ES601

Automated Electrical Safety Analyzer

ES601 Plus — a new generation of system connectivity. Unprecedented Ease of Use — the large, graphical touch screen display provides excellent visibility with a full QWERTY keyboard and numeric keypad for data input.

ES601pc Companion Software - Unleash the full potential of your ES601Plus with our ES601pc Companion Software. Simply install ES601pc and you're ready to customize your ES601Plus to handle all your automated testing.

Included as a Standard Accessory with your Safety Analyzer, ES601pc allows you to view and print Test Reports and to customize all aspects of test automation, including Safety, ECG, Tester and PM Checklist procedures.

ES601Plus

Features:

- **Automated & Manual Electrical Safety Testing per AAMI/ANSI ES-1, IEC 60601 and IEC 62353, and VDE 751 standards**
- **Integrated ECG & Arrhythmia Simulator**
- **Automated Testing Sequences for defibrillators, infusion devices, patient monitors, and more...**
- **All Autosequences and Checklists are 100% editable for total procedural customization**
- **Internal test record storage**
- **Automatic "flagging" of test results that are outside of pre-established test limits**
- **Prints test result reports & inspection stickers**
- **Reduces paperwork, eliminates handwritten records, standardizes medical device testing**
- **Increases quality and accuracy**
- **Increases throughput – saves more than 50% over manual testing & hand-written records**

innovation by design

ES601 – Performance Specifications

Electrical Safety Testing Standards:
IEC60601
AAMI-ES1
VDE-0751
IEC62353
EC601-BAT (IEC60601 for battery-powered medical device)
AAMI-BAT (AAMI-ES1 for battery-powered medical device)
VDE-BAT (VDE-0751 for battery-powered medical device)
IEC353-BAT (IEC62353 for battery-powered medical device)
IEC61010

Automated Testing:
By Safety AutoSequence
By ECG AutoSequence
By General Inspection
By Tester AutoSequence
By Test Procedure
By Device ID (Control Number) Search

Manual Mode Safety Tests:
Line Voltage
Load Current
Insulation Resistance
Protective Earth
Leakage Current

Voltage Measurement:
Range: 0.0 to 300.0 VAC
Accuracy: DC to 100Hz ±1% of reading ±1LSD

Load Current
Range: 0 - 20.00 amps AC
Accuracy: ±2% of reading ±1LSD

Insulation Resistance:
Range: 0.5 to 999.9 megohms
Accuracy: R ≤ 100MΩ, ±2% of reading ±1LSD

Protective Earth Resistance:
Test Modes: 2 to 25A AC; or ±1A DC
Range/Accuracy (AC mode): 0.001 to 0.200 ohms / ±1%
0.200 to 2.000 ohms / ±5%
Range/Accuracy (DC mode): 0.001 to 3.000 ohms / ±1%

Leakage Current:
Standards: IEC60601-1, AAMI-ES1:1996, VDE-0751, IEC62353, IEC61010
Range: 0 to 14,000 uA RMS / 0 to 25,000 uA DC
Method: True RMS reading
Accuracy: DC & 25Hz-200kHz - ±1% of reading ±2LSD
200kHz-1MHz - ±4% of reading ±3LSD
Mains on Applied Parts voltage is 110% of AC supply for IEC60601 tests,or 100% of AC supply for other safety standards.

ECG Simulator:
Performance Waveforms
DC Pulse: 4 seconds
Square Wave: 2 Hz
Triangle Wave: 2 Hz
Havertriangle Pulse: 10, 25, 40, 100 and 200 msec, @ 60 BPM
Sine Wave: 0.5, 10, 20, 40, 50, 60, 70 and 100 Hz
Normal Sinus Rhythm: 30, 60, 90, 120, 150, 180, 240 and 300 BPM

Arrhythmia Waveforms
Second Degree A-V Block (BLK II)
Premature Atrial Contraction (PAC)
Right Bundle Branch Block (RBBB)
Premature Ventricular Contraction (PVC)
R-on-T PVC
Run of 5 PVC
Multifocal PVC
Bigeminy

Defibrillator/AED Test Waveforms:
Atrial Fibrillation (AFIB)
Asystole
Supraventricular Tachycardia (SVT)
Polymorphic VTach @ 140 BPM (PVT140)
Monomorphic VTach @ 160 BPM (PVT160)
Ventricular Fibrillation (VFIB)
Missed beat @ 80, 120 BPM

Output Amplitude:
Selectable: 1mV, 2mV, or 0.5 mV on Lead ll
Accuracy: - Rate: ±0.2%
- Amplitude: ±2%

User Interface:
Display
Graphic LCD 4.53" x 3.40" (11.5 cm x 86 cm)
Monochrome backlit
320 x 240 pixel graphics
53 character x 30 lines text

Keypad: Touch screen

Audio Indicator: Single-frequency piezoelectric

Data Capacity:
176 Test Records (test data)
3,072 PM Test Data Items
18,432 Equipment Records
500 PM Test Procedures
24 Safety Test Autosequences
6 ECG Test Autosequences
18 General Inspections
12 Pulse Oximeter Tester AutoSequences
12 IV Pump Tester AutoSequences
24 Defibrillator Tester AutoSequences
60 AutoSequences for user-defined Testers

Printer Port Data Output: DB25F, Centronix standard

RS-232 Port Data Output: DB9F, 9600 baud, N, 8, 1

USB Data Transfer/Capture:
Hardware Interface - USB Device
Protocol - USB 2.0 compliant, 1 Mbit/sec

Ethernet Data Transfer/Capture
Hardware Interface - RJ-45
Protocol - 10baseT, 10 Mbits/sec, maximum

Keyboard and Barcode Scanner Ports:
RS-232 barcode scanner
PS/2 keyboard or PS/2 barcode scanner

Equipment Technical Specifications:
Electrical-Region Specific:115VAC(±/- 10%), 60 Hz, 16A
230VAC(±/- 10%), 50 Hz, 13A

Environment for Use:
15 to 40 °C, 10% to 90% RH, Altitude: 2000m max.,
Indoor use only, Category II

Dimensions:
9" (23 cm) W x 9" (23 cm) D x 10" (25 cm) H

Weight:
12 lbs (5.4 kg) Standard / 17 lbs (7.7 kg) with PETM option

All specifications subject to change without notice.

DATREND Systems Inc.
130 - 4020 Viking Way, Richmond BC, Canada V6V 2L4
Phone: 604.291.7747 • Fax: 604.294.2355
Toll-free (North America only): 800.667.6557
Email: customerservice@datrend.com