



General

The DB230 Component Tester is especially designed for high accuracy testing of capacitors on production lines, not least for integration with sorting machines in a production environment. The instrument is reliable, user-friendly and easy to set up to any test.

The DB230 utilises an external bridge module allowing the user to install the measuring bridge very close to the measuring Jig. This ensures high measuring accuracy. Especially when measuring at 100kHz and 1MHz, cables are main causes to noise. When installing an LCR bridge on a production line, some distance between the instrument and the Jig is unavoidable. With the DB230, total cable length of up to 4 m (157 inches) is supplied.

The DB230 utilises a well-proven input protection system to protect the bridge module from damages owing to exposure to charged capacitors. This secures that the DB230 does not break down as easily as other LCR bridges, when exposed to charged capacitors.

The DB230 can perform dual frequency tests at any combination of frequencies. A popular configuration is to test capacitance at 1kHz and loss factor at 100kHz or 1MHz. As standard, DB230 can sort capacitors into bins according to the measured parameters at two frequencies simultaneously.

Bin sorting with up to 12 bins for capacitance for 1st frequency and up to 4 bins for $\tan \delta$ using 2nd frequency. Or $\tan \delta$ may be measured at several frequencies using the 4 bins for different levels of the dissipation factor.

As standard the instrument has a built-in comparator for deviation measurements, IEEE488 (GPIB) and RS232C data interfaces as well as handler interface (opto-coupler type). All measured data are collectable from the data interfaces. Via the PCMCIA slot it is possible to easily store set-ups to distribute to other instruments quickly, without operator mistakes.

Measuring frequencies: 1MHz, 100kHz, 10kHz and 1kHz

Overall accuracy better than 0,05% and 2×10^{-4} for loss factor

External bridge module for long cables (3 m or 118 inches) between the instrument and the bridge module

Measuring cables: 1 m or 39,3 inch (supplied as standard)

Input protection against charged capacitors at 2 Joule up to 1kV. This feature can be extended by an optional Protection Box, PB10

Built-in contact check function ensures that the contact to the device is good, additional 2-6 ms

High measuring speed: 6 to 20ms from trig to end of measurement

Measuring ranges: 0,1pF to 1mF depending of test frequency

Measures up to 29nF (0,2%) @ 1MHz

Internal bias voltage: Up to ± 3 VDC on generator terminal, set in 0,1V steps

External bias voltage: Up to ± 48 VDC

Average: 1 to 99 measurements

Display readings: Direct or deviation capacitance and $\tan \delta$ or ESR for loss measurements and L/Q, Rs, Rp, Z

Optional Jig31 for 4-terminal manual component testing of axial, radial and SMD components

Specifications for DB230

Measured Parameters	C, L, R, Z (serial or parallel) $\tan \delta$, ESR, Rs, Rp, L/Q, R-X, Z- θ (deg or rad)
Measuring Frequencies	1MHz, 100k, 10k and 1kHz with multiple frequency facility

Measuring Voltages	1 V RMS up to 10 μ F at 1kHz
	1 V RMS up to 1 μ F at 10kHz
	1 V RMS up to 100nF at 100kHz
	1 V RMS up to 10nF at 1MHz

Above: (linearly decreasing with the impedance). Programmable in 0.1V steps (maximum 1.5V RMS)

Measuring Speed		1kHz	10kHz	100kHz	1MHz
	From trig to end of measurement*	20ms	20ms	6ms	6ms
	From trig to data ready*	28ms	28ms	14ms	14ms
	Additional time per measurement by average	16ms	16ms	2ms	2ms

*) allowing 3ms contact bouncing or 1 range change

Multiple measurements (average): The sum of each measurement (from trig to end of measurement) + 8ms for calculation time

Measuring Cables	1m (39.3 inch) from bridge module to fixture	(cables supplied by Danbridge)
Input Protection	2 Joule up to 1kV or 4 μ F charged 1000V	
Bias Voltage internal	Up to \pm 3.0VDC on generator terminal, set in 0.1V steps	(internally generated)
Bias Voltage external	Up to \pm 48V DC	

Capacitance	Frequency		Accuracy \pm 1 digit	Average \geq 2
	1kHz	10kHz	Capacitance	$\tan \delta$
	1pF- 39pF	0.1pF- 3.9pF	0.2 pF	\pm .0010
	40pF- 3.9 μ F	4pF- 3.9 μ F	0.05%*	\pm .0002
	4 μ F- 399 μ F	4 μ F- 39 μ F	0.1%	\pm .0007
	400 μ F- 1mF	40 μ F- 400 μ F	1%	\pm .0020
	100kHz	1MHz		
	.03pF- .9pF	.01pF- 3.9pF	0.1pF	\pm .0010
	1pF- .9 μ F	4pF- 0.9nF	0.05%**	\pm .0002
	-	1nF- 9.9nF	0.1%	\pm .0007
	1 μ F- 9 μ F	10nF- 29nF	0.2%	\pm .0010
	10 μ F- 40 μ F	30nF- 99nF	1%	\pm .0020

*) Accuracy \pm 0.2pF **) Accuracy \pm 2pF. The above specifications require a stable jig with capacitance lower than 30pF

Inductance	1kHz	10kHz	100kHz	Accuracy	1MHz	Accuracy
	10 μ H-100H	1 μ H-10H	0.1 μ H-1H	1 parameter 0.1% 2 parameter \pm (0.1%+0.05xQ)	0.02 μ H- 0.1H	1 parameter 0.1% 2 parameter \pm (0.2%+0.05xQ)

Resistance	0.4 Ω -40 Ω	0.4 Ω -40 Ω	0.4 Ω -40 Ω	0.1%	0.4 Ω -40 Ω	0,1%
	40 Ω -4M Ω	40 Ω -4M Ω	40 Ω -1M Ω	0.05%	40 Ω -100k Ω	0.05%
					100k Ω -400k Ω	0.5%

The above specifications are valid for measurements with constant voltage

Bin sorting Interfaces	Up to 12 limits for 1st parameter and 4 limits for 2nd parameter by opto-couplers
Rear panel	IEEE 488-2 (GPIB) and RS232C
Control	Measure end, data ready, trig ready, fault and status
Trig input	DC, AC and contact closure
Front panel	PC card for set-ups, save and loading

Environment	Ambient temperature	10-30 degrees Celsius
	Warm-up time	Minimum 30 minutes
	Power	90-130 and 200-260 V AC, 50-60 Hz

Calibration interval	Minimum	Every 12 months
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Dimensions	Mainframe	Bridge module	Export Packing Europe:	Export Packing Overseas:
	Height	140 mm or 5.5 inch	35 mm or 1.4 inch	30 cm or 11.7 inch
Width	438 mm or 17.2 inch	192 mm or 7.5 inch	51 cm or 20 inch	52 cm or 20.4 inch
Depth	360 mm or 14.2 inch	205 mm or 8.1 inch	56 cm or 22 inch	55 cm or 21.6 inch
Weight	total 16 kg or 36 lb.	1 kg or 2.3 lb.	21 kg or 47.3 lb.	23 kg or 51.8 lb.



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