

# ENGLISH



## General Description:

The Unity 300 mixer has four mono channels with discrete low noise microphone preamps and four stereo line level channels. The mic channels have input gain controls, insert jacks, two band equalization, two post-fader auxiliary sends, pan controls, and rotary level controls. Phantom 48V power (globally switched) is available to all of the XLR mic input connectors.

The stereo channels have all the control functions of the mono channels, except the input gain controls.

Two stereo returns, with level controls to the L/R mains, can be used as effect returns.

RCA type stereo tape inputs and outputs are provided, with sends to the Left and Right mix. The main L/R outputs are balanced (TRS). Headphone circuitry provides a separate signal (unaffected by the master level control) to drive either headphones or an alternate stereo output.

A dual 12 segment LED meter array gives L/R output level indication.

## **Control Functions:**

### **1. LINE INPUT:**

1/4" balanced (TRS) high impedance input for high level signals. The tip is the positive input, which should also be used for unbalanced inputs. This input is connected through a 10dB pad to the MIC input (# 2) . The two inputs cannot be used simultaneously.

### **2. MIC INPUT:**

XLR balanced low impedance channel input optimized for a microphone or other low level source. Pin 2 is the positive input. Because of the wide range of gain adjustment, signal levels up to -10dBu (245 mv) can be accommodated.

### **3. INSERT:**

1/4" stereo (TRS) jack which allows an external device to be inserted into the signal path before the tone equalization. The tip has the send signal, the ring is the return input. A switch in the jack normally connects the send to the return until a plug is inserted.

### **4. GAIN:**

Varies the input gain to allow for a wide dynamic range. Proper adjustment of the input gain will maximize the signal to noise ratio.

### **5. HI EQ:**

A shelving type of active tone control that varies the treble frequency levels +/-15dB at 10KHz. It is designed to remove noise or to add brilliance to the signal, depending on the quality of the source.

### **6. LOW EQ:**

A shelving type of active tone control that varies the bass frequency levels +/-15dB at 70Hz. It will add depth to thin signals, or clean up muddy ones.

### **7. AUX 1:**

Adjusts the level of the channel signal that is added to the Aux 1 mix. It is post-level, designed for use as an effects send. In the stereo channels, it is a mono mix of the left and right signals.

### **8. AUX 2:**

Adjusts the level of the channel signal that is added to the Aux 2 mix. It is also post-level, designed for use as another effects send. In the stereo channels, it is a mono mix of the left and right signals.

### **9. PAN: S**

Sets the channel's position in the L/R stereo field. Acts as a balance control in the stereo channels.

### **10. LEVEL:**

Channel output level control. The level can be adjusted from off to +20dB of gain. The optimum setting for this control for best signal to noise is the detent (unity gain) position.

### **11. HEADPHONE LEVEL:**

Adjusts the level of the headphone output. It is independant of the Master L/R level control and can be used as an auxillary L/R output is needed.

**12. RETURN INPUT:**

High impedance 1/4" input for line level signals. These are designed for effect returns, but can be used for additional stereo inputs. The Left/Mono input supplies signal to both the left and right inputs if there is no input connected to the right input jack.

**13. STEREO INPUT:**

High impedance 1/4" input for line level stereo signals such as tape, CD or synth. The Left/Mono input supplies signal to both the left and right inputs if there is no input connected to the Right input jack. If the channel's input is mono, the signal should be connected to that input.

**14. AUX OUT:**

1/4" TRS output jack of the Aux mix. It is designed to drive an effects unit (it is post level), but can be used to feed an external monitor system. The output level is set by the individual channel Aux send controls.

**15. MAIN OUTPUTS:**

1/4" TRS balanced outputs of the Left and Right mixes. The tip is the positive phase, the ring is the inverse phase signal. The output level is set by the Master L/R control.

**16. TAPE INPUT/OUTPUT:**

The RCA tape output jacks provide a signal for the recording inputs of a stereo tape deck. It is taken from the L/R main outputs. The tape input jacks accept a stereo input from the output of a tape deck or CD player. Both input and output levels are nominally -10dBu.

**17. POWER:**

The mixer's main power switch. The power-on LED indicator will light when the unit is powered.

**18. HEADPHONE OUTPUT:**

This stereo jack (TRS) provides the signal to drive stereo headphones. The output level is set by the headphone level control, and is independent of the Master level control. It can also be used as an alternate stereo output with its own level adjustment. Tip= Left, Ring= Right, Shield= Ground.

**19. RETURN LEVEL:**

Sets the level of the stereo Return signal that is added to the L/R mix.

**20. TAPE LEVEL:**

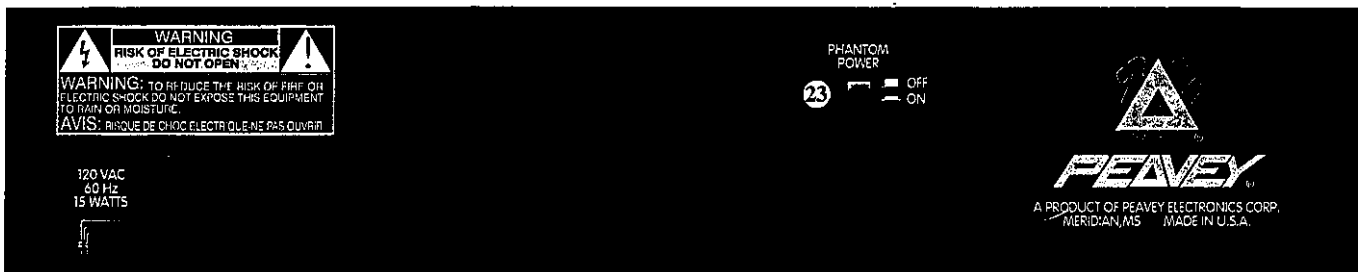
Adjusts the level of the tape signal supplied to the L-R mix.

**21. LED METERS:**

Two 12 segment LED arrays monitor the levels of the main L-R outputs. The 0dB reference level corresponds to +0dBu. The level is the unbalanced (tip) level, add 6dB to all the readings for the balanced output level.

**22. MASTER LEFT/RIGHT:**

This is the main L/R output level control. The levels are monitored by the left and right meters. The optimum setting for this control is the detent (unity gain) position.



### 23. PHANTOM POWER:

Applies 48VDC voltage to all input (mic) XLR connectors to power the microphones that require it. If phantom power is used, do not connect unbalanced dynamic microphones or other devices to the XLR inputs that cannot handle this voltage. (Some wireless receivers may be damaged, consult their manuals.) The line input jacks are not connected to the 48V supply, and are safe for all inputs (balanced or unbalanced). An unbalanced to balanced impedance converter such as the Peavey 5116, or a Peavey 1:1 Interface Adapter can also be used to isolate the mic input from 48V, if very low level signals must be connected.

### UNITY 300 APPLICATIONS:

The Unity 300 mixer can be used for a wide variety of applications such as sound reinforcement or recording. Here are some typical methods of hook-up:

#### SOUND REINFORCEMENT:

1. Microphones and other low impedance sources are connected to the XLR mic inputs; high level line inputs such as electronic musical instruments are connected to the line inputs. Stereo line level sources (synth, tape, CD, etc.) should be connected to one of the four stereo channels.
2. The house power amplifier inputs should be connected to the main Left and Right outputs.
3. If a monitor is used, connect the monitor power amplifier input to an Aux output. The Aux outputs are post channel level, so the level will change when the individual channel level is adjusted.
4. If an effect device is used, connect the remaining Aux output to its input. If a monitor is not used, both Aux outputs can be used for effect sends.
5. The effect device outputs are connected to the Return 1 or 2 inputs. If there are any open stereo channels, they can also be used as returns, but be careful not to turn up its own Aux send, or feedback will result.
6. Connect a tape recorder to the RCA tape input or tape output jacks. If a single deck is used to both record and play, the tape input level control on the mixer must be turned down when recording, or feedback will result. If high or low frequency equalization is needed, a stereo line channel can be used for the tape input. Alternatively, Returns 1 or 2 can be used for a tape input.

## **RECORDING:**

The connections for recording are very similar to those of the sound reinforcement section above with the following differences:

1. For recording tracks, connect the input sources as described above. For mixdown, the multitrack recorder's outputs are connected to the line inputs.
2. Connect the L/R outputs to the tape recorder inputs. Additionally, the Aux sends can also be used as outputs. If even more outputs are needed, the individual channel's insert jack (tip) can be used for a direct output. It is pre-EQ, pre-fader.
3. Connect the Left and Right outputs to the two track mixdown deck inputs. If a master graphic EQ, compressor/limiter, or enhancer is used, connect it in series with the L/R outputs. The channel inserts jacks are connected to signal processors as required.
4. Either the control room monitor amplifiers or headphones are connected to the headphone output. (Tip= Left, Ring= Right, Shield= Ground)
5. Effect device inputs are connected to the Aux 1 or 2 outputs.
6. The effect device outputs are connected to the Return 1 or 2 inputs. If there are any open stereo channels, they can also be used as returns, but be careful not to turn up the Aux send to itself, or feedback will result.

# Unity 300 Compact Console

## Specifications:

### Input Specifications:

Function	Input Z (ohms) Min	Input gain setting	Input Levels (to unbal L/R outputs)			Bal / Unbal	Connector
			Min **	Nominal*	Max		
Microphone (150 ohms)	4.7K	Max gain (54dB)	-83dBu	-54dBu	-34dBu	Bal	XLR Pin 1 Gnd Pin 2 (+), Pin 3 (-)
		Min Gain (10dB)	-39dBu	-10dBu	+10dBu		
Line (10K ohms)	10K	Max gain (42dB)	-71dBu	-42dBu	-22dBu	Bal	1/4" TRS; Tip (+), Ring (-), Sleeve Ground
		Min Gain (-2dB)	-31dBu	-2dBu	+22dBu		
Insert Return	10K	N/A (0dB)	-29dBu	0dBu	+20dBu	Unbal	1/4" TRS; Tip Send, Ring Return, Sleeve Ground
Stereo Line Input	10K	N/A (0dB)	-29dBu	0dBu	+20dBu	Unbal	1/4" Phono
Aux Return	10K	N/A (0dB)	-29dBu	0 dBu	+20dBu	Unbal	1/4" Phono
Tape	10K	N/A (10dB)	-29dBu	-10dBu	+10dBu	Unbal	RCA Jacks

0dBu= 0.775V (RMS)

These values are for a 0dBu level at the unbalanced Left or Right output. Since the balanced outputs have a 6dB additional gain, subtract 6dBu from the minimum and the nominal levels for those outputs.

\*\* Min input level (Sensitivity) is the smallest signal that will produce nominal output (0dBu) with sub and master controls set for maximum gain.

\* Nominal settings are defined as all controls set at 0 dB (or 50% rotation for rotary pots) except the gain adjustment pot, which is as specified.

### Output Specifications:

Function	Minimum Load Z (Ohms)	Output Level		Bal / UnBal	Connector
		Nominal	Max		
Main L/R	600	0dBu	+26dBu	Bal	1/4" TRS: Tip (+), Ring (-) Sleeve Ground
Aux Send	600	0dBu	+20dBu	Unbal	1/4" Phono
Channel Insert Send	600	0dBu	+20dBu	Unbal	1/4" TRS: Tip Send, Ring Return, Sleeve Ground
Headphone	8	0dBu (no load)	+20dBu	Unbal	1/4" TRS: Tip Left, Ring Right, Sleeve Ground
Tape	10k	-10dBu	+10dBu	Unbal	RCA

0dBu= 0.775V (RMS)

**Gain:**

Mic Input Gain Adj Range: 10dB to 54dB  
 Mic Input to Bal L/R Output 90dB (Max Gain)

Line Input Gain Adj Range: -2dB to 42dB  
 Line Input to Bal L/R Output 78dB (Max Gain)

Stereo Line Input to Bal L/R Output 36dB (Max Gain)

Aux Return to Bal L/R Output 36dB (Max Gain)

**Frequency Response:**

Mic Input (XLR) to L-R Output 10Hz to 42KHz +0dB / -1dB  
 Stereo Input to L-R Output 15Hz to 38KHz +0dB / -1dB

**Total Harmonic Distortion (THD):**

< 0.006% 20Hz to 20KHz Mic to L-R output at Nominal Level (22Hz - 22KHz BW)

**Hum and Noise:**

Output	Residual Noise Ref: 0dBu	S/N Ratio Ref: Nom output level	Test Conditions
Master L/R	-102dBu	102dB	All controls off
	-85dBu	85dB	Master level Nominal, Channel levels off
Aux	-93dBu	93dB	All controls off
	-90dBu	90dB	One channel send nominal, All others off

(Hum and Noise Measurements: 22Hz to 22KHz BW)

**Equivalent Input Noise (EIN):**

-129 dBu (Input terminated with 150 Ohms)

**Crosstalk:**

>60dB Adjacent Input Channels (20Hz - 20KHz)  
 >50dB Left to Right Outputs (20Hz - 20KHz)

**Common Mode Rejection Ratio (Mic Input):**

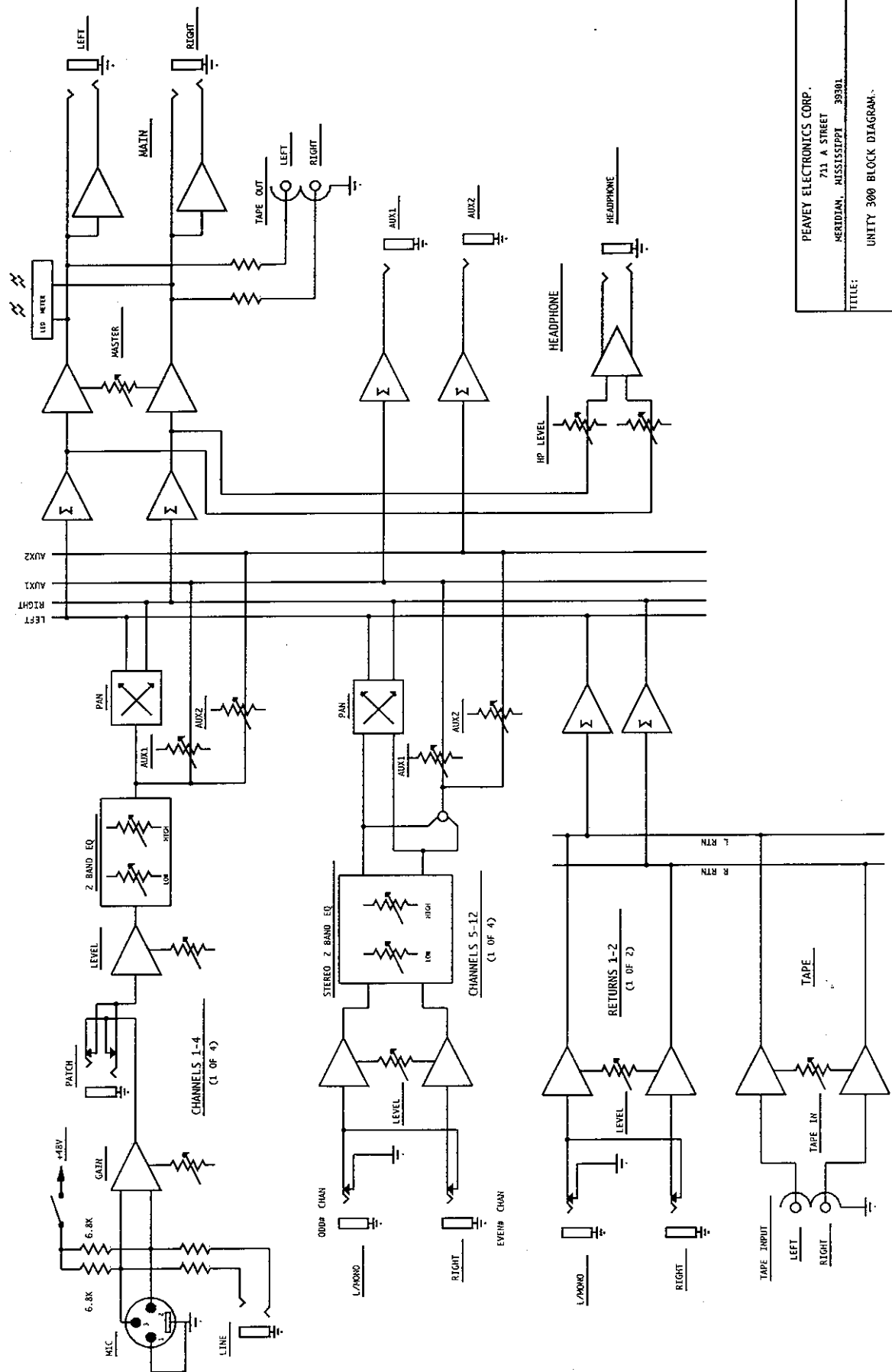
50dB min (20Hz - 20KHz)  
 70dB typ @ 1KHz

**Meters:**

12 segment, peak reading.  
 (0dB= 0dBu)

**Power Requirements:**

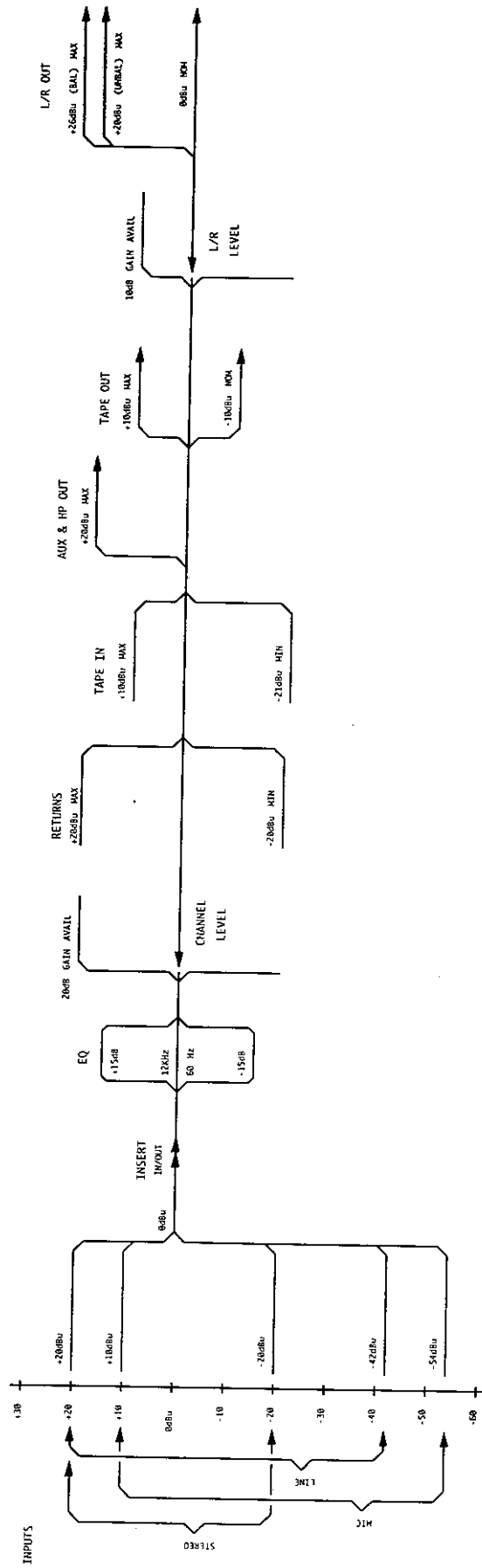
DOM: 120VAC 60Hz 15 Watts Nominal  
 EXP: 230VAC 50/60Hz 15 Watts Nominal



PEAVEY ELECTRONICS CORP.	
711 A STREET	
MERIDIAN, MISSISSIPPI 39301	
TITLE: UNITY 300 BLOCK DIAGRAM	
PROJECT: P9500217	MRP: XXXXXXXX
SIZE: B	NUMBER: XXXXXXXX
DATE: 29-AUG-96	REV: A
FILE:813	SHEET 1 OF 1



UNITY 300 LEVELS



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