Revision F
03/21

CHANCE
LINEMAN GRADE TOOLS™

CHANCE® Multi-Range Voltage Detector

Owner's Manual

NOTICE: Before operating a Chance® Multi-Range Voltage Detector (MRVD), thoroughly read, understand and follow these instructions. Keep these instructions with product for future reference.

Hubbell has a policy of continuous product improvement.
Please visit hubbellpowersystems.com to confirm current design specifications.

HUBBELL Power Systems, Inc.

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HUBBELL

Guide to Warnings within Manual

The following is a list of warnings used within this manual and should be read in their entirety to ensure safe practices.

⚠DANGER

A DANGER refers to operating procedures, techniques, etc., that, if not followed carefully could RESULT IN DEATH.

⚠WARNING

A WARNING refers to operating procedures, techniques, etc., that, if not followed carefully could RESULT IN INJURIES OR DEATH.

⚠CAUTION

A CAUTION refers to operating procedures, techniques, etc., that, if not followed carefully could RESULT IN DAMAGE TO EQUIPMENT or LOSS OF SERVICE to customers.

NOTICE

A NOTICE refers to information that is considered important but not hazard related.

Product Safety

⚠WARNING

Do not allow the universal coupling or housing to become grounded in any way, or to contact another phase as this will cause erroneous voltage indication and could cause severe personal injury or damage to equipment.

⚠WARNING

Always use an appropriate length insulated Hot Stick even when wearing rubber gloves. Contact with the universal coupling or other parts, even with rubber gloves, will cause erroneous voltage indication. Always use with an appropriate length universal pole to maintain its calibration.

CORRECT USE

INCORRECT USE

⚠WARNING

Before and after each use, always test the unit on a known energized voltage source.

⚠DANGER

Do not engrave on stick. Minimum Approach Distances (MAD) should be adhered to at all times. For the latest information and charts refer to the official OSHA website: https://www.osha.gov

⚠CAUTION

The equipment covered in this manual must be used and serviced only by competently trained personnel familiar with and following approved work and safety practices. This equipment is for use by such personnel and this manual is not intended as a substitute for adequate training and experience in safe procedures for this type of equipment.

These instructions neither cover all details or situations in equipment use, nor do they provide for every possible contingency to be encountered in relation to installation, operation or maintenance. Should additional information and details be desired or if situations arise which are not covered adequately for the user's purpose, the specifics should be referred to Hubbell Power Systems.

Function and Design Overview

The CHANCE® Multi-Range Voltage Detector® (MRVD) is a portable tool to confirm that an AC (Alternating Current) high voltage circuit is energized or de-energized prior to performing maintenance. It provides field practicality over the two points of contact measurement method. Readings from the MRVD represent the class of voltage that is present on the line. The MRVD is designed to determine approximate Phase-to-Phase AC, 50/60 Hz. This unit is a direct contact electric field intensity indicator.

The MRVD is used as a secondary means to confirm the condition of a circuit after principal work procedures such as visible open gaps, dispatcher hold orders, and apparatus tag-outs have rendered the circuit de-energized.

NOTICE

This device is an AC (alternating current/alternating voltage) only indicator; do not use it to detect DC (direct current/non-alternating voltage).

⚠WARNING

Before and after each use, always test the unit on a known energized voltage source.

Features

- Meets intent of OSHA 1910.269 to test for absence of nominal voltage
- Used to determine if power lines are at rated voltage, have induced voltage, or are de-energized
- Phase-to-Phase equivalent indications
- On-board self-test feature to test internal circuit connections
- Comes with a plastic hard case
- QR code located in the instructions

Accuracy

This instrument is not a voltmeter; hence, the manufacturer claims no specific accuracy and therefore no specific accuracy is to be assumed by the user. Readings will vary with the field intensity, determined by a great variety of field conditions including proximity, size, and orientation of all system components in the vicinity, both energized and grounded. Erroneous readings may result from being placed near other energized conductors, sources, or grounds. To avoid such field distortions, keep the unit as far away as practical from all system components other than the specific conductor being tested.

MRVD Kits

Catalog No.	Description	Weight
C4030979	Multi-Range Voltage Detector Range 1-40 kV, with Capacitive test point setting, includes plastic case, hook, probe and instruction manual	6.25 lbs
T4032271	Multi-Range Voltage Detector Range 1-40 kV, includes plastic case, hook, probe, T4030857 Bushing Adapter, T4030856 Elbow Adapter and instruction manual.	9 lbs
T4032633	Multi-Range Voltage Detector Range 5-120 kV, includes plastic case, hook, probe, and instruction manual	6.25 lbs
C4031029	Multi-Range Voltage Detector Range 16-161 kV, includes plastic case, hook, and instruction manual	6.25 lbs
PSC4031029004	Multi-Range Voltage Detector Range 16-161 kV, with Elbow test point setting, includes plastic case, hook, probe, and instruction manual	6.25 lbs
T4032293	Multi-Range Voltage Detector Range 69-345 kV, includes plastic case, hook, and instruction manual	6.25 lbs
C4031140	Multi-Range Voltage Detector Range 69-600 kV, includes plastic case, hook, and instruction manual	6.25 lbs
T4030857	15-34.5 kV Bushing Adapter	1.75 lbs
T4030856	15-34.5 kV Elbow Adapter	1 lbs
Case (Plastic)	Order by MRVD model number	4.25 lbs

MRVD Models

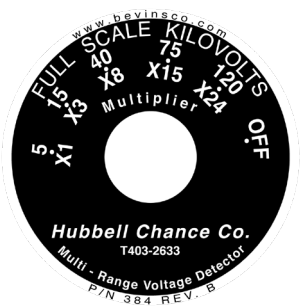
C4030979
1 kV to 40 kV w/ T.P.

C4031029
16 kV to 161 kV

C4031140
69 kV to 600 kV

MRVD Models (cont.)

PSC4031029004
16 kV to 161 kV w/ TP



T4032633
5 kV to 120 kV

T4032293
69 kV to 345 kV

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Operations for Overhead

1. Check meter, battery, and circuitry for proper operation before and after each use by depressing test button at back of meter housing while switching selection to each setting in sequence. Set at every position except "Off", meter should read nearly full scale. When reading falls three or four divisions below full scale, replace battery by removing plastic cap on end of mounting stick. Use a 9-volt battery. See page 14 for battery replacement information.

2. Thread hook probe into mounting-stick end fitting and attach MRVD to insulated hot stick of proper length for system voltage involved. Also set selector switch at correct voltage range.

NOTE: For voltages less than 1 kV, use MRVD as an indicator only with selector switch set at TP (Test Point) position — only on MRVD models C4030979, T4032271 and PSC4031029004.

3. Test on known source before and after taking a reading to verify proper operation.

4. Contact hook probe to each conductor individually on three-phase circuits, following these guidelines:

- Keep mounting stick perpendicular to phase conductor.
- Keep MRVD away from pole or structure and associated equipment a distance at least twice the circuit's phase spacing. That is, test out on span rather than near structure, jumpers, risers, cutout, insulators, ground wires and any system components other than conductor being tested.
- Test three or four locations to check consistency. Where little or no consistency is apparent, consider the highest reading as correct.

5. Multiply readings by the factor given at the switch position selected. (if readings are low on scale, set switch to next lower voltage range and repeat tests).

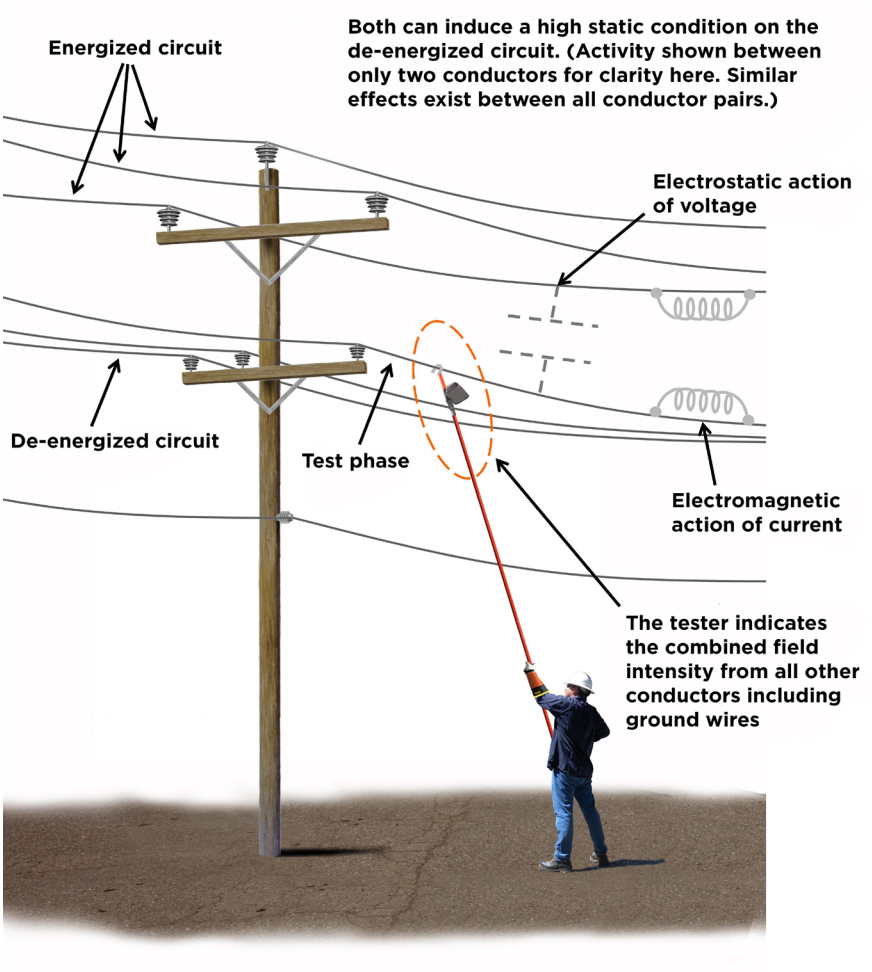
⚠WARNING

Before and after each use, always test the unit on a known energized voltage source.

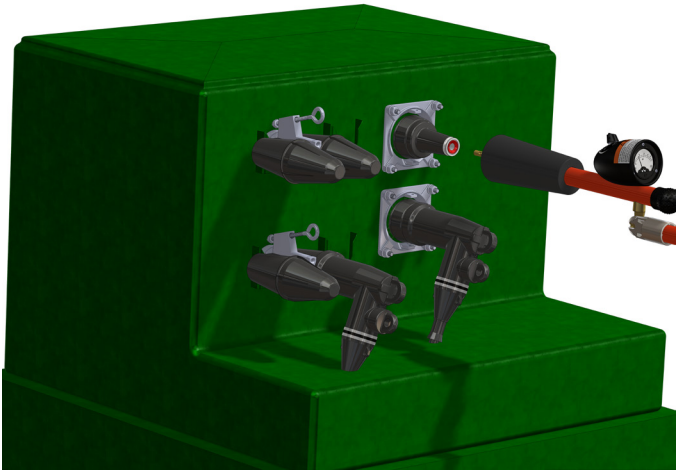
Operations for Overhead (Cont.)

NOTICE

Both the electromagnetic action of current and electrostatic action of voltage can induce a high static condition on the de-energized circuit. Activity effects can exist between all conductor pairs. The MRVD indicates the combined field intensity from all other conductors, including ground wires.



Operations for Underground



Taking a reading with the MRVD with Bushing Adapter on dead-front equipment

Always use appropriate length insulated Hot Stick even when wearing rubber gloves. Contact with universal coupling or other parts, even with rubber gloves, will cause erroneous voltage indication. Also, due to the close proximity of conductive metals, the readings taken in URD cabinets will typically be higher than on an overhead line.

As with overhead, the same basic rules and procedures apply when using the CHANCE® Multi-Range Voltage Detector (MRVD) on underground systems. Follow these three very important additional instructions when using the tool on underground equipment:

⚠DANGER

1. **When testing dead-front URD equipment, use an appropriate Bushing Adapter rather than the short probe or the Shepherd Hook.**

2. **Use *extreme caution* when testing live-front URD equipment. Use applicable safe work practices and procedures. Do not use any probes on the MRVD when testing live-front URD equipment. In place of a probe, use a small hex head machine screw (1/4-20 X 3/8" long).**

3. **When testing live-front URD equipment, the MRVD may detect fields from adjacent conductors, energized parts or grounds, including grounded cabinet components. Indication of an energized field may not be sufficient to isolate one specific conductor. Should the user wish to confirm a specific conductor is energized (or de-energized) further testing with a non-wireless Phasing Set designed for this application will be required.**

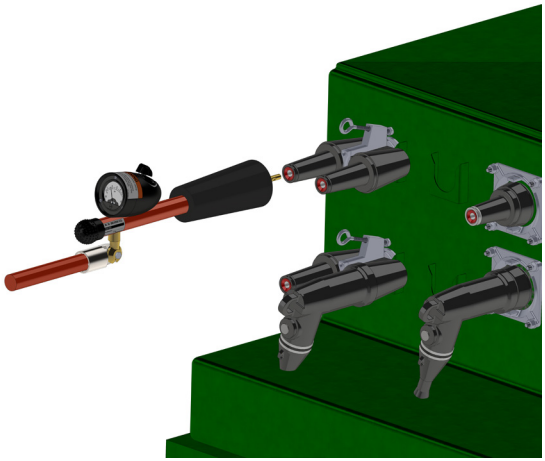
⚠WARNING

Before and after each use, always test the unit on a known energized voltage source.

Operations for Underground (Cont.)

1. Check meter, battery, and circuitry for proper operation before and after each use by depressing test button at back of meter housing while switching selection to each setting in sequence. Set at every position except "Off", meter should read nearly full scale. When reading falls three or four divisions below full scale, replace battery by removing plastic cap on end of mounting stick. Use a 9-volt battery.

2. Thread appropriate bushing adapter into mounting-stick end fitting and attach MRVD to insulated hot stick of proper length for system voltage involved. Also set selector switch at correct voltage range.



3. Secure a temporary feed-thru device in parking stand on the deadfront transformer or switch. Pull elbow with appropriate hot line tool and install elbow on feed-thru device.

4. Test on a known source before and after taking a reading to verify proper operation.

5. To test both sides of interrupted circuit, insert bushing adapter into:

- Apparatus bushing
- Feed-thru bushing, to check elbow/cable.

Capacitive Test Point

⚠DANGER

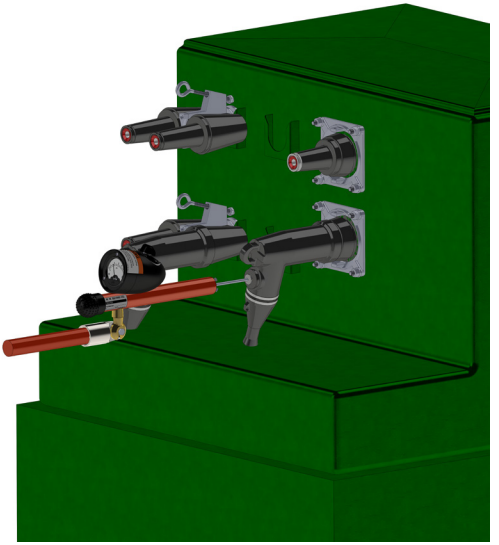
Capacitive Test Points must be free of corrosion and contamination for valid testing. If ever in doubt about interpreting CHANCE® Multi-Range Voltage Detector reading under any circumstance, always assume circuit is energized and take appropriate safety precautions.

⚠WARNING

Failure to use proper safety equipment, procedures, and work rules could result in personal injury or damage to equipment.

To test Capacitive Test Points on dead-front URD equipment, safely remove the protective cap/cover from the elbow by using appropriate work practices and procedures. Follow the Elbow manufacturer's recommendations on proper cleaning and use of all Capacitive Test Points.

The Capacitive Test Point must be free of corrosion and contamination for testing continuity; a dirty or contaminated Capacitive Test Point may prevent proper indication of Cable condition. If ever in doubt about interpreting MRVD readings under any circumstance, always assume the circuit is energized and take the appropriate safety precautions.



Testing a Capacitive Test Point on dead-front elbow

Optional Procedure for Elbow/Cable Test

It is recommended that two linemen perform this procedure.

1. Operator #1: pull elbow with elbow-puller tool, then orient elbow so it is accessible with MRVD.

2. Operator #2: install elbow adapter on the MRVD, then insert elbow adapter into elbow to check elbow/cable for voltage.

⚠WARNING

Failure to use proper safety equipment, procedures, and work rules could result in personal injury or damage to equipment.

Battery Replacement

Check meter, battery and circuitry for proper operation before and after each use by depressing test button at back of meter housing while switching selection to each setting in sequence. Set at every position except "Off", meter should read nearly full scale. When reading falls three or four divisions below full scale, replace battery by removing plastic cap on end of mounting stick. Use a 9-volt battery.

⚠CAUTION

Ensure that the wires connected to the battery holder remain connected and are not damaged. Test the function of the unit on a known energized voltage source.

Maintenance

The CHANCE® Multi-Range Voltage Detector (MRVD) is an electronic instrument and, if properly cared for, will provide many years of trouble-free service. Keep all parts clean and dry. **Clean only with water or a mild soap & water solution. Do not use chemical solvents.** When using soap for cleaning, it is required to thoroughly rinse all soap residue off the unit before placing back into service. Any remaining soap residue may allow high voltage tracking especially in the presence of high humidity and/or moisture. Do not use CHANCE® Moisture Eater II wipes on any part of the MRVD as it will cause damage.

We do recommend that every tester be wiped clean and visually inspected for defects daily and before each use. If any defect or contamination that could adversely affect the proper operation, accuracy or mechanical integrity of the tool is suspected, the meter shall be removed from service. Before placing back into service, the meter should be properly repaired (if necessary), cleaned, inspected, and tested for full operation.

Do not engrave on stick. Abuse or misuse will damage the unit. Store in a dry location, do not drop, and protect from jostling or impacts during storage, carrying, or use. See page 17 "Specifications" for operating and storage temperatures and humidity ranges.

⚠CAUTION

Do not drop tool as accuracy may be impaired.

Repairs

For Hubbell Power Systems authorized repair or factory calibration, please contact:

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M.W. Bevins Co.
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Tulsa, OK 74146
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(918) 627-1294 (FAX)
www.bevinsco.com

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Optional Accessories

15 kV Bushing Adapter - T4030428

15 kV, 25 kV, 35 kV Bushing Adapter - T4030857

Elbow Adapter - T4030856

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Specifications

Weight: 1091 g (38.5 oz)
Dimensions: 12" L X 3.25" W X 7" H
Battery requirements: Alkaline or Lithium 9-volt
Operating voltage range(s): Test Point to 600 kV AC (Phase-to-Phase equivalent), 50/60 Hz (varies by model)
Operating temperature range: -20° to +80°C (-4°F to 176°F)
Operating humidity range: 5% to 95% Rh
Storage temperature: -20° to +60°C (-4°F to 140°F)
Recommended storage at 21°C +/- 2%°C (70°F +/- 5°F)
Storage humidity range: 5% to 95% Rh (Recommended storage at 45% Rh +/- 8% Rh)
Limitations: Always use appropriate length insulated Hot Stick even if wearing rubber gloves. Always test the unit before and after each use on a known energized voltage source or with the Voltage Indicator Tester to verify proper operation. Do not use if damaged or malfunctioning. Keep all warning labels clean and readable. Store in a dry location.

Notes

Notes

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