



General

The DB231 Component Tester is specially designed for manual as well as automatic high accuracy and high-speed testing of capacitors or other CLR applications. The instrument is reliable, user-friendly and easy to set up to any test application on production lines, in quality control departments or in laboratories.

The DB231 is well suited for mounting on sorting machines for ceramic capacitors or other automatic applications where the distance between the front panel of the DB231 and the Jig is less than 40 cm, 15.7 inch. When the distance is longer, the DB230 should be preferred to provide maximum accuracy.

The DB231 performs capacitance and loss factor tests at any of the 4 standard frequencies. Dual, triple and quadro frequency tests are popular to give an immediate presentation of capacitance and loss factor measurements over a range of frequencies.

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) with 12+4 bins for

production sorting. The high-speed data interfaces may be used for an external computer in order to control the system, or for collection of data for statistics and analysis.

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.

The standard fitted PCMCIA card is the smart way of storing set-ups. Fail-safe loading of set-ups to several instruments will be done fast and efficient.

The test cables are as standard connected to the front panel of the instrument. Another possibility is to order the DB231 in the version MCR in order to have the test cables connected to the rear panel only. Optional protection box PB10. For further protecting of the instrument against charged capacitors.

4 measuring frequencies: 1MHz, 100kHz, 10kHz and 1kHz

Overall accuracy better than 0.05% and 2×10^{-4} for loss factor

Especially suitable for ceramic, film, foil, and small tantalum capacitors, as well as all other CLR applications

Built-in contact check function, additional 2-6 ms

High measuring speed: 6 to 20ms from trig to end of measurement, depending of test frequency

Input protection: 2 Joule up to 1kV

Measuring ranges: 0.1pF to 1mF depending on frequency

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

Measuring cables: 1m or 39.3 inch (supplied as standard)

Internal bias voltage: Up to ± 3 VDC on generator terminal, set in 0.1V steps

Average: 1 to 99 measurements

CE approved

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

Focused strategy on component testing for more than 50 years

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

Specifications for DB231

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 front panel 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)

Capacitance	Frequency		Accuracy \pm 1 digit	Average \geq 2
	1kHz	10kHz	Capacitance	Tan δ
	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	Up to 12 limits for 1st parameter and 4 limits for 2nd parameter by opto-couplers	
Interfaces	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

Dimensions		Mainframe	Export Packing Europe:	Export Packing Overseas:
		Height	140 mm or 5.5 inch	30 cm or 11.7 inch
Width	438 mm or 17.2 inch	51 cm or 20 inch	52 cm or 20.4 inch	
Depth	360 mm or 14.2 inch	56 cm or 22 inch	55 cm or 21.6 inch	
Weight	total 16 kg or 36 lb.	20 kg or 45 lb.	22 kg or 49,5 lb.	

