AeroMate™ WSC

Wireless Sensors and Controls

Sensors and Controls

The AeroMate™ WSC line of products provide a modular solution to the ever increasing need for more complex and spatially dispersed monitoring and control systems. A control panel mates with a number of industrial sensor and control modules, including pneumatic solenoid valves, pressure sensors, switch sensors and controls, analog measurement and translators, and digital pulse counters. Rugged, robust packaging combined with a versatile, field proven power system provides long term reliability for remote access and control.

Overall Size: 3.7"W x 5.0"H x 4.2"D

vTagNet™ Technology

vTagNet™ is a simple, but powerful method of passing digital and analog data between the AeroMate WSC sensors and controls. Digital and analog data tags are represented as numbered virtual wires that link sensors and controls together to perform various tasks. vTagNet™ allows, for example, the virtual tagging of a pneumatic valve, plunger switch sensor and digital pressure sensor to operate as a single, integrated control system. vTagNet™ brings a new level of Open Connectivity to industrial sensors and controls without requiring complex and costly OPC drivers and hardware.

ChartWriter™ Utility

The ChartWriter™ graphical programming utility provides a custom programming capability for all AeroMate sensor and control modules. With its unique flow charting format, ChartWriter™ allows anyone with rudimentary programming skills to generate simple or complex application programs for any of the AeroMate™ WSC line of products. Product simulators for each of the AeroMate WSC modules allow programmers to test and debug their application programs in real-time, all within the programming environment. The custom user programs are compiled and loaded using a standard "D" 9-pin serial port cable. ChartWriter™ is a free, web deployed Java application that runs on any PC or laptop.

vTagNet™ Technology

Open wire tag connectivity and control collaboration.

Control Collaboration

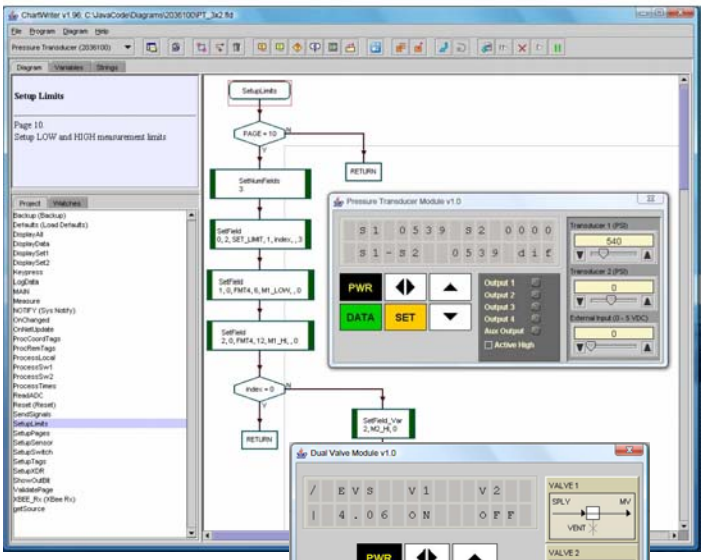
One of the most powerful features of vTagNet™ technology is that any compatible device can share its digital and analog data with other devices connected by a common network or communication pathway. vTagNet™ provides a collaborative, event driven system where each independent sensor or control device collaborates with all the other devices to perform as a single functional unit. The range of functions the overall system can perform is only limited by the number and type of the individual, discrete sensor or control devices incorporated within the system. The specific functions the entire system performs are determined by individual digital and analog tag assignments.

OKC Products®

"Turning good ideas into great sensors and controls."

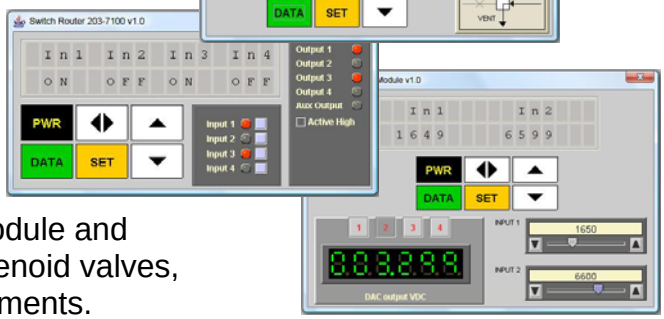
ChartWriter™

Flow Charting

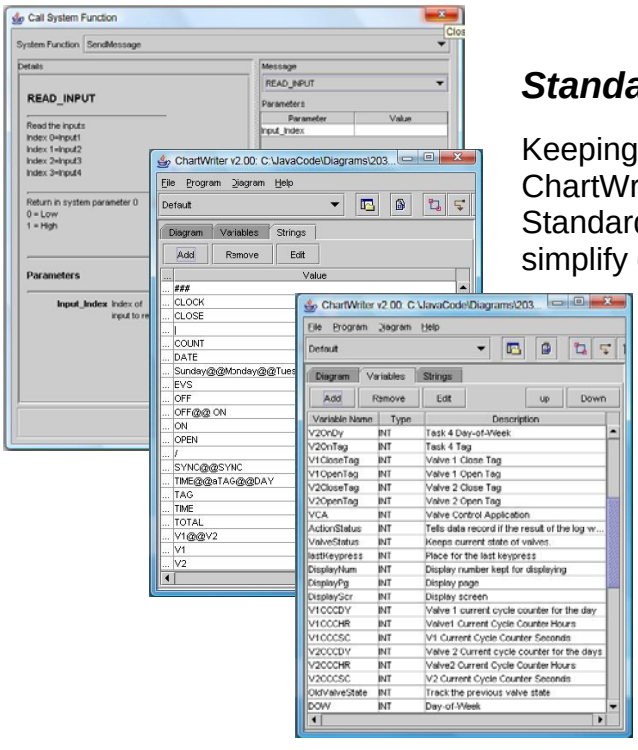


Simple and intuitive, the ChartWriter™ graphical flow charting capability provides a unique programming interface and program visualization tool. Use standard flow chart symbols for subroutines, decision blocks, and math blocks. Simply connect the blocks together and run the simulation to test and debug the program. The project window tracks subroutines as a visual reference and for easy access. Each flow chart symbol has its own text window for notes, to track version changes, or maintain a things-to-do list.

Product Simulation



ChartWiter's realistic product simulation provides an excellent product training tool. ChartWriter includes a built-in real-time hardware and program simulator for testing and debugging application programs on-the-fly. Just select the particular sensor or control module and ChartWriter provides the hardware simulation for solenoid valves, switch controls, digital counting and analog measurements.

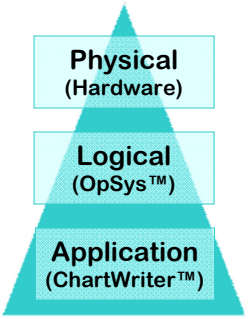


Standard Functions

Keeping it simple is what ChartWriter ™ is all about. Standard hardware functions simplify communicating with inputs and outputs. Simply choose a function and select from a drop down list. Tracking string variables and their associated text is easy with the Strings manager. Variable naming and data assignments are well organized using Variables manager.

Operating System

One operating system that handles all the details, so all you need to do is visualize applications. The OpSys™ operating system provides the interface between AeroMate sensor and control module I/O hardware and the ChartWriter user application programs. This layered system approach eliminates the cost and time to track small changes in the hardware or when new sensors or controls are added to the product suite.



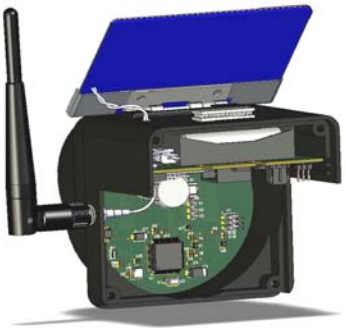
ChartWriter™and other free AeroMate™ WSC application utilities are available on-line at http://okcadvantage.qwestoffice.net/downloads.

Function Modules

Switch Routers

Applications include switch translation, wireless routing and basic switch sensing and control. The switch routers incorporate both input switch sensing and switch output control. Switch input sensing is programmable for active high or active low inputs, input time constant filtering and event tag generation. Selectable switch output controls are active high, active low, pulse width and output action tag assignment.

4x4 Switch Router



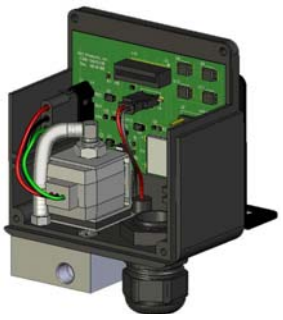
Control Module

Control Module

A single, intelligent control module operates all AeroMate sensors and controls. The control module combines a user interface, a solar panel, battery pack, and a wireless RF module to provide a very flexible, robust interface for many sensors and controls.

Pneumatic Valves

Applications include cycle timers, dump valve control and chemical injection. Pneumatic valve units include one or two latching solenoid valves rated for up to 100 psi. Cycle timing is in hrs:min:sec or day-of-week and time-of-day. Valve action tags initiate valve timers that control the solenoid operation. The single valve version includes two general switch sensor inputs that can be used for high and low time cycle override control.



1X Valve Module

Analog Routers

A much needed solution for eliminating conduit trenching, cable pulling and IS barriers. Applications include analog data translation, scaling and wireless analog data routing and processing. Analog routers provide analog measurements for 4-20 mA, +5 and +10 Vdc input ranges. Four analog outputs are configurable for +5 and +10 Vdc full scale range. Analog data and high/low tags are available for all connections.

2X4 Analog Router

3X Counter Module

Pulse Counter

Applications are flow monitors and stroke counting to name just a few. The pulse counter includes three digital counters capable of 30 kHz count rates. Pulse accumulators can store up to 42 billion counts in 32-bit registers during an adjustable count period. Tags include numeric data and high/low set point events.

Pressure Sensors

Sensor applications are digital switch gages, pressure data logging, automation control and well head plunger lift control. Pressure sensors include one or two, non-ratiometric 2000 psig pressure transducers, an external sensor input and two switch outputs. The digital gage setup allows high and low pressure set points and selection of the source or sources to generate "less than", "window" and "greater than" event tags.

2X Pressure Gage

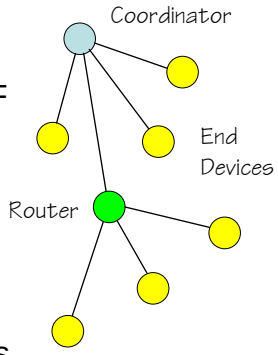
Wireless Network

ZigBee Network

The AeroMate WSC products use MaxStream XBee ZNet RF modules to operate within a ZigBee PAN or Personal Area Network. A PAN consists of a Coordinator and one or more End Devices and Routers.

AeroMate sensors and controls are configured as End Devices. The PAN Coordinator handles up to eight End Devices and one or more Routers.

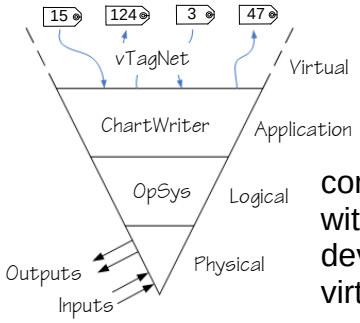
The mesh network topology allows the PAN range to be extended to reach more distant End Devices using Routers. A Router can add eight additional End Devices to the PAN.



ZigBee Mesh Network

Open Connectivity

vTagNet emulates a wired patch panel where each virtual wire carrying digital or analog data is assigned a numbered tag. Wire terminations are patched to the same or other remote devices by assigning virtual tag numbers to outputs, application variables or other action related tasks.



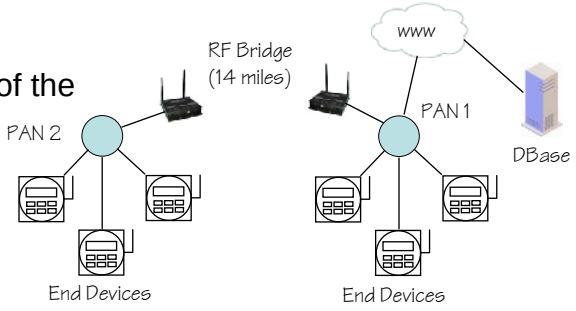
vTagNet Open Connectivity

Briefly stated, virtual digital and analog tags are autonomous information snippets emitted into a common communication path without regard to whether other devices receive or utilize the virtual tag data.

DiN Adapters

Extended Reach

A ZigBee PAN is just one of the many ways to establish a common communication path for AeroMate virtual tag data. The ZigBee PAN Coordinator may also be connected to a cellular gateway for direct access to the internet and then to a database center or office PC computer. AeroMate WSC data, in the form of virtual tags, are transported in secure, data packets that are encapsulated or wrapped in TCP/IP or UDP packets for transport over the internet.



PAN Network Expansion

DiN RF Bridge

Compatibility

AeroMate sensors and controls are compatible with the Digi International Inc. line of “Drop-in Networking” or DiN products. These products include RF bridges, internet gateways, and a full line of XBee adapters. DiN adapters include USB, RS-232, RS-485 and 1-Wire products. The AeroMate WSC Uplink Manager interfaces via an RS-232 serial port to many standard cellular gateway and data products.

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