

ULTRA SLIMPAK[®] II WV428

TC Input Isolating Signal Conditioner



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



Benefits

- Lower Power Requirements
with Smart Power Control
- Improved Accuracy
- Optional E-mail
Notification of Alarms
- DIP Switch
Configuration

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 WV428 supports B, C, E, J, K, N, R, S & T thermocouples that are DIP switch selectable. The WV428 also supports a millivolt range of -20 to +80mVDC. The input accuracy of the WV428 is $\pm 0.05\%$ with a CJC error of $\leq \pm 1^\circ\text{C}$. Both voltage and current have an input accuracy of 0.015% of full scale. Outputs include 0-10V, 0-20mA and 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.

YELLOW: Flashes at 2Hz for a TC burnout.

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 pre-sets the Model WV428 as follows:

Input:	Type J thermocouple
Range:	-210°C to 760°C (-346°F to 1400°F)
Output:	4-20mADC
Burnout:	Upscale
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 4-7 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.

Alarms

When used with the optional WVC16 communications module, the WV428 supports up to 3 alarms, which can be configured as high limit, low limit and a timer for routine maintenance.

WV16 Communications Interface (Optional)

The WVC16 Communications Interface adds functionality never before found in a signal conditioning system. The WVC16 interfaces with Ultra SlimPak II devices via an internal infrared communications link (no programming required) and provides the ability to connect as many as 32 modules to the intranet, allowing the user to view process data on a near real time basis, perform data logging functions on specified modules, calibrate the signal conditioners remotely, and view diagnostic information.

The WVC16 contains a web page server and an e-mail server. Browsers supported include Internet Explorer 5 or later and Netscape Navigator 4.7 or later. The user has the ability to have setpoint trip conditions generate an e-mail message for up to 10 recipients. The module also contains a countdown timer that

can be used to notify when routine maintenance is required, such as re-calibration. The internal temperature of the module can also be monitored. All memory to support the signal conditioner's historical data, storage of the web pages and all e-mail messages is contained in the WVC16.

The WVC16 downloads a JAVA applet to the client's computer. The applet provides access to the signal conditioner's data, which includes the following:

- Module configuration summary
- Module configuration editing
- Diagnostic/warning status
- Alarm setup & status
- E-mail setup, editing & address book
- Process variable viewing

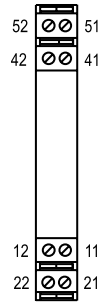
See the WVC16 Data Bulletin for more detailed information.

Calibration

The 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 Type, Range & Units (°C or °F).
- b) Output Type, Range & Units (mA, V).
- c) Burnout (Upscale or Downscale).



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

Figure 1: Wiring Connections

Function	S1						
	1	2	3	4	5	6	7
Input							
Type B Thermocouple	-	-	-	■	■	■	
Type C Thermocouple	-	-	-	■	■		■
Type E Thermocouple	-	-	-	■	■		
Type J Thermocouple	-	-	-	■		■	■
Type K Thermocouple	-	-	-	■		■	
Type N Thermocouple	-	-	-	■			■
Type R Thermocouple	-	-	-	■			
Type S Thermocouple	-	-	-		■	■	■
Type T Thermocouple	-	-	-		■	■	
-20mV to +80mV	-	-	-	■	■	■	■
Remote Cal Enable	■	-	-	-	-	-	-
Output Range							
0 to 10V	-	■	■	-	-	-	-
0 to 20mA	-		■	-	-	-	-
4 to 20mA	-			-	-	-	-

Key: ■ = 1 = ON or Closed; - = n/a

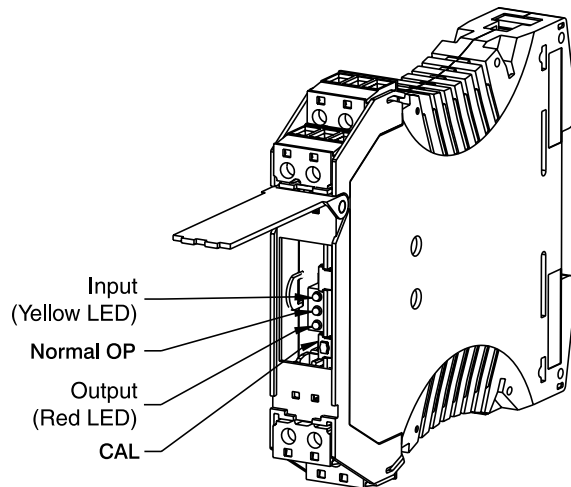


Figure 2: Switch Settings

Specifications

Inputs

Thermocouples

Type	°C	°F
B	75 to 1800	167 to 3272
C	0 to 2315	32 to 4199
E	-200 to 1000	-328 to 1832
J	-210 to 760	-346 to 1400
K	-200 to 1370	-328 to 2498
N	-200 to 1300	-328 to 2372
R	0 to 1760	32 to 3200
S	0 to 1760	32 to 3200
T	-200 to 400	-328 to 752

Millivolts:

-20 to +80mV

Accuracy:

±0.05% of F.S. & CJC to ±1°C

Pushbutton Adjustment:

Effective zero offset: +95% (Inputs >10mV)

Effective span turn-down: = -95%

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

Burnout Detection

Programmable for upscale, downscale or none

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 meeting 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°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% RHNC @ 45°C

Storage Humidity

90% RHNC @ 60°C for 24 hours

Agency Approvals (EMC & Safety)

CE, EN50081-1, EN50082-2, EN61010

CSA C22.2, No. 0-M91, 142-M1987

UL508

Ordering Information

Specify:

1. Model:

WV428-2000

2. Optional Custom Factory Calibration (specify **C620**, see required settings under "Calibration, page 3).

3. Accessories.

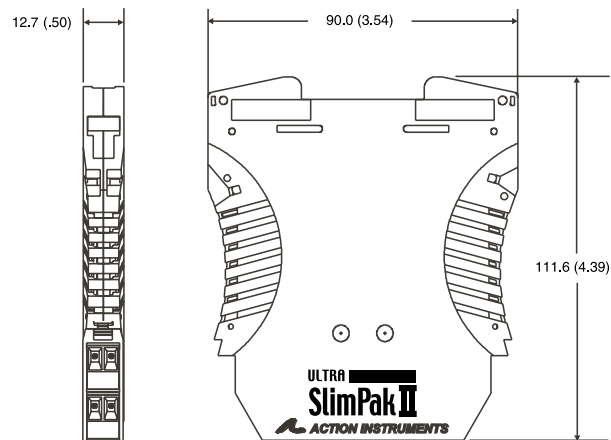
Accessories

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:

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