

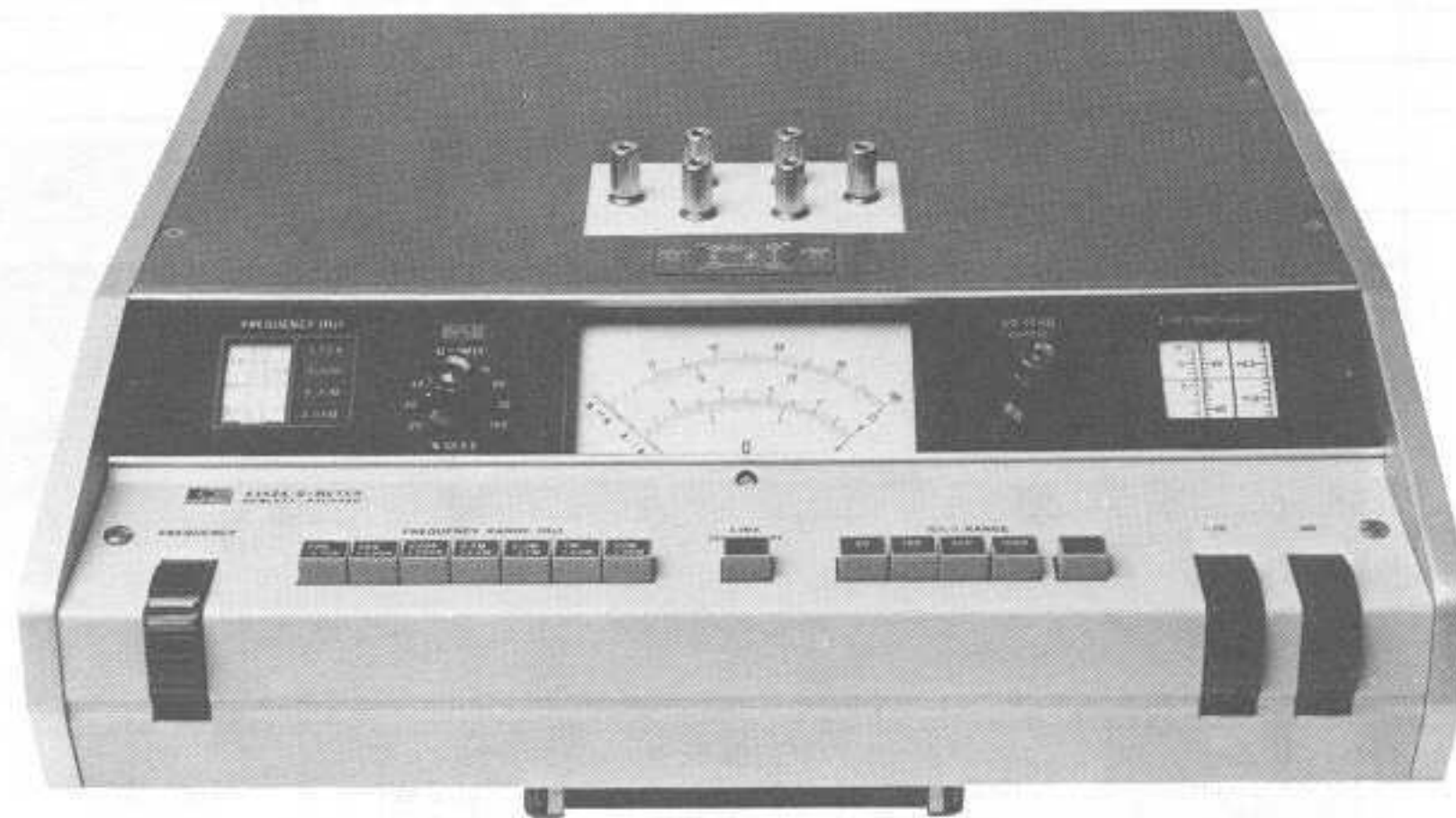


# COMPONENT MEASUREMENT

## Q Meter

### Model 4342A

- Frequency range: 22 kHz to 70 MHz
- Q range: 5 to 1000



HP 4342A

### Description

The direct-reading expanded scale of the HP 4342A permits measurement of Q from 5 to 1000 and readings of very small changes in Q resulting from variation in test parameters. The HP 4342A is solid state with the elimination of specially matched, fragile thermocouple components.

The HP 4342A will measure dissipation factor and dielectric constant of insulating materials. The Q meter can measure coefficient of coupling, mutual inductance, and frequency response of transformers. RF resistance, reactance, and Q of resistors and capacitors can also be determined.

Pushbutton operation of frequency range and Q/ $\Delta$ Q range selection provides straightforward measurement. Automatic indication of meter scales, frequency dials and frequency multipliers are featured, adding to simplicity and reading speed.

### Specifications

#### RF Characteristics

**RF range:** 22 kHz to 70 MHz in 7 bands: 22 to 70 kHz, 70 to 220 kHz, 220 to 700 kHz, 700 to 2200 kHz, 2.2 to 7 MHz, 7 to 22 MHz, 22 to 70 MHz.

**HP 4342A Opt 001:** 10 kHz to 32 MHz in 7 bands: 10 to 32 kHz, 32 to 100 kHz, 100 to 320 kHz, 320 to 1000 kHz, 1 to 3.2 MHz, 3.2 to 10 MHz, 10 to 32 MHz.

**RF accuracy:**  $\pm 1.5\%$  from 22 kHz to 22 MHz;  $\pm 2\%$  from 22 MHz to 70 MHz;  $\pm 1\%$  at "L" point on frequency dial.

**HP 4342A Opt 001:**  $\pm 1.5\%$  from 10 kHz to 10 MHz;  $\pm 2\%$  from 10 MHz to 32 MHz;  $\pm 1\%$  at "L" point on frequency dial.

**RF increments:** approximately 1% resolution.

#### Q Measurement Characteristics

**Q range:** 5 to 1000 in 4 ranges: 5 to 30, 20 to 100, 50 to 300, 200 to 1000.

**Q accuracy:** % of indicated value: (at 25°C)

	HP 4342A & HP 4342A Opt. 001	HP 4342A
Q Freq.	22 kHz-30MHz	30 MHz-70 MHz
5-300	$\pm 7$	$\pm 10$
300-600	$\pm 10$	$\pm 15$
600-1000	$\pm 15$	$\pm 20$

**Q increments:** upper scale, 1 from 20 to 100; lower scale, 0.5 from 5 to 30.

**$\Delta$ Q range:** 0 to 100 in 4 ranges: 0 to 3, 0 to 10, 0 to 30, 0 to 100.

**$\Delta$ Q accuracy:**  $\pm 10\%$  of full scale.

**$\Delta$ Q increments:** upper scale, 0.1 from 0 to 10; lower scale, 0.05 from 0 to 3.

#### Inductance Measurement Characteristics

**L range:** 0.09  $\mu$ H to 1.2 H, direct reading at 7 specific frequencies.

**L accuracy:**  $\pm 3\%$  after substitution of residuals (approx. 10 nH).

#### Resonating Capacitor Characteristics

**Capacitor range:** main dial, 25 to 470 pF, vernier dial, -5 to +5 pF.

**Capacitor accuracy:** main dial,  $\pm 1\%$  or 1 pF, whichever is greater; vernier dial,  $\pm 0.1$  pF.

**Capacitor increments:** main dial, 1 pF from 25 to 30 pF, 2 pF from 30 to 200 pF, 5 pF from 200 to 470 pF; vernier dial, 0.1 pF.

#### General

##### Rear Panel Outputs

**Frequency monitor:** 170 mV rms min. into 50  $\Omega$ .

**Q analog output:** 0 to 1 V  $\pm 50$  mV dc after 15 minutes warmup, proportional to meter deflection. Output impedance approximately 1 k $\Omega$ .

**Over limit signal output:** contact closure at the rear panel. Relay contact capacity 0.5 A/15 VA.

**Over limit display time:** selectable, 1 s or continuously on, after limit exceeded.

**Temperature range:** 0°C to 50°C.

**Power:** 115 or 230 V  $\pm 10\%$ , 50-400 Hz, approximately 40 VA.

**Size:** 138 mm H x 425 mm W x 414 mm D (5 $\frac{7}{16}$ " x 16 $\frac{3}{4}$ " x 16 $\frac{3}{16}$ ").

**Weight:** net, 14 kg (31 lb); shipping, 18.45 kg (41 lb).

##### Accessories Available

**HP 16014A series loss test adaptor:** designed for measuring low-value inductors and resistors and high-value capacitors.

**HP 16451A Dielectric Test Adapter:** designed for measuring the dielectric constant, capacitance and dissipation factor of insulating materials.

**HP 16462A Auxiliary Capacitor:** designed to extend the Q and L measurement capability of the HP 4342A Q Meter. It is especially useful for measuring small inductors at low frequencies.

**HP 16470A Reference Inductors:** A range of 20 inductors (any of which can be supplied separately) which can be used with the HP 4342A Q Meter when measuring the RF characteristics of capacitors, resistors, or insulating materials.

**HP 16470B Stable Inductors:** A set of 4 inductors (any of which are separately available) which can be used to compensate indicated Q values and/or instrumental variation in the maintenance of the HP 4342A Q Meter. They are usable over a range of 800 kHz to 50 MHz with excellent long-term temperature stability.

##### Options and Accessories

**Opt 001:** Frequency Range (10 kHz - 32 MHz)

**Opt 910:** Extra Manual

**HP 16014A Series Loss Test Adaptor**

**HP 16451A Dielectric Test Adapter**

**HP 16462A Auxiliary Capacitor**

**HP 16470A Reference Inductors, set of 20**

**HP 16470B Stable Inductors, set of 4**

**HP 16470C Complete set of 24 Inductors (HP 16470A + HP 16470B)**

##### Price

\$290

\$21

\$130

\$410

\$530

\$2000

\$1150

\$3100

##### HP 4342A Q Meter

**\$5,950**