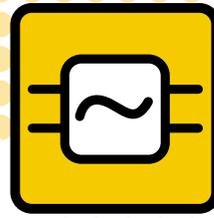


SQUEEZ



owner's manual

SQ•2



TAPCO[®]
by **MACKIE**[®]

CAUTION AVIS



RISK OF ELECTRIC SHOCK
DO NOT OPEN
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL**

ATTENTION: POUR EVITER LES RISQUES DE CHOC
ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN
ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER
L'ENTRETIEN AU PERSONNEL QUALIFIE.
AVIS: POUR EVITER LES RISQUES D'INCENDIE OU
D'ELECTROUCUTION, N'EXPOSEZ PAS CET ARTICLE
A LA PLUIE OU A L'HUMIDITE



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'électrocution.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

SAFETY INSTRUCTIONS

1. Read Instructions — All the safety and operation instructions should be read before this product is operated.
2. Retain Instructions — The safety and operating instructions should be kept for future reference.
3. Heed Warnings — All warnings on this product and in these operating instructions should be followed.
4. Follow Instructions — All operating and other instructions should be followed.
5. Water and Moisture — This product should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, etc.
6. Cleaning — Clean only with a dry cloth.
7. Ventilation — This product should be situated so that its location or position does not interfere with its proper ventilation. For example, the Component should not be situated on a bed, sofa, rug, or similar surface that may block any ventilation openings, or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through ventilation openings.

8. Heat — This product should be situated away from heat sources such as radiators, or other devices which produce heat.
9. Power Sources — This product should be connected to a power supply only of the type described in these operation instructions or as marked on this product.
10. Power Cord Protection — Power supply cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit this product.
11. Object and Liquid Entry — Care should be taken so that objects do not fall on, and liquids are not spilled into, this product.
12. Damage Requiring Service — This product should be serviced only by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has spilled into this product; or
 - C. This product has been exposed to rain; or
 - D. This product does not appear to operate normally or exhibits a marked change in performance; or
 - E. This product has been dropped, or its chassis damaged.
13. Servicing — The user should not attempt to service this product beyond those means described in this operating manual. All other servicing should be referred to the Tapco Service Department.
14. To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, un prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans laisser aucune partie à découvert.

15. Grounding or Polarization — Precautions should be taken so that the grounding or polarization means of this product is not defeated.
16. Power Precaution — Unplug this product during lightning storms or when unused for long periods of time.
17. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION — Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministères des communications du Canada.

PORTABLE CART WARNING



Carts and stands - The Component should be used only with a cart or stand that is recommended by the manufacturer. A Component and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the Component and cart combination to overturn.

WARNING — To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

18. Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart.

According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent permanent hearing loss if exposure is in excess of the limits set forth here.

Duration Per Day In Hours	Sound Level dBA, Slow Response	Typical Example
8	90	Packed garage concert
6	92	
4	95	VW Bus Peace Train
3	97	
2	100	Cranked psychedelic tunes
1.5	102	
1	105	High speed chase on C.H.I.P.s
0.5	110	
0.25 or less	115	Loudest parts at a Heavy Metal concert

What me, read a manual?

Before you begin, please make sure you read the Safety Instructions on page 2 and Getting Started on page 4.

Your new TAPCO® SQ•2 is designed to set up quickly and operate easily. We know it's often seen as a sign of weakness to read a manual, along with asking for directions when lost, but maybe you can read the rest when nobody is looking.

It is important to keep your receipt in a safe place, and not a bad idea to write your product information here for future reference (i.e., insurance claims, tech support, return authorization, etc.).

Product Serial #:

Purchased at:

Date of purchase:



Getting Started

The following steps will help you set up your SQ•2, and get the levels just right.

SETTINGS:

1. Be sure the SQ•2's POWER switch is off.
2. Turn all the controls to their center positions (12 o'clock) and set all the switches out.

CONNECTIONS:

1. Using balanced or unbalanced cables, connect your mixer's main outputs to the SQ•2's inputs, and the SQ•2's outputs to your amplifier's (or powered speakers') inputs.

If you are using the SQ•2 in a channel's insert, connect your mixer's channel insert to the SQ•2's INPUTS and OUTPUTS.

Refer to page 11 to learn how to connect and use the SIDE CHAIN feature.



Note: The SQ•2 Compressor/Limiter/Gate is designed to be inserted "in-line" with the signal as a serial device. This means that the entire signal is routed through the processor, in contrast to a parallel

device where the processed signal is mixed back with the unprocessed signal, like a reverb or echo.

2. Connect the cables using either XLR or 1/4" TRS connectors (balanced), or 1/4" TS connectors (unbalanced).
 - The XLR and TRS inputs for each channel are wired in parallel. Use only one input per channel.
 - The XLR and TRS outputs for each channel are wired in parallel.
 - The balanced XLR connectors are wired as follows:
Pin 1 = shield (ground)
Pin 2 = hot (+)
Pin 3 = cold (-)
 - The 1/4" TRS connectors are wired as follows:
Tip = hot (+)
Ring = cold (-)
Sleeve = shield (ground)
3. Plug all the sound system components into suitable AC outlets, properly grounded and capable of delivering adequate current.
4. Turn all the equipment on. If you are monitoring the signal through speakers, turn the power amplifier on last to avoid running any pops or thumps through your speakers.

SET THE CONTROLS:

1. Make sure your signal source is turned up and delivering signal to the SQ•2. The signal should pass through the SQ•2 unaffected because the CHAN 1 and 2 IN/OUT buttons are out and the signal processing circuitry is bypassed.
2. Push in the CHAN 1 and 2 IN/OUT buttons to enable the gate and compressor circuits. If the input signal is above -10 dBu, the compressor/limiter will begin working on the signal because the THRESHOLD control is set at -10 dBu (center position). You should see the GAIN REDUCTION meters indicating the amount of gain reduction being applied to the signal. Turn down the THRESHOLD control to see more compression.
3. If the input signal is below -30 dBu, the gate will close and attenuate the signal because the THRESHOLD control is set at -30 dBu (center). Turn down the GATE THRESHOLD control until the gate opens (the CLOSE LED will turn off).
4. Read on to learn how to set each individual control to get the best performance from your SQ•2.

Things To Remember:



- When you shut down your equipment, turn off the amplifiers first. When powering up, turn on the amplifiers last.
- Save the shipping box and packing material! You may need it someday.

Contents

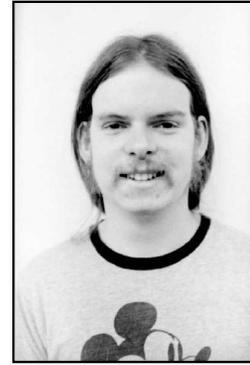
Safety Instructions.....	2
Getting Started.....	4
Introduction.....	6
Hookup Diagrams.....	8
Typical Hookup: In-line with Main Outputs.....	8
Alternate Hookup: Individual Channel or Main Inserts ..	8
SQ•2 Features	9
FRONT PANEL FEATURES	9
GATE	9
1. THRESHOLD.....	9
2. CLOSE LED	9
COMPRESSOR/LIMITER.....	9
3. THRESHOLD.....	9
4. RATIO.....	9
5. ATTACK.....	9
6. RELEASE	9
7. AUTO IN/OUT.....	9
8. OUTPUT.....	9
9. CHAN IN/OUT.....	9
AIR Filter	10
10. LEVEL.....	10
11. GAIN REDUCTION Meters.....	10
12. POWER Switch.....	10
REAR PANEL FEATURES.....	10
13. Line Cord Socket and Fuse.....	10
14. AC Select Switch	10
15. OUTPUT	11
16. INPUT	11
17. SIDE CHAIN	11
GENERAL PRECAUTIONS AND CONSIDERATIONS	11
Rack Mounting.....	11
Thermal Considerations	11
AC Power Considerations.....	11
Appendix A: Service Information	12
Warranty Service	12
Troubleshooting	12
Repair	13
Appendix B: Connections	14
Appendix C: Technical Info.....	15
SQ•2 Specifications	15
SQ•2 Block Diagram.....	16
TAPCO LIMITED WARRANTY.....	19

Don't forget to visit our website at www.tapcogear.com for more information about this and other TAPCO products.

Introduction

Thank you for choosing a TAPCO® Squeeze™ dynamics processor by Mackie®. The TAPCO product line hails back to the days of TAPCO Corporation, Greg Mackie's first company. TAPCO revolutionized the audio industry back in 1969 with the very first 6-channel mixer specifically designed for keyboards and rock 'N' roll PA.

In essence, TAPCO redefined the price performance ratio and made high-quality professional audio mixers accessible to virtually anyone. Today, TAPCO is reborn with the same ideals and is backed by the world-class engineering and manufacturing horsepower of Mackie. The TAPCO SQ•2 is the first compressor/limiter/gate processor in the TAPCO by Mackie® family.



TAPCO version of Greg

About Dynamic Processing

The human ear has an incredible dynamic range (the difference between the softest and the loudest sounds) and can detect anything from the sound of a butterfly sneeze (0 dB SPL, the threshold of hearing) to the sound of the space shuttle taking off (140 dB SPL, very painful without hearing protection). Audio electronics would like to be able to duplicate this dynamic range, but current technology falls somewhat short.

Audio electronics introduces another limitation to dynamic range: noise. Even the best designed audio circuits produce noise due to the physics of electrons moving through conductors and resistors. It's called thermal noise, and produces that low level hiss you hear when you turn the volume controls all the way up on a mixer or on your stereo system at home.

An experienced sound engineer knows that the louder the mix, the less perceptible the noise floor, because the louder sounds mask the noise. However, mixing at loud levels brings the signal closer to the point of clipping, where the signal can go no larger. Ideally, you would like to provide 10 to 20 dB of headroom between the nominal operating level and the clipping point, to provide a cushion for transient peaks (bass drum beats and cymbal crashes, for example) to get through without clipping. But then the soft passages may become too quiet and the noise floor becomes a factor. Enter dynamic processing.

The Compressor/Limiter

Wouldn't it be nice if you could have a hand on the faders and be able to quickly reduce the volume on the bass drum and cymbals every time they approached clipping, then quickly return them to their normal levels? A compressor does exactly that. Set the threshold control to the point where you want the signal to stop getting any louder, and set the ratio control to regulate the amount of attenuation applied to the signal when it goes above the threshold. When the ratio control is turned all the way up, it becomes a limiter and the signal stops getting any louder when it reaches the threshold. The attack and release controls are used to control how fast the compressor kicks in when the signal crosses the threshold and how fast it stops acting on the signal when it drops below the threshold. You can experiment with these controls to get the most natural sound, or simply push in the AUTO button and the SQ•2 automatically adjusts the attack and release according to the dynamics of the signal.



TAPCO van (a.k.a. micro bus)

The Gate/Expander

Typically, a gate is used to turn off a channel when there is no signal to reduce the overall noise level of the mix. When the signal drops below a certain level determined by the threshold control, it is turned off. When the signal comes back up and crosses the threshold, the level returns to normal. One problem with using a gate is that if the threshold is set too low, ambient sounds will cause the gate to turn on and off, which can be audible, and if the threshold is set too high, as a sound fades it will suddenly drop out, resulting in an unnatural fade.

Downward expansion can help solve this problem. When the signal level falls below the threshold, it is slightly attenuated. The further the signal falls below the threshold, the more it is attenuated. The expander in the SQ•2 automatically adjusts the ratio of the expansion based on the type of program that it sees.

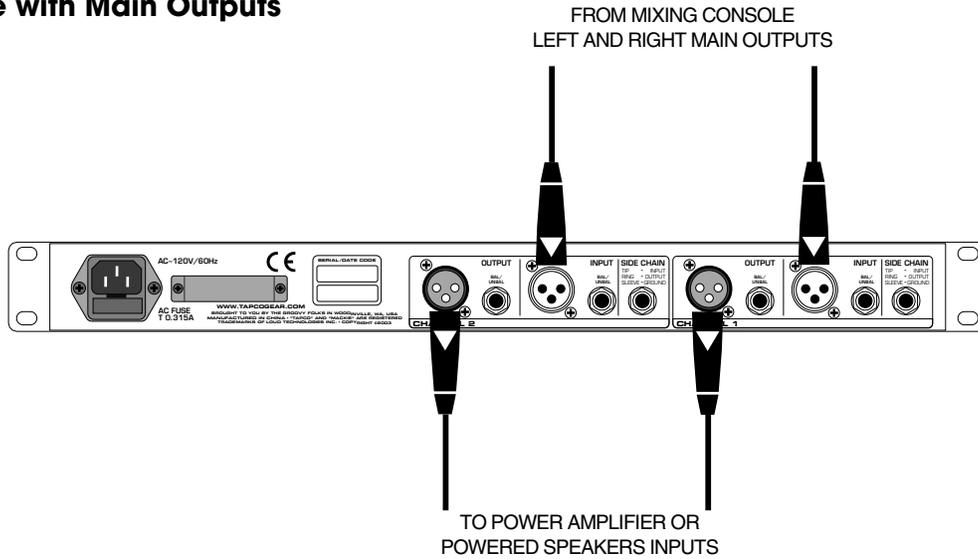
The Squeez Series™ of processors are powerful and tough. They are designed to withstand the punishing rigors of the road and continue to perform day after day, year after year.

Here's a quick glance at the features packed into the SQ•2:

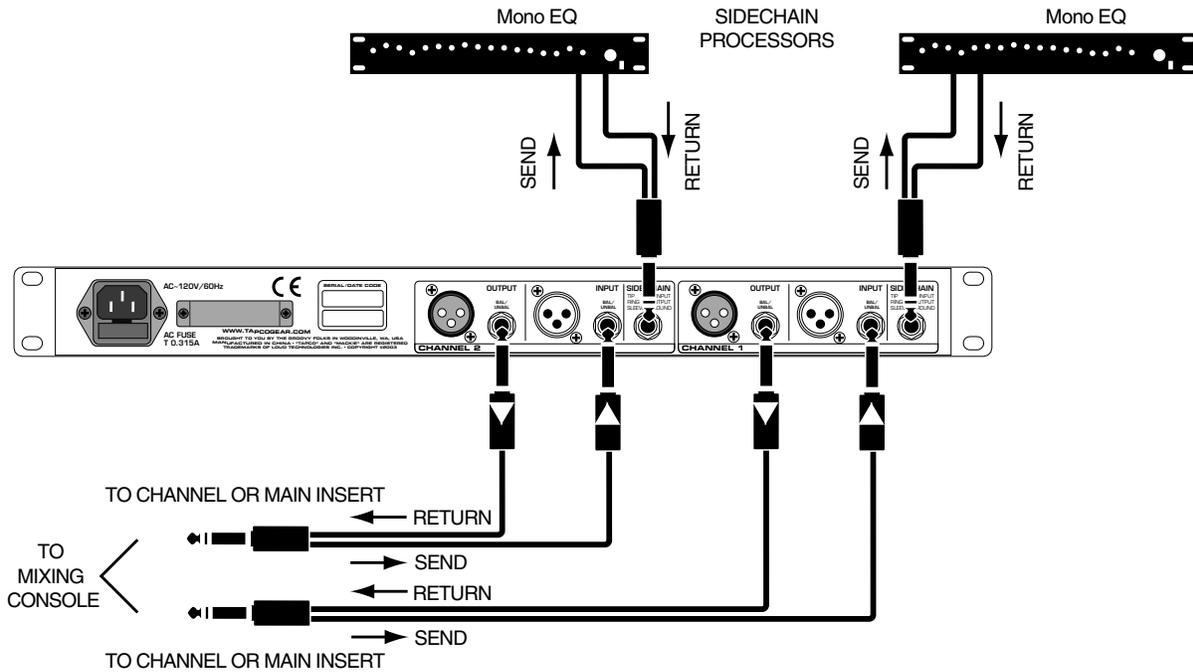
- 2-channel compressor/gate with smooth, musical sound
- Automatic Soft Knee/Hard Knee curves depending on the compression setting
- Adjustable AIR Filter to enhance the high frequencies after compression
- Soft Gate/Expander for imperceptible gating
- Individual Threshold, Ratio, Attack, and Release controls on each channel
- Output gain compensation control on each channel to add gain back to the compressed signal
- Auto Attack/Release button with indicator on each channel
- Individual IN/OUT button with indicator for each channel
- Precision 8-segment gain reduction meters
- Balanced/unbalanced 1/4" TRS and XLR line input and output jacks
- Side Chain connections
- Selectable line voltage

Hookup Diagrams

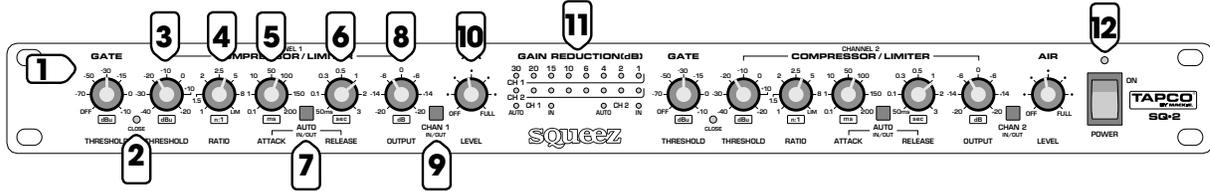
Typical Hookup: In-line with Main Outputs



Alternate Hookup: Individual Channel or Main Inserts



SQ•2 Features



FRONT PANEL FEATURES

The controls for Channels 1 and 2 are the same, so these descriptions apply to both channels.

GATE

1. THRESHOLD

Use this control to set the point where the gate begins to attenuate the signal. It ranges from OFF (no gating action) to +10 dBu.

When the signal drops below the level indicated by the knob setting, the gate “closes” and the adaptive gain reduction of the downward expander kicks in.

2. CLOSE LED

This LED lights when the signal drops below the threshold and the gate “closes.” It indicates that the gate is working.

COMPRESSOR/LIMITER

3. THRESHOLD

This control is used to set the point where the compressor begins to attenuate the signal. It ranges from -40 to +20 dBu.

As the input level increases, the output level increases linearly until the threshold point is reached. When the signal rises above the level indicated by the THRESHOLD knob setting, the compressor begins to act on the signal and the output level no longer increases linearly. Instead it increases at a reduced rate determined by the ratio setting.

4. RATIO

The RATIO control determines the change in output level as a function of the change in input level, once the threshold has been crossed. It ranges from 1:1 (off) to LIM (full compression), where the compressor acts as a peak limiter and the signal stops increasing once it crosses the threshold.

As an example of how the compressor works, if the RATIO is set to 2 (2:1), an increase in the input level of 10 dB results in a 5 dB increase in the output level (assuming the input signal is above the threshold level).

5. ATTACK

This control determines how fast the compressor reacts once the threshold has been exceeded. It ranges from 0.1 ms (milliseconds) to 200 ms.

If you want to use the compressor as a limiter, set the ATTACK knob to its lowest setting (0.1 ms). This way the limiter quickly catches the fast transients before they can clip the signal.

Otherwise, set the ATTACK knob to a somewhat higher setting to avoid the “pumping” effect you sometimes hear when a compressor is triggered on and off frequently.

6. RELEASE

This determines how fast the compressor turns off once the signal falls below the threshold. It ranges from 50 ms to 3 seconds.

Again, set the RELEASE knob to its lowest setting (50 ms) when using the compressor as a limiter. Otherwise, setting the RELEASE knob to a higher setting helps smooth out the compressor’s action, making it less audible.

7. AUTO IN/OUT

Push this switch in to bypass the ATTACK and RELEASE controls and let the SQ•2 automatically determine the optimum settings, depending on the type of signal present. When the AUTO button is pushed in, the AUTO LED below the GAIN REDUCTION Meters lights.

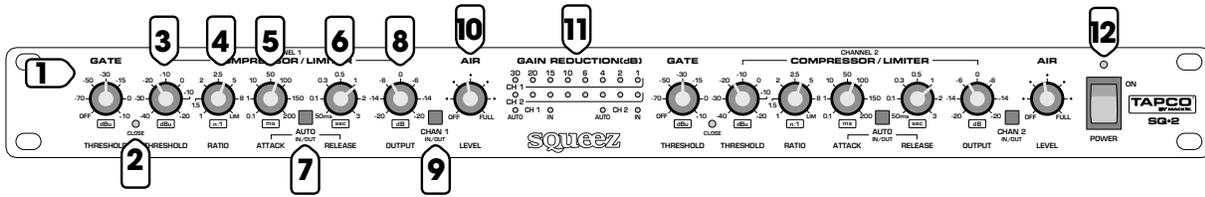
8. OUTPUT

This control provides “make-up gain” for the compressed signal. It ranges from -20 to +20 dB. Use this control to compensate for the loss of gain caused by the action of the compressor.

For example, if you are seeing an average gain reduction on the meter of about 6 dB, turn the OUTPUT control up to +6 dB to make up for it.

9. CHAN IN/OUT

This is a “bypass” switch that effectively disables the gate and compressor circuits. You can use this switch to compare the processed signal to the unprocessed signal. When the CHAN IN/OUT button is pushed in, the IN LED below the GAIN REDUCTION Meters lights.



AIR Filter

10. LEVEL

The AIR filter is a unique feature that restores brilliance and sizzle to compressed signals. It provides a high-frequency boost to the signal after the compression stage. It ranges from OFF to FULL, where FULL provides the maximum high-frequency boost.



Certain instruments such as vocals, acoustic guitars, and brass instruments have a wide dynamic range. A musician uses this dynamic range to accentuate the “feel” of a particular section in a song.

Compression is the key to balancing these dynamic signals in a live sound system so they don’t jump out in the mix during hard hitting sections or get lost in the softer passages.

Unfortunately, compression also tends to dull an instrument’s sound, and the sound, although more balanced, loses its sparkle.

The AIR filter is a high-frequency shelving filter whose amplitude varies depending on the amount of compression applied to the signal. When softly compressing the signal, the AIR filter provides very little high-frequency boost (it’s not really needed). When squeezing the signal hard with compression, the AIR filter has more high-frequency boost available.

This makes the AIR filter a great tool for live sound. Experiment with the AIR LEVEL control to find the best sound for the particular instrument or voice being compressed.

11. GAIN REDUCTION Meters

These 8-segment meters indicate the amount of gain reduction that is applied to the signal by the compressor. It ranges from 1 to 30 dB of gain reduction.

When the signal is below the threshold and there is no compression taking place, there is no meter indication. As soon as the signal crosses the threshold and triggers the compressor, the meter LEDs begin to light from right to left, indicating more and more compression.

12. POWER Switch

Use this switch to turn the SQ•2 on and off. The LED above the switch lights when the power is on.

REAR PANEL FEATURES

13. Line Cord Socket and Fuse

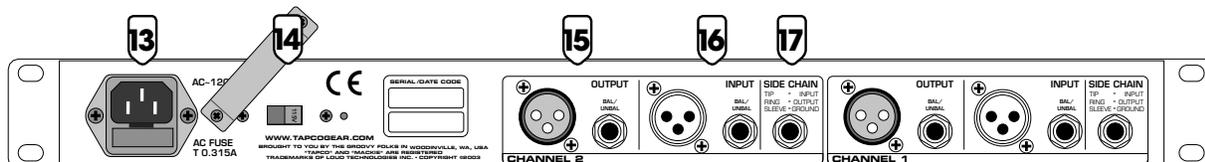
Here is where you connect the detachable line cord that came in the box with your SQ•2. Plug the other end of the line cord into an AC outlet properly configured with the voltage required for your particular model (see AC Select Switch next).

The fuse is located behind the fuse cover, at the bottom of the IEC socket. See the “Troubleshooting” section on page 12 for information about replacing the fuse.

14. AC Select Switch

Set this switch to the correct voltage setting for the country you are in, 115 VAC or 230 VAC.

Note: The SQ•2 is shipped with the AC Select switch set to the 230 VAC position. If you are in a country that uses 100-120 VAC, remove the cover plate with a phillips-head screwdriver and set the switch to the 115 VAC position. A 315 mA fuse is used for both voltages (115V/230V). See the “Troubleshooting” section on page 12 for instructions on replacing the fuse.



15. OUTPUT

Two types of connectors are provided for the outputs — male XLR and 1/4" TRS (Tip-Ring-Sleeve). These balanced outputs are in parallel, and provide exactly the same signal.

You can connect either a balanced TRS connector or an unbalanced TS connector to the 1/4" output jack. See "Appendix B: Connections" on page 14 for information on output connection wiring.

16. INPUT

Two types of connectors are provided for the inputs — female XLR and 1/4" TRS (Tip-Ring-Sleeve). These balanced inputs are in parallel, so do not connect more than one signal at a time to the input jacks for each channel.

You can connect either a balanced or an unbalanced signal to the 1/4" input jack. A servo-circuit detects when there is an unbalanced signal and automatically adjusts the input level by 6 dB to compensate for the lower level. See "Appendix B: Connectors" on page 14 for information on output connection wiring.

17. SIDE CHAIN

This 1/4" TRS connector serves as an insert point to control the compressor. When a 1/4" TRS plug is connected to the SIDE CHAIN jack, the tip sends out a pre-compressor version of the signal, which can be passed through a processor like an equalizer or de-esser, and then returned via the ring of the plug. Special "Insert" Y-cords are available for this type of Send/Return insert jack.

It's important to note that the signal at the SIDE CHAIN SEND (Tip) is not the actual signal passing through the compressor, but a buffered duplicate of the signal that can be processed externally to tailor the control signal.

Here are some examples of common ways to use the SIDE CHAIN connection:

Frequency-dependent compression: Connect the SIDE CHAIN SEND to the input of a graphic equalizer, and the output of the equalizer to the SIDE CHAIN RETURN. Boost the low frequencies with the graphic equalizer to trigger the compressor off the bass drum.

Time-shifted compression: Split the audio signal prior to the SQ•2 and route one signal directly to the SIDE CHAIN RETURN (no connection to the SIDE CHAIN SEND). Route the other signal through a delay processor and then to the SQ•2 input. By experimenting with the delay time, the compressor can anticipate the signal at its input and trigger the compression slightly ahead of the actual peaks.

Ducking: Use a microphone to trigger the compressor and reduce the level of the audio signal while an announcement is being made over a PA system. Connect the microphone signal to the SIDE CHAIN RETURN (no connection to the SIDE CHAIN SEND).

GENERAL PRECAUTIONS AND CONSIDERATIONS

Rack Mounting

The SQ•2 is designed to be mounted in a standard rack. It requires only a single rack space (1U = 1.75"). It also requires 7.5" depth inside the rack, not counting the front knobs or rear connectors. When designing your rack, put the heavier items at the bottom and the lighter items toward the top.

Secure the front panel of the SQ•2 to the front of the rack using four screws with soft washers to prevent scratching the panel.

Thermal Considerations

Avoid mounting the SQ•2 directly over devices that produce heat, such as power amplifiers. As with all electronic components, it is best to provide cool air circulation around the SQ•2 to avoid overheating. The ambient temperature should not exceed 113° F (45° C).

AC Power Considerations

Be sure the SQ•2 is plugged into an AC outlet that is able to supply the specified voltage, and the AC Select switch is set to the correct voltage.

Be sure the AC outlet can supply enough current to allow full power operation of all the components plugged into it, especially if there are power amplifiers plugged in. The outlet should be a three-prong socket that matches the power cord.



WARNING: Bypassing the plug's safety ground pin can be dangerous. **Don't do it!**

Appendix A: Service Information

Warranty Service

Details concerning Warranty Service are spelled out in the Warranty section on page 19.

If you think your SQ•2 has a problem, please do everything you can to confirm it before calling for service. Doing so might save you from the deprivation of your compressor and the associated suffering.

These may sound obvious to you, but here are some things you can check. Read on.

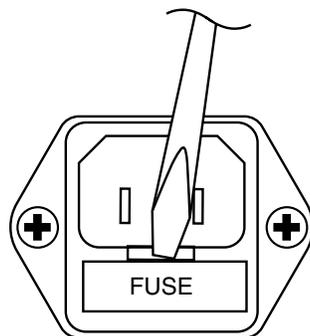
Troubleshooting

No Power

- Our favorite question: Is it plugged in? Make sure the AC outlet is live (check with a tester or lamp).
- Our next favorite question: Is the POWER switch on? If not, try turning it on.
- Is the red LED above to the POWER switch illuminated? If not, make sure the AC outlet is live. If so, refer to "No Sound" below.
- Is the fuse blown? If the POWER LED on the front panel is not illuminated and you are certain that the AC outlet is live, if is possible the fuse has blown.

To remove and replace the fuse:

1. Disconnect the line cord from the IEC socket.
2. Remove the fuse drawer by prying it open with a small screwdriver. It will slide all the way out.



3. Remove the fuse and replace it with an equivalent-type fuse:
315 milliamp slo-blo (T315 A/250 V)
Note: The same fuse is used for both 115 VAC and 230 VAC operation.
4. Replace the fuse drawer by pushing it all the way back into the IEC socket.
5. Reconnect the line cord and turn the POWER switch on.

If two fuses blow in a row, then something is wrong. See the "Repair" section on the next page to find out what to do.

No Sound

- Is the GATE THRESHOLD control turned up too high? Turn the GATE THRESHOLD all the way OFF and see if you hear anything.
- Is the signal source turned up? Make sure the signal level from the mixing console (or whatever device immediately precedes the SQ•2) is high enough to produce sound through the system.
- Are you using the SQ•2 with an insert plug in an insert jack? Make sure that you are using an insert cable, and not a mono Y-cable.

Poor sound

- Is it loud and distorted? Turn down the signal coming from the mixer or signal source.
- Is the input connector plugged completely into the jack? Make sure all connections are good and sound.
- Switch the CHAN IN/OUT switch in and out to compare the sound with the compressor in the signal path and out of the signal path. This can help determine if the problem is with the SQ•2 or elsewhere in the system.

Noise/Hum

- Check the signal cable between the mixer and the SQ•2. Make sure all connections are good and sound.
- Make sure the signal cable is not routed near AC cables, power transformers, or other EMI-inducing devices.
- Is there a light dimmer or other SCR-based device on the same AC circuit as the SQ•2? Use an AC line filter, or plug the SQ•2 into a different AC circuit.

Repair

Service for TAPCO products is available from one of our authorized domestic service centers or at our factory, located in sunny Woodinville, Washington. Service for TAPCO products living outside the United States can be obtained through local dealers or distributors.

If your SQ•2 needs service, follow these instructions:

1. Review the preceding troubleshooting suggestions. Please.
2. Call Tech Support at 1-877-827-2669, 7 am to 5 pm PST, to explain the problem and request an RA (Return Authorization) number. Have your SQ•2's serial number ready. You must have an RA number before you can obtain warranty service at the factory or an authorized service center.
3. Keep this owner's manual and the detachable line cord. We don't need them to repair the SQ•2.
4. Pack the SQ•2 in its original package, including endcaps and box. This is very important. When you call for the RA number, please let Tech Support know if you need new packaging. You can order new packaging through our parts department. LOUD Technologies is not responsible for any damage that occurs due to non-factory packaging.
5. Include a legible note stating your name, shipping address (no P.O. boxes), daytime phone number, RA number, and a detailed description of the problem, including how we can duplicate it.
6. Write the RA number in **BIG PRINT** on top of the box. Units sent to us without the RA number will be refused.
7. Ship the SQ•2 to us. We suggest insurance for all forms of cartage. Ship to this address:

TAPCO
SERVICE DEPARTMENT
16220 Wood-Red Road NE
Woodinville, WA 98072

8. We'll try to fix the SQ•2 within five business days. Ask Tech Support for the latest turn-around times when you call for your RA number. The SQ•2 must be packaged in its original packing box, and must have the RA number on the box. Once it's repaired, we'll ship it back the same way in which it was received. This paragraph does not necessarily apply to non-warranty repair.

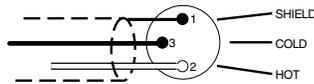
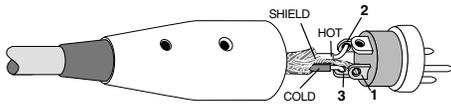
Lonely? Looking for that special someone? Do you have a question about your TAPCO product?

Please call our Technical Support folks at **1-877-827-2669**, Monday to Friday, from 7 am to 5 pm PST. After hours, visit www.tapcogear.com and look under **Support**, or e-mail us at techmail@tapcogear.com

Appendix B: Connections

XLR Connectors

The inputs and outputs use 3-pin male and female XLR connectors. They are wired as follows, according to standards specified by the AES (Audio Engineering Society).

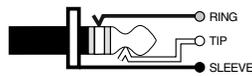
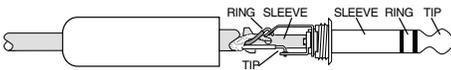


XLR Balanced Wiring

- Pin 1 = Shield
- Pin 2 = Hot (+)
- Pin 3 = Cold (-)

1/4" TRS Phone Plugs and Jacks

"TRS" stands for Tip-Ring-Sleeve, the three connection points available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals.

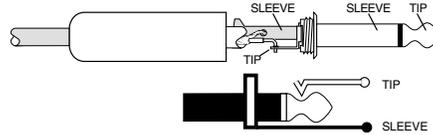


1/4" TRS Balanced Wiring:

- Sleeve = Shield
- Tip = Hot (+)
- Ring = Cold (-)

1/4" TS Phone Plugs and Jacks

"TS" stands for Tip-Sleeve, the two connection points available on a mono 1/4" phone jack or plug. They are used for unbalanced signals.



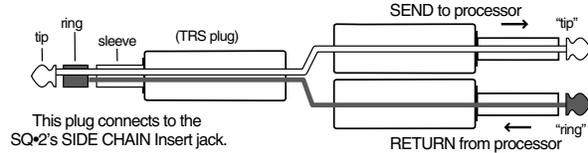
1/4" TS Unbalanced Wiring:

- Sleeve = Shield
- Tip = Hot (+)

1/4" TRS Insert Plugs and Jacks

The SIDE CHAIN connectors on the SQ•2 are special 1/4" TRS insert cables that use the tip to send the signal outside the box, and the ring to return the signal to the box. The sleeve is the common ground (earth) for both signals. These are both unbalanced signals.

Note: This insert cable is also used with a mixer's insert jack.



This plug connects to the SQ•2's SIDE CHAIN Insert jack.

1/4" TRS Insert Wiring:

- Sleeve = Ground
- Tip = Send
- Ring = Return

Appendix C: Technical Info

SQ • 2 Specifications

Frequency Response

20 Hz to 20 kHz (+0, -1 dB)

Audio Input

Type: Active balanced XLR and 1/4" jacks
Impedance: 60 k Ω balanced
Maximum Input Level: +21 dBu balanced and unbalanced

Audio Output

Type: XLR and 1/4" jacks
Impedance: <40 k Ω unbalanced
Maximum Output Level: +21 dBu
THD+N @ 1 kHz, +4 dBu: 0.05% typical
SMPTE IMD, +4 dBu: 0.01%
Noise and Hum, unity gain: < -93 dBu
Noise and Hum, fully off: < -97 dBu
Crosstalk @ 20 kHz: < -85 dBu
Common Mode Rejection: > 60 dB

Compressor

Type: Auto soft knee/hard knee
Threshold: -40 dBu to +20 dBu
Ratio: 1:1 to LIM
Attack: 0.1 ms to 200 ms
Release: 50 ms to 3 sec
Output: -20 dB to +20 dB

Gate

Type: Soft gate with expander
Threshold: OFF to +10 dBu

AIR Filter

Type: Dynamically controlled frequency correction
Process: Variable from Off to Full

Switches

CHAN IN/OUT Bypass switch
AUTO Program dependent attack and release times

Indicators

CLOSE LED for Expander/Gate
AUTO LED for Auto Attack/Release
Channel IN LED for CHAN IN/OUT Status
8-segment green LED Gain Reduction Meter
POWER ON LED

AC Power and Current Requirements

Power Consumption: 12.5 watts
AC Operating Voltages:
U.S. 120 VAC, 60 Hz
Europe 240 VAC, 50 Hz
Japan 100 VAC, 50/60 Hz
Korea 220 VAC, 60 Hz
Fuse: 315 mA @ 100-240 VAC

Physical Dimensions and Weight

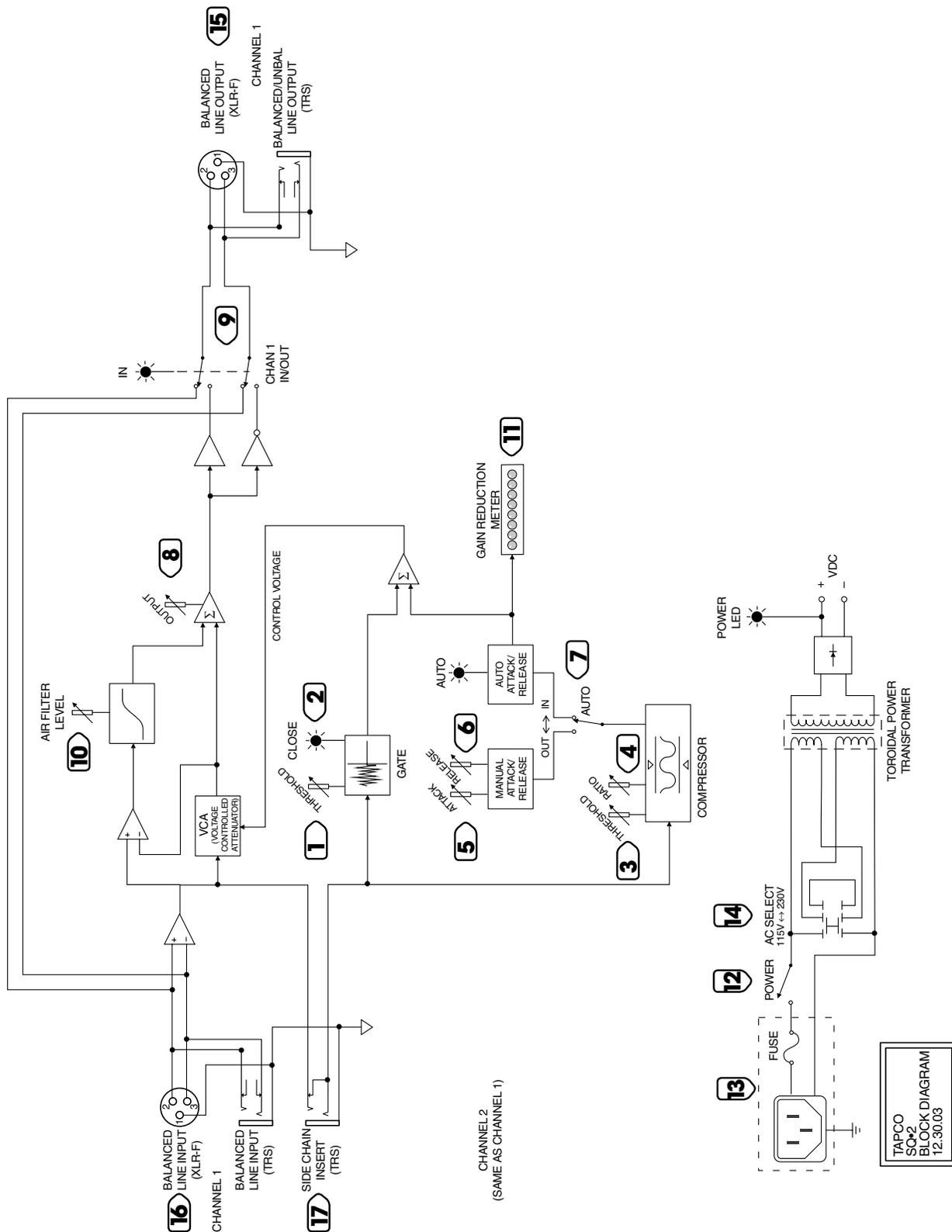
Height: 1.75 in/44 mm
Width: 19.0 in/483 mm
Depth: 8.5 in/216 mm
Weight: 6.6 lb/3.0 kg

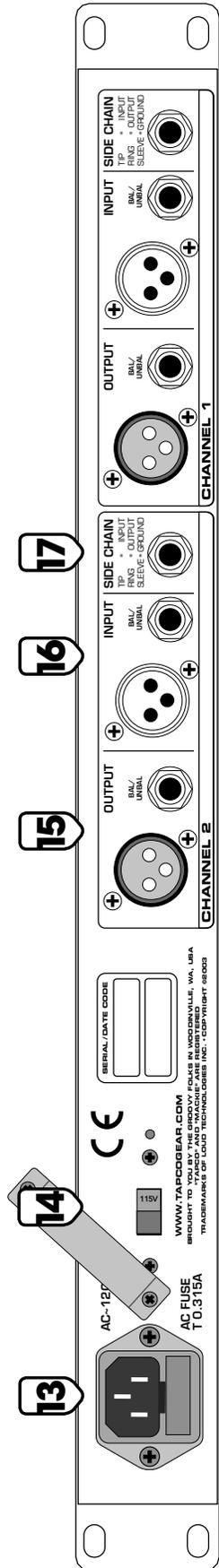
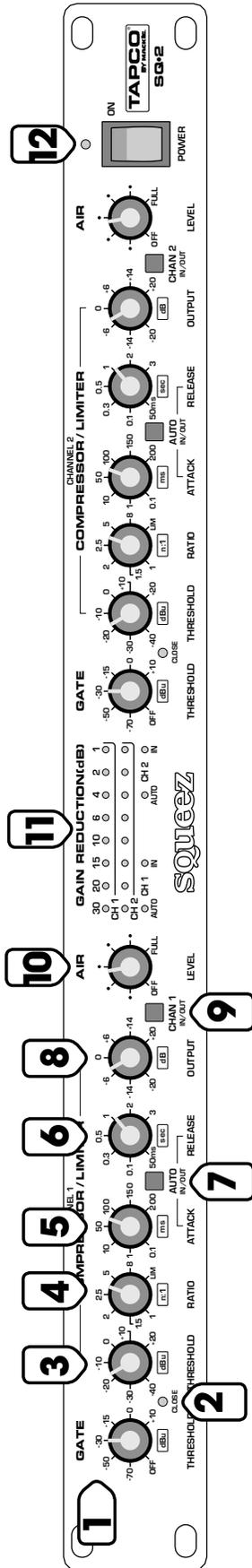
Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

SQ•2 Block Diagram

This outlines the signal flow inside the SQ•2.





TAPCO[®]
by **MACKIE**[®]



TAPCO LIMITED WARRANTY

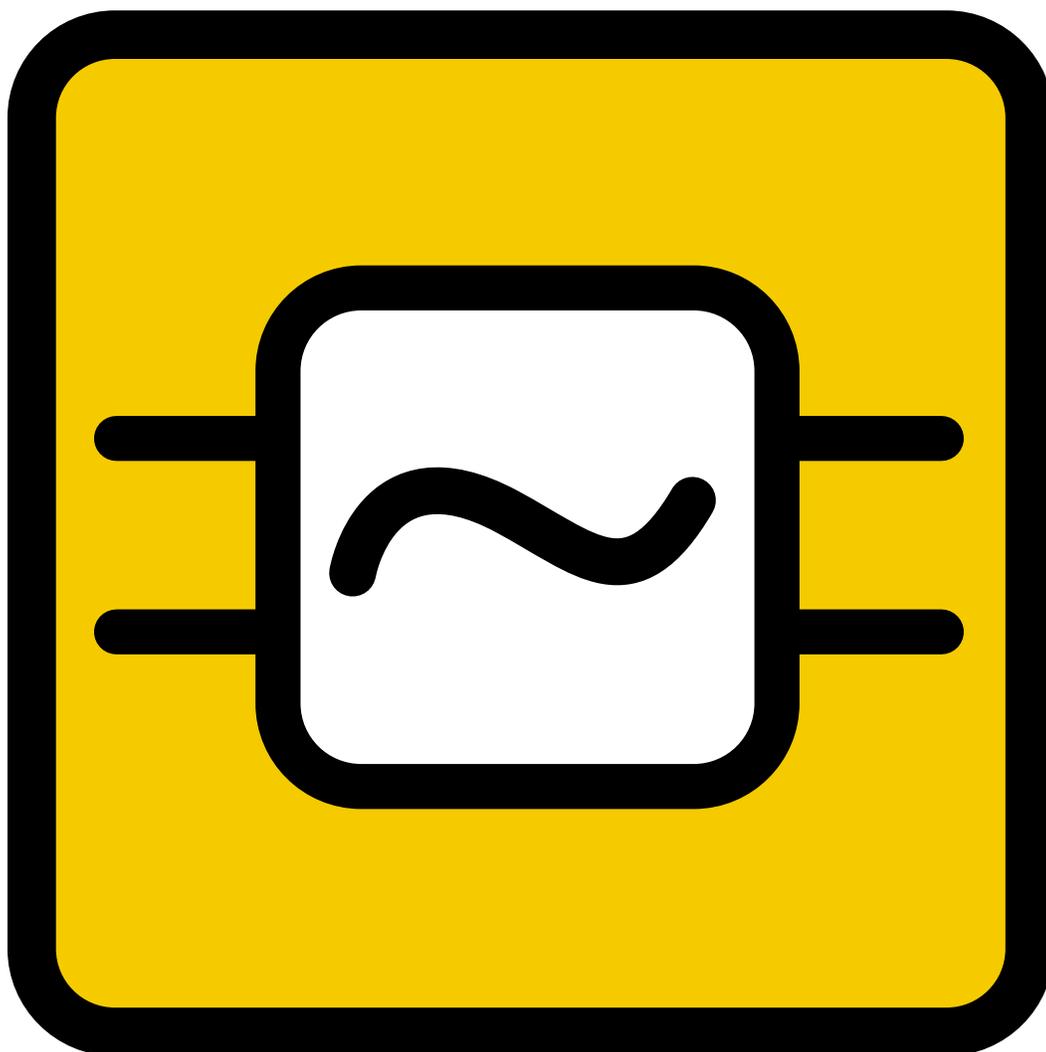
- A.** LOUD Technologies Inc. warrants all materials, workmanship and proper operation of this TAPCO product for a period of **one year** from the original date of purchase. If any defects are found in the materials or workmanship, or if the product fails to function properly during the applicable warranty period, LOUD Technologies, at its option, will repair or replace the product. This warranty applies only to equipment sold and delivered within the U.S. by LOUD Technologies or its authorized dealers.
- B.** Failure to register online or return the product registration card will not void the 1-year warranty.
- C.** Service and repairs of TAPCO products are to be performed **only** at the factory, OR at a factory-authorized service center. Unauthorized service, repairs, or modification will void this warranty.
- D.** To obtain service, please follow the instructions found on page 13.
- E.** LOUD Technologies Inc. and Authorized TAPCO Service Centers reserve the right to inspect any products that may be the subject of any warranty claims before repair or replacement is carried out. LOUD Technologies and Authorized TAPCO Service Centers may, at their option, require proof of the original date of purchase in the form of a dated copy of the original dealer's invoice or sales receipt. Final determination of warranty coverage lies solely with LOUD Technologies Inc. or its Authorized Service Centers.
- F.** TAPCO products returned to LOUD Technologies and deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced within thirty days of receipt by LOUD Technologies at our rainforest factory complex. LOUD Technologies may use refurbished parts for repair or replacement of any product. Products returned to LOUD Technologies that do not meet the terms of this Warranty will be repaired and returned C.O.D. with billing for labor, materials, return freight, and insurance. Products repaired under warranty at the factory will be returned freight prepaid by LOUD Technologies to any location within the boundaries of the USA.
- G.** LOUD Technologies warrants all repairs performed for 90 days or for the remainder of the warranty period. This warranty does not extend to damage resulting from improper installation, misuse, neglect or abuse, or to exterior appearance. This warranty is recognized only if the inspection seals and serial number on the unit have not been defaced or removed.
- H.** LOUD Technologies assumes no responsibility for the quality or timeliness of repairs performed by TAPCO Authorized Service Centers.
- I.** This warranty is extended to the original purchaser and to anyone who may subsequently purchase this product within the applicable warranty period.
- J.** This is your sole warranty. LOUD Technologies Inc. does not authorize any third party, including any dealer or sales representative, to assume any liability on behalf of LOUD Technologies or to make any warranty for LOUD Technologies Inc.
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Please keep your sales receipt in a safe place.

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