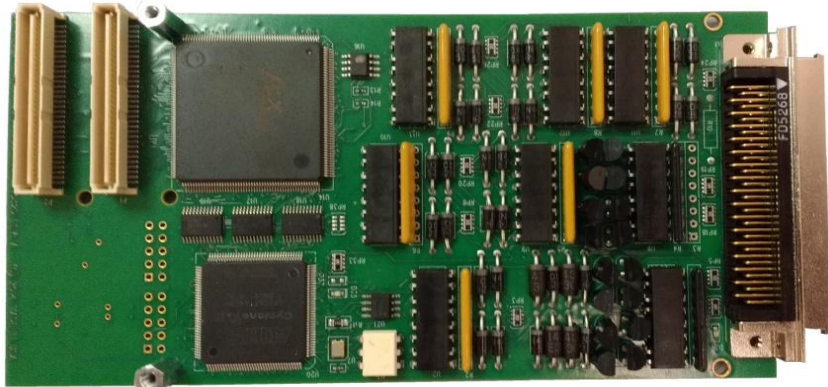


# General Standards Corporation

## High Performance Bus Interface Solutions

### PMC-OPTO32D

**32 Optically Coupled Channels**  
*24 Inputs, 8 Outputs*



Also Available in PCI, cPCI, PC104+ form factors (with adapter) as:

PCI-OPTO32D  
cPCI-OPTO32D  
PC104P-OPTO32D

#### ***Features Include:***

- 24 Optically Isolated HI/LO Inputs - up to 50VDC
- 8 Optically Isolated HI/LO Outputs - up to 50VDC
- 4 of the Optically Isolated Outputs are Diode Clamped
- All I/O channels support Optically isolated IO at 1000VDC
- Input voltage range configurable through use of field replaceable current limiting resistors.
- Programmable Change of State detection on all Inputs - Rising or Falling edge
- Programmable Interrupts on any or all Change of State bit(s)
- Pre-loadable Event Counter (Input Ch23)
- Programmable Clock Debounce Rate for Event Counter Input
- Programmable Interrupt on Event Counter overflow
- Built in Self-Test Features
- Windows, Linux, VxWorks drivers available

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## High Performance Bus Interface Solutions

### Functional Overview:

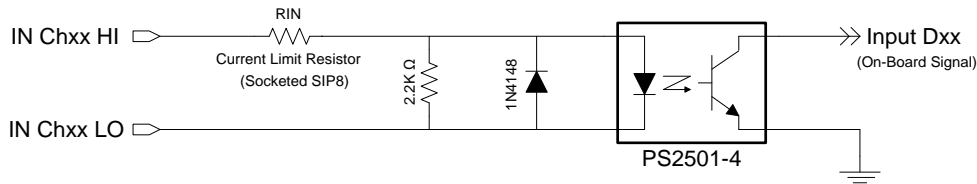
The PMC-OPTO32D board has 32 optically-coupled digital I/ O channels configured as 24 inputs and 8 outputs. Each IO channel is optically/electrically isolated (over 1000 Volts) from the host system. The I/O channels support I/O voltages up to 50VDC. Change-of-State Interrupts allow for an interrupt to the PMC host to be generated from any level change on any input. Built-in-self-test, selectable debounce times, input pulse counter, and configurable I/O voltages to 50 Volts makes for a versatile digital interface board.

### Inputs:

The OPTO32D has 24 Inputs. Input 23 is configured differently so it can be used as the input for the Event Counter. The Input Voltage is controlled by the RIN Current Limiting Resistor (via Ordering Option). The two Input configurations are shown below:

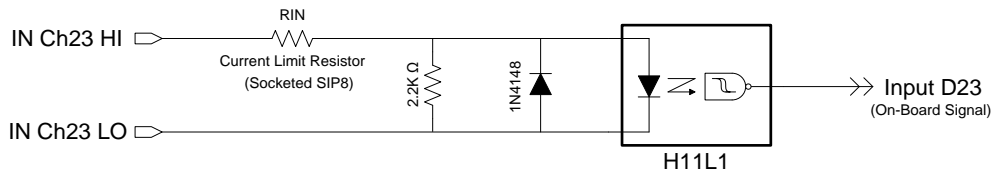
#### Standard Input (CH00-CH22):

Isolation Voltage            5000 V  
 Input Current:                2.0mA (min) / 80mA (max)  
 Typical Ton/Toff            3uSec / 5 uSec.



#### Event Counter Input (CH23):

Isolation Voltage            7500 V  
 Input Current:                2.3mA (min) - 60mA (max)  
 Typical Ton/Toff            4uSec / 4 uSec.



The Current Limit Resistor ( $R_{IN}$ ) is typically sized to allow for minimum current draw to turn on the photo-diode of the opto-isolator. The typical Resistor Values for a given Input Voltage are shown below:

Input Voltage	Typical Current Limit Resistor	Typical Input Current
5 V	2.2K $\Omega$	1.8 mA
12 V	5.1K $\Omega$	2.1 mA
28 V	12K $\Omega$	2.2 mA
48 V	20K $\Omega$	2.3 mA

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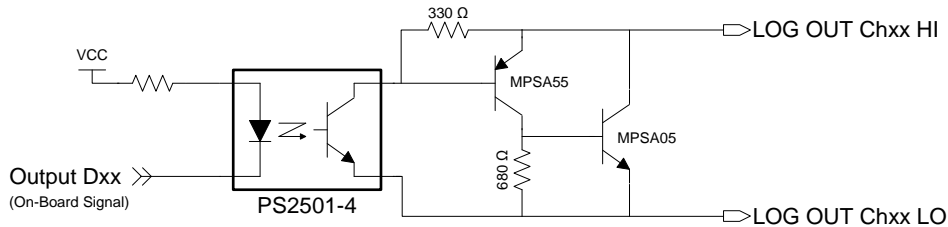
## High Performance Bus Interface Solutions

### Outputs:

The OPTO32D has 8 Opto-Isolated Outputs. Four of the Output Channels (PWR OUT Ch04-07) add diode clamping using an externally supplied PWR OUT CLAMP voltage. The two Output configurations are shown below:

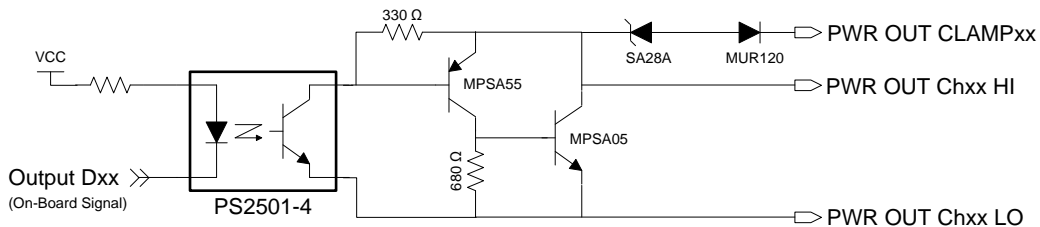
#### Standard Output (CH00-CH03):

Isolation Voltage	5000 V
Output Voltage ( $V_{CE0}$ )	60V (max)
Output Current:	100mA (max)
Typical Ton/Toff	3uSec / 5 uSec.



#### Diode Clamped Output (CH04-CH07):

Isolation Voltage	5000 V
Output Voltage ( $V_{CE0}$ )	60V (max)
Output Current:	100mA (max)
Typical Ton/Toff	3uSec / 5 uSec.



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## High Performance Bus Interface Solutions

### Power Requirements (@25° C):

- +5.0 VDC at 0.75 Amps Max (typical 0.5 Amps)
- Typical Total Power Dissipation: ~2.5W
- Isolation Voltage – 5000 V
- Current Transfer Ratio – 80-600%
- $V_{CE0}$  (Max) – 80
- Typical Ton/Toff – 3/5 uSec.

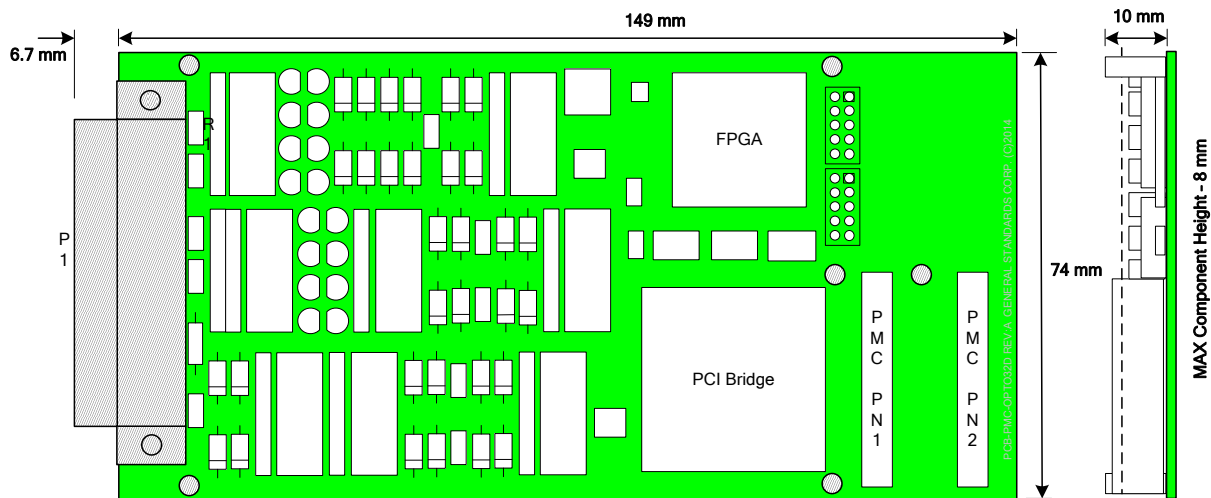
### PMC Compatibility:

- Conforms to PCI Specification 2.1, with D32 read/write transactions.
- Supports "plug-n-play" initialization.
- Single multifunction interrupt
- Supports DMA transfers as bus master.

### Physical Characteristics:

Conforms to PMC Specification

Length: 149.00 mm (5.866")  
 Width: 74.0 mm (2.913")  
 Height: 13.5 mm (0.531")



### Environmental Specifications:

Ambient Temperature Range: Operating: 0° to +70° C (Commercial)  
 Storage: -40° to +85° C

Relative Humidity: Operating: 0 to 80%, non-condensing  
 Storage: 0 to 95%, non-condensing

Altitude: Operation to 10,000 ft

### Cooling Requirements:

Conventional air-cooling, 200 LPFM

### Ordering Information:

Part Number	Input Channel Voltage
PMC-OPTO32D-5V	CH00-CH23 = 5V
PMC-OPTO32D-12V	CH00-CH23 = 12V
PMC-OPTO32D-28V	CH00-CH23 = 28V
PMC-OPTO32D-48V	CH00-CH23 = 48V
PMC-OPTO32D-VAR1	CH00-CH07=5V / CH08-CH15=12V / CH16-CH23=28V

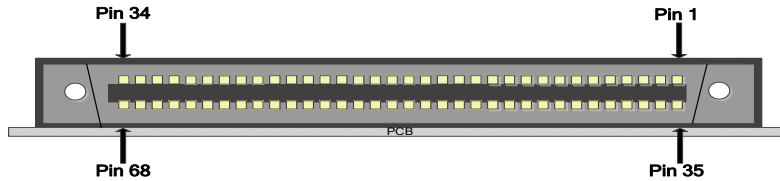
The Input Voltage specified is the minimum voltage required to guarantee that a logic '1' is detected.  
 The Input Resistance is selected via a SIP resistors and can be swapped out by the user.  
 Consult factory for other input voltage options, including a mix of different input voltages.

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## High Performance Bus Interface Solutions

### System I/O Connections:

User I/O Connector: 68 pin IO connector (female)  
 Part Number: 3M P50-068-DDP-SR1-EA  
 Mating Connector: 3M P50-068-DDS-EA  
 Mating Connector Backshell: 3M P50-068-STR-BSK



Pin No	Signal Name	Pin No	Signal Names
1	IN CH00 HI	35	IN CH17 HI
2	IN CH00 LO	36	IN CH17 LO
3	IN CH01 HI	37	IN CH18 HI
4	IN CH01 LO	38	IN CH18 LO
5	IN CH02 HI	39	IN CH19 HI
6	IN CH02 LO	40	IN CH19 LO
7	IN CH03 HI	41	IN CH20 HI
8	IN CH03 LO	42	IN CH20 LO
9	IN CH04 HI	43	IN CH21 HI
10	IN CH04 LO	44	IN CH21 LO
11	IN CH05 HI	45	IN CH22 HI
12	IN CH05 LO	46	IN CH22 LO
13	IN CH06 HI	47	IN CH23 HI
14	IN CH06 LO	48	IN CH23 LO
15	IN CH07 HI	49	LOG OUT CH0 HI
16	IN CH07 LO	50	LOG OUT CH0 LO
17	IN CH08 HI	51	LOG OUT CH1 HI
18	IN CH08 LO	52	LOG OUT CH1 LO
19	IN CH09 HI	53	LOG OUT CH2 HI
20	IN CH09 LO	54	LOG OUT CH2 LO
21	IN CH10 HI	55	LOG OUT CH3 HI
22	IN CH10 LO	56	LOG OUT CH3 LO
23	IN CH11 HI	57	PWR OUT CH4 HI
24	IN CH11 LO	58	PWR OUT CH4 LO
25	IN CH12 HI	59	PWR OUT CLAMP 4
26	IN CH12 LO	60	PWR OUT CH5 HI
27	IN CH13 HI	61	PWR OUT CH5 LO
28	IN CH13 LO	62	PWR OUT CLAMP 5
29	IN CH14 HI	63	PWR OUT CLAMP 6
30	IN CH14 LO	64	PWR OUT CH6 HI
31	IN CH15 HI	65	PWR OUT CH6 LO
32	IN CH15 LO	66	PWR OUT CLAMP 7
33	IN CH16 HI	67	PWR OUT CH7 HI
34	IN CH16 LO	68	PWR OUT CH7 LO

Contact GSC for factory built cables of any desired length.

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