

LC4 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.

6	ONDUCTOR	WIRE COLOR	
CONDUCTOR		Normal	Alt
L	LIVE	BROWN	BLACK
Ν	NEUTRAL	BLUE	WHITE
Е	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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Section 1

1.1 Welcome

Congratulations on your purchase of the Sing Easy LC4 Series.

The LC4 series combines the efficiency of Class D digital amplifiers with the pure sound of traditional Class B amplifiers. The LC4 series is high-efficient and can drive up to 3900W at 8 Ω bridged with tons of headroom guaranteeing a clean, undistorted signal straight to your speakers. The LC4 series assures that you will be heard as you deliver a powerful, pure sound experience for any venue. The LC4 Series is able to load 2 Ω stereo and 4 Ω bridged to drive line array speaker systems.

The LC4 Series provides you with all the connectivity and processing required between your sources and amplifiers.

Features

- Class TD high efficiency amplifier, four-channel designs, maximum power up to (8 Ohm) twochannel × 1300W, three-channel (2 channel x 1300W + 1 channel x 3900W or four-channel × 1300W)
- Variable color LED strip which converts to green, yellow and red color according to different operation modes
- Huge and elegant LCD display screen showing the AC voltage and independent output signal level, fan speed, temperature, etc
- Built-in high pass "HF" and low pass "LF" crossover
- Magnetically removable ventilation panel cover for easy removal and cleaning
- Each channel has separated module for easy maintenance
- Recommended for indoor fixed installation, entertainment, meeting room and other places

Package Contents

- Sing Easy LC4 professional amplifier
- Owner's Manual
- Power Cable

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:

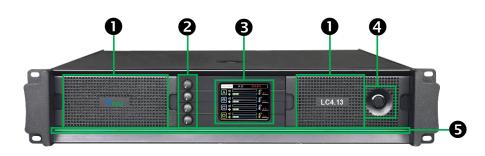
www.singeasy.com

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



Cooling Vents

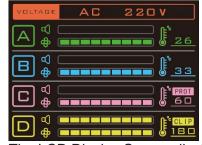
- Front-to-rear forced airflow through foam dust filter.
- Clean foam dust filters

2 Level Controls

- Four black rotary level controls, one for each channel.
- Each channel has a 41-step speed-sensitive Gain control with approximately 20 dB of input headroom, 1 dB steps is maintained down to 14 dB of attenuation.
- Gain reduction may be used as desired to reduce input noise but will reduce the headroom available to the Clip Limiter. Use the three position GAIN SENSITIVITY SWITCH (at the back) to match the dynamic range of the amplifier's input to that of the source, permitting normal, and nearly full Gain settings.

B LCD Display Screen

• Integrated 4.3" color LCD display screen.



 The LCD Display Screen displays current AC voltage, channels A, B, C, and D attenuation level, fan speed, temperature as well as shows error monitoring (such as protect and load supervision)

4 Power Switch

Push-on/push-off switch, LED strip glows green when AC power is present.

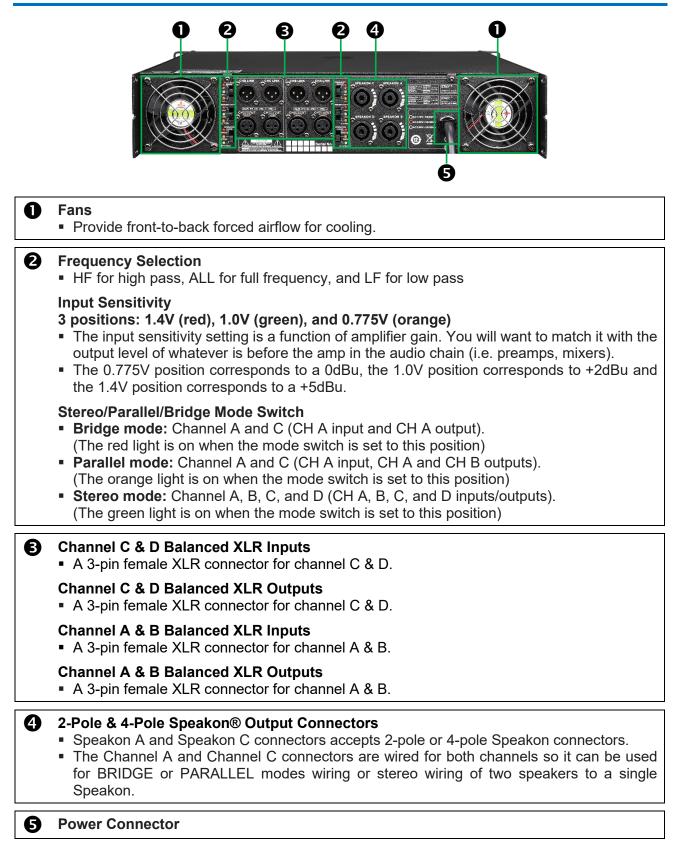
5 LED Strip

 Variable color LED strip which converts to green, yellow, and red color according to different operation modes.



Section 2

2.2 Back Panel Features





2.3 Protection Features

The LC4 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 shortcircuit 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.

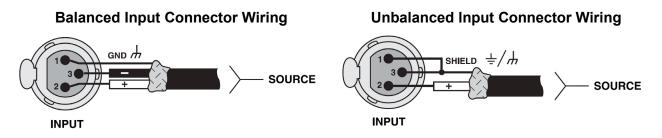


3.1 Get Started

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

Crown 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.



3.2 Speakon Wiring Method

Stereo Wiring Method 1

Connect Each Speaker to a Different Speakon® (2-pole) Connector

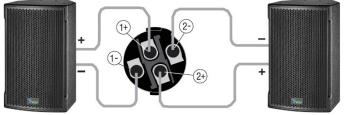


Method 2: Wire one Speakon® cable connector for each speaker. Insert the Speakon® cable connector into the amplifier's Channel A, B, C or D.

PIN, terminal	1+	1-
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Stereo Wiring Method 2

Wire Two Speakers to the Top Speakon® (4-pole) Connector



Method 1: Wire one Speakon® cable connector to two speakers. Insert the Speakon® cable connector into the amplifier's channel A or C.

Bridged-Mono Wiring Method

Wire the Subwoofer to the Top Speakon® (4-pole) Connector



Wire the Subwoofer only to the top Speakon® connector. Insert the Speakon® cable connector into the amplifier's channel A or C.

PIN, terminal 1+ 2+

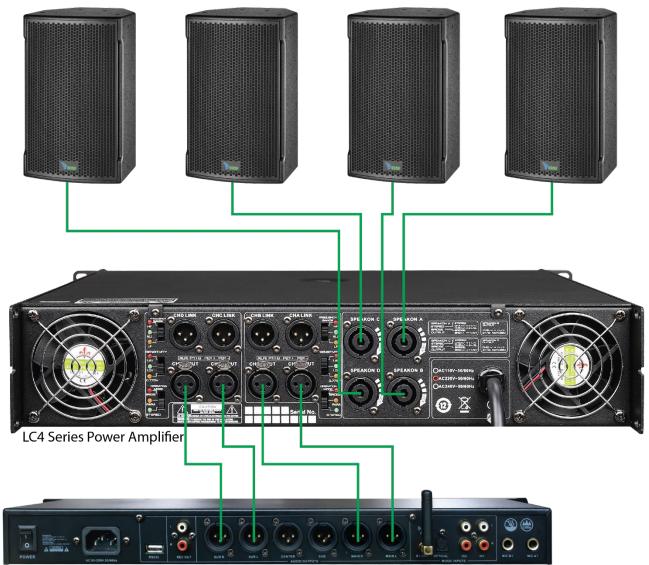


LC4

3.3 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. Make sure the LC4 is turned off before connecting or disconnecting input or output connections.
- 2. Make sure the amplifier mode is set to STEREO on both sides.
- 3. Connect Left/Right signal source to Channel 1 and Channel 2 using the XLR connectors.
- 4. Connect a speaker to each channel output using Speakon®, Banana Plugs, or bare wire.



Mixer or Pre-Amplifier

- 5. Power on all audio output devices then power on the LC4 power amplifier.
- 6. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 7. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.
- 8. Power on all audio output devices then power on the LC4 power amplifier.
- 9. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 10. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.

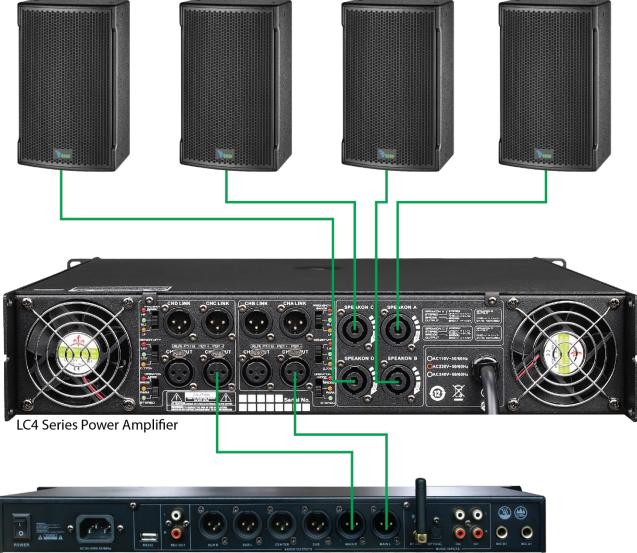


3.4 Parallel Mode

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. Make sure the LC4 is turned off before connecting or disconnecting input or output connections.
- 2. Make sure the amplifier mode is set to PARALLEL on both sides.
- 3. Connect the signal source to Channel 1 only using the XLR connector.
- 4. Connect a speaker to each channel output using Speakon®, Banana Plugs, or bare wire.



Mixer or Pre-Amplifier

- 5. Power on all audio output devices then power on the LC4 power amplifier.
- 6. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 7. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.
- 8. Power on all audio output devices then power on the LC4 power amplifier.
- 9. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 10. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.

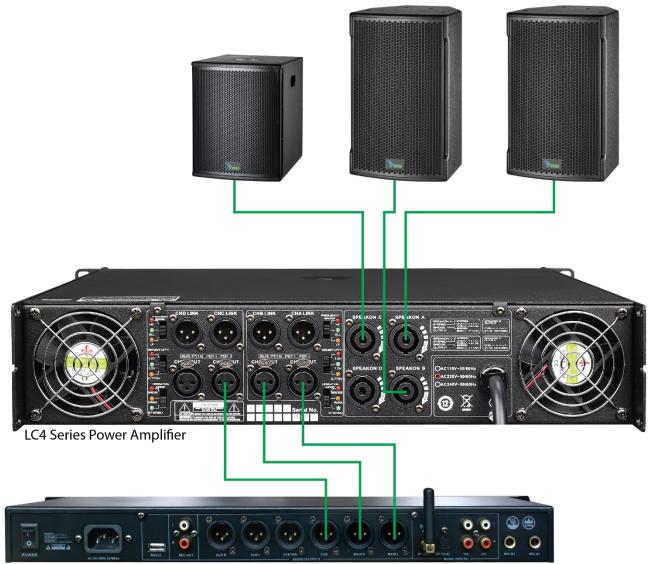


LC4

3.5 Stereo + Bridge Mode

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

- 1. Make sure the LC4 is turned off before connecting or disconnecting input or output connections.
- 2. Make sure the amplifier mode is set to BRIDGE on channel C.
- 3. Connect the signal source to Channel 1 only using the XLR connector.
- 4. Connect a speaker to each channel output using Speakon® connector.



Mixer or Pre-Amplifier

- 3. Power on all audio output devices then power on the LC4 power amplifier.
- 4. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 5. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.
- 6. Power on all audio output devices then power on the LC4 power amplifier.
- 7. While playing back audio, slowly increase the volume of the LC4 to the desired listening level.
- 8. When powering off the system, remember to first power off the amplifiers to avoid speakers clipping.

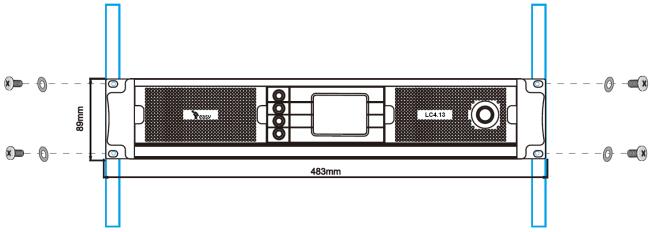


3.6 Rack Mounting

Use four screws and washers to mount the amplifier to the equipment rack rails. To use the amplifier outside a rack, attach the self-adhesive rubber eel to the bottom.

For portable, mobile, or other applications where the rack assembly may be moved, we strongly recommend supporting the rear of the amplifier.

Optional rack handles provide finger grips at each end, making lifting and setting into the rack more comfortable.





3.7 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.

3.8 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 LCs filter between mixer output and amplifier input (or between mixer and limiter). Alternatively, switch in high LCs 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.

3.9 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 LC4 LED strip should glow green.
- 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.



3.10 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.



Section 3

3.11 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	The power plug is not plugged in properly	Connect the power plug correctly and ensure good contact
display does not light up	AC 220V fuse blown	Unplug the power cable, replace the fuse with the same specification
	The output speaker signal is not connected properly	Check the speaker's connection, reconnect and ensure good contact
No sound output but display is	Main volume set to minimum	Turn up the main volume
lighted up	The unit is set to mute	Unmute
	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
Audio can only be listened on one side	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:

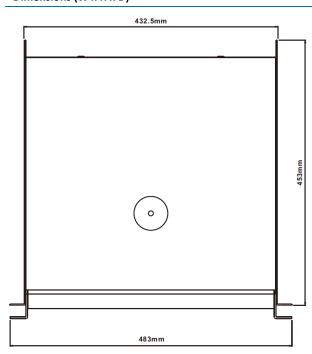


CAUTION: To prevent electric shock, do not remove covers. No user serviceable parts inside. Refer servicing to a qualified technician.



5.1 Specifications

	LC4.6	LC4.8	LC4.10	LC4.13
Channels	4	4	4	4
Stereo, 8Ω per channel	600W	800W	1000W	1300W
Stereo, 4Ω per channel	1100W	1300W	1600W	1800W
Stereo, 2Ω per channel	1400W	1600W	2000W	2600W
Bridged Mono, 8Ω	2200W	2700W	3300W	3900W
Frequency Response	at 1W, 20Hz to 30kHz (8ohms) +0/-3dB			
Total Harmonic Distortion	< 0.1% @ 1KHz			
Signal-to-Noise Ratio	≥104dB			
Damping Factor	>500			
Crosstalk	≥65			
Input Modes	CH A & CH B / CH C & CH D: Stereo / Parallel / Bridge			
Crossover Modes	CH A & CH B / CH C & CH D: HF / LF / Pass-Thru			
Input Sensitivity	0.775V or 1.0V or 1.4V (rated power 8Ω)			
Input Impedance	20KΩ balanced or 10KΩ unbalance			
Cooling	Dual vari-speed fans, front-to-back airflow, intelligent stepless wind speed			
Net weight	26Kg	27Kg	28Kg	29.3Kg
Dimensions (W x H x D)	483 × 88 × 453mm			



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

