

Ice Detection and Advance Warning System

Wet roads are not always wet roads and Black Ice is not black. In fact it's invisible, making any advanced detection of icy conditions extremely difficult.



SA Ice Detection is an Advanced Warning System that utilizes Surface Temperature which is measured by an accurate non-contact infrared temperature sensor. Air temperature and relative humidity are also measured achieving higher levels of detection accuracy.

- System alerts vehicle operators or pedestrians of hazardous icy road conditions by locally or remotely flashing SignAlert Warning Signs
- Provides surface temperature, air temperature, relative humidity and dew point measurements that will collectively be used to maximize detection accuracy
- SignAlert Systems triggered directly from a Non-Invasive Road Surface Condition Sensor
- Can be used to trigger other signs within a configured network.



The USDOT Federal Highway Administration data lists an average of 1,836 deaths and 136,309 injuries per year due to snowy and icy roads. These figures represent a 10 year average between 2005 and 2014.

Snow / Sleet	210,341 crashes	4% of vehicle crashes
	55,942 persons injured	3% of crash injuries
	739 persons killed	2% of crash fatalities
Icy Pavement	151,944 crashes	3% of vehicle crashes
	38,770 persons injured	2% of crash injuries
	559 persons killed	2% of crash fatalities
Snow / Slushy Pavement	174,446 crashes	4% of vehicle crashes
	41,597 persons injured	2% of crash injuries
	538 persons killed	2% of crash fatalities

Specifications

Surface Temperature Sensor	
Weight with Battery	2 lbs.
Dimensions	8" x 3" x 3" (20 x 8 x 8 cm)
Voltage	9.6 - 16 VDC
Current Draw	170 μ A (average at 2 minute measurement without fan), 210 mA (max with fan running) at 12V
Operating Temperature	-40° to +185° F (40° to 85° C)
Surface Temperature Range	-40° to +185° F (40° to 85° C)
Surface Temperature Accuracy	$\pm 1^\circ$ F at 32° F otherwise $\pm 2^\circ$ F ($\pm 0.5^\circ$ C at 0° C other wise $\pm 1^\circ$ C)
Surface Temperature Reaction Time	63% of step change in 1 second
Air Temperature Range	-40° to + 149° F (-40° to 65° C)
Air Temperature Accuracy	$\pm 0.4^\circ$ F at 32° F otherwise $\pm 1^\circ$ F ($\pm 0.2^\circ$ C at 0° C otherwise $\pm 0.5^\circ$ C)
Air Temperature Reaction Time	63% of step change in 15 minutes
Elevation Angle	35 - 90° from vertical
Field of View	12°
Measuring Area	2 ft (0.6 m) diameter at 10 ft (3 m)
Mounting	2x2 in spaced 1/4" - 20 threaded PEM nuts
Flush Mounted LED Flasher Rings	
Size	Various X .625" available
Mounting	Outdoor rated Mounting Tape and provisions for easy match drilling and riveting.
LEDs	Amber (590nm): 15 degree cone of view; Rated 100,000 hours; 2.4K CDA/ M^2, Auto Dimming Employed
Power	10V to 18V 0W standby or OFF (No power required)
Flash Patterns	50 - 60 flashes per minute; 50% Duty Cycle. Additional alternative flash patterns available and are user programmable
Dimming	255 levels as determined by solar panel illumination or light sensor (AC)
System Operating Temperature Range	
Weight with Battery	12 lbs
Voltage	11VDC to 15VDC (VBATT)
Charger	MPP solar charger 14.2VAC Output, 17.2V MPPV, 30W
Battery	LiFePO4 10Ah standard. Optional: ATB (Pb SS) 13 Ah wide temperature available
Autonomy	7-days
Panel Supplied	20W, 17.2V MPPV, 21.6V open circuit
Outputs	Beacon – 2 each 20W Max. DC high side driver output
Mounting	Pole mount adapter

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