

MODEL MRT327 USER STATION

MODULAR HEADSET & SPEAKER STATION / TWO CHANNEL OPERATION

RTS

**INTRODUCTION**

Model MRT327 is a two-channel, intercom user station that features a modular packaging technique. It can be utilized in any one of five package arrangements: (1) rack mount or (2) portable headset station, (3) rack mount or (4) portable speaker station (with inclusion of Model MCS325 Modular Speaker), and (5) console mount headset station. With its inherent operational simplicity, the MRT327 can be used to accommodate a variety of intercom applications.

Designed to work as a TW Intercom System user station, the MRT327 is compatible in 2-wire or 3-wire conference-line environments. It is normally powered from the TW Intercom line but can easily run off an alternate power source such as a battery or AC/DC line supply.

Using field proven circuitry, the MRT327 is a cost-effective user station unit that provides the essential operational functions as either a headset station or speaker station.

APPLICATIONS AND OPERATIONS

The MRT327, in its various package arrangements, can be used as a portable or fixed position user station. It can work as a headset-only station for private listening or with a speaker (and microphone) for open listening, freeing the user from wearing a headset. In the latter mode, a sidetone nulling adjustment prevents acoustic feedback between the speaker and the panel microphone.

The MCS325 Modular Speaker complements the MRT327 as a dedicated unit and can be attached in a side-by-side or stacked mounting arrangement. Moreover, the MCS325 can be placed at a distance from the MRT327 to optimize listening conditions as operationally beneficial (increases gain before feedback).

FEATURES

User oriented features include a microphone limiter circuit for equalizing levels, separate headphone and speaker amplifiers, silent channel-select switching, and simplified operational controls. The Microphone

On-Off switch functions in a momentary or latching manner depending upon the length of time the button is held down. A dedicated front panel LED indicates the switch status in either latched or momentary mode. If the microphone is remotely turned off via the "talk off" function, the LED will provide visual indication. The full range volume control sets the listen level to the headphone(s) or the loudspeaker (if employed).

A dedicated plug-in gooseneck microphone is available in a 12" or 20" length and can be field installed (or removed) as necessary.

CALL-SIGNAL

A call-signal feature serves to alert other stations on the same channel(s) while not interfering with the audio signals. An ultrasonic tone (20 kHz) is superimposed on the line by pressing the CALL switch, which triggers a flashing light on all stations. Each station can send and receive call-signals unless programmed to ignore this function.

The call-signal LED indicator light flashes when a call-signal is received. When a call-signal is sent from the MRT327, the red LED will indicate a steady state mode. The call-signal feature can be easily defeated by a circuit board mounted jumper wire.

TALK OFF FEATURE

The MRT327 features a remote "talk off" capability. This is especially handy when an absent user inadvertently leaves the talk switch(es) on in a noisy environment.

Functionally, an inaudible tone (24 kHz) is momentarily interjected into the line at any point in the system; this signal serves to turn off the talk gate on each station on the respective channel. Generally, this capability is assigned to a single person within the system although multiple tone sources can be used. RTS Systems Model ST24 Remote Switch Control is recommended although any audio tone generator operating at 24 kHz, when properly connected to the line, will also work.

Loss of power will also turn off the gates (when first turning on system power all talk gates will initially be in the off position).

MODEL MRT327 USER STATION

MODEL MRT327 SPECIFICATIONS

Headset Connector	XLR type 6-pin female [compatible with 5-pin]
Line Connector	
Input	XLR type 3-pin female
Loop/Ext.	XLR type 3-pin male
Speaker Output	1/4" TRS jack
Dimensions	1.72"H x 8.19"W x 8"D 43.6H x 208W x 203.2D mm
Weight	2.75 lbs., 1.3 kg
Material/Finish	Thermo-plastic front panel, aluminum case, light gray paint finish

See TW Intercom System Overview Technical Discussion for complete technical specifications.

ORDERING INFORMATION

Main components

MRT327 Modular User Station

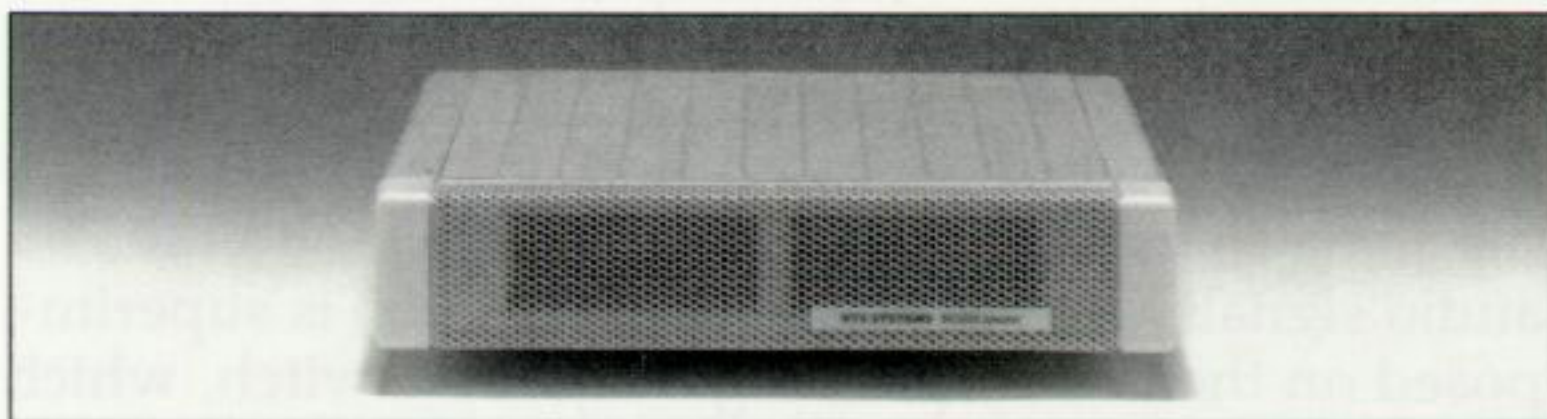
MCS325 Modular Speaker

Optional mounting and accessory components

- MCP1 Rack Mount Kit—includes 2 short rack ears, 2 link bars and fasteners
- MCP2 Rack Mount Kit—includes 1 short rack ear, 1 long rack ear and fasteners
- MCP3 Console Mount Kit—includes bezel frame, 2 short rack ears and fasteners
- MCP4 Tandem Mount Kit—includes stack brackets and fasteners
- MCP5 Panel Mount Microphone 12"
- MCP6 Panel Mount Microphone 20"
- MCP7 Hand-Held Microphone w/6-pin conn.
- MCP8 Side Channels (Pair)



MRT327 Rear View



MCS325 Modular Speaker

GROUPED COMPONENTS SCHEME

This group lists the most common package configurations. Other configurations can be created from standard MC main components and accessory components.

RACK MOUNT SPEAKER STATION

MRT327 ELECTRONICS
MCS325 SPEAKER
MCP1 RACK MOUNT KIT
MCP6 20" GOOSENECK MIC
-ALT: MCP5 12" GOOSENECK MIC

PORTABLE SPEAKER STATION

MRT327 ELECTRONICS
MCS325 SPEAKER
MCP4 TANDEM MOUNT KIT
MCP7 HAND-HELD MIC
-ALT: MCP5 OR MCP6 GOOSENECK MIC

RACK MOUNT HEADSET STATION

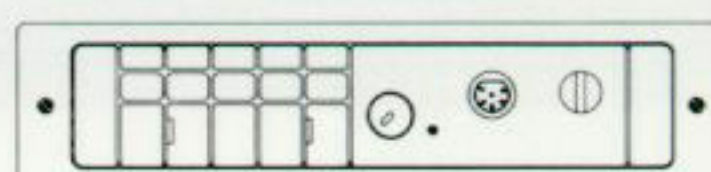
MRT327 ELECTRONICS
MCP2 RACK MOUNT KIT

CONSOLE MOUNT HEADSET STATION

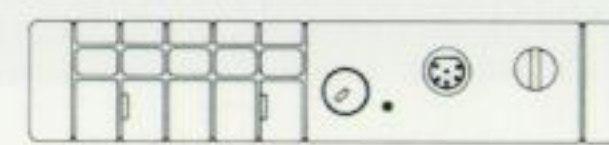
MRT327 ELECTRONICS
MCP3 CONSOLE MOUNT KIT

DESK-TOP HEADSET STATION

MRT327 ELECTRONICS
MCP8 SIDE CHANNELS



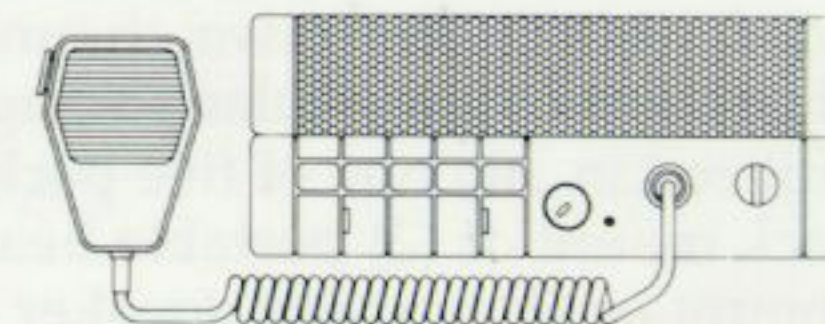
CONSOLE MOUNT HEADSET STATION



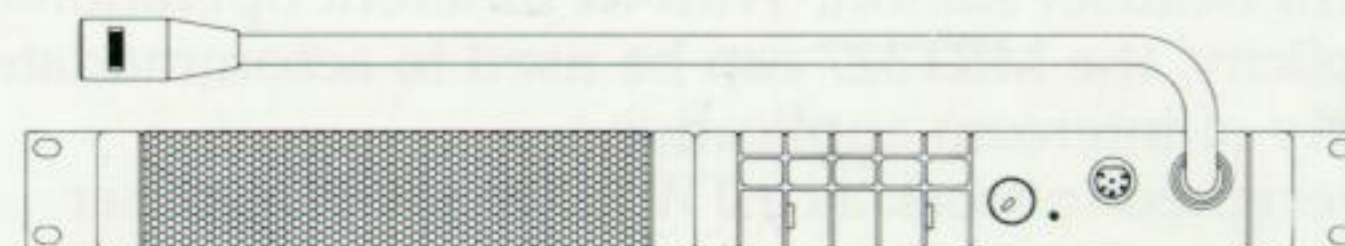
MRT327 USER STATION



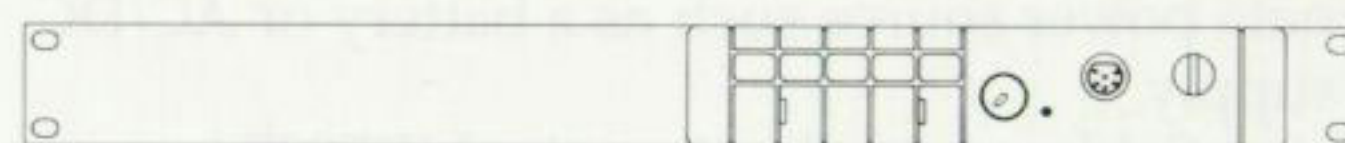
MCS325 MODULAR LOUDSPEAKER



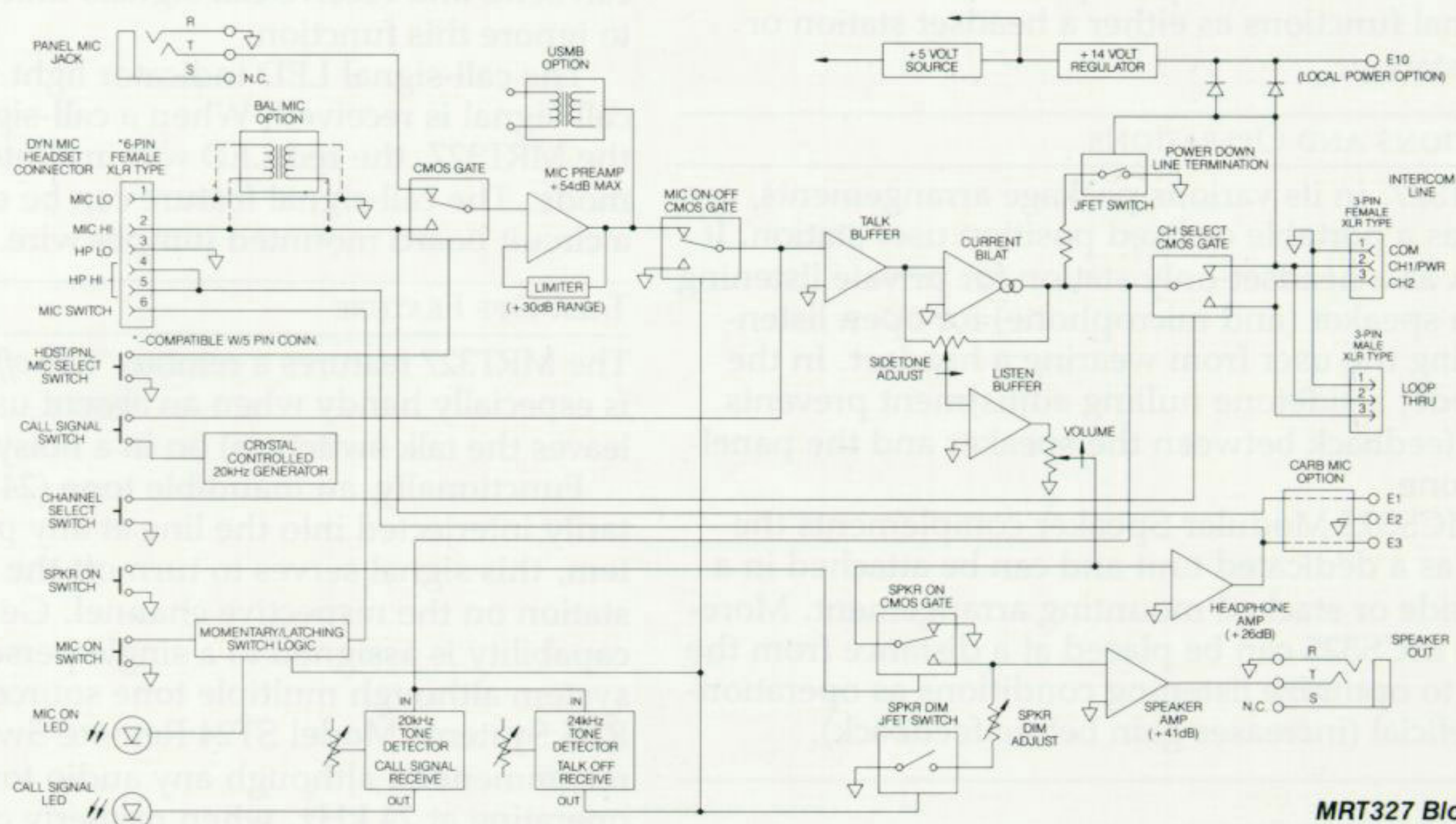
PORTABLE SPEAKER STATION



RACK MOUNT SPEAKER STATION



RACK MOUNT HEADSET STATION



MRT327 Block Diagram

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MODEL CCD214 CROSSTALK CANCELLATION DEVICE
MODEL ST24 REMOTE SWITCH CONTROL
MODEL TW5W SPLITTER, **MODEL CC62** CIRCUIT CARD

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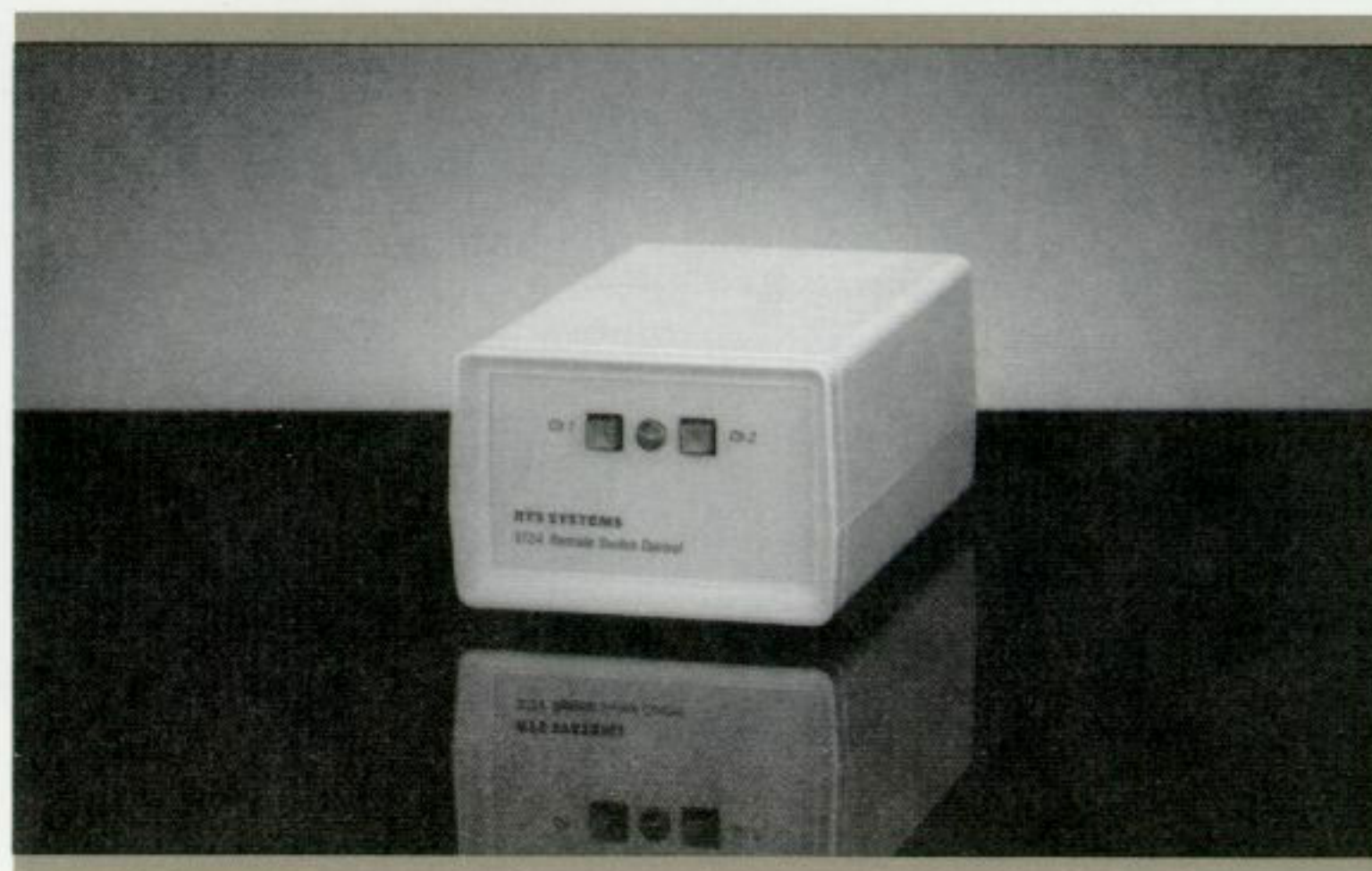
MODEL CCD214 CROSSTALK CANCELLATION DEVICE

The CCD214 is specifically designed to work within the TW Intercom System as an ancillary product. Its purpose is to reduce crosstalk between channels sharing the same cable pair. This crosstalk occurrence is primarily the result of cable capacitance between the wires and the shield. If system wiring is done per RTS Systems' recommendations, then the effect of cable capacitive will be negligible. Simply stated, this wiring technique involves using a separate cable pair for each channel. This applies to small and large system configurations.*

When it is not possible to implement advisable wiring techniques, the CCD214 can be used to cancel a significant amount of co-channel crosstalk.

Technically speaking, capacitive crosstalk from channel 1 to channel 2 is cancelled by sampling channel 1's signal, inverting and filtering it, and applying it to channel 2. This is also done from channel 2 to channel 1. The unwanted crosstalk signal is 20 to 60 decibels below the source channel signal, and has a spectrum which shows a rising amplitude until a pole is reached, then shows a falling amplitude thereafter. The spectrum looks like a mountain whose height is a function of the ratio of capacitance between the two wires to the capacitance of the wires to the shield. The mountain's peak location is at a frequency dependent on the amount of cable in the system. In a small system the peak is at 6000 hertz, in a large system the peak is at 2500 hertz. The crosstalk signal is in phase, and the cancellation signal is out of phase.

*Larger TW Intercom Systems are defined as systems which have a cumulative cable footage of 1000 to 10,000 feet.



MODEL ST24 REMOTE SWITCH CONTROL

The ST24 is a special purpose signal generator designed expressly for use in the TW Intercom System where late model user stations are employed. Models MCE325, BP325, and MRT327 incorporate a receive circuit that senses the presence of 24kHz on the line(s); in turn, the microphone circuit in each user station is turned off. This convenient feature can be used when a user station microphone is inadvertently left on in a noisy location and the operator cannot be summoned to turn off the mic switch; the ST24 can turn off the offending mic (and all other mic's) from any point on the line.

Several ST24's can be employed on single or multi-channel systems and can be installed at any point within the system. Generally, each unit is used for a pair of channels and interconnects in the same fashion as a user station.

The ST24 can work on two channels of unbalanced lines (TW Intercom System), or on a single balanced line channel (Series 800) when used in conjunction with TW Intercom components.

An LED indicator lights up when either channel button is pushed. As an optional feature, an internal jumper connection allows a single button to turn on both send circuits simultaneously. Additionally, the enclosure provides an unused cable exit strain relief for a user installed remote switch(es). Examples include foot switch operation or contact connection to an existing switch.

The ST24 operates on a single 9 volt battery with normal usage battery life of 3 months to a year; depending on battery type. Circuitry details include 24kHz crystal controlled frequency setting and an output that is compatible with the 200 ohm line.

MODEL TW5W SPLITTER
MODEL CC62 CIRCUIT CARD/CPK62 CIRCUIT CARD KIT

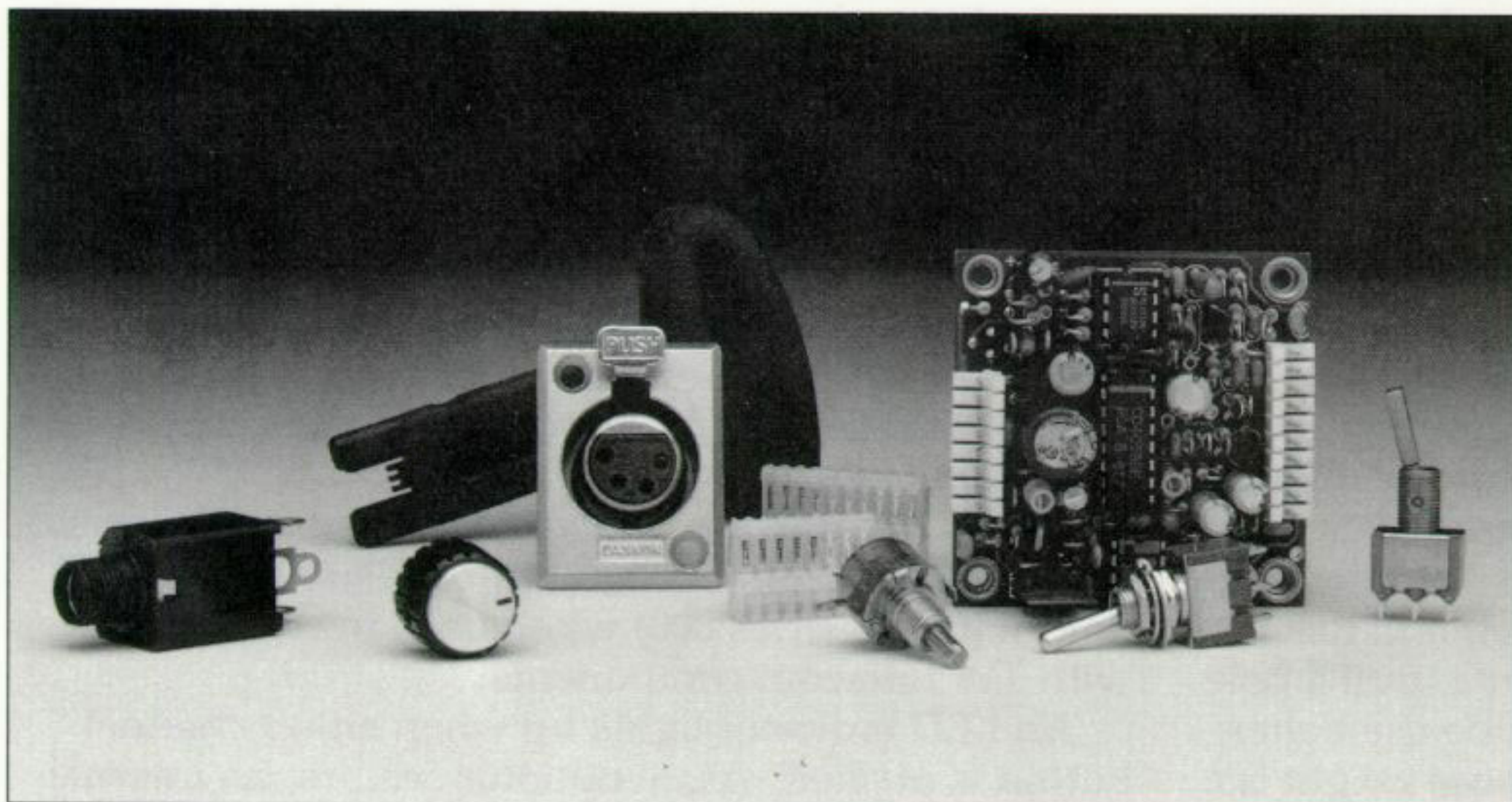


MODEL TW5W SPLITTER

The TW5W is a completely passive 1 x 5 connector splitter assembly that can be used to split a single incoming line into five separate outgoing lines. It features a rugged steel alloy case finished in a light gray enamel paint and measures 1.7" H x 6.0" W x 3.6" D. The input connector is an XLR-type 3-pin female and the five output connectors are XLR-type 3-pin males.

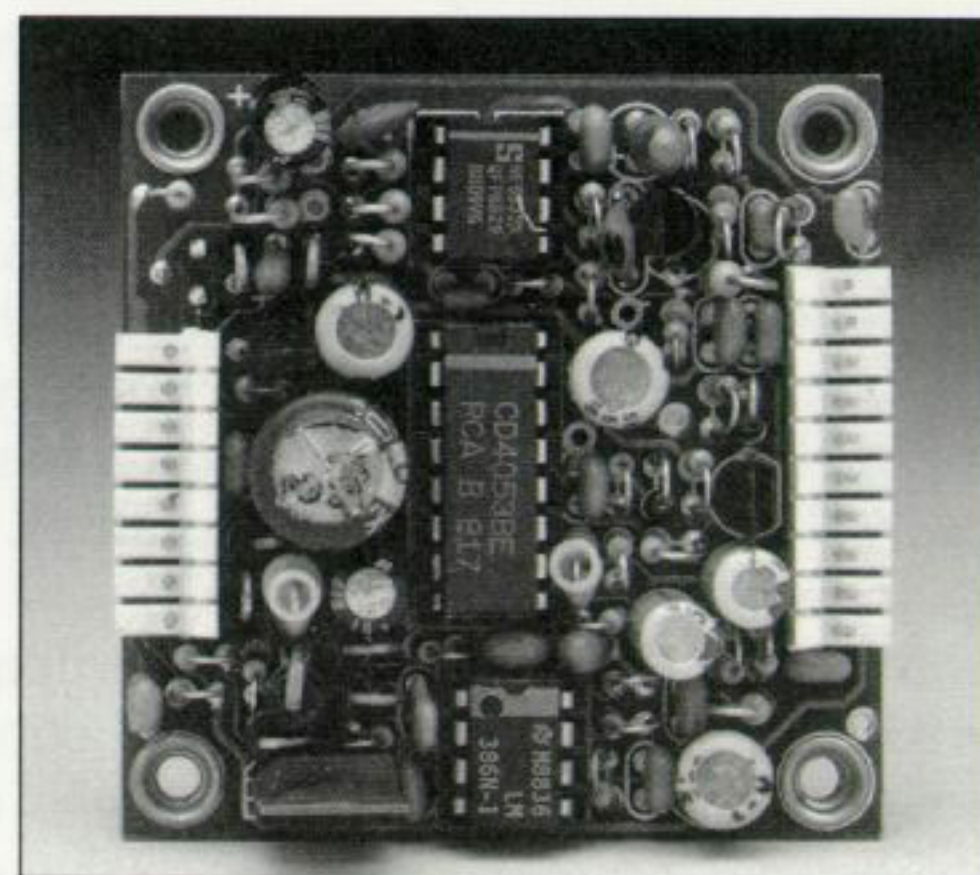
CIRCUIT CARDS

These cards are designed for the user who wishes to build a TW Intercom User Station into other equipment, such as a television camera, audio console, or a special package. Each card is factory tested and calibrated.



MODEL CPK62 HEADSET STATION CIRCUIT CARD KIT

Designed for user installed applications where a very small assembly is required. This kit provides all the necessary components to configure a complete TW Intercom user station. Included are Model CC62 Circuit Card, XLR type 4-pin female connector, TRS phone jack, volume control and knob, mic on-off switch, channel select switch, insulation displacement connectors and installation tool, pre-cut tinned wire and mounting hardware.



**MODEL CC62 HEADSET
Station Circuit Card**

A small-size plug-in circuit card (used in Model BP317) is designed for operation as a headset user station. It can be employed in another piece of equipment or a designated package to meet a specific space requirement. It measures 2" square by 1" in height and uses 2 Panduit insulation displacement connectors for interconnection to the operational controls and connectors. Dynamic mic or carbon mic headsets can be used while the unbalanced line can be 2, 3, or 4-wire mode. A program input port is also available.

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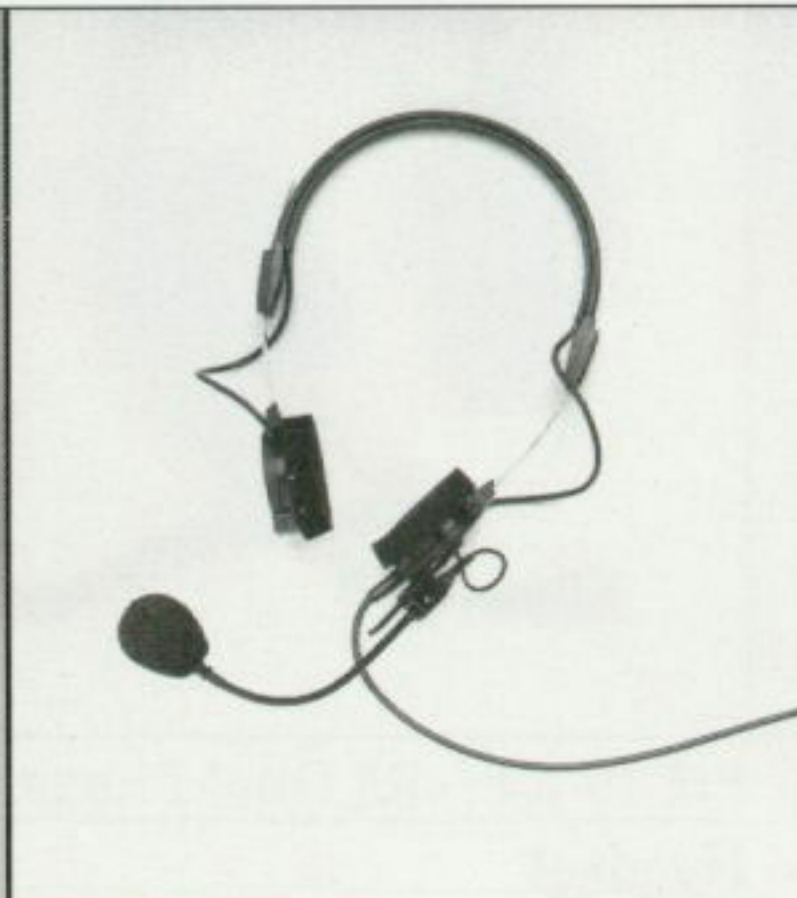
HR-1

The HR-1 is a medium weight single-sided noise reduction headset with dynamic microphone. It has a noise reduction rating of 21dB, and is suitable for use in moderately noisy environments. Two Cable terminations are available HR-1R5 = A5M, HR-1R = A4M.



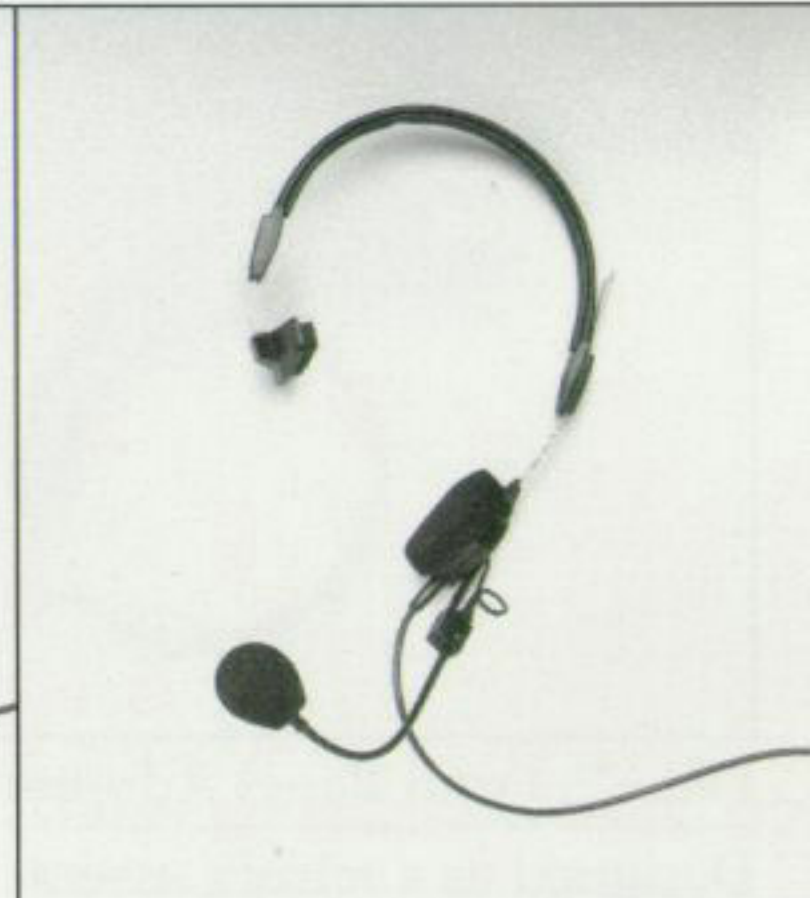
HR-2

The HR-2 is a medium weight dual-sided noise reduction headset with dynamic microphone. Features a unique headband design that distributes ear cushion pressure evenly, and folds to a compact shape for storage Cable terminations : HR-2R=A4M, HR-2R5=A5M.



PH-4 R4 / -R5 Dual Phone Headset

This super lightweight dual-sided headset offers open-air dynamic headphones and a noise cancelling dynamic microphone. The PH-4-R4 is wired for monaural operation, while the PH-5-R5 is wired for binaural operation on two channels. Two cable terminations are available: PH-4R = 4M; PH-5R = 5M.



PH-8 R4 / -R5 Single Phone Headset

This super lightweight single-sided headset offers an open-air dynamic headphone with a soft foam pad for all-day comfort. A noise cancelling dynamic microphone on a malleable boom arm can be positioned to suit any user. Two cable terminations are available: PH-8R = 4M; PH-8R5 = 5M.



PH-1 R4 / -R5 Dual Phone Headset

This single-sided headset offers a dynamic headphone with a foam filled cushion covered in soft polyurethane and cover sock. A noise cancelling dynamic microphone is attached to a continuously adjustable ball joint which allows placement on either side of the head. Two cable terminations are available: PH-1R = 4M; PH-1R5 = 5M.



PH-2 R4 / PH-3-R5 Dual Phone Headset

This dual-sided headset offers circumaural dynamic headphones and a noise cancelling dynamic microphone. The PH-2-R4 is wired for monaural operation, while the PH-3-R5 is wired for binaural operation on two channels. Two cable terminations are available: . PH-2R = 4M; PH-3R5 = 5M.



V-210

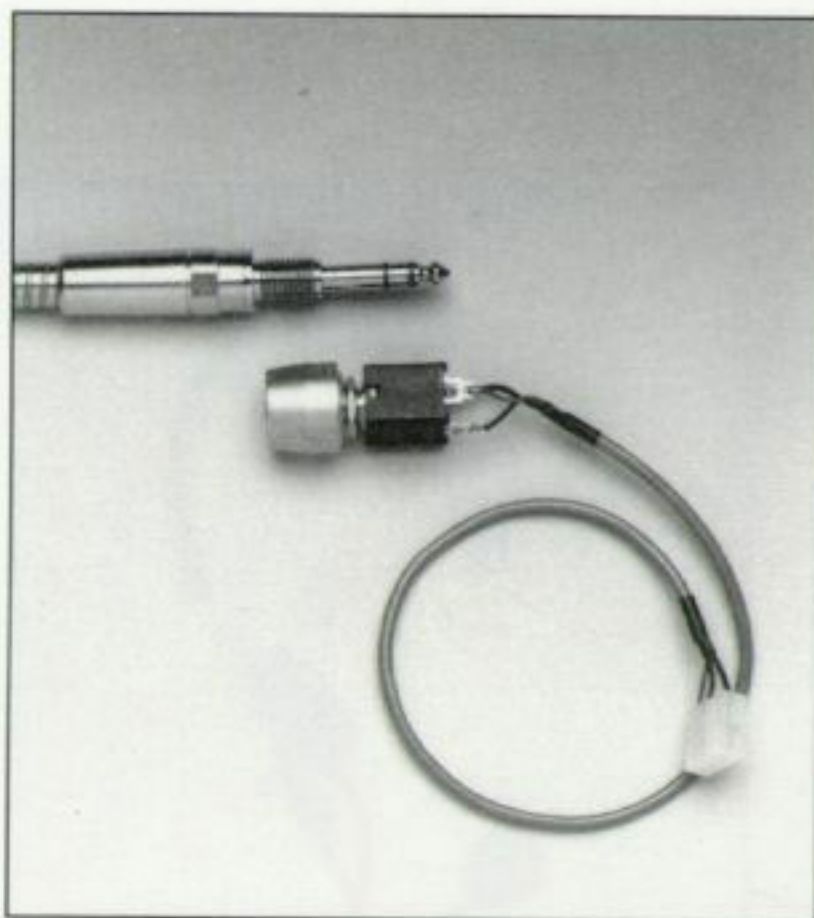
The V-210 single-sided headset is a high fidelity, studio quality headset that can be tailored to most any need using modular cord sets and microphones. Cable Terminations: V-210R = A4M, V-210R5 = A5M.



V-220

The V-220 dual-sided headset features unique floating earcups that adjust to virtually any headsize or shape which offers top audio response and noise reduction. Terminations: V-220R = A4M, V-220R5 = A5M.

HEADSETS, HANDSETS, MICROPHONES, EARSETS



FPA375 Front Panel Adapter

Designed as a retrofit assembly, this adapter allows an MCP5 or MCP6 plug-in gooseneck microphone to be used on almost any conventional user station. A series of option call-outs provide the proper cable and connector configuration for retrofitting existing user stations.



PH-10-R4 / -R5 Dual Phone Headset

This super heavy-duty headset offers snug fitting circum-aural headphones and a noise-cancelling dynamic microphone for use in high noise environments. The PH-10-R4 is wired for monaural operation, while the PH-10-R5 is wired for binaural operation. Two cable terminations are available: PH-10R = XLR-4 type plug; PH-10R5 = XLR-5 type plug.



PH-3500

The PH-3500 Passive Noise Reduction headset, weighing only 13.6 oz. With a noise reduction capability of 25 dB. Features a three position tension adjustment, stainless steel strengthened headbands, mono/stereo switch and an electret mic. Use w/BP325 carbon mic in.



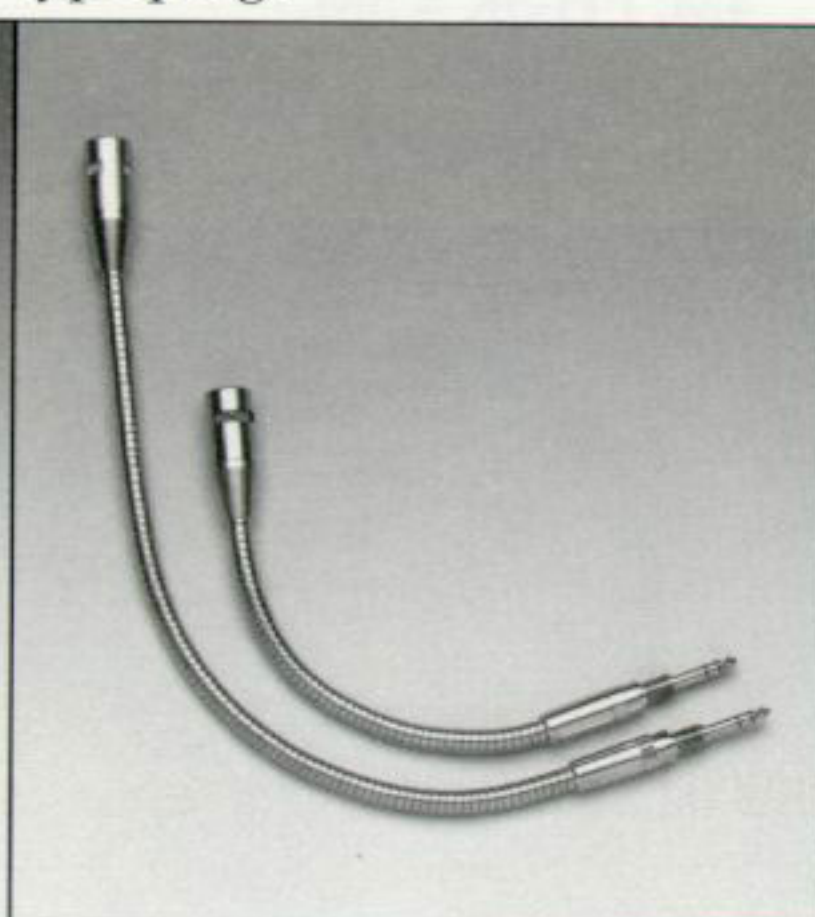
MCP7 Hand Held Microphone

This omnidirectional dynamic microphone is designed to work with newer RTS intercom products. The push-to-talk switch on the MCP7 directly controls the electronic mic switch in the user station. A 6-pin male XLR type connector terminates the 3' coiled cord.



HS6000 Handset

This standard style telephone handset offers a momentary action push-to-talk switch and an omnidirectional dynamic microphone. It is supplied with a cradle for vertical storage and can be used with most any user station. The 3' coiled cord is terminated with a 4-pin XLR type connector.



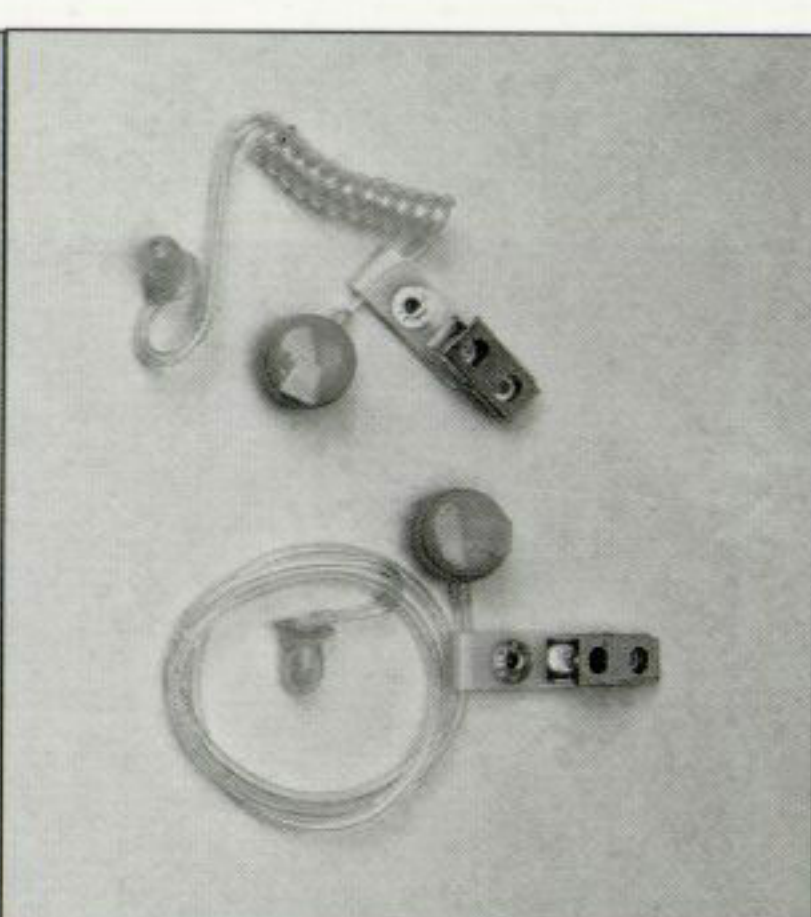
MCP5 / MCP6 Panel Mount Microphone

The MCP5, 12" length, and MCP6, 20" length, are designed expressly to be used with RTS intercom user stations. Both units feature a unidirectional electret microphone with mechanical shock isolation. The unique plug-in mounting feature allows the mic to be used directly with designated user stations, as well as conventional user stations – when employing the FPA375 adapter.



2233 Wide Response Announcer Earset

The 2233 is a 500 ohm medium impedance set for use with amplified or line-level signals. The earset comes complete with interchangeable component parts including receiver and ear-loop, 5 ft. neutral grey cable and 1/4 inch connector.



2234 Wide Response Announcer Earset

The 2234 is a 500 ohm medium impedance set for use with amplified or line-level signals. The earset comes complete with interchangeable component parts including receiver and ear-loop, 5 ft. neutral grey cable w/1/4 inch connector, and coiled acoustical interface tube.

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