ProSpec - 2U6M2S

OWNER'S MANUAL

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IMPORTANT SAFETY INSTRUCTIONS

CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS IN THIS INSTALLATION AND OPERATING GUIDE AND THOSE MARKED ON THE UNIT.

RETAIN THIS GUIDE FOR FUTURE REFERENCE.

This unit has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use, and servicing.

This unit does not contain any parts that can be repaired by the user.

DO NOT REMOVE ANY COVERS OR SUB-ASSEMBLIES, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGES.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

• Read these instructions. – All of these safety and operating instructions should be read before this product is operated

• Keep these Instructions. – The safety, operating and use instructions should be retained for further reference.

• Heed all warnings. – All warnings on the product and in the operating instructions should be adhered to.

• Follow all instructions. - All operating and use instructions should be followed.

• Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the prong does not fit into your outlet, consult an electrician of the obsolete outlet.

• Do not use this apparatus near or water. – Do not expose apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, glasses or cups are placed on this apparatus. Do not operate on or near wet surfaces such as swimming pools and do not expose to rain.

• Clean only with a dry cloth. – Unplug the product from the wall outlet before cleaning. Do not use liquid cleaners.

• Do not block ventilation openings. Install in accordance with manufacturers instructions. – Slots and openings in the assembly are provided for ventilation, to ensure reliable operation of the product, and to protect from overheating. Care should be taken never to block these openings in any operating situation.

• Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus that produce heat.

• Protect the power cord from being walked upon or pinched, particularly at the plugs, convenience receptacles, and the point where they exit from the unit.

• Only use attachments/accessories specified by the manufacturer.

• Use only the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

• Unplug this apparatus during lightning storms or when unused for long period of times.

- Refer all servicing to qualified service personnel. Service is required when the apparatus has been damaged in any way, such as power-supply cord or plug damaged, liquid has bee spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- To completely disconnect mains power from this apparatus, the power supply cord must be unplugged.
- Check AC power source for correct voltage and sufficient current capacity.
- Unplug the unit from AC mains before moving, servicing, or cleaning.
- Do not use frayed or damaged power cords or connectors.
- Do not place the unit on an unstable surface.
- Do not operate and immediately unplug equipment from AC mains if liquid has entered the unit.
- Do not plug unit into AC mains if it has physically been damaged in any way.
- Secure and protect ALL cabling to and from the units to prevent they being walled on, pinched, or pulled.
- Do not install the unit in areas of high electromagnetic or RF fields.
- Observe proper procedures for lifting and moving this unit as its weight and size requires that more than a single person be employed in these operations.
- Should the unit be damaged in any way or contaminated with liquid, have the unit inspected and serviced by qualified service personnel.
- This unit contains no user serviceable parts. All servicing must be performed by a qualified service engineer or through APB-DynaSonics or its qualified dealer.
- Operate in accordance with Government Occupational and Health Administration requirements, specifications, suggestions and regulations or those of any other local governing requirements where the equipment is to be used or serviced.

YOUR PROSPEC MIXER

Welcome to the APB-DynaSonics family. Please take a moment to review this manual. It will ensure a better understanding of the operation of this mixer and may open up new possibilities into how you use this product.

This manual will appear within our web site www.apb-dynasonics.com with the latest updates as well as new supplemental information. We suggest that you occasionally check our web site for additional information about your mixer as well as for new product releases and news from APB-DynaSonics. Should you have any questions or comments about this or any other APB product, please do not hesitate to contact us at:

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Manual Scope

This manual is not intended to teach you how to mix or how to set up a complete sound system. Should you be looking for such information, May we suggest that you do a search for "Pro Audio Books" on the internet, or attend one of the many fine Recording Schools that may be available to you. Many of these schools offer courses in Live Performance associated subjects as well as basic mixing techniques.

One of the best sources of teaching the technical aspect of system design and operation is through the Syn-Aud-Con organization:

Synergetic Audio Concepts, Inc., 8780 Rufing Road Greenville, IN, 47124 – USA
Tel: 800-796-2831 Fax : 812-923-3610 For calls outside of the US: 812.923.0174
Email: bbrown@synaudcon.com
www.synaudcon.com

Front Panel Overview

Rear Panel Overview

PROSPEC-2U6M2S MONO INPUT CHANNELS (6)

Channel Level

This high quality rotary control adjusts the channel level that is being feed to the master output section of the mixer. While adjusting the feed to the master section, this control automatically adjusts the gain of the channels input stage to simply use.

Channel ON Switch (Illuminated when ON)

When activated, routes the input channels signal to the master output by way of the Left-Right / Center Assignment switch. The Solo PFL switch and Signal Present/Peak LED will remain active regardless of the position of this switch.

Peak/Signal Present LED Level Monitor

Dual-color LED monitors the channel levels. In normal operation, varying intensity of the green LED represents acceptable signal levels. Should levels approach clipping, the LED will illuminate red. This should be an indication to the operator that the channel input level control should be decreased until the red peak indicators are no longer activated. (Overall output levels can be adjusted by raising the master output level position to offset any decrease in level caused by lowering the input channel faders).

Left-Right / Center Assignment Switch (Illuminated when assigned to Center)

Assigns input sign to either the L-R Mix bus (Default) through the Pan Control or when switch is depressed, to the Center Mix Bus. This assignment method prevents the signal from being accidently fed to all mix buses.

Pan Control

This control blends the post fader signal between the assigned L-R bus pairs. When at the center, position, both Left and Right mix buses are fed equal amounts of signal (each down by 3dB). This pan control has no effect on the Center mix bus.

Solo Switch (Internally Illuminated when activated)

When pressed, this latching switch will route the channel signal to the Solo system (located in the Master section). This switch illuminates when activated.

High-Frequency Level Control (Shelving)

Adjust the high frequency boost/cut between +/- 8 dB; there is a detent at the center “0” position. Boost or cut of the high frequency level control is usually used for minor tonal adjustments and should be used sparsely for best sonic results.

Low-Frequency Level Control (Shelving)

Adjust the low frequency boost/cut between +/- 8 dB; there is a detent at the center “0” position. Boost or cut of the low frequency level control is usually used for minor tonal adjustments and should be used sparsely for best sonic results. The frequency range affected by this low frequency control is directly affect by the position of the Variable High-Pass filter, keeping the frequencies affected by this control always above the frequencies that have been attenuated by the Variable High-Pass filter control. Caution should be exercised as to the amount of boost used when the High-Pass Filter control is set above the 1 o'clock position as to IF any boost will improve or deteriorate the sonic quality of that channel. Most profession engineers know that the best sounding EQ is NO EQ.

High-Pass Filter Control

Adjusts the high-pass filter corner frequency between 20Hz and 200Hz at a roll off rate of 12dB per octave. When turned fully counter clockwise, this control is in the OFF position and has no effect on the channels signal. This control is used to remove unwanted signal content below the set frequency, such as stage rumble. The result is usually improved signal quality of the associated input signal while decreasing the amount of low frequency amplification demand of the audio systems amplifier and speaker combination. This type of filter is also called a Low-Cut filter. Best result is obtained when set from just above fully clockwise to the 12 o'clock (control pointer straight up) position. Caution should be used when turn this control greater than the 1 o'clock position as to much low frequency content may be removed resulting in an unnatural sound. Movement of this control will also affect the "knee" of the Low Frequency control so it remains usable regardless of the amount of low frequency content that is removed.

Aux Send Level Control

Creates a post master level control mix of input channels to send to alternate applications including assisted listening systems, lobby feeds, artist/speaker monitor systems.

PROSPEC-2U6M2S Mono Input Channels (6) Rear Panel

48 -Volt Phantom Power Switch (Rear Panel)

When depressed, activates 48-Volt phantom power to the XLR connector. Phantom power is required for operation of most condenser microphones. See your microphone instructions to see if phantom power is required or is to be defeated (some – though few-microphones require phantom power NOT be activated or they may be damaged). Some active Direct Boxes can also use phantom for power.

XLR portion Combo Microphone Input Connector

This connectors XLR portion is designed to accept typical microphone input signals, and has an input impedance of >3000 ohms. This is a locking connector. To remove an XLR cable, depress the Tab on the connector before attempting to remove the cable plug from the console connector. Note: Plugging a line level signal into these XLR connects will unusually cause distortion unless this signal is externally decreased in level (or externally padded down). Line level signals should be brought into the 1/4" TRS portion of this combo connector.

1/4” TRS portion Combo Line Input Connector

The 1/4" TRS connector portion of this connector accepts line input signals and has an input impedance of >10k ohms. The line input source may be a balanced or unbalanced signal. Note: This 1/4" TRS connector is not designed to accept high impedance instruments.

1/4” TRS Insert Connector

This connector allows external processing or effects electronics to be inserted into the channel’s signal path after the fixed high pass filter. Tip= Send, Ring= Return, Sleeve= Ground. Examples of external devices include additional equalization, notch filters, compressors, limiters, vocal doublers and harmonizers, reverb devices, etc. The insert send has an output impedance of 100 ohms unbalanced and the insert return has an input impedance of 5k ohms unbalanced. Operating level is +4dBu.

NOTE: The user should ensure that any device inserted into the channel's signal path is capable of maintaining the signal integrity of the mixer. The device must be able to accept a +22dBu signal without clipping, and have an output impedance of 100 Ω or less and be capable of driving +22dBu into a 2k Ω load.

1/4" TRS Direct Output Connector

The connector provides an impedance-balanced line level output of the input channel's signal. This utility output can be used to feed a multi-track recording device, effects device, or to feed another mixing or processing device including distributed monitor mixing systems. Operating level is +4dBu

PROSPEC-2U6M2S STEREO INPUT CHANNELS (2)

Source Input Switches - Channel "A"

On Stereo Input "A", the first of these two switches selects the channels analog signal source between a pair of 1/4" Balanced/Unbalanced Line level inputs (with a rear panel pad switch to expand input level range) and a pair of RCA Line Level Inputs. The second switch selects between the analog signals of the first switch and a USB Digital Stereo Input.

Source Input Switches - Channel "B" (and front input connector)

On Stereo Input "B", the first of these two switches selects the channels analog signal source between a pair of 1/4" Balanced/Unbalanced Line level inputs (with a rear panel pad switch to expand input level range) and a pair of RCA Line Level Inputs. The second switch selects between the rear panel signal source (first switch) and a 1/8" stereo line input connector on the front panel (just to the lower right of Stereo Input Channel "B" on the front panel.

Sum Mono Switches - Separate switch for Channel "A" and Channel "B"

These switches combine the content of the Left and Right line inputs into summed mono input signal. There are sometimes situations where a sound system is operated in a non-standard format where a stereo source signal may bot be desired. Inclusion of a sum switch expands the versatility of these input channels, including where the input is a mono signal source.

Channel ON Switch (Illuminated when ON)

When activated, routes the stereo input channels signal to the master output by way of the Left-Right / Center Assignment switch. The Solo PFL switch and Signal Present/Peak LED will remain active regardless of the position of this switch.

Stereo Line Input Channel Level

This high quality rotary control adjusts the channels stereo level that is being feed to the master output section of the mixer.

Peak/Signal Present LED Level Monitor

Dual-color LED monitors the combined (left + right) channel levels. In normal operation, varying intensity of the green LED represents acceptable signal levels. Should levels approach clipping, the LED will illuminate red. This should be an indication to the operator that the channel input level control should be decreased until the red peak indicators are no longer activated. (Overall output levels can be adjusted by raising the master output level position to offset any decrease in level caused by lowering the input channel faders).

Left-Right / Center Assignment Switch (Illuminated when assigned to Center)

Assigns stereo input sign to L-R Mix bus (Default) through the Balance Control or when switch is depressed, to the Center Mix Bus as a Summed Mono signal. This assignment method prevents the signal from being accidently fed to all mix buses when employed in a typical LCR Installation where Left-Right speaker are used for music reproduction and the center is used for vocal reproduction.

Balance Control

This control offsets the post-fader signal between the left-Right mix bus pairs. When at the center, detente position, both sides are fed equal amounts of signal (each down by 3dB). This Balance control has no effect on the Center mix bus.

Solo Switch (Internally Illuminated when activated)

When pressed, this latching switch will route the channels stereo signal to the Solo system (located in the Master section). This switch illuminates when activated.

High-Frequency Level Control (Shelving)

Adjust the left and right high frequency boost/cut between +/- 8 dB; there is a detent at the center “0” position. Boost or cut of the high frequency level control is usually used for minor tonal adjustments and should be used sparsely for best sonic results.

Low-Frequency Level Control (Shelving)

Adjust the left and right low frequency boost/cut between +/- 8 dB; there is a detent at the center “0” position. Boost or cut of the high frequency level control is usually used for minor tonal adjustments and should be used sparsely for best sonic results.

High Pass Filter Switch (Illuminated when active)

Inserts a high pass filter at 40 Hz at a roll off rate of 18dB per octave for both sides (L & R) of the channel path. This switch is used to remove unwanted signal content below 40 Hz such as any rumble that may be part of source material. This results in a clearer signal that reduces low frequency buildup in an audio system, which is often perceived as a muddy signal.

PROSPEC-2U6M2S - Stereo Input Channel Connectors (Rear Panel)

1/4” TRS Line Input Connectors (Separate Channel "A" and "B" connectors for Left and Right inputs)

Provides for balanced line level inputs to the channel’s left and right inputs.

Design level is +4dBu Input impedance is 10KΩ balanced The input signal may be balanced or unbalanced.

If only a single (mono) signal is available, plugging into the Left TRS jack will feed that signal equally to both Left & Right inputs of the channel (through the Right TRS normaling contacts). Plugging into the Right TRS jack will break that normalled connection and feed that new signal into the Right side of the channel.

Stereo Line Input Pad Switch (Separate switches for Channel "A" and "B" 1/4" line inputs)

These switches insert a Pad network on the 1/4" TRS inputs to expand the range of input levels these stereo channels can accept without overload. They should be activated (pushed in) only if the channels Peak LED illuminates steadily when the level control is at or below 11 o’clock position. NOTE: These switches only affect the 1/4" TRS input connectors and have no effect on the channels RCA Inputs.

Left And Right RCA Input Connectors (Separate Channel "A" and "B" connectors for Left and Right inputs)

Provides for unbalanced line level inputs to the channel’s left and right inputs. Design level is –10dBV Input impedance is 10KΩ unbalanced.

USB DIGITAL AUDIO INPUT AND OUTPUT

Stereo Channel "A" Digital

The ProSpec-2U6M2S will appear as a USB-peripheral to your computer; there is on onboard circuitry (CODEC) that allows 2-way stereo communication via USB. Simultaneous record and playback of audio is possible using commonly available software. Note: CODEC is the term for an enCOder/DECoder. A single CODEC chip is used in the PROSPEC-2U for bi-directional USB conversion and communication: Burr-Brown PCM2900. A USB B-Type connector is provided. USB Audio In (from the computer) will feed the Stereo Line Input Channel "A" when selected (top panel switch labeled USB).

USB Digital Output (Mixer Output)

The USB Audio Out (to the computer) is driven from the pre-fader master level control signal of Left and Right with the Center signal summed into Left+Right as a phantom Center Out; sending that audio to the input of the CODEC.

USB Setup and Operation

When plugged into the USB port of a computer, the ProDesk will show up as a “USB Audio CODEC” in both Windows and Mac OS X. Use the “System Preferences- Sound” (OS X) or “Control Panel- Sounds and Audio Devices” (Windows) to select the ProDesk as your Input or Output device and to adjust any system-controlled parameters (balance & volume). By default, the internal CODEC is bus-powered by the computer’s USB port; the LED will illuminate when power is available for the CODEC chip. The analog electronics surrounding the CODEC chip is mixer-powered for best performance and headroom. The CODEC is capable of stereo, 16-bit operation at 33, 44, and 48kHz sample rates. The computer sets all CODEC parameters; there are no user controls on the console itself. When used without additional program support, the CODEC defaults to the system-level settings of the computer itself. When used with a recording or editing program, the sample rate, word length and other parameters of the CODEC are controlled by that program.

With just the computer’s system-level controls, you will be able to select “USB Audio CODEC” from the list of audio devices as the output source for playback of recorded sounds, songs and cues from the computer. Any of the recording/editing programs available can use the “USB Audio CODEC” as the input source for direct recordings from the Console (via the Stereo Record Out section).

Suggested (free) audio editing program: Audacity (for Mac, Win and Linux) Download at: http://audacity.sourceforge.net/download/

PROSPEC 2U6M2S – MASTER SECTION

LED Power On Indicator

Illuminates when AC power is applied to the unit and its DC Power supplies are operating properly. This unit is to be powered from a switched AC source of 100 to 240 Volts at 50/60Hz with no manual voltage selection required for different operating voltages. This unit may to be left on at most times and draws less than 25 watts.

MASTER OUTPUTS Front Panel (Left - Center - Right, Sum, Auxiliary Outputs)

Left - Center - Right Master Output Level Control

This single level knob simultaneously adjusts the Left - Center - Right output levels of the mixer and has a control has a range of from cut-off to +10dB of gain above unity. The use of a single control simplifies the operation of the mixer be it used in a Mono, Stereo, or LCR installation as all output levels remain proportional in output level.

Master Output Metering (Left - Center - Right Outputs)

The post-fader levels of the Left - Center - Right outputs are displayed on the 3 master meters.

Left - Center - Right Output Limiter Active LED

The LED will illuminate when any of the Left-Center-Right output signals exceeds the Threshold as set by a recessed control on the rear panel. When illuminated, this indicates that the maximum output level is being limited (momentarily reduced) as determined by the system installer.

Sum Output Level Control

Controls output level of a Sum of the Left - Center - Right mix signals to a mono signal. A rear panel switch selects the signal source as Pre or Post the Left - Center - Right master output level control and Limiter. This output is intended to feed assisted hearing or lobby audio systems or any other system requiring a summed LCR output.

Sum Output Metering (Sum of Left - Center - Right)

The post-fader levels of the Sum outputs are displayed on the Sum master meter.

Auxiliary Output Level Control

This knob adjusts the mixed auxiliary output levels of the mixer and has a control has a range of from cut-off to +10dB of gain above unity. This output is intended to feed foldback systems (artist/presenter monitor system), assisted hearing or lobby audio systems where a mix balance of other than the main Left - Center - Mono output is desired.

Auxiliary Output Metering

The post-fader level of the Auxiliary output is displayed on the Auxiliary master meter.

Auxiliary Output Limiter Active LED

The LED will illuminate when the Auxiliary output level exceeds the Threshold as set by a recessed control on the rear panel. When illuminated, this indicates that the maximum output level is being limited (momentarily reduced) as determined by the system installer.

Auxiliary Output Solo Switch (Internally Illuminated)

When depressed, allows the operator to listen to the Auxiliary Output in the Headphone system replacing the default Left - Center - Right signal.

MASTER OUTPUTS Rear Panel (Left - Center - Right, Sum, Auxiliary Outputs)

Left - Center - Right XLR Balanced Output Connectors

These three XLR output connectors provide an optimum +4dBu balanced line level output (100 ohm symmetrically-balanced) signal for each of the consoles primary outputs.

Sum Balanced Output Connectors (Two Identical Outputs)

This XLR output connector provides an optimum +4dBu balanced line level output (100 ohm symmetrically-balanced) signal for the consoles auxiliary output.

Sum Pre Source Switch

Changes the source of the Sum signal from the default Left - Center - Right Post Master level control / Post limiter source to a Pre Master level control / Pre limiter source.

Auxiliary Balanced Output Connector

This XLR output connector provides an optimum +4dBu balanced line level output (100 ohm symmetrically-balanced) signal for the consoles auxiliary output.

LINKING SYSTEM

A multi-pin connector system is provided that allows the ProSpec-2U6M2S pre output level mix-buses and Solo systems of two or more mixers to be linked together. Contact APB about made-to-order cables tailored to your specific need.

HEADPHONE SYSTEM

Automatic Solo to Headphones

When any input channels Solo switch is selected (as indicated by the channels solo switch being illuminated), the selected input channels solo signal will automatically override the default Left - Center - Right monitored signal into the headphone system.

Headphone Level Control

This control adjusts the level being fed to the headphone system.

1/4" And 1/8" Headphone Connectors

A 1/4" and a 1/8" set of headphone connectors are located on the front panel of the console. Both of these connects may be used simultaneously.

POWER SUPPLY

A rear panel ON/OFF Switch and IEC AC Power connector are provided that will allow insertion of a matching IEC Power Cable that will match the local power connection requirements. The ProSpec-2U6M2S will operate on most worldwide voltages ranging from 100 Volts to 240 Volts and power system frequencies of 50 to 60Hz without modification.

SPECIFICATIONS

Mono Input Channel

Balanced Mic Input (XLR Input of Combo Connector)

Mic Gain (Max):	60 dB
Mic Input Z:	2k Ω
Mic EIN:	-127 dBu @ 60dB gain, 150 Ω source
THD + Noise (Mic input to Main Output)	<0.005% @ 15dBu Output and with 40dB Gain
	>200kHz (ref to 1kHz)

Bandwidth Microphone Input to Main Output @ 60dB Gain approx. 160 kHz (ref 1kHz)

Phase response:	+/-11 degrees, 20Hz to 20kHz (ref 1kHz)
HPF:	20Hz to 200Hz @ 12dB/Octave
Unity Gain	approx. 2 o'clock Pot rotation

Balanced Line Input (TRS input of Combo Connector)

Line Gain (Max):	42 dB
Line Input Z:	>10k Ω
THD + Noise (Line input to Main Output)	<0.01% @ 15dBu Output
Bandwidth:	approx. 160kHz (ref to 1kHz)

Line Input to Main Output

Phase Response:	+1.5/-17.5 degrees 20Hz to 20kHz (ref 1kHz)
Unity Gain:	approx. 10 o'clock Pot rotation
	10 dB Gain at approx. 2 o'clock Pot rotation

Stereo Channel

Balanced Line Input (TRS)

Max Gain:	20 dB
Line Input Z:	>10k Ω
THD + Noise (input to Main Output)	<0.005% @ 15dBu
Output Bandwidth:	>200kHz (ref to 1kHz)
Input to Main Output Phase Response	+3/-9 degrees, 20Hz to 20kHz (ref 1kHz)
HPF:	40Hz @-18dB/Octave
Unity Gain:	approx. 10 o'clock Pot rotation
	10 dB Gain at approx. 2 o'clock Pot rotation

Outputs

Balanced XLR using OutSmarts® Driver ICs (also capable of unbalanced operation)

Max Output Level:	+26dBu (into 600 ohms or greater)
Balanced Output Z:	50 Ω
Residual Output Noise:	< -95 dBu *

*All channels unassigned and channel sends down, Master at unity (2 o'clock)