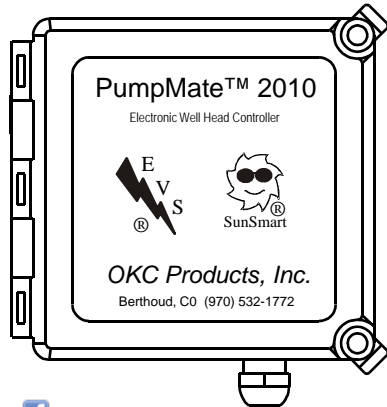


OPERATOR'S GUIDE



SunSmart® with vTagNet™ Technology

Non-Incendive, Intrinsically Safe for Use in
Class 1 Division 1 and Class 1 Division 2
Group C and Group D Hazardous Locations

U.S. Patent No.'s 6,194,793 and 6,462,507
Copyright © 2010 OKC Products, Inc. All Rights Reserved

Introduction

Multi-Function
Hardware

The PumpMate 2010 is a multi-function controller that includes a full suite of sensor inputs, including 3x digital inputs (DI's), 3x analog inputs (AI's) and single or dual solenoid valve support.

Customizable
Programs and
LCD Displays

With OKC Products, Inc.'s Integrated Device Manager (IDM) and web based version control system, the PumpMate 2010 is fully customizable to meet any simple or complex application.

Configurable
Analog Inputs

Analog sensor input calibration includes zero voltage, maximum voltage and output scale to accept most industry standard voltage output transducers.

Configurable
Digital Inputs

Digital inputs configuration allows for normally open (NO) or normally closed (NC) switch sensors with TC filtering.

Advanced
Solar Charging

Advanced solar charging technology provides rapid charging of the 5 A-Hr Nimh battery pack in both sunny and cloudy weather conditions.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Advanced Features

Digital Gauge
Low, Window &
High Set Points

PumpMate 2010 script programming provides digital switch gauge functions for Low, Window and High set point detection. Digital gauge combinations include flow, pressure and differential measurements, to name just a few.

SCADA Modbus
Compatibility

Modbus is the standard communication protocol in the PumpMate 2010 and provides a seamless interface and full compatibility with industry SCADA data acquisition systems and on-line, web based monitoring and control services.

Wireless Sensor
and Control
Connectivity

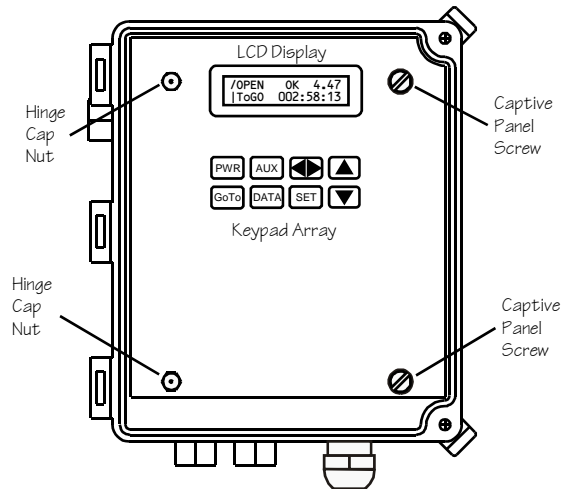
Local wireless networking extends the reach of the PumpMate 2010 to sensors and controls up to 3000ft. from the base unit using OKC's AeroMate WSC line of wireless sensors and controls.

AGA-3 1992
Gas Flow
Measurement

PumpMate 2010 script program includes a gas flow measurement function that conforms to the AGA-3 1992 standards to provide stable, accurate gas flow rate and volume calculations

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

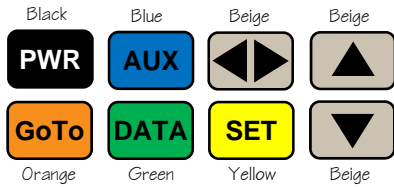
Control Panel



A 32-character LCD display provides information on current operating status, stored well operating data, and verifies user keypad commands. Large, colored control keys simplify user setup and control. Captive panel screws and a hinged control panel provides easy access to internal assemblies.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Keypad Array



PWR Key

PWR

PWR key toggles power On and Off.

Initial display allows entering BIOS menu.

**PRESS SET KEY
TO CONFIGURE ...**

SET

The initial power up display allows one second for a user to press the SET key and access a BIOS setup menu. See Advanced User's Guide for setup details.

Ready display shows contact information.

**OKC Products
(970) 532-1773**

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

AUX Key

AUX

AUX key provides access to system information and setup menus.

Date/Time, Power, Temperature and xBee Link Status.

**| Press <> For
SYSTEM Info**

Set DEFAULTS and Log Update Interval.

**| Press <> For
DEVICE Setup**

Module Id., Firmware and Contact data.

**| Press <> For
MODULE Info**



Use the Cursor (<>) key to access the AUX sub-menus. The information in the AUX menus are for information only. System power readings, xBee wireless link status, control panel min, max and current temperature, and Real-Time clock settings are some of the sub-menus under the AUX key.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

GoTo Key

GoTo

The orange GoTo key is used to manually override controller operation to "go to" the next OFF or ON cycle.

GoTo key toggles to OFF if current cycle is ON.

**| OFF
ToGo 002:58:13**

GoTo key toggles to ON if current cycle is OFF.

**/ ON
ToGo 002:58:13**

2-Valve
Option

If the 2nd Valve option is installed, each GoTo key press will toggle between the two 1st and 2nd valve control states.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

DATA Key

DATA

The DATA key provides menus for viewing current status and well data.

Current status and action indicators such as PGR (^) and HP OVR, etc.

**/ ON
ToGo 000:47:18**

Sub-Menu shows well TOTALS data. OFF and ON times, counts and percentages.

**/ Press <> For
TOTALS Data**

Sub-Menu shows the current PGR status, Yes/No count and last 10 arrival times.

**/ Press <> For
PLUNGER Data**

Digital input displays status of all three switch inputs.

**/ PGR LP HP
Off Off Off**



Use the Cursor (<>) key to access the DATA sub-menus. Press the DATA key to sequence through sub-menus.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

SET Key

SET

The SET key provides setup menus to set cycle times, set points and clear stored data..

Set five cycle times.

... OFF time
... FALL time
... BakUp time
... ON time
... DELAY time

Press SET key to access each display the above order.

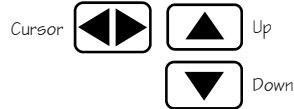
Clear stored data TOTALS. Up or Down key toggles No/Yes.

Use Cursor, Up and Down keys to change time settings.

OFF
TIME 001:28:37

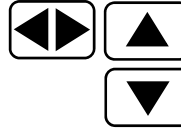
DELAY
TIME 000:15:00

CLEAR
Stored Data No



Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Navigation Keys



The beige navigation keys are used to set cycle times, set points and toggle display selections. When an entry is selected, a position cursor will appear in the display to indicate the item or value that may be modified using the Up/Down arrow keys.

Entry Update

Entries or changes made to cycle times and other parameters with the SET keys are automatically updated and stored as changes are made.

Changes in any cycle time will not alter or change the current operating cycle time, but rather update to the new time on the next activation of the timing cycle.

Setting Zero Time

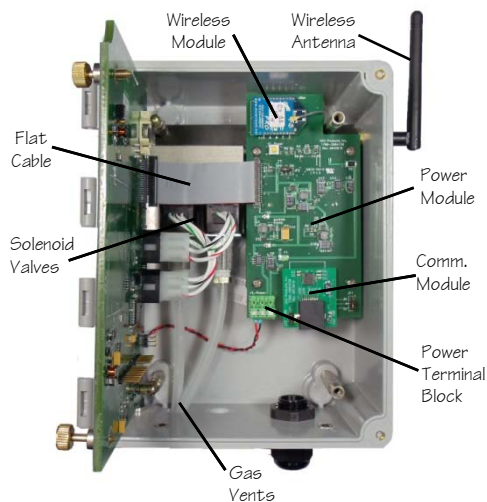
When setting times to zero, it is best to begin by setting the HRS to zero, then setting the MIN to zero, and lastly setting the SEC to zero.

Roll Up, Roll Down Feature

A "Roll Up / Roll Down" feature is used to automatically adjust hours, minutes and seconds time. For example, subtracting one minute from the time display 001:00:00 will Roll Down the display to show 000:59:00. A Roll Up works opposite of a Roll Down.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Internal Hardware



Internal solenoid valve assemblies (V1, V2), power module with four rechargeable Nimh AA batteries (BP1, BP2) and control panel connections are easily accessed by opening the hinged control panel.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

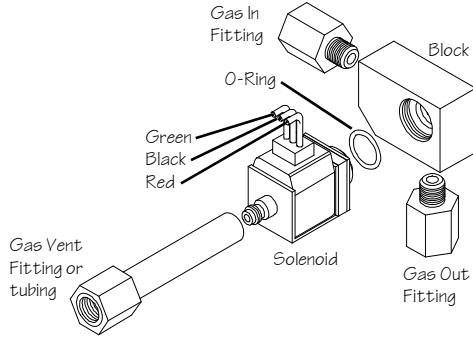
Motor Valve Out Ports



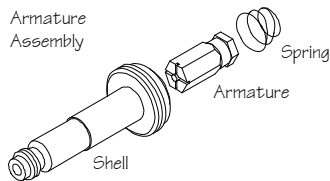
Rear panel 1/4-NPT fittings supplies 0-100 psi supply gas to open one or two diaphragm operated motor valves. Bottom panel fitting vents pressurized gas from normally closed (NC) motor valves to shut-in one or two motor valves. Be sure to use clean, dry supply gas with filters for best performance.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Valve Assembly



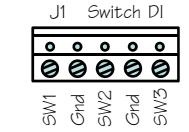
Single dual-port valve assembly including fittings.
Note green wire to solenoid left for proper assembly.



Solenoid armature assembly with conical spring.
Armature has rubber gaskets on top and bottom.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Digital Inputs



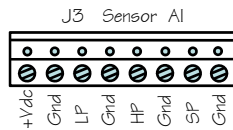
Gnd = Common Ground

- SW1 – Gnd** Typically plunger arrival sensor. SW1 connects to sensor SIG or +. Gnd connects to sensor COM or -.
- SW2 – Gnd** Typically high ON override (HP) switch. SW2 connects to switch gage HIGH. Gnd connects to switch gage COM.
- SW3 – Gnd** Typically sales line Hold (SP) switch. SW3 connects to switch gage HIGH. Gnd connects to switch gage COM.

Although typical digital input (DI) functions are noted above, the SWx inputs may be configured as required, including functional response, active high (NC) or active low (NO) sensing and input filtering using a Time Constant (TC) response delay.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Analog Inputs



Gnd = Common Ground

- +Vdc – Gnd** Analog sensor power (+10Vdc). +Vdc connects to sensor +V or +EXC. Gnd connects to sensor COM or -EXC.
- LP – Gnd** Typically TBG pressure transducer. LP connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.
- HP – Gnd** Typically CSG pressure transducer. HP connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.
- SP - Gnd** Typically SLS pressure transducer. SP connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.

#22 AWG wire is recommended for sensor hook up.

Input zero offset, full scale and range are settable for any voltage output sensor in the range of 0 Vdc to +5Vdc.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10

Accessories

Part Number	Accessory Description
4008-0122500	Nimh AA Battery (2500 mAh Capacity). Uses 3 each in AA battery holder. Recommend charging before use.
4015-1250300	4x AA Auto Lighter Charger. 1-hour Nimh battery charging. Plugs into auto lighter socket.
4022-PD7510A	115 Vac Wall Socket Charger. 6 ft. molded power jack cable. Output 3 Vdc @ 300 mA (.90 W).
9200-0501200	Ext. 6 Watt Solar Panel w/ stand. 5 Vdc @ 1200 mA charging. 6 ft. Power Jack cable provided.
9200-0490560	Ext. 2 Watt Solar Panel w/ stand. 4.9 Vdc @ 560 mA charging. 12 ft. Power Jack cable provided.
9208-2083000	PM2010 control panel assembly. Includes captive screws and retainers. Uses #8-32 cap screws on hinge posts.
9208-2084100	PM2010 power module assembly. Includes four AA, 2500 mAh batteries. xBee and serial port modules are optional.

Doc. No. 9208-2089310 www.okcproducts.com 10/30/10