

WV408-2000

# ULTRA SLIMPAK® II WV408

## DC Powered DC Voltage/Current Input Isolating Signal Conditioner

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



- Lower Power Requirements with SmartPower
- Improved Accuracy
- Bussed Power with Plug-in Power Clips
- Removable Terminals for Easy Service
- Approved for use in Class I Div 2 Group A, B, C, D areas

- 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 WV408 has both voltage and current input ranges. Four voltage input ranges ( $\pm 150\text{mV}$ ,  $\pm 1.5\text{V}$ ,  $\pm 15\text{V}$  and  $\pm 150\text{V}$ ) are DIP switch selectable. Each of these ranges has at least 95% zero and span adjustment, which, for example, would allow you to set a 0-20mV user range on the  $\pm 150\text{mV}$  full scale range. Two current input ranges ( $\pm 2.5\text{mA}$  and  $\pm 25\text{mA}$ ) are also DIP switch selectable. "Sigma-Delta" conversion produces an effective resolution of 15 bits. Both voltage and current have input accuracies of 0.015% of full scale. Outputs include 0-10V, 0-20mA and 4-20mA. The WV408 also supports reverse output. The WV408 is recognized for use in Class 1, Division 2, Groups A, B, C, D hazardous locations.

### 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.

### Approved for use in Class I Div 2 Group A, B, C, D areas

Users can now enjoy significant labor savings over traditional protection methods since there is no need for explosion proof enclosures and conduits.

A Class I hazardous location is one in which flammable gases or vapors may be present in the air to be ignitable or explosive (typical applications include petroleum refineries, spray finishing areas, utility gas plants and fuel servicing areas).

A Division 2 area is one in which the flammable gases or vapors are normally not present in an explosive concentration, but could accidentally exist.

Group A is acetylene; Group B includes hydrogen; Group C includes ether; and Group D includes hydrocarbons, fuels and solvents.

### 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).

## Configuring Modules

Unless otherwise specified, the factory presets the Model WV408 as follows:

Input: Current  
 Range: 4-20mA  
 Output: Current  
 Range: 4-20mA  
 Reverse Out: Off  
 Remote Cal: Off

1. For other ranges, refer to the SWITCH SETTINGS table. Reconfigure switches S1 and S2 for the desired input type and range.
2. Set position 1 of S1 to ON if a WVC16 will be utilized and remote calibration capability is desired.
3. Set position 2 and 3 of S1 for the desired output type.
4. Set position 4 of S1 to ON for reverse output operation.
5. Set positions 5-7 of S1 and positions 1 and 2 of S2 for the desired input range.

It is also possible to remotely select the setpoints using an Ethernet connection and the optional WVC16 WebView 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](http://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) Input Type, Range & Units (mA, mV, V).
- b) Output Type, Range & Units (ma, mV, V).
- c) Reverse Output (ON/OFF)

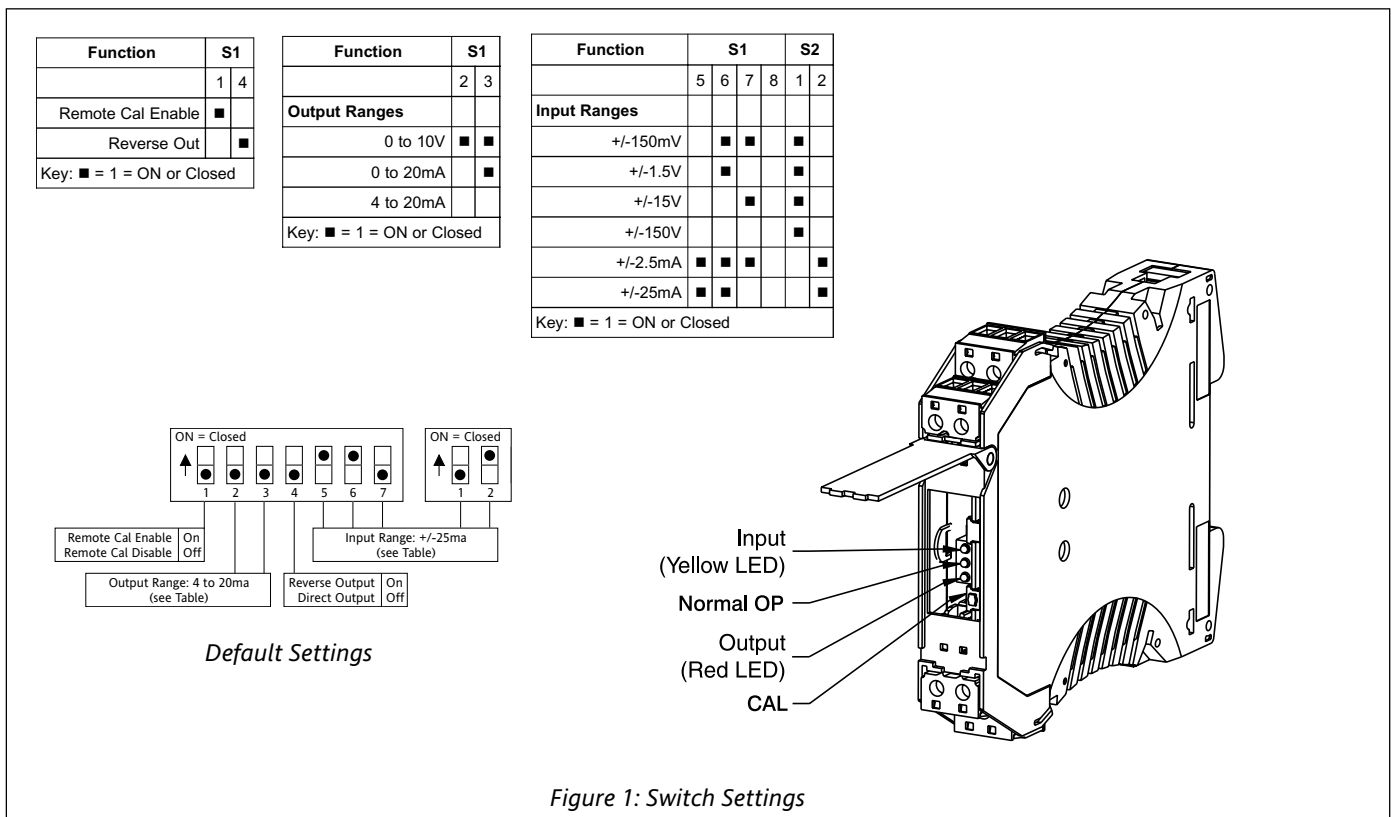
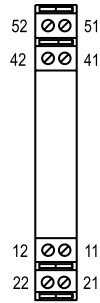
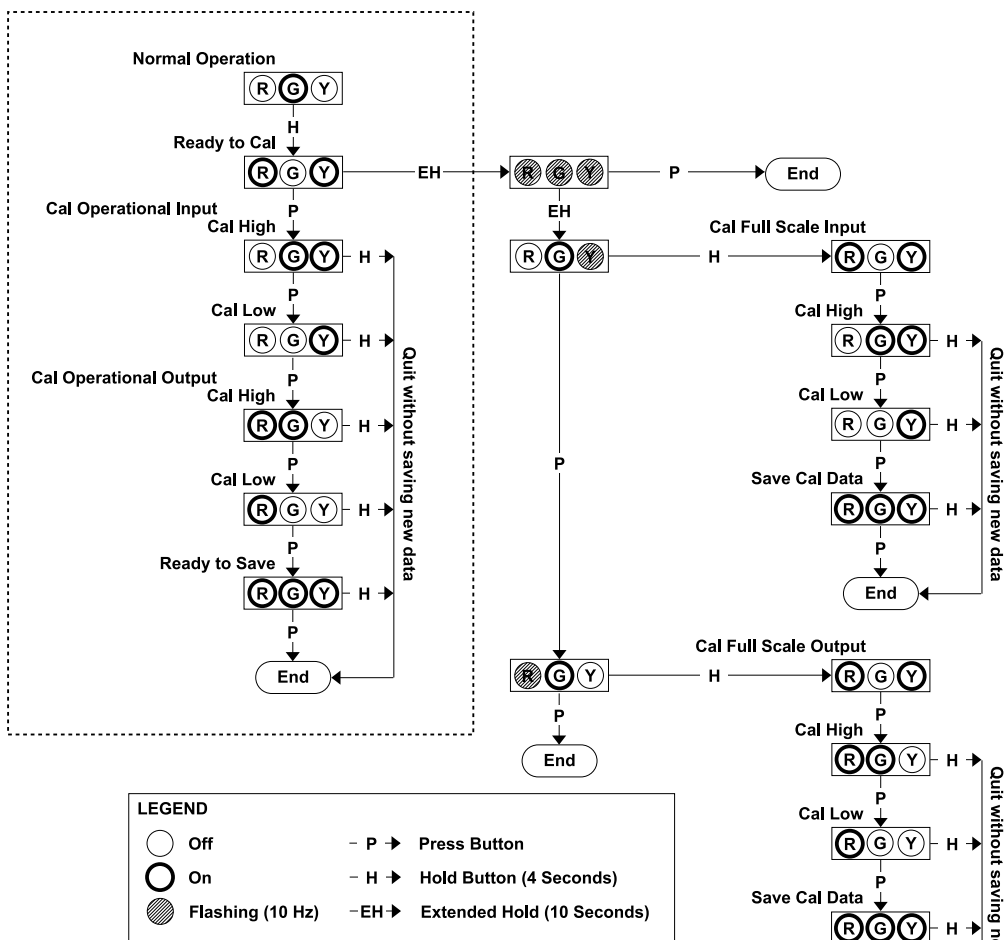


Figure 1: Switch Settings



Pin	Description
11	DC Power (+)
12	DC Power (-)
21	DC Power (+)
22	DC Power (-)
41	Input (+)
42	Input Common
51	Output (+)
52	Output Common

Figure 2: Wiring Connections



**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**

**Inputs:**

**Voltage:**

±150mV, ±1.5V, ±15V or ±150VDC  
Impedance: >100k Ohms  
Over voltage: 180Vrms

**Current:**

±2.5mA or ±25mA  
Impedance: <75 Ohms  
Over current: 170mA, protected by resetting fuse  
Over voltage: 60V

**Zero & Span Adjustment:** ±95% of Full Scale

**Input Accuracy:** ±0.015% of Full Scale

**Outputs:**

Voltage: 0 to 10VDC  
Source Impedance: <10 Ohms  
Drive: 10mA  
Current: 0 to 20mA  
Source Impedance: >100k Ohms  
Compliance: 20V@20mA (1k Ohms max)

**Output Accuracy:** ±0.05% of Full Scale Local Range

**Selection:** By DIP switch

**Response Time:** 100mSec (10 to 90%)

**Stability:** ±100ppm of full scale/°C (±0.01%/°C)

**Common Mode Rejection:** 120dB @ DC,  
>90dB @ 60Hz, or better

**Isolation:** 1800VDC or peak AC between input, output & power

**ESD Susceptibility:** Capable of IEC 801-2 level 3 (8kV)

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

**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):**

CE: EN50081-1, EN50082-2, EN61010  
CSA C22.2, No. 0-M91, 142-M1987  
UL508  
RoHS compliant

*Note that detailed installation instructions are available on our website.*

**Ordering Information**

Specify:

- 1. Model:  
**WV408-2000**
- 2. Optional Custom Factory Calibration (specify **C620**, see required settings under "Calibration, page 2).
- 3. Accessories.

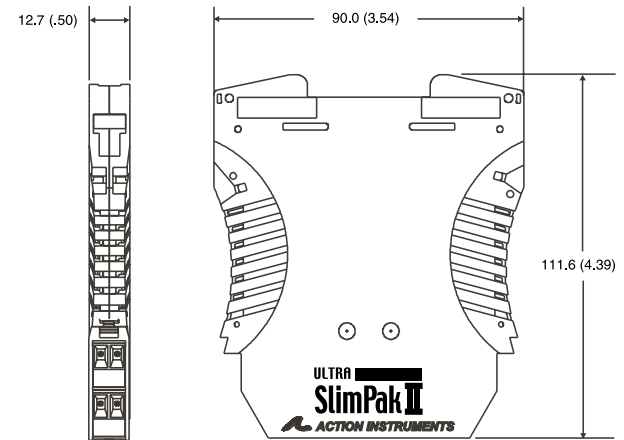
**Accessories**

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)



**Eurotherm, Inc**  
741-F Miller Drive  
Leesburg, VA 20175-8993  
703-443-0000

info@eurotherm.com or www.eurotherm.com/actionio

**Factory Assistance**

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

**703-669-1318**

actionsupport@eurotherm.com

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