

# Guide to Setting Up Rack Mounted Gaging Systems



TITLE

**Guide, Setup, 4000 through 8000  
series Gaging Systems, 4, 8 and  
12 slot Racks**

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## 1.0 Purpose

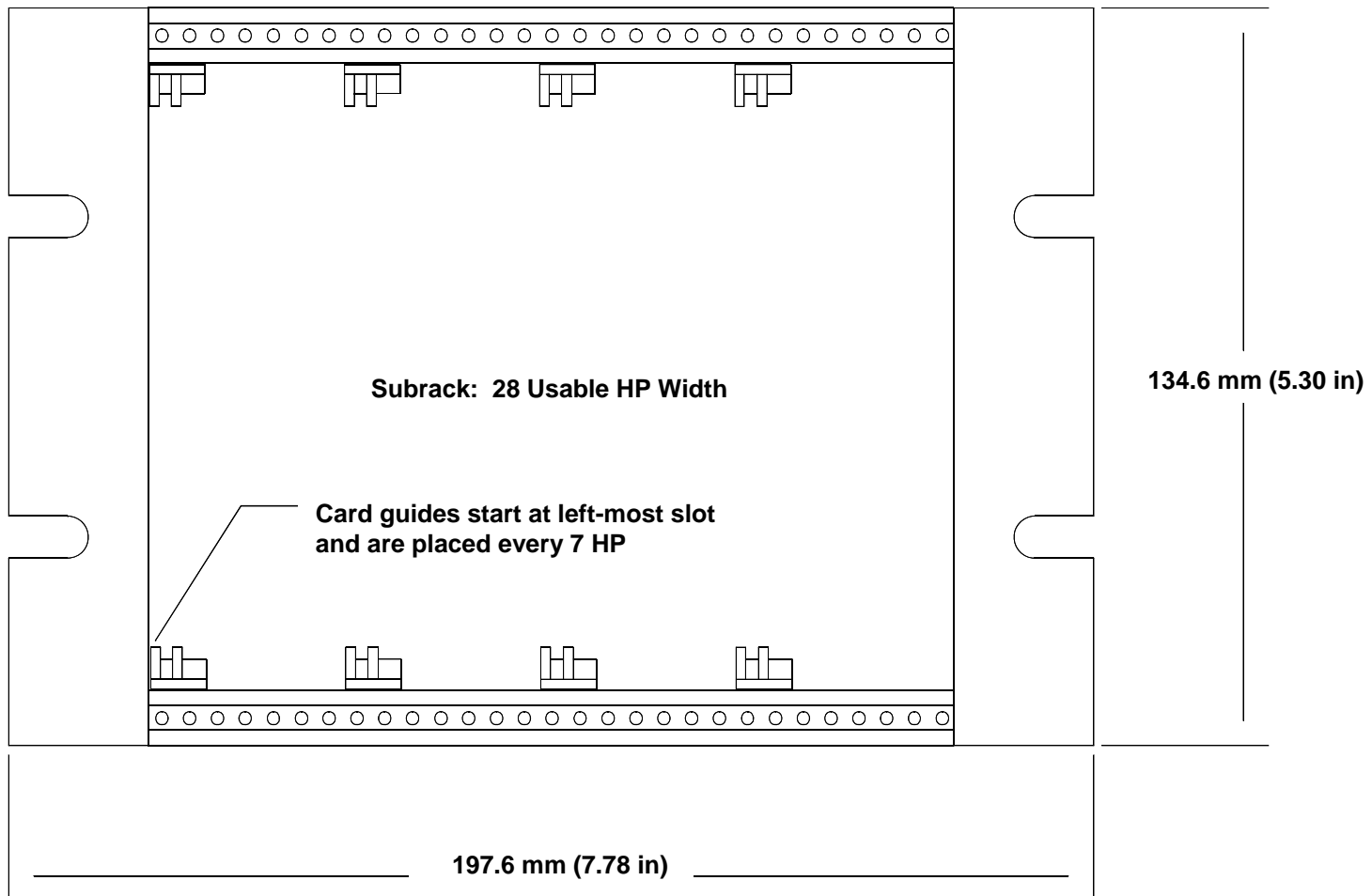
This document illustrates the setup and wiring configurations of 4800, 5800, 6800, and 8800 series gages up to 12 channels

## 2.0 Supplied equipment / parts

- 4-channel rack, part number 035667-01
- 8-channel rack, part number 039331-F01
- 12-channel rack, part number 035668-01

(Must specify desired rack at time of order.)

## 3.0 Specifications



**Fig. 1: Front View of 4-Channel Rack (part number 035667-01)**

### 3.0 Specifications (continued)

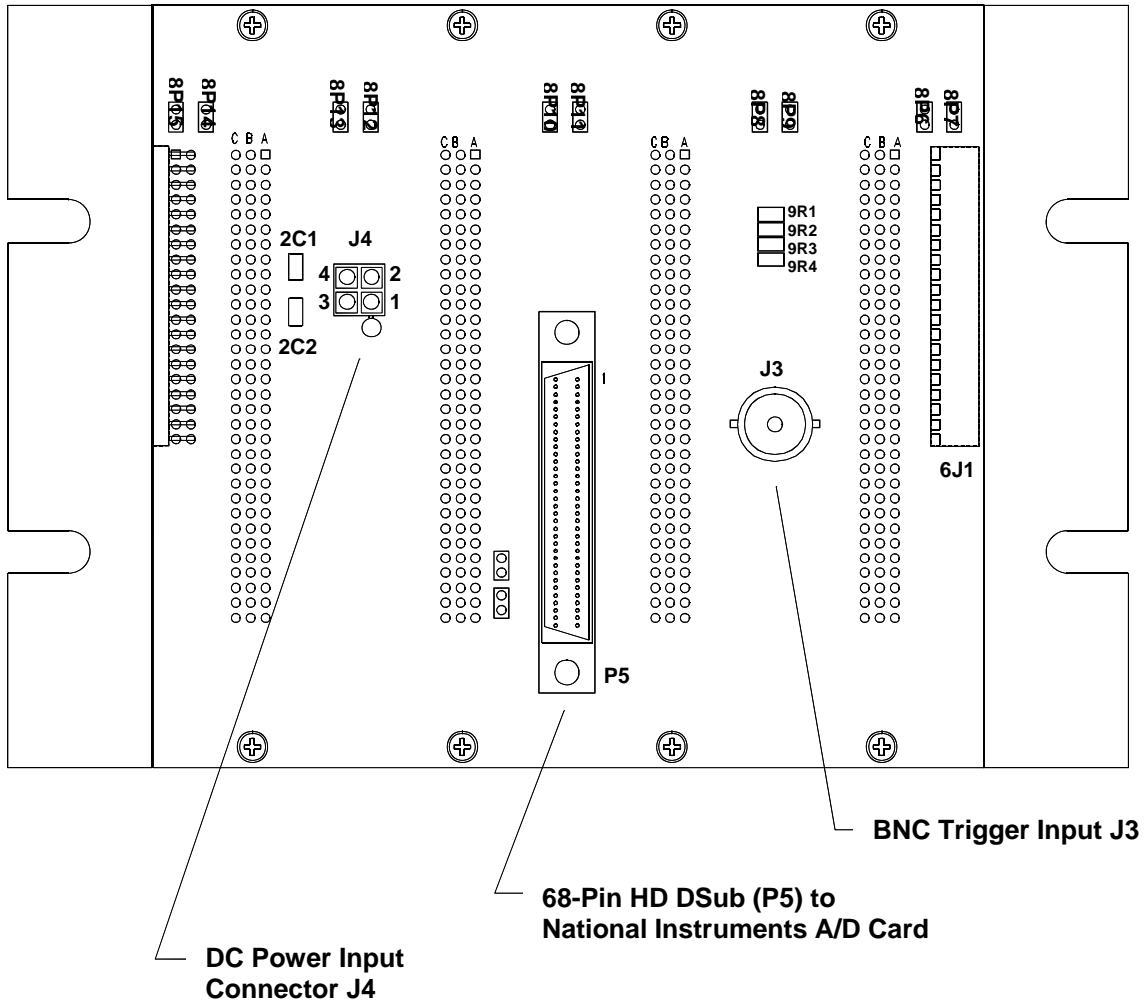
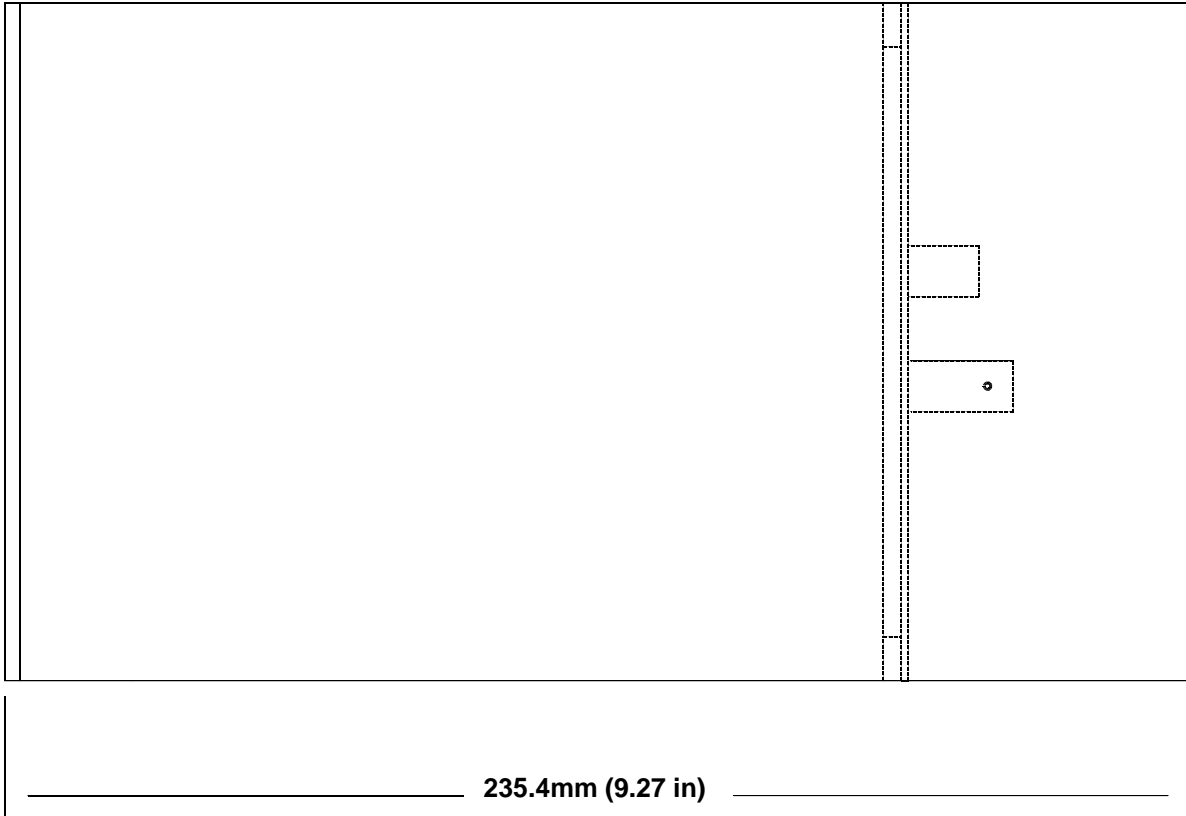


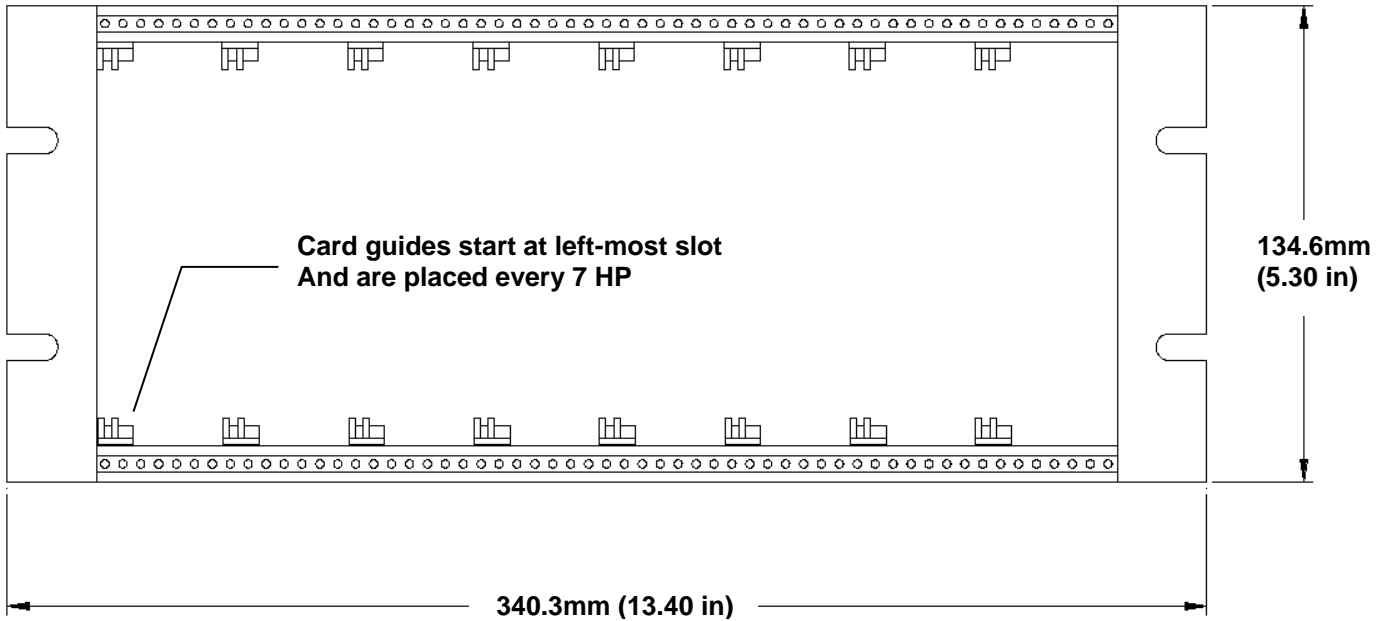
Fig. 2: Rear View of 4-Channel Rack (part number 035667-01)

### 3.0 Specifications (continued)

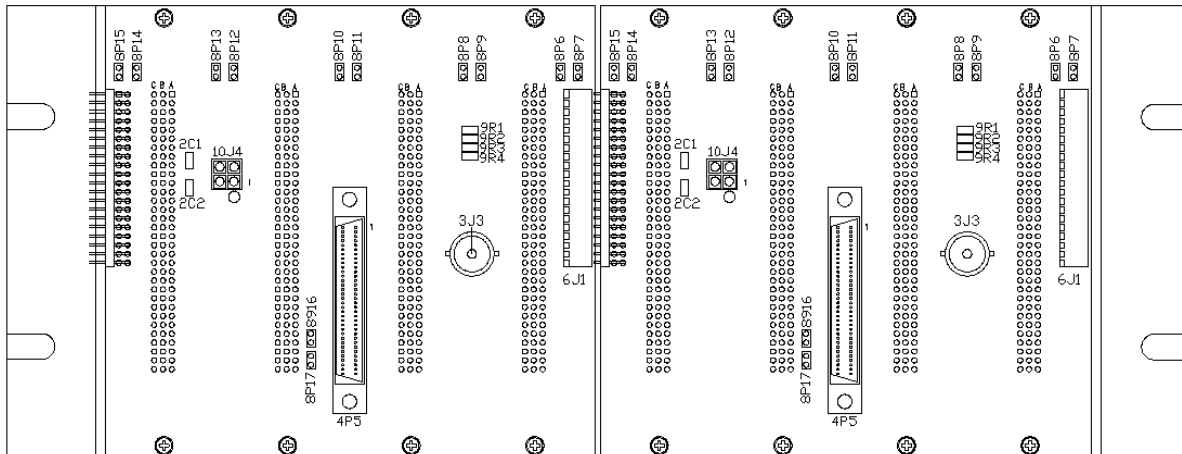


**Fig. 3: Side View of 4-Channel Rack (part number 035667-01)**

### 3.0 Specifications (continued)

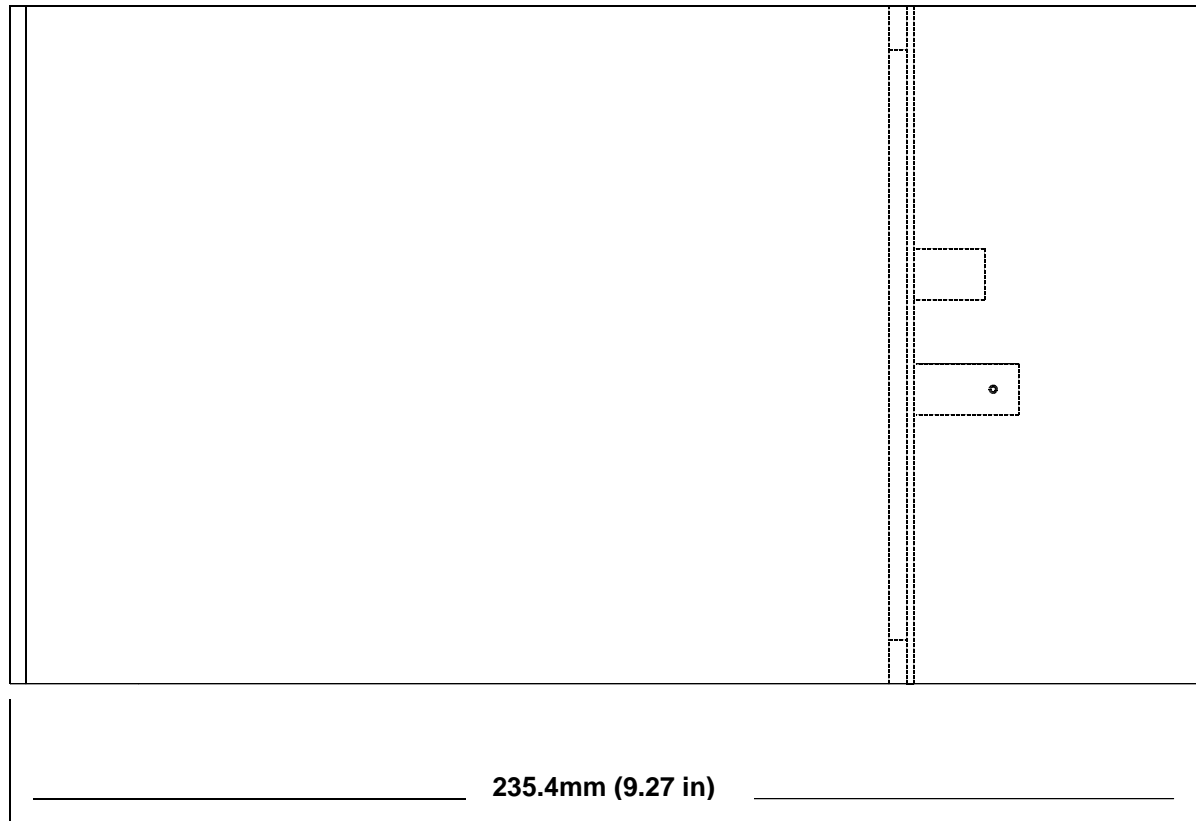


**Fig. 4: Front View of 8-Channel Rack (part number 039331-A01)**



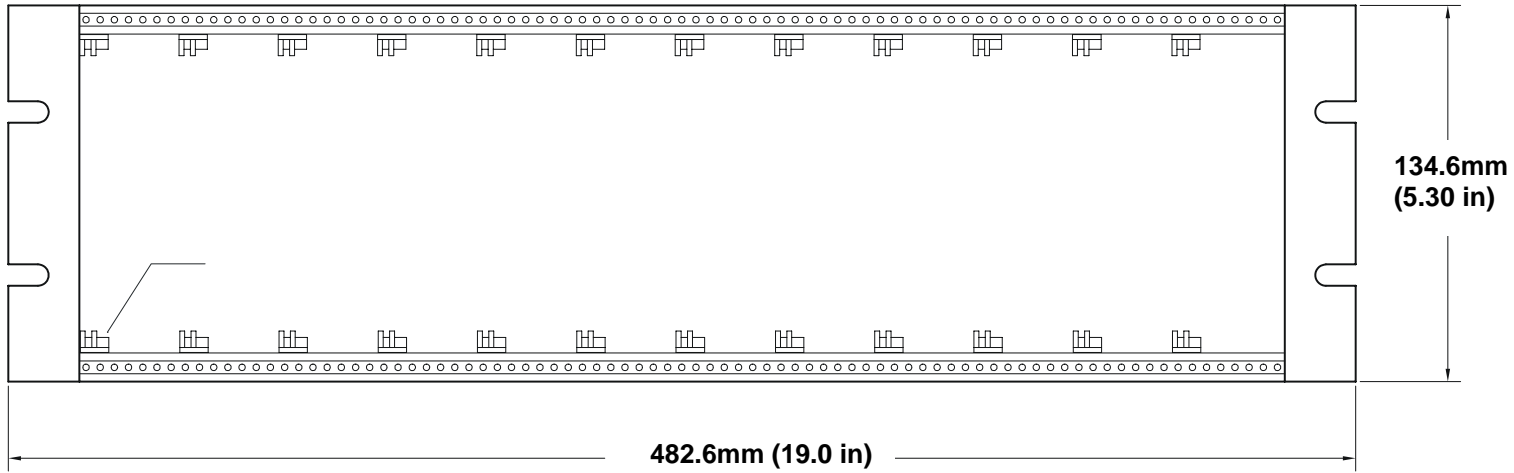
**Fig. 5: Rear View of 8-Channel Rack (part number 039331-A01)**

### 3.0 Specifications (continued)

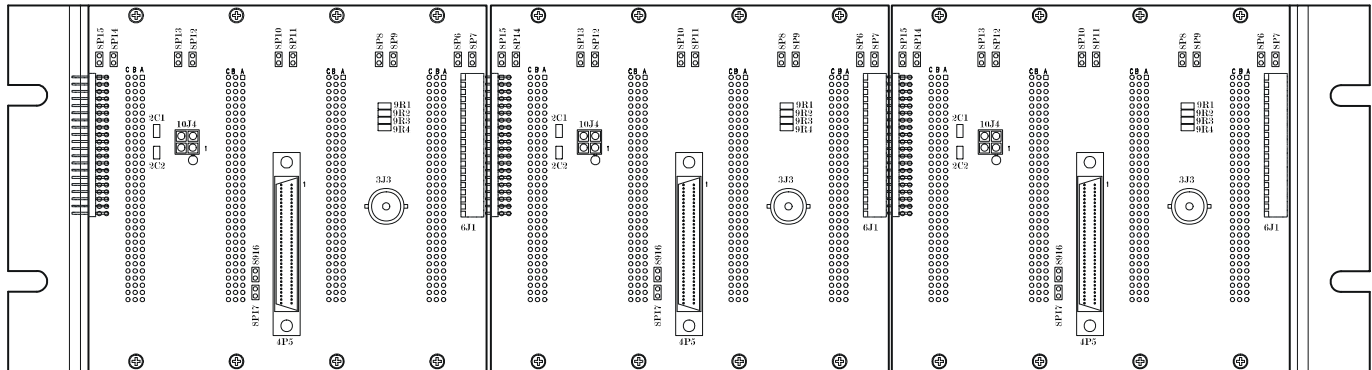


**Fig. 6: Side View of 8-Channel Rack (part number 039331-A01)**

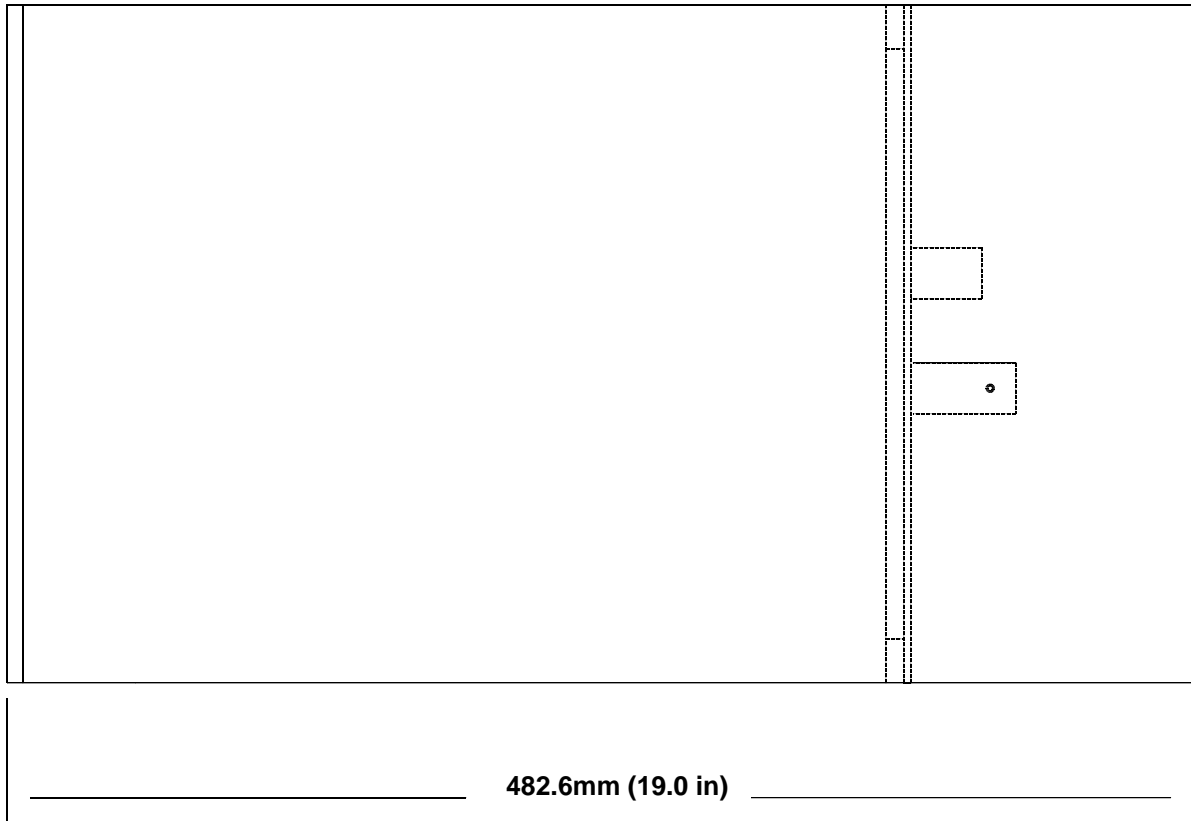
### 3.0 Specifications (continued)



**Fig. 4: Front View of 12-Channel Rack (part number 035668-01)**



**Fig. 5: Rear View of 12-Channel Rack (part number 035668-01)**



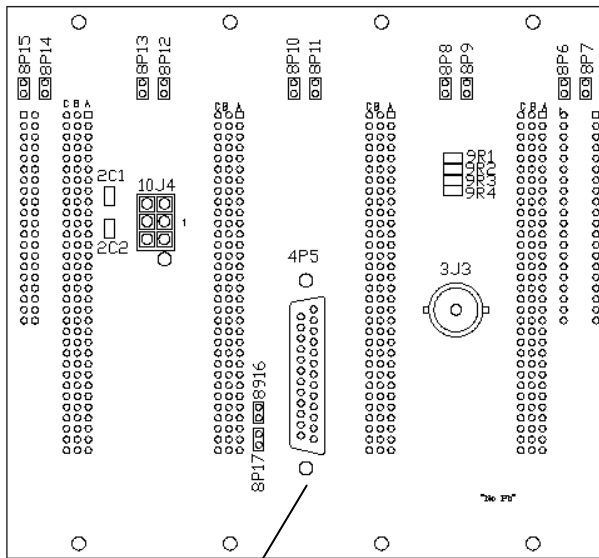
**Fig. 6: Side View of 12-Channel Rack (part number 035668-01)**



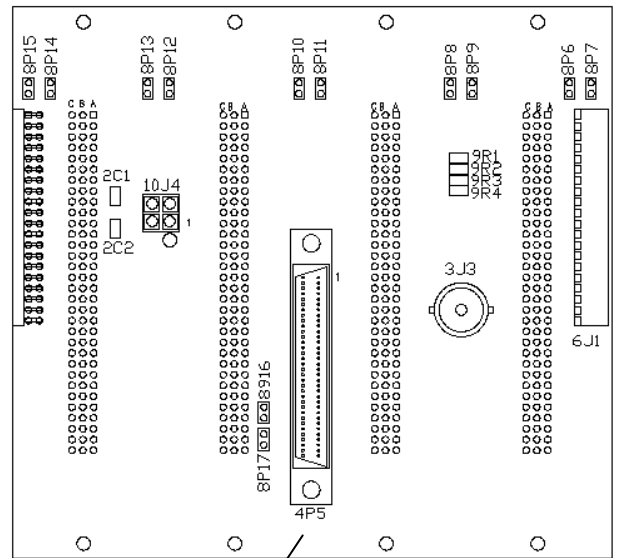
## 4.0 Motherboard Selection

There are 3 Motherboard choices for the style of I/O connector available.

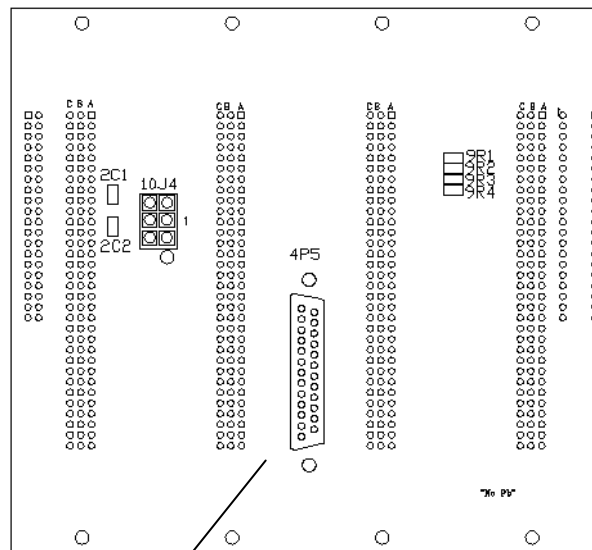
Depending upon the model chosen, refer to the appropriate diagram below.



**P5 25 PIN D-SUB**  
(Motherboard part number 035325-02)



**P5 "HIGH DENSITY" 68 PIN DSUB**  
(Motherboard part number 035325-01)



**P5 25 PIN D-SUB No BNC**  
(Motherboard part number 035325-03)

## 5.0 Power Requirements

The Model 4800 series motherboard is a 4-channel unit. Two or three motherboards may be easily daisy-chained by means of the provided connectors to make an 8 or 12-channel motherboard **which only requires one connection to supply power to all boards.**

Each gaging module requires  $\pm 15$  VDC @ 0.120 AMP

For normal operation, simply provide regulated  $\pm 15$  VDC power to connector **J4** using the following hardware:

### Power Cable/Connector for the 035325-01 4 channel Motherboard:

Available for purchase from factory:

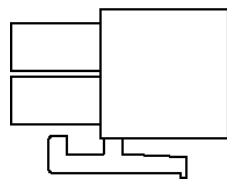
ASSY, POWER CABLE 4800/5800 RACK (part number 038299-01)

OR

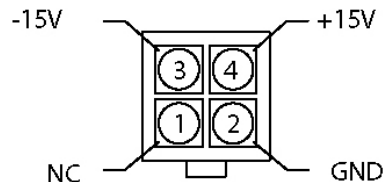
May be purchased from electronics supplier:

POWER CONNECTOR HOUSING – AMP 4-Circuit Mini-Universal MATE-N-LOK  
(Manufacturer's part number 172167-1)

POWER CONNECTOR TERMINALS – AMP Mini-Universal MATE-N-LOK  
(Manufacturer's part number 770988-3)



Wire Side View



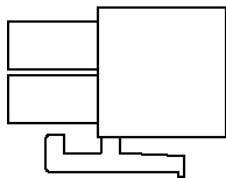
Wiring Diagram

### Power Connector for the 035325-02, 03 4 channel Motherboard:

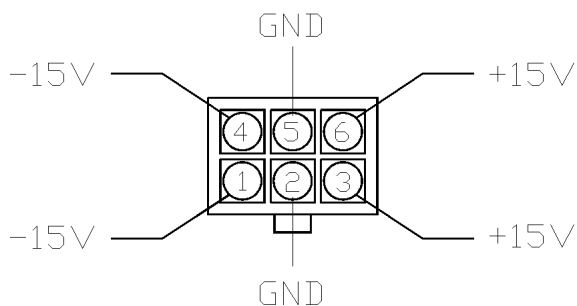
May be purchased from electronics supplier:

POWER CONNECTOR HOUSING – AMP 6-Circuit Mini-Universal MATE-N-LOK  
(Manufacturer's part number 172339-1)

POWER CONNECTOR TERMINALS – AMP Mini-Universal MATE-N-LOK  
(Manufacturer's part number 770988-3)



Wire Side View



## Power Supply:

Suggested power supply manufacturer model numbers:  
(May be purchased from electronics supplier)

For up to 4 channels

Power One / Condor HBB15-1.5-A  $\pm 15\text{VDC}$  @ 1.5 Amps

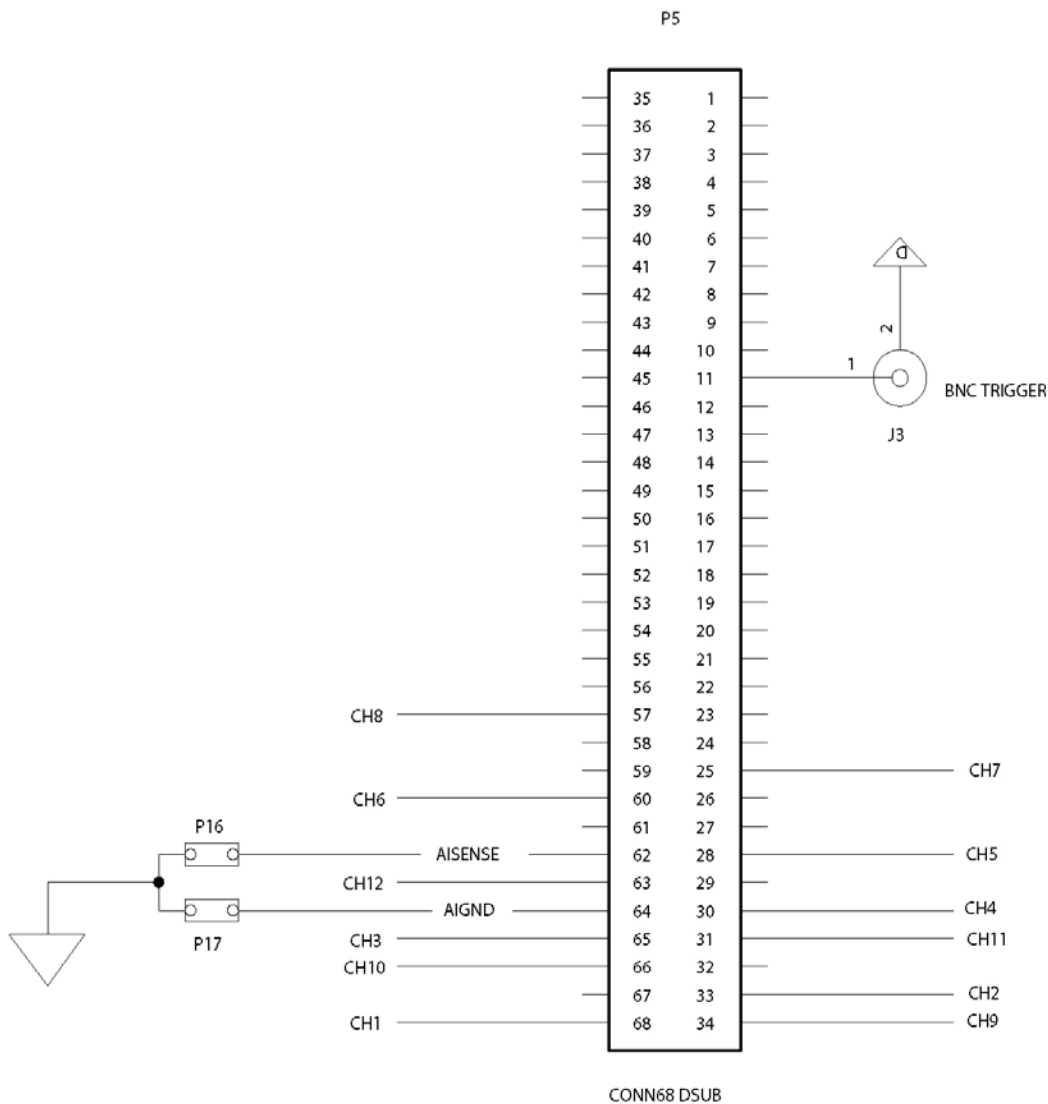
For 5 or more channels:

Power One / Condor HCC15-3-A  $\pm 15\text{VDC}$  @ 3 Amps

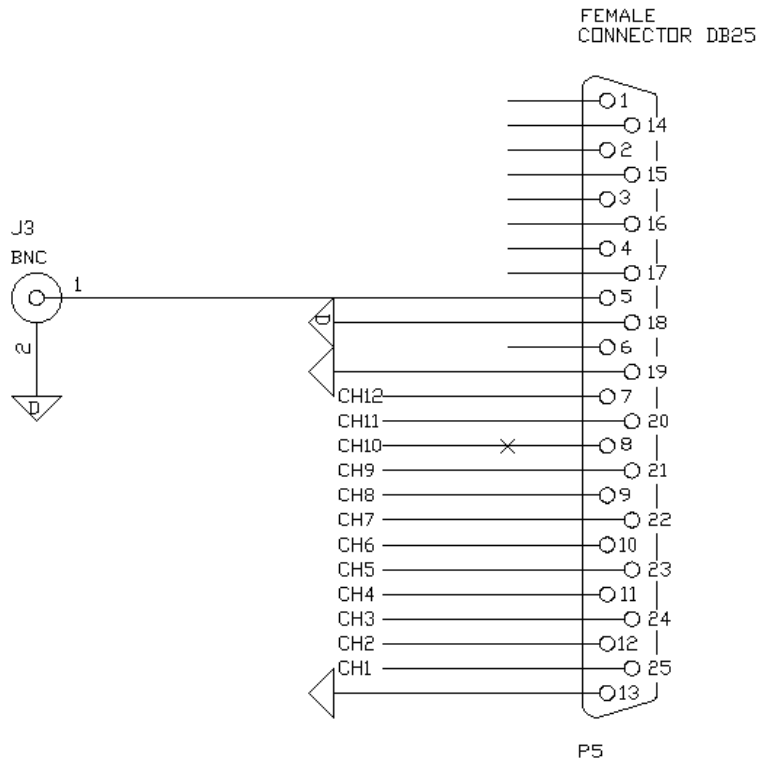
## 5.0 I/O Connector (035325-01 Motherboard)

The I/O connector (P5) on each motherboard is designed to plug in directly to any number of National Instruments E-series A/D cards using cables available from National Instruments.

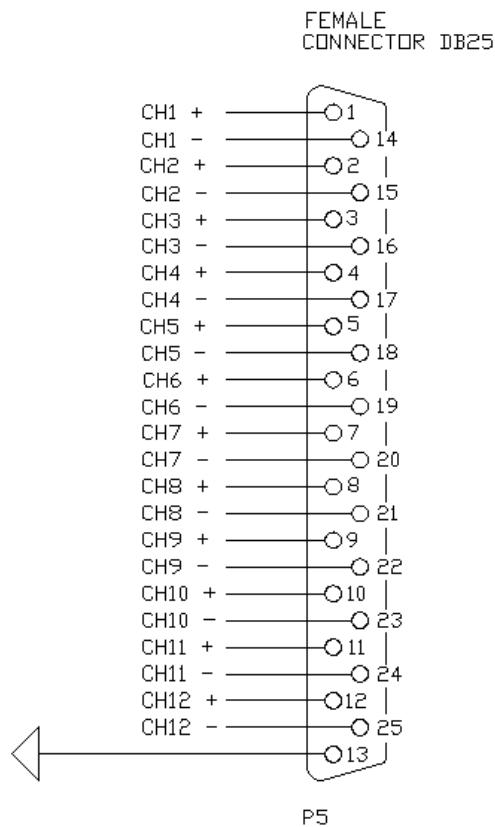
- Jumper P16 on the motherboard connects the board ground to AISENSE.
- Jumper P17 connects ground to AIGND.



## 6.0 I/O Connector (035325-02 Motherboard)



## 7.0 I/O Connector (035325-03 Motherboard)



## 8.0 Master / Slave Jumper Settings (Series 4800 and 8800 only)

### Bandwidth

The 4800 and 8800 modules may be set to one of four bandwidths. Use the following table to determine the jumper settings:

<u>Bandwidth</u>	<u>P10</u>	<u>P11</u>	<u>P12</u>	<u>P13</u>	<u>P30</u>
10 Hz	N	Y	N	Y	Y
100 Hz	Y	Y	Y	Y	Y
1 kHz *	N	N	N	N	Y
10 kHz	Y	N	Y	N	N

\*default setting

## Master / Slave Jumper Settings (Continued)

### Drive Synchronization (Phase Locking)

When two or more Model 4800 / 8800 gaging modules are used to look at the same target, it is usually advisable to phase lock the excitation to the probes—especially if the target is not well grounded. To do this, the board synchronization signals must be bussed across all modules. So, all +Phase signals are connected together, all -Phase signals are connected together, all +Pclock signals are connected together, and all -Pclock signals are connected together.

Drive synchronization is a method of phase locking the probe drives of two or more units to prevent any probe-to-probe interactions. When more than one unit is used (one master unit with several slave units), the phase of the probe drives may be set to an appropriate angle with respect to the master. This patented feature allows for the gaging of poorly grounded targets using two or more probes.

<u>Configuration</u>	<u>P2</u>
Master *	N
Slave	Y

\*default setting

**NOTE: A slave will not operate without the master unit connected and powered.**

To choose the proper phase angle, determine the phase angle spacing P by dividing 360 by the number of probes that are gaging the same target. The first probe should have a phase of 0. The second probe should have a phase as close to 2P as possible. The third probe's phase should be as close to 3P as possible, etc. Here are some examples.

1. If all probes are independent, a phase angle of zero is recommended on all boards (default setting).
2. If two probes are used, the first board should be set to 0 and the second set to 180.
3. If three probes are used, the first board should be set to 0, the second set to 120, and the third set to 240.
4. If four probes are used, the first board should be set to 0, the second set to 180, the third set to 0, and the fourth set to 180.
5. If five probes are used, the boards should be set to 0, 72, 144, 216 and 288 respectively.

**NOTE: The master must be set to 0 degrees.**

## 6.0 Master / Slave Jumper Settings(Series 4800 and 8800 only) (continued)

The chart below shows the jumper configurations for different phase angles.

<u>Phase</u>	<u>P26</u>	<u>P27</u>	<u>P28</u>
0*	N	N	N
180	Y	N	N
120	N	Y	N
240	N	N	Y
72	Y	Y	N
144	N	Y	Y
216	Y	N	Y
288	Y	Y	Y

\*default setting

For further information, refer to the *Model 4800 Series User Manual*, part number 030780-R01 or the *Model 8800 Series User Manual*, part number 037893-01.

## 7.0 Technical Assistance

If you would like assistance or have any questions about the setup of your Model 4800 Series rack-mounted system(s), please send us an e-mail via our Request Form at [www.adetech.com/support](http://www.adetech.com/support).