



Input Modules



A5B38 Units

Strain Gage Input

A5B38 modules plug into a backpanel to provide a single channel of analog input which is filtered, isolated, amplified, and converted to a proportional DC voltage output signal.

The A5B38 can interface to full-bridge or half-bridge transducers that have a resistance range from 300 to 10K ohms. A matched pair of bridge-completion resistors (to +1mV) allows use of low cost half-bridge transducers. The 10KHz bandwidth enables measurement of high speed processes, such as vibration analysis.

Signal filtering is accomplished with an anti-aliasing filter. Two poles of this filter are on the field side of the isolation barrier and the other four are in the output stage. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common mode spikes or surges.

Ordering Information

Model	Input	Output
A5B38-02 Full-bridge 300 to 10K ohm input	10.0V at 3mV/V sensitivity	-5 to 5V DC
A5B38-04 Half-bridge 300 to 10K ohm input	10.0V at 3mV/V sensitivity	-5 to 5V DC
A5B38-05 Full-bridge 300 to 10K ohm input	10.0V at 2mV/V sensitivity	-5 to 5V DC

Performance

- Input Range**
A5B38-02, -05: $\pm 30\text{mv}$ @ 3mV/V sensitivity, $\pm 20\text{mv}$ @ 2mV/V sensitivity
A5B38-04: $\pm 30\text{mv}$ @ 3mV/V sensitivity
- Input Bias Current**
-0.3nA
- Input Resistance**
Normal: 50M ohms
Power Off: 40K ohms
Overload: 40K ohms
- Excitation Output V, 300 ohm Load**
10V $\pm 3\text{mV}$
- Excitation Load Regulation**
 $\pm 5\text{ppm/mA}$
- Excitation Stability**
 $\pm 15\text{ppm}/^\circ\text{C}$
- Half-Bridge, Voltage Level**
A5B38-04: (Excitation V/2) $\pm 1\text{mv}$
- Input Protection**
Continuous: 240V_{RMS} max
Transient: ANSI/IEEE C37.90.1-1989
- CMV, Input to Output**
Continuous: 1500V_{RMS} max
Transient: ANSI/IEEE C37.90.1-1989
- CMR (50 or 60Hz)**
100dB
- NMR**
120dB per decade (frequency > 10KHz)

Accuracy
A5B38-02, -05: $\pm 0.08\%$ span $\pm 10\mu\text{V}$
A5B38-04: $\pm 0.08\%$ span $\pm 1\text{mV}$

Nonlinearity
 $\pm 0.02\%$ span

Stability
Input Offset: $\pm 1\mu\text{V}/^\circ\text{C}$
Output Offset: $\pm 40\mu\text{V}/^\circ\text{C}$
Gain: $\pm 25\text{ppm}$ of reading/ $^\circ\text{C}$

Noise
A5B38-02, -05: (Input, 10Hz) 0.4 μV_{RMS}
A5B38-04: (Input, 10Hz) 2 μV_{RMS}
A5B38-02, -05: (Input, 10KHz) $\pm 70\text{nV}/\sqrt{\text{Hz}}$
A5B38-04: (Input, 10KHz) $\pm 250\text{nV}/\sqrt{\text{Hz}}$
A5B38-02, -05: (Input, 100KHz) 10mV_{P-P}
A5B38-04: (Input, 100KHz) 10mV_{P-P}

Bandwidth, -3dB
10KHz

Rise Time, 10 to 90% span
40 μs

Settling Time, to 0.1%
A5B38-02, -05: 250 μs
A5B38-04: 7mS

Output Resistance
50 ohms

Output Protection
Continuous short to ground

Output Selection Time, (to $\pm 1\text{mV}$ of Vout)
2.5 μs @ 200pF, 3.5 μs @ 500pF,
4.0 μs @ 1000pF, 6.0 μs @ 2000pF

Output Enable Control
Max Logic "0": +0.8V
Min Logic "1": +2.4V
Max Logic "1": +36V
Input Current, "0, 1": 0.5 μA

Power Supply Voltage
+5VDC $\pm 5\%$

Power Supply Current
170mA full load, 70mA no load

Environmental
Operating Temperature Range: -40 to 85 $^\circ\text{C}$
Storage Temperature Range: -40 to 85 $^\circ\text{C}$
Relative Humidity: 0 to 95% noncondensing
RFI Suscept.: $\pm 0.5\%$ span error @ 400MHz, 5W, 3ft.

Approvals (CSA, FM)
Class I; Division 2; Groups A, B, C, D.



Ordering Information

Backpanels and Accessories

User's Manual

8500-299

A5B User's Manual. Acromag provides (1) manual with first purchase order at NO CHARGE. Additional manuals must be purchased. The first manual must be specified on the purchase order to ensure delivery.

Backpanels

APB01

16-channel, non-multiplexed backpanel. Non-addressable analog I/O signal channels provide each module with its own analog bus. The module output switch is continuously "on" when using this backpanel. A temperature sensor is mounted on each channel to provide cold junction compensation for thermocouple modules. Field connections are terminated with four screw terminals at each module site.

APB02

16-channel, multiplexed backpanel. Has two analog buses; one for input, one for output. Two-bus configuration takes advantage of the switch-controlled outputs on the input modules and the track-and-hold inputs on the output modules. Up to four APB02 backpanels can be daisy-chained. Includes temperature sensor and four screw terminals at each module site.

APB03

Single channel, non-multiplexed backpanel. See tables below for additional parts required.

APB04

Dual channel, non-multiplexed backpanel. See tables below for additional parts required.

The following parts are required for DIN rail mounting of one APB03 or APB04 backpanel:

Quantity	Part No.	Description
1	UM-BEFE35	Base element with snap foot
2	UM-SE	Side element

The following parts are required to DIN rail mount two or more APB03 or APB04 backpanels:

Quantity	Part No.	Description
2	UM-BEFE35	Base element with snap foot
2	UM-SE	Side element
Note 1	UM-BE35	Base element w/o snap foot
Note 2	UM-VS	Connection pin

Note 1: Quantity = # of panels - 2

Note 2: Quantity = 4 x (# of panels - 2)

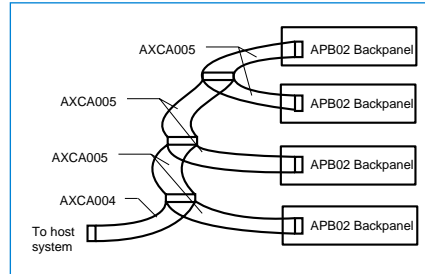
Cables

AXCA004-xx

Interface cable for host system connection. General-purpose 26 conductor ribbon cable for use with APB01/02 backpanels. Specify length, -xx, in feet when ordering.

AXCA005

Daisy-chain cable, interconnects up to four APB02 backpanels.



Power Supplies

AXPRT-003

Power supply, 120V AC input (104 to 132V range).

AXPRE-003

Power supply, 220V AC input (207 to 265V range).

Interface Accessories

AXEV

Evaluation board (single channel) with a test socket. See table below for additional parts required.

The following parts are required for DIN rail mounting of one AXEV evaluation board:

Quantity	Part No.	Description
2	UM-BEFE35	Base element with snap foot
2	UM-SE	Side element
4	UM-VS	Connection pin

AXIF

Universal interface board. Converts a 26-pin ribbon cable to 26 screw terminals for discrete wire. Mounts on AXRK-002 rack (standoffs, mounting hardware included). Use AXCA004 cable.

AVMEIF

VMEbus interface board, 32 inputs. Interfaces APB01 backpanel with a 26-pin ribbon cable to Acromag VME A/D boards.

Mounting Accessories

AXRK-002

19-inch metal rack for mounting the backpanels, power supplies, and universal interface board.

UM-BEFE 35

Base element with snap foot (for DIN rail mounting).

UM-BE 35

Base element without snap foot (for DIN rail mounting).

UM-SE

Side element (for DIN rail mounting).

UM-VS

Connection pin (for DIN rail mounting).

Miscellaneous Accessories

AXFS-003

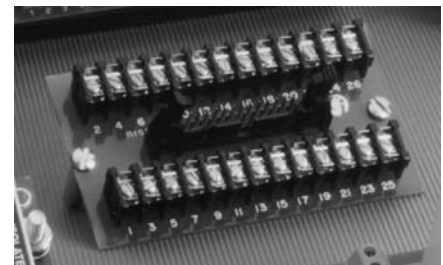
Fuses for backpanel, 4 amp, package of 10.

AXJP-003

Jumper strap, package of 10 jumpers. Connects I/O modules to direct the output of any input module to the adjacent output module on the APB01 backpanel. The jumpers can also be used to configure I/O addresses on APB02 backpanel.

AXR1

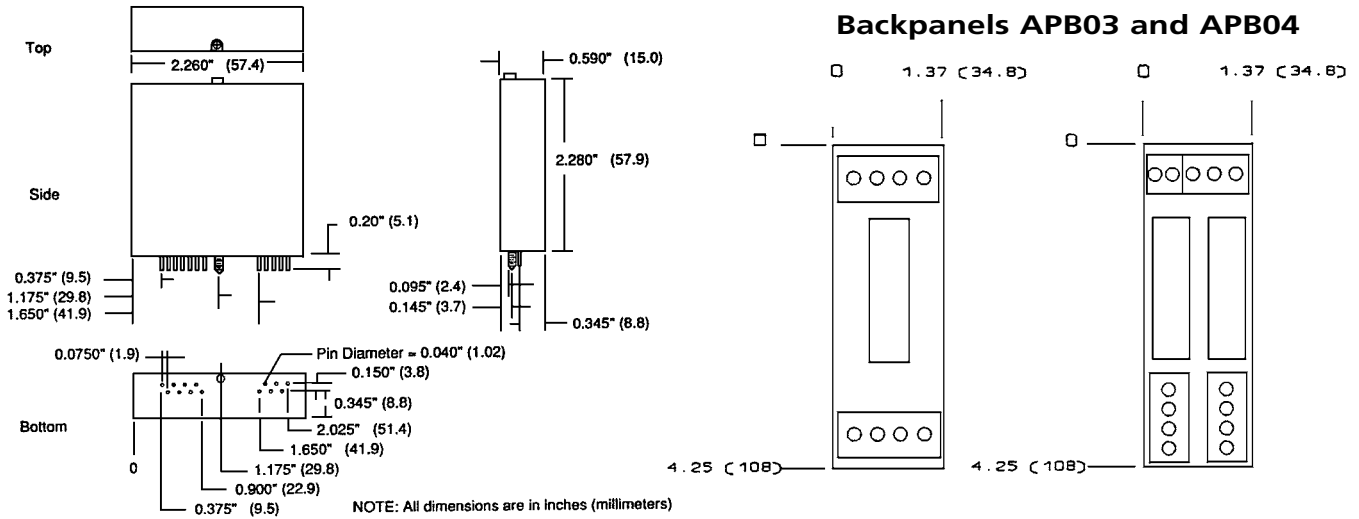
Current conversion resistor (precision 20 ohm 0.1%) for A5B32 current input module. Sockets are provided on APB01/02.



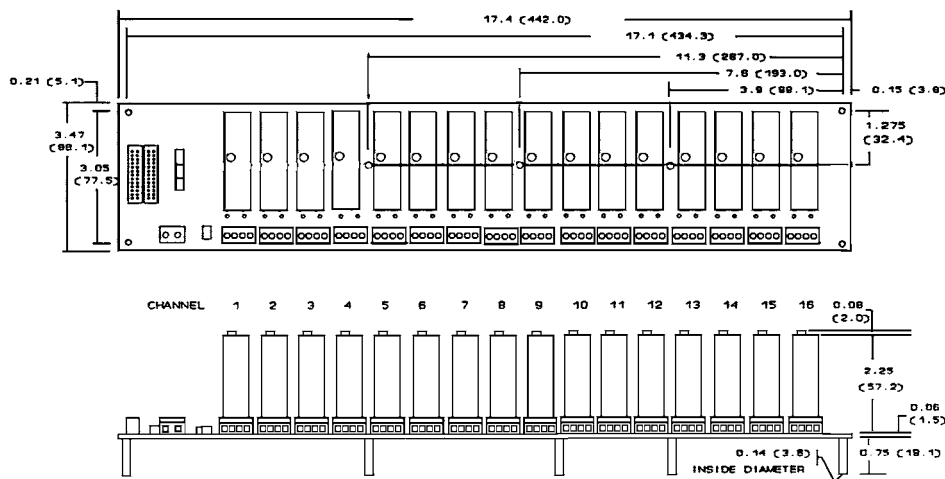
AXIF interface board



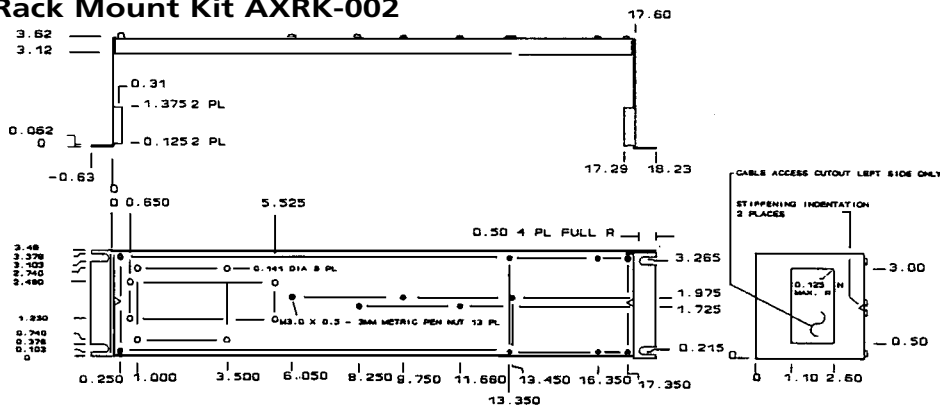
Dimensions



Backpanel APB01, APB02



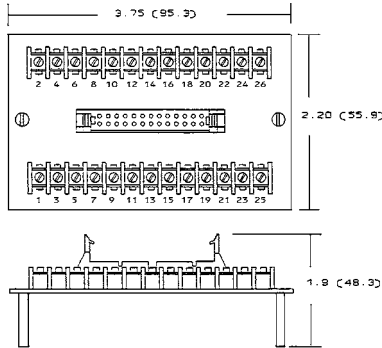
Rack Mount Kit AXRK-002



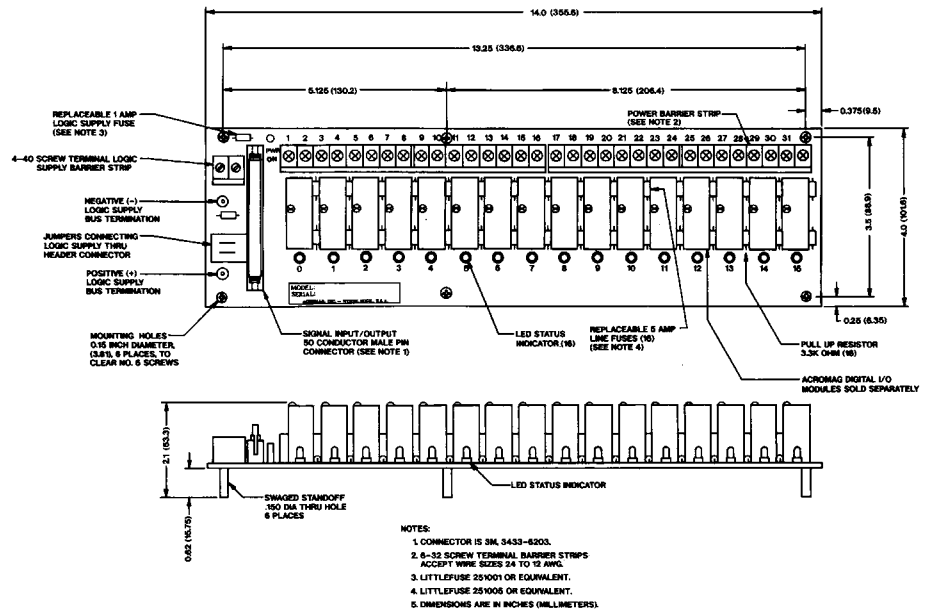


Dimensions

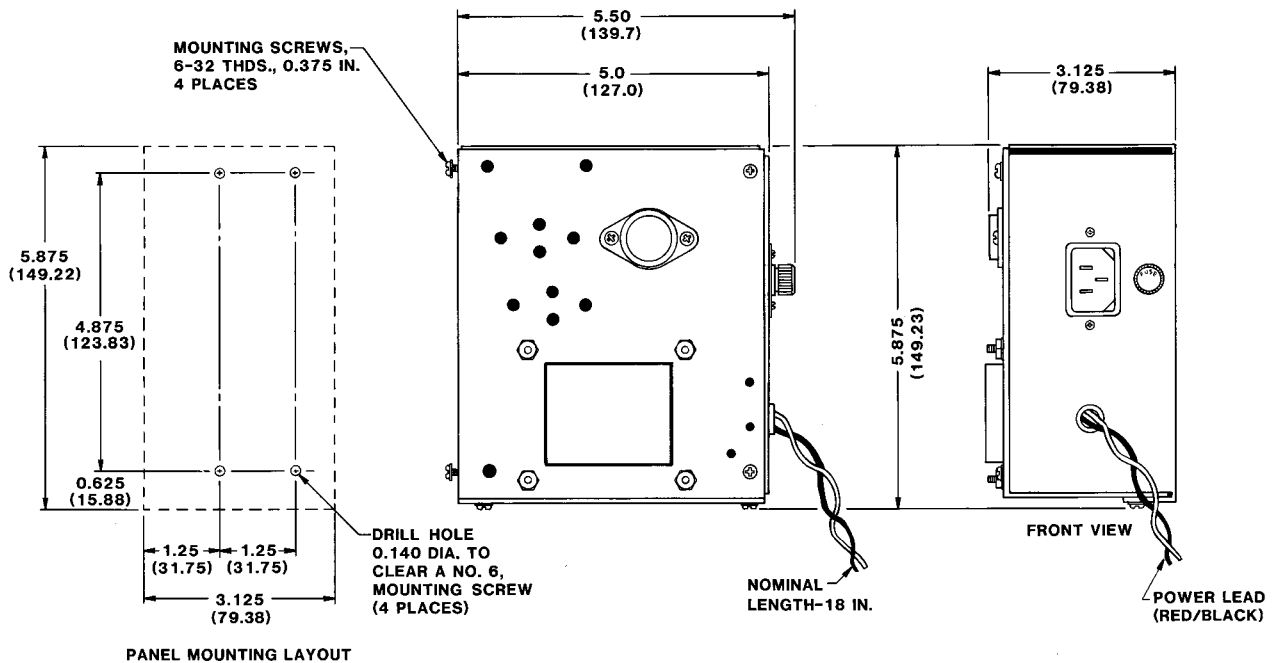
AXIF Outline Drawing



Digital I/O Panel APB16H-SSR



Power Supplies AXPRT-003 (115V) and AXPRES-003 (230V)



Dimensions are in inches (millimeters).