



PROGRAMMABLE HF AC TESTER

MODEL 11802 SERIES

Chroma 11802 Series Programmable HF AC Tester is a digital controlled high frequency AC source platform which can be combined with various modules to provide test method with high frequency/high voltage or high frequency mass current. The 11802 series output frequency range is 20kHz~200kHz which covers application frequencies for SMPS, LCD inverter, ballast, etc. The output voltage can coordinate with transformer module to adjust to required range. It also provides programmable output waveform control to simulate the operating condition for DUT, and cycle count or timer mode digital function for load life test. Tracking DC Source is also used inside the 11802 series for output amplifier to reduce power consumption and temperature rising. It decreases electricity cost and remains stability for long time testing.

The comprehensive design is suitable for various electronic components which used

under high frequency and high voltage tests such as LCD Inverter transformer secondary coil, high voltage capacitor, SMPS main power primary coil. It is applicable to high frequency mass current tests such as ballast inductor, ballast capacitor, electrolytic capacitor or other electronic components which are operated under environment of high frequency mass current.

Chroma 11802 Series Programmable HF AC Tester is an outcome accumulated by years of experience and technology. Control measurement and output accurately with the design of large LCD display to simplify operating procedure as well as support RS485 interface for users monitor test condition and monitoring situation of load life test via PC. The precise measured data and user-friendly operation design can enhance reliability of test. It is the best choice for high frequency test.

Programmable HF AC Tester

MODEL 11802 SERIES

MODEL 11802 : Full Function

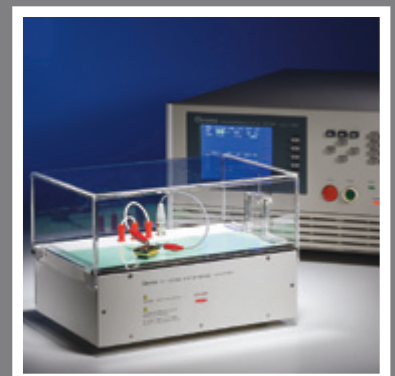
MODEL 11805 : Full Function

MODEL 11890 : Withstand Voltage Test

MODEL 11891 : Load Life Test

Key Features:

- Main Frame :
 - 11802 : 167V/3A, 500VA
 - 11805 : 167V/6A, 1000VA
 - 11890 : 167V/3A, 500VA
 - 11891 : 167V/3A, 500VA
- Module Output :
 - A118017 : 8kV/60mA
 - A118013 : 5kV/100mA
 - A118031 : 5kV/100mA+shielding
 - A118014 : 2.5kV/200mA
 - A118016 : 250V/2A
 - A118015 : 33V/30A
 - A118018 : 1kV/1A
- Frequency : 20kHz ~ 200kHz
- Sine wave Output
- Output voltage/current monitoring function
- Programmable output voltage waveform control
- Cycle count or time count test mode
- Lower power consumption and lower temperature rising design
- Large LCD Display
- Built-in digital timer
- RS485 interface



Chroma



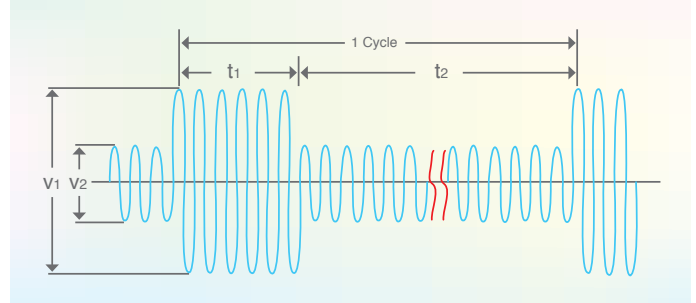
FUNCTIONS

HF HV Load Life Test [CV] (F1 Function)

Chroma 11802/11805/11891 high frequency AC power platform is combined with step-up transformer test module, it can provide constant voltage endurance test mode for setting two types of states to do long-term test periodically. Tracking DC Source is used inside the 11802 series for output amplifier to reduce power consumption. It decreases electricity cost and remains stability for long time testing. It can be applied to electronic components which used under high frequency and high voltage tests to perform quality reliability tests, such as transformer, high voltage capacitor, external cathode fluorescent lamp, plastic materials, high voltage inductor, etc.

Tests can be applied:

- (1) High frequency component load life test (multiple DUTs in parallel for testing)
- (2) Lamp endurance test (multiple lamp for testing)

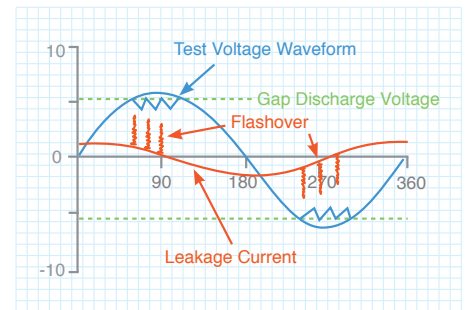


HF HV Load Life Test [CC] (F2 Function)

Chroma 11802/11805/11891 high frequency AC power platform is combined with current amplification transformer test module to provide high frequency current test source for setting two electricity states of constant current and zero current to do long-term test periodically. It can be applied to electronic components which used under high frequency tests to perform quality reliability tests, such as lamp, capacitor, etc. Users can evaluate on products of different brands, the manufacturers can be a basis for verification of product quality.

Tests can be applied:

- (1) High frequency component load life test (multiple DUTs for testing)
- (2) Lamp endurance test (multiple lamps for testing)

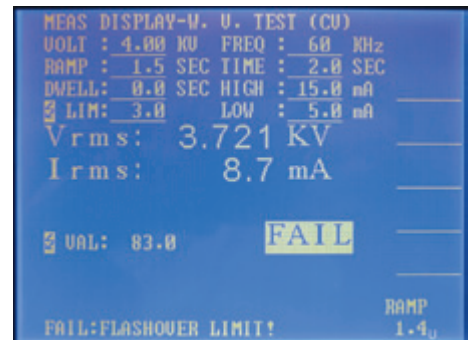


HF Withstand Voltage Test [CV] (F3 Function)

Chroma 11802/11805/11890 high frequency AC power platform is combined with step-up transformer test module to provide high frequency and high voltage test source as well as fast judgment function of Pass/Fail products. The constant voltage mode is with flashover function which can detect effectively whatever discharge phenomena of corona in gas ionization, slightly glow or seriously arc. This function can prevent high-risk products from entering the market. Besides, high/low limit of test current also can be set for sieving bad withstanding products. Chroma 11890 is the only model with F3 function which fits for fast judgment on production line.

Tests can be applied:

- (1) High frequency withstand voltage test for high frequency and high voltage component (Use Flashover Limit to judge if occurs electricity discharge. Use Current High Limit to judge if occur breakdown.)
- (2) Magnetic saturation test for high frequency magnetic component (Use Current High Limit to adjust)

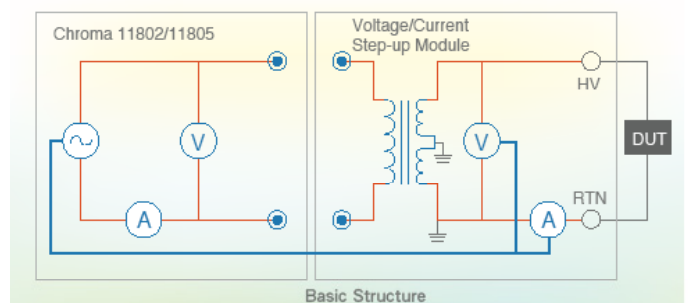


HF Withstand Voltage Test [CC] (F4 Function)

Chroma 11802/11805 high frequency AC power platform is with fast judgment function under constant current mode. It provides the components which need to be driven by current source for testing such as lamp, capacitor, etc. It can set high/low limit of test current and lamp voltage for judgment as well as display lamp ignition voltage and lamp working voltage.

Tests can be applied:

- (1) Lamps ignition voltage and lamp working voltage
- (2) Current adjustment, test component displayed electricity characteristics in different currents

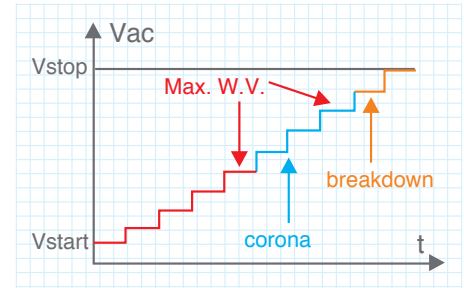


HF Breakdown Voltage Test (F5 Function)

Chroma 11802/11805 high frequency AC power platform is combined with step-up transformer test fixture to provide high frequency and high voltage test source. It is equipped with voltage step-up control function for setting step-up voltage and time in order to perform the test of breakdown voltage. It uses partial discharge detection state and test current high/low limit for judgment to test withstand of DUT and start voltage of corona discharge. The researchers can analyze and research products via these functions for the improvements of weaker components.

Tests can be applied:

- (1) Corona start voltage (Flashover Limit)
- (2) Breakdown voltage (Current High Limit)
- (3) Magnetic component saturation voltage (Current High Limit)



KEY FEATURES

Interlock

The instrument has Interlock function, the operation will be stopped while opening the cover. It avoids the danger caused by inadvertent touch high voltage to ensure users' safety.

Empty Load Current Zero Function

The current caused by stray capacitance will affect measurement result when testing empty load high frequency and high voltage. Chroma 11802 series provides empty load test current zero function which can deduct error current caused by stray capacitance. (Capacitive DUT suggested use)

Limit Current Protection Function

Chroma 11802 series provides limit current protection function to avoid overcurrent burning DUT.

Low Output Impedance Design

Chroma 11802 series adopts low magnetic flux leakage output transformer to reduce output impedance that test voltage won't be affected easily by DUT impedance. It is also combined with feedback control for keeping voltage test output level.

Voltage and Current Monitor

The step-up voltage/current module is with oscilloscope Connector, users can monitor DUT voltage and current waveform at any time while connecting oscilloscope. The module with high voltage can monitor DUT discharge waveform. It supplies more analysis functions to users via voltage or current waveform to comprehend magnetic component saturation state.

Low Energy Loss

Chroma 11802 series adopts outstanding design technology of output amplifier to reduce output energy loss and inner temperature rising. For long-term load life test, it can ensure stability of test and decrease electricity cost.

Warning Function

Chroma 11802 series supports warning function. When test ended normally or caused by abnormal condition occurred, the warning function will be activated under above conditions to notify operating staff to end the test.

Built-in RS485 Interface

Chroma 11802 series built-in RS-485 interface can connect with computer for long-term monitoring test condition and result. It also can control setting value remotely under no output test condition.

Pass/Fail Judgment

According to users' setting electrical judgment value, judge DUT pass/fail rapidly to meet fast judgment to production line.

Selectable Output Mode (High Voltage Module)

(1) Floating:

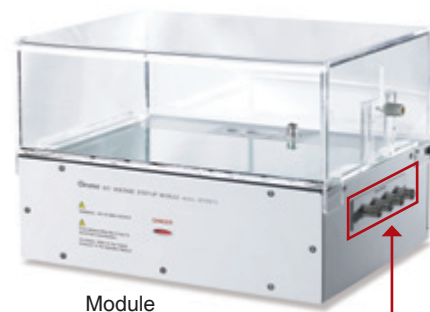
It can reduce electric shock danger on single terminal. It is a safer mode, recommended use.

(2) Return Earthed:

HV electric shock is higher danger but more stability.

(3) Center Earthed:

It is suitable for the test of dual high voltage output lamp.



Module

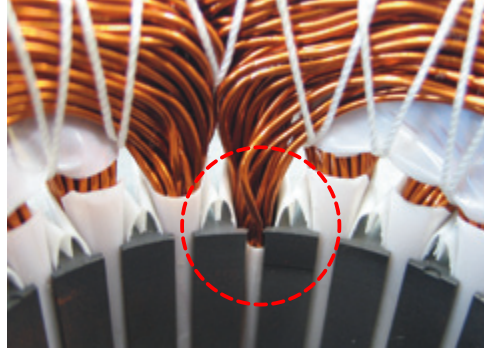
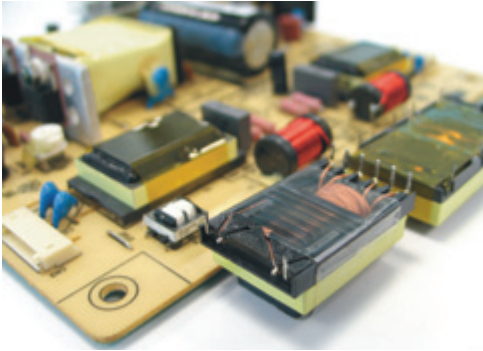


Scope Connector

APPLICATION COVERAGE

Inverter Transformer Test

- ☑ Add a high voltage directly to high voltage side coil of Inverter transformer, simulate the actual high voltage and high frequency working environment of transformer.
- ☑ Capable of testing withstand voltage strength and discharging start voltage effectively.
- ☑ Capable of performing air line package test, analyzing discharge phenomenon inside transformer coil.
- ☑ Multiple DUT in parallel for executing load life test, test condition won't be affected by environment for long-term test accurately.
- ☑ Capable of testing saturation voltage for transformer.
- ☑ It is suitable for new product research test used or for quality assurance verification used.
- ☑ It is suitable for sieving electrical no good product in production line used.

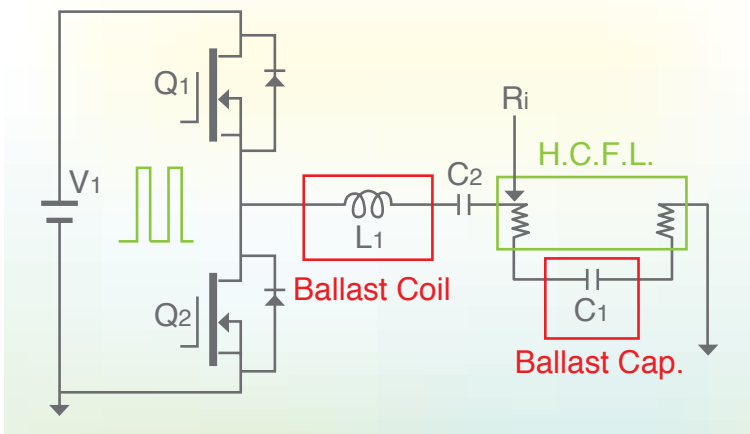


Motor Test

- ☑ Capable of testing discharge breakdown voltage of motor copper wire to iron core, sieving the products with bad winding effectively.
- ☑ Capable of testing withstand voltage strength of copper wire to iron core.
- ☑ It is suitable for product research used or for quality assurance verification used.
- ☑ It is suitable for sieving winding no good product in production line used.

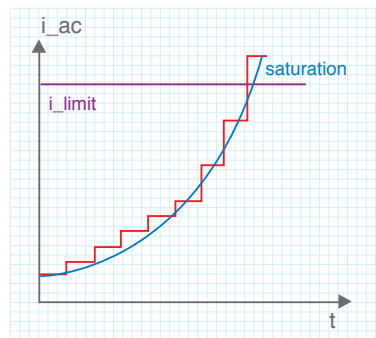
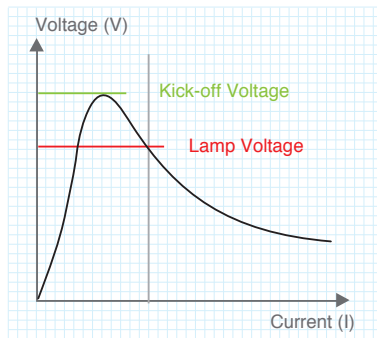
Ballast Capacitor/Inductor Test

- ☑ Ballast capacitor/inductor are operated under HF HV environment. It is an important theme for discussion if the capacitor/inductor can normal work for long time under high voltage.
- ☑ Impedance of ballast capacitor/inductor is low and its required test current is over high that will cause the instrument can't burden the current. Chroma designs a special test method for this experiment. It can reduce largely in the required current of test instrument for this type of component can perform HV HF load life test smoothly.
- ☑ After long-term testing ballast capacitor/inductor, can measure if electrical specification is within safety range.
- ☑ It is suitable for product research test used or for quality assurance verification used.



Lamp Lighting Test

- ☑ It is Suitable for versatile tests of HV air discharge lamp such as CCFL, EEFL, HCFL, etc.
- ☑ Multiple lamp in parallel to simulate light up and light out load life test periodically.
- ☑ Lamp lighting status includes Single Earthed, Dual HV Output and Floating for selection.
- ☑ The display can show ignition voltage, lamp operating voltage and lamp current simultaneously for understanding lamp electrical status exactly.
- ☑ It is suitable for new product research test used or for quality assurance verification used.
- ☑ It is suitable for sieving electrical no good product used.

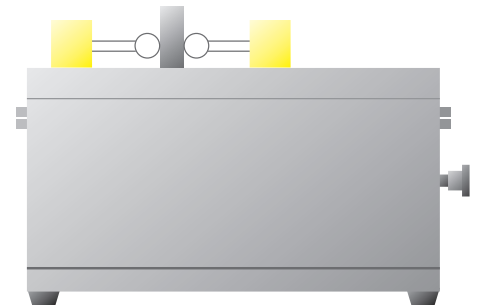


Saturation Voltage Test for Magnetic Component

- ☑ The general saturation voltage of HF magnetic component can be tested by voltage ascending method in non-linearity gradually.
- ☑ Set working frequency test to find saturation voltage point of magnetic component.
- ☑ It is able to test AC current variation of magnetic component in long-term under different degrees of saturation voltage. It also can analyze electrical feature variations of magnetic component while temperature increasing.
- ☑ Chroma 11802 series is with this function for product RD department used or for quality assurance used.

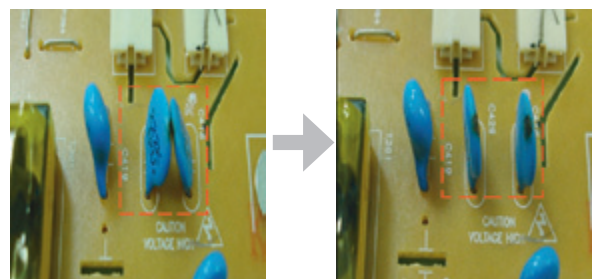
Bobbin/Plastic Material Withstand Test

- ☑ It is for testing plastic material under HV HF environment. Test withstand voltage and discharge degree of component material such as Bobbin of transformer or plastic cover of capacitor.
- ☑ It is able to test withstand voltage and discharge degree as two capacitors contact. It also can improve withstand voltage capability to avoid discharge phenomenon occurred while two capacitors contact each other by human factor during assemble procedure.
- ☑ It is suitable for material development or quality assurance verification used.



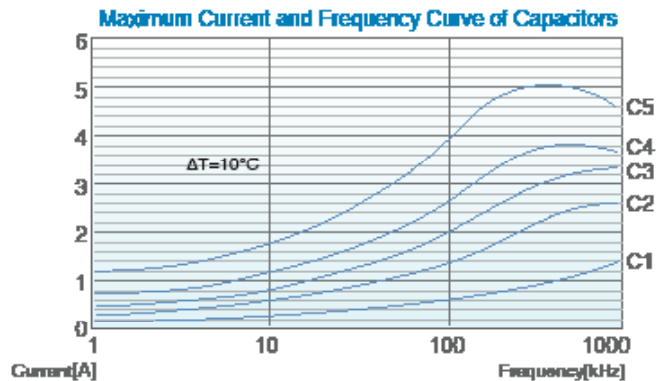
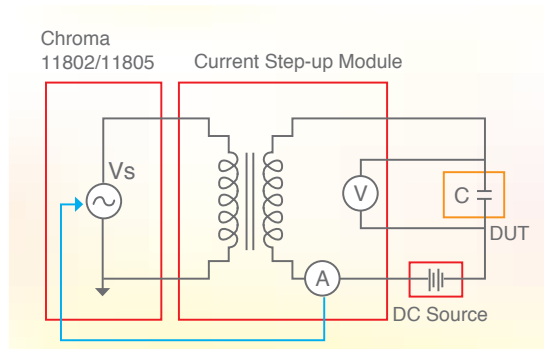
Load Life Test/IR/Partial Discharge Test for Passive Component

It is capable of testing IR test or partial discharge test of passive components such as capacitor, transformer, hard disk head, PCB, connector, coupler, etc. It can find no good product effectively and also provide the product for load life test function. The 11802 series is equipped with accurate test output condition to decrease possible error while testing. It is suitable for verification on quality assurance and production line, also support RD department to do product development testing.



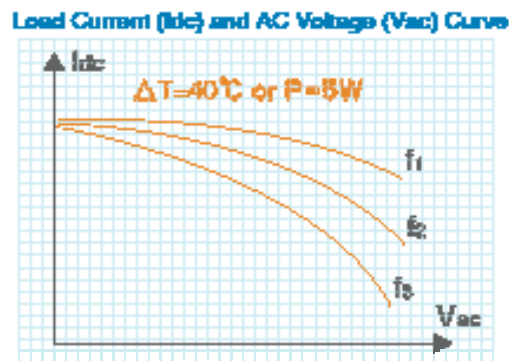
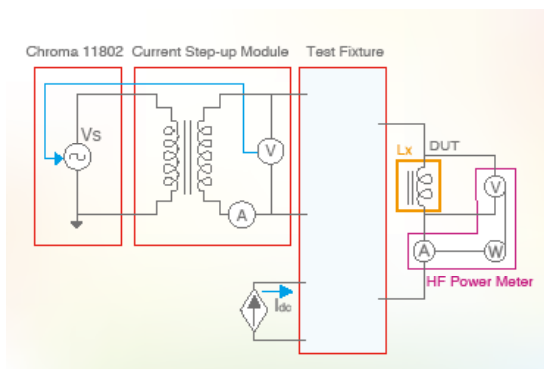
Capacitor Test

- ☑ Chroma 11802/11805 and DC Bias Voltage Source used together which can simulate bias electricity status feature of a DC voltage and AC current. It provides capacitor to perform load life test such as snubber capacitor, etc.
- ☑ After testing, electricity specification of capacitor should be within safety standard. Adding a safeguard on practical application.
- ☑ Capacitor component can perform dv/dt withstand current specification test.
- ☑ This test can coordinate with software for long-term recording component temperature rising variation, it is a reference at the stage of product development.



Active PFC/Power Choke Power Loss Test

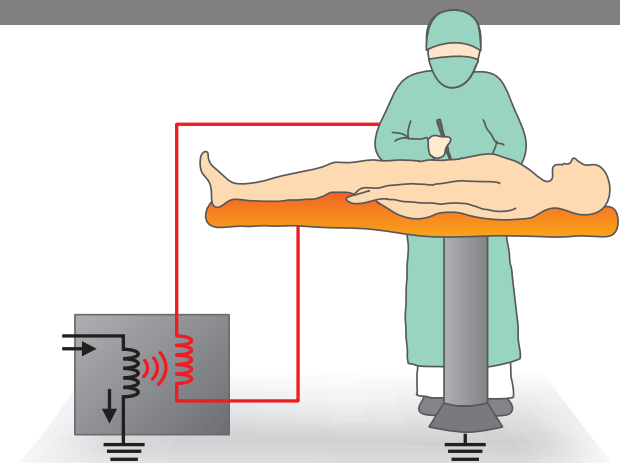
- ☑ The main reason of causing inductive heating on DC-DC Converter is from copper loss and iron loss. The copper loss is mainly caused by the heat of copper wire resistance and flowing current. The iron loss consists of hysteresis loss and eddy current loss. The copper loss and iron loss will cause power loss of magnetic component. Chroma 11802 and DC Bias Current Source used together can simulate power loss actually applied on magnetic component.
- ☑ Capable of testing variation of magnetic component inductance to temperature, over high temperature will cause the decrement of magnetic component inductance.
- ☑ Capable of testing power loss of magnetic component under different electricity conditions.
- ☑ Capable of coordinating with software for long-term recording magnetic component temperature rising variation, it is a reference at the stage of product development.
- ☑ It is for analyzing on various core material at product development stage, and get iron loss from mathematical formula.



OTHER APPLICATIONS

HF Surgery Medical Equipment Test

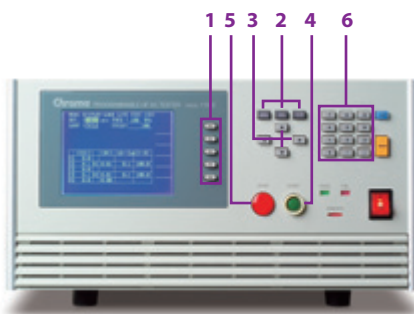
Medical surgical device or equipment is mostly applied on HF HV environment. Therefore, withstand voltage of component, saturation of magnetic component, corona voltage, leakage current of equipment, etc perform HF inspection via Chroma 11802 series.



APPLICATIONS

Model	Main Function	Option	Application Description
11802	High Frequency High Voltage Test	A118013 Module 5kV/100mA max A118014 Module 2.5kV/200mA max A118016 Module 250V/2A max A118017 Module 8kV/100kHz max A118031 Module 5kV/100mA max	LCD inverter (transformer, ceramic capacitor, cable, PCB) load life test/ withstanding voltage/ breakdown voltage test
			EEFL, backlight load life test/ lamp current test
			SMPS main transformer and active PFC choke load life test and electrical analysis
			Medical equipment high frequency leakage current safety inspection
			Automobile motor corona discharge inspection
		A118022 Single Lamp Module 8kV/100kHz max	CCFL, HCFL, backlight load life/ kick-off voltage and lamp voltage test
11805	High Frequency High Voltage Test	A118018 Module 1kV/1A max + specified resonant inductor / capacitor	Ballast capacitor/ inductor ignition voltage load life test
	High Frequency High Current Test	A118015 Module 33V/30A max	Snubber capacitor load life test
11890 (F3)	High Frequency High Voltage Test	A118013 Module 5kV/100mA max A118014 Module 2.5kV/200mA max A118017 Module 8kV/100kHz max A118031 Module 5kV/100mA max	LCD inverter transformer (ceramic capacitor, cable, PCB) withstanding voltage test for production line
			Medical equipment high frequency leakage current safety inspection
			Automobile motor corona discharge inspection
11891 (F1, F2)	HF, CV Test	HF, Voltage Step-up Module	Constant voltage load life test
	HF, CI Test	HF, Current Step-up Module	Constant current load life test

PANEL DESCRIPTION



1. Function keys
2. Menu keys
3. Cursor keys
4. START key
5. STOP key
6. Entry keys



7. Fuse
8. AC 220V power socket
9. AC Output terminals
10. External module control Interface
11. RS-485 connection terminal
12. Handler Interface

ORDERING INFORMATION

11802 : Programmable HF AC Tester 500VA
11805 : Programmable HF AC Tester 1kVA
11890 : HF Hipot Tester 500VA
11891 : HF HV Load Life Tester 500VA
A118013 : HF Voltage Step-up Module 5kV/100mA
A118014 : HF Voltage Step-up Module 2.5kV/200mA

A118015 : HF Current Step-up Module 33V/30A (For 11805)
A118016 : HF Voltage Step-up Module 250V/2A
A118017 : HF Voltage Step-up Module 8kV/60mA
A118018 : HF Voltage Step-up Module 1kV/1A (For 11805)
A118022 : HF Voltage Step-up Single Lamp Module 8kV/60mA
A118031 : HF Voltage Step-up Module + Shielding 5kV/100mA



Module



CCFL Test Fixture

SPECIFICATIONS

Model		11802/11890/11891	11805
HF AC Source Output			
Frequency		20KHz ~ 200KHz ±0.02%, Programmable	
Basic Maximum Output Power		500VA	1kVA
Output Current Range (rms)		0.01A ~ 3.00A, ±(5% of setting + 10mA)	0.05A ~ 6.00A, ±(5% of setting + 10mA)
Output Voltage Range (rms)		167V maximum	
Output Parameters [Note 1]			
With option A118017/ A118022 (HF HV, 8.0kV/60mA)	Output Voltage Range	0.05kV ~ 8.00kV, ±(5% of setting + 0.02kV) [Note 2]	--
	Output Current Range	60mA maximum (100kHz maximum)	
With option A118013 / A118031 (HF HV, 5.0kV/100mA)	Output Voltage Range	0.05kV - 5.00kV, ±(5% of setting + 0.02kV) [Note 2]	--
	Output Current Range	100mA maximum	
With option A118014 (HF HV, 2.5kV/200mA)	Output Voltage Range	0.05kV - 2.50kV, ±(5% of setting + 0.01kV) [Note 2]	--
	Output Current Range	200mA maximum	
With option A118016 (HF HV, 250V/2A)	Output Voltage Range	5V ~ 250V, ±(5% of setting + 1V) [Note 2]	--
	Output Current Range	2A maximum	
With option A118018 (HF HC, 1kV/1A)	Output Voltage Range	--	0.05kV ~ 1.00kV, ±(5% of setting + 0.01kV) [Note 2]
	Output Current Range		1A maximum
With option A118015 (HF HV, 33V/30A)	Output Voltage Range	--	0.1V ~ 33V, ±(5% of setting + 0.15V) [Note 2]
	Output Current Range		30A maximum
Signal Monitor Parameter Accuracy			
With option A118017/ A118022 (HF HV, 8.0kV/60mA)	Output Voltage Reading	0.05kV ~ 8.00kV, ±(4% of reading + 0.02kV) [Note 2]	--
	Output Current Reading	0.5mA ~ 60.00mA, ±(3% of reading + 0.3mA) [Note 2]	
With option A118013/ A118031 (HF HV, 5.0kV/100mA)	Output Voltage Reading	0.05kV ~ 5.00kV, ±(4% of reading + 0.02kV) [Note 2]	--
	Output Current Reading	0.5mA ~ 100.00mA, ±(3% of reading + 0.3mA) [Note 2]	
With option A118014 (HF HV, 2.5kV/200mA)	Output Voltage Reading	0.05kV ~ 2.50kV, ±(4% of reading + 0.01kV) [Note 2]	--
	Output Current Reading	0.5mA ~ 200.00mA, ±(3% of reading + 0.5mA) [Note 2]	
With option A118016 (HF HV, 250V/2A)	Output Voltage Reading	5.00V ~ 250.0V, ±(4% of reading + 1V) [Note 2]	--
	Output Current Reading	0.02A ~ 2.00A, ±(3% of reading + 0.01A) [Note 2]	
With option A118018 (HF HV, 1kV/1A)	Output Voltage Reading	--	0.05kV - 1.00kV, ±(4% of reading + 0.01kV) [Note 2]
	Output Current Reading		0.01A - 1.00A, ±(3% of reading + 10mA) [Note 2]
With option A118015 (HF HC, 33V/30A)	Output Voltage Reading	--	0.10V - 33.0V, ±(4% of reading + 0.15V) [Note 2]
	Output Current Reading		0.1A – 30.00A, ±(3% of reading + 0.1A) [Note 2]
Control Function			
Timer	1 min ~ 10000 hour, 30min error per year		
	0.1 sec ~ 999.9 sec		
Display	320 X 240 dot-matrix LCD display		
Operation	Start, Stop, Continue		
Protection	OCP, OTP, Over Load		
General			
Operation Environment	Temperature : 10°C~ 40°C, Humidity : < 90% RH		
Power Consumption	2700 VA max.		3000 VA max.
Power Requirement	220Vac ±10% ; 48 Hz ~ 62 Hz		
Weight	Approx. 32 Kg		
Dimension (W x H x D)	440 x 241.5 x 609.8 mm		

Note 1: Under rated load and voltage correction is well performed.

Note 2: For test frequency above 100kHz, multiply the accuracy error by 2 times.

All specifications are subject to change without notice.

Developed and Manufactured by :

CHROMA ATE INC.

致茂電子股份有限公司
HEADQUARTERS
66 Hwaya 1st Rd., Kueishan
Hwaya Technology Park,
Taoyuan County 33383,
Taiwan
Tel: +886-3-327-9999
Fax: +886-3-327-8898
http://www.chromaate.com
E-mail: info@chromaate.com

CHINA
CHROMA ELECTRONICS
(SHENZHEN) CO., LTD.
8F, No.4, Nanyou Tian An
Industrial Estate, Shenzhen,
China PC: 518052
Tel: +86-755-2664-4598
Fax: +86-755-2641-9620

JAPAN
CHROMA JAPAN CORP.
472 Nippa-cho, Kouhoku-ku,
Yokohama-shi, Kanagawa,
223-0057 Japan
Tel: +81-45-542-1118
Fax: +81-45-542-1080
http://www.chroma.co.jp
E-mail: info@chromaate.com

U.S.A.
CHROMA SYSTEMS
SOLUTIONS, INC.
19772 Pauling, Foothill Ranch,
CA 92610
Tel: +1-949-600-6400
Fax: +1-949-600-6401
http://www.chromausa.com
E-mail: sales@chromausa.com

EUROPE
CHROMA ATE EUROPE B.V.
Morsestraat 32, 6716 AH Ede,
The Netherlands
Tel: +31-318-648282
Fax: +31-318-648288
http://www.chroma.eu.com
E-mail: sales@chromaeu.com

Worldwide Distribution and
Service Network