Road Weather Monitoring Solutions

Flexible and dynamic road weather monitoring: reliable data to increase efficiency and reduce cost

Campbell Scientific’s non-invasive RWIS solutions are low maintenance, easy to install and provide a cost-effective way to supplement existing measurements and increase operator confidence in route based weather forecasting.
Flexible, reliable, trusted: Turnkey Road Weather Monitoring Systems

Road Weather Information Systems (RWIS) from Campbell Scientific incorporate over 40 years of measurement and data collection experience to deliver an end to end solution dedicated to solving the toughest road weather challenges.

Total Flexibility
All Campbell systems are sensor and platform agnostic; we can interface with any sensor, any protocol and provide data in any format to forecasters. This affords an unrivalled level of system interoperability.

Whether you need to upgrade an existing network with replacement measurement stations, extend current networks with additional measurement capacity or build new networks entirely, our flexible, tailored solutions deliver exactly to your requirements.

Unrivalled Reliability
Campbell systems operate in some of the most hostile environments globally. From extremes of temperature to corrosive salt environments, our equipment provides operators with many years of trouble free, low maintenance operation.

The Campbell temperature monitoring solution is non-invasive, robust and low maintenance, significantly reducing on costs associated with unplanned maintenance activities.

The Campbell Difference
Campbell Scientific equipment is the trusted heart of critical systems globally, transforming accurate and reliable measurement data into actionable insight.

This data provides a platform for decision makers to make fully informed, safety critical decisions from positions of confidence across multiple industries including surface transportation (roads, railways and airports), weather forecasting (national meteorological and hydrological monitoring networks) and critical infrastructure monitoring (roads, bridges, buildings and dams).

When measurements matter, trust Campbell.

Confidence at the Margins
With Campbell road monitoring solutions, operators are able to increase the spatial resolution of their RWIS networks, providing a more granular view of temperature differences across a transportation network.

This provides operators with the data and confidence to dynamically adjust treatment routes to better target those areas at greatest risk of ice formation, helping to reduce costly and sometimes unnecessary treatment runs on marginal winter nights.

Scalable installations
Campbell solutions can flex and scale to suit any number of potential installations, be it a national road network incorporating thousands of sensors or a local installation with only a few monitoring stations. As a result, highway authorities are increasingly using Campbell systems to provide trusted, reliable data to aid in their winter maintenance decisions, regardless of scale.
Flexible, reliable and dependable road weather monitoring solutions

Proactive road weather monitoring is a key tool in ensuring that critical transportation infrastructure remains operational during adverse weather conditions.

A network operator needs to have accurate, reliable, high quality data on demand to ensure any changes in treatment strategy are taken proactively based on real-time conditions.

With Campbell Scientific road weather systems, the Campbell datalogger is at the heart of your monitoring network. Providing seamless compatibility with the majority of third party sensors, a Campbell road weather system can be installed as a whole new system or retrofitted to upgrade existing RWIS installations utilising third party sensors.

This flexibility ensures operators can maintain a common platform for their RWIS stations, without being locked to a specific manufacturers system offering.
### Measurement in action

Campbell Scientific’s Road Weather Monitoring Solutions are installed globally, here are some examples of them in action.

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<td>The 50km long Channel Tunnel connects the United Kingdom with France with a set of three tunnels that pass beneath the English Channel carrying around 4.2 million vehicles annually. Campbell Scientific installed 7 automated weather stations around the Channel Tunnel terminals, connected to multiple displays in control centres at both ends of the tunnel. The Channel Tunnel IceWatch system provides multiple measurements including road surface temperature (embedded and non-invasive), air temperature and relative humidity, wind speed and direction and present weather for classification of precipitation type. Data is provided to the control centres in real-time, enabling operators to take proactive treatment decisions to prevent unnecessary and costly tunnel closures due to ice formation.</td>
<td>In 2014 the Welsh Government decided to upgrade their existing nationwide trunk road weather monitoring systems. The existing network of stations had been in use for over 10 years and were becoming difficult to maintain and repair. The upgraded network needed to be reliable, easy to maintain and allow for speedy fault diagnostics and calibration. The new weather stations use a mix of existing sensors and new Campbell sensors, and provide seamless data transmission to the client’s preferred weather forecasting provider via Campbell Konect software solutions. This enables the Welsh Government to operate their regional trunk roads securely and efficiently. Campbell software solutions were also supplied to support data transmission and run graphical data displays.</td>
<td>Utah Department of Transport (UDOT) maintains a network of RWIS weather stations across the State of Utah. The network includes 85 Campbell Scientific road weather systems with CS125 present weather sensors, used to provide real-time data for the UDOT snow and ice performance measure, providing critical information to snowplough crews. Present weather data from CS125 sensors is used to estimate snowfall rates, which are combined with other meteorological parameters such as road temperature, wind speed and wet-bulb temperature to create a real-time storm intensity index. This real-time index informs UDOT meteorologists of how much weather the snowploughs are facing on a given road at that time. Comparisons against road conditions enable UDOT meteorologists to determine if the storm intensity index is meeting their level of expectations. Snowfall rates calculated from CS125 sensors are also analysed alongside real-time data from 45cm (18 inch) soil temperature probes, allowing meteorologists to establish the snowfall rate needed to overcome the road, and mobilise snowplough crews accordingly. The collected data is distributed and made available to local forecasters, news outlets and the general public.</td>
<td>Campbell Scientific road weather systems operate throughout Canada which experiences some of the harshest road weather conditions in the world. In the city of Kelowna, Campbell Scientific was selected to upgrade an existing RWIS network to non-invasive technologies in 2015. Measurements within this network include surface temperature, freezing point temperature, water film height, salt concentration, snow height, ice percentage, air temperature, relative humidity and camera images using Campbell Scientific cameras. Similarly, the District of Mission has recently upgraded their RWIS network with non-invasive systems from Campbell Scientific.</td>
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Cloud-based data management system

Konect Data Services from Campbell Scientific provide a simple way to collect and visualise measurement data from connected dataloggers or sensors in the field.

Offering exceptional data security and resilience, Konect provides a platform for cost effective data driven decision making with real time and trend data available at your finger tips.

Konect is accessible from any internet enabled device via any browser, can collect and display data from virtually every sensor or measurement parameter on the market and provides an exceptional platform for remote or on-site monitoring.

For more information contact our expert Meteorologist David Hammond on:

+44(0)1509 828 888

e: david.hammond@campbellsci.co.uk

You can view in-depth technical information on all Campbell products on our website:

www.campbellsci.eu