



PCI-P16POR16U

Universal PCI, 16-ch Optically Isolated Digital Input and
16-ch PhotoMOS Relay Output Board

Introduction

The PCI-P16POR16U Universal PCI card supports the 3.3 V/5 V PCI bus and provides 16 optically-isolated Digital Input channels and 16 PhotoMOS Relay Output channels. Both the isolated DI channels and the PhotoMOS Relay channels use a short optical transmission path to transfer an electronic signal between elements of a circuit and keep them electrically isolated.

The PCI-P16POR16U provides 5000 Vrms isolation protection for the DI channels, allowing the input signals to be completely floated so as to prevent ground loops and isolate the host computer from potentially damaging voltage spikes. The PhotoMOS Relays are used where it is necessary to control a circuit using a low-power signal, with complete electrical isolation between the control and the controlled circuits), or where several circuits must be controlled by a single signal.

This card can be used in a variety of applications, such as controlling the ON/OFF state of external devices, driving external relays or small power switches, activating alarms, contact closure, or sensing external voltages or switches, etc.

The PCI-P16POR16U cards also include an onboard Card ID switch that enables the board to be recognized via software if two or more cards are installed in the same computer. The PCI-P16POR16U is designed as a direct replacement for the PCI-P16POR16 without requiring any modification to the software or the driver.

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Terminal No.	Pin Assignment	Terminal No.
NO_0	01	CM_0	20	DO_8	01
NO_1	02	CM_1	21	DO_9	03
NO_2	03	CM_2	22	DO_10	05
NO_3	04	CM_3	23	DO_11	07
NO_4	05	CM_4	24	DO_12	09
NO_5	06	CM_5	25	DO_13	11
NO_6	07	CM_6	26	DO_14	13
NO_7	08	CM_7	27	DO_15	15
N/A	09	N/A	28	N/A	17
N/A	10	N/A	29	N/A	19
N/A	11	N/A	30	N/A	21
DIA_0	12	N/A/GND	31	DIA_8	23
DIA_1	13	DIB_0	32	DIA_9	25
DIA_2	14	DIB_1	33	DIA_10	27
DIA_3	15	DIB_2	34	DIA_11	29
DIA_4	16	DIB_3	35	DIA_12	31
DIA_5	17	DIB_4	36	DIA_13	33
DIA_6	18	DIB_5	37	DIA_14	35
DIA_7	19	DIB_6	38	DIA_15	37
		DIB_7	39	N/A	39

Features

- Universal PCI (3.3 V/5 V) Interface
- LED Power Indicator
- 16-channel Optically-isolated Digital Input
 - 5000 Vrms Photo-isolation Protection
 - Selectable DC Signal Input Filter
 - AC Signal Input with Filter
- High-speed DI/O Operation
- 16-channel PhotoMOS Relay Output
 - Long-life, High-reliability PhotoMOS Relay
 - Low leakage current when PhotoMOS Relay is OFF
 - No Acoustical Noise
 - No Contact Bounce or Sparking



Software

Drivers

- ☒ 32/64-bit Windows XP/2003/2008/7/8/10 ☒ Linux

Sample Programs

- ☒ DOS Lib and TC/BC/MSC Demo ☒ LabVIEW Toolkit
- ☒ VB/VC/Delphi/BCB/VB.NET/C#.NET/VC.NET/MATLAB Demo

Hardware Specifications

Hardware	
Card ID	Yes (4-bit)
Connector	Female DB37 x 1 40-pin box header x 1
Digital Input	
Channels	16
Type	Photocoupler (Sink or Source)
Response Speed	Without Filter: 50 kHz (Typical) With Filter: 0.455 kHz (Typical)
Trigger Mode	Static Update
Wet Contact, ON Voltage Level	AC/DC 5 ~ 24 V (AC 50 ~ 1 kHz)
Wet Contact, OFF Voltage Level	AC/DC 0 ~ 1 V
Isolation	2000 VDC
Relay Output	
Channels	16
Type	PhotoMos Relay (Form A)
Contact Rating	Load Voltage: 300 V (AC peak or DC) Load Current: 130 mA
Operate Time	0.7 ms (typical)
Release Time	0.05 ms (typical)
Electrical Endurance	Long Life and No Sparking
PC Bus	
Type	PCI-Express x 1
Data Bus	16-bit
Power	
Consumption	600 mA @ +3.3 V 300 mA @ +12 V
Mechanical	
Dimensions (mm)	113 x 118 x 22 (W x L x D)
Environmental	
Operating Temperature	0 ~ +60°C
Storage Temperature	-20 ~ +70°C
Humidity	5 ~ 85% RH, Non-condensing

Ordering Information

PCI-P16POR16U CR	Universal PCI, 16-ch Optically Isolated Digital Input and 16-ch PhotoMOS Relay Output Board (RoHS) Includes one CA-4037W cable and two CA-4002 D-Sub connectors.
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Accessories

	CA-3710 CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (45°)) (RoHS)
	CA-3710D CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (180°)) (RoHS)
	CA-3715DM-H CR	DB-37 Male-Male Cable, 1.5 M, 180° (RoHS)
	CA-3730DM-H CR	DB-37 Male-Male Cable, 3.0 M, 180° (RoHS)
	CA-3750DM CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-3750DM-H CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-4002 CR	37-pin Male D-sub connector with plastic cover (RoHS)
	CA-4037W CR	40-pin flat & D-sub 37-pin Female cable 24 cm (RoHS)
	DB-37 CR	Directly connect signal to D-sub 37-pin connector (RoHS)
	DN-37 CR	DIN Rail Mounting 37-pin Connector (RoHS)

