VITALDRIVE LTD

2023

Cable Fault Location Test Van
HVT-35

Larnaca, Cyprus

Technical Brochure

VITALDRIVE LTD

Holding company "EMZ"
Head office and Factory:
Aradippou Industrial and Commercial Estate,
Larnaca, Cyprus
RN HE 132211; IN 9.84

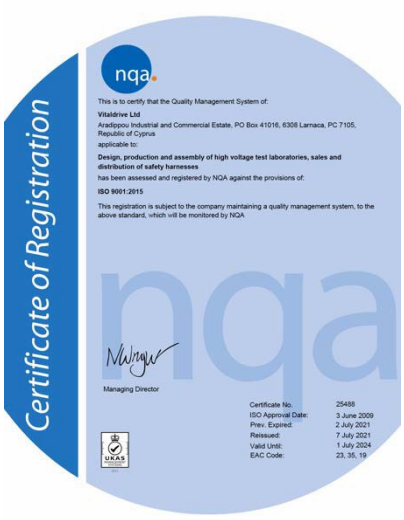
Cable Test and Fault Location Van HVT-35

The **HVT-35** is designed to perform:

- testing of electrical power cable lines with operating voltage up to 35 kV;
- determination of the location of a failure in power electrical cables rated up to 35 kV by using equipment and devices for preliminary and precise localization;

The **HVT-35** performs the following functions:

1. Very Low Frequency (VLF) AC voltage 0.1-0.02 Hz high voltage withstand test of power cables
2. Burning down defective insulation of power cables
3. Pre-locating power cable faults by the pulse echo method (TDR), the arc reflection method and the impulse current method
4. Audio frequency cable route tracing and cable depth evaluation
5. Locating power cable faults by the acoustic and inductive methods
6. Insulation resistance testing
7. Cable identification from a cable bundle
8. Cable sheath fault location



Operating conditions

The laboratory HVT-35 is manufactured in accordance with ISO9001-2015 and is designed for operation at temperatures up to + 40 ° C, relative humidity up to 80% and atmospheric pressure 630-800 mm Hg. The lower temperature point is not limited, provided that the temperature inside the laboratory is not lower than plus 1 ° C. According to the safety level, the laboratory completed - the degree of protection against external objects, ingress of solid particles and continuous splashing - IP24- IP 56.

Reliability of performance

The laboratory HVT-35 is made in accordance to ISO-9001-2015 and is certified by the manufacturer for work in hot and humid climates. Stable operation of the equipment is ensured, provided that the personnel follow the recommendations of the operating manual. The life expectancy of the laboratory equipment is 10 years. Equipment MTBF is not required. The service life between repairs is according to the Laboratory Operation Manual. The laboratory complies with the electrical safety requirements.

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Laboratory documentation

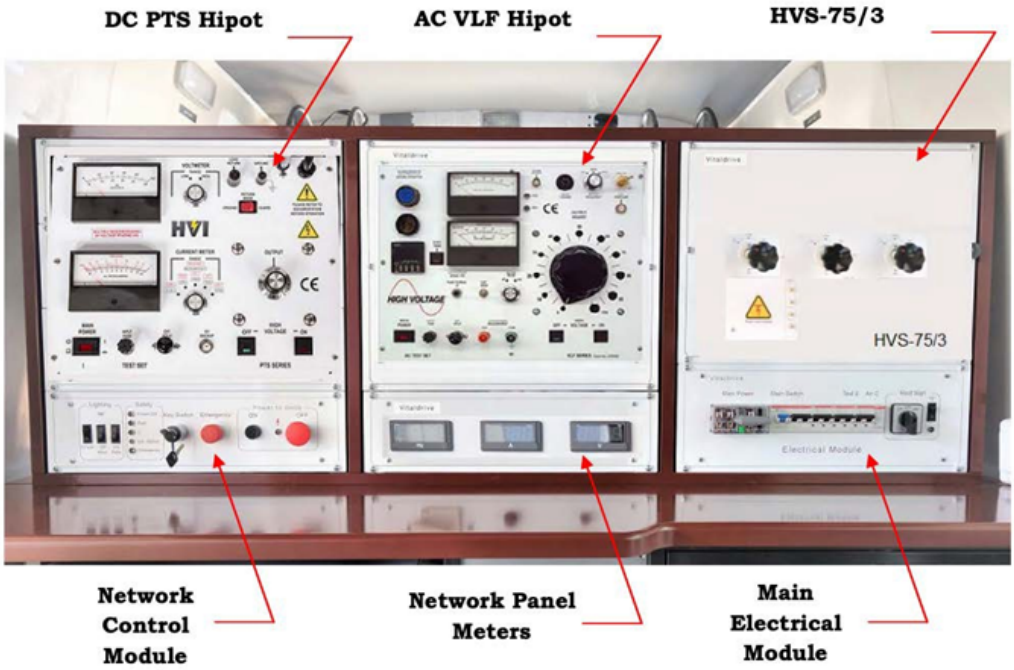
Standard delivery includes the following documentation

- Operation manual
- Booklet
- Album of electrical circuits
- Program and methodology of periodic laboratory tests
- Factory test report.
- The laboratory is provided with a car certificate; paperwork for making changes to the design of the car; certificates of verification (calibration) of all measuring instruments, certificates of conformity, certificates of type approval of measuring instruments included in the laboratory package

A. MAIN EQUIPMENT

1. Central Control Operating Unit

The Central Control Operating Unit is designed around the operator needs. Ergonomic, all tests and controls easily accessible, operator can perform with ease all the required tasks for cable testing and fault location while being in a comfortable working position.
The system integrates automatic check-safety features and monitoring of mains supply voltage is performed with over-voltage and under-voltage automatic protection features. A transparent separation wall allows the operator to have complete and continuous visibility of the technical area. The polished, practical and efficient design of the cable test and fault locating van guarantees efficient operation of all systems from every perspective.



View of Central Control Operating Unit (**image for reference*)

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CABLE HIGH VOLTAGE TEST

2. AC VLF & DC Hipot – VLF65E

A Hipot test (also called Dielectric Withstanding Voltage (DWV) test) verifies that the insulation of a product or component is sufficient to protect the operator from electrical shock. In a typical hi pot test, High Voltage is applied between a product's current-carrying conductors and its metallic shielding. The theory behind the test is that if a deliberate over-application of test voltage does not cause the insulation to break down, the product will be safe to use under normal operating conditions—hence the name, Dielectric Withstanding Voltage test.

TheVLF-65E is the latest generation of VLF AC hipots using an air-cooled, solid state design with microprocessor control. High end features include user programmable test sequences, wireless communications, data retrieval and manual or automatic load based output frequency selection. The supplied E-Link PC software offers wireless remote operation, custom report generation, and test data export to .csv.

* VLF65E View

The VLF-65E is a top performer using a air-cooled, solid state design with microprocessor control. Test programming, data retrieval, and custom PC software are intuitive and easy to learn. The unit is affordable and designed to withstand years of field use.

Technical Specifications:

Input:	100-265Vac, 50/60 Hz, 20A peak,
Outputs:	
Sinewave	0 - 65 kVac peak, resolution ±0.1kV
Square wave	0 - 65 kVac peak, resolution ±0.1kV
DC proof test	0 ± 65KVdc, resolution ±0.1kV
Sheath Test	0 ± 65KVdc, resolution ±0.1kV
Duty:	Continuous
Load Rating:	1.0µF @ 0.10 Hz @ 65kVp 10.0µF @ 0.01 Hz @ 65kVp µF rating increases at lower voltages, example: 1.4 µF @ 0.1Hz @ 47kVp
Frequency:	0.01 to 0.1Hz in 0.01Hz Increments, auto-frequency detect
Metering:	5.7" Color LCD display Voltage (kVp/kVrms): ±1% accuracy, 0.001kV resolution Current (mAp/mArms): ±1% accuracy, 0.001mA resolution Calculated: Capacitance, Resistance, Flashover Voltage, and Time to Failure
Fault Response:	Smart Fault Management – Fault "Burning"or Shutdown on Fault
Reports/Data:	Up to 50 test records can be stored in non-volatile memory or removable USB memory stick
PC Interface:	USB and XBee wireless
PC Software:	E-Link remote control and report generation software
Size & Weight	559 mm x 369 mm x 660 mm, 68 kg

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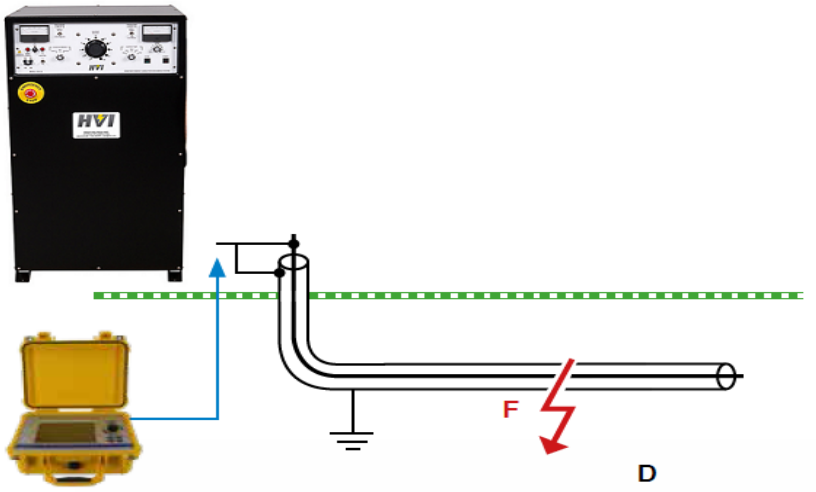
Features:

- VLF and DC output
- Programmable test sequences
- Automatic and manual control
- USB port for exporting data
- The VLF-65E meets the following specifications: IEEE 400.2, IEEE 400, IEC 60060-3, CENELEC HD 620/621, VDE DIN 0276-620/621. IEEE 433 for motors/generators.

CABLE FAULT LOCATION EQUIPMENT

3. Surge Generator, Fault Burner – CDS-3632UF

A surge generator is used to inject a high voltage DC surge into the faulty cable. By supplying a sufficiently high voltage to the faulty cable, the open-circuit fault will break down creating a high-current arc. This high current arc makes a characteristic thumping sound at the exact location of the fault. To find the location of cable fault using the thumping method, a thumper is set to thump repeatedly and then walking along the cable route to hear the thumping sound. The higher the dc voltage applied, the louder will be the resulting thump.



Surge Generator Fault Prelocation Principle

To deliver the full joules of energy possible to a fault, the capacitors within a thumper must be charged to the maxi-mum voltage. With the wrong thumper, this often results in thumping a cable at an excessive voltage, causing significant damage to insulation and accessories.

Since the applied voltage is a square function (½ CV²), if the thumper is at 2/3 voltage, only 45% of the joules are delivered to the fault. At half voltage only 25% energy is delivered, making the fault hard to hear. Either fault locating takes far longer than necessary or the crew gets impatient and turns the voltage all the way up to get the loudest bang. The fault is found but more are made. This practice can and should be avoided.

* CDS3632 Control Panel View

The CDS 3632 is a controlled energy fault locator/burner for testing and fault locating in primary cable systems. It is designed to provide constant energy at each of three different

selectable output voltages. This controlled energy feature provides full energy at each output voltage tap, allowing the user to thump at a lower voltage with a higher energy while minimizing further cable damage. The measure of a good thumper is not the maximum voltage it can discharge, but the minimum voltage still capable of delivering the full energy.

Technical Specifications:

Input:	230V, 50/60Hz, 15 amps
Output Burn:	0-9/18/36kV
Current:	280/140/70 mA
Energy:	3200J at full output on all output taps
Polarity:	Negative output
Duty:	Continuous
Repetition rate:	6 to 10s, variable
TDR interface	ARC Reflection and Current Impulse
Voltmeter:	3.5", Scaled 0-40kVdc, ±2% F.S.
Current-meter:	3.5", ±2% F.S. Ranges: 0-500uA, 0-50mA, 0-500mA
Dimensions:	635x737x1130 mm
Weight:	204 kg

Features:

- Single piece combination Hipot, Burner and Surge Generator to support Fault Location on power cables
- Constant energy at each output voltage setting
- Adjustable thump (impulse) repetition rate, from 6 to 10 seconds
- Motorized output voltage tap switch
- Zero Start high voltage interlock
- Single pulse or continuous discharge modes

4. Digital Cable Radar

A Time Domain Reflectometer (TDR) sends a short-duration low energy signal at a high repetition rate into the cable. This signal reflects back from the point of change in impedance in the cable (such as a fault). The TDR measures the time taken by the signal to reflect back from the point of change in impedance (or the point of fault). The reflections are traced on a graphical display with amplitude on y-axis and the elapsed time on x-axis. The elapsed time is directly related to the distance to the fault location. If the injected signal encounters an open circuit, it results in high amplitude upward deflection on the trace. While in case of a short- circuit fault, the trace will show a high amplitude negative deflection. This is a low voltage method known as impulse method, a fault pre-location technique suitable for locating short and open circuits as well as other faults below approximately 200 Ohms.

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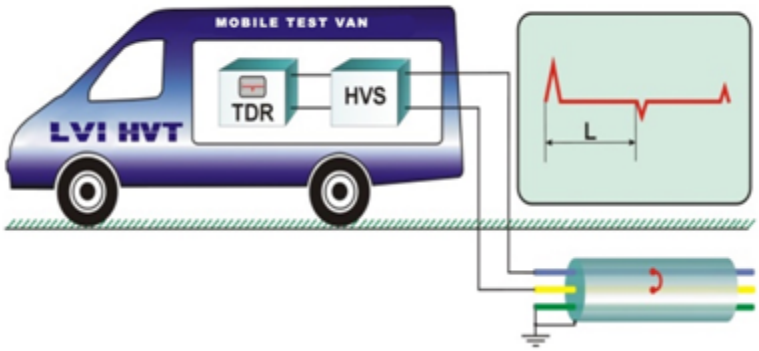
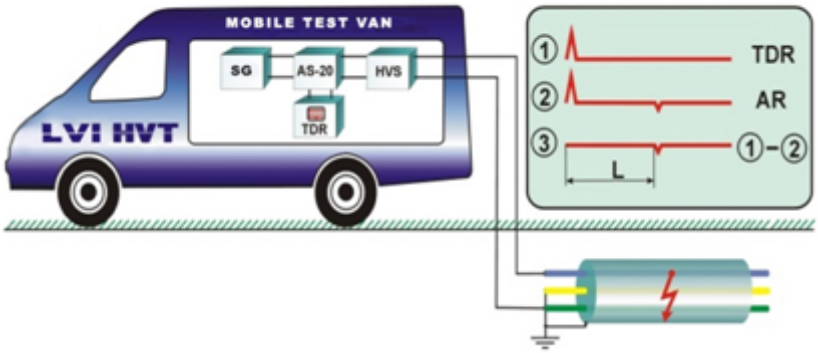


*** Impulse Method Connection Diagram**

The TDR is unable to identify high resistance ground faults or intermittent faults, where its effectiveness in finding underground cable faults is limited. To overcome this limitation the TDR is combined with the surge generator (thumper) and a filter, providing several methods of high voltage (HV) fault pre- location methods such as arc reflection and impulse current.

* TDR View



* Connection Diagram for Device AR-20 (Arc Stabilization)

The **Arc reflection** method uses the effect of reflection of the TDR pulses from the arc ignited at the location of the fault for a short time during the operation of a high-voltage surge generator. A reference trace is taken without the arc, then a real-time trace is taken during the arc recorded and compared to the reference trace. The point of divergence indicates the fault position. Arc Reflection is the most widely used high voltage method and is suitable to quickly determine the distance for high resistance and intermittent faults without using a burning down installation.

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The **Impulse Current** method is suitable for long or wet cables. In long cables, the natural damping of the cable may cause the TDR impulse to be damped off before returning to the reflectometer. The fault is ignited and the resultant transients are recorded by the reflectometer, which is acting as a transient recorder. The trace displays impulses at both the point of the fault (low impedance) and also where the surge generator is connected to the cable. The distance between the impulses is the distance to fault. The connection of the TDR with the cable is made using a special current connection device (pulse current converter). Structurally, this device is built into the surge generator.

The TDR is a time domain reflectometer designed to provide quick, effective, accurate and safe prelocation of cable faults in electrical networks. Operation of the instrument is simple with an intuitive menu system. The large color display further enhances operator comfort and aids rapid and accurate fault prelocation. The system is housed in a rugged, robust, field-proven case making it suitable for use in hostile or challenging environments.

Technical Specifications:

Input:	100-265V AC (50/60Hz),
Range:	64000 m
Pulse Amplitude:	30V
Sampling Rate:	100 Mhz
Accuracy/Resolution:	±1 m
Screen:	Touch, 640 x 480 dots, colour LCD
Storage:	>100 records
Velocity:	90 – 300 m/μs
Output impedance:	5 – 80 Ω
Menu Style:	Guided menu
Connection:	USB
Fault Location Method:	TDR, SIM/MIM, CIM and decay
Dimensions:	330 mm x 310 mm x 150 mm
Weight:	3 kg

Features:

- Single jog dial operation
- Intuitive operator friendly menu system
- Automatic recognition of impulse waveform and fault location
- Robust, rugged construction

B. ADDITIONAL EQUIPMENT

5. Super Directional Acoustic Detector S.D.A.D II

For pin-pointing of faults in buried cables the acoustic method is used to pin-point the exact fault location. The surge generator SG-2000 is used in repetitive pulsing mode. High energy pulses which are released from the SG-2000 force a voltage pulse to travel along the cable. At the fault the flashover happens. This causes a high acoustic signal that is locally audible. Depending on the pulse energy, the intensity of the acoustic signal varies. These noises are detected on the ground surface with the addition of the S.D.A.D II. The unit conveys more information about the fault location, and faster, with the addition of new microprocessor controlled electronics that provide bright, easier-to-see-and-read signals - day or night.

* Super Acoustic Detector SDAD II View

Complete Detection System includes:

1. Two earth Probe Microphones W/Wireless Transmitters
2. Two Tri-Pod's (for use on hard surfaces)
3. A-T Ballistic Impulse Detection System
4. Direction to fault indication Color Touch Screen LCD and Super Bright LED
5. Stereo Bluetooth Headphones - High quality and comfortable
6. Audio output limitation: Automatic ear protection for the operator, even if a microphone is dropped.
7. Foam lined carrying case
8. Instruction Manual & Batteries

Features:

- Next generation high voltage fault pinpointing
- Touch screen color display
- Wireless microphone
- Wireless headphones
- Full automatic operation

6. Audio Frequency Cable Tracer Set IFL-1210

The IFL-1210 cable locator set is used for the successful location of the exact track and depth of different underground networks (cables and metallic pipelines). This lightweight user friendly instrument operates at multiple active frequencies and provides passive 50/60 Hz detection services as an excellent safety feature for identifying live underground utility cables. The IFL-1210 features a digital readout of the depth reading that helps to identify service depths prior to digging.

* Cable Tracer IFL-1210

Technical Specifications:

TRANSMITTER

Operating Frequency :	200-10000 Hz
Modes of Generation :	Continuous, Intermittent, tri-band (three frequencies)
Permissible Load Resistance :	0 … ∞
Specified Output Current:	
- Continuous and tri-band	0,1 … 10 A
- Intermittent	0,1 … 15 A
Max Output Power:	120 W (continuous) / 180 W (intermittent)
- Battery Operated	180 W (continuous) / 270 W (intermittent)
- External Battery Operated	
Protection :	IP 54
Dimensions:	305 x 270 x 194 mm
Weight:	12 Kg

RECEIVER

Operating Frequency :	Active: 512, 1024, 1450, 8928, 9820 Hz Passive: 50/60 Hz, 100 Hz, 12-24 KHz
Max Depth Measurement :	Up to 10 m
Max Depth of Detection :	Up to 25 m
Max Distance of Detection :	Up to 5 Km
Continuous Operating Time:	Up to 50 h
Operating Temperature:	-40 … +60 °C
Dimensions :	720 x 110 x 150 mm
Weight :	1,7 Kg

7. Insulation Resistance Tester C.A 6550

* C.A. 6550 View

The CA6500 insulation tester with its site-proof casing is suitable to check equipment insulation during manufacturing, on-site installation work, periodic inspections and re-commissioning of installations. It complies with the most recent recommended practices while taking into account future developments. The multiple test modes mean that you can both assess the insulation in qualitative terms by non-destructive testing and use samples to investigate insulation ageing problems for preventive maintenance purposes.

Technical Specifications:

Test Voltages	**Ranges**	500V: 10 kΩ to 2 TΩ 1000V: 10 kΩ to 4 TΩ 2500V: 10 kΩ to 10 TΩ 5000V: 10 kΩ to 15 TΩ 10000V: 10 kΩ to 25 TΩ
	Fixed Test Voltages	500, 1000, 2500, 5000, 10000
	Variable Test Voltages	40V – 10000V, 3 presettable voltage

		values
	Adjustment Increment for Variable Voltages	Variable:40-10KV Step: 40V-1KV:10V 1KV-10KV:100V
	Ramp Mode	3 presettable ramps: start voltage/end voltage/duration
	Ramp Configuration Range	40-1100V / 500-10000V
	Step Mode	Up to 10 steps (value and duration configurable for each step)
Voltage Measurement After Test		AC:0-2500V / DC: 0-4000V
Capacitance Measurement		0.001-9.999 µF / 10.00-49.99 µF
Leakage Current Measurement		0 – 8 mA
Discharge After Test		Yes / Automatic
Additional Test Stop Modes	**I-limit**	Programmable: 0.2-5mA
	Early-Break	di/dt
	Timer	Up to 99 minutes 59 seconds
Burning Mode	**Burning**	Constant testing
Ratio Calculation		PI, DAR, DD
Calculation of R at ref. T°		Yes
Measurement Display Filter		3 filters with 3 possible time-constant
Graphs on Display		R(t)+u(t);i(t);i(u)
Storage		256 recordings, 80000 points: R, U, I and date
Communication		Optically isolated port for USB and RS232 links
PC Software		Dataview
Power Supply		NiMH rechargeable batteries, 8x 1.2 V / 4,000 mAh, charging by external voltage: 90-260 V 50/60 Hz
Battery Charging		Battery charging possible while performing insulation measurements
Electrical Safety		1000 V CAT IV – IEC 61010-1 and IEC 61557
EMC, Mechanical Protection, Altitude		EN 61326-1, IP54, 3000m
Dimensions		340x300x200 mm (LxWxH)
Weight		6.2 kg

8. Cable Identification Live

* CABLE ID View

Easily identify one cable from another. Whether you are in the trench or out of the trench, transformer to transformer, house to transformer, pole to transformer, or ground rod to ground rod you will be able to diagnose the situation quickly.

- Primary or Secondary
- In or Out of the Trench
- Tx-Former to Tx-Former
- Tx-Former to Meter
- Engerized or Grounded
- Secondary, jacketed primary, or street light.
- Simple & Easy to Use

9. Cable Sheath Fault Locator

* Sheath Fault Locator View

The cable sheath fault locator is used to locate ground and sheath faults in underground cables.

- Purpose-built directional fault finder
- Locates insulation faults up to 2 megohms
- Reference readout to determine fault location
- Durable, lightweight powder-coated aluminum frame
- Weather proof membrane buttons

Technical Specifications:

FT-103 Transmitter	
Operating Frequencies:	Direct Fault Finding: 797 Hz - "dFF" displayed Path locating: 128 Hz, 1 kHz, 8 kHz, 33kHz, 93 kHz Direct Connect: 128 Hz, 1 kHz, 8 kHz, 33kHz, 93 kHz Inductive Clamp: 8 kHz, 33 kHz, 93 kHz Broadcast Inductive: 33 kHz, 93 kHz
Load Range:	5 Ohm to 2 MOhm
Output Power:	Up to 3 Watts
Output Voltage:	5 – 600 Volts
Power Supply:	8 x C-Cell batteries
Dimensions:	216 x 147 x 64 mm
FR-30 A – Frame Receiver:	
Fault Finding Depth:	Up to 6m
Display:	LCD
Power Supply:	6 x AA batteries
Dimensions:	770 x 772 x 38 mm

10. Digital Multimeter 83V

The digital multimeter 83V has improved measurement functions, trouble-shooting features, resolution and accuracy to solve more problems on motor drives, in plant automation, power distribution and electro-mechanical equipment. The units are independently tested to comply with the 2nd edition of ANSI/ISA S82.01 and EN61010-1 CAT IV 600V/CAT III 1000V.

* Multimeter 83V

Technical Specifications:

Voltage DC:	**Maximum Voltage:** 1000V
	Accuracy: ±(0.1%+1)
	Maximum Resolution: 100 µV
Voltage AC:	**Maximum Voltage:** 1000V
	Accuracy: ±(0.5%+2)
	AC Bandwidth: 5kHz
	Maximum Resolution: 0.1 mV
Current DC:	**Maximum Amps:** 10A(20 A for 30 seconds maximum)
	Amps Accuracy: ±(0.4%+2)
	Maximum Resolution: 0.01 mA
Current AC:	**Maximum Amps:** 10A(20 A for 30 seconds maximum)
	Amps Accuracy: ±(1.2%+2)
	Maximum Resolution: 0.01 mA
Resistance:	**Maximum Resistance:** 50 MΩ
Capacitance:	**Maximum Capacitance:** 9,999 µF
Frequency:	**Maximum Frequency:** 200 kHz

11. Isolation Transformer

- Compliance with IEC EN 61558-1
- There is no electrical connection between input & output windings.
- Suitable for industrial & domestic applications.
- Temperature class E. /Insulation class II.
- Operation in surrounding temperature of 40o C with temperature rise of 80o C.

* Isolation Transformer

- May be provided with electrostatic shield between input & output windings.
- Insulation resistance > 5 Meghoms between input & output windings and >2 Meghoms for other insulation, measurement made at 500V DC.

- Flash test 2000V RMS between core & other parts and 4000V between input & output windings.
- 50/60 Hz frequency operation.

12. Measuring Wheel

Extra rugged construction for use over agricultural land and other rough terrain including sports course management. Handle can be removed and folded away for easy storage

- Robust solid tire fitted to spoke wheel.
- Metric or imperial reading counter available.
- Heavy duty counting head fitted directly to wheel.
- Five figure counting head, 7mm high figures.
- Adds forward, subtracts in reverse.
- Accuracy ± 1%.

* Measuring Wheel

C. CONNECTING DEVICES

13. Main HV Switch HVS – 75/1

* HV Switch View

The main high voltage switch along with the control panel form the heart of the testing process of the cable test van. The unit is isolated and allows dielectric loss measurements, partial discharge measurements and all search methods for fault in cable lines. The switch once it receives power through the control panel it selects and gets locked to a particular high voltage instrument. Once the test is completed the unit automatically connects to ground making the operation of the test van safe.

Features:

- Number of switched equipment outputs - up to 5; no additional switching devices required
- Reliable manual control and air-barrier isolation of the main contacts
- Instrument-type control knobs; one-handed mode operation is enough for switching
- Clear predefined angular positions
- Feedback sensors for monitoring selected equipment
- Built-in visible contacts for automatic discharge of power cable capacitance
- Compact size and light
- Minimum maintenance needed; has an easily removable top cover for routine inspection of the main contacts

14. Cable Drum Racks

External connections for the laboratory are provided with a power feeding cable drum, agrounding cable drum and a high voltage cable drum

* Cable Drum Rack System

- Drum with main power cable, cable length 50 m
- Drum with grounding cable with a cross-section 16 mm^2 copper transparent plastic sheath with connection every 4 to 5 m, cable length 50 m
- Drum with output HV shielded cable, cable length 50 m
- Drum with auxiliary ground cable, cable length 15 m

D. ELECTRICAL SAFETY SYSTEM

15. Electrical Safety Check System

The electrical safety system provides protection to the operating personnel as follows:

- monitoring the potential on the car (switching off if the potential is higher than 24V)
- monitoring the earth resistance (switching off if the resistance is higher than 25 Ohm)
- monitoring the door of the high voltage compartment (switching off the equipment if doors are opened)
- Emergency Switch to shut down the equipment in case of hazard
- Visible break load switch
- Beacon and warning siren

E. PROTECTIVE EQUIPMENT

16. Voltage Detector

Voltage Detectors are used to verify live or de-energized conductors. These testers may be used with rubber insulating gloves or hot sticks using the splined universal end fitting. Testers indicate the presence of voltage with an extra bright LED light and a distinctive audible signal. It is recommended that the tester be moved closer to conductor until warning is indicated, or it touches conductor, apparatus, or test point. Test the unit on a nearby energized conductor.

*High Voltage Detector

17. Personnel Protective Equipment / Tool Kit

1	Ground pole / Insulating stick	1 unit
2	Hot stick	1 unit
3	Dielectric gloves	2 pair
4	Dielectric boots	1 pair
5	Protective helmet	2 units
6	Tool Kit	1 unit
7	Fire extinguisher	2 units
8	Reflecting triangle	1 unit
9	Ground spike / hammer	1 unit

* Electrical Insulating Gloves

F. POWER GENERATOR

18. Power Generator System

When the laboratory requires mains AC power and the connection to the national grid is not possible, then the auxiliary power generator installed is the system to help. Three different types of power generators can be considered, i.e. portable generators, engine mounted generators and PTO underfloor generators.

- Portable generators are an obvious back up power source for the laboratory, easy to use and require minimum service. They are installed on a smooth running heavy duty sliding platform for ergonomic access to the generator due to the fully extension slide.
- Engine mounted generators utilize the vehicle engine as the primary energy source. The generator is a light weight, simple to operate, efficient and reliable for generating AC power for the laboratory.
- The underfloor generator system makes use of the vehicle's PTO as its drive system. Underfloor generators are mounted under the chassis of the vehicle, leaving the stowage compartment free for its real purpose of stowing goods that require transportation.

* Portable Generator

* Engine Mounted Generator

* PTO Underfloor Generator

G. VEHICLE

19. Chassis: Mercedes Sprinter, VW Crafter, Ford Transit, Iveco Daily etc.

The most popular commercial vehicles are used to accommodate the cable test and fault location van HVT-35. There are many different options for customers to choose from including length, height and features.

20. Vehicle Body Work

The laboratory has two compartments: an operator compartment (front) and a high-voltage equipment compartment (back).

Body

The vehicle body of the laboratory is all-metal, thermally insulated from the inside and trimmed with white plastic. Due to the modern materials used, the body is not subject to corrosion, maintains the temperature set inside the body, which saves fuel and other resources, as well as provides comfortable conditions when working in hot weather. The body can also be heated by the roof air conditioner when operating in hot mode.

Internal laboratory equipment

The design of the laboratory was created to facilitate operation and service. The body has high quality wall insulation, plastic panelling, and air conditioning. The laboratory is separated by a partition between the high-voltage compartment and the operator compartment. All high- voltage and power equipment is installed in the high-voltage compartment. Safety is one of the most important features of the laboratory, so all equipment is correctly installed and securely fastened. The operator compartment provides a comfortable environment and ample workspace for high efficiency and productivity.

The operator's compartment contains:

- Panel and control units;
- operator's workplace (with reliable transport fastening).
- cabinets and boxes for storing documents and measuring instruments;
- wardrobe for work clothes and protective equipment.

All equipment located in the control compartment has standard stowage points and is fixed to them.

The high-voltage compartment contains:

- high voltage equipment;
- high voltage connectors that are designed to be corona-free;
- All devices are located at a safe distance from the high voltage source;
- stands with drums of cables: the drums are securely fixed, their design excludes spontaneous unwinding.

The laboratory has the following main distinctive features:

- The equipment is mounted in a sound and heat-insulated all-metal body. This creates a comfortable working environment for the operator in both cold and hot climates.
- In the operator's compartment there is a Eurodesk-type working table, which creates comfortable conditions for carrying out measurements and their subsequent processing and registration.
- To prevent touching live parts, a special partition separates the operator's compartment from the high-voltage compartment.
- The partition also separates the Eurodesk-type workbench from the high-voltage compartment.
- Cable outlet to the object is carried out through a special cable outlet hatch.
- A roof air conditioner is installed in the operator's compartment, which maintains the operating temperature in hot weather.
- Drawers in the operator's compartment can be used for storing accessories.

Lighting is installed in the body:

- Internal, 230 VAC;
- Internal, 12V DC

View of the Operators area

View of the High Voltage area

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H. TRAINING

21. Full training is provided for the test van personnel. The training includes the full use of the equipment and covers the basic test van operations such as safety management, routine and preventative maintenance of equipment.

I. WARRANTY

22. Our test vans are covered by a warranty for a period of one (1) year. At the end of this period, the manufacturer can provide upon order an after-sales service of the equipment.

J. CONTACT INFORMATION

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