

ESA601

Electrical Safety Analyzer



ESA601 Electrical Safety Analyzer tests laboratory and hospital equipment to both US and international standards. Users simply flip a switch to change between AAMI or IEC electrical safety testing load. The US version includes overlays in AAMI or IEC nomenclature so technicians use the terms that are most familiar to them. Multiple language overlays, outlets, and power cords are available for convenient use in many countries.

Ten applied part connections allow for lead-to-ground (patient), lead-to-lead (patient auxiliary), and lead isolation (mains on applied part) leakage testing of equipment with multiple applied parts.

Designed for on-the-go testing, the portable analyzer is lightweight and compact and comes with a sturdy handle for easy carrying.

For an automated solution, Fluke Biomedical's Ansur software plug-in for the ESA601 allows technicians to use a PC to run autosequences, document results, and print reports.



N10140



Key features

- Selectable AAMI or IEC test loads
- Ten applied parts-lead connectors
- 90 V (min) to 264 V (max) autoswitching power supply
- Dual-lead leakage and dual-lead voltage tests
- Easy-to-read display
- Compact and portable
- Ansur plug-in software available to automate testing and document results
- Multiple outlets and power cords for compatibility in multiple countries
- Overlays in English, German, French, and Italian
- Overlay for USA version with either IEC or AAMI nomenclature
- RS-232 serial port for PC control and printing

Specifications

Power	
Mains power operating range	90 min to 264 max V ac (47 Hz to 63 Hz), autoswitching
Power ratings	16 A at 264 V max
Mains inlet	
Mains inlet	The instrument uses a standard IEC 60320-1/C20 mains inlet rated at 16 A and 250 V for class-1 equipment in cold conditions.

Product comparison chart

Model	175	180	232D	ESA620
Test modes	Manual	Manual	Manual	Manual
	–	–	–	Automated with Ansur
	–	–	–	–
Test loads	AAMI	AAMI	AAMI	AAMI
	–	–	–	IEC60601-1
	–	–	–	IEC61010
PE test current	10 mA dc	10 mA dc	10 mA dc	200 mA ac 25 mA ac
20A device testing	No	Yes	No	Yes
ECG waveforms	no	No	Yes	Yes

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Specifications

Voltage measurements	
Range (mains voltage)	90 V to 264 V true-rms
Range (accessible voltage)	0 V to 264 V true-rms
Accuracy	± 2 % of reading ± 2 V dc
Earth-resistance measurements	
Range	0 Ω to 1.999 Ω
Accuracy	± 2 % of reading ± 5 mΩ
Current source amplitude	1 A dc (± 10 %)
Insulation measurements	
Range	0.5 M to 100 MΩ
Accuracy	0.5 MΩ to 20 MΩ, ± 2 % of reading, ± 200 kΩ; above 20 MΩ, ± 5 % of reading, ± 200 kΩ
Voltage source amplitude	500 V dc (± 10 %)
VDE differential current	
Range	10 μA to 10000 μA
Accuracy	± 2 % of full scale
Leakage-current measurements	
Measurement range	0 μA to 8000 μA true-rms
Accuracy	± 1 % of reading (± 2 μA) @ dc and 25 Hz to 100 Hz;* ± 2.5 % of reading (± 2 μA) 1 kHz to 200 kHz (full-scale input)*† * Full scale input † Accuracy of mains-on-applied-part leakage currents: ± 2 % of reading ± 6 μA Frequency response: DC to 1 MHz (-3 dB)
Crest factor	< 3
Input impedance	Per figure 15 of IEC601-1 or AAMI ES 1
Environmental specs	
Operating temperature	10 °C to 40 °C (50 °F to 104 °F)
Storage temperature	-25 °C to 50 °C (-13 °F to 122 °F)
Maximum humidity	80 % relative humidity up to 31 °C (88 °F), decreasing linearly to 50 % relative humidity at 40 °C (104 °F)
Dimensions (LxWxH)	24.0 cm x 21.1 cm x 7.6 cm (9.8 in x 8.2 in x 3.0 in)
Weight	2.4 kg (5.2 lb)

Model	ESA601	ESA601 Pro SeriesXL	medTester 5000C
Test modes	Manual	Automatic	Automatic
	Automated with Ansur	Stepwise	Manual
	—	Manual	—
Test loads	AAMI	AAMI	AAMI
	IEC60601	IEC60601	—
	—	IEC61010	—
PE test current	1 A dc	1 A ac 10 A ac 25 A ac	100 mA dc
20A device testing	No	No	Yes
ECG waveforms	No	Yes	Yes

Optional accessories

2556755 Ansur ESA601 Plug-in
2004175 Alligator Clamp
2391669 Banana/ECG Adapter
2248899 Printer, Seiko DPU-414-30B (with choice of 120 V power supply, p/n 2235375; or 220 V power supply p/n 2235382)
2185787 North American 220 V Adapter Kit
2238659 Interface Cable (RS-232; male DB9 to female DB9)

Included accessories

2388919 User Manual and Ansur ESA601 Plug-in Demo Software on CD
2243822 Getting Started Guide
2248650 Soft-sided Carrying Case
2391738 Red Lead
2391723 Black Lead
2391714 Alligator/Banana Adapters (five each)

Ordering information

2249883 ESA601-AUS (ESA601 Electrical Safety Analyzer with Australian outlet, Australian line cord, and English 1 overlay)
2249909 ESA601-DEU (ESA601 Electrical Safety Analyzer with Schuko outlet, Schuko line cord, and German overlay)
2249927 ESA601-FRA (ESA601 Electrical Safety Analyzer with Schuko outlet, Schuko line cord, and French overlay)
2249948 ESA601-ITAL (ESA601 Electrical Safety Analyzer with Schuko outlet, Schuko line cord, and Italian overlay)
2434154 ESA601-ISR (ESA601 Electrical Safety Analyzer with Israeli outlet, Israeli line cord, and English 1 overlay)
2404834 ESA601-SHK (ESA601 Electrical Safety Analyzer with Schuko outlet, Schuko line cord, and English 1 overlay)
2249966 ESA601-UK (ESA601 Electrical Safety Analyzer with UK outlet, UK line cord, and English 1 overlay)
2249982 ESA601-USA/IEC (ESA601 Electrical Safety Analyzer with US outlet, US line cord, and English 1 overlay utilizing IEC nomenclature)
2404852 ESA601-USA (ESA601 Electrical Safety Analyzer with US outlet, US line cord, and English 2 overlay utilizing AAMI [NFPA99] nomenclature)

Note: All ESA601 models have the same testing abilities.