

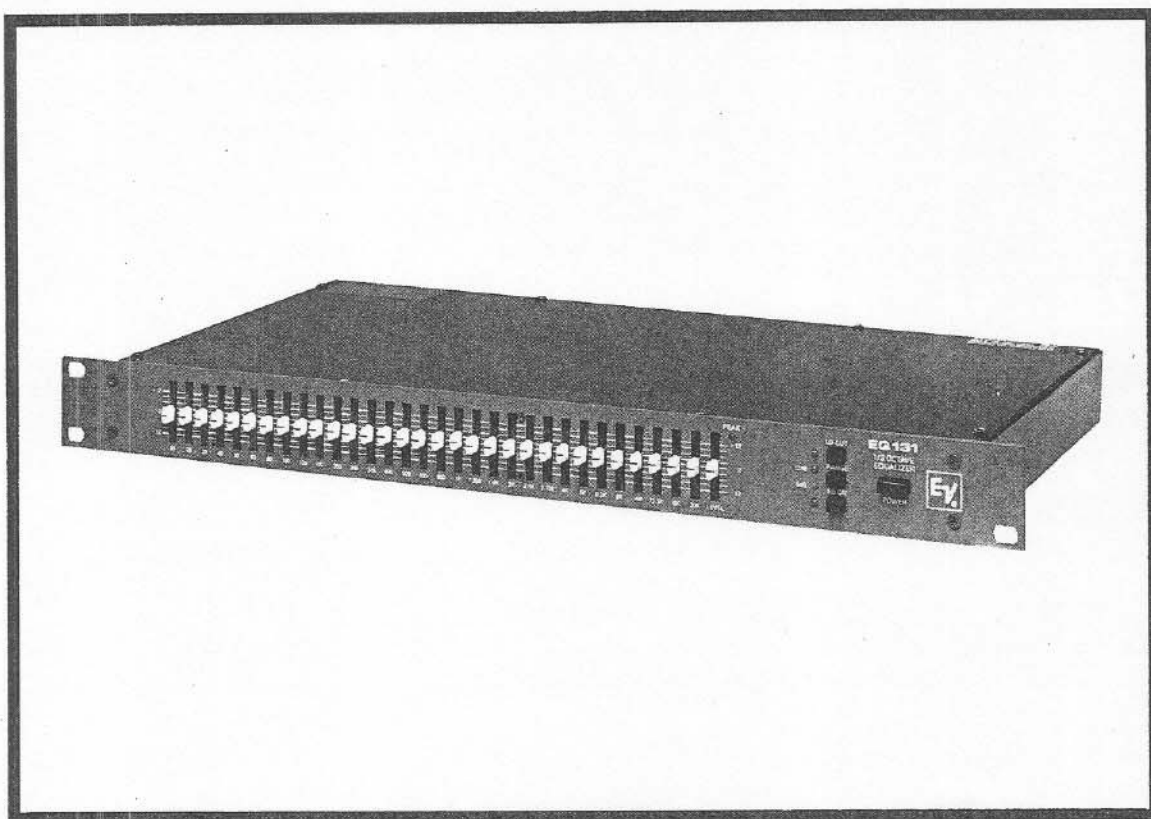


Electro-Voice®

EQ-131

31 Band 1/3 Octave Equalizer

OWNER'S OPERATION AND SERVICE MANUAL



1 ELECTRICAL

1.1 110 vac, 50/60 Hz Power Connections

The EQ-131 is provided with the primary of the power transformer selected for 110 vac operation from the factory.

NOTE: Verify that the ac line voltage is in accordance with the selected voltage rating before connecting the equalizer to the ac line.

1.2 220 vac, 50/60 Hz Power Connections

The EQ-131 may be powered from 220 vac line voltages by removing the fuse holder from the power receptical and then pulling the fuse clip out, turning it 180 degrees and reinserting it, making sure 220 shows in the fuse holder window. Next remove the 300 ma. fuse and install the 150 ma. fuse (found in the bag marked European) and then place the holder back in the power receptical.

1.3 Fuse Replacement

Should either fuse need replaced it must be replaced by one of the same type and rating for the power connections being used. See below:

300ma 250v (110 vac line)
150ma 250v (220 vac line)

2 INSTALLATION

2.1 Rack Mounting

The EQ-131 may be installed in a standard 19 inch equipment rack. It requires 1 3/4 inches of vertical rack space and mounting is accomplished by using the four rack mount screws provided.

2.2 Ventilation

The EQ-131 must be adequately ventilated to avoid excessive temperature rise. It should not be used in areas where the ambient temperature exceeds 50°C (122°F). To determine the ambient air temperature, operate the system in the rack until the temperature stabilizes. Measure the ambient air with a bulb-type thermometer held at the bottom of the uppermost unit. Do not let the thermometer touch the metal chassis because the chassis will be hotter than the ambient air. If the temperature exceeds 50°C (122°F), the equipment should be spaced at least 1 3/4 inches apart or a blower installed to provide sufficient air movement within the cabinet.

WARNING: Do not operate the equalizer within a completely closed, unventilated housing.

3 SIGNAL CONNECTIONS

3.1 Input Connections

Balanced input connections may be made to either the XLR female connector or the balanced phone jack. For single-ended inputs, strap pins 1 and 3 on the XLR connector or when using the balanced phone jack, strap the ring to the sleeve. Refer to Figure 1 for typical input connections.

3.2 Output Connections

Output connections are made to either the XLR male connector or the single circuit phone jack. For balanced output use the XLR connector. For unbalanced output use the phone jack. Refer to Figure 2 for typical output connections.

4 OPERATION

4.1 Front and Rear Panel Controls

FRONT PANEL

- BOOST/CUT slider control for frequency bands.
- PEAK. Peak indicator.
- LEVEL. Output level control.
- LO-CUT. Bass cut switch.
- EQ ON. Equalizer on/off switch.
- RANGE. Boost/Cut range switch.
- ON/OFF. Power switch.

REAR PANEL

- Electronically balanced inputs.
- Balanced/Unbalanced outputs.
- Ground-Lift-Switch.
- Fuse holder/ac line voltage selector.

4.2 BOOST/CUT Slider Adjustments

The primary tones of the bass drum, bass tuba, electric and acoustic bass guitar and the organ pedal clavier are affected mostly by the frequency bands 20 Hz through 100 Hz. In special cases the 63 Hz band can be used to filter out line hum (setting slider to max cut).

To modify lower vocals, drum fundamentals, upper bass, and lower bass instruments such as tuba and trombone use the frequency bands 125 Hz through 250 Hz. The 250 Hz band can be used for a slight boost, giving vocals added fullness where a degree of additional support is desired.

The frequency bands 315 Hz through 630 Hz affect the lower mid-range of musical material, such as the fundamental frequencies of voices, string and percussive in-

struments.

The frequency bands 800 Hz through 2 kHz and especially 1 kHz and 1.6 kHz bands enhance harmonics and fundamental frequencies of voices, strings, percussive, and keyboard instruments. These bands also accent the effects of flanging and phasing.

The 2.5 kHz through 6.3 kHz bands affect vocal fricatives, drums, and guitar. The use of these bands is highly dependent on the acoustical characteristics of the hall, its reverberation and sound absorption.

Cymbals and the synthesizer in particular will be markedly accentuated by boosts in the frequency bands 8 kHz through 20 kHz. By turning up the 8 kHz control, the presence of a singer's voice can, for example be reinforced. One possibility for reduction of noise in PA systems is to cut the 16 kHz and 20 kHz frequency range slightly.

4.3 PEAK Indicator

The PEAK indicator will light when the output level reaches a point 6dB below output clipping. The EQ-131 should be operated below this point.

4.4 LEVEL Control

The LEVEL control provides ± 6 dB or ± 12 dB of level control (from the detent position) only when all Boost/Cut sliders are in the detent position. The 6 and 12 dB ranges are determined by the RANGE switch.

4.5 LO-CUT Switch

When the LO-CUT switch is depressed the red LED will light, indicating the frequency response below 43 Hz will be rolled off at

18dB per octave.

4.6 EQ ON Switch

When the EQ ON switch is depressed the red LED will light, indicating the eq off position causes the equalizer to be by passed.

4.7 RANGE Switch

When in the 6dB position (red LED on) it will allow the sliders to adjust the boost and cut by approximately ± 6 dB. The 12dB position (green LED on) will likewise allow approximately a ± 12 dB boost and cut adjustment.

4.8 POWER Switch

Power is turned on or off by this switch.

4.9 Ground-Lift-Switch

Slide switch for eliminating hum from ground loops. Disconnects circuit chassis. If several units are installed in one rack, the switch should be set to "GROUNDED" on only one of the units.

5 IN CASE OF PROBLEMS

Please check the following items:

1. Verify that the EQ-131 is properly connected to an ac power source and that the source is active.
2. Verify that the input connections are properly made. Refer to Figure 1.
3. Verify that the output connections are properly made. Refer to Figure 2.
4. Check the input and output cables for proper wiring and continuity.
5. Check the signal source

and the load.

Check that the EQ-ON switch is in the ON position.

Installation and Operating Instructions for the EQ-131 31 Band 1/3 Octave Equalizer

6 SPECIFICATIONS

Filter Type: Constant Range Active filter set.

Number of Bands: 31 bands at ISO center frequencies: 20 Hz, 25 Hz, 32 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1.25 kHz, 1.6 kHz, 2 kHz, 2.5 kHz, 3.15 kHz, 4 kHz, 5 kHz, 6.3 kHz, 8 kHz, 10 kHz, 12.5 kHz, 16 kHz, 20 kHz

Input:

(Ref. 0dBv = 0.775Vrms)

Type: Electronically balanced

Impedance: 44K Ω balanced
22K Ω unbalanced

Normal level: 0dBv(0.775Vrms)

Maximum level: +20dBv(7.75Vrms)

Output:

(Ref. 0dBm = 0.775Vrms across 600 Ω)

Type: Electronically balanced

Impedance: 120 Ω balanced
60 Ω unbalanced

Maximum level: 20dBm

Load Impedance: 600 ohms or higher

Peak Indicator: Red LED
+14dBu(6dB before clipping)

Frequency Response:

(Reference 1 kHz) 20 Hz-20 kHz \pm 1dB

Operating Gain: 0dB

Available Gain: \pm 6dB or \pm 12dB

High-Pass Filter: Switch selectable with Cutoff below 43 Hz and a slope of 18dB per octave.

THD: <0.01% from 20 kHz to 20 kHz, all bands at 0 dB

Noise: <-97dBm A-wtd, all bands at 0 dB

Controls: • 31 center detent slide controls at 1/3 octave center frequencies

from 20 Hz to 20 kHz, with selectable \pm 6dB or \pm 12dB boost/cut.

- LEVEL control with center detent
- LO-CUT select switch
- RANGE \pm 6dB or \pm 12dB select switch
- EQ-ON Equalizer ON select switch
- AC Power switch
- Ground-Lift-Switch

Connectors:

Input: Female XLR (balanced)
Phone jack (balanced)

Output: Male XLR (balanced)
Phone jack (unbalanced)

AC Power: 110, 220 vac 50/60Hz 18 Watts

Operating Temperature

Range: Up to 50°C (122°F)

Dimensions: 44 mm (1.73 in.) high;
483 mm (19.0 in.) wide;
235 mm (9.24 in.) deep

Net Weight: 3.4kg (7.0lbs)

Enclosure:

Rack Mount Chassis (1 3/4 inch rack space)

Accessories:
(Included)

- Power cord
- One pkg. of mounting screws
- One pkg. of rubber feet
- One decal and fuse for 230 vac line operation
- One EQ-131 Installation and Operating Instructions

Electro-Voice continually strives to improve its products and their specifications. Therefore, all specifications are subject to change without notice.

ELECTRO-VOICE UNIFORM WARRANTY STATEMENT

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunctions occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; (e) malfunction occurring at any time after repairs have been made to the product by anyone other than Electro-Voice or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from Electro-Voice at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831) and/or Electro-Voice West at 8234 Doe Avenue, Visalia, CA 93291 (209/651-7777). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have rights which vary from state to state.

Electro-Voice Electronics are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from date of original purchase. Additional details are included in the Uniform Limited Warranty statement.



EQ-131

31 BAND 1/3 OCTAVE EQUALIZER

SERVICE INSTRUCTIONS

*****CAUTION*****

No user serviceable parts inside. hazardous voltage and currents may be encountered within the chassis. The service information contained within this document is for use only by ELECTRO-VOICE authorized warranty stations and qualified service personnel. To avoid 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.

9 SERVICE INFORMATION

CAUTION: *No user serviceable parts inside. Hazardous voltages and currents may be encountered within the chassis. The service information contained within this document is for use only by **ELECTRO-VOICE** authorized warranty stations and qualified service personnel. To avoid electric shock **DO NOT** perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Otherwise, refer all servicing to qualified service personnel.*

NOTE: *Modifications to **ELECTRO-VOICE** products are not recommended. Such modifications shall be at the sole expense of the person(s) or company responsible, and any damage resulting there from shall not be covered under warranty or otherwise.*

Figure 6 and figure 7 is the EQ-131 schematic. There are no internal adjustments which can be made.

9.1 Parts Ordering

To order replacement parts, look up the ordering number from the parts list and write or call:

Electro-Voice
600 Cecil Street
Buchanan, MI 49107 U.S.A.
(616) 695-6831
FAX(616) 695-1304
TWX: 810-270-3135

Electro-Voice West
8234 Doe Avenue
Visalia, CA 93291 U.S.A.
(209) 651-7777
FAX(209) 651-0164
TLX 172119

9.2 Factory Service

If factory service is required, ship the unit prepaid to:

Electro-Voice
600 Cecil Street
Buchanan, MI 49107 U.S.A.

Electro-Voice West
8234 Doe Avenue
Visalia, CA 93291 U.S.A.

Enclose a note describing the problem in as much detail as possible. Include other helpful information such as test conditions, where used, how used, etc.

9.3 Technical Assistance

For applications assistance/technical information, write or call:

Electro-Voice
600 Cecil Street
Buchanan, MI 49107 U.S.A.
(616) 695-6831
FAX(616) 695-1304
TWX: 810-270-3135

Electro-Voice West
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TLX 172119

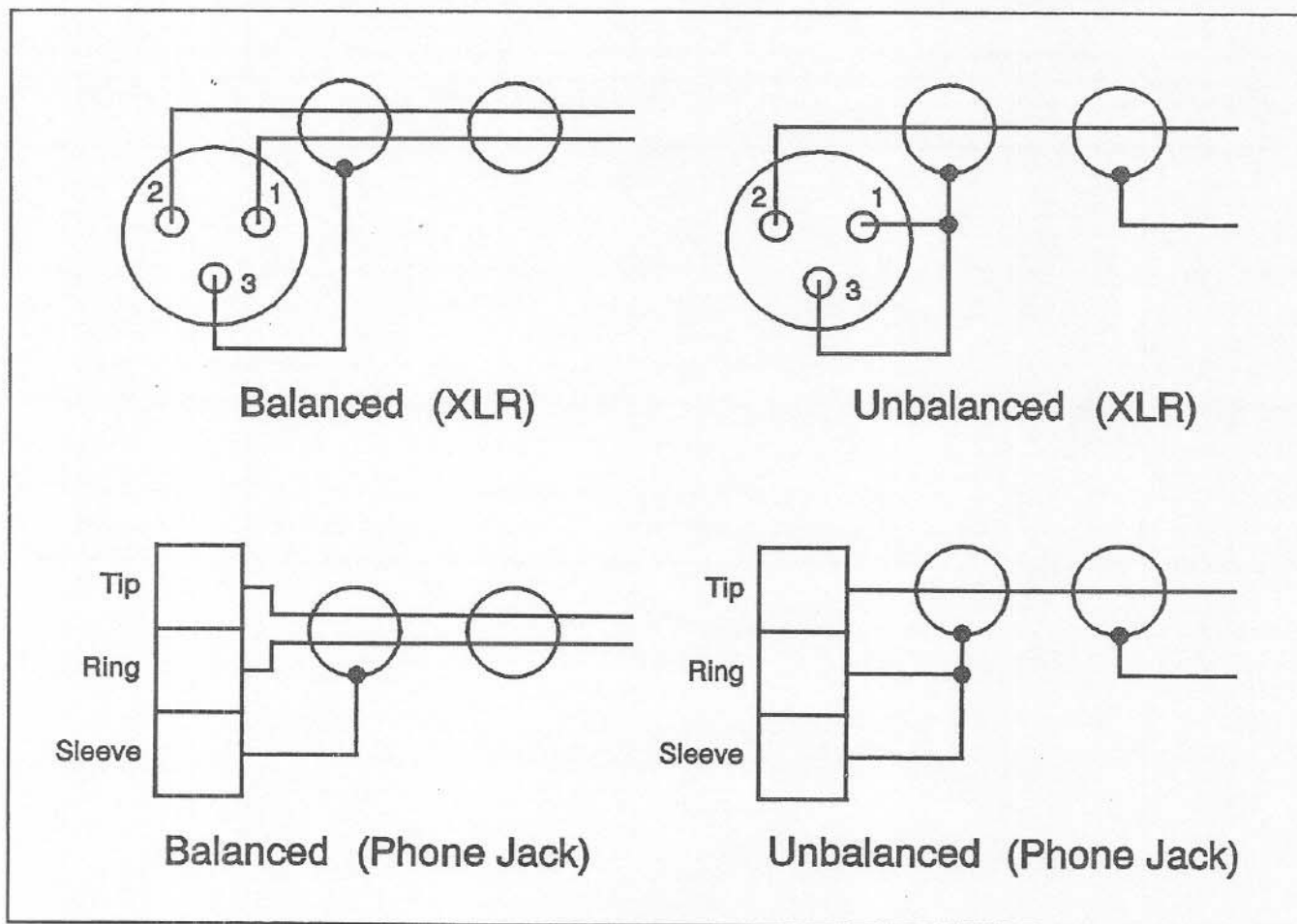


Figure 1 Input Connections

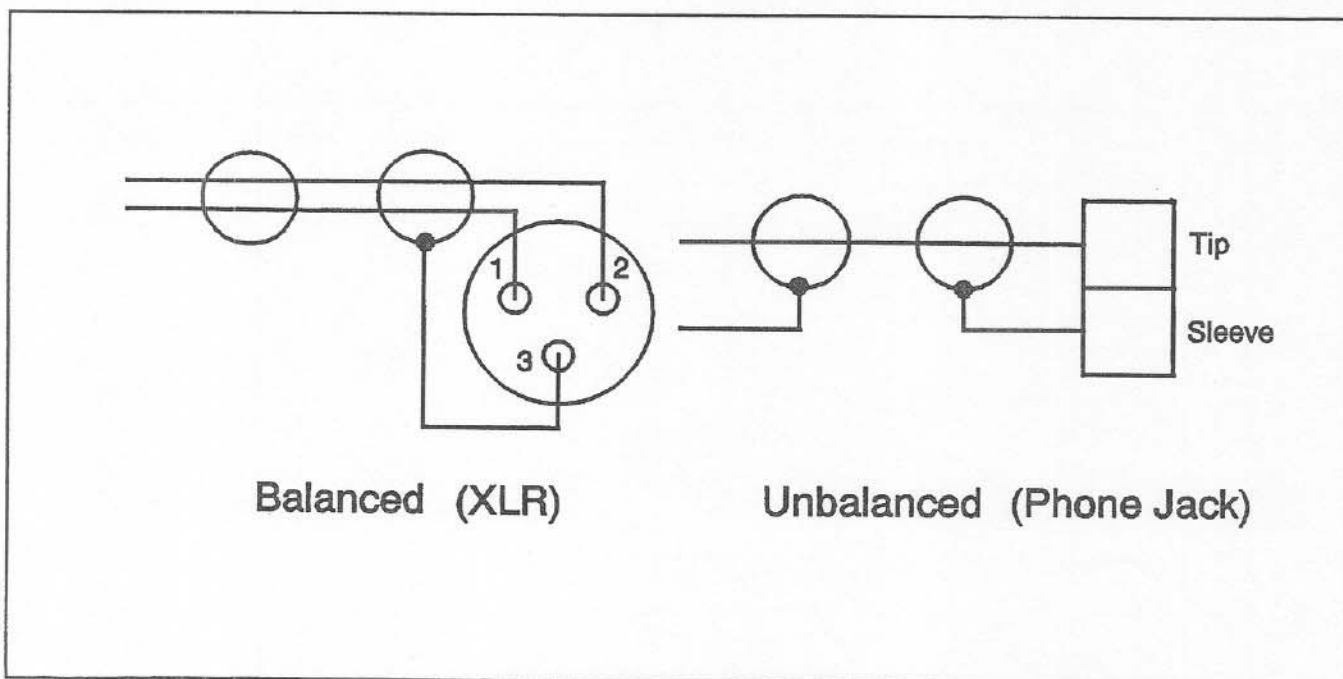
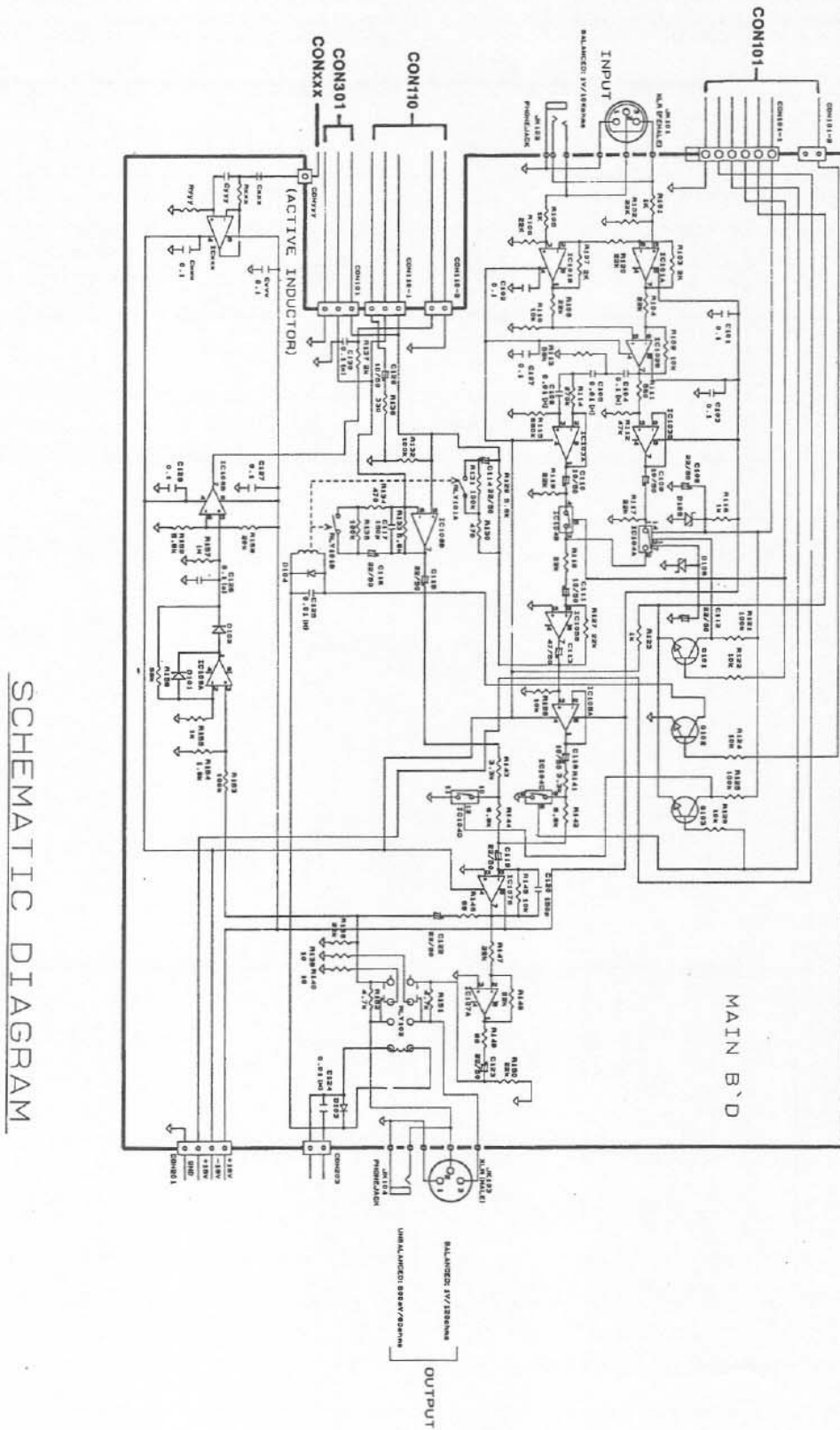


Figure 2 Output Connections

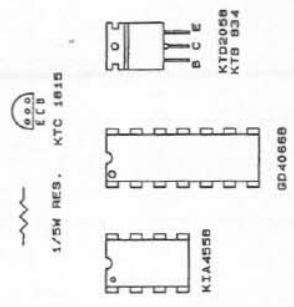


Schematic of EQ-131 Sheet 1 of 4

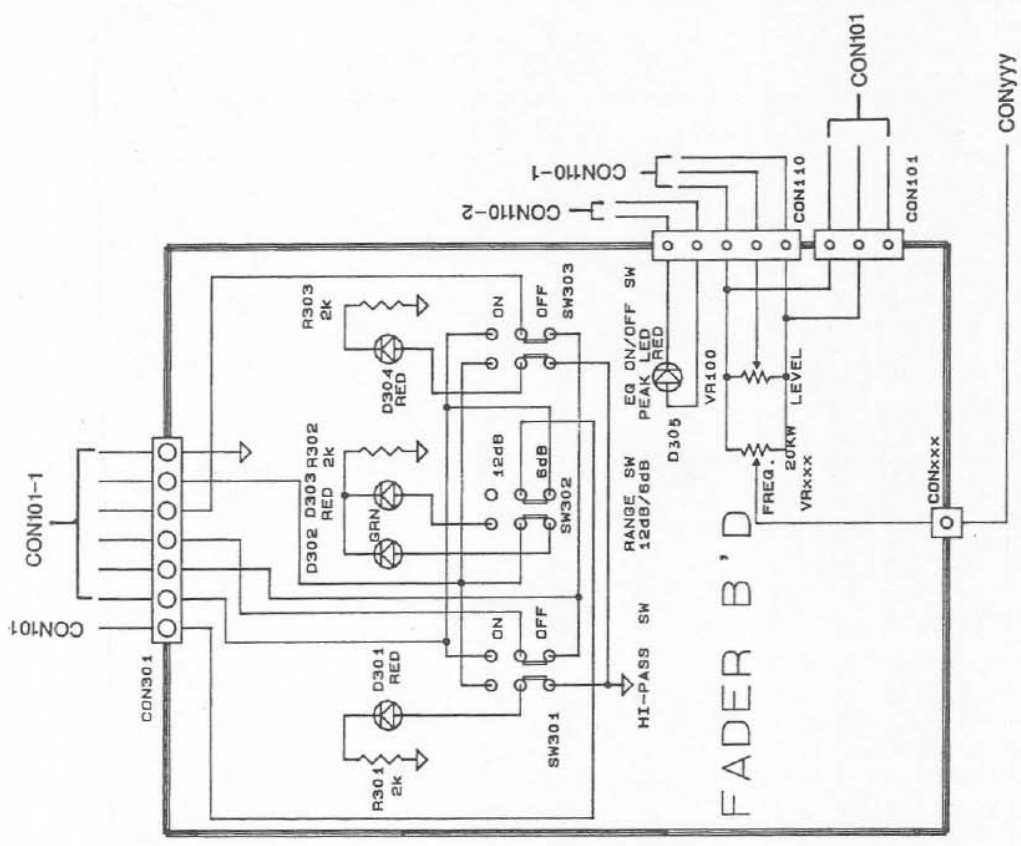
Installation and Operating Instructions for the EQ-131 31 Band 1/3 Octave Equalizer

(NOTE)

TOP VIEW

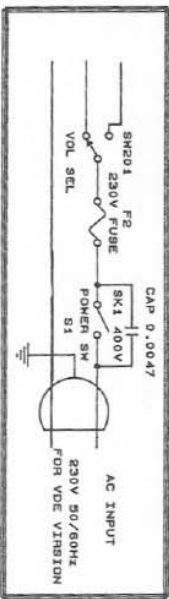
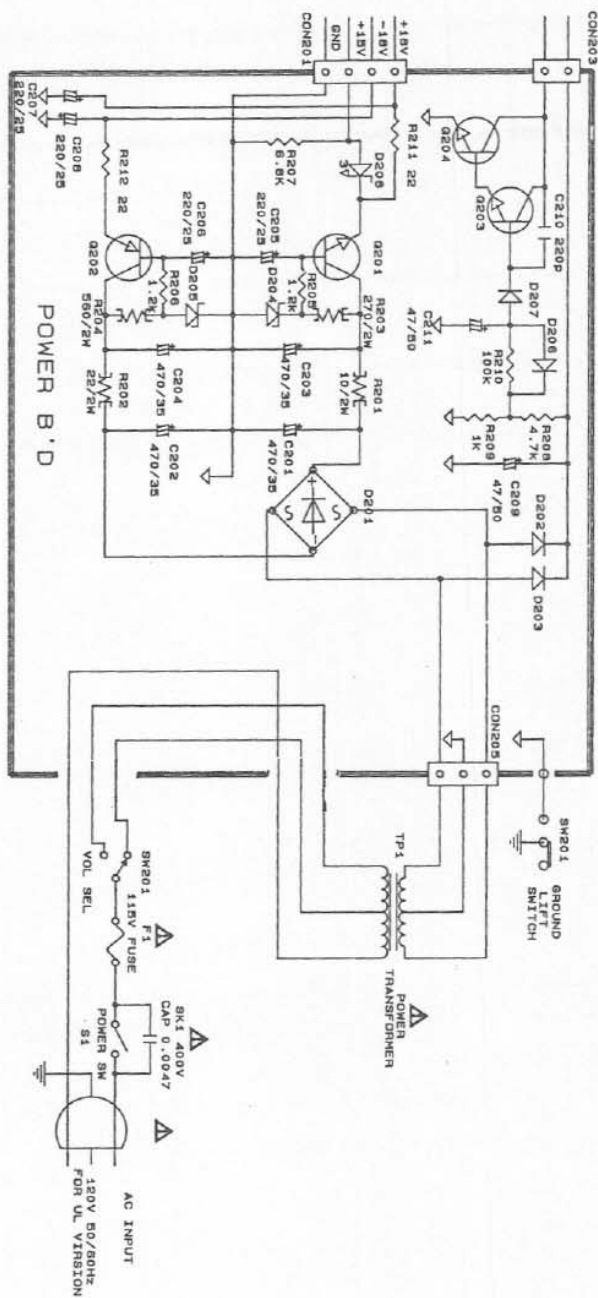


- IC 4556D JRC: IC101, IC102, IC103, IC105, IC108, IC401-IC418
- IC8532N RC: IC106, IC107, IC109
- IC 4066B BD: IC104
- TR KTC 3918 (1815): Q101, Q102, Q103, Q203, Q204
- TR KTD 205B (880): Q201
- TR KTB 834 : Q202
- DIODE IN 4008: D103, D104, D201W4, D202, D203
- DIODE IN 4148: D101, D102, D206, D207
- DIODE ZENER 188M: D204, D205
- DIODE ZENER 9.28M: D105, D106
- DIODE ZENER 3.08M: D208



Schematic of EQ-131 Sheet 2 of 4

Installation and Operating Instructions for the EQ-131 31 Band 1/3 Octave Equalizer



SERVICE INFORMATION

1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED. (K=1,000, M=1,000,000)
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED. (P=PICTO-MICROFARADS)
3. ALL VOLTAGES ARE REFERRED TO GROUND UNDER THE FOLLOWING CONDITIONS.
DC : NO SIGNAL EXCEPT WHERE INDICATED.
AC : RMS

4. -PRECAUTION-

- A) ALL COMPONENTS Δ MARKED MUST BE REPLACED ONLY WITH ORIGINAL TYPE SPECIFIED BY THE MANUFACTURER, INTEL PA CORPORATION AND INSTALLED AS THE ORIGINAL SPACERS AND POSITIONED ANY FROM ADJACENT COMPONENTS WHERE APPLICABLE.
- B) ALL SOLDERING MUST BE DONE IN A PROFESSIONAL MANNER USING SOLDER WHITE RESINE CORE ONLY.
- C) ALL COVERS, SHIELD AND INSULATING SPACERS MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER.
- D) A DAMAGE POWER SUPPLY CORD MUST BE REPLACED BEFORE RETURNING TO CUSTOMER.
- E) DIELECTRIC TEST CONSISTING OF 120V AC 60HZ IS TO BE APPLIED BETWEEN BOTH BALDES OF THE POWER SUPPLY CORD ATTACHMENT PLUG THE EXPOSE CONDUCTIVE SURFACE OF THE APPLIANCE FOR A PERIOD OF NOT LESS THAN ONE SECOND BEFORE RETURNING APPLIANCE TO CUSTOMER.
- F) THE $\text{---}\Delta\text{---}$ MARKED RESISTORS ARE MOUNTED THE P.C.B ON SLEEVES.

Schematic of EQ-131 Sheet 3 of 4

Installation and Operating Instructions for the EQ-131 31 Band 1/3 Octave Equalizer

Parts Value for Active Inductor

| Freq. | VRxxx | ICxxx | Cxxx | Cyyy | Cvvv | Cwww | Rxxx | Ryyy | CONxxx | CONyyy |
|-------|-------|--------|-------------|--------------|------|------|-----------|-------------|--------|--------|
| 20Hz | VR101 | IC401b | C701: 2.2u | C702: 0.47u | C764 | C763 | R701: 309 | R702: 196k | CON102 | CON102 |
| 25Hz | VR102 | IC401a | C703: 2.2u | C704: 0.47u | | | R703: 316 | R704: 124k | CON102 | CON102 |
| 32Hz | VR103 | IC402b | C705: 2.2u | C706: 0.47u | | | R705: 301 | R706: 78.7k | CON102 | CON102 |
| 40Hz | VR104 | IC402a | C707: 1.5u | C708: 0.33u | | | R707: 280 | R708: 115k | CON102 | CON102 |
| 50Hz | VR105 | IC403b | C709: 1u | C710: 0.22u | | | R709: 287 | R710: 158k | CON103 | CON103 |
| 63Hz | VR106 | IC403a | C711: 1u | C712: 0.15u | | | R711: 294 | R712: 143k | CON103 | CON103 |
| 80Hz | VR107 | IC408b | C729: 0.82u | C730: 0.15u | | | R729: 287 | R730: 110k | CON103 | CON103 |
| 100Hz | VR108 | IC408a | C731: 0.68u | C732: 0.1u | | | R731: 294 | R732: 127k | CON103 | CON103 |
| 125Hz | VR109 | IC404b | C713: 0.47u | C714: 0.068u | | | R713: 287 | R714: 179k | CON104 | CON104 |
| 160Hz | VR110 | IC404a | C715: 0.47u | C716: 0.068u | | | R715: 294 | R716: 105k | CON104 | CON104 |
| 200Hz | VR111 | IC409a | C727: 0.33u | C726: 0.047u | | | R725: 267 | R728: 105k | CON104 | CON104 |
| 250Hz | VR112 | IC409b | C725: 0.27u | C728: 0.068u | | | R727: 267 | R726: 120k | CON104 | CON104 |
| 315Hz | VR113 | IC405b | C717: 0.22u | C718: 0.047u | | | R717: 242 | R718: 102k | CON105 | CON105 |
| 400Hz | VR114 | IC405a | C719: 0.18u | C720: 0.033u | | | R719: 255 | R720: 105k | CON105 | CON105 |
| 500Hz | VR115 | IC410a | C723: 0.15u | C724: 0.022u | | | R723: 280 | R724: 110k | CON105 | CON105 |

| Freq. | VRxxx | ICxxx | Cxxx | Cyyy | Cvvv | Cwww | Rxxx | Ryyy | CONxxx; PINxxx |
|-------|-------|--------|---------------|---------------|------|------|-----------|-------------|----------------|
| 630Hz | VR116 | IC410b | C721: 0.1u | C722: 0.022u | | | R721: 243 | R722: 120k | CON105 CON105 |
| 800Hz | VR117 | IC406b | C737: 0.1u | C738: 0.015u | C765 | C767 | R737: 255 | R738: 102k | CON106 CON106 |
| 1K | VR118 | IC406a | C739: 0.068u | C740: 0.01u | | | R739: 255 | R740: 143k | CON106 CON106 |
| 1.25K | VR119 | IC411a | C743: 0.068u | C744: 0.0082u | | | R743: 261 | R744: 110k | CON106 CON106 |
| 1.6K | VR120 | IC411b | C741: 0.047u | C742: 0.0068u | | | R741: 255 | R742: 120k | CON106 CON106 |
| 2K | VR121 | IC407b | C733: 0.033u | C734: 0.0056u | | | R733: 242 | R734: 143k | CON107 CON107 |
| 2.5K | VR122 | IC407a | C735: 0.033u | C736: 0.0047u | | | R735: 249 | R736: 105k | CON107 CON107 |
| 3.15K | VR123 | IC412a | C747: 0.022u | C748: 0.0039u | | C766 | R747: 232 | R748: 127k | CON107 CON107 |
| 4K | VR124 | IC412b | C745: 0.022u | C746: 0.0033u | | | R745: 255 | R746: 82k | CON107 CON107 |
| 5K | VR125 | IC413b | C749: 0.015u | C750: 0.0027u | | | R749: 243 | R750: 102k | CON108 CON108 |
| 6.3K | VR126 | IC413a | C751: 0.012u | C752: 0.0022u | | | R751: 220 | R752: 110k | CON108 CON108 |
| 8K | VR127 | IC414b | C753: 0.0082u | C754: 0.0018u | | | R753: 205 | R754: 130k | CON108 CON108 |
| 10K | VR128 | IC414a | C755: 0.0068u | C756: 0.0015u | | | R755: 215 | R756: 115k | CON108 CON108 |
| 12.5K | VR129 | IC102a | C761: 0.0056u | C762: 0.0015u | | | R761: 237 | R762: 82k | CON109 CON109 |
| 16K | VR130 | IC415b | C757: 0.0047u | C758: 0.001u | | | R757: 294 | R758: 71.5k | CON109 CON109 |
| 20K | VR131 | IC415a | C759: 0.0033u | C760: 820p | | | R759: 261 | R760: 88.7k | CON109 CON109 |

Schematic of EQ-131 Sheet 4 of 4

Component Parts Listing for the EQ-131

| Reference Designator | Ordering Number | Name and Description |
|--|-----------------|---|
| C101, 102, 103, 107, 126, 127, 128, 130, 763, 764, 765, 766, 767 | 15-02-037884 | Capacitor, .1 μ F, +80-20%, 50V, Axial Ceramic |
| C104, 721, 732, 737 | 15-06-037885 | Capacitor, .1 μ F, 5%, 50V, Mylar |
| C105, 106, 124, 125, 740, | 15-06-037208I | Capacitor, .01 μ F, 5%, 100V, Mylar |
| C108, 112, 114, 115, 116, 119 | 15-01-037886 | Capacitor, 22 μ F, 50V Elect. |
| C109, 110, 111, 118, 129 | 15-01-037222 | Capacitor, 10 μ F, 50V |
| C113 | 15-01-026641 | Capacitor, 47 μ F, 50V |
| C117, 120, 133 | 15-02-037887 | Capacitor, 150 PF, 10%, 50V, Axial Ceramic |
| C122, 123 | 15-01-038331 | Capacitor, 100 μ F, 25V Elect. |
| C131, 132, 212 | 15-02-038072 | Capacitor, .01 μ F, +80-20%, 25V, Axial Ceramic |
| C701, 703, 705 | 15-01-037888 | Capacitor, 2.2 μ F, 50V Elect. |
| C702, 704, 706, 713, 715 | 15-06-037889 | Capacitor, .47 μ F, 5%, 50V, Mylar |
| C707 | 15-01-037890 | Capacitor, 1.5 μ F, 50v Elect. |
| C708, 727 | 15-06-037891 | Capacitor, .33 μ F, 5%, 50V, Mylar |
| C709, 711 | 15-06-037892 | Capacitor, 1 μ F, 5%, 50V, Mylar |
| C710, 717 | 15-06-037893 | Capacitor, .22 μ F, 5%, 50V, Mylar |
| C712, 723, 730 | 15-06-037894 | Capacitor, .15 μ F, 5%, 50V, Mylar |
| C714, 716, 728, 739, 743 | 15-06-037895 | Capacitor, .068 μ F, 5%, 100V, Mylar |
| C718, 726, 741 | 15-06-037896 | Capacitor, .047 μ F, 5%, 100V, Mylar |
| C719 | 15-06-037897 | Capacitor, .18 μ F, 5%, 50V, Mylar |
| C720, 733, 735 | 15-06-037898 | Capacitor, .033 μ F, 5%, 100V, Mylar |
| C722, 724, 745, 747 | 15-06-037211 | Capacitor, .022 μ F, 5%, 100V, Mylar |
| C725 | 15-06-037899 | Capacitor, .27 μ F, 5%, 50V, Mylar |
| C729 | 15-06-037900 | Capacitor, .82 μ F, 5%, 50V, Mylar |
| C731 | 15-06-037901 | Capacitor, .68 μ F, 5%, 50V, Mylar |
| C734, 761 | 15-06-037194 | Capacitor, .0056 μ F, 5%, 100V, Mylar |
| C736, 757 | 15-06-037902 | Capacitor, .0047 μ F, 5%, 100V, Mylar |
| C738, 749 | 15-06-037903 | Capacitor, .015 μ F, 5%, 100V, Mylar |
| C742, 755 | 15-06-037207 | Capacitor, .0068 μ F, 5%, 100V, Mylar |
| C744, 753 | 15-06-037904 | Capacitor, .0082 μ F, 5%, 100V, Mylar |
| C746, 759 | 15-06-037140 | Capacitor, .0033 μ F, 5%, 100V, Mylar |
| C748 | 15-06-037905 | Capacitor, .0039 μ F, 5%, 100V, Mylar |
| C750 | 15-06-037906 | Capacitor, .0027 μ F, 5%, 100V, Mylar |
| C751 | 15-06-037209 | Capacitor, .012 μ F, 5%, 100V, Mylar |
| C752 | 15-06-037192 | Capacitor, .0022 μ F, 5%, 100V, Mylar |
| C754 | 15-06-037139 | Capacitor, .0018 μ F, 5%, 100V, Mylar |
| C756, 762 | 15-06-037190 | Capacitor, .0015 μ F, 5%, 100V, Mylar |
| C758 | 15-06-037907 | Capacitor, .001 μ F, 5%, 100v, Mylar |
| C760 | 15-02-037908 | Capacitor, 820 PF, 10%, 50V, Axial Ceramic |
| C201, 202, 203, 204 | 15-01-037909 | Capacitor, 470 μ F, 35V Elect. |
| C205, 206, 207, 208 | 15-01-037910 | Capacitor, 220 μ F, 25V Elect. |
| C209, 211 | 15-01-037144 | Capacitor, 47 μ F, 50V Elect. |
| C210 | 15-02-037911 | Capacitor, 220 PF, 10%, 50V, Axial Ceramic |
| D101, 102, 206, 207 | 48-01-122601 | Diode, 1N4148 |
| D103, 104, 201-1, 201-2, 201-3, 201-4 | 48-01-027300 | Diode, 1N4006 |
| D105, 106 | 48-01-037912 | Diode Zener, 8.2V, 5%, .5W |
| D204, 205 | 48-01-113386 | Diode Zener, 18V, 5%, .5W |
| D208 | 48-01-037913 | Diode Zener, 3.3V, 5%, .5W |

| Reference Designator | Ordering Number | Name and Description |
|---|-----------------|---|
| D301, 303, 304, 305 | 39-01-037914 | LED, Red, KLR124 |
| D302 | 39-01-037915 | LED, Green, EL 204GD |
| Q101, 102, 103, 203, 204 | 48-03-026624 | Transistor, NPN, KTC 1815Y |
| Q201 | 48-03-037916 | Transistor, NPN, KTD 2058Y |
| Q202 | 48-03-037917 | Transistor, PNP, 834Y |
| R101, 105, 116, 123, 155 | 47-01-037121I | Resistor, 1 k Ω , \pm 5%, 1/5 W, C.F. |
| R102, 104, 106, 108, 117, 118, 119, 120, 127, 138 147, 148, 150 | 47-01-037919 | Resistor, 22 k Ω , \pm 5%, 1/5 W, C.F. |
| R103, 107, 137, 301, 302, 303 | 47-01-037920 | Resistor, 2 k Ω , \pm 5%, 1/5 W, C.F. |
| R109, 110, 122, 124, 126, 128, 145 | 47-01-037169I | Resistor, 10 k Ω , \pm 5%, 1/5 W, C.F. |
| R111, 209 | 47-01-037423 | Resistor, 560 Ω , \pm 5%, 1/5 W, C.F. |
| R112 | 47-01-037258 | Resistor, 47 k Ω , \pm 5%, 1/5 W, C.F. |
| R113 | 47-01-037175 | Resistor, 56 k Ω , \pm 5%, 1/5 W, C.F. |
| R114 | 47-01-037921 | Resistor, 270 k Ω , \pm 5%, 1/5 W, C.F. |
| R115 | 47-01-037365 | Resistor, 680 k Ω , \pm 5%, 1/5 W, C.F. |
| R121, 125, 131, 132, 135 153, 210 | 47-01-037126 | Resistor, 100 k Ω , \pm 5%, 1/5 W, C.F. |
| R129, 133, 159 | 47-01-037255 | Resistor, 5.6 k Ω , \pm 5%, 1/5 W, C.F. |
| R130, 134 | 47-01-037210 | Resistor, 470 Ω , \pm 5%, 1/5 W, C.F. |
| R136 | 47-01-037159 | Resistor, 330 Ω , \pm 5%, 1/5 W, C.F. |
| R139, 140 | 47-01-102030 | Resistor, 10 Ω , \pm 5%, 1/5 W, C.F. |
| R141, 143 | 47-01-037254 | Resistor, 3.3 k Ω , \pm 5%, 1/5 W, C.F. |
| R142, 144, 207 | 47-01-037922 | Resistor, 6.8 k Ω , \pm 5%, 1/5 W, C.F. |
| R146, 149 | 47-01-037422 | Resistor, 68 Ω , \pm 5%, 1/5 W, C.F. |
| R151, 152, 208 | 47-01-037166 | Resistor, 4.7 k Ω , \pm 5%, 1/5 W, C.F. |
| R154 | 47-01-037923 | Resistor, 1.8 k Ω , \pm 5%, 1/5 W, C.F. |
| R156 | 47-01-037259 | Resistor, 68 k Ω , \pm 5%, 1/5 W, C.F. |
| R157 | 47-01-108491 | Resistor, 1 M Ω , \pm 5%, 1/5 W, C.F. |
| R158 | 47-01-037172 | Resistor, 20 k Ω , \pm 5%, 1/5 W, C.F. |
| R701 | 47-03-038342 | Resistor, 309 Ω , \pm 1%, 1/5 W, C.F. |
| R702 | 47-03-037925 | Resistor, 196 k Ω , \pm 1%, 1/5 W, C.F. |
| R703 | 47-03-038341 | Resistor, 316 Ω , \pm 1%, 1/5 W, C.F. |
| R704 | 47-03-037926 | Resistor, 124 k Ω , \pm 1%, 1/5 W, C.F. |
| R705 | 47-03-038340 | Resistor, 301 Ω , \pm 1%, 1/5 W, C.F. |
| R706 | 47-03-037928 | Resistor, 78.7 k Ω , \pm 1%, 1/5 W, C.F. |
| R707, 723 | 47-03-038339 | Resistor, 280 Ω , \pm 1%, 1/5 W, C.F. |
| R708, 756 | 47-03-037930 | Resistor, 115 k Ω , \pm 1%, 1/5 W, C.F. |
| R709, 713, 729 | 47-03-037927 | Resistor, 287 Ω , \pm 1%, 1/5 W, C.F. |
| R710 | 47-03-037931 | Resistor, 158 k Ω , \pm 1%, 1/5 W, C.F. |
| R711, 715, 731, 757 | 47-03-037932 | Resistor, 294 Ω , \pm 1%, 1/5 W, C.F. |
| R712, 734, 740 | 47-03-037933 | Resistor, 143 k Ω , \pm 1%, 1/5 W, C.F. |
| R714 | 47-03-037935 | Resistor, 178 k Ω , \pm 1%, 1/5 W, C.F. |
| R716, 720, 728, 736 | 47-03-037198 | Resistor, 105 k Ω , \pm 1%, 1/5 W, C.F. |
| R717, 733 | 47-03-037936 | Resistor, 242 Ω , \pm 1%, 1/5 W, C.F. |
| R718, 738, 750 | 47-03-123017 | Resistor, 102 k Ω , \pm 1%, 1/5 W, C.F. |
| R719, 737, 739, 741, 745 | 47-03-038337 | Resistor, 255 Ω , \pm 1%, 1/5 W, C.F. |
| R721, 749 | 47-03-038335 | Resistor, 243 Ω , \pm 1%, 1/5 W, C.F. |

Installation and Operating Instructions for the EQ-131 31 Band 1/3 Octave Equalizer

| Reference Designator | Ordering Number | Name and Description |
|-------------------------------|-----------------|---|
| R722, 726, 742 | 47-03-037938 | Resistor, 120 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R724, 730, 744, 752 | 47-03-121457 | Resistor, 110 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R725, 727 | 47-03-038338 | Resistor, 267 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R732, 748 | 47-03-037940 | Resistor, 127 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R735 | 47-03-038336 | Resistor, 249 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R743, 759 | 47-03-037976 | Resistor, 261 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R746, 762 | 47-03-037941 | Resistor, 82 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R747 | 47-03-037937 | Resistor, 232 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R751 | 47-03-037943 | Resistor, 220 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R753 | 47-03-038332 | Resistor, 205 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R754 | 47-03-037945 | Resistor, 130 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R755 | 47-03-038333 | Resistor, 215 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R758 | 47-03-037947 | Resistor, 71.5 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R760 | 47-03-037948 | Resistor, 88.7 k Ω , $\pm 1\%$, 1/5 W, C.F. |
| R761 | 47-03-038334 | Resistor, 237 Ω , $\pm 1\%$, 1/5 W, C.F. |
| R201 | 47-01-037949 | Resistor, 10 Ω , $\pm 5\%$, 2 W, M.O. |
| R202 | 47-01-037950 | Resistor, 22 Ω , $\pm 5\%$, 2 W, M.O. |
| R203 | 47-01-037951 | Resistor, 270 Ω , $\pm 5\%$, 2 W, M.O. |
| R204 | 47-01-037413 | Resistor, 560 Ω , $\pm 5\%$, 2 W, M.O. |
| R205, 206 | 47-01-037371 | Resistor, 1.2 k Ω , $\pm 5\%$, 1/5 W, C.F. |
| R211, 212 | 47-01-037952 | Resistor, 22 Ω , $\pm 5\%$, 1/5 W, C.F. |
| RLY101, 102 | 45-01-037394 | Relay, RY24W |
| SK1 | 15-02-037953 | Capacitor, .0047 μ F, 400V (Spark Killer) |
| SW1 | 51-02-037954 | Switch, Power |
| SW201 | 51-02-037955 | Switch, Slide, S.P.D.T. |
| SW301, 302, 303 | 51-02-037956 | Switch, Push, 122SC |
| TP1 | 56-08-037957 | Transformer, Power |
| VR100-VR131 | 47-06-037958 | Potentiometer, Slider, 20 K Ω , RS2011106-20KW |
| F1 | 51-04-038357 | Fuse, 0.315A/250V NB, 20 MM, UL/CSA |
| F2 | 51-04-038356 | Fuse, 0.16A/250V NB, 20 MM, UL/CSA |
| AI1 | 21-02-037961 | Receptacle, AC Power |
| AC1 | 60-06-124962 | Cable, Power, 18GA 3 Cond. 120V |
| JACK101 | 21-01-037962 | Jack, XLR (Female) |
| JACK102 | 21-01-037963 | Jack, Phone |
| JACK103 | 21-01-037964 | Jack, XLR (Male) |
| JACK104 | 21-01-037965 | Jack, Phone (Mic) AM-8001 |
| IC101, 102, 103, 108, 401-415 | 17-01-038348 | Circuit, Integrated, 4558DD |
| IC105, 107, 109 | 17-01-038349 | Circuit, Integrated, 5532N |
| IC104 | 17-01-038347 | Circuit, Integrated, 4066B |
| | 24-04-038353 | Knob, (used on slider pots) |
| | 24-04-038354 | Knob, (used on SW301, 302, 303) |
| | 24-04-038355 | Knob, (used on SW1) |

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