## SERVICE & TROUBLE SHOOTING GUIDE

The detector should be maintained in a temperature range of -11°F to 158°F (-24°C to 70°C)

*Always store the detector in a protective container when not in use to ensure maximum protection and a longer life.*

*In the event of malfunction, check the following:*
Does the selector switch snap properly from setting to setting? If not, the switch has been damaged usually by impact to the knob. This is not economical to repair.

*Is this switch operating properly but the detector is not working?*
Check the batteries and the condition of the battery connecting strap. Be sure that the battery strap is properly positioned to establish an electrical connection between the base of the battery and the sleeve on the head of the detector.

Use three "C" size alkaline batteries only. Replace all three batteries at the same time.

*Why does the detector "beep" when moved around?*
The detector is sensing a static charge created by the movement of the detector through the air.

*Is there any reason to avoid touching an energized high voltage line?*
Yes. On transmission voltages, it is possible that an arc may be drawn from the conductor to the detector. Such an arc may cause internal damage to the detector. If a voltage is detected, there is no reason to bring the detector any closer to the conductor.

**THE DETECTOR CONTAINS NO SERVICEABLE COMPONENTS.**

## CAUTION

Use of this voltage detector should be restricted to trained personnel.

Always follow approved safe work practices established by the safety officials of your company.

Detectors should be used in conjunction with ASTM D-120 specification rubber gloves and/or ASTM F-711 hotsticks.

Do not assume conductors are dead or will remain de-energized.

In the presence of induced voltage, the unit may indicate voltage even though it is less than nominal.
If there is any concern of voltage present, use alternate testing methods to confirm. See Application Chart.

Always install proper grounding devices before working on de-energized conductors.

Application is limited to conductors, busses, and other types of exposed electric equipment. Shielded and underground conductors are excluded. Only use models with URD settings to check for voltage on underground elbows with capacitive test points.

## OPERATING INSTRUCTIONS

1. To assure unit is in operable condition: switch tester into "Test" position.
   - The tester may now be tested in several different ways.
     - Place detector head, as marked, against live wire outlet, or equivalent, above 110 A.C.
     - Rub the detector head, as marked, on clothing to obtain a static charge. Detector will only indicate intermittently.
     - Set switching at Test or 4.2kV Overhead setting and placehead of detector, as marked, against a spark plug lead of a running truck or auto engine. Detector will indicate.
   - If an indication is not achieved using any of these methods, replace batteries and perform functional check again. If still no indication, notify your company for replacement unit or use another method of checking voltage.
2. Select appropriate nominal design voltage (e.g. 25 kV).
3. Move the detector toward the conductor until head is within the calibrated indicating distance, 8 to 10 inches If the voltage is not indicated repeat step 3 having selected the next lower voltage setting (e.g. 15 kV to 4kV). Continue to repeat step 3 until all setting are checked or voltage has been indicated. See Application Chart.

**NOTE:** Never place the detector in direct contact with the tested part. If the presence of voltage is indicated by the detector, do not move the detector closer to the conductor.

4. When no volatge condition is determined, retest detector as in step 1 to verify the detector is still working properly.

DISCLAIMER: THIS DEVICE SHOULD ONLY BE USED BY QUALIFIED INDIVIDUALS (AS DEFINED BY (OHSA STD 1910.269(a (2))). PRIOR TO USE, ALL QUALIFIED INDIVIDUALS MUST READ AND UNDERSTAND THE REQUIREMENTS PROVIDED IN THIS MANUAL AND ALL OTHER PRODUCT DOCUMENTATION.

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Part #20659 061710
Rev.100520

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# Honeywell
## SALISBURY


# Audio / Visual VOLTAGE DETECTOR

**WARNING**

**READ ALL OPERATING INSTRUCTIONS BEFORE USE**

APPLICATION

Units are intended for use in verifying the live or de-energized status of conductors, busses, and other types of exposed electrical equipment.

Use with rubber insulating gloves (ASTM D120) and/or hotsticks (ASTM F711) following comapny's safety work practices.

Voltage Detectors consist of a detection circuit, that in the presence of an electrical field, drives a solid state buzzer and a high intensity L.E.D. lamp assembly indicating an item is energized.

Voltage Detectors have a selector switch labeled with various voltage ranges. Models having URD settings are intended for use with capactive test points on URD elbows only. It will not provide reliable results nor is it recommended for use on shielded cable or cable with concentric neutrals.

Six standard detectors are available. Product number 4244, 4344 and 4444 are the standard models. Numbers 4544, 4644 and 4744 feature a self test function. Self test models have a continuous flashing light and beep to indicate that the batteries are charged and the unit is functioning properly, which includes the detection circuit for all selector switch settings.

Voltage detectors are calibrated to indicate within 8 to 10 inches of a conductor energized to the voltage switch setting. When verifying URD test points, URD switch settings are calibrated to indicate within 0.5 to 2 inches. The minimum system voltage required for detection (URD 15kV setting) is 12,475 volts.

The Test switch position is intended to test the detector for its operational integrity, or to test 120/240 circuits.

Some difficulty may be encountered in situations where a lower voltage circuit is in the immediate vicinity of a higher voltage circuit, such as an overbuild parallel circuit. (The detector may respond to higher voltage line.)

Where induced voltage may be present, that voltage may be sufficient to indicate voltage if it exceeds the threshold voltage for the detector setting. It is normally assumed that induced voltage would be less than the de-energized voltage. In such instances the distance from the conductor would be less than if the conductor were energized. See Application Chart.

In these situations, turn the detector 90° on the hotstick and approach the conductor from the side rather than from below. This angle of approach will be less sensitive to the electric field of the higher voltage circuit in the overbuild. See Figure 1.

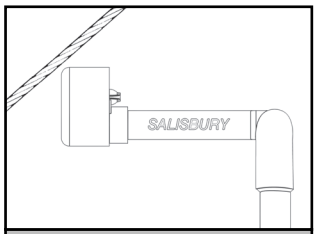

Figure 1

# VOLTAGE DETECTION APPLICATION CHART

**GREEN - RECOMMENDED FOR USE.**
The cells highlighted in green identify appropriate detector settings for a given system voltage.

**YELLOW - SUITABLE FOR USE ONLY UNDER SPECIAL CIRCUMSTANCES.**
The cells highlighted in yellow may be used in specials circumstances. These circumstances may include the detection of voltage on an under-built circuit with induced voltage sufficient to cause a detection alarm. For example: In the 25kV setting the tester may not detect lower voltages at the required 8 to 10 inches from the conductor. However it may detect lower induced voltage, e.g. 5kV at 1" from the conductor.

**RED - NEVER SELECT A DETECTOR SETTING INDICATED BY A RED CELL FOR A GIVEN SYSTEM VOLTAGE.**
The detector may not indicate voltage present and serious injury or death may result.

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| Detector setting | System Voltage - (Phase to Phase/Phase to Ground) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4160 2400 | 8320 4800 | 12000 6930 | 12470 7200 | 13200 7620 | 13800 7970 | 20780 12000 | 22860 13200 | 24940 14400 | 34500 19920 | 46000 26560 | 69000 39840 | 115000 66400 | 138000 79670 | 161000 92950 | 230000 132790 | 345000 199190 | 500000 288680 |
| Test | | | | | | | | | | | | | | | | | | |
| 4.2kV | | | | | | | | | | | | | | | | | | |
| 15kV | | | | | | | | | | | | | | | | | | |
| 25kV | | | | | | | | | | | | | | | | | | |
| 35kV | | | | | | | | | | | | | | | | | | |
| 46kV | | | | | | | | | | | | | | | | | | |
| 69kV | | | | | | | | | | | | | | | | | | |
| 115kV | | | | | | | | | | | | | | | | | | |
| 230kV | | | | | | | | | | | | | | | | | | |
| 345kV | | | | | | | | | | | | | | | | | | |
| 500kV | | | | | | | | | | | | | | | | | | |
| | URD TEST POINTS ONLY | | | | | | | | | | | | | | | | | |
| 15kV URD | | | | | | | | | | | | | | | | | | |
| 25kV URD | | | | | | | | | | | | | | | | | | |
| 35kV URD | | | | | | | | | | | | | | | | | | |

The above matrix identifies Honeywell Salisbury Models 4244, 4544, 4344, 4644, 4444, 4744, voltage detector applications settings for given system voltage. By selecting a detector voltage higher than the system voltage setting, the sensitivity of the detector is reduced and it may not detect the system voltage tested. Always install an appropriate grounding system before working on any conductors.

| CAT. NO. STD. MODEL | CAT. NO. SELF TEST MODEL | DIMENSIONS in. (mm) | SETTINGS PHASE TO PHASE | WEIGHT EA. lbs. (kgs) |
|---|---|---|---|---|
| 4244 | 4544 | 11 x 3.5 ( 279.4 x 89 ) | Off / Test / 4.2kV / 15kV / 25kV / 35kV / 69kV /1 15kV / 230kV | 0.937 ( .43 ) |
| 4344 | 4644 | 11 x 3.5 ( 279.4 x 89 ) | Off / Test / 4.2kV / 35kV / 69kV / 115kV / 230kV / 345kV / 500kV | 0.937 ( .43 ) |
| 4444 | 4744 | 11 x 3.5 ( 279.4 x 89 ) | Off / Test / Battery /*URD:15kV / 25kV / 35kV Overhead: 4.2kV / 15kV/25kV / 35kV / 46kV / 69kV | 0.937 ( .43 ) |

* URD - Underground Residential Distribution