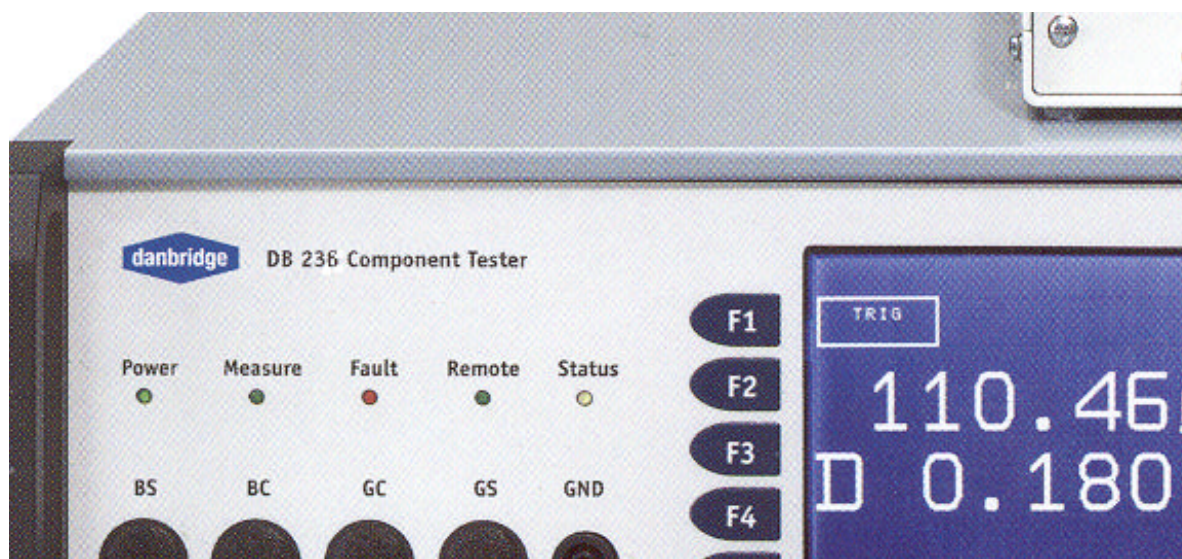




Capacitor Tester DB236 for large capacitances

Quick and accurate testing on automatic production lines



General

The DB236 High Capacitance Tester is specially designed for high accuracy and automatic high-speed testing of tantalum and aluminium capacitors. 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 DB236 performs capacitance and loss factor tests at any of the 4 standard frequencies. Dual frequency tests at any combination of frequencies are possible as well. Or the user may set up a test sequence in order to perform multiple frequency testing, easily and quickly. Combinations of Cap and $\tan \delta$ and or ESR @ 100Hz (120Hz) and impedance @ 100kHz is easy to set up and fast to measure.

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 Z, ESR or $\tan \delta$ using 2nd frequency. Or Z, ESR and $\tan \delta$ may be measured at several frequencies using the 4 bins for different levels of the loss factor.

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

The external bridge module allowing the user to install the DB236 in applications where long distance between the instrument and the contacts is unavoidable. Total cable length of more than 3m or 118 inches is possible.

The DB236 is designed for industrial production environments and is well protected against charged capacitors. Should the built in protection of 4iF 1kV not be sufficient, an external extra protection box PB11 available as an optional item. Further is the instrument available in a version with 120Hz, 1kHz, 10kHz and 100kHz, order DB236 -120.

- **Measuring frequencies: 100kHz, 10kHz, 1kHz and 100Hz (120Hz)**
- **Overall accuracy better than 0,05% (C & Z) 2×10^{-4} for $\tan \delta$ and ESR 0,1m Ω**
- **Especially suitable for tantalum and electrolytic capacitors, as well as other high capacitance applications**
- **Special facility for capacitance @ 100Hz (120Hz) and Z @ 100kHz simultaneously**
- **Measures Z and ESR @ 100kHz up to >3mF**
- **Built-in contact check function**
- **High measuring speed: 20 to 180ms from trig to end of measurement, depending of frequency. High speed version available.**
- **Programmable trig delay from 0 - 99msec**
- **Input protection: 4 iF up to 1kV**
- **Measures range: 4pF to > 3mF (1%) @ 100(120)Hz**
- **External bridge module for long cables (2m or 78,6inch) between the instrument and the bridge module**
- **Measuring cables: 1m or 39,3 inch (supplied as standard)**
- **Internal bias voltage: Up to $\pm 3V$ DC on generator terminals, set in 0,1V steps.**
- **External bias voltage: Up to $\pm 48VDC$**
- **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 version with 120Hz, order DB236 - 120**

Specifications for DB236:

Measured Parameters: C, L, R, Z (serial or parallel) δ , ESR, Rs, Rp, L/Q, Z- θ (deg or rad)

Measuring Frequencies: 100k, 10k, 1k and 100Hz with multiple frequency facility

Measuring Voltages:	1 V RMS up to 100 μ F at 100Hz
	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 0,1 μ F at 100kHz

Above: (linearly decreasing with the impedance)

Programmable in 0.1V steps (maximum 1,5V RMS)

		100Hz	(120Hz)	1kHz	10kHz	100kHz
Measuring Speed:	From trig to end of meas.:	*	180ms	150ms	20ms	20ms
	From trig to data ready:	*	190ms	160ms	28ms	28ms
	Add. time per meas. by average		160ms	135ms	16ms	16ms

*) 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 $\pm 3,0$ VDC on generator terminal, set in 0,1V steps (internally generated)

Bias Voltage external: Up to ± 48 V DC

Accuracy C & tan δ	Frequency	100Hz (120Hz)	1kHz	Accuracy ± 1 digit	
				Capacitance	Tan δ
		300pF - 3.9nF	10pF - 390pF	0,5%	$\pm ,0010$
			400pF - 3,9 μ F	0,05%	$\pm ,0002$
		3nF - 30 μ F	4 μ F - 399 μ F	0,1%	$\pm ,0007$
		30 μ F - 300 μ F		0,1%	$\pm ,0010$
		300 μ F - 3mF	400 μ F - 1mF	1%	$\pm ,0020$
		>3mF C: (C measured / 0,3mF) * 0,1%		Tan d: (C measured / 0,3mF) * 0,002	
		10kHz	100kHz		
		39pF - 3,9 μ F	3.9pF - ,9 μ F	0,05%	$\pm ,0002$
		4 μ F - 39 μ F		0,1%	$\pm ,0007$
			1 μ F - 9 μ F	0,2%	$\pm ,0010$
		40 μ F - 400 μ F	10 μ F - 40 μ F	1%	$\pm ,0020$
Accuracy ESR:		$\text{ESR} = \frac{\tan \delta}{2 \pi f C_s}$			
Accuracy Z:		$Z_c = \frac{1}{2 \pi f C}$			

Bin Sorting: Up to 12 limits for 1st parameter and 4 limits for 2nd parameter by opto-couplers

Interfaces: Rear panel: IEEE 488 (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:	Bridge module:	Export Packing	
				Europe	Overseas
Height:		140mm or 5,5 inch	35mm or 1,4 inch	30cm	32cm - 12inch
Width:		438mm or 17,2 inch	192mm or 7,5 inch	51cm	52cm - 20inch
Depth:		360mm or 14,2 inch	205mm or 8,1 inch	56cm	55cm - 22inch
Weight:		Total 16kg or 36 lb.	1kg or 2.2 lb	21kg	23kg or 51 lb