program Indicator of DDR Effect		
DC offset voltage			≥DC10 mV		

NOTES : Specifications subject to change without notice.

9. Specifications

■ General Specifications

Model	SM-16SDDR, FDR	VM-16SDDR, FDR	VM-14SDDR, FDR
Dimension (W×D×H)	470×415×151 mm	470×415×151 mm	420×415×151 mm
Weight/ Unit	14.10 Kg	21.44 Kg	19.44Kg
Power Consumption 1/3 power	850 VA	500 VA	500 VA
Fuse Type/ Rating	120V: 30A/250V 220-240V: 15A/250V	120V: 20A/250V 220-240V: 10A/250V	120V: 20A/250V 220-240V: 10A/250V

NOTES : Specifications subject to change without notice.

■ DIGI EFFECT PROCESSOR section

DDR Type DIGI EFFECT PROCESSOR section.

Digital Effect Programs

Delay Program Selects

1) Delay 50msec-1000msec.
2) Delay 3 Tap Pan. 50msec-1000msec
3) Delay Cross Feedback. 50msec- 1000msec
4) Delay One Short 50msec-1000msec.

Delay Repeat control

Feedback amount : 0-90% for all delay programs.

Reverb Program Selects

1) Reverb Hall 50msec-10sec
2) Reverb Room. 50msec-10sec
3) Reverb Plate 50msec-10sec
4) Reverb Ambinet 50msec-10sec

Dealy + Reverb Mixing Level

Mixing amount : Variable 0 to 100% of either Delay or Reverb from the DSP.

9. Specifications

■ FDR TYPE DIGI EFFECT PROCESSOR section.

Digital Effect Program Chart

REVERBRATION EFFECTS(45)	
01. Reverb Hall	2.0 sec.
02. Reverb Hall	2.5 sec.
03. Reverb Hall	3.0 sec.
04. Reverb Hall	4.0 sec.
05. Reverb Hall	5.0 sec.
06. Reverb Hall	6.0 sec.
07. Reverb Hall	8.0 sec.
08. Reverb Hall	10.0 sec.
09. Reverb Room	1.0 sec.
10. Reverb Room	1.5 sec.
11. Reverb Room	2.0 sec.
12. Reverb Room	2.5 sec.
13. Reverb Room	3.0 sec.
14. Reverb Room	4.0 sec.
15. Reverb Plate	1.0 sec.
16. Reverb Plate	1.5 sec.
17. Reverb Plate	2.0 sec.
18. Reverb Plate	2.5 sec.
19. Reverb Plate	3.0 sec.
20. Reverb Plate	4.0 sec.
21. Ambient	0.5 sec.
22. Ambient	0.7 sec.
23. Ambient	1.0 sec.
24. Ambient	1.3 sec.
25. Ambient	1.6 sec.
26. Gated Reverb	75 ms
27. Gated Reverb	100 ms
28. Gated Reverb	125 ms
29. Gated Reverb	150 ms
30. Gated Reverb	200 ms
31. Gated Reverb	300 ms
32. Reverse Reverb	75 ms
33. Reverse Reverb	100 ms
34. Reverse Reverb	125 ms
35. Reverse Reverb	150 ms
36. Reverse Reverb	200 ms
37. Reverse Reverb	300 ms

ECHO. DELAY EFFECTS(24)	
KARAOKE 1	
38. DRV 1	155 ms
39. DRV 1	175 ms
40. DRV 1	200 ms
41. DRV 1	220 ms
KARAOKE 2	
42. DRV 2	155 ms
43. DRV 2	175 ms
44. DRV 2	200 ms
45. DRV 2	220 ms
46. Echo & Hall	.25/2.5 sec.
47. Echo & Hall	.3/3.0 sec.
48. Echo & Hall	.35/3.5 sec.
49. Echo & Hall	.4/4.0 sec.
50. Echo & Hall	.5/5.0 sec.
KARAOKE 3	
51. ERV	100 ms
52. ERV	125 ms
53. ERV	200 ms
54. ERV	250 ms
55. ERV	250 ms
56. ERV	300 ms
57. ERV	350 ms
58. ERV	400 ms
59. ERV	500 ms
60. ERV	650 ms
61. ERV	800 ms
62. Single Delay	50 ms
63. Single Delay	100 ms
64. Single Delay	150 ms
65. Single Delay	200 ms
66. Single Delay	250 ms
67. Single Delay	300 ms
68. Single Delay	400 ms
69. Single Delay	500 ms

MODULATION EFFECTS(30)	
70. Chorus	fast
71. Chorus & Echo	fast/0.1s
72. Chorus & Room	fast/1.0s
73. Chorus	medium
74. Chorus & Echo	med/0.2s
75. Chorus & Hall	med/2.0s
76. Chorus	slow
77. Chorus & Echo	slow/0.3s
78. Chorus & Hall	slow/4.0s
79. Flanger	fast
80. Flanger & Echo	fast/0.1s
81. Flanger	fast/1.0s
82. Flanger	medium
83. Flanger & Echo	med/0.2s
84. Flanger & Hall	med/2.0s
85. Flanger	slow
86. Flanger & Echo	slow/0.3s
87. Flanger & Hall	slow/4.0s
88. Tremolo	fast
89. Tremolo & Room	fast/1.0s
90. Tremolo	medium
91. Tremolo & Hall	med/2.0s
92. Tremolo	slow
93. Tremolo & Hall	slow/4.0s
94. Wah Wah	fast
95. Wah Wah & Room	fast/1.0s
96. Wah Wah	medium
97. Wah Wah & Hall	med/2.0s
98. Wah Wah	slow
99. Wah Wah & Hall	slow/4.0s

Note : Chorus, flanger, Wah-Wah speed definition
slow : 0.5Hz/Medium : 2.5Hz/Fast : 5Hz Tremolo speed definition :
slow : 1.66Hz/Medium : 2.5Hz/Fast : 5Hz

9. Specifications

DDR, FDR Type Digital PROCESSOR FEATURES

- Real Dual Effect sound for delay and reverb with unlimited decay time by control potentiometer(DDR type).
- 4 group select reverb sounds and 4 group select delay sounds (DDR Type).
- Real 99 stereo-Effect preset available divided into 26 combination and 63 single effect sound(FDR type).
- 2-Digital 7-segment numeric display interface for preset 1-99 indication(FDR type).
- An integrated E2-ROM watchdog is bypassing the storage device.
- Easy program selection methods by 2 key which can preset up and down.
- The once choose preset effect is automatically stored by on board E2-PROM.
- Easy level control ,time and repeat adjust by potentiometer at reverb and delay mode.
- Automatic input audio signal "overshooting" indication circuit on-board.
- Usage of a 1M byte SRAM for superior quality stereo reverb and delay sound.
- Usage of the famous ASAHIKASEI 24bit DSP with built in 20 bit AD/DA stereo converter.
- 20bit delta sigma 64 x oversampling AD converter.
- 20bit delta sigma 128 x oversampling AD converter.
- 64 x oversampling ADC digital filter.
- 128 x oversampling DAC digital filter.
- CD-quality professional sound a reality.

9. Specifications

♪ Input specifications

Input terminals	Actual load Impedance	For use with nominal	Input level			Connector in mixer
			Sensitivity	Nominal	Max. before clip	
Mic In	4 kΩ	50-600Ω mic	-60 dBu (0.77mV)	-55 dBm (1.38mV)	-25 dBu (43.7mV)	XLR Jack
Line In	10 kΩ	600 Ω lines	-40 dBu (7.75mV)	-35 dBu (13.8mV)	0 dBu (0.77 V)	Phone Jack
Stereo In	10 kΩ	600 Ω lines	0 dBu (775mV)	0 dBu (775 mV)	+15 dBu (4.36 V)	Phone Jack
Aux Returns 1,2/ ST Sub In (1,2)	10 kΩ	600 Ω lines	-16 dBu (123mV)	-10 dBu (245mV)	+10 dBu (2.45 V)	Phone Jack
Tape In (L, R)	10 kΩ	600 Ω lines	-16 dBu (123 mV)	-10 dBu (245 mV)	+15 dBu (4.36 V)	RCA Jack
CH Insert In (5,6,7,8)	10 kΩ	600 Ω lines	+4 dBu (1.23V)	+4 dBu (1.23V)	+15 dB (4.36 V)	Phone Jack
Amp In (L, R)	10 kΩ	600 Ω lines	+4 dBu (1.23V)	+4 dBu (1.23V)	+4 dBu (1.23V)	Phone Jack

NOTES : (1) Sensitivity is the lowest level that will produce a full power output, or the nominal output level when the unit is set to maximum gain.
(2) XLR connectors are balanced. Phone jacks are unbalanced
(3) Specifications are subject to change without notice.

♪ Output specifications

Output terminals	Actual load Impedance	For use with nominal	Input level		Connector in mixer
			Nominal	Max. before clip	
Main Out (L, R)	150 Ω	600 Ω lines	+4dBu (1.23V)	+20 dBu (7.75V)	Phone Jack
Mono Out (Sub Woofer)	150 Ω	600 Ω lines	+4dBu (1.23V)	+20 dBu (7.75V)	Phone Jack
Aux Send 1,2	150 Ω	600 Ω lines	+4dBu (1.23V)	+20 dBu (7.75V)	Phone Jack
Monitor Out	150 Ω	600 Ω lines	+4dBu (1,23V)	+20 dBu (7.75V)	Phone Jack
Tape Out (L, R)	600 Ω	600 Ω lines	-10dBu (245mV)	+20 dBu (7.75V)	RCA Jack
Headphone Out (L, R)	200 Ω	40 Ω Phones	180mW+180mW	180mW+180mW	Phone Jack

NOTES : (1) All connectors are unbalanced.
(2) In these specifications, when dBu represents a specific voltage, 0 dBu is referenced to 0.775 Vrms.
(3) Specifications are subject to change without notice.

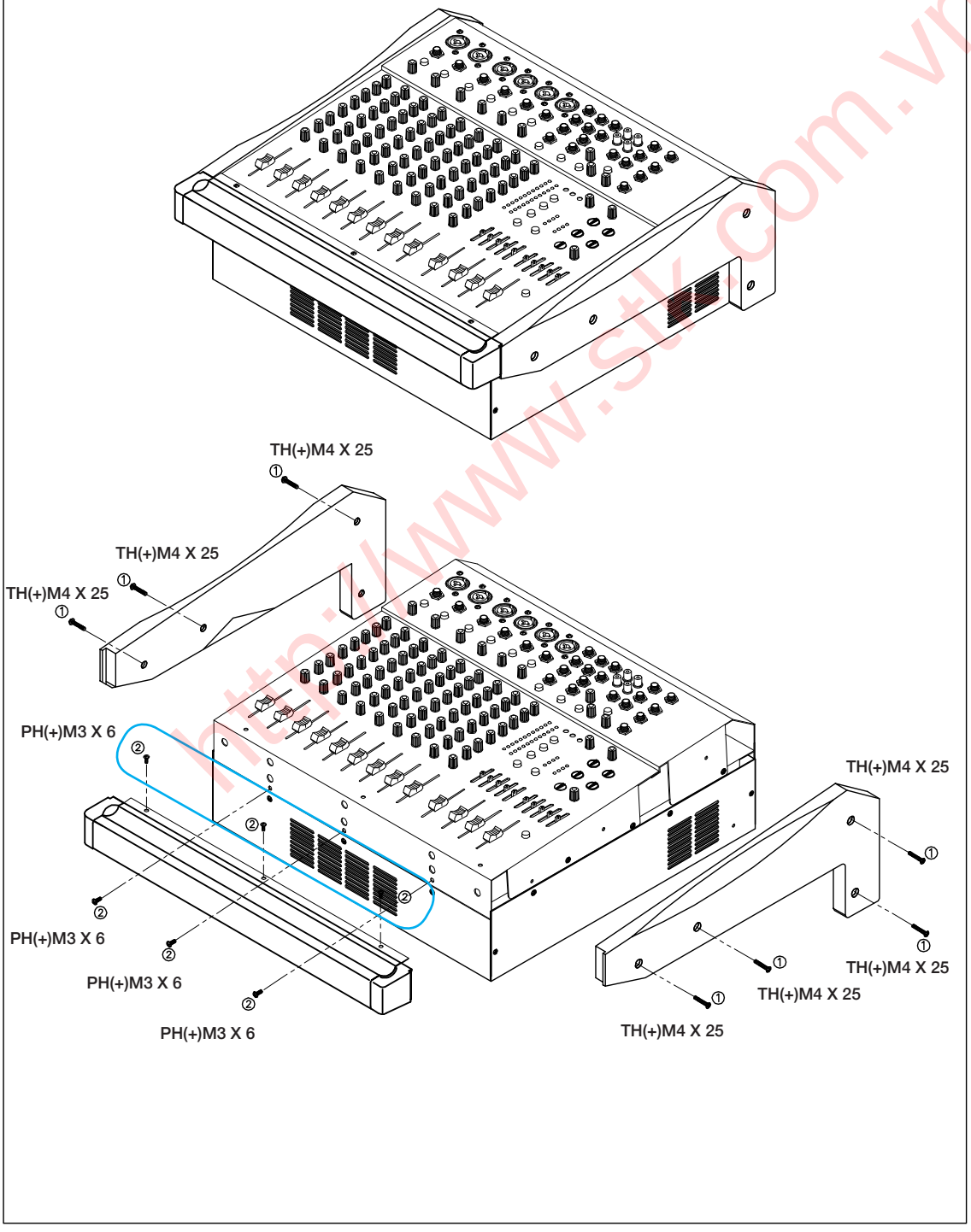
10. Rack Bracket Mounting

INSTRUCTION

- Remove the mains and all other connections before starting.
- Remove the AC power cord cable.
- Unscrew the fourteen retaining screw on the left, right and front.(see Figure a)
- Remove L,R wood side board and front arm and store it in a safe place
- Check to correct Hole position, and temporarily attach the front rack bracket firstly with specified screws, also tighten other remaining 3 of screws(②) on the top of front (see Figure b) .
- And then also temporarily attach the left and right rack brackets with specified screws. (see Figure b)
- Check to good match up each rack bracket and then tighten all the screws.

Figure a

	DESCRIPTION	Q'TY	SPECIFICATION
1	TAPPING SCREW	8	TH(+)M4×25
2	MACHINE SCREW	6	PH(+)M3×6



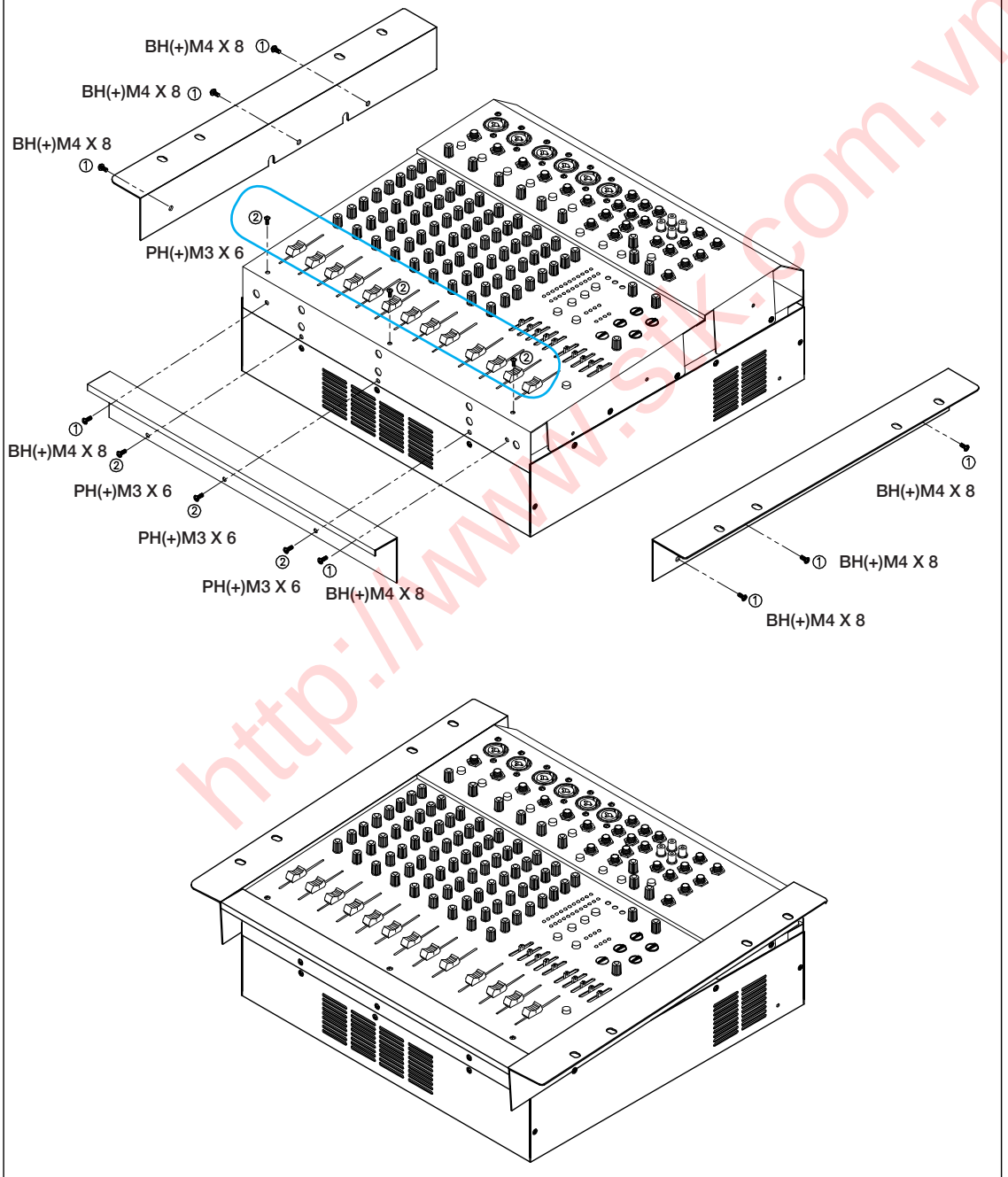
10. Rack Bracket Mounting

설치 방법

- 시작하기 전에 모든 연결을 해제해 주세요.
- AC 전원 코드를 해제해 주세요.
- 프론트와 좌, 우측의 스크류 14 개를 풀어내세요.
- 좌, 우 사이드 보드와(스크류포함) 프론트 암을 떼어내 안전한 곳에 보관합니다(그림 a 참조).
- 올바른 홀 위치 확인 후, 지정된 스크류를 사용해서 프론트 랙 브라켓을 임시로 고정시켜 주시고 풀어낸 나머지 3 개의 (②) 스크류도 전면상측부위의 제자리에 조여주세요(그림 b 참조)
- 다음으로 좌, 우측의 랙 부라켓을 지정된 스크류를 사용해서 임시로 고정합니다(그림 b 참조).
- 3 개의 랙 부라켓이 보기 좋게 부착되었는지 확인 후 모든 스크류를 완전히 조여주십시오.

Figure b

	DESCRIPTION	Q'TY	SPECIFICATION
1	TAPPING SCRWE	8	BH(+)M4 × 8
2	MACHINE SCREW	6	PH(+)M3×6



Note

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ENGINEERING AND MANUFACTURING

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STK Professional Audio

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