



*Environmental
Monitoring...*

Instrumentation & Services

High Sierra Electronics



Tom Ogden

Sales Manager

Driftless Area

*Hydrologic
Systems*

Workshop

November 5, 2009

www.highsierraelectronics.com

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Presentation Outline

- High Sierra Electronics
- Services
- Equipment
- Software



High Sierra Electronics

- Founded in 1991
- Based in Northern California
- Twenty Five employees
- Systems across the country
- Federal, State, City and County Systems
- ISO 9001:2000 Certified Company

High Sierra Electronics

- The foundation of our business is building and supporting Local Flood Warning Systems
- High Sierra is represented on the Board of Directors of both AUG and NHWC
- High Sierra Chief Engineer is one of three members of the ALERT II Technical Committee

ISO 9001:2000

- International Standards Organization Certification
- Requires that procedures are in place to insure continuous improvement of products, systems and customer satisfaction
- Requires ongoing audits to retain certification

High Sierra Electronics provides:

- ALERT Data Transmitters
- Data Loggers
- Gauge Standpipes & Environmental Enclosures
- Automated Sensors including:
 - Water Level Sensors
 - Tipping Bucket Rain Gauges
 - Temperature, Humidity, Wind, Barometric Pressure – complete weather stations
- Batteries, Solar Panels, Cables, Antennas & Mounting Hardware
- Computerized Flood Forecasting Models

Services

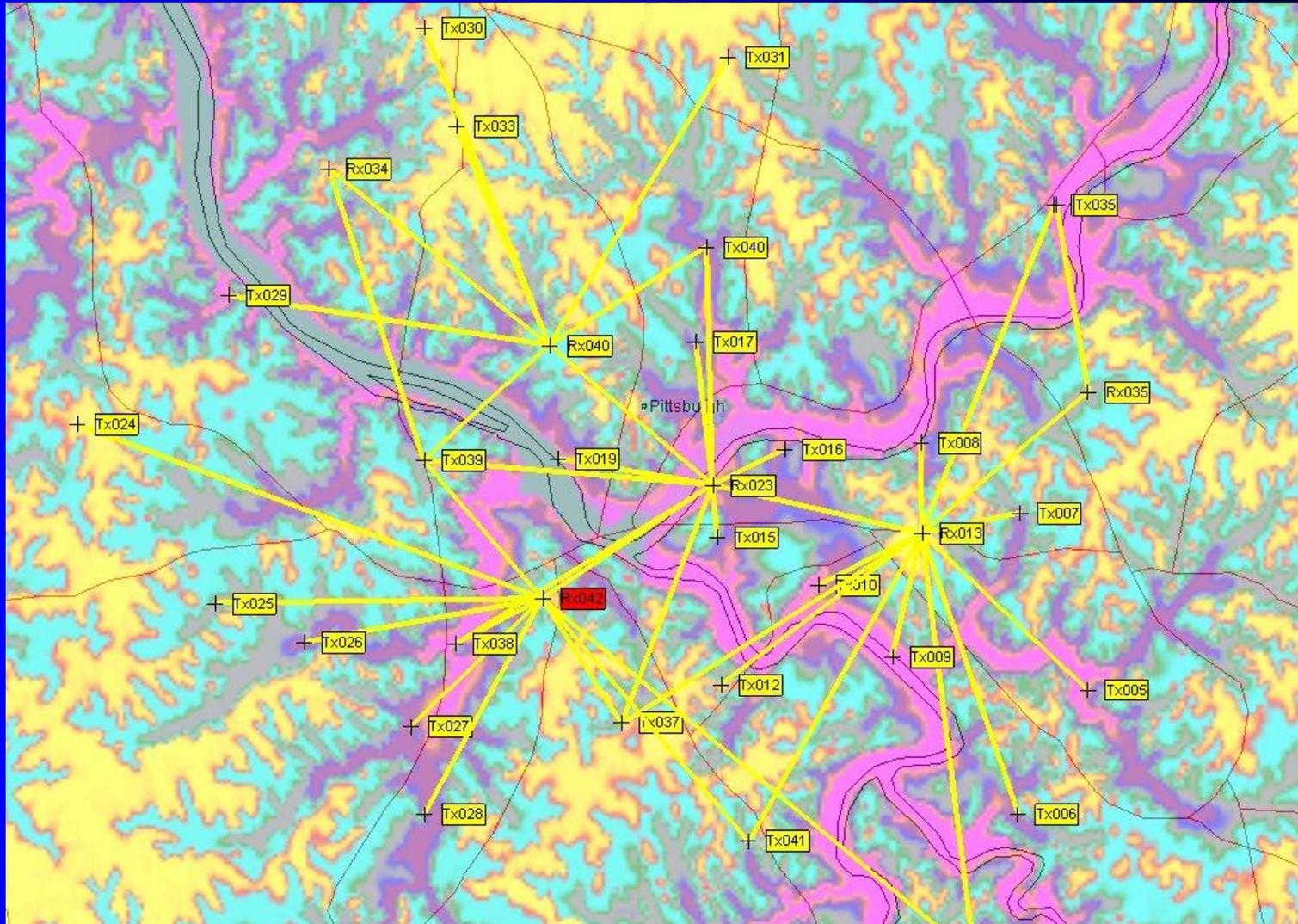
- System Design
- Site Surveys
- Radio Path analysis
 - Computer modeling
 - Field Tests
- Turnkey Installations
- Training
- Maintenance

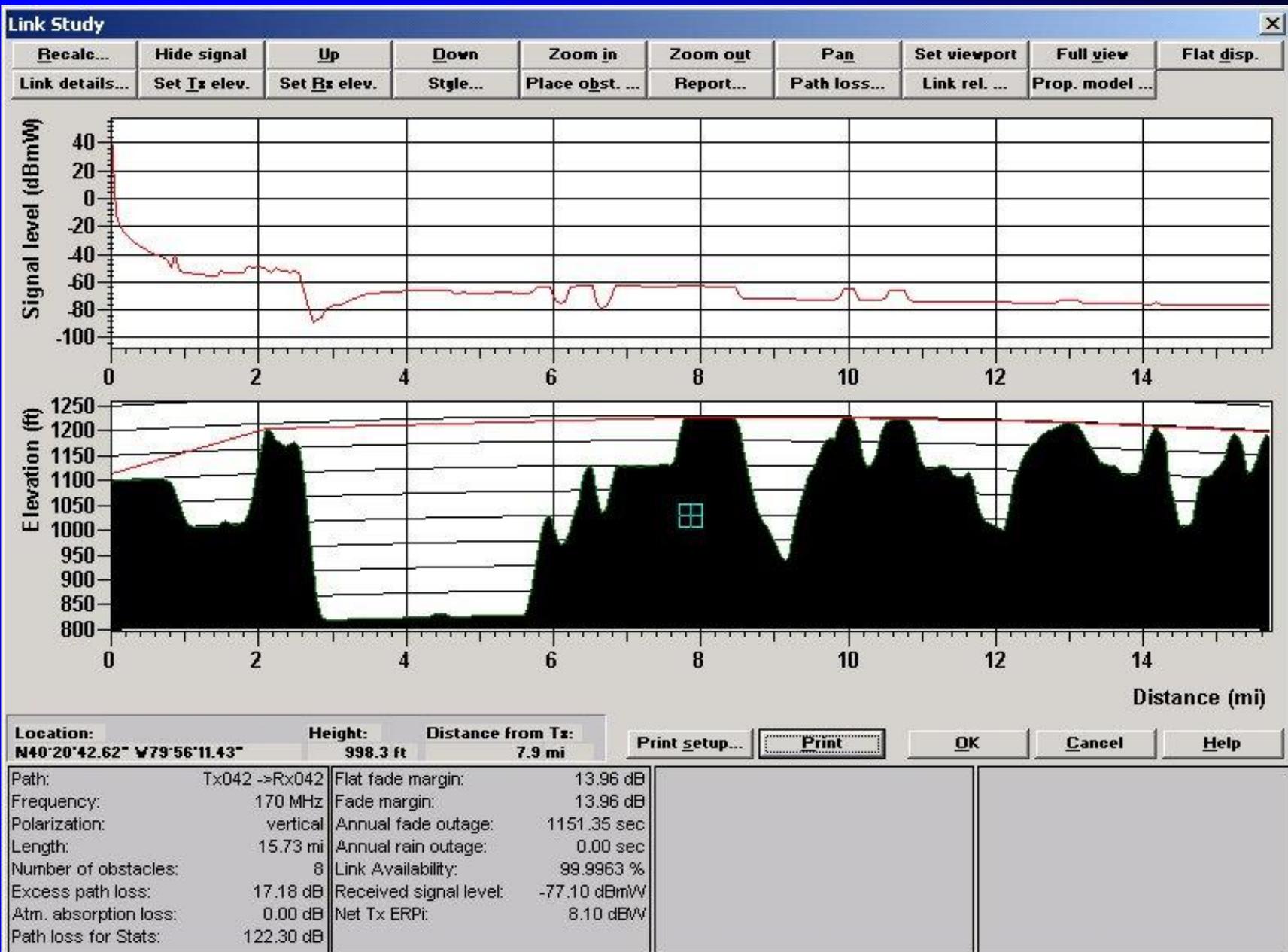


Project Management

- Notice to proceed
- Project Manager Assigned
- Site survey and Radio Path Analysis
- Detailed SOW agreed for each site
- Production
- Installation
- System Test and Acceptance
- Training
- Ongoing Maintenance

Radio Path Topo Study





Rain Gauges



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MODEL 3424

Packaged Rain Gauge Station

- Real-time Data
- Accuracy of $\pm 1.5\%$ for 0 to 2 Inches per Hour
- Measures in 1mm or 0.01 In. Increments
- Set-And-Forget Operation



PHONE: (800) 275-2080

HIGH SIERRA ELECTRONICS

FAX: (530) 273-2089



With optional directional antenna

DESCRIPTION:

The Model 3424-00 Rain Gauge Station generates real-time data to help in flood warning, reservoir management, and any other application that calls for timely rainfall information. The data provides information of precipitation patterns and events as they happen, helping the system operator understand and predict runoff. This information facilitates the decision making of emergency management personnel during times of potential flooding helping to save property and lives.

The Rain Gauge tipping bucket is machined from a solid piece of aluminum. This eliminates the possibility of cracks forming due to repeated freezing and melting which could result in leakage and errors. The standard ALERT/IFLOWS tipping bucket measures 1mm with each tip of the bucket. An optional .01 inch bucket is available.

With each tip of the bucket a magnet passes over a sealed reed switch. This switch closure increments one count in an accumulator (counter) circuit in the 3206-00 ALERT/IFLOWS Transmitter. This awakens the transmitter and initiates a transmission to the base station consisting of the assigned sensor ID# and the accumulator value. As a result, the computer and its forecasting software computes within 1mm the rainfall amounts at gauges throughout the system.

When the tipping bucket top section is mounted on top of the ALERT/IFLOWS standpipe, the rain gauge funnel opening is 10 feet above the ground.

For remote, hard to reach sites, an optional Model 8900-00 Radio Path Study can be made to analyze radio transmission paths, ensuring clean, accurate signals between various locations.

The Model 3424-00 Rain Gauge Station includes a weatherproof Standpipe Assembly, ALERT/IFLOWS Data Transmitter w/ battery, Rain Gauge Top Section, Antenna, and Antenna Mast & Cable.

SPECIFICATIONS:

Standpipe Assembly:
 Height 10 feet
 Diameter 12 inches
 Shipping weight 60 Pounds

OPTIONAL:

Model 7000-13 Standpipe Assembly (slotted)
 Model 2400-15 Rain Gauge Top Section (slotted)
 Model 7000-01 Standpipe Door (Specify Position on Standpipe)
 Model 7000-02 Extended Lengths of Standpipe (Price per Foot)
 Model 7000-04 Mounting Bracket (to mount standpipe against walls, railings, etc.)
 Model 7000-06 Conduit Mounting Tabs (hold-downs)
 Model 7000-09 Standpipe Guard Ring
 Model 7200-00 Antenna Lightning Protection
 Model 7105-04 HSE High Gain Directional Antenna
 Model 3206-20 Transmitter Data Logging Board
 Model 5301-00 Solar Panel
 Model 8900-00 Radio Path Study
 Series 3800 RF Power Amplifier

ORDERING GUIDE:

Model 3424-00 Rain Gauge Station

Included are:

Model 7000-00 Standpipe Assembly (twist-lock)
 Model 3206-00 ALERT/IFLOWS Data Transmitter
 Model 2400-00 Rain Gauge Top Section (twist-lock)
 (Optional .01" Tipping Bucket)
 Model 7100-00 Omni Antenna, Unity Gain
 Model 7300-00 Antenna Mast & Cable



ACCURACY YOU CAN COUNT ON

WEB SITE: www.highsierraelectronics.com E-MAIL: info@highsierraelectronics.com

Water Level Sensors

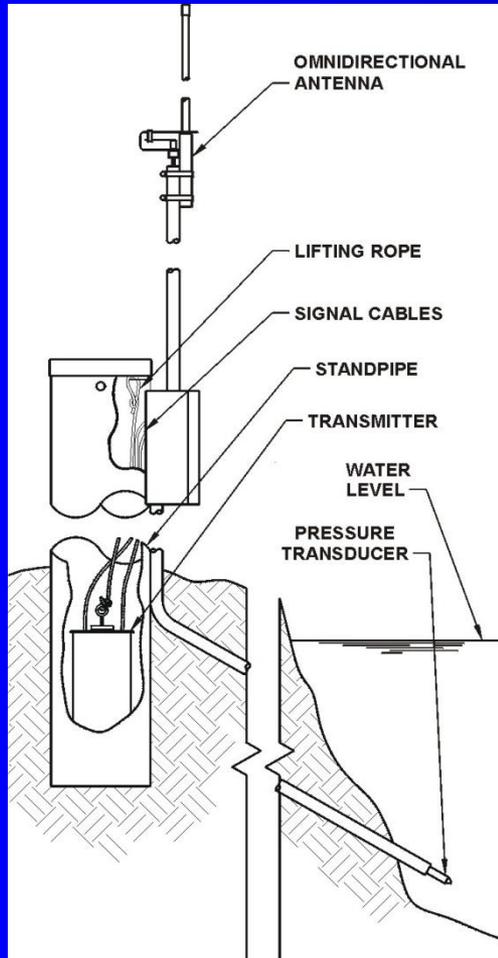
- Pressure Transducers
- Bubblers
- Ultrasonic
- Radar
- Shaft Encoders
- Velocity / Flow



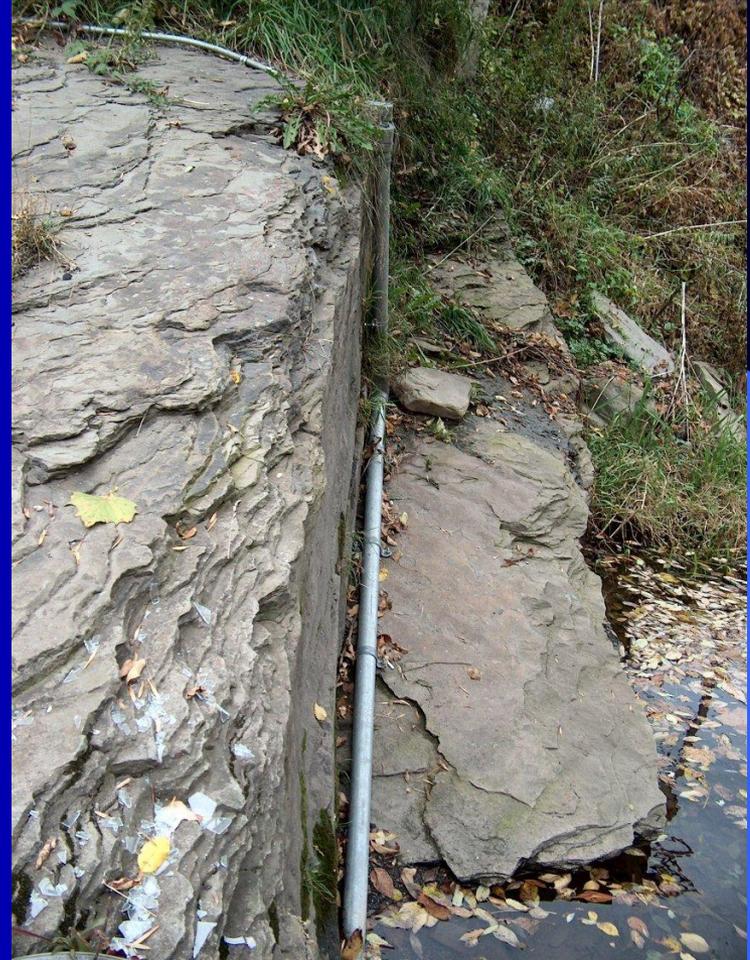
Pressure Transducer

High Accuracy
0.01' Resolution





Conduit Runs

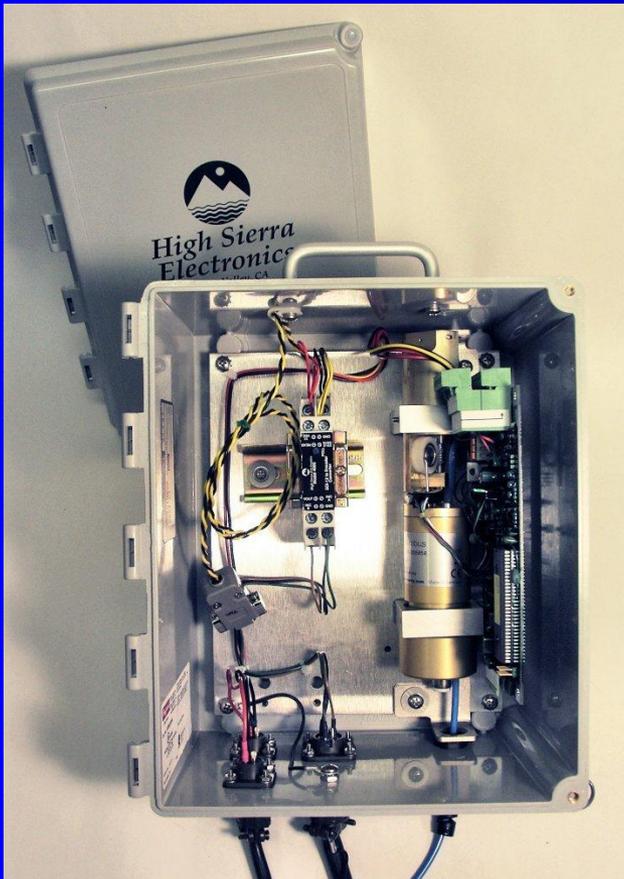




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Bubbler Level Sensors

High Accuracy
0.01' resolution



Ultrasonic Level Sensors

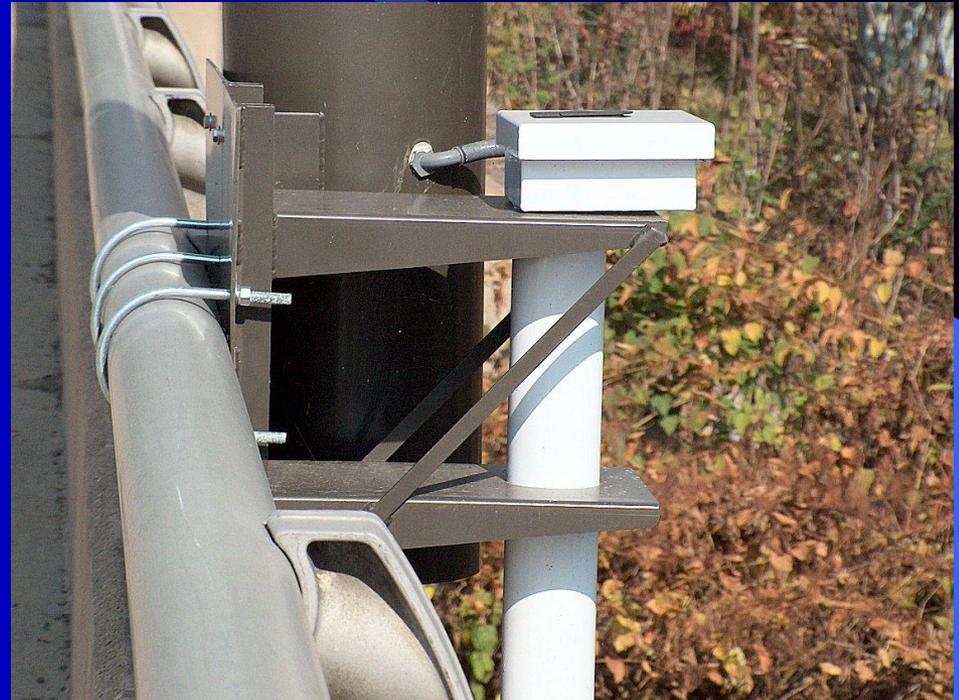
0.1' resolution

Sensor does not contact stream





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Radar Level Sensors

- High Accuracy
- Large Range
- Does not contact stream
- Higher cost

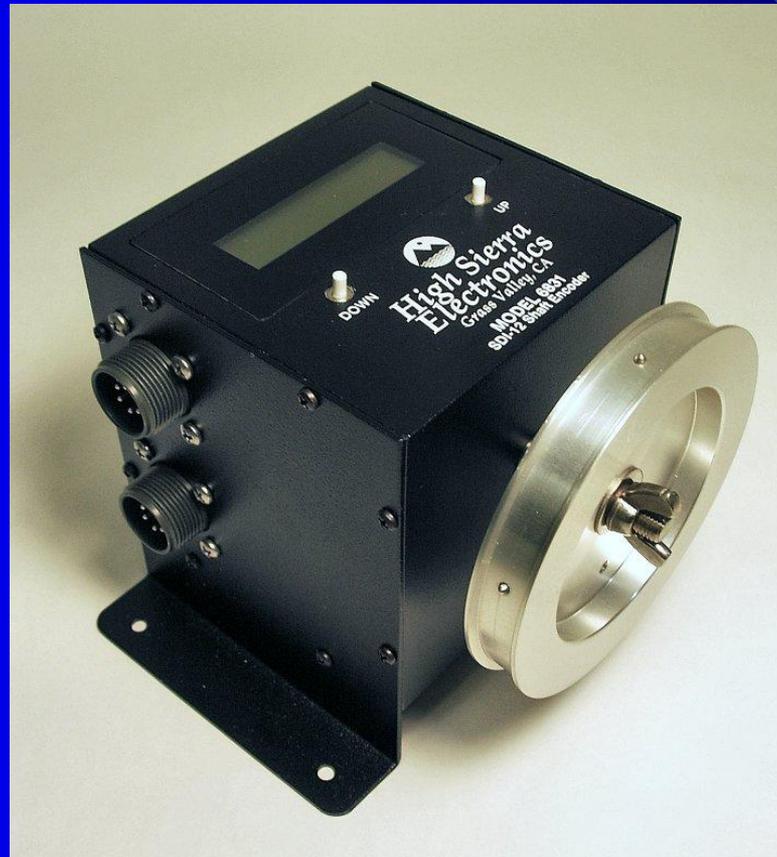


Shaft Encoders

High accuracy

Moderate price

Requires stilling well



Stilling Wells



Doppler Velocity / Flow Sensors

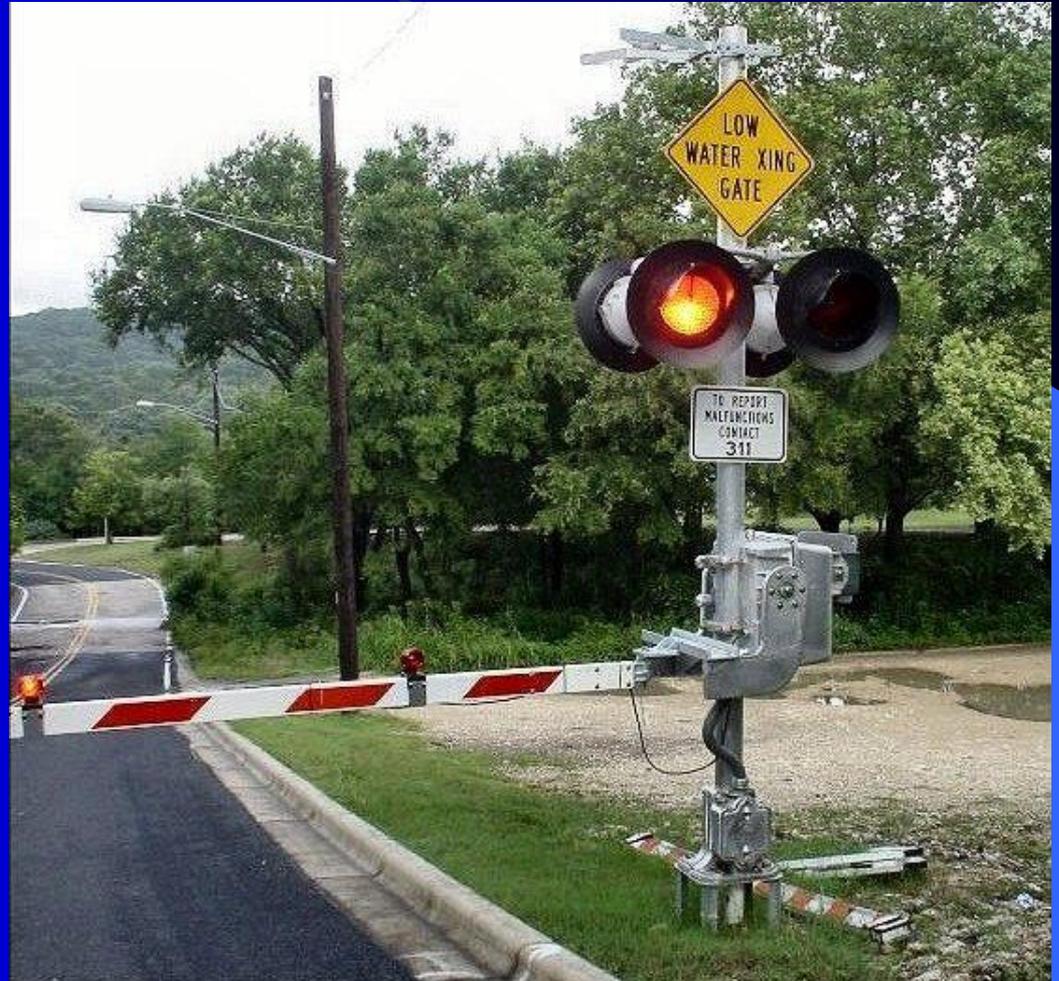


Weather Stations

- Wind Speed
- Wind Direction
- Temperature
- Relative Humidity
- Barometric Pressure



Advance Warning Systems



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DataWise Software

- DEC Data Systems DataWise Software receives and displays system information
- Flexible real-time data acquisition for up to 36,000 sensors
- Displays graphical, tabular, animated, real-time and static data
- Used by local systems across the country as well as NWS Offices and ACOE
- Automatically exports SHEF Data and ingests USGS Gage data as well as NWS Watches, Warnings and QPF

DataWise Software

- Hydrological Forecasting and analysis tools
- Statistical analysis tools
- Easily interfaces with other databases
- Army Corps of Engineers HEC DSS data base management built in
- Fully network ready
- Webpage support

<http://70.128.162.108:81/perl/GPStage.pl>

Alarms

- Extensive Alarm Management capabilities
 - High water level
 - Rapidly rising water level
 - Rainfall rate high at several locations
 - Rapidly rising water levels at one or more locations
- Combinations of alarms can be sent to alert selected personnel
- Send selected alarms to selected personnel via text message, email or page

Thank You.



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ALERT Flood Warning

- Automated Local Evaluation in Real Time
- Developed jointly by NWS and private industry in the late 1970s
- Goal was Real Time flood warning systems affordable and maintainable at local level
- Open source protocol to insure equipment availability, interoperability, competition and innovation
- Over 5,000 ALERT Gauges in operation in systems across the U.S

ALERT

- As ALERT Systems expanded and multiplied user support groups formed and held conferences to share knowledge and experience
- Core of these user groups City and County System Operators
- AUG (ALERT Users Group)
- SAAS (Southwestern Assoc. of ALERT Systems)
- National Hydrologic Warning Council

ALERT II

- Currently under the auspices of NHWC, AUG and NWS a Technical Committee is developing the next generation ALERT II communication protocol