

SM PRO AUDIO CQ15/CQ31

CQ15/CQ31

GRAPHIC EQUALIZER + COMPRESSOR



Version 1.0

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electrical shock, do not remove the cover or rear panel of this unit. No user serviceable parts inside. Refer servicing to qualified personnel only.

WARNING: To reduce the risk of fire or electrical shock, do not expose this equipment to rain or moisture.

All safety and operation instructions of this manual should be read and adhered to before operating this equipment.

Retain Instructions: Please retain all safety and operating instructions for future reference.

Follow Instructions: All operation and user instructions should be followed.

Water, Liquid, and Moisture: The equipment should not be used near water, rain, or other liquids. Make sure that no liquid can leak, spill, or otherwise seep into the equipment.

Ventilation: Please place the equipment so that no obstacles interfere with or impede the flow of air through the ventilation openings.

Heat: The equipment should be situated away from heat sources such as heaters, radiators, ovens, and other appliances that produce heat.

Power Source: Make sure your equipment is set to the correct voltage for the country in which it will be used.

Grounding and Polarization: Precautions should be taken so that the equipment's electrical grounding or polarization is not defeated.

Power Cord Protection: Power supply cords should be routed so that they are not likely to be walked on, pinched, damaged, worn, or rubbed by any other device or obstacle.

Cleaning: The equipment should be cleaned only with a light soft cloth. Do not use harsh or corrosive products on the unit.

Periods of Inactivity: The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

Damage Requiring Service: The equipment should be serviced by qualified service personnel when:

- The power supply cord or plug has been damaged; or
- Objects have fallen onto, or liquid spilled into the equipment; or
- The equipment has been exposed to rain; or
- The equipment does not appear to operate normally or exhibits a marked change in performance; or
- The equipment has been dropped, or the enclosure damaged.

Servicing:

The user should not attempt to service the equipment beyond what is described in the Operating Instructions.

All other servicing should be referred to qualified service personnel.

FOREWORD

Dear Customer,

Thank you very much for expressing your confidence in SM Pro Audio products by purchasing this unit. The CQ15/CQ31 was designed to be a comprehensive audio processor for home, project and professional studios, live sound rental companies, repair centers, schools and fixed installations—in short, virtually any and all venues where audio products are used. Drawing on years of hands-on experience in the audio industry and valuable suggestions from our customers, our engineers have developed a product that we are certain will more than meet your expectations. As with all SM Pro Audio equipment, the CQ15/CQ31 was designed to provide you with a superb performance, excellent technical specifications and uncompromising audio quality at an extremely affordable price.

Regards,
SM Pro Audio

IMPORTANT: High output volumes may damage your ears, your monitors, and/or your headphones. Turn down the LEVEL controls before you switch on the CQ15/CQ32.

INSTALLATION

Your SM Pro Audio CQ15/CQ31 was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit.

If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

PLACEMENT

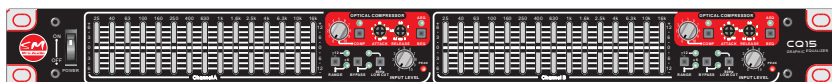
The SM Pro Audio CQ15/CQ31 utilizes an electronic circuit. Be sure that there is enough air space around the unit for cooling. To avoid overheating, please do not place the units on high temperature devices such as power amplifiers or near other units, such as wireless, that may transmit high frequencies.

MAINS VOLTAGE

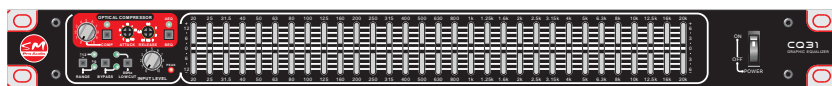
The CQ15/CQ31 can be used with voltages ranging from 100V AC to 250V AC, please make sure that you have selected the correct voltage range on the back of the unit and that the required fuse setting is correct as well before switching the unit ON. Any damage occurring as a result of incorrect voltage selection may not be granted a warranty repair. A DC power supply is included.

CQ15/CQ31 OVERVIEW

The CQ15 and CQ31 combination graphic equalizers / optical compressors offer control over both frequency and level in a convenient single-space rackmount format. The stereo CG15 and monophonic CQ31 are ideally suited for a variety of live and installed sound applications, and are equally at home in the equipment racks of bass players, keyboardists, and DJs.



Each of the CQ15's two channels features 15 bands (2/3-octave) of equalization with selectable $\pm 6\text{dB}$ / $\pm 12\text{dB}$ range. The compressors, one per channel and available pre- or post-EQ (and featuring true circuit bypass) are designed to address a variety of tasks, from harnessing troublesome peaks to putting a tight low end on a stereo DJ mix.



When finer band-resolution is required, the CQ31 offers a full 31 bands (1/3-octave) of equalization with selectable $\pm 6\text{dB}$ / $\pm 12\text{dB}$ range, topped off by a fully adjustable optical compressor. As with the CQ15, the compressor is available pre- or post-EQ and features true circuit bypass.

MAIN FEATURES

- Stereo 15-band (CQ15) or monophonic 31-band (CQ31) graphic EQ
- Built in optical compressor / limiter per channel
- Selectable pre- / post-EQ compressor operation with true circuit bypass
- Balanced and unbalanced inputs and outputs
- Euro Block input and output connectors for fixed installations
- 1U rugged metal case construction

CQ15/CQ31 REAR PANEL CONNECTIONS

Your CQ15/CQ31 is designed to accommodate a variety of balanced and unbalanced audio connections, allowing for easy installation in both live and studio environments.

CQ15 Inputs

- Channel A / Channel B Balanced XLR
- Channel A / Channel B Unbalanced 1/4" TRS
- Channel A / Channel B Balanced Euro Block

CQ15 Outputs

- Channel A / Channel B Balanced XLR
- Channel A / Channel B Unbalanced 1/4" TRS
- Channel A / Channel B Balanced Euro Block



CQ31 Inputs

- Channel A Balanced XLR
- Channel A Unbalanced 1/4" TRS
- Channel A Balanced Euro Block

CQ31 Outputs

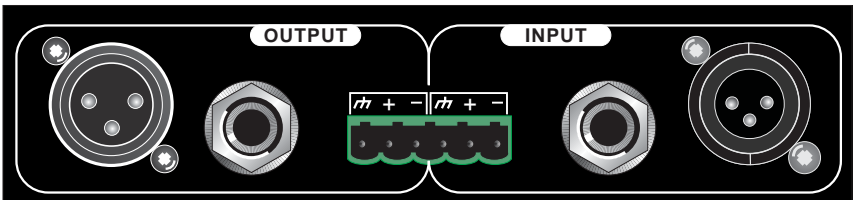
- Channel A Balanced XLR
- Channel A Unbalanced 1/4" TRS
- Channel A Balanced Euro Block

XLR Pin Wiring

- Pin 1: Common (shield / ground)
- Pin 2: Positive
- Pin 3: Negative

IMPORTANT:

The CQ15/CQ31 accepts line level input signals upto +23dB. *Do not* connect your power amplifier outputs to the CQ15/CQ31's inputs as this will damage the internal circuitry and will *not* be covered under warranty!

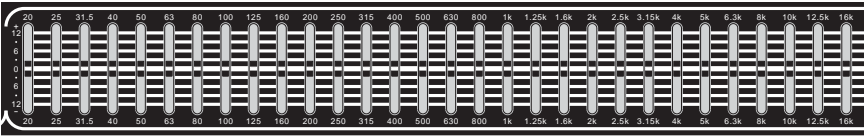
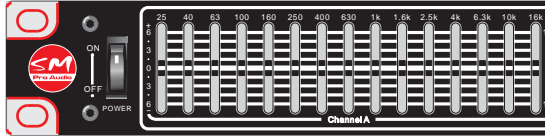


GRAPHIC EQUALIZER CONTROLS

The CQ15 features 15 adjustable frequency bands per channel spaced at 2/3-octave intervals. The CQ31 features 31 adjustable frequency bands spaced at 1/3-octave. Both units offer the same complement of controls.

Faders

Raise the fader above the 0dB line to boost EQ at the chosen band; lower the fader to attenuate the EQ.

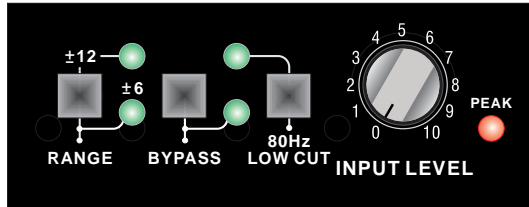


Range

Use to set the throw of the frequency band faders to ± 6 dB or ± 12 dB

Bypass

Removes the equalization circuit from the audio path, allowing the signal to pass through unprocessed



80Hz Low Cut

When enabled, filters out frequencies below 80Hz

Input Level

Use to adjust the level of the signal being routed to the equalization circuitry

Peak LED

Flashes on when source signal exceeds recommended input level

OPTICAL COMPRESSOR

The CQ15/CQ31 offers significantly greater functionality than traditional graphic equalizers thanks to the inclusion of an optical compressor on each audio channel. The compressor can be used to tame transient peaks without needing to adjust the EQ, to tighten up the source signal's low end, or to smooth out a live mix—the applications are virtually limitless!

Comp

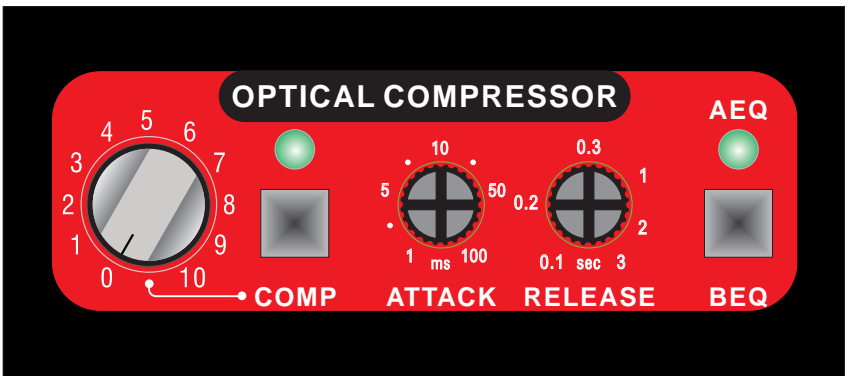
Use this rotary control to set the compression ratio. Ratio expresses the constant difference between the input and output signal levels, with higher ratios resulting in greater reductions in dynamic range. For example, a compression ratio of 5:1 means that when the input level increases by 5dB, the output level will increase by only 1dB.

Compression On/Off Switch & LED Indicator

Turns the compressor on or off. When off, the compression circuit is completely removed from the signal path, i.e., true bypass. The LED shows compressor's on/off status.

Attack

Use to set the time (in milliseconds) it takes the compressor to respond to the input signal and apply gain reduction. Set short attack times to control the level of transients peaks. Longer attack times allow more signal to pass through before the compressor engages, resulting in a punchier sound.



OPTICAL COMPRESSOR CONT.'

Release

The release control sets the time (in seconds) that it takes for the compressor to return to 0dB gain reduction in the absence of a source signal. Short release times create a more exaggerated effect ("pumping and breathing"), whereas long release times produce a more natural sound.

AEQ BEQ Switch and Status LED

Use this control to place the compressor in the signal path either before (BEQ) or after (AEQ) the equalizer. When the status LED is illuminated, the compressor is in AEQ mode.

Note that on the CQ15, all compressor settings are independent for each channel.



CQ15/CQ31 APPLICATIONS

Live Sound

The main use of a graphic equalizer in audio systems is to correct undesirable anomalies in the overall sound, such as reducing boominess in a venue that has excessive low end response or adding some "sparkle" to a room that is overly damped. A graphic EQ can also be used for overall "tone shaping," which could run the gamut from adding midrange definition vocals to refining the overall sound of a mix. To a more limited extent, a graphic EQ can also be used to control feedback.

Since the CQ15 and CQ31 both include optical compressors, greater flexibility in both signal processing and control is available. For example, you can boost high frequencies to create clarity, while at the same time compressing the high frequencies so that the occasional transient peak won't harm your sound system (or your audience's ears!). You can also use the compressor to limit the dynamic range of a live mix, while at the same time maintaining complete tonal control.

Bass and Guitar Rigs

EQs and compressors have long been staples in guitar and bass rigs. With the CQ15/CQ31 you have the convenience of both processors in a single rackmount unit. Dial in your tone with the EQ, then add punch and sustain with the compressor.

WARRANTY

SM Pro Audio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year from the original date of retail purchase, in accordance with the warranty regulations. If any defects occur within the specified warranty period that are not caused by normal wear or inappropriate use, SM Pro Audio shall, at its sole discretion, either repair or replace the product.

WARRANTY REGULATIONS

- Warranty is enforceable only by the original retail purchaser.
- Warranty services will be furnished only if the product is accompanied by an original retail dealer's invoice. Any product deemed eligible for repair or replacement by SM Pro Audio under the terms of this warranty will be repaired or replaced at SM Pro Audio's sole discretion.
- If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country that is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship.
- The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, SM Pro Audio shall not be held responsible for any cost resulting from such a modification/adaptation.
- Free inspections, maintenance/repair work, and replacement of parts are expressly excluded from this warranty, in particular if caused by inappropriate use. Likewise, the warranty does not cover defects of expendable parts caused by normal wear of the product. Expendable parts are typically pots, potentiometers, switches and similar components.
- Damages/defects caused by the following conditions are not covered by this warranty: Misuse and/or abuse; Neglect or failure to operate the unit in compliance with the instructions given in the user or service manuals; Connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used; Damages/defects that are caused by any other condition beyond the control of SM Pro Audio.
- Repairs and modifications performed by unauthorized personnel will void the warranty.
- Products that do not meet the terms of this warranty will be repaired solely at the buyer's expense. SM Pro Audio will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 4 weeks after notification, SM Pro Audio will return the unit C.O.D. with a separate invoice for freight and packing. Such cost will also be invoiced separately when the buyer has sent in a written repair order.

CLAIM FOR DAMAGES

Failure of SM Pro Audio to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of SM Pro Audio exceed the invoiced value of the product.

OTHER WARRANTY RIGHTS

This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

RETURN AUTHORIZATION NUMBER

To obtain warranty service, you must contact SM Pro Audio for a Return Authorization number **before** returning the product (Tel.: +61 3 9555 8081; service@smproaudio.com). All inquiries must be accompanied by a description of the problem. **No products will be accepted for warranty service without a Return Authorization number**

The product must be returned in its original shipping carton, together with the Return Authorization number, to:

SM Pro Audio Service Department, W25 26-28 Roberna St., Moorabbin, Melbourne, Victoria, Australia 31892.

If the warranty claim proves to be justified, the product will be returned freight prepaid by SM Pro Audio within Australia.

Outside of Australia, please contact your local distributor for a Return Authorization number and shipping instructions.

CLAIM FOR DAMAGES

Failure of SM Pro Audio to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of SM Pro Audio exceed the invoiced value of the product.

CQ15 FEATURES

- 2 x 15 Bands of Equalization
- Selectable $\pm 6\text{dB}$ / $\pm 12\text{dB}$ Fader Range per Channel
- Optical Compressor per Channel w/ Adjustable Input Level, Compression Ratio, Attack, Release, and Selectable Pre-EQ / Post-EQ Operation
- 80Hz Low Cut Filter (per Channel)
- 2 x Balanced XLR Inputs
- 2 x Balanced / Unbalanced 1/4" TRS Inputs
- 2 x Balanced XLR Outputs
- 2 x Balanced / Unbalanced 1/4" TRS Outputs
- 2 x Balanced Euro Block Input / Output

CQ31 FEATURES

- 31 Bands of Equalization
- Selectable $\pm 6\text{dB}$ / $\pm 12\text{dB}$ Fader Range
- Optical Compressor w/ Adjustable Input Level, Compression Ratio, Attack, Release, and Selectable Pre-EQ / Post-EQ Operation
- 80Hz Low Cut Filter
- 1 x Balanced XLR Input
- 1 x Balanced / Unbalanced 1/4" TRS Input
- 1 x Balanced XLR Output
- 1 x Balanced / Unbalanced 1/4" TRS Output
- 1 x Balanced Euro Block Input / Output

SM PRO AUDIO CQ15/CQ31

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