

# DV AUDIO

by PROFESSIONAL SOUND CORP



# DV Promix 3

## Portable Audio Mixer

Operation Manual for Mixers with PCB V1.2  
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**DESCRIPTION**

Thank you for purchasing the Professional Sound Corporation, DV Promix 3 Portable Audio Mixer. Professional Sound Corporation has been building professional audio equipment for the film and television industries since 1986. Our focus has always been on providing high quality portable audio equipment that meets the demanding needs of our customers. Our broadcast line of equipment has been used world-wide on feature film productions, documentaries, television situation comedies, news gathering of all types, radio remotes, sports coverage, Olympic events and more. We formed the "DV Audio" line of equipment in order to offer our expertise in field audio to the DV cam industry.

PSC is confident that this new DV Promix 3 Mixer has set new standards for portable mixer technologies and features. Please feel free to contact us if you have any comments or questions concerning your new mixer. Additionally, we invite you to share your suggestions for new products you would like to see developed.

Professional Sound Corporation extends a six-month warranty on parts and labor to all DV Promix 3 Mixer owners who return their warranty cards at the time of purchase. This warranty gives you specific rights, which are stated on the card, and enables us to keep you informed of product updates.

The PSC DV Promix 3 Mixer provides all the functions necessary to produce studio quality recordings in the field. It's user friendly features, rugged design and sonic purity make the DV Promix 3 Mixer perfect for DV production, electronic news gathering (ENG) electronic field production (EFP).

### **HEARING SAFETY WARNINGS:**

**At Professional Sound Corporation, we care about your hearing both short term and long term. With that in mind, please heed the following warnings:**

**Please be sure that you have read this entire manual before operating this mixer.**

**While special attention has been given to your safety and hearing protection, the operator determines proper and safe operating levels.**

**Please note the following:**

**Always turn down the headphone volume before plugging in your headphones.**

**Always operate your headphones at the lowest practical level.**

**Be especially cautious in unknown or widely varying environments.**

**Remember, your ears are your livelihood. Turn it down!**

### **APPLICATIONS**

- DV Field Production
- Electronic News Gathering
- Location Recording (Dialogue and Music)
- Digital Recording
- Broadcast Remotes
- Desktop Mixing for Video Post Production



- Low Cut Filters (80Hz, 20Hz, 150Hz)
- Pan Switches (Left, Center, Right)
- Channel Faders (Volume Controls)
- Meters (-20 to +3dBv, Green, Amber, Red)
- Headphone Monitor (Direct, Tape return)
- Headphone Volume (Min to Max)
- Power Switch (Internal Battery, Off, External Power)



- Input Level Switch (Line Level, Dynamic Mic, Condenser Mic)
- 48PH Switch (Applies 48V Phantom Power for 48PH Mics)
- Input XLR Female Connector



- Output XLR Male Connector
- Output Level Switch (Line Level, Microphone Level)
- 3.5MM Headphone Jack
- 3.5MM Tape Return Jack
- 3.5MM Microphone Level Output Jack



**Left and Right Tape Return Level Adjustments  
Battery Compartment (2x 9V Alkaline)  
External Power Input (7 to 16Vdc)**

**INPUTS:**



**A. BALANCED INPUTS**

The PSC DV Promix 3 Audio Mixer provides three input channels utilizing female XLR connectors. The studio grade input circuitry is electronically balanced for improved RF rejection and in-field practicality. The XLR connectors are wired as follows: Pin 1 shield (ground), Pin 2 Audio high (in phase), Pin 3 Audio low (out of phase). Balanced wiring enables longer cable runs without the worry of excessive noise due to nearby electromagnetic and radio frequency interference. These balanced inputs may be unbalanced if desired. Either pin 2 or 3 may be tied to ground (pin 1) to unbalance the inputs of the DV Promix 3.



## B. INPUT LEVELS

The PSC DV Promix 3 Mixer can accommodate a wide range of input levels. Microphone levels of all types can be handled as well as line level signals. The input range of the DV Promix 3 Mixer is  $-60\text{dBu}$  to  $+4\text{dBu}$ . Thus the DV Promix 3 is compatible with all forms of consumer and professional audio equipment. The input level switches are located to the left of each input XLR connector. These input level switches provide for three level settings: “D” Dynamic Microphone (maximum gain), “C” Condenser Microphone (Moderate gain), and “L” Line Level (no gain) These input level gain settings are used to correctly interface sources of varying levels to the DV Promix 3’s preamplifiers. Correct level matching ensures maximum headroom and the lowest possible noise floor.



## C. MICROPHONE POWERING

The DV Promix 3 Mixer can accommodate the most popular microphones used today. The microphone powering switches are located directly left of the input XLR connectors. They can be switched to either Dynamic (D) or 48Phantom (48PH).

In the Dynamic position the mixer provides no microphone powering. This position is used with Dynamic Microphones, Line Level inputs and when using Wireless Receivers.

In the 48 Phantom Position the mixer provides 48 volts DC to power 48PH microphones or simplex powered microphones with a range of 9 to 52 volts. Pin 1 is ground while pins 2 and 3 carry 48 volts DC. The term “phantom” is derived from the fact that there is no voltage potential developed across a dynamic microphone transducer that would interfere with its operation. However, most portable wireless receivers will not operate properly with 48PH turned on. We strongly recommend setting inputs to dynamic for use with all wireless systems.



#### **D. LOW CUT FILTERS**

Low cut filtering is important in location recording where wind noise can cause pre-amplifier overload. This effect can be minimized by switching the low cut filter setting to either 80Hz or 150Hz. Each input channel of the DV Promix 3 Mixer is equipped with a low cut filter. These filters are activated via the three way switches located to the left of the adjacent channel fader knobs. These filters will attenuate all frequencies below a preset frequency at a rate of 6dB per octave. When set at “20Hz”, frequencies below 20 Hz are effectively rolled off with the mixer operating at full frequency response. Optional low cut filter settings of 80Hz and 150Hz will roll off the frequencies below these figures at a rate of 6dB per octave (-3dB level at 80Hz and 150Hz respectively). Always use the minimum filter setting required for the job. For example, if you are indoors or outdoors on a windless day, use the 20Hz setting. For outdoor use with low wind conditions, use the 80Hz setting. For recording in high winds, use the 150Hz setting.



#### **E. CHANNEL GAIN**

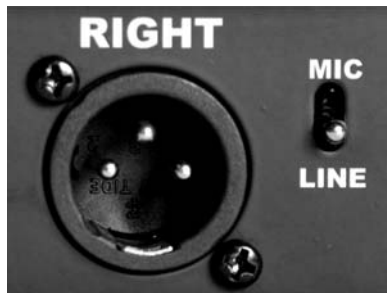
In order to limit noise and increase headroom, the channel fader controls are located in the feedback path of the pre-amplifiers. This provides continuously variable gain rather than just a decrease in channel output level when an overload situation occurs. This results in increased headroom and lower chance of signal clipping (severe distortion).



#### **F. CHANNEL PANS (CHANNEL ASSIGNMENT SWITCHES)**

The new DV Promix 3 Audio Mixer contains front panel mounted pan switches. These pan switches are used to route the individual input channel's signal to either the left or right summing buss and subsequent left and right outputs. When set to the left position, audio from that particular input is routed to the left output only. When set to the center position, audio from that particular input is routed to both left and right outputs. When set to the right position, audio from that particular input is routed to the right output only.

## OUTPUTS:



### A. BALANCED OUTPUTS (XLR Connectors)

The DV Promix 3 Mixer contains very high quality electronically balanced outputs. This circuitry has been designed to provide wide bandwidth, low distortion and real-world ease of use. These outputs are available via the right hand panel mounted male XLR connectors. These outputs are switchable between line or microphone levels. At the line level setting, the mixer outputs deliver a nominal 0dBv signal into 10K Ohm loads. When set to microphone level, the outputs supply  $-50\text{dBv}$  signal levels ensuring compatibility with cameras that feature only microphone level inputs.



### B. OUTPUTS, 3.5MM

The DV Promix 3 Mixer is also equipped with a 3.5mm stereo jack that outputs signals at microphone level ( $-50\text{dB}$ ). This output can be used to feed audio to cameras with only a 3.5mm audio input jack.



### C. OUTPUT LIMITERS.

The limit threshold (activation level) is factory set at +2 on the meter. The limiters compress the signal at approximately 2.7 to 1 ratio. This is to say an increase of 2.7dB in input signal will result in only a 1dB increase in output signal. Most video cameras have limited audio track headroom and can easily be overloaded resulting in distortion of the recorded audio. For this reason, the DV Promix 3 contains limiters that are controlled automatically for ease of use and will provide and high quality recordings.



### D. HEADPHONE OUTPUT

The Headphone output is located on the right side panel of the mixer. The DV Promix 3 Mixer's headphone amplifier circuitry is designed to drive virtually any headphone with an impedance rating of 32 to 600 Ohms. The headphone circuitry is controlled by the use of a switch and a volume control that are conveniently located on the front panel. The switch is used to control what the operator listens to. It allows the operator to chose between monitoring "MIX" (the audio that is present on the mixer's output) and "TAPE" audio that may be fed back from the headphone jack of the camera ensuring that audio has been recorded. This "TAPE" function is commonly called tape confidence monitoring.

**\*SAFETY NOTE\* ALWAYS TURN DOWN THE HEADPHONE VOLUME BEFORE PLUGGING IN YOUR HEADPHONES.**



## E. TAPE RETURN

The DV Promix 3 Mixer is equipped with a 3.5mm jack for use in monitoring tape confidence heads from most any recording device. These tape monitor amplifiers can be adjusted to match the signal levels of most any device. These levels are adjusted using a small jewelers screwdriver (or “Greenie” screwdriver). The adjustment points are located on the back panel of the mixer. The tape/direct switch is located on the upper right hand corner of the front panel. When set to “MIX” the phone amplifiers to monitor the mixers output signal. If switched to “TAPE”, then the phone amplifiers monitor the tape returns from the camera. To properly adjust the tape return amplifiers, you must first connect a tape return cable from your camera's headphone jack to the tape return jack on the DV Promix 3. Then set the cameras headphone volume to a nominal value (mid point). Next set the DV Promix 3's headphone Tape/Mix switch to Mix and then speak in a normal volume into one of your microphones. Adjust that microphones channel fader to get a nominal meter reading with peaks just lighting the “0” meter segment. Now adjust the mixer's headphone volume control until you have a proper volume level in your headphones while listening to the microphone. When you switch the Tape/Mix switch to Tape, you should adjust the tape return trim pots located on the rear panel of the mixer until you get a similar volume to that of the “mix” setting. You may toggle the switch back and forth between Tape and Mix while making these adjustments to ensure that you have the same volume between the two settings. Now that this is calibrated, you can monitor the audio coming back from the camera while you mix ensuring that good quality audio is being recorded on your camera's tape. This is referred to as “tape confidence monitoring”, as you will be confident that you have audio on tape.

## METERS:



Meters Showing -10dB Signal Level



Meters Showing 0dB Signal Level



Meters Showing +2dB Signal Level

### A. PEAK READING METERS

The DV Promix 3 Mixer is equipped with a custom made LED meter. We designed this meter to be easy to read and camera emulating. Because the most common use of this type of mixer is with DV Cams, we designed the DV Promix 3's meters to emulate the peak reading attributes found on many DV Cams. In this manner, you can be confident of your recording levels even when the DV Cam is being fed via cable or wireless transmission. Always try and

operate the mixer so that the audio signal level just begins to lit the "0" (Amber colored LED) only on signal peaks (occasional flashes, not solidly lit).

## POWERING:



### A. INTERNAL POWER, ALKALINE BATTERIES

Two "9 Volt" alkaline batteries can be used to power the DV Promix 3 Mixer. These batteries are housed in a convenient battery compartment located on the rear panel of the mixer. When using alkaline batteries, you can expect 4 to 6 hours of operation under normal circumstances.

**Note: Never store your DV Promix 3 Mixer for extended periods of time with alkaline batteries installed in the mixer. There is a possibility that the batteries may leak causing corrosion of the mixer. *Battery leakage and the resulting corrosion damage is not covered under the DV Promix 3 Mixer warranty.***

### B. EXTERNAL POWER

The PSC DV Promix 3 Mixer can also be externally powered from any source of DC power from 7 to 16 Vdc. The mixer consumes approximately 70 mA over this voltage range. The external power connector is located on the rear panel of the mixer. Pin outs of this connector are as follows:

Center Pin (+) Positive  
Outside Ring (-) Negative

Center Pin diameter = 2.5mm

This external DC input is protected from reverse polarity. If you inadvertently connect external power of the incorrect polarity, the mixer will not be damaged; it simply will not power up.

## **CONSTRUCTION**

### **A. CHASSIS**

The new DV Promix 3 Mixer chassis has been designed for high degree of torsional rigidity. This increased rigidity provides a stable base for the mixers modern electronics. The complete chassis is formed from 0.040" aircraft aluminum. All punching is done on a computer controlled rotary turret punch press for extreme accuracy. In addition, through careful design, we have managed to keep the overall weight of the DV Promix 3 Mixer to 1Lb, 11oz. (0.8Kg) Total.

The mixer's sheet metal is hand-formed using various press brake setups. The housing parts are then painted. All silk-screening is then applied.

### **B. ELECTRONIC TOPOLOGY**

The new DV Promix 3 Mixer was designed from a clean sheet of paper. It utilizes completely new circuitry designs based upon the latest advances in semi conductor technology.

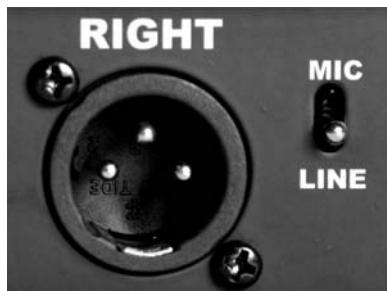
This new design uses modern semi-conductors from such sources as Linear Technology, National Semiconductor and Texas Instruments to name but a few. These operational amplifiers, voltage regulators and precision voltage references feature low power consumption, low noise and low distortion.

### **C. ENVIRONMENTAL OPERATION**

Your new DV Promix 3 Mixer has been designed to operate under extreme field conditions. The electronics have been designed to operate over a temperature range of -4 to 158 degrees Fahrenheit (-20 to +70C) less the affects on batteries. This in addition to the DV Promix 3's ability to operate under high humidity conditions makes it perfect for harsh field conditions.

## **INTERFACING**

### **A. TO PROFESSIONAL DV CAMS (XLR CONNECTORS):**



The PSC DV Promix 3 Mixer is especially designed for easy interfacing with all popular DV Cameras. The DV Promix 3 is equipped with two XLR male connectors on the right side panel. These XLR outputs can provide audio at either Line Level (0db) or Microphone Level (-50dB). These outputs are normally used to feed audio to any device with balanced (XLR) inputs. You can connect your DV Promix to any camera with XLR input connectors using standard XLR microphone cables. Keep in mind that you must match up the output level of the DV Promix 3 to the input level required by your camera. I.E. if your camera has microphone level XLR inputs, then set the DV Promix 3's output level switches to "MIC". On the other hand, if your camera accepts line level inputs, then you may set the output level switches to "Line".



**B: TO PRO-SUMER CAMCORDERS (3.5MM JACK):**

The PSC DV Promix 3 is also equipped with a dedicated microphone level output designed to interface the mixer with cameras that are only equipped with a 3.5mm external microphone input jack. To interface this mixer to these types of cameras, you simply need to plug in one end of the supplied 3.5mm cable to the DV Promix 3's "MIC" output jack and the other end into your camera's external MIC input jack. The DV Promix 3 has special circuitry incorporated to block your cameras built in mic powering from interfering with the DV Promix operation.



## **C: TO WIRELESS MICROPHONES:**

### **Receivers:**

The DV Promix 3 Mixer will easily accept the output signal from virtually any wireless receiver. It can accept microphone or line level signal via a simple switch setting. Please note that most wireless receivers are not compatible with 48PH. You should always set the DV Promix 3's MIC powering switch to "D" dynamic when using wireless receivers.

### **Transmitters:**

The DV Promix 3 Mixer can also be used to send audio signals to DV Cams via wireless transmitters. The use of transmitters is normally accomplished by connecting the DV Promix 3's output XLR to the audio input of the specific transmitter. Many transmitter manufacturers supply application specific cables for this purpose. The DV Promix 3 Mixer has been designed to minimize RF interference through the use of balanced outputs and other RF filtering. It is important to note that transmitter placement greatly affects transmit range and clarity. For best results, transmitters should be mounted away from the mixers metal surface allowing unimpeded RF radiation from the transmitter. When the mixer is worn over the shoulder of the operator, you should mount the wireless transmitters to the shoulder strap for best operation.

## **WARRANTY AND NON-WARRANTY SERVICE**

In the unlikely event your DV Promix 3 Mixer requires service, it should be carefully packed and shipped prepaid to:

Professional Sound Corporation  
Service Department  
28085 Smyth Drive  
Valencia, CA 91355 USA  
PH 661-295-9395  
FAX 661-295-8398  
E-mail [techsupport@professionalsound.com](mailto:techsupport@professionalsound.com)

Please call before shipping your mixer. We may be able to solve your problem via the phone. During our 18 years in business, many mixers have been shipped in to us for service with only incorrect switch settings.

### **WARRANTY:**

Complete details of the PSC DV Promix 3 Mixer warranty are given on the enclosed blue warranty registration card. If you did not receive one, please contact your local dealer or call us directly.

## SPECIFICATIONS

<b>Size:</b>	10.125" x 6.825" x 1.500" (257mm x 173mm x 38mm)
<b>Weight:</b>	1lb, 11oz. (0.8Kg)
<b>Temp Range:</b>	-4 to +158F (-20 to +70C)
<b>Batteries:</b>	2x 9 Volt Alkaline
<b>External Power:</b>	7 to 16Vdc, 2.5mm pin, center positive
<b>Case Material:</b>	0.040" Aircraft Aluminum
<b>Finish:</b>	Semi Matt Black Paint with Grey Silk Screening
<b>Global Gain:</b>	80dB
<b>Freq. Response:</b>	20-20Khz +/-1dB
<b>Signal to Noise:</b>	128dB EIN 150 Ohms
<b>Distortion:</b>	00.1% THD
<b>Low Cut Filter:</b>	80Hz, 150Hz 6dB/Octave
<b>Mic Power:</b>	DYN, 48 PH,
<b>Limiter:</b>	1mS Attack, 100 mS Release 2.7:1 Ratio
<b>Warranty:</b>	6 Months, Limited

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