CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

FLOOD WARNING (ALERT)

Real-time Monitoring and Control Systems

Campbell Scientific designs and builds standard ALERT, ALERT2, hybrid ALERT, and customized flood-warning systems. This includes a turn-key transmitter packaged in a traditional ALERT-style canister for standpipe installation. The dataloggers at the heart of our systems have been proven over decades in the harshest, most remote conditions. You can add our systems to an existing network of stations, or we can customize a system for your unique application.

RELIABLE SINCE 1974 MONITORING

MAJOR SYSTEMS

	Measurements	Control	Datalogging	Communications
ALERT121A Basic Remote Data Collection Platform 	Precipitation Water level Temperature	No	No	ALERT
ALERT121A Standard Remote Data Collection Platform 	Precipitation Water level Temperature Relative humidity Wind speed and direction	Yes	Yes	ALERT2 ALERT Hybrid ALERT Custom
ALERT121A Advanced Remote Data Collection Platform 	Precipitation Water level Temperature Relative humidity Wind speed and direction Barometric pressure Solar radiation Other	Yes	Yes	ALERT2 ALERT Hybrid ALERT Custom

Custom Systems

Most of the systems we sell are customized. Tell us what you need and we'll help you configure a system that meets your exact needs.

ALERT Stations

Our ALERT stations match all standard ALERT protocols. Our dataloggers, proven in thousands of applications world-wide, provide multiple types of inputs (pulse, analog, SDI-12, and others), which allows use of almost any type of water level sensor including pressure transducers, shaft encoders, bubblers, and ultrasonic distance sensors. Onboard algorithms can calculate hourly and daily minimums, maximums, averages, totals, flow, or any other statistical value. These values can be stored on-board the station, providing a backup of data. A solar panel can provide continuous charge to the battery for extended unattended monitoring.

Additional sensors to measure soil moisture, water quality, or meteorological conditions can easily be integrated. We can upgrade older stations, even those from other manufacturers, with the latest datalogger and transmitter, often allowing you to use the same sensors and standpipe or enclosure.

Hybrid ALERT Stations

Our hybrid stations consist of an ALERT station integrated with additional sensors and communications peripherals. One or two radio frequencies can be used, depending on your needs. With a single frequency, two-way communications would be avoided during storm events to allow more bandwidth for one-way ALERT communications. However, some customers choose to use two frequencies: one for ALERT and the other for a fully-functional, two-way communications network. This provides the following inherent advantages::

- Retries of missed packets
- Diagnostics
- Clock synching
- Re-programming from the base station
- Historical data collection (no holes in the data)
- Interactive control capability
- Voice modem call-out of alarms

The ability to measure additional parameters at an ALERT site, or integrate ALERT capabilities with another type of measurement site can lead to collaboration between organizations that can help keep costs down.

Customized Flood Warning Network Using LoggerNet Software

A flood warning network that uses LoggerNet software takes advantage of two-way RF communications and the latest in network management software. LoggerNet is a client/server software program used for managing large networks of monitoring stations. A LoggerNet-based system is a viable solution to flood warning applications because of the speed with which LoggerNet can poll multiple RF stations and the speed and versatility with which LoggerNet can make the data available to multiple interested parties. For example, DIAD has a client that links DIADvisor to the LoggerNet server.

When a "send data" command is broadcast to a group of remote stations, the stations transmit predefined data to the LoggerNet server in their own time window. Transmission windows can be as short as 100 ms, allowing multiple sites to be polled per second. As the data is collected, LoggerNet clients can access it from LANs or via the Internet, making data available to multiple users/agencies in near real time.

Other Resources and Options

To meet customer needs, other resources and communications options can be combined with flood warning systems. Commonly, local governments will combine resources to obtain the best possible system. In other situations, federal agencies can be involved to increase system coverage and robustness, and even help with the budget. For example, INMARSAT satellite transmitters or 3G modems can be added to stations to provide automated data archival. Multiple purpose data collection systems bring to bear the resources and expertise of environmental data experts.