

BST-HVD7

SAFETY PERSONAL AC VOLTAGE (50 or 60Hz) PROXIMITY DETECTOR



INSTRUCTION MANUAL

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1. Safety rules

The Personal Safety voltage detector has been designed with safety in mind. However, no design can completely protect against incorrect use.

Electrical circuits are dangerous and lethal through lack of caution or poor safety practice. Please follow safety rules to reduce danger and practice safety.

- Read the User's manual carefully and completely before using the tester. Fully understand the instructions before using this product. Follow the instructions for every test. Take all the necessary precautions. Do not exceed the limits of this instrument.
- The voltage detector should never be in physical contact with any conductor higher than 1kV. This is a proximity detector, not a detector which works by contact. As such, contact should be avoided.
- Always check that the voltage detector is working correctly before and after the test (press both push button to verify It's working perfectly before using the testers to detect voltage and after detection).
- Do not touch any exposed wiring, connections or other "Live" parts of an electrical circuit.
- **This instrument should only be used by a competent, suitably trained person which understands fully this test procedure. Personal working with High Voltage should be trained regularly. Use Protective gear.**



Caution, risk of electric shock.



Caution, refer to the user's manual.

2. General description

The **voltage detector** consists of an internal pickup AC sensor plate, a test (oscillator) and diagnostic circuit, an adjustable threshold comparator, a sound annunciator (buzzer), a visual indicator (super high bright led) and a 9V battery, all enclosed into the robust "beeper" style case.

The enclosure has a built-in clip to be able to be attached on the outer garments / external clothing or belt.

3. Principle of how it works

The **voltage detector** detects AC voltages using it's internal AC sensor plate. The AC sensor plate picks up part of the radiated electric field in volts per meter (V/M).

The electric field is amplified and processed by the internal circuitry and once the processed signal is above the threshold, triggers the input of a integrated circuit,

oscillators and led. The and Led lits a rate of 2 second.

The diagnostic depressing both push panel. The is always Please see on the front



which start the for the buzzer Buzzer beeps intermittently at beeps/flash per The "Self-test" is actioned by simultaneously button on the front battery monitoring ON. the priority of alert panel.

4. Check it and get it going

After inserting the battery, close the cover. The **voltage detector** will be ON automatically.

a. Check the working of voltage detector

Once the battery has been inserted, wait for a few seconds. If no beep and no flash occurs, press simultaneously the 2 push buttons.

While the 2 push buttons are pressed, the internal 50/60Hz oscillator will start oscillating (generates test signal) and this signal will be connected to the sensor.

While pressing the 2 push buttons, the buzzer and the led will function at a rate of about 2 beep/flash per second.

That indicate proper operation of the tester.

Release the push buttons, and wait for about 30 seconds. If there are no other beep/flash, that mean everything is correct.

b. Low Battery detection and indication

When the battery becomes to low, a beep/flash will happen about every 5 seconds, Replace the battery immediately.

c. Sensitivity

Covering the **voltage detector** with any kind of obstructive material could affect its sensitivity. It is advised to wear it outside clothing, clipped on the belt or on the pocket. Please note that the enclosure is static sensitive and can become charged and thus alarm may be triggered by excessive static.

d. Priority of functions - display and sound alerts



- (1) = Voltage Detected
= First Priority
= the tester beeps and flash twice per second.
- (2) = Simulated Test = Voltage Detected
= Second Priority (identical to 1St priority)
= the tester beeps and flashes twice per second.
- (3) = Battery Indication
= Third Priority
= the tester beeps and every 5 seconds.

5. Low voltage testing

Physical contact with electrical conductors is not necessary when testing for Live Lines proximity.

This tester works by proximity.

Its sensor senses the radiated field which surrounds live conductors.

It is recommended not to touch High Voltage wires with the **voltage detector**.

Radiated field strength increases with voltage and decreases quickly with distance or earth shielding.

Detecting distance of a 240Vac single Live Wire is about 10cm.

6. For best results

The **voltage detector** should always be WORN ON THE OUTSIDE of any clothing.

For example, clipped onto the pocket, belt or on the vehicle's mirror.

The **voltage detector** could be sensitive to static build-up and may become charged. In this case, this could trigger the alarm.

The **voltage detector** should be worn FACING THE DIRECTION OF WALKING TOWARD THE SOURCE. WHILE FACING THE SOURCE, THIS WOULD BE THE FRONT OF YOUR BODY (use the breast pocket).

Always ensure that the alarm can be heard and seen (in case of noisy environment, check again the alarm sound before using to ensure you can be alarmed)

7. Front panel layout



8. Back of voltage detector layout



9. Preparation for use

When unpacked, the tester should be inspected for any visible signs of damage, and the preliminary checks described (depress both push button for proofing the unit) should be performed to ensure that it is operating correctly.

If there is any sign of damage, or if the instrument does not operate correctly, return it to your nearest supplier.

This instrument is powered by one 9V type battery. Use alkaline for best results.

10. Checking and proofing the tester

Depress both push button simultaneously. The Buzzer will beep and the LED will flash twice per second if everything is correct with the proofing of the **voltage detector**.

11. Typical uses

Workers Safety.

Emergency services protection (fireman, evacuation personal, police, etc...)

Safely identify HV source while approaching it.

The user's has the **voltage detector** clipped on his breast pocket while working/walking in a electrical environment. The **voltage detector** will alert the user of any HV source near by and therefore the user will be able to take protective action before being close to the H.V. Identify and check AC live cables.

Check and Detect Live High Voltage Cables.

Neon lightning servicing. Tracing live wires.

Detecting of residual or induced voltages.

12. Broken wires in cables

Faults in damaged flexible cables are found by applying low voltage to each conductor in turn, earthing the remainder and moving the tester along the cable until the change in condition is obtained (flexible cables as used in mining and building industries are readily repairable when the break in the cable is located).

13. Non contact advise

It is advised that the tester should not come into contact with cables (kV) as this tester is merely an Non-Contact A.C. Proximity Tester.

This advise is particularly useful to protect users which do not respect protection and safety rules and who do not wear protective gear.

Never work or be alone in the proximity of high voltage.

14. Limitations on the voltage detector

It is recommended that this tester is not used in H.V. Yards of mixed voltages. In the presence of mixed voltages, the user will not be able to pin point exactly which cable is the source of H.V.. This tester has been designed to be used as a personal safety proximity voltage detector alarm. This is not a measuring instrument.

Problems can be arose when the tertiary circuit of a 275/133/11kV transformer is tested. The electric field of the H.V. And M.V. Bus bars can trigger the detector when it is about 3m above the ground (this is common with most of the electric field voltage detectors and the users should be aware of it).

The tester could pick up adjacent circuit to the one being tested and indicates the wrong information to the user.

15. Replacing the battery

The **voltage detector** has been designed to have a super low current consumption.

One alkaline battery could last up to one year or even more (Depending on the battery energy).

Once the low battery alarm is announced (beeps and flashes every 5 seconds), the battery should be replaced Immediately.

The **voltage detector** uses one 9V battery.

Remove the battery cover.

Ensure polarity is respected and replace with a new battery. (Photograph shows cover removed and new battery inserted.



16. Laboratory test results

Test Results

Test Instrument: 100kVAC High Voltage generator

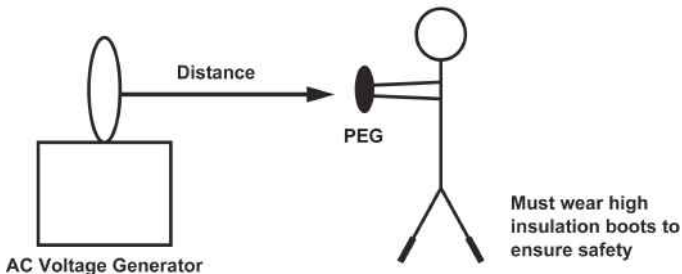
Test Temperature: 25°C

Relative Humidity: 65%

Accuracy: $\pm 20\%$

Source	Angle	Distance
240V	90°	5cm
1.0kV	90°	100cm
2.2kV	90°	130cm
3.3kV	90°	155cm
6.6kV	90°	210cm

For best test results, ensure there are no interferences or obstacles on the electric field we want to detect.



17. Specifications

ELECTRICAL

Detecting Range

Detection voltage : 240V~50kV

Static can also trigger the voltage detector. Ensure the voltage detector is not reacting to static but AC.

Operating Temperature: -15°C to + 55°C

Storage Temperature: -20°C to + 65°C

Humidity: 93% RH @ 40°C

Dimensions: 115(L)x67(W)x30(H)mm

Weight: 146g. (battery included)

Power Source: 9V battery x1

Safety Standard:

EN 61326 EN 55011 EN 61000-4-2 EN 61000-4-3

18. Limited warranty

We warrant the product manufactured by us to be free from defective material or factory workmanship and agree to repair or replace this product which, under normal use and service, disclose the defect to be the fault of our manufacturing, with no charge for parts and service. If we are unable to repair or replace this product, we will make a full refund of the purchase price.

Consult the user's manual for proper instruction regarding use of this instrument.

Our obligation under this warranty is limited to repairing, replacing or making refund of this test equipment which proves to be defective within 12 months from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way so as, in our sole judgement, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence or accident or which have had the serial numbers altered, defaced or removed.

Accessories, not of our manufacture used with this product, are not covered by this warranty.

All warranties implied by law are hereby limited to a period of 12 months, and the provisions of the warranty are expressly in lieu of any other warranties expressed or implied.

The purchaser agrees to assume all liability for any damages or bodily injury which may result from the use or misuse of the product by the purchaser, or it's user, his employees, or others, and the remedies provided for in this warranty are expressly in lieu of any other liability we may have including incidental or consequential damages.

We reserve the right to discontinue models at any time, or change specification, price or design, without notice and without incurring any obligation.