

# VLF-60

## PORTABLE HIGH-VOLTAGE VLF TEST SYSTEM



- **Efficient non-destructive VLF withstand testing according to IEEE 400.2-2013**
- **VLF sinewave, VLF squarewave, DC+ and DC- voltage waveform output**
- **Up to 10  $\mu$ F load capacitance testing**
- **Cable sheath testing and fault pinpointing<sup>1</sup>**
- **Manual & automatic test cycles**
- **Colour LCD with touch screen control**
- **Portable and easy-maintenance design**
- **Automatic discharge system**

Portable high-voltage very low frequency test system VLF-60 has a multitude of applications in technical condition assessment and residual life forecasting of high-voltage equipment and cable networks. A list of specific uses includes, without limitation, the following:

- **VLF withstand testing** of cables with polymeric (PE, XLPE, TRXLPE, EPR, etc.) insulation for quality assurance during installation, acceptance and maintenance according to IEEE 400.2-2013.
- **DC hipot testing** of various electrical equipment (generators, transformers, switchgear, etc.).
- **Cable sheath testing and fault pinpointing<sup>1</sup>.**
- **Vacuum bottle testing.**

VLF-60 can operate in an automatic mode where, having entered the rated voltage of the cable, all test parameters are selected and results are interpreted automatically according to IEEE 400.2-2013, and a manual mode where an operator can tune every aspect of the test and save programmed test sequences.

Powered by an advanced operating software and equipped with a large colour display with touch technology, VLF-60 is a unique device in its class boasting a user-friendly interface and an intuitive control.

The system features a variety of safety mechanisms – a built-in automatic discharge device, residual voltage monitoring and power keylock switch. Along with the portable and easy-maintenance design, VLF-60 is a perfect and versatile solution for both laboratory and field VLF testing.

<sup>1</sup> In this mode the system acts as a pulse generator only. A suitable signal receiver (not included) is required for fault pinpointing.

<b>Output voltage</b>	Setting and indication ranges: <ul style="list-style-type: none"> <li>▪ Sinewave</li> <li>▪ Bi-polar pulse</li> <li>▪ DC+</li> <li>▪ DC-</li> <li>▪ Vacuum bottle test</li> <li>▪ Sheath test</li> <li>▪ Sheath fault location</li> </ul>	0.1 ... 62 kV <sub>PEAK</sub> (44 kV <sub>RMS</sub> ) 0.1 ... 62 kV <sub>PEAK</sub> + (0.1 ... 60) kV minus (0.1 ... 60) kV minus (0.1 ... 60) kV minus (0.1 ... 10) kV + (0.1 ... 10) kV
	Setting and indication resolution	0.1 kV
	Relative indication accuracy	± [2 % + 2 dgt* ]
	Indication	Real time voltage wave visualisation
<b>Output current</b>	Indication ranges: <ul style="list-style-type: none"> <li>▪ Sinewave</li> <li>▪ Bi-polar pulse</li> <li>▪ DC+</li> <li>▪ DC-</li> <li>▪ Vacuum bottle test</li> <li>▪ Sheath test</li> <li>▪ Sheath fault location</li> </ul>	0.1 ... 40 mA <sub>PEAK</sub> (26 mA <sub>RMS</sub> ) 0.1 ... 40 mA <sub>RMS</sub> 0.1 ... 40 mA minus (0.1 ... 40) mA minus (1 ... 1000) µA minus (0.1 ... 40) mA + 0.1 ... 40 mA
	Indication resolution	1 µA, 0.1 mA
	Relative indication accuracy	± [2 % + 2 dgt]
	<b>Output frequency (sinewave, bi-polar pulse)</b>	Output frequency setting range
	Frequency selection	<ul style="list-style-type: none"> <li>▪ Automatic</li> <li>▪ Manual</li> </ul>
<b>Output power</b>	up to 1200 W	
<b>Breakdown management</b>	Burn on Arc (keep arc burning)	Insulation is burnt in the pace of a fault for the duration set in the range of 1-5 minutes
	Trip out on Arc (current limit trip)	If a flashover is detected, the test is stopped
<b>Object under test</b>	Load capacitance range**	0.1 nF ... 12 µF
	Load resistance range**	10 kΩ ... 20 GΩ
	Maximum load	<ul style="list-style-type: none"> <li>▪ 1.0 µF at 0.1 Hz, 44 kV<sub>RMS</sub> (3 km for a typical cable with capacitance 330 pF/m)</li> <li>▪ 5.0 µF at 0.02 Hz, 44 kV<sub>RMS</sub> (15 km for a typical cable with capacitance 330 pF/m)</li> <li>▪ 10.0 µF at 0.01 Hz, 44 kV<sub>RMS</sub> (30 km for a typical cable with capacitance 330 pF/m)</li> </ul>
	Duty cycle	Continuous, unlimited

<b>Metering</b>	<ul style="list-style-type: none"> <li>▪ Voltage and current (RMS and/or PEAK)</li> <li>▪ Object under test capacitance</li> <li>▪ Object under test resistance</li> <li>▪ Test time</li> </ul>	
<b>Controls and interfaces</b>	Connection interfaces	<ul style="list-style-type: none"> <li>▪ USB-A (user memory stick)</li> <li>▪ USB-B (service only)</li> <li>▪ RS-485 (service only)</li> </ul>
	Display	5.7" colour TFT, 640 × 480 px, capacitive multi-touch
	Secondary control interface	Rotary encoder with "ENTER" button
	Internal memory	10,000 test reports
<b>Safety</b>	Protective devices	<ul style="list-style-type: none"> <li>▪ Automatic internal dual discharge device</li> <li>▪ Indication of high voltage presence on the object under test</li> <li>▪ Emergency stop button</li> <li>▪ Power keylock switch</li> <li>▪ Thermal circuit breaker</li> </ul>
	Protection rating (as per EN 60529)	IP 21 (with lid closed)
<b>Power supply and consumption</b>	Mains supply voltage	110 ... 230 VAC, ± 10 %
	Mains supply frequency	50 / 60 Hz
	Power consumption	up to 1.5 kV·A
<b>Physical</b>	Dimensions, H × W × D	528 × 577 × 408 mm
	Weight	64 kg

\* *dgt* – least significant digit.

\*\* Values measured on the high AC voltage may significantly differ from the values measured by a standard low-voltage multimeter.

Specifications are subject to change without notice. Pictures are for illustration purposes only.



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