PRO TECH BM06DSP Professional 6 12-Input Mixer User Manual

Contents

PRO TECH

PRO TECH BM06DSP Professional 6 12-Input Mixer

Product Information

- **Product Name:** BM06DSP/BM12DSP
- **Description:** Professional 6/12-Input Mixer with 24 digital effectors, Bluetooth, USB

Safety Instructions

- **CAUTION:** To reduce the risk of Electrical shock, do not remove the cover (or back). No user-serviceable parts inside; refer servicing to qualified personnel.
- **WARNING:** To reduce the risk of fire or electrical shock, do not expose this appliance to rain or moisture. This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock. This symbol, wherever it appears, alerts you to the important operating and maintenance instructions in the accompanying literature. Read the manual.

Introduction

Congratulations! You have purchased a state-of-the-art mixing console that sets new standards. In combination with its comprehensive range of features and pro-level connections, the machine will be your perfect tool for any kind of application: broadcasting, video dubbing or giving the sound of your band its finishing touch.

Before You Begin

Your machine was carefully packed in the factory and the packaging is designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred during transit. If the unit is damaged, please do not return it to our company, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee. Be sure that there is enough space around the unit for cooling purposes and to avoid overheating. Please do not place your mixing console on high-temperature devices such as radiators or power amps.

Control Elements and Connectors

1. **MIC/LINE:** Accepts XLR and 1/4 connectors. Connect microphones or instruments.
2. **PHANTOM/+48V LED:** When the phantom power of the channel is turned on, the red +48V light is on.
3. **TRIM:** Use the TRIM control to adjust the input gain. This control should always be turned fully counterclockwise whenever you connect or disconnect a signal source to one of the Inputs.
4. **LOW CUT:** In addition, the mono channels are equipped with a steep LOW CUT filter (slope at 18 dB/Oct., -3 dB at 75 Hz) designed to eliminate unwanted low-frequency signal components.
5. **EQ:** The upper (HIGH) and the lower band (LOW) are shelving filters that increase or decrease all frequencies above or below their cut-off frequency. The cut-off frequencies of the upper and lower band are 12 kHz and 80 Hz respectively. The mid band is configured as a peak filter with a center frequency of 2.5 kHz.
6. **CLIP LED:** The CLIP LEDs of the mono channels illuminate when the input signal is driven too high, which could cause distortion. If this happens, use the TRIM control to reduce the preamp level until the LED does not light anymore.
7. **FX:** The FX sends enable you to feed signals via a variable control from one or more channels and sum these signals to a bus. The bus appears at the console's FX send output and can be fed from there to an external effects device. The return from the effects unit is then brought back into the console on the stereo channels. Each FX send is mono and features up to +10 dB gain.

Product Usage Instructions

1. Connect your microphones or instruments to the MIC/LINE input using XLR or 1/4 connectors.
2. Activate the phantom power for condenser mics using the PHANTOM/+48V switch. The red +48V light will turn on.
3. Use the TRIM control to adjust the input gain. Turn it fully counterclockwise when connecting or disconnecting a signal source.
4. If using mono channels, you can apply a steep LOW CUT filter by using the LOW CUT control. This eliminates unwanted low-frequency signal components.
5. The EQ controls allow you to adjust the frequencies of the upper (HIGH) and lower band (LOW) using shelving filters. The cut-off frequencies are 12 kHz and 80 Hz respectively. The mid band is configured as a peak filter with a center frequency of 2.5 kHz.
6. Pay attention to the CLIP LED on the mono channels. If it illuminates, it means the input signal is too high and could cause distortion. Adjust the TRIM control to reduce the preamp level until the LED no longer lights up.
7. Use the FX sent to feed signals from one or more channels to a bus. Adjust the FX send level using the FX control. The bus output can be connected to an external effects device. The return from the effects unit should be connected to the stereo channels on the console.

SAFETY INSTRUCTIONS

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WARNING: To reduce the risk of fire or electrical shock, do not expose this appliance to rain or moisture.
CAUTION: RISK OF ELECTRIC SHOCK DO NOT OPEN
AVIS: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock. This symbol, wherever it appears, alerts you to the important operating and maintenance instructions in the accompanying literature. Read the manual.

DETAILED SAFETY INSTRUCTIONS

All the safety and operation instructions should be read before the appliance is operated.

- **Retain Instructions:** The safety and operating instructions should be retained for future reference.
- **Heed Warnings:** All warnings on the appliance and in the operating instructions should be adhered to.
- **Follow instructions:** All operation and user instructions should be followed.
- **Water and Moisture:** The appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool etc.).
- **Ventilation:** The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa rug, or similar surface that may block the ventilation openings, and should not be placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- **Heat:** The appliance should be situated away from heat sources such as radiators, heat registers, stoves, amplifiers or other appliances that produce heat.
- **Power Source:** The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- **Grounding or Polarization:** Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
- **Power-Cord Protection:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles and the point where they exit from the appliance.
- **Cleaning:** The appliance should be cleaned only as recommended by the manufacturer.
- **Non-use Periods:** The power cord of the appliance should unplugged from the outlet when left unused for a long period of time.
- **Object and Liquid Entry:** Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
- **Damage Requiring Service:** The appliance should be serviced by qualified service personnel when:
    - the power supply cord or the plug has been damaged; orobjects have fallen, or liquid has been spilled into the appliance or the appliance has been exposed to rain; or
    - The appliance does not appear to operate normally or exhibits a marked change in performance; or
- **Servicing:** The user should not attempt to service the appliance beyond that which is described in the operating instructions. All other servicing should be referred to qualified service personnel.

INTRODUCTION

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Control Elements and Connectors

1. **MIC/LINE:** Accepts XL and 1/4″ connectors. Connect microphones or instruments. The phantom power required for condenser mics can be activated with switch PHANTOM.
2. **PHANTOM/+48V LED:** When the phantom power of the channel is turned on, the red +48V light is on.
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4. **LOW CUT**: In addition, the mono channels are equipped with a steep LOW CUT filter (slope at 18 dB/oct., -3 dB at 75 Hz) designed to eliminate unwanted low-frequency signal components.
5. **EQ:** The upper (HIGH) and the lower band (LOW) are shelving filters that increase or decrease all frequencies above or below their cut-off frequency. The cut-off frequencies of the upper and lower band are 12 kHz and 80 Hz respectively. The mid band is configured as a peak filter with a center frequency of 2.5 kHz.
6. **CLIP LED:** The CLIP LED’s of the mono channels illuminate when the input signal is driven too high, which could cause distortion. If this happens, use the TRIM control to reduce the preamp level until the LED does not light anymore.
7. **FX:** The FX sends enable you to feed signals via a variable control from one or more channels and sum these signals to a bus. The bus appears at the console’s FX send output and can be fed from there to an external effects device. The return from the effects unit is then brought back into the console on the stereo channels. Each FX send is mono and features up to +10 B gain.
8. **PAN:** The PAN control determines the position of the channel signal within the stereo image. This control features a constant-power characteristic, which means the signal is always maintained at a constant level, irrespective of position in the stereo panorama.
9. **LEVEL:** The LEVEL control determines the level of the channel signal in the main mix.
10. **LINE IN:** Each stereo channel has two balanced line level inputs on 1/4″ jacks for left (L/MONO) and right (R) channels. If you use only the (L/MONO) jack, same sound is output from both left and right speakers.
11. **FX SEND:** The FX SEND connector outputs the signal you picked up from the individual channels using the FX SEND controls. You can connect this to the input of an external effects device in order to process the FX bus master signal. Once an effects mix is created, the processed signal can then be routed from the effects device outputs back into a stereo input.
12. **PHONES:** The stereo PHONES jack (at the top of the connector panel) is where headphones are connected.

The unbalanced CTRL ROOM OUT jacks carry the summed effects and main mix signals, as well as soloed channel signals. The PHONES/CONTROL ROOM control in the main section adjusts the level of both headphones and main monitor outputs.

13. **CTRL ROOM OUT:** The unbalanced CTRL ROOM OUT jacks carry the summed effects and main mix signals, as well as soloed channel signals. The PHONES/CTRL ROOM control adjusts the level of both headphones and main monitor outputs.
14. **MAIN OUT:** The MAIN OUT connectors are balanced mono jacks. The main mix signal appears here at a Level of 0 Bu. The MAIN LEVEL adiusts the volume of these outputs.
    REC OUT: These connectors are wired in parallel with the MAIN OUT and carry the main mix signal (unbalanced). Connect the REC OUT to the inputs of your recording device. The output level is adjusted via MAIN LEVEL.
    AUX IN: The AUX inputs are used to bring an external signal source (e.g. CD player, tape deck, etc.) into the console.
    +4-10: The stereo inputs have an input sensitivity switch which selects between +4 Bu and – 10 dBV. At – 10 dBV (home-recording level), the input is more sensitive (requires less level to drive it) than at +4 dBu (studio level).

Digital Effects Processor section

PROGRAM control
The effect processor consists of 24 PCS effect types. Turn the program/parameter knob to adjust the serial number of the effect. The led digital tube flashes during the adjustment. After adjusting the serial number of the effects you want to select, while the led digital tube still flashes, press the program knob to select the effect type of the led digital tube display number. When the program knob rotates counterclockwise, the digital tube display number decreases. When the program knob rotates clockwise, the digital tube display number increases.
PARAMETER control
For adjusting the parameter (depth, speed, etc.) for the selected effect. The last value used with each effect type is saved.
NOTE: When you change to a different effect type, the mixer automatically restores the value that was previously used with the newly selected effect (regardless of the current position of the PARAMETER).

- **FX LEVEL:** The FX LEVEL control feeds the FX signal into the main mix. If the control is turned all the way counterclockwise, no FX signal is present in the sum signal of the mixing console.
- **AUX/USB/BT LEVEL:** The AUX/USB/BT LEVEL control feeds the AUX/USB/BT signal into the main mix. If the control is turned all the way counterclockwise, no AUX/USB/BT signal is present in the sum signal of the mixing console.
- **PHONES/CTRL ROOM:** The PHONES/CTRL ROOM control adjusts the level of both HEADPHONES and TRL ROOM outputs.
- **MAIN LEVEL:** The MAIN LEVEL control adjusts the level of all outputs.
- **BREAK:** The BREAK control mutes all outputs.
- **USB/AUX TO CTRL ROOM:** Press the USB/AUX switch if you want to monitor the USB/AUX input via the CTRL ROOM OUT. This provides an easy way to monitor the signals input from the USB/AUX input. Make sure they are correct and then adjust the AUX/USB/BT level knob to transmit the USB/AUX signal to the main output.
- **FX TO CTRL ROOM:** Press the FX switch if you want to monitor the FX signal via the CTRL ROOM OUT. This provides an easy way to monitor the signal input from the FX. Make sure they are correct and then adjust the FX level knob to transmit the FX signal to the main output.

- **LEVEL INDICATOR:** The high-precision 4-segment display accurately displays the relevant signal level.
  - ⏯ Press to play/pause playback.
  - VOL- ⏮ Press to go to the previous track. Press and hold to turn the volume down.
  - VOL+ ⏭ Press to go to the next track. Press and hold to turn the volume up.
  - **MODE** Press to select playback of USB or Bluetooth. When BLUE is displayed in the screen, turn on your phone Bluetooth and search for PRO TECH. Then connect to play the audio in your phone.
  - **REC** This mixer supports disk recording and computer recording.
    - **USB:** Press the REC button to start recording. Press again to pause the recording. Press and hold the REC button to save and play the recording file.
      - **PC:** After connecting to the computer, start the software “Adobe Audition” for recording. You can also try recording with other recording software.

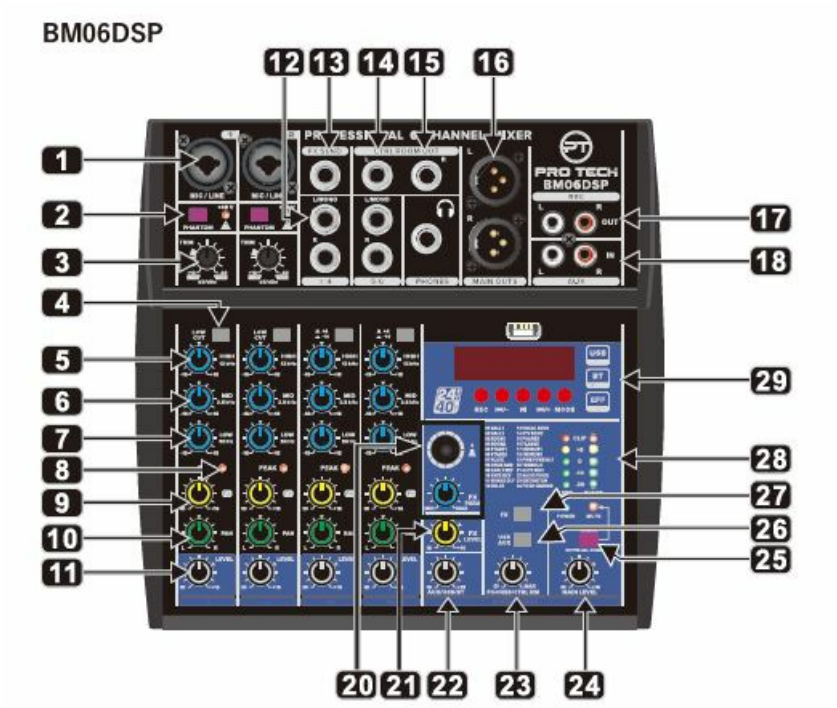
Effect Programs
Here you can find a list of all presets stored in the multi-effects processor. This built-in effects module produces high-grade standard effects such as reverb, Chorus, flanger, delay, and various combination effects. Use the Aux Send FX on the channels and the Aux Send FX master control to determine the input signal of the effects processor. The built-in stereo effects processor has the advantage that it does not need to be wired up. This excludes the danger of humming or level mismatch right from the start and thus considerably facilitates use. These effect presets are classical “mixing effects”. If you move the STEREO AUX RETURN FX control, you mix the channel signal (dry) and the effect signal. You can control the balance between the two signals with the channel fader and the STEREO AUX RETURN FX control.

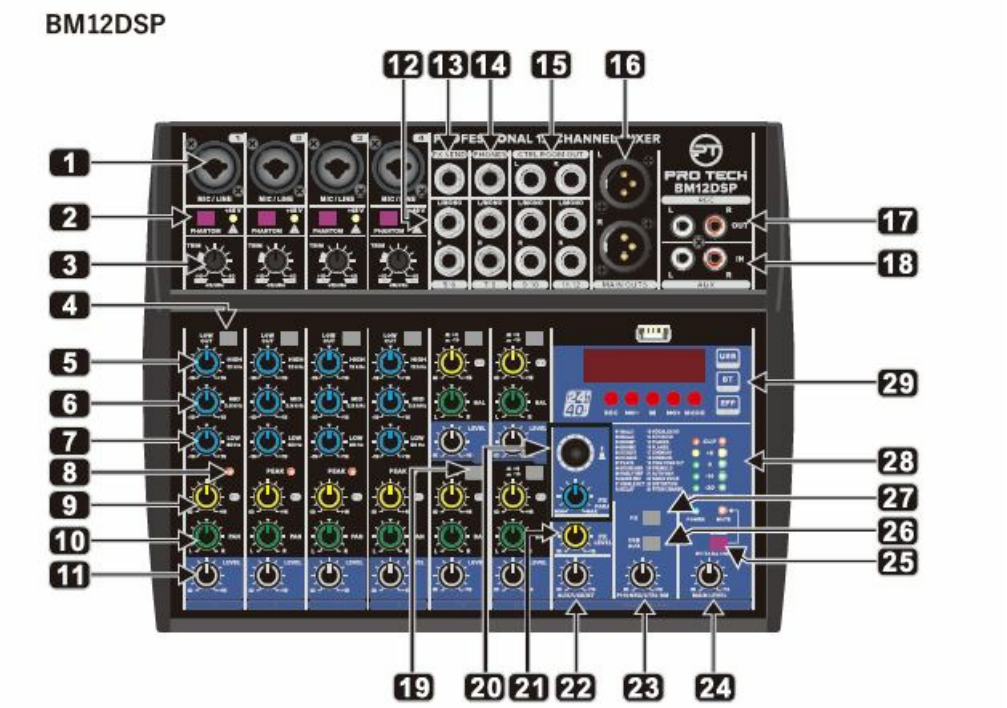
No.	Program	Parameter	Description
1	REV HALL 1	Reverb Time	Reverb simulating a large space such as a concert hall.
2	REV HALL 2	Reverb Time	
3	REV ROOM 1	Reverb Time	Reverb simulating the acoustics of a small space (room).
4	REV ROOM 2	Reverb Time	
5	REV STAGE 1	Reverb Time	Reverb simulating a large stage.
6	REV STAGE 2	Reverb Time	
7	REV PLATE	Reverb Time	Simulation of a metal-plate reverb unit, producing a more hard- edg ed reverberation.
8	DRUM AMB	Reverb Time	A short reverb that is ideal for use with a drum kit.
9	EARLY REF	Room Size	An effect which isolates only the early reflection components from r everberation, creating a “flashier” effect than conventional reverb.
10	GATE REV	Room Size	An effect which cuts halfway the tail-end of the reverberation, making a more powerful sound.
11	SINGLE DLY	Delay Time	An effect which repeats the same sound only once. Shortening the delay time produces a doubling effect.
12	DELAY	Delay Time	Feedback delay adding multiple delayed signals.

13	VOCAL ECHO	Delay Time	Echo designed for conventional vocals.
14	KARAOKE	Delay Time	Echo designed for karaoke (sing-along) applications.
15	PHASER	LFO* Freq	Cyclically changes the phase to add modulation to the sound.
16	PLANGER	LFO* Freq	Adds modulation to the sound, producing an effect similar to the ris e and fall sound of a jet engine.
17	CHORUS 1	LFO* Freq	Creates a thicker ensemble-like sound by adding the multiple sounds with different delay times.
18	CHORUS 2	LFO* Freq	
19	SYMPHONIC	LFO* Depth	Multiples the sound for thicker texture.
20	TREMOLO	LFO* Freq	An effect which cyclically modulates the volume.
21	AUTO WAH	LFO* Freq	A wah-wah effect with cyclical filter modulation. The **PARAMETER** knob adjusts the speed of the LFO* that modulates the “wah” filter.
22	RADIO VOICE	Cutoff Offset	Recreates the lo-fi sound of an AM radio. The PARAMETER knob a djusts the frequency band to be emphasized.
23	DISTORTION	Drive	Adds a sharp-edged distortion to the sound.
24	PITCH CHANG E	Pitch	An effect which changes the pitch of the signal.

“LFO” stands for Low Frequency Oscillator. An LFO is normally used to periodically modulate another signal, using different waveform shapes and modulation speeds.

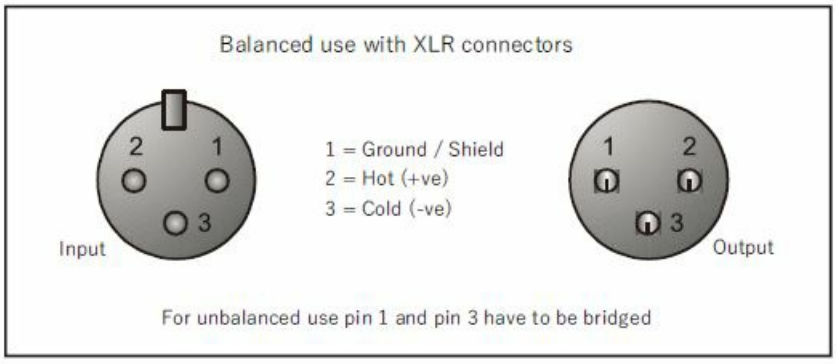
Front Panel



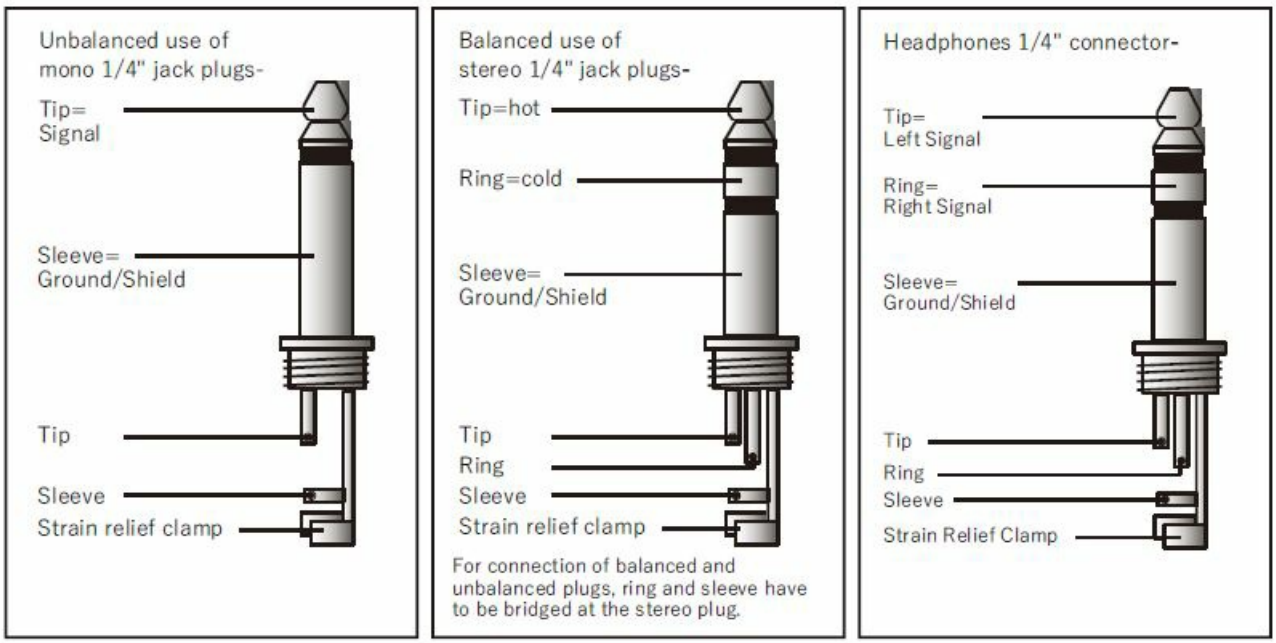


WIRING

Various connector types:



Wiring diagram of insert cable and headphones plug-



FEATURES & SPECIFICATIONS

Features:

- A 2/4 mono microphone inputs, 2/4 stereo inputs.
- XLR Mic connectors on all mono channels.
- A Low-noise discrete Mic pre-amplifiers on all microphone inputs.
- Balanced 1/4″ stereo jacks and balance controls on all stereo channels.
- A Separate stereo RCA jacks.
- Stereo output for recording applications.
- 3 band frequency equalizer for mono inputs and stereo inputs (BM06DSP only).
- A High-grade-sealed potentiometers.
- Separate USB interface that reads audio files stored by USB-disk (support mp3 and wav formats).
- Support for wireless Bluetooth receive tone signal.
- A Internal professional DSP digital effect processor.
- Headphones output with dedicated volume control.
- Built-in +48V phantom power for condenser mics.
- Extremely rugged construction ensures long life even under the most demanding conditions

Technical Data

- **Common mode rejection:** -80 dBu
- **S/N Ratio:** – › -82 dB
- **Frequency response:** – +/-0.5 dB 20 Hz-20 kHz
- **THD:** less than <0.03%@1 kHz

INPUT LEVEL:

- **MIC input:** +60 dBu
- **LINE input:** +30 dB
- **Stereo input:** +20 dBu
- **headphones output (200):** 300 mW

Parametric EQ:

- **HIGH:** 12KHz, +7-15dB
- **MID:** 2.5KHz, +/-15dB
- **LOW:** 80Hz, +/-15dB

Electrical Characteristics

- **O dBu =** 0.775 Vrms, 0 dBV = 1 Vrms
- **Output impedance of signal generator (Rs) =** 150 2
- **Output load impedance =** 10 k (TRS phone output), 600 2 (XLR output).

Nominal position is adiusted to a position that is 10 dB lower than the maximum position. In the following cases,

All fader sets to nominal position:

Frequency Response		20 Hz–20 kHz, refer to the nominal output level @1 kHz GAIN: min (MONO CH, STEREO CH)	+0.5/-1.0	dB
Total Harmonic Distortion	MAIN OUT	STEREO OUT +14 dBu@20 Hz–20 kHz, GAIN: min	0.02	%
Noise*1	CH INPUT MIC	EIN (Equivalent Input Noise): Rs=150 ohms, GAIN: max	-128	dBu
	MAIN OUT SUB OUT	STEREO and GROUP master faders are at nominal position and all of bus assign switches are off.	-87	dBu
	AUX SEND	AUX master controls are at nominal position, and all of CH mix controls are at minimum position.	-82	dBu
	MAIN OUT	Residual Output Noise	-94	dBu
Crosstalk at 1 kHz*2	Adjacent Input	Between input channels	-74	dB
	Input to Output	STEREO OUT L/R, PAN: panned hard left or right	-74	dB
Maximum Voltage MIC to Gain (1 kHz)*3	CH INPUT	CH INSERT OUT	60	dB
		MAIN OUT	84	dB
		SUB OUT	84	dB
		CONTROL ROOM OUT	80	dB
		PHONE OUT	69	dB
		AUX SEND	76	dB

Analog Input Specifications Characteristics

Input Connectors	PAD	GAIN	Input Impedance	Appropriate Impedance	Input level			Connector Specifications
					Sensitivity*1	Nominal	Max. before Clipping	
MONO CH INPUT	0	-60 dB	3 k Ω	50–600 Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31 type*2
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	+4 dBu (1.23 V)	
	26 dB	-34 dB		600 Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	Phone jack*3
		+10 dB			-10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	
MONO CH INSERT IN	–	–	10 k Ω	600 Ω Lines	-20 dBu (77.5 mV)	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone jack*5

0 dBu=0.775 Vrms, 0 dBV=1 Vrms

1. **Sensitivity:** The lowest level that will produce an output of +4 dB (1.23 V), or the nominal output level when the unit is set to maximum level (All faders and level controls are at their maximum position).
2. XLR-3-31 type connectors are balanced (1=GND, 2=HOT, 3=COLD).
3. Phone jack are balanced (Sleeve=GND, Tip=HOT, Ring=COLD).
4. Phone jacks are unbalanced.
5. Phone jacks are unbalanced (Tip=Out, Ring=In, Sleeve=GND).

Specifications

Analog Output Specifications

Output Connectors	Output Impedance	Appropriate Impedance	Output level		Connector Specifications
			Nominal	Max. before Clipping	
MAIN OUT L R	120 Ω	600 Ω Lines	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR-3-31 type*1
SUB OUT 1 – 4	120 Ω	10 k Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone jack*2
AUX SEND 1 – 3	120 Ω	600 Ω Lines	+4 dBu (1.23 V)	+20 dBu (12.3 V)	Phone jack*2
MONO CH INSERT OUT	120 Ω	10 k Ω Lines	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone jack*3
CONTROL ROOM OUT L R	120 Ω	10 k Ω Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone jack*2
PHONES OUT	120 Ω	40 Ω Phones	3 mW	75 mW	Phone jack*5

0 dBu=0.775 Vrms, 0 dBV=1 Vrms

1. XLR-3-32 type connectors are balanced (1=GND, 2=HOT, 3=COLD).
2. Phone jacks are impedance balanced (Tip=HOT, Ring=COLD, Sleeve=GND).
3. Phone jacks are unbalanced (Tip=Out, Ring=In, Sleeve=GND).
4. Phone jacks are balanced (Tip=HOT, Ring=COLD, Sleeve=GND).
5. Phone jacks are unbalanced (Tip=Out, Ring=In, Sleeve=GND).

Professional 6/12-Input Mixer with 24 digital effectors, Bluetooth, USB

Documents / Resources

	PRO TECH BM06DSP Professional 6 12-Input Mixer [pdf] User Manual BM06DSP, BM12DSP, BM06DSP Professional 6 12-Input Mixer, Professional 6 12-Input Mixer, 6 12-Input Mixer, Mixer