

HP R85026A  
 HP Q85026A  
 HP U85026A  
 HP 85027A  
 HP 85027B  
 HP 85027C  
 HP 85027D  
 HP 85027E

### Waveguide Detectors and Detector Adapters Summary For use with the HP 8757 only in either ac or dc detection modes

Model	Frequency range	Connector type	Dynamic range	Return loss	Frequency response	Dynamic accuracy
HP R85026A <sup>1</sup>	26.5 to 40 GHz	WR-28	+10 to -50 dBm (ac mode) +10 to -45 dBm (dc mode)	12 dB	±1.5 dB	±(0.3 dB + 0.03 dB/dB)
HP Q85026A <sup>1</sup>	33 to 50 GHz	WR-22	+10 to -50 dBm (ac mode) +10 to -45 dBm (dc mode)	12 dB	±2.0 dB	±(0.3 dB + 0.03 dB/dB)
HP U85026A	40 to 60 GHz	WR-19	+10 to -50 dBm (ac mode) +10 to -45 dBm (dc mode)	12 dB	±2.0 dB	±(0.3 dB + 0.03 dB/dB)
HP 85025C Option K57 <sup>2</sup>	50 to 75 GHz	WR-15	+10 to -45 dBm (typical)	9.5 dB (typical)	—	—
HP 85025C Option K71 <sup>3</sup>	75 to 110 GHz	WR-10	+10 to -45 dBm (typical)	9.5 dB (typical)	—	—
HP 85025C <sup>1</sup>	<sup>2</sup>	SMA (m)	<sup>2</sup>	<sup>2</sup>	<sup>2</sup>	<sup>2</sup>

<sup>1</sup>The HP 85025 and 85026 series detectors and the HP 85025C detector adapter require HP 8757A firmware revision 2.0 or higher. To upgrade previous revisions, order the HP 11614A firmware enhancement.

<sup>2</sup>Depends upon the particular detector being used.  
<sup>3</sup>Must be used with the HP 85025C detector adapter.

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### HP 85027 Series Directional Bridges (ac/dc)

The HP 85027 series directional bridges are designed to operate with either the HP 8757 in ac or dc detection modes. These bridges offer high directivity, excellent test port match, and a measurement range of up to 50 GHz in coax.

### HP 8757D Option 002 Power Calibrator

The HP 8757D's internal power calibrator provides a 50 MHz reference standard for characterizing the absolute power accuracy and dynamic power accuracy of the HP 85037 series precision detectors.

- Frequency: 50 MHz ±0.2 MHz
- Accuracy at 0 dBm: ±0.05 dB
- Linearity: (over any 10 dB range)
  - ±0.08 dB (+20 to +10 dBm)
  - ±0.04 (+10 to -30 dBm)
  - ±0.06 (-30 to -50 dBm)

### Directional Bridge Summary For use with the HP 8757 in ac or dc detection mode

Model	Frequency range	Nominal impedance	Connector—input	Connector—test port	Frequency	Directivity (dB)	Frequency	Test port match (SWR)
HP 85027A	10 MHz to 18 GHz	50 Ω	Type-N (f)	7 mm	0.01 to 18 GHz	40 dB	0.01 to 8.4 GHz 8.4 to 12.4 GHz 12.4 to 18 GHz	<1.15 <1.25 <1.43
HP 85027B	10 MHz to 26.5 GHz	50 Ω	3.5 mm (f)	3.5 mm (f)	0.01 to 20 GHz 20 to 26.5 GHz	40 dB 36 dB	0.01 to 8.4 GHz 8.4 to 20 GHz 20 to 26.5 GHz	<1.15 <1.43 <1.78
HP 85027C	10 MHz to 18 GHz	50 Ω	Type-N (f)	Type-N (f)	0.01 to 12.4 GHz 12.4 to 18 GHz	36 dB 34 dB	0.01 to 8.4 GHz 8.4 to 12.4 GHz 12.4 to 18 GHz	<1.15 <1.25 <1.43
HP 85027D	10 MHz to 50 GHz	50 Ω	2.4 mm (f)	2.4 mm (m)	0.01 to 20 GHz 20 to 26.5 GHz 26.5 to 40 GHz 40 to 50 GHz	36 dB 32 dB 30 dB 25 dB	0.01 to 16 GHz 16 to 30 GHz 30 to 40 GHz 40 to 50 GHz	<1.18 <1.27 <1.57 typically <2.00
HP 85027E	10 MHz to 26.5 GHz	50 Ω	3.5 mm (f)	3.5 mm (m)	0.01 to 20 GHz 20 to 26.5 GHz	40 dB 36 dB	0.01 to 8.4 GHz 8.4 to 20 GHz 20 to 26.5 GHz	<1.15 <1.43 <1.78

## System Accuracy

### Transmission Loss or Gain Measurement Accuracy

Transmission loss or gain measurements are made relative to a 0 dB reference point established at calibration. Transmission measurement uncertainty = dynamic power accuracy + mismatch uncertainty.

Dynamic power accuracy is the measurement uncertainty due to the change in power level between calibration and the measurement. Mismatch uncertainty is the uncertainty due to reflections in the measurement setup. The frequency response errors of the source, detectors, bridge and power splitter are removed via calibration.

### Transmission Measurement Uncertainty Examples

- Assumptions:
- Measurement frequency = 10 GHz
  - DUT input/output SWR = 1.5
  - Change in power after calibration <30 dB (+0 to -30 dBm range)

Uncertainty component	HP 85037B precision detector	HP 85025E detector
Dynamic accuracy (±dB)	0.11	0.40
Mismatch (±dB)	0.45	0.33
Uncertainty Total (±dB)	0.56	0.73