

DIY powered by **hypex electronics**

/CLASS D

**User
Manual**

PreAmplifier

Basic kit

DIY PreAmplifier kit, a brief introduction

Thank you for purchasing the DIYclassD PreAmplifier kit, designed by Hypex Electronics.

We have designed a DIY PreAmplifier with great performance, careful installation and correct use will help ensure that their full potential is achieved.

Please read the safety instructions on the next page before assembling, installing and/or operating the DIY PreAmplifier kit.

This User Guide covers the general operation instructions, how to install and use the DIY PreAmplifier. For assembly instructions, please refer to the corresponding Assembly Instructions.

Included in the kit

- 1x DIY PreAmplifier case
- 1x Main board
- 1x Front board
- 1x Headphones board
- 1x Supply board
- 1x Internal cable harness
- All required connectors
- All required mounting materials
- User assembly guide
- 1x TX-10 / TX-20 and 1.5mm hex key
- 1x Hypex Remote Control incl battery
- This User Guide.

Not included in the kit

- Power cable
- USB service cable
- Interconnects
- Trigger cables
- Tools as described in the Assembly Instructions at page 2

Table of Contents

Chapter	Page
Introduction, Table of contents	2
Safety precautions	3
1. Connections & Control	4
Front	4
Back	4
Remote	5
2. Function	6
On/Off/Standby/Idle	6
Volume/Mute	6
Input select	7
Headphones	7
3. Configuration	7
Navigation	7
Inputs	8
Source	8
Routing	8
Gain offset	9
Trigger	9
Restore defaults	9

Chapter	Page
System	10
Balance	10
Display	10
Brightness	10
Off Time-out	10
LED	11
Factory reset	11
About	11
4. Setup example	12
5. System information	13
6. Additional System information	13
Troubleshooting	14
Frequently asked questions	14
Support	14
Warranty	15
Disclaimer	15
Revisions	15
Notes	15
Contact	16

Safety precautions

This unit operates at mains voltage and carries hazardous voltages at accessible parts. These parts may never be exposed to inadvertent touch. Observe extreme care during installation and never touch module of the unit while it is connected to the mains. Disconnect the unit from the mains and allow all capacitors to discharge for 10 minutes before handling it.

Damage due to inappropriate handling is not covered by warranty. This product has no user-serviceable parts.

Warning: To reduce the risk of fire or electric shock, do not expose this device to rain or moisture.

Précautions de sécurité

Ce unité est sous tension secteur et certaines de ses pièces accessibles sont sous une tension dangereuse. Ces pièces doivent dans tous les cas être protégées contre contacts accidentels. Lors de l'installation, une prudence extrême s'impose. Ne jamais toucher les pièces du module quand celui-ci est relié au secteur. Isoler l'appareil du secteur et attendre 10 minutes pour laisser à tous les condensateurs le temps de se décharger avant de le manipuler.

Les dommages causés par un usage non approprié sont exclus de la garantie. Ce Produit ne contient aucune pièce devant être entretenue par l'utilisateur.

Avertissement: Pour réduire les risques de choc électrique, ne pas exposer cet appareil à la pluie ou l'humidité.



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 significant magnitude to constitute a risk of electric shock to persons.



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



Use a grounded electrical outlet for this appliance.



Utilice un tomacorriente con conexión a tierra para este aparato.



使用此设备的接地电源插座



Utilisez une prise électrique mise à la terre pour cet appareil.



Verwenden Sie für dieses Gerät eine geerdete



Gebruik voor dit apparaat een geaard stopcontact.

1. Read these instructions.
2. Keep these instructions.
3. Read all warnings.
4. Follow all instructions.

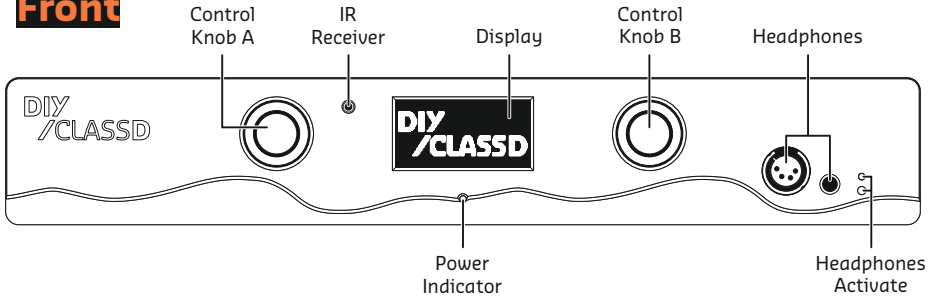
5. Never connect a power cord to this apparatus before the assembly is finished which include:
 - Proper installation of all parts.
 - Correct connections of all cables.
 - Firmly closed case.
6. Do not use this apparatus near water.
7. Clean only with a dry cloth.
8. Natural convection should not be impeded by covering the module (apart from the end applications housing). Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
10. Do not defeat the safety purpose of the protective earth / grounding mains inlet. Protective earth is provided for your safety.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.
16. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. This apparatus has been designed with Class-I construction and must be connected to a mains socket outlet with a protective earthing connection.
18. This apparatus has been equipped with a rocker-style AC mains power switch. This switch is located on the rear panel and should remain readily accessible to the user.
19. The MAINS plug or an appliance coupler is used as the disconnect device, so the disconnect device shall remain readily operable.
20. Do not run any cables across the top or the bottom of the module. Apply fixtures to cables to ensure that this is not compromised.
21. Before using this product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, do not use the product.
22. Changes or modifications not expressly approved by Hypex Electronics will void compliance and therefore the user's authority to operate the equipment.
23. Service or modifications by any person or persons other than by Hypex Electronics authorized personnel voids the warranty.



Correct disposal of this product: This symbol indicates that this product should not be disposed of with your household waste, according to the WEEE directive (2012/19/EU) and your national law. This product should be handed over to an authorized collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, or your household waste disposal service.

1. Connections & Control

Front



Control knob 'A'

Rotate: - Input Select
- Menu Navigation

Press: - Menu
- Select

Control knob 'B'

Rotate: Volume Up/Down
Press: - Power On
- Volume Mute/Unmute

Long Press: Standby

IR Receiver

Infrared Signal Receiver for included remote control.



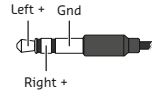
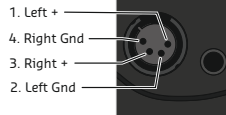
Display

- 2.7" Monochrome OLED Display
- Adjustable brightness and on-time



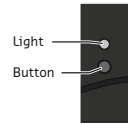
Headphones Connections

1x Female XLR 4-pole Balanced Stereo HP
1x 6.35mm (1/4") TRS Unbalanced Stereo HP



Headphones Activate

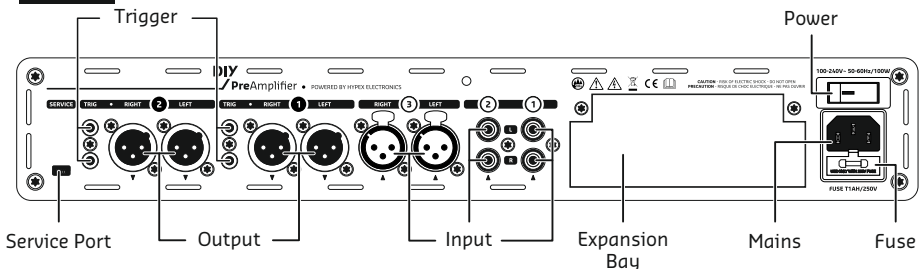
- Activate/de-activate the headphones outputs.
- White light with adjustable brightness.



Power Indicator

White light with adjustable brightness.

Back



Service Port

Mini-USB
Can be used to configure the Pre-amp and update the firmware. This connection does not support USB audio.



Expansion bay

For future additions

Mains inlet & Power switch

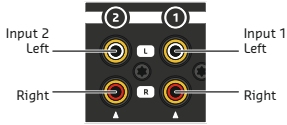
IEC60320/C14 (100 - 240Vac)

Fuse

T1AH/250V (size 5x20)

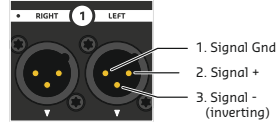
Input 1 & 2

2x RCA Unbalanced Analogue In



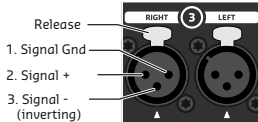
Output 1 & 2

2x Male XLR Stereo Balanced Analogue Out



Input 3

Female XLR Stereo Balanced Analogue In

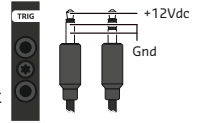


Trigger 1 & 2

2x dual 3.5mm (1/8") TS
12V/5mA_{max} Out.

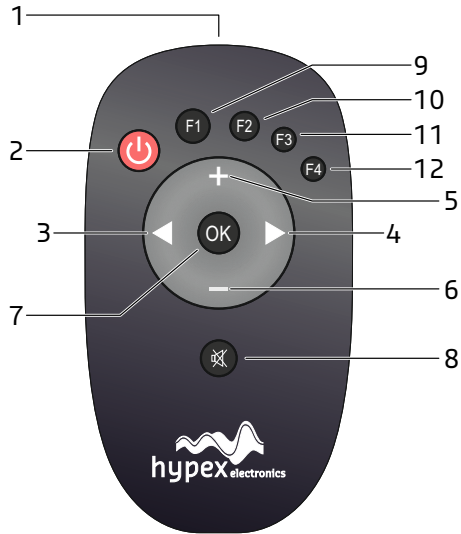
Each output has 2 trigger ports to activate 2 different devices simultaneously.

The configuration handles both mono and stereo connectors.



Remote

- 1: IR transmitter
- 2: Power on/off (Standby)
- 3: Input previous
- 4: Input next
- 5: Volume +
- 6: Volume -
- 7: Display activate
- 8: Mute
- 9: (not used)
- 10: (not used)
- 11: (not used)
- 12: (not used)



Rc5 Codes supported

Device code: 16

Code	PreAmp Function	Hypex Remote	Code	PreAmp Function	Hypex Remote
34	Reserved	Internal use	61	-	F4
48	Reserved	OK	18	-	-
50	Power ON/OFF	ON/OFF toggle	19	-	-
51	Volume UP	Arrow Up	20	-	-
52	Volume DOWN	Arrow Down	21	-	-
53	Mute	Mute	22	-	-
54	Select next input	Arrow right	23	-	-
55	Select previous input	Arrow left	24	-	-
56	-	F1	25	-	-
67	-	F2	28	-	-
59	-	F3	29	-	-

2. Function

On/Off/Standby/Idle

Power On

Use the power switch at the back to turn on the mains power.



Activate

Device: Press Control Knob 'B'.



Remote: Press the power button.



The display will show the logo for 2 seconds before showing the main screen. The power indicator will light up.*



Idle

The brightness of the display will dim after 1 minute of no operation. To prevent burn-in, the display will turn off after a configured period and will be activated again by any action. The power indicator will remain on in this case.*



Standby

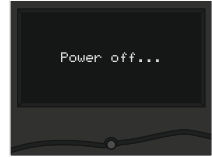
Device: Press and hold Control Knob 'B' for at least 2 seconds.



Remote: Press the power button.



The display will show 'Power off...' for 2 sec. before turning off.



The power indicator will go off.*

Power Off

Use the power switch at the back to turn off the mains power. Any saved changes made in the menu will still remain.

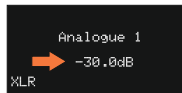


* The brightness of the power indicator is set to full by default. It is adjustable to half and off in the system configuration.

Volume/Mute

Volume adjustments

The output volume can be set between -70,0dB and 16,0dB relative to the input signal.



Volume up/down (stepsize 0.5dB)

Device: Turn Control Knob 'B' left or right.



Remote: Press - or +.



Volume Mute/Unmute

Device: Press Control Knob 'B'.



Remote: Press Mute-button.



Display:



XLR

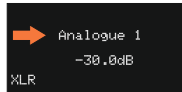


Headphones

Input Select

Input adjustments

Change the input by selecting between Input '1' up to '3'.



Previous/Next

Device: Turn Control Knob 'A' left or right.



Remote: Press ◀ or ▶.



Headphones

Output select

Select the output by switching between HP and XLR.



HP Activate/De-activate

Device: Press the button to set the output signal to both HP connectors.

The light will turn on* and the display shows 'HP'.



The HP assignment will remain active when the device goes to standby but returns back to XLR when the device is turned off. All trigger outputs will be temporarily turned off when Headphones outputs are active.

* The brightness is set to full by default.

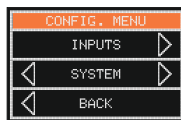
It is adjustable to half and off in the system configuration.

3. Configuration

Navigation

Configuration Menu

Press Control Knob 'A' one time to enter the menu.



Adjusting values

When the vertical bar appears, this bar can be moved to the left and right according to the desired setting.



The effect is noticeable during the adjustments. Push Control Knob 'A' to confirm the value.

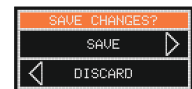
Navigate

The arrows tell the availability of a direction. Rotate Control Knob 'A' to jump to the desired option and press for confirmation.



Saving changes

After the parameter is set, confirmation is needed to maintain this new value or discard to readjust to its previous setting.

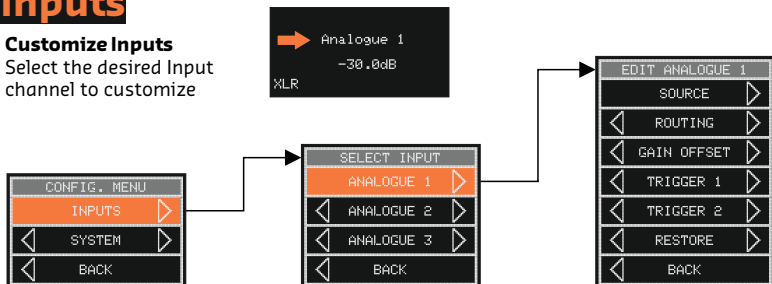


Every (sub)menu ends with '**BACK**' at the final position to return to the previous level in the menu and eventually to leave the configuration menu.



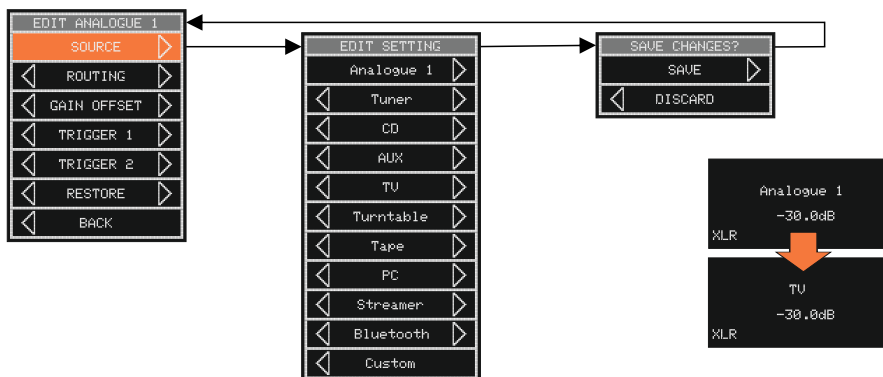
Inputs

Customize Inputs
Select the desired Input channel to customize



SOURCE

Change the name of the input corresponding to the connected source.

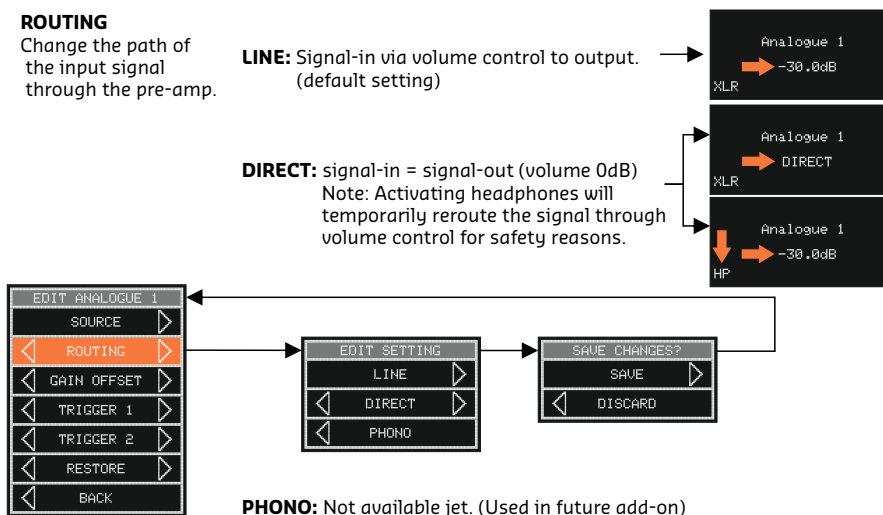


ROUTING

Change the path of the input signal through the pre-amp.

LINE: Signal-in via volume control to output. (default setting)

DIRECT: signal-in = signal-out (volume 0dB)
Note: Activating headphones will temporarily reroute the signal through volume control for safety reasons.

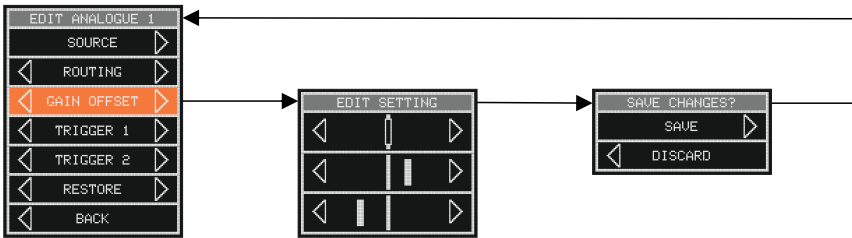


GAIN OFFSET

Adjust the input signal level to match the output volume at different input signals.

Scope

Centre: 0dB (default).
Range: -8dB (left) -> +8dB (Right).
Steps: 60 x 0.25dB.

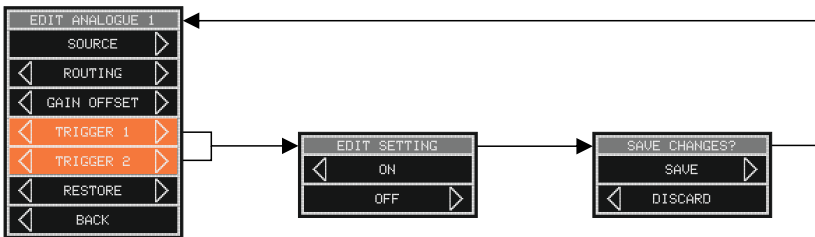
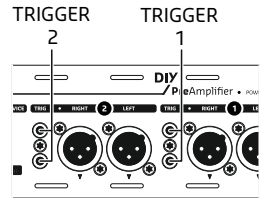


TRIGGER ON/OFF

Which trigger will go ON when the regarding input is active.*

Select the desired trigger to show the current status and to adjust it. This will affect both ports for each corresponding output (1 or 2). By default, the ports are set to ON for all inputs.

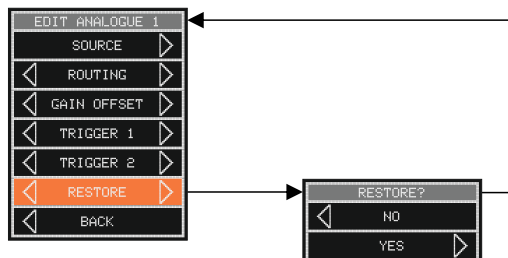
* During Headphones activation, the triggerports are temporarily inactive.



RESTORE DEFAULTS

Restore any settings in Source, Routing, Gain Offset and Triggers to factory defaults.

This applies only to the the current selected input: The other input and system settings will remain.



System

SYSTEM OPTIONS

Customise various settings for audio and visual setup.



BALANCE

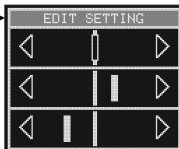
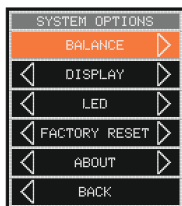
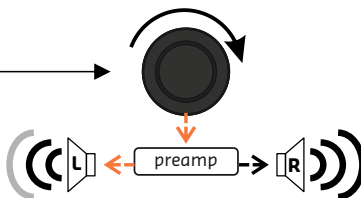
Alter the output signal to set the acoustic centre point to the desired offset.

Scope

Centre: Left & Right = -0dB Gain (default).

1 step Right: -1dB Left signal output.

1 step Left: -1dB Right signal output.



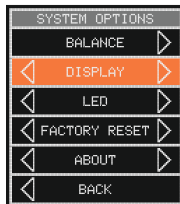
DISPLAY

BRIGHTNESS

- When active (BRIGHT. ACT)

- When inactive (BRIGHT. DIM)*

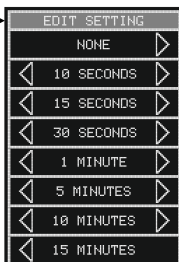
*After 20 seconds of not operating while showing the main screen.



DISPLAY

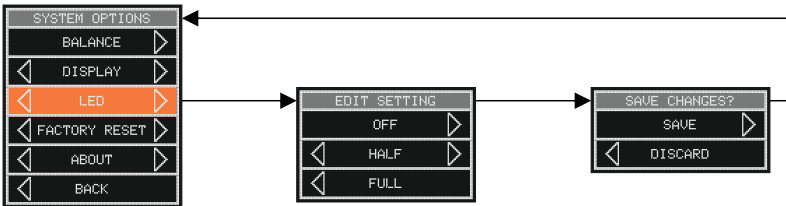
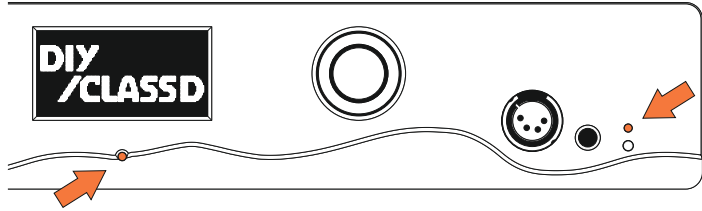
OFF TIME-OUT

- Determine how much time it takes for the display to turn black after it got dimmed.



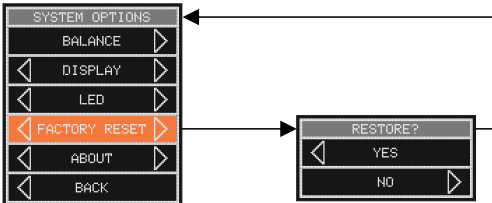
LED

Adjust the brightness of the 2 indicator lights.



FACTORY RESET

Restore all settings to factory defaults.



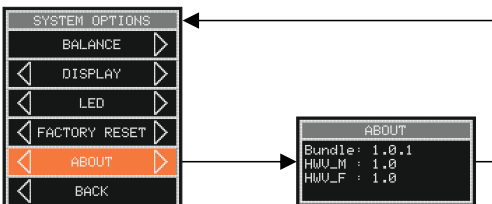
WARNING!

It is highly recommended to turn off any connected devices before executing the factory defaults to prevent any unintended effects due to unpredictable behaviour of external sources and amplifiers.

After a factory reset, each connected device should be configured as before when connected for the first time.

ABOUT

Information about the currently installed Firmware and Hardware.

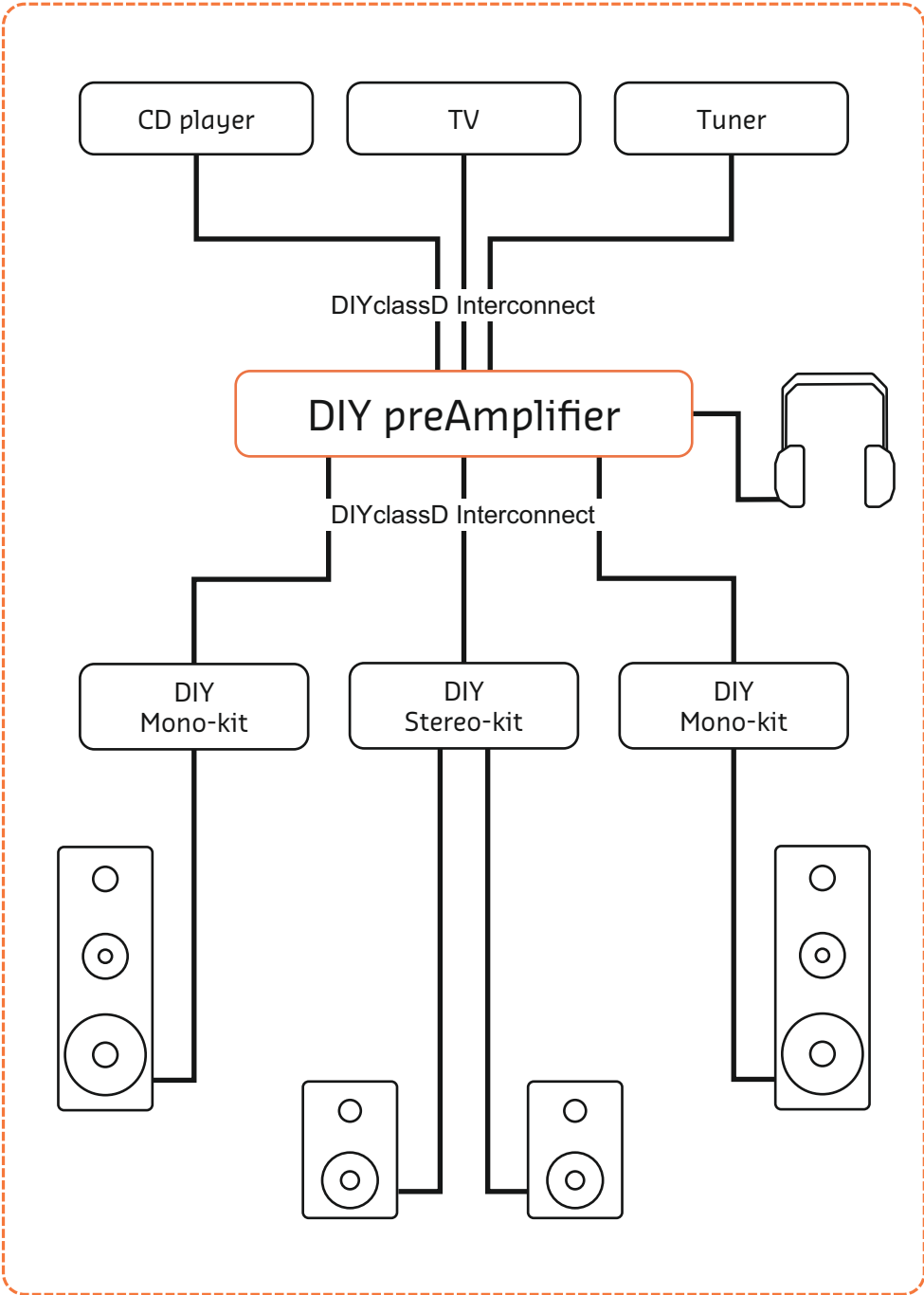


Bundle: Firmware bundle version.

HWV_M: Mainboard Hardware version.

HWV_F: Frontboard Hardware version.

4. Setup Example



5. System information

Audio performance data

All audio measurements are done with AES17 20kHz filter.

Item	Symbol	Min	Typ	Max	Unit	Notes
Input level	V_{in}			14.45	dBu	(4 V_{rms})
Output level	V_{out}			14.45	dBu	(4 V_{rms})
Output level Headphones	V_{out_hp}			19	dBu	(7 V_{rms})
Input impedance	Z_{in}		100k		Ω	
Output Impedance	Z_{out}			44	Ω	
Output impedance Headphone connectors	Z_{out_hp}			<0.5	Ω	
Noise voltage	V_n		3 μ		V	Unweighted at unity gain
Noise voltage Headphones	V_{n_hp}		7.5 μ		V	Unweighted at unity gain
Signal to noise	SNR		122		dB	
Gain range		-70		+13	dB	
Gain resolution			0.5	1	dB	
Bandwidth	F_c	200k			Hz	
Distortion (THD)	THD			-140	dB	@1kHz, 4V _{rms} in, 0dB

Technical data

Item	Value	Notes
Supply voltage *	90-135Vac / 180-270V ac (47-63Hz)	Auto Switching
Standby power	<0.5W	
Power Consumption	10W	Basic configuration
Dimensions	417mm x 77mm x 340mm	(W x H x D) excl connectors
Weight	4 kg	

* Operation beyond these limits may result in irreversible damage.

6. Additional system information

This information is given for reference and to guide you in connecting your DIY-kit in the correct way. Do not modify the internal wiring of the kit other than specified in the instructions.

Balanced XLR connection:

Neutrik NC3FXX-B or -BAG (female)
Neutrik NC3MXX-B or -BAG (male)
Neutrik NC4FAH-0 (Female)

Unbalanced RCA connection:

Pro Signal PSG01550 (female)

Unbalanced Jack 6.35 (1/4") TRS connection:

Neutrik NRJ6HH-AU (female)

Trigger Jack 3.5mm (1/8") TS connection

Kycon STX-4235-3/3-N (female)

Troubleshooting

No power

- Check the power outlet.
- The AC-Terminal fuse may be blown. Disconnect power cables and determine its status. If blown: check all AC-cables for damage and correct connections and fix problems. Replace the fuse with a corresponding one.
- The internal fuse may be blown. This fuse is not user replaceable. Please contact Hypex Electronics for more information about service and repair.

No Sound

- A protection might be triggered. Is the module overheated? Try cycling the mains power.
- Check the volume and mute settings.
- Check if Headphones are activated.
- Check optional trigger settings.
- Check the source signal.
- Check all the cables.

Poor sound or noise

- Check if the signal is not inverted. Inverted signals might cause one of your speakers to be out-of-phase.
- Is the amplifier clipping?
- Check all connections.

Hum

- Use balanced connections for best system performance.
- Use grounded wall sockets.

Heat

- The Pre Amplifier Kit will get warm/hot when used intensively, this is normal and therefore no reason for concerns.

Balanced/unbalanced connections

- The Pre Amplifier kit is equipped with balanced and unbalanced inputs. If all the unbalanced inputs are already in use and your source does not provide a balanced output but only an unbalanced output you can use one of our interconnects to connect both properly.

Frequently asked questions

Q I do not have any technical experience, can I build this amplifier kit myself?

A Yes! even without any technical experience you can build your own amplifier kit.

Q Do I need to solder anything?

A No! we have pre-fixed everthing for you. It's just a matter of assembling all the parts with a few basic tools.

Q Do you offer a pre-assembled Pre Amplifier kit?

A No, we only offer a DIY building kit. We do not offer any further assembly services.

Q Does this DIY PreAmplifier work with my power amplifier?

A In basic this PreAmplifier works with all power amplifiers, certainly DIYclassD power amplifier kits.

Q What kind of quality can I expect from this DIY PreAmplifier kit?

A Hypex Electronics is known for her outstanding sound quality, this DIY PreAmplifier kit represents that quality for DIYclassD.com as well. You may expect outstanding performance in a DIY format.

Support

We continuously work to improve your experience with our products. If you have suggestions, remarks or found a bug, please contact us.

If you have any problem with your Pre Amplifier kit please consult this user guide. If this user guide is not sufficient in order to your problem please contact Hypex support departement.

Do you need additional assistance with assembling your Pre Amplifier kit? Watch our assembly instruction video at the product page on our website.

Visit our website!

The latest datasheets and manuals can be found there. Look into our FAQ and if you can not find the answer there, you can also contact us and we will be happy to assist you!

Limited Warranty

Hypex Electronics warrants this device for a period of two years after the original date of purchase against defects due to faulty workmanship or materials arising from Normal Use of the device. The warranty covers working parts that affect the function of the device. It does NOT cover cosmetic deterioration caused by fair wear and tear, or damage caused by accident, misuse or neglect. Any attempt to modify or take apart the device (or its accessories) will void the warranty.

If you discover a defect, notify Hypex Electronics during the warranty period. Claims under warranty must be supported by reasonable evidence that the date of the claim is within the warranty period. To validate your warranty, please keep your original purchase receipt together with these warranty conditions for the duration of the warranty period. Replacement products claimed under warranty are not entitled to renewed 2-year warranty coverage.

Date of purchase:

Revisions

Revision		Comment	Date
Doc.	HW.		
01	0100	First release	31-10-2022

Disclaimer

Hypex Electronics BV, its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Hypex Electronics"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet, user guide or in any other disclosure relating to any product.

This DIY Pre Amplifier kit is designed for use of music reproduction only. No representations are made as to fitness for other uses. Except where noted otherwise any specifications given pertain to this DIY Pre Amplifier kit only.

LIFE SUPPORT POLICY: Use of Hypex products in life support equipment or equipment whose failure can reasonably be expected to result in injury or death is not permitted except by explicit written consent from Hypex Electronics BV.

Notes



DIYClassD.com

Kattegat 8
9723 JP Groningen, The Netherlands
+31 50 526 4993
sales@diyclassd.com
www.diyclassd.com

