



ULTRAc is Zetron's powerful, economical SCADA and Telemetry system consisting of Remote Terminal Units with Modbus capability, PC based Central Station and Windows based monitoring and control software.

Zetron's successful ULTRAc system is widely used by:

- **Oil and Gas Companies**
- **Water Companies**
- **Electric Companies**
- **Government**
- **Industry**

ULTRAc and ULTRAc for Windows provide solutions in applications such as:

- **Leak Detection**
- **Level Control**
- **Security**
- **Community Warning**
- **Cellphone & Radio Site monitoring**

ULTRAc will run under DOS, Windows 95 or Windows NT and data can be sent via radio, telephone or microwave. The system provides a cost effective solution for monitoring and control of equipment including remote and widely dispersed sites.

Remote terminal units send information and alarms to the central station, a list of actions may then be performed.

Typical alarms may be water levels, pressure levels, security breaches or power failures.

Typical actions may be opening valves, shutting down pumps, starting generators, playing warning messages or calling security.

The Windows version allows the user to interpret the data graphically with user defined icons, graphics and maps. Data can also be charted and analysed using popular spreadsheet software.

Applications

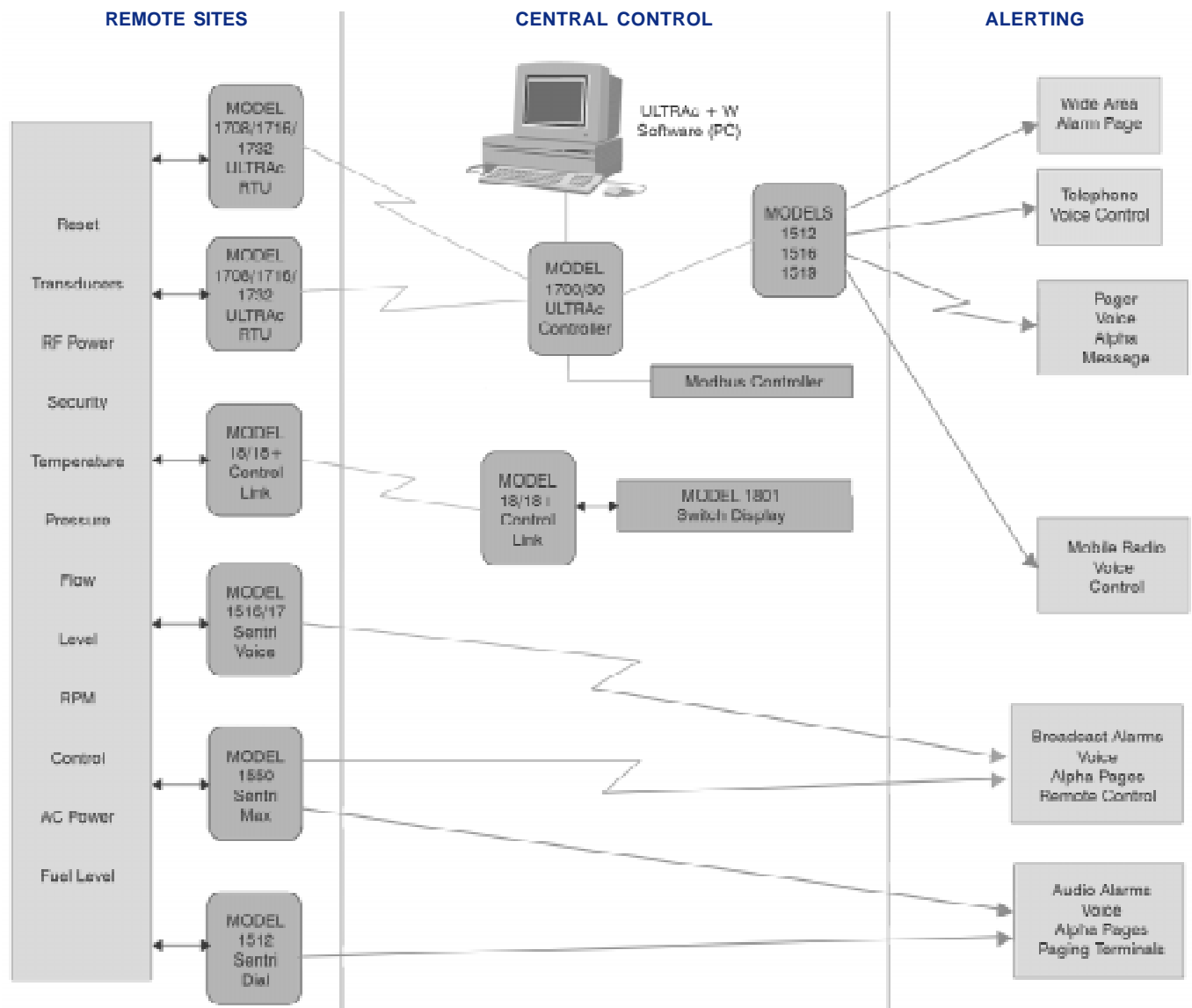
ULTRAc monitoring and control applications are wide ranging across many industries including:

- Agricultural systems
- Cellphone Sites
- Community Warning Systems
- Environmental Monitoring Systems
- Gas & Electricity Production
- Hydro Power Systems
- Landfill Sites
- Remote Oil Fields
- Refrigeration Systems
- RF Sites
- Security Systems
- Solar Power Systems
- Water & Waste Management
- Windfarm Monitoring

Typical actions include:

- Switch Control
- Temperature Control
- Level Control
- Leak Detection
- Flow Control
- Pressure Control

A Typical ULTRAc system showing remote sites, central control and alerting methods is described below.

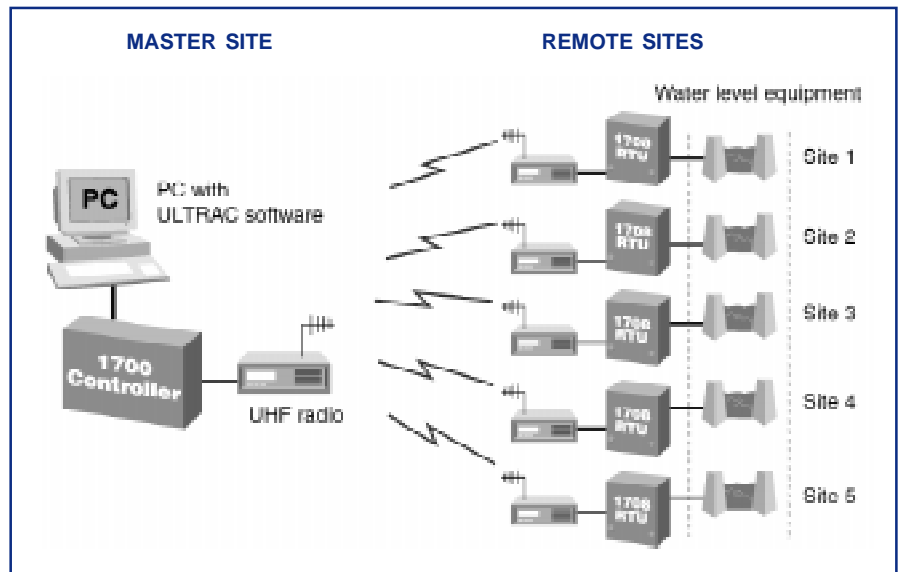


Customer Case Studies

Hydro Electric Power

ULTRAc is used to monitor and control water levels at five remote locations for a power company supplying electricity to 400 communities across an area of more than 30,000 square kilometres.

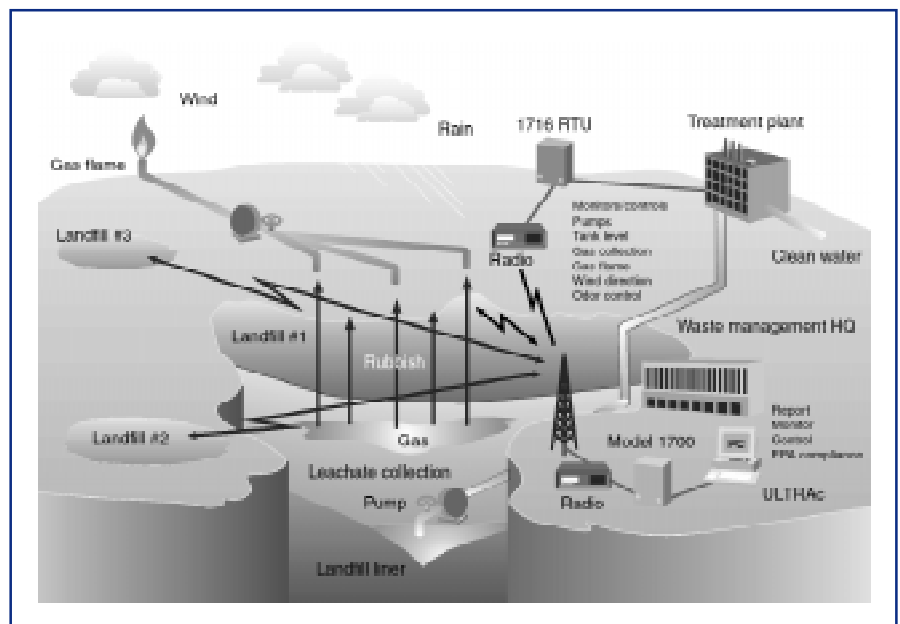
Zetron Model 18, 18+ and 1804 were also used to create an inexpensive Sub-SCADA system to manage distribution. This system controls pole top switches up to 300 miles away, ensuring a constant supply to rural communities.



Landfill Site Management

This ULTRAc telemetry system monitors level switches, wind direction, rainfall and flow counters. It controls the disposal of 'leachate', the liquid that is generated as rubbish breaks down, the burning off of methane and odour control.

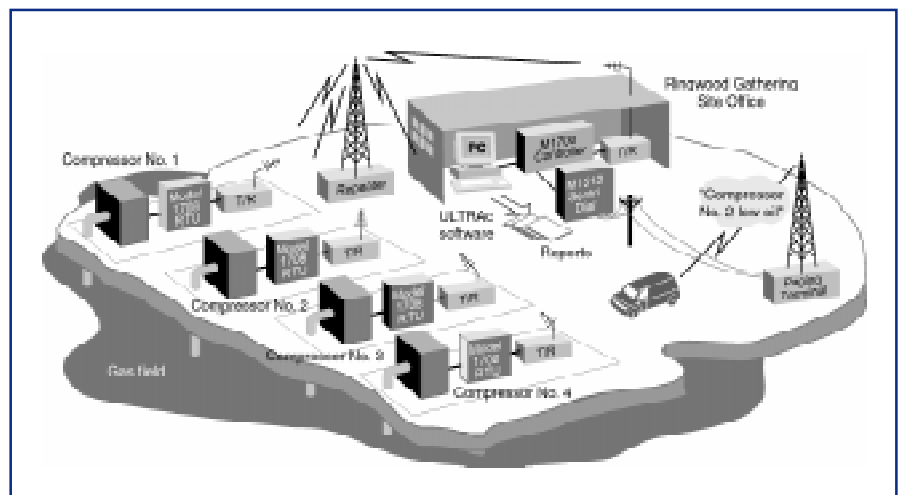
Multiple landfill sites are connected by radio links to a central monitoring site, the ULTRAc software controls the routine polling and generates reports as required.



Natural Gas Production

A large gas transmission system uses ULTRAc to monitor and control multiple compressors at three separate sites. The system means that maintenance personnel can receive instant notification of equipment failures via pagers. ULTRAc is also used to control the emergency shut down devices, instantly by radio control.

Many other real-life case studies are available on the website or by contacting Zetron.



Central Station

ULTRAc.W Monitor and Control Software

ULTRAc.W is a 32 bit application running on Pentium based PCs with at least 8Mb of RAM.

The software performs actions based on information transmitted from the RTU's at remote sites.

Users can log, store, print, analyse, alarm, display and automatically control analogue and digital information from remote sites.

ULTRAc.W features:

- Ease of use via Windows
- Standard Windows features
- Alarm Logging
- Pop Up Alarm Windows
- History Logging
- Paging Via Alarms
- Graphical Representation of Activity
- MS Excel Compatible Data Files
- Ladder Logic Operations on Data
- Hot Keys and Toolbars

SYSTEM SCREEN

The system screen shows at a glance the status of the remote sites and input and output signals of all sites in the system are displayed. Each site entry consists of one or more lines. The first line contains the site name, address, last communication time, last communication status, and alarm status. Additional lines indicate the name and state of the digital inputs and outputs, analogue inputs and outputs, pulse counter and accumulator inputs. Users define site and input/output names.

SITE SCREEN

The site screen displays detailed information about the individual remote location. The upper portion of the display shows the site name, address, last communication time, last communication result, and alarm status. The last communication result will indicate if a communication error has occurred. Analogue values are displayed in bar chart form with sliding indicators and threshold values highlighted. Users can define colours, names, thresholds etc. and manually poll from this display.

ULTRAc Windows Features

- **Mouse Interface**
- **System Screen**
The system screen displays all configured sites in the system. It also shows user select names and access level.
- **Hot Key Bar**
The hot key bar allows the operator to go quickly and easily to pre-determined screens that are in frequent use.
- **Pop Up Dialogue Boxes**
Pop up dialogue boxes enable information to be displayed immediately (such as alarms).
- **Alarm Screen**
The alarm screen enables all alarms on the system to be viewed.
- **Alarm Information**
The alarm information shown includes date and time of the alarm, the site name, the alarm name, the alarm input value, up to 500 word description of alarm message.
- **File Menu**
Among other functions the file menu allows historic report access, report selected data by action, alarm, discrete, analogue etc.
- **Access Menu**
Is the menu for the user to log in and out by password. A dialogue box is used to configure the operator name and password.
- **Site Menu**
Allows the user to poll, or go to a selected site to display the system and current status.

- **View Menu**

This menu contains options such as to view the closed Multiple Document Interface (MDI) windows including the System Overview Window, site window, history log window, alarm log window, rack window, and logic window, among other options.

- **Alarm Menu**

Enables alarm acknowledge, delete, find the next alarm, look at the alarm message, and to display the alarms on, off or clear.

- **Control Menu**

Allows the user to select a specific site, view and control inputs and outputs.

- **Help Menu**

Gives a list of instructions on screen, on how to operate the system.

- **Set Up Menu**

This menu allows a user with the correct access code to set up the system or parts of the system, or modify the existing system.

System Controllers

Controller 1700 for ULTRAc +

The controller is microprocessor controlled and along with the user's radio link, make up the communications network necessary for remote site monitoring and control. The controller is typically located at a central office and can address 1000+ RTUs. Using the controller and R.T.U.s the user at the central station can control remote equipment and retrieve information from the remote sites.

The controller interfaces directly to a wide variety of two-way radios, conventional or trunking and it is initialised through the RS-232 port which allows the user to change parameters and pattern the unit for each application.

The 1700 controller cannot be used over PSTN.

Controller 1730 for ULTRAc W

The new ULTRAc W system uses the Model 1730 system controller. The 1730 options include a radio interface module, or a dial up interface module for PSTN.

CONTROLLER FEATURES

	1700	1730
Digital Inputs	-	up to 256
Digital Outputs	4	up to 256
Analogue Inputs	-	up to 176
Analogue Outputs	-	up to 64
Relay Outputs	-	up to 96
Modbus	yes	yes

The 1730 features modular circuit boards mounted on brackets that screw onto a metal backplane. Module interconnection is done by ribbon cable within the housing.

Details of the input/output options on the 1700 and 1730 are shown in the table above.

Remote Terminal Units

There are 3 choices of RTU packaging:

- 1 Metal Zetron box (152 mm wide x 254 mm long x 152 mm high). This case has room for 6 modules. With the 2 wide CPU module and choice of radio and telephone module, the user has 3 slots left.

- 2 Medium fibreglass 4 x NEMA* (406 mm 351 x 152 mm) case with 12 slots at the top of the custom backplane and 3 module slots at the bottom. A gelcel battery is placed at the bottom of the case and it is often possible to include a radio.

- 3 Large fibreglass 4 x NEMA* (508 mm x 584 mm x 203 mm) case with slots for 30 modules. 4 x NEMA is equivalent to BS4590 IP66.

The ULTRAc software will only work with the 1700 controller. The ULTRAc Windows software will only work with the 1735 controller.

RTUs 1708 and 1716

The 1708 and 1716 RTUs are both micro-processor controlled.

The RTUs interface directly to a wide variety of two-way radios, either conventional or trunking. The RTU is designed to convert to remote transducers that can provide dry contact closure to ground, TTL level voltage changes, or 0-5V DC and 4-20 MA.DC for analogue measurements. Other inputs can be provided using front-end signal conditioning modules.

Analogue inputs are not isolated, but if isolation is required front end modules can be used to provide either opto or galvanic isolation.

The 1732 RTU features modular components mounted on a metal backplane and installed in a small metal housing or large 4 X NEMA* industrial case.

Modular functional boards include: power supply, CPU, radio, phone, digital in, digital out, analogue in, analogue out and relays. Each RTU is expandable to 32 modules with no more than 16 of any type allowed. This configuration allows up to 256 digital inputs (16 per module), up to 256 digital outputs (16 per module), up to 176 analogue inputs (11 per module), up to 64

RTU FEATURES			
	1708	1716	1732
Digital Inputs	8	16	up to 256
Digital Outputs	8	16	up to 256
Analogue Inputs	4	8	up to 176
Analogue Outputs	-	-	up to 64
Relay Outputs	-	-	up to 96
Data Logging	no	no	yes
Radio Interface	yes	yes	yes
Phone Interface	no	no	yes
RS-232 Port	1	1	2
Modbus	yes	yes	yes
Remote Programming	no	no	yes
Store and Forward	yes	yes	yes
A/D Convertor	8 bit	8 bit	12 bit
Local Logic	no	no	yes
Keypad/Display	no	no	yes

analogue outputs (4 per module) and up to 96 relays (6 per module).

The system controller comes as standard in the Zetron case.

System Features

- Report by exception and polling
- Shares existing voice radio channels
- Windows based control software
- Optional Modbus protocol interface
- Modular RTU's and Controller
- Expandable I/O up to 445 points per RTU
- 12 bit analogue to digital converters
- Programmable logic control
- Communicate via, cellular or GSM phone, PSTN, radio, or private wire
- Programmable polling
- Optional voice and page alarm reporting
- High speed accurate wireless data transmission
- Industrial NEMA 4X case
- Power supply and battery backup and charger
- Store and forward
- Use with spread spectrum radios
- Flow totalisation
- All call and group call functions

Questions and Answers

Q: Can the Data Acquisition Software handle all of the communications interface with the RTU allowing the administration module to amend whilst the system is on line and live?

A: Yes, there is no need to take the Data Acquisition Software off line to configure another RTU or to modify existing RTUs.

Q: What format is data?

A: Data is available either as ASCII or .mdb for MS Office.

Q: How can alarms be relayed to standby personnel either during working hours or out of working hours.

A: Alarm details can be sent to remote sites by printers or voice messages. Alternatively via a Pagem utility residing in the PC that sends alarms to the paging terminal, alarms can then be sent directly to an engineer in the remote site area reducing reaction times.

Q: How are the RTU's programmed?

A: The 1732 RTU can be programmed with logical functions and calculations. The program is uploaded to the RTU from the PC based Configuration utility via direct connection to a serial port. Over the air (radio) via the 1730 controller or via the telephone/ modem interface for PSTN.

Q: Are communications available over dedicated lines, fibre optics, microwave links, PSTN and radio?

A: Yes, to all of these transmission systems. Also voice communications and telemetry communications can be integrated, allowing existing customer voice communications systems to be used where suitable, providing a low cost solution.

Q: With the 1732 RTU, can both radio and PSTN interface be used on the same RTU?

A: Yes.

Q: With the 1732 RTU, with two methods of communications available, can one communication link be used as a standby in the event of a communications failure by the primary communications system?

A: Yes, this can be achieved via the central station, with the correct programming.

Q: Do all RTU's have intruder alarms with maintenance overrides and time outs?

A: Yes, this is available.

Q: Can the 1732 RTU communicate via Modbus?

A: Yes, the 1732 RTU has modbus interface as a standard feature.

Q: Are existing ULTRAc RTU's compatible with the new central station?

A: Existing 1708, 1716 units will work with the 1730 controller.

Q: Is there a dial, send and hold facility?

A: Yes, can be provided on some systems.

Q: How many RTU's can be controlled by one central station?

A: 1000+ RTU's of all types can be configured onto one central station.

Q: What is the accuracy on the analogue channels?

A: Depending on the A.I. card used either 0.4% F.S.D. or 0.025% F.S.D.

Q: How easy is it to operate the system?

A: A simple intuitive and consistent human machine interface (HMI) allows operators to quickly and easily assess fault conditions and to take control action to restore and retain the operational service.

Q: If PSTN is not available at a remote location, and radio communications are difficult, how could this be overcome.

A: Zetron can overcome this problem by using a technique we call store and forward. This is achieved by sending the information to an RTU that does have radio access and where it is stored and forwarded to the controller. If radio access is still not possible, the signal can be routed through several store and forward sites until it is received by the controller.

Other Telemetry Products

Model 18/18+/1801 Control Link
Radio Control and Monitoring System

Model 1804 Control Link+
Radio Point to Multi-Point Controller and Monitoring System

Model 1512 SentiDial
Full-featured economical Industrial Autodialler

Model 1514 DevicePage
Alphanumeric Pages for Machine or Process Alarms

Model 1516 SentiVoice
Monitors alarm I/Ps and upon sensing an alarm condition automatically transmits voice messages, or pages over radio or a public address system

Model 1519 SentiPage
Alphanumeric Page Alarm

Model 1550 SentiMax
Is a powerful, full-featured industrial voice and page alarm system

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Fax Back

Copy and fax back this form to +44 (0) 1256 880491 for further information.

I need more information on:

- Model 18/18+/1801 Control Link
- Model 1804 Control Link+
- Model 1512 SentiDial
- Model 1514 DevicePage
- Model 1516 SentiVoice
- Model 1519 SentiPage
- Model 1550 SentiMax

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