

**MSXB 034 & MSXB 035:
Digital Backplanes**

**Analog Accelerator Series
Microstar Laboratories, Inc.**

Version 1.1

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Part Number MSAMXB034/035-0900-01

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MSXB 034 & MSXB 035: Digital Backplanes

The Microstar Laboratories Digital Backplanes allow easy digital input and output expansion for large systems. The Digital Backplane provides expansion slots to accommodate compatible digital external boards. The Digital Backplane is passive, and connects all signals in each of the expansion slots in parallel.

The Full-Size Digital Backplane, part number MSXB 035, provides 21 expansion slots. The Half-Size Digital Backplane, part number MSXB 034, provides 10 expansion slots. All expansion slots are identical.

The Full-Size Digital Backplane is compatible with any VME standard subrack enclosure that has the following dimensions: 84-HP length, 3U height, and 220mm depth.

The Half-Size Digital Backplane is compatible with any VME standard subrack enclosure that has the following dimensions: 42-HP length, 3U height, and 220mm depth.

Installation

Digital Backplanes are often used in conjunction with Industrial Enclosures. When an Industrial Enclosure system is shipped from Microstar Laboratories, a backplane is installed.

Warning: Never install a board into the Digital Backplane or remove a board from the Digital Backplane while the Digital Backplane is powered.

The MSXB 033 Digital Backplane Interface Board must be installed in one of the Digital Backplane expansion slots. The Digital Backplane Interface Board interfaces the Digital Backplane with a Data Acquisition Processor.

When a digital Industrial Enclosure system is shipped from Microstar Laboratories, a Digital Backplane Interface Board is installed. Please refer to the MSXB 033 documentation for more information on the Digital Backplane Interface Board.

To Install an External Board in the Digital Backplane:

1. Push the board firmly into the slot and make sure the board is securely connected to the backplane.
2. Secure the front panel of the external board to the Industrial Enclosure with the two screws provided with the board.

Hardware Configuration

The following two diagrams show the configurations of the Half-Size and Full-Size Digital Backplanes.

Dimensions: 5.11" x 7.90" (130mm x 201mm)

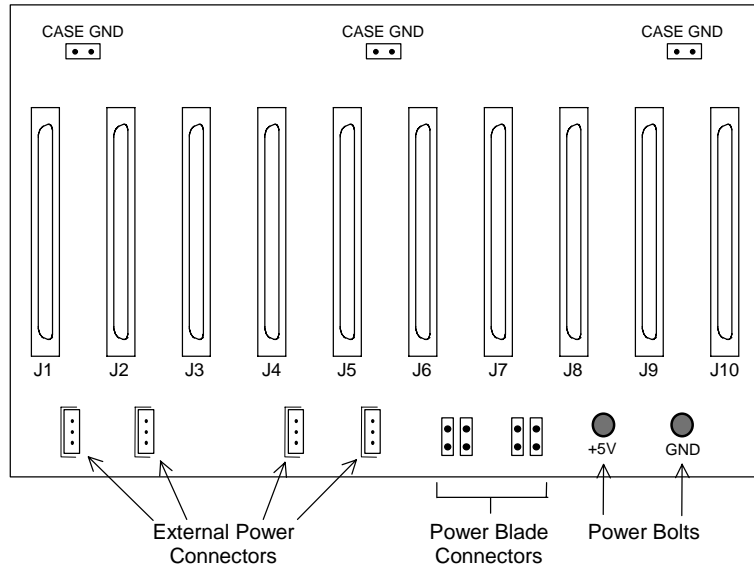


Figure 1. MSXB 034: Half-Size Digital Backplane

Dimensions:
5.11" x 16.60"
(130mm x 422mm)

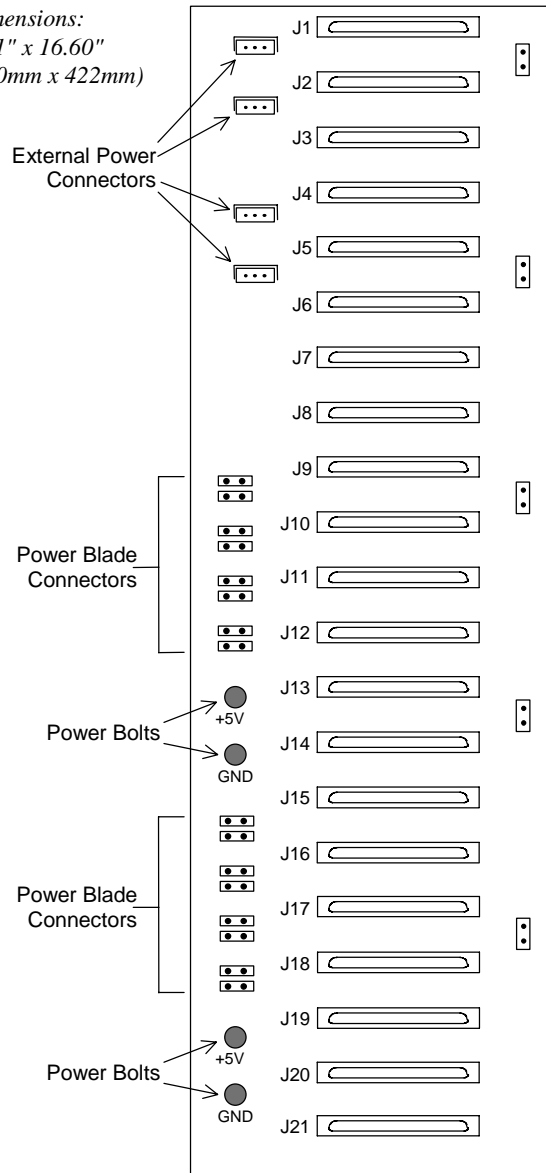


Figure 2. MSXB 035: Full-Size Digital Backplane

Power Consumption

The Digital Backplane provides power to each slot by means of a +5V voltage supply. If the total power consumption of all external boards installed in the Digital Backplane does not exceed the DAP's power availability, the Digital Backplane can draw power from the DAP via the MSXB 033-01-E3B Digital Backplane Interface Board. If the total power consumption exceeds this limit, external power must be supplied to the Digital Backplane and the MSXB 03-02-E3B model of the Digital Backplane Interface Board must be used instead.

A Data Acquisition Processor can typically supply a total of 10W of power to all accessories products through its +5V supply. This means the DAP can supply 2 A of current at +5V. Please refer to the DAP hardware documentation for more specific information on the power availability of each DAP model.

Calculating Power Consumption

To calculate the total power consumption of a backplane system, add all the currents that each external board draws from each voltage supply. Please refer to the documentation of each external board for power consumption requirements.

Convert the current drawn from each voltage supply to power consumption by multiplying the current by the voltage. For example, the current drawn from the +5V supply is multiplied with 5V to get the power consumed from that supply.

Add up all the power consumed from each voltage supply. The final result is the total power consumption of the backplane system.

Backplane Power Options

The MSXB 033-01-E3B model of the Digital Backplane Interface Board distributes the DAP's +5V supply directly to Digital Backplane.

If external power is required, the MSXB 033-02-E3B model of the Digital Backplane Interface Board must be used. In this model, the DAP's +5V supply is separated from the backplane's +5V supply. An external +5V supply must be connected to the Digital Backplane. Several connectors are available on the Digital Backplane for connecting external power.

Each Digital Backplane has four +5V power connectors. The power connectors are male Molex connectors part number 26-60-4030, which mate with the Molex connector part number 09-50-3031. The mating connector is included with the Microstar Laboratories cable kit MSCBL 027-01K.

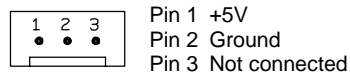


Figure 3. External Power Connectors

Pin 3 is closest to the bottom edge of the board.

In addition, there are four 0.250"-wide blade connectors and two bolts for connecting external power to the Half-Size Digital Backplane, and there are 16 0.250"-wide blade connectors and four bolts for connecting external power on the Full-Size Digital Backplane.

Note: Always connect external power to the Digital Backplane before powering on the DAP, and always disconnect external power to the Digital Backplane after powering off the DAP.
