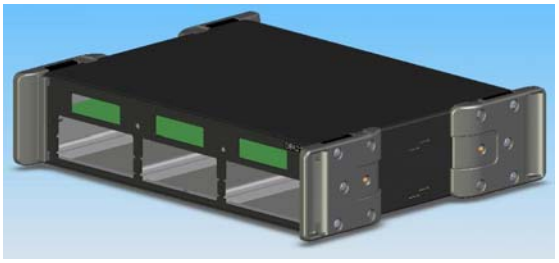
DBK213 Screw-Terminal & Expansion Card Module

3-Card Slot, Includes P1/P2/P3/P4 compatibility for Analog I/O, Digital I/O, & Pulse/Frequency



DBK213 Front Panel
Upper Slots for Terminal Board Wiring Pass-Through
Lower Slots for Housing up to 3 DBK options, 1 per slot

The DBK213 module is compatible with the following products:

- DaqBook/2000 Series • DaqBoard/2000 Series • DaqLab • DaqScan

Overview

The DBK213 module includes:

- P1, male DB37 connector for Analog I/O.
- P2, male DB37 connector for Digital I/O.
- P3, male DB37 connector for Pulse/Frequency (Digital and Counter/Timer) I/O.
- P4, 100-pin connector. Provides same signal connection as P1, P2, and P3 combined.
- Three slots for housing optional DBK cards. The DB37 connector of each card will extend out through the rear panel where it can be secured with hex nuts.
- 12 on-board screw-terminal blocks (*accessible after removal of cover*)
- The terminal blocks [TB1 through TB12] tie in to P1, P2, P3, and P4 and provide for easy signal connection.
- Three front panel slots for wiring pass-through.
- On-board socket locations for custom RC Filter networks (*accessible after removal of cover*).

DBK213 Rear Panel

The upper section includes P1, P2, P3 and P4 connectors. The lower section has 3 openings for pass-through of DB37 connectors from optional DBK cards.

The three DB37 connectors can be used as direct connections points for I/O signals, or signals can be connected to each 37-pin connector via a DBK card or module. The lower section of the DBK213 includes three built-in expansion slots for housing card options.

The unit includes screw-terminal access to all analog and digital I/O from the host data acquisition device. Related to the screw-terminals are 3 front panel upper slots for routing all I/O wiring.

Connection Tips

CAUTION

Turn off power to the host PC and externally connected equipment prior to connecting cables or signal lines to DBKs. Electric shock or damage to equipment can result even under low-voltage conditions.

Take ESD precautions (packaging, proper handling, grounded wrist strap, etc.)

Use care to avoid touching board surfaces and onboard components. Only handle boards by their edges (or ORBs, if applicable). Ensure boards do not come into contact with foreign elements such as oils, water, and industrial particulate.

Do not confuse connectors. Ensure that you only connect P1 I/Os to P1, P2 I/Os to P2, and P3 I/Os to P3. Improper connection may result in equipment damage.

When using P4, e.g., for a DaqBoard/2000, be sure to align the P4 orientation indicators [white arrows] prior to mating the P4 connectors.

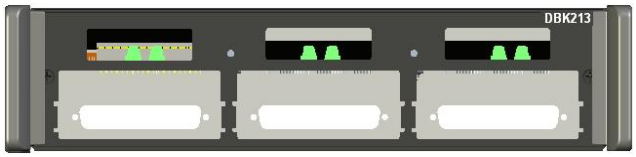
1. Ensure power is removed from the device(s) to be connected.
2. Observe ESD precautions when handling the board and making connections.
3. Do not make redundant connections. For example, for ANALOG IN you could use the P1 (DB37) connector or Terminal Blocks TB9 through TB12. You would not use both sets of ANALOG IN connectors.
4. You do not need to remove the cover unless you need to access a terminal block or customize an RC filter network. Information regarding both tasks follows shortly. Note that RC filter networks are not to be made or used in association with additional DBK expansion options.
5. DBK213's 100-pin P4 connects to a DaqBoard/2000 Series board's P4 via a CA-195 one-hundred conductor ribbon cable.

The DaqBoard/2000 Series boards communicate [external from the host PC] through a 100-pin P4 connector. The P1, P2, and P3 connectors discussed in association with these boards are subset connectors of the 100-pin P4 connector. The *System Connections and Pinouts* chapters of the product hardware manuals include pinouts.

6. Connections to the DB37 connectors are made via CA-37 cables or CA-255 cables:
   (a) P1 connects to an analog DBK card or module's P1 connector.
   (b) P2 connects to a Digital DBK card or module's P2 connector.
   (c) P3 connects to a Pulse/Frequency DBK card module's P3 connector.
7. Refer to the separate CE Cable Kit instructions that are included with the associated CE cable kit.

Installing DBK Cards

Front Panel with 3 Vacant Card Slots



Beneath P3 *Beneath P2* *Beneath P1*

Rear Panel View with No Card Installed

Rear Panel View with Card Installed in Slot 2 Beneath P2

The DBK213 has three card slots which allow for the easy installation of DBK cards. To install a card observe the following CAUTION and then complete the few simple steps.

CAUTION

Turn off power to the host PC and externally connected equipment prior to connecting cables or signal lines to DBKs. Electric shock or damage to equipment can result even under low-voltage conditions.

Take ESD precautions (packaging, proper handling, grounded wrist strap, etc.)

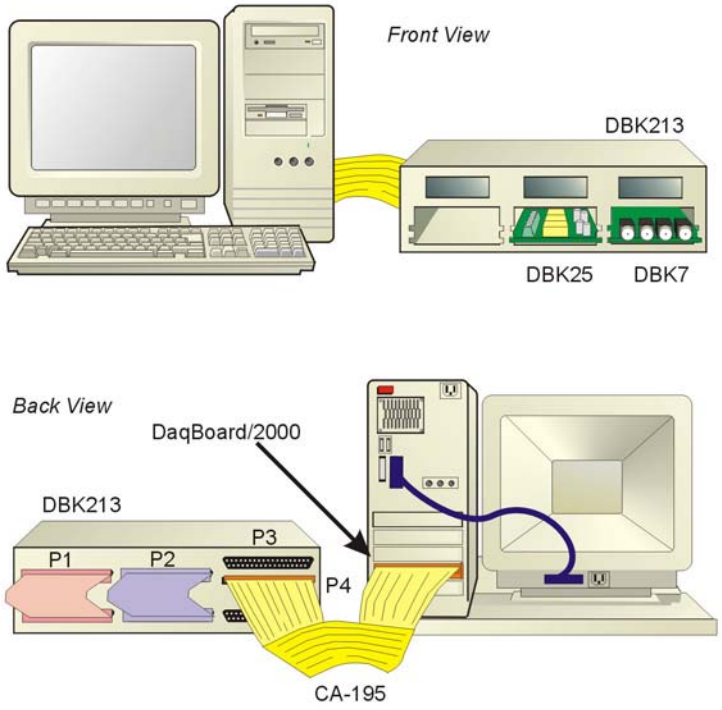
Use care to avoid touching board surfaces and onboard components. Only handle boards by their edges (or ORBs, if applicable). Ensure boards do not come into contact with foreign elements such as oils, water, and industrial particulate.

1. Refer to your specific DBK card instructions prior to installing the card. You may need to make physical hardware configurations, for example, regarding channel assignments.
2. Complete all DBK card configuration per your application and channel assignment needs.
3. Make signal line connections on your DBK card as applicable. Screw-terminal connections and BNC connections are typical.
4. If hex nuts are present on your DBK card's DB37 connector, remove them and put them aside for reuse in step 7.
5. Using the lower card-edge-guide on the DBK213 front panel [and possibly the upper guide for high cards such as the DBK82], carefully slide the card into the desired slot such that the card's DB37 connector goes to the rear panel of the DBK213. The following should be considered when choosing a card slot.
    - Analog I/O cards will connect to the DBK213's P1 male DB37 connector.
    - Digital I/O cards will connect to the DBK213's P2 male DB37 connector.
    - Pulse/Frequency (Digital and Counter/Timer) I/O will connect to the DBK213's P3 male DB37 connector.
6. Push the DBK card until its DB37 connector extends through the rear panel of the DBK213.
7. Using the hex nuts removed in step 4 (or replacement hex nuts if needed), secure the card at the rear panel. Tighten the hex nuts snug, but do not over tighten.
8. Repeat these steps for each remaining card.

System Examples

Example 1:

DaqBoard/2000 • DBK7 Analog I/O Card • DBK25 Digital I/O Card



Notes regarding the above system example:

1) A CA-195 100-conductor ribbon cable connects the P4 connector of the DBK213 to the P4 connector of the DaqBoard/2000 (which is installed in the host PC).

2) In the illustration, DBK213 is housing a DBK7 (Analog I/O card) and a DBK25 (Digital I/O card).

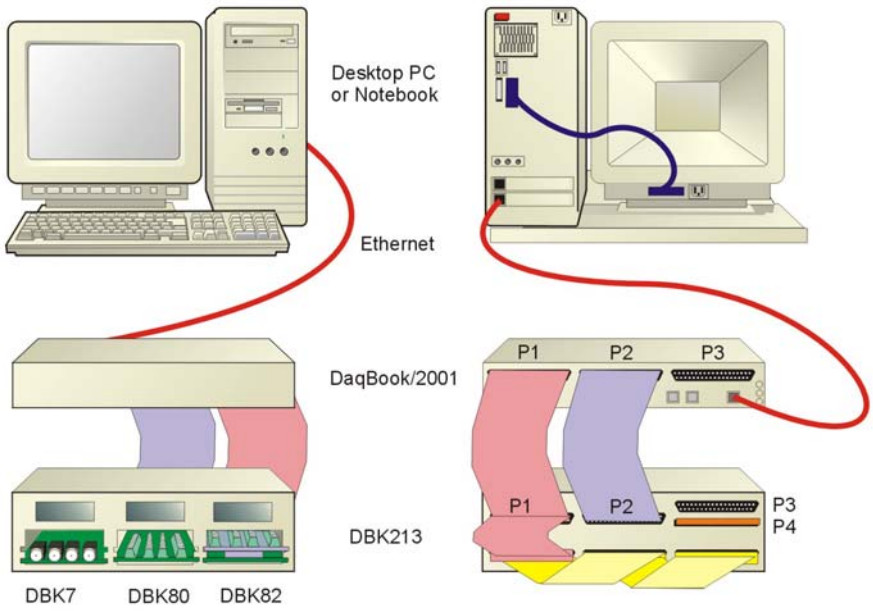
3) A CA-255 [or CA-37] cable is used to connect the DBK7's DB37 P1 connector to the DBK213's P1 connector.

4) A CA-255 [or CA-37] cable is used to connect the DBK25's DB37 P2 connector to the DBK213's P2 connector.

Example 2:

DaqBoook/2001 • DBK7 • DBK80 • DBK82

-------- (3 Analog I/O Cards)---------



Notes regarding the above system example:

1) Either of two Ethernet cables can be used: CA-242 is a 1.5 ft cable; CA-242-7 is a 7 ft. cable.

2) In the illustration, DBK213 is housing a DBK7, DBK80, and DBK82. Each is an analog card that will make use of P1 in regard to analog signal I/O.

3) 1st P1 Cable (*back view, bottom cable*): A CA-37-3 cable is being used to link together to DB37 connectors of all three analog DBK cards.

4) 2nd P1 Cable (*back view, left cable*): A CA-255-2T is being used to connect the other P1 cable and the DBK213's P1 to the P1 connector of the DaqBook/2001.

5) The DBK213's P1 connector [rear panel, upper-left] connects to the internal screw-terminal board to which analog I/O signals could be connected via wire. The wires would be routed out through the upper slots of the front panel.

6) A CA-255 [or CA-37] cable is used to connect the DBK213's P2 connector to the DaqBook/2001 P2 connector.

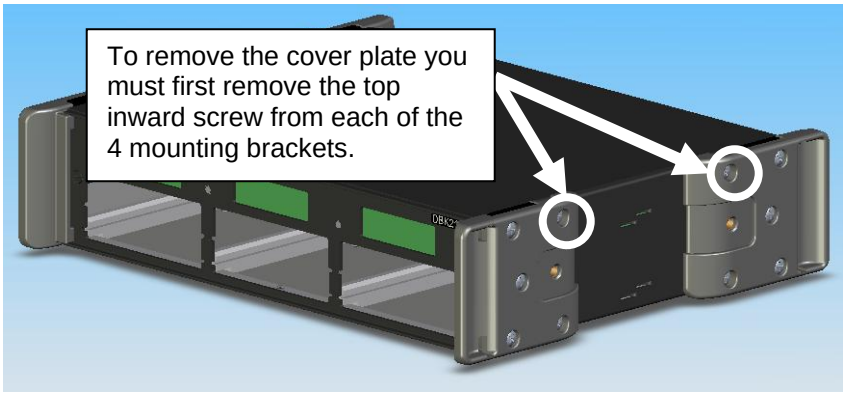
7) The DBK213's P2 connector connects to the internal screw-terminal board, to which digital I/O signals could be connected via wire. The wires would be routed out through the upper slots of the front panel.

8) In a different scenario, the DBK213's P2 connector could be connected to digital DBK options instead of connecting the P1 connector to analog DBK options as illustrated.

Using the Screw-Terminal Blocks

You must remove the DBK213 module's cover plate to access the screw terminal blocks. This is described in steps 1 and 2 below.

1. Remove the top inward screws from each of the 4 mounting brackets. See following figure.

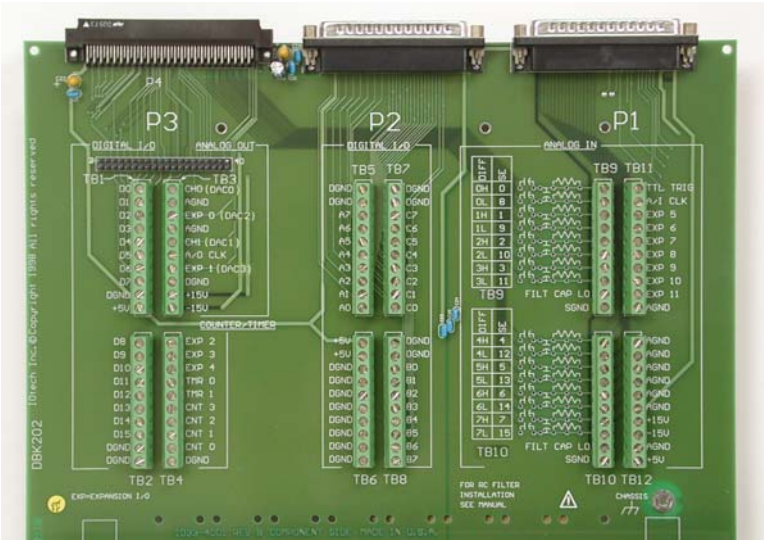


The Cover Plate is Secured by 4 Srews [2 Screws per-side]

2. After the 4 screws have been removed, carefully remove the cover plate.
3. Make the wiring connections to the terminals. Refer to the board's silkscreen and to the pin correlations on the next few pages.

In general, the following *terminal block-to-signal* relationships apply:

DBK213 Terminal Blocks	Used for . . .	Alternative
TB9 TB10 TB11 TB12	ANALOG I/O	P1 or P4*
TB5 TB6 TB7 TB8	DIGITAL I/O	P2 or P4*
TB1 TB2 TB3 TB4	PULSE/ FREQUENCY/ DIGITAL I/O	P3 or P4*



DBK213 Board

Note that the P3 DB37 Connector and its associated board cable has been removed for clarity.

* P4 is used for connecting to DaqBoard/2000 Series devices.

4. Tighten the terminal block screws snug; but do not over-tighten.
5. After all terminal connections are made and verified correct, return the cover to the unit and secure in place with the 4 screws removed earlier. Tighten snug, but do not over-tighten.

The following pages correlate the DBK213 terminal block connectors with the associated pins of the P1, P2, and P3 DB37 connectors. Note that the *System Connections and Pinouts* chapter contains additional pin-outs, and includes references to the 100-pin P4 connector.

Correlation to P1 – Pertains to Terminal Blocks TB9, TB10, TB11, and TB12 for Analog I/O.

TB9		P1 Pin Number and Description (see Note 1)	
DIFF	**SE**		
0H	0	37	CH 0 IN (Single-Ended Mode) / CH 0 HI IN (Differential Mode)
0L	8	18	CH 8 IN (Single-Ended Mode) / CH 0 LO IN (Differential Mode)
1H	1	36	CH 1 IN (Single-Ended Mode) / CH 1 HI IN (Differential Mode)
1L	9	17	CH 9 IN (Single-Ended Mode) / CH 1 LO IN (Differential Mode)
2H	2	35	CH 2 IN (Single-Ended Mode) / CH 2 HI IN (Differential Mode)
2L	10	16	CH 10 IN (Single-Ended Mode) / CH 2 LO IN (Differential Mode)
3H	3	34	CH 3 IN (Single-Ended Mode) / CH 3 HI IN (Differential Mode)
3L	11	15	CH 11 IN (Single-Ended Mode) / CH 3 LO IN (Differential Mode)
FILT CAP LO		N/A	For RC filter networks install a wire jumper between the relevant FILT CAP LO and AGND. Note that there is no association between FILT CAP LO and P4.
SGND		19	Signal Ground, Sense Common; reference ground, not for general use.

P1 – TB9

TB10		P1 Pin Number and Description (see Note 1)	
DIFF	**SE**		
4H	4	33	CH 4 IN (Single-Ended Mode) / CH 4 HI IN (Differential Mode)
4L	12	14	CH 12 IN (Single-Ended Mode) / CH 4 LO IN (Differential Mode)
5H	5	32	CH 5 IN (Single-Ended Mode) / CH 5 HI IN (Differential Mode)
5L	13	13	CH 13 IN (Single-Ended Mode) / CH 5 LO IN (Differential Mode)
6H	6	31	CH 6 IN (Single-Ended Mode) / CH 6 HI IN (Differential Mode)
6L	14	12	CH 14 IN (Single-Ended Mode) / CH 6 LO IN (Differential Mode)
7H	7	30	CH 7 IN (Single-Ended Mode) / CH 7 HI IN (Differential Mode)
7L	15	11	CH 15 IN (Single-Ended Mode) / CH 7 LO IN (Differential Mode)
FILT CAP LO		N/A	For RC filter networks install a wire jumper between the relevant FILT CAP LO and AGND. Note that there is no association between FILT CAP LO and P4.
SGND		19	Signal Ground, Sense Common; reference ground, not for general use.

P1 – TB10

TB11	P1 Pin Number and Description	
TTL TRIG	25	TTL Trigger, Digital IN, External TTL Trigger Input
A/I CLK	20	A/I Clock, External ADC Pacer Clock Input/ Internal ADC Pacer Clock Output
EXP 5	5	Expansion 5. Digital OUT, external GAIN select bit 1
EXP 6	6	Expansion 6. Digital OUT, external GAIN select bit 0
EXP 7	3	Expansion 7. Digital OUT, external ADDRESS, select bit 3
EXP 8	22	Expansion 8. Digital OUT, external ADDRESS, select bit 2
EXP 9	4	Expansion 9. Digital OUT, external ADDRESS, select bit 1
EXP 10	23	Expansion 10. Digital OUT, external ADDRESS, select bit 0
EXP 11	26	Expansion 11. Simultaneous Sample and Hold (SSH)
AGND	*	Analog Ground, Common

P1 – TB11

TB12	P1 Pin Number and Description	
AGND	*	Analog Ground, Common
AGND	*	Analog Ground, Common
AGND	*	Analog Ground, Common
AGND	*	Analog Ground, Common
AGND	*	Analog Ground, Common
AGND	*	Analog Ground, Common
+ 15 V	21	Expansion, +15 V Power
- 15 V	2	Expansion, -15 V Power
AGND	*	Common Ground
+ 5 V	1	Expansion, +5 V Power

P1 – TB12

*Refer to Ground Correlation Tables in the DBK Options Manual (457-0905), chapter 2, *System Connections and Pinouts*.

Note 1: For TB9 and TB10, the filter network portion of the silkscreen is not shown. Instead, the DIFF and SE channel identifiers have been moved next to the screws for ease in identification.

Correlation to P2 – Pertains to Terminal Blocks TB5, TB6, TB7, and TB8 for Digital I/O.

TB5	**P2 Pin Number and Description**	
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
A7	30	Digital I/O: P2, Digital Port A, Bit 7; or P2 Expansion Data Bit 15
A6	31	Digital I/O: P2, Digital Port A, Bit 6; or P2 Expansion Data Bit 14
A5	32	Digital I/O: P2, Digital Port A, Bit 5; or P2 Expansion Data Bit 13
A4	33	Digital I/O: P2, Digital Port A, Bit 4; or P2 Expansion Data Bit 12
A3	34	Digital I/O: P2, Digital Port A, Bit 3; or P2 Expansion Data Bit 11
A2	35	Digital I/O: P2, Digital Port A, Bit 2; or P2 Expansion Data Bit 10
A1	36	Digital I/O: P2, Digital Port A, Bit 1; or P2 Expansion Data Bit 9
A0	37	Digital I/O: P2, Digital Port A, Bit 0; or P2 Expansion Data Bit 8

P2 – TB5

TB6	**P2 Pin Number and Description**	
+5 V	18	Expansion +5 V Power
+5 V	20	Expansion +5 V Power
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common

P2 – TB6

TB7	**P2 Pin Number and Description**	
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
C7	22	Digital I/O: P2, Digital Port C, Bit 7; or P2 Expansion Data Bit 7
C6	23	Digital I/O: P2, Digital Port C, Bit 6; or P2 Expansion Data Bit 6
C5	24	Digital I/O: P2, Digital Port C, Bit 5; or P2 Expansion Data Bit 5
C4	25	Digital I/O: P2, Digital Port C, Bit 4; or P2 Expansion Data Bit 4
C3	26	Digital I/O: P2, Digital Port C, Bit 3; or P2 Expansion Data Bit 3
C2	27	Digital I/O: P2, Digital Port C, Bit 2; or P2 Expansion Data Bit 2
C1	28	Digital I/O: P2, Digital Port C, Bit 1; or P2 Expansion Data Bit 1
C0	29	Digital I/O: P2, Digital Port C, Bit 0; or P2 Expansion Data Bit 0

P2 – TB7

TB8	**P2 Pin Number and Description**	
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common
B0	10	Digital I/O: P2, Digital Port B, Bit 0; or P2 Expansion READ Output
B1	9	Digital I/O: P2, Digital Port B, Bit 1; or P2 Expansion WRITE Output
B2	8	Digital I/O: P2, Digital Port B, Bit 2; or P2 Expansion RESET Output
B3	7	Digital I/O: P2, Digital Port B, Bit 3; or P2 Expansion Address Bit 4 Out
B4	6	Digital I/O: P2, Digital Port B, Bit 4; or P2 Expansion Address Bit 3 Out
B5	5	Digital I/O: P2, Digital Port B, Bit 5; or P2 Expansion Address Bit 2 Out
B6	4	Digital I/O: P2, Digital Port B, Bit 6; or P2 Expansion Address Bit 1 Out
B7	3	Digital I/O: P2, Digital Port B, Bit 7; or P2 Expansion Address Bit 0 Out

P2 – TB8

*Refer to Ground Correlation Tables in the DBK Options Manual (457-0905), chapter 2, *System Connections and Pinouts*.

Correlation to P3 – Pertains to Terminal Blocks TB1, TB2, TB3, and TB4 for Pulse/Frequency/Digital I/O.

TB1	**P3 Pin Number and Description**	
D0	10	P3 Digital Port Bit 0
D1	9	P3 Digital Port Bit 1
D2	8	P3 Digital Port Bit 2
D3	7	P3 Digital Port Bit 3
D4	6	P3 Digital Port Bit 4
D5	5	P3 Digital Port Bit 5
D6	4	P3 Digital Port Bit 6
D7	3	P3 Digital Port Bit 7
DGND	*	Digital Ground, Common
+5V	20	Expansion, +5 Volt Power

P3 – TB1

TB2	**P3 Pin Number and Description**	
D8	29	P3 Digital Port Bit 8
D9	28	P3 Digital Port Bit 9
D10	27	P3 Digital Port Bit 10
D11	26	P3 Digital Port Bit 11
D12	25	P3 Digital Port Bit 12
D13	24	P3 Digital Port Bit 13
D14	23	P3 Digital Port Bit 14
D15	22	P3 Digital Port Bit 15
DGND	*	Digital Ground, Common
DGND	*	Digital Ground, Common

P3 – TB2

TB3	**P3 Pin Number and Description**	
CH0 (DAC0)	34	Analog Out; Analog DAC 0 Output
AGND	*	Analog Ground, Common; intended for use with DACs
EXP 0 (DAC2)	32	Analog Out; Analog DAC 2 Output
AGND	*	Analog Ground, Common; intended for use with DACs
CH1 (DAC1)	33	Analog Out; Analog DAC 1 Output
A/O CLK	21	Analog Out Clock; External DAC Pacer Clock Input/ Internal DAC Pacer Clock Output
EXP 1 (DAC3)	31	Analog Out; Analog DAC 3 Output
DGND	*	Digital Ground, Common
+15 V	19	Expansion, + 15 VDC
-15 V	37	Expansion, -15 VDC

P3 – TB3

TB4	**P3 Pin Number and Description**	
EXP 2	12	Reserved
EXP 3	13	Reserved
EXP 4	14	Reserved
TMR 0	15	P3 Timer 0 Output
TMR 1	16	P3, Timer 1 Output
CNT 3	35	P3 Counter 3 Input
CNT 2	17	P3 Counter 2 Input
CNT 1	36	P3 Counter 1 Input
CNT0	18	P3 Counter 0 Input
DGND	*	Digital Ground, Common

P3 – TB4

*Refer to Ground Correlation Tables in the DBK Options Manual (457-0905), chapter 2, *System Connections and Pinouts*.

Adding Resistor/Capacitor Filter Networks

WARNING

Disconnect the DBK213 from power and signal sources prior to installing capacitors or resistors.

CAUTION

Ensure wire strands do not short power supply connections (+15 V, -15 V, +5 V, etc.) to any terminal potential. Failure to do so could result in damage to DaqBook/2000 Series devices or DaqBoard/2000 Series boards.

Do not exceed maximum allowable inputs (as listed in product specifications). There should never be more than 30 V with reference to analog ground (AGND) or earth ground.

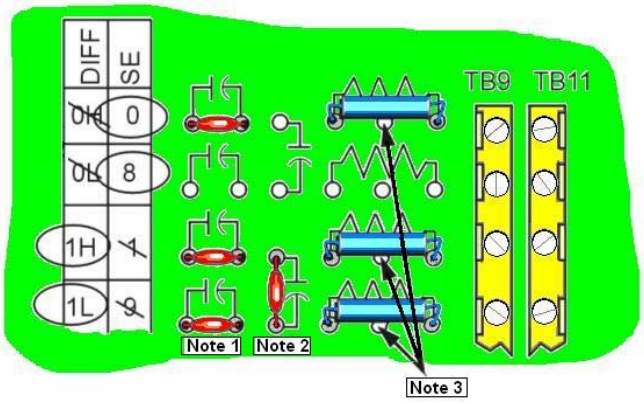
You must provide strain-relief (lead slack) to all leads leaving the module. Use tie-wraps [not included] to secure strain-relief.

Always connect the CHASSIS terminal to earth ground. This will maximize static protection.

If a channel is not associated with a DBK expansion option you can install a customized RC filter network to improve the signal-to noise ratio, assuming that an unacceptable level of noise exists. DBK213's internal board includes silk-screened sockets for installing RC filter networks. The following table contains values that are typical for RC filter network components.

Typical One-Pole Low Pass Filter Values for DBK213			
R	**C**	**f**	**f**
Ohms	**µF**	**Hertz (-3dB)**	**kHz (-3dB)**
510	1	312	0.31
510	0.47	664	0.66
510	0.22	1419	1.42
510	0.1	3122	3.12
510	0.047	6643	6.64
510	0.022	14192	14.19
510	0.01	31223	31.22
510	0.0047	66431	66.43
470	0.0033	102666	102.67

Do not use RC filters in conjunction with additional DBK expansion accessories.



An Example of Customer-Installed Capacitors and Filters for RC Networks

In this example Channels 0 and 8 are shown as *Single-Ended*. Channel 1 is *Differential*, i.e., using 1H and 1L (channel High and Low).

The following three notes pertain to the above figure.

Note 1: The 3 horizontal capacitors [as oriented in the illustration] are optional filter capacitors.

Note 2: The vertical capacitor [as oriented in the illustration] is an optional isolation capacitor used for the reduction of *Differential* noise. Such capacitor placement is not used in *Single-Ended* applications.

Note 3: If installing filter resistors, carefully drill out the indicated centers with a 1/16 inch drill-bit. Otherwise the resistor will be short-circuited.

Prior to installing RC components, review the previous Warning and Caution statements, then read over the following information regarding resistors and capacitors.

- **Do not use RC filters in conjunction with additional DBK expansion accessories.**
- **Prior to installing a resistor to the filter network you must drill a 1/16" hole through the center pinhole [beneath the board's silkscreen resistor symbol] as indicated in the preceding figure. Failure to do so will short-circuit the resistor.**
- **Do not drill holes on the board for channels, unless those channels are to receive a filter network (see preceding statement).**
- **Resistors should be ¼ watt, film-type with up to 5% tolerance. Do not use wire-wound resistor types.**
- **A resistor value of 510 Ω is recommended. Do not exceed 510 Ω.**
- **Capacitors used are to be of the film dielectric type (e.g., polycarbonate or NPO ceramic), above 0.001 µF.**
- **RECOMMENDED: For reduction of both *Common Mode Noise* and *Differential Mode Noise*, use one capacitor between Channel High and AGND; and use a second capacitor between Channel Low and AGND.**
- **For reduction of *Differential Noise* [when no reduction of *Common Mode Noise* is needed] position a capacitor across the respective Channel High and Channel Low.**
- **When in Differential Mode, using capacitors between Channel High, Channel Low, and AGND may cause a slight degradation of *wideband Common Mode rejection*.**
- **When making a RC filter network, always install a wire jumper between the relevant FILT CAP LO and AGND. FILT CAP LO terminals are located on TB9 and TB10.**

Specifications for DBK213

Operating Environment:

Temperature: -30°C to 70°C
Relative Humidity: 95% RH, non-condensing

Connectors:

P1: male DB37 connector for analog expansion or connection to primary acquisition device*

P2: male DB37 connector for digital expansion or connection to primary acquisition device*

P3: male DB37 connector for pulse/frequency/digital I/O, or connection to primary acquisition device*

P4: 100-pin connector for connection to a /2000 Series device that includes a P4 connector; e.g., DaqBoard/2000.

Screw Terminals: 12 banks of 10-connector blocks

Dimensions:

285 mm W x 220 mm D x 45 mm H (11" x 8.5" x 2.7")

Weight:

1.45 kg (3.2 lbs)

Cables and Accessories:

Item Description	Part Number
Rack Mount Kit, p/n	RackDBK4
100-conductor expansion cables; mate with P4 connectors:	
3 ft., non-CE Compliant	CA-195
3 ft., CE Compliant	CA-209
6 ft., non-CE Compliant	CA-195-6
37-conductor cables; mate with DB37 connectors:	
2 in., shielded T-cable	CA-255-2T
4 in., shielded T cable	CA-255-4T
8 in., shielded T cable	CA-255-8T
37-conductor ribbon cable	CA-37-X

*DaqBook/2000 Series, DaqLab/2000 Series, DaqScan/2000 Series

Specifications subject to change without notice.

Reference Notes:

- In regard to calculating system power requirements refer to the *DBK Basics* section.
- Chapter 2 includes pinouts for P1, P2, P3, and P4. Refer to pinouts applicable to your system, as needed.
- For a quick comparison of all DBK200 Series boards, refer to the *DBK200 Series Matrix*. The matrix is located just before the DBK200 section of this manual.
- Refer to the documentation for your primary data acquisition device as needed.


Notes