

*New indoor and outdoor High Voltage instrumentation transducers
extend our range of high accuracy HV sensors*

SURETECH™ HV Vehicle Sensor

Features:

- ✓ Senses high voltage at a safe distance on vehicle mounted boom cranes, tip-trucks etc. working near power lines
- ✓ HV voltage alarm thresholds can be set for high and low thresholds
- ✓ Accuracy can be calibrated if required
- ✓ Capacitively coupled to HV source through air
- ✓ Corona discharge filter, essential for reliable HV operation
- ✓ Electro-Static Discharge filter
- ✓ Hermetically sealed for reliability and long life
- ✓ Integral cable connection on sensor
- ✓ Transient suppression on input and outputs
- ✓ Wide selection of output options including, logic, analogue and RS232
- ✓ Power is taken from vehicle battery or PTO
- ✓ Galvanically isolated from HV source
- ✓ Engineering backup to provide you support for design, applications information, installation & calibration, maintenance
- ✓ For use on 50Hz and 60Hz systems
- ✓ Patent pending

HVVS System:

HVVS Base controller

- Central control module for HVVS system includes micro-controller
- Smart controller implements almost any user requirement
- Mounted in suitable location in vehicle
- Powered from vehicle battery
- Connected to PTO

Controls:

- Field operator: Normally none (optional settings for line voltage, and preset field strength level)
- Workshops: calibration, and maintenance settings
- Factory: Operating sensitivity

Outputs

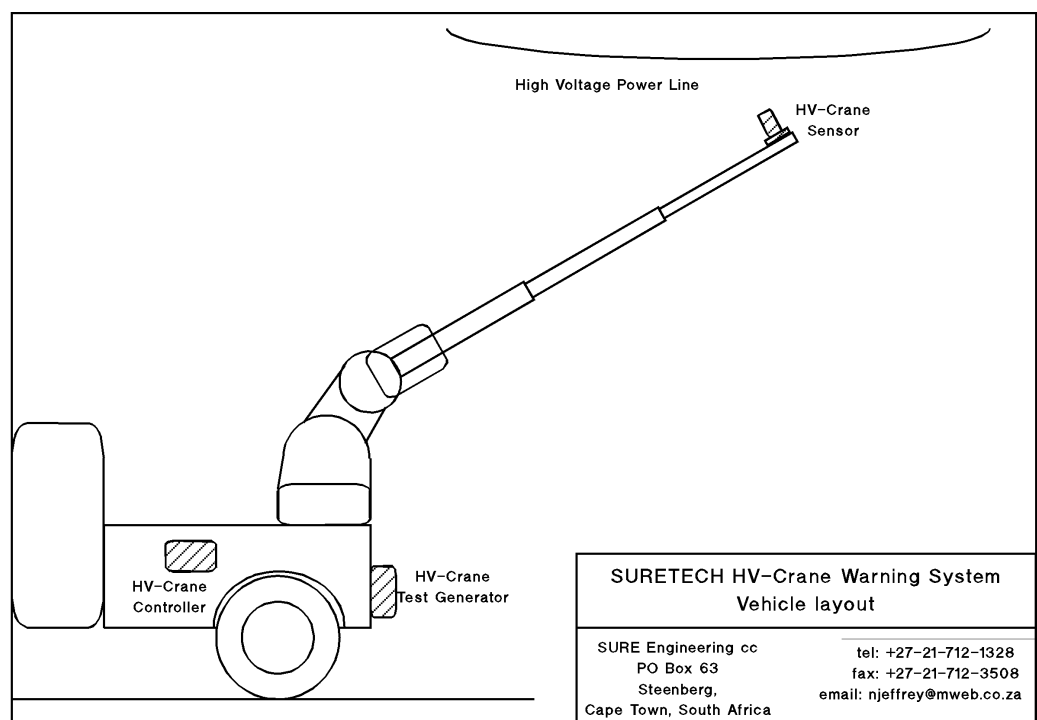
- Loud buzzer, and high brightness flashing display (rate of sound and light-flash increases as distance to powerline decreases)
- For system malfunction: open collector transistor OR relay output available for PTO inhibit
- Power On LED
- HVVS system malfunction LED
- Base controller can interface to two sensors

HVVS Audible and light box

- Waterproof box activated from base controller
- Mounted at each of the operator controls
- 120dB Audible warning horn
- High intensity xenon flashing light (continuous on for system malfunction)
- Power On LED
- Malfunction LED

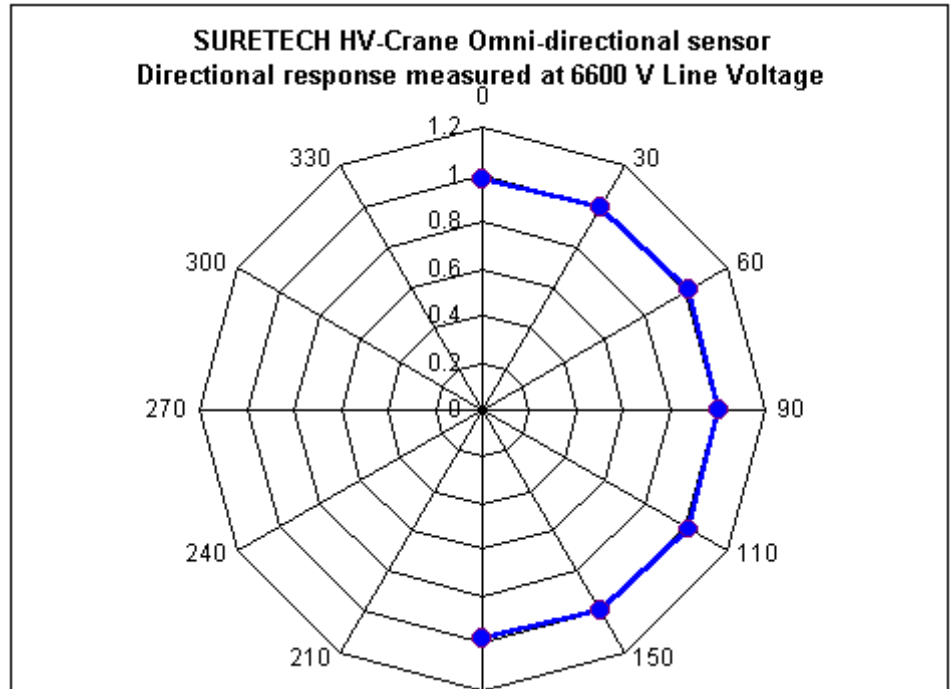
HVVS Automatic test generator

- Generates a high electric field to test the sensor every time the boom passes its home position
- Mounted near crane boom rest position to facilitate automatic system test
- Water proof box for flat plate mounting
- PTO activated vehicle power source
- Provision for "home position" micro-switch



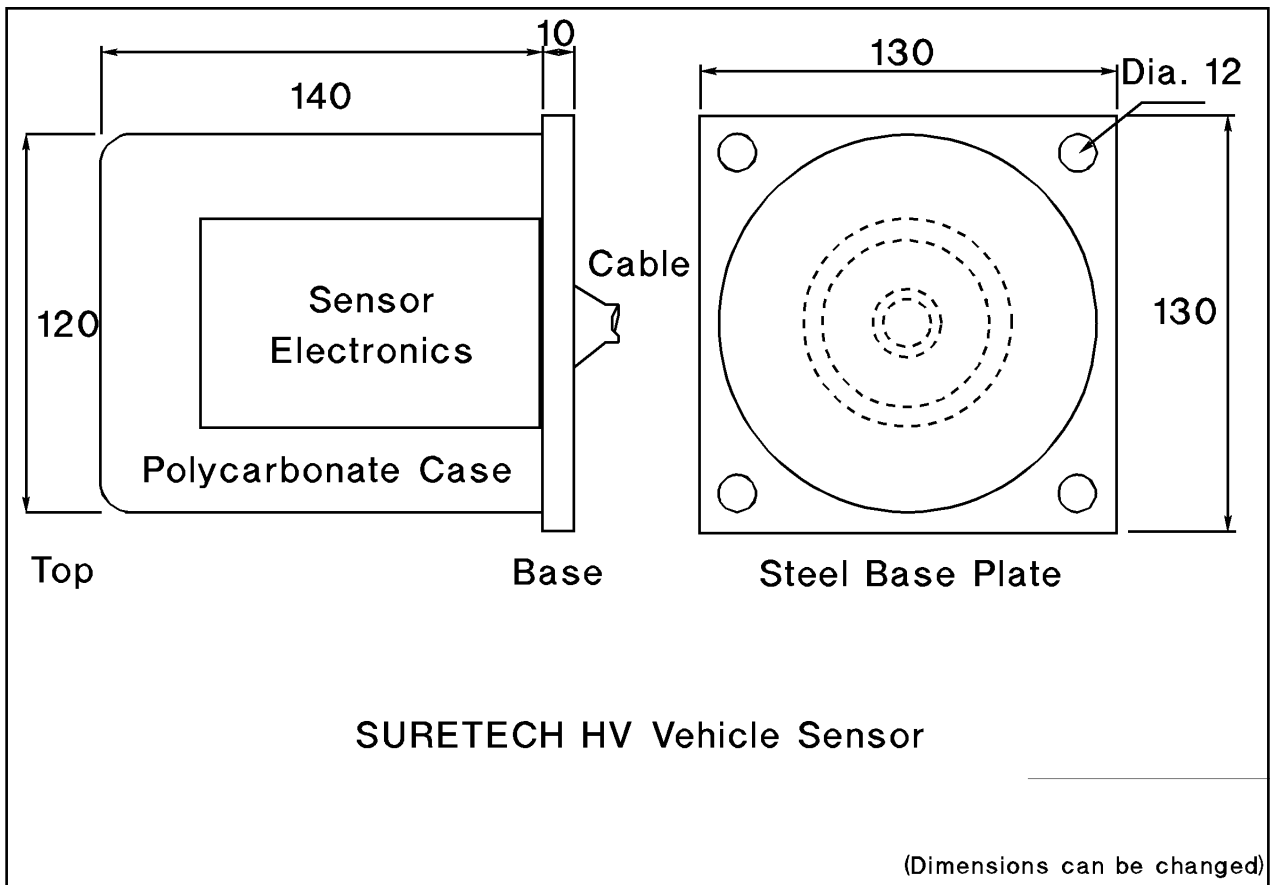
HV/VS Sensor

- Based on SURETECH™ HV/PT2 technology
- Robust sensor is fit for crane boom mounting
- Boom extensions facilitated by easy repositioning of sensor on extension boom or aerial bucket
- Ruggedised and water proof for outdoor life
- Sensor fitted with corona discharge filters
- Sensor gain factory set for required operating distance
- Omni-directional antenna over a hemisphere
- Quick remount clip for boom extensions and aerial buckets available



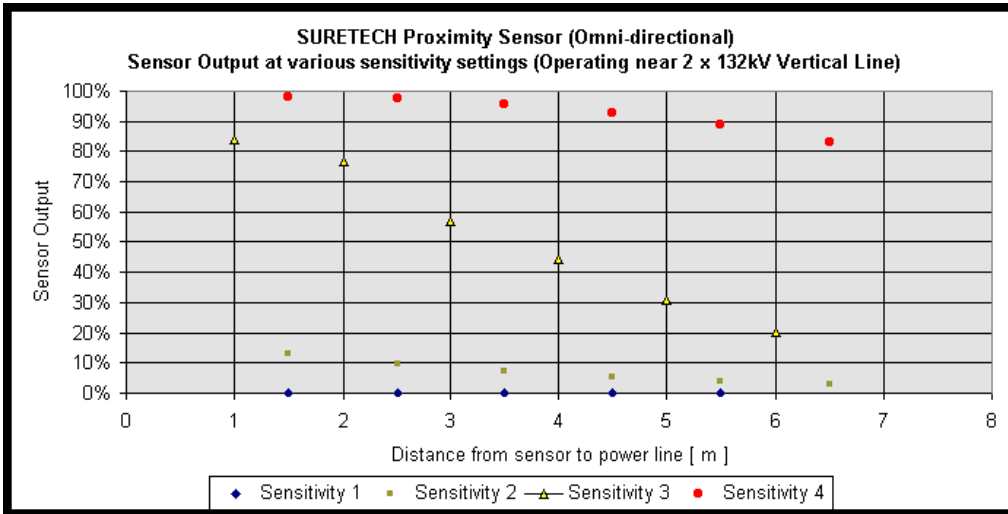
Cable interface options

- Extendible chain-enclosed cable feed for telescopic hydraulic extensions is available from a number of manufacturers
- Communication by multi-core cable (contained within chain enclosed cable feed)
- Field operated connectors for boom extensions are available
- Flexible screened cable for tip-truck interfacing

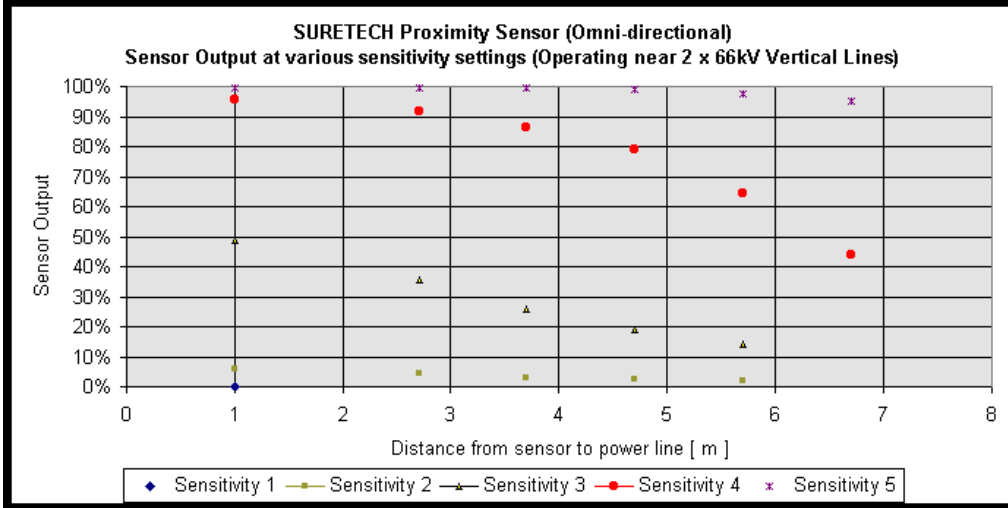


Operational sensitivity

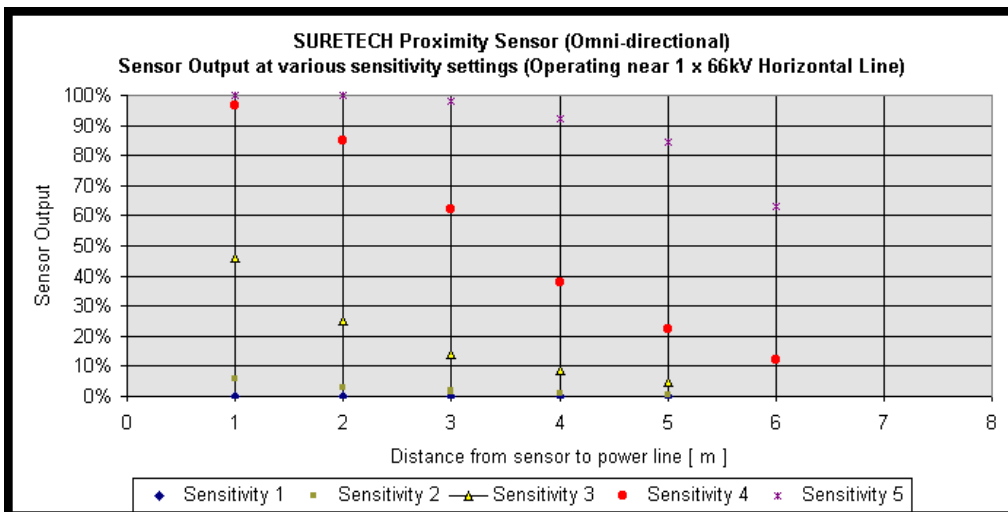
The following graphs show the operational sensitivity of the SURETECH HV/VS at various sensitivities selected, and on different voltage power lines. Operational distances can even be configured above 8 meters at most voltages. The graphs show the wide dynamic range response capability of the HV/VS system. Users should specify the response characteristics that they need.



132kV vertically arranged power lines. Response measured vertically under the lowest conductor



66kV vertically arranged power lines. Response measured vertically under the lowest conductor



66kV horizontally arranged power lines. Response measured vertically under the side conductor.

Operation at lower and higher voltages is also feasible. Safe operating distances for your organisation should be specified so that we can pre-adjust the sensor logging operating ranges. Linear outputs are available, or logic thresholds can be output, or RS232 outputs are available for data logging purposes.

Common Applications

1. Electric power utility organisations often need to maintain and upgrade power lines with their fleet of vehicle mounted cranes, aerial towers and platforms
2. Fire departments have aerial ladders and towers from which they operate
3. Telecommunications and broadcasting organisations
4. Farms are very often supplied by an MV supply, which is reticulated across their fields. Harvesters and tractors with special attachments are vulnerable.
5. Mobile home companies use large mobile cranes that are often required to operate near power lines
6. Railway trucks equipped with cranes are often required to operate near railway power lines
7. Construction companies have a variety of vehicles such as tip-trucks, power shovels, concrete mixers and cranes, all of which sometimes are required to operate near power lines

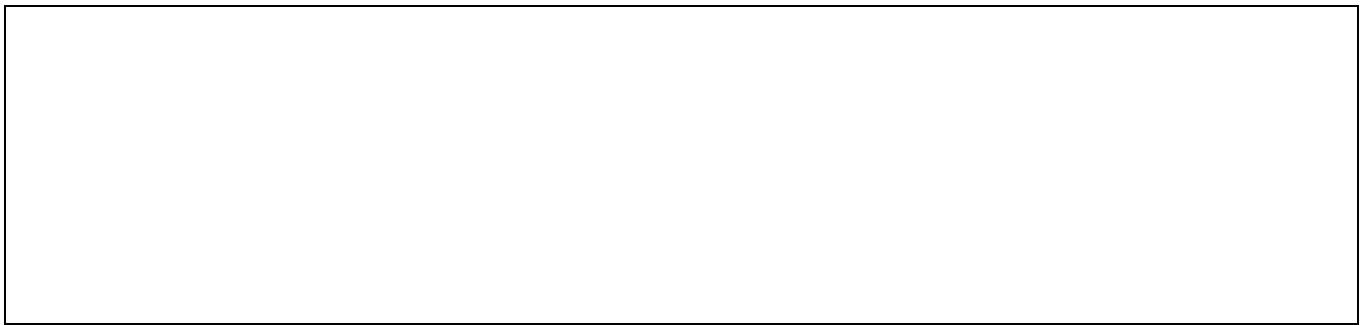
What is it like to operate near power lines?

Field and project work often needs to be carried out near power lines, such as inspections, trench digging, power line surveys, regular maintenance, upgrading of equipment etc. Working personnel are usually not qualified to determine whether the power line is energised or not, nor to determine how close they can approach the power line before it is unsafe. Normally operators obtain a permit to do the work required, and the permit together with other operating procedures, would specify operational restrictions. These procedures and permits are often designed to cover managers, who are responsible for the safety of their workers. Sometimes the procedures are not practically helpful to assist the operator due to bad communication. In many cases the job is done as an emergency, so permits get drawn up in a hurry (or sometimes after the job is done!!!), messages are transferred over the radio network, communications are not the best, and mistakes occur due to "cutting corners". Visual judgement of clearance between raised booms and power lines is subject to error. A background of trees, or a bright sky often impairs power line visibility. All of the above factors can easily result in tragedy.

Four pillars of SAFETY

Safety is everyone's concern, and should be a co-operative venture. Our model of SAFETY places it on four pillars. If any one of the pillars is eroded, then operator safety is jeopardised. Safety can never be absolutely guaranteed, but rather everyone concerned should take the approach of continuously improving safety. These pillars of Safety are:

1. **PROCEDURES** : Procedures should be set up by managers of engineering, safety, quality and any other division of the organisation that could contribute to these procedures. Organisational feedback mechanisms such as Quality Assurance personnel must ensure the efficacy and practicality of procedures. Operators should be engaged to contribute to the writing up of these procedures so that they can "own" them
2. **TRAINING**: Managers should ensure that the staff operating under their control is trained effectively. Training material needs to be prepared and delivered to operators. Organisational feedback mechanisms such as Quality Assurance people, must ensure the efficacy and practicality of training
3. **EQUIPMENT** : Equipment and instrument suppliers should be engaged in the design and manufacture of equipment that continuously enhances operator safety by informing them of plant status at all times
4. **OPERATOR** : Operators should be trained to take responsibility for their own safety by working intelligently, and with a clear mind. Operators also need to continually ensure for themselves that.
 - A. the procedures under which they are working, AND
 - B. the training that they have received, AND
 - C. the equipment and instruments that they are working on are
 - D. ALL understood and applied to the task at hand in a coherent manner



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