

SPECIFICATION

MEASUREMENT FUNCTIONS	L,C,R,Q,D, percentage deviation and auto component mode.
MEASUREMENT FREQUENCIES	100Hz, 1kHz, 10kHz, 100kHz (50Hz version). 120Hz, 1kHz, 10kHz, 100kHz (60Hz version). Frequency accuracy $\pm 0.015\%$.
MEASUREMENT LEVEL	250mV ± 15 mV from 100 ohm.
MEASUREMENT SPEED	Typically 650ms in calibrated mode. Typically 280ms in uncalibrated mode.
DISPLAY	5 digit LED with decimal point plus individual LEDs for units/multipliers.
COMPONENT CONNECTIONS	4 terminal either via integral test fixture or via BNC connectors on 24mm pitch (both fitted as standard). Optional Kelvin Lead Adaptor for specialised measurements.
AUTOMATIC FUNCTIONS	Auto range, with manual lock. Series/Parallel equivalent circuit with manual override. Auto component mode (R,L or C) with manual override.
CAPACITOR POLARISATION	Internal 2V supply, manually selected. Inhibited on L and R.
TRIMMING	Automatic compensation of series impedance up to 1 ohm or shunt impedance up to 160pF.
BINNING	8 acceptance bins with percentage limit. 8 acceptance bins with absolute limits. Major and minor term reject bins.
HANDLER INTERFACE	Signals to control external component handling equipment. Up to 8 bins, with trigger input and handshake outputs at TTL compatible levels.

GPIB IEEE 488 INTERFACE

- a) automatic output of measurement data to, for example, a printer.
- b) full remote control of all functions. SH1, AH1, T5, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C0.
- c) both major and minor terms can be sent after a single measurement.

NB: Handler and GPIB (IEE 488) interface not available simultaneously.

PARAMETER STORAGE

Binning limits and trim compensation values are retained in a non-volatile store during power off.

PROTECTION

Fixture protected against connection of charged capacitors:
to 500V up to 2 μ F, and to 50V up to 50mF.

ACCURACY

NORMAL (CAL)

FAST (UNCAL)

Resistance ($Q < 0.1$)

100/120Hz	0 to 500k Ω	$\pm 0.1\%$	$\pm 1\text{m}\Omega$	-	-	-
1kHz	0 to 1M Ω	$\pm 0.1\%$	$\pm 1\text{m}\Omega$	0 to 100k Ω	$\pm 0.5\%$	$\pm 2\text{m}\Omega$
10kHz	0 to 1M Ω	$\pm 0.1\%$	$\pm 1\text{m}\Omega$	0 to 1M Ω	$\pm 0.5\%$	$\pm 2\text{m}\Omega$
100kHz	0 to 100k Ω	$\pm 0.25\%$	$\pm 25\text{m}\Omega$	0 to 100k Ω	$\pm 1\%$	$\pm 50\text{m}\Omega$
Resolution	0.1m Ω					
Max. display	990M Ω					

Capacitance ($D < 0.1$)*

100/120Hz	0 to 1.6mF	$\pm 0.1\%$	$\pm 2\text{pF}$	-	-	-
1kHz	0 to 160 μ F	$\pm 0.1\%$	$\pm 0.1\text{pF}$	0 to 160 μ F	$\pm 0.5\%$	$\pm 5\text{pF}$
10kHz	0 to 1.6 μ F	$\pm 0.1\%$	$\pm 0.01\text{pF}$	0 to 1.6 μ F	$\pm 0.5\%$	$\pm 0.05\text{pF}$
100kHz	0 to 16nF	$\pm 0.25\%$	$\pm 0.03\text{pF}$	0 to 16nF	$\pm 1\%$	$\pm 0.15\text{pF}$
Resolution	0.001pF					
Max. display	990mF					

Inductance ($Q > 10$)

100/120Hz	0 to 800H	$\pm 0.1\%$	$\pm 1\mu\text{H}$	-	-	-
1kHz	0 to 160H	$\pm 0.1\%$	$\pm 0.1\mu\text{H}$	0 to 16H	$\pm 0.5\%$	$\pm 0.5\mu\text{H}$
10kHz	0 to 16H	$\pm 0.1\%$	$\pm 0.01\mu\text{H}$	0 to 1.6H	$\pm 0.5\%$	$\pm 0.05\mu\text{H}$
100kHz	0 to 160mH	$\pm 0.25\%$	$\pm 0.03\mu\text{H}$	0 to 160mH	$\pm 1\%$	$\pm 0.15\mu\text{H}$
Resolution	1nH					
Max. display	9900H					

NORMAL (CAL)

FAST (UNCAL)

Dissipation Factor (D)

100/120Hz	$\pm 0.001(1+D^2)$	3.2nF to 1.6mF	-	-
1kHz	$\pm 0.001(1+D^2)$	160pF to 160μF	$\pm 0.005(1+D^2)$	160pF to 160μF
10kHz	$\pm 0.001(1+D^2)$	16pF to 16μF	$\pm 0.005(1+D^2)$	16pF to 16μF
100kHz	$\pm 0.0025(1+D^2)$	16pF to 16nF	$\pm 0.0125(1+D^2)$	16pF to 16nF
Resolution	0.0001			
Max. display	9900			

Q Factor

100/120Hz	$\pm 0.1(Q+1/Q)\%$	1.6mH to 800H	-	-
1kHz	$\pm 0.1(Q+1/Q)\%$	160μH to 160H	$\pm 0.5(Q+1/Q)\%$	160μH to 16H
10kHz	$\pm 0.1(Q+1/Q)\%$	16μH to 1.6H	$\pm 0.5(Q+1/Q)\%$	16μH to 1.6H
100kHz	$\pm 0.25(Q+1/Q)\%$	160μH to 160mH	$\pm 1.25(Q+1/Q)\%$	160μH to 160mH
Resolution	0.0001			
Max. display	9900			

* For larger values of C at normal speed use the following equations:

100/120Hz	$+(0.1+0.037 \times C)\%$	} C in mF
1kHz	$+(0.1+0.37 \times C)\%$	
10kHz	$+(0.1+3.7 \times C)\%$	
100kHz	$+(0.25+1.1 \times C)\%$	
		C in μF

TEMPERATURE RANGE	Storage	-20°C to +60°C (-4 to 140°F)
	Operation	0°C to +40°C (32 to 104°F)
	For full accuracy	15°C to +35°C (59 to 95°F)

POWER SUPPLY	100V $\pm 10\%$ or 115V $\pm 10\%$ or 230V $\pm 10\%$. Frequency 50Hz or 60Hz set by internal link. Operation is possible with link incorrectly set but full accuracy may not be obtained.
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OVERALL DIMENSIONS	400 x 270 x 150mm (16 x 11 x 6in).
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WEIGHT	3.8kg (8.7 lb).
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OPTIONS AND ACCESSORIES	(1) Accessory 4232 provides a 1200 baud RS232 interface which gives either:- (a) Full remote control of all functions. (b) Automatic output of displayed data to a printer. (c) Output of both major and minor terms after each measurement. (d) Sequence programming. Enables the entering of a sequence of pass/fail tests into non-volatile store.
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- (2) 1605 Kelvin Clip Lead Set.
- (3) 1505 4-terminal Clip Lead Set.
- (4) D10642B Low Capacitance Clip Lead (2 required).
- (5) 1605A Chip Component Clip.
- (6) 1905A Chip Component Probe Set.
- (7) Q42C Earthed Component Adaptor.

In step with rapidly developing technology the Company is continually improving its products and therefore reserves the right at any time to alter specifications or designs without prior notice.