

## Features

**Ultra Wideband:** 18 GHz to 40 GHz

**High Gain:** 40 dB (average), 36 dB (minimum)

**Low Noise Figure:** 5 dB max

**$P_{out}$  @ 1 dB Gain Compression:** +10 dBm

**Battery Powered**



## Description

The PAM-840A is a wideband, high gain, bench top microwave preamplifier. The PAM-840A has a frequency range of 18 GHz to 40 GHz. This preamplifier is primarily intended for EMC applications; however, it may be used for other applications that require low noise and high signal amplification.

The simple front panel consists of two 50 Ohm matched air core 2.9 mm connectors for input and output. The preamplifier was designed to have flat gain with minimal variation over the entire frequency range. The flat gain helps in taking fast adhoc readings during troubleshooting, R&D phase. The high gain and low noise figure of PAM-840A increases system sensitivity of effectively all measurement systems. It is very effective in measuring low level signals during Electromagnetic Interference (EMI) testing. It has low VSWR and high reverse isolation.

Each preamplifier is individually calibrated using equipment traceable to National Institute of Standards and Technology (NIST). Individual calibration data and certificate of calibration is shipped with each unit. The PAM-840A is battery powered to avoid any noise effects of power cables. It can also be powered by the 15 VDC, 500 mA power adapter (provided with the unit), which also charges the internal battery.

## Application

The PAM-840A preamplifier increases system sensitivity, thereby enhancing the capability of measurement system to measure low level signals. It also provides input isolation to your spectrum analyzer or receiver.

During EMC measurements the antennas are usually placed at a distance of 1 to 10 meters from the equipment under test. Most antennas operating above 18 GHz typically have high antenna factors. In addition, the long interconnecting cables, especially operating in the microwave frequencies have high cable loss. These factors make it difficult to distinguish low level signals from the noise floor of the spectrum analyzer / receiver. The preamplifier improves system sensitivity by amplifying the signals before they reach the spectrum analyzer / receiver input; thereby improving the signal to noise ratio.

The system sensitivity can be further improved by connecting the preamplifier as close as possible to the antenna output. This eliminates the attenuation of the signal due to long cable length before the preamplification. The battery powered PAM-840A allows placing the preamplifier very close to the receiving antenna without possible introduction of interference from power cables.

## Specifications

Frequency Range	<b>18 GHz to 40 GHz</b>
Gain	<b>40 dB (average), 36 dB (minimum)</b>
Gain Flatness	<b>±2.5 dB</b>
RF Input/Output Impedance	<b>50Ω (nominal)</b>
RF Input/Output Connectors	<b>2.92 mm (female)</b>
VSWR (Input/Output)	<b>2.25:1 (max)</b>
Noise Figure	<b>&lt;5 dB (@ 25°C)</b>
$P_{out}$ @ 1dB comp	<b>+10 dBm (min)</b>
Reverse Isolation	<b>40 dB (typical)</b>
Battery Pack	<b>6 Volts DC, 2 Ah NimH (rechargeable)</b>
Battery Charge Time	<b>8 Hours (typical)</b>
DC Power Adapter	<b>+15 Volts DC, 500 mA (unregulated)</b>
Size	<b>7.6 x 5.95 x 2.17 inches (192 x 151 x 55 mm)</b>
Weight	<b>2.5 lbs (1.13 kg)</b>

All values are typical values unless otherwise specified.  
Specifications are subject to change without notice.

## Preamplifier Gain (typical)

