Road Weather Sensors

OpenWeather provides an integrated suite of road weather sensors designed to deliver real-time insight into surface and atmospheric conditions across transport networks. The solution combines road state detection and surface temperature monitoring to support safer, more efficient road operations in all weather conditions.

Using advanced remote sensing technologies, the system continuously measures key parameters such as surface temperature, water, ice, and snow presence without disrupting traffic or requiring invasive installation. Integrated with OpenWeather's analytics platform, these sensors enable early hazard detection, proactive maintenance, and data-driven decision-making for road authorities and infrastructure operators.

Suitable for every use case

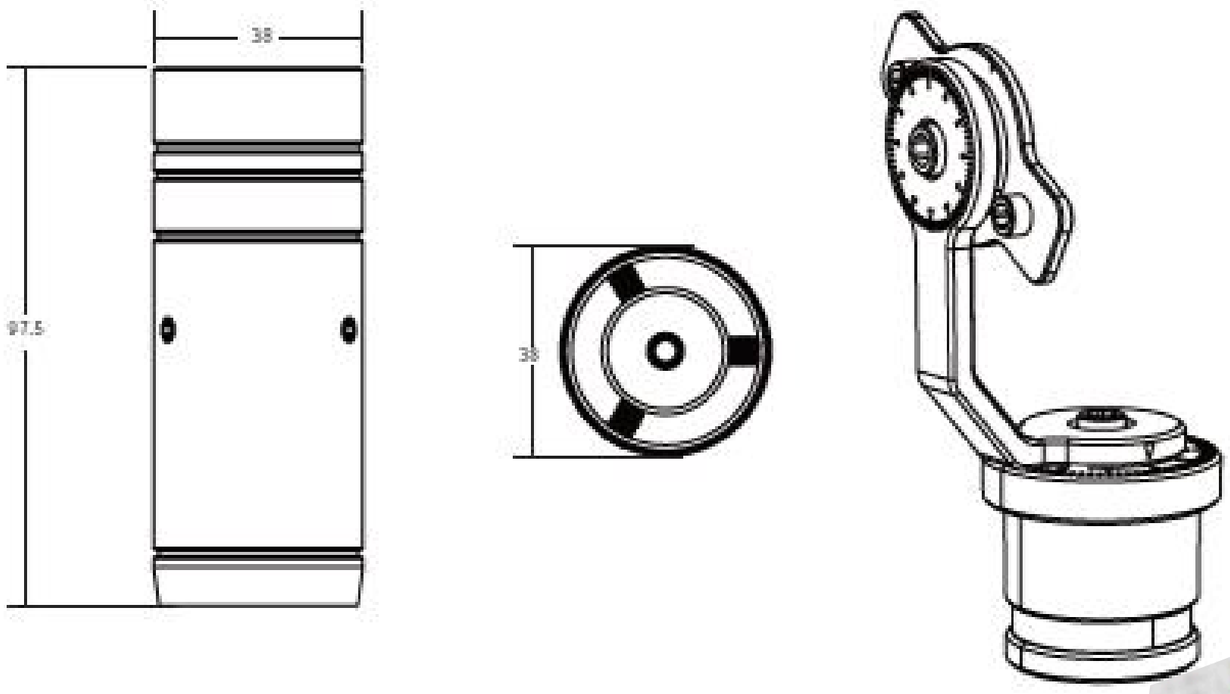
- Winter road maintenance
- Road safety & accident prevention
- Smart traffic management
- Bridges & critical infrastructure monitoring
- Urban smart city deployments
- Airports & logistics hubs

ITS1000
Infrared Road Surface Temperature Sensor

The TS1000 is a high-precision infrared sensor designed for accurate, non-contact surface temperature measurement across road and environmental applications. It offers excellent accuracy, fine resolution and fast response times, enabling reliable detection of temperature changes and icing conditions.

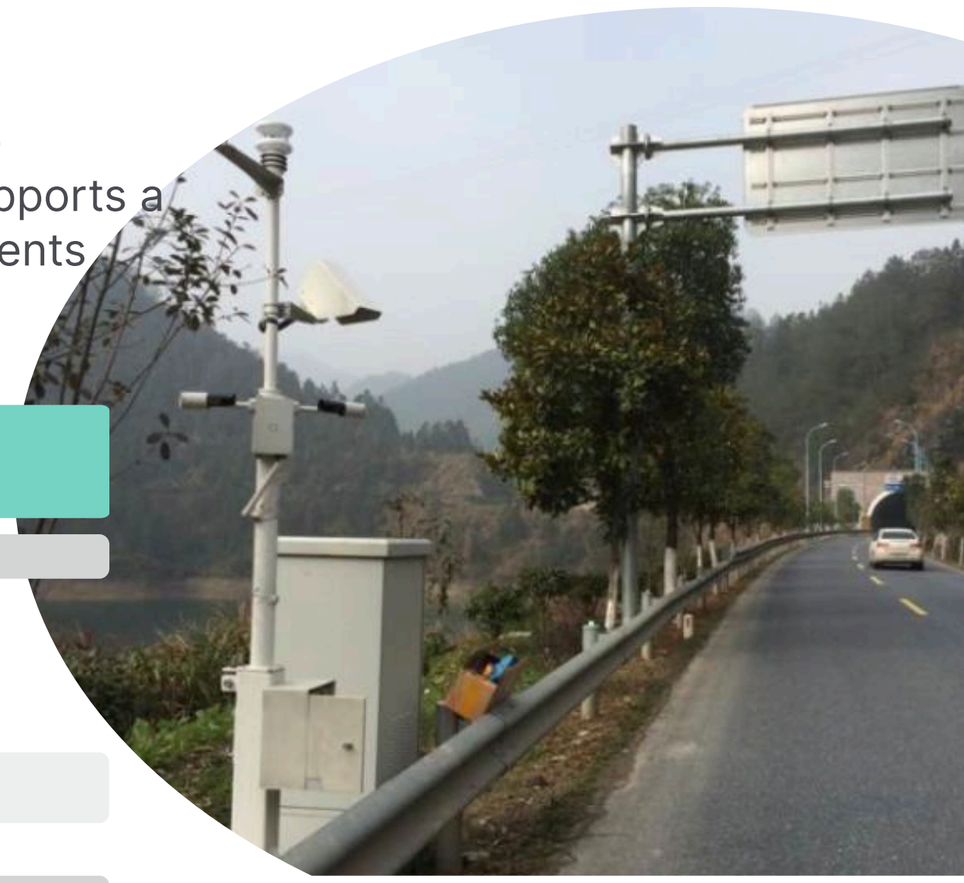
Technical Parameters

Temperature measuring range	-40°C ~70°C
Temperature measuring accuracy	±0.2°C (-10°C ~65°C), ±0.5°C (-40°C ~70°C)
Mearsuring resolution	0.02°C
Measurement uncertainty	±0.1°C , Repeatability ±0.05°C (-10°C ~65°C)
	±0.3°C , Repeatability ±0.05°C (-40°C ~70°C)
Response time	<1s
Wavelength range	8~14um
Measuring angle	22°
Communication interface	RS485, SDI12
Supply voltage	7~24V
Dimensions	38mm× 97.5mm
Weight	200g
IP class	IP65



HY-RSS11E
Professional Non-Contact Road State Sensor

The HY-RSS11E is a high-performance, non-contact road surface sensor designed for safety-critical applications where accuracy and flexibility are essential. It measures water, ice, and snow thickness up to 10 mm and supports a wider installation range (2–13 m), making it suitable for complex environments such as bridges and elevated roadways.



Technical Parameters

Installation:			
Measure distance(c):	2~13 meters		
Measure area diameter(d):	typical 20 cm		
c:d = 30:1	Installation angle:	30-90°	

Technical:			
Distinguishable road state between:		Dry, Moist, Wet, Snow, Ice, Slush	
Applicable road material:	Concrete and asphalt		
Water range:	0~10 mm	Resolution:	0.01mm
Ice range:	0~10 mm	Resolution:	0.01mm
Snow range:	0~10 mm	Resolution:	0.01mm
Water range:	0~10 mm	Resolution:	0.01mm
Water, ice, snow thickness		Accuracy:	±1mm
Grip level:	0~0.82	Resolution:	0.01mm
Surface temperature:	-40~70°C	Resolution:	0.01mm
Accuracy:	±1°C	Lens contamination compensation:	Automatic
Serial Output:	RS232 or RS485	Formats:	active ASCII output or MODBUS-RTU
Power supply:	12-24 VDC	Operating temperature:	-40 ~ +70°C
Operating humidity:	0 ~ 100%	Protection Grade:	IP65
Dimension:400(L)×136（W）×220（H）mm			

HY-RSS12E
Cost-Effective Road State Sensor

The HY-RSS12E is a reliable, non-contact road surface sensor designed for scalable and cost-efficient deployments across road networks. While it offers the same core detection of surface states (dry, wet, ice, snow, slush), its measurement range is limited to 2 mm and installation flexibility is reduced (2–8 m), making it best suited for standard applications.

Technical Parameters

Installation:

Measure distance(c):	2~8 meters		
Measure area diameter(d):	typical 20 cm		
c:d = 20:1	Installation angle:	30-80°	

Technical:

Distinguishable road state between:		Dry, Moist, Wet, Snow, Ice, SLUSH	
Applicable road material:	Concrete and asphalt		
Water range:	0~2 mm	Resolution:	0.01mm
Ice range:	0~2 mm	Resolution:	0.01mm
Snow range:	0~2 mm	Resolution:	0.01mm
Grip level:	0~0.82	Resolution:	0.01
Surface temperature:	-40~70°C	Resolution:	0.1°C
Accuracy:	±1°C	Lens contamination compensation:	Automatic
Serial Output:	RS232 or RS485	Formats:	unsolicited ASCII or MODBUS-RTU
Power supply:	12-24 VDC	Operating temperature:	-40 ~ +70°C
Protection Grade:	IP65		

HY-IRS2E
Infrared Surface Temperature Sensor

The HY-IRS2E is a compact infrared sensor dedicated specifically to surface temperature measurement, complementing road state sensors such as the HY-RSS series. Unlike the RSS11E and RSS12E, it does not measure water, ice, or snow thickness, but instead provides accurate temperature readings critical for identifying icing risk.

Technical Parameters

Installation:

Measure distance(c):	2~13 meters	Measure area diameter(d):	c:d = 8:1
Mounting kits is suitable for poles with 20~80 mm diameter.			

Technical:

Surface temperature:	-40~70°C	Resolution: 0.1°C	Accuracy: ±1°C
Serial Output:	RS485	Formats:	MODBUS-RTU
Power supply:	7-12 VDC	Operating temperature:	-40 ~ +70°C
Protection Grade:	IP65		

OpenWeather

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