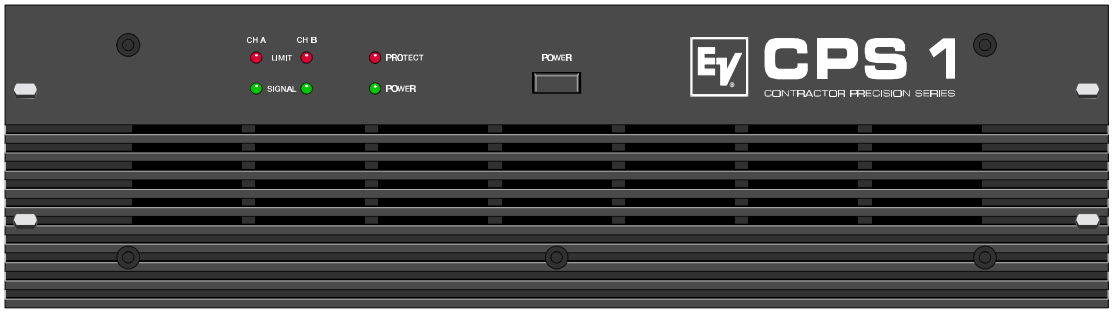
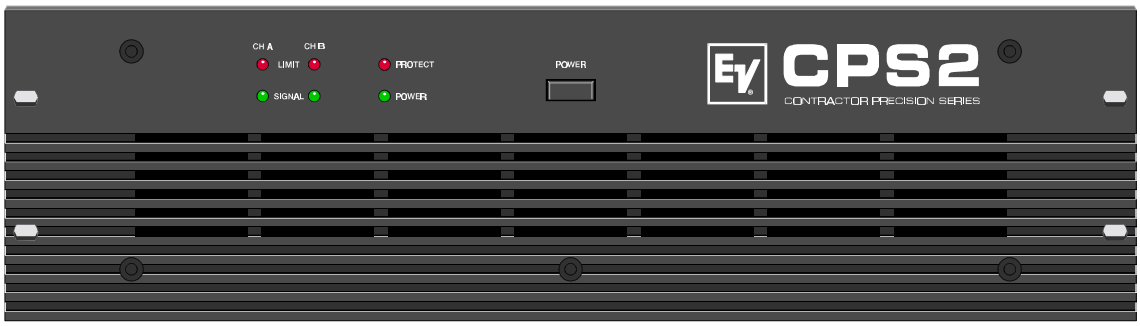
Electro-Voice®

OWNER'S MANUAL



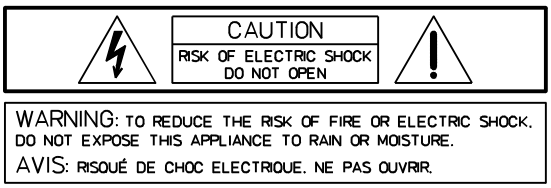


CPS 1 / CPS 2

CONTRACTOR PRECISION SERIES

CONTENTS

IMPORTANT SAFETY INSTRUCTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

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 damp cloth.
7. Do not block any of the ventilation openings.
   Install in accordance with the manufactures instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. 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.

For US and CANADA only:

Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrican for replacement of the absolete outlet.

IMPORTANT SERVICE INSTRUCTIONS

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.
2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains
3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.
4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be **3 mm** and needs to be minded at all times.
   The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be **6 mm** and needs to be minded at all times.
5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
6. Altering the circuitry without prior consent or advice is not legitimate.
7. Any work security regulations that are applicable at the location where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
8. All instructions concerning the handling of **MOS** - circuits have to be observed.

Note:  **SAFETY COMPONENT (HAS TO BE REPLACED WITH ORIGINAL PART ONLY)**

DESCRIPTION

First of all, we would like to express our thanks and at the same time congratulate you on the decision to buy one of our CONTRACTOR PRECISION SERIES power amplifiers.

ElectroVoice CONTRACTOR PRECISION SERIES amplifiers are made to meet the highest requirements of any CONTRACTOR application. Thus they provide on-board protection against thermal and capacitive overload, short-circuit and the occurrence of HF or DC at the output. Additionally, special circuitry prevents the output-stage transistors from being damaged by Back-EMF. During soft start, delayed switching of the power outputs is accomplished via relays and a limiter controls the initial current inrush, preventing the mains fuse from being blown during the power-on operation.

The mechanical construction as well is carried out following the highest precision standards of the industry. Thermal stability is guaranteed by two 3-Mode silently running fans.

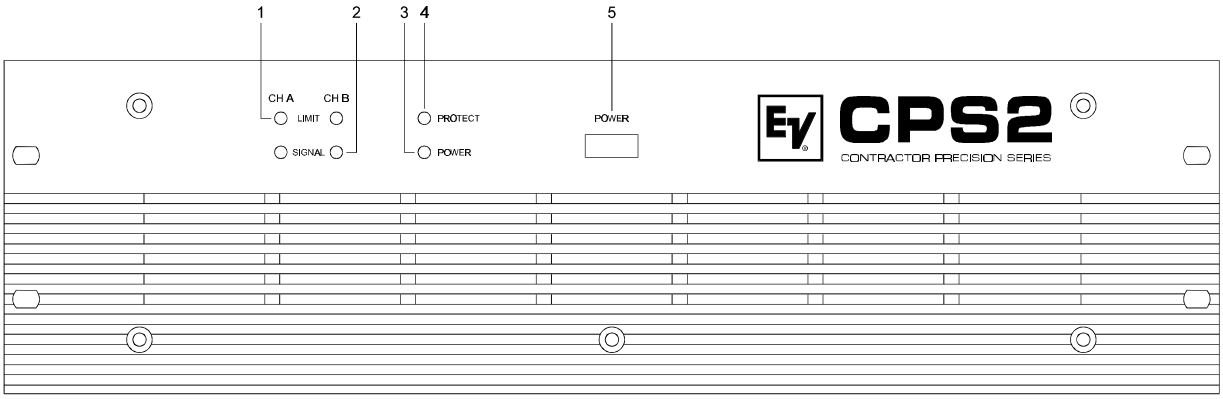
The extensive comparator circuitry constantly monitors the input and output signals and activates the internal limiters whenever a non-linear operational state is encountered. This provides reliable protection of the connected loudspeaker systems against overload and clipping. The sound quality of the CONTRACTOR PRECISON SERIES power amplifiers is superb. Using comprehensive dimensioned power supply units with low-interference toroidal transformers gains a headroom that exceeds the nominal power handling capacity by far. No V/I-Foldback-Limiter circuits are employed within the power amplifiers, making it possible to operate the amps on complex loads up to ±90° phase angles without a problem.

The electronically balanced inputs are provided via XLR-type and PHOENIX connectors which are also used to loop the signal through. Using the Input Routing-switches lets you determine if the CONTRACTOR PRECISION SERIES amplifiers are operated in DUAL (stereo) or PARALLEL (monaural) mode; “mono-bridged” operation is also possible.

The dB-scaled level controls are to be found on the rear panel. These potentiometers guarantee precise and reliable operation. The easy readable LED display offers quick optical information on the power amplifiers’ momentary operational mode. For each channel individually the display shows whether they are operational, a signal is present at the outputs, when the limiters are activated, and whether one of the protection circuits has been engaged or not. The power outputs CANNEL A, CHANNEL B are carried out as 4-pole-barrier-strip connectors. A ground-lift switch that separates the enclosure from the appliance’s ground potential and therefore helps to eliminate ground noise loops and the mono bridged mode switch are also located on the rear panel. In normal operation all CONTRACTOR PRECISION SERIES power amplifiers can be used to drive loads down to 2 ohms; in bridged mode the minimal load is 4 ohms. All amps are equipped with extremely silent running fans providing front-to-rear air circulation, guaranteeing trouble-free operation even in smaller power amplifier rack systems.

Studying this owner’s manual carefully will provide you with further and more detailed information about the CONTRACTOR PRECISION SERIES power amplifiers. Thus we recommend to keep on reading, assuring you that the Electro Voice CONTRACTOR PRECISION SERIES power amplifiers will provide you with a lot of fun and satisfaction in your work.

FRONT PANEL



1. LIMIT

This indicator lights when the amplifier enters clipping and the internal limiter is activated. Short-term indication is permissible while a continuous lit LED signals that reducing the overall volume is recommended to avoid the connected loudspeaker systems from being damaged by overload conditions.

2. SIGNAL INDICATOR

This indicator lights when an output signal is present. In case of short-circuited speaker cabling or one of the amplifier's protection functions is engaged the indicator is off, showing that there is no signal outputted.

3. POWER ON Indicator

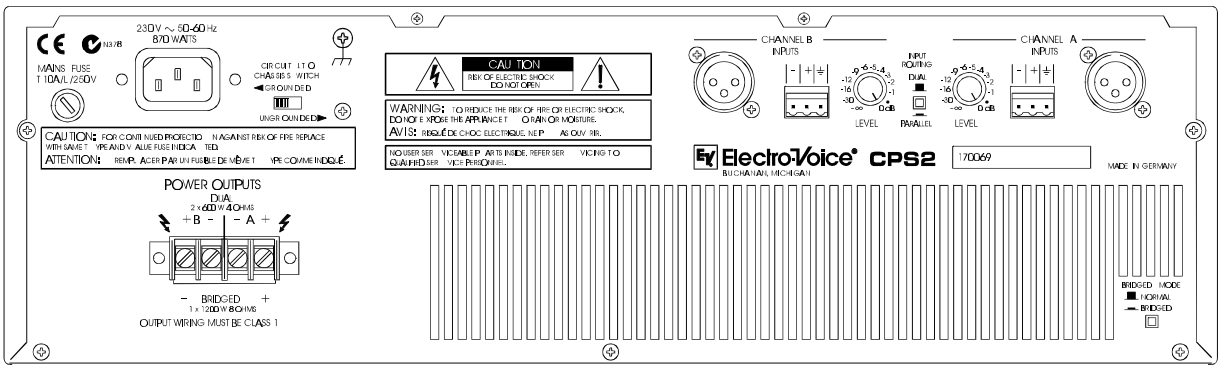
This LED lights when the appliance's power switch has been engaged. If the indicator does not light after engaging the power switch, either the amplifier is not connected to the mains or the internal mains fuse has been blown and it needs to be replaced.

4. PROTECT

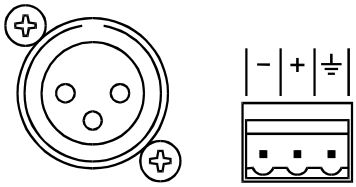
If this indicator lights during operation, one of the amp's internal protection functions against thermal overload, short-circuit, or the occurrence of HF at the output has been engaged. The cause that let the amplifier enter the protection mode – e. g. a short-circuited speaker cable – has to be eliminated. In case of thermal overload you have to wait until the power amplifier returns into normal operation mode.

5. POWER Switch

Using the POWER switch you turn the amplifiers power on. To eliminate unwanted noise and knacks in the connected speaker systems, loudspeaker output switching is performed delayed via relays. An initial current inrush limiter prevents the mains fuse from being blown during power-on.



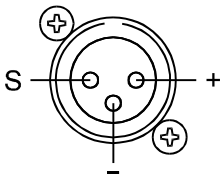
POWER AMPLIFIER INPUTS



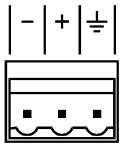
"PHOENIX"-type connectors are provided parallel to the XLR-type inputs, offering the opportunity to feed additional power amplifiers with identical signals.
The inputs are electronically balanced with pin-assignment according to the IEC 268 standard.

Pin-assignment of the XLR-type input connectors:

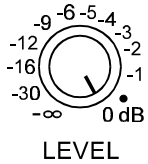
PIN 1: SHIELD
PIN 2: a, +
PIN 3: b, -



Pin-assignment of the "PHOENIX"-type connectors:



Input sensitivity is factory set to 1Vrms.

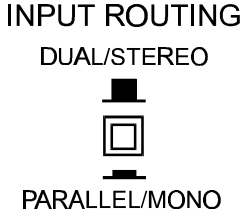


LEVEL

LEVEL CONTROLS

dB-scaled potentiometers for the adjustment of the power amplifier's overall amplification. These controls should be set between 0 dB and –6 dB, depending on the output of the connected signal source device – e. g. a mixing console. The printed scale shows the actual amount of damping in the amplification of the power amplifier.

INPUT ROUTING

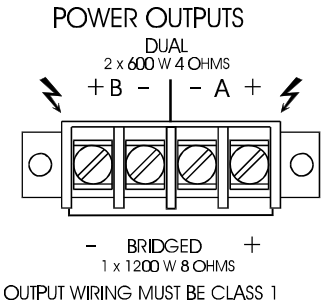


PARALLEL MONAURAL

Setting the selector switch to the PARALLEL/MONO position puts the channel A and channel B inputs in electrically direct parallel configuration, leaving you with the opportunity to individually control the channels' level settings by the use of the output controls A and B.

DUAL STEREO

When the selector switch is set to its DUAL/STEREO position both channels are amplified separately.

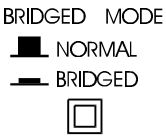


POWER AMPLIFIER OUTPUTS

The power amplifier's channel A (left) and channel B (right) outputs are carried out on 4-POLE-BARRIER-STRIP connectors.

Please, mind the correct polarity when connecting loudspeaker systems, according to the shown diagram for the DUAL OUTPUT.

Dangerously high voltages may be present at the binding posts, which, after establishing loudspeaker cable connections, makes closing the terminal strip's cover lid absolutely mandatory.

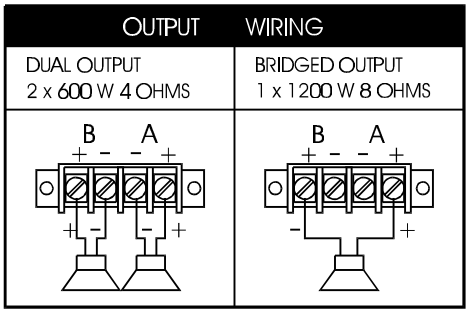


BRIDGED MODE

When the bridged mode switch is engaged **you will have to** use the channel A input.

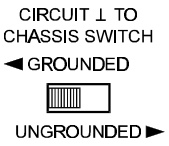
The channel B input is out of function.

The signal gets internally inverted and fed to the channel B power amp. The two amplifiers A+B are now used in push-pull operation providing the double output voltage at the BRIDGED-OUT connector.



The regular output voltages of the power amplifiers A and B are still present at the individual output connectors CHANNEL A and CHANNEL B but, in respect to the inverted phase, using these signals is not recommendable.

Bridged mode operation with loads of 2 ohms is not admissible.



GROUND-LIFT SWITCH

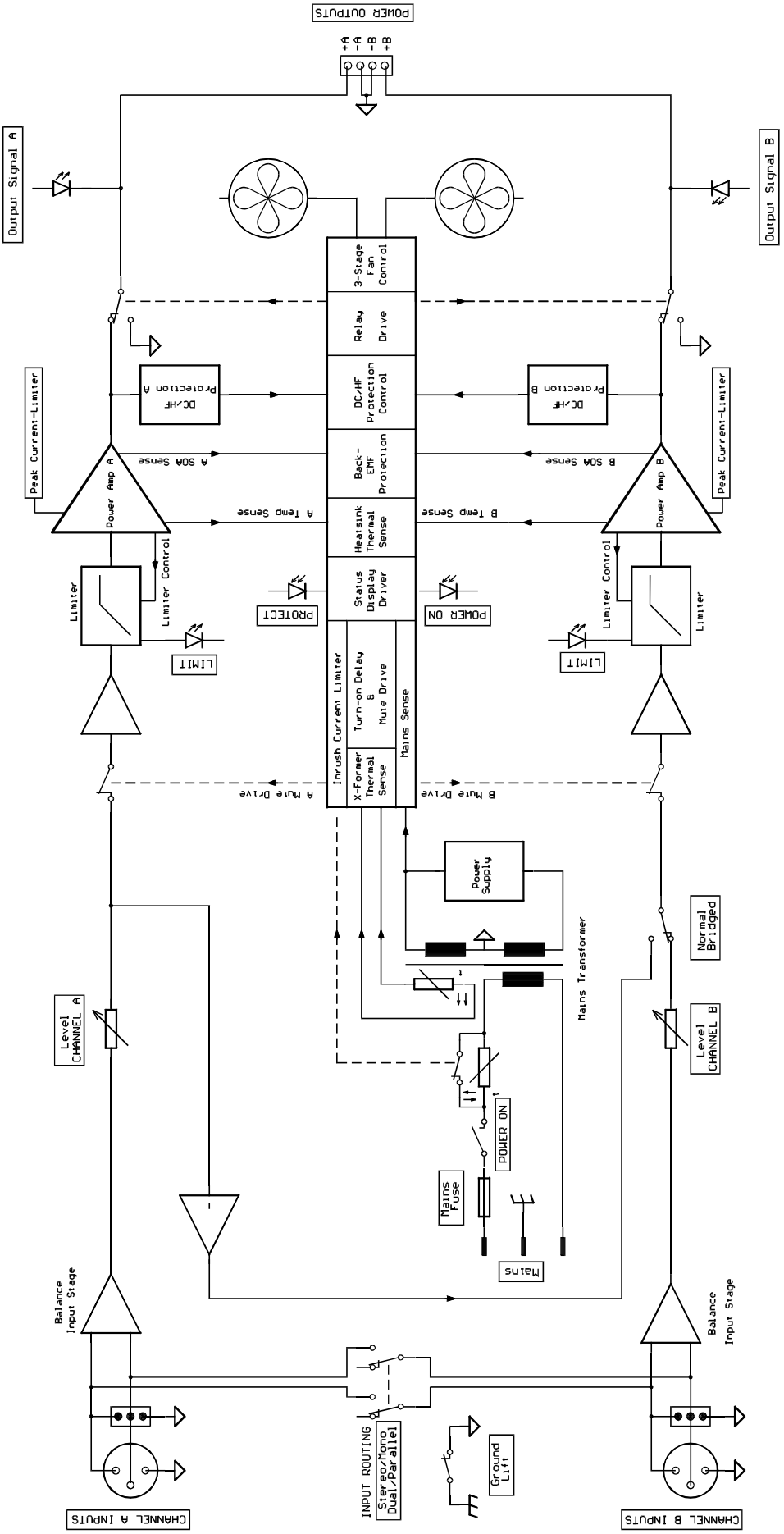
The ground-lift switch is meant to help you in avoiding ground noise loops. Whenever the power amplifier is installed in a 19" rack system being operated together with other equipment, the recommended setting of the switch is the GROUNDED position. In case the power amplifier is used together with appliances that are connected to different ground potentials, the recommended setting is UNGROUNDED.

Technical Specifications: CPS1, CPS2

Amplifier at rated conditions, both channels driven with 8 ohms loads, unless otherwise specified.

	CPS1			CPS2		
Load Impedance	**8 Ω**	**4 Ω**	**2 Ω**	**8 Ω**	**4 Ω**	**2 Ω**
Maximum Midband Output Power THD=1%, 1kHz	280W	450W	650W	380W	600W	850W
Rated Output Power THD < 0, 2%, 20Hz ... 20kHz	230W	350W	450W	300W	500W	650W
Maximum Bridged Output Power THD=1%, 1kHz	900W	1300W	———	1200W	1700W	———
Maximum RMS Voltage Swing THD=1%, 1kHz		56V			64V	
Voltage Gain at 1 kHz		32,5dB			33,5dB	
Slew Rate at 1 kHz		25V/µs			30V/µs	
Power Consumption at 1/8 maximum output power @ 4 Ω		690W			870W	
Input Sensitivity at rated output power @ 8 Ω, 1 kHz			1Vrms			
THD at rated output power, MBW=80kHz, 1 kHz			< 0.05 %			
IMD-SMPTE 60 Hz, 7 kHz			< 0.08 %			
DIM30 3.15kHz, 15 kHz			< 0.03 %			
Crosstalk ref. 1kHz, at rated output power			<-80 dB			
Frequency Response -1dB, ref. 1 kHz			10Hz ... 45kHz			
Power Bandwith THD=1%, ref. 1kHz, half power @ 4 Ω			10Hz ... 50kHz			
Input Impedance 20Hz ... 20 kHz, balanced			20kΩ			
Damping Factor at 100Hz / 1kHz			>300 / >200			
Signal to Noise Ratio A-weighted			105dB			
Power Requirements			120V/ 230V/240V, 50Hz ... 60Hz			
Protection			Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay			
Cooling			Front-to-Rear, 3-stage-fans			
Safety Class			I			
Dimensions (W x H x D), mm			483 x 132.5 x 385.5			
Weight		15kg			16kg	

BLOCK DIAGRAM



Abmessungen/Dimensions (in mm)