



# VDA040P/C™

## Analog Voltage Detector 0-40kV

### Operating Instructions

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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 adapter (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 with equipment.

## 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



### **WARNING** – Limit Mark

-see “Product Safety Information”, item 3, page 3.

The VDA040P is a combination proximity/direct contact, capacitive type voltage detector for use on voltages up to 40 kV Line-to-Ground (69 kV Phase-to-Phase), and is over-voltage protected to 66 kV Line-to-Ground (115 kV Phase-to-Phase).

**NOTE:** Meter scale indicates **Line-to-Ground** values. Not calibrated to read Phase-to-Phase.

Each unit has a five position switch for the following functions:

**P** Proximity Voltage Detection

**URD** Voltage Detection, URD Equipment

**OH** Voltage Detection, Overhead Lines

**X4** Meter Scale Times “X” 4

**T** Meter Test



### **WARNING**

Meter should deflect full scale in the “**T**” position. Deflection below full scale indicates low battery. Replaceable 9V battery is located behind the live line tool attachment threaded into the meter housing.

As with all voltage detectors, readings can be affected by a variety of field conditions. For example, if the live line tool attachment is close to another phase, ground or voltage source, the readings may be high. If the live line tool attachment is close to the same phase, readings may be low.

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

## Voltage Detection in the “P” Position

In the “P” position, the VDA040P can be used from the ground as a hand-held, non-contact proximity voltage detector on bare overhead primary conductors. It can also be used in direct contact with secondary voltages and capacitance test points to indicate the presence of voltage.

**1** Test Voltage detector for proper operation by turning selector switch to the “T” position. Meter should deflect full scale. (See Warning page 4).

**2** Turn the selector switch to the “P” position.

**3** From the ground, hold the VDA040P by the live line tool attachment and point the unit toward the energized line. Any meter deflection indicates the presence of voltage. (See **WARNING** statement page 4).

**4** If voltage is not present, meter should read zero volts. (See **WARNING** statement page 4).

**5** Re-test voltage detector by turning the selector switch to the “T” position.

**NOTE:** Use of the VDA040P in the “P” position on primary voltages with an insulated live line tool or from an insulated aerial device, is **NOT** recommended since the readings may be diminished and could result in false de—energized readings.



## **WARNING**

**DO NOT** make contact with any energized conductors or equipment when holding unit by hand.

If there is any doubt about the meter reading in the “**P**” position, the line or equipment shall be considered energized, and appropriate safety precautions taken. To confirm the presence of nominal voltages, induced voltage prior to installing ground, re-test the line or equipment using the direct contact methods described on the following pages.

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

## **Battery Replacement**

A standard 9 volt battery is located behind the 5/8” x 11 threaded live line tool fitting on the meter housing. Two flat edges are furnished for use with a wrench or slip joint pliers to remove and install the fitting from the probe housing.

# Voltage Detection in the “P” Position

## Secondary Voltages and Capacitance Test Points

- 1** Test Voltage detector for proper operation by turning selector switch to the “T” position. Meter should deflect full scale. (See **Warning** page 4).
- 2** Turn the selector switch to the “P” position.
- 3** Attach voltage detector to appropriate length live line tool for voltage being tested.
- 4** Make direct contact with line or equipment under test. Any meter deflection indicates the presence of voltage.
- 5** If no voltage is present, meter should read zero volts.
- 6** Re-test voltage detector by turning the selector switch to the “T” position.



### **WARNING**

**DO NOT** make contact with any energized conductors or equipment when holding unit by hand.

Readings should take into account proximity to other phases and grounded surfaces and be consistent with previous experience on the same voltage and circuit configuration with this voltage detector. If there is any doubt about the meter reading in the “P” position, the line or equipment shall be considered energized and appropriate safety precautions taken.

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

## Voltage Detection in the “URD” Position

- 1** Test Voltage detector for proper operation by turning selector switch to the “T” position. Meter should deflect full scale. (See **Warning** page 4).
- 2** Thread appropriate adapter, bushing or elbow into meter probe.
- 3** Attach voltage detector to appropriate length live line tool for voltage being tested.
- 4** Turn the selector switch to the “URD” position.
- 5** Make direct contact with URD equipment under test. If equipment is energized, meter should read approximate Line-to-Ground voltage. For voltages above 10 kV, Line-to-Ground meter will read full scale.
- 6** If URD equipment is de-energized, meter should read zero volts.
- 7** Re-test voltage detector by turning the selector switch to the “T” position.



### **WARNING**

**DO NOT** make contact with any energized conductors or equipment when holding unit by hand.

Readings should take into account proximity to other phases and grounded surfaces and be consistent with previous experience on the same voltage and circuit configuration with this voltage detector. If there is any doubt about the meter reading in the “URD” position, the line or equipment shall be considered energized and appropriate safety precautions taken.

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

## Voltage Detection in the “OH” Position

- 1** Test Voltage detector for proper operation by turning selector switch to the “T” position. Meter should deflect full scale. (See **Warning** page 4).
- 2** Turn the selector switch to the “OH” position.
- 3** Attach voltage detector to appropriate length live line tool for voltage being tested.
- 4** Make direct contact with line or equipment under test. If equipment is energized, meter should read approximate Line-to-Ground voltage. For voltages above 10 kV Line-to-Ground, use the “X4” position.
- 5** If no voltage is present, meter should read zero volts. Readings other than zero volts may indicate the presence of induced voltage.
- 6** Re-test voltage detector by turning the selector switch to the “T” position.



### **WARNING**

**DO NOT** make contact with any energized conductors or equipment when holding unit by hand.

Readings should take into account proximity to other phases and grounded surfaces and be consistent with previous experience on the same voltage and circuit configuration with this voltage detector. If there is any doubt about the meter reading in the “OH” position, the line or equipment shall be considered energized and appropriate safety precautions taken.

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

## Voltage Detection in the “X4” Position

- 1** Test Voltage detector for proper operation by turning selector switch to the “T” position. Meter should deflect full scale. (See **Warning** page 4).
- 2** Turn the selector switch to the “X4” position.
- 3** Attach voltage detector to appropriate length live line tool for voltage being tested.
- 4** Make direct contact with line or equipment under test. If equipment is energized, meter should read approximate Line-to-Ground voltage. (Actual reading times (X) 4 = voltage present).
- 5** If line or equipment is de-energized, meter should read zero volts. Readings other than zero volts may indicate the presence of induced voltage. (Actual reading times (X) 4 = induced voltage present).
- 6** Re-test voltage detector by turning the selector switch to the “T” position.



### **WARNING**

**DO NOT** make contact with any energized conductors or equipment when holding unit by hand.

Readings should take into account proximity to other phases and grounded surfaces and be consistent with previous experience on the same voltage and circuit configuration with this voltage detector. If there is any doubt about the meter reading in the “X4” position, the line or equipment shall be considered energized and appropriate safety precautions taken.

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

## PARTS & ACCESSORIES

<b>PART NO.</b>	<b>DESCRIPTION</b>
8128TBALB	15 -25kV Bushing Adapter
8128LHM	Hook Probe Adapter
8128LPM	Straight Probe Adapter
81280IE	Insulated Extension Adapter
PA165UGA	QC to Universal/Grip All combo Adapter
10022CHL	1 Handle w/Threaded Ferrule and Cap
10022HHSL	1 Handle w/Threaded Ferrule and Stud

\*Nominal one inch in diameter and two feet in length; handle assemblies may be two, four or six feet in length.

### **Limit Mark**

All Phasing Meters and Voltage Detectors manufactured 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 passed when approaching and contacting an electrical conductor or other electrical test points.

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REV. ED. 080923