

AP6380-0000

Action PAK® AP6380

Input Isolated, Field Configurable Isolator

Provides a Fully Isolated DC Output
in Proportion to an AC Input



- Field Configurable Input Ranges: 50mV to 200V AC, 5mA to 100mA AC
- Four Field Configurable Output Ranges: 0-5V, 0-10V, 0-1mA, 4-20mA
- Eliminates Ground Loops
- Plug-In Installation
- Selectable 120/240VAC Input Power

Description

The field configurable AP6380 signal conditioner offers wide ranging input capability for scaling, converting or isolating AC inputs ranging from 5mA AC to 100mA AC or 50mV AC to 200V AC. The DC output of the AP6380 is proportional to the average of the fully-rectified AC input signal, and is calibrated for sine waves from DC to 1KHz.

For current inputs above 100mA AC, it is recommended that an input shunt resistor be used and the AP6380 be configured for the proper input voltage range. For example, for a 5A AC current transformer output, use the Action model C006 resistor (0.1W, 5W, 1%) and set the input for 0-500mV AC.

Application

The Action Pak AP6380 is useful in applications requiring a conditioned DC output from an AC source. Typical applications include energy management, load shedding, motor current/load monitoring, locked rotor detection, isolation and data acquisition. The output of the AP6380 can drive a digital meter for direct display or can interface with alarming or control devices including PLCs and computers.

Diagnostic LED

Input power and signal status are indicated with a dual-function LED on the AP6380. The green LED will illuminate when line power is applied, and will pulse quickly (8 Hz) if the input rises 10% above the set input full scale range. If this continues to occur, you may wish to change your full scale input range setting.

Configuration

The AP6380 can be set for a wide variety of full scale input ranges. The factory pre-sets the AP6380 with an input range of 0-500mV AC (SW1 & W2) and an output range of 4-20mA DC (SW2) as shown in Figure 1. For other I/O ranges, remove the four base screws to access the I/O range configuration selectors.

The line power is preset at the factory for 120V AC. This may be reconfigured by referring to figure 2.

Warning: Do not change switch settings with power applied. Severe damage may occur!

Calibration

1. Before applying power to the Action Pak, set the DIP switches inside the Action Pak for your full scale input and full scale output ranges. Refer to Tables 1, 2 & 3 showing switch configuration settings.
2. Connect the AC input terminals (5 & 6) to a calibrated AC voltage or AC current source. Connect a meter to measure the output (terminals 7 & 8).
3. Connect power to terminals (1 & 3) on the Action Pak and turn on the power.
4. Wait approximately 1 hour to ensure thermal stability before calibrating.
5. Set the calibrator to the desired minimum AC input on the Action Pak. Adjust the "Zero" potentiometer until the DC output coincides with the desired minimum output.
6. Set the calibrator input to the desired full scale AC input. Adjust the "Span" potentiometer until the DC output coincides with the desired full scale output.
7. Repeat steps 5 and 6, as necessary, for best accuracy.

Table 1: Input Range Selector Switch Settings

Voltage Span*	Current Span*	Input Range Selector (SW1 & W2)
100mV	10mA	SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
200mV	20mA	SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
500mV	50mA	SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
1V	100mA	SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
2V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
5V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
10V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
20V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
50V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
100V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []
200V		SW1: [ON] 1 2 3 4 5 6; W2: [] [] []

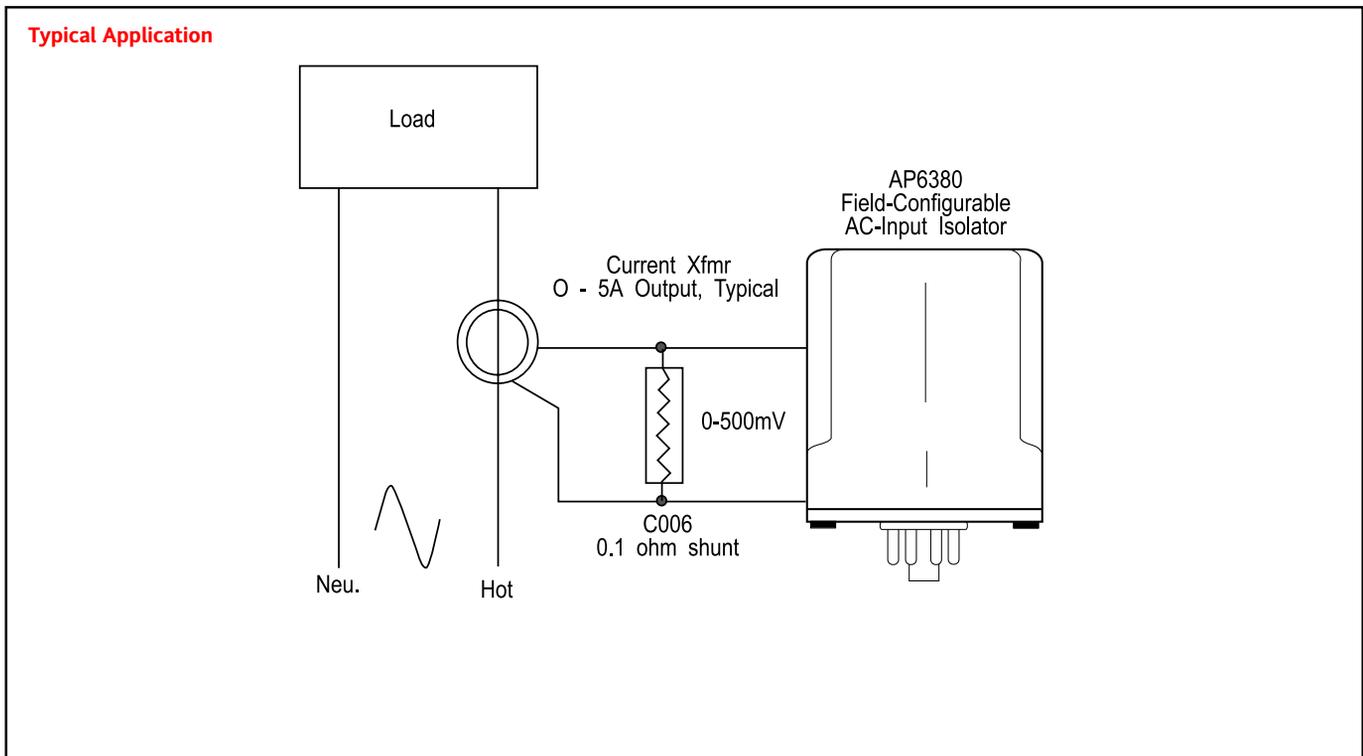
Table 2: Output Range Selector Switch Settings

Range	Output Range Selector (SW2)
0 to 10V	[ON] 1 2 3 4 5 6
0 to 5V	[ON] 1 2 3 4 5 6
0 to 1mA	[ON] 1 2 3 4 5 6
4 to 20mA	[ON] 1 2 3 4 5 6

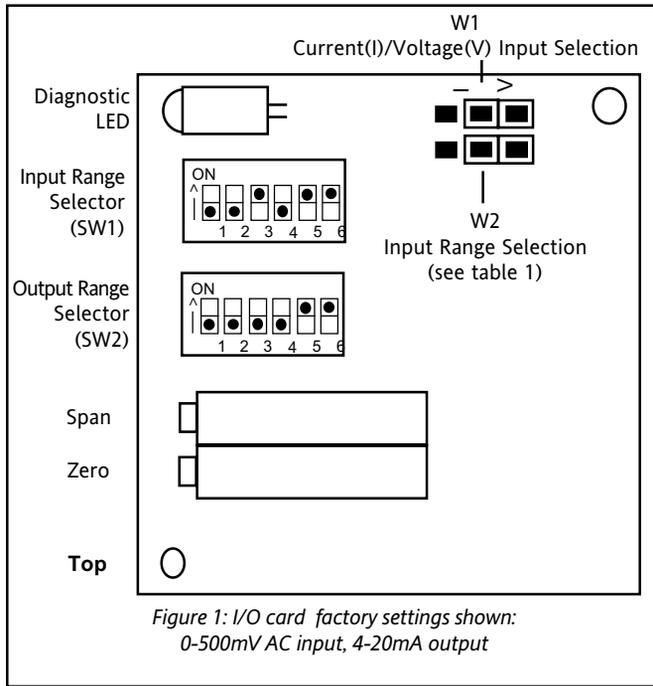
Table 3: AP6380 Input Jumper Settings

Input	Input Jumper Selector (W1)
Voltage	[] [] []
Current	[] [] []

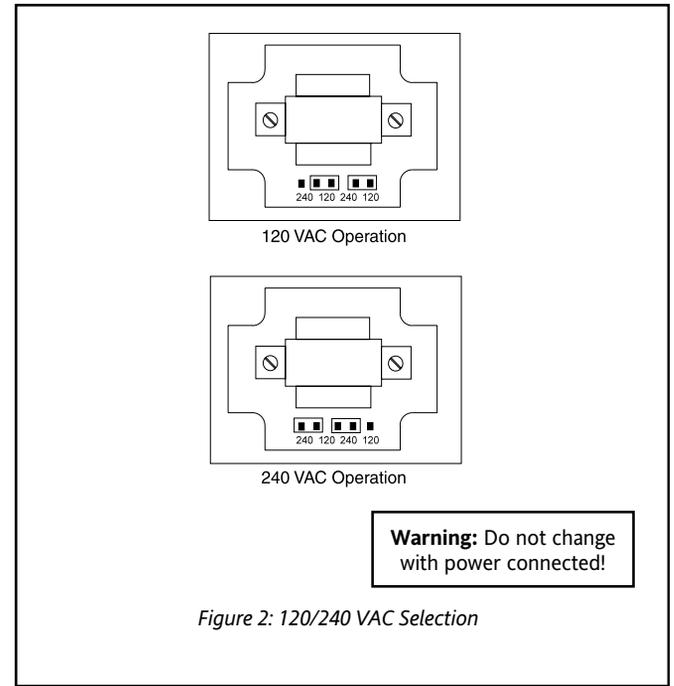
*Use jumper (W1) to configure either voltage or current input. All unipolar ranges are zero based.



I/O Card Configuration



Top View Diagram



Warning: Do not configure I/O switch ranges with power on. Damage will result!

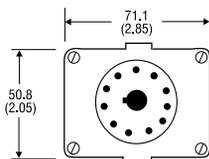
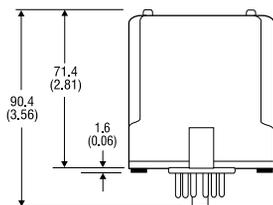
Warning: Applying voltage to the input with W1 in current (I) position will result in damage to the unit.

Mounting

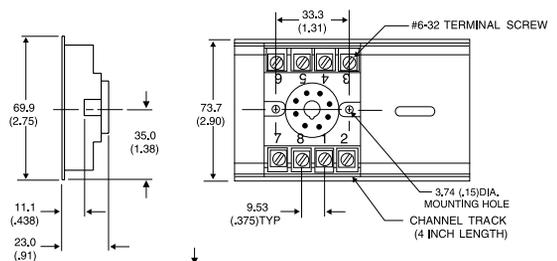
All Action Paks feature plug-in installation. Model AP6380 uses an 8-pin base, either molded socket (M008) or DIN rail socket (MD08).

Dimensions

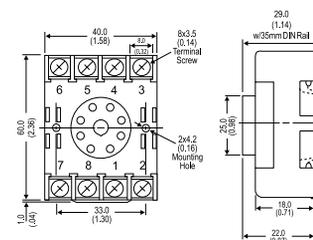
Dimensions are in millimeters (inches)



Mark II



M008 (Track/Surface)



MD08 (DIN Rail)

Specifications

Input Ranges (selectable):

Voltage: 50mV AC to 200V AC
Current: 5mA AC to 100mA AC

Input Frequency:

DC-1KHz, factory calibrated at 60Hz

Input Impedance:

Voltage: >100K Ohms
Current: 20 Ohms typical

Input Overload (without damage):

Voltage: 300V AC
Current: 200mA AC, 60V peak

Common Mode Voltage:

1500V DC, input to ground

Output Ranges (selectable):

Voltage: 0-5V DC, 0-10V DC
Current: 4-20mA DC, 0-1mA DC

Output Source Impedance:

Voltage: <10 Ohms
Current: >100K Ohms

Output Drive:

Voltage: 10mA, max (1K Ohms min. @ 10V)
Current: 20VDC compliance
(1K Ohms max @ 20mA)

Span Turn Down:

50% of full scale range

Zero Turn Up:

50% of full scale range

LED Indication:

8Hz flash when input is 10% above full scale configuration

Accuracy (including hysteresis and linearity):

±0.1% of span, typical
±0.5% of span, maximum

Response Time:

250mSec, typical

Stability:

±0.025% of full scale per °C, typical

Common Mode Rejection:

120dB, DC to 60Hz

Isolation (input to output to power):

1500V DC or peak AC

Temperature Range:

Operating: 0 to 60°C (32 to 140°F)
Storage: -15 to 70°C (5 to 158°F)

Humidity (Non-Condensing):

10 to 95% RH, at 45°C

Power:

Consumption: 3W typical, 5W max
Standard: Selectable 120/240V AC
(±10%, 50-60Hz)

Weight:

0.60lbs

Agency Approvals:

CSA certified per standard C22.2, No. M1982
(File No. LR42272-38).

UL recognized per standard UL508
(File No. E150323).

Ordering Information

Specify:

1. Model: AP6380-0000.
2. Option U (see text).
3. Line Power (see specs).
4. Optional Factory Calibration (C620):
Specify input range, output range and power.
5. C006 (0.1 Ohm shunt for 1 to 5 Amp current inputs).

Accessories:

M801-0000 Retaining Spring
M008-A 8 pin Track Mount Socket
M004-0000 4 ft Long Channel Track
MD08-0000 8 pin DIN Mount Socket

Pin Connections

- 1 AC Power (Hot)
- 2 Shield (GND)
- 3 AC Power (Neu)
- 4 Spare Termination
- 5 Input
- 6 Input
- 7 Output (+)
- 8 Output (-)

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