AMX SERIES

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SOPHISTICATED ON-AIR & STEREO PRODUCTION: YOU HAVE BOTH WITH THE AMX OPERATIONS CONSOLE.

Pacific Recorders & Engineering Corporation

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The AMX operations console is a comprehensive stereo production console as well as an advanced on-air control center. Because we designed the AMX with the flexibility to handle both assignments, you can be on-air one minute and in the next, all the features you need for efficient stereo production are at your fingertips. Although many stations with tight quarters and even tighter budgets will appreciate this dual-mode versatility, it doesn't mean that our high performance standards for either task have been compromised in any way.

The AMX was designed with the capacity to handle a talk show with four independent telephone input mixes, the capability to equalize and/or process all its inputs, send and mix effects, record a stereo feed for later broadcast, and work with two separate studios and a remote — all at the same time.

When you examine the AMX, you'll note that directly above the mic and line input modules there's ample space for signal processing on every input. Choose from our Stereo Equalizer, Mono Equalizer/Filter, or our exclusive Voice Processor modules (more on these later, see Optional Signal Processing Modules). This same console section supports the Monaural Output Amplifier, Telco Mix-Minus, Meter Switcher, Line Output Switcher, Output Line Switcher, and up to four Remote Line Selector modules.

The AMX console mainframe comes with a Control Room Monitor, three Stereo Output Distribution Amplifiers, Effects/Foldback Send & Return module and Automatic Meter Switcher. Simply add the desired complement of input, processing and accessory modules to configure an AMX to meet your particular requirements. Accessory modules include the Two-Studio Monitor, Slate/Talkback/Test Oscillator, Monaural Output Amplifier and Telco Mix modules. Even with a fully complemented AMX, there's still accessory panel spaces for the installation of optional timer, delay and full function machine remote controls.

There isn't a "combo" board around that offers so much, yet is so easy to get to know. This outstanding capacity has not been gained at the expense of simplicity. The AMX retains the clean, uncluttered design so important for operator understanding and efficient operation, just like our BMX Series of on-air consoles. If you're already familiar with the BMX, you'll appreciate just how easy it will be to "learn the ropes" with an AMX.

As you read through this brochure, you will discover a new generation console which will bring a whole new outlook to your station's operations. You'll see that the latest in technology, important new innovations and useful features have one essential purpose: to make your facility run smoother.

In addition to the AMX, our console line includes the BMX Series II and III on-air consoles, the ABX multitrack production and operations console and Newsmixer, the unique mixing, routing and monitoring system for news.

WYAY, Atlanta, depends on both the on-air and stereo production capabilities of an AMX. They're also equipped with our BMX Series III and ABX consoles, as well as Tomcat cart machines.

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lexicon
SONY

TODAY'S COMPLICATED RADIO PROGRAMMING AND PRODUCTION NEEDS MORE FLEXIBILITY: THE AMX ACHIEVES THIS GOAL WITHOUT SACRIFICING SIMPLICITY OF OPERATION.

The AMX on-air console was designed with the capacity to handle a talk show with four separate telephone mixes, record a stereo feed for later broadcast, plus the capability to work and communicate with two studios and a remote, all at the same time. In addition, the AMX is equipped with two effect/foldback sends and a stereo effects return, all with extensive remote control logic.

We believe this brochure will answer most of your questions. Should you have specific questions regarding your installation or planned use of an AMX, please call us: we're here to assist you in every way possible.

WDBO, Orlando, Florida. A top-market AM/FM station, WDBO has three AMX consoles for AM, FM and News Production. In addition, they're on-air with four BMX consoles, and the newsroom is equipped with three Newsmixers. Pictured here, the News Production Studio with an AMX-18.

WHEN WE SAY AN "OPERATIONS" CONSOLE, WE MEAN IT.

AMX FEATURES — AT A GLANCE.

- Three main stereo mix busses.
- Distribution amplifiers on each main output.
- Two effect/foldback send mix busses, with remote control logic.
- Stereo effects return, with remote control logic.
- Stereo cue system with automatic console headphone monitor switching.
- Stereo solo-in-place system for all inputs, sends and returns.
- Multi-function metering with automatic cue and solo level display.
- Monaural and stereo equalizer/filter modules.
- Voice Processor modules with equalizer, gate, compressor and de-esser.
- Monitor system provides independent and unique outputs for console, co-host, and guest headphone feeds.
- Monitor and headphone facilities for two separate studios.
- Multi-way talkback system, including producer and external feeds.
- Multi-frequency low-distortion test oscillator.
- Voice slating system with identification tone.
- Four telephone mix-minus feeds plus telephone monitor-mix.
- Full and independent remote control logic on each input of microphone and line modules.
- Fully regulated and independent power supplies for audio, logic and phantom power.
- Additional on-board audio power supply regulation on each module.
- Connector panel silk screened with clear, functional designations.
- Audio and logic interconnection system is compatible with the BMX and ABX Series consoles.
- Mainframes for 10, 14, 18, 22, 26, 30 & 34 input positions.
- Every mainframe is factory prewired to accept a full complement of function modules including inputs, outputs, patch points and logic.
- Console supplied complete with installation connectors and tools, service tool kit and spare parts kit.

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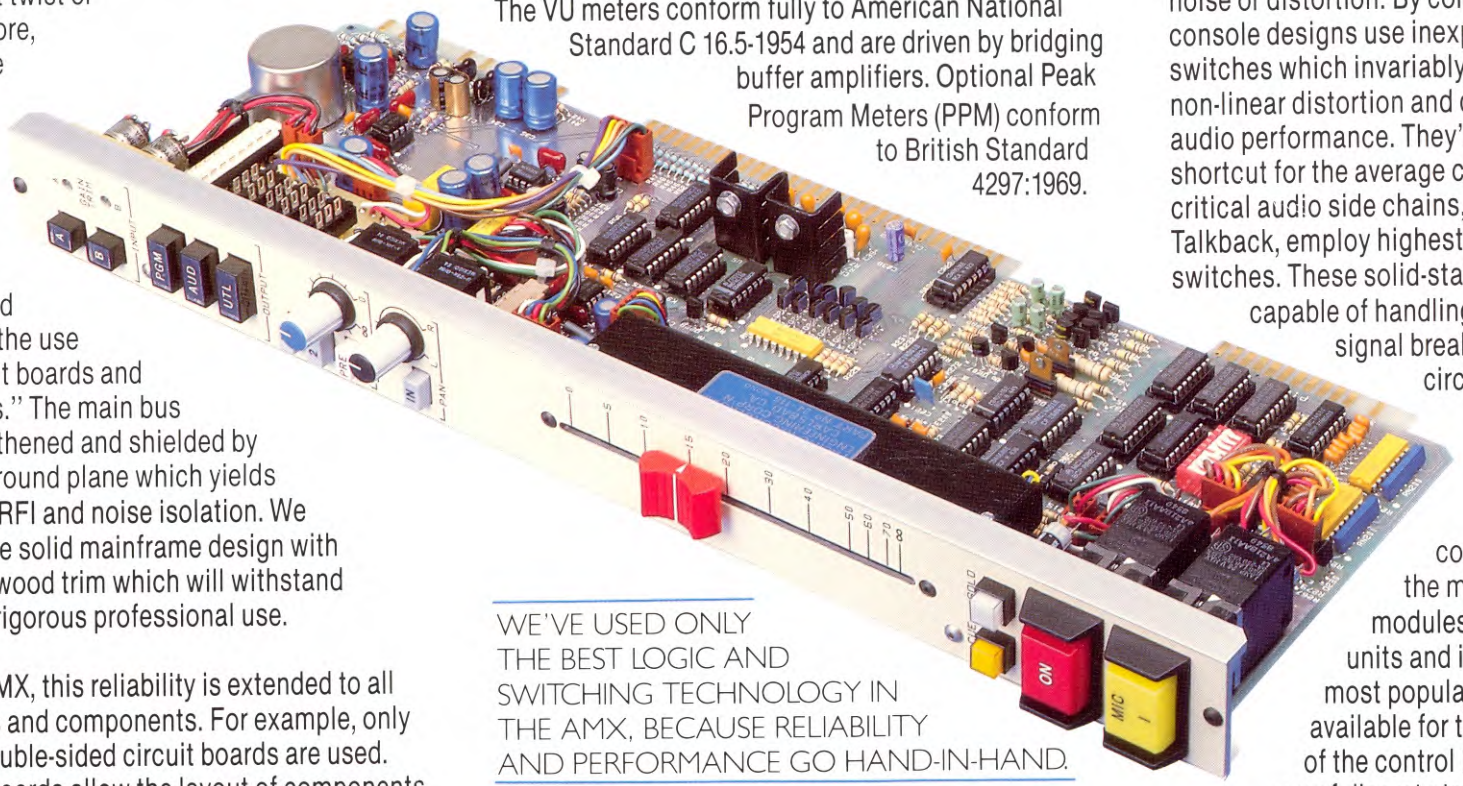
TODAY'S RADIO STATIONS NEED ROCK-SOLID RELIABILITY AND THE HIGHEST QUALITY TO INSURE PERFORMANCE WELL INTO TOMORROW.

With the AMX, reliability starts with a sturdy mainframe housing. Heavy gauge aluminum alloy end panels are made on CNC mills for the ultimate in dimensional accuracy. A precision fabricated and riveted sheet metal chassis assembly is then fastened to these end panels to form the mainframe housing. The resulting housing will not twist or flex and, therefore, will not degrade circuit card contacts or strain circuit traces. We minimize complicated and error-prone hand wiring through the use of plug-in circuit boards and "mother boards." The main bus board is strengthened and shielded by a continuous ground plane which yields the ultimate in RFI and noise isolation. We complement the solid mainframe design with attractive hardwood trim which will withstand many years of rigorous professional use.

With an AMX, this reliability is extended to all subassemblies and components. For example, only glass epoxy double-sided circuit boards are used. Double-sided boards allow the layout of components for optimum performance and support the use of ground plane shielding which further reduces the console's susceptibility to RFI, noise and crosstalk. For added service convenience, the components on each circuit board are identified with silk screened designations.

Throughout the AMX design, we use only first-quality components. Advanced discrete and integrated circuitry yields very low noise and distortion while providing excellent frequency response and signal headroom/overload performance. At least 30 dB of microphone and line input headroom is maintained to provide that extra margin for hot levels and "operator error." Mixers are full-travel Penny & Giles Series 4000 conductive plastic faders. Push buttons are Honeywell, EAO and Schadow, chosen for their extended life ratings and superior "feel." Audio transformers, where employed, are by Deane Jensen. The VU meters conform fully to American National Standard C 16.5-1954 and are driven by bridging buffer amplifiers. Optional Peak Program Meters (PPM) conform to British Standard 4297:1969.



WE'VE USED ONLY THE BEST LOGIC AND SWITCHING TECHNOLOGY IN THE AMX, BECAUSE RELIABILITY AND PERFORMANCE GO HAND-IN-HAND.

The sophisticated control logic of the AMX utilizes CMOS integrated circuits. CMOS devices are very efficient, operating on low current at 12 volt power. CMOS logic offers silent and flexible logic control because it is very immune to electrical noise and strong RFI fields. Thus, as the logic operates in an AMX, you won't hear "chirps" or "clicks." This 12 volt CMOS control logic is very easy to interface to a wide variety of external equipment and remote control panels.

We complement the superior performance characteristics of CMOS logic circuitry with miniature, dry nitrogen-sealed, gold-contact relays for all primary audio path switching. These special relays (much more costly than conventional TTL or FET design components) are extremely reliable and cannot degrade audio performance with unwanted noise or distortion. By comparison, many other console designs use inexpensive TTL or FET analog switches which invariably introduce some form of non-linear distortion and degrade an entire console's audio performance. They're an easy, inexpensive shortcut for the average console design. The less critical audio side chains, such as Cue, Solo and Talkback, employ highest quality CMOS analog switches. These solid-state, low power devices are capable of handling full level signals, without signal breakthrough, and operate in circuitry designed to minimize non-linear distortion.

The AMX has extensive and independent remote control logic for each input of the microphone and line input modules. Logic interface/translator units and interconnection cables for most popular broadcast equipment are available for the AMX. The voltage outputs of the control logic are buffered by short-proof discrete transistor circuitry.

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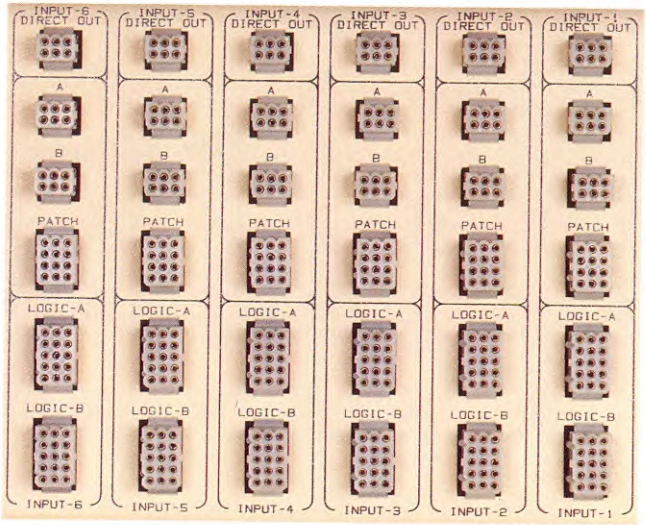
RELIABILITY AND PERFORMANCE ALSO MEANS SUPERIOR ERGONOMICS AND A CONSOLE THAT FITS INTO THE REAL WORLD.

For all of its capabilities, the AMX is a low-profile design, a real world benefit that should be immediately evident to any broadcaster. All module front panels are constructed from anodized aluminum extrusions which carry aluminum inlays coated with durable polyurethane paint and silk screened with clearly labeled nomenclature.

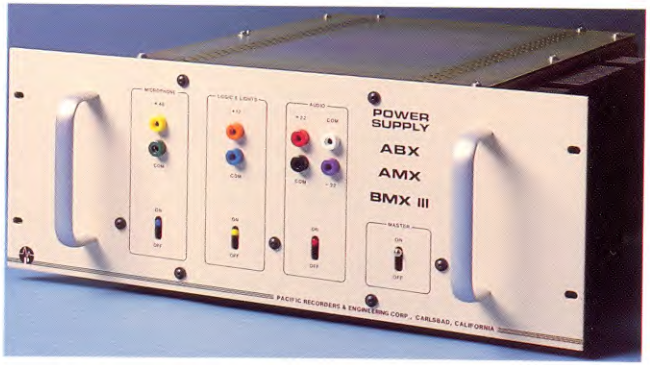
Every AMX mainframe leaves plenty of room for the broadcaster to arrange his peripheral equipment. All active electronics are immediately accessible from the top of the console: panel modules simply unplug from the mainframe housing. Perhaps the most important aspect of the AMX design is the careful attention that's been paid to the logical placement of panel controls. There isn't an easier board to get to know; more importantly, there isn't a board that's easier to operate.

The separate rack mounting power supply is constructed in a rugged steel chassis and features massive regulator heat sinks. The audio, logic and microphone phantom power supply voltages are individually regulated and switched with magnetic circuit breakers for maximum reliability.

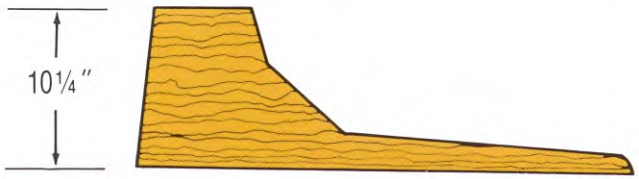
All audio input/output and logic wiring between the console and external equipment is accomplished with easy-to-use mating connectors. Time consuming hand wiring to barrier strips, terminal blocks or exotic miniature connectors is eliminated. Console mating connectors, pins and tools are supplied with the AMX. By prewiring the connector kit, an AMX console can be installed and on the air in a few hours.



Confusing and time-consuming wiring to terminal blocks, barrier strips or exotic multi-in connectors are eliminated with an AMX. All interconnections use proven, reliable, mating connectors, which are mounted on a clearly identified panel for rapid, easy installation.



Every AMX comes with a rugged power supply designed to comfortably handle the largest mainframe size with all accessories—reliably and cooly.



Regardless of mainframe size, the low profile design of AMX gives you plenty of viewing room to your studio—even when you add our optional copystand.

ONE LAST WORD BEFORE YOU LOOK INTO MORE DETAILS.

Our BMX, AMX and ABX consoles have become the standard by which many broadcasters evaluate other competitive offerings. Frankly, we're flattered by this, but not surprised. Because we've stayed in close touch with your needs, our family of consoles are an evolutionary design; the purpose of which is to continuously reach for and set the highest broadcast standards — in features, performance, reliability and that all too elusive factor, long-term quality.

If you believe that all these attributes have been attained in the exemplary design of the AMX, then we welcome you to a select user's group of professionals — broadcasters who have decided a Pacific Recorders & Engineering console is the best value that money can buy.

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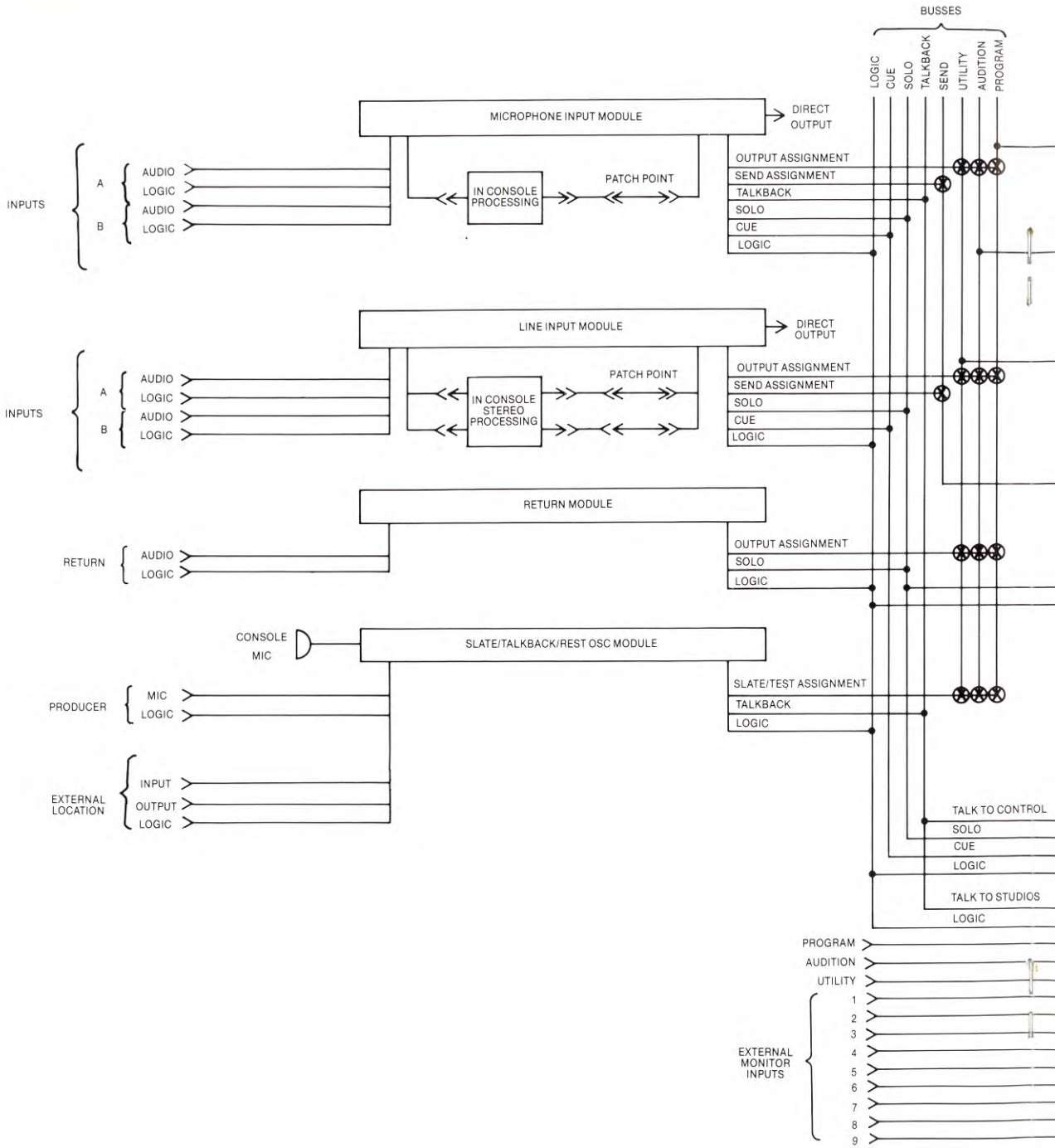
AMX FUNCTIONAL BLOCK DIAGRAM



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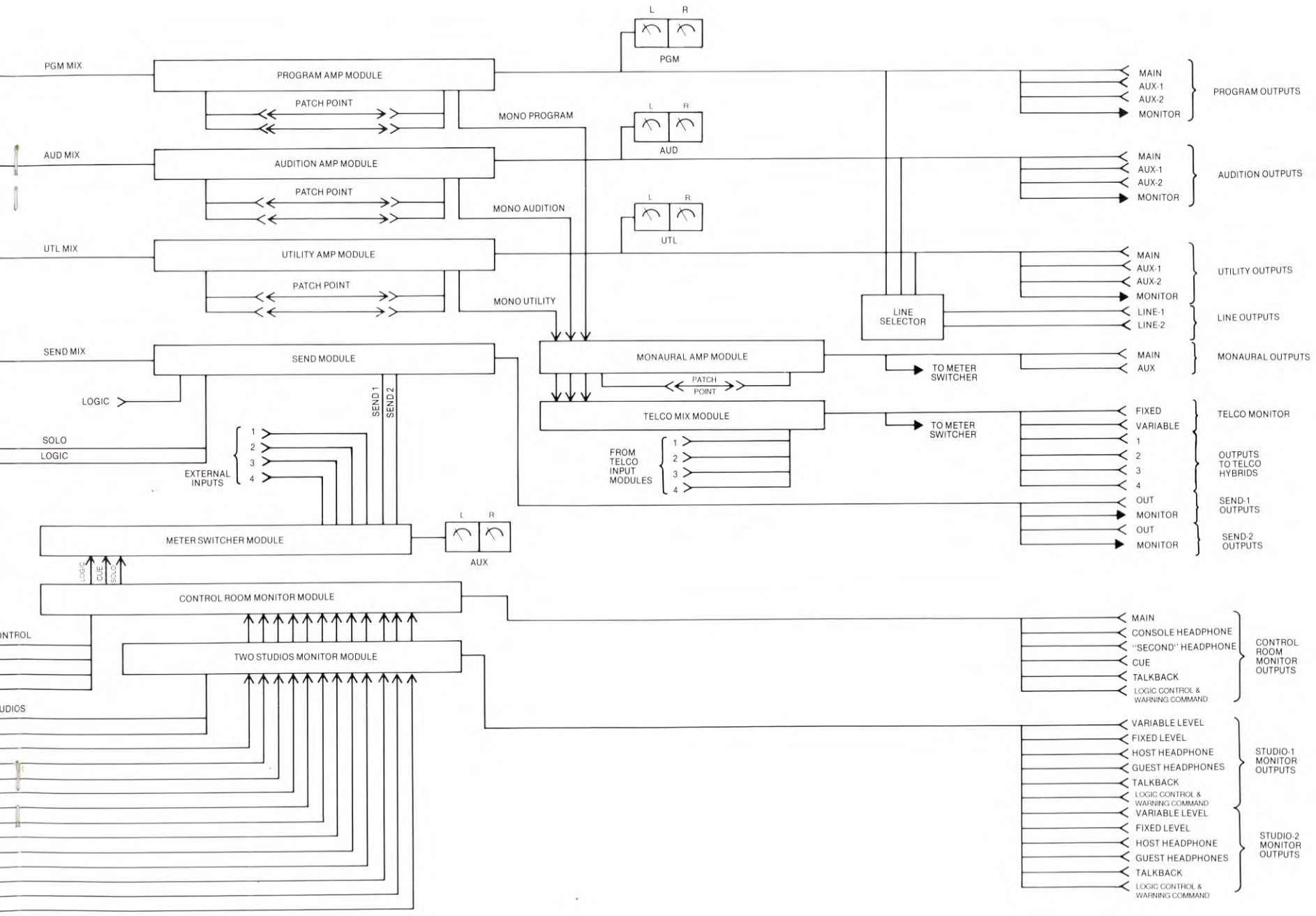

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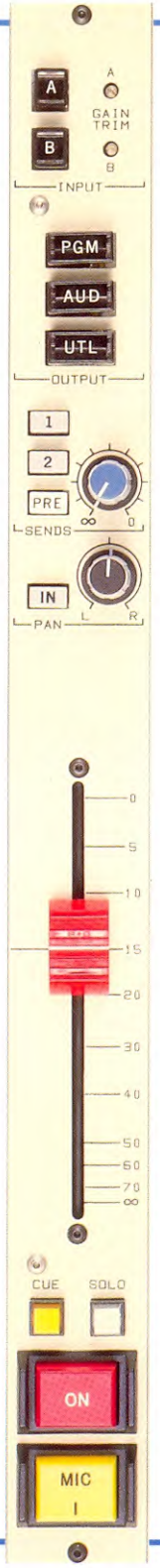
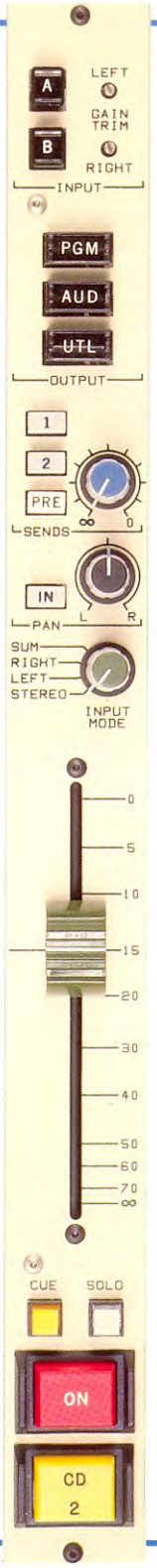
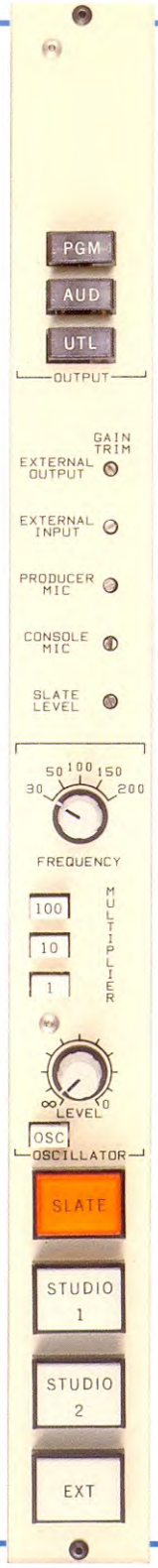


A. Microphone Input Module

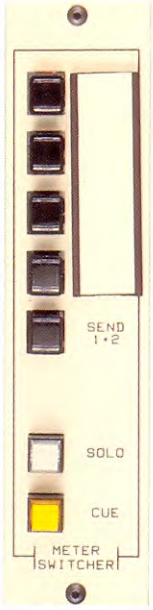


B. Line Input Module

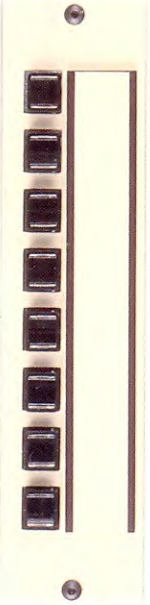


C. Slate/ Talkback/ Test Oscillator Module

D. Stereo Output Module



E. Meter Switcher Module



F. Remote Line Selector Module

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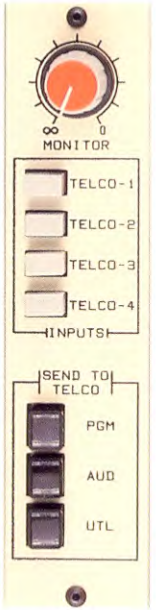
G. Control Room Monitor Module

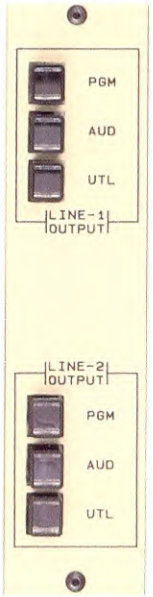
H. Studio Monitor Module

L. Send/Return Module

L. Monaural Output Module



M. Telco Mix Module



N. Line Output Switcher Module

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CONTROL ROOM MONITOR MODULE

Monitoring of PROGRAM, AUDITION and UTILITY, or any of nine external signals is provided by the interlocking monitor selector. The MONITOR and HEADPHONE potentiometers are sealed long-life conductive plastic controls which were custom designed by Penny & Giles for the BMX-III, AMX and ABX consoles. The AUTO headphone monitoring facility has been derived from the ABX console and is unique in the industry. Whenever and input module CUE button is engaged, the console operator's headphones automatically switch from the normal stereo monitor mode to one of two user assignable states; these are stereo cue, or mono cue in one earphone and mono monitor in the other. The headphone feeds to a co-host and/or guest and are not interrupted by the cue or solo systems, while the co-host may optionally receive incoming talkback signals.

Level control is available for DIM, which provides an adjustable degree of monitor level reduction during talkback. The TALKBACK control adjusts the volume of incoming talk signals. Talkback may be monitored with an independent amplifier and loudspeaker, or through the stereo cue system. The CUE control adjusts the level of the cue system. Logic circuitry is provided for the remote control of monitor dim and mute.

STUDIO MONITOR MODULE

The Studio Monitor module is expressly designed for applications where separate voice/announce booths or conference studios are required. This module provides the monitor, headphone and talkback facilities for up to two studios. Monitoring of PROGRAM, AUDITION and UTILITY, or any of nine external signals is provided by an interlocking monitor selector. MONITOR, DIM and TALKBACK level controls are provided along with a TALK OVER MUTE button for each studio. The mute override button enables talkback to a studio even when the monitor speakers are muted by a "live" mic in the studio. This would normally be used as a production "effect" and/or when the talent chooses not to wear headphones.

The module has several outputs to meet most any combination of monitoring requirements. The main output is adjustable along with the degree of dimming during talkback. Fixed level outputs are available for those situations where the studio personnel are provided with their own monitor and headphone level controls. The output for talent headphones is provided with talkback and a preset dim; a second output is provided for guest headphones which contains neither talkback or dim. Logic circuitry is provided for the remote control DIM and MUTE for each of the studio monitor sections.

SEND & RETURN MODULE

The Send & Return module contains both the two send amplifiers and the stereo return circuits. The send portion of the module contains the mixing and output amplifiers for the two effects/foldback channels. Each of these has a variable LEVEL control with ON/OFF and SOLO facilities. The stereo effects return section of the module is equipped with a conductive plastic fader, MODE selector, PAN control, ON/OFF/SOLO buttons and output assignment buttons. Logic circuitry is provided for the remote ON/OFF control of both of the send circuits and the return channel.

MONAURAL OUTPUT MODULE

The Monaural Output module provides a selection of the three main outputs. The module may select or mix any combination of the PROGRAM, AUDITION and UTILITY signals to derive a monaural output. A patch send and return point is available for the connection of external processing equipment and/or a patch field. The output is an active balanced design; an output transformer is available as an option.

TELCO MIX MODULE

The Telco Mix module derives five unique mixes of the signals from up to four telephone callers and a selection of the PROGRAM, AUDITION and UTILITY busses.

The telephone signals for broadcast are selected and controlled by the input modules connected to each of the external hybrid systems. The Telco Mix module receives the audio from the selected input modules and sums them into a "monitor-mix." The telephone monitor-mix signal is very useful in applications where talk show talent and/or guests prefer to not use headphones to hear the callers.

The Telco Mix module provides for the selection of the output bus which will contain the "base-mix" to be fed back to all the callers. In addition, the module creates a unique mix for each caller which includes the selected bus plus all the other callers, except himself ("mix-minus"). Each mix-minus output may be band-pass limited for improved hybrid operation, with internally switchable filters.

The Telco Mix module may also be used for othr applications where it is desired to create one or more custom mix-minus foldback mixes or cue feeds, such as to remote pick-ups, sports booths, and two-way systems.

LINE OUTPUT SWITCHER MODULE

The output line switcher module selects an independent output from the PROGRAM, AUDITION Or UTILITY distribution amplifiers for each of two console output lines. The module may be used as a transmission line selector, a tape recorder input selector, etc.

REMOTE CONTROL PANELS

Tape deck remote control panels and cables are available for most professional reel-to-tape recorders. The engraved RWD, FWD, STOP, PLAY and RECord buttons are function color-coded to common industry practice and are supplied with tally lamps.

Cartidge deck remote control panels and cables are available for TOMCAT, MICROMAX and ITC cartridge recorders. Panels for other machines are available on request. Engraved buttons for TERtiary tone, SECondary tone, STOP, START and RECord are provided. The buttons are supplied with the appropriate voltage tally lamps.

The timer control panel provides illuminated START, STOP, RESET and HOLD buttons for the meter panel mounted DT-4 digital timer. The AUTO button couples the timer's reset and restart functions to the console timer reset command bus for the automatic up-time of events (start with module ON).

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BUILD A AMX JUST THE WAY YOU WANT IT.

The AMX is available in several mainframe sizes to accommodate every broadcast requirement. Each AMX is factory wired and fully tested for an entire complement of modules. You may order the console with fewer than capacity and then add modules as needs arise. Simply plug in the extra modules. A universal layout enables any input position to accept any type of module. Simply select the microphone, line and optional modules your application requires. You build the console to fit your precise needs.

ACCESSORIES

Copystands are available for all AMX consoles. The sliding, free-standing copystand offers the advantage of positioning copy at an optimum reading distance for each operator.

The copystands are made of natural oak with a semi-transparent, smoke-bronze lucite copyboard.

The optional turret units are designed to provide an attractive and practical housing for talent control panels and display modules. Microphone buttons, monitor/headphone panels, clocks, and timers are some of the devices which may be installed. The turrets are finished in a durable laminate with solid oak end panels which match the profile of the oak panels on the AMX meter panel.

OPTIONAL SIGNAL PROCESSING MODULES

VOICE PROCESSOR

This module contains equalization, noise gating, compression and de-essing functions. A particularly useful module for tailoring individual talent "personality" parameters.

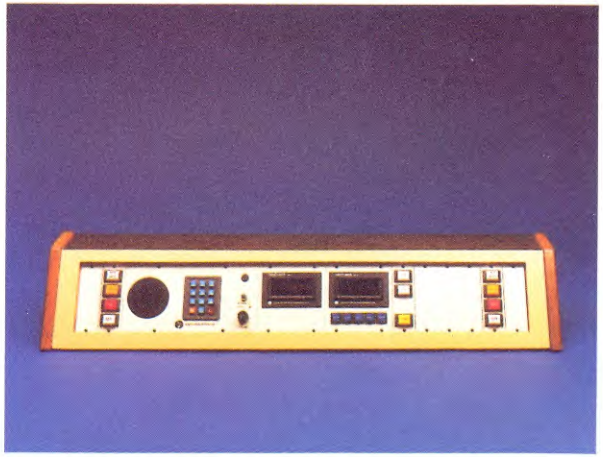
MONO EQUALIZER

This plug-in module contains independent three-band equalization control, with high and low frequency peaking and shelving modes, and tunable highpass and lowpass filters.

STEREO EQUALIZER

This module contains two stereo-tracking three-band equalizers with a flexible dual control mid-band section. Peaking and shelving modes on high and low frequency sections.

Sliding, free-standing copystands are available for all AMX consoles.



Optional control turrets give you extra space and they match perfectly with an AMX.

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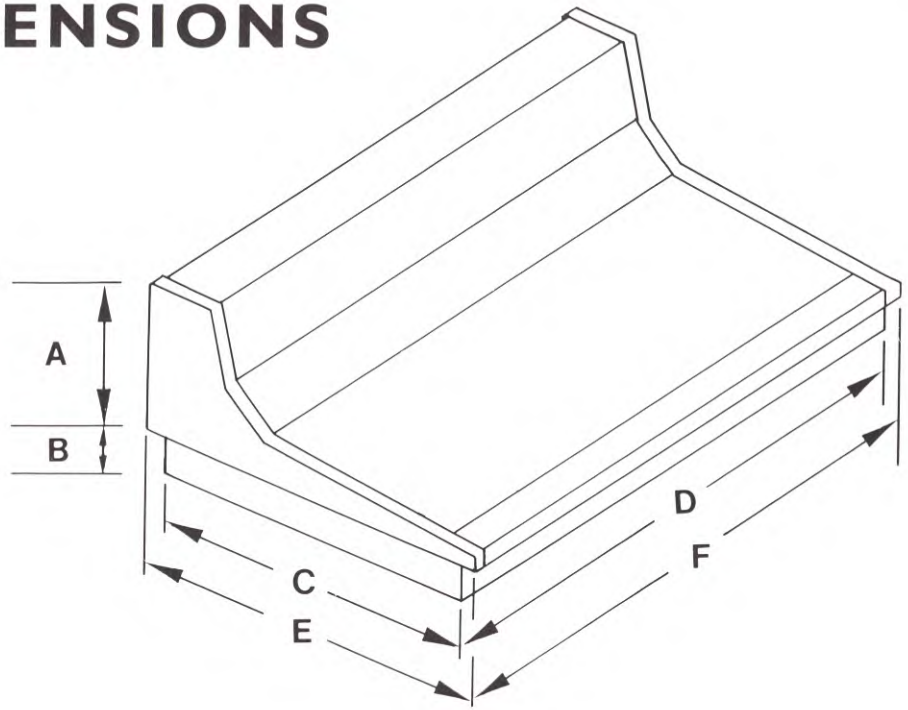
AMX MECHANICAL DIMENSIONS



WNYC's futuristic reception lobby. Pacific Recorders & Engineering's consoles are used throughout the New York facility.

CONSOLES	DIMENSIONS					
	A	B	C*	D*	E	F
AMX-10	10¼"	7"	29"	30½"	31"	32
AMX-14	10¼"	7"	29"	36½"	31"	38
AMX-18	10¼"	7"	29"	42½"	31"	44
AMX-22	10¼"	7"	29"	48½"	31"	50
AMX-26	10¼"	7"	29"	54½"	31"	56
AMX-30	10¼"	7"	29"	60½"	31"	62
AMX-34	10¼"	7"	29"	66½"	31"	68

*Please add ¼" for cabinet opening.

SOME FINAL CONSIDERATIONS

The AMX console is one of a complete family of compatible systems from PR&E. Many of the modules for the AMX may be utilized in either our new BMX Series III on-air board or the ABX multi-track production console.

In addition to this console family, we also make the Newsmixer, the Tomcat and Micromax cart machines, plus an extensive array of signal processing, amplification, routing, distribution and switching peripherals. Full technical and feature information on all products is available.

Many of our consoles have been designed into complete studio facilities packages. We offer not only superlative products but a complete systems engineering service which encompasses a broad range of technical expertise. If you are considering renovation or new construction you may want to contact us about these services and discuss putting our 17 years of systems design experience to work for you.

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SPECIFICATIONS

MICROPHONE INPUT:

Source Impedance	150 ohms
Input Impedance	1000 ohms minimum, balanced
Input Level Range	Adjustable from −60 dBu to −35 dBu
Input Headroom	Greater than 30 dB above nominal input

HIGH LEVEL INPUTS:

Source Impedance	600 ohms
Input Impedance	Greater than 40K ohms, balanced
Input Level Range	
Line Input	Adjustable from −12 dBu to +8 dBu
Monitor Input	Nominal +4 dBu/+8 dBu
Patch Input	Nominal −10 dBu
Input Headroom	Greater than 30 dB above nominal input

MAIN OUTPUTS:

Load Impedance	600 ohms
Source Impedance	30 ohms
Nominal Output Level	+8 dBm, adjustable to +4 dBm
Maximum Output Level	
Line Amplifiers	+28 dBm, 600 ohm load
Send Module	+26 dBm, 600 ohm load

FREQUENCY RESPONSE:

Microphone Input to Program Output	+0 dB, −0.9 dB, 20 Hz to 20 kHz
Line Input to Program Output	+0 dB, −0.8 dB, 20 Hz to 20 kHz

MONITOR OUTPUTS:

MAIN OUTPUTS:	
Load Impedance	600 ohms or greater
Source Impedance	30 ohms, unbalanced
Output Level	0 dBu nominal, +20 dBu maximum
HEADPHONE OUTPUTS:	
Load Impedance	45 ohms or greater
Source Impedance	Less than 4 ohms
Output Level	0 dBu nominal, +20 dBu maximum

NOISE:

Microphone Input Amplifier	−127 dBu RMS equivalent input noise, 150 ohm source, 20 kHz bandwidth
Line Input Amplifier	−88 dBu equivalent input noise, 600 ohm source, 20 kHz bandwidth
Output noise with one microphone channel ON, fader at −15 dB, input sensitivity at −50 dBu	76 dB below output, reference +8 dB 150 ohm source, 20 kHz bandwidth
Output noise with one line channel ON, fader at −15 dB, input sensitivity at +8 dBu.	80 dB below output, reference +8 dB 600 ohm source, 20 kHz bandwith
Output noise with no input channels ON	82 dB below output, reference +8 dB, 20 kHz bandwidth

DISTORTION, T.H.D.:

Microphone input to program output	Less than 0.02%, 20 Hz to 20 kHz, −50 dBu input, +8 dBm output into 600 ohm load, 80 kHz meter bandwidth; less than 0.01% at 1 kHz, +28 dBm output
Line input to program output	Less than 0.008%, 20 Hz to 20 kHz, +8 dBu input, +8 dBm output into 600 ohm load, 80 kHz meter bandwidth; less than 0.01% at 1 kHz, +28 dBm output

DISTORTION, I.M.:

Microphone input to program output	Less than 0.008%, -50 dBu input, +8 dBm output into 600 ohm load; less than 0.01% at +28 dBm into 600 ohm load
Line input to program output	Less than 0.005%, +8 dBm input, +8 dBm output into 600 ohm load; less than 0.01% at +28 dBm into 600 ohm load

CROSSTALK:

Interchannel crosstalk	Less than −85 dB at 1 kHz Less than −75 dB at 20 kHz

NOTES:

1) These specifications are for the basic signal paths, per channel, with either or both channels or a stereo pair operating and with 600 ohm 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 0 dBm measured in a 600 ohm circuit. This enables convenient level measurement with meters calibrated for 600 ohms circuits.
3) Noise specifications are for a 14-input console (AMX); larger consoles will have slightly reduced signal-to-noise ratios due to increased summing amplifier gain. Noise specifications are based upon a 20 kHz bandwidth: the use of a meter with a 30 kHz bandwidth will result in a noise measurement increase of approximately 1.7 dB.

Pacific Recorders & Engineering Corporation reserves the right to change specifications without notice or obligation.

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