



PAS PROFESSIONAL AMPLIFIER

User's Manual



Contact Information

support@singeasy.com

<https://singeasy.com>

IMPORTANT SAFETY INFORMATION

WARNING FOR YOUR PROTECTION READ THE FOLLOWING:

KEEP THESE INSTRUCTIONS
HEED ALL WARNINGS
FOLLOW ALL INSTRUCTIONS

The apparatus shall not be exposed to dripping or splashing liquid and no object filled with liquid, such as vases, shall be placed on the apparatus.

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT. ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



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.

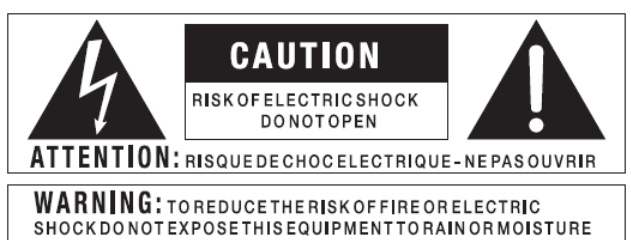
POWER ON/OFF SWITCH: If the equipment has a Power switch, the Power switch used in this piece of equipment DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rackmount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE:
Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

If connected to 240V supply, a suitable CSA/UL certified power cord shall be used for this supply.



The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

IMPORTANT SAFETY INFORMATION

SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth BLUE - Neutral BROWN – Live

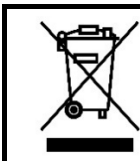
As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal marked N or coloured black.
- The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

CONDUCTOR		WIRE COLOR	
		Normal	Alt
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YELLOW	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling

Private household in the 25 member states of the EU, in Switzerland and Norway many return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For countries not mentioned above, please contact your local authorities for a correct method of disposal. By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

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1.1 Welcome

Congratulations on your purchase of the Sing Easy PAS Series. The PAS Series is a powerful professional amplifier which can drive up to 1300W at 8 per channel with tons of headroom guaranteeing a clean, undistorted signal straight to your speakers. The new PAS assures that you will be heard as you deliver powerful, pure sound experiences for any venue.

The PAS Series provides you with all the connectivity and processing required between your sources and amplifiers.

Features

- High performance Class-D amplifier
- Servo power system
- LCD screen
- Soft-Start circuit to reduce the start-up surge current
- Efficient forced-air fans prevent excessive thermal build up
- Selectable input sensitivity; 1.4Vrms and .775Vrms options so that amp can be driven at full power
- Limiters provide maximum output while protecting your speakers
- DC output protection function
- Balanced input and output interfaces
- High quality black sandblasted oxidized aluminium panel
- Double-sided PCB board technology
- 90% of the circuit boards SMT manufactured

Package Contents

- Sing Easy PAS digital A/V processor
- Owner's Manual
- Power Cable
- Infrared Remote Controller

How to Use This Manual

This manual provides you with the necessary information to safely and correctly setup and operate your amplifier. It does not cover every aspect of installation, setup or operation that might occur under every condition. For additional information, please contact technical support, your system installer or retailer.

We strongly recommend you read all instructions, warnings and cautions contained in this manual. Also for your protection, please save your bill of sale — it's your official proof of purchase.

1.2 Contact Info

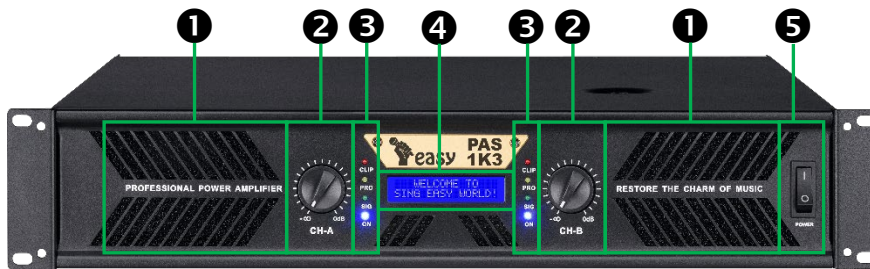
On the World Wide Web:

www.singeasy.com

Professional Contacts, Outside the US:

Contact the Sing Easy Distributor in your area. A complete list of Sing Easy international distributors is provided on our website @ www.singeasy.com

2.1 Front Panel Features



1 Cooling Vents

- Front-to-rear forced airflow.

2 Level Controls

- Two black rotary level controls, one for each channel. (-80dB to 0dB)

3 Indicators

- Front panel LED indicators to inform the user of each channel's operating status and warn of possible abnormal conditions.

1. Clip LED

Two red LEDs, one for each channel, illuminate when the channel's output signal is being overdriven.

2. Protect LED

Yellow LED illuminates when amplifier is in protect mode. Also illuminates briefly during normal power-up when amplifier is first switched on.

3. Signal LED

Two green LEDs, one for each channel, illuminate when its channel's signal is passing through the amplifier under normal condition.

4. Power LED

Blue LED indicates amplifier has been turned on and AC power is available.

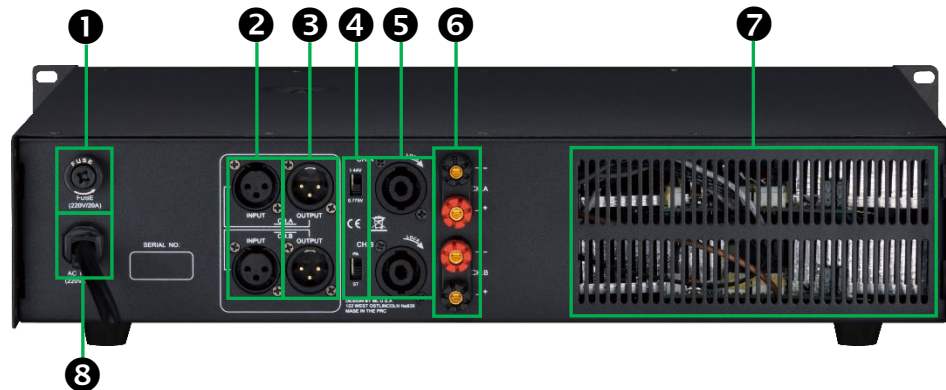
4 LCD Screen

Back-lit LCD screen shows amplifier mode (stereo/parallel), volume level, temperature, AC voltage, and power consumption.

5 Power Switch

- Amplifier is on when the switch is in the UP position.

2.2 Back Panel Features

**1 Circuit Breaker**

Provides overload protection.

2 Balanced XLR Inputs

Two 3-pin female XLR input connectors are provided (one per channel).

3 Balanced XLR Outputs

Two 3-pin female XLR output connectors are provided (one per channel).

4 Input Sensitivity

The input sensitivity setting is a function of amplifier gain. You will want to match it with the output level of whatever is before the amp in the audio chain (i.e. preamps, mixers). For amplifiers with a 0.775V position, this position corresponds to a 0 dBu level. The 1.4V position corresponds to a +4 dBu level.

5 2-Pole Speakon® Output Connectors

These two connectors accept 2-pole Speakon connectors.

6 Binding Post Output Jacks

One pair per channel; accept banana plugs, spade lugs or bare wire.

7 Cooling Vents

Front-to-rear forced airflow.

8 Power Connector

2.3 Protection Features

PAS Series amplifiers provides extensive protection including output current limiting, DC protection, circuit breaker, and special thermal protection for the unit's transformers.

1. Mute Protection

The Mute Protection circuit will activate when you initially power up the amplifier and will illuminate the PRO LED during the mute delay but after a short delay (3 to 5 seconds), the protect LED will go off and when you power off the amplifier, the Mute Protection will also be activated, therefore no thumps or pops are heard

2. Output Current Limiting

Output Current Limiting circuitry protects the amplifier output stage for damage caused by short-circuit loads

3. Thermal Protection

The Thermal Protection circuit will activate if the internal heatsink temperature exceeds proper operating temperatures (85 °C or 185 °F).

When the heatsink temperature has fallen to a safe level (75°C to 80°C or 167°F to 176°F), this protection circuit will automatically be reset. Principle causes of thermal protection are:

- 1) Inadequate ventilation of the equipment rack
- 2) Incorrect load impedance
- 3) Output cable short circuit
- 4) Blocked air vent
- 5) Heatsinks in need of cleaning
- 6) Cooling fan failure.

The cause of your amplifier's thermal protection state should be determined and corrected as soon as possible. Without correction, the Thermal Protection circuit will typically reactivate.

4. DC Protection

DC Protection disconnects the loudspeaker load in the event of an output DC offset exceeding 2V. In such an event the yellow PRO LED will illuminate and both amplifier channels will be muted. In the majority of cases, DC protection is indicative of a faulty amplifier channel, and will be accompanied by an illuminated Clip LED, even with no input connected and level controls set at minimum. If this is the case, contact your dealer or service centre.

5. Circuit Breaker

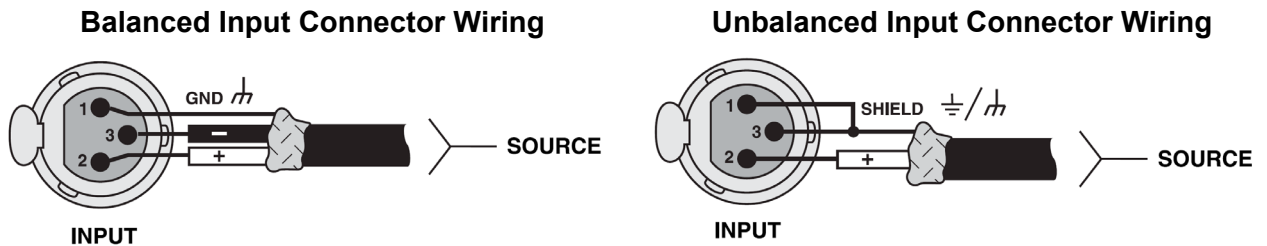
The high-voltage power supplies of your Sing Easy amplifier are protected by a circuit breaker.

3.1 Get Started

Choose Input Wire

Sing Easy recommends using pre-built or professionally wired balanced line (two-conductor plus shield), 22 to 24 gauge cables and connectors. You should use 3-pin male XLR cable ends at the amplifier inputs. Unbalanced line may also be used but may result in noise over long cable runs. Below figures shows connector pin assignments for balanced wiring, and unbalanced wiring.

Note: Custom wiring should only be performed by qualified personnel.



Choose Output Wire and Connectors

Sing Easy recommends using pre-built or professionally wired, high quality, two-conductor, heavy gauge speaker wire and connectors.

You may use 2-pole Speakon® connectors or banana plugs, spade lugs, or bare wire for your output connectors. To prevent the possibility of short-circuits, wrap or otherwise insulate exposed loudspeaker cable connectors.

Using the guidelines below, select the appropriate size of wire based on the distance from amplifier to speaker.

Distance	Wire Size
up to 7.5m or 25 ft.	16 AWG
7.6 to 12m or 26-40 ft.	14 AWG
12.2 to 18m or 41-60 ft.	12 AWG
18.1m to 30m or 61-100 ft.	10 AWG
31.1 to 45m or 101-150 ft.	8 AWG
45.1 to 76m or 151-250 ft.	6 AWG

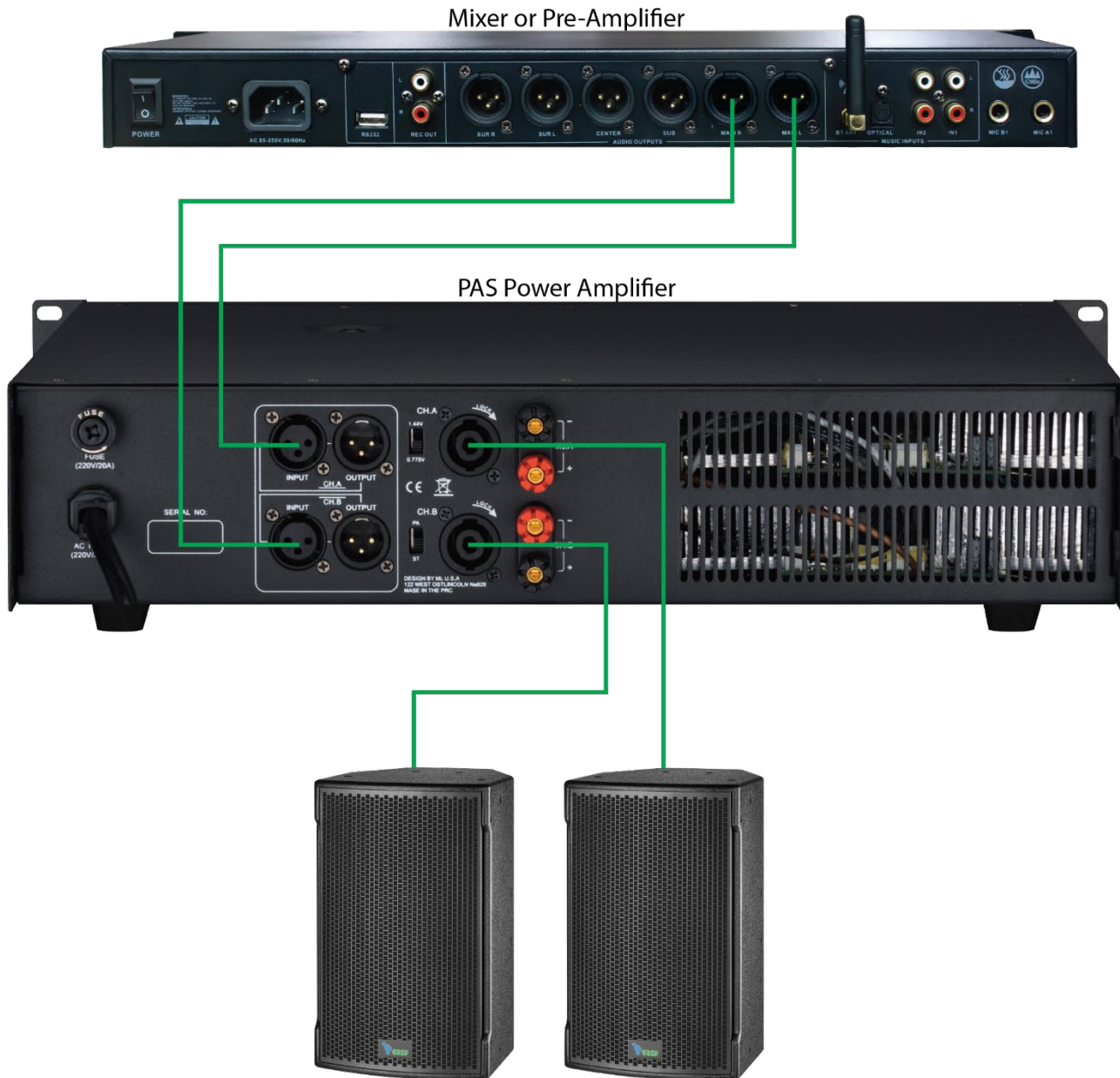
CAUTION: Never use shielded cable for output wiring.

3.1 Stereo Mode

This is the default mode the amplifier is set to from the factory.

Each channel functions independently. The input signal is independent for each channel.

1. Connect Left/Right signal source to Channel 1 and Channel 2 using the XLR connectors.
2. Connect a speaker to each channel output using Speakon®, Banana Plugs, or bare wire.



3.2 Parallel Mode

This is the optional mode the amplifier can be set.

The input signal is only connected to one channel and an identical signal is output via the adjacent two channels.

1. Connect the signal source to Channel 1 only using the XLR connector.
2. Connect a speaker to each channel output using Speakon®, Banana Plugs, or bare wire.



1. Power on all audio output devices then power on the PAS power amplifier.
2. While playing back audio, slowly increase the volume of the PAS to the desired listening level.
3. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.
4. Power on all audio output devices then power on the PAS power amplifier.
5. While playing back audio, slowly increase the volume of the PAS to the desired listening level.
6. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.

3.4 Connect to AC Mains

Plug the other end of the supplied AC power cordset to the AC mains.



WARNING: The third prong of this connector (ground) is an important safety feature. Do not attempt to disable this ground connection by using an adapter or other methods.

Amplifiers don't create energy. The AC mains voltage and current must be sufficient to deliver the power you expect. You must operate your amplifier from an AC mains power source with not more than a 10% variation above or a 15% variation below the amplifier's specified line voltage and within the specified frequency requirements (indicated on the amplifier's back panel label). If you are unsure of the output voltage of your AC mains, please consult your electrician.

3.5 Protecting Your Speaker

It's wise to avoid clipping the amplifier signal. Not only does clipping sound bad, but it can also damage high frequency drivers. To prevent clipping, insert a limiter between your mixer output and amplifier input.

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 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, insert a high pass filter between mixer output and amplifier input (or between mixer and limiter). Alternatively, 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.

3.6 Startup Procedure

Use the following procedure to manually turn on the equipment for the first time:

1. Turn down the level of your audio source.
2. Turn down the level controls of the amplifier.
3. Turn on the "Power" switch. The PAS LCD display and Power LED should glow.
4. Turn up the level of your audio source to an optimum level.
5. Turn up the Level controls on the amplifier 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.

3.7 Protect Your Investment

There is a specific order in which audio equipment should be turned off (and turned on for that matter). Audio gear components can emit a power spike, which is heard as a POW, POP, or THUMP, when they are turned on or off. This spike is then transmitted through the audio system, amplified, and passed out to the speakers.

Before anything else, let's review the power up sequence for a common live sound scenario.

Turn on in this order

1. Sound sources like VOD player, Blu-ray player, keyboard that are connected to the mixer
2. Mixer
3. DSP units. These include limiters, EQ, effects processor, etc
4. Power amplifiers or powered speakers

Turn off in this order

1. Power amplifiers or powered speakers. WAIT! Before kicking off everything else, wait a few moments. Power amplifiers and powered speakers store energy and need to discharge this energy
2. DSP units. These include limiters, EQ, effects processor, etc
3. Mixer
4. Sound sources like VOD player, Blu-ray player, keyboard that are connected to the mixer

As you can see, the order for turning on and off the equipment is completely reversed so to avoid any human error and damage your power amplifiers and/or speakers by mistake, consider adding the Sing Easy PSC840 power sequencer to your system to simplify the turn on/off procedure by simply pushing a single button for turning on or off your equipment. The PSC840 also supports timer base operations so you can automatically turn on your equipment based on the timer.



The PSC840/OE supports up to 40A with 6mm² pure core open-end power cable and PSC840/UK supports 13A terminated on a UK 13A power plug.

3.8 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.
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's output protection, such a configuration may result in premature clipping and speaker damage.

Remember: Sing Easy is not liable for damage that results from overdriving other system components.

4.1 F.A.Q.

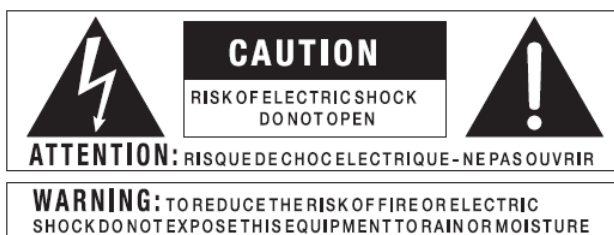
Before submitting the device for repair, please check the below frequently asked questions.

FAULT	REASON	SOLUTION
No sound output and the display does not light up	The power plug is not plugged in properly	Connect the power plug correctly and ensure good contact
	AC 220V fuse blown	Unplug the power cable, replace the fuse with the same specification
No sound output but display is lighted up	The output speaker signal is not connected properly	Check the speaker's connection, reconnect and ensure good contact
	Main volume set to minimum	Turn up the main volume
	The unit is set to mute	Unmute
Audio can only be listened on one side	No output from the input source	Check the input source, reconnect and ensure good contact
	The speaker cable is not properly connected	Check the speaker cables connection and ensure good contact
	Of one the input signal cable is wrongly inserted or loosen	Check the input cables then reconnect and ensure good contact
	Damaged signal cable	Replace the damaged signal cable, reconnect, and make sure good contact

Sing Easy amplifiers are quality units that rarely require servicing. Before returning your unit for servicing, please contact Sing Easy Technical Support to verify the need for servicing.

This unit has very sophisticated circuitry which should only be serviced by a fully trained technician.

This is one reason why each unit bears the following label:



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

5.1 Specifications

	PAS-450	PAS-650	PAS-850	PAS-1K0	PAS-1K3
Channels	2	2	2	2	2
Stereo, 8Ω per channel	450W	650W	850W	1000W	1300W
Stereo, 4Ω per channel	600W	900W	1200W	1500W	1800W
Bridge-Mono, 8 ohms	not supported				
Frequency Response	(at 1 watt, 20 Hz - 20 kHz): +0dB, -1.5dB				
Sensitivity	.775Vrms or 1.4Vrms				
Signal to Noise Ratio	(rated as dB to full rated 8Ω power output; A-Weighted): >105dB				
Total Harmonic Distortion (THD)	(at 1 full bandwidth power, from 20 Hz to 1 kHz): ≤1%				
Damping Factor (8 ohm) 1 kHz	>400				
Crosstalk (below rated power at 1 kHz)	>70dB				
Maximum Input Level	21dBV/9V				
Input Impedance	20Kohm				
Slew Rate Internal	60V/μS				
Protections	Power-on/off mute protection, output current limiting, thermal protection, dc protection and circuit breaker				
Indicators	clip (red), protect (yellow), signal (green) and power (blue)				
Ventilation	Flow-through ventilation from front to back				
Cooling	Internal heat sinks with forced-air cooling				
Front Panel Controls	CH A and CH B level control, power switch				
Rear Panel Controls	Stereo / parallel mode switch and 0.775V / 1.4V input sensitivity switch				
Connectors	balanced XLR inputs and XLR outputs 2-pole Speakon® output connectors and binding post output jacks				
Power Supply	220 VAC 50Hz				
8 Ω Half Load Efficiency	< 600W	< 800W	< 1000W	< 1200W	< 1500W
Dimensions (W × D × H)	483 × 440 × 88mm				
Net Weight	16.5Kg	18Kg	23Kg	26Kg	30Kg
Shipping Weight	18.5 Kg	20 Kg	25Kg	28Kg	32Kg

Note: The design and specifications are subject to change without notice for improvement.