7730 Dieletric Analyzer

EXTECH ELECTRONICS

Dieletric Analyzer

7730 is a Programmable Dielectric Analyzer designed with state of art PWM technology for line and test power. It performs multiple point AC/DC Withstand Voltage test and Insulation test with a compact 2U case and enables a single DUT connection. The optional 4-port and 8-port internal scanners are ideal for multiple points testing of a single product or multiple products.

The 7730 also includes an enhanced graphic LCD with a built-in analog bar graph. The enhanced graphic LCD simplifies the user interface to the instrument and provides the operator with complete test setup and results, while analog bar graph allows users to monitor test results as compared to limit settings.
Other advanced features are 7700 series's regulation such as ; Smart GFI, Calibration Alert, Verification, Prompt Function, and Real Current Measurement etc., please refer to inside of brochure for details.

CHARACTERISTICS :

- **Three Most Common Safety Test Functions and Graphical LCD with Analog Bar Graph**

  7730 incorporates AC/DC Withstand Voltage and Insulation Test Functions. Graphic LCD provides the operator with complete test setup and results in an easy-to-use interface. Plus the analog bar graph can be used to monitor test results versus limit settings. The graphic display makes testing safer, easier and more reliable than ever before

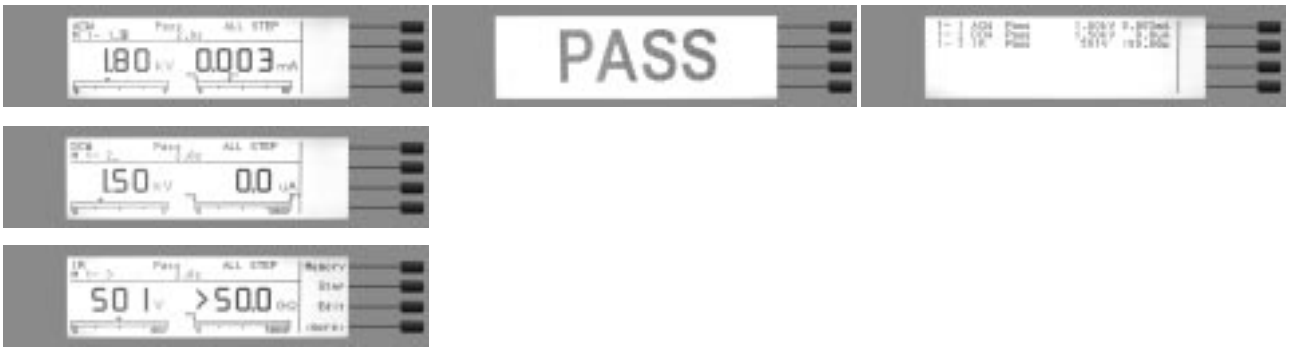
- **Friendly Menu-driven Operational Interface**

  Easy-to-use software interface enables user to easily operate the instrument.

- **Multiple Test Result Display LAST, PASS/FAIL, ALL**

  The Results summary screen will appear as follows:

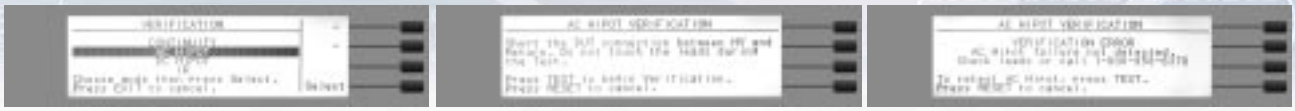
PASS Screen :



FAIL Screen :

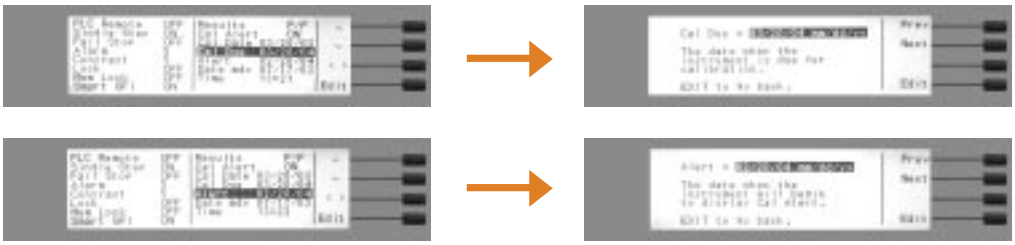
Functional Verification

some safety agencies require that hipot tester be checked and verified at various intervals. This is a menu driven process by which the instruments failure detectors are proven to be functioning properly, ”Verifying” the functionality of the electrical safety tester and connected accessories.



Self Calibration Alert

There are Time, Date, Alert Date, Calibration Due Date settings. Unique calibration alert function will give an advanced alert that the calibration for the instrument is due. This eliminates the need for manual tracking of calibration dates.



Prompt and Hold Function

This function allows users to setup prompts in the test cycle so that the test can be paused. During the pause, a user-configured message is displayed instructing the test operator about the action they need to perform before continuing with the test. This is a very convenient feature for applications where test leads need to be moved or when DUT switches need to be activated as part of the test cycle.

CE and TÜV-GS Certificate

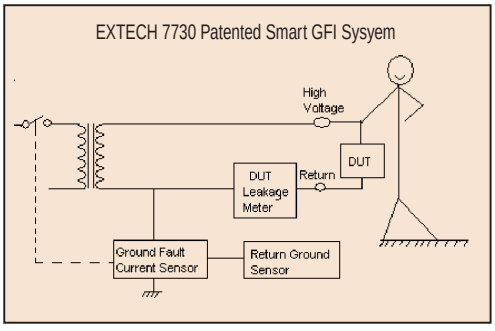
This model is CE and TÜV-GS listed with No. S50029821, high quality and proven user safety.

Output Regulation and Low Distortion

The circuit maintains the output voltage to within 2% of setting and the crest factor within 1.3 to 1.5, even if the line voltage or the load varies. This ensures that the test results remain consistent and within safety agency requirement.

Patented Smart GFI

U.S. patent Number 6549385, Taiwan Patent Number 169000 Smart GFI provides maximum protection to the user. If the circuit detects excessive leakage to ground, it shuts down high voltage in less than 1 millisecond. Smart GFI is automatically activated if the DUT is not grounded. The operator does not need to make a decision on activating the Smart GFI.



Optional Real Current Measurement

Model 7730 allows simultaneous monitoring of Real and Total current in AC Hipot mode. This allows the user to monitor real current rather than total current and Exclude AC reactive current from the measurement.

Electronic Ramping (Up and Down)

This provides a gradual and timed method to increase or decrease output voltage to the DUT, which minimizes any damage from quick high voltage changes to sensitive DUTs

Exclusive CHARGE LOW Function

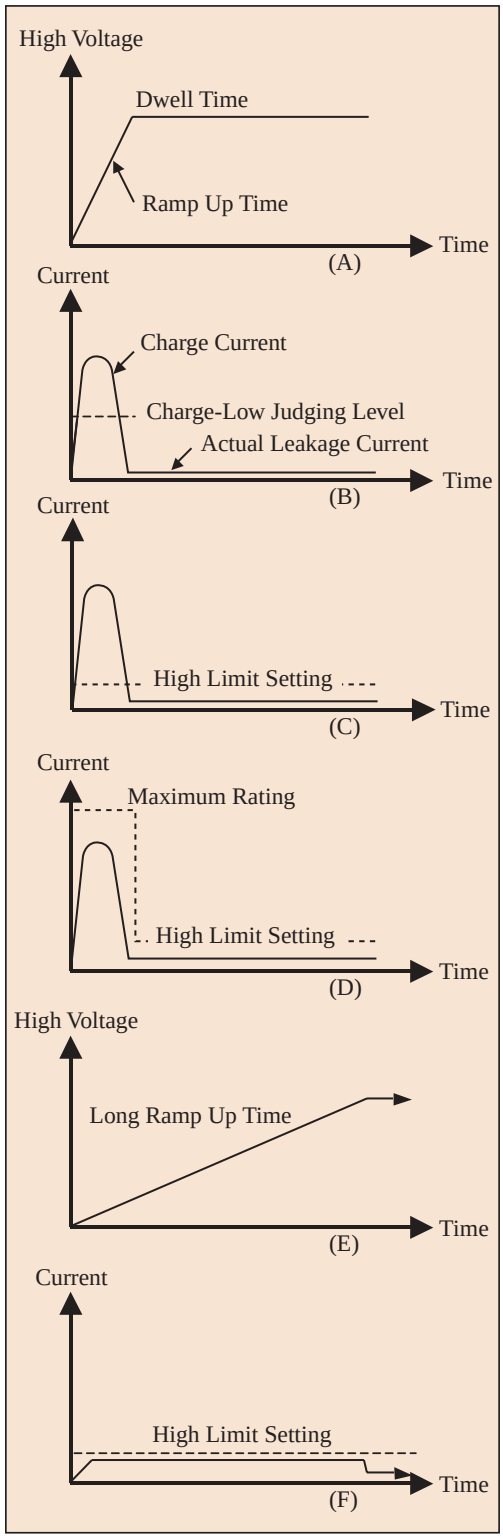
U.S. Patent Number 5936419, Taiwan Patent Number 106128. On DC Withstand Voltage/ Insulation Test, most DUTs which are highly capacitive charge instantly, yet charge current is produced during ramp up stage of high voltage. The DC leakage current is very low or the insulation resistance is very high, very close to open circuit condition. It is difficult to monitor lead connection by Low Limit of the current or high limit of the insulation resistance. Thus the DUT connection can be checked by detecting the charge current with this feature during the ramp up stage. Refer to figure (A), Rapid DC high voltage turn to flat at presetting value, figure (B) shows that the charging current exceed presetting Charge Low judging level represent the device under test is connected correctly.

Exclusive RAMP HIGH Function

U.S. Patent Number 5828222, Taiwan Patent Number 100859. On DC Withstand voltage test, refer to figure (C), most DUTs which are highly capacitive will be charging instantly, yet charge current is produced during ramp up stage of high voltage. Refer to figure (D), with Ramp-High function, it allows charge current exceeding the high limit without causing false failure, thus reducing ramp up time and shorten testing time. Refer to figure (E) and (F), the tester without Ramp High function or turn off Ramp High function, a long Ramp Up Time is useful for the prevention of overflow of charge current from producing over High Limit Setting, but alternative of long test time and low test efficiency.

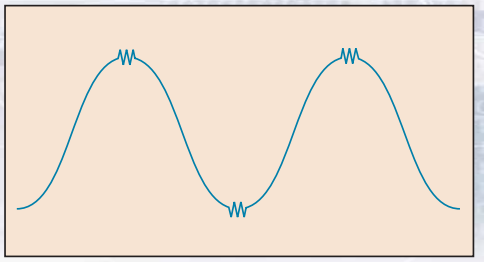
Force Discharge

U.S. Patent Number 5548501, Taiwan Patent Number 104990. After DC withstand voltage test, the circuit discharges the voltage of the HV terminal automatically in less than 0.2 second to protect the operator from electrical shock.



Arc Detection

The most importance function of withstand voltage tester is to distinguish the unsafe products when current spikes/pulses, arc and flash occur. The arc is a high frequency signal, more than 10μs and non-related to Hi/ Lo limit leakage current, occurred by Short intermediate distance of components, loosen screws or other human mistakes and component quality.



Storage of Up to 50 Setups with 30 Steps per Setup

A real benefit for manufactures that test different products, Each setup can store up to 30 steps, which can be configured to perform any of the safety tests. Each setup Can be stored and named any combination of alphanumeric characters so it can be easily identified for recall.

Security Password Settings

Avoids tampering with settings by only allowing authorized personnel with a user programmable security password to change test parameters.

PLC Remote Inputs and Outputs

This allows the instrument to be integrated into factory automation through simple PLC control.

Optional Ground Continuity Test

Manufacturers of heating elements, cable harness and aerospace cables all commonly perform point to point continuity tests and hipot tests as part of their routine production line tests. The linking of these continuity tests and hipot tests when tests voltages exceed 1000 volts has previously only been available through custom test systems. This left a need for bench top testers that were able to link both continuity tests and hipot tests at true hipot voltages. Cable harness testers that are commonly available will perform both tests, but they are limited in their Hipot test voltage. The model 7730 has a new 2000 Ohm continuity range that enables point to point continuity tests and hipot tests at voltages up to 5,000 volts to be performed.

Optional GPIB, RS-232 and Printer Interface

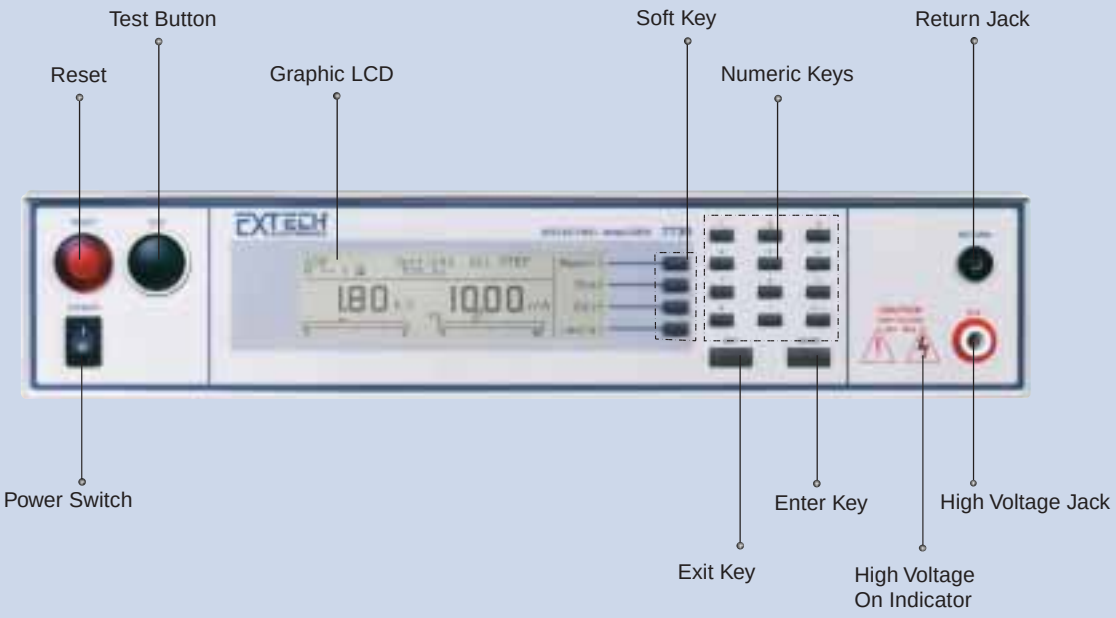
All the functions of the 7730 Dielectric Analyzer can be programmed over GPIB or RS-232 interface. The Printer interface allows direct connection of instrument to a printer, the user can have hard copies of test results after the test.

Optional Built-in Maximum 8 Channels Scanner

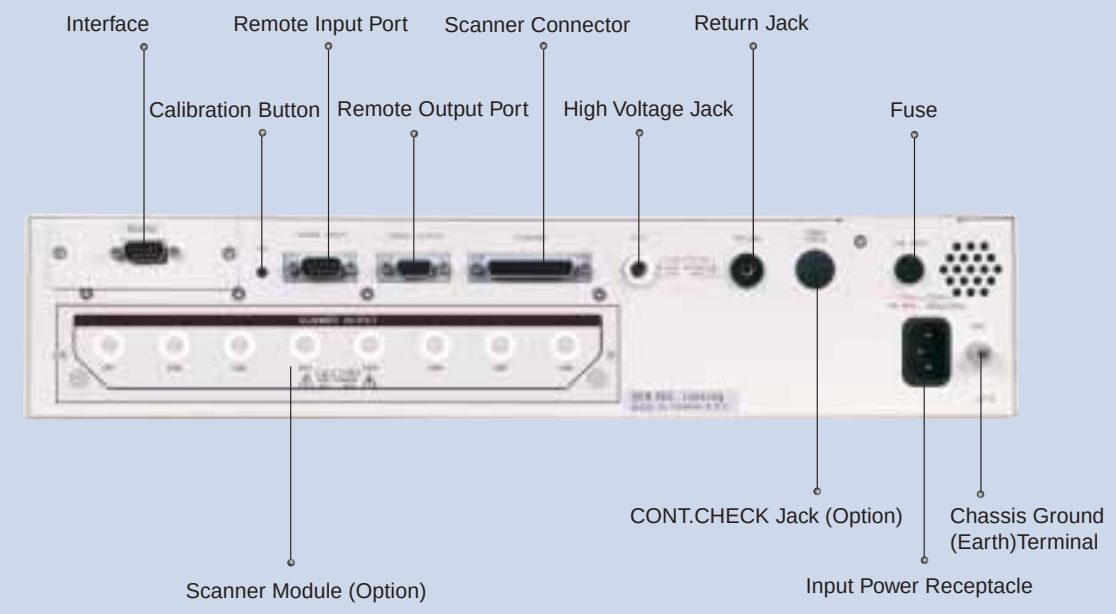
Model 7730 allows a built-in 4 channels or 8 channels scanner module, external scanner control bus also equipped for scanning test of up to 16 channels.

7730+opt.729

7730 Dieletric Analyzer–Front Panel



7730 Dieletric Analyzer–Rear Panel



Specifications

MODEL	7730		
AC WITHSTAND VOLTAGE			
	Range	Resolution	Accuracy
Output Voltage, ACV	0-5000	1	±(2% of setting+ 5V)
Output Frequency	50Hz/60Hz ±100ppm, User Selection		
Output Waveform	Sine Wave ,THD.<2% (Resistive Load), Crest Factor = 1.3 - 1.5		
Output Regulation	± (1% of output + 5V), From no load to full load		
SETTINGS			
Maximum Limit current, mA	0.000 - 9.999 (0=OFF)	0.001	± (2% of setting + 2 counts)
	10.00-30.00	0.01	
Minimum Limit current, mA	0.000 - 9.999 (0=OFF)	0.001	± (2% of setting + 2 counts)
	10.00-30.00	0.01	
Ramp-Up Timer, second	0.1 - 999.9	0.1	± (0.1% + 0.05 sec)
Ramp-Down Timer, second	0.0 - 999.9		
Dwell Timer, second	0, 0.4 - 999.9 (0=continuous)		
Arc Detection	1 - 9 ranges (9 is the most sensitivity)		
DC WITHSTAND VOLTAGE			
Output Voltage, DCV	0-5000	1	±(2% of setting+ 5V)
Output Ripple	<4 %（5KV/10mA at Resistive Load）		
SETTINGS			
Maximum Limit, current, μA	0 - 999.9	0.1	± (2% of setting + 2 counts)
	1000 - 10000	1	
Minimum Limit, current, μA	0.0 - 999.9	0.1	± (2% of setting + 2 counts)
	1000 - 10000	1	
Ramp-Up Timer, second	0.1 - 999.9	0.1	± (0.1% + 0.05 sec)
Ramp-Down Timer, second	0, 1.0 - 999.9 (0=OFF)		
Dwell Timer, second	0, 0.4 - 999.9 (0=continuous)		
Ramp-HI, current	>12 mA peak maximum, ON/OFF User Selection		
Charge-LO, current	0.0 - 350.0μA DC or Auto Set		
Discharge Time	≤200 msec		
Maximum Capacitive Load DC Mode	1μF < 1KV 0.08μF < 4KV 0.75μF < 2KV 0.04μF < 5KV 0.5μF < 3KV		
Arc Detection	1 - 9 ranges (9 is the most sensitivity)		
INSULATION RESISTANCE			
Output Voltage, VDC	50 - 1000	1	± (2% of setting + 2 counts)
Short Circuit Current	Maximum >12mA peak		
SETTINGS			
Maximum and Minimun Limit Resistance, MΩ	0.05 - 99.99 (Max – Limit: 0 = OFF)	0.01	Same as Resistance MEASUREMENT Accuracy
	100.0-999.9	0.1	
	1000-50000	1	
Ramp-Up Timer, second	0.1 - 999.9	0.1	± (0.1% + 0.05 sec)
Ramp-Down Timer, second	0, 1.0 - 999.9 (0=OFF)		
Delay Timer, second	0, 1.0 - 999.9 (0=continuous)	0.1	
Charge-LO, current, μA	0.000 - 3.500 or Auto Set		

Specifications

MEASUREMENT				
Voltage, KV (AC/DC)	0.00-5.00		0.01	± (2% of reading +2counts)
Voltage, Vdc (IR only)	0-1000		1	± (2% of reading + 2counts)
AC Current, mA	0.000-3.500		0.001	± (2% of reading + 2counts)
	3.00-30.00		0.01	
DC Current, μA	0.0 - 350.0		0.1	± (2% of reading + 2 counts)
DC Current, mA	0.300 - 3.500		0.001	
	3.00-9.99		0.01	
Resistance, MΩ	50-499V	500-1000V		50 – 499V 0.05–999.9, ±(7% of reading+2 counts)
	0.050-1.999	0.050-9.999	0.001	500 – 1000V
	2.00-19.99	10.00-99.99	0.01	0.10–999.9, ±(2% of reading+2 counts)
	20.0-199.9	100.0-999.9	0.1	1000–9999, ±(5% of reading+2 counts)
	200-50000	1000-50000	1	10000–50000, ±(15%of reading+2 counts)
GENERAL				
Input Voltage	115/230Vac±15% Auto Selection, 50/60Hz ± 5%, Fuse 4A Slow-Blo 250VAC			
PLC Remote Control	Input: Test, Reset, Interlock, Recall Memory 1 through 10			
	Output: Pass, Fail, Test-in-Process, Reset Out			
Remote Output Relays	125VAC@1AAC, 30VDC@ 0.5ADC			
Memory	50 memories, 30 steps/memory			
Graphic Display	240 x 64 dot resolution Monographic LCD /Contrast 9 Levels 1-9			
Safety	Built-in Smart GFI circuit,GFI trip current 450μA max, HV shut down speed: <1mS			
Interface	Standard RS232, Optional Printer Port with Date and Time Stamp or GPIB (IEEE-488.2).			
Security	Programmable password lockout capability to avoid unauthorized access to test set-up program.			
Alarm Volume Setting	Range: 0-9 ;0=OFF, 1 is softest volume, 9 is loudest volume.			
Calibration	Adjustments are made through the fornt panel. Built-in Verification program. Automatic Calibration alert function to signal operator when calibration is due.			
Dimensions/Net Weight	(W × H × D) 2U (430 × 89 × 400 mm)/13Kg.			
Option (Opt.735)	DC Continuity Test Function (0.1A/ 0-2KΩ) at Rear Panel			
STANDARD ACCESSORIES				
Power Cord(10A)	×1			
Fuses	×2 (Including a spare contained in the fuse holder)			
Interlock Disable Key(1505)	×1			
High Voltage Test Cable(1101)	×1			
Return Test Cable(1102)	×1			
RS232 Cable(1130)	×1			
MATRIX SCANNER MODULE (opt.729)				
High Voltage Rating	5KVAC/5KVDC			
Number of HV Channel	8			
MATRIX SCANNER MODULE (opt.730)				
High Voltage Rating	5KVAC/5KVDC			
Number of HV Channel	4			

*product specifications are subject to change without notice.

Ordering Infromation

7730	DIELECTRIC ANALYZER
7730+Opt.729	Matrix Scanner Module 8 Channel
7730+Opt.730	Matrix Scanner Module 4 Channel
7730+Opt.735	DC Continuity Test Function
7730+Opt.737	Real Current Measurement

ISO-9001 REGISTERED FIRM
Certificate No. QSC-6920

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