



LP4

USER MANUAL



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



LEFT SIDE PANEL

- **Balanced channel inputs** – four 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.

- **Phantom on / off switch** – The current consumption of the phantom power supply is 13 mA. Phantom power supply may be switched off (only if using dynamic, wireless or T powering mics) to increase the lifespan of the internal batteries between two chargings.

- **Mic / line level switches** – Selects mic or line to add –60 dB attenuation before the mic preamplifiers.

- **Shoulder strap attachment point**



FRONT PANEL

- **Modulometer** - With continuous lighting. Red LED indicates when limiter is selected and gain reduction is occurring.
- **Limiter on/off switch** - The limiter attack time is less than 2msec, release time is 500msec, threshold is internally set to +6dBu at the balanced output. To adjust the limiter threshold for a value different from the supplied +6dBu see page "ADJUSTEMENT POINTS".
- **Channel level controls**
- **EE/PB switch** - A switch selects the direct output from the mixer or the tape returns as the signal source for monitoring.
- **Quarter-inch phone jack**
- **Monitor select switch** - In "O" position you can listen to the set mono sign. In "⊗" position (while EE/PB switch is in "PB" position) you can listen to the left-right sign driven back from DAT.
- **Main switch** - In "MONO" position on the outputs you get the mono sign set with the potentiometers. In "ST" position after the potentiometer the sign is connected from the preamplifier output of mic 1 to pin 2 (LEFT) of the "TO DAT" connector. Mic 2 is on pin 3 (RIGHT). Output level of preamplifiers is 370mV. Third and fourth mic inputs are mono signs on "BALANCED OUTPUT" and "TO DAT" output too depending on the position of controllers. In "PILOT" position the mixed sign of the microphones is connected to pin 2 (LEFT) of "TO DAT". In this case "PILOT IN" input is connected to pin 3 (RIGHT) of "TO DAT" and is able to receive an external time code.
- **Low-cut filter switch** - Low frequency attenuation is 14dB at 50Hz.
- **Battery check pushbutton** - Depressed "BATT" button converts modulometer to a battery condition or supply voltage. Readings of 0dB or higher indicate good batteries or adequate external supply.
- **Reference generator switch** - 1kHz sine wave signal is fed to the output at a nominal level of 0dB.
- **Slate microphone** - It can be used either for identifying recorded segments or as an emergency field microphone.
- **Power switch** - In position "EXT." the mixer will be powered from the external DC supply whilst in position "BATT." the mixer will operate from the internal batteries. Batteries should be recharged with the switch set to "EXT.".
- **Master** - Output level control.



RIGHT SIDE PANEL

- Shoulder belt fastening

- **Pilot level** - Control of level control of pilot sign.

- **Pilot in** - The sign connected to RCA connector is driven only to pin 3 (RIGHT) of "TO DAT" connector.

- **Phones volume** - Headphones output voltage on 50Ω adjustable from 20 to 500mV.

- **3.5mm monitor input** - Switching jack assigns external line level source to headphone output jack without interrupting other mixer functions.

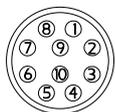
- **Mic/line switch** - switches XLR3 and 10 pin Hirose output.

- **Power supply** - The mixer may be powered by internal alkaline or rechargeable batteries or an external DC supply +12 to +24V 150mA. Fully charged PANASONIC P 90AAS NiCd batteries will typically power the mixer for 7 hours at continuous use. Full charging time is 14 hours. The external DC supply input socket is an AMPHENOL 6 pin type. The pin connections are as follows:



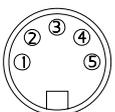
- pin 2 - mixer supply from 12 to 24V
- pin 4 - stabilizer 10V voltage out +
- pin 5 - ground
- pin 6 - charge +

- **Balanced output** - The main output is via transformer balanced on 3 pin male XLR connector and on 10 pin Hirose connector in parallel with XLR outputs. Line output voltage on 600Ω for 0dB on the modulometer is 1.5V. Pins 5 and 7 of the Hirose connector are connected to the monitor. The pin connections are as follows:



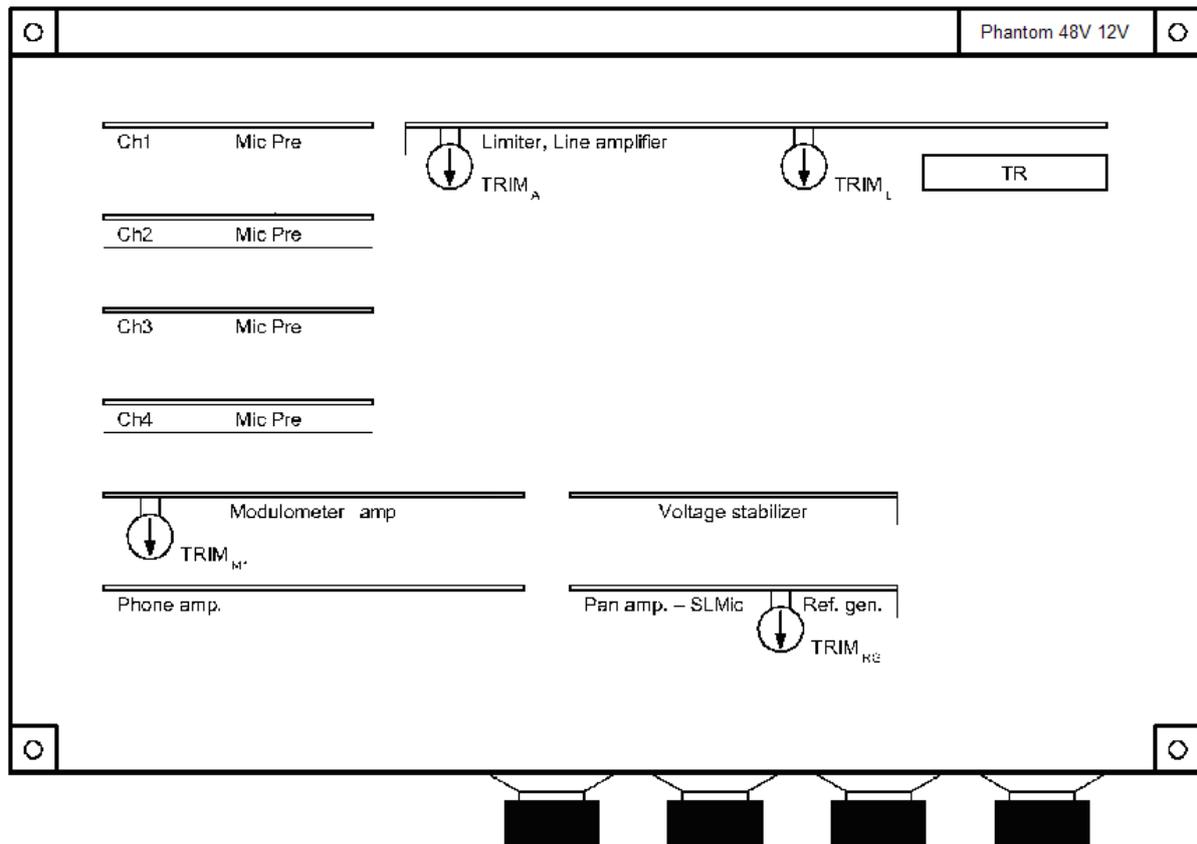
- pin 1 - output +
- pin 5 - RIGHT return +
- Ground: pins 6, 8, 9, 10
- pin 2 - output -
- pin 7 - LEFT return +

- **Unbalanced output** - Output voltage on 600Ω for 0dB on the modulometer is 0.775V. Pins 4 and 5 are connected to the monitor. The pin connections are as follows:



- pin 2 - LEFT output +
- pin 4 - LEFT return +
- Ground: pin 1
- pin 3 - RIGHT output +
- pin 5 - RIGHT return +

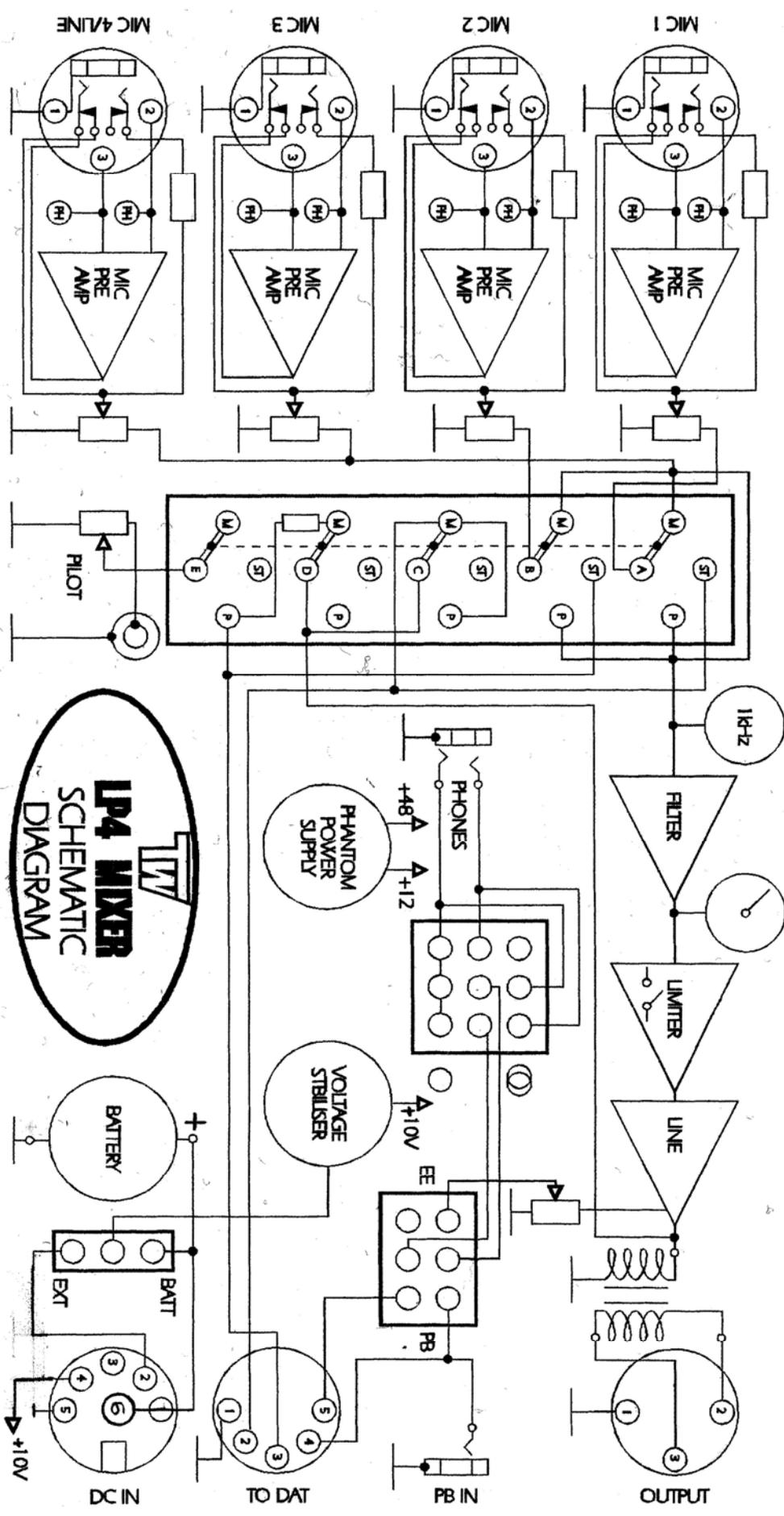
NP1 battery holder - The switched mixer supply is derived either from the internal AA batteries or from NP1 battery depending on the position of the panel side switch.



ADJUSTEMENT POINTS

Gain and modulometer adjustment - Connect an AC voltmeter to the balanced output. Turn channel 1 potentiometer fully clockwise, Master potentiometer in 0dB position and switch filter to position "FLAT". Apply 370mV/1kHz to the MIC 1/LINE input, adjust $TRIM_A$ in the Line amplifier to obtain 0dBu at the balanced output. Then adjust $TRIM_M$ in the Modulometer amplifier to obtain 0dB on the meter. Cut off the input signal and switch on the reference generator. Adjust $TRIM_{RG}$ in the Reference generator amplifier to obtain 0dB on the meter.

Limiter treshold adjustment - Connect an AC voltmeter to the balanced line output. Apply a 1kHz signal until the AC voltmeter reading is at the level desired with limiter switched off. Move the limiter switch in "LIMITER" position and adjust $TRIM_L$ in Limiter amplifier until the level drops 0.5dB.



LP4 MIXER
SCHEMATIC
DIAGRAM

SPECIFICATIONS

- Inputs
 - Microphone 200 Ω 0.2mV
 - Line 100k Ω 370mV
 - Mic power +48V, +12V, +10V
- Outputs
 - Balanced line on 600 Ω 0dB on the modulometer..... 0dBu(VU scaled+4dBu)
- Frequency response 50Hz-20kHz..... \pm 2dB
- Low-cut filter 14dB/octave
- Harmonic distortion..... less than 0.5%
- S/N ratio (all channel volume counterclockwise)..... -69dB
- Powering
 - External 11-25V DC
 - Internal 14 AA size rechargeable batteries or NP1
- Power consumption..... 60mA
- Dimensions..... 255mm X 165mm X 65mm
- Weight with 14 PANASONIC rechargeable batteries..... 2.5kg

FURNISHED ACCESSORIES

- Carrying case
- Shoulder strap

OPTIONAL ACCESSORIES

- Charger adapter model NC3434
- AC adapter model EB 407A
- Carrying case to be used with DAT (bigger size)
- Cable to BETA and DAT
- PANASONIC P-90AAS rechargeable NiCd batteries
- AA battery holder
- NP1 battery holder