



## 6B Series Backplanes

### General Description

The 6B Series backplanes, combined with modules and the [6B50](#) digital I/O boards, provide a complete data acquisition system. Each backplane incorporates screw terminals for field wiring inputs and outputs, as well as temperature sensors - Model [AC1361](#) - for cold junction compensation (CJC) with thermocouple modules. The communications interface is RS-232C to host computer and bi-directional RS-485 between backplanes. Functional block diagrams of the 16-channel Model 6BP16 backplanes are shown in [Figure 1](#) and [Figure 2](#).

For flexibility in applications, one, four and sixteen channel backplanes are available. These can be ordered with the standard RS-485 interface type backplanes) or with the optional RS-232C to RS-485 converter (-2 type backplanes). The RS-232C interface allows easy hookup to most computer serial ports, while the bi-directional RS-485 interface can be used for daisy chaining additional backplanes. The RS-485 interface can drive a twisted pair cable up to a maximum of 4000 feet. [Figure 3](#) illustrates a daisy-chain 6B Series Configuration, while [Figure 4](#) illustrates a multidrop configuration.

All 6B Series backplanes require a +5V  $\pm 5\%$  regulated power supply for the backplane circuitry as well as the modules. A backplane and power supply (Model 955, 977 or PWR-01) can be mounted on the Model [AC1380](#) 19-inch rack mount kit. Complete 6B Series backplane specifications are shown in the tables.

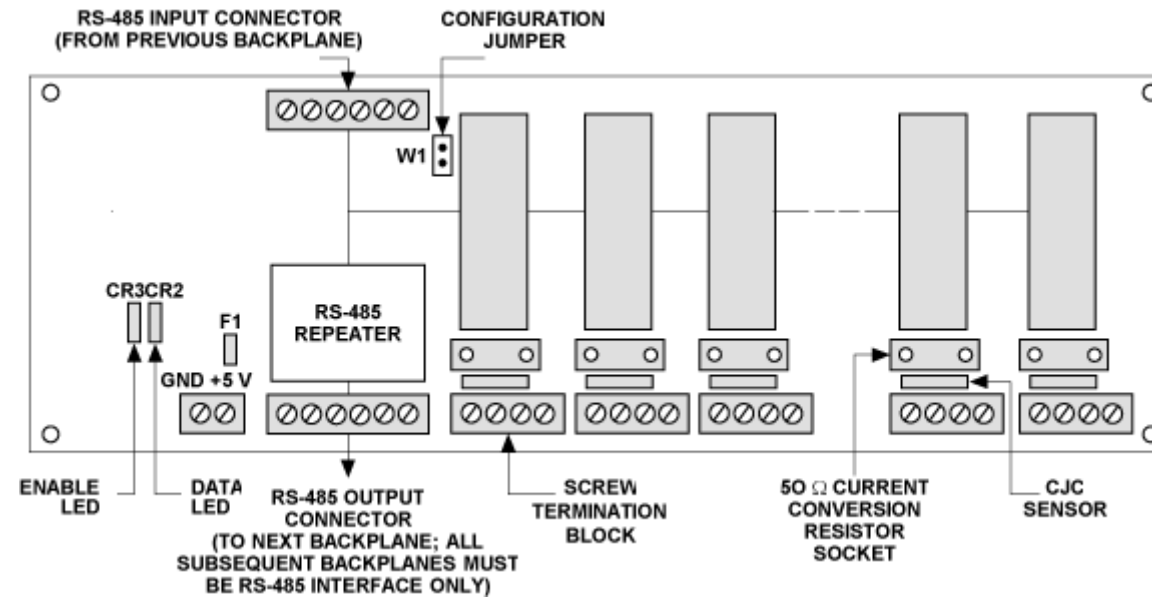


Figure 1. Functional Block Diagram Model 6BP16-1

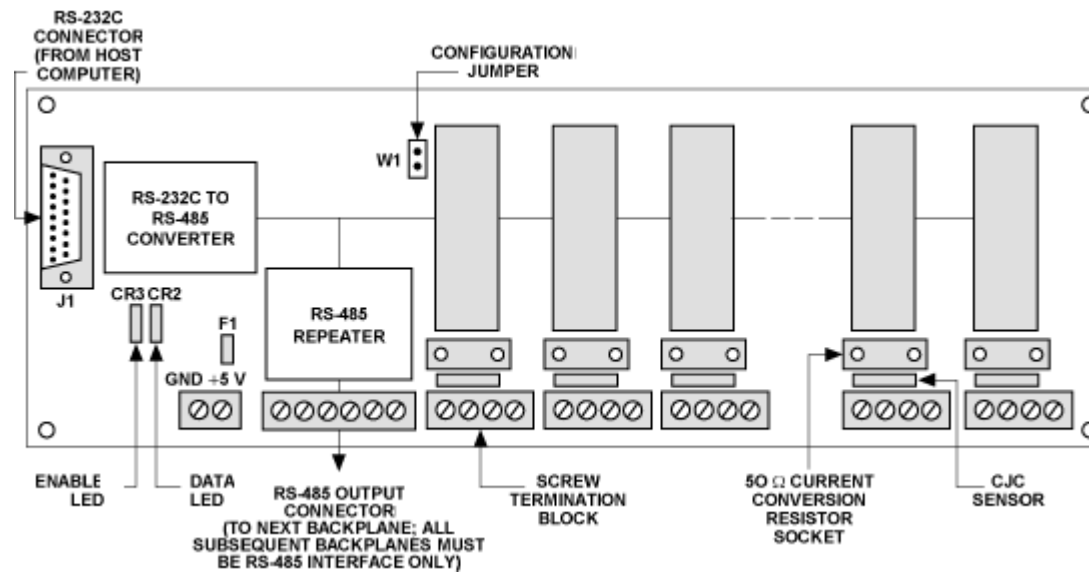


Figure 2. Functional Block Diagram Model 6BP16-2

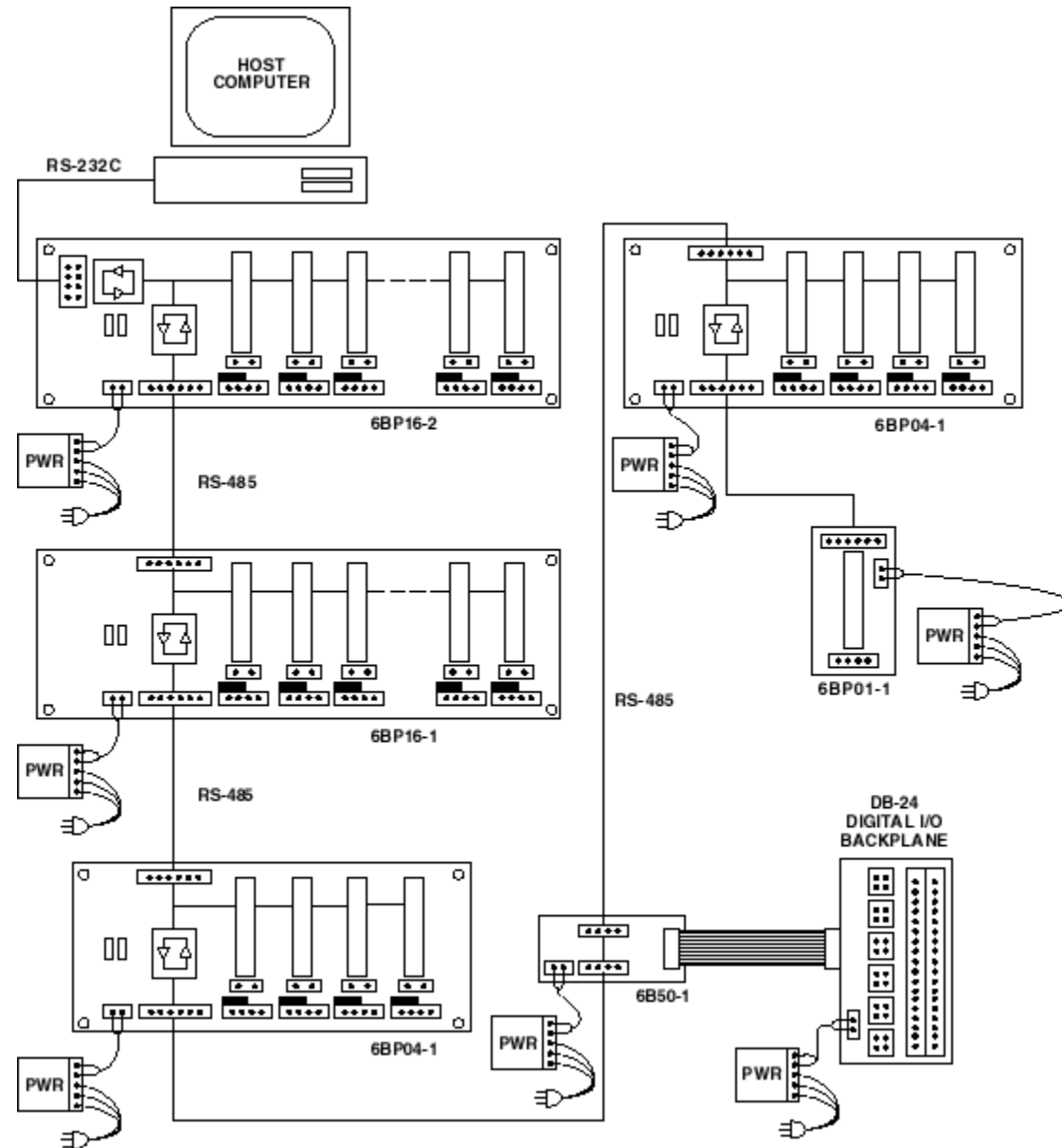


Figure 3. Daisy-Chain 6B Series .Configuration Example

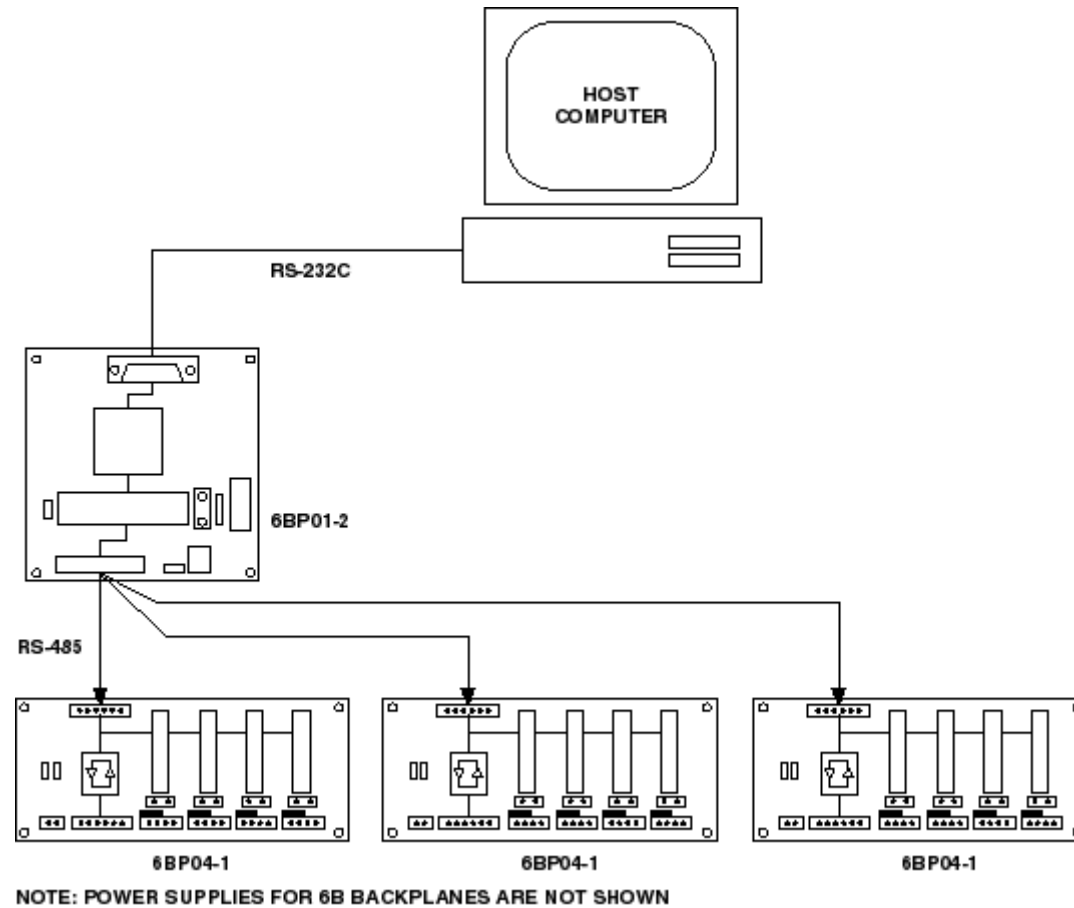


Figure 4. Multi-Drop 6B Series Configuration Example

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### Features

Mix and Match 6B Series I/O Module Capability

CE Certified - EMC Directive 89/336/EEC

Configuration Jumper (W1) on all Backplanes

1500 V rms and 2500 V rms (HV) Channel/Channel and Input/Output Isolation

Three Backplane Options : 1-, 4-, 16-Channels

-25°C to +85°C Temperature Range

### 6B Series Backplane Benefits

**Isolation Options** - the 6B Series module family offers two isolation levels : 1500 V rms and 2500 V rms (HV). The 6BP01 and 6BP04HV support 2500 V rms input-output/channel-channel isolation. All other backplanes support 1500 V rms.

**Configuration Jumper** - The configuration jumper (W1) enables changes to the address, baud rate, and checksum of the 6B module installed in the leftmost position of the backplane. When the W1 jumper is installed on power-up, the module is forced into a known address (00H), baud rate (9600), and checksum status (disabled). It is then possible to address the module to verify and change its configuration.

**Screw Termination Block** - Each channel on a 6B Series backplane has a screw termination block with four screw terminals for connecting transducers. These screw terminals satisfy all transducer and process current outputs.

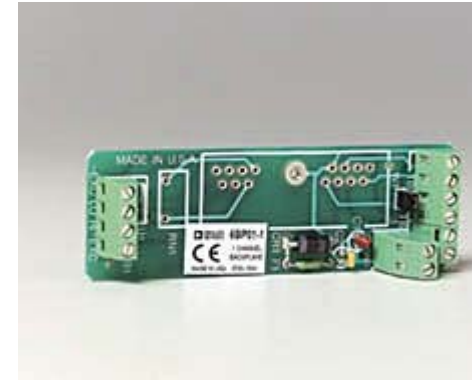
**50  $\Omega$  Current Conversion Resistor Socket** - To use a [6B11](#) or [6B12](#) analog input module to measure process current inputs, a 50  $\frac{1}{2}$  (0.1%) current conversion resistor - Model [AC1381](#) - is inserted into pin sockets provided on each channel.

**Shunt Diode** - A shunt diode on each 6B Series backplane provides polarity reversal protection to the backplane.

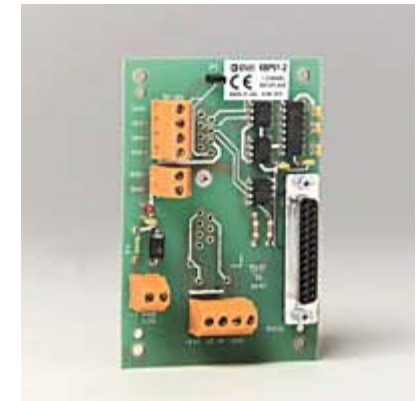
**Fuse** - a fuse on each 6B Series backplane protects the backplane from damage caused by short circuits or by failure of one of the modules on the backplane.

**Status Indicators** - Two LEDs indicate the status of the communication lines.

**Networking** - Multiple backplanes and multiple [6B50](#) digital I/O boards can be connected in an RS-485 network. A system may be configured with a total of 256 channels - note each 6B module counts as one channel and, each 6B50 digital 24-channel I/O board counts as one channel.



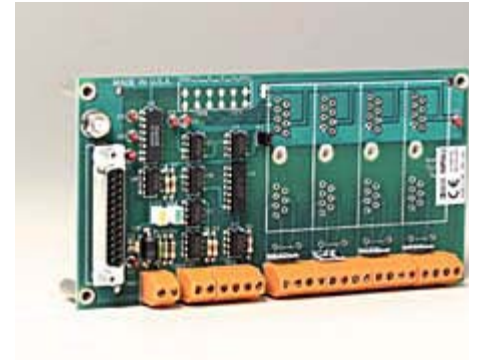
[Order Now](#) Model 6BP01-1



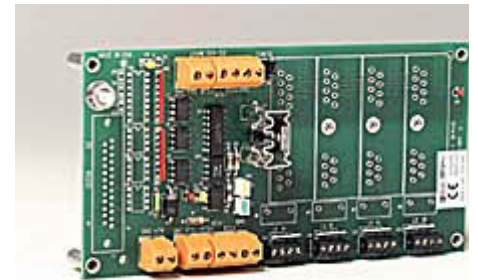
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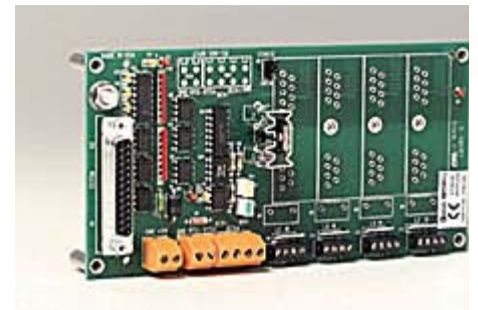
[Order Now](#) Model 6BP04-1



[Order Now](#) Model 6BP04-2



[Order Now](#) Model 6BP04HV-1



[Order Now](#) Model 6BP04HV-2



[Order Now](#) Model 6BP16-1



[Order Now](#) Model 6BP16-2

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#### 6B Series Single Channel Backplane Specifications

Feature	Model 6BP01-1	Model 6BP01-2
Analog Input/Output Channels	1	1
Interface		
Communications Input	RS-485	RS-232C
Connector Type	Screw Terminals	Female DB-25
Communication Output	N/A	RS-485
Connector Type	N/A	Screw Terminals
Cold Junction Temperature Sensor		
Number provided on backplane	1	*
Type	AC1361	*
Initial Accuracy @ +25°C	±0.25°C (±0.75°C, maximum)	*
Accuracy, +5°C to +45°C	±0.5°C (±0.0125°C/°C)	*
Configuration Jumper	Yes	*
Provision For Mounting AC1381	Yes	*

<b>Resistor</b>		
<b>Isolation</b>		
Input-to-Output and Power Continuous	2500 V rms, maximum	*
Transient	ANSI/IEEE C37.90.1-1989	*
<b>Power Supply</b>		
Voltage: Operating	Passive	+5 V dc $\pm 5\%$
Voltage: Max Safe Limit-with modules	+6.5 V dc	*
Current	N/A	60 mA
Fuse	0.5 Ampere, slow-blow Littelfuse™ 251.500	* *
<b>Mechanical Dimensions</b>	4.25" x 1.37" (108 mm x 34.80 mm)	* *
<b>Environmental</b>		
Temperature Range		
Rated Performance	-25°C to +85°C	*
Operating	-25°C to +85°C	*
Storage	-40°C to +85°C	*
Relative Humidity	0 to 95% @ +60°C noncondensing	*

Specifications same as 6BP01-1.

Specifications subject to change without notice.

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#### 6B Series Four Channel Backplane Specifications

Feature	Model 6BP04-1	6BP04-2	6BP04HV-1	6BP04HV-2
<b>Analog Input/Output Channels</b>	4	*	*	*
<b>Interface</b>				
Communications Input	RS-485	RS-232C	*	RS-232C
Connector Type	Screw Terminals	DB-25	*	DB-25
Communication Output	RS-485	*	*	*



Connector Type	Screw Terminals	*	*	*
<b>Cold Junction Temperature Sensor</b>				
Number provided on backplane	4	*	*	*
Type	AC1361	*	*	*
Initial Accuracy @ +25°C	±0.25°C (±0.75° C, maximum)	*	*	*
Accuracy, +5°C to +45°C	±0.5°C (±0.0125° C/°C)	*	*	*
<b>Configuration Jumper</b>	Yes	*	*	*
<b>Provision For Mounting AC1381 Resistors</b>	Yes	*	*	*
<b>Isolation</b>				
Input-to-Output and Power Continuous	1500 V rms, maximum	*	2500 V rms, maximum	**
Transient	ANSI/IEEE C37.90.1-1989	*	*	*
<b>Power Supply</b>				
Voltage: Operating	+5 V dc ±5%	*	*	*
Voltage: Max Safe Limit-with module	+6.5 V dc	*	+35 V dc	**
Overvoltage Protection	N/A	N/A	>6.5 V dc	**
Current	60 mA	*	*	*
Fuse	5 Ampere, slow-blow Littelfuse™ 251.500	* *	* *	* *
Mechanical Dimensions	3.47" x 6.5" (90.68 mm x 165 mm)	* *	* *	* *
<b>Environmental</b>				
<b>Temperature Range</b>				
Rated Performance	-25°C to +85°C	*	*	*
Operating	-25°C to +85°C	*	*	*
Storage	-40°C to +85°C	*	*	*
Relative Humidity	0 to 95% @ +60° C noncondensing	*	*	*

[back](#)**6B Series Sixteen Channel Backplane Specifications**

Feature	Model 6BP16-1	Model 6BP16-2
<b>Analog Input/Output Channels</b>	16	16
<b>Interface</b>		
Communications Input	RS-485	RS-232C
Connector Type	Screw Terminals	Female DB-25
Communication Output	RS-485	RS-485
Connector Type	Screw Terminals	Screw Terminals
<b>Cold Junction Temperature Sensor</b>		
Number provided on backplane	16	*
Type	AC1361	*
Initial Accuracy @ +25°C	±0.25°C (±0.75°C, maximum)	*
Accuracy, +5°C to +45°C	±0.5°C (±0.0125°C/°C)	*
<b>Configuration Jumper</b>	Yes	*
<b>Provision For Mounting AC1381 Resistors</b>	Yes	*
<b>Isolation</b>		
Input-to-Output and Power Continuous	1500 V rms, maximum	*
Transient	ANSI/IEEE C37.90.1-1989	*
<b>Power Supply</b>		
Voltage: Operating	+5 V dc ±5%	*
Voltage: Max Safe Limit-with modules	+6.5 V dc	*
Current	60 mA	*
Fuse	5 Ampere, slow-blow Littelfuse™ 251.500	* *
<b>Mechanical Dimensions</b>	3.47" x 17.4" (90.68 mm x 442 mm)	* *
<b>Environmental</b>		

Temperature Range		
Rated Performance	-25°C to +85°C	*
Operating	-25°C to +85°C	*
Storage	-40°C to +85°C	*
Relative Humidity	0 to 95% @ +60°C noncondensing	*

\* Specifications same as 6BP16-1.

Specifications subject to change without notice.

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