

Specifications

This chapter contains module specifications and characteristics for the HP 70620B and HP 70621A preamplifiers. For system specifications, refer to the system master's Installation and Verification Manual.

This chapter contains both specifications and characteristics. Characteristics are in *italics* and are identified with the word *characteristic*. The terms "specifications" and "characteristics" are defined below:

Specifications describe warranted performance over the temperature range of 0°C to +55°C (unless otherwise noted) after 1 hour of continuous operation. Specifications apply after system temperatures have stabilized and self-calibration routines have run.

Unless otherwise noted, corrected limits are given when a specification range is improved with error-correction routines. All specifications that are qualified by an output-power setting refer to that setting.

Typical performance, where listed, is *not warranted*, but indicates performance which most units will meet.

Characteristics provide useful, but *nonwarranted*, functional and performance information.

Nominal values indicate the expected, but *nonwarranted*, value of the denoted parameter.

Module Specifications and Characteristics

+28 VDC OUT

The +28 VDC OUT connector is a BNC (f) in both HP 70620B and HP 70621A modules.

Output Voltage

while in "On" state, ≤ 60 mA	+28 V dc ± 0.1 V dc
while in "Off" state	<1 V

RF OUTPUT

The RF OUTPUT connector is an APC-3.5 (m) in the HP 70620B and an SMA (f) in the HP 70621A.

Reverse isolation (characteristic)

reduces spectrum analyzer LO emissions

HP 70620B >75 dB

HP 70620B Option 001

100 kHz to 2.9 GHz >50 dB

2.7 GHz to 26.5 GHz >75 dB

HP 70621A >50 dB

Gain compression (characteristic)

<1 dB for the following preamplifier output signals:

HP 70620B output signal $\leq +7$ dBm

HP 70620B Option 001 output signal

100 kHz to 2.9 GHz ≤ 0 dBm

2.7 GHz to 26.5 GHz $\leq +7$ dBm

HP 70621A output signal ≤ 0 dBm

Second Harmonic Distortion Intercept (characteristic) $\geq +30$ dBm

Third-Order Intercept (characteristic)

HP 70620B $\geq +15$ dBm

HP 70620B Option 001

100 kHz to 2.9 GHz ≥ 0 dBm

2.7 GHz to 26.5 GHz $\geq +15$ dBm

HP 70621A ≥ 0 dBm

Impedance 50Ω nominal

Gain (characteristic)

Applies only when module is in preamplifier mode and temperature is 20°C to 30°C.

HP 70620B

1 GHz to 12.7 GHz ≥ 26 dB

12.7 GHz to 26.5 GHz ≥ 24 dB

HP 70620B Option 001

100 kHz to 2.9 GHz ≥ 22 dB

2.7 GHz to 12.7 GHz ≥ 25 dB

12.7 GHz to 22 GHz ≥ 23 dB

22 GHz to 26.5 GHz ≥ 20 dB

HP 70621A

100 kHz to 2.9 GHz ≥ 24 dB

Bypass Insertion Loss (characteristic)

Applies only when module is in bypass mode.

HP 70620B

0 Hz to 2.9 GHz	≤ 1 dB
2.9 GHz to 12.7 GHz	≤ 1.8 dB
12.7 GHz to 26.5 GHz	≤ 2.5 dB

HP 70620B Option 001

0 Hz to 2.9 GHz	≤ 1 dB
2.7 GHz to 12.7 GHz	≤ 1.8 dB
12.7 GHz to 26.5 GHz	≤ 2.5 dB

HP 70621A

0 Hz to 2.9 GHz	≤ 1 dB
0 Hz to 26.5 GHz	≤ 6 dB

Noise Figure (characteristic)

(20°C to 30°C)

HP 70620B

1 GHz to 12.7 GHz	≤ 9.0 dB
12.7 GHz to 22.0 GHz	≤ 13.0 dB
22 GHz to 26.5 GHz	≤ 15.0 dB

HP 70620B Option 001

100 kHz to 2.9 GHz	≤ 7.5 dB
2.7 GHz to 12.7 GHz	≤ 9.5 dB
12.7 GHz to 22.0 GHz	≤ 14.0 dB
22 GHz to 26.5 GHz	≤ 16.0 dB

HP 70621A

100 kHz to 2.9 GHz	≤ 6.0 dB
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VSWR (characteristic)

HP 70620B

Preamplifier Mode

1 GHz to 12.7 GHz	2.0:1
12.7 to 26.5 GHz	2.2:1

Bypass Mode

0 Hz to 2.7 GHz	1.3:1
2.7 to 12.7 GHz	1.7:1
12.7 to 26.5 GHz	2.4:1

HP 70620B Option 001

Preamplifier Mode

100 kHz to 2.9 GHz	2.4:1
2.7 to 12.7 GHz	2.2:1
12.7 to 26.5 GHz	3.0:1

Bypass Mode

0 Hz to 2.9 GHz	1.3:1
2.7 to 12.7 GHz	1.7:1
12.7 to 26.5 GHz	2.4:1

HP 70621A

Preamplifier Mode (100 kHz to 2.9 GHz)	1.9:1
Bypass Mode (0 Hz to 2.9 GHz)	1.3:1

RF INPUT

The RF INPUT connector is an APC-3.5 (m) in an HP 70620B and a Type N (f) in an HP 70621A.

Maximum safe input power (characteristic)

Preamplifier mode +20 dBm (100 mW)

Bypass mode *This is specific to the RF section in the system. Refer to the appropriate RF section Installation and Verification Manual.*

Maximum dc input

HP 70620B ±20 V dc

HP 70620B Option 001 ±10 V dc

HP 70621A ±20 V dc

Impedance 50Ω nominal

VSWR (characteristic)

HP 70620B

Preamplifier Mode

1 GHz to 2.7 GHz 2.2:1

2.7 to 12.7 GHz 1.6:1

12.7 to 26.5 GHz 2.8:1

Bypass Mode

0 Hz to 2.7 GHz 1.3:1

2.7 to 12.7 GHz 1.7:1

12.7 to 26.5 GHz 2.4:1

HP 70620B Option 001

Preamplifier Mode

100 kHz to 2.9 GHz 2.4:1

2.7 to 12.7 GHz 2.2:1

12.7 to 26.5 GHz 3.0:1

Bypass Mode

0 Hz to 2.9 GHz 1.3:1

2.7 to 12.7 GHz 1.7:1

12.7 to 26.5 GHz 2.4:1

HP 70621A

Preamplifier Mode (100 kHz to 2.9 GHz) 2.0:1

Bypass Mode (0 Hz to 2.9 GHz) 1.3:1

General Specifications and Characteristics

Temperature

Operation	0°C to +55°C
Storage	-40°C to +75°C

Weight (characteristic)

HP 70620B	1.8 kg (4 lb)
HP 70620B Option 001	2.5 kg (5.5 lb)
HP 70621A	1.8 kg (4 lb)

Dimensions (characteristic) 1/8-width module