

16-Channel, 8B Module Expansion Device for DI-720 and DI-730 Series Instruments

Mix and Match Isolated Modules for any Industrial Measurement

Powered from the Host Instrument

Completely Portable



DI-78B atop a DI-730 Instrument using included stacking brackets.

Model DI-78B is a backpack expander for DI-720 and DI-730 products. The DI-78B is a sleek unit that has exactly the same footprint and height as DI-720 and DI-730 products, yielding an extremely capable yet compact solution for industrial measurements. The unit measures 9L × 7.29W × 1.52H inches (22.9L × 18.5W × 3.86H cm). It accepts up to sixteen 8B style modules and therefore brings the universe of isolated industrial measurements to DI-720 and DI-730 products. These include thermocouple, voltage, strain, frequency, process current, RTD, and potentiometric. These measurement modules may be mixed and matched within the DI-78B backpack in any combination suitable for the application. Signal connection is via four removable screw terminal blocks.

A maximum of one DI-78B may be used with either the DI-720 or DI-730 to yield as many as sixteen 8B-conditioned inputs in addition to any remaining channels provided by the host data acquisition product. The DI-78B is powered by the host DI-720 or DI-730 unit using a supplied jumper cable.

Add a DI-78B to the DI-720, or DI-730 for Any Industrial Measurement Application

The DI-78B brings isolated, industrial-type measurement capability to DI-720 and DI-730 instruments. Add the DI-78B to these instruments for a complete, easy, and convenient signal conditioning solution. Each channel consumes one channel from its host instrument in return for the isolated, signal-conditioned input it provides. One DI-78B may be connected to any DI-720 or DI-730 instrument to add 16 signal-conditioned input channels in addition to any remaining channels on the host instrument.

Make Industrial Measurements Through DI-8B Plug-in Signal Conditioning Modules

Each channel on the DI-78B accommodates one DI-8B module, which provides a single channel of isolated input protection, amplification, and filtering. Measuring only 1.105" × 1.65" × 0.40" DI-8B modules are the smallest signal conditioning modules available. DI-8B modules are plugged into a socketed backplane and are secured with a mounting screw. Each channel has four corresponding screw terminals for your signal connections: channel+, channel-, excitation+, and excitation-. These terminals satisfy all transducer inputs and provide sensor excitation when necessary. Access to the DI-8B modules is through a removable top hatch cover.

Features

Flexible Power Requirements

When used with either a DI-720 or DI-730, the DI-78B can be powered by these instruments through a supplied power jumper cable.

Similar Footprint

The DI-78B has the same dimensions as our DI-720 and DI-730 instruments (9"L × 7.29"W × 1.52"H). This allows the DI-78B to be easily stacked and mounted to the host instrument.

Easy to Connect

The DI-78B connects to the host instrument in seconds with the supplied interconnecting cable. Simply connect one end of this cable to the EXPANSION port on the host DI-720 or DI-730 instrument and connect the other end to EXPANSION IN on the DI-78B's rear panel.

Convenient Signal Connection

Four removable screw terminal blocks allows signal connections to be made to the DI-78B quickly and easily. A convenient pinout sticker on the top of the instrument clearly shows where signal connections should be made.

Stackable with Included Hardware

The included stacking brackets allow the DI-78B to be stacked and mounted to the host instrument. The stacking brackets come complete with mounting hardware to make installation a snap. An optional stainless steel carrying handle is also available for convenient system handling.

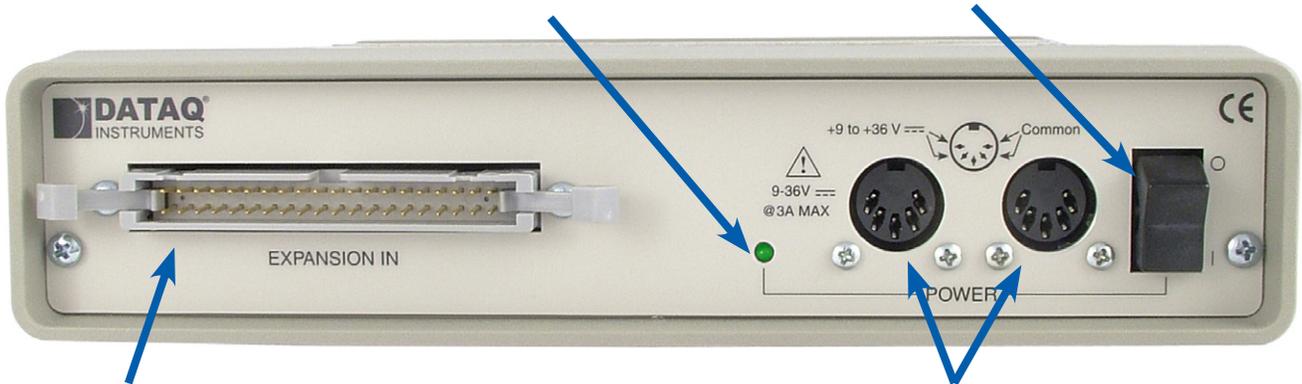
DI-78B Rear Panel

POWER LED

On/Off LED displays power on/off.

POWER Button

Use Power switch to apply power. 1=on; 0=off.



EXPANSION IN Connector

Connect to Expansion or Channel Expansion on the Rear Panel of the DI-720 or DI-730 Instrument.

Dual Power Connectors

Use the dual power connectors with the supplied jumper cable to pass power through the DI-78B and the host instrument.

DI-8B Module Installation

DI-8B amplifier module installation is quick and easy. Simply remove the top hatch by unscrewing the six screws on the top of the instrument and plug each amplifier into one of the sixteen available channel positions directly on the DI-78B circuit board. Mix and match modules to any configuration desired. Write the installed DI-8B module on the erasable top sticker for reference.



DI-78B shown with top hatch removed, four DI-8B modules installed, and four DI-8B modules resting on the case. Up to sixteen DI-8B modules may be installed in one DI-78B instrument. Modules are NOT included with the purchase of a DI-78B.

DI-78B Channel Configurations

DI-78B with a DI-720 Series Instrument



DI-78B with a DI-730 Series Instrument



Channels

DI-720 Instrument

Sixteen general purpose analog input channels (channel 1 through 16) with measurement ranges of ± 1.25 , ± 2.5 , ± 5 , and ± 10 V full scale (software selectable per channel). Signal leads are connected via the two 37-pin D sub connectors on the front panel of the DI-720 Series Instrument.

DI-78B Expander

Sixteen isolated signal conditioned channels (channels 17 through 32 on the DI-720 Series Instrument) connected via four removable screw terminal blocks on the front panel of the DI-78B Instrument.

DI-730 Instrument

Eight differential channels (channels 1 through 8) with measurement ranges of ± 10 mV to ± 1000 VDC (software selectable per channel) and 1000V input-to-input and channel-to-channel isolation. Signal leads are connected via the banana plugs on the front panel of the DI-730 Series Instrument.

Inaccessible Channels

Channels 9 through 16 are inaccessible on DI-730 Series Instruments.

DI-78B Expander

Sixteen isolated signal conditioned channels (channels 17 through 32 on the DI-730 Series Instrument) connected via four removable screw terminal blocks on the front panel of the DI-78B Instrument.

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Signal Conditioning Module Selection Guide

Each DI-8B module is a single channel, isolated analog input designed for a specific measurement. The modules filter, isolate, amplify, and convert input signals to a high-level analog signal suitable for A/D conversion. Over 60 modules address the full spectrum of industrial measurements.

Key Features

- Convenient, flexible, mix-and-match approach.
- Full isolation reduces noise and protects you and your equipment from large, common mode voltages.
- Small size 1.105" × 1.65" × 0.40".

Common Specifications

- 1000V Input-to-Output Isolation.
- 500V Channel-to-Channel Isolation.
- 240 VAC input protection.
- 160db common mode rejection.

Voltage Input Modules (3Hz BW)	
MODEL NO.	Input Range
DI-8B30-01	±10mV
DI-8B30-02	±50mV
DI-8B30-03	±100mV
DI-8B31-01	±1V
DI-8B31-02	±5V
DI-8B31-03	±10V
DI-8B31-07	±20V
DI-8B31-09	±40V
DI-8B31-12	±60V

Current Input Modules (3Hz BW)	
MODEL NO.	Input Range
DI-8B32-01	4 to 20mA
DI-8B32-02	0 to 20mA

Isolated True RMS Input Modules	
MODEL NO.	Input Range
DI-8B33-01	0mV to 100mV
DI-8B33-02	0V to 1V
DI-8B33-03	0V to 10V
DI-8B33-04	0V to 150V
DI-8B33-05	0V to 300V

Linearized 2- or 3-wire RTD Modules (3Hz BW)		
MODEL NO.	Type	Input Range
DI-8B34-01	100Ω Pt	-100°C to +100°C (-148°F to +212°F)
DI-8B34-02	100Ω Pt	0°C to +100°C (+32°F to +212°F)
DI-8B34-03	100Ω Pt	0°C to +200°C (+32°F to +392°F)
DI-8B34-04	100Ω Pt	0°C to +600°C (+32°F to +1112°F)

Linearized 4-wire RTD Modules (1kHz BW)		
MODEL NO.	Type	Input Range
DI-8B35-01	100Ω Pt	-100°C to +100°C (-148°F to +212°F)
DI-8B35-02	100Ω Pt	0°C to +100°C (+32°F to +212°F)
DI-8B35-03	100Ω Pt	0°C to +200°C (+32°F to +392°F)
DI-8B35-04	100Ω Pt	0°C to +600°C (+32°F to +1112°F)

Potentiometer Input Modules (3Hz BW)	
MODEL NO.	Input Range
DI-8B36-01	0 to 100Ω
DI-8B36-02	0 to 500Ω
DI-8B36-03	0 to 1kΩ
DI-8B36-04	0 to 10kΩ

Strain Gage Input Modules			
MODEL NO.	Type	Bandwidth	Input Range
DI-8B38-01	Full	3kHz	±10mV, 3mV/V 100 to 10k
DI-8B38-02	Full	3kHz	±30mV, 3mV/V 300 to 10k
DI-8B38-05	Full	3kHz	±20mV, 2mV/V 300 to 10k
DI-8B38-31	Full	3Hz	±10mV, 3mV/V 100 to 10k
DI-8B38-32	Full	3Hz	±30mV, 3mV/V 300 to 10k
DI-8B38-35	Full	3Hz	±20mV, 2mV/V 300 to 10k

Voltage Input Modules (1kHz BW)	
MODEL NO.	Input Range
DI-8B40-01	±10mV
DI-8B40-02	±50mV
DI-8B40-03	±100mV
DI-8B41-01	±1V
DI-8B41-02	±5V
DI-8B41-03	±10V
DI-8B41-07	±20V
DI-8B41-09	±40V
DI-8B41-12	±60V

Current Input Modules (3Hz BW)	
MODEL NO.	Input Range
DI-8B42-01	4 to 20mA
DI-8B42-02	4 to 20mA

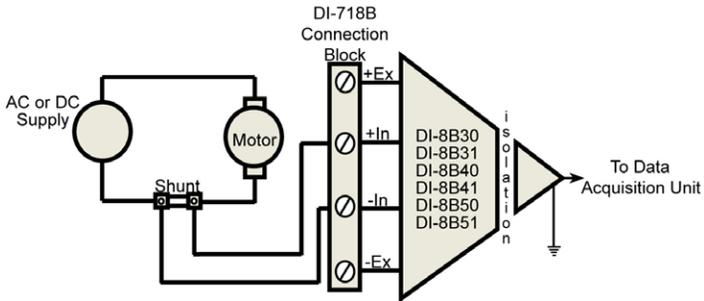
Frequency Input Modules (3Hz BW)	
MODEL NO.	Input Range
DI-8B45-01	0 to 500Hz
DI-8B45-02	0 to 1kHz
DI-8B45-03	0 to 3kHz
DI-8B45-04	0 to 5kHz
DI-8B45-05	0 to 10kHz
DI-8B45-06	0 to 25kHz
DI-8B45-07	0 to 50kHz
DI-8B45-08	0 to 100kHz

Linearized Thermocouple Input Modules (3Hz BW)		
MODEL NO.	Type	Input Range
DI-8B47J-01	J	0°C to +760°C (+32°F to +1400°F)
DI-8B47J-02	J	-100°C to +300°C (-148°F to +572°F)
DI-8B47J-03	J	0°C to +500°C (+32°F to +932°F)
DI-8B47J-12	J	-100°C to +760°C (-148°F to +1400°F)
DI-8B47K-04	K	0°C to +1000°C (+32°F to +1832°F)
DI-8B47K-05	K	0°C to +500°C (+32°F to +932°F)
DI-8B47K-13	K	-100°C to +1350°C (-148°F to +2462°F)
DI-8B47K-14	K	0°C to +1200°C (+32°F to +2192°F)
DI-8B47T-06	T	-100°C to +400°C (-148°F to +752°F)
DI-8B47T-07	T	0°C to +200°C (+32°F to +392°F)

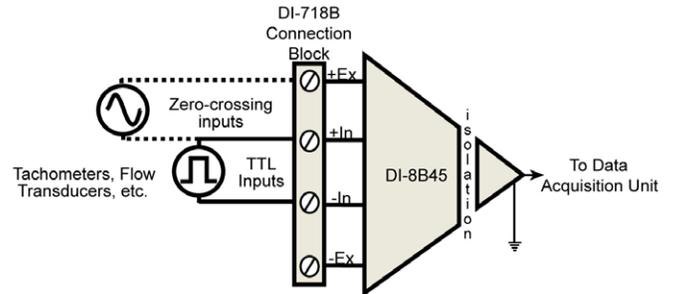
Voltage Input Modules (20kHz BW)	
MODEL NO.	Input Range
DI-8B50-01	±20mV
DI-8B50-02	±50mV
DI-8B50-03	±100mV
DI-8B51-01	±1V
DI-8B51-02	±5V
DI-8B51-03	±10V
DI-8B51-07	±20V
DI-8B51-09	±40V
DI-8B51-12	±60V

Signal Conditioning Module Applications

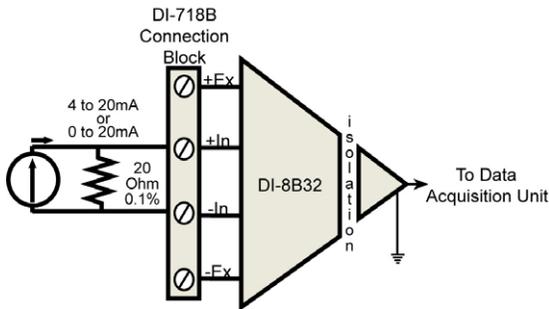
AC or DC Current Shunt



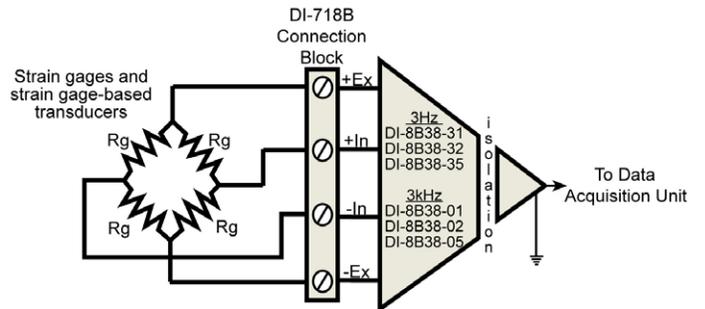
Frequency



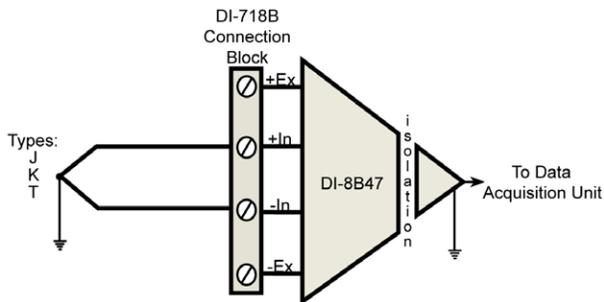
Process Current



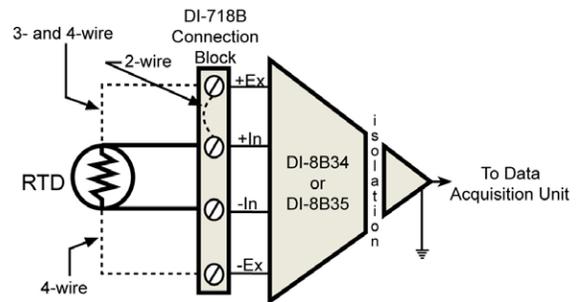
Full-Bridge Strain Gage



Floating Grounded TC



RTD



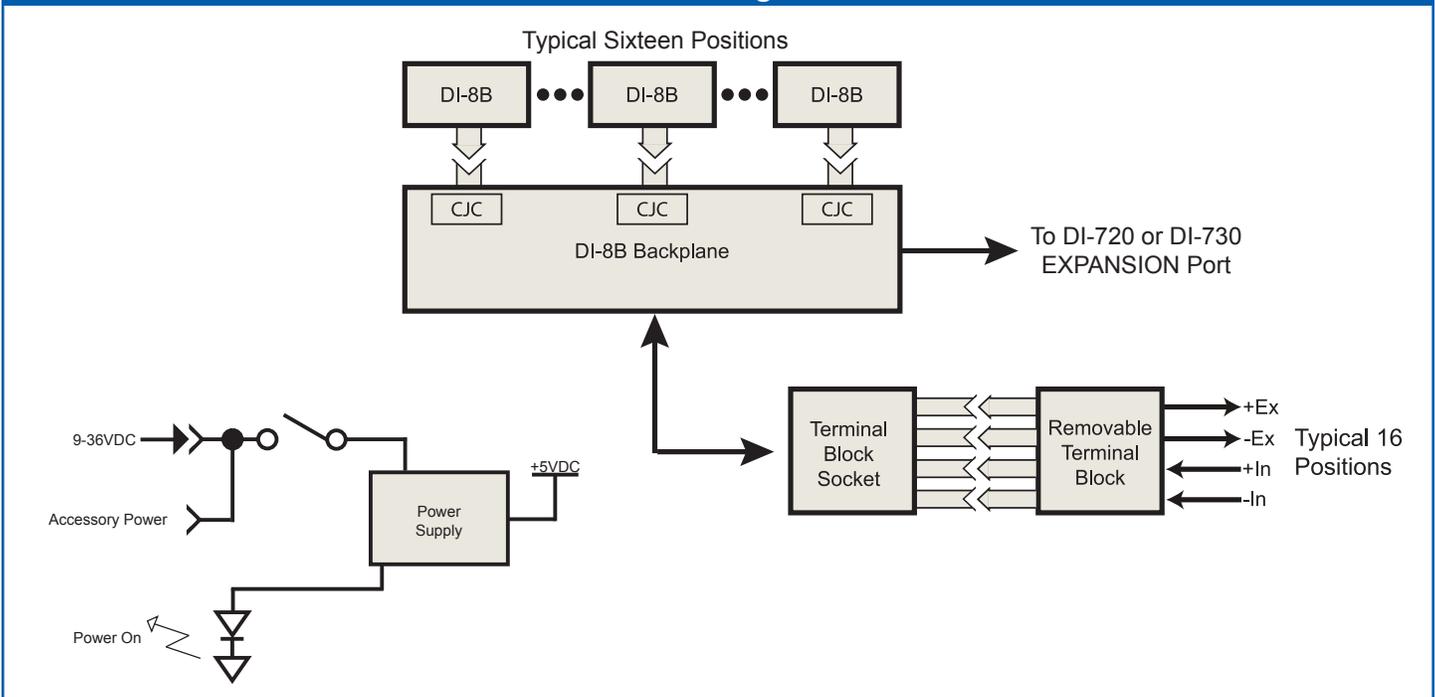
Specifications

Number of Analog Inputs:	16	Signal Connections:	4 screw terminals per channel (Ch+, Ch-, Ex+, Ex-)
Measurement Range:	Defined by 8B module*	Power Consumption:	1.2 watts plus DI-8B module
Operating Temperature:	0 to 70°C	Input-to-Output Isolation:	±1000 VDC or peak AC max
Temperature Accuracy (TC modules):	±0.5% of Full Scale Range ±2°C**	Channel-to-Channel Isolation:	±500 VDC or peak AC max
*Not all DI-8B amplifier modules support ±excitation, but all support ±channel inputs.		Power Requirements:	9-36VDC
**Excludes 8B module inaccuracy. Ambient temperature range 20-25°C, still air, 12 watt max total 8B module power dissipation.		Size:	9"L × 7.29"W × 1.52"H

Accessories

Accessory	Description
Stacking Brackets (included) and Handles (extra-cost option)	A pair of stacking brackets allow the DI-78B and its host DI-720 or DI-730 instrument to be stacked and fastened together on each side to form one rigid, monolithic unit. Both sides of all DI-720 and DI-730 instruments are fitted with PEM® brand fasteners, which act as mounting holes for the stacking brackets. Screws provided with the brackets are easily installed with a screwdriver. An optional handle (sold separately) may be mounted directly to either or both stacking brackets (screws are included) to facilitate carrying or mounting the unit.

Block Diagram



Ordering Guide

Description	Order Number	Description	Order Number
DI-78B Sixteen channel DI-8B signal conditioned input expander for DI-720 and DI-730 series instruments. Includes interconnecting cable, power cable, a pair of stacking brackets, and software.	DI-78B	Handle One Stainless steel handle with mounting hardware.	100690



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