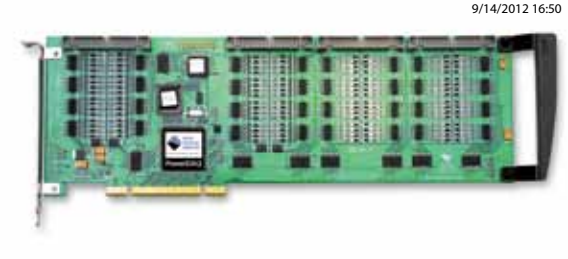
PD2-DIO-128i

128-Channel Optoisolated High-Voltage Digital I/O Board



- 64 optoisolated digital inputs, 64 optoisolated digital outputs
- Configured in ports with 16 channels
- User-configurable glitch-free startup state for all output ports
- 125V isolation between ports, ports and PC
- Generate interrupt on any input line
- Works with I/O levels to 32V
- Onboard FIFO: 1k 16-bit words in / 2k 16-bit words out

Supports **UEIDaq Framework** Data Acquisition Software Library for Windows. Linux and QNX drivers available. Visit our website for more details.

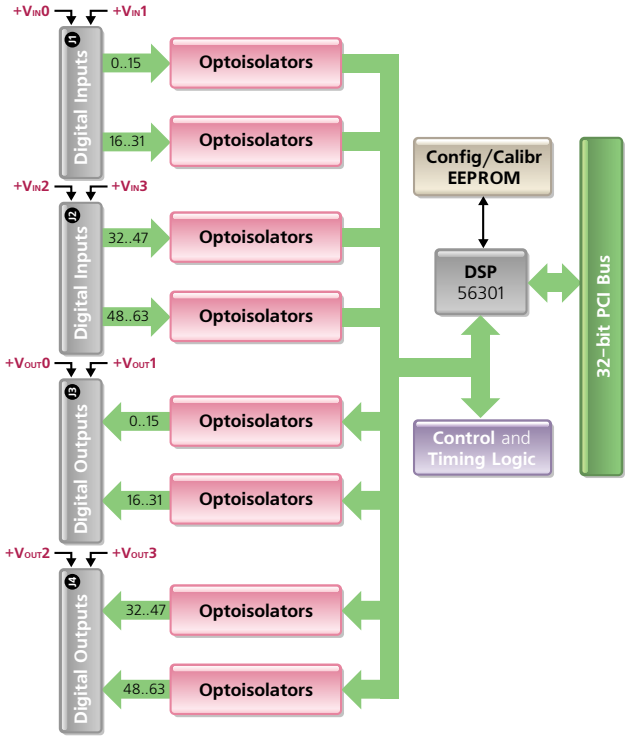
General Description:

Combining high density, high-voltage capability and optoisolation, the PD2-DIO-128i is a PCI-bus card that supplies 64 digital inputs and 64 digital outputs, each line with its own optoisolator. The I/Os are configured in fixed banks of 16 lines. All input ports are isolated from each other and the rest of the board; all output ports are isolated from each other and the rest of the board. Each input line is protected with a reverse diode and a series resistor, while each output line is protected with a reverse diode.

Connections are made to all I/O lines through four IDC headers located on the board. One or more ribbon cables snake through a hole in the mounting bracket and lead to a termination bracket.

The board with all inputs On, externally powered by 32V, can consume up to 15-18W. When output current drive is low and not all channels are turned On at the same time, power consumption remains within 8-12W. This full-size PCI board can dissipate approximately 11.5W without extra cooling. If you anticipate using the board in a situation with higher power consumption than that level, the board requires adequate active cooling; an extra fan in PC chassis blowing air directly over the board(s) is usually sufficient for this purpose.

Block Diagram:



Technical Specifications:

General Specifications	
Bus Type	PCI v2.2 (3.3 / 5V)
Onboard Processor	33-MHz DSP56301
Number of I/O Lines	64 inputs, 64 outputs
Pullup/down Resistors	none on the board
Port Size	16 lines
Onboard FIFO	1k 16-bit words in; 2k 16-bit words out
Oper. Temp. Range	0 - 85°C
Physical Dimensions	Full-slot PCI card, 12.28 x 4.2" (w/o bracket)
Power Consumption	Logic: 1.25W @ 3.3-5V (from PCI); DIO: 4W typ., 10W max @ 12V external 6W typ., 14W max @ 24V external 8W typ., 18W max @ 32V external
Humidity Range	90%, noncondencing
Digital Inputs	
Number of channels	64
Organization	4 ports, 16 lines/port
Isolation	125V port-port
Input type	Source
Protection	Reverse diode (0.5A continuous; 5.5A peak) + 4.7kΩ series resistor
Input rate	10 kHz/port max
Input supply voltage	12V-32V (each port has its own isolated power-supply pins)
Sensitivity current	6 mA
Input High range	from 11V to level of input supply voltage
Input Low range	0-4V
Input logic	Inverted (12V read as logic 1, 0V read as logic 0)
Propagation delay	0->1: 70 µsec; 1->0: 10 µsec (typical)
Digital Outputs	
Number of channels	64
Organization	4 ports, 16 lines/port
Isolation	125V port-port
Output type	Darlington transistor / sink
Output current	500 mA/channel peak; 200 mA/channel continuous; 1A/port max
Output rate	3 kHz/port max
Output supply voltage	12V-32V (each port has its own isolated ground reference and power-supply pins)
Output Low range	0-6V
Output High range	from 12V to level of output supply voltage
Output logic	Inverted (0 output as High, 1 output as Low)
Protection	Reverse diode (0.5A continuous; 5.5A peak)
Output supply load	625Ω/port
Propagation delay	0->1: 5 µsec; 1->0: 250 µsec (typical)

Connection Schemes:

Connector On The Board	Cable Required	Target Panel	Description
J1 - J4	PD-CBL-40	PD-STP-40	Carries 16 digital lines to 16-channel terminal panel

Pinout Diagrams:

J1 (for digital inputs) connects four input bytes (internally arranged for the software as a two 16-bit input ports).
Port 0 (DIN0 - DIN15) is powered with +VIN0, and Port 1 (DIN16 - DIN31) is powered via +VIN1

J2 (for digital inputs) connects four input bytes (internally arranged for the software as a two 16-bit input ports).
Port 2 (DIN32 - DIN47) is powered with +VIN2 and Port 3 (DIN48 - DIN63) is powered with +VIN3

J3 (for digital outputs) connects 4 output bytes (internally arranged for the software as a two 16-bit output ports).
Port 0 (DOUT0 - DOUT15) is powered with +VOUT0/GND0, and Port 1 (DOUT16 - DOUT31) is powered with +VOUT1/GND1

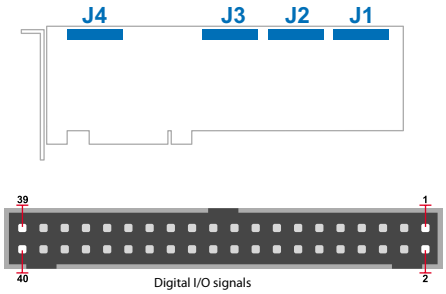
J4 (for digital outputs) connects 4 output bytes (internally arranged for the software as a two 16-bit output ports).
Port 2 (DOUT32 - DOUT47) is powered with +VOUT2/GND2, and Port 3 (DOUT48 - DOUT63) is powered with +VOUT3/GND3

J1 — IDC-40 (male)
40-pin header:

VIN0	1	2	NC
VIN1	3	4	DIN15
DIN31	5	6	DIN14
DIN30	7	8	DIN13
DIN29	9	10	DIN12
DIN28	11	12	DIN11
DIN27	13	14	DIN10
DIN26	15	16	DIN9
DIN25	17	18	DIN8
DIN24	19	20	NC
DIN23	21	22	DIN7
DIN22	23	24	DIN6
DIN21	25	26	DIN5
DIN20	27	28	DIN4
DIN19	29	30	DIN3
DIN18	31	32	DIN2
DIN17	33	34	DIN1
DIN16	35	36	DIN0
NC	37	38	NC
NC	39	40	NC

J2 — IDC-40 (male)
40-pin header:

VIN2	1	2	NC
VIN3	3	4	DIN47
DIN63	5	6	DIN46
DIN62	7	8	DIN45
DIN61	9	10	DIN44
DIN60	11	12	DIN43
DIN59	13	14	DIN42
DIN58	15	16	DIN41
DIN57	17	18	DIN40
DIN56	19	20	NC
DIN55	21	22	DIN39
DIN54	23	24	DIN38
DIN53	25	26	DIN37
DIN52	27	28	DIN36
DIN51	29	30	DIN35
DIN50	31	32	DIN34
DIN49	33	34	DIN33
DIN48	35	36	DIN32
NC	37	38	NC
NC	39	40	NC



J3 — IDC-40 (male)
40-pin header:

VOUT0	1	2	IGND0
VOUT1	3	4	DOUT15
DOUT30	5	6	DOUT14
DOUT29	7	8	DOUT13
DOUT28	9	10	DOUT12
DOUT27	11	12	DOUT11
DOUT26	13	14	DOUT10
DOUT25	15	16	DOUT9
DOUT24	17	18	DOUT8
IGND1	19	20	IGND0
DOUT23	21	22	DOUT7
DOUT22	23	24	DOUT6
DOUT21	25	26	DOUT5
DOUT20	27	28	DOUT4
DOUT19	29	30	DOUT3
DOUT18	31	32	DOUT2
DOUT17	33	34	DOUT1
DOUT16	35	36	DOUT0
IGND1	37	38	DOUT31
IGND1	39	40	IGND0

J4 — IDC-40 (male)
40-pin header:

VOUT2	1	2	IGND2
VOUT3	3	4	DOUT47
DOUT62	5	6	DOUT46
DOUT61	7	8	DOUT45
DOUT60	9	10	DOUT44
DOUT59	11	12	DOUT43
DOUT58	13	14	DOUT42
DOUT57	15	16	DOUT41
DOUT56	17	18	DOUT40
IGND3	19	20	IGND2
DOUT55	21	22	DOUT39
DOUT54	23	24	DOUT38
DOUT53	25	26	DOUT37
DOUT52	27	28	DOUT36
DOUT51	29	30	DOUT35
DOUT50	31	32	DOUT34
DOUT49	33	34	DOUT33
DOUT48	35	36	DOUT32
IGND3	37	38	DOUT63
IGND3	39	40	IGND2z

Simplified Single Channel Diagram: