

Operator's Guide

AeroMate™ WSC – 2x Valve



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

U.S. Patent Numbers 6,194,793 and 6,462,507
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Introduction

The 2x Valve provides two, latching type pneumatic solenoid valves. Each pneumatic solenoid valve is rated for supply gas pressures up to 100 psi. Valve timers may be programmed as cycle times or day time and day-of-week timers.

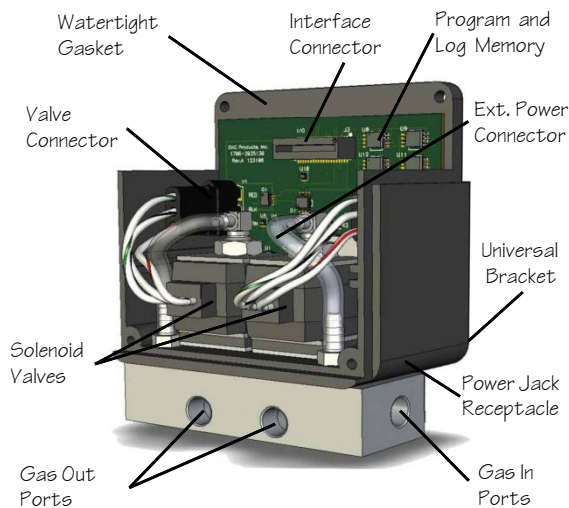
The 2x Valve may be used as an independent controller or as a functional component in conjunction with other sensors and controls within a wireless, networked control system.

vTagNet™ technology provides a virtual wire tag system to share valve events (eTag) and valve control commands (aTag) by allowing users to assign tag numbers as needed.

Data logs are generated at the user settable LUD (Log Update) time interval in seconds. Up to 3276 log records are stored before older records are deleted and replaced in a revolving data log.

The 2x Valve application program and LCD displays may be modified, tested and simulated using the ChartWriter™ programming utility.

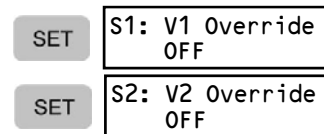
2x Valve Module



The 2x Valve module includes two, dual-port, latching solenoid valves, dual ¼ NPT female gas in and individual gas out ports, an external power jack receptacle, a universal 2" pipe or motor valve mount, and rear panel gasket.

Manual Override

The first SET key displays are the manual valve override control for V1 and V2. Pressing the "Next" or "Previous" key will toggle the solenoid valve between OFF and ON timer cycles. This action initiates the timing associated with these valve cycles.



Use these keys to shift valve state.



Valve Cycle Timing

The primary control valve is V1 which is controlled through the use of cycle timers. Each cycle timer begins with a valve control action. Three cycle timers are provided in the standard valve configuration.

OFF time - primary close cycle
ON time - primary open cycle
DELAY time - plunger arrival afterflow time

Cycle Time Setup

Each cycle timer is programmed in a HRS:MIN:SEC format. A zero time (000:00:00) setting disables timing for the cycle.

S31: Press <>
V1 VALVE Setup

◀▶ S311: V1 OFF
Time 004:00:00

SET S312: V1 ON
Time 002:00:00

SET S313: V1 DELAY
Time 000:15:00

S32: Press <>
V2 VALVE Setup

◀▶ S321: V2 OFF
Time 004:00:00

SET S322: V2 ON
Time 002:00:00

Use these keys to change selections.



vTagNet Setup

Event tags (eTag) are used to signal when valve timing cycle or events occur and trigger actions (aTag). For example, the valve v1 closing event could be assigned eTag 21 and the V2 ON cycle assigned aTag 21, so that the V2 ON timer is initiated when V1 valve closes.

S4: Press <> for
vTagNet Setup

◀▶ S41: Press <>
for eTag Setup

SET S42: Press <>
for aTag Setup

Action tags (aTag) tie actions to the occurrence of specific events. As shown above, a valve shift event is tied or connected to a valve cycle timer action by assigning the same tag number (21) to the event and it's associated action. When connected through a wireless network, the vTagNet system extends the functionality of individual units to include all the sensing and control functions for the networked components as a whole.

Event Tag Setup

Assign eTags to valve shifting events. An eTag assignment of 000 indicates that no eTag is assigned to the particular event.

S41: Press <>
for eTag Setup

◀▶ S411: V1 Close
eTag 021

SET S412: V1 Open
eTag 002

SET S413: V2 Close
eTag 003

SET S414: V2 Open
eTag 004

Use these keys to change selections.



Any action assigned the same tag number will respond when the event occurs and the eTag becomes active.

Action Tag Setup

Action tags (aTag) cause an action to occur whenever their corresponding event tag (eTag) is active. Assign aTags to timers as a means to initiate timing cycles.

S42: Press <>
for aTag Setup

◀▶ S421: V1 OFF
aTag 011

SET S422: V1 ON
aTag 012

SET S423: V1 DELAY
aTag 013

SET S424: V2 OFF
aTag 000

SET S425: V2 ON
aTag 021

Use these keys to change selections.



As shown on the previous page, the valve V1 closing event is assigned eTag number 021. Since the V2 ON aTag is also assigned the number 021, V1 closing will open V2 and start V2's On cycle timer.

System Setup

Modules communicate and share vTagNet data over a closed network identified by the PAN#. The PAN# must be set the same number for all the devices on the same network to work together.

S5: Press <>
for SYSTEM Setup

◀▶	DEV ED	Link YES	PAN# 1134
SET	NUD YES	LUD 00000s	
SET	DATE TIME	05/14/08 17:02:19	
SET	SET DEFAULTS Press UP/DOWN		

Use these keys to change selections.



Network Update (NUD) is the time interval over which vTagNet information is updated and shared with other devices. Once tag numbers have been assigned, set the NUD to "Yes" to activate vTagNet system updates. The default NUD setting is 5 seconds.

Valve Cycle Status

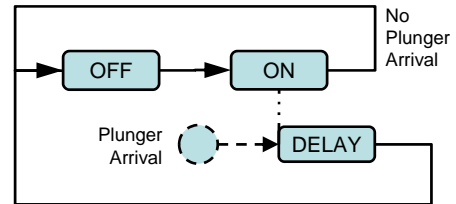
The first two data displays report what timer cycle is active and the timing cycle's remaining time.

D11: Press <>
for V1 Status

◀▶	D111: V1 State	ON
DATA	D112: V1 Time ToGo	001:37:24

Select D12: menu for V2 status displays.

The typical timing cycle sequence is as illustrated below. Normal operation with a plunger arrival is OFF, ON, DELAY and back to OFF.



Valve 1 Totals Data

Totals data provide a summary of valve operation over time. Total time displays show the total, cumulative time the unit has spent in a timing cycle. Note that the DELAY cycle time is included in the ON cycle's total time.

D21: Press <>
for V1 Totals

◀▶	D211: V1 ON Total	125:54:15
DATA	D212: V1 ON Count	00016
DATA	D213: V1 OFF Total	059:16:45
DATA	D214: V1 OFF Count	00027

The count display tracks the number of times the controller has initiated the associated cycle timer. To reset time and count totals to zero, press Up or Down key when viewing any one of the totals displays.

Valve 2 Totals Data

Totals data provide a summary of valve operation over time. Total time displays show the total, cumulative time the unit has spent in a timing cycle.

D22: Press <>
for V2 Totals

◀▶	D221: V2 ON Total	125:54:15
DATA	D222: V2 ON Count	00016
DATA	D223: V2 OFF Total	059:16:45
DATA	D224: V2 OFF Count	00027

The count display tracks the number of times the controller has initiated the associated cycle timer. To reset time and count totals to zero, press Up or Down key when viewing any one of the totals displays.

System Status

System status displays show power, network, panel temperature and clock status. The power display shows solar voltage, battery charge level and current drain. Network status shows network component type and link status.

D5: Press <> for
SYSTEM Status

◀▶	SOL	BAT	ImA
	1.43	3.86	11
DATA	DEV	LINK	
	ED	YES	
DATA	TMP	MAX	MIN
	73	108	-5
DATA	DATE	04/11/08	
	TIME	13:29:57	

Temperature display shows current panel temperature and the historical high and low temperatures since the last time the unit was power cycled. The date/time clock shows current date and 24-hour time.

Module Information

Module information displays show device identification and sales data for warranty service. Module information displays are "system displays" and can not be modified or altered using the ChartWriter™ utility. This display information is programmed into each unit by the manufacturer, at the time of shipment or sale.

D6: Press <> for
MODULE Info

◀▶	SV_1X2	AM5100
	018.066	# 02156
DATA	OKC RevA	02/08
	V1.6	03/28/08
DATA	OKC Products	
	(970) 532-1773	

Other user guides are supplied with each unit that focus on Control Panel operation, Power Module use and features and Wireless Networking, respectively. Visit and register on the OKC eSupport site for more detailed information. <http://support.okcproducts.com/>

Important Device Information

Each application module has important device related information saved in its non-volatile memory that can be accessed through the LCD display interface. Manufacturing and sales information is included in a single display as shown below.

Hardware Revision	
Manufacturer	OKC RevA 02/08
Build Date	V1.6 03/15/08
OpSys™ Version	Original Sale Date

Device information is also included in a single display as shown below. A "business card" sized information card is provided with each unit so that the device information may be noted for future reference.

Program Id.	Module Id.
SV_1X2	AM5200
018.067	# 03125
Group Id. No. (GID)	Serial Number
Function Id. No. (FID)	

Accessories

Part Number	Accessory Description
9203-2002110	Pipe Mounting Kit 2-1/4 U-Bolt with extra 5/16" nuts . Uses universal mounting plate.
2503-1370315	Watertight Bushing. 1/8 NPT, Black Nylon. Direct thread into enclosure.
9203-2032150	Power Jack Assembly. 2.5mm Receptacle. Complete wired assembly.
4160-2032120	Universal Mounting Bracket. Black Zinc Plated #16 GA Steel. 2" Pipe or motor valve mount.
1980-2032400	Wireless XBee Kit. Maxstream 2.4 GHz Module. 300 ft. (100m) Line of Sight range.
1980-2032401	Wireless XBee-Pro Kit. Maxstream 2.4 GHz Module. 4000 ft. (1.2km) Line of Sight range.
9200-0852251	Ext. 2 W Solar Panel w/ stand. 8.5 Vdc @ 235 mA charging. 12 ft. Power Jack cable provided.