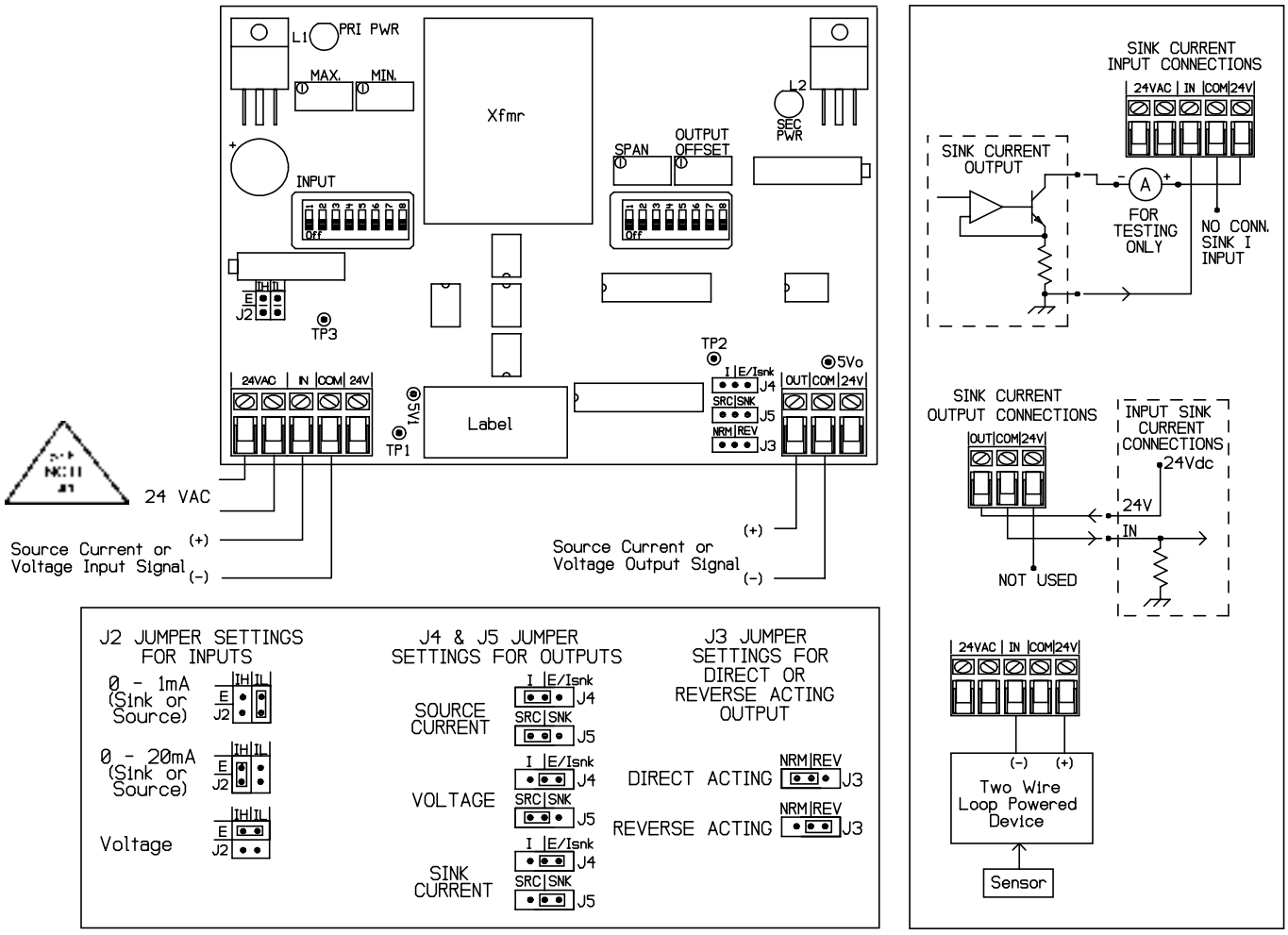
AIM2

Analog Current or Voltage
Isolation Module (Re-scalable Output)



INSTALLATION

READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION.

Ground yourself before touching board. Some components are static sensitive.

MOUNTING:

Circuit board may be mounted in any position. If circuit board slides out of snap track, a non-conductive “stop” may be required.

Use only fingers to remove board from snap track. Slide out of snap track or push against side of snap track and lift that side of the circuit board to remove. Do not flex board or use tools.

POWER CONNECTIONS:

1) 24 VAC - with power off, connect 24 VAC transformer to the board. Check the wiring configuration of any other loads that may be connected to this transformer. Any field device connected to this transformer must use the same common. If you are not sure of other field device configuration, use separate transformers.
2) If the 24 volt AC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have a MOV, Transorb, or other spike snubbing device across each of the shared coils. Without these snubbers, coils produce very large voltage spikes when de-energizing that can cause malfunction or destruction of electronic circuits.

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3) The secondary voltage should be between 22 and 28 volts and isolated from earth ground, chassis ground, and neutral leg of the primary winding. Grounding should be to the system common only. If you do not follow these procedures improper operation can result.
4) You should measure the actual voltage output of the secondary. If the output is not fully loaded you may read a higher voltage than the circuit board can handle.

WIRING

The AIM2 is factory set as follows, unless otherwise specified: Voltage input signal, 0-5V (source)
1:1 Input to Output Signal Ratio, Voltage Output Signal, 0-5V (source)
The AIM2 can be calibrated to your specifications in the field.

STEP 1) WIRING CONNECTIONS

With the power OFF, make the following connections:
Connect a 24 VAC power supply to the 24 VAC terminals of the AIM2. Connect the input signal common (-) to the **COM** input terminal of the AIM2, and the input signal positive (+) to the **IN** input terminal of the AIM2.
Connect the output signal common (**COM**) and the output signal positive (**OUT**) to their respective terminals on the controlled device.

SETTING AIM2 INPUT

DIP switches determine input ranges. Jumper block **J2** is selectable for input voltage (E), current low 0-1mA (IL), or current high 0-20mA (IH) input signal. A current input can be either sinking or sourcing signal. Explanation of "Source" and "Sink":
Source - A signal where the positive (+) modulates and uses the negative (-) as the common. (Most prevalent in the industry)
Sink - A signal where the negative (-) modulates and uses the positive (+) as the common.

FOR PRESET VOLTAGE INPUT RANGES: Make the following switch settings on input DIP switch. Put Jumper J2 in E position (or horz.) for voltage.

0-5V	1, 6 ON.....all others off
0-10V	1, 4, 6 ON.....all others off
0-15V	1, 5, 6 ON.....all others off
0-20V	1, 4, 5, 6 ON.....all others off
1-5V	1, 7 ON.....all others off
2-10V	1, 4, 7 ON.....all others off
3-15V	1, 5, 7 ON.....all others off
4-20V	1, 4, 5, 7 ON.....all others off
0-1V	2, 6 ON.....all others off
Adj. 1-9V	3, 8 ON.....all others off
Adj. 9-20V	3, 4, 5, 8 ON.....all others off

FOR PRESET CURRENT INPUT RANGES: Make the following switch settings on input DIP switch. Put Jumper J2 in IH position for current

0-20 mA	1,6 ON.....all others off
4-20 mA	1,7 ON.....all others off
0-1 mA	2, 6 ON.....all others off. Put Jumper J2 in IL position for this input.
Adj. 4-20 mA	3, 8 ON.....all others off

CALIBRATION OF INPUT SIGNAL OTHER THAN <u>PRESETS</u> SHOWN ABOVE

1. If you have an input range other than any presets shown above, set the input DIP switches to one of the three Adj. settings. See inputs above in bold type.
2. Apply the maximum of the input signal to terminals **IN** and **COM**. With a volt meter measure the voltage from TP1 to the AIM2's input side common (**COM**). Turn the input **MAX.** pot until the meter reads 5.00+/- 0.00 V. The maximum of the input signal is now calibrated.
3. If the minimum of the input signal is zero, set imput DIP switches 7 and 8 OFF and 6 ON
4. If the minimum of the input signal is other than zero, set maximum as in step 2, and use the following steps to set the minimum:
    a. Set switch 8 ON and 6 and 7 OFF

b. Produce the minimum signal value at the input terminal (**IN**)

c. Measure the voltage between the **TP1** test point and **COM**. Record or remember.

d. Now measure voltage between the **TP3** test point and **COM**. Adjust the input MIN pot until the voltage at **TP3** is equal to the voltage recorded at **TP1**. The minimum and maximum input signal are now calibrated.

SETTING AIM2 OUTPUT

FOR PRESET VOLTAGE OUTPUT RANGES: Make the following switch settings on output DIP switches. Set jumper J4 for E/Isnk (voltage/current sink), and J5 for SRC (source) output signal.

0-5V	1, 2, 4, 5 ON.....all others off
1-5V	1, 3, 4, 6 ON.....all others off
0-10V	4, 5 ON.....all others off
2-10V	1, 4, 7 ON.....all others off

FOR PRESET CURRENT OUTPUT RANGES: Make the following switch settings on output DIP switch. If Source, set Jumper J4 to I and J5 to SRC. If Sink, set J4 to E/Isnk, and J5 to SNK.

0-20mA	1, 2, 4, 5 ON.....all others off
4-20mA	1, 3, 4, 6 ON.....all others off

FOR CALIBRATION OF AN ODD OUTPUT SIGNAL:

Before proceeding, you must have already set up the input signal. If not, return to page 2 and "SETTING AIM2 INPUT".

Output ranges are selectable on the output DIP switch by setting offset (minimum signal) and spans available (maximum minus offset) are shown below. Find out if you can use a preset range by subtracting the minimum output signal (or offset) from the maximum. For example, a 3.4 to 9.4V signal output equals a 6 volt range, which is available as a preset, and the 3.4 volt offset can be adjusted. Any span not listed below will have to be set from one the adjustable range switch settings.

TO SET PRESET OUTPUT SPANS (Reference only switches 1 through 4, others are for **OFFSET**)

1V or 4mA	1, 2, 3, 4 ON
3V or 12mA	2, 3, 4 ON.....1 OFF
4V or 16mA	1, 3, 4 ON.....2 OFF
5V or 20mA	1, 2, 4 ON..... 3 OFF
6V	3, 4 ON..... 1, 2 OFF
7V	2, 4 ON..... 1, 3 OFF
8V	1, 4 ON..... 2, 3 OFF
10V	4 ON..... 1, 2, 3 OFF
Adj. 1-11V	1, 2, 3 ON..... 4 OFF
Adj. 10-20V	None ON..... 1, 2, 3, 4 OFF
Adj. 4-20mA	1, 2, 3 ON..... 4 OFF

TO SET ADJUSTABLE OUTPUT SPANS If your (output) span is not a listed preset, set the span DIP switches 1 through 4 to one of the three adjustable ranges (just above in bold), and the offset switches to the adjustable range by placing switch 8 ON, and 5, 6, 7 OFF. Give the AIM2 the maximum input signal and adjust the **SPAN** pot until the required span is reached on the output terminals.

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PRESET OUTPUT OFFSETS

0V or 0mA	5 ON.....6, 7, 8 OFF
1V or 4mA	6 ON.....5, 7, 8 OFF
2V or 8mA	7 ON.....5, 6, 8 OFF

Three preset output signal offsets are available. These will raise the entire span by the amount indicated, above zero. For example, an 8V span with a 2V offset will give you a 2-10V output signal. If your offset (or minimum output) is zero, set switch 5 ON and switches 6, 7, 8 OFF.

ADJUSTABLE OUTPUT OFFSETS

If your offset is not 0, 1, or 2 volts, you will need to adjust for your offset. The offset can be adjusted from 0 to approximately 10V.

Adjustable 8 ON.....5, 6, 7 OFF

Generate the minimum input signal at the input terminals **IN** and **COM** and calibrate the output OFFSET pot until the offset required is reached (check with a voltmeter at output terminals **OUT** and **COM**.

From this point on, no further DIP switch changes are necessary. Toggle back and forth between the maximum and minimum to check the accuracy of the calibration. If the span (or maximum of the output) needs adjustment, turn the span pot. If the offset (or minimum) needs adjustment, turn the offset pot. Repeat until calibrated correctly.

POWERUP AND CHECKOUT

STEP 2) POWER UP

Turn on the 24 VAC power supply. Both power indicators on the AIM will light.

STEP 3) OPERATION

The AIM2 will now operate to your specifications, or the standard settings from the factory. If no field calibrations were made, then the AIM2 will accept a 0 to 5 volt DC input signal and produce an isolated and proportional 0 to 5 volt DC output signal. For example, a 3.50 volt input signal will produce a 3.50 volt DC output signal.

Power Consumption: 200 mA maximum

Input Impedance: Voltage: 0-10 VDC/200,000 ohms
Current: 0-20 mA/250 ohms

Output Impedance: Current-500 ohms maximum
Voltage-5000 ohms minimumum

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