

## Features

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

High Gain: **50 dB (typical)**

Low Noise Figure: **<3 dB**

$P_{out}$  @ 1 dB Gain Compression: **+8 dBm**

Power Sources: **Internal Battery & External AC/DC Adapter**



## Description

The **PAM-840H** is a wideband, high [50 dB] gain, benchtop microwave preamplifier. It 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 dielectric 2.9 mm connectors for RF input and RF output. The preamplifier was designed to have flat gain with minimal variation over its frequency range. The flat gain helps in taking fast adhoc readings during troubleshooting and R&D phase. The high gain and low noise figure of **PAM-840H** increases system sensitivity of effectively all measurement systems. The **PAM-840H** may be powered by its internal battery pack or the supplied external AC/DC power adapter/battery charger.

Each preamplifier is individually calibrated using equipment traceable to the SI through the National Institute of Standards and Technology (NIST) or a recognized National Metrology Institute. Individual calibration data and certificate of calibration is shipped with each unit. ISO 17025 accredited calibration is also available upon request.

## Application

The **PAM-840H** 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-840H** 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>50 dB (typical)</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>3:1 (max)</b>
Noise Figure	<b>&lt;3 dB</b>
$P_{out}$ @ 1 dB compression	<b>+8 dBm (typical)</b>
Maximum RF Input Level	<b>0 dBm</b>
Reverse Isolation	<b>&gt;50 dB (typical)</b>
Battery Pack	<b>6 Volts, 2 Ah NiMH (rechargeable)</b>
Battery Charge Time	<b>18 Hours (typical)</b>
Battery Operating Time	<b>11 Hours (typical)</b>
DC Power Adapter	<b>+15 Volts DC, 500 mA (unregulated)</b>
DC Adapter Connector Type	<b>5.5/2.5 mm</b>
Size (L x W x H)	<b>8 x 6 x 2.375 inches (203 x 152 x 60 mm)</b>
Weight	<b>2.5 lbs (1.13 kg)</b>
Calibration	<b>NIST (included); ISO 17025 Accredited (added cost)</b>

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

## Preamplifier Gain (typical)

