Table 1-1. Specifications (Sheet 1 of 8)

SPECIFICATIONS

Parameters Measured: C, L, R, Z, D, Q, ESR, G, X, B, θ. Δ (deviation) and Δ% (percent deviation) for C, L, R, |Z|.

Measurement Circuit Modes: Auto, Series and Parallel.

Parameter Combinations:

Series circuit mode	C-D or Q or ESR L-D or Q or ESR R-X or L |Z|-θ
Parallel circuit mode	C-D or Q or G L-D or Q or G R-B or C |Z|-θ

Display: Normal mode: 4-1/2 digit, maximum display 19999.
High resolution mode: 5-1/2 digit, maximum display 199999.
(Number of significant digits displayed changes depending on measurement frequency, test signal level and measurement range).

Measurement Terminals: Four terminal pair configuration (high and low terminals for current and potential terminals) with guard terminal.

Range Modes: Auto and Manual (up-down).

Measurement Frequencies: 100Hz, 120Hz, 200Hz, 400Hz, 1kHz, 2kHz, 4kHz, 10kHz, 20kHz, 40kHz and 100kHz ±0.01%.

Test Signal Level: 1mV to 5Vrms, continuously variable in 4 ranges.
Test voltage and current can be monitored at front panel display.

Deviation Measurement: When REF VALUE STORE button is pressed, the existing measured value is stored as a reference value. Next, pressing Δ or Δ% button offsets displayed value to zero. Deviation is displayed as the difference between the referenced value and subsequent result.
(Deviation spread in counts is -199999 to 199999 or from -199.99% to 199.99%).

Offset Adjustment: Stray capacitance, residual inductance, resistance and conductance of test fixture or test leads can be compensated for as follows:

C: up to 20pF
L: up to 2000nH
R: up to 0.5Ω
G: up to 5μS

Self Test: Performs cyclic operation of internal function tests and displays diagnostic code sets (when any abnormality is detected).

DC Bias: Two external DC bias input connectors on rear panel, maximum ±35V and ±200Vdc.

Bias input characteristics:
50Ω±10%, 0.1A max (for max ±35V input).
150kΩ±10%, 1.3mA max (for max ±200V input).

DC Bias Monitor: Bias voltage monitor output (for both internal and external biases), BNC connector, output impedance 30KΩ.

Trigger: Internal, external or manual.

GENERAL SPECIFICATIONS

Operating Temperature and Humidity:
0°C to 55°C at 95% RH (to 40°C).

Power Requirements: 100/120/220V ±10%, 240V +5% - 10%, 48 - 66Hz.

Power Consumption: 135VA max with any option.

Dimensions:

425.5(W) x 188 (H) x 574 (D) mm
(16-3/4" x 7-3/8" x 22-5/8")

Weight: Approximately 18kg (Std).

Table 1-1. Specifications (Sheet 2 of 8).

Range and Accuracy:

Accuracies apply under the following measurement conditions for all test parameters:

1) Warm-up time: at least 30 minutes.

2) Test signal level setting:

MULTIPLIER: X5, X1 or X0.1
OSC LEVEL: Fully clockwise

3) ZERO offset adjustment appropriately completed.

4) Environmental temperature:

23°C ±5°C
(At 0°C to 55°C, error doubles).

5) Significant display readout should be more than 20 counts.

6) Measurement ranges in normal mode except those specifically noted.

Accuracy in table is ±(% of rdg + error counts + residual counts) except for D and θ.

D accuracy:

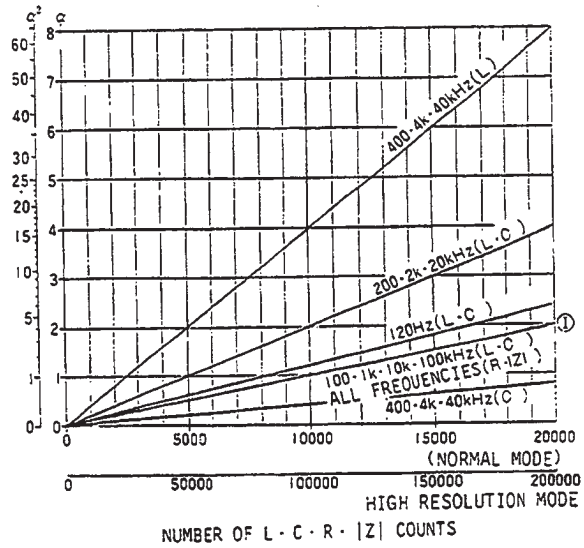
±(% of rdg + D error value + count)

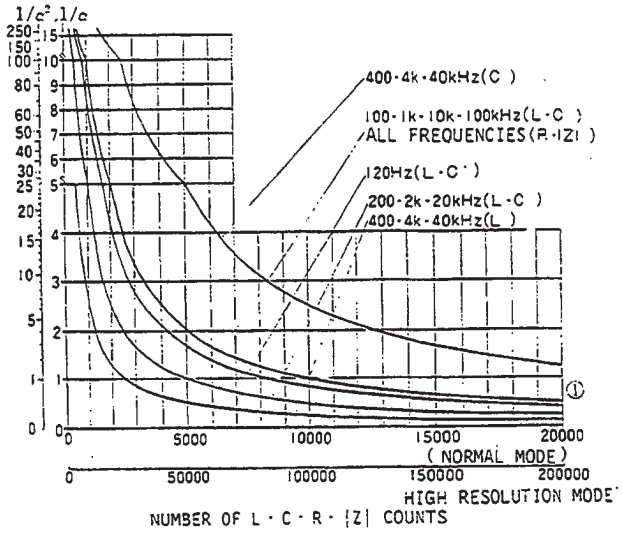
θ accuracy:

±degrees

Error count applies to significant display readouts (neglects less significant digit data).

ACCURACY COEFFICIENTS

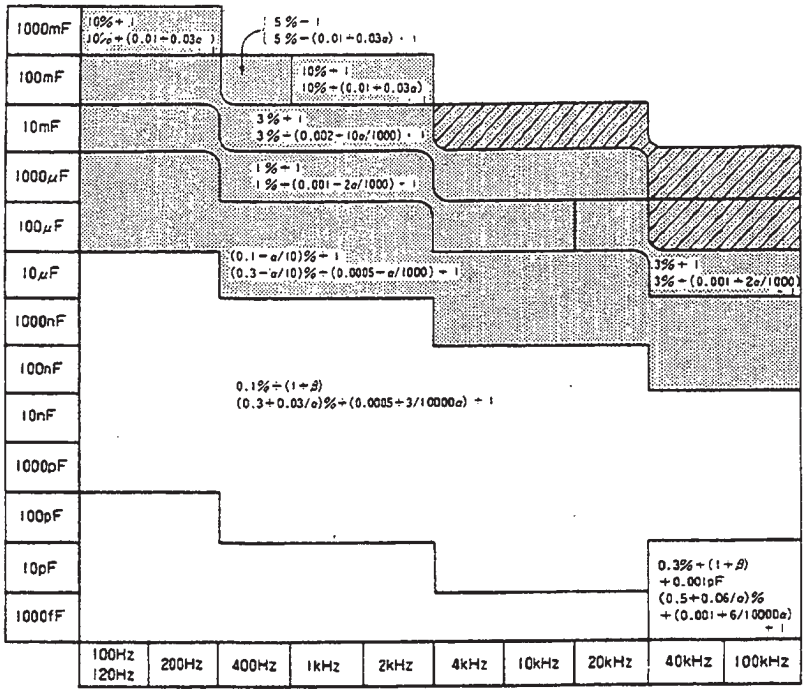




{Horizontal axis scales represent display counts in DISPLAY A and vertical axis scales represent accuracy coefficients α, α², 1/α and 1/α².}

Table 1-1. Specifications (Sheet 3 of 8).

C-D, C-Q MEASUREMENTS



Equations in table represent:

Capacitance accuracy
Dissipation factor accuracy

C accuracies apply only when D <0.1.
When 0.1 < D < 1, add the following number to C accuracy. D/10%
For higher D values, refer to General Information.

α, 1/α: See Figure A Accuracy Coefficient Graph.

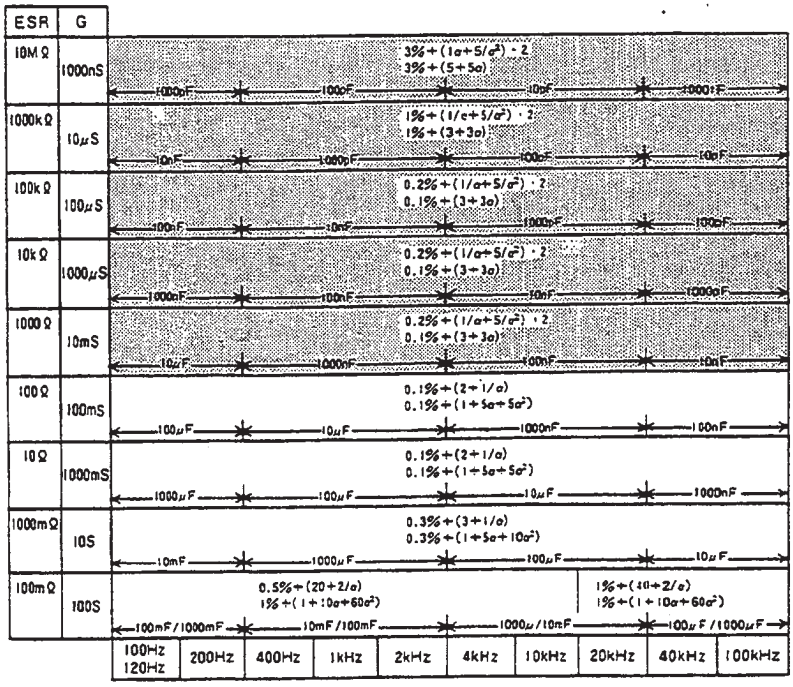
β = 2 (100Hz, 120Hz, 1kHz, 10kHz, 100kHz)
1 (200Hz, 2kHz, 20kHz)
5 (400Hz, 4kHz, 40kHz)

D measurement range: 0.0001 - 9.9999
Q measurement range: 0.01 - 9900,
(0.01 - 1200 in normal mode) calculated as reciprocal number of D.
Display count for C (normal mode):

Ranges		
3 digit	*60 - 1999	*80 - 1999 (D ≤1)
4 digit	0 - 19999	0 - 19999

*Approximate value (unspecified)
Number of significant digits displayed for C depend on test signal level, range and frequency (5 digits max.).
C accuracies apply to C-ESR, C-G and R-C measurements.
Accuracies in lined areas ▨ are unspecified.

C-ESR, C-G MEASUREMENTS



Equations in table represent:

Equivalent series resistance accuracy
Conductance accuracy

C accuracies are same as for C-D and C-Q measurements.

α, α², 1/α, 1/α²: See Figure A Accuracy Coefficients Graph.

Display counts for ESR and G (normal mode):

ESR		G	
3 digit	*100 - 1999 (D ≤1)	4 digit	0 - 19999 **(0 - 5000)
4 digit	0 - 19999	3 digit	*25 - 1999 (D ≤1)

*Approximate value (unspecified)
**At frequencies of 400Hz, 4KHz and 40KHz.

Number of significant digits displayed for ESR and G depend on test signal level, range and frequency (5 digits max.).