

## 12. Applications and Limitations

### Applications:

7701 incorporates unique technology that allows it to make repeatable, reliable measurements in situations where pre-existing non-contact detectors failed. This makes the unit suitable for detecting:

- Voltage leakage down the pole due to damaged insulators.
- Voltage leakage down ground wires from transformer casings, due to failing transformer insulation.
- Patrolman work where energized high voltage conductors may be hazardous to personnel.
- Ground step potentials.

### Limitations:

7701 is a non-contact detector and as such depends on sensing an electric field generated by an energized conductor. Electric fields are easily modified, and in some cases completely eliminated, in certain situations by the presence of conductors other than the energized conductor under test.

These other conductors can be either earthed or energized by another phase in the system. Operators should be aware of these effects, and take steps to ensure the conductor to be tested is approached in a part of the line where no other conductors are close by. A good rule of thumb is to ensure all other metal objects are at least twice the distance from the 7701, as the distance from the 7701 to the conductor to be tested. Also it should be noted that an energized conductor laying on wet or dew covered or submerged ground may still be energized, but possibly will not be detected by a non-contact detector. The moisture dissipates the electric field. 7701 is not suitable for detecting armored or shielded conductors, because the shielding prevents any electric field from escaping. 7701 is not suitable for detecting conductors energized with D.C. voltage or at frequencies other than 50 or 60 Hz. That is it would not be suitable for 400Hz aircraft systems, or D.C. railway systems. 7701 is not recommended for detecting buried conductors.

## 13. Specifications

Weight 8.5 oz (240g)

(no batteries)

Dimension

11.3" L x 3.35" W x 3.35" H  
(287mmL x 85mmW x 85mmH)

Environmental sealing

IP65

Warning Light Intensity

10,000 mCd

Warning Beeper Intensity

80dB @ 3 Feet ( 1 Meter)

Power Supply

3 X C Cell Batteries

Battery Life

On ( no alarm)

69 days (1)

On (alarm condition)

18 days (1)

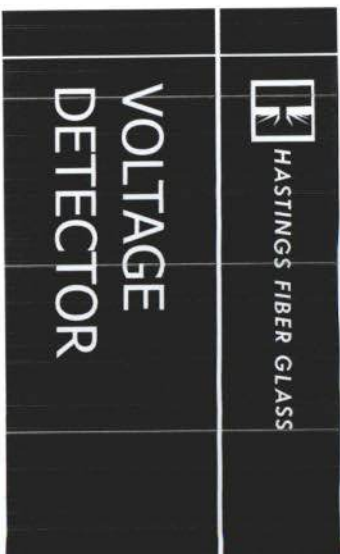
Temperature Range

-20°C to 54°C  
-4°F to 130°F

### Note:

Battery life calculated using Eveready C Cell Energizer batteries with a 7,000m Ah capacity down to 1.0V cell output.

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**Catalog Number 7701**

## **1. Training & Safety**

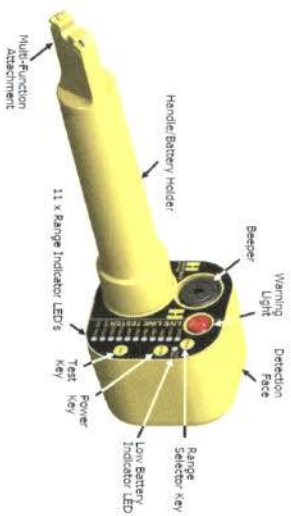
Ensure you have carefully read this manual and understood all aspects of the 7701 function.

- Always follow safety procedures and directives as published by your employer or local authority.
- Always wear rubber gloves approved to ASTM 0-120 specification rubber gloves or/and ASTM F-711 hot sticks.
- Always test the 7701 by pressing and holding the Test Key before AND after the measurement on the powerline is performed.
- Never assume a powerline will remain de-energized.
- Always fit ground jumpers to the appropriate ASTM standard.

### **CAUTION:**

7701 is designed ONLY to detect energized conductors in front of the detection face. DO NOT use side contact to determine if a conductor is energized.

## **2. Location of Controls**



## **3. Battery Fitting**

Ensure batteries are installed as shown below. Ensure battery spring is fitted in battery holder. Push and rotate as shown to attach.



## **4. Switching the Live Tester On**

Pressing the ON/OFF Power Key once will switch the unit on. The 7701 will always switch on in the 240V range and illumination of this LED will indicate the power is on. Pressing the ON/OFF Power Key again will switch the unit off. This is indicated by a brief audible beep and a flash of the warning light.

### **5. Auto Power Off**

To provide maximum battery life the 7701 will automatically switch its self off after a period of 30 minutes. During this 30-minute period a press of the keypad or alarm condition will reset the auto-power off timer, and the 30-minute period will recommence.

### **6. Low Battery**

When the 7701 is switched on and a low battery condition is detected the Low Battery Indicator LED will illuminate. Before replacing the batteries ensure that the problem is not being caused by a poor battery connection.

### **7. Range Selection**

The 7701 has a wide voltage range across which it can operate. After the unit is switched on select the correct range by pressing the Range Selector Key. Each time the Range Selector Key is pressed the voltage range increases as indicated by the 11 Range Indicator LED's. Pressing the Range Selector Key when the range is URD 25kV causes the range to roll back around to 240V.

### **8. Test Key Function**

Pressing and holding the Test Key will cause the Beeper to sound continuously and the Warning Light to be solidly on in any selected range, if the unit is operating correctly.

## **9. Static Discrimination**

The 7701 has unique circuitry that allows it to ignore electric fields that are not generated by a main source (powerlines). This greatly reduces false alarms and makes the device suitable for patrolmen and rescue applications when set on the 240V range.

### **10. Multi Function Attachment**

The unique multi-function attachment on the handle allows connection to either a universal fitting or a shotgun fitting with no loose parts.

### **11. Operation**

Switch on the 7701 and select the correct range. Press the Test Key to check for correct function of the unit. Approach the conductor to be tested with Detection Face. If the unit alarms then the conductor is still live and no further testing is required. If the unit does not alarm reduce the range voltage setting and repeat the test. Finally, recheck the function of the 7701 by pressing the Test Key.

## **NOTES**

- If the 7701 alarms indicating a conductor is live do not move the Detection Face closer to the conductor.
- DO NOT touch high voltage transmission lines with the 7701, because an arc maybe drawn from the line to the Tester. This may cause internal damage of the 7701 circuits.
- If Live/Dead indication of a low voltage line is being attempted in close proximity to high voltage conductors, the detector may respond to the high voltage line even though the low voltage line is dead. Fixing the 7701 at right angle to the hot stick and approaching the low voltage line from the side will help. The 7701 is more sensitive to electric field entering through the Detection Face, and in this configuration the electric fields from the high voltage conductors will enter through the sides of the unit to which it is less sensitive.