WV448-2000

# ULTRA SLIMPAK® II
# WV448

## DC Powered Bridge 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
- Optional E-mail Notification of Alarms
- RoHS Compliant
- Touch Cal for Best Stability and Accuracy
- DIP Switch Configuration
- 120mA Excitation to Drive up to Four 350 Ohm Load Cells

### 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 WV448 is a bridge input signal conditioner supporting bridge input full scale ranges of ±5mV to ±200mV, (default is ±50mV). The switch selectable output ranges are 0-10VDC, 0-20mA and 4-20mA. All the input and output ranges are fully adjustable via pushbutton calibration. 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).

## Configuring Modules

Unless otherwise specified, the factory presets the Model WV448 as follows:

| | |
|---|---|
| Input: | 0-30mV (using ±50mV range) |
| Excitation: | 10V |
| Output: | Current |
| Range: | 4-20mA |
| Remote Cal: | Off |

1. For other ranges, refer to the SWITCH SETTINGS table. Reconfigure switch S1 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.

5. Set positions 4-6 of S1 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). You can also obtain it by telephoning Action technical support (703-669-1318).

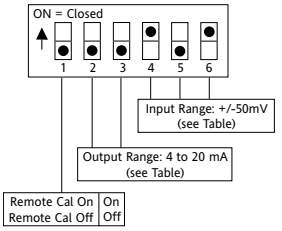
Note that Custom Calibration (option C620) is available from the factory (settings **MUST** be within the units specifications). For a C620, specify the following:

a) Input Range.

b) Output Type, Range & Units (mA, V).

c) Excitation Voltage.

| Function | S1 | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Input** | | | | | | |
| +/- 5mV | - | - | - | | | ■ |
| +/- 10mV | - | - | - | | ■ | |
| +/- 20mV | - | - | - | | ■ | ■ |
| +/- 50mV | - | - | - | ■ | | ■ |
| +/- 100mV | - | - | - | ■ | ■ | |
| +/- 200mV | - | - | - | ■ | ■ | ■ |
| | | | | | | |
| Remote Cal Enable | ■ | - | - | - | - | - |
| | | | | | | |
| **Output Range** | | | | | | |
| 0 to 10V | - | ■ | ■ | - | - | - |
| 0 to 20mA | - | | ■ | - | - | - |
| 4 to 20mA | - | | | - | - | - |
| Key: ■ = 1 = ON or Closed; - = n/a | | | | | | |




*Default Switch Settings*

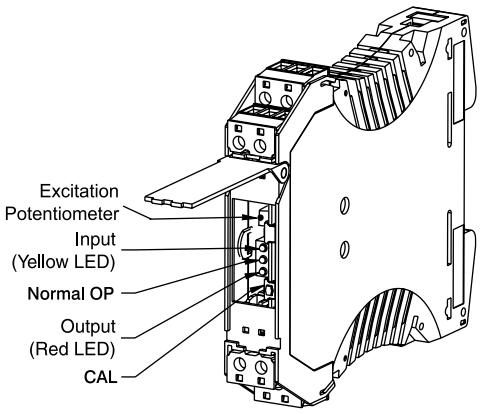
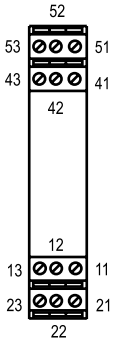



*Figure 1: Switch Settings*




| Pin | Description |
|---|---|
| **11** | DC Power (+) |
| **12** | DC Power (-) |
| **13** | No Connection |
| **21** | DC Power (+) |
| **22** | DC Power (-) |
| **23** | No Connection |
| **41** | Bridge Input (+) |
| **42** | Bridge Input (-) |
| **43** | Excitation (+) |
| **51** | Output (+) |
| **52** | Output (-) |
| **53** | Excitation (-) |

*Figure 2: Wiring Connections*

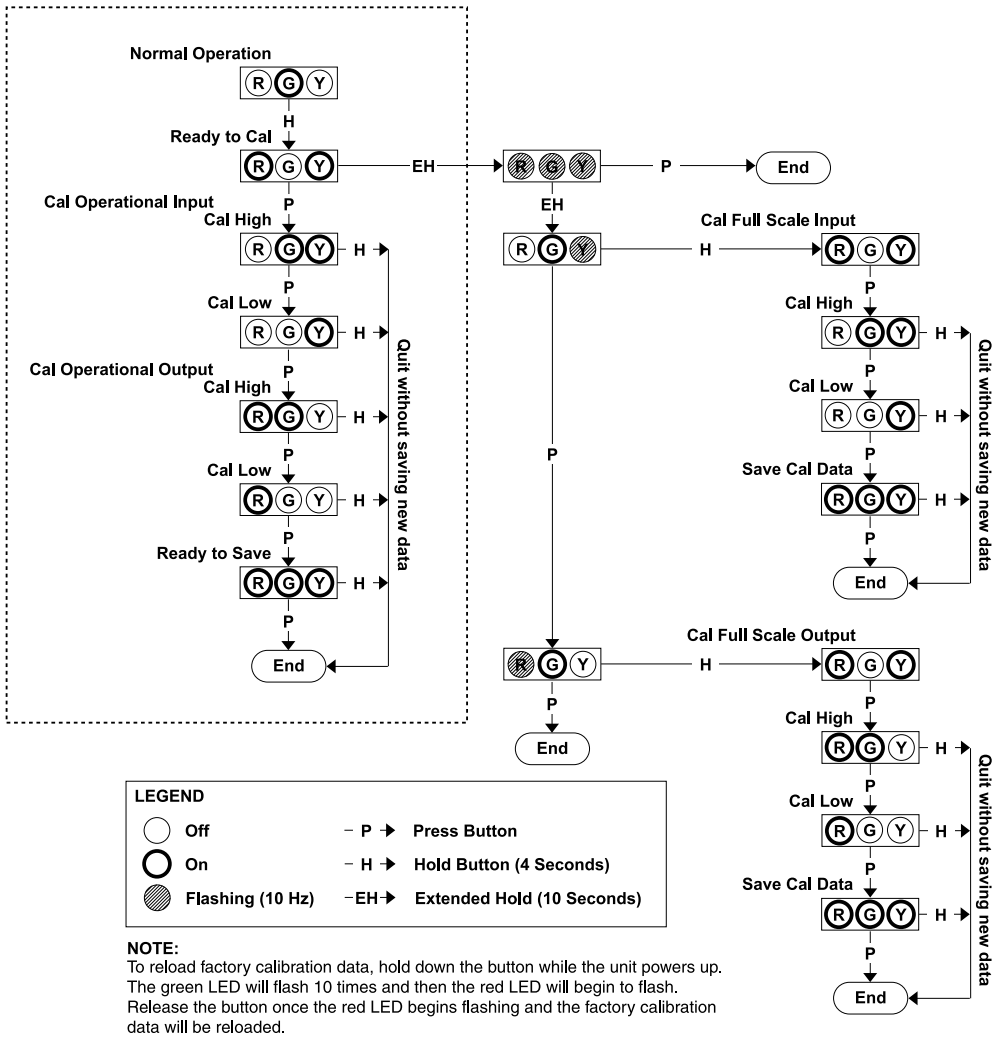



*Figure 3: Switch Settings*

## Specifications

**Inputs:**

**Full Scale Range:** ± 5mV, ± 10mV, ± 20mV, ± 50mV, ± 100mV, ±200mV

**Impedance:** 1M ohms

**Over-voltage:** 400Vrms (intermittent); 264Vrms (continuous)

**Operation:** Direct or reverse acting

**Bridge Excitation:** 1 to 10VDC, 120mA

**Input Accuracy:** 0.015% of span

**Pushbutton Adjustment:**

**(Inputs <10mV):**

Effective zero offset: ≥95%

Effective span turn down: ≥95%

**(Inputs <10mV):**

Effective zero offset: ≥50%

Effective span turn down: ≥50%

**Local Range Selection:** By DIP switch

**Output:**

**Voltage:**

0 to 10V (pushbutton adjust. to 75% of range)

Source Impedance: <10 ohms

**Drive:** 10mA

**Current:**

0 to 20mA (pushbutton adjust. to 75% of range)

(4mA min position available on range switch)

Source Impedance: >100k ohms

**Compliance:** 20V

**Output Accuracy:** 0.05% of Full Scale

**Overall Accuracy:** 0.065% of Full Scale

**Output Ripple:** 0.03% rms

**Response Time:** 150 mSec, 10 to 90%

**Stability:** ±100ppm/°C

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

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

**Size:** DIN rail case – refer to Dimensions drawing

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

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

**Operating Humidity:** 15% to 95% RH (non-condensing) at 45°C

**Non-operating Humidity:** 90% RH (non-condensing) at 60°C for 24hrs

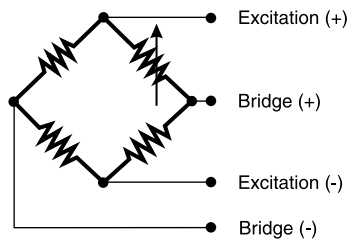
**Power:** 9 to 30VDC, 1.5W typ, 3.5W max.

**Agency Approvals (EMC & Safety):**

UL recognized per standard UL508
(File No.E99775)

CE Conformance per EMC directive 89/336/EEC and Low Voltage 73/23/EEC (Input < 75VDC, only).

RoHS Compliant




*Bridge Reference Designations*

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

## Ordering Information

Specify:

1. Model:
   **WV448-2000**
2. Optional Custom Factory Calibration (specify **C620**, see required settings under "Calibration, page 2).
3. Accessories.

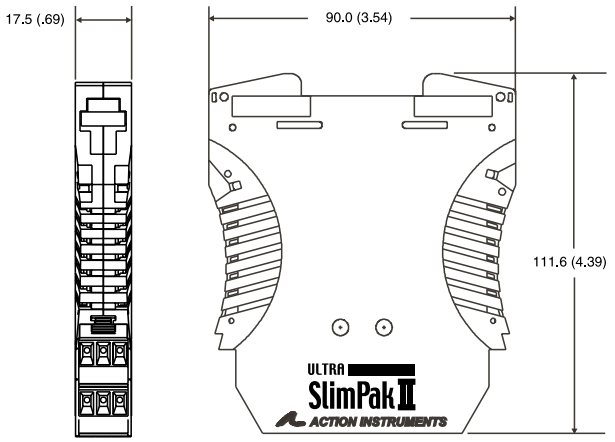
**Accessories**

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)

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## Factory Assistance

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

**703-724-7300**

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