Whirlwind AS8X4

The AS8X4 Active Splitter is a 1 rack space, 8-channel active microphone splitter providing 4 isolated outputs per channel. It features:

- Professional quality mic preamps driving premium quality Lundahl LL1581XL transformers. This eliminates microphone loading effects characteristic of passive splitters
- 4 transformer isolated outputs optimized for transmitting audio down long cables
- All I/O connections via plug-in Phoenix style screw type terminal strips
- 48-volt phantom power with on/off switch and indicating LED provided on each channel
- 20dB input pad
- Listen (cue) feature on each channel
- LED headroom indicators on each channel
- Ground lift switches on all isolated outputs
- Internal switches allow 3 different gain settings of the mic preamp
- 2 additional internal jumpers (user changeable without soldering) engage post mic preamp 20dB pads for flexibility in setting different gain structures for various cable lengths
- Up to 80 channels of split are capable with multiple units and the appropriate power supply
- Modular design allows for future expansion and individual units are easily changed in the unlikely event they need servicing
- Power supply and monitor are a separate unit and utilize various wattage supplies, depending on the number of channels in the system
- Monitor section features a high power headphone driver and VU meter for instant cueing of individual channels

Description of Block Diagram

All audio input and output connections are done via a plug-in type Phoenix style screw type barrier strips. Each inline strip accommodates 4 channels. On the back panel, all input and iso outputs are separate groups. The strips allow termination of wire ends without the splitter unit present and provide for quick and easy connect/disconnect. The Direct IN/OUT terminations, which accept a mic level input, are used for generating a direct-wired parallel output should a 5-way splitter be desired.

Each channel has its own phantom power on/off switch with LED indicator. When engaged, 48 volt phantom power is placed on the Direct IN/OUT + and – terminals. The individual phantom power on/off switches allow worry free hook up to electronic equipment not able to block the 48 volts DC.

After the input, the signal passes thru a 20dB pad. This allows input of line signal levels up to +20dBm.

After the 20dB pad, the signal is amplified 20, 30, or 40dBm by the microphone preamp. This low noise preamp provides 20dB of gain and adds only a few dB of noise. When used with the 20dB pad for unity gain, the unit generates 116dB maximum signal to noise ratio. Therefore, with 20dB of headroom the AS8X4 provides 96dBm “working” signal to noise ratio.

Following the microphone preamp, the signal is distributed to 4 sections - Iso1/2 driver, Iso3/4 driver, headroom circuit, and cue buss circuit.

The Iso outputs are broken into 2 sections Iso 1/2 and Iso 3/4.
The signal passes through a receiving op-amp to a 20dB T pad that is user selectable (internally) on or off. Each group (1-2 and 3-4) therefore can independently have the T pad engaged, allowing one to send hotter signals down longer lengths of cable. With the mic preamp at 20dB of gain and the T pad engaged and attenuating 20dB, unity gain is preserved. This is the factory default setting. A mic to line level conversion (20-40dB of gain) is done with the T pads off. By utilizing various combinations of settings, the overall gain structure can be set from 0 to 40dB in 10dB increments.

After the T-pad, signal is input to Lundahl 1581XL transformers which balances the signal and presents it to the screw terminal outputs. This PC mount transformer offers excellent performance with low distortion and high noise immunity.

Following the mic preamp, the audio signal is also distributed to the headroom LED and cue circuits.
The headroom circuit displays the amount of headroom left before clipping. 0, 12 and 24dB headroom LEDs visually indicate headroom and show signal level problems quickly.

The cue circuit buffers (isolates) the signal. Each momentary switch on the front panel places the signal from that channel on the cue buss that is then sent to the monitor. There, it may be listened to on headphones and metered in dB by the VU meter.

Description of controls

AS8X4 unit front panel:

Each channel provides a phantom on/off switch, a pad switch and a monitor button.
Engaging the phantom on/off places 48VDC on the + and – terminals of the Direct IN/OUT terminal strips, and lights the phantom LED indicator.
Engaging the PAD switch attenuates input signal 20dB allowing it to accept line level signals.
The monitor button is momentary style and when pressed, that channel’s audio will be sent to the headphone jack and VU meter on the monitor unit.

Rear Panel:

The rear panel contains:

- 5 terminal strips - Direct IN/OUT and Iso 1-4. Each of the wire end screw type terminals handles 4 channels
- Individual ground lift switches for every Iso output on the unit
- A 9-pin DSUB connector that connects the monitor unit and supplies DC power to the AS8X4

As8x4 MONITOR UNIT

The monitor unit is available with various wattage power supplies depending on the number of channels needed in the system. The units are available in 2 configurations, rack mount with the supplies mounted to the rack panel, or a 2 space rack unit for the monitor section only with the supplies located in a separate Hoffman box with multipin connects. The monitor unit can be configured to handle up to 10 AS8X4 splitter units or 80 channels.

Specifications:

Frequency response	± .15dBv 31Hz - 18KHz, -3dBv at 20Hz, -1.53dBv at 2(
Total harmonic distortion + noise	.0019 % at 1KHz –14dBv
Phase shift	.4 degrees at 1KHz
Equivalent input noise	120dBv
Total gain	40dBv
Gain of microphone preamp	20, 30 or 40dBv selectable
Common mode rejection of input	90dBv at 60Hz
Maximum input level	0dBv
Input impedance	1.2K Ohms
Maximum output level	+22dBv
Output impedance	80 Ohms T pad on, 22 ohms T pad off
Headphone output impedance	13 Ohms
Minimum impedance of headphones	30 Ohms
Noise at unity gain	-116dBv
Noise at 40dBv of gain no T pad	-80dBv
Noise at 30dBv of gain no T pad	-89dBv
Headroom LED threshold	0, -12 –24dBv
Phantom power	+ 48 volts DC
Max output of headphones at 30 Ohms	+8dBv