

# Bierer

## METERS

*Safety is number one.*



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Analog Voltage Detector 1-450kV

## Operating Instructions

# VDAH450™

CE

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Patent No. 6,275,022



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## Limitation of Warranty and Liability

Bierer & Associates Inc. warrants this product to be free from defects in workmanship and material, under normal use and service conditions for a period of one year from date of shipment.


Due to continuous product improvement and development, Bierer & Associates Inc. reserves the right to modify product designs and specifications without notice.


It is impossible to eliminate all risks associated with the use of high voltage electrical devices including this device. Risks of serious injury or death are inherent in working around energized electrical systems. Such risks include but are not limited to variations of electrical systems and equipment, manner of use or applications, weather and environmental conditions, operator mentality, and other unknown factors that are beyond the control of Bierer & Associates Inc.


Bierer & Associates Inc. do not express or imply to be an insurer of these risks, and by purchasing or using this product you **AGREE TO ACCEPT THESE RISKS**. IN NO EVENT SHALL Bierer & Associates Inc. BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.


## SAFETY MESSAGE DEFINITIONS per ANSI Z535

These instructions contain important safety messages to alert the user to potentially hazardous situations, how to avoid the hazard, and the consequences of failure to follow the instruction.

The safety alert symbol  identifies a safety message. The signal word following the symbol indicates:

 **DANGER** A hazardous situation which, if not avoided, **will** result in death or serious injury and equipment damage.

 **WARNING** A hazardous situation which, if not avoided, **could** result in death or serious injury and equipment damage.

 **CAUTION** A hazardous situation which, if not avoided, **could** result in minor or moderate injury and equipment damage.

**NOTICE** Important safety message relating to equipment damage only.

## PRODUCT SAFETY INFORMATION



### WARNING

1. Meter assembly and live line tool adapters shall be considered **non-insulating**. Do not let live line tool fittings come in contact with energized or grounded conductors.
2. Use appropriate length live line tools for voltage being worked and maintain minimum approach distances as outlined in OSHA 1910.269, Table R-6.
3. All Phasing Meters and Voltage Detectors manufactured during and after 2007 will have a limit mark engraved on the high voltage probe(s) 2.5 inches from the tip to indicate to the user the physical limit that should not be exceeded when approaching and contacting an electrical conductor or other electrical test points. Zero Ohm insulated adapters (81280IE) should be used if limit mark will be exceeded.
4. This equipment should be used only by qualified employees, trained in and familiar with the safety-related work practices, safety rules and other safety requirements associated with the use of this type of equipment.
5. These instructions are not intended as a substitute for adequate training, nor do they cover all details or situations which could be encountered when operating this type of equipment.
6. Before operating this equipment, read, understand and follow all instructions contained in this manual. Keep instructions

## INSPECTION & MAINTENANCE BEFORE USE



### WARNING

1. Prior to using any high voltage test equipment a careful inspection should be made to ensure the unit is free from any contaminants such as dirt, grease, etc. and that there are no apparent physical damages.
2. High voltage probe assemblies shall be wiped clean prior to each use with a silicone impregnated cloth and kept clean and free of contaminants. This will prevent tracking on the outside of the probe and meter error.
3. Always confirm internal battery voltage before and after each use.

## DESIGN and FUNCTION

The **VDAH450** is a direct contact, linear/ logarithmic scale (linear to 14), capacitive type voltage detectors for use on system voltages up to 500kV/765kV (Phase-to- Phase). Direct contact with line conductors and equipment indicates approximate nominal **Line-to-Ground** voltage or induced voltage. Completely shielded, the tester reads only contacted test points.

### Five Position Selector Switch Positions

OFF	-	<b>Meter OFF</b>
1st ON	-	<b>Meter ON</b>
2nd ON	-	<b>Back Light ON</b>
* H	-	<b>Hold Feature ON</b>
** T	-	<b>Meter Test</b>



### **WARNING**

Always test lines and equipment with the selector switch in the 1st or 2nd “ON” position. Hold feature is voltage and time sensitive. See approximate charge and discharge times on back cover.

Meter should deflect full scale with a new battery in “T” position. Deflection below 140 indicates low battery. Replaceable 9V battery is located behind the live line tool attachment threaded into the meter housing. Two flat surfaces are furnished for use with a wrench to remove the attachment.

### **Always test voltage detector before and after each use**

As with all voltage detectors, readings can be affected by a variety of field conditions. For example, if the live line tool fitting is close to opposite phases or grounded surfaces, the readings could be higher than nominal. If the live line tool fitting is close to same phases, the reading could be lower than nominal.

**It is recommended that the meter housing and probe be cleaned with a silicone cloth prior to each use.**

# OPERATING PROCEDURES

- 1 Test voltage detector for proper operation by turning the selector switch to the "T" position.

**Meter should deflect full scale (450kV) with a new battery in the "T" position.  
Readings below 140 indicate low battery.**

- 2 Install appropriate end fitting into the meter probe, straight, hook or bushing/elbow adapter for URD.

- 3 Attach the voltage detector to an appropriate length (minimum 2 ft) live line tool for the voltage to be tested. Never directly hold the voltage detector in a gloved or bare hand.

- 4 Turn selector switch to the **1st or 2nd "ON"** position.

- 5 Make direct contact with line or equipment and note meter reading. Reading should take into account proximity to other phases and grounded surfaces and be consistent with previous experience on same voltages and circuit configuration with this voltage detector.

**NOTE: Meter scale indicates approximate  
Line-to-Ground values.**

- 6 The hold feature will operate on phase to ground voltages of 40kV and up. Turn the selector switch to the H position, make direct contact with line or equipment being tested and allow up to 45 seconds for the internal capacitor to charge.

- 7 If there is any doubt about the readings under any circumstances, the line or equipment shall be considered energized and appropriate safety precautions shall be taken, i.e., confirm visual open gaps, tag outs, dispatcher hold orders, and sources of induced voltage, etc.

**NOTE: Ratings, performance factors and results may  
vary dependent on field and application conditions.**

## ACCESSORIES

PART NO.	DESCRIPTION
8128TBALB	15 -25kV Bushing Adapter
8128TEALB	15 -25kV Elbow Adapter
81280LHM	Hook Adapter
81280LPM	Probe Adapter
PA165UGA	Universal / Grip All Combo Adapter
VDA18B	Storage Box with Foam Padding
81280IE	Insulated Zero Ohm Extension Adapter

### HOLD FEATURE CAPACITOR PHASE-to-GROUND kV CHARGE / DISCHARGE TIMES

Voltage	Charge Time	Meter Discharge	Time
450kV	20	450 to 120	20 seconds
120kV	40	120 to 40	20 seconds
40kV	45	40 to 14	20 seconds

### Technical & Service

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**NOTES**