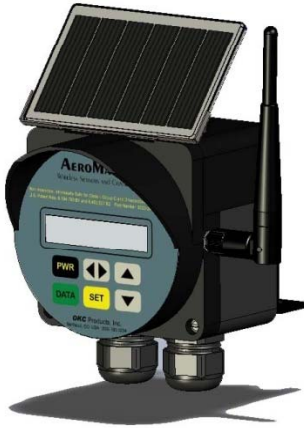


## Control Panel Guide

AeroMate™ WSC



*Non-Incendive, Intrinsically Safe for  
Class I, Group C & D Hazardous Locations*

U.S. Patent Nos. 6,194,793 and 6,462,507  
Copyright© 2008 OKC Products, Inc. All Rights Reserved

## Introduction

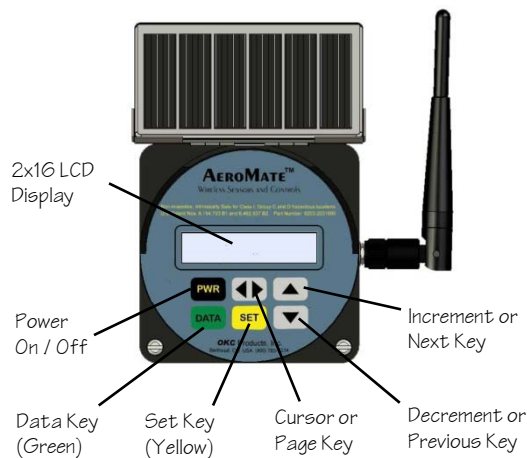
The Control panel module contains the user interface, general operating system (OpSys™), power module and communications interface for a number of different sensor and control modules. Operating system displays covered in this guide are common to all AeroMate units and may appear in a different display order depending upon the particular Application module attached to the Control panel.

The Control panel is responsible for overall system operation and to load and run application programs stored in the rear Application modules. A free ChartWriter™ graphical programming utility allows users to modify existing programs or make their own custom application programs.

Each AeroMate WSC unit has a unique digital identification number that is comprised of a Group Identification (GID), a Function Identification (FID) and a Serial number. This identification number is assigned to each Application module and not the Control panel.

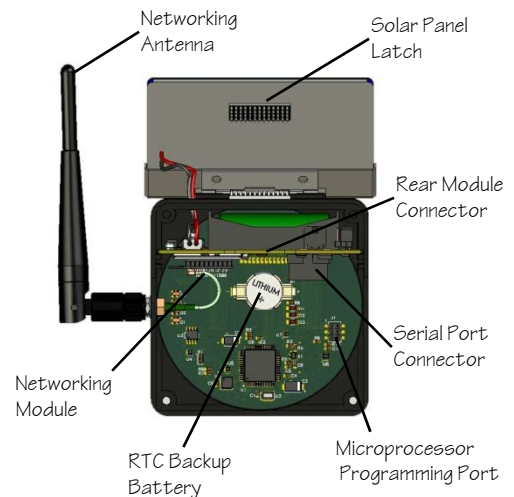
Supported remote access protocols include WHIP and ModBus. The AeroMate interacts with ModBus as an RTU slave.

## Control Panel Items



The Control panel provides a user interface for viewing and changing operating parameters. DATA (Green) and SET (Yellow) keys are brightly colored for easy identification. Navigation and change keys are a light grey color similar to the prominent 32-character LCD display.

## Rear Panel Connections



Rear panel connections include a socketed "Plug and Go" networking module, a RJ-45 serial port connector, a 6-Pin microprocessor programming port, and a rear Application module connector.

## Power Up Displays

The power up sequence shows three displays in one second intervals. The Power Up displays will show with or without a rear Application module attached to the Control module. Press the PWR key to Power Up the AeroMate.

Press PWR to Power Up.

**PWR**

OKC Products Inc  
Copyright 2008

Press SET key now to access the System Configuration menu.

Press SET for  
System config

The Ready display shows system status.

3.86V 02/18/08  
068F 10:35:48

To access the System Configuration menu, the SET key must be pressed during the brief, one second period while the display is showing.

The Ready display shows battery voltage, panel temperature and current date and time. AeroMate units automatically return to the Ready display if no key is pressed for 5 minutes.

## System Configuration

Once the system configuration menu has been accessed, pressing the SET key will sequence through the four available configuration menus. Note that some menu items require that a rear Application module be attached.

Press SET for 1<sup>st</sup> menu.

**SET**

1: Press DATA  
System Disp

Press SET for 2<sup>nd</sup> menu.

**SET**

2: Press DATA  
Erase Prog

Press SET for 3<sup>rd</sup> menu.

**SET**

3: Press DATA  
Reload Prog

Press SET for last menu.

**SET**

4: Press DATA  
Exit Menu

When viewing any particular configuration menu, press the DATA key to select the menu item. Press the DATA key again to return back to the main menu where the SET key can be pressed to sequence through the remaining system menus.

## System Displays 1-3

System displays provide operating information for the Control panel and its associated Power Module and network connection, if applicable. There are a total of ten system displays available through this menu selection. Use the SET key to sequence through all ten displays.

Press DATA for 1<sup>st</sup> display.

**DATA**

SOL BAT ImA  
1.43 3.86 10

Press SET for 2<sup>nd</sup> display.

**SET**

TMP MAX MIN  
73 108 -5

The 3<sup>rd</sup> display shows the system real-time clock. The date and time are settable via this display.

Press SET to 3<sup>rd</sup> display.

**SET**

DATE 02/16/08  
TIME 13:29:57

Use Cursor key to move between clock fields.



Use these keys to modify selections.

When the cursor is under the seconds position, pressing the [▲] or [▼] key resets the seconds to zero.

## System Displays 4 - 7

The 4<sup>th</sup> display shows information about the network connection and allows PAN Id. entry.

Press SET for 4<sup>th</sup> display.

**SET**

DEV LINK PAN#  
ED YES 3222

The 5<sup>th</sup> display shows product information including manufacturer, hardware revision, product build date, firmware version and this unit's original sale date.

Press SET for 5<sup>th</sup> display.

**SET**

OKC RevA 02/08  
V1.0 3/15/08

The 6<sup>th</sup> display shows information about the rear Application module attached to the Control panel including program name, module Id., group (GID), function (FID) Id. and serial number.

Press SET for 6<sup>th</sup> display.

**SET**

PT\_3X1 AM6100  
018.082 # 01572

The 7<sup>th</sup> display provides a company name and phone number for technical or installation support.

Press SET for 7<sup>th</sup> display.

**SET**

OKC Products  
(970) 532-1773

## System Displays 8 - 10

The 8<sup>th</sup> display allows selecting the communication protocol. Protocols include WHIP and ModBus RTU.

Press SET for 8<sup>th</sup> display. **SET** **COMM TYPE**  
WHIP

The 9<sup>th</sup> display allows changing the communication baud rate and parity. Baud rates are 9600, 19200 and 38400. Parity is None, Even or Odd.

Press SET for 9<sup>th</sup> display. **SET** **BAUD** **PARITY**  
38400 NONE

The last system display allows setting the ModBus slave address when selected as the communication protocol. Slave addresses range from 1 to 255.

Press SET for last display. **SET** **MODBUS ADDR**  
225



Use Cursor key to move between selections.     
Use these keys to modify selections.

## Erase Program Menu

There are times when it is necessary or desirable to erase the current Application module's program in the front Control module and to manually reload the application program or power cycle the unit to reload a the rear module's application program.

Press SET for 2<sup>nd</sup> menu. **SET** **2: Press DATA**  
**Erase Prog**

Press DATA to select. **DATA** **Erase Program?**  
**NO**

Use these keys to toggle between NO and YES.  

Press DATA to accept. **DATA** **Erase Program?**  
**YES**


Pressing the DATA key will perform the selected action. If the selection is "NO", pressing the DATA key will return back to the main System Configuration menu. If the selection is "YES", the Application program will be erased and the Control panel will Power Up restart.

## Reload Program Menu

The Reload Program menu allows reloading the rear module's application program into the Control panel to perform the specific Application module's programmed functions. Press the DATA key to access the Reload Program system function.

Press SET for 2<sup>nd</sup> menu. **SET** **3: Press DATA**  
**Reload Prog**

Press DATA to select. **DATA** **Reload Program?**  
**NO**

Use these keys to toggle between NO and YES.  

Press DATA to accept. **DATA** **Reload Program?**  
**YES**

Pressing the DATA key will perform the selected action. If the selection is "NO", pressing the DATA key will return back to the main System Configuration menu. If the selection is "YES", the Application program will be reloaded and the Control panel will Power Up restart.

## Application Module Installation

The Control panel connects to a number of different Application modules. Before attaching an Application module, make sure the Control panel power is OFF.



Once the rear Application module is mated with the Control panel, secure the two modules together with the four (4) panel screws provided. Panel screws need only be hand tight to maintain an effective water seal.

## RS-232 Serial Port

The RS-232 serial port uses a 8-Pin, female RJ-45 jack for connection. The serial port is configured as a DTE (Data Terminal Equipment) connection with the following serial port parameters:

Baud Rate	9.6k, 19.2k or 38.4k
Parity	None, Even, Odd
Data Bits	8
Stop Bits	1
Flow Control	Hardware

DCE (PC) and DTE (modem) pin connections are:

RJ-45 Plug DTE Female =====	DE-9P Plug DCE Female =====	DE-9P Plug DTE Male =====
1 – DSR	6 – DSR	6 – DSR
2 – NC	1 – DCD	1 – DCD
3 – DTR	4 – DTR	4 – DTR
4 – GND	5 – GND	5 – GND
5 – RXD	3 – TXD	2 – RXD
6 – TXD	2 – RXD	3 – TXD
7 – CTS	7 – RTS	8 – CTS
8 – RTS	8 – CTS	7 – RTS

The RJ-45 plug's DSR (1) and DTR (3) pins are tied together internally.

## Network Module

The network module uses a Maxstream XBee ZNET™ RF modem for 300 ft. (100 m) short range networks coverage and a XBee-Pro RF modem for wider 4000 ft. (1.2 km) coverage. XBee network modules are configured by the manufacturer as either a Coordinator, a Router or an End Device.

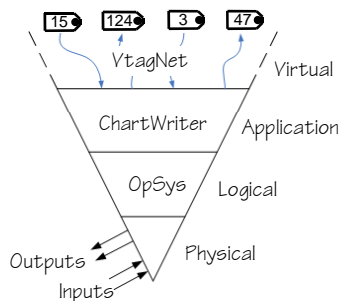
The network Coordinator manages all network communication between individual sensors and controls associated with the network. End Device is a term used to refer to the sensor or control devices. Up to eight End Devices may be associated with a single network Coordinator or Router.

Only one AeroMate unit within a network can be designated as the network Coordinator, whereas many different AeroMate units can be designated as End Devices. A specific AeroMate can be designated as a Coordinator by simply plugging in the correctly configured XBee module.

The network module is field installable and can be added to the Control panel or upgraded to meet longer range requirements as needed.

## Operating System

The AeroMate employs a proprietary operating system (OpSys™) that manages all the interaction between application programs and the physical hardware components in a new generation of wireless sensors and controls. This layered operating system allows more flexibility in meeting special or customized market requirements.



The virtual or vTagNet™ layer creates an open ended interface for unlimited interaction and collaboration between sensors and controls joined by a local network, a wide area network or the internet via the world wide web.

## Application Modules

The Control panel automatically detects when a different Application module has been attached to it and will load and run the rear module's program. The list below shows available Application modules.

Module Number	Description	GID.FID
9203-2035100	2x Solenoid Valve	018.066
9203-2035200	1x Solenoid Valve	018.067
9203-2036100	2x Transducer	018.055
9203-2036200	1x Transducer	018.082
9203-2036300	1x Flow	018.083
9203-2037100	4x4 Switch Router	018.097
9203-2038100	2x4 Analog Router	018.098
9203-2038200	4x Analog Sensor	034.098
9203-2038300	3x Digital Counter	034.099
9203-2038400	4x1 Sensor /Counter	034.081
9203-2039100	Uplink Manager	018.111

The Group Id (GID) and Function Id (FID) followed by a 2-byte serial number comprises the unique device identification for a specific Application module. The unique device identification, for example, for a 9203-2037100 4x4 Switch Router with serial number 15435 would be "018.097.060.075". All network and remote access communication uses this unique 4-byte address to identify specific network End Devices