Site Resources Ltd.

OKC Products, Inc.

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

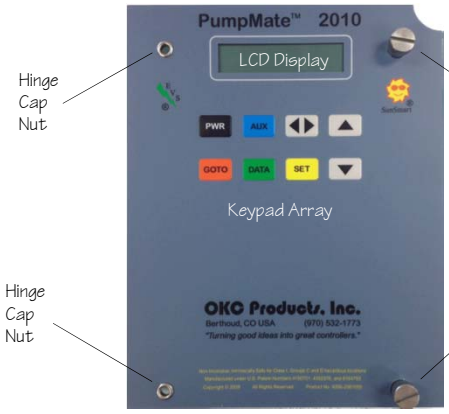
Introduction

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), 4x 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.

Advanced Features

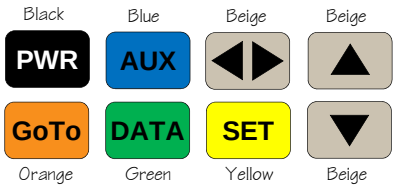
Digital Gauge Low, Window & High Set Points	PumpMate 2010 script programming provides digital switch gauge functions for Low, Window and High set point detection. Digital gauge combinations include flow, pressure and differential measurements, to name just a few.
SCADA Modbus Compatibility	Modbus is 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 1000ft. from the base unit using OKC's AeroMate WSC line of wireless sensors and controls.
AGA-3 1992 Gas Flow Measurement	PumpMate 2010 scrip 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

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.

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) 532-1774
```


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, except for the Set DEFAULTS which allows the user to reset program variables to factory default settings.

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.

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.

SET Key

SET

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

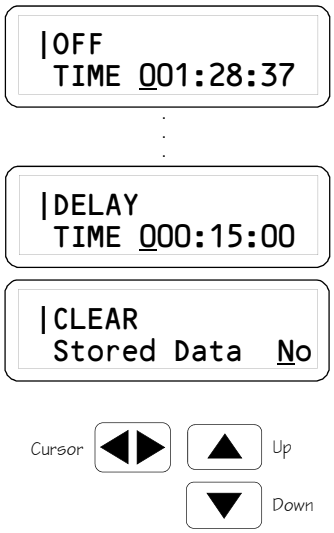
Set five cycle times.

… 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.

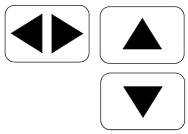
Use Cursor, Up and Down keys to change time settings.



Cursor Up

Down

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 many 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.

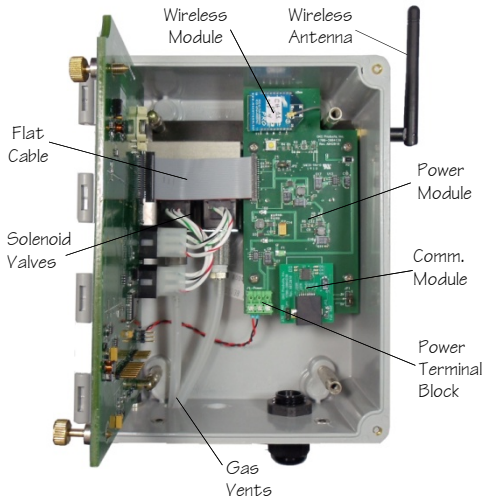
Setting Zero Time

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.

Internal Hardware

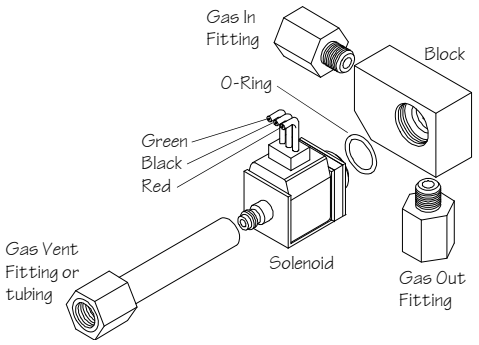


Internal solenoid valve assemblies (V1, V2), power module with four rechargeable Nimh AA batteries (BP1, BP2)and control panel connections are easily accessed by opening the hinged control panel.

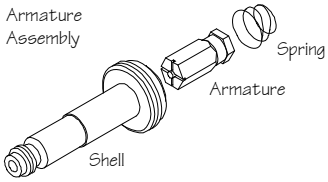
Motor Valve Out Ports

Rear panel ¼-NPT fittings supplies 0-100 psi supply gas to open one or two diaphragm operated motor valves. Bottom panel ¼-NPT fittings vent pressurized gas from normally closed (NC) motor valves to shut-in one or two motor valves. Use clean, dry supply gas with filters for best performance.

Valve Assembly

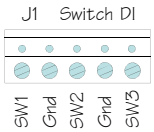


Single dual-port valve assembly including fittings.
Note green wire to solenoid left for proper assembly.



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

Digital Inputs

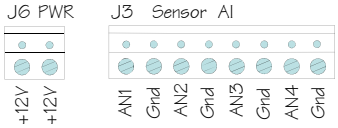


Gnd = Common Ground

SW1 – Gnd	Typically plunger (PGR) 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) and input filtering using a Time Constant (TC) response delay.

Analog Inputs



+12V	Analog sensor power (+12Vdc) +12V connects to sensor +V or +EXC.
AN1 – Gnd	Typically TBG pressure transducer. AN1 connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.
AN2 – Gnd	Typically CSG pressure transducer. AN2 connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.
AN3 – Gnd	Typically SLS pressure transducer. AN3 connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.
AN4 – Gnd	Typically FLO Rate Transmitter. AN4 connects to sensor SIG or OUT. Gnd connects to sensor COM or -EXC.

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

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.
4022-1206300	Utility Wall Socket Charger +6Vdc @ 300mA charge rate PumpMate Power Jack compatible
9200-0501770	Ext. 8 Watt Solar Panel w/ stand. 5 Vdc @ 1700 mA charging SolarMade SP8-10B
1980-2664500	Wireless Network Kit (802.15.4) Synapse 2.4 GHz RF Module 1000 ft. (300 m) Line of Sight range
9208-2083000	PM2010 control panel assembly. Includes captive screws and retainers.
9208-2084100	PM2010 power module assembly. Includes four AA, 2500 mAh batteries.

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