ULTRA SLIMPAK® II
WV438
DC Powered Potentiometer Input
Isolating Signal Conditioner

High Accuracy Signal Conditioner with an
Isolated DC Voltage or Current Output

CE c(UL)us

WV438-2000

- Lower Power Requirements with SmartPower
- Improved Accuracy
- Bussed Power with Plug-in Power Clips
- Removable Terminals for Easy Service

- RoHS Compliant
- Touch Cal for Best Stability and Accuracy
- DIP Switch Configuration
- Optional E-mail Notification of Alarms

Description

The Ultra SlimPak II is an exciting new line of isolating signal conditioners from Action Instruments with greater accuracy and better stability than virtually any other signal conditioners on the market today. The Ultra SlimPak II features Smart Power, which eliminates wasted power for low loop resistance loads in the current output mode.

The WV438 is a potentiometer input signal conditioner supporting 3-wire potentiometers and slidewire devices from 100 ohms to 100k ohms. The switch selectable output ranges are 0-10VDC,0-20mA and 4-20mA. All of the output ranges are fully adjustable via pushbutton calibration. The input default range is 0 to 100% of the potentiometer range, but can be adjusted via pushbutton calibration to any 20% portion of the potentiometer. The default output range is 4-20mA.

Smart Power

The Ultra SlimPak II uses Smart Power to control its output supply. Smart Power automatically adjusts the the voltage to drive the output loop to the required current. A low impedance current loop will subsequently require less voltage than a loop with higher impedance. Previous designs provided only a single supply at the highest voltage required to drive the highest impedance load. Using Smart Power results in power savings and reduces the operating temperature of the signal conditioner.

Enhanced LED Diagnostics

Other than when executing the pushbutton calibration routine, the LEDs blink under the following conditions:

GREEN:

Flashes at 2Hz when the input is under range.
Flashes at 8Hz when the input is over range.

RED:

Flashes at 2Hz when the output is under range.
Flashes at 8Hz when the output is over range.

An Under Range condition exists when the signal is lower than the operational low value minus 6.25% of the operational span. An Over Range condition exists when the signal is higher than the operational high value plus 6.25% of the operational span.

A voltage output short circuit may cause an under range condition (RED blinking at 2Hz rate). A current output open circuit may cause an over range condition (RED blinking at an 8Hz rate).

There could be two or more LEDs blinking at the same time, which means the module has more than one error condition. Only when all error conditions have been removed, will the LEDs be back to normal (Green ON, Red and Yellow Off).

Eurotherm®
by Schneider Electric

Configuring Modules

Unless otherwise specified, the factory presets the Model WV438 as follows:

Input:	Potentiometer
Range:	100 ohms to 100k ohms
Output:	Current
Range:	4–20mA
Reverse Out:	Off
Remote Cal:	Off

1. Set position 1 of S1 to ON if a WVC16 will be utilized and remote calibration capability is desired.

2. Set position 2 and 3 of S1 for the desired output type.

3. Set position 4 of S1 to ON for reverse output operation.

It is also possible to remotely select the setpoints using an Ethernet connection and the optional WVC16 Communications Interface module.
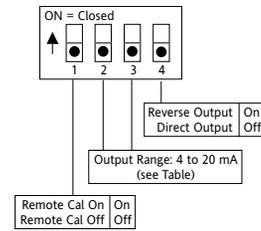
Calibration

See the calibration flowchart in Figure 3. The complete calibration procedure is contained in the Installation & Calibration Instructions document, which is available on our website (www.actionio.com). You can also obtain it by telephoning Action technical support (703-669-1318).

Note that Custom Calibration (option C620) is available from the factory (settings **MUST** be within the units specifications). For a C620, specify the following:

a) Potentiometer Input Range, in percent
(for example: Input = 25 to 75% of pot rotation).

b) Output Type & Range
(for example: 4-20mA).

c) Reverse Output Function (ON/OFF).

Function	S1			
	1	2	3	4
Remote Cal Enable	■	-	-	-
Output Range				
0 to 10V	-	■	■	-
0 to 20mA	-		■	-
4 to 20mA	-			-
Reverse Out	-	-	-	■
Key: ■ = 1 = ON or Closed; - = n/a				

ON = Closed

Reverse Output | On
Direct Output | Off

Output Range: 4 to 20 mA (see Table)

Remote Cal On | On
Remote Cal Off | Off

Default Switch Settings

Input (Yellow LED)

Normal OP

Output (Red LED)

CAL

Figure 1: Switch Settings

Pin	Description
11	Potentiometer Input (full CW)
12	Potentiometer Input (full CCW)
21	DC Power (+)
22	DC Power (-)
41	Potentiometer Input (wiper)
42	Shield Ground
51	Output (+)
52	Output (-)

Figure 2: Wiring Connections

LEGEND

- ○ Off
- ⬤ On
- ▨ Flashing (10 Hz)
- – P → Press Button
- – H → Hold Button (4 Seconds)
- – EH → Extended Hold (10 Seconds)

NOTE:
To reload factory calibration data, hold down the button while the unit powers up.
The green LED will flash 10 times and then the red LED will begin to flash.
Release the button once the red LED begins flashing and the factory calibration
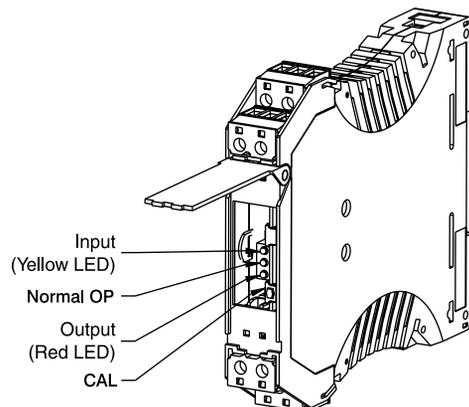data will be reloaded.

Figure 3: Calibration Flowchart

Specifications

Potentiometer Resistance (end to end):
100 ohms (min.) to 100k ohms (max.)

Input Ranges: Pushbutton adjustable

Linearity: ±0.1% of span, typical

Excitation: 300mV, nominal

Turn-Up/Turn-Down: 80% (90% to ±0.2% linearity)

Common Mode Rejection:
60Hz: >100dB
DC: >120dB

Output Ranges:
0 to 10VDC
0 to 20mA
4 to 20 mA

Response Time: 100mSec typical

Stability: ±100ppm of full scale/°C

Output Ripple: 0.2% of span, or 5mVrms, whichever is greater

Output Impedance:
Voltage Output: <10 ohms
Currnet Output: >100k ohms

Output Drive:
Voltage Output: 10 mA, max
Current Output: 20V compliance @ 20mA

Power: 9-30VDC; 1.0W typ., 2.0W max.

Isolation: 1800VDC input to output to power

Host Module Interface: IR Link

Size: DIN rail case – refer to Dimensions drawing

Operating Temperature: 0 to +60°C (32 to 140°F)

Storage Temperature: -25 to +85°C (-13 to 185°F)

Operating Humidity: 15% to 95% RH,non-condensing @ 45°C

Storage Humidity: 90% RH, non-condensing @ 60°C for 24 hours

Agency Approvals (EMC & Safety):
UL recognized per standard UL508
(File No.E99775)
CE Conformance per EMC directive 2004/108/EC and Low Voltage directive 2006/95/EC (Input < 75VDC, only).
RoHS Compliant

Note that detailed installation instructions are available on our website.

Ordering Information
Specify:
1. Model:
   WV438-2000
2. Optional Custom Factory Calibration (specify **C620**, see required settings under "Calibration, page 2).
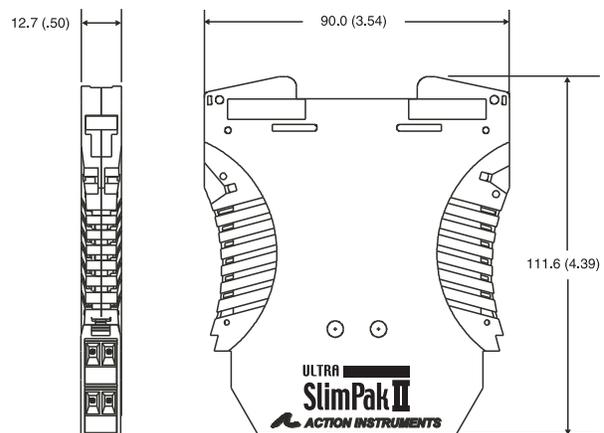3. Accessories.

Accessories
All WV Series modules will mount on standard TS35 (model MD03) DIN rail. In addition, the following accessories are available:

WVC16	Communications Interface
MD03	TS35 x 7.5 DIN Rail (2 meters)
WV905	24VDC Power Supply (0.5 Amp)
H910	24VDC Power Supply (1 Amp)
H915	24VDC Power Supply (2.3 Amp)
MB03	End Bracket for MD03
C650	Utility software for WVC16

Dimensions
Dimensions are in millimeters (inches)

12.7 (.50)   90.0 (3.54)   111.6 (4.39)

ULTRA
SlimPak II
ACTION INSTRUMENTS

Eurotherm®
by Schneider Electric

Printed on recycled paper

Schneider Electric Systems USA, Inc.

Factory Assistance
For additional information on calibration, operation and installation contact our Technical Services Group:

703-724-7314

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