Studio Projects

500 series

SP

SPM5

GAIN 30 20 10 0 40 50 3 60

OUTPUT 4 5 3 2 6 7 8 1 0 10 9

RADIANCE 4 5 6 3 2 7 8 1 0 10

70Hz

POL

IMP

48V

INS

MIC/INST

+20 +9 +6 0 -6 -9 -12 -1

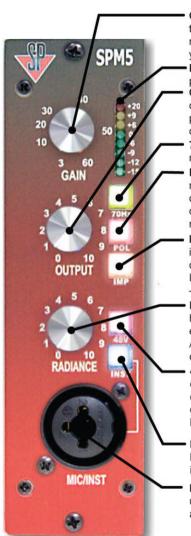**GAIN:** This is where it all happens. Use this control to set the appropriate gain for your source, be it microphone, or instrument. Use the LED meter and your ears to adjust the amount of gain desired

LED Meter: Jumper setting on pcb determines pre, or output gain reading.

OUTPUT: This is akin to a fader on a mixing console. Once you have your preamp gain properly set, use this to determine the overall output level of the SPM5

70Hz High pass, or 'bass cut' filter. Use this to roll off extraneous low frequency.

POL: This switch reverses the polarity of the microphone signal. It can correct for the wiring of older, non-AES equipment, change the character of the sound from guitar mics and when using two mics for "Mid-Side" stereo recording.

IMP: Impedance. This determines the input impedance your microphone 'sees' and is included on this device to account for ribbon microphones. In general, leave it disengaged for condenser mics - try it with ribbon and dynamic mics.

RADIANCE: Adds a layer of high frequency 2nd harmonic distortion to the pre, allowing you, the engineer, to add a shimmering satin high end. Adds clarity and presence without adding to the overall recording level.

48v: 'Phantom power' - supplies power for the circuitry of an active microphone, such as a condenser mic - but also for some ribbon and dynamic mics. Can damage some ribbon mics, so look up your model if you're not sure...

INST: Engage this switch if you are plugging a line level signal, or instrument, such as a guitar or bass into the SPM5.

MIC/INST: Of course this is a multi jack that can be used with either an XLR cable or a 1/4" plug as needed.

SPM5 Preamplifier

User Guide

INTRODUCTION:

Designed by the creator of Tonelux, the Studio Projects SPM5 is a unique high quality microphone/instrument preamp with an added 'radiance' feature, which provides adjustable high end 2nd harmonic content to your signal without boosting overall output. This is useful for adding clarity and presence to your signal source.

The input circuitry is discrete, while the output is transformer balanced. The preamp provides a clean, low-noise 60dB of gain. The front panel features a combo jack for plugging in directly and there is an impedance switch, which can be useful when employing certain microphones, such as ribbon, or dynamic type.

Below are the basic pin configurations of cable polarity for use with the SPM5:

	MIC XLR	INSTR Jack
+ (hot)	Pin 2	Tip
- (cold)	Pin 3	
Ground	Pin 1	Sleeve

plugging into the Instrument input cuts off anything plugged into the rear panel XLR.

Getting Started

Start with the 'GAIN' control at minimum, all switches out and connect the microphone. Then, if you are using a condenser microphone, remember to press the '48V' Phantom Power switch. For older ribbon mics, this should be left off.

Turn up the 'GAIN' control until the microphone sound registers on the Meter, adjusting it so that the meter reads "0" to "+9" with loud sounds. When the red LED (labeled '+20') lights, the **SPM5** is within clipping range*. Occasional flashes are OK but if it is on all the time, turn the 'GAIN' down!

The main control, labelled 'GAIN', covers a range of microphone amplification from 3dB to 60dB (0dB to +40dB for the "INSTRUMENT" input). In many preamps the action of the "Gain" control is rather uneven, with the 40dB to 60dB range being crammed into the last 1/6th of a turn. The **SPM5** employs specially designed control circuitry ensuring smooth operation over the whole range of rotation, with extra sensitivity in the crucial 25dB to 45dB range.

"Radiance"

The radiance control, located just above the multi-jack on the front panel, is used to add 'sparkle', or 'clarity' to the input source signal. This effect can be used sparingly, or heavily, depending on the how far clockwise the radiance control is adjusted

"POL"

This switch reverses the polarity of the microphone signal. It can correct for the wiring of older, non-AES equipment, change the character of the sound from guitar mics and, when using two mics for "Mid and Side" stereo recording, invert the phase of one of them.

High Pass Filter ('HPF')

This helps remove stage rumble, handling noise and low frequency resonances. The cut frequencies are continuously variable from 25Hz to 200Hz. Adjust the control so that the unwanted sounds are removed but required sounds do not lose their bass content. Use the HPF 'ON' switch to make comparisons between filtered and unfiltered sound.

Gain and Noise

All preamplifiers inevitably generate some noise due to the electronics they require. As long as this is low compared with what you are trying to record, the signal will hide the noise. In fact the **SPM5** electronics are extremely quiet, such that almost all the noise is due to the source impedance of the microphone. However, you might still hear some "hiss" during the gaps in the vocal or music. Bearing in mind the amount of gain in a typical monitoring system, it is generally a good idea not to use preamp gains greater than 40dB or 50dB. With careful microphone placement, it should rarely be necessary to do so. So try to place the microphone as close to the sound source as you can without overloading it, so as to get as much signal out of it as possible. Then set the 'GAIN' control to give only as much gain as is needed to get a decent level on the meter.

Technical Specification[*]

Input impedances	Mic: 2kohm; Instrument: 1M ohm
Common mode rejection	70dB
Equivalent input noise	-127.5dBu (unweighted, 150ohm source)
Distortion	0.001% (+4dBu output, 1kHz)
Frequency response	10Hz to 70kHz (-3dB)
Microphone overall gain	70dB - (60 dB preamp gain, 10dB output gain)
Maximum input before clipping	Mic: +4dBu Instrument: +22dBu
Max output before clip	+28dBu (10kohm load)
High Pass Filter	12dB per octave cut @ 70Hz,
Nominal output level	+4dBu (electronically balanced)
Output impedance	100 ohm
Output noise floor	-85dBu (typical, with ~40dB mic gain)
PPM Meter	8-segment LED bargraph
Current requirement	130mA (maximum) per rail
Size and weight	Standard 500 Series, 0.65 kilos
Compliance	VPI Alliance, WHOS-Doc

* In the interests of product development, PMI Audio Group may change technical specifications without notice.

Register your product at studioprojects.com/registration.html

Safety - This product is intended for professional use only and it is assumed that the user is familiar with the 500 Series Modular Rack system. Always switch off the rack power before inserting or removing this (or any other) module or damage may occur . Do not expose this product to direct heat, moisture or mechanical shock.

Warranty - This product is warranted free from defects in material or workmanship for a period of one year from date of purchased. During this period, PMI Audio Group will repair or replace this product by prior arrangement free of charge, providing the product is determined to be defective and has been returned, freight prepaid, in its original or similarly protective packaging, to a PMI Audio Group Service Center. PMI Audio Group is not obligated to provide the Purchaser with a substitute unit while repairs are carried out.

Environmental - This product complies with the RoHS directive and contains no lead or other banned hazardous materials. In accordance with the WEEE directive, this product must be disposed of responsibly at its end of life, by means of local authority approved recycling systems.

For further information, or to register your product, visit our website at www.studioprojects.com

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