

ESA系列

彩色全功能安规综合分析仪

旗舰七合一彩色安规综合分析仪，选配内建 500VA 交流电源，同时兼容多种通讯控制接口。一站多任务，解决所有安全顾虑，是系统整合、实验研发的优先解决方案。



产品特点

- 一台满足所有安规测试。
- DualCHEK 功能：耐压 (AC/DC) 与接地阻抗 (GB) 可同步进行测试。
- EEC 独有专利之快速放电装置 (Fast Discharge)，能使待测物在测试后 50ms 的极短时间内放电，减低避免残余电压造成人员触电风险。
- 热态耐压测试：能够在 DUT 开机的情况下运行耐压测试。
- 7 组人体模拟线路 (MD)。
- 可量测 AC/DC/AC+DC 电流值，以及支援患者漏电流，患者辅助漏电流量测 (医疗设备 IEC60601 标准)。
- MD 配备 BNC 测量端子可连接示波器或电压表，以实现更加人性化的 MD 校准。

安全特性 & 产品特点



同步测试



自我检测



外部扩展器
连接



快速放电



电弧侦测



智慧防高压
触电线路



缓升上限



充电下限

通讯介面



USB 介面



RS-232 介面



以太网网卡
(选购)



GPIB 卡
(选购)

	交流耐压 (ACW)	直流耐压 (DCW)	绝缘阻抗 (IR)	交流接地阻抗 (AC GB)	导通检测 (GC)	电源泄漏电流 (LLT/TCT)	电气性能测试 (Run)	内建隔离电源
ESA-140A	√	√	√	√	√	√	√	选购
ESA-150A	500VA	√	√	√	√	√	√	选购

ESA 系列规格

型号		ESA-140A	ESA-150A
输入电源			
电压 (交流)		115/230V ± 15% Auto Range	
频率		50/60Hz ± 5%	
交流耐压测试			
额定输出 (交流)		5kV/50mA	5kV/100mA
输出电压范围		0-5.00kV	
电压解析度		0.01kV	
电压精确度	输出 50/60Hz	±(1.5% of setting + 5V)	
电流量测范围 (总和)		0.000-50.00mA	0.000-100.00mA
电流解析度 (总和)		0.001/0.01mA	
电流精确度 (总和)	0.000-3.500mA	±(2% of reading + 2 counts)	
	3.00-100.00mA		
电流量测范围 (真实)		0.000-50.00mA	0.000-100.00mA
电流解析度 (真实)		0.001/0.01mA	
电流精确度 (真实)	0.000-9.999mA	±(3% of reading + 50uA)	
	10.00-99.99mA		
输出频率		50/60Hz ± 0.1%	
缓升时间		0.1-999.9s	
缓降时间		0.0-999.9s	
测试时间		0, 0.3-999.9s (0 = continuous)	
时间解析度		0.1s	
时间精确度		±(0.1% of setting + 0.05s)	
导通检测		Current: DC 0.1A ± 0.01A, Ground Resistance: 1.0Ω ± 0.1Ω	
电流归零调整		0.000-50.00mA (Total current + current offset ≤50mA)	0.000-99.99mA (Total current + current offset ≤100mA)
直流耐压测试			
额定输出 (直流)		6kV/20mA	
输出电压范围		0-6.00kV	
电压解析度		0.01kV	
电压精确度		±(1.5% of setting + 5V)	
电流量测范围		0.0uA-20.00mA	
电流解析度		0.1uA/0.001mA/0.01mA	
电流精确度	0.0 -350.0uA	±(2% of reading + 2 counts)	
	0.300-3.500mA		
	3.00-20.00mA		
缓升时间		0.4-999.9s	
缓降时间		0.0, 1.0-999.9s	
测试时间		0, 0.3-999.9s (0 = continuous)	
时间解析度		0.1s	
时间精确度		±(0.1% of setting + 0.05s)	
电流缓升上限		> 20mApeak maximum, ON/OFF User Selectable	



型号		ESA-140A	ESA-150A
直流耐压测试			
放电时间		Less than 100msec for capacitor load	
最大容性负载		1uF < 1KV , 0.75uF < 2KV , 0.5uF < 3KV 0.08uF < 4KV , 0.04uF < 5KV , 0.015uF < 6KV	
电流归零调整		0.0-20mA (Total current + current offset ≤20mA)	
电弧侦测		The range is from 1-9 (9 is the most sensitive)	
充电下限电流		0.0-350.0uA	
放电时间		< 50ms for no load, < 100ms for capacitor load (all capacitance values in max load spec below)	
导通检测		Current: DC 0.1 A ± 0.01 A, fixed, Max. Ground Resistance: 1.0Ω ± 0.1Ω	
绝缘阻抗测试			
额定输出 (直流)		1kV/50GΩ	
输出电压范围		30-1000V	
电压解析度		1V	
电压精确度		±(1.5% of setting + 2 counts)	
阻抗量测范围		0.050MΩ-50GΩ	
阻抗解析度		0.001/0.01/0.1/1MΩ	
阻抗精确度	0.050-999.9MΩ 输出 30-499V 内	±(7% of reading + 2 counts)	
	0.050-999.9MΩ 输出 500-1kV 内	±(2% of reading + 2 counts)	
	1G-9.999GΩ 输出 500-1kV 内	±(5% of reading + 2 counts)	
	10G-50GΩ 输出 500-1kV 内	±(15% of reading + 2 counts)	
缓升时间		0.1-999.9s	
缓降时间		0.0 , 1.0-999.9s	
测试时间		0, 0.5-999.9s (0 = continuous)	
延迟时间		0.5-999.9s	
时间解析度		0.1s	
时间精确度		±(0.1% of setting + 0.05s)	
充电下限电流		0.000-3.500uA	
交流接地阻抗			
额定输出 (交流)		40 A/600mΩ/8V	
输出电流		1.00-40.00A	
电流解析度		0.01A	
电流精确度		±(2% of setting + 2 counts)	
输出电压		3.00-8.00V	
电压解析度		0.01V	
电压精确度		±(2% of setting + 3 counts)	
线材阻抗归零调整范围		0-200mΩ	
线材阻抗归零调整解析度		1mΩ	
线材阻抗归零调整精确度		±(1% of reading + 3 counts)	
阻抗量测范围		0-600mΩ	
阻抗解析度		1mΩ	
阻抗精确度	1.00-2.99A	±(3% of reading + 3 counts)	
	3.00-40.00A	±(2% of reading + 2 counts)	

型号	ESA-140A	ESA-150A
交流接地阻抗		
输出频率	50/60Hz ± 0.1%	
输出调整率	±(1% of output + 0.02A), Within maximum load limits, and over input voltage range	
测试时间	0, 0.5-999.9s (0 = continuous)	
时间解析度	0.1s	
时间精确度	±(0.1% of setting + 0.05s)	
导通检测		
额定输出 (直流)	0.1A for 0-10.00Ω, 0.01A for 10.1-100.0Ω, 0.001A for 101-1kΩ, 0.0001A for 1.001-10kΩ, 0.1A is Max.	
阻抗归零调整	0.00-10.00Ω	
阻抗归零调整解析度	0.01Ω	
阻抗归零调整精确度	±(1% of reading + 3 counts)	
阻抗量测范围	0.00-10kΩ	
阻抗解析度	0.01/0.1/1Ω	
阻抗精确度	0.00-10.00Ω	±(1 % of reading + 3 counts)
	10.1-100.0Ω	
	101-1000Ω	
	1001-10000Ω	±(1 % of reading + 10 counts)
测试时间	0.0, 0.3-999.9s (0 = continuous)	
时间解析度	0.1s	
时间精确度	±(0.1% of setting + 0.05s)	
接触电流测试		
测试棒设定	G-L, PH-PL, PH-L (Use HV relay and HV terminal connector)	
泄漏电流范围 ¹ (有效值)	0.0uA-10.00mA	
泄漏电流解析度 (有效值)	0.0-999.9uA	0.1uA
	1000-8399uA	1uA
	8.40-10.00mA	0.01mA
泄漏电流精确度 (有效值) (交流 + 直流)	DC	±(2% of reading + 3 counts) ²
	15Hz < f < 100kHz	±(2% of reading + 3 counts) ²
	100kHz < f < 1MHz	±(5% of reading) (> 10.0uA)
泄漏电流精确度 ³ (有效值) (交流)	15Hz < f < 30Hz	±(3% of reading + 5 counts) ²
	30Hz < f < 100kHz	±(2% of reading + 3 counts) ²
	100kHz < f < 1MHz	±(5% of reading) (> 10.0uA)
泄漏电流精确度 ⁴ (峰值) (直流)	±(2% of reading + 3 counts) ² (> 10.0uA)	
泄漏电流范围 ¹ (峰值)	0.0uA-10.00mA	
泄漏电流解析度 (峰值)	0.0-999.9uA	0.1uA
	1000-8399uA	1uA
	8.40-10.00mA	0.01mA
泄漏电流精确度 (峰值) (交流 + 直流)	DC	±(2% of reading + 3 counts)
	15Hz < f < 1MHz	±(10% of reading + 2uA) ⁵
泄漏电流精确度 ² (峰值) (交流)	15Hz < f < 1MHz	±(10% of reading + 2uA) ⁵



型号		ESA-140A	ESA-150A
接触电流测试			
泄漏电压范围 ¹ (有效值)	MD Resistance is 0.5kΩ	0.0mV - 10.00V	
	MD Resistance is 1kΩ	0.0mV - 20.00V	
	MD Resistance is 1.5kΩ	0.0mV - 30.00V	
泄漏电压解析度 (有效值)	0.0-999.9mV	0.1mV	
	1000-8399mV	1mV	
	8.40-10.00V	1V	
泄漏电压精确度 (有效值) (交流 + 直流)	DC	±(2% of reading + 3 counts) ⁶	
	15Hz < f < 100kHz	±(2% of reading + 3 counts) ⁶	
	100kHz < f < 1MHz	±(5% of reading) (> 10.0mV)	
泄漏电压精确度 ² (有效值) (交流)	15Hz < f < 30Hz	±(3% of reading + 5 counts) ⁶	
	30Hz < f < 100kHz	±(2% of reading + 3 counts) ⁶	
	100kHz < f < 1MHz	±(5% of reading) (> 10.0mV)	
泄漏电压精确度 ³ (有效值) (直流)		±(2% of reading + 3 counts) ⁶	
泄漏电压范围 ¹ (峰值)	MD Resistance is 0.5kΩ	0.0mV - 5.00V	
	MD Resistance is 1kΩ	0.0mV - 10.00V	
	MD Resistance is 1.5kΩ	0.0mV - 15.00V	
泄漏电压解析度 (峰值)	0.0-999.9mV	0.1mV - 5.00V	
	1000-8399mV	1mV	
	8.40-15.00V	1V	
泄漏电压精确度 (峰值) (交流 + 直流)	DC	±(2% of reading + 3 counts)	
	15Hz < f < 1MHz	±(10% of reading + 2mV) ⁷	
泄漏电压精确度 ² (峰值) (交流)		±(10% of reading + 2mV) ⁷	
人体模拟线路 (MD)	MD A.	UL544 Non Patient, UL484, IEC60598, UL1363, UL923, UL471, UL867, UL697	
	MD B.	UL544 Patient Care	
	MD C.	IEC60601-1, EN60601-1	
	MD D.	UL1563	
	MD E.	IEC60990 Fig4 U2, IEC 60950-1, IEC 62368-1, IEC60335-1, IEC60598-1, UL484, IEC60065, IEC61010, IEC60065, IEC 62368-1	
	MD F.	IEC60990 Fig5 U3, IEC60598-1, IEC 62368-1	
	MD G.	Basic measuring element 1k ohm of frequency check	
	External MD	User can add one extra MD for his application.	
MD 元件精确度		Capacitance: ± 1%; Resistance: ± 1%	
MD 电压限制		Maximum 30Vpeak or 30Vdc	
电流量测		The leakage current is fitting range by leakage current Hi-limit setting value	
频率范围		DC, 15Hz ≤ F ≤ 1MHz	
内部漏电流		1. Internal Leakage current = 65uA, 2. 277V applied to PH max leakage current = 70uA	
待测物功率 (交流)		277V/16A	
短路电流保护		23Arms or Inrush Current 68Apeak, Response time RMS < 3s; Peak < 10uS	
延迟时间	交流 + 直流	0.5-999.9s	
	交流 / 直流在自动档位下	1.8-999.9s	
	交流 / 直流在固定档位下	1.3-999.9s	
测试时间	交流 + 直流	0, 0.5-999.9s	
	交流 / 直流	0.1-999.9s (0 = continuous)	
时间解析度		0.1s	
时间精确度		±(0.1% of reading + 0.05s)	
功率量测范围		0 - 4500W	
功率精确度		± (5% of reading + 3 counts)	
功率因素		0.000 - 1.000	
功率因素精确度		± (8% of reading + 2 counts)	

型号	ESA-140A	ESA-150A
电气性能测试		
电压量测范围 (交流)	0.0 - 277.0V, 1 ϕ	
电压精确度	\pm (1.5% of reading + 2 counts)	
电流量测范围 (交流)	0.00 - 16.00A	
电流精确度	\pm (2% of reading + 2 counts)	
泄漏电流量测范围	0.00 - 10.00 mA	
泄漏电流精确度	\pm (2% of reading + 2 counts)	
MD (L-G)	Resistor 2k Ω \pm 1%	
一般规格		
远端控制输入讯号	Test, Reset, Interlock, Recall File 1 through 3, Recall File 1 through 7	
远端控制输出讯号	Pass, Fail, Test-in-Process	
记忆组	It has 10000 steps and allow the user to create different memories and steps	
显示器	800 x 480 resolution digital TFT LCD/Contrast 9 Levels 1-9	
介面 ⁸	Standard USB & RS232, Optional Ethernet, GPIB	
外部扩展器连接	Yes	
同步测试	5kVac/25mAac and 25Aac/150m Ω	5kVac/50mAac and 30Aac/150m Ω
热态 (动态) 耐压测试	To detect the line input voltage to produce a simultaneous sine wave of line power at hipot output	
语言	English/Traditional Chinese/Simplified Chinese	
操作温度 / 储存温度 / 湿度	0 to 40°C/-40 to 75°C/20 to 80%RH	
尺寸 (宽 x 高 x 深), mm	430 x 133 x 500	
重量	36kg	41kg

标准配件

Power Cable (10A)*1; Power Cable (16A)*1; Fuse*1; 1101 Hipot Output Lead - Alligator Clip*3; 1137 Ground Bond Output Lead - Alligator Clip (40A)*1; 1138 Ground Bond Return Lead - Alligator Clip (40A); 1224 USB Cable*1; 1402 Rack Mount Kit for 3U Instrument (with handle)*2; 1505 Interlock Disable Key*1; 1905 Touch Current Testing Fixture Socket*1; Signal Cable*1

产品规格如有变更恕不另行通知

- For Leakage Current: if the final measured signal is > 5.3mA, then the maximum composite signal can be measured is 28Vpeak. If the final measured signal is \leq 5.3mA, then the maximum composite signal can be measured is 12Vpeak. For Leakage Voltage: if the final measured signal is > 8V, then the maximum composite signal can be measured is 28Vpeak. If the final measured signal is \leq 8V, then the maximum composite signal can be measured is 12Vpeak.
- When current > 5.3mA, the accuracy is \pm (5% of reading).
- AC cutoff frequency for High Pass Filter is 15Hz on AC only mode.
- AC cutoff frequency for Low Pass Filter is 15Hz on DC only mode.
- When current > 5.3mA & 15Hz < f < 100kHz, the accuracy is \pm (10% of reading + 2 counts).
- When voltage > 8V, the accuracy is \pm (5% of reading).
- When voltage > 8V & 15Hz < f < 100kHz, the accuracy is \pm (10% of reading + 2 counts).
- Only one interface can be selected among RS232 & USB, GPIB & Ethernet interface card.

产品型号

- ESA-140A Electrical Safety Compliance Analyzer
- ESA-150A Electrical Safety Compliance Analyzer (500VA)

选购功能

- OPT.109 Replace RS232 Interface by GPIB Interface
- OPT.769 AC Source (500VA)
- OPT.790 IR Output 6kV
- OPT.7020 MD 1k ohm (non-inductive resistor)
- OPT.7021 MD NFPA99 Figure A.8.4.1.3.3
- OPT.7022 MD IEC60974
- OPT.7023 MD IEC60598-1
- OPT.7024 MD NFPA99 Figure A.4.3.3.1.3b
- OPT.7025 MD NFPA99 Figure A.4.3.3.1.3a
- OPT.7027 MD 2k ohm (non-inductive resistor)
- OPT.7030 External HV (P-G/S-G/P-S), Touch Current Measurement (AC/DC/AC + DC) & Cold Resistance Function
- 6600 Series Programmable AC Power Source (6605, 6610, 6620, 6630, 6650)
- 6700 Series Programmable AC Power Source (6705, 6710, 6720, 6730, 6740)

选购配件

- 1929 远端控制盒 (含 LED 显示)
- 1933 点检治具盒
- 1950 TCT 点检治具盒

Note: OPT.7020 to OPT.7027 are mutually exclusive, only one Option can be selected.