

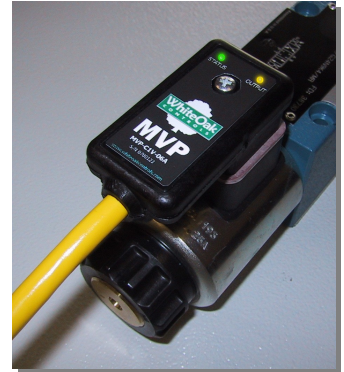


# MVP-R

## Digital Proportional Valve Ramping Controller Plug

The MVP-R is a compact, inline controller for use with proportional solenoid valves. The MVP provides current to a valve coil with adjustable ramp times. Bright LED indicators on the top of the unit provide an overview of the operating status. Setup is accomplished through a convenient hand held interface or portable computer. There is no cover to remove and no tiny pots to set. Once configured, the settings are stored in permanent memory within the unit. The MVP comes pre-wired with standard or custom lengths of industrial grade cable. The MVP is housed in a rugged, low-profile 18mm DIN connector body.

- Easily configured using WhiteOak Terminal software or our hand held interface
- LED indication of Status and Output Current
- Permanently sealed, standard DIN 43650 Form A connector body
- Selectable dither frequency up to 300 Hz
- Adjustable current limited output with short circuit protection
- Output limits are independently adjustable
- Adjustable ramp up and ramp down times (RP1 has ramp up only)
- Pre-wired 18 AWG PVC cable
- Microprocessor controlled for consistent, reliable performance



### Operating Specifications:

Supply Voltage	9 to 28VDC
Supply Current	$I_{SOL} + 20mA$
Output Current	<b>-06A:</b> 600mA MAX. <b>-12A:</b> 1.2A MAX. <b>-25A:</b> 2.5A MAX.
Solenoid Resistance	2Ω MIN.
Dither Settings	Off, 30, 33, 38, 43, 50, 60, 75, 100, 150, 300 Hz
Ramp Functions	<b>-RP1:</b> Ramp Up Only <b>-RP2:</b> Ramp Up and Ramp Down
Enable Input Voltage (RP2)	9 to 28VDC
Operating Temperature Range	-20° to 70° C
Enclosure	Glass filled Nylon

## WARRANTY INFORMATION, PERFORMANCE ASSURANCE, AND APPLICATION LIMITATIONS

### Limited Warranty

WhiteOak Controls, Inc. warrants its products free from defects in material, workmanship, and design for a period of one year after installation, provided the installation date is less than one year after manufacture. In no instance is there any warranty of fitness for a particular use and WhiteOak Controls, Inc. cannot and does not accept responsibility of any type for any of its products that have been subjected to improper installation, improper application, negligence, tampering, or abuse, or which have been repaired or altered outside of the WhiteOak Controls factory. WhiteOak Controls' liability under this warranty shall extend only to replacement or correction, f.o.b. our factory, of any defective part or product determined by inspection as not conforming to this warranty. We make no other warranties, expressed or implied, and are not responsible for any consequential damages resulting from use by any buyer or user, our liability being limited to the value of product sold or obligation to replace a defective part.

### Performance Assurance

All WhiteOak Controls products are individually tested at the factory to perform as indicated in all applicable sales and technical documentation. However, assurance of suitability of all WhiteOak Controls products in the buyer's application is the responsibility of the buyer. Such assurance would typically include the manufacture of a prototype followed by a test or qualification program on the part of the buyer.

### Application Limitations

WhiteOak Controls, Inc. designs and manufactures its products specifically for use in commercial, industrial and mobile control applications and WhiteOak Controls' products are only warranted for this type of use. WhiteOak Controls' distributors are not authorized to approve the use of any WhiteOak Controls product in any of the following applications:

- Any product that comes under the Federal Highway Safety Act, namely steering or braking systems for passenger-carrying vehicles or on-highway trucks.
- Aircraft or space vehicles.
- Ordnance equipment.
- Any end product that, when sold, comes under the U.S. Nuclear Regulatory Commission rules and regulations.

Specific written approval for any application of WhiteOak Controls products in any of the above named applications should be obtained from WhiteOak Controls, Inc. Consultation with WhiteOak Controls distributors or factory engineers is advised in unusual situations where applicability is questionable.



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### Physical Description

The MVP is shown at the right. There are two indicator lamps labeled STATUS and OUTPUT. The STATUS lamp will light green whenever power is applied to the unit and is within the specified voltage range. The STATUS light will flash red when a fault has occurred. The type of fault is indicated by the number of successive flashes. It will continue to flash until the command signal has been removed to clear the fault. The yellow lamp labeled OUTPUT provides an indication of the current being supplied to the solenoid outputs.



Communication with the MVP takes place through an infrared interface port. The port allows for configuration and monitoring of the operating parameters. The infrared adapter clips onto the MVP aligning with the notches in the sides.

### User Interface

The MVP has a number of internal settings which allow each unit to be configured for the application in which it is used. These settings are accessed with a PC running Windows based WhiteOak Terminal software or with the WhiteOak Hand Held Interface

Both methods require the use of the Infrared Adapter which clips onto the MVP.

WhiteOak Terminal provides a convenient interface to the MVP. The program gives the user the ability to view and make changes to the configuration. It also allows the user to store complete configurations in files on the PC. These files can then be recalled to program new units or update existing ones.

The hand held interface is a stand-alone option. Because it is fully self contained, the programmer, cable and adapter are all that is required. This is a good alternative for field installations where a PC might not be convenient.

### Configuration

All interface operations are accomplished with the use of 4 buttons. The buttons are Lock, Unlock, Up, and Down. The hand held interface represents these in graphical form as padlocks and arrows. The same symbols are used on the buttons in WhiteOak Terminal and can be activated with the mouse. The program also recognizes menu commands and short-cut keys. The keys used are '/'(lock), '\*'(unlock), '+'(up), and '-'(down).

The data displays for both methods are very similar. The hand held interface has a two-line LCD display. The display is represented graphically in WhiteOak Terminal.

The up and down arrows are used to navigate through the parameter list. When either button is pressed the display will be updated with the next parameter in the list. The parameter name will appear on the first line and the associated setting will appear

on the second line. The list is accessed in a circular fashion, stepping down from the last parameter to the first and vice-versa.

There are three types of parameters in the list: fixed; monitor; and variable. Fixed parameters are used to show things such as the module's firmware version number. Fixed parameters do not change. Monitor parameters display things such as output current or system voltage. These parameters are constantly updated when the module is functioning. Variable parameters are those which can be changed by the user in order to configure the module. Examples of this type are operating mode and maximum output current. For convenience, some parameters combine variable and monitor types on one line. This allows the user to set a variable according to the current monitor value.

To change the setting of a variable parameter, the user must press the unlock button to place the system in edit mode. While in edit mode the display will show an asterisk (\*) at the beginning of the second line. In edit mode the up and down buttons are used to change the value of the parameter. For parameters which contain both variable and monitor data, the monitor data is shown surrounded by square brackets. Pressing the unlock button again while in edit mode will immediately load the current monitor value into the variable. Once the desired setting is displayed, pressing the lock button will save the parameter and end edit mode.

### Parameter List

The following table outlines the parameter list for the MVP. Along with the name of the parameter, the table lists the limits and units for each item.

Parameter	Limits	Units
MVP-RPx-xxx		Version #
RAMP UP TIME	0.0 to 120.0	Seconds
RAMP DOWN TIME*	0.0 to 120.0	Seconds
MINIMUM OUTPUT	0 to 600**	mA
MAXIMUM OUTPUT	0 to 600**	mA
DITHER FREQ.	OFF to 300	Hz.
OUTPUT CURRENT		mA
SUPPLY VOLTAGE		Volts
FAULT STATUS		Fault

\*RP2 Only

\*\*0 to 1.2 A for **-12A** version, 0 to 2.5 A for **-25A** version

**WhiteOak MVP** - This is the title parameter. The model number of the unit and the firmware version are displayed. The title parameter is fixed.

**RAMP UP/DOWN TIME** – Ramp Up Time and Ramp Down Time are used to limit the rate of change of the output. With the RP1 version, the output is initially set to Minimum Output and begins increasing, reaching Maximim Output after Ramp Up time. With the RP2 version, the output is initially set to Minimum Output and remains at that setting until the enable line becomes active. The current then begins increasing, reaching Maximim Output after Ramp Up time. Once the enable signal is removed the current begins to decrease reaching Minimum Output after Ramp Down time. The Ramp Up/Ramp Down Time parameters are variable.

**MINIMUM OUTPUT** - The Minimum Output parameter represents the minimum current of the output. The Minimum Output is the starting current when ramping up. This is often referred to as the deadband. The value displayed represents the



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current in milliamps (amps for -12A,-25A). The Minimum Output parameter is variable.

**MAXIMUM OUTPUT** - The Maximum Output parameter represents the maximum current of the output. The value displayed represents the current in milliamps (amps for -12A,-25A). The Maximum Output parameter is variable.

**DITHER FREQ.** - The Dither Frequency parameter has 11 options for dither control. The choices are Off, 30, 33, 38, 43, 50, 60, 75, 100, 150, and 300 Hz. Dither control provides low frequency modulation which is required in many proportional valve applications. The Dither Frequency parameter is variable.

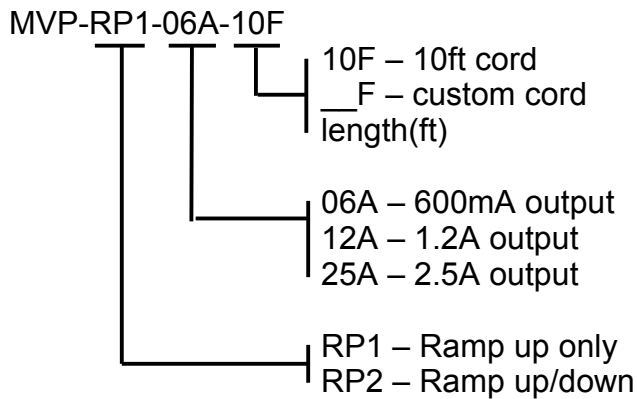
**OUTPUT CURRENT** - Output Current displays the nominal current being supplied to the output. The Output Current parameter is a monitor type.

**SUPPLY VOLTAGE** - The Supply Voltage parameter displays the module's power supply voltage. This value is included as an aid to troubleshooting. The Supply Voltage parameter is a monitor type.

**FAULT STATUS** - The Fault Status parameter displays the current fault code when a fault exists. The three possible faults are 1-Over Current, 2-Open Output, and 3-Output Shorted. The Fault Status parameter is a monitor type. In addition to the on-screen fault status, the STATUS light will flash red indicating a problem. The light will flash a number of times periodically corresponding to the above fault codes.

### Ordering Information

The following is a break down of the MVP part numbering system:



### Wiring

Wire functions are listed in the tables below.

RP1:

Terminal	Function
BROWN	+V Supply
BLUE	Supply Common
GRN/YEL	Connector ground

RP2:

Terminal	Function
BROWN	+V Supply
BLUE	Supply Common
BLACK	Enable Input
WHITE	Not Used
RED	Not Used
GRN/YEL	Connector ground