OWNER'S MANUAL

A5370 - BIEMA ®

24-BIT TWO-CHANNEL
FEEDBACK SUPPRESSOR / PARAMETRIC EQ

Biema
PROFESSIONAL SOUND U.S.A.

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

OWNER'S MANUAL

The information furnished in this manual does not include all of the details of design, production, or variation of the equipment. Nor does it cover every possible situation that may arise during installation, operation or maintenance. If you need special assistance beyond the scope of this manual, please contact our Technical Support Group.

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

TO PREVENT ELECTRIC SHOCK DO NOT REMOVE COVER OR BACK. NO USER SERVICEABLE PARTS INSIDE REFERS SERVICING TO QUALIFIED SERVICE PERSONNEL.

MAGNETIC FIELD

CAUTION! Do not locate sensitive high-gain equipment such as preamplifiers or tape decks directly above or below the unit. Because this amplifier has a high power density, it has a strong magnetic field, which can induce hum into unshielded devices that are located nearby. The field is strongest just above and below the unit.
If an equipment rack is used, we recommend locating the amplifier(s) in the bottom of the rack and the preamplifier or other sensitive equipment at the top.

WATCH FOR THESE SYMBOLS:

The lightning bolt triangle is used to alert the user to risk of electric shock

The exclamation point triangle is used to alert the user to important operating or maintenance instructions.

WARNING

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE!

PRECAUTION

- The A5370 fits into a standard 19" equipment rack (height 1U). Be sure there is enough air space around the unit for cooling and ventilation.
- To avoid overheating, DO NOT put the A5370 in the vicinity of high temperature devices such as power amplifiers etc.
- Please make sure that the unit has a proper ground connection. For your own safety, DO NOT remove the ground connection within the unit or at the supply, since electrostatic charges might affect the unit's operation.
- Before adjusting the voltage setting to suit the local supply parameters, make sure a fuse of the correct type and rating is installed.

FEATURES:

- 64/128 over-sampling for ultra-high resolution, 24-bit A/D and D/A converter.
- A high quality 24-bit Digital Signal Processor (DSP) ensures effective signal transmission and precise analysis.
- Default setting enables immediate and complete feedback suppression functionality within a framework of commonly occurring audio conditions.
- 10 distinct Parametric EQ menus numbered 0 to 9, each having 12 auto-detect filters with intelligent management.
- Two modes for every Filter function: SINGLE and AUTO.
- Manual function enables a user to set 12x2 parameters for filters that include frequency and bandwidth. Changes can be saved or stored to memory.

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

- Other settings that can be altered to impact the general operation of the DSP are: Noise Gate, High Pass Filter (HPF), Low Pass Filter (LPF), Q Value, LED Display, and Sensitivity.
- A dual engine processor allows the left and right channel to work individually or in combination.
- Soft start with relay ON/OFF switch, gate noise function.
- Servo balanced input and output with gold plated XLR and TRS connections.
- 2x16 character back light LCD display screen.
- 2x8 LED volume level meter to indicate input and output audio levels.
- High quality components and an exceptionally rugged construction ensures durability.
- Internal power supply is designed for professional applications.

1. INTRODUCTION

The A5370 is a digital auto Feedback Exterminator that can store up to 10 configurations of audio processing settings, and thereby address different environmental requirements for effective audio tone control. It can reduce the audio signal of a given frequency by as much as -48dB. When feedback occurs, the A5370 will automatically analyse the audio using Digital Signal Processing (DSP) technology, in order to detect and destroy feedback frequencies. It then stores all results to a built-in memory, which gives the device the appearance of having a learning ability. A5370 only eliminates feedback signals, while the original signal is not affected.

1.1 Accurate frequencies seeking:

While suppressing feedback, the filter frequencies are dynamic and varying within certain bandwidths. The A5370 can capture the feedback frequencies accurately and compress feedback effectively.

1.2 Adjustable compression bandwidth:

The bandwidth 'Q' is adjustable, whether the unit is operating in SINGLE or AUTO filter mode. A ratio of 1/5 or 1/10 can be selected within each filter inside a program preset sequence.

1.3 Visible parameters:

The 2 line 16 character LCD screen can display all filtering parameters. In SINGLE mode, the LCD displays filter frequencies FREQ and bandwidth ratio Q, and these parameters can be adjusted manually within set ranges. In AUTO mode, the LCD only displays the filter parameters, without allowing any adjustment to them.

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

2. FRONT PANEL CONTROL

Figure 1 : Front Panel

2.1 Menus and functions displayed on LCD

NOTE: The jog wheel is a dual purpose element on the front panel. By rotating it you can choose various parameters. By pressing it like other buttons on the panel, you can select certain parameter settings and change the profile of the feedback exterminator.

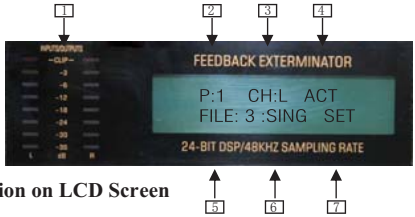


Figure 2 : Menu Selection on LCD Screen

1. Two LED ladders show the left and right input and output audio levels.

2. 'P' – Indicates Program Preset sequence menu selection. Select any program preset from 0 to 9 using the rotary job wheel. When in the 'P' mode, the colon ':' symbol becomes an "->' symbol.

3. 'CH:L' – Left channel menu is editable. 'CH:R' means the right channel is editable. 'CH:LR' means both channels are editable synchronously.

4. 'ACT' – Activates the filter mode, and applies all selected filters to the input signals. Turn the jog wheel, 'ACT' changes to 'BYP'. 'BYP' – BYPASS,this means the selected filter effects are bypassed or disabled.

5. 'FILT' – Enables the user to select any filter from 1 - 12 using the jog wheel. The FILTER menus are accessible and changeable when the colon ':' symbol after 'FILT' becomes an arrow '->'symbol. See the appendix for a chart showing the default filter settings.

6. 'SING' – When the colon ':' symbol after the number becomes an "->' symbol, press the 'PARAM/PUSH' button (jog wheel) to enter that filter and edit the frequencies and bandwidth values. In SINGLE mode, 'FREQ' and 'Q Value' can be adjusted, while in AUTO mode, they can only be read.

7. 'SET' – When the ':' symbol before 'SET' changes to the '->' arrow symbol, press the 'PARAM/PUSH' button to enter the filter setting in SINGLE mode. First select the number of filter and then press 'PUSH' once again. Select 'YES' or 'NO', again using the jog wheel, to reset the parameters. Press the 'PUSH' button, and thus the parameters in SINGLE mode have been successfully reset.

2.2 Function Buttons and Jog Wheel

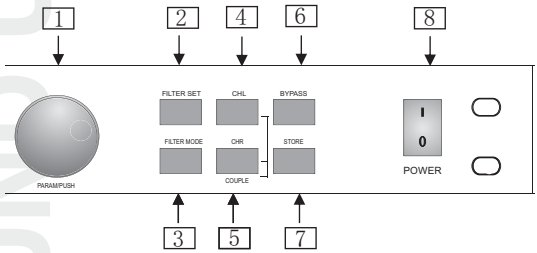


Figure 3 : Front Panel Control

1. PARAM/PUSH – Rotary Jog Wheel. Turn the wheel to select and change parameters. Press it to enter a new menu.

2. FILTER SEL – Sequence and filter selection button. 10 channels each with 12 filters are available. When LCD displays 'P->', parameter menus are ready to be selected using the jog wheel. Press the FILTER SEL button and the LCD will show the arrow jump from the 'P->' to the FILT and appear like this: 'FILT->'. In this mode the 12 filters are ready to be chosen within that 'P' menu number by rotating the jog wheel. Press FILTER SEL once more and the arrow will jump back to the 'P' and the LCD will show 'P->' again. When editing a setting in a submenu, hitting FILTER SEL will act like a return key and take you back to the root 'FILT' or 'P' menu.

3. FILTER MODE – When in FILT-> mode, press this FILTER MODE button to skip the arrow along to SING / AUTO and SET menus for each filter number. The LCD will look like this on the first press '1->SING:SET', and with second press '1:SING->SET'. Press the FILTER MODE button to make the arrow cursor jump between 'SING' and 'SET'. Press the jog wheel to enter the menu and change settings. FILTER MODE button moves the cursor to the right within these sub menus, to facilitate changing settings.

4. CH L – Left channel parameter button. Pressing this button enables the editing of the left audio channel.

5. CH R -Right channel parameter button. Pressing this button enables the editing of the right audio channel.
NOTE: To copy the left channel parameters to the right channel quickly and easily, press CHL before pressing CHR. To copy the right channel to the left, follow the same procedure in the reverse order.

6. BYPASS – Press this button to bypass the filters that are in place to process the signal.

7. STORE – Any altered parameters can be saved using the STORE button. See section 3.5.1 for information on how to save changed settings.

8. COMBINATION BUTTONS:

● Press FILTER MODE and FILTER SEL together to directly enter the menu to adjust these parameters: NOISE GATE, HPF, LPF, Q Value, LED DISPLAY, and SENSITIVITY. See section 3.6 Assisted Menu for more detail.

● To activate both audio channels and COUPLE them together, press CH L and CH R for a few seconds to switch into dual channel editing mode. To deactivate this mode, just press both buttons together again and the system will default to 'CH:L'

● RESET - While the A5370 is turned off, press and hold the FILTER SEL and STORE buttons together. Then switch the device power on while holding these two buttons, and the LCD will first display 'RESET' to indicate that the system has been reset to factory default settings and values for all parameters. See appendix for default settings table.

2.3 REAR PANEL

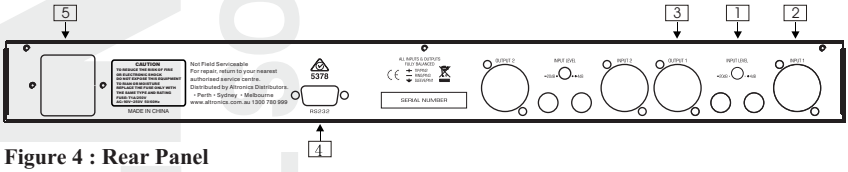


Figure 4 : Rear Panel

1. INPUT LEVEL ADJUSTER: Adjust from -20dB ~ +4dB. Change the level gain for Inputs 1 and 3, both 6.35mm and XLR sockets, using a screw driver.

2. ANALOGUE INPUT: XLR or TRS input socket, parallel between XLR and TRS input. Balanced and Unbalanced acceptable.

3. ANALOGUE OUTPUT: XLR or TRS output socket, parallel between XLR and TRS input. Balanced and Unbalanced acceptable.

4. RS232: For factory preset data only, not for user.

5. MAINS POWER/FUSE HOLDER: Please note the correct type and rating of the fuse that must be installed (see SPECIFICATIONS). Please use the enclosed mains IEC cable to connect the unit to the mains power supply.

3. IMPORTANT OPERATING CONSIDERATIONS

3.1. Filter modes

A5370 has two working modes, SINGLE and AUTO. In SINGLE mode, the filtering processor will analyse a music signal automatically, in order to detect feedback frequencies. The filters will then lock onto the offending feedback frequencies, and suppress them. This mode is very suitable for eliminating feedback that manifests a constant frequency, such as in applications involving a stationary microphone (e.g. installed permanently in a conference room system).

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

The filter will adjust automatically and enter into a lock mode to exterminate the troublesome frequencies. Meanwhile, the filter will also block harmonic frequencies an octave above and below the main frequency detected by the unit. When feedback frequencies change, there will be a corresponding shift in the octave band range.

3.1.1 Automatic Filters – Technical detail

The A5370's automatic filters operate in two modes: Single and Auto. In order to find a feedback, the DSP divides the entire frequency band into 1/60 octave steps (20Hz to 20kHz) and determines the respective level of these individual bands. It compares this value to the level of the entire signal. The difference between these levels determines whether or not a filter is set. The DSP now provides the user with the unique possibility to adapt this parameter to suit your individual needs.

SINGLE mode in the filtering process will automatically analyze a music signal in order to detect feedback frequencies. Once the feedback frequencies are detected, the filter will operate its parameters to compress feedback automatically. Because the filter locks onto these detected feedback frequencies, it makes the unit very suitable for compressing feedback with a constant frequency, such as in a situation where a microphone is installed in a fixed location (e.g. as part of an indoor conference room system). After the filter adjusts itself, it enters a special locked mode. This means that although the frequency remains fixed, the width and depth of the filter can still shift.
If feedback continues, gain begins to decay and not stop until no more feedback recurring.

All mobile wireless microphones are recommended to work with AUTO mode for feedback control, as they tend to have changeable feedback frequencies. Under AUTO mode operation, the filter will follow and compress feedback frequencies, even as they vary across the audio spectrum. The filter will set its parameter in as narrow a bandwidth as possible, so as to impact the music signal as little as possible.

NOTE: If your music contains wanted feedback elements (e.g. guitar feedback), it is highly probable that these also will be suppressed in Auto mode, because from a physical point of view, it is impossible to distinguish "wanted" from "un-wanted" feedback.

3.2 Sequence Selection

In order to save your favourite settings for easy recall, the A5370 consists of 10 USER programmed preset sequences that can shortcut the digital audio processing. All operated parameters are able to be manually stored in a shortcut sequence, for a user to recall later in full detail, whenever a similar audio situation emerges.

In each program preset, there are six filters for SINGLE mode and six filters for AUTO mode. The program preset sequences (P->1 to P->9) can have their parameters altered, and those changes can then be saved / stored. Only program 'P->0', which acts as a default program preset sequence, cannot be changed and then saved / stored. P->0 returns to its original parameters when the unit is turned off then on again.

NOTE: Owing to the state of the art circuitry in this device, no internal battery is needed. Hence the stored data will not be lost and should remain safe and usable for 20 years or more.

After power is on, A5370 will display previously used preset value or 'P-> number'. Turn jog wheel in either direction to select another preset program sequence.

3.3 Filter Mode Setting

Display	Operation Modes
AUTO	Automatic
SING	Single

To alter FILTER MODE: First press FILTER SEL (Filter select) button and select filter from 1-12 using the jog wheel. Use CH (Channel select) buttons to select left or right channel or both. Then press FILTER MODE button and turn rotary jog wheel to select the filters in SING mode. E.G., If the number 8 is selected, then 1-8 filters are for SING mode and 9-12 filters are for AUTO MODE.

If 'LK' (LOCK) displays on the LCD screen, it is to indicate that a filter from SING mode is already processing and suppressing a feedback situation. In such a case, the user cannot release this filtration by going back to the SINGLE mode. As soon as a new feedback frequency scenario is found, A5370 will immediately shift the old filter frequency to a new one. If you leave AUTO or SINGLE mode and enter parameter mode, the filter will keep all parameter settings.

3.4 Adjusting Filter Parameters

The frequencies and Q value can only be adjusted from within the SING mode. The frequencies of filter in AUTO mode can be read but not adjusted. Within SING filter, press the jog wheel to select FREQ (frequency) menu. Press FILTER MODE button to unlock the frequency and thereby allow the user to turn jog wheel to tune the desired frequency. Press FILTER MODE button again to move the cursor to another place in the frequency value so that the tuning can take place around that position – i.e. thousands, hundreds, tens, ones. In this manner, the user can fine tune the frequency to within one hertz precision.

During SINGLE and AUTO mode, you are not able to edit any Filter parameter. You are only able to adjust Filter parameter in these modes for similar filter frequency and octave band with 0dB gain. Simply press FILTER MODE button and hold for 2 seconds to restart a locked Filter by selecting SINGLE or AUTO mode.

3.5 Store Sequence

Use STORE button to store a modified program sequence. Basically, all edited parameters in FILTER MODE mode are able to be stored and saved in memory, where they will remain indefinitely. When editing a filter in SING mode, the user makes adjustments in the settings using FILTER MODE button and the jog wheel. The LCD displays 'SV' (save) symbol for a few seconds to indicate that a preset has been edited but not yet saved. The 'SV' mark in the top right corner of the LCD will disappear if the changed setting is not saved by promptly pressing STORE button a second time.

To edit the parameters of FREQ and Q value, the LCD reads 'SV' to remind the user that the editable parameters have been changed and are ready to be saved in memory. Press the STORE button once, and the mark 'SV' changes to 'SC' in the top right corner of the LCD. Press button STORE again, 'SC' disappears, the parameters have been saved to the present sequence. To exit without saving changes, press the FILTER SEL button once.

NOTE: When you change a program preset and press the STORE button twice to save it in memory, then all the previous data will be overwritten, and only the new parameters will be available. If you wish to keep previous sequence unaltered, then press FILTER SEL button while inside the filter you are editing, and the cursor will exit that filter and leave the settings as they were.

3.6 Assisted Menu

Press FILTER MODE and FILTER SEL buttons together to enter the menu to adjust: NOISE GATE, HPF, LPF, Q Value, LED DISPLAY and SENSITIVE. Press PUSH to enter interface and then turn the jog wheel to adjust the parameters that directly impact audio signal compression and filtering. These parameters are adjustable to impact and alter the general operation of the A5370, not for individual program sequences (i.e. not P->0 to 9 individually, rather equally across all programs).

- NOISE GATE – ATTACK (0.1ms-100ms), RELEASE (10ms-5000ms) and TRESHOLD (Off,-66dB to -24dB) are available to adjust.
- HPF Set (High Pass Filter) - HPF ON/OFF or FREQ (20Hz-300Hz)
- LPF Set (Low Pass Filter) - LPF ON/OFF or FREQ (10kHz-20kHz)
- Q Set - 1/10 or 1/5 optional ('Q value' stands for bandwidth. This only works when the new compressing threshold of the channel has been properly set).
- DISPLAY – Press the jog wheel to toggle between two options for what the LEDS ladders indicate, either input or output audio level.
- SENSITIVE – Five steps = 1 is the highest sensitivity and 5 is the lowest. This refers to the reaction speed of the feedback destroyer. The lower value yields a faster reaction speed.

3.6.1 Purpose of Noise Gate:

The Noise Gate acts as a compressor to block unwanted noise signals or reduce the system gain. The user can set a volume threshold level, so that a signal higher than this threshold value is blocked.

Threshold: The larger the level value set, the stronger will be the barrier to extraneous noise signals.

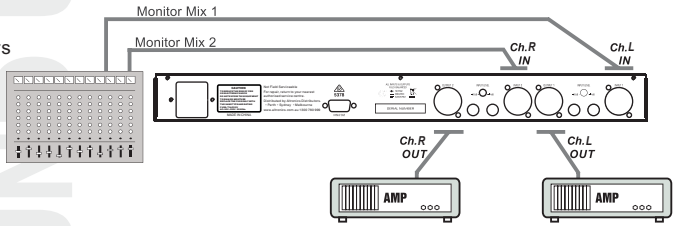
Attack: This setting determines the time taken for the compressor to take control once the unit has detected that the input signal is exceeding the threshold level.

Release: This setting determines the time taken for the compressor to relinquish control once the unit has detected that the input signal has dropped below the threshold level.

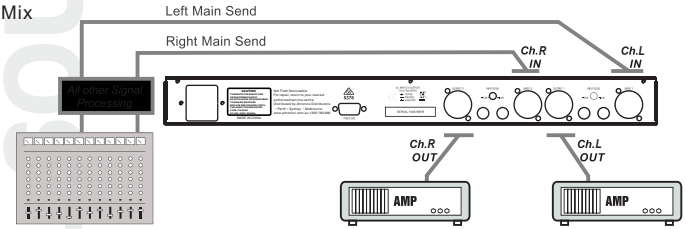
24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

4. APPLICATIONS

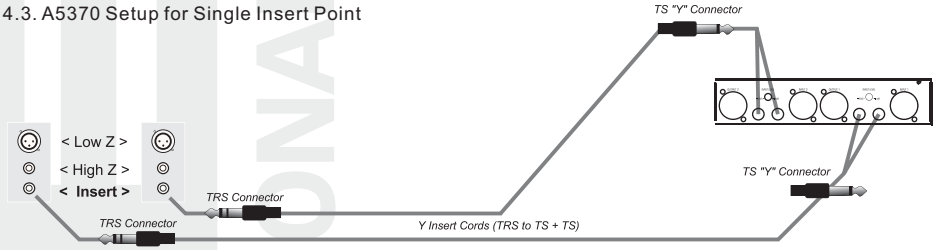
4.1. A5370 Setup for Monitors



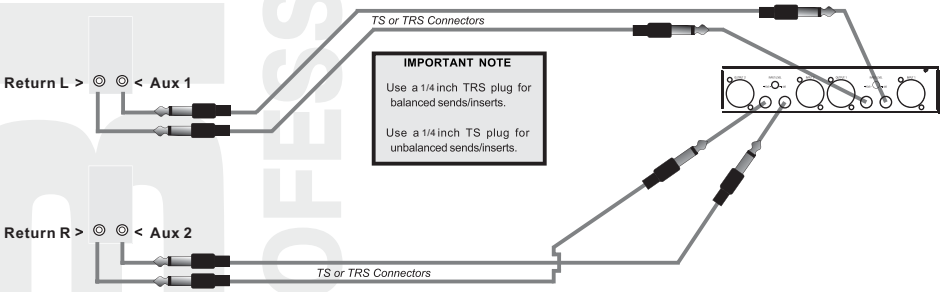
4.2. A5370 Setup for Entire Mix



4.3. A5370 Setup for Single Insert Point



4.4. A5370 Setup for Aux and Return



24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

5. SPECIFICATIONS:

Analogue Inputs:

Connectors	XLR and ¼" (6.35mm) jack
Type	Servo balanced input
Impedance	40kΩ balanced, 20kΩ unbalanced
Nominal operating level	-20dB to +4dB
Max. Input Level	+16 dB at +4dB nominal level, +2dB at-20dB nominal level

Analogue Outputs:

Connectors	XLR and ¼" (6.35mm) jack
Type	Electronically servo-balanced output stage
Impedance	66Ω balanced, 33Ω unbalanced
Max. Output Level	+16 dB at +4dB nominal level, +2dB at -20dB nominal level

System Specification:

Frequency response	20Hz to 20kHz, ± 1dB
S/N	>95dB, A Weighted, 20Hz to 20kHz
THD	0.0065%typ. @0dB, 1kHz
Crosstalk	<-95dB, 20Hz to 20kHz

Digital Processing:

Converters	24-bit Sigma Delta, 64/128 times over-sampling
Sampling Rate	48kHz
Display Type	2X16 LCD

Power Supply:

Mains Voltage	90V-250V AC
Fuse	T 1AL/250V AC
Power Consumption	10 Watts
Mains Connection	Standard IEC receptacle
Physical Dimensions	482mm X 152mm X 45mm (LxWxH)
Net Weight	2kg
Gross Weight	3kg

5. APPENDIX

A5370 Default settings

	P-> Menu 0		P-> Menu 1		P-> Menu 2		P-> Menu 3	
Filt 1	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 2	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 3	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 4	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 5	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 6	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 7	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 8	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 9	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 10	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 11	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 12	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
	P-> Menu 4		P-> Menu 5		P-> Menu 6		P-> Menu 7	
Filt 1	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 2	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 3	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 4	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 5	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 6	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF	Sing	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 7	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 8	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 9	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 10	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 11	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
		Q= OFF		Q= OFF		Q= OFF		Q= OFF
Filt 12	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF	Auto	F= OFF
Filt 1	P-> Menu 8		P-> Menu 9					
	Sing	F= OFF	Sing	F= OFF				
Filt 2		Q= OFF		Q= OFF				
	Sing	F= OFF	Sing	F= OFF				
Filt 3		Q= OFF		Q= OFF				
	Sing	F= OFF	Sing	F= OFF				
Filt 4		Q= OFF		Q= OFF				
	Sing	F= OFF	Sing	F= OFF				
Filt 5		Q= OFF		Q= OFF				
	Sing	F= OFF	Sing	F= OFF				
Filt 6		Q= OFF		Q= OFF				
	Sing	F= OFF	Sing	F= OFF				
Filt 7		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				
Filt 8		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				
Filt 9		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				
Filt 10		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				
Filt 11		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				
Filt 12		Q= OFF		Q= OFF				
	Auto	F= OFF	Auto	F= OFF				

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER/PARAMETRIC EQ

WARRANTY

Altronic Distributors warrants this product for one year from date of purchase from Altronics or its resellers to the consumer. If this item is part of an installation or another product, please contact the installer or supplier for your warranty.

During the warranty period, we undertake to repair or replace your product at no charge if found to be defective due to a manufacturing fault. The warranty excludes damage by misuse or incorrect installation (i.e. failure to install and operate device according to specifications in the supplied instruction manual), neglect, shipping accident, or no fault found, nor by use in a way or manner not intended by the supplier.

For speakers, misuse includes burnt out voice coils.

For repair or service please contact your PLACE OF PURCHASE.

If this item was purchased directly from Altronics please make a warranty claim by:

FOR MAIL ORDER CUSTOMERS (includes school and trade orders),

Ringing us on 1300 797 007 and quoting your tax invoice number.

Upon contacting Altronics, we will issue an R.A. (Return Authorisation). As Altronics have a number of service agents throughout Australia, a copy of the R.A. will be emailed, faxed or mailed to you with full instructions of how and where to send the goods. The freight for shipping goods back to Altronics for all repairs is at the customer's expense.

A copy of the R.A. form, (or at the very minimum, the R.A. number) must accompany the goods to effect the repair. Altronics will pay the return freight to the customer where the warranty claim has been accepted. Please quote the R.A. number in any correspondence to us.

FOR OVER THE COUNTER PURCHASES; to make a warranty claim, please return the goods to us in any of our stores, with a copy of your proof of purchase (tax invoice).

Upon leaving the goods at one of our stores, an R.A. number will be issued to you.

Once repaired, you will be contacted, advising that the goods are ready to be collected from the store.

It is at Altronics discretion as to whether the goods will be repaired or replaced (whilst under warranty); and as to whether identical goods will be used to replace the item due to changes of models / products.

Note: Under no circumstances should you attempt to repair the device yourself or via a non-authorised Altronics service centre, as this will invalidate the warranty!

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.