

User's Guide

Agilent Technologies

85320A/B

Mixer Modules

For serial numbers MY49060401 and above.



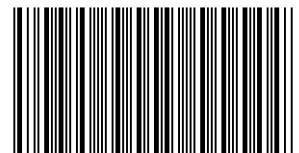
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85320-90001

Hewlett-Packard to Agilent Technologies Transition

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. To reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product number/name was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP 85320A is now model number Agilent 85320A.

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NOTE In any correspondence or telephone conversation, refer to the Agilent product by its model number and full serial number. With this information, the Agilent representative can determine whether your product is still within its warranty period.

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General Information

The Agilent 85320A test mixer and Agilent 85320B reference mixer operate from 2 to 26.5 GHz. They are designed for use with the Agilent 85309A Distributed Frequency Converter. These mixers work with the Agilent 85309A to downconvert RF frequencies to the 20 MHz IF signal required by the Agilent 8510 or 8530 receiver. The 85309A, 85320A and 85320B are the components in an Agilent 85310A Distributed Frequency Converter system.

In fundamental mode, the LO signal must be 20 MHz away from the incoming RF signal. This mode has better sensitivity than the third harmonic mode, but is limited in operation to the highest LO frequency available at the mixer inputs (18 GHz).

In the third harmonic mode the mixer uses the third harmonic of the LO to convert RF frequencies to the 20 MHz IF signal. This mode has less sensitivity than the fundamental mode, but allows you to measure RF signals three times higher than the maximum LO frequency.

85320A Test Mixer

The test mixer has a “diplexer” circuit that allows both LO and IF signals to travel through a single cable. This is convenient because both signals can travel through a rotary joint. This circuit works in conjunction with an identical diplexer in the 85309A.

85320B Reference Mixer

The reference mixer has a diode detector built into it. This circuit detects the LO input power, and outputs a proportional voltage. The detected voltage should be connected to the 85309A (which displays the voltage on its front panel). This detector voltage is used to set the LO power to precisely the correct level. When the LO power is correct, the detector voltage will match that shown on the label mounted on the mixer.

Specifications and Physical Characteristics

This is not a comprehensive list of specifications, others are listed in the *Agilent 85310A Distributed Frequency Converter Operating and Service Manual* part number 85310-90001.

Frequency Range

Fundamental Mode: 2 to 18 GHz

Third Harmonic Mode: 6 to 26.5 GHz

Maximum Input Levels

Do not exceed the following levels at either mixer input:

Maximum DC voltage at input: 10V

Maximum RF Level at RF or LO inputs: +26 dBm

Minimum LO Input Level

Table 1-1. Mixer LO Signal Power Level

LO Frequency	Minimum Power	Typical Power	Maximum Power
1 to 18 GHz	+7.5 dBm	+11 dBm	+12 dBm

Conversion Loss

The typical performance values shown apply to the mixer modules themselves. This performance data is intended to help customers who wish to build their own custom downconverters.

Table 1-2. 85320A/B Conversion Loss

Frequency Range	LO Harmonic	Typical Loss	Maximum Loss
1 to 2 GHz	1	18.0 dB	22 dB
2 to 3 GHz	1	12.0 dB	16 dB
3 to 5 GHz	1	11.0 dB	15 dB
5 to 18 GHz	1	14.7 dB	17 dB
6 to 8 GHz	3	23.8 dB	26 dB
8 to 16 GHz	3	26.5 dB	28 dB
16 to 26.5 GHz	3	28.5 dB	33 dB

Connector Types

85320A/B: type-N female except for RF Input (3.5 mm male)

Environmental Characteristics

Operating conditions: 0 °C to +55 °C

Non-operating conditions: -40 °C to +75 °C; 5 to 90% relative humidity, non condensing

Size and Weight

Net Weight

85320A: 615 g (1.35 lb)

85320B: 840 g (1.85 lb)

Size

85320A: 83 mm (3.25 in) W x 122 mm (4.8 in) H
x 33 mm (1.3 in) D

85320B: 92 mm (3.6 in) W x 185 mm (7.3 in) H
x 25 mm (1.0 in) D

Rebuilt/Exchange Parts

You can obtain rebuilt mixer modules through the rebuilt-exchange program. These factory *rebuilt* (repaired and tested) mixers meet all specifications required of a new unit. They are offered on an *exchange* (trade-in) basis only. The defective mixer must be returned for credit, so rebuilt-exchange mixers are not suitable for stock or spares.

Here is how to use the exchange program:

1. Order a rebuilt mixer from Agilent (see the part number listing below).
2. You will receive the rebuilt mixer in a reusable shipping box, open it carefully because you must return the old mixer in the same box. Take the return address label out of the shipping box.
3. Insert the bad mixer into the box and seal the box with tape.
4. Inside the U.S.A., place the return address label on top of the old shipping label. If shipping from outside the U.S.A. do not use the pre-printed label; instead address the box to the nearest Agilent office.

Table 1-3. Rebuilt/Exchange Part Numbers

Mixer Module	Rebuilt Part Number
85320A	85320-69001
85320B	85320-69002

Where to Find More Information

The 85320A/B mixer are intended for use with the 85309A. Agilent sells the mixers and the 85309A together as the 85310 Distributed Frequency Converter. Installation, specifications, performance verification, and service information can be found in the *Agilent 85310A Distributed Frequency Converter Operating and Service Manual* part number 85310-90001.

By internet, phone, or fax, get assistance with all your test & measurement needs.

Table 1-4. Agilent Technologies Sales and Service Offices

Online Assistance: www.agilent.com/find/assist

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