DB230 Capacitor Tester

Quick and accurate testing on automatic production lines



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.

Measuring frequencies: 1MHz, 100kHz, 10kHz and 1kHz Overall accuracy better than 0,05% and 2 x 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 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 ∂ using 2nd frequency. Or tan ∂ 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 ranges: 0,1pF to 1mF depending of test frequency

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

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

External bias voltage: Up to ±48VDC

Average: 1 to 99 measurements

Display readings: Direct or deviation capacitance and tan ∂ 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

	C, L, R, Z (serial or parallel) tan ∂ , ESR, Rs, Rp, L/Q, R-X, Z- Θ (deg or rad) 1MHz, 100k, 10k and 1kHz with multiple frequency facility								
easuring Frequencies	IMHZ, 100K,	TOK and TKP	12 WITH MULTI	ple frequency facilit	y				
Measuring Voltages	1 V DMC up	to 10uE at	11.11-						
Measuring vollages	1 V RMS up to 10µF at 1kHz								
	1 V RMS up to 1µF 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 s	teps (maximum	1.5V RMS)			
							1 .		
						1kHz 20ms	10kHz	100kHz	1MH
Measuring Speed	From trig to end of measurement*						20ms	6ms	6ms
	J	o data ready				28ms	28ms	14ms	14m
	Additional	time per mea	asurement by	average		16ms	16ms	2ms	2ms
	*) allowing 3ms								
	Multiple measure	ements (average): The sum of ea	ch measurement (from tri	g to end of me	asurement) + 8ms for	calculation t	ime	
Measuring Cables	1m (39.3 inc	h) from brid	ge module to	fixture			(ca	bles supplied I	oy Danbri
Input Protection	2 Joule up to	•	-						
Bias Voltage internal			-	set in 0.1V steps				(internal	lv genera
Bias Voltage external	Up to ±48V [-		See in originatelys				(internat	ty genera
nus vottage externat	00 10 1401 1								
	Frequency			Accuracy	y ±1 digit	Average	⊳> 2		
Conseitones		101					<u> </u>		
Capacitance	1kHz	10		Capacita	ince	Tan ∂	<u>,</u>		
	1pF- 39pF		pF- 3.9pF	0.2 pF		± .0010			
			- 3.9μF 0.05		± .000		2		
			- 39μF	0.1%	±.0		7		
	400µF- 1m	ւF 40ր	ιF- 400μF	1%		± .0020)		
	100kHz	1M	Hz						
	.03pF9pF .01pF- 3		pF- 3.9pF	F 0.1pF		± .0010	±.0010		
	1pF9µF	4pF	- 0.9nF	0.05%*	*	± .0002	2		
	- 1nF- 9.9nF		- 9.9nF	0.1%		± .0007	± .0007		
	1μF- 9μF 10nF- 29r		1F- 29nF	0.2%		±.0010			
	10μF- 40μF 30nF- 99n			1%		± .0020	± .0020		
			racy + 2pF. The a	above specifications requi	re a stable ijo	with capacitance lowe	r than 30pF		
) needidey <u>-</u>	012p.) / 100u			ie a staste jig		i illuli sopi		
Inductance	16H-2	10kHz	100kHz	Δοσιμέρου		1MH7	Accuracy		
Inductance	1kHz	10kHz	100kHz	Accuracy		1MHz	Accuracy		
Inductance	1kHz 10µH-100H		100kHz 0.1µH-1H	1 parameter 0.1%	(10.05x0)	1MHz 0.02µH- 0.1H	1 parame	eter 0.1%	
Inductance					%+0.05xQ)		1 parame		+0.05x(
	10µH-100H	1µH-10H	0.1µH-1H	1 parameter 0.1% 2 parameter ± (0.1%	%+0.05xQ)	0.02µH- 0.1H	1 parame 2 parame	eter 0.1%	+0.05x(
Inductance Resistance	10μΗ-100Η 0.4Ω-40Ω	1μΗ-10Η 0.4Ω-40Ω	0.1μH-1H 0.4Ω-40Ω	1 parameter 0.1% 2 parameter ± (0.1% 0.1%	%+0.05xQ)	0.02μΗ- 0.1Η 0,4Ω-40Ω	1 parame 2 parame 0,1%	eter 0.1%	+0.05x(
	10μΗ-100Η 0.4Ω-40Ω	1μΗ-10Η 0.4Ω-40Ω	0.1µH-1H	1 parameter 0.1% 2 parameter ± (0.1% 0.1%	%+0.05xQ)	0.02μΗ- 0.1Η 0,4Ω-40Ω 40Ω-100kΩ	1 parame 2 parame 0,1% 0.05%	eter 0.1%	+0.05x(
	10μΗ-100Η 0.4Ω-40Ω	1μΗ-10Η 0.4Ω-40Ω	0.1μH-1H 0.4Ω-40Ω	1 parameter 0.1% 2 parameter ± (0.1% 0.1%	%+0.05xQ)	0.02μΗ- 0.1Η 0,4Ω-40Ω	1 parame 2 parame 0,1% 0.05%	eter 0.1%	+0.05x(
	10μΗ-100Η 0.4Ω-40Ω 40Ω-4ΜΩ	1μΗ-10Η 0.4Ω-40Ω 40Ω-4ΜΩ	0.1μH-1H 0.4Ω-40Ω 40Ω-1ΜΩ	1 parameter 0.1% 2 parameter ± (0.1% 0.1%		0.02μΗ- 0.1Η 0,4Ω-40Ω 40Ω-100kΩ	1 parame 2 parame 0,1% 0.05%	eter 0.1%	+0.05×0
	10μΗ-100Η 0.4Ω-40Ω 40Ω-4ΜΩ	1μΗ-10Η 0.4Ω-40Ω 40Ω-4ΜΩ	0.1μH-1H 0.4Ω-40Ω 40Ω-1ΜΩ	1 parameter 0.1% 2 parameter ± (0.1% 0.1% 0.05%		0.02μΗ- 0.1Η 0,4Ω-40Ω 40Ω-100kΩ	1 parame 2 parame 0,1% 0.05%	eter 0.1%	+0.05x(
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Resistance Bin sorting Interfaces Environment Calibration interval	10μH-100H 0.4Ω-40Ω 40Ω-4MΩ The above spe Up to 12 lim Rear panel Control Trig input Front panel Ambient tem Warm-up tim Power Minimum M Height 14 Width 43	1μH-10H 0.4Ω-40Ω 40Ω-4MΩ cifications are v its for 1st pa I Perature 1 e $\frac{1}{5}$ e E ainframe 40 mm or 5.5	0.1μH-1H 0.4Ω-40Ω 40Ω-1MΩ alid for measurer arameter and EEE 488-2 (G Measure end, DC, AC and co PC card for sea 0-30 degrees Minimum 30 r D0-130 and 20 Every 12 mont Every 12 mont Br 5 inch 35 .2 inch 19	1 parameter 0.1% 2 parameter ± (0.1% 0.1% 0.05% ments with constant volta 4 limits for 2nd par <i>PIB</i>) and <i>RS232C</i> data ready, trig read ntact closure t-ups, save and load celsius minutes 00-260 V AC, 50-60 f ths idge module 5 mm or 1.4 inch	^{ige} rameter by o ly, fault and ing Hz Export F 30 cm o 51 cm o	0.02μH- 0.1H 0,4Ω-40Ω 40Ω-100kΩ 100kΩ-400kΩ ppto-couplers status status status acking Europe: r 11.7 inch	1 parame 2 parame 0,1% 0.05% 0.5% Export 32 cm 52 cm	eter 0.1% ter ± (0.2% 2. Packing 0 or 12.8 inc	versea:
Resistance Bin sorting Interfaces Environment Calibration interval	10μH-100H 0.4Ω-40Ω 40Ω-4MΩ The above spe Up to 12 lim Rear panel Control Trig input Front panel Ambient tem Warm-up tim Power Minimum M Height 14 Width 43 Depth 36	1μH-10H 0.4Ω-40Ω 40Ω-4MΩ cifications are v its for 1st pa I I I I I I I I	0.1μH-1H 0.4Ω-40Ω 40Ω-1MΩ alid for measurer arameter and EEE 488-2 (G Measure end, DC, AC and co PC card for set 10-30 degrees Minimum 30 r 10-130 and 20 Every 12 mont 5 inch 35 .2 inch 19 .2 inch 20	1 parameter 0.1% 2 parameter ± (0.1% 0.1% 0.05% ments with constant volta 4 limits for 2nd par <i>iPIB</i>) and <i>RS232C</i> data ready, trig read ntact closure t-ups, save and load <i>iCelsius</i> minutes 200-260 V AC, 50-60 f ths idge module 5 mm or 1.4 inch 22 mm or 7.5 inch	ige ameter by o <i>ly, fault and</i> <i>ing</i> Hz Export F 30 cm o 51 cm o 56 cm o	0.02μH- 0.1H 0,4Ω-40Ω 40Ω-100kΩ 100kΩ-400kΩ ppto-couplers status status acking Europe: r 11.7 inch r 20 inch	1 parame 2 parame 0,1% 0.05% 0.5% Export 32 cm 52 cm	eter 0.1% ter ± (0.2% Packing 0 or 12.8 inc or 20.4 inc	versea ch



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