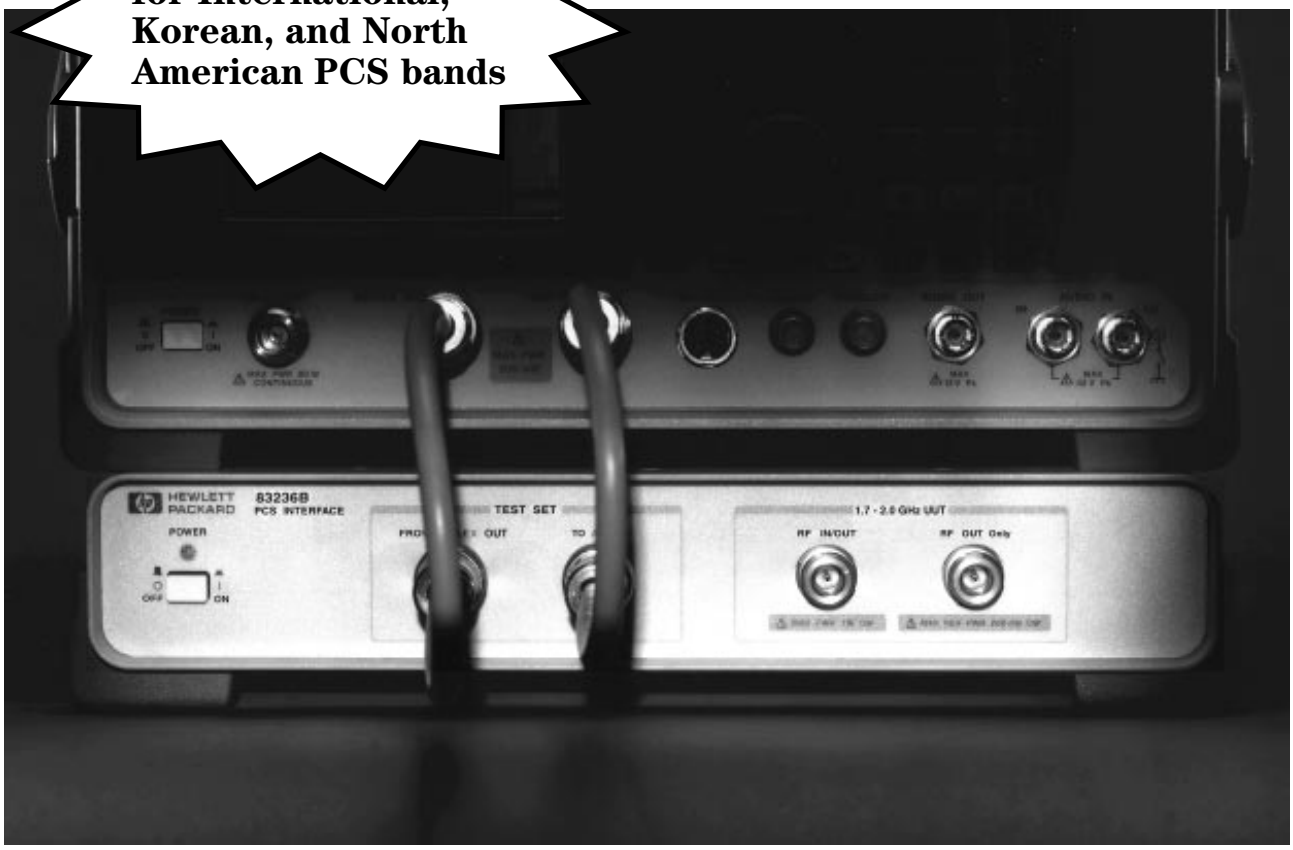
HEWLETT PACKARD

HP 83236B
PCS Interface

Product Overview

Wireless test solutions for your PCS-band phones and cell sites

NEW - full coverage for International, Korean, and North American PCS bands



Cellular to PCS frequency translator for Hewlett-Packard's successful 800 MHz test sets.

- HP 8921A Option 500 and 600
  TDMA and CDMA Cell Site Test Sets
- HP 8920B Option 800
  TDMA Mobile Test Set
- HP 8924C
  CDMA Mobile Station Test Set
  (available early 1997)

TDMA and CDMA Test Solutions

The HP 83236B PCS Interface is a cellular to PCS frequency translator. When combined with Hewlett-Packard TDMA and CDMA RF test sets, it provides PCS test solutions for your TDMA and CDMA PCS phones and cell sites.

HP 83236B PCS-band test solutions build on the following successful 800 MHz test sets.

- HP 8921A Option 500 and 600 TDMA and CDMA Cell Site Test Sets
- HP 8920B Option 800 TDMA Mobile Test Set
- HP 8924C CDMA Mobile Station Test Set (available early 1997)

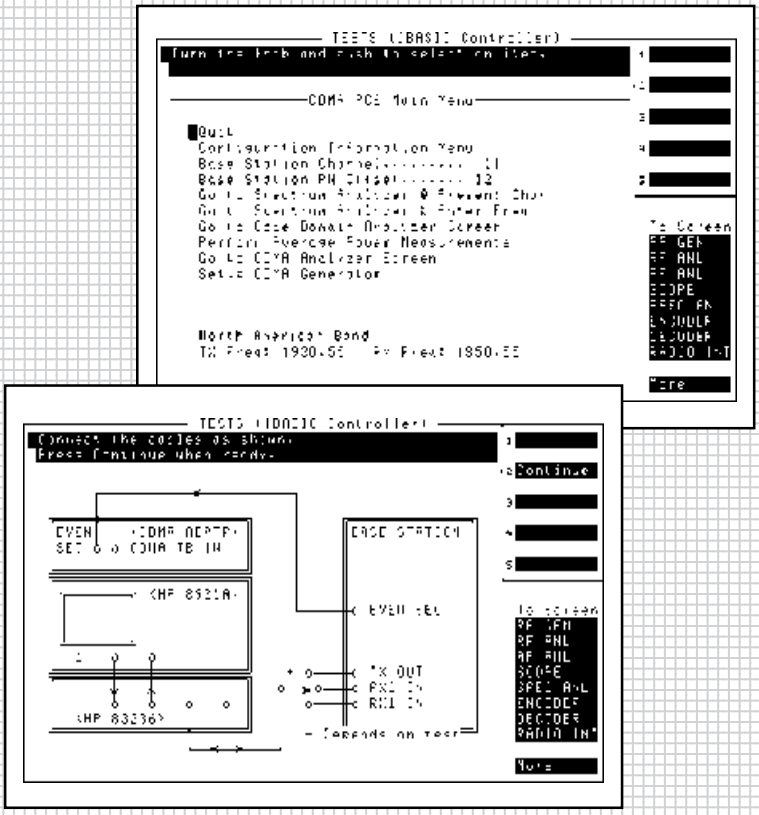
For configuration information, refer to the HP 8920B configuration guide, p/n 5965-3296E, or the HP 8921A configuration guide, p/n 5965-1577E.

PCS-band Coverage

The HP 83236B translates 800 MHz measurement capabilities to the 1710 to 1990 MHz frequency range. This frequency range covers the International (1710 to 1880 MHz), Korean (1715 to 1870 MHz), and North American (1850 to 1990 MHz) PCS bands.

Measurement Accuracy

Power measurement accuracy and speed are maintained at PCS-band frequencies with an internal power meter for measurements on CW, CDMA, and TDMA ($\pi/4$ pulsed or continuous) signals.



Utility Software

The HP 83236B is controlled by commands from an external controller or from the internal IBASIC controller of the RF test set. Software shipped with the HP 83236B ensures proper instrument connectivity and integrates the RF test set and HP 83236B for manual PCS measurements from the RF test set's front panel.

New HP 83236B Features

- 1710 to 1990 MHz frequency coverage
- Serial interface bus for future HP 8920B and HP 8924C firmware control options
- Fast CDMA power measurements

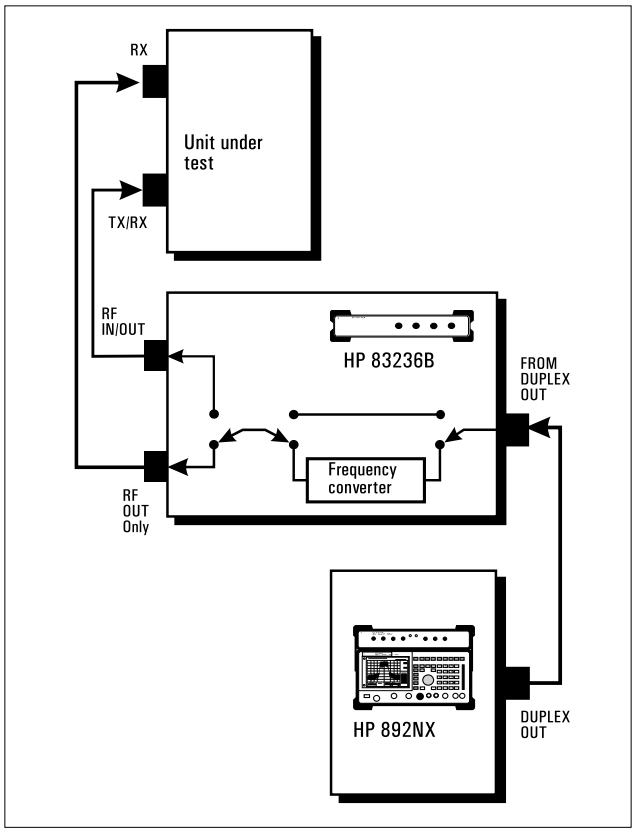
HP 83236B Specifications

Specifications describe the instrument's warranted performance after a 30-minute warm-up period and are valid over the entire operating range unless otherwise noted.

Supplemental Characteristics are intended to provide additional information useful in applying the instrument by giving typical, but non-warranted performance parameters. These are shown in italics or labeled as "typical," "usable to," or "nominal."

Generator Output Path[1]

(RF IN/OUT and RF OUT Only connector)



Generator Output Path

Frequency

Frequency Range:

Through Path: 824 MHz to 849 MHz
869 MHz to 894 MHz

Conversion Path: 1710 MHz to 1785 MHz
1805 MHz to 1910 MHz
1930 MHz to 1990 MHz

Frequency Settling Time: *< 10 ms*

Output

RF IN/OUT Connector:

Output Level Range: –130 dBm to –20 dBm

RF OUT Only Connector:

Output Level Range: –130 dBm to –10 dBm

Level Accuracy: ± 1.8 dB, @ 25 °C ± 10 °C
± 2.0 dB, @ 0 °C to 55 °C
Typically ± 1.0 dB

Output Level Settling Time: *< 80 ms*

Spectral Purity (HP 83236B only)

Spurious

Type of spurious	Frequency (MHz)		
	824 to 849 869 to 894	*894 < to < 1710*	*1710 to 1990*
Harmonic	*< –30 dBc*	–	*< –30 dBc*
Non-Harmonic	*< –60 dBc**	*< –25 dBc***	*< –60 dBc**
**Offsets > 5 kHz ** For carrier levels > –100 dBm*			

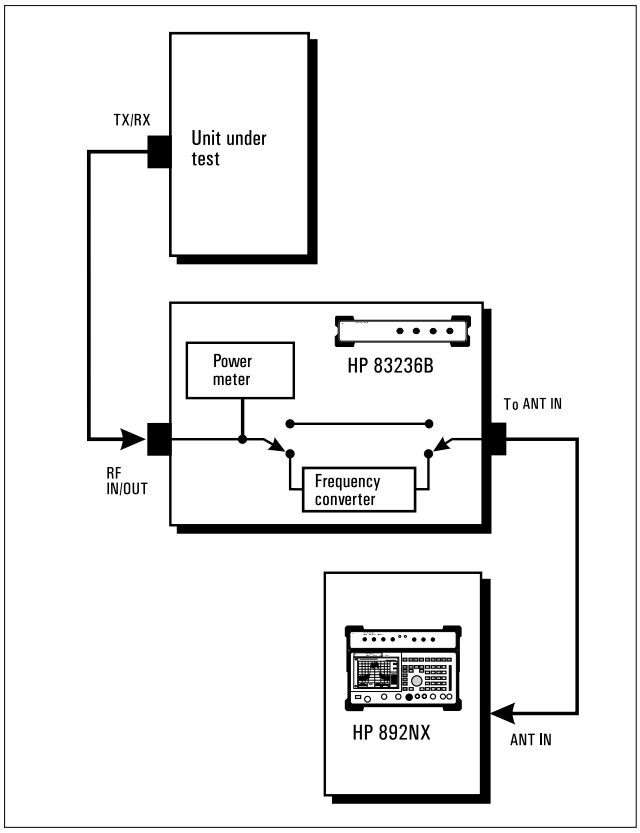
SSB Phase Noise: < –100 dBc/Hz at 20 kHz offset from carrier

1. To meet generator output path specifications, the input signal must be from the HP 8920A/B, HP 8921A/D, or HP 8924C Test Set with the following characteristics:
   Frequency Range: 810 MHz to 995 MHz
   Level Range: –70 dBm to –7 dBm.

HP 83236B Specifications

Analyzer Input Path

(RF IN/OUT connector)



Analyzer Input Path

Frequency

Frequency Range:

Through Path: 824 MHz to 849 MHz
869 MHz to 894 MHz

Conversion Path: 1710 MHz to 1785 MHz
1805 MHz to 1910 MHz
1930 MHz to 1990 MHz

Max Input Level: The maximum allowable average power depends on the unit under test as follows:

Subscriber Unit Test

Single carrier TDMA and FM: 40 dBm (10 W)
CDMA: 37 dBm (5 W)

Base Station Test

Single carrier TDMA and FM: 40 dBm (10 W)
CDMA and multi-carrier: 30 dBm (1 W)

Max Peak Instantaneous Signal: 30 V

Spectral Purity

Integrated Spurious and Phase Noise:

< –57 dBc in a 100 Hz to 32 kHz bandwidth

Spurious Level: *< –60 dBc at ≥ 5 kHz and ≤ 20 MHz offset from carrier*

Power Measurement

Frequency Range: 824 MHz to 849 MHz
869 MHz to 894 MHz
1710 MHz to 1785 MHz
1805 MHz to 1910 MHz
1930 MHz to 1990 MHz

Measurement Range:

Subscriber Unit Test

Single carrier TDMA and FM:

–13 dBm to 40 dBm (50 μW to 10 W)

CDMA: –13 dBm to 37 dBm (50 μW to 5 W)

Base Station Test

Single carrier TDMA and FM:

–13 dBm to 40 dBm (50 μW to 10 W)

CDMA and multi-carrier:

–13 dBm to 30 dBm (50 μW to 1 W)

Accuracy: ±5% of reading ±2.5 μW @ 23 °C ±10 °C after power meter zero and calibration

±10% of reading ±2.5 μW

Resolution: 0.01 dB or 10 μW

Reference Specifications

(For proper operation, this instrument must be locked to an external 10 MHz reference.)

REF IN: ***Input Frequency:*** *10 MHz*

Input Level Range: – 5 dBm to + 10 dBm

REF OUT: ***Output Frequency:*** *10 MHz*

Output Level: *–1 dBm*

Accuracy: Buffered signal from REF IN, or 10 MHz ± 10 ppm (if no external reference is connected to REF IN)

Remote Control

HP-IB: Hewlett-Packard's implementation of IEEE Standard 488.2

Serial Port: **Connector type:** D–SUB15(F)

Interface: RS–232C

General Specifications

Isolation between "RF IN/OUT" and "RF OUT Only": > 40 dB

Size: 84 H x 340 W x 500 D mm

Weight: 5.6 kg

Operating Temperature: 0 °C to 55 °C

Operating Humidity: 15 to 95% RH @ 40 °C

Operating Altitude: 0 to 2000 meters

Non-operating Temperature: –55 °C to 70 °C

Non-operating Humidity: to 90% RH @ 65 °C

Non-operating Altitude: 0 to 4572 meters

Power: AC 90 to 132 V, 198 V to 264 V 47 to 63 Hz

100 VA max

Others

Safety:

Complies with IEC 1010-1:1990 + A1:1992/EN 61010-1:1993
Certified by CSA-C22.2 No. 231-M89

EMC:

Radiated Emission:

Complies with EN 55011:1991/CISPR 11:1990- Group 1, Class A

Flicker: Complies with EN 61000-3-3:1995/ IEC 1000-3-3:1994

Electro-Static Discharge:

EN 50082-1:1992/IEC 801-2:1991
–4 kV CD, 8 kV AD

Radiated Immunity: EN 50082-1: 1992 / IEC 801-3: 1984 –3 V/m

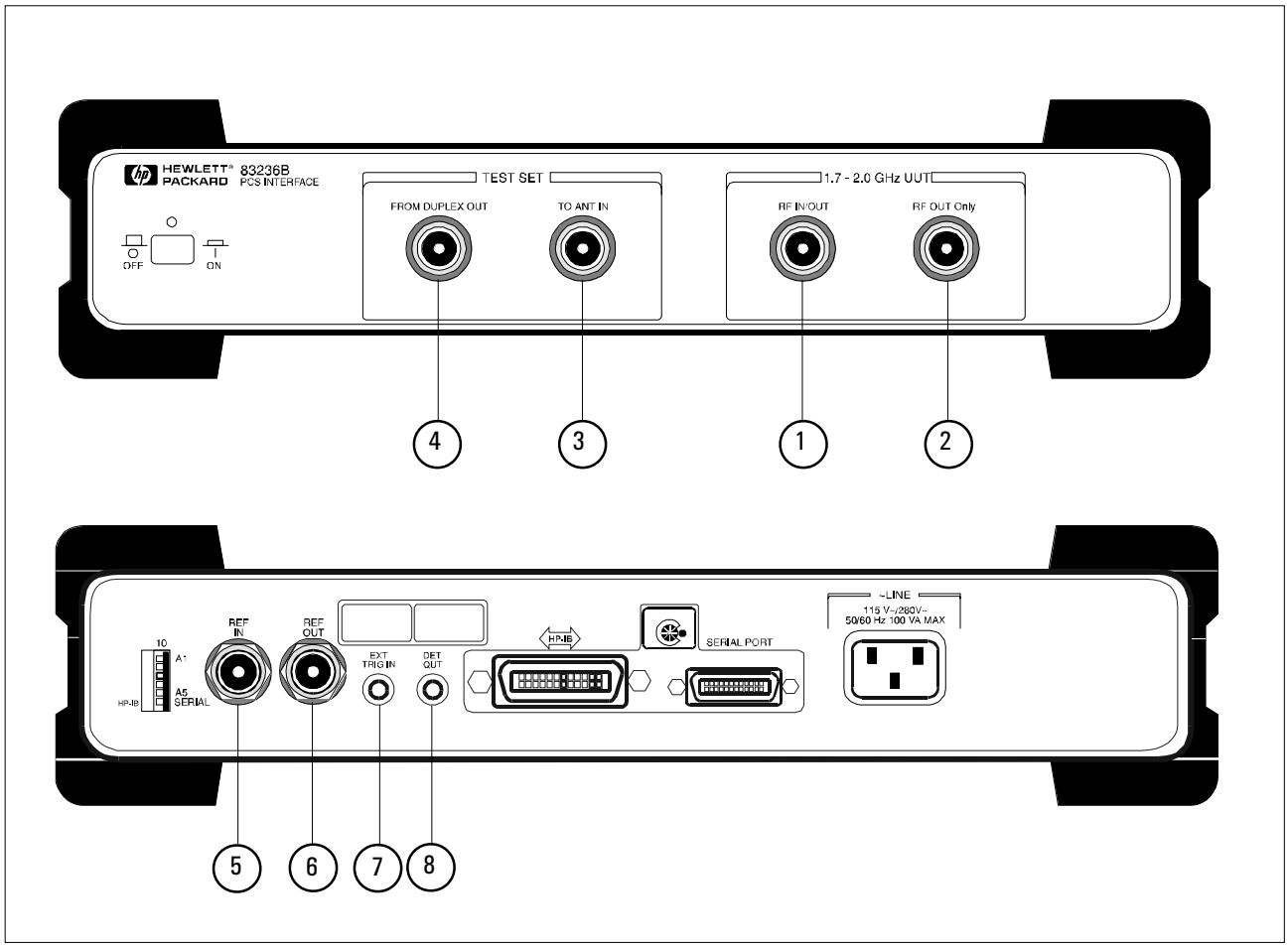
Note:

When tested at 3 V/m according to IEC 801-3/1984, the output level accuracy will be within specifications over the full immunity test frequency range of 26 to 1000 MHz except when the analyzer frequency is identical to the transmitted interference signal test frequency.

Electrical Fast Transient/Burst:

EN 50082-1:1992 / IEC 801-4:1988 - 0.5 kV Signal Lines, 1kV Power Lines

HP 83236B Specifications



Connectors

1. RF IN/OUT:
(Input/Output to UUT)
Input/Output Impedance: 50 Ω (nominal)
Connector Type: Type N (F)
SWR: <1.2:1

Applied Power:
Subscriber Unit Test
Single carrier TDMA and FM: 40 dBm (10 W)
CDMA: 37 dBm (5 W)
Base Station Test
Single carrier TDMA and FM: 40 dBm (10 W)
CDMA and multi-carrier: 30 dBm (1 W)

Max Peak Instantaneous Signal: 30 V

2. RF OUT Only:
(Output to UUT)
Output Impedance: 50 Ω (nominal)
Connector Type: Type N (F)
SWR: <1.6:1
Reverse Power Protection: 200 mW CW max

3. To ANT IN:
(Output to HP 892NX)
Frequency Range: 650 MHz to 940 MHz
Output Impedance: 50 Ω (nominal)
Connector Type: Type N (F)
SWR: <2.3:1

4. FROM DUPLEX OUT:
(Input from HP 892NX)
Input Impedance: 50 Ω (nominal)
Connector Type: Type N (F)
SWR: <1.3:1
Input Frequency Range: 810 MHz to 995 MHz
Input Level Range: –70 dBm to –7 dBm

5. REF IN:
(Input from HP 892NX)
Input Frequency: *10 MHz*
Input Level Range: –5 dBm to +10 dBm
Input Impedance: 50 Ω (nominal)
Connector Type: BNC (F)

6. REF OUT:
(Output)
Output Frequency: *10 MHz*
Output Level: *–1 dBm*
Output Impedance: 50 Ω (nominal)
Connector Type: BNC (F)

7. EXT TRIG IN:
(Input for TDMA)
External Trigger Signal: (Required for TDMA RF input level range –13 dBm to –5 dBm)
Input Level: TTL
Input Impedance: >1 k Ω at 1 MHz (nominal)
Triggering Type: Positive edge
Connector Type: SMC (M)

8. DET OUT:
(Output for CDMA)
Output Impedance: 50 Ω (nominal)
Connector Type: SMC (M)

Ordering Information

HP 83236B PCS Interface

Options

AX4 Rack flange kit without handles
001 Manual control software on PCMCIA card for HP 8920B

This Hewlett-Packard instrument product is warranted against defects in material and workmanship for a period of one year from the date of shipment.

For more information on Hewlett-Packard Test & Measurement products, applications or services please call your local Hewlett-Packard sales offices. A current listing is available via Web through Access HP at **http://www.hp.com**. If you do not have access to the internet please contact one of the HP centers listed below and they will direct you to your nearest HP representative.

United States:
Hewlett-Packard Company
Test and Measurement Organization
5301 Stevens Creek Blvd.
Bldg. 5lL-SC
Santa Clara, CA 95052-8059
1-800-452-4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(905) 206- 4725

Europe:
Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands

Japan:
Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-cho, Hachioji-shi,
Tokyo 192, Japan
(81) 426 48 0722
Fax (81) 426 48 1073

Latin America:
Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive
9th Floor
Miami, Florida 33126 U.S.A.
(305) 267 4245/4220

Australia/New Zealand:
Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
1 800 629 485

Asia Pacific:
Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
Fax: (852) 2506 9285

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