

A NEW GENERATION

HVA90 - 4 in 1 Universal High Voltage Test System

It is well known that DC "proof" (or hipot) testing of aged extruded cable such as XLPE and EPR is potentially damaging to the cable insulation, causing premature failure of the cable under service conditions. Space charges that develop during DC testing present potential safety hazards to operators and may damage the cable or attached equipment if not discharged correctly.

In addition, DC testing has been found to be ineffective in detecting all but the most serious defects in cables.

Acceptance or maintenance hipot/proof testing using VLF high voltage sinusoidal AC allows the operator to efficiently detect serious cable insulation defects, before they result in an in-service failure, without affecting those healthy sections of the cable that still have remaining service life.

Sinusoidal VLF testing can support effective dielectric diagnostic measurements that are not possible with DC voltages.

• 90kV • VLF • DC • Jacket/Sheath • Fault Conditioning

SAFETY FEATURES

- Short circuit protected
- 50Hz 12kV feedback protection
- Status display of all important safety functions and messages
- Safe, easy to use operation with emergency off and key switch lock-out
- Fully integrated discharged circuit to safely ground the DUT (Device Under Test) after testing
- Zero start interlock
- Zero voltage switching



OPERATIONAL FEATURES

- The smallest, lightest, most advanced universal high voltage test instrument available, ideally suited for a variety of applications.
- VLF (0.1Hz), DC (\pm), Cable Fault Conditioning (Burning), and Sheath/Jacket Testing modes all included.
- VLF: the proven and accepted replacement for the traditional DC Hipot or "proof" test for solid dielectric cables such as XLPE and EPR.
- Fully automatic or manual cable test sequences complying with International Standards/Guides such as IEEE 400.2, VDE 0276, CENELEC, HD620 S1, NEN 3620, SANS 10198 and IEC 60060-3.
- Meets all your cable testing requirements.
- True symmetrical sinusoidal, load independent, output waveform across the full load range.
- Real-time Display of actual output wave form.
- Easy to use, ergonomic, menu guided, large backlit user interface.
- Rugged, one piece portability.
- Large output load capability (up to 10 μ F)
- Automatic and integrated load capacitance measurement with optimum frequency selection.
- Storage of test results for later retrieval or download to a PC/Laptop.
- No oil or arcing contacts that require routine maintenance.
- Short circuit protected with active arc management regulation that avoids the tripping of conventional HV test equipment when a dielectric failure occurs.

APPLICATIONS

- Cables: XLPE, PE, EPR, PILC etc.
- Rotating Machines (IEEE 433)
- Capacitors
- Insulators
- Switchgear
- Bushings
- Transformers

DESIGN

The HVA90 is the most advanced HV test system available, it is also the lightest, most compact instrument of its type on the

market. The HVA90 has the highest power to weight ratio of any comparable unit available.

- There is no need to carry two pieces of equipment around and then interconnect them!
- Apart from the variable frequency VLF output, the operator can also select dual polarity DC and cable jacket or sheath testing output modes.
- The applied test voltage, current, capacitance, resistance and time are displayed and recorded.
- The instrument is easily programmable allowing the operator to setup or select test sequences in either automatic or manual mode.
- The HVA90 is capable of testing 1 μ F (Approx. 3300m / 11,000 ft of cable) at 0.1Hz and 64kV rms. The frequency of the output can also be reduced allowing even larger capacitance loads to be

tested. At 0.01Hz, approx. 33,000m / 100,000ft of cable can be tested.

- To assist the operator, the instrument will automatically calculate the optimum frequency to be selected for larger loads.
- The load independent, symmetrical output waveform avoids the potentially destructive space charge effects caused by DC polarization that occurs in aged extruded cables such as XLPE / PE / EPR, causing them to fail prematurely when exposed to conventional high voltage DC or from a test instrument with large non-symmetrical output waveforms.
- Should a breakdown occur during testing, the actual voltage at which it occurred is displayed and recorded.
- If cable burning (fault conditioning) mode is activated, the fault resistance can be conditioned to allow easier and less stressful fault location techniques to be applied.
- The results are stored in the instrument's onboard memory allowing easy retrieval and download to a PC/Laptop for review and analysis.

TECHNICAL DATA

Input Voltage	210-265V 50Hz (3.0 kVA)
Output Voltage	Sinusoidal: 0-90 kV peak, Symmetrical, 64kV rms DC: \pm 0-90 kV Squarewave: 90kV Accuracy \pm 1% Resolution 0,1kV
Output Current	0-60mA (Resolution 1 μ A), accuracy \pm 1%
Resistance Range	0.1 M Ω ...5 G Ω
Output Frequency	0.01...0.1Hz in steps of 0.01Hz (default 0.1Hz) – auto frequency selection
Output Load	1.0 μ F @ 0.1Hz @ 64kV RMS (Approx 3,300m / 11,000ft of cable)* 1,2 μ F @ 0.1Hz @ 57kV RMS (Approx 3,600m / 12,000ft of cable)* 10 μ F @ 0.01 Hz @ 64kV RMS (Approx 33,000m / 100,000ft of cable)* 10 μ F Maximum Capacitance * Based on a typical cable: 100pF/ft or 300pF/m
Output Modes	AC (VLF) Symmetrical and load independent across full range DC (plus or negative polarity) Burn / Fault Condition or Fault Trip Mode Jacket / Sheath Testing
Protection	50 and 60Hz and RMS Voltage 12kV Feedback Protection Input surge arrestors (use only voltage regulated generators)
Memory	Minimum 50 Test Records Stored in non-volatile built in memory
Metering	Voltage and Current (True RMS and/or peak), Capacitance, Resistance, Time, Flashover Voltage
Duty	Continuous - no thermal limitation for operating time
HV Cable	7,5m with end clamps (other options available on request)
Computer Interface	RS232 connection (Software Included)
Temperature	Storage: -25°C to +70°C Operating: -5°C to +45°C
Dimensions (LxWxH)	545 x 445 x 610mm
Weight	127 kg

ORDER CODES

PRODUCT DESCRIPTION PART NO.

*Standard HVA 90 SH 0209

OPTIONAL ADD-ONS

TD60 Tan Delta measurement system with adapter SH 0206 GH 0614

PD90 Partial Discharge system SH 0222

Transport case with four wheels VKR 0012

Vacuum bottle test firmware upgrade (DC) GH 0601

Discharge stick 120kV 2400R 7,2kJ GH 0605

(DC)

Special leads available in various voltages, lengths, and connectors

*STANDARD DELIVERY INCLUDES:

- HVA90 Test System
- 7.5m HV cable
- Earth cable
- USB memory stick
- HVA Control Centre Software
- Operating manual



HV Diagnostics
www.hvdsa.com

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