

SEM RAD

in the business of protecting lives

High Voltage Proximity Detector



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The Excavator 110 is a solid state electronic safety system that provides both audible and visual warning signals to alert the operator and attending ground personnel when the boom comes within proximity of an energised high-voltage power-line.

Theory of Operation;

Semrad's HVPS-110 proximity warning system is a reliable and finely tuned "radio" designed to receive only one selective and potentially life-threatening "STATION"; the detectable field present around all high voltage transmission (power) lines. Unlike your radio, which may pick up unwanted stations and/or static, your HVPS-110 will only receive 50Hz. The unit can also be adjusted to alarm at 60Hz for countries using 60Hz power lines.



The strength of the signal (field) depends on the voltage and the distance from the lines. For example, the field strength of 110 volts at 4.5m would be roughly the same as created by 11,000 volts at 45m. Simple adjustment of COARSE and FINE controls on the HVPS unit permit accurate and repeatable settings at which an operator would like a warning. After the original desired setting is made, a visual and audible alarm will occur whenever the "danger zone" is approached.

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Features;

- System goes to maximum sensitivity when first activated.
- The system can be activated automatically at engine start-up, or by use of the power switch on the control panel.
- The entire length of the boom, from tip to base, is protected. Any part of the boom that enters the warning zone will set off the alarm.
- The complete system test function, tests and confirms the alarm sensing circuitry, antenna, alarm horn and alarm light and may be initiated at any time by the operator.
- No false alarms due to external interference.
- Can provide warning of lightning.
- Simple adjustment of warning zone, voltage of power lines is not needed.
- Simple installation.

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HVPS-110 Specs

Power Requirements	Input Voltage - +11 to +15VDC Input Current - Standby 200ma DC max Operating - 4 amperes DC peak
Operating Temperature	-34°c -70°c
Alarm Outputs	Visual Red flashing light Repetition rate; proportional to electric field intensity at the sensor cable, up to a maximum of 5 repetitions/second. Audio Repetition rate; proportional to electric field intensity at the sensor cable, up to a maximum of 5 repetitions/second.
Sensing	Electric field; 50Hz
Sensitivity adjustment	Front panel controls provide means for coarse and fine adjustment of Semrad's HVPS-110 sensitivity. The coarse control adjusts the sensitivity by 1.0, 10, 100, 1000, 10 000 and 100 000. The fine control adjusts the sensitivity within each range set by the coarse control, providing a means of continuous adjustment of sensitivity from zero to the maximum sensitivity set by the coarse control.
Size	20.3 x 19.2 x 10.2cm
Range of effectiveness	Depending upon the proximity of the overhead high voltage line, and its intensity, the HVPS-110 can be adjusted to actuate the warning alarm at any desired distance from 10 feet (<i>OSHA minimum</i>) to several hundred feet.