Bierer METERS
Safety is number one.

Voltage Detector and Phasing Tester

Operating Instructions

81280

CE

MADE IN USA

CONTENTS

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, interconnect cable 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. **The live line tool adapters, fittings, and handles supplied with meters shall not be used on any other devices.**
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 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.

The Voltage Detector and Phasing Tester:

WARNING

- see “Product Safety Information”, page 3.
- see “Inspection & Maintenance”, page 3.

1. For voltage sensing and phasing on overhead and underground systems.
2. For voltage sensing and phasing at capacitive test points.
3. Five-position switch selects function:

   C voltage sensing on capacitive test points

   CP phasing between capacitive test points

   L voltage sensing on overhead and underground systems

   LP phasing on overhead and underground systems

   BT internal battery test.

4. Bushing and elbow adapters for URD use.
5. Adapters are available for use with live line tools:

   Q Quick Change – Standard on both probes

   UGA Universal/Grip All Combination – Adapters for use with hotsticks or shotgun sticks. PN: PA165UGA

6. Available in two models: 300 V to 25 kV and 300 V to 35 kV.
7. A second probe and series lead is furnished for use when phasing or measuring line-to-line or line-to-ground voltages.
8. The carrying case incorporates a 3 kV test device for testing the instrument for correct operation before and after each use

BATTERY TEST

The battery test tells the operator whether the meter probe's internal battery is fully charged.

Turn the selector switch on the back of the meter to position BT (Battery Test) and hold to the right. The meter should show a full scale deflection. If there is less than full deflection, the meter probe battery should be changed.

(If the battery test fails, you can replace the 9 volt battery located behind the attachment point for the hot stick located on the main meter face.)

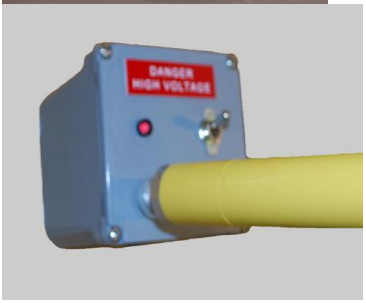
WARNING – Battery Test
-see "Inspection and Maintenance", item 3, page 3.

SENSING ON CAPACITIVE TEST POINTS

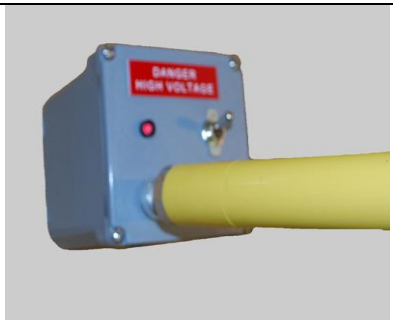
1. Turn the Selector switch to position C (Capacitive Sensing).

2. Fasten the meter probe to appropriate live line tool.

3. Turn on the test device.



4. To test the meter probe on the test device (provided in the carrying case), depress the button on the test device with the meter probe end. **The meter should show a half scale deflection minimum.**



5. Test the meter probe on the Capacitve point.

- No meter deflection indicates de-energized source.
- Any meter deflection indicates voltage present.

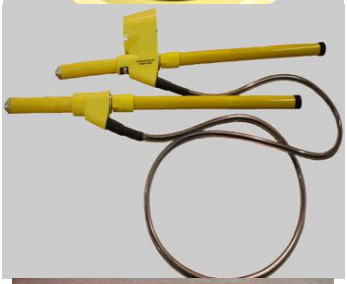
6. Retest meter on test device to confirm that it is working.

WARNING

- see “Product Safety Information”, page 3.
- see “Inspection & Maintenance”, page 3.

PHASING ON CAPACITIVE TEST POINTS

1. Turn the Selector switch to position C (Capacitive Phasing).



2. Connect the meter probe to the second probe with the interconnect cable.

3. Turn on the test device.

4. To test the meter probe on the test device provided, depress the button of the test device with the meter probe and place the second probe end on the other terminal. **The meter should show a reading of at least 2.5kV.** If not, check all batteries or send for repair.

6. While depressing the button with the meter probe, have the second probe make contact with the meter probe end. The meter probe should show a **near or zero** reading.

7. Place the meter probe end to a capacitive test point.

8. Have the second probe make contact with the meter probe end on the capacitive test point. The test point meter probe should show a **Zero** reading.

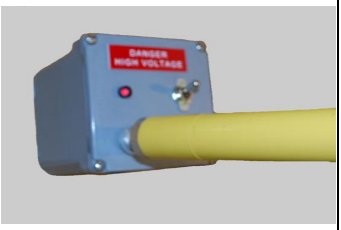
10. Leave the meter probe on the capacitive test point to the first elbow and contact the second probe on another capacitive test point. **In Phase** is represented by no meter reading or deflection. **Out of Phase** is represented by a meter reading or deflection.

SENSING ON DIRECT LINE

1. Turn the Selector Switch to position L

2. Fasten the meter to appropriate live line tool.

3. Turn on the test device.



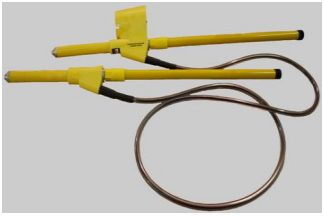
4. To test the meter probe on the test device provided in the carrying case, depress the button on the test device with the meter probe end. **The meter should show at least a 3 kV deflection.** If not, check all batteries or send for repair.

Make the test on the electrical circuit conductor, then retest unit on the test device.

- Meter deflection indicates voltage present.
- No deflection means line is de-energized.

PHASING ON DIRECT LINES

1. Turn the selector switch to position **LP** (Line Phasing).



2. Connect the meter to the second probe with the series lead.

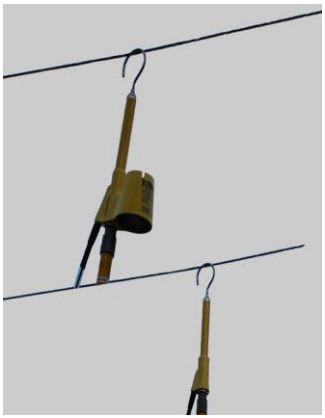
3. Turn on the test Device.

4. To test the meter probe on the test device provided, depress the button of the test device with the meter probe, and place the second probe end on the other terminal. **The meter should show a reading of at least 2.5 kV.** If not, check all batteries or send for repair.

5. While depressing the button with the meter probe, have the second probe make contact with the meter probe end. The meter should show a **Zero** reading

6. Place the meter probe end on one of the conductors.

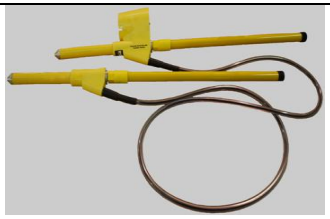
7. Have the second probe make contact with the meter probe end on the same conductor. Again, the probe meter should show a **Zero** reading.



8. Leave the meter probe on the first conductor and contact the second probe on another conductor. If the conductors are in phase, the meter should show a **Zero** reading. **In Phase** is represented by no meter reading or deflection. **Out of Phase** is represented by a meter reading or deflection.

LINE-TO-LINE AND LINE-TO-GROUND VOLTAGE

1. Turn the selector switch to position **LP** (Line Phasing).



2. Connect the meter to the second probe with the interconnect cable.

3. Turn on test device.

4. To test the meter probe on the test device, depress the button of the test device with the meter probe end, and place the second probe end on the other terminal. **The meter should show a reading of at least 2.5 kV.** If not, check all batteries or send for repair.

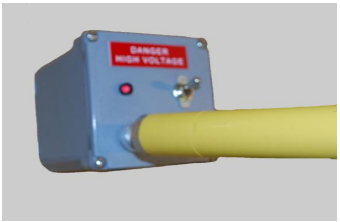
5. To measure line-to-line voltage, use the meter probe, series lead, and second probe combination to make contact between lines and take a reading. To measure voltage line-to-ground, use the meter probe, interconnect cable and second probe combination to make contact between the line and ground and take a reading.

VOLTAGE CHECK OR INDICATION, URD

1. Set the selector switch to L

2. Attach insulating handle to meter . probe.

3. Turn on the test device.



4. To test the meter probe on the test device provided in the carrying case, depress the button on the test device with the meter probe end. **The meter should show at least a 3 kV deflection.** If not, check all batteries or send for repair.

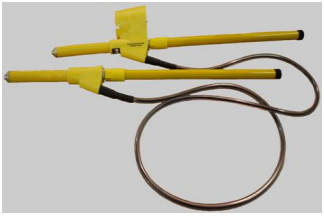
7. Attach URD bushing adapter to meter probe. Plug meter probe with URD bushing adapter into desired bushing.

8. If line voltage is present, meter will indicate approximate line to ground voltage.

9. If line voltage is not present, there will be no meter reading or deflection.

PHASE-TO-GROUND VOLTAGE CHECK, URD

1. Set selector switch to LP (Line Phasing)



2. Connect the meter to the second probe with the interconnect cable and attach insulating handles to both probes.

3. Turn on the test device.

4. To test the meter probe on the test device provided, depress the button of the test device with the meter probe, and place the second probe end on the other terminal. **The meter should show a reading of at least 2.5 kV.** If not, check all batteries or send for repair.

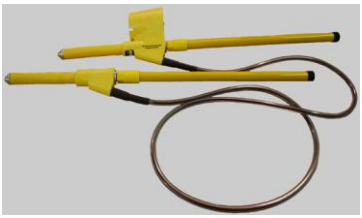
7. While depressing the button with the meter probe, have the second probe make contact with the meter probe end. The meter should show a **Zero** reading.

8. Attach URD bushing adapter to meter probe.

9. Plug meter probe with URD bushing adapter into desired bushing. Touch second probe to good electrical . ground connection. If line voltage is present, meter will indicate . nominal phase to ground voltage. If no line voltage is present, there will . be no meter reading or deflection.

PHASE-TO-PHASE VOLTAGE CHECK, URD

1. Set selector switch to LP (Line Phasing).



2. Connect the meter to the second probe with the interconnect cable and attach insulating handles to both probes.

3. Turn on the test device.

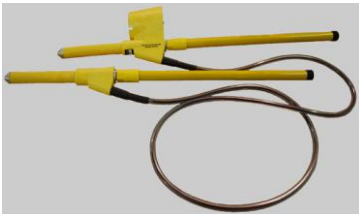
4. To test the meter probe on the test device provided, depress the button of the test device with the meter probe, and place the second probe end on the other terminal. **The meter should show a reading of 2.5 kV.** If not, check all batteries or send for repair.

5. While depressing the button with the meter probe, have the second probe make contact with the meter probe end. The meter should show a **Zero** reading.

6. Attach both URD bushing adapters to probes. Plug meter probe with URD bushing adapter and second probe with URD bushing adapter into bushings to be tested. If both phases are present, meter will indicate nominal phase-to-phase voltage. If neither phase is present, there will be no meter reading or deflection.

URD PHASING

1. Set selector switch to LP (Line Phasing).



2. Connect the meter to the second probe with the interconnect cable and attach insulating handles to both probes.

3. Turn on the test device.

4. To test the meter probe on the test device provided, depress the button of the test device with the meter probe, and place the second probe end on the other terminal. **The meter should show a reading of 2.5 kV.** If not, check all batteries or send for repair

5. While depressing the button with the meter probe, have the second probe make contact with the meter probe end. **The meter should show a zero reading.**

1. Attach both URD bushing adapters to probes. Test for phase-to-ground voltage on bushings to be phased. Nominal phase-to-ground voltage should be present on both bushings before phasing.

2. Plug meter probe with URD bushing adapter and second probe with URD bushing adapter into bushings to be phased**. In Phase** is represented by near zero meter reading or deflection.

3. **Out of Phase** is represented by a meter reading or deflection.

PARTS AND ACCESSORIES

CAT. NO.	DESCRIPTION	WEIGHT
8128TEALB	15 - 35 kV Elbow Adapter ½"	1 lb (0.45 kg)
8128TBALB	15 - 35 kV Bushing Adapter ½"	1 lb (0.45 kg)
81280LHM	Hook Adapter	1 lb (0.45 kg)
81280LPM	Probe Adapter	1 lb (0.45 kg)
PA165UGA	Universal/Grip All Adapter	1 lb (0.45 kg)
10022CHL	Handle with Threaded Ferrule and Cap (2 required)	1 lb(0.45 kg)
10022HHSL	Handle with Threaded Ferrule and Ferrule with Stud (4 required)	1 lb (0.45 kg)
PA25S	25 kV Voltage Meter with Quick Change	2 lbs(0.91 kg)
PA35S	35 kV Voltage Meter with Quick Change	2 lbs(0.91 kg)
PA25P	Second Probe with Quick Change	1 lb (0.45 kg)
PA25T	3 kV Power Supply	3 lbs (1 .36 kg)
PA25B	Box with Foam Padding	7 lbs (3.17 kg)
81280FL	8' (2.44 m) Lead Extension	2 lbs(0.91 kg)
81280ML	8' (2.44 m) Lead, Standard	2 lbs(0.91 kg)
81280B1	6 Volt Battery	2 lbs(0.91 kg)

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