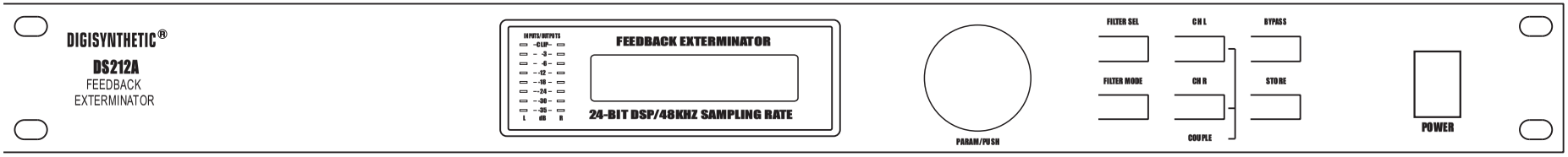
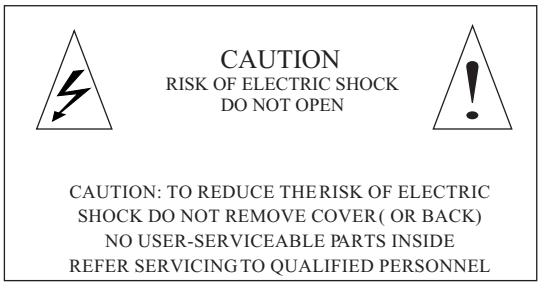
DIGISYNTHETIC® PRO

24-BIT DUAL ENGINE AUTOMATIC FEEDBACK DESTROYER MODEL DS212A



Instruction Manual

DS212A



The lightning flash with arrowhead synbol 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenace (servicing) instruction in the literature accompanying the appliance.

IMPORTANT SAFETY INSTRUCTION

Please see below basic protection proceeding before using

1. Please read all the safety instruction before using the product.
2. This product must be earthed. If it should be malfunction or break down, grounding provides a path of least resistance for electric current to reduce risk of electric shock.

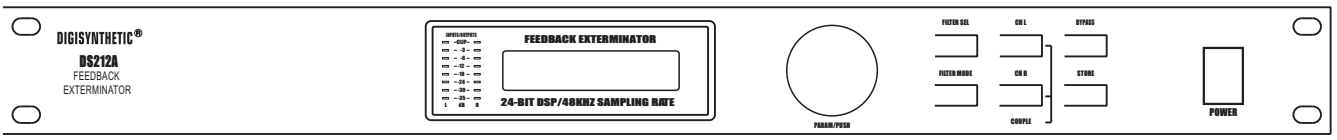
This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and earthed in accordance with all local codes and ordinance.

DANGER- Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

3. To reduce the risk of injury, close supervision is necessary when the product is used near children.
4. Do not use this product near water-for example, near a bathtub, washbowl, kitchen sink, in wet basement or near a swimming pool or the lake.
5. This product may be capable of producing sound levels that cloud cause permanent hearing loss. Do not operate for a long period of time at high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
6. This product should be located so that its location or position does not interfere with its proper ventilation.
7. This product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
8. The product should be connected to a power supply only of the type described on the operation instructions or as marked on the product.
9. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
10. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power-supply cord, do not pull on the cord, but grasp it by the plug.
11. Care should be taken so that object do not fall and liquid are not spilled into the enclosure through opening.
12. The product should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have been fallen, or liquid has been spilled into the product; or
    C. The product has been exposed to rain; or
    D. The product does not appear to operate normally or exhibits a marked change in performance; or
    E. The product has been dropped or the enclosure damaged..
13. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

14 WARNING- Do not place objects on the product's power cord or place it in a position where anyone could trip over, walk on or roll anything over it. Do not allow the product to rest on or to be installed over power cords of any type. Improper installations of this type create the possibility of fire hazard and/or personal injury.

DIGISYNTHETIC® PRO MODEL DS212A



64/128 time over-sampling for ultra-high resolution, 24-bit A/D & D/A converter, precise analysis

12 auto detect feedback frequencies in every channel, intelligent management

Convenient default settings enables immediate, complete feedback cancel function

Single mode to automatically search,manage and lock the feedback frequency until manual adjust or reset

Able to manually set all parameters of 2x12 filter inclusive of frequency, Q value etc.

Servo balanced input & output, gold plated XLR & TRS connectors

modes for every filter function: SINGLE, AUTO .

Left & Right channel is able to work individually or combinatorially by dual modular processor

High quality 24-bit processor ensures signal resolution and dynamic range

Soft startup with relay eliminating ON/OFF switch noise, noise gate function

2x16 character LCD display screen with back light,2*8 LED meter displaying input or output level

High quality components and exceptionally rugged construction ensures durability

lnternal power supply design for professional application

TABLE OF CONTENTS

1. Introduction

DS212Ais a cost-effective machine with auto digital feedback destroyer. It can store up to 10 groups of data, and see 10 different environment requirements tone control. The feedback frequency can put down to -48dB. When feedback occurs, DS212A will analyze through DSP calculation and auto detect the feedback frequency, decide the notch filter frequency, bandwidth and cut range.

Then stores all results to memory. As DS212A can control the bandwidth of the notch filter, It can only eliminates the feedback signals and does not affect the music signal with high definition.

(1) precise feedback frequency search

While in eliminating feedback, the filter feedback frequency is dynamic, 1Hz resolution, Thus remove feedback effectively.

(2) Adjustable filter Bandwidth

User can adjust Bandwidth of DS212A.whatever the single-shot or auto filters. you can select the 1/10 or 1/5. But for auto filters, the bandwidth set is not effective until the next feedback frequency be found.

(3) Displays all parameters

LCD screen with back light can display different filtering parameters. In AUTO mode, You are able to read all the parameters including feedback frequencies, bandwidth. In single mode, user can read and adjust feedback frequencies and bandwidth.

2.Control Front Panel

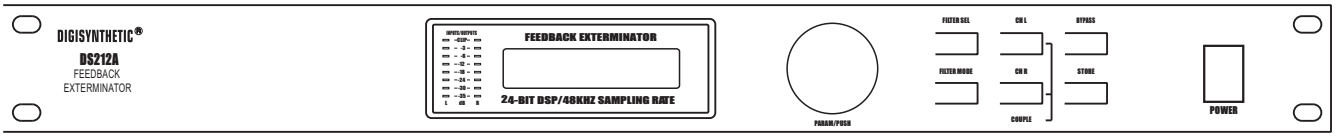


Fig 2.1 DS212A Front Panel

There are 6 function buttons and 1 jog-wheel for control & editing purpose and 1 LCD display screen in the DS212A Front panel.

2.1 Menu display

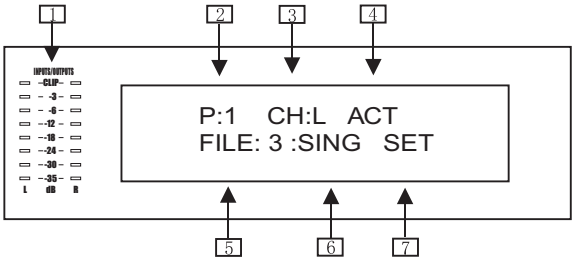


Fig 2.2 Menu selection

(1) **2**x8 LED light for left/right input/output level indication.

(2) **"P:"** indicates program select menu, while entering this menu, the symbol ":" becomes "->". Select any program from 0~9 by turning the jog-wheelencode.

(3) "CH:" -- Left/Right channel select menu display. "CH: L" & "CH: R" indicate able to edit left & right Channel parameters respectively. "CH: LR means left & right channel is able to edit at the same time.

(4) "BYP" -- Bypass all of the feekback filters now.. "ACT" - the filters setting is effective, the signals have been deal with by the filters

(5) "FILT:"-- Able to select any filter from 1~12 by encoder when ":" becomes "->".

(6) ":SING"---when ':' change to "->", press the "FILT MODE" button to enter the pagethat the current filter frequency and the Q values.In single mode, the frequency and Q value can be adjusted. In auto mode, only display.And "SC" will disappear to indicate edited parameters had been saved in present program.

(7) As the mode of filter,frequency, and Q values are changed, LCD shows "SV" to remind user that the parametershas been changed Press "STORE" button once and it will blink "SC" to remind user whether to save or not. Presses STORE button again to save

(8) "SET" -- when symbol ":" change into the "->". press the encoder to enter the single filter setup menu. firstly select the number of the single-shot filters. Press the encode once, select if reset the single filter parameters. Press again, setting succeeds.

2.2 Function Buttons & Jog Wheel

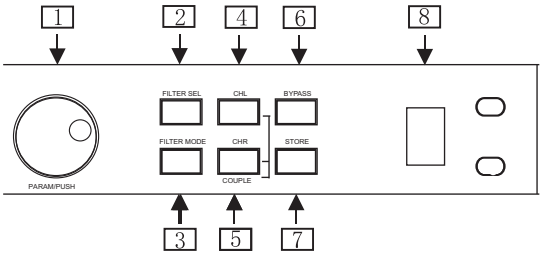


Fig 2.3 Function Buttons & jog wheel

(1) PARAM/PUSH- Jog wheel witRotary h ON/OFF switch. Rotate to adjust the parameters value. Push to enter into the corresponding menus.

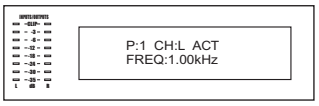


Fig 2.4 Filter Menu

(2) FILTER SEL

Program & Filter Select Button. Choose among 12 Filters or 10 channels.Press once to enter Filter select indicated by "FILTER-> in LCD, press second time to enter programs select indicated by "P->" in LCD.

(3) FILTER MODE- Filter Mode Select Button. Press this button and turn jog wheel to select between "SING" (single) and "AUTO" (automatic) modes. In addition, press FILTER MODE and PARAM /PUSH button together at the same time, you are able to enter accessorial parameters adjust menu(NGATE, HPF, LPF, Q, LED DISPLAY(input/output meter select), SENSITIVITY).

(4) CHL, (5) CHR-

Left and Right channel select button enable edit parameters for left & right channel. Press CHL & CHR button together to have the stereo link adjust. Please note the parameters of the channel whose button is pressed first will be copied to another channel. I.e. hold the CHL button, then press CHR button, the parameters of channel L will be copied to channel R. Vice verse.

(6) Bypass Button- allows to bypass all filters.

(7) STORE Button- Any preset parameters can be saved by STORE button. (Remarks: Press twice to store Data and symbol will disappear.)

2.3 Combination Buttons

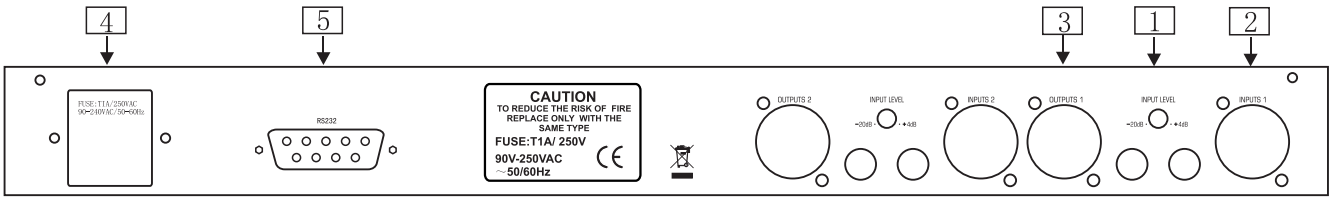
(1) Hold CHL or CHR button (do not release), and press another button to able or disable stereo link(couple)adjustment.

Please note the system comes back to the channel whose button is last released while decoupling the stereo link mode. E.g. Press CHL and CHR, release the CHL first, then release CHR button. The system will come back tchannel right. Vice, verse

(2) Press FILTER MODE & FILTER SEL buttons together. Enter into the accessorial menus (NOISE GATE, HPF, LPF, Q. DISPLAY (LED Input/Output meter select), SENSITIVITY)

(3) Press FILTER SEL & STORE buttons together just after power on for 5 seconds to display RESET". System is reset to original (Factory default status).

2.4 Rear Panel



(1) INPUT LEVEL POTENTIOMETER: adjust from -20dB ~ +4dB, the default is at the center.

(2) ANALOG INPUT: XLR and TRS input socket, Parallel between XLR & TRS input. Balance & Unbalance Configuration.

(3) ANALOG OUTPUT : XLR and TRS output socket, Parallel between XLR & TRS input. Balance & Unba-lance configuration.

(4) POWER RECEPTACLE: Switch power supply, 90V~250V, 50Hz/60Hz.

3.1 Notch filter

The Notch Filter will work in 2 types of modes: SINGLE or AUTO mode. In order to sense feedback, DS212A will scan the frequency level in the entire frequency response range, It compares the changed level with the signal level, the level difference determine whether a notch filter is set up or not. This algorithm provide the best feedback identification in most applications.

The filter analyzes the music signal automatically to detect the feedback frequency in single mode. The filter configures the parameters automatically to cancel the feedback effectively after feedback is detected. As the filter in single mode is locked at the detected feedback frequency, this mode is suitable for the feedback at the constant frequency. One example is used in the fixed microphone inside a permanent installed conference room system.

All moveable microphones are adviced to work with AUTO mode for feedback control as they alway shave changeable feedback frequencies. Under AUTO mode operation, the filter tracks and cancels the feedback frequency dynamically. The best frequency is chosen automatically. The filter can be set at the narrow bandwidth to influence the music signal as less as possible.

3.2 Program memories

In order to keep your favorable setup, DS212A has 9 program memories for USER preset and 1 memories for default preset. Please note the default memory(program 0) parameters cannot be changed then stored in the memory. In default, 6 filters are set as SING mode 4 ones as AUTO mode. The other 9 user memories can be used to save the changed setup (the user programs are prduced on the basis of the program 0 (the default preset).
The setup preset programs are stored in the semiconductor memory chip. The data cannot be lost for more than 20 years.

3.3 Recall program

After power is on, DS212A will display last used preset values. Turning jog wheel to select your desired preset program.

3.4 Filter mode

Fig. 3.1 Displays the filter mode.

Display	Operation Modes
AUTO	Automatic
SING	Single

Fig.3.1 DS212A Filter Operation Modes

To alter filter mode: First, press FIL SEL (filter select) button and select filter from 1~12 by turning jog wheel. Use CH (channel select) button not only to select left or right channel but also both channels.

3.5 Adjusting Sing Filter parameter

Only the sing filter frequence and the Q values can be adjusted. the auto filter frequency can be monitored,but can not adjusted. you can change the Q values of the auto filter. Press the "FILTER MODE",you can start to adjust the filter parameters.
In SET menu (Then press FILTER MODE button, select SET(refer to page 5), press jog wheel(encoder)), urn rotary jog wheel to select the number of the filters ,if the SING filters are 8PCS, it means the filters rom the NO 1 to NO 8 are SING one.the filters from NO 9 to NO 12 is AUTO one. The sympol 'LK' (lock) displayed in LCD indicates that one SING filter has been eliminating one feedback .

3.6 Accessorial menu

Press the FILTER SEL and FILTER MODE button at the same time, enter the accessorial menu,there are NOISE GATE, HPF. LPF, Q. DISPALY, SENSITIVE etc. submenus selecting by press FILTER MODE button and entering by pressing jog-wheel. To come back to the up evel menu, please press FILTER MODE button.
There are three menus: ATTACK(0.1ms-100ms) ELEASE(10ms-5000ms), THRESHOLD(off.-66db. -24db) in the NOISE GATE menu.
Two menus: HPF ON/OFF, FREQ (20HZ-300HZ) in the HPF menu. Two menus: LPF ON/OFF, FREQ (10KHZ-20KHZ)in the LPF menu.
1/10 and 1/5 Q values are available to adjust by turning jog-wheel.Such Q value settingdoes not act until the new feedback frequency is detected in the current channel.
DISPLAY menu decides whether the LED meter is input one or output one.
SENSITIVITY is the speed of the feedback cancel, 5 grades adjustable. Grade 1 is highest sensitive, grade 5 is lowest one.
Turn the jog-wheel(encoder) to adjust these parameters value.

4. Appendix
4.1 Specifications

Analog Inputs

Connectors	XLR and 1/4" jack
Type	servo balanced
Impedance	40kOhms balanced, 20kOhms unbalanced
Nominal Operating Level	-20dB to +4dB
Max. Input Level	+16dB at +4dB nominal level, +2dB at -20dB nominal level

Analog Outputs

Connectors	XLR and 1/4" jack
Type	Electronically servo-balanced output stage
Impedance	66ohms balanced, 33ohms unbalanced
Max. Output Level	+16dB at +4dB nominal level, +2dB at -20dB nominal level

System specifications

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	16X2 LCD-Display
Power Supply	90-250**VAC**
Fuse	T1A/250V
Power Consumption	10 Watts
Mains Connection	Standard IEC receptacle

Physical

Dimensions(H*W*D)	45mmX482mmX152mm
Shipping Weight	3kg

All technical specifications in DIGISYNTHETIC products are subject to changes for product improvement with **or** without **NOTICE.**