



# Orchestrator



Real Time Information System

**Orchestrator** is an advanced real time information system consisting of a set of integrated modules providing automatic data acquisition, monitoring, recording, trending, man machine interface development, networking and process control, making it readily adaptable for a wide range of industrial and engineering applications.

## Easy to use

Its strength lies in its flexibility and in the ease with which it can be configured. Its intuitive Windows menu structure means a new user can quickly become familiar with its configuration without having to undergo intensive training courses.

## Scaleable

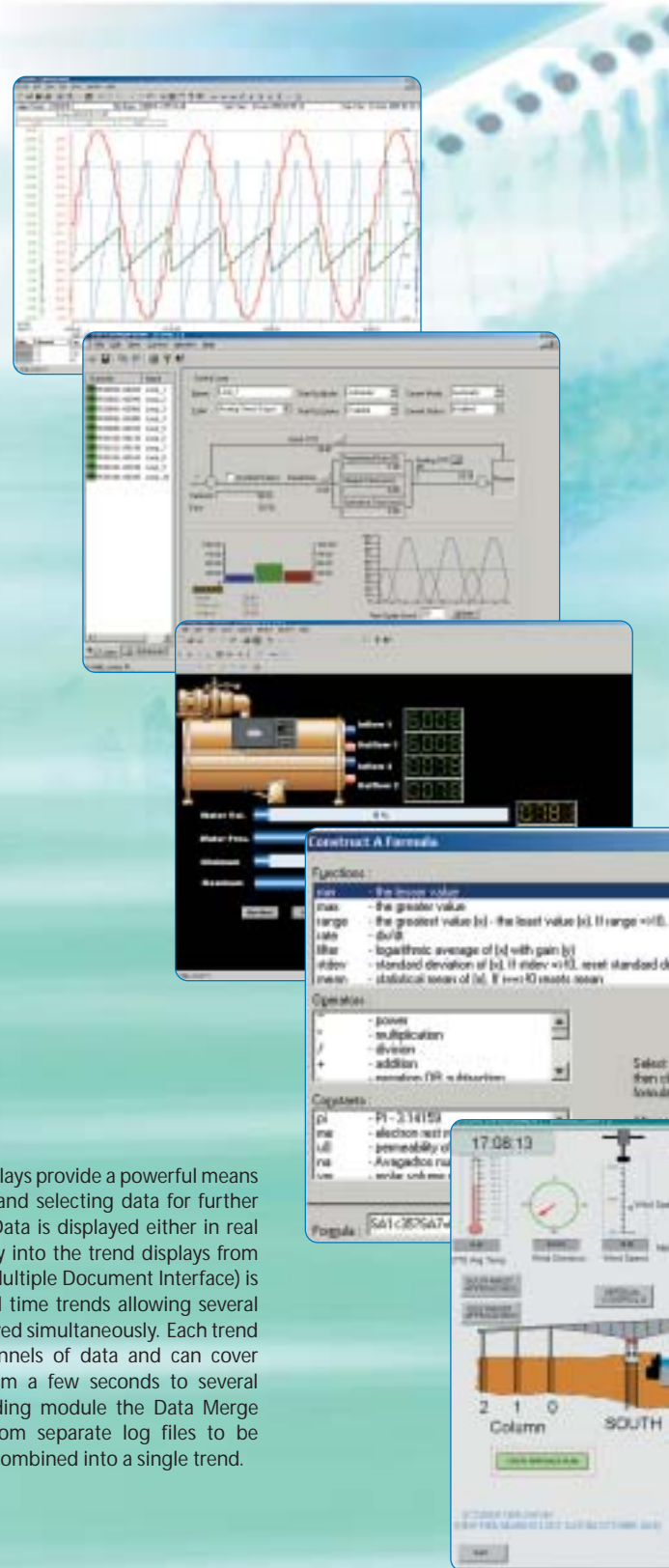
Orchestrator can be purchased as a small 16 I/O channel system that can be expanded up to an infinite channel count. It can constitute a stand-a-lone system or an extensive Server/client networked installation! All functionality in the way of trending, mimic displays, alarming and calculator are available in all versions.

## Data Acquisition

Up to Sixty-four loggers can be configured to take 64 independent groups of up to 10,000 channels of data per group. Loggers may be configured to operate on a PERIOD (continuous) basis, an EVENT basis only, or a PERIOD-UNTIL-EVENT basis. Pre-event and post-event loggers may be used to evaluate the behaviour of the data surrounding an event, helping to pinpoint areas of specific interest. Also, by cycling the loggers, you can generate hourly, weekly, or shift records.

## Trends

Orchestrator's trend displays provide a powerful means for viewing, evaluating and selecting data for further processing or analysis. Data is displayed either in real time or replayed directly into the trend displays from existing log files. MDI (Multiple Document Interface) is used to present the real time trends allowing several trend displays to be viewed simultaneously. Each trend supports up to 32 channels of data and can cover any length of time, from a few seconds to several years. Within the trending module the Data Merge facility enables data from separate log files to be time-synchronised and combined into a single trend.



## Real Time Calculator

Orchestrator's Real Time Calculator lets you create and calculate data directly from signal inputs. Calculations, devised free form by the user in a dialog box, can be strung together to form complex logical sequences or data processors. More than a hundred commands, operators and scientific constants are provided to assist you in building calculations. Calculated data is processed in Orchestrator in the same way as raw data inputs, that is, it can be logged, displayed, animated or alarm processed. User Analog and User Digital channels can be used to hold the results of any calculations performed by the Calculator package.

## Alarm Management

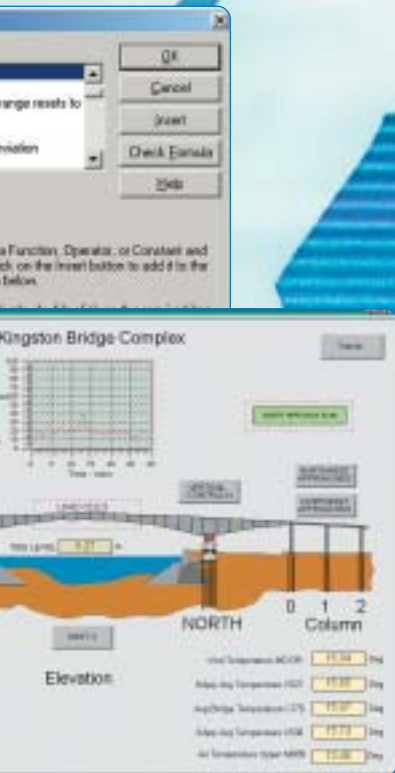
An important aspect of any monitoring system is the ability to handle alarms and events. Orchestrator lets you assign a unique high and low event alarm condition to each data channel. Each alarm condition can then be given a priority (1-255) and an associated block of text that is displayed when the alarm or event occurs. You can also set high and low warning limits which are used to alert operators of a developing alarm condition. Alarm channels can be sent to a mobile phone, pager or to an email address. The built-in alarm logger records all alarms, the time they occurred and the time they were acknowledged.

## Real Time Data Export

Orchestrator's built-in OLE for Process Control (OPC), Dynamic Data Exchange (DDE) and Real Time Data (RTD) allow data to be connected in real time to other Windows software like Excel, Word or Access. Reports can be automatically generated and analysis can be carried out in the software environment of your choice. Also, with Network DDE and DCOM, other users (clients) can automatically incorporate data, as it is collected, directly into their own software applications.

## Controls

Orchestrator's optional PID facility is a simple and intuitive interface that allows you to set up one or multiple windows for configuration and monitoring of control loop(s). A block diagram, bar graph and strip chart display for each control loop let you view parameter change and effect dynamically. The PID (Proportional-Integral-Derivative) algorithm is used to drive a measured variable to a preset value or setpoint. A common form of such a closed loop system is temperature control of a process. More generically, the PID module provides control for analog outputs and for pulse-width and pulse-modulated digital outputs.



## Connectivity



In addition to having drivers for all Measurement Systems Ltd data acquisition hardware, Orchestrator also communicates to many popular PLCs, Controllers, and third party data acquisition products. These include - but are by no means limited - to Allen Bradley, Siemens, Mitsubishi, Modicon, Envirocon, Eurotherm, Solartron, Pressure Systems Inc, GW Instruments and Mettler. Drivers are also available for Modbus devices, Ethernet TCP/IP communications, as well as generic RS232C products.

## Networking and the Web

A fully implemented client/server architecture lets data, displays, and control be distributed over a standard network. Real time linking between the server and client provides a high performance update for all users on the system. As mentioned above, Orchestrator lets you share data over the network in real time, allowing others users to view the acquired data in their Orchestrator Client interface. **To communicate between the Client and Server applications across the Internet (rather than using Windows networking), a Web Service add-on is available.**

## System Security

Orchestrator uses built-in Windows password protection for granting access to other users (clients) on the network. A system manager would have Read/Write access to allow reconfiguration and viewing of all data channels. Read-only access might be granted to a user that needs the data only for monitoring purposes. A combination of access grants can be implemented to protect specific areas of the system.

## Customise Displays

Orchestrator's Configurable Monitor lets you develop the interface to your process and provides dynamic representation of the phenomena being monitored. The Monitor provides a variety of ActiveX controls with the ability to customise the attributes of each item. These controls include:

- Angular Gauges
- Control Knobs
- Linear Gauges
- Toggle Switches
- Bar Graphs
- Strip Charts

## Process Monitoring & Control

### Mechanical & Electrical test

### Environmental Monitoring

### Steam Turbine Efficiency

### Waste Water Management

### Remote Asset Management

### Laboratory Testing

### Structural Testing

### Well Logging & Rig Monitoring



# Features

## Summary



### Data Acquisition & Logging

- Multiple current independent loggers
- Period & event loggers
  - Period-until-event loggers
  - Pre- & post-event loggers
- Shift loggers
  - 64 Groups of channels per logger
  - Each group up to 10,000 channels

### Trending Data

- Up to 32 data channels on each trend display
- Historical & real-time display
- Multiple trends displayed/updated simultaneously
- Full pan & zoom
- 1ms time resolution

### Advanced Alarm/Event Processing

- Alarm processing & logging
- Individual priority for alarms
- High & low alarms & events with warning levels
- 32-character alarm messages
- Email & SMS text alerts

### Configurable Monitor

- User friendly display builder
- Customisable LEDs, gauges, toggles, etc.
- Any data channel can link to an object
- Library of ActiveX controls
- Navigation on process condition or user input
- Navigate to other monitors
- Navigate to other processes including trends & spreadsheets

### Data Manipulation

- Real-Time Calculator
- Free form calculation entry
- Built-in constants
- Production counting, efficiency & downtime functions
- Statistical & logarithmic functions
- Filtering, counting & Boolean functions
- Math & trigonometric functions
- Timer & time/date functions
- Steam table functions

### PID Controller [Optional]

- Control for closed loop systems
- Block diagram, bar graph & strip chart display for each control loop
- Dynamic viewing of change & effect
- Velocity & position algorithms
- Support for user-supplied algorithms (dll's)
- Bumpless transfer between manual & automatic modes
- Anti-windup reset

### Exporting Data

- Real-time export to spreadsheets & other Windows-based applications
- OPC/DDE/RTD server interfaces

### Networking & Security

- True client/server architecture
- Internet **communication via Web Service add-on**
- Multi-level Windows password security



# Other Products & Services

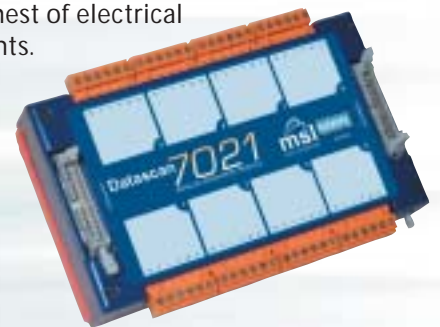


**ICPCON** modules are the ideal complement to the 7000 series for systems where only a few measurement channels are located at each point. Compact and reliable, the Solo series includes a variety of measurement modules, network converters and an embedded controller.



## Datascan 7000

Datascan 7000 are a range of distributed data acquisition modules offering high integrity measurement, over a wide range of analog and digital parameters using standard RS232 C and RS 485 networking. High noise rejection and optional isolation guarantees it will operate in the harshest of electrical environments.



## DataWeb 4000

DataWeb 4000 offers a new concept in Data Acquisition. Its built in Web Browser allows real-time viewing of analog and digital measurements from anywhere in the world via PSTN/GSM modem, whilst also acting as a component part in a factory automation system using TCP/IP protocol over Ethernet.

### DataWeb Control Centre Software

This is a version of Orchestrator designed for Remote Asset Monitoring. It automates collection of data from remote stations using a dial up scheduler, responds to e-mail alarms raised by the DataWeb and seamlessly integrates real-time and historic data in trend and mimic displays.



## Company Profile

Measurement Systems Ltd (MSL) are recognised as one of the leading manufacturers of SCADA data acquisition products in the UK. Based in Newbury, Berkshire, England, the company has over 25 years experience in a wide variety of industrial and factory automation systems, from whom service, and reliability of its products have been proven to be second to none.

MSL products are available worldwide from our network of agents and distributors.

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