

R&H

USER'S MANUAL

USER'S MANUAL

DPI Series

Switching power amplifier



The information contained in this manual is subject to change without notice.
No part of this manual may be reproduced or transmitted in any form or by any means,
electronic or mechanical, including photocopying and recording of any kind.

LIMITED WARRANTY

THE WARRANTY

For a period of one (1) year from the date of delivery to the original purchaser (as shown on the original invoice or sales receipt), R&H warrants to the ORIGINAL OWNER of each new product (provided it was purchased at an Authorized R&H Dealer) that it is free of defects in materials and workmanship and that each product will meet or exceed all factory published specifications for each respective model. R&H agrees to repair or replace (at its discretion) all defective parts at no charge for labor or materials; subject to following provisions:

WARRANTY VIOLATIONS

R&H shall take no responsibility for repair or replacement as specified under this warranty, if the damaged product has been subject to misuse, accident, neglect or failure to comply with normal maintenance procedures; or if the serial number has been defaced, altered or removed. Nor will R&H accept responsibility for, or resulting from, improper alterations or unauthorized parts or repairs. This warranty does not cover any damage to speakers or any other consequential damage resulting from breach of any written or implied warranty.

R&H WARRANTY PROVISIONS

R&H will remedy any defect, regardless of the reason for failure (except as excluded) by repair, or replacement. R&H will remedy the defect and ship the product within a reasonable time after receipt of the defective product at an R&H Authorized Service Center.

TO OBTAIN WARRANTY SERVICE

In the event that an R&H product requires service, the Owner must contact R&H or an Authorized R&H Service Center to receive an R.A.N. (Return Authorization Number) and instructions on how to return the product to the R&H Authorized Service Center, or to the factory. R&H (or its Authorized Service Center) will initiate corrective repairs upon receipt of the returned product. Please save original carton and all the packing materials in case shipping is required. All products being returned to the factory or service center for repairs must be shipped pre-paid.

If the repairs made by R&H or the R&H Authorized Service Center are not satisfactory, Owner is instructed to give written notice to R&H. If the defect or malfunction remains after a reasonable amount of attempts by R&H to remedy the defect or malfunction, the Owner shall then have the option to elect either a refund or replacement of said R&H product free of charge. The refund shall be an amount equal to but not greater than the actual purchase price, not including any taxes, interest, insurance, closing costs and other finance charges (minus reasonable depreciation on the product). If a refund is necessary, the Owner must make the defective or malfunctioning product available to R&H free and clear of all liens or other restrictions.

MODIFICATIONS OF EQUIPMENTMA

R&H reserves the right to modify or change equipment (in whole or part) at any time prior to delivery thereof, in order to include therein electrical or mechanical improvements deemed appropriate by R&H; but without incurring any liability to modify or change any equipment previously delivered, or to supply new equipment in accordance with any earlier specifications.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU, THE OWNER, ARE NOT ENTITLED TO RECOVER FROM R&H ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE R&H PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Warranty. This Warranty is not extended by the length of time which the Owner is deprived of the use of product. Repairs and replacement parts provided pursuant to the Warranty shall carry only the non-expired portion of the Warranty.

THIS STATEMENT OF WARRANTY SUPERSEDES ALL OTHERS CONTAINED IN THIS MANUAL

R&H Products
Service Information Form

Owner's Name: _____
Shipping address: _____
Street: _____
City: _____
Zip Code: _____
Country: _____
Phone Number: _____ Fax Number: _____
Email: _____

MODEL: _____ SERIAL: _____
NUMBER: _____
Place of Purchase: _____
Name of Dealer: _____
Full Address: _____
DATE OF PURCHASE: _____

Nature of the problem
(Be sure to describe the conditions that existed when the problem occurred and what attempts were made to correct it.)

Other equipment in your system

If warranty has expired, payment method: ☐ Cash ☐ Check ☐ Visa ☐ Master
card number: _____ Signature: _____

Enclose this form with the defective unit. Do not mail separately.



Service

This unit has very sophisticated circuitry and should only be serviced by a fully trained technician.
This is why each unit bears the following label:

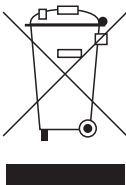


To prevent electric shock, do not remove covers. No user serviceable parts inside. Refer servicing to a qualified technician.

Worldwide Service

Service may be obtained from your local authorized service center. To obtain service, simply present your sales receipt as proof of purchase along with the defective unit to an authorized service center. They will handle the necessary paperwork and repair. Remember to transport your unit in the original factory packaging.

1. When sending a DPi Series product to the authorized service center for service, be sure to Fill out the service information form that is enclosed at the end of this manual and include it inside your unit's shipping pack. Do not send the service information form separately.
2. To ensure the safe transportation of your unit to the authorized service center, ship it in an original factory-packing container.
3. **Do not** ship the unit in any kind of rack. Ignoring this warning may result in extensive damage to the unit and the equipment rack. Accessories are not needed. Do not send the instruction manual, cables and any other hardware.



WEEE Mark

If you want to dispose of this product, do not mix with general household waste. There are separate collection systems for used electronic products in accordance with legislation under the WEEE Directive (Directive 2002/96/EC) and is effective only within the European Union.

The information furnished in this manual does not include all of the details of design and engineering of this particular product; not does it cover every possible application or situation concerning its usage, which may occur during the installation, operation or maintenance of said R&H product.

IMPORTANT
THE PRODUCT REQUIRES CLASS 2 OUTPUT WIRING.

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. DISCONNECT POWER CORD BEFORE REMOVING REAR PANEL COVER TO ACCESS GAIN SWITCH.

Shock Hazard - Do Not Enter
Choc Hasard - N*entrent
Schocke Hazard - Test Nicht
Betrete
Urto Hazard - Do Non Entrano

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

Magnetic Field

CAUTION: Do not locate sensitive high-gain equipment such as preamplifiers or tape decks directly above or below this 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. This field is strongest just above and below the unit. If an equipment rack is used, we recommend locating the amplifier(s) at the bottom of the rack and the preamplifier or other sensitive equipment at the top.

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

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

Printed on recycled paper.

Quick-Start Guide: Stereo Wiring

Let’s assume that you unpacked and installed your amplifier with the proper cooling. If not, see Section 2 in this manual. We’ll also assume that you will operate the amplifier in stereo. If you want to operate your amplifier in bridge-mono, skip to page 5.

- 1.IMPORTANT: Turn off the amplifier. Unplug its power cord from the AC outlet. The amplifier must be grounded when plugged into AC power.
- 2. See Figure A.1. Connect two cables from your mixer output to the amplifier XLR input connectors.
- 3.Using Class 1 wiring, connect speaker cables either to the amplifier Speakon connectors.
- 4.Turn down your mixer master faders. Plug the power cord into the amplifier and then into an AC outlet. Turn on the front-panel power switch. The LCD Control Screen will light up (Figure A.3). Turn down (CCW) both Encoder knobs (Level controls) to maximum attenuation.
- 5.Play a program through your mixer. Set its level to peak at 0 dB or 0 VU maximum on the mixer meters. Gradually turn up (CW) the amplifier Encoder knobs (Level controls) to the desired volume (Figure A.3).

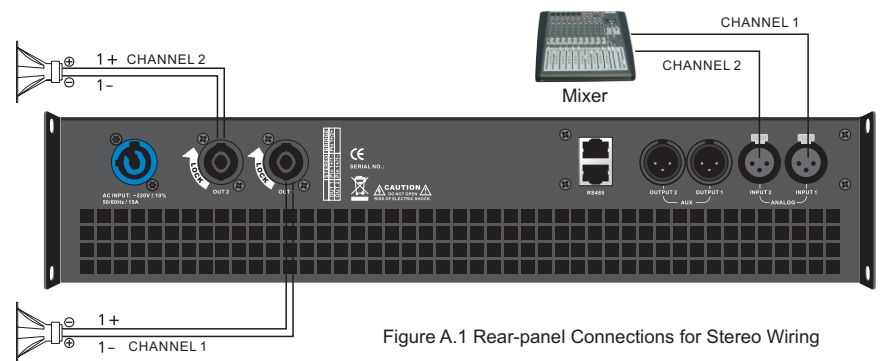


Figure A.1 Rear-panel Connections for Stereo Wiring

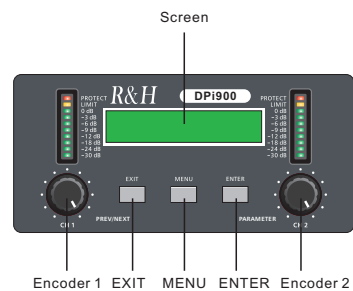


Figure A.3 / A.4
The LCD Control Screen

4 Specifications

MODEL	DPI 500	DPI 700	DPI 900
Max output power			
1 kHz and 0.1 % THD			
8 Ω per channel (Watt)(RMS)	450	650	800
4 Ω per channel (Watt)(RMS)	700	1000	1250
2 Ω per channel (Watt)(Burst signal)	1200	1400	1600
8 Ω bridged (Watt)(RMS)	1400	2200	2500
4 Ω bridged (Watt)(Burst signal)	2400	2800	3000
Distortion etc.			
THD at 1 kHz and 1 dB below clipping	0.25%	0.25%	0.25%
Slew rate	55V/ μ s	55V/ μ s	55V/ μ s
Dampping Factor	600	600	600
Rear panel			
Input connectors	XLR Female	XLR Female	XLR Female
Output connectors	XLR male	XLR male	XLR male
DSP setting work mode	Stereo/Bridge/Parallel		
Output connectors	Speakon	Speakon	Speakon
Power			
Operation voltage, 230V	198-242V	198-242V	198-242V
Soft Start	Yes	Yes	Yes
Full output power at 4 ohms, 230V	210-242V	210-242V	210-242V
Minimum start-up voltage, 230V	198V	198V	198V
Dimensions (W x D x H)			
Unit (mm)	483 x 471 x 89	483 x 471 x 89	483 x 471 x 89
Packing (mm)	575 x 568 x 163	575 x 568 x 163	575 x 568 x 163
Weight (kg)			
Net Weight	11.1	11.1	11.5
Gross Weight	15.1	15.1	15.5

9. Choose copy menu to data from the edited one to other input/output channel

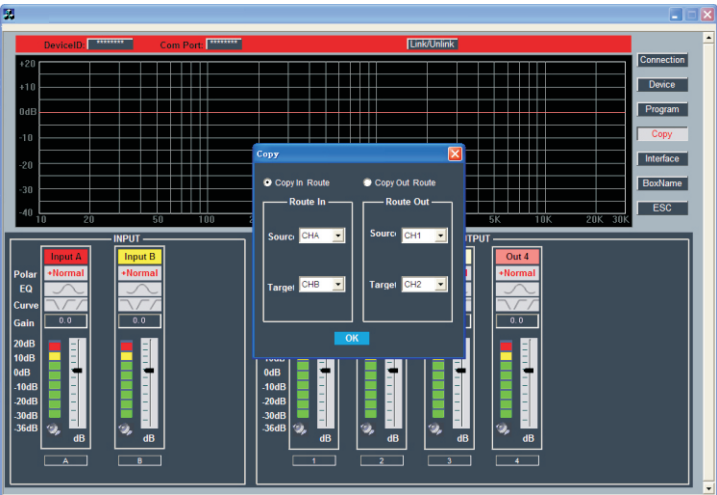


Fig 2.7

10. Modify Device
choose interface menu to set up the start up information of the device

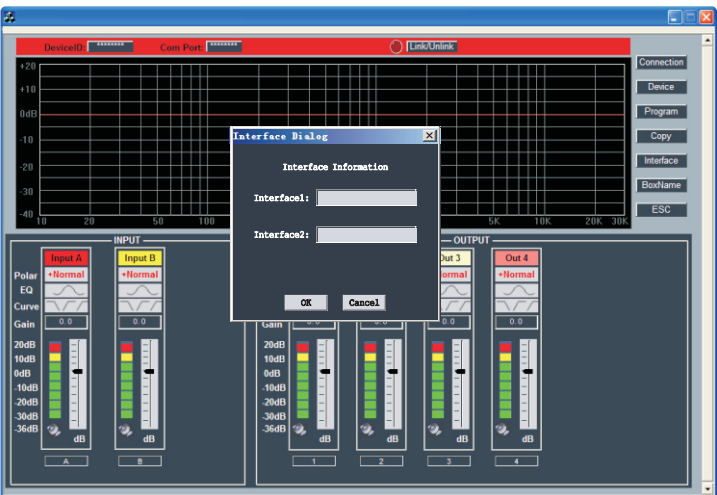


Fig 2.8

Quick-Start Guide: Bridge-Mono Wiring

Let assume that you unpacked and installed your amplifier with the proper cooling. If not, see Section 2 in this manual. Well also assume that you will operate the amplifier in Bridge-Mono. Basically you will turn on the amp, enable Bridge-Mono mode with the LCD Control Screen, turn off the amp, wire it, and turn it back on.

1. Be sure that no cables are connected to the amplifier. Plug the amplifier power cord into the amplifier, then into an AC outlet.
2. Turn on the amplifier power switch on the front panel. The LCD Control Screen will light up (Figure A.3).
3. Under the LCD Control Screen, press the **Menu/Exit** button. Press the **Next** button until you see **Work Mode** on the screen.
4. Turn either Encoder knob to select BRIDGE MONO. Press the knob to confirm your choice. Press the **ENTER** button. Turn down (CCW) both Level controls (Encoders) until you reach maximum attenuation.
5. IMPORTANT: Turn off the amplifier. Unplug its power cord from the AC outlet. The amplifier must be grounded when plugged into AC power.
6. See Figure A.5. Connect a cable from your mixer output to the amplifier Channel-1 XLR input connector.
7. Using Class 1 wiring, connect the speaker cable either to the amplifier top Speakon connector (terminals 1+ and 2+).
8. Plug the amplifier power cord into the amplifier, then into an AC outlet. Turn on the front-panel power switch.
9. Play a program through your mixer. Set its level to peak at 0 dB or 0 VU maximum on the mixer meters. Gradually turn up (CW) the amplifier Encoder-1 knob (Level control) until you reach the desired volume (Figure A.4). Encoder-2 has no effect in Bridge-Mono mode.

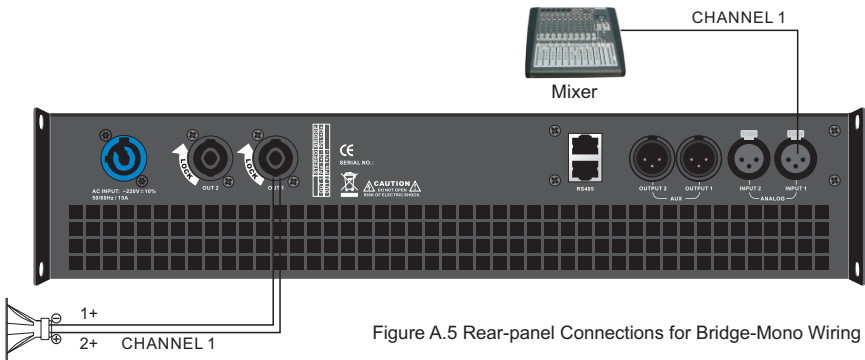
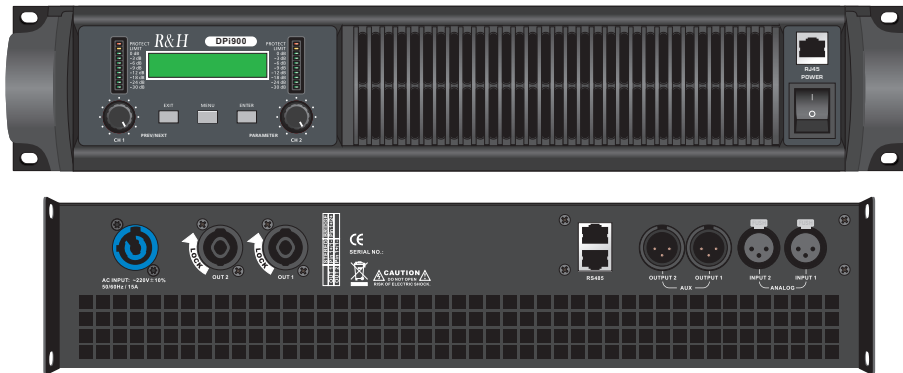


Figure A.5 Rear-panel Connections for Bridge-Mono Wiring



1 Welcome

Thank you for choosing DPI. professional audio product. You have joined a growing group of audio professionals who have turned to DPI for the most advanced audio amplification products available. So welcome to the DPI family! All DPI products have been designed, engineered and manufactured to meet the demands of even the most critical sound reinforcement professional.

Please read this manual carefully. It contains important and helpful information to enable you to get the maximum performance out of your new product. If you plan to use this amplifier in either of the 2 available Mono modes, please refer to section 2.2.

1.1 Unpacking

Please unpack and inspect your new amplifier for any damage that may have occurred during transit. If damage is found, notify the Transportation Company immediately. Only you, the consignee, may initiate a claim with the carrier for damage which occurred during shipment. Remember to save all packing materials in the unlikely event your unit should ever need to be returned to the factory for service of any kind.

1.2 Features

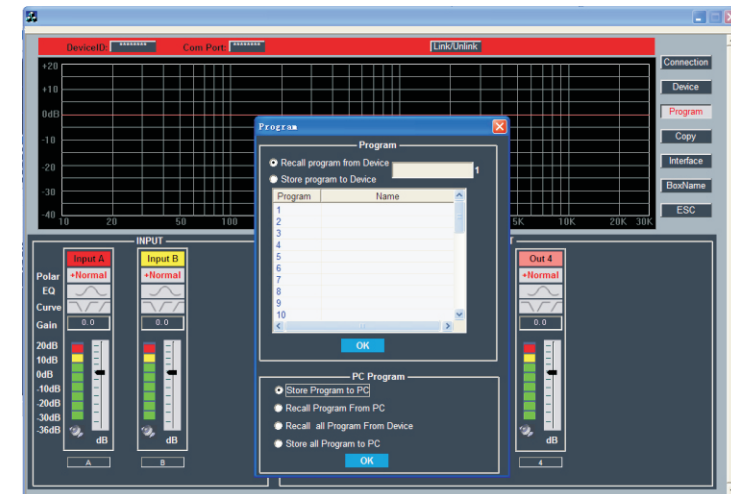
- ☐ High power density, up to 3000 watts in a 2U chassis.
- ☐ Onboard DSP with 24-bit, 96 kHz Burr-Brown A/D and D/A converters.
- ☐ Pushbutton presets simplify setup. Custom presets for various loudspeakers can be downloaded.
- ☐ LCD Control Screen is used to adjust the amplifier's attenuation and muting, configure the amp, set up and view error monitoring, and recall DSP presets to reconfigure the amp for various applications.
- ☐ Light weight due to aluminum chassis, special internal construction and switching power supply.
- ☐ Thermal management controller and two discrete thermal zones with variable-speed fans, forced-air cooling.
- ☐ The rear rack ears have a built-in EZ-Rack Pin for easier installation.
- ☐ Advanced protection circuitry guards against: shorted outputs, DC, mismatched loads, general overheating, under/over voltage, high-frequency overloads and internal faults.
- ☐ One-Year, No-Fault, Fully Transferable Warranty completely protects your investment and guarantees its specifications.

7. Download data to Device. Choose 'Program' menu ----- communications then choose the program from PC and which memory you want to put at the device

***program 20 to 30 is protected , you can down data to these 10 memories with input password .

please get the password from your dealer

8. Upload data from device, firstly the data will be uploaded when connecting to device, only the current using data to "work" page , you also can choose 'upload from device' from the menu----- communications, and do the some process as 8.



5. Setup output channel EQ parameter

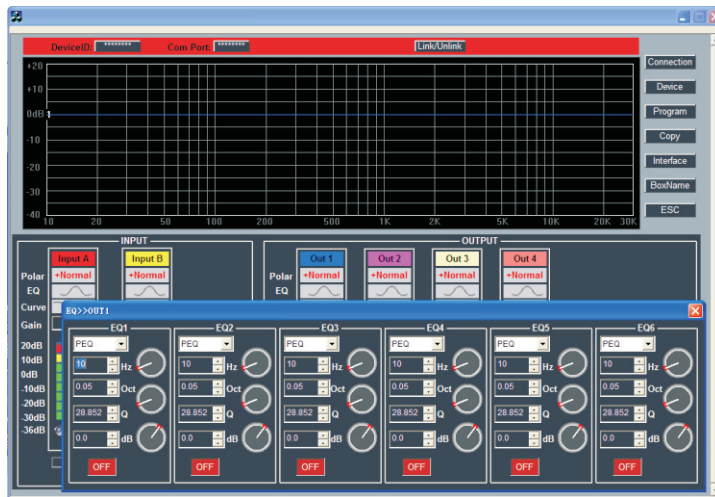


Fig 2.4

6. Setup route of each channel and delay, HPF, LPF, Limit parameter.

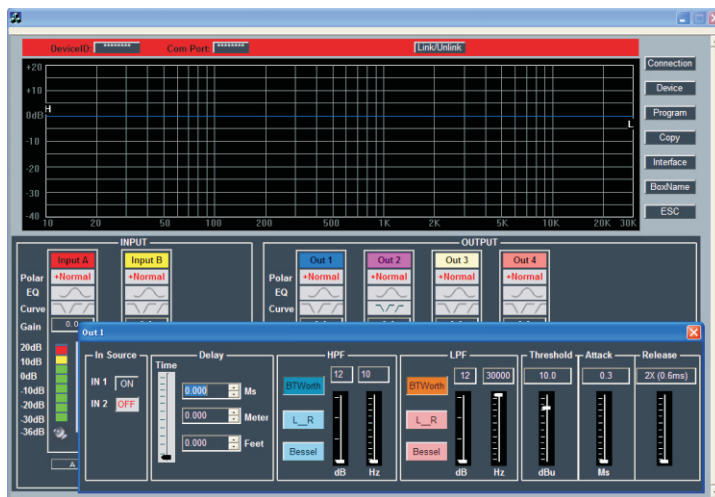


Fig 2.5

2 Operation

2.1 Protecting Your Speakers

It's wise to avoid clipping the amplifier signal. Not only does clipping sound bad, it can damage high-frequency drivers. To prevent clipping, use software to enable the peak voltage limiter in your amplifier built-in DSP. That way, no matter how strong a signal your mixer produces, the amplifier will not clip. Set the limiter threshold so that mixer signals above 0 dB or 0 VU on the mixer meters do not quite drive the amplifier into clipping.

Also, avoid sending strong subsonic signals to the amplifier. High-level, low-frequency signals from breath pops or dropped microphones can blow out drivers. To prevent subsonic signals, use one of these methods:

- ☐ Insert a high pass filter between mixer output and amplifier input (or between mixer and limiter).
- ☐ Switch in high pass filters at your mixer. Set the filter to as high a frequency as possible that does not affect your program. For example, try 35 Hz for music and 75 Hz for speech. On each mixer input channel, set the filter frequency just below the lowest fundamental frequency of that channel's instrument.

2.2 Startup Procedure

Use the following procedure when first turning on your amplifier:

1. Turn down the level of your audio source.
2. Turn on the Power switch. The LCD Control Screen should light up.
3. Turn down the amplifier Encoder knobs (Level controls).
4. Turn up the level of your audio source to an optimum level.
5. Turn up the amplifier Encoder knobs (Level controls) until the desired loudness or power level is achieved.
6. Turn down the level of your audio source to its normal range.

If you ever need to make any wiring or installation changes, don't forget to disconnect the power cord.

For help with determining your system's optimum gain structure (signal levels) please refer to the user's manual Application Guide.

2.3 Precautions

Your amplifier is protected from internal and external faults, but you should still take the following precautions for optimum performance and safety:

1. Before use, your amplifier first must be configured for proper operation, including input and output wiring hookup. Improper wiring can result in serious operating difficulties. For information on wiring and configuration, please consult the Setup section of this manual or, for advanced setup techniques, consult Crown's Amplifier Application Guide available online at
2. Use care when making connections, selecting signal sources and controlling the output level. The load you save may be your own!
3. Do not short the ground lead of an output cable to the input signal ground. This may form a ground loop and cause oscillations.

- 4.**WARNING:** Never connect the output to a power supply, battery or power main. Electrical shock may result.
- 5.Tampering with the circuitry, or making unauthorized circuit changes may be hazardous and invalidates all agency listings.
- 6.Do not operate the amplifier with the red Clip LEDs constantly flashing.
- 7.Do not overdrive the mixer, which will cause clipped signal to be sent to the amplifier. Such signals will be reproduced with extreme accuracy, and loudspeaker damage may result.
- 8.Do not operate the amplifier with less than the rated load impedance. Due to the amplifier output protection, such a configuration may result in premature clipping and speaker damage.
9. CAUTION - SHOCK HAZARD: Potentially lethal voltages exist at the output connectors when the amplifier is turned on and is passing a signal.
- Remember: We is not liable for damage that results from overdriving other system components.

3. Setup the Input EQ parameter

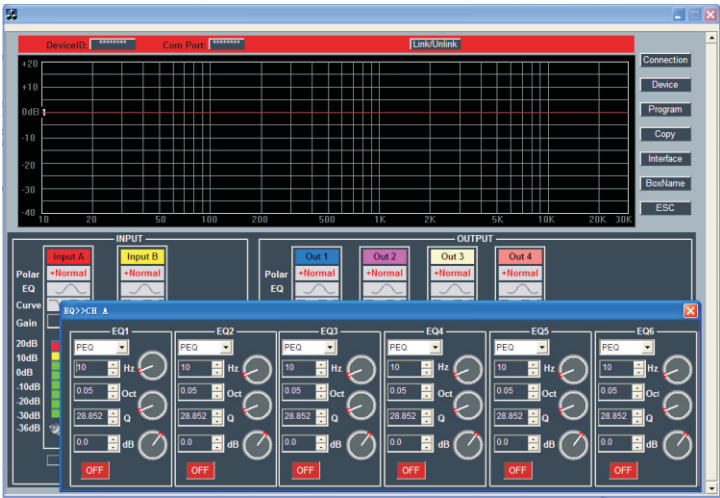


Fig 2.2

4. Setup input channel delay parameter

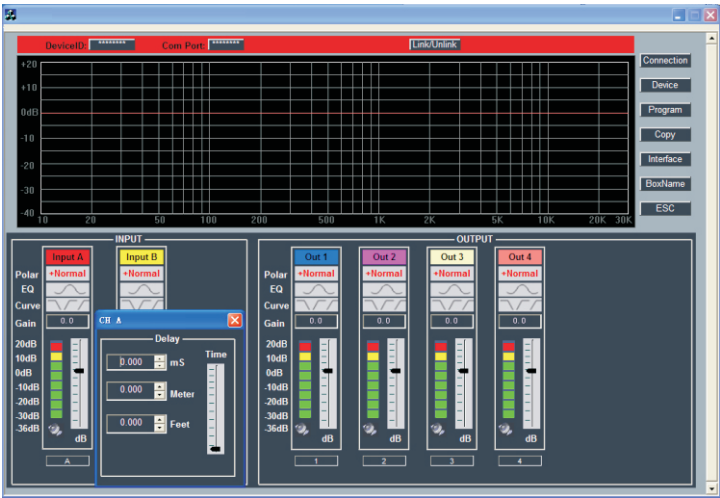


Fig 2.3

SOFTWARE GUIDE

*** program running
firstly please check the unit is connect to PC by RS485

- 1. Choose connecting from menu, select comport by clicking ok,You can use Search ID to find the connect devices also you can give the unit ID by hand,It can save your time.

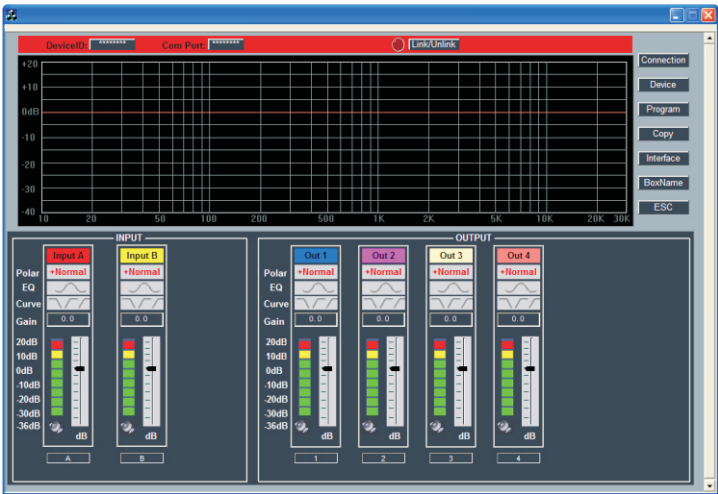
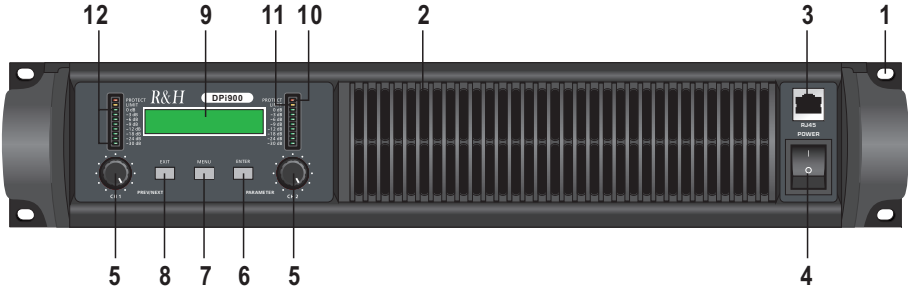


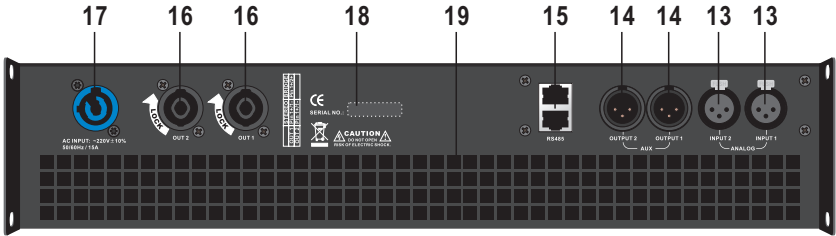
Fig 2.1

- 2. The Data currently use the unit will upload to Pc when they connected the screen of unit will shows “computer connecting”

Front Panel



Rear Panel



- 1. Rack mounting ears
Two front panel mounting holes are provided on each mounting ear.
- 2. Fan intake grill filter
One grill with foam filter is located on the front panel to prevent dust from entering the amplifier. The fan's variable speed control ensure low noise operation and adapt the quantity of air required from the actual temperature inside the unit. Thanks to this advanced system low noise is guarantee. Do not block this intake!
- 3. RS485 In-Out: RJ45 sockets. Used for transmission of remote control data over long distance or multiple unit applications.
- 4. AC power switch
Use this to switch on the amplifier. A soft-start system limits the start-up surges.
- 5. Input attenuator
Two front panel encoder input attenuator adjust level for their respective amplifier channels. Minimum attenuation (-0dB) equals maximum output. In the bridge mode. Just encoder-1 is use, encoder-2 is disable. We recommend that you set Ch1 to the -0dB (full) position.
- 6. ENTER key enters the chosen menu, confirms selections, and changes filter types when editing parametric sections.
- 7. MENU key activates the main menu .
- 8. EXIT menus back to the default screen.

9. LCD Control Screen

Integrated LCD with blue back light, controls amplifier setup and operation.

The LCD Control Screen and its controls let the user adjust the amplifier's attenuation and muting, configure the amp, set up and view error monitoring (such as temperature and load supervision), and recall DSP presets. The presets allow the user to quickly reconfigure the amp for various applications.

10. Protect LED

Each channel has a Protect LED that will light when the load connected is lower than 1 Ohm or amplifier broken.

11. Clip/Limiter LED

Each channel has a LED that light at the real clipping point (more than 0.5% T.H.D.) and also indicates the input signal is compressed by amplifiers.

12. Signal bar LED

Each channel has a bar LED, as the input signal strength increase, the green SIGNAL -30dB, -24dB, -18dB, -12dB, -9dB, -6dB, -3dB, 0dB LED indicators light respectively.

13. Balanced Analog XLR Inputs

A 3-pin female XLR connector for each channel.

14. Balanced Analog XLR Loop-Through Outputs

Two 3-pin male XLR output connectors are provided (one per channel). The signal at these connectors is paralleled with the input signal for feeding the input signal to other amplifiers.

15. RS485 In-Out

Rj45 sockets. Used for transmission of remote control data over long distance or multiple unit applications.

16. Speakon Output Connectors

Class 1 output wiring required.

These two connectors accept 2-pole or 4-pole Speakon connectors. The output1 Speakon connector is wired for both channels so it can be used for bridge-mono wiring or for stereo wiring of two speakers to a single Speakon connector.

17. AC Play

Standard 15 amp IEC inlet. Voltage range is indicated above IEC inlet.

18. S.N. Label

Every unit has a label indicating: the model, and the barcode serial number.

19. Fan exhaust ports

Heated air exits the amplifier through the exhaust ports, located on the rear of the amplifier chassis. Be sure not to block this ports, especially when rack mounting the amplifier.

3 Advanced Operation

3.1.1 Introduction

A **preset** is a group of DSP settings that configure the amp for a specific application. For example, you might use one preset that optimizes the amp's DSP for a Line Array. You might use another preset that sets up the DSP for a stereo pair of loudspeakers of your choice. You can choose any of ten presets with the LCD Control Screen.

1. Installed presets. Some presets are already installed in your DPI Series amplifier. You access them with the LCD Control Screen as described above. When recalled, each preset will automatically set the DSP parameters for a particular application.

2. User presets. Using software, you can create your own custom DSP pre-sets, label them, and send them to the DPI Series amplifier. The amp stores those presets in firmware. You can recall those presets from the LCD Control Screen.

3.1.2 Installed Presets

To select a preset that came installed in your amplifier:

1. Press the **Menu** button below the LCD Control Screen.
2. Turn right encoder-1 knob to see subprogram.
3. Turn an Encoder knob until you see the preset number you want to recall.
4. Press the Enter button to select that preset number.

The preset will automatically set the DSP parameters for that particular application.

3.1.3 User Presets

User presets are DSP presets that you set up. This is the basic procedure:

1. Adjust the DSP settings as desired in the software (not with the LCD Control Screen).
2. Save this group of settings as preset. Give it a label.
3. Download the preset to the DPI Series amplifier. See the Presets Help file in software for details. Basically, you will open and engage a data frame.
4. Setting the parameters of the DSP in the DPI Series amplifier is done using the IQwic software, not by the amplifier LCD Control Screen. For example, if you want to set filter Q, compression ratio, or graphic EQ, you would do so within the IQwic software.

Adjusting DSP parameters within software can be done in two ways: with a software directly. The Wizard asks a series of questions to help you set up DSP parameters for loudspeakers.

After setting the DSP parameters as desired:

1. Save them as a preset in software. Presets are stored and recalled through the Presets Page in software.
2. Download the preset to the DPI Series amplifier.
3. When you want to recall the preset, select it on the LCD Control Screen.