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Find the *Measurement Computing / IOtech DBK41* at our website: *Click HERE*

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Reference Notes:

- Chapter 2 includes pinouts for P1, P2, P3, and P4. Refer to pinouts applicable to your system, as needed.
- In regard to calculating system power requirements, refer to *DBK Basics* located near the front of this manual.

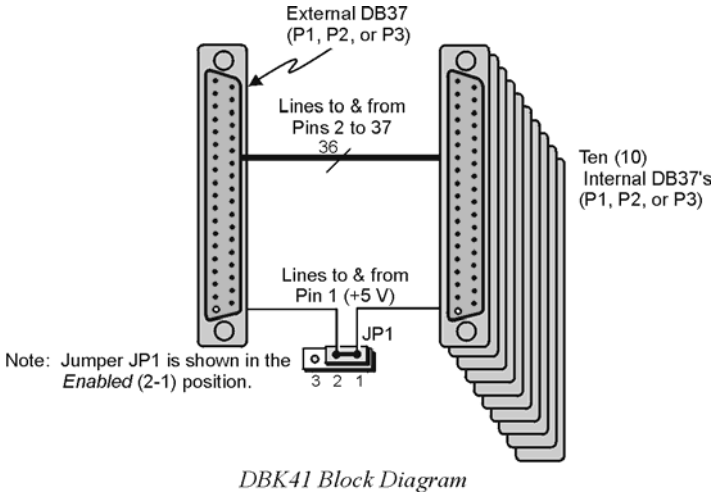
Overview

The DBK41 is a metal enclosure that holds up to 10 DBK cards. The exterior front panel has a male DB37 connector that leads to the LogBook or Daq device or further expansion via a CA-37-x cable. On the inside of the front panel, a backplane printed circuit board (PCB) uses 10 female DB37s with their pins connected in parallel to distribute the P1 interface (can also be used with P2 or P3). From the rear panel, the DBKs' signal input lines exit to their respective transducers.

An optional EMI kit provides shield plates for the rear panel to make the DBK41 CE-compliant and prevent EMI from DBKs entering the test environment (or vice-versa). The EMI kit also functions as an electrical safety barrier.

Some DBK cards require a lot of power, in relation to other cards, and the use of power is an important concern. DBK cards can obtain power externally from a LogBook, DaqBook, DaqBoard; or internally from a DBK32A or DBK33 card. Refer to *Power Requirements* in the *DBK Basics* section, as well as the sections for the DBK32A and/or DBK33, as applicable.

A power card in any slot (other than the slot leftmost from rear view) will power the other cards via the backplane. A front panel LED will light whenever power from any source is on the backplane. DBK41's JP1 jumper can be positioned to disable the +5 V power line from the external DB37. This prevents a DBK33 power supply from interfering with other devices.



DBK41 Block Diagram

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Hardware Setup

Setup concerns include card and power configuration, proper card insertion, the use of EMI shields for CE compliance, and mounting [or stacking] of hardware components.

In regard to mounting: metal splice plates can be used to rigidly mount a LogBook or DaqBook on top of a DBK41 or other device that shares the same footprint. For applications in which temporary mounting is convenient: a LogBook, DaqBook or notebook PC can be temporarily mounted to a DBK41 with the use of industrial-strength *dual-lock* pads or strips.

Card Configuration

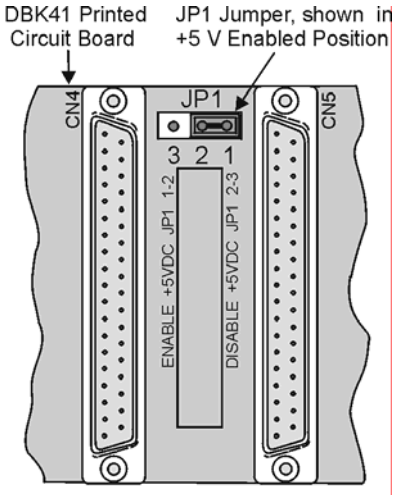
Each DBK card should be checked for proper configuration, and re-configured if needed, before being inserted into the DBK41. Refer to the individual DBK Document Modules that are applicable to your system.

Power Configuration

Power must be configured to prevent multiple power supplies from interfering with each other via the P1 interface. DBK41, LogBook/360, DaqBook/100 Series & /200 Series, and ISA-type DaqBoard each have JP1 jumpers that must be properly configured in regard to power. Details for each follow.

JP1 in the DBK41

On the DBK41 backplane, JP1 is a 3-pin jumper positioned between DB37 connectors for card number 4 (CN4) and card number 5 (CN5). Two settings are possible, as follows:



DBK41 Power Configuration

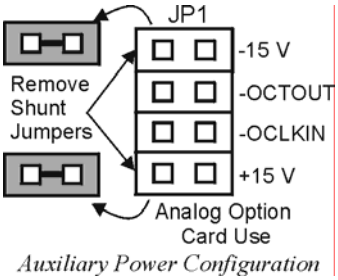
ENABLE +5 VDC JP1 1-2
When JP1 pins 1 and 2 are jumpered, the +5 VDC line to the external P1 connector is enabled. The 5 V (VCC) is externally supplied to pin 1 for cards 1 through 10 (CN1 through CN10). The +5 VDC power can come from a LogBook, DaqBook, or DaqBoard through a CA-37-x cable on pin 1 of P1. If not using a DBK33, JP1 should be enabled.

DISABLE +5 VDC JP1 2-3
When JP1 pins 2 and 3 are jumpered, the +5 VDC line to the external P1 connector is disabled. When using a DBK33 power card in the DBK41, the JP1 jumper must be set on pin 2 and 3. The JP1 2-3 setting prevents the DBK33's +5 V from interfering with external devices via the P1 interface.

JP1 in the DaqBook/100 Series & /200 Series and DaqBoard [ISA type]

CAUTION

DBK power cards must not be connected until JP1 jumpers have been removed. Otherwise, equipment damage could result.



Auxiliary Power Configuration

If a DBK32A or DBK33 is used, you must remove the shunt jumpers from the JP1 header located inside the DaqBook/100 Series & /200 Series device or DaqBoard [ISA type]. DaqBook/100 Series & /200 Series devices and DaqBoards [ISA type] are shipped with these shunts positioned to deliver ±15 V analog power to P1.

Note: The jumpers can be placed on the -OCTOUT and -OCLKIN pins but should be removed if there is interference with card operation (counter-timer).

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JP1 and JP2 in LogBook/360

Proper jumper configuration limits LogBook/360's P1 bus to one power source. There should never be more than one power source. The jumpers are located inside the chassis, on the unit's *P1 Interconnect Board*.

JP1. Only remove LogBook/360's JP1 jumper if a DBK33 is used with the system.

JP2. Only remove the LogBook/360's JP2 jumper if DBK cards are to be powered from LogBook/360's internal PCB.

Reference Note:
Refer to the *LogBook User's Manual*, 461-0901 for information regarding LogBook systems.

DaqBook/2000 Series & DaqBoard/2000 Series Configuration

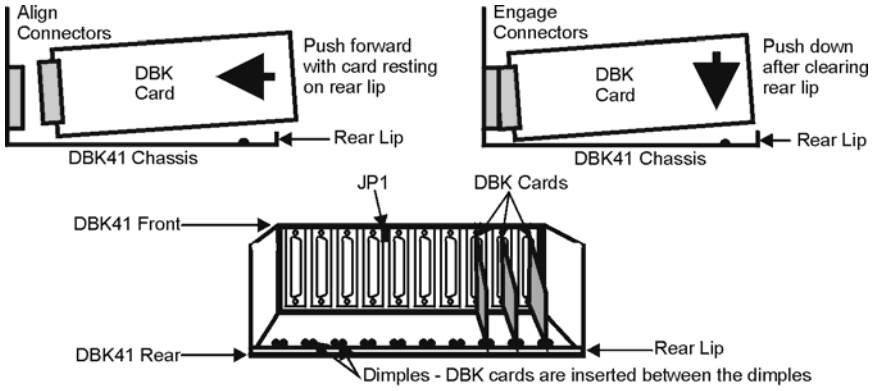
No jumper configurations are required for these /2000 series devices.

Card Insertion

Each DBK card has a DB37 male connector which mates with the DB37 female connectors inside the DBK41 chassis. To insert DBK cards into the DBK41 chassis, refer to the figure and perform the following steps.

Note: Cards using screw-connectors for signal input lines must be wired before insertion.

1. Disconnect power from all units to be connected.
2. Place the DBK41 on a flat surface; loosen the two thumbscrews on rear of the case; and remove the top cover by sliding it off.
3. Align the DBK card with the DBK41 connector to be used (CN1 to CN10). The first slot must always be occupied; however, a DBK32A or DBK33 power card may not occupy the first slot. Any of the remaining 9 slots can be used or unused.
4. To clear the lip on the rear panel, tilt the rear of the card upward. Engage the P1 connectors of the card and chassis, and press together gently to avoid damage to the pins.
5. Press down the rear of the card, aligning it within the metal dimples at the rear of the DBK41.
6. After cards are in place, reassemble the DBK41's top cover and attach optional shield plates (described next); then re-connect and power up the system.



Inserting Cards into a DBK41

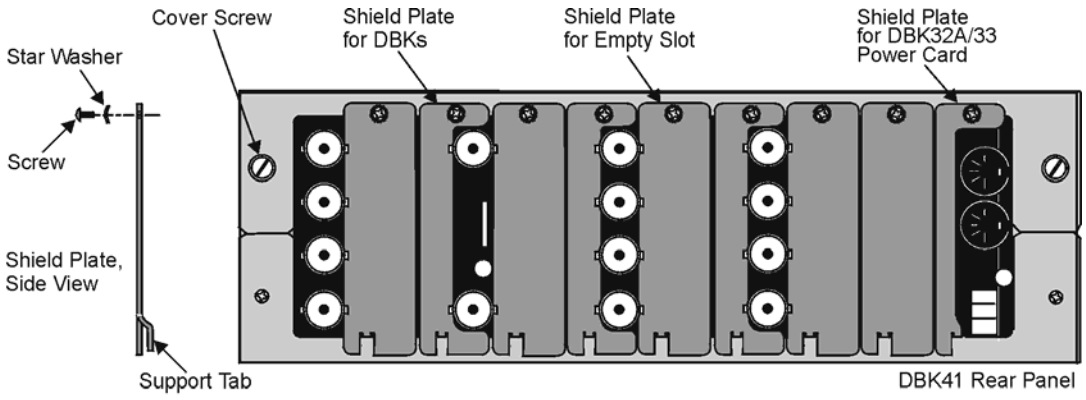
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EMI Shield Plates for CE Compliance

To reduce electro-magnetic interference (EMI) escaping from (or entering into) the enclosure, a CE kit provides shield plates that attach to the rear of the DBK41. The kit also functions as an electrical safety barrier. With shield plates attached (a combination of 3 types supplied), the system meets CE standards. The kit includes:

- Full shield plates to cover empty (unused) slots
- Partial shield plates to surround DBKs in a slot (except a power card)
- Partial shield plates to surround a DBK32A or DBK33 power card
- Screws and star washers to secure the shields to the chassis

Note: The CE kit is included with the DBK41/CE and an optional accessory for a DBK41.
The shields have a support tab that slides over the edge of the bottom plate and a screw hole for attachment to the top plate. When tightened, the screws cause the washers to pierce the surface coating into the metal to make a good contact with chassis ground.



EMI Shield Plates on DBK41 Rear Panel

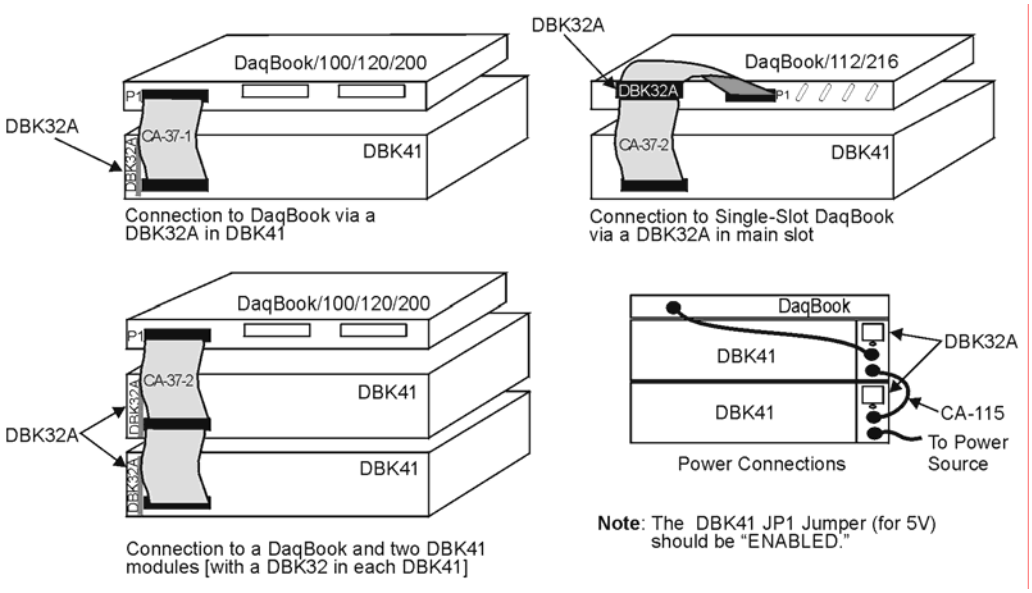
Reference Note:
The *Signal Management* chapter contains additional information pertaining to CE Compliance.

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System Connection

A short ribbon cable (CA-37-x) attaches the DBK41 to the main unit. Connecting the DBK41 to any port other than P1 may damage devices in the system. Likewise, only analog expansion cards may be installed in the DBK41.

Note: For CE compliance, the CA-37-x cable must be replaced with a CA-143-7 or CA-143-18. Multiple chassis require a "T" connector (part # CN-143) for branching.



Examples of DBK41 Connections [with DBK32A] and Cascading Power

DBK41 - Specifications

Name/Function: 10-Slot Analog Expansion Module

Card Capacity: 10 slots to hold standard DBK option cards

Weight: 4 lb (with no cards installed)

Cable (optional): 8" ribbon with DB37 female to DB37 female (CA-37-x)

Power Indicator: LED powered by external device's 5 VDC

Connection: Male DB37, mates via CA-37-x cable with P1

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