

EB-4W Module

Clear-Com's EB-4W 4-Wire Option module can be added to the KB-211, KB-211GM, KB-212, and MR-202 products. This option allows the speaker or headset station to be operated over longer distances than are possible with a standard Clear-Com intercom line. This option can also be used to connect with fiber optic transmission equipment. The EB-4W 4-Wire Option module connection is a transformer-isolated, audio-only connection and does not convey the call signal. The module also requires local powering.

Two-channel stations can have two separate 4-wire connections with this option. The Channel Switch on the front panel selects which channel is connected.

Installation

The EB-4W plugs onto one- or two-channel speaker or headset stations as illustrated in Figure 1 on page 1.

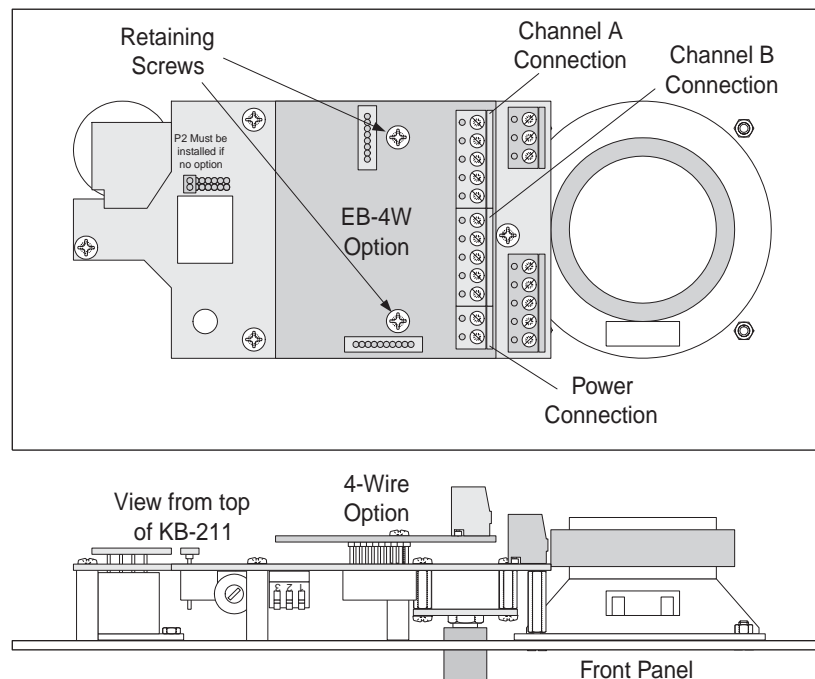


FIGURE 1: Installation Diagram

Use the following steps to install the EB-4W Option Module:

1. Remove the two screws from the station's main circuit board and replace them with the supplied jackscrews.
2. Remove plugs P1 and P3. Retain these plugs for possible future use.
3. Plug the EB-4W Option onto the main circuit board where P1 and P3 were plugged.
4. Fasten the EB-4W in place with the two screws removed in step 1.

Powering the Station

When the EB-4W is installed, the speaker or headset station requires local power, which can be obtained from the following sources:

- **16-VAC Doorbell Transformer**—This connection is especially useful if the headset or speaker station is installed in a wall. A the doorbell transformer can be attached to a separate box that will contain the power-line connection and the low-voltage 16 VAC can be routed to the connector on the EB-4W circuit board.

Note: Both 10-VAC and 16-VAC doorbell transformers are commonly available at hardware stores, but **only** the 16-VAC transformers are suitable.

Warning: Always follow local electrical codes. Do not install 120-V wiring in the same electrical box as the speaker or headset station.

- **14-VAC Wall Mounted Power Supply**—A Clear-Com wall-mount power supply (part number 400008) can be used for powering the station from 120 VAC. (Use part number 400011 for 220-VAC power.) This connection is a better choice. if the headset or speaker station is mounted in a desktop box, such as a Clear-Com V-Box, which is not contained in a wall.
- **24- to 28-VDC Source**—The headset or speaker station can be powered from a DC source, such as batteries.

Connect the two wires from the power source to the two-position, plug-on terminal strip supplied with the 4-Wire Option. Plug this connector onto the EB-4W circuit board as shown in Figure 1 on page 1.

Wiring the 4-Wire Module

The intercom line connector on the main circuit board does not function when the EB-4W is installed. Instead, the 4-wire intercom connections are made to the connectors on the EB-4W circuit board. For each channel, "Audio Out" and "Audio In," pairs are provided. Both are balanced, 600-ohm connections. The nominal line level is -6 dBv. An optional jumper can be installed if the receive signal is noisy. This adds a resistive termination to the receive Audio

In signal, reducing the level by 6 to 8 dB. Typical wiring is as shown in Figure 2 on page 3.

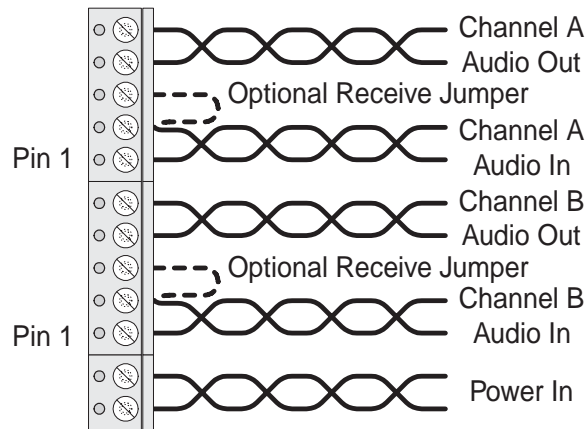


FIGURE 2: Typical EB-4W Wiring

- **4-Wire Intercom Line Connections:** When the EB-4W is used, the intercom connections to each channel are made to five-terminal plug-on connectors on the EB-4W circuit board instead of to the connector on the KB-211 circuit board. The connections for each pin are visible on the circuit board when the connector is unplugged. The connector pinout for each channel is as follows:
 - Pins 1 and 2—Intercom Audio Input (audio to the speaker or headset)
 - Pin 3—Optional Receive Jumper (used if receive signal is noisy)
 - Pins 4 and 5—Intercom Audio Output (audio from the microphone).

When the KB-212 is used, the 4-wire intercom connection must be made to the Channel B connector.

- **16 to 18 VAC Power**—When the EB-4W Module is used, the KB-211 will need to be powered locally. In permanent wall installations, a 16-VAC doorbell transformer will provide a convenient source of power. In V-Box installations, a 14- to 18-VAC, wall-mount transformer will suffice. The connections to this transformer are made to the two-terminal, plug-on connector on the EB-4W circuit board.

PARTS LIST

Parts List for the EB-4W PCB

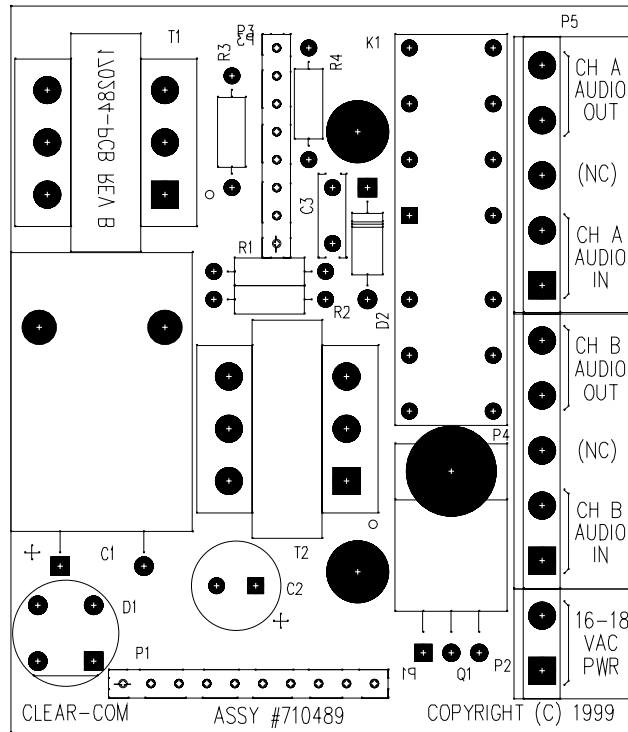


FIGURE 3: EB-4W PCB Component Layout Drawing

Capacitors

Value	Type	Voltage	Tol.	Part #	Designator
.1 uF	Monolithic	100V	10%	150085	C3
100 uF	Aluminum	35V		150136	C2
2200 uF	Aluminum	35V	20%	150163	C1

Resistors

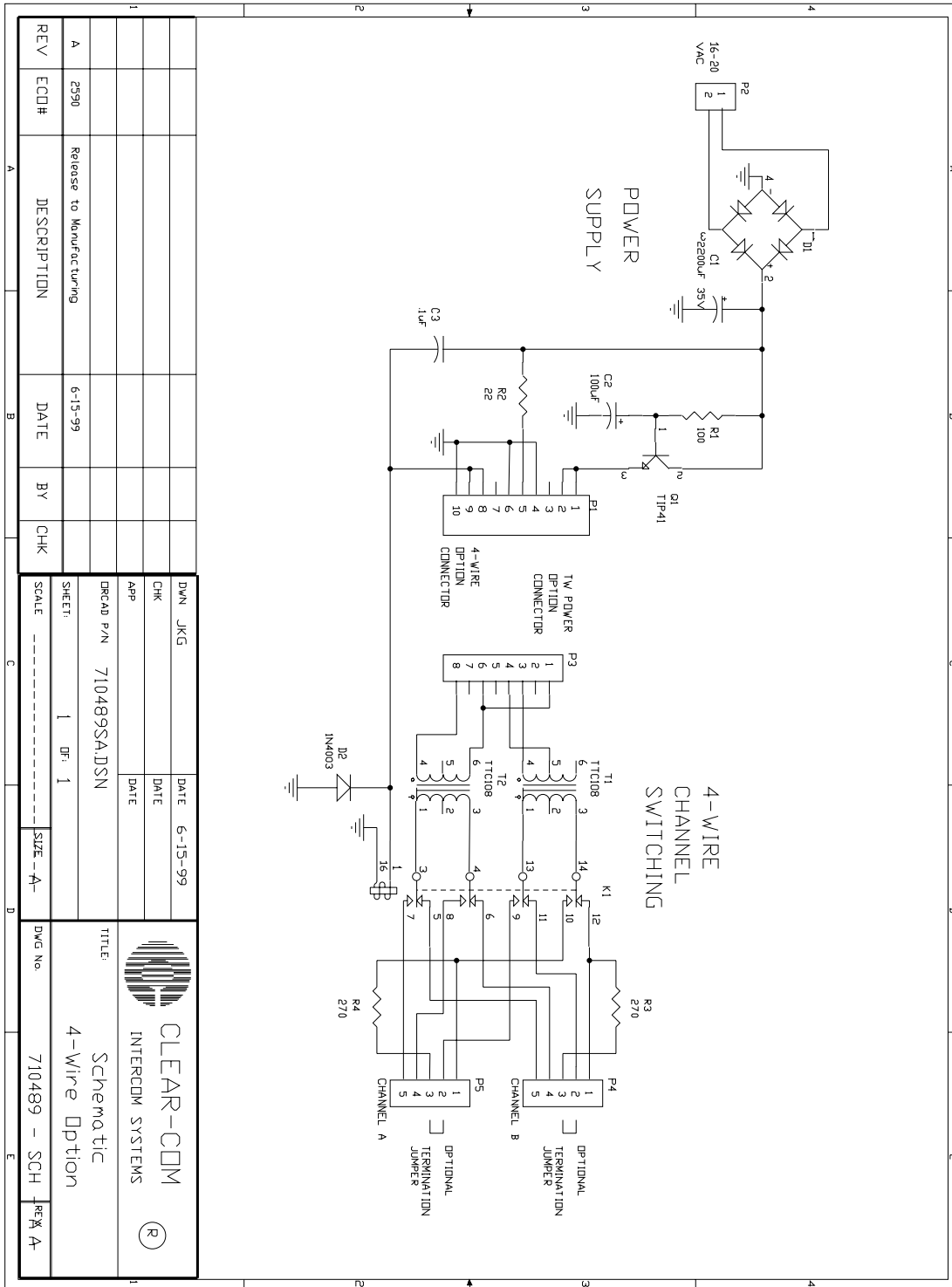
Value	Power	Type	Tol.	Part #	Designator
22 OHM	1/4	Carbon Film	5%	410004	R2
270 OHM	1/4	Carbon Film	5%	410009	R3 R4
100 OHM	1/4	Carbon Film	5%	410071	R1

Diodes and Transistors

Device	Description	Part #	Designator
Diode	1N4003 RECT 1A 200PIV	480058	D2
Transistor	TIP41 NPN 40V 6A TO-220 POWER	480099	Q1
Diode	1.5A 200V BRIDGE	480158	D1

Miscellaneous

Device	Description	Part #	Designator
Connector	5 POS HOUSING, SCREW TERM. PLUG-IN	210085	P4 P5
Connector	2 POS HOUSING, SCREW TERM. PLUG-IN	210369	P2
Relay	4PDT 24V RELAY PC MTG	450008	K1
Transformer	600CT/600CT PAN MAGNETICS #TTC108	560018	T2 T1



Clear-Com Limited Warranty

The Clear-Com warranty does not cover any defect, malfunction, or failure caused beyond the control of Clear-Com, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the manual, defective or improper associated equipment, attempts at modification and repair not authorized by Clear-Com, and shipping damage. Products with their serial numbers removed or defaced are not covered by this warranty.

This warranty is the sole and exclusive express warranty given with respect to Clear-Com products. It is the responsibility of the user to determine before purchase that this product is suitable for the user's intended purpose.

Any and all implied warranties, including the implied warranty of merchantability are limited to the duration of this express limited warranty. Neither Clear-Com nor the dealer who sells Clear-Com products is liable for incidental or consequential damages of any kind.

For your own records fill in the information below:

Model No _____ Serial No. _____

Date Purchased _____

Purchased from (dealer) _____

Address _____

City _____ State _____ ZIP _____

Factory Service

Do not return any equipment to the factory without first obtaining a Return Authorization Number.

All equipment returned for repair must be accompanied by documentation stating the return address, telephone number, date of purchase, and a description of the problem.

Send equipment to be repaired to:

**Customer Service Department
Clear-Com Intercom Systems
4065 Hollis Street
Emeryville, CA 94608-3505
Telephone: (510) 496-6666
Fax: (510) 496-6601**

Warranty Repairs

If in warranty, no charge will be made for the repairs. Equipment being returned for warranty repair must be sent prepaid and will be returned prepaid.

Non-Warranty Repair

Equipment that is not under warranty must be sent prepaid to Clear-Com. If requested, an estimate of repair costs will be issued prior to service. Once repair is approved and repair of equipment is completed, the equipment will be shipped freight collect from the factory.



4065 Hollis Street, Emeryville, CA 94608
(510) 496-6666 Fax (510) 496-6601
Manual Part Number 810255 Rev. B