

# vPad-Rugged 2™

vPad-Rugged 2 is much more than an Electrical Safety Analyzer - it's the heart of your Preventive Maintenance process. Using one of our CMMS Interface Apps, work orders can be downloaded at the start of the day. Automated Preventive Maintenance routines ensure that PMs are consistently carried out per OEM requirements. Completed PM records are uploaded to your CMMS to automate closure of open work orders

## Key features:

- Tests to NFPA 99, AAMI-ES1, IEC60601 and IEC62353 standards
- Field upgradeable by installation of optional Apps
- Built-in wireless communication enables transfer of data from remote sites to corporate CMMS systems
- Can be configured to retrieve test data from non-Datrend Instruments



Innovation by design

For more information please contact your local Datrend distributor or direct at [sales@datrend.com](mailto:sales@datrend.com)

**Electrical Safety Testing Standards**

NFPA 99  
IEC 62353  
IEC 60601  
AAMI-ES1

**Safety Tests**

Mains Voltage  
External (point-to-point) Voltage  
External (point-to-point) Micropotential  
Equipment Load Current  
Equipment Power Consumption  
Protective Earth Resistance  
External (point-to-point) Resistance  
Equipment Leakage Current  
Applied Part Leakage  
Insulation Resistance

**Instrument Specifications**

**Voltage Measurement**

Mains voltage  
Range..... 90 to 264 V rms  
Accuracy .....±(2 % of reading + 0.2 V)  
External (point-to-point) voltage  
Range..... 0 to 300 V rms  
Accuracy .....±(1 % FS + 0.2 V)  
External (point-to-point) micropotential  
Ranges..... 0 to 199.9 mV rms  
200 to 1,999 mV rms  
2,000 to 19,999 mV rms  
Accuracy .....±(1 % of reading + 1 mV)

**Load Current Measurement**

Ranges ..... 0 to 1.999 A ac rms  
2.00 to 19.99 A ac rms  
Accuracy ..... ±(2 % reading + 0.2A)  
Duty cycle ..... 0 A to 10 A, continuous  
10 A to 15 A, 7 min. on/3 min. off  
15A to 20 A, 5 min. on/5 min. off

**Power Measurement**

Range ..... 0 to 2400 watts  
Accuracy .....±(5 % reading + 5W)

**Earth Resistance Measurement**

Modes ..... Four-terminal, fully isolated  
Test Current .....1A pulsed, 0.2A rms  
Range ..... 0.000 to 2.000 Ω  
Accuracy .....±(1 % of reading + 0.02 Ω)

**Insulation Resistance Measurement**

Ranges..... Test Voltage: 500V and 250V  
0.5 to 4.9 MΩ  
5 to 49 MΩ  
50 to 999.9 MΩ  
Test Voltage: 100V and 50V  
0.1 to 0.9 MΩ  
1 to 9.9 MΩ  
10 to 999.9 MΩ  
Range Selection..... Automatic  
Accuracy  
Test Voltage: 500V and 250V  
5 MΩ Range..... ±(1 % of reading + 0.1 MΩ)  
50 MΩ Range..... ±(2 % of reading + 0.2 MΩ)  
50 to 500 MΩ..... ±(5 % of reading + 0.2 MΩ)  
Test Voltage: 100V and 50V  
1 MΩ Range..... ±(1 % of reading + 0.1 MΩ)  
10 MΩ Range..... ±(2 % of reading + 0.2 MΩ)  
10 to 100 MΩ..... ±(5 % of reading + 0.2 MΩ)  
Test Voltage  
Selections.....500V, 250V, 100V or 50V  
Accuracy..... ±5 % for 0 to 1 mA load  
Maximum load capacitance..... 1 µF

**Equipment and Applied Part Leakage Tests (vPad-623 app)**

Measurement..... True RMS  
Method..... Direct, Alternative or Differential method  
Patient Load..... Per IEC 62353  
Functional Group Selections..... AP1; AP1 and AP2; AP3 and AP4; AP1 to AP3; AP1 to AP4; AP5 to AP10; AP1 to AP10

**Chassis and Lead Leakage Tests (vPad-ES app)**

Measurement..... AC+DC (True RMS)  
AC only  
DC only  
Patient Load Selections..... IEC 60601 and AAMI-ES1

**Leakage Current Measurement**

Crest Factor..... ≤ 3  
Ranges..... Direct and Alternative Methods  
0.0 to 199.9 µA  
200 to 1,999 µA  
2,000 to 19,999 µA  
Differential Method  
50.0 to 199.0 µA  
200 to 1,999 µA  
2,000 to 19,999 µA

**Accuracy**

Direct and Alternative Methods  
DC to 1 kHz..... ±(1 % of reading + 1 µA)  
1 to 100 kHz..... ±(2 % of reading + 1 µA)  
100 kHz to 1 MHz..... ±(5 % of reading + 1 µA)  
Differential Method  
50.0 to 20,000 µA..... ±(5 % of reading + 20 µA)  
Isolation test voltage..... 100 % ±5 % of AC supply

**ECG Simulator**

Output  
Amplitude..... 1 mV QRS into Lead II  
Impedance..... 500 ohms  
Accuracy  
Frequency..... ±1 %  
Amplitude..... ±2 %  
Waveforms  
ECG Complex..... 30, 60, 120, 180, 240 and 300 BPM  
Square wave..... 0.125 Hz, 2 Hz and 1 kHz  
Pulse wave..... 63 msec, 30PPM and 60PPM  
Triangle wave..... 2 Hz  
Sine wave..... 0.5, 10, 40, 50, 60 and 100 Hz  
CMRR tests..... SQR 2Hz & 1 kHz, PUL 4 sec, SIN 0.5, 50 & 60Hz  
Arrhythmias..... VFIB, AFIB, SVT, VTACH, PVC and ASYS

**User Interface**

Display..... 10.1" colour LCD (1280 x 800)  
User Controls..... Capacitive touchscreen  
Wired Connectivity..... Micro USB 2.0 Type B  
XBUS Interface (RJ11-6)  
Wireless Connectivity..... 802.11 b/g/n  
Bluetooth 2.1+ EDR  
Memory Internal..... 16GB Maximum †  
Memory Expansion..... 16GB to 32GB Micro SD Card (optional)  
Modes of Operation..... Manual (standard)  
Automatic (accessory option)

**Dimensions**

Base unit..... 14.3 x 11.1 x 4.7 in. (36 x 28 x 12 cm)  
Tablet PC..... 10.5 x 6.7 x 0.5 in. (27 x 17 x 1.3 cm)  
(detachable from Base Unit)

**Weight**

9.0 lb (4.1 kg)

*All specifications subject to change without notice.*



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