

# LP4 32

## USER MANUAL



TW LP4 32 (Location Production) stereo microphone mixer is a compact portable three-channel unit designed for electronic news gathering (ENG) quality sound mixing in a motion picture or television film.



## LEFT SIDE PANEL

- **Balanced channel inputs** – three electronically balanced circuits (transformer balanced is optional) in phase with one another. XLR connectors should be wired as pin1 ground, pin2 +phase signal and pin3 –phase signal.
- **Microphone powering selector switches** – The input sensitivity in position D is DYN 200 = 0.2 mV and no power. Selected 48, 12, T, mic powering, 10 dB of attenuation is automatically introduced, considering the sensitivity of condenser mics.
- **Phase reverse switches** – Intended to compensate for a phase error due to wiring or mic placement.
- **Phantom on / off switch** – Phantom power supply may be switched off (only if using dynamic, wireless or T powering mics).
- **Attenuation switches** – The gain of the mic preamplifiers may be decreased by –10 dB in position D. In positions 48, 12 and T the attenuation is –13 dB.
- **Mic / line level switches** – Selects mic or line to add –60 dB attenuation before the mic preamplifiers.



## FRONT PANEL

- **Modulometers** – Continuous lighting, peak reading, BBC 1-7, dB or VU scaling, built-in red LEDs indicate when the gain reduction is occurring with the limiters switched on.
- **Battery check pushbutton**
- **6.3 and 3.5 mm phone jacks**
- **Monitor selector switch** – ST stereo, L+R summed left and right, MS stereo, PFL 1,2,3, each channel can be checked by monitoring, output signal is not interrupted when PFL is activated.
- **Phones volume control** – Output voltage into 50  $\Omega$  adjustable from 20 to 500 mV.
- **Limiter switch** – Three position switch selects:- LIMITER - is on dual-mono operation - OFF- is on bypass - LINK – is on stereo operation. Limiters have fast attack time (less than 1 msec) and a slow release time to smooth operation. Two red LEDs are built in the meters to indicate when the limiters are selected and gain reduction is occurring. Threshold is internally set to + 6dBu at the balanced output. To adjust the threshold for a value different from the supplied + 6dBu see page Adjustment Points.
- **Tone switch** – 1 kHz sine wave signal is fed to both left and right outputs.
- **Slate microphone** – It can be used either for identifying recorded segments or as an emergency field microphone.
- **Low-cut filter switches** – Low frequency attenuation is 14 dB / octave at 80 or 160 Hz.
- **Pan switches** – Assign selected input signal to Left or Right output. In M position, equal amount of signal is sent to Left and Right outputs. The S position of Pan switch 1 assigns Channels 1–2 as stereo pairs controlled by Channel 1 Fader respectively.
- **Channel gain controls** – Adjust the gain level of each input channel during operation.
- **EE / RTN12 switch** – A two-position switch selects the direct outputs from the mixer or the return 1 and 2 as a signal source for the monitoring.
- **PWR LED** – A red LED lights to indicate power is on. Flashes when voltage is 10.5 Vdc.
- **Power switch** – In position EXT the mixer will be powered by an external DC supply and in BATT by the internal batteries. Batteries should be recharged with the switch in EXT position.



## RIGHT SIDE PANEL

• **Balanced outputs** – The main outputs are via transformer balanced XLR connectors and a Hirose 10pin multiway connector is also fitted to facilitate rapid connection of outputs and monitor returns. The line level is set on 600  $\Omega$  at 0 dBu and +4 dBu for VU metered mixers. The Hirose 10pin connector is wired as follows:

pin 1. +LEFT output	pin 5. RIGHT return
pin 2. –LEFT output	pin 6. N / C
pin 3. +RIGHT output	pin 7. LEFT return
pin 4. –RIGHT output	pin 8. N / C
pins 9., 10. GROUND	

• **Unbalanced output** – A TA 5 connector carries an unbalanced stereo output signal – at a level 3 dB lower than balanced outputs – to feed a recorder, and monitor returns. The XLR 5pin connector is wired as follows:

pin 1. GROUND	
pin 2. LEFT output	pin 4. LEFT return
pin 3. RIGHT output	pin 5. RIGHT return

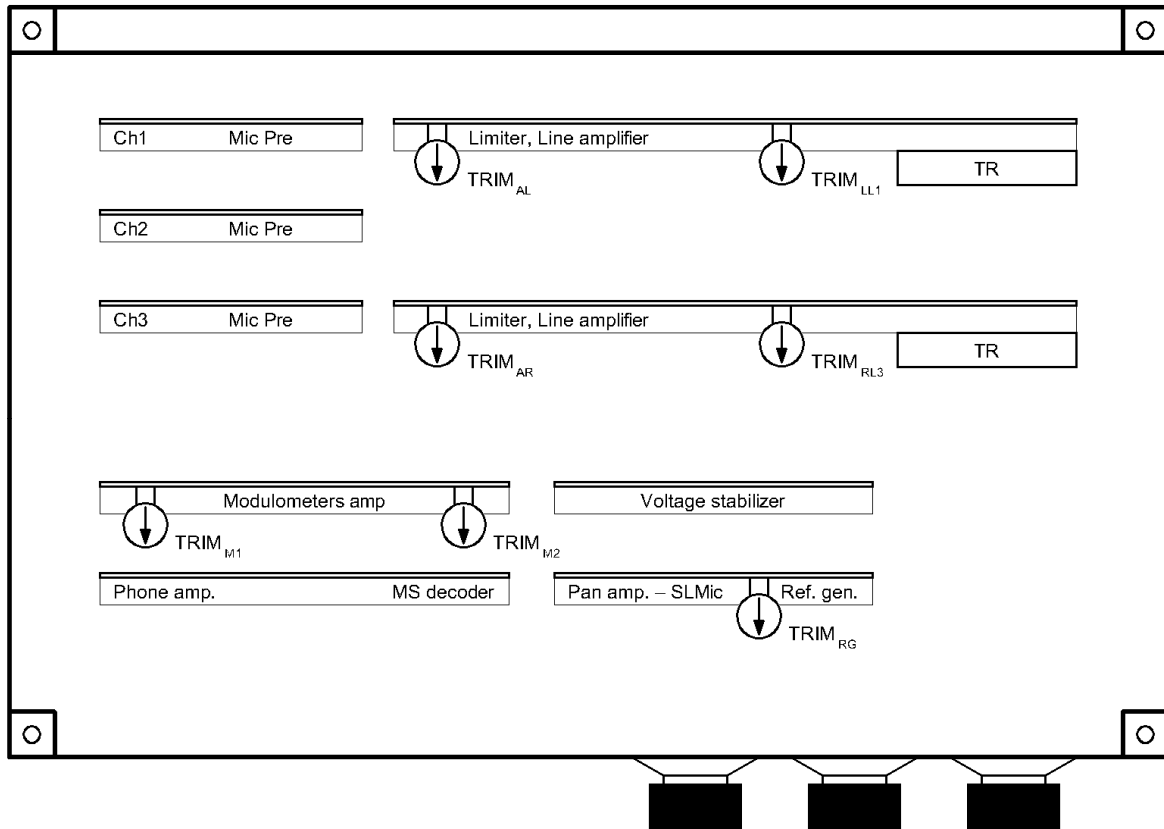
• **Line / mic level switch** – The line level at XLR and Hirose connectors can be attenuated by 50 dB to provide the microphone level.

### • 3.5 mm stereo monitor input jack

• **Return 1 or 2 selector switch** – In position RTN1 the 3.5 jack and Hirose returns are chosen for monitor, switched to RTN2 the returns of TA 5 will be fitted by the monitoring circuits.

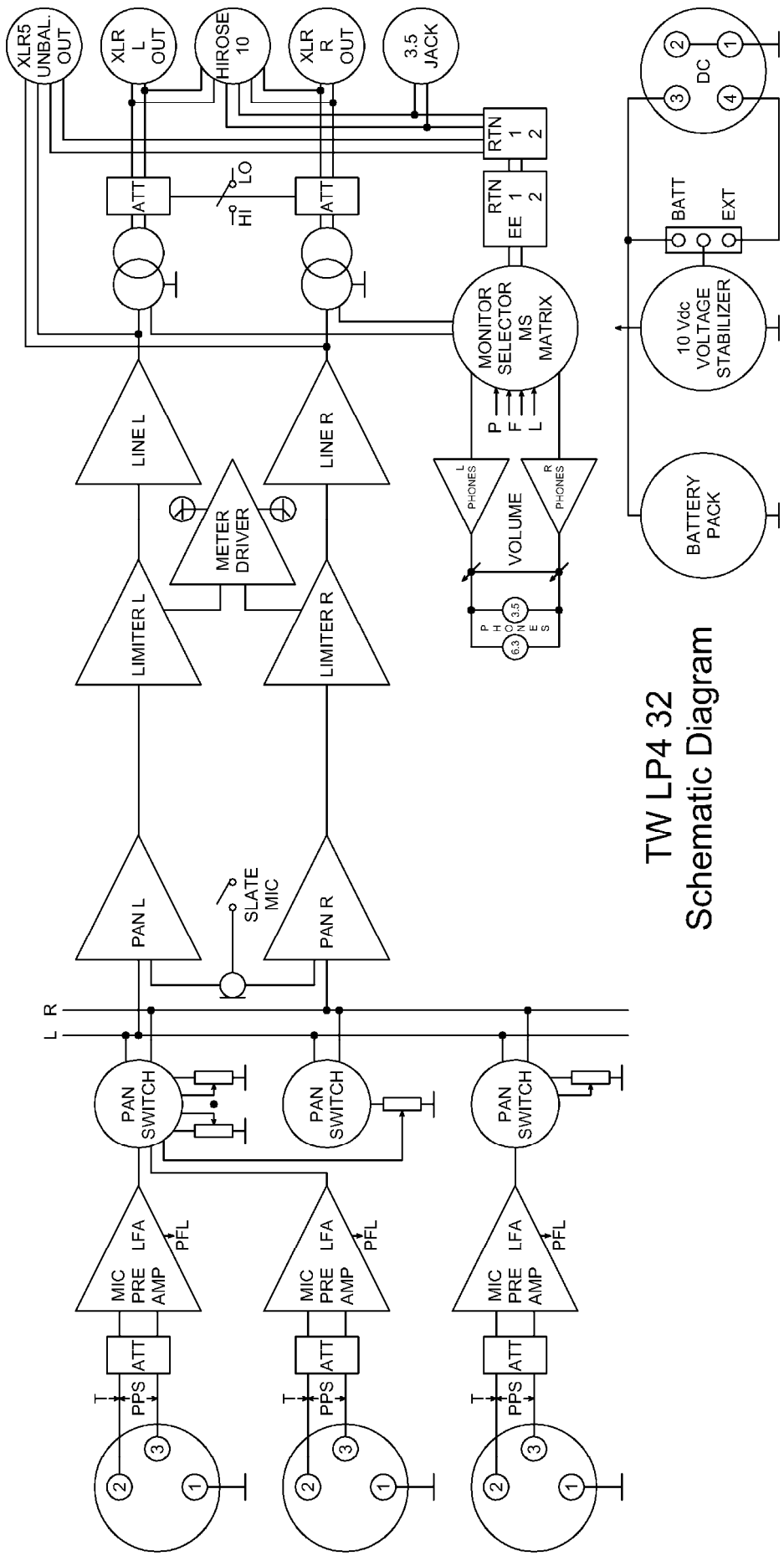
• **Power supply** –The DC power stabiliser of TW mixer has built-in Poly-Fuse to protect the unit. If a problem occurs that trips this fuse, it will reset after the power supply is disconnected for about 15 seconds. The mixer may be powered by 9 pieces internal AA size rechargeable batteries or an external DC supply 12-24 Vdc. Fully charged batteries will typically power the mixer for 8 hours at continuous use. The external 4pin connector is wired as follows:

pin 1., 2. GROUND	pin 3. Battery Charge	pin 4. External 12-24 Vdc
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## ADJUSTMENT POINTS

- Gain and modulometer adjustment** – Connect an AC voltmeter to the Left balanced line output. Set channel 1 pan switch to L position, turn channel 1 fader fully clockwise, Master potentiometer in 0 dB position and switch LFA off. Connect an audio generator 1 kHz 0 dBm attenuator –80 dB to Mic 1 Input and adjust TRIM<sub>AL</sub> in the Left Limiter amplifier to obtain 0 dBu (+4 dBu on VU metered mixers) at the Left balanced output. Then adjust TRIM<sub>M1</sub> in the Left Modulometer amplifier board to obtain 0 dB on the Left meter. Cut off the input signal and switch on the Reference Generator . Adjust TRIM<sub>RG</sub> to obtain 0 dB on the Left modulometer. Repeat for Right output and Right modulometer.
- Limiter threshold adjustment** – Connect an AC voltmeter to the Left balanced line output. Apply a 1 kHz signal until the AC voltmeter reading is at the level desired with limiter switched off. Switch on the limiter and adjust TRIM<sub>LL1</sub> in Left limiter amplifier until the level drops 0.5 dB. Repeat for Right output and Right limiter trimpot.



TW LP4 32  
Schematic Diagram

## SPECIFICATIONS

### • Inputs

Microphone: three transformerless XLR female  
Sensitivity: -75 dBu  
Maximum input level: -20 dBu  
Microphone power: 48 V, 12 V, T (DIN AB)  
Line attenuation: adds 60 dB attenuation before the mic preamp.  
Signal to Noise ratio: > 65 dB, Equivalent Input Noise: -125 dBu  
Frequency response: 20 Hz - 20 kHz  $\pm 2$  dB  
Harmonic distortion: less than 0.2 %  
Low-cut filter: 80 or 160 Hz / 14 dB octave  
Crosstalk isolation, channel to channel: < -65 dB

### • Outputs

Line: transformer balanced XLR	
Line level when 0 is on the dB scaling meter	0 dBu
4 is on the 1-7 scaling meter	0 dBu
0 is on the VU scaling meter	+4 dBu
Unbalanced line and monitor returns	
Maximum output level:	+18 dBu

- Internal power: 9 AA size rechargeable batteries
- External power: 11-25 Vdc
- Power consumption: 70 mA
- Dimensions: 205x131x65 mm (8.1x5.2x2.6 in)
- Weight: 1.3 kg (2.9 lbs)



ELECTRONIC COMPONENTS

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