THURLBY THANDAR INSTRUMENTS

LCR400



Precision LCR bridge with limits comparator

- *0.1% measurement accuracy*
- *Test frequencies up to 10kHz*
- *Automatic component recognition*
- *Built-in 4 terminal component fixture*
- *Dual 5 digit high brightness displays*
- *Limits comparator, multiple pass and fail bins*
- *RS-232 interface for PC connectivity*
- *Optional SMD tweezers, Kelvin Clip leads, Windows logging software*

LCR400 low-cost precision LCR bridge

Bridging the price-performance gap

Anyone who has tried to purchase a high accuracy meter for LCR measurement at a reasonable cost will have discovered the problem.

There are plenty of low cost hand-held LCR meters available, but the accuracy is poor and the facilities very limited.

There are plenty of high performance LCR bridges available, but the costs are typically an order of magnitude greater than the simple hand-held units.

The LCR400 bridges the gap. It provides the performance and facilities required for precision component measurement at a price not far above that of a hand-held unit.

The LCR400 is a low-cost precision LCR bridge intended for use within component inspection, laboratories and production facilities. The basic measurement accuracy is 0.1% and the maximum measurement frequency is 10kHz.

Designed for serious use

The LCR400 is housed in a rugged casing of sufficient weight to stay where it is put.

It incorporates a high quality four terminal test fixture with adaptors for axial or radial components. The fixture is unobstructed for ease of use with bandoliers.

Lower cost through innovative design

The LCR400 sets a new price standard for a high performance LCR bridge. Advanced design techniques utilising the latest component technologies have made this possible.

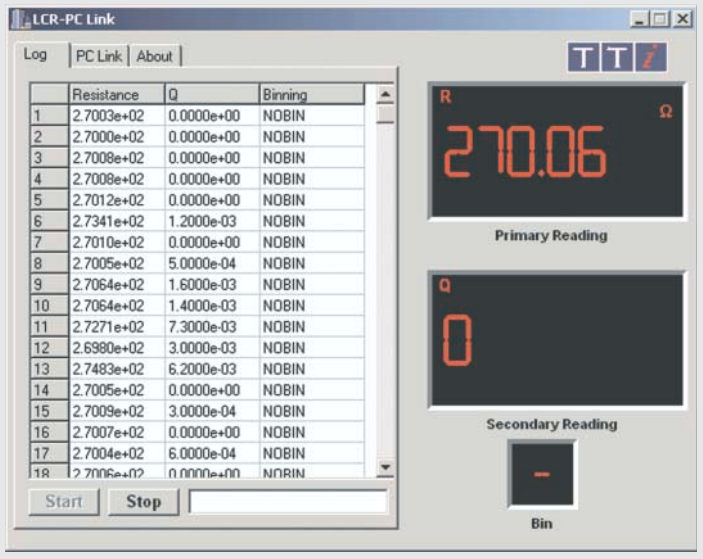
Now a precision component measurement system is within the budget of every area of a company from the laboratory through to goods-inward inspection.

Non-volatile set-ups

As well as remembering the last used set-up, the LCR400 incorporates non-volatile memory for up to nine complete instrument set-ups for rapid recall.

Automated results logging

An RS-232 interface is provided for linking to a PC. Optional Windows based software (LCR-PCLink) is available which allows results to be logged onto a PC (save to a file and to the screen) and enables instrument set-ups to be saved and restored.



Full component sorting

The LCR400 provides comprehensive facilities for sorting components into 'Bins' according to value. The binning parameters can be defined from the keyboard of from a PC via the RS-232 interface.

Up to eight pass bins and two fail bins can be defined. Bin limits can be sequential or overlapping from a single nominal or can be based around different nominals.

High quality test fixture

The LCR400 has a built-in four terminal sprung-jaw test fixture with pillar adaptors making it suitable for use with both axial and radial components.

Optional adaptors are also available to allow connection to external test fixtures.

Surface mount tweezers

High quality four terminal SMD tweezers are available as an option for measuring surface mount components.

The tweezers connect directly into the built-in test fixture of the LCR400. Four terminal connection is made at the base of the gold plated jaws only a few millimetres from the tip.



Alternative connection methods

An adaptor is available which converts the built-in test fixture into a set of four BNC sockets. This can be used to connect the LCR400 to external test fixtures or test lead sets.

TTi also offers a high quality Kelvin Clip test lead set suitable for precision four terminal measurements.

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MEASUREMENT FUNCTIONS

Parameters Measured:	R, L, C, D, & Q.
Parameter Selection:	Manual or automatic selection of R, L or C.
Measurement Modes:	Series or parallel equivalent circuit.
Range Hold:	Prevents autoranging when changing components.
Zero Function:	Nulls out up to 100pF at test fixture.
Measurement Freq.:	Selectable as 100Hz/120Hz, 1kHz, 10kHz.
Displayed Functions:	R+Q, L+Q, C+D, C+R.

MEASURING RANGES

Resistance:	0.1mΩ to 990MΩ
Inductance:	0.001H to 9900H
Capacitance:	0.001pF to 99000µF
D:	0.001 to 999
Q:	0.001 to 999

Accuracy Limits:		100Hz	1kHz	10kHz
R	0.1% ± 1 digit	2Ω-1MΩ	2Ω-500kΩ	2Ω-50kΩ
	0.5% ± 1 digit	0.4Ω-5MΩ	0.4Ω-2MΩ	0.4Ω-200kΩ
	2% ± 1 digit	0.1Ω-20MΩ	0.1Ω-10MΩ	0.1Ω-500kΩ
L	0.1% ± 1 digit	4mH-500H	0.4mH-50H	40µH-5H
	0.5% ± 1 digit	0.8mH-2500H	80µH-250H	8µH-25H
	2% ± 1 digit	0.2mH-9900H	20µH-1000H	2µH-100H
C	0.1% ± 1 digit	10nF-1000µF	1nF-100µF	100pF-10µF
	0.5% ± 1 digit	2nF-5000µF	200pF-500µF	20pF-50µF
	2% ± 1 digit	500pF-20000µF	50pF-2000µF	5pF-200µF

(R accuracies apply for Q<0.1. L accuracies apply for Q>10.
C accuracies apply for D<0.1 and after Null).

LIMITS COMPARATOR

Limits Set-up:	Multiple Upper and Lower limits can be set from keyboard or from RS-232 interface
Binning:	Up to 8 Pass bins can be defined plus Fail on minor parameter and general Fail.

COMPONENT CONNECTION

Component Connection:	4-terminal connection via internal fixture for both radial and axial components. External 4-terminal connection via adaptor.
Internal Fixture:	Sprung jaws for vertical lead insertion. Plug-in sliding pillars for horizontal lead insertion.
Bias Voltage:	Switchable 2V polarising voltage. External bias up to 50V can be applied.
Protection:	Can withstand charged capacitors up to 50V and up to 1 Joule of total energy.

DISPLAY

Display Type:	Dual 5-digit 0.56” LEDs.
Annunciators:	LED annunciators for all functions and measurement units.
Displayed Functions:	R+Q, L+Q, C+D, C+R, PASS/FAIL, Bin No.

DIGITAL INTERFACE

Interface Type:	RS-232 via 9 pin D connector, 9600 baud.
Interface Function:	Full command and readback capability.

GENERAL

Keyboard:	Full numeric keyboard.
Non-volatile memory:	Up to 9 complete set-ups.
Input Voltage:	230V or 115V ±14%, 50/60Hz, internally adjustable, 25VA max. Installation Category II.
Temperature Range:	+5°C to 40°C operating 20 - 80% RH, -40°C to 70°C storage.
Safety:	Complies with EN61010-1.
EMC:	Complies with EN61326.
Size:	360 x 240 x 95 mm including feet.
Weight:	2.9kg.

OPTIONAL ACCESSORIES

SMD Tweezers:	Four terminal tweezers for measuring surface mount components. Connects directly into standard test fixture.
BNC Adaptor:	Plugs into the standard component fixture to convert it into a set of four BNC connectors. Supplied complete with four BNC to BNC leads.
Kelvin Clip Leads:	High quality Kelvin Clip test lead set terminating in BNC plugs (requires BNC adaptor).
LCR PC-Link:	Windows based software which uses the RS232 interface to provide results logging and to store/restore instrument set-ups.

Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

Designed and manufactured in Europe

Thurlby Thandar Instruments Ltd.
Glebe Road, Huntingdon. Cambs. PE29 7DR U.K.
Tel: +44 (0)1480 412451 Fax: +44 (0)1480 450409
Email: sales@tti-test.com Web: www.tti-test.com

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