

# CS<sup>®</sup> 3000/4000/4080 HZ

Power Amplifier Owner's Manual





Intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**CAUTION:** Risk of electrical shock — DO NOT OPEN!

**CAUTION:** To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING:** To prevent electrical shock or fire hazard, this apparatus should not be exposed to rain or moisture, and objects filled with liquids, such as vases, should not be placed on this apparatus. Before using this apparatus, read the operating guide for further warnings.



Este símbolo tiene el propósito, de alertar al usuario de la presencia de “(voltaje) peligroso” sin aislamiento dentro de la caja del producto y que puede tener una magnitud suficiente como para constituir riesgo de descarga eléctrica.



Este símbolo tiene el propósito de alertar al usuario de la presencia de instrucciones importantes sobre la operación y mantenimiento en la información que viene con el producto.

**PRECAUCION:** Riesgo de descarga eléctrica ¡NO ABRIR!

**PRECAUCION:** Para disminuir el riesgo de descarga eléctrica, no abra la cubierta. No hay piezas útiles dentro. Deje todo mantenimiento en manos del personal técnico cualificado.

**ADVERTENCIA:** Para prevenir choque eléctrico o riesgo de incendios, este aparato no se debe exponer a la lluvia o a la humedad. Los objetos llenos de líquidos, como los floreros, no se deben colocar encima de este aparato. Antes de usar este aparato, lea la guía de funcionamiento para otras advertencias.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur la présence d'une tension dangereuse pouvant être d'amplitude suffisante pour constituer un risque de choc électrique.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur qu'il ou qu'elle trouvera d'importantes instructions concernant l'utilisation et l'entretien de l'appareil dans le paragraphe signalé.

**ATTENTION:** Risques de choc électrique — NE PAS OUVRIR!

**ATTENTION:** Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confiez l'entretien et la réparation de l'appareil à un réparateur Peavey agréé.

**AVIS:** Dans le but de réduire les risques d'incendie ou de décharge électrique, cet appareil ne doit pas être exposé à la pluie ou à l'humidité et aucun objet rempli de liquide, tel qu'un vase, ne doit être posé sur celui-ci. Avant d'utiliser de cet appareil, lisez attentivement le guide fonctionnant pour avertissements supplémentaires.



Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von Ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.



Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.

**VORSICHT:** Risiko — Elektrischer Schlag! Nicht öffnen!

**VORSICHT:** Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.

**WARNUNG:** Um elektrischen Schlag oder Brandgefahr zu verhindern, sollte dieser Apparat nicht Regen oder Feuchtigkeit ausgesetzt werden und Gegenstände mit Flüssigkeiten gefüllt, wie Vasen, nicht auf diesen Apparat gesetzt werden. Bevor dieser Apparat verwendet wird, lesen Sie bitte den Funktionsführer für weitere Warnungen.

## IMPORTANT SAFETY INSTRUCTIONS



**WARNING:** When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. 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 plug. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
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. Never break off the ground pin. Write for our free booklet "Shock Hazard and Grounding." Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
16. If this product is to be mounted in an equipment rack, rear support should be provided.
17. Note for UK only: If the colors of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:
  - a) The wire that is colored green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, colored green or colored green and yellow.
  - b) The wire that is colored blue must be connected to the terminal that is marked with the letter N or the color black.
  - c) The wire that is colored brown must be connected to the terminal that is marked with the letter L or the color red.
18. This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
19. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115


According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

**SAVE THESE INSTRUCTIONS!**

## WICHTIGE SICHERHEITSHINWEISE



**ACHTUNG:** Beim Einsatz von Elektrogeräten müssen u.a. grundlegende Vorsichtsmaßnahmen befolgt werden:

1. Lesen Sie sich diese Anweisungen durch.
2. Bewahren Sie diese Anweisungen auf.
3. Beachten Sie alle Warnungen.
4. Befolgen Sie alle Anweisungen.
5. Setzen Sie dieses Gerät nicht in der Nähe von Wasser ein.
6. Reinigen Sie es nur mit einem trockenen Tuch.
7. Blockieren Sie keine der Lüftungsöffnungen. Führen Sie die Installation gemäß den Anweisungen des Herstellers durch.
8. Installieren Sie das Gerät nicht neben Wärmequellen wie Heizungen, Heizgeräten, Öfen oder anderen Geräten (auch Verstärkern), die Wärme erzeugen.
9. Beeinträchtigen Sie nicht die Sicherheitswirkung des gepolten Steckers bzw. des Erdungssteckers. Ein gepolter Stecker weist zwei Stifte auf, von denen einer breiter ist als der andere. Ein Erdungsstecker weist zwei Stifte und einen dritten Erdungsstift auf. Der breite Stift bzw. der dritte Stift dient Ihrer Sicherheit. Sollte der beiliegende Stecker nicht in Ihre Steckdose passen, wenden Sie sich bitte an einen Elektriker, um die ungeeignete Steckdose austauschen zu lassen.
10. Schützen Sie das Netzkabel, sodass niemand darauf tritt oder es geknickt wird, insbesondere an Steckern oder Buchsen und ihren Austrittsstellen aus dem Gerät.
11. Verwenden Sie nur die vom Hersteller erhältlichen Zubehörgeräte oder Zubehörteile.
12.  Verwenden Sie nur einen Wagen, Stativ, Dreifuß, Träger oder Tisch, der den Angaben des Herstellers entspricht oder zusammen mit dem Gerät verkauft wurde. Wird ein Wagen verwendet, bewegen Sie den Wagen mit dem darauf befindlichen Gerät besonders vorsichtig, damit er nicht umkippt und möglicherweise jemand verletzt wird.
13. Trennen Sie das Gerät während eines Gewitters oder während längerer Zeiträume, in denen es nicht benutzt wird, von der Stromversorgung.
14. Lassen Sie sämtliche Wartungsarbeiten von qualifizierten Kundendiensttechnikern durchführen. Eine Wartung ist erforderlich, wenn das Gerät in irgendeiner Art beschädigt wurde, etwa wenn das Netzkabel oder der Netzstecker beschädigt wurden, Flüssigkeit oder Gegenstände in das Gerät gelangt sind, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht normal arbeitet oder heruntergefallen ist.
15. Der Erdungsstift darf nie entfernt werden. Auf Wunsch senden wir Ihnen gerne unsere kostenlose Broschüre „Shock Hazard and Grounding“ (Gefahr durch elektrischen Schlag und Erdung) zu. Schließen Sie nur an die Stromversorgung der Art an, die am Gerät neben dem Netzkabel angegeben ist.
16. Wenn dieses Produkt in ein Geräte-Rack eingebaut werden soll, muss eine Versorgung über die Rückseite eingerichtet werden.
17. Hinweis – Nur für Großbritannien: Sollte die Farbe der Drähte in der Netzleitung dieses Geräts nicht mit den Klemmen in Ihrem Stecker übereinstimmen, gehen Sie folgendermaßen vor:
  - a) Der grün-gelbe Draht muss an die mit E (Symbol für Erde) markierte bzw. grüne oder grün-gelbe Klemme angeschlossen werden.
  - b) Der blaue Draht muss an die mit N markierte bzw. schwarze Klemme angeschlossen werden.
  - c) Der braune Draht muss an die mit L markierte bzw. rote Klemme angeschlossen werden.
18. Dieses Gerät darf nicht ungeschützt Wassertropfen und Wasserspritzern ausgesetzt werden und es muss darauf geachtet werden, dass keine mit Flüssigkeiten gefüllte Gegenstände, wie z. B. Blumenvasen, auf dem Gerät abgestellt werden.
19. Belastung durch extrem hohe Lärmpegel kann zu dauerhaftem Hörverlust führen. Die Anfälligkeit für durch Lärm bedingten Hörverlust ist von Mensch zu Mensch verschieden, das Gehör wird jedoch bei jedem in gewissem Maße geschädigt, der über einen bestimmten Zeitraum ausreichend starkem Lärm ausgesetzt ist. Die US-Arbeitsschutzbehörde (Occupational and Health Administration, OSHA) hat die folgenden zulässigen Pegel für Lärmbelastung festgelegt:

Dauer pro Tag in Stunden	Geräuschpegel dBA, langsame Reaktion
<b>8</b>	<b>90</b>
<b>6</b>	<b>92</b>
<b>4</b>	<b>95</b>
<b>3</b>	<b>97</b>
<b>2</b>	<b>100</b>
<b>1 ½</b>	<b>102</b>
<b>1</b>	<b>105</b>
<b>½</b>	<b>110</b>
<b>¼ oder weniger</b>	<b>115</b>


Laut OSHA kann jede Belastung über den obenstehenden zulässigen Grenzwerten zu einem gewissen Hörverlust führen. Sollte die Belastung die obenstehenden Grenzwerte übersteigen, müssen beim Betrieb dieses Verstärkungssystems Ohrenstopfen oder Schutzvorrichtungen im Gehörgang oder über den Ohren getragen werden, um einen dauerhaften Hörverlust zu verhindern. Um sich vor einer möglicherweise gefährlichen Belastung durch hohe Schalldruckpegel zu schützen, wird allen Personen empfohlen, die mit Geräten arbeiten, die wie dieses Verstärkungssystem hohe Schalldruckpegel erzeugen können, beim Betrieb dieses Geräts einen Gehörschutz zu tragen.

**BEWAHREN SIE DIESE SICHERHEITSHINWEISE AUF!**

## INSTRUCTIONS IMPORTANTES DE SECURITE

ATTENTION: L'utilisation de tout appareil électrique doit être soumise aux précautions d'usage incluant:



1. Lire ces instructions.
2. Gardez ce manuel pour de futures références.
3. Prêtez attention aux messages de précautions de ce manuel.
4. Suivez ces instructions.
5. N'utilisez pas cette unité proche de plans d'eau.
6. N'utilisez qu'un tissu sec pour le nettoyage de votre unité.
7. N'obstruez pas les systèmes de refroidissement de votre unité et installez votre unité en fonction des instructions de ce manuel.
8. Ne positionnez pas votre unité à proximité de toute source de chaleur.
9. Connectez toujours votre unité sur une alimentation munie de prise de terre utilisant le cordon d'alimentation fourni.
10. Protégez les connecteurs de votre unité et positionnez les cablages pour éviter toutes déconnexions accidentelles.
11. N'utilisez que des fixations approuvées par le fabricant.
12. Lors de l'utilisation sur pied ou poteau de support, assurez dans le cas de déplacement de l'ensemble enceinte/support de prévenir tout basculement intempestif de celui-ci.
13.  Il est conseillé de déconnecter du secteur votre unité en cas d'orage ou de durée prolongée sans utilisation.
14. Seul un technicien agréé par le fabricant est à même de réparer/contrôler votre unité. Celle-ci doit être contrôlée si elle a subi des dommages de manipulation, d'utilisation ou de stockage (humidité,...).
15. Ne déconnectez jamais la prise de terre de votre unité.
16. Si votre unité est destinée à être montée en rack, des supports arrière doivent être utilisés.
17. Note pour les Royaumes-Unis: Si les couleurs de connecteurs du câble d'alimentation ne correspondent pas au guide de la prise secteur, procédez comme suit:
  - a) Le connecteur vert et jaune doit être connecté au terminal noté E, indiquant la prise de terre ou correspondant aux couleurs verte ou verte et jaune du guide.
  - b) Le connecteur Bleu doit être connecté au terminal noté N, correspondant à la couleur noire du guide.
  - c) Le connecteur marron doit être connecté au terminal noté L, correspondant à la couleur rouge du guide.
18. Cet équipement électrique ne doit en aucun cas être en contact avec un quelconque liquide et aucun objet contenant un liquide, vase ou autre ne devrait être posé sur celui-ci.
19. Une exposition à de hauts niveaux sonores peut conduire à des dommages de l'écoute irréversibles. La susceptibilité au bruit varie considérablement d'un individu à l'autre, mais une large majorité de la population expérimentera une perte de l'écoute après une exposition à une forte puissance sonore pour une durée prolongée. L'organisme de la santé américaine (OSHA) a produit le guide ci-dessous en rapport à la perte occasionnée:

Durée par Jour (heures)	Niveau sonore moyen (dBA)
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ ou inférieur	115

D'après les études menées par le OSHA, toute exposition au delà des limites décrites ci-dessus entraînera des pertes de l'écoute chez la plupart des sujets. Le port de système de protection (casque, oreillette de filtrage,...) doit être observé lors de l'opération cette unité ou des dommages irréversibles peuvent être occasionnés. Le port de ces systèmes doit être observé par toutes personnes susceptibles d'être exposées à des conditions au delà des limites décrites ci-dessus.

**GARDEZ CES INSTRUCTIONS!**

## INSTRUCCIONES IMPORTANTES PARA SU SEGURIDAD



**CUIDADO:** Cuando use productos electrónicos, debe tomar precauciones básicas, incluyendo las siguientes:

1. Lea estas instrucciones.
2. Guarde estas instrucciones.
3. Haga caso de todos los consejos.
4. Siga todas las instrucciones.
5. No usar este aparato cerca del agua.
6. Limpiar solamente con una tela seca.
7. No bloquear ninguna de las salidas de ventilación. Instalar de acuerdo a las instrucciones del fabricante.
8. No instalar cerca de ninguna fuente de calor como radiadores, estufas, hornos u otros aparatos (incluyendo amplificadores) que produzcan calor.
9. No retire la patilla protectora del enchufe polarizado o de tipo "a Tierra". Un enchufe polarizado tiene dos puntas, una de ellas más ancha que la otra. Un enchufe de tipo "a Tierra" tiene dos puntas y una tercera "a Tierra". La punta ancha (la tercera) se proporciona para su seguridad. Si el enchufe proporcionado no encaja en su enchufe de red, consulte a un electricista para que reemplaze su enchufe obsoleto.
10. Proteja el cable de alimentación para que no sea pisado o pinchado, particularmente en los enchufes, huecos, y los puntos que salen del aparato.
11. Usar solamente añadidos/accesorios proporcionados por el fabricante.
12. Usar solamente un carro, pie, trípode, o soporte especificado por el fabricante, o vendido junto al aparato. Cuando se use un carro, tenga cuidado al mover el conjunto carro/aparato para evitar que se dañe en un vuelco. No suspenda esta caja de ninguna manera.
13. Desenchufe este aparato durante tormentas o cuando no sea usado durante largos periodos de tiempo.
14. Para cualquier reparación, acuda a personal de servicio cualificado. Se requieren reparaciones cuando el aparato ha sido dañado de alguna manera, como cuando el cable de alimentación o el enchufe se han dañado, algún líquido ha sido derramado o algún objeto ha caído dentro del aparato, el aparato ha sido expuesto a la lluvia o la humedad, no funciona de manera normal, o ha sufrido una caída.
15. Nunca retire la patilla de Tierra. Escríbanos para obtener nuestro folleto gratuito "Shock Hazard and Grounding" ("Peligro de Electrocutación y Toma a Tierra"). Conecte el aparato sólo a una fuente de alimentación del tipo marcado al lado del cable de alimentación.
16. Si este producto va a ser enracado con más equipo, use algún tipo de apoyo trasero.
17. Nota para el Reino Unido solamente: Si los colores de los cables en el enchufe principal de esta unidad no corresponden con los terminales en su enchufe, proceda de la siguiente manera:
  - a) El cable de color verde y azul debe ser conectado al terminal que está marcado con la letra E, el símbolo de Tierra (earth), coloreado en verde o en verde y amarillo.
  - b) El cable coloreado en azul debe ser conectado al terminal que está marcado con la letra N o el color negro.
  - c) El cable coloreado en marrón debe ser conectado al terminal que está marcado con la letra L o el color rojo.
18. Este aparato eléctrico no debe ser sometido a ningún tipo de goteo o salpicadura y se debe tener cuidado para no poner objetos que contengan líquidos, como vasos, sobre el aparato.
19. La exposición a altos niveles de ruido puede causar una pérdida permanente en la audición. La susceptibilidad a la pérdida de audición provocada por el ruido varía según la persona, pero casi todo el mundo perderá algo de audición si se expone a un nivel de ruido suficientemente intenso durante un tiempo determinado. El Departamento para la Salud y para la Seguridad del Gobierno de los Estados Unidos (OSHA) ha especificado las siguientes exposiciones al ruido permisibles:

<b>Duración por Día en Horas</b>	<b>Nivel de Sonido dBA, Respuesta Lenta</b>
<b>8</b>	<b>90</b>
<b>6</b>	<b>92</b>
<b>4</b>	<b>95</b>
<b>3</b>	<b>97</b>
<b>2</b>	<b>100</b>
<b>1 ½</b>	<b>102</b>
<b>1</b>	<b>105</b>
<b>½</b>	<b>110</b>
<b>¼ o menos</b>	<b>115</b>

De acuerdo al OSHA, cualquier exposición que exceda los límites arriba indicados puede producir algún tipo de pérdida en la audición. Protectores para los canales auditivos o tapones para los oídos deben ser usados cuando se opere con este sistema de sonido para prevenir una pérdida permanente en la audición, si la exposición excede los límites indicados más arriba. Para protegerse de una exposición a altos niveles de sonido potencialmente peligrosa, se recomienda que todas las personas expuestas a equipamiento capaz de producir altos niveles de presión sonora, tales como este sistema de amplificación, se encuentren protegidas por protectores auditivos mientras esta unidad esté operando.

**GUARDE ESTAS INSTRUCCIONES!**

## **CS® 3000/4000/4080 HZ**

### **Power Amplifiers**

Congratulations on your purchase of a Peavey CS Series power amplifier! Designed for years of reliable operation, CS Series amplifiers offer the sonic superiority and unsurpassed reliability for which Peavey is famous in a rugged, compact unit. Advanced technologies and extensive protection circuitry allow operation with greater efficiency, even under difficult loads and power conditions. The DDT™ (Distortion Detection Technique) circuit ensures trouble-free operation into loads as low as 2 ohms (4 ohms for model CS 4080 HZ), protects speakers and ensures, protects drivers and ensures sonic integrity even in extreme overload conditions. Peavey's high-efficiency design uses tunnel-cooled heat sinks and dual-speed DC fans for consistent lower overall operating temperature, resulting in longer output transistor life.

Peavey CS Series amplifiers are simple to operate and housed in ultra-strong steel chassis, but improper use can be dangerous. Some CS Series amplifiers are very high powered and can put out high voltages and sizable currents at frequencies up to 30 kHz. Always use safe operating techniques with these amplifiers.



**FOR YOUR SAFETY, READ THE IMPORTANT PRECAUTIONS SECTION, AS WELL AS INPUT, OUTPUT AND POWER CONNECTION SECTIONS.**

### **Unpacking**

Upon unpacking, inspect the amplifier. If you find any damage, notify your supplier immediately. Only the consignee (the supplier from whom you purchased the amplifier) may institute a claim with the carrier for damage incurred during shipping. Be sure to save the carton and all packing materials. Should you ever need to ship the unit back to Peavey or one of its offices, service centers or the supplier, use only the original factory packing. If the shipping carton is unavailable, contact Peavey to obtain a replacement.

### **Mounting**

CS Series amplifiers will mount in standard 19" racks. Rear mounting ears are also provided for additional support, which is recommended in non-permanent installations like mobile or touring sound systems. Because of the cables and connectors on the rear panel, a right angle or offset screwdriver or hex key will make it easier to fasten the rear mounting ears to the rails.

### **Cooling Requirements**



CS Series amplifiers use a forced-air cooling system to maintain a low, consistent operating temperature. Air is drawn into the amplifier by fans on the back panel and courses through the cooling fins of the tunnel-configured channel heat sinks, then exhausts through the front panel grilles. If either heat sink gets too hot, a sensing circuit will disconnect the load for that particular channel. It is important to have an air inlet at the back of the amplifier to allow cooling air to enter. If the amp is rack mounted, do not use doors or covers on the back of the rack, as the intake air must flow without resistance. Make sure that there is one (1) standard rack space opening for every three mounted power amplifiers.

## Introduction

### Operating Precautions



Make sure the mains voltage is correct and is the same as that printed on the rear of the amplifier. Damage caused by connecting the amplifier to improper AC voltage is not covered by any CS® Series warranty. See the Connecting Power section for more information on voltage requirements.



**Note:** Always turn off and disconnect the amplifier from mains voltage before making audio connections. Also, as an extra precaution, have the attenuators turned down during power-up.

Although the CS 3000/4000/4080 HZ amplifiers have RampUp™ circuitry, which raises the signal level gradually after the output relay closes, it is always a good idea to have the gain controls turned down during power-up to prevent speaker damage if there is a high signal level at the inputs. Always use high-quality input and speaker cables to ensure trouble-free operation. Most intermittent problems are caused by faulty cables.

Consult the Wire Gauge Charts (page 9) to determine proper gauges for differing load impedances and cable lengths. Cable resistance robs amplifier power in two ways: power lost directly to resistance ( $I^2R$  loss) and by increasing the impedance of the load presented to the amplifier, thereby decreasing the power demanded of the amplifier. Also make sure the mode switch is correctly set for the desired application. See sections on Stereo, Parallel and Bridged Mono Operation for more information.

### Connecting Inputs

Input connections are made via the three-pin XLR (pin 2+) or 6.3 mm plug “combi” connectors on the rear panel of the amplifier. The inputs are actively balanced and the overload point is high enough to accept the maximum output level of virtually any signal source.

### Connecting Outputs

All models have two output (speaker) connections per channel. Cables can be connected with banana plugs, spade lugs or bare wire to the five-way binding posts. The preferred connection method is via the Speakon® connectors. Pin connections are noted on the rear panel.

### Connecting Power



CS Series amplifier power requirements are rated at 1/8 power (typical music conditions) and 1/3 power (extreme music conditions). The maximum power current draw rating is limited only by the front panel circuit breaker. Consult the specifications in the Appendices section for figures on the current that each amplifier will demand. Unless otherwise specified when ordered, Peavey amplifiers shipped to customers are configured as follows:

North America	-	120VAC / 60Hz
Europe, Asia, Australia	-	230/240VAC / 60-50Hz
South America	-	120VAC / 60Hz or 240VAC / 50Hz



**Note:** Always turn off and disconnect the amplifier from mains voltage before making audio connections. As an extra precaution, have the attenuators turned down while powering up.



## Wire Gauge Charts

Stranded Cable Lgth. (ft.)	Wire Gauge (AWG)	Power Loss (8 ohm load)	Power Loss (4 ohm load)	Power Loss (2 ohm load)
5	18	0.81%	1.61%	3.2%
	16	0.51	1.02	2.0
	14	0.32	0.64	1.28
	12	0.20	0.40	0.80
	10	0.128	0.25	0.51
10	18	1.61%	3.2%	6.2%
	16	1.02	2.0	4.0
	14	0.64	1.28	2.5
	12	0.40	0.80	1.60
	10	0.25	0.51	1.01
40	18	6.2%	11.9%	22%
	16	4.0	7.7	14.6
	14	2.5	5.0	9.6
	12	1.60	3.2	6.2
	10	1.01	2.0	4.0
	8	0.60	1.20	2.4
80	18	11.9%	22%	37%
	16	7.7	14.6	26
	14	5.0	9.6	17.8
	12	3.2	6.2	11.8
	10	2.0	4.0	7.7
	8	1.20	2.4	4.7
Stranded Cable Lgth. (m)	Wire Gauge (mm <sup>2</sup> )	Power Loss (8 ohm load)	Power Loss (4 ohm load)	Power Loss (2 ohm load)
2	0.3	2.9%	5.6%	10.8%
	0.5	1.74	3.4	6.7
	0.75	1.16	2.3	4.5
	1.5	0.58	1.16	2.3
	2.5	0.35	0.70	1.39
	4	0.22	0.44	0.87
5	0.5	4.3%	8.2%	15.5%
	0.75	2.9	5.6	10.8
	1.5	1.45	2.9	5.6
	2.5	0.87	1.74	3.4
	4	0.55	1.09	2.2
	6	0.37	0.73	1.45
10	0.5	8.24%	15.5%	28%
	0.75	5.6	10.8	19.9
	1.5	2.9	5.6	10.8
	2.5	1.74	2.9	6.7
	4	1.09	1.74	4.3
	6	0.73	1.09	2.9
30	0.75	15.5%	25%	45%
	1.5	8.2	15.5	28
	2.5	5.1	9.8	18.2
	4	3.2	6.3	12.0
	6	2.2	4.3	8.2
	10	1.31	2.6	5.1

## Operation Modes

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### Stereo Operation

For stereo (dual channel) operation, turn the amplifier OFF and set the mode select switches on the back panel to the out (extended) position. In this mode, both channels operate independently of each other, with their input attenuators controlling their respective levels. Thus, a signal at channel A's input produces an amplified signal at channel A's output, while a signal at channel B's input produces an amplified signal at channel B's output.

### Parallel Operation

For parallel (dual-channel/single input) operation, turn the amplifier OFF and set the connector mode (CONN MODE) switch to the parallel position by depressing the switch. Both input connectors are then strapped together and drive both channels with the same input signal. Because both connectors are strapped together, either connector can be used with a patch cable to drive the input of another amplifier. Output connections are the same as in Stereo mode. Both input attenuators remain active when in Parallel mode, allowing you to set different levels for each channel. Power and other general performance specifications are the same as in Stereo mode.

### Bridged Mono Operation

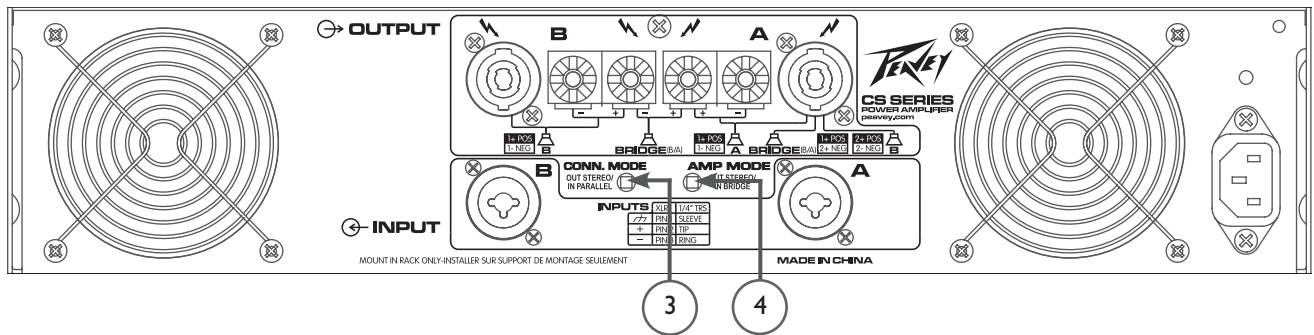
Both amplifier channels can be bridged together to make a very powerful single-channel monaural amplifier. Use extreme caution when operating in the bridged mode; potentially lethal voltage may be present at the output terminals. To bridge the amplifier, depress the rear panel Bridge switch to the IN position. Direct the signal to channel A's input and connect the speakers across the hot outputs (the "+" binding posts) of channels A and B. Only channel A's input attenuator is active while in Bridge Mono mode. Both connectors are strapped together, so either connector can be used with a patch cable to drive the input of another amplifier.

Unlike the stereo mode, in which one side of each output is at ground, both sides are hot in bridged mode. Channel A's side is the same polarity as its input with the minimum nominal load impedance being 4 ohms (equivalent to driving both channels at 2 ohms) in bridged mode. Driving bridged loads of less than 4 ohms will activate the DDT™ circuitry (see Indicators section), resulting in a loss of power, and may also cause a thermal (overheating) overload.

## Front Panel



## Rear Panel



## Switches & Controls

### AC Power Switch/Circuit Breaker (1)

The CS® Series amplifiers feature a combination AC switch/circuit breaker on the front panel. If the switch shuts off during normal use, push it back to the ON position once. If the switch will not stay in the ON position, the amplifier needs servicing.

### Input Attenuators (2)

Whenever possible, set the attenuators fully clockwise to maintain optimum system headroom. The input attenuator controls (one for channel A, one for channel B) located on the front panel attenuate signal level (decrease gain) for the respective amplifier channels in all modes. See the specifications at the end of this manual for standard voltage gain and input sensitivity information.

### CONN. MODE Select Switch (3)

Depressing the rear panel CONN. MODE select switch connects both input connectors together in parallel. This directs the same input signal to both channels and allows one connector to be used with a patch cable to drive another amplifier. When in the out position, both input connectors operate independently. Do not operate the CONN. MODE select switch with the amplifier powered on. See the sections on Stereo, Parallel and Bridged Mono mode for more information.

### AMP MODE Select Switch (4)

The rear panel AMP MODE select switch determines if the amplifier is in Stereo (two channels) or in Bridged Mono mode. Do not operate the AMP MODE select switch with the amplifier powered on. See the Operations Mode section for more information on Stereo, Parallel and Bridged Mono mode applications.

## Front Panel



## Indicators

CS® Series amplifiers feature three front panel LED indicators per channel: PWR (power), SIG (signal) and DDT™ (Distortion Detection Technique). These LED indicators inform the user of each channel's operating status and warn of possible abnormal conditions.

### PWR LED (1)

The Power LED indicates that the channel is operational. It illuminates under normal operation and remains on even when the channel's DDT circuit is activated.

### SIG LED (2)

The Signal LED illuminates when its channel produces an output signal of greater than 1 volt RMS or 25 mV input with a 0 dB attenuation of the front panel knobs. This is useful in determining whether a signal is reaching and being amplified by the amplifier. If the Signal LED is illuminated but no sound is present, that means a signal is present at the amplifier but a problem may exist after the amplifier, such as in the cables or speakers.

### DDT LED (3)

A channel's DDT LED will illuminate at the onset of clipping. If the LEDs are flashing quickly and intermittently, the channel is just at the clip threshold, while a steady, bright glow means the amp is clip limiting, or reducing gain to prevent severely clipped waveforms from reaching the speakers. See Distortion Detection Technique Limiting under the Protection Features section for more information.

## Protection Features

The Peavey CS® Series incorporates several circuits to protect the amplifier and speakers under virtually any situation. Peavey has made the amplifiers as foolproof as possible by making them immune to short and open circuits, mismatched loads, DC voltage and overheating. If a channel goes into the DDT™ gain reduction mode, the DDT LED illuminates. The clipping percentage or output power is instantly reduced. When a problem occurs that causes a channel to go into a protection mode, the PWR (Power) LED for that channel will turn off. DC voltage on the output or excessive subsonic frequencies will cause the speaker protection relay for that channel to open, protecting the speakers. If an amplifier channel overheats, the relay for that channel will open, disconnecting the load until the channel cools down, thus protecting the amplifier.

### Distortion Detection Technique Limiting

Any time a channel is driven into hard, continuous clipping, the DDT circuit will automatically reduce the channel gain to a level just slightly into clipping, guarding the speakers against the damaging, high-power, continuous square waves that may be produced. Situations that may activate the DDT circuit include uncontrolled feedback, oscillations, an improper equipment setting or malfunction upstream from the amplifier. Normal program transients will not trigger DDT; only steady, excessive clipping will cause the DDT LED to illuminate.

### LFC Impedance Sensing

CS Series amplifiers feature innovative circuitry for safe operation into any load. When an amplifier senses a load that overstresses the output stage, the Load Fault Correction circuit adjusts the channel gain to a safe level. Extreme load fault under high power levels will cause the speaker relay to disconnect the load for the associated channel. This method of output stage protection is far more effective than the standard limiting found on conventional power amplifiers. The LFC circuit is sonically transparent in normal use and unobtrusive when activated.

### Thermal Protection

The internal fans will keep the amplifier operating well within its intended temperature range under all normal conditions. If a channel's heat sink temperature reaches 85°C (which may indicate an obstructed air supply), that channel will independently protect itself by opening the speaker relay to disconnect the load until it has cooled. During this time, the PWR LED will go out and the cooling fans will continue operating at high speed.

### Short Circuit

If an output is shorted, the LFC and thermal circuits will automatically protect the amplifier. The LFC circuit senses the short circuit as an extremely stressful load condition and attenuates the signal, protecting the channel's output transistors from over-current stress. If the short circuit remains, the channel may eventually thermally protect itself by opening the speaker relay thereby disconnecting the load.

### DC Voltage Protection

If an amplifier channel detects DC voltage or subsonic frequencies at its output terminals, the speaker protection relay for that channel will open, protecting the speakers.

### Turn-On/Turn-Off Protection

Upon powering up, the amplifier mutes the input signals and stays in Protect mode with the speaker connect relays open for approximately four seconds. This allows the internal power supplies to charge and the amplifier to stabilize. After the relays engage, the signals slowly increase from muted to their normal level. Also, when power is removed, the input signals are muted so that no thumps or pops are heard.

## Protection Features

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### RampUp™ Signal Control

Whenever a CS® Series amplifier powers up or comes out of a protect mode, the RampUp circuit activates. While the speakers are disconnected, the RampUp circuit fully attenuates the signal and activates the DDT™ LED. After the output relay closes, the signal slowly and gradually raises up to its set level. The PWR LED will illuminate and the DDT LED will turn off when the signal is no longer attenuated. The RampUp Signal Control circuit has some important advantages over the conventional instant-on circuits:

1. If a signal is present during power-up (or when coming out of protect), the speakers are spared a sudden, potentially damaging burst of audio power.
2. Because the gain is reduced until after the output relay closes, no arcing occurs at the contacts, thereby extending their useful life.

## Speaker Protection

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All loudspeakers have electrical, thermal and physical limits that must be observed to prevent damage or failure. Excessive power, low frequencies applied to high frequency drivers, severely clipped waveforms, and DC voltage can all be fatal to cone and compression drivers. Peavey CS Series amplifiers automatically protect speakers from DC voltages and subsonic signals. If using an electronic crossover, be extremely careful that the low and mid bands are connected to the correct amplifiers and drivers and not to those designed for a higher frequency band. An amplifier's clipping point is its maximum peak output power, and some of the higher powered Peavey CS Series amplifiers can deliver more power than many speakers can safely handle. Be sure the peak power capability of the amplifier is not excessive for your speaker system. For more information, see the section on Protection Features.

Fuses may also be used to limit power to speaker drivers, although as current-limiting rather than voltage-limiting devices, they are an imperfect solution, and as the weakest links, they only limit once before needing replacement. Some poor-quality fuses have a significant series resistance that could degrade the amplifier's damping of the speaker's motion and may even deteriorate the system's sound quality. If you elect to use fuses, check with the speaker manufacturer to determine the proper current rating and time lag required.

Do not drive any low frequency speaker enclosure with frequencies lower than its own tuned frequency; the reduced acoustical damping could cause a ported speaker to bottom out even at moderate power. Consult the speaker system specifications to determine its frequency limits.

## Amplifier Maintenance and User Responsibility

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A CS Series amplifier requires no routine maintenance and should not need internal adjustment during its lifetime. Your CS Series amplifier is very powerful and can be potentially dangerous to loudspeakers and humans alike. It is your responsibility to read the Important Precautions section and to make sure that the amplifier is installed, wired and operated properly as instructed in this manual. Many loudspeakers can be easily damaged or destroyed by overpowering, especially with the high power available from a bridged amplifier. Read the Speaker Protection section and always be aware of the speaker's continuous and peak power capabilities.

## Service / Warranty Information

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In the unlikely event that your amplifier develops a problem, it must be returned to an authorized distributor, service center or shipped directly to our factory. To obtain service, contact your nearest Peavey Service Center, Distributor, Dealer, or any of the worldwide Peavey offices. For contact information, reach Peavey Inc. Customer Service directly:

Telephone: 601-483-5365 (USA)

Fax Number: 601-486-1278 (USA)

For technical inquiries only, the Peavey Technical Services department can be faxed at 601-486-1361 (USA)

Because of the complexity of the design and risk of electrical shock, all repairs must be performed only by qualified technical personnel. If the unit needs to be shipped back to the factory, it must be sent in its original carton. It is the responsibility of the person shipping the unit to properly package the amplifier. If you need a product shipping carton, please contact Peavey for a replacement.

Please visit the Peavey website at: <http://www.peavey.com>.

# **CS® Series 3000/4000/4080 HZ**

## **Power Amplifiers**

### **SPECIFICATIONS**

	<b>CS 3000</b>	<b>CS 4000</b>	<b>CS 4080 HZ</b>
<b>Rated Power Bridged</b>	3,050 watts @ 1 kHz at <0.1% T.H.D. @ 4 ohms	4,000 watts @ 1 kHz at <0.1% T.H.D. @ 4 ohms	4,080 watts @ 1 kHz at <0.1% T.H.D. @ 8 ohms
<b>Rated Power 2 x 2 ohms</b>	1,500 watts per channel @ 1 kHz <0.05% T.H.D. both channels driven	2,000 watts per channel @ 1 kHz <0.1% T.H.D. both channels driven	N/A
<b>Rated Power 2 x 4 ohms</b>	1,025 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven	1,350 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven	2,040 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven
<b>Rated Power 2 x 8 ohms</b>	650 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven	800 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven	1,250 watts per channel @ 1 kHz at <0.05% T.H.D. both channels driven
<b>Rated Power 1 x 2 ohms</b>	2,000 watts @ 1 kHz at <0.1% T.H.D.	2,550 watts @ 1 kHz at <0.1% T.H.D.	N/A
<b>Rated Power 1 x 4 ohms</b>	1,275 watts @ 1 kHz at <0.05% T.H.D.	1,600 watts @ 1 kHz at <0.05% T.H.D.	2,450 watts @ 1 kHz at <0.05% T.H.D.
<b>Rated Power 1 x 8 ohms</b>	750 watts @ 1 kHz at <0.05% T.H.D.	900 watts @ 1 kHz at <0.05% T.H.D.	1,400 watts @ 1 kHz at <0.05% T.H.D.
<b>Minimum Load Impedance</b>	2 ohms	2 ohms	4 ohms
<b>Maximum RMS Voltage Swing</b>	86 volts	93 volts	115 volts
<b>Frequency Response</b>	10 Hz - 100 kHz; +0, -1.5 dB at 1 watt	10 Hz - 100 kHz; +0, -2 dB at 1 watt	10 Hz - 100 kHz; +0, -0.75 dB at 1 watt
<b>Power Bandwidth</b>	10 Hz - 35 kHz; +0, -3 dB at rated 4 ohms power	10 Hz - 35 kHz; +0, -3 dB at rated 4 ohms power	10 Hz - 35 kHz; +0, -3 dB at rated 4 ohms power
<b>T.H.D. 2 x 2 ohms</b>	<0.2% @ 1,200 watts per channel from 20 Hz to 20 kHz	<0.2% @ 1,500 watts per channel from 20 Hz to 20 kHz	N/A
<b>T.H.D. 2 x 4 ohms</b>	<0.1% @ 925 watts per channel from 20 Hz to 20 kHz	<0.1% @ 1,150 watts per channel from 20 Hz to 20 kHz	<0.1% @ 1,650 watts per channel from 20 Hz to 20 kHz
<b>T.H.D. 2 x 8 ohms</b>	<0.1% @ 600 watts per channel from 20 Hz to 20 kHz	<0.1% @ 750 watts per channel from 20 Hz to 20 kHz	<0.1% @ 950 watts per channel from 20 Hz to 20 kHz
<b>Input CMRR</b>	> - 55 dB @ 1 kHz	> - 75 dB @ 1 kHz	> - 75 dB @ 1 kHz
<b>Voltage Gain</b>	x 40 (32 dB)	x 40 (32 dB)	x 40 (32 dB)
<b>Crosstalk</b>	> -55 dB @ 1 kHz at rated power @ 8 ohms	> -70 dB @ 1 kHz at rated power @ 8 ohms	> -70 dB @ 1 kHz at rated power @ 8 ohms
<b>Hum and Noise</b>	> -109 dB, "A" weighted referenced to rated power @ 8 ohms	> -108 dB, "A" weighted referenced to rated power @ 8 ohms	> -108 dB, "A" weighted referenced to rated power @ 8 ohms



# CS<sup>®</sup> Series SPECIFICATIONS

	CS 3000	CS 4000	CS 4080 HZ
<b>Slew Rate</b>	> 15V/us	> 15V/us	> 15V/us
<b>Damping Factor (8 ohms)</b>	> 500:1 @ 20 Hz - 1 kHz	> 500:1 @ 20 Hz - 1 kHz	> 500:1 @ 20 Hz - 1 kHz
<b>Phase Response</b>	+5 to - 15 degrees from 20 Hz to 20kHz	+5 to - 12 degrees from 20 Hz to 20kHz	+5 to - 12 degrees from 20 Hz to 20kHz
<b>Input Sensitivity</b>	1.6 volts +/- 3% for 1 kHz. 4 ohms rated power, 1.37 volts +/- 3% for 1 kHz. 2 ohms rated power	1.84 volts +/- 3% for 1 kHz. 4 ohms rated power, 1.58 volts +/- 3% for 1 kHz. 2 ohms rated power	2.25 volts +/- 3% for 1 kHz. 4 ohms rated power
<b>Input Impedance</b>	15 k ohms, balanced	15 k ohms, balanced	15 k ohms, balanced
<b>Current Draw @ 1/8 power</b>	1,540 watts @ 2 ohms, 1,000 watts @ 4 ohms, 610 watts @ 8 ohms	1,825 watts @ 2 ohms, 1,185 watts @ 4 ohms, 720 watts @ 8 ohms	1,185 watts @ 4 ohms, 720 watts @ 8 ohms
<b>Current Draw @ 1/3 power</b>	3,650 watts @ 2 ohms, 2,510 watts @ 4 ohms, 1,535 watts @ 8 ohms	4,535 watts @ 2 ohms, 2,975 watts @ 4 ohms, 1,835 watts @ 8 ohms	2,975 watts @ 4 ohms, 1,835 watts @ 8 ohms
<b>Cooling</b>	Two back panel temperature dependant variable speed 80 mm DC fans	Two back panel temperature dependant variable speed 80 mm DC fans	Two back panel temperature dependant variable speed 80 mm DC fans
<b>Controls</b>	2 front panel attenuators, rear panel Mode switches	2 front panel attenuators, rear panel Mode switches	2 front panel attenuators, rear panel Mode switches
<b>Indicator LEDs</b>	2 DDT™ (clip limiting), 2 Signal presence, 2 Active status	2 DDT™ (clip limiting), 2 Signal presence, 2 Active status	2 DDT™ (clip limiting), 2 Signal presence, 2 Active status
<b>Protection</b>	Thermal, DC, turn-on bursts, subsonic, incorrect loads	Thermal, DC, turn-on bursts, subsonic, incorrect loads	Thermal, DC, turn-on bursts, subsonic, incorrect loads
<b>Connectors</b>	Combi XLR & 6.3 mm phone input, Speakon <sup>®</sup> and Binding Post speaker output, 15 amp IEC mains connector	Combi XLR & 6.3 mm phone input, Speakon <sup>®</sup> and Binding Post speaker output, 15 amp IEC mains connector	Combi XLR & 6.3 mm phone input, Speakon <sup>®</sup> and Binding Post speaker output, 15 amp IEC mains connector
<b>Construction</b>	16 ga. steel with cast front panel and cast handles	14 ga. steel with cast front panel and cast handles	16 ga. steel with cast front panel and cast handles
<b>Dimensions</b>	88.9mm x 482.6mm x 376.3mm + 31.8mm for rear support ears and connectors (3.5"x19"x 14.81" + 1.25") + (1.5") for handle depth	88.9mm x 482.6mm x 376.3mm + 31.8mm for rear support ears and connectors (3.5"x19"x 4.81" + 1.25") + (1.5") for handle depth.	88.9mm x 482.6mm x 376.3mm + 31.8mm for rear support ears and connectors (3.5"x19"x 14.81" + 1.25") + (1.5") for handle depth.
<b>Net Weight</b>	18.05 kg (39.8 lbs.)	19.64 kg (43.3 lbs.)	21.45 kg (47.3 lbs.)
<b>Gross Weight</b>	19.23 kg.(42.4 lbs.)	20.8 kg.(45.8 lbs.)	25.4 kg. (56 lbs.)

All power measurements made at 120 VAC, power transformer cold. 4 ohm power is time limited by magnetic circuit breaker.



Features and specifications subject to change without notice.

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