

Nº 04



FIND YOUR CABLE FAULTS BEFORE THEY OCCUR



HV Diagnostics

HVA90

**4 in 1 Universal High Voltage
Test System**

- › **VLF**
- › **DC**
- › **Jacket/Sheath**
- › **Fault Conditioning**

Operational Features

- › The smallest, lightest, most advanced universal high voltage test instrument of its type available.
- › 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 (draft).
- › 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.



Representative image

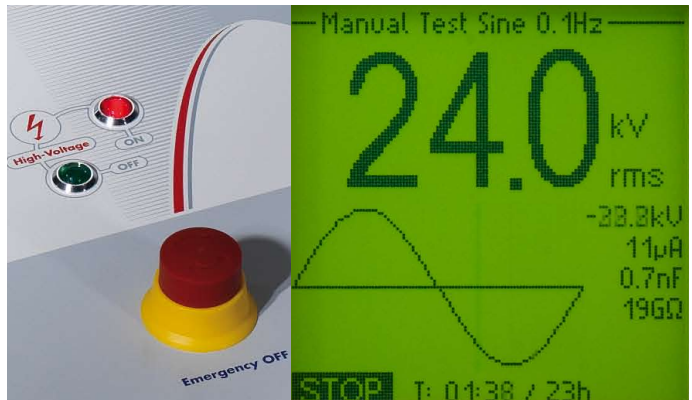
APPLICATIONS INCLUDE...

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

Features

Safety Features

- › Short circuit protected
- › 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



Background

It is well known that DC 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.

In addition, DC “proof” or hipot testing has been found to be ineffective in detecting serious defects in cables. Since this is the main objective of any hipot test, and due to the negative side effects of DC, VLF AC waveform testing is now recommended by almost all cable testing standards.

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.

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 1µF (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
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	0-40mA (Resolution 1 μ A) Accuracy \pm 1%
Resistance Range	0.1 M Ω5 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 <i>* Based on a typical cable: 100pF/ft or 300pF/m</i>
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
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)	650 x 445 x 610mm / 25,6"x17.5"x24", also as 19" version available
Weight	127 kg / 280 lbs
Part Number	Description
SH 0209	Standard HVA90
SH 0223	HVA90 as 19" version
SH 0206	TD60 Tan Delta Accessory (option)
SH 0222	PD90 Partial Discharge Accessory (option)
VKR 0004	Rugged Transport Case (option)



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