

Keysight 87421/2A Power Supply

Notices

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Safety Information

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Printing Copies of Documentation from the Web

To print copies of documentation from the Web, download the PDF file from the Keysight web site:

- Go to <http://www.keysight.com>.
- Enter the document's part number (located on the front page) in the **Quick Search** box.
- Click **GO**.
- Click on the hyperlink for the document.
- Click the printer icon located in the tool bar.

Safety Symbols

The following symbols on the instrument and in the documentation indicate precautions which must be taken to maintain safe operation of the instrument.

	When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.		This symbol indicates hazardous voltages.
	The laser radiation symbol is marked on products that have a laser output.		This symbol indicates that the instrument requires alternating current (ac) input.
	This symbol indicates that the power line switch is ON.		This symbol indicates that the power line switch is OFF or in STANDBY position.

Safety Considerations

Read the information below before using this instrument.

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards for design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these requirements.

WARNING

SAFETY EARTH GROUND

This is a Safety Class I product (provided with a protective earthing terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

CAUTION

BEFORE APPLYING POWER

Verify that the product is configured to match the available main power source as described in the input power configuration instructions in this manual. If this product is to be powered by autotransformer, make sure the common terminal is connected to the neutral (grounded) side of the ac power supply.

Regulatory Markings

	The CE mark is a registered trademark of the European Community. This CE mark shows that the product complies with all the relevant European Legal Directives.		The CSA mark is a registered trademark of the Canadian Standards Association.
ISM 1-A	This text indicates that the instrument is an Industrial Scientific and Medical Group 1 Class A product (CISPER 11, Clause 4).		

Waste Electrical and Electronic Equipment (WEEE) Directive

This instrument complies with the WEEE Directive marking requirement. This affixed product label indicates that you must not discard this electrical or electronic product in domestic household waste.

Product category:

With reference to the equipment types in the WEEE directive Annex 1, this instrument is classified as a “Monitoring and Control Instrument” product.

The affixed product label is as shown below.



Do not dispose in domestic household waste.

To return this unwanted instrument, contact your nearest Keysight Service Center, or visit <http://about.keysight.com/en/companyinfo/environment/takeback.shtml> for more information.

Sales and Technical Support

To contact Keysight for sales and technical support, refer to the support links on the following Keysight websites:

- www.keysight.com/find/amplifiers
(product-specific information and support, software and documentation updates)
- www.keysight.com/find/assist
(worldwide contact information for repair and service)

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1 Introduction

Product Overview 14

This chapter provides you the overview of Keysight 87421A and 87422A power supply.

Product Overview

The 87421A and 87422A power supplies are universal input, dc switching power supplies designed to provide the bias voltages needed to operate microwave system amplifiers.



Figure 1-1 87421A and 87422A power supply

87421A power supply

The 87421A is a 25watt, $\pm 12\text{Vdc}$ power supply designed to power the 83006A, 83017A, and 87415A microwave system amplifiers.

- The power supply includes an AC power cord with protective ground for connection to 100-240Vac.
- Also included is a 2 meter cable with a 3-pin connector on one end and a D-subminiature connector (83006-60005) on the other end for direct connection to the microwave system amplifiers.

The 87421A may also be used to provide bias voltages for the 83440C high speed lightwave converter. Using the 83440-60009 lightwave converter power supply adapter, the 87421A becomes a compact convenient power supply for use with the lightwave converter.

87422A power supply

The 87422A is a 90watt, $\pm 15\text{Vdc}$ power supply designed to power the 83020A microwave system power amplifier. One additional $\pm 12\text{V}$ dc output is provided to power a preamplifier such as the 83006A or 83017A.

The power supply includes an AC power cord with protective ground for connection to 100-240Vac and two 2 meter cables:

- one cable (83006-60005) with a 3-pin connector on one end and a D-subminiature connector on the other end
- one cable (87422-60001) for direct connection to the 83020A amplifier

2 Specifications

Environmental Specifications 16

This chapter provides you the environmental specifications of Keysight 87421A and 87422A power supply.

Environmental Specifications

Table 2-1 Environmental specifications

Parameter	Specification
Temperature	
– Operating	0°C to 55°C
– Storage	-40°C to 70°C
Humidity	
– Operating	15% to 95% RH at 40°C
– Non operating supersoak	90% RH at 65°C for 24 hours
– Condensation	After stabilizing at 50% RH/25°C, product shall be subjected to 95% RH at 40°C. Product shall suffer no damage and operate within specifications within 15min.
Shock	
– End use handling shock	Half-sine shock, < 3ms duration, 155in/s ΔV , minimum 3 shocks each face
– Transportation shock (Type 1)	Trapezoid shock, 30g acceleration, 292in/s ΔV , minimum 3 shocks each face
Vibration	
– Operating	Random: 0.0001 g^2 /Hz for 5Hz to 350Hz, -6dB/octave for 350Hz to 500Hz, minimum 10min/axis for all 3 axes
– Survival	Random: 0.015 g^2 /Hz from 5Hz to 100Hz, -6dB/octave from 100Hz to 137Hz, 0.008 g^2 /Hz from 137Hz to 350Hz, -6dB/octave from 350Hz to 500Hz, minimum 10min/axis for all 3 axes Swept Sine: Resonant search from 5Hz to 500Hz, 1 octave/min sweep rate, 5 min resonant dwell at 4 resonances/axis
Altitude	
– Operating	4,600m
– Storage	15,300m
ESD immunity	
– Direct discharge	4kV
– Air discharge	8kV

3 Operating and Service

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This chapter provides you the operating instructions and service information.

Operating and Service

Operating instructions

To operate the power supplies, connect the power supplies output to the amplifier dc input with the cable provided. The power supplies include a power cord with protective ground for connection to 100-240Vac.

Mounting holes are provided. The power supplies may be mounted in any orientation with user supplied hardware.

NOTE

- To ensure continued compliance to product safety and EMC specifications, connect the power supplies to an amplifier only with the cable provided.
 - Do not attempt to modify or extend the dc output cable. Contact your local Keysight Technologies Sales and Service office for help with special applications requiring longer cables.
-

Fuse replacement

The power supplies have a fuse located next to the IEC appliance inlet. If it is necessary to replace the fuse, disconnect the power supply from both AC power and the amplifier. Using a slotted screw driver, open the fuse cover and replace the fuse.

Service information

The power supplies contain no user serviceable parts (with the exception of the fuse). If service is required, contact your nearest Keysight Technologies Service Center. Refer to [“Sales and Technical Support”](#) on page 5.

Available instruments and accessories

- 83006A microwave system amplifier 0.01 - 26.5GHz
- 83017A microwave system amplifier 0.5 - 26.5GHz
- 83018A microwave system amplifier 2 - 26.5GHz
- 83020A microwave system power amplifier 2 - 26.5GHz
- 87415A microwave system amplifier 2 - 8GHz
- 87405C microwave system pre-amplifier 0.1 - 18GHz
- 83440-60009 lightwave converter power supply adapter



This information is subject to change without notice. Always refer to the Keysight website for the latest revision.

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