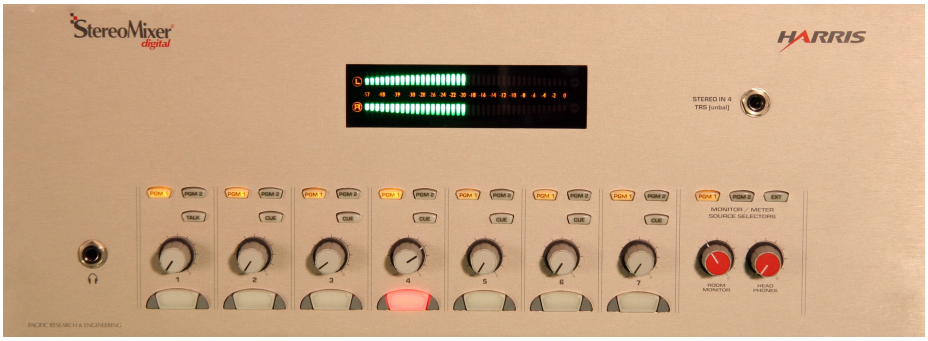
StereoMixer® digital

Installation & Operation Guide

99-1395 Desktop Version



99-1396 Rack Version

71-1395
rev C 12/05

HARRIS

Broadcast Communications Division
4393 Digital Way • Mason, OH 45040 USA • Tel: 513.459.3400 FAX: 513.459.2890 • E-Mail: presupport@harris.com • Internet: http://www.broadcast.harris.com
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General Information

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To obtain maximum benefit, please read through this guide prior to mixer installation.

STEREOMIXER® DIGITAL OVERVIEW

StereoMixer® *digital* (SMX*d*) is a compact mixer available in two models: rack-mount and desktop. SMX*d* was designed for single talent/board operator use in applications such as voice tracking studios, production rooms, nonlinear editing suites and newsrooms. It has the following features:

- Four analog inputs (one input is mono), with a front panel TRS stereo jack for convenient field recorder connection
- Three AES-3 digital inputs (S/PDIF-compatible) with integral sample rate converters on each input
- Two Program buses and one mix-minus bus with both analog and digital outputs
- Stereo bargraph meter display of the two program buses, an External Monitor Input, or Cue
- Analog room monitor output, external talk input, talk output, headphone amplifier output for talent headphones
- Room monitor mute logic plus opto-isolated interface logic for a hot mic warning interface, intercom talk, mic remote panel control, channel start command outputs and timer reset output
- Audio and logic signals use separate connectors with AMP MOD IV crimp terminal connectors (as used on the BMX*digital* and RMX*digital* consoles) or D-sub (logic only)

Input Features

The mixer has seven inputs/channels. Four are analog, three are digital. Rear panel switches set each analog input to either -10 dBv (unbalanced) or +4 dBu (balanced) operation.

Channel 1 is a mono line-level input designed for a pre-amplified talent mic. It can alternately be set as a mono line input. Channels 2, 3 and 4 are analog stereo line-level inputs. Channels 2 and 3 can alternately be set as two additional mic inputs from guest microphone preamps. Internal DIPswitches (identified on page 9) set whether ch. 1, 2 and/or 3 are mic inputs (which mute the monitor output) or line inputs.

Channel 4 is an analog stereo line-level input that features a front panel TRS jack to allow easy plug-in of a field recorder or DJ system (which is summed with a rear panel connector).

Channels 5, 6 and 7 are stereo AES-3 digital inputs with integral sample rate conversion that accepts sample rates from 32 to 48 kHz.

Any one channel can be set as a Telco input from a phone hybrid, ISDN or other 2-way communications device. The Telco channel, set by internal DIPswitches (defined in Table 1 on page 9), is always removed from the mix-minus output that is returned to the Telco device.

Each of the seven input channels has these controls:

- Single channel On/Off button (lit by LEDs when On)
- Digital level control (linear faders on the desktop version; rotary faders on the rack version)
- Function button (Talk on ch. 1, Cue on ch. 2 - 7)
- Program 1 and Program 2 bus assignment buttons

Output Features

The six analog outputs (+4 dBu balanced, -2 dBv unbalanced) are PGM 1, PGM 2, Room Monitor, Mix-Minus with talk and Talk to External. The three digital outputs (PGM 1, PGM 2, Mix-Minus) use a sample rate of 48 kHz (AES-3). An amplified talent headphone output (1/4" TRS jack) has the same monitor source as the Room Monitor output.

The Mix-Minus output is a sum of all the channels (post-fader, post-switch) assigned to the same bus as the Telco channel—but minus the Telco channel audio. The mix-minus bus is identified by the winking Telco bus assignment button. On the left digital output and the analog output, talkback is added. The digital right channel is a mix-minus without talk output.

Talkback audio is only active when channel 1 is set as a mic input. Pressing the Talk button routes the mic—pre-switch and pre-fader, to both the Talk output and to the Mix-Minus with talk outputs.

Monitor Features

The monitor section has these controls:

- Monitor/meter source selectors (PGM 1, PGM 2, EXT)
- Digital level controls for the room monitor and talent headphone outputs (linear faders on the desktop version; rotary faders on the rack version)

The monitor outputs/meter can have four sources: Program 1, Program 2, an analog External Monitor input or Cue.

The Room Monitor and Headphones faders control the line-level output for a pair of powered room monitor speakers and

the output level of the built-in headphone amplifier. The room monitor output is automatically muted whenever a Mic channel is On (typically channel 1 is set as a mic, but channels 2 and 3 can also be set as mics). The talent/board operator headphone jack is next to the Channel 1 controls on the rack version. It is inset into the left side panel on the desktop version.

Logic

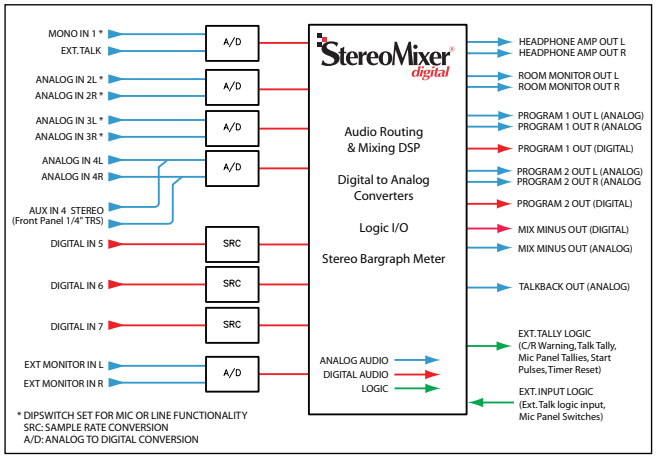
The 2-way talk interface has External Talk audio and logic inputs, a Talent/board operator Mic Talk output and Talk Out Tally. These allow the SMX*d* to easily interface with any existing intercom system, or to function as its own talkback system by adding an external audio switching relay.

There are three logic connectors on the rear panel:

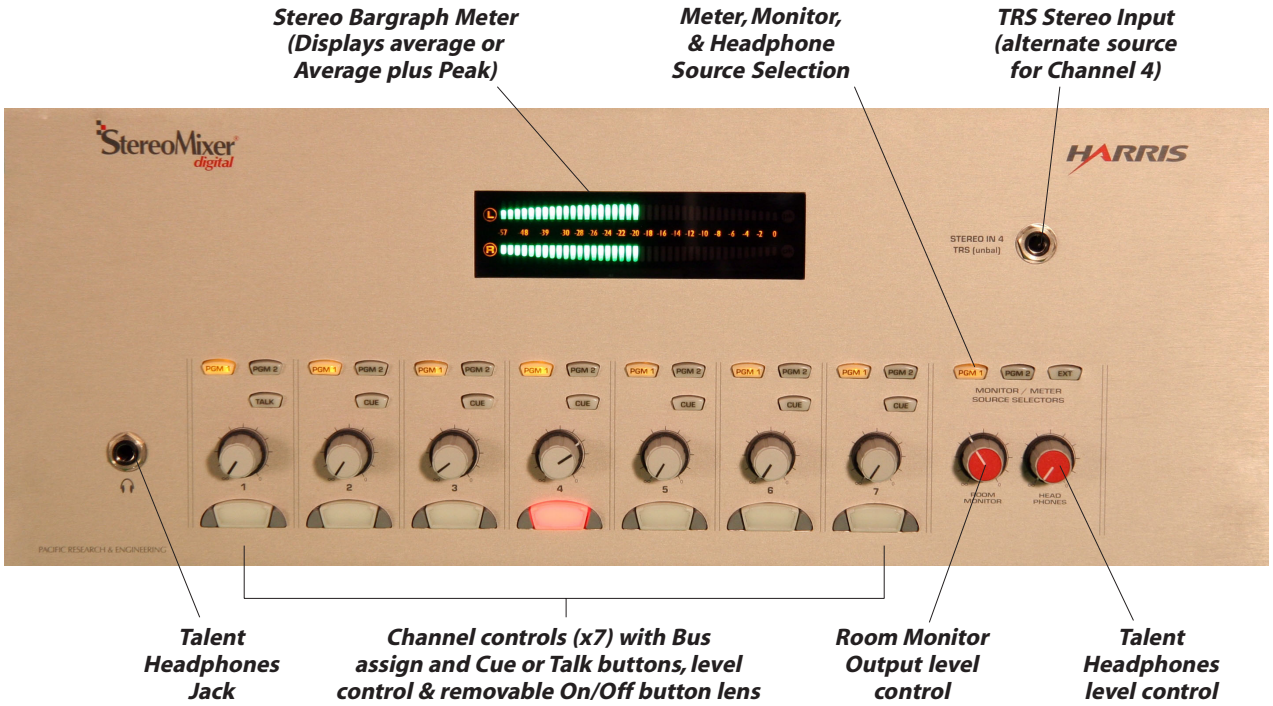
- **12-pin AMP MOD IV:** Logic outputs for a warning lamp interface, talk tally output and an external talk logic input.
- **14-pin AMP MOD IV:** Logic inputs and outputs for an optional cabinet-mount Mic Remote Panel (PRE99-1197 or PRE99-1198) for channel 1 control from a remote talent mic location.
- **15-pin female D-Sub:** Ch. 2 - 7 start pulse outputs and a timer reset command closure.

Power Supply

A separate "line lump" switching power supply, with three regulated output voltages, is supplied with both versions of SMX*d*. The ±15 volt outputs power the analog circuitry, while a +5 volt output powers the DSP and logic control circuits.



SMX*d* Block Diagram



Overview of the Rack Mount model's Controls and Features

(Desktop model's controls are shown on the next page)

Overview of the Controls and Features on the Desktop model

Mixer Operation

SMX*d* uses a minimum of controls, lighted buttons and meter displays to simplify mixer operation. Each of the two models: rack-mount and desktop, offers identical functionality but with different physical controls, as identified in this section.

For those used to working on larger Harris or PR&E mixers and consoles, the SMX*d*'s major difference is that each channel has only one button for On and Off control. When the On/Off button LEDs are lit, the channel is on. When the On/Off button LEDs are not lit, the channel is off.

The small Cue, Talk, Bus Assignment, and Monitor Source Select buttons also light to indicate their selected status. To assign a channel to a bus, press the bus assignment button to turn on its LED. Each channel can be assigned to any combination of Program 1 (PGM 1) and Program 2 (PGM 2).

Three Monitor Source Select buttons select and indicate the source feeding the meters, room monitor output and talent headphones output. Only one button will be lit, although Cue, when active on any channel, overrides the selection—turning off the active button's LED. The active Cue buttons wink to indicate Cue is active. Turning all Cue buttons off returns the monitor source to its previous selection. Alternately, to force all Cue buttons off, press any monitor select button to assign it as the new monitor source.

Both SMXd versions feature an unbalanced -10 dBv stereo input TRS jack next to the meters (the Tip is the left channel, the Ring is the right channel). It connects to Channel 4 along with the rear panel channel 4 input. When both inputs are active, the two signals are summed together.

Microphone Channels

Channel 1 is typically set as the Talent Mic. When On, the room monitor output is muted and a "hot mic" warning command is activated. Pressing the Channel 1 Talk button routes the mic audio (pre-fader and pre-switch) to the talk output and to the mix-minus output. This action also mutes the room monitor output, but it does not activate a warning command.

When Channels 2 and/or 3 are also set as mic inputs they mute the room monitor output and generate a warning command when On. Their Cue button function also changes to momentary operation and, while pressed, will mute the room monitor output, without activating a warning command.

Note that only the Channel 1 mic can talk to the Mix-Minus signal and to the Talk output using the Channel 1 Talk button. Channels 2 and/or 3 can talk to the Mix-Minus output if they are assigned to the Mix-Minus bus and are turned On with their fader up.

Telco Channel

Any one channel can be assigned as the Telco channel. This means the channel's input comes from a phone hybrid, ISDN, or other two-way device that requires a return feed (the Mix-Minus output, which is one bus minus the Telco channel audio). The Mix-Minus output can be either the PGM 1 or PGM 2 bus. The bus feeding the Mix-Minus output is indicated by winking the bus assignment button on the Telco channel.

The PGM 1 bus has priority, but PGM 2 is used when the Telco is only assigned to PGM 2. The Mix-Minus with talk outputs always have talkback—even if the Telco channel is not assigned to a bus.

Program Outputs

There are two Program outputs: Program 1 and Program 2. Each is a mix of all channels that are turned on and assigned to that bus. The Program outputs are never affected by any incoming or outgoing talkback, by any monitor muting (which occurs when any mic channel is on), by signal selection on the Monitor Select buttons, or by any Cue activity.

Each channel is independently assignable to either or both program buses. The channel is assigned to a bus when its bus assignment button is lit. But, in order for the channel audio to reach the program bus, the channel must also be turned on (On/Off button lit), and the fader must then be adjusted to yield the proper audio level.

Monitor Controls

One Monitor Select button is lit to indicate the signal being shown on the meters and being sent to the room monitor and headphone outputs. Either PGM 1, PGM 2 or an external monitor input (EXT) can be selected.

NOTE: When a microphone channel is on or the Talk button is pressed, the room monitors mute, regardless of the selected signal. Headphone audio is never muted.

Pressing any channel's Cue button switches the monitor outputs and the meters to the Cue bus. To indicate the Cue bus is active, the active Cue button(s) wink and the active Monitor Select button LED is turned off. The Cue bus audio comes from the channel's input—it is pre-fader and pre-switch.

Turning all Cue buttons off returns the monitor to the previously selected source. Cue can also be forced off by pressing any monitor select button to select a new monitor source.

Note that Channel 1 cannot be asigned to the Cue bus.

Talk / Intercom Operation

Press and hold the Talk button on Channel 1 to send the talent's microphone audio—pre-switch and pre-fader, to the Talk output and to the Mix-Minus output, for as long as the Talk button is pressed. This action mutes the Channel 1 mic from any assigned bus (it automatically turns the channel off, if it was on, while the Talk button is pressed).

When an external location talks to the SMX*d*, the incoming talk audio is fed to both the headphones and to the room monitor outputs. The monitor audio is dimmed by 12 dB so the incoming talk can easily be heard.

BASIC MIXER OPERATION

Follow these steps to initially operate the mixer:

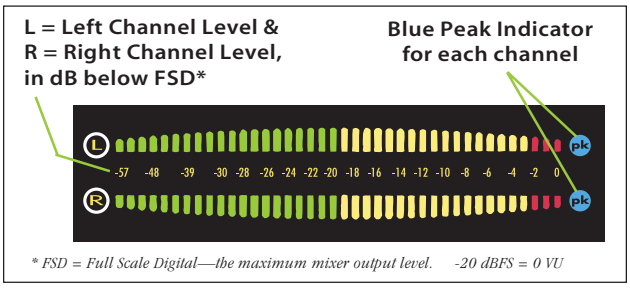
1. Adjust all faders (channels, room monitor and headphones) to full off.
2. Make sure that only the PGM 1 assignment buttons are lit on each input channel and that the PGM 1 Monitor Source selector button is lit.
3. Turn on one channel with a typical audio source connected.
4. Adjust the channel fader so that the average audio level bar reaches -18 to -12 dBFS on the meters. To reach this level with a standard level signal the linear faders are typically aligned with the red line. On rotary faders the equivalent setting is at "two o'clock."
5. To hear the audio, adjust the Room Monitor fader or the Headphones fader to a comfortable listening level.

CAUTION: Before plugging in headphones, always set the Headphones fader to full off, then adjust it to a comfortable listening level using program material with an average level of -18 to -12 dBFS.

NOTE: Setting the headphone fader beyond halfway may supply sound pressure levels sufficiently loud to damage headphones and cause hearing damage, especially with sustained listening times.

Peak Meter Indications

When the meters display both Average and Peak signals, single LED peak indicators typically will be shown 10 dB above the average levels. Peak indications in the yellow with occasional red LED peaks are normal, but consistently allowing signal peaks in the red LEDs should be avoided as this is very close to overdriving the mixer. The blue peak LEDs indicate the signal level is at or near signal clipping. They are set to turn on at -6, -4, -2 or 0 dBFS via internal DIP switches.



SMX*d* Bargraph Meter

Installation

The rack-mount model requires 4 RU of rack space (7" [133.4mm]). There are no special venting requirements, so equipment can be placed immediately above or below the mixer.

The desktop model (shown in the Desktop Model Footprint drawing, adjacent) requires 16" x 17" of countertop space. One or more grommet holes can be drilled through the countertop for cable access behind the console. A removable rear cable cover hides these cable access holes during use. The desktop model can also be fastened to the countertop by using four screws (user supplied) fastened through bottom holes.

The SMX*d* installation kit includes a separate power supply, a 15-pin D-sub connector and the AMP MOD IV crimp pins and housings for the audio and logic connectors.

Power Supply

A separate "line lump" power supply (Harris # 50-22) works with line voltages from 95 to 264 VAC at 50 Hz or 60 Hz. The detachable IEC cord (supplied with USA-type plug) should only be plugged into isolated-ground outlets. The keyed DC output cable plugs into J32 (Power).

Ensure that the supply is mounted so that the DC cable plugged into the SMX*d* is not under any tension.

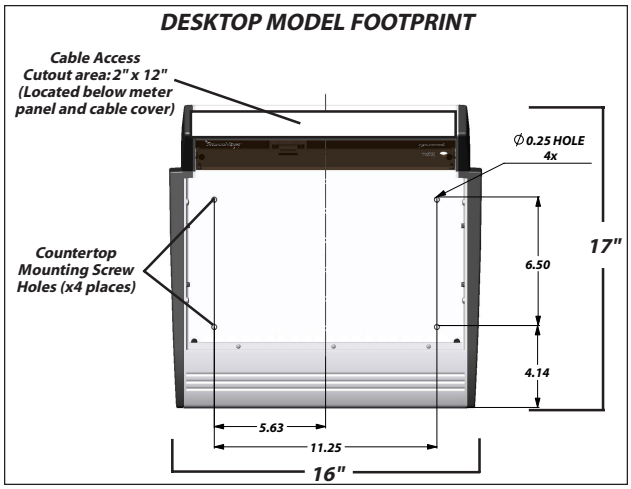
USER CONNECTIONS

Most back panel user connections (shown on page 7) use AMP MOD IV connectors, which consist of crimped receptacle contacts locked into keyed plastic housings. These same connectors are used on RMX*digital* and BMX*digital* consoles and VistaMax Hub Cards.

NOTE: A crimp tool is **not** supplied with SMX*d*. Use an AMP # 169481-1 crimp tool (Harris # 70-126) to crimp the contacts. Use an AMP # 843477-3 pin removal tool (Harris # 70-129) to remove contacts from the housings. One each of these tools is supplied with each VistaMax frame, RMX*digital* console and BMX*digital* console. Contact Harris Tech Support (513.459.3503) about obtaining a crimp tool for use during installation if one is not available locally.

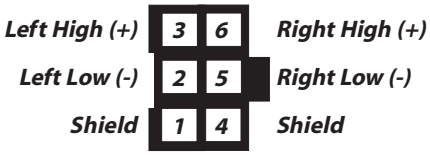
Analog Audio Inputs & Outputs

The 6-pin AMP MOD IV analog audio connectors are pinned the same as those used on RMX*digital* and BMX*digital* consoles. The left channel of a stereo pair connects to pins 1, 2 and 3. The right channel of a stereo pair connects to pins 4, 5 and 6. When a mono signal is connected to a stereo connector, the two sets of signal pins must be jumpered together (- signal to both 2 and 5, + signal to both 3 and 6). Only one shield connection, to either pin 1 or 4, is required for mono signals.



Most analog connectors carry stereo signals, but two: J6 (Mic/Mono In and Ext. Talk In) and J9 (Mix-Minus and Talk outputs) have two non-related mono signals on the same connector.

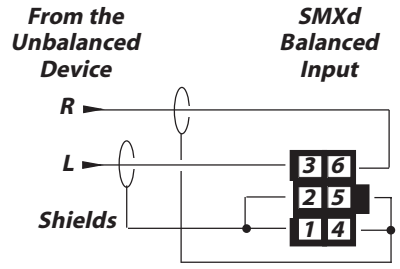
Pinouts for Analog Input and Output Connectors



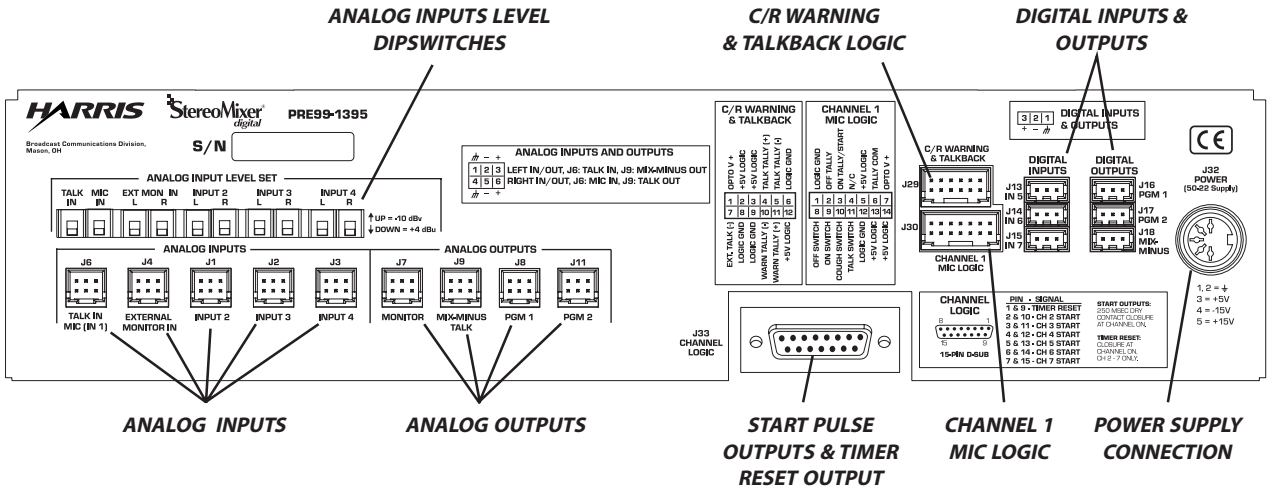
(wire insertion end view)

Even though analog inputs and outputs are active and balanced, unbalanced devices can connect to SMX*d* since there is an analog gain switch for each input. For balanced signals, set the switches to the +4 dBu position. For unbalanced devices, set them to the -10 dBv position and then connect the device using the following illustration.

Connecting an Unbalanced Device to a MOD IV Analog Input



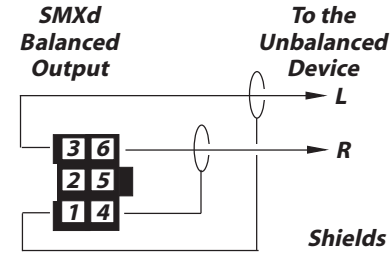
SMXD REAR PANEL CONNECTIONS



When an unbalanced device must connect to a SMX*d* balanced analog output, and an IHF-PRO match box is not available, do not tie the low (-) and shield pins together to "unbalance" the signal. Leave the low output pin "floating" when unbalancing a SMX*d* output, as shown in the following illustration.

Connecting an Unbalanced Device to a MOD IV Analog Output

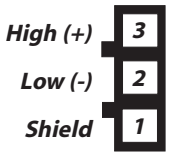
(Nominal Output is -2 dBu)



(Make no connections to pins 2 & 5)

balanced-to-balanced line transformer could alternately be used to interface an S/PDIF signal.

Pinouts for Digital Input and Output Connectors



(wire insertion end view)

Note 1: A signal conversion interface must be used to connect an AES/EBU output to a S/PDIF input.

Note 2: Some S/PDIF signals may not work with the SMX*d*'s inputs, even with the additional load resistor or a transformer, due to nonstandard levels or protocols used by the device with the S/PDIF output.

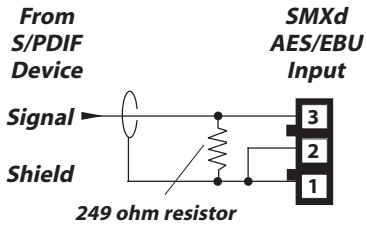
Digital Audio Inputs & Outputs

The 3-pin AMP MOD IV digital audio connector pinouts (shown at right, above) are pinned the same as those used on the BMX*digital* and RMX*digital* consoles.

The digital inputs are J13 (Input 5), J14 (Input 6), and J15 (Input 7). The digital outputs are J16 (PGM 1), J17 (PGM 2), and J18 (Mix-Minus).

The SMX*d* digital inputs can also handle most S/PDIF digital signals when a 249 ohm resistor is installed at the SMX*d* connector housing to load the 75 ohm S/PDIF cable. An un-

Connecting an S/PDIF Device to a MOD IV AES/EBU Input



Logic Connections

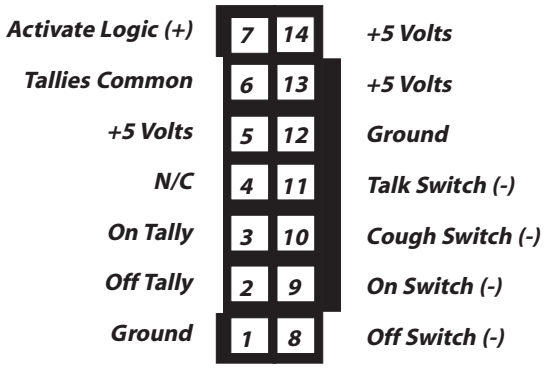
There are three logic connectors on the SMX*d*:

- J29, a 12-pin AMP MOD IV connector, with the warning tally output, talk tally output and external talk logic input.

12-pin Warning and Talk Logic Connector

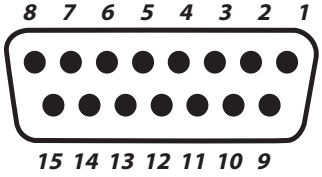
- J30, a 14-pin AMP MOD IV connector, for connecting an optional Harris mic panel to control Channel 1. When a mic control panel is connected, it functions in parallel with the front panel on/off and talk buttons.

14-pin Mic Remote Panel Logic Connector



- J33, a 15-pin female D-sub connector, with Channel 2 - 7 start logic outputs and a timer reset output.

15-pin Start & Timer Reset Logic Connector



1& 9 Timer Reset
2 & 10 - Ch 2 Start Pulse
3 & 11 - Ch 3 Start Pulse
4 & 12 - Ch 4 Start Pulse
5 & 13 - Ch 5 Start Pulse
6 & 14 - Ch 6 Start Pulse
7 & 15 - Ch 7 Start Pulse
8 - no connection

The J29 Tally outputs are solid-state versions of dry contact relays. The two Warning Tally contacts are a sustained contact closure while any Mic channel is On. The two Talk Tally contacts are a sustained contact closure while the Talk button is pressed on either channel 1 or the optional mic control panel. Each tally output can switch logic controls using up to 60 VDC at 350 mA.

External Talk (-) is a logic input, that when pulled low, while Activate Ext. Talk (+) is connected to +5 volts, routes External Talk audio to the room monitor and headphone outputs.

J30 is used to plug in an optional Harris mic control panel for remote control of the Channel 1 functions On, Off, Cough and Talk at a remote mic location. The mic control panel functions in parallel with the front panel buttons.

TRS Stereo Input & Headphones Output

There are two 1/4" unbalanced stereo TRS (Tip-Ring-Sleeve) connectors on the front panel of the rack version. For both, the Tip is the left channel, the Ring is the right channel and Sleeve is ground. The STEREO IN 4 TRS jack is a -10 dBv analog input for temporarily plugging in a portable stereo audio device into Channel 4. The second TRS jack (labeled 🎧 to the left of the channel 1 controls), is a standard stereo output jack for the talent's headphones.

On the desktop version, the TRS input jack (STEREO IN 4 TRS) is to the right of the meter display on the meter panel. The talent's headphone jack is inset in the left side panel, a few inches back from the front left corner of the SMX*d*.

Note: The TRS input jack audio is summed with audio on J3 (the Input 4 connector). Unless this is a desired function, do not use J3 and the front panel TRS input simultaneously.

Typical Audio Connections and DIPswitch Settings

Connect the preamp output of the board operator/talent's mic to pins 4, 5, 6 of J6, Mic (In 1). Set internal DIPswitch DS1-1 to on (on is toward the back panel).

One or two additional mic preamps can connected to inputs 2 or 3. When a mic is connected to J1 (Input 2), set DIPswitch DS1-2 to on. When a mic is connected to J2 (Input 3), set DIPswitch DS1-3 to on.

Connect a Telco device (a phone hybrid, ISDN, or any 2-way device that requires a mix-minus return signal) to any available analog or digital input (analog inputs are J1, J2 and J3, digital inputs are J13, J14 and J15).

DIPswitches DS1-4, -5, -6 define which input is the Telco channel per Table 1 on the next page. The return mix-minus feed to the Telco device connects to pins 1, 2 and 3 of J9 (for an analog return feed) or to J18 (for a digital return feed).

DIPSWITCHES, REAR VIEW
(OFF = TOWARD FRONT / ON = TOWARD BACK)

TABLE 2: PEAK LEVEL SET		
DS2-5	DS2-6	PEAK LEVEL
OFF	OFF	0 dB
ON	OFF	-2 dB
OFF	ON	-4 dB
ON	ON	-6 dB

1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
DS2	DS1

DS2
1 - UNUSED (SET OFF)
2 - UNUSED (SET OFF)
3 - UNUSED (SET OFF)
4 - UNUSED (SET OFF)
5 -] SEE TABLE 2
6 -]
7 - NO PEAK HOLD / PEAK HOLD#
8 - DISPLAY PK & AV / AV ONLY

DS1
1 - IN 1: LINE/MIC*
2 - IN 2: LINE/MIC*
3 - IN 3: LINE/MIC*
4 -]
5 -] SEE TABLE 1
6 -]
7 - UNUSED (SET OFF)
8 - UNUSED (SET OFF)

TABLE 1: MIX-MINUS CHANNEL			
DS1-4	DS1-5	DS1-6	CHANNEL
OFF	OFF	OFF	NONE
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5
OFF	ON	ON	6
ON	ON	ON	7

ONLY ACTIVE WHEN DS2-8 IS SET TO OFF.

* MIC SETTING MUTES MONITOR OUTPUT AT CHANNEL ON.

Connect analog or digital audio devices (CD players, routers, VistaMax outputs, recorders, etc.) to the remaining unused inputs (J1, J2 and J3 for analog devices; J13, J14 and J15 for digital devices). If any analog devices use unbalanced -10 dBv outputs, set the appropriate rear panel slide switch to the -10 dBv position (see the rear panel drawing on page 7 for switch setting details).

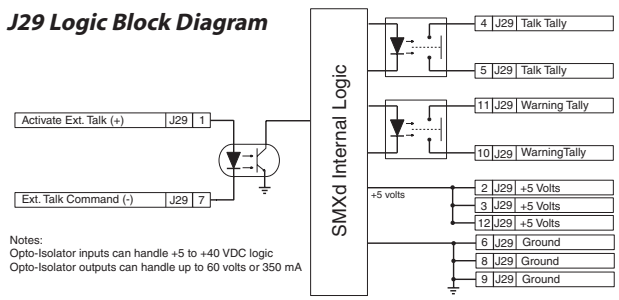
If a talkback system is being used, connect incoming talk audio to pins 1, 2, 3 of J6. Connect the outgoing talk audio wiring to pins 4, 5, 6 of J9.

Connect an analog External Monitor signal to J4 and connect powered monitor speakers to J7. The Program 1 analog stereo output is on J8 and the AES-3 digital output is on J16. The Program 2 analog stereo output is on J11 and the AES-3 digital output is on J17.

Logic Interface

All logic inputs and outputs use the same type of circuits as shown in block diagram form for J29, below. To activate inputs (like Ext. Talk on J29, pin 7), jumper the Activate (+) input to a + voltage source (any +5 Volts pin can be used with an isolated control panel). On J29, pin 1 can be jumpered to pin 2. Inputs are activated by a logic low, so a "Talk to SMX*d*" push switch (SPST) connects to pin 7 and 8 (Ground). The Talk Tally output (pins 4 and 5) can be used to control an audio relay for switching in the talk audio output (on J9) to an external location.

J29 Logic Block Diagram



Notes:
Opto-Isolator inputs can handle +5 to +40 VDC logic
Opto-Isolator outputs can handle up to 60 volts or 350 mA

Pins 10 and 11 connect to a dry-contact input warning lamp interface (like the Harris WL-2). If the warning interface requires high or low logic, and it is isolated, then J29 pin 12 (+5 Volts) or J29 pin 9 (Logic Ground) can be used to supply the proper logic through J29 pins 10 or 11, otherwise source ground or power from the warning lamp interface.

J33 has six 250 msec start command contact closures for CD players and other remote-start devices. Channel 2 through 7 have separate outputs. Each output is identical to the Talk Tally connection on J29 (a solid-state dry contact). There is also a timer reset output, for resetting an event timer, on J33.

Internal DIPswitch DS2 Settings

DS2 has eight switches. DS2-1 thru -4 are not used in SMX*d*. Table 2 (Peak Level Set), shown above, details the DS2 switch settings.

DS2-5 and DS2-6 set the signal level where the blue peak LEDs turn on. The default setting is 0 dB, but the level can be set to 0, -2, -4, or -6 dB below full scale.

DS2-8 sets the meter display format. When DS2-8 is set to on, then only the average audio level is shown (a solid bar indicating average level). When DS2-8 is set to off (the default setting) both average and peak indications are shown.

With DS2-8 set to off, DS2-7 becomes active. It sets whether the peak indication is held for about one second, or whether it immediately starts to decay. The peak indications always decay at about 1 segment per 1/4 second.

To identify each channel's source, remove the channel on/off button lens by prying up on the top edge. Use clear label tape or clear mylar to label the channels. Place the trimmed mylar onto the buttoncap and snap the lens back in place. A Word® template (Harris # 71-1961) is available for downloading at the customer support FTP site: *ftp://ftp.pre.com/customer_support/RMXdigital_console*. Log in (username) is `customer`. Password is `pacific`.

Specifications

Test Conditions: FSD=Full Scale Digital, +24 dBu. Specifications are per channel, analog outputs with 600 ohm loads. 0 dBu equals 0.775 V RMS, regardless of circuit impedance (=0 dBm into a 600 ohm circuit). Noise measurements use 22 kHz BW (add 1.7 dB with a 30 kHz BW). Total Harmonic Distortion (THD + Noise) measured at +18 dBu using a 1 kHz signal or a swept signal with a 22 kHz low pass filter.

Analog Inputs & Outputs
Input Impedance: >40k, balanced
Nominal Input Levels: -10 dBv or +4 dBu (DIP switch set)
Maximum Input Level: +24 dBu
Output Source Impedance: <3 ohms, balanced
Output Load Impedance: 1k ohm, minimum
Nominal Output Level: +4 dBu
Maximum Output Level: +24 dBu

Digital Inputs & Outputs
Reference: -20 dB FSD (equivalent to a +4 dBu analog level)
Signal Format: AES-3, S/PDIF (input only)
AES-3 Input Compliance: 24-bit with sample rate conversion on all inputs
AES-3 Output Compliance: 24-bit
Digital Reference Frequency: Internal crystal
Internal and Output Sample Rate: 48 kHz

Mixing & Conversion
Processing Resolution: 24-bit fixed with external precision accumulators
Conversions: A/D 24-bit Delta-Sigma, 128x oversampling on digital inputs; D/A 24-bit, Delta-Sigma, 128x oversampling.
Latency: <1.6 ms, analog input to analog output; <300 µs digital in to digital out

Frequency Response & Dynamic Range
Analog In to Analog Out: +0 dB/-0.65 dB, 20 Hz to 20 kHz
Analog In to Analog Out: 101 dB, 104 dB "A" weighted (both referenced to FSD)
Analog In to Digital Out: 104.5 dB (referenced to FSD)
Digital In to Analog Out: 103.5 dB, 106.5 dB "A" weighted (both referenced to FSD)
Digital Input to Digital Output: 115 dB

Total Harmonic Distortion + Noise
Analog Input to Analog Output: <0.003%, @ 1 kHz, +18 dBu input and output, 22 kHz filter bandwidth
Digital Input to Digital Output: <0.0005%, @ 1 kHz, -6 dB FSD input and output, 20 kHz filter bandwidth
Digital Input to Analog Output: <0.002%, @ 1 kHz, -6 dB FSD input, +18 dBu output, 22 kHz filter bandwidth

Crosstalk Isolation and Left/Right Separation
Isolation between any analog inputs or outputs: >80 dB, 20 Hz - 20 kHz; > 96 dB @ 1 kHz
Separation: >86 dB

Power Supply
Type: External, multiple output (+15, -15, +5)
Input AC voltage: 95 - 264 VAC, 50/60 Hz (auto-input voltage sensing)
AC input: IEC power cord
Cooling: Convection cooled, no fans

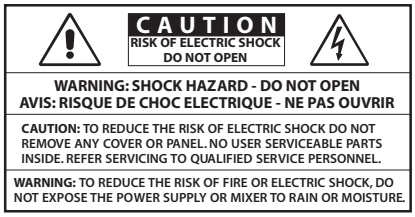
Dimensions
SMXd Rack-Mount: 7" x 19.0" x 3.0" (H, W, D) (4 RU)
SMXd desktop: 4" x 16" x 17" (H, W, D)

Harris Corporation reserves the right to change specifications without notice or obligation.

Safety Instructions

1. **Read All Instructions.** Read all safety and operating instructions before operating the product.
2. **Retain All Instructions.** Retain all safety and operating instructions for future reference.
3. **Heed All Warnings.** You must adhere to all warnings on the product and those listed in the operating instructions.
4. **Follow All Instructions.** Follow all operating and product usage instructions.
5. **Heat.** This product must be situated away from any heat sources such as radiators, heat registers, stoves, or other products (including power amplifiers) that produce heat.
6. **Ventilation.** Slots and openings in the product are provided for ventilation. They ensure reliable operation of the product and keep it from overheating. Do not block or cover these openings during operation. Do not place this product into a rack unless proper ventilation is provided and the manufacturer's recommended installation procedures are followed.
7. **Water and Moisture.** Do not use this product near water such as a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool or the like.
8. **Attachments.** Do not use any attachments not recommended by the product manufacturer as they may cause hazards.
9. **Power Sources.** You must operate this product using the type of power source indicated on the marking label and in the installation instructions. If you are not sure of the type of power supplied to your facility, consult your local power company.
10. **Grounding and Polarization.** This product is equipped with a polarized AC plug with integral safety ground pin. Do not defeat the safety ground in any manner.
11. **Power Cord Protection.** Power supply cords must be routed so that they are not likely to be walked on nor pinched by items placed upon or against them. Pay particular attention to the cords at AC wall plugs and convenience receptacles, and at the point where the cord plugs into the product.
12. **Lightning.** For added protection for this product, unplug it from the AC wall outlet during a lightning storm or when it is left unattended and unused for long periods of time. This will prevent damage to the product due to lightning and power line surges.
13. **Overloading.** Do not overload AC wall outlets, extension cords, or integral convenience outlets as this can result in a fire or electric shock hazard.
14. **Object and Liquid Entry.** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts, which could result in a fire or electric shock. Never spill liquid of any kind on the product.
15. **Accessories.** Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult and serious damage to the product. Any mounting of the product must follow manufacturer's installation instructions.
16. **Product and Cart Combination.** Move this product with care. Quick stops, excessive force, and uneven surfaces may cause the product and the cart combination to overturn.
17. **Servicing.** Refer all servicing to qualified servicing personnel.
18. **Damage Requiring Service.** Unplug this product from the wall AC outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the AC cord or plug is damaged.
    b. If liquid has been spilled or objects have fallen into the product.
    c. If the product has been exposed to rain or water.
    d. If the product does not operate normally (following operating instructions).
    e. If the product has been dropped or damaged in any way.
    f. When the product exhibits a distinct change in performance. This indicates a need for service.
19. **Replacement Parts.** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.
20. **Safety Check.** Upon completion of any repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
21. **Cleaning.** Do not use liquid or aerosol cleaners. Use only a damp cloth for cleaning.

Hazard/Warning Labels



The **Exclamation Point symbol**, within an equilateral triangle, alerts the user to the presence of important operating and maintenance (servicing) instructions in product literature and instruction manuals.

The **Lightning Flash With Arrowhead symbol**, within an equilateral triangle, alerts the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warranty

StereoMixer® digital carries a manufacturer's warranty subject to the following guidelines and limitations:

A) Except as expressly excluded herein, Harris Corporation ("Seller") warrants equipment of its own manufacture against faulty workmanship or the use of defective materials for a period of one (1) year from date of shipment to Buyer. The liability of the Seller under this Warranty is limited to replacing, repairing, or issuing credit (at the Seller's discretion) for any equipment, provided that Seller is promptly notified in writing within five (5) days upon discovery of such defects by Buyer, and Seller's examination of such equipment shall disclose to its satisfaction that such defects existed at the time shipment was originally made by Seller, and Buyer returns the defective equipment to Seller's place of business in Mason, Ohio, packaging and transportation prepaid, with return packaging and transport guaranteed.

B) Equipment furnished by Seller, but manufactured by another, shall be warranted only to the extent provided by the other manufacturer.

C) Thermal filament devices, such as fuses, are expressly excluded from this warranty.

D) The warranty period on equipment or parts repaired or replaced under warranty shall expire upon the expiration date of the original warranty.

E) This Warranty is void for equipment which has been subject to abuse, improper installation, improper operation, improper or omitted maintenance, alteration, accident, negligence (in use, storage, transportation, or handling), operation not in accordance with Seller's operation and service instructions, or operation outside of the environmental conditions specified by Seller.

F) This Warranty is the only warranty made by Seller, and is in lieu of all other warranties, including merchantability and fitness for a particular purpose, whether expressed or implied, except as to title and to the expressed specifications contained in this manual. Seller's sole liability for any equipment failure or any breach of this Warranty is as set forth in subparagraph A) above; Seller shall not be liable or responsible for any business loss or interruption, or other consequential damages of any nature whatsoever, resulting from any equipment failure or breach of this warranty.