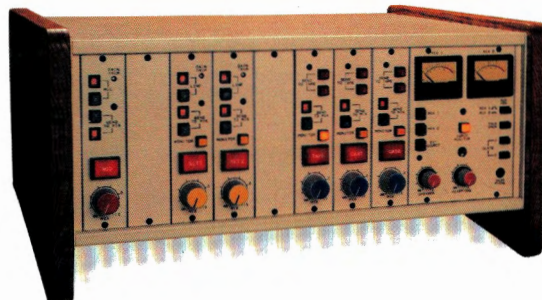


PACIFIC RECORDERS & ENGINEERING

STEREOMIXER



NEWSMIXER



ON JANUARY 1, 1996

*PACIFIC RECORDERS
& ENGINEERING CORPORATION BECAME
PACIFIC RESEARCH
& ENGINEERING CORPORATION.*

*THIS NAME UPDATE IS A REFLECTION OF
PACIFIC RESEARCH & ENGINEERING'S
ON-GOING COMMITMENT OF DESIGNING
LEADING-EDGE AUDIO PRODUCTS FOR THE
BROADCAST INDUSTRY.*

**COMPACT
STEREO AUDIO
BROADCAST MIXERS**

STEREOMIXER

FULL FEATURED BROADCAST CONSOLE...
IN A RACK



STEREOMIXER

A full featured stereo broadcast console in a compact package; ideal for dubbing, public affairs, talk show and production studios.

The compact modular appearance of the Stereomixer masks a high performance, rack mountable, audio mixer incorporating many of the features of our larger BMX Series consoles. The mainframe housing needs only seven inches of rack space and may also be supplied with hardwood end panels for desktop applications.

The Stereomixer was developed to meet a wide variety of broadcast needs: public affairs, talk shows, remotes, music and commercial dubbing, auxiliary production, on-air and even stereo news.

To meet any conceivable operational requirement you may have, we designed four separate types of input modules: Microphone Input, Stereo Line Input, Tape Recorder Input/Output, and Telco Input/Output.

Additionally, the Stereomixer can accommodate accessory modules such as Remote Line Selectors, Mono and Stereo Equalizers, and Voice Processors. All eight positions in the mainframe are universal, accepting any combination of input and

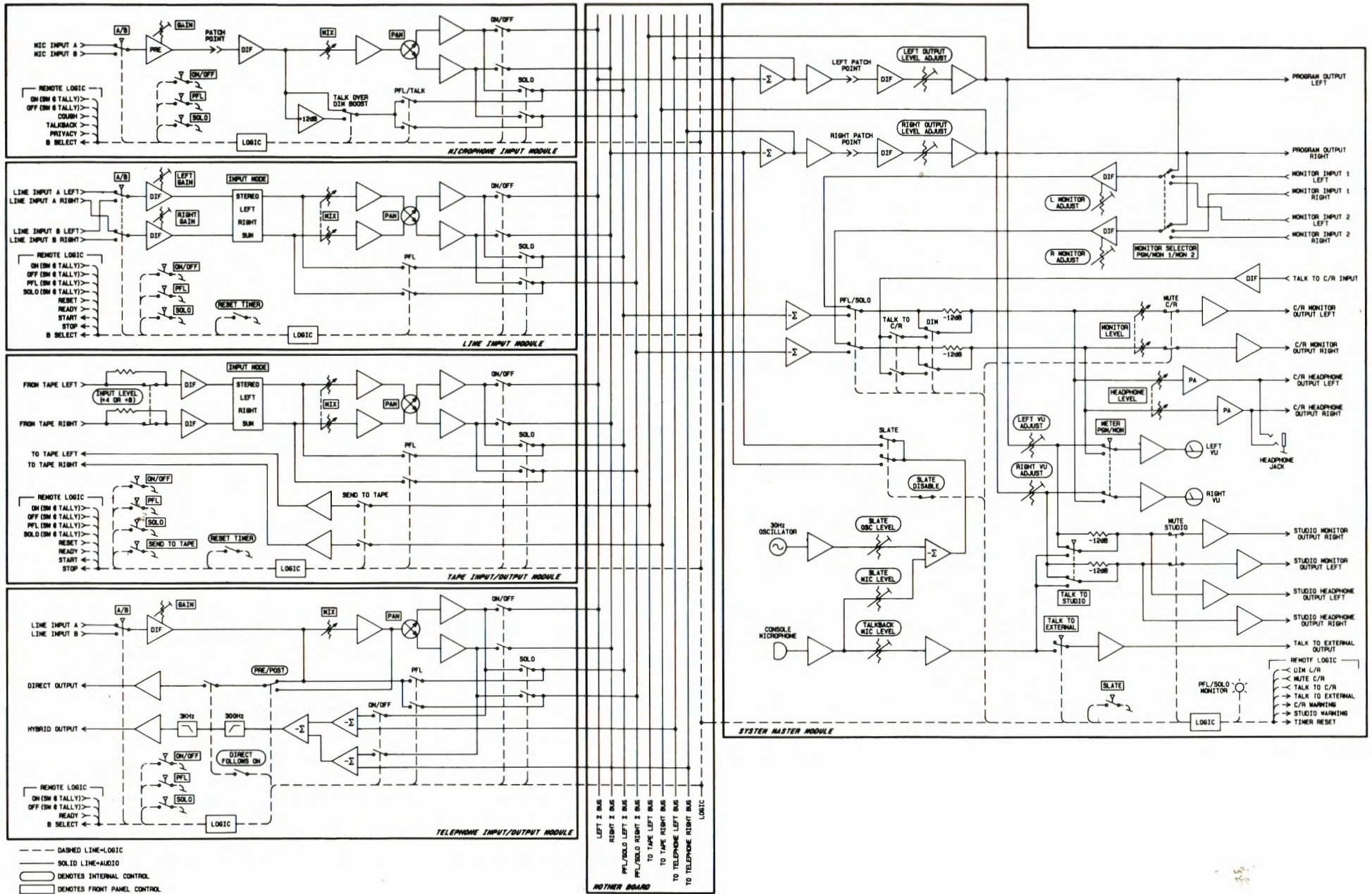
accessory modules. The basic mainframe includes a System Master Module, Power Supply, connector kit with tools, and a spare parts kit.

Compact design is not confused with miniature design. We've made it easy for you to operate the Stereomixer by using the same type of control knobs and buttons as our larger consoles. The only "miniature" components used are the two VU meters; even these small meters fully conform to ANSI specifications and are easy to read. And, because you demand the best, you get custom designed Penny & Giles long-life conductive plastic faders.

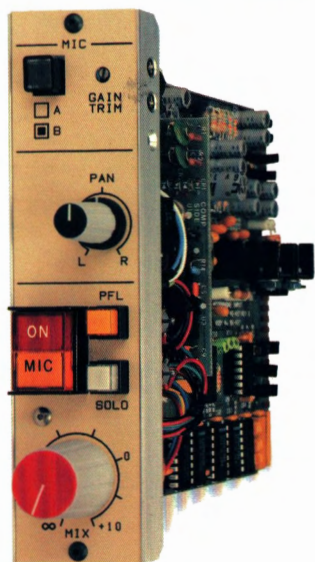
A thorough review of the functional block diagram tells more of the story. The Stereomixer is a powerful tool designed to meet the daily demands of broadcasting.

FEATURES:

- ✓ Compact rackmount or tabletop design with eight input module capacity. Accepts any configuration of four input module types.
- ✓ Microphone modules equipped with remote control logic including Cough and Talkback.
- ✓ Line and Tape Recorder Modules equipped with both module and machine remote control logic.
- ✓ Tape Recorder Input/Output modules include stereo output amplifiers and anti-feedback logic.
- ✓ Telco Mix modules include mix-minus outputs, with switchable band-pass filtering, and remote control logic.
- ✓ Automatic stereo monitoring and metering of PFL (CUE) and SOLO.
- ✓ Studio and external location Talkback system with built-in electret microphone.
- ✓ Program bus Slate facility with 30 Hz identification tone.



STEREOMIXER MODULES

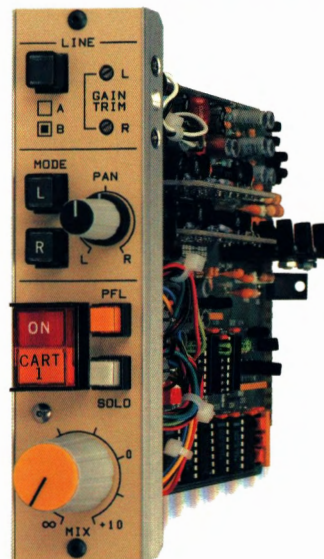


MICROPHONE INPUT MODULE

The mic input module accepts a wide range of input levels to accommodate all contemporary microphones. The balanced transformerless mic preamp is adjustable for nominal inputs of -70 dBu to -35 dBu. The preamp output is available via a rear patch connector for connection to processing equipment. The patch return is balanced and bridging.

The front panel input selector, with program-mable monitor muting for control room or studio, has two mic inputs per module. The mute circuitry incorporates an automatic 40 mSec delay before the mic is turned on, permitting "room reverb" to decay off-mic. The module is equipped with remote control capability for ON, OFF, COUGH and TALKBACK. The logic also provides current-limited tally lamp voltages for these controls.

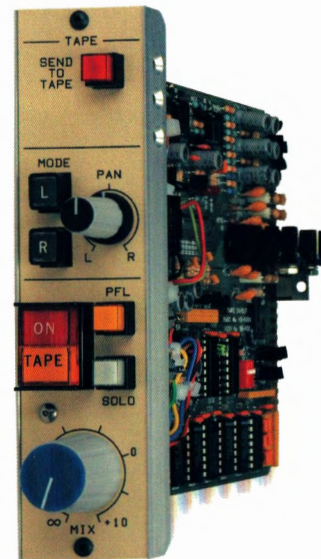
The PAN control is used to position the mic signal in the stereo image. The module is assigned to the stereo program buses by the illuminated ON/OFF button. The illuminating PFL and SOLO buttons control the circuitry to send pre-fader or post-fader audio to the monitor system.



STEREO LINE INPUT MODULE

The Stereo Line Input module handles nominal input levels from -30 dBu to -9dBu. The front panel input selector provides two stereo inputs per module. Input signal MODE selection is provided by the two alternate action button switches, L and R. The signal mode is stereo when both buttons are released; pressing the L button sources the left input, pressing the R button sources the right input and pressing both buttons simultaneously sums left and right into a monaural signal. The PAN control serves as a left/right balance control for stereo signals and as a pan assignment control for monaural signals.

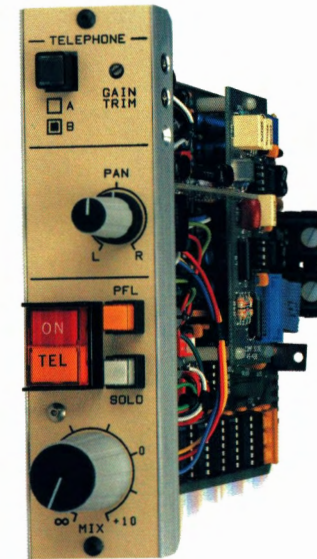
The module is equipped with logic for both the remote control of the module itself and for control of connected source equipment. Module functions include ON, OFF, PFL and SOLO complete with control tally lamp voltages. Machine controls include READY, START, STOP and AUDIO RESET. In addition, the control logic may be set to provide a reset pulse for an external event timer.



TAPE INPUT/OUTPUT MODULE

The Tape Input/Output module does double duty. It is the stereo line input module for the playback of a tape, DAT or cassette recorder. The module contains the same audio, remote and machine control logic functions as a Stereo Line Input module.

The module also contains balanced stereo output amplifiers to feed Program to the input of the connected recorder. The incorporation of Program amplifiers within the module eliminates the need for external distribution amplifiers for feeding recorders. The electronic alternate action SEND TO TAPE button also operates logic circuitry to prevent round-robin feedback via the tape machine by muting the module ON function. The PFL and SOLO buttons provide convenient stereo monitoring of tape playback for source-tape comparisons or for confirmation of recording.



TELCO INPUT/MIX-MINUS MODULE

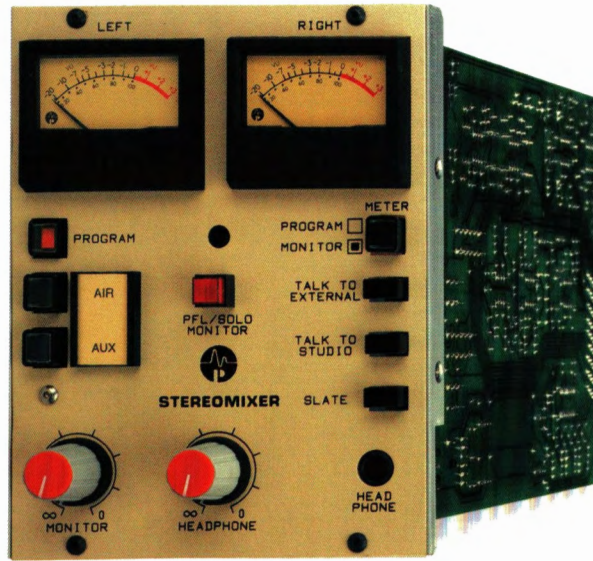
The Telco Input/Mix-Minus module is a mono line input module with additional mixing and output circuitry for feeding telephone hybrids. It derives a specially mixed output of the Program bus with its own input to that bus subtracted. This Mix-Minus output is band-pass filtered to keep the signal within the trans-hybrid loss specification of broadcast grade hybrids.

The module has two inputs which are selected by the front panel switch. Either input may be used as a telephone or general purpose monaural input. The input preamplifier is designed to accommodate a wide range of -30 dBu to -9 dBu. The PAN control provides positioning of the signal in the stereo image. Module remote control logic functions include ON and OFF, complete with tally lamp voltages, and READY. These control functions may be interfaced to a telephone controller.



REMOTE LINE SELECTOR MODULE

The Remote Line Selector module provides for selection of up to six external stereo sources. Typical applications include the selection of remote lines for stereo line input modules or extending the input selection capability of the monitor system. The output of the selector is brought out to a rear panel connector for user connection to the appropriate line or monitor input position.



SYSTEM MASTER MODULE

The System Master module is supplied with the mainframe and contains the stereo mix bus amplifiers, output amplifiers, monitor system, slate/talkback system and the stereo VU meters. The output level is adjustable and may be calibrated for "0" VU at either +4 dBu or -8 dBu. The VU meters are driven by bridging buffer amplifiers to isolate the meter rectifiers from the Program lines. The stereo Program amplifiers are equipped with interstage patch points for the connection of external processing equipment or a patch field.

The monitor section provides facilities for the mixer operator with logic controlled input selector switching controlled by the PFL (pre-fader listen) and SOLO (after fader listen) buttons on each of the input modules. The System Master module's selector buttons access the stereo Program bus and two external inputs. The PFL/SOLO MONITOR tally light illuminates whenever the monitor source is from one of the input modules.

The VU meters are equipped with a mode switch to select either full-time metering of the stereo Program outputs, or displaying the level of whatever source is being monitored. The "meter follows monitor" mode is valuable for previewing

incoming levels with the PFL buttons, or auditioning and setting levels with the SOLO function. In either case, the levels on the PFL and SOLO buses are normalized to equal true output levels.

Front and rear panel outputs for the operator's headphone are provided along with line level monitor outputs to feed an external power amplifier and loudspeakers. Two sets of stereo monitor outputs, muting and non-muting, are also provided for connection to a voice both or studio monitor, and headphone systems. Control Room and Studio muting is controlled by the assignable muting logic in the microphone input modules. The System Master module provides tally voltage outputs for connection to Control Room and Studio warning light relays.

A self-contained electret microphone provides talkback communication to the Studio and/or other external facility. Audio and logic inputs are also provided for the external location to talkback to the Control Room. The self-contained microphone is also used with a built-in 30 Hz tone generator for slating the Program bus. The slate function can be locked out to prevent the possibility of slating an "air" feed.

ACCESSORY MODULES

Three optional processing modules are available for the Stereomixer. Monaural Equalizer & Filter, Stereo Equalizer or Voice Processor modules may be installed in any input module position in the mainframe. Monaural processing modules are usually connected to the patch point of a microphone input module, while the stereo equalizer is usually connected to the Program patch point of the System Master module. These modules may also be wired out to an external patch field serving the system.

The Monaural Equalizer & Filter module combines both a three-knob equalizer and tunable highpass and lowpass filters into one compact module. The equalizer section, which may be switched in and out independently of the filter section, contains bass and treble equalizers which are each independently switchable from peaking to shelving modes. The midrange equalizer is tunable over a considerable mid-band frequency range. The tunable filter section consists of highpass and lowpass filters that may be used to correct many commonly encountered signal problems such as hum and hiss.

The Stereo Equalizer module contains two separate, but coupled, three-band equalizers. The high and low frequency equalization is switchable between peaking and shelving modes. The midrange equalizer has the same broad range of control provided in the monaural version.

The Voice Processor module is a special function unit designed specifically for equalizing, gating, compressing and de-essing speech. The processor is particularly useful when recording or transferring interviews where level variation, background noise or sibilance is a problem. The processor contains two major function sections. The first section is a switch insertable equalizer which covers the frequency range required for speech processing. The second section contains the expander (gate), compressor and de-esser systems. The expander threshold and attenuation are used to achieve noise reduction during pauses in speech while the compressor provides "smoothing and density" of the signal. The de-esser senses and operates only on the treble region which provides excellent control over excessive sibilance without undesirable broadband side effects.

NEWSMIXER

THE STRUGGLE IS OVER

The Newsmixer is an audio mixing, routing and monitoring system designed specifically for radio news preparation, assembly and production. With the Newsmixer, you can now easily tackle any news assignment because we designed it to include a long list of useful and sophisticated features. Best of all, the news staff can quickly put it to work; it doesn't require an engineering degree to operate. Our basic design concept was to meet and satisfy the wide variety of tasks which must be quickly and efficiently accomplished in the real world of radio news editing and preparation.

The Newsmixer combines the best features of a mixer, a dubbing interconnect system and a sophisticated monitoring control system into a single compact unit. Because we know that space is at a premium in most news workstations, we made it our goal to combine a wide range of control functions into a very little space. However, compact design was not confused with miniature design. The control knobs and buttons are the identical size as we use in our larger broadcast consoles. The only "miniature" components used are the two VU meters; even these small meters fully conform to ANSI specifications, and they're easy to read.

The Newsmixer's dual bus design allows the operator to perform two independent jobs at the same time. For example, while recording from a booth microphone, it is possible to select remote sources such as news service feeds, as well as accommodate any combination of tape, DAT or cassette recorders. Although not designed as an "air" console, the Newsmixer is

equipped with monitor muting and warning light commands to support an on-air application.

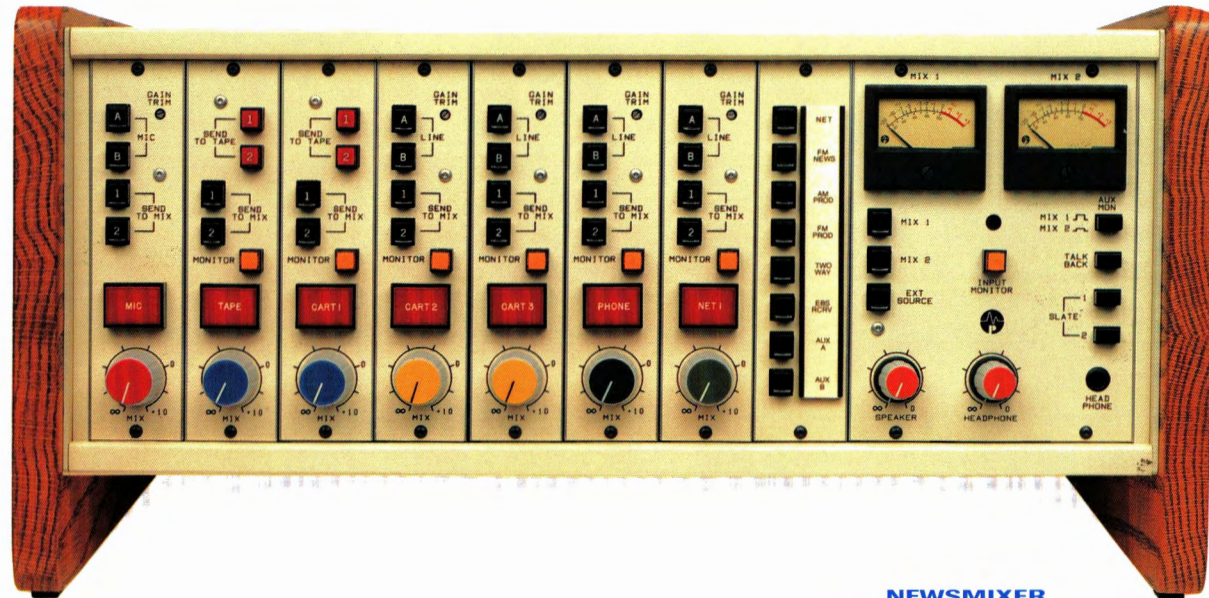
Up to eight (8) input modules can be plugged-in and an additional mainframe can easily be cascaded should more input facilities become necessary. All eight module positions accept any combination of microphone, line, tape recorder and equalizer modules. The last two input positions will also accommodate our optional Telco input/mix-minus and remote line switcher modules. Each plug-in function module has a separate and corresponding connector panel module which is easily installed from the rear of the mainframe. Each of

these panels is equipped with the connectors and nomenclature for its appropriate function module.

Because the Newsmixer is a compact unit, there's plenty of space now for all the other equipment required for news editing and production. The rack mounting housing occupies only seven inches of rack space, but many stations will choose the Newsmixer's oak end panel version for desktop use.

Inside, the Newsmixer contains a fully regulated power supply and local headphone monitor amplifier. External power amplifiers are only required for loud-

speaker and voice booth monitor systems. All active modules have on-board power supply regulation and all mixer and monitor potentiometers are long-life, conductive plastic units custom manufactured for Pacific Recorders by Penny & Giles, Ltd.



NEWSMIXER

A compact audio mixer designed specifically for radio news assembly and production.

FEATURES:

- ✓ *Modular design for custom applications.*
- ✓ *Compact rackmount or tabletop design.*
- ✓ *Self-contained, regulated supply with toroidal power transformer.*
- ✓ *Eight module positions for input, switching and equalizer modules.*
- ✓ *Additional mainframe unit may be cascaded for more inputs.*
- ✓ *Two mixing buses with patch points for connection of external processing.*
- ✓ *Transformerless microphone input modules with remote ON/OFF control.*
- ✓ *Balanced instrumentation amplifier line input modules.*
- ✓ *Tape recorder input/output modules with anti-feedback control logic.*
- ✓ *Telephone input/mix-minus output modules.*
- ✓ *Input switcher modules for remote lines.*
- ✓ *Optional equalizer/filter modules for processing mix buses.*
- ✓ *System output adjustable for +4 or +8 dBu operation.*
- ✓ *Miniature VU meters to ANSI specifications.*
- ✓ *Unique monitoring system with direct access to line, tape and telco input modules.*
- ✓ *Monitor, headphone and talkback facilities for separate voice booth.*
- ✓ *Voice with tone slating facilities for each mix bus.*

SYSTEM MASTER MODULE

The system master module is supplied with the chassis assembly and contains the mix bus amplifiers, main output amplifiers, monitor system, slate & talkback system and the mix bus VU meters. The output level is adjustable and the VU meters may be calibrated for "0" VU over the operating range of +4 dBu to +8 dBu. The VU meters are driven by balanced buffer amplifiers to isolate the meter rectifiers from the output lines.

The monitor section provides facilities for the mixer operator and an optional "talent" position. The operator's monitor section has logic controlled input selector switching controlled by the input monitor buttons located on each of the line, tape and telco input modules while the system master module's selector buttons access the two mix buses and an external source. The INPUT MONITOR tally light illuminates whenever the monitor source is from one of the input modules. Front and rear panel outputs for the operator's headphone are provided along with an output to feed an external power amplifier and monitor speaker system.

The talent position monitor may select from mix bus 1 or 2. This monitor has headphone and muting monitor outputs. These outputs are intended for voice booth talent monitor and communication. Individual muting of either the operator or talent monitor is controlled by setting mute bus command switches in the appropriate microphone input modules. The master module provides tally voltage outputs for connection to mixer and voice booth warning light relays.

A self-contained electret microphone provides talkback communication to the talent position monitor. This microphone is used along with a built-in 30 Hz tone generator for voice/tone slating of either of the two mix buses.

MICROPHONE INPUT MODULE

The microphone input module accepts two inputs by front panel selection with assignable monitor muting for each input. The trans-

formerless microphone preamplifier is equipped with adjustable GAIN TRIM to accommodate a wide input level range -70 dB to -35 dB. The module may be assigned to either or both of the two mix buses with the self-indicating SEND TO MIX buttons. The module to bus ON/OFF mode is controlled by an illuminating electronic alternate action button. This function may be remote controlled from a separate location such as a voice booth or announce turret.

LINE INPUT MODULE

The line input module accepts two inputs by front panel selection. The instrumentation input preamplifier is designed to accommodate a wide input level range: -30 dBu to +9 dBu. The output of the module may be assigned to either or both of the two mix buses using the self-indicating SEND TO MIX buttons. The channel ON/OFF mode is controlled by an illuminated electronic alternate action button. An illuminated alternate action MONITOR button provides cue, preview and monitor functions for the input signal to the module. This logic controlled function automatically routes the input amplifier signal directly to the monitor system in the system master module. This button actuates logic circuitry which clears any existing monitor selection and overrides the selection at the system master module. Pressing two or more buttons simultaneously allows the operator to monitor more than one input source at a time.

TAPE INPUT/OUTPUT MODULE

The tape input/output module serves two functions. First, it is the line input module for the control and assignment of tape, cartridge or cassette playback. Second, it contains an output selector and balanced amplifier to feed the input of the recorder. The tape playback signal may be assigned to either of the two mix buses and the output of either of the two mix buses may be assigned back to the input of the tape recorder. The momentary SEND TO TAPE buttons operate logic circuitry which prevents round-robin feedback via the tape machine by

muting the module ON function whenever an output bus is selected. The module MONITOR button provides input cue, preview and monitor functions similar to the regular line input module.

TELCO INPUT/MIX-MINUS MODULE

The telco input/mix-minus module is identical in appearance and similar in operation to the regular line input module. Additional mixing and output circuitry is incorporated which derives a specially mixed output of the module's bus assignment selection with its own input subtracted (mix-minus). In addition, an internal band pass filter in the mix-minus output keeps the signal within the rejection bandwidth of the telco hybrid system. Either or both of the module's inputs may be internally selected for routing to the mix-minus circuitry. The Newsmixer will accommodate up to two of these modules, therefore it is possible to mix and control two telephone inputs simultaneously while providing two unique mix-minus foldback signals to the callers.

REMOTE LINE SELECTOR MODULE

The remote line selector module provides for selection of up to eight external sources. Typical applications include the selection of remote lines for a line input module, or extending the input selection capacity of the Newsmixer monitor system. The output of the selector is routed to a rear panel connector for user connection to the appropriate line or monitor input position.

ACCESSORY PROCESSING MODULES

The optional equalizer/filter and voice processor modules may be installed in any module position in the Newsmixer mainframe. This module is usually inserted into one of the mix bus patch points by direct wiring or through an external patch field for the system.

STEREOMIXER/NEWSMIXER SPECIFICATIONS

MICROPHONE INPUT

Source Impedance	150 Ω
Input Impedance	30K Ω minimum, balanced
Input Level Range	Adjustable from -70 dBu to -35 dBu
Input Headroom	>30 dBu above nominal input

HIGH LEVEL INPUTS

Source Impedance	600 Ω
Input Impedance	>40K Ω , balanced
Input Level Range:	
Line Input	Adjustable from -30 dBu to +9 dBu
Telephone Module	Adjustable from -30 dBu to +9 dBu
Tape I/O	Switchable to +4 dBu or +8 dBu
External Input	
Stereomixer	Fixed at system operating level
Newsmixer	Adjustable from -12 dBu to +9 dBu
Patch Return Input	Nominal -10 dBu
Input Headroom	>30 dB above nominal input

MAIN OUTPUTS

Load Impedance	600 Ω
Source Impedance	
Stereomixer	80 Ω balanced
Newsmixer	30 Ω balanced
Nominal Output Level	
Mix and Tape Outputs	+4 dBu adjustable to +8 dBu
Telephone Mix-Minus	0 dBu
Maximum Output Levels:	
Mix Outputs	+24 dBm, 600 Ω load
Tape Outputs	+24 dBm, 600 Ω load
Mix-Minus Output	+24 dBm, 600 Ω load

MONITOR OUTPUTS

Main Outputs:	
Load Impedance	600 Ω or greater
Source Impedance	
Stereomixer	40 Ω unbalanced
Newsmixer	30 Ω unbalanced
Output Level	0 dBu nominal, +20 dBu maximum

Headphone Outputs:	
Load Impedance	300 Ω or greater
Source Impedance	100 Ω
Output Level	0 dBu nominal, +20 dBu maximum

FREQUENCY RESPONSE

Mic Input to Program Output	+0 dB, -0.7 dB, 20 Hz to 20 kHz
Line Input to Program Output	+0 dB, -0.7 dB, 20 Hz to 20 kHz

NOISE

Microphone Input Amplifier	-126 dBu equivalent input noise, 150 Ω source, 20 kHz bandwidth
Line Amplifier	-88 dBu equivalent input noise, 600 Ω source, 20 kHz bandwidth

Stereomixer:

Output Noise with one microphone channel ON, fader at 0 dB, input sensitivity at -50 dBu	75 dB below output, reference +8 dBm, 150 Ω source, 20 kHz bandwidth
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Output Noise with one line channel ON, fader at 0 dB, input sensitivity at +8 dBu	
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Output Noise with no input channels ON	83 dB below output, reference +8 dBm, 600 Ω source, 20 kHz bandwidth
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Output Noise with no input channels ON	85 dB below output, reference +8 dBm, 20 kHz bandwidth
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DISTORTION, T.H.D.

Mic Input to Program Output	<0.01%, 20 Hz to 20 kHz, -32 dBu input, +24 dBm output into 600 Ω load, 80 kHz meter bandwidth
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Line Input to Program Output	<0.01%, 20 Hz to 20 kHz, +24 dBu input, +24 dBm output into 600 Ω load, 80 kHz meter bandwidth
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DISTORTION, I.M.D. (SMPTE)

Mic Input to Program Output	<0.01%, -32 dBu input, +24 dBm output into 600 Ω load
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Line Input to Program Output	<0.01%, +24 dBu input, +24 dBm output into 600 Ω load
------------------------------	--

CROSSTALK

Newsmixer	<-80 dB at 1 kHz
Mix Outputs	<-70 dB at 20 kHz

SEPARATION

Stereomixer	
Program Outputs	<-70 dB at 1 kHz, <-60 dB at 20 kHz

POWER REQUIREMENTS

Fully Configured Models	50 watts @ 117 VAC, \pm 10%, 60 Hz
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Notes:

- 1) These specifications are for the basic signal paths, per channel, with either or both channels of a stereo pair operating and with 600 Ω loads connected to the program outputs.
- 2) 0 dBu corresponds to an amplitude of 0.775 volts RMS regardless of the impedance of the circuit. It is the same voltage value as 9 dBm measured in a 600 Ω circuit. This enables convenient level measurement with meters calibrated for 600 Ω circuits.
- 3) Noise specifications are for fully loaded consoles. Noise specifications are based upon a 20 kHz measurement bandwidth; the use of a meter with 30 kHz bandwidth will result in a noise increase of approximately 1.7 dB.

Features and specifications subject to change without notice.



DESIGNS THAT MAKE THE DIFFERENCE

FOR OVER 25 YEARS, PACIFIC RECORDERS & ENGINEERING CORPORATION HAS BEEN DESIGNING AND MANUFACTURING PREMIUM-QUALITY PRODUCTS FOR THE MOST PRESTIGIOUS NAMES IN MAJOR-MARKET BROADCASTING.

FROM ON-AIR AND PRODUCTION CONSOLES TO DIGITAL AUDIO WORKSTATIONS, PR&E DESIGNERS THOUGHTFULLY AND SKILLFULLY CREATE PRODUCTS WITH ADVANCED FEATURES AND ROCK-SOLID RELIABILITY.

ALL PR&E PRODUCTS ARE BUILT UNDER STRICT QUALITY CONTROL PROCESSES AND UNDERGO RIGOROUS TESTING PRIOR TO SHIPPING. THE TRUE TEST OF PERFORMANCE HOWEVER IS CLEARLY EVIDENT AS THESE PRODUCTS PERFORM IN DEMANDING BROADCAST ENVIRONMENTS 24-HOURS A DAY, YEAR AFTER YEAR.

PR&E CONTINUES TO MAKE A LONG-TERM COMMITMENT TO THE INDUSTRY WITH PRODUCTS THAT DELIVER LONG-TERM VALUE TO CLIENTS WHO APPRECIATE THE BENEFITS OF UNCOMPROMISING QUALITY.



PR&E

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