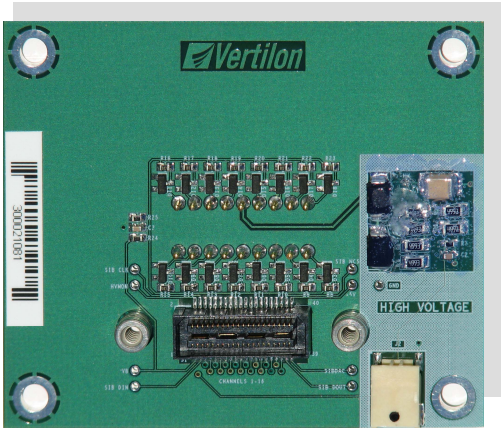
SIB216 Sensor Interface Board APD Array

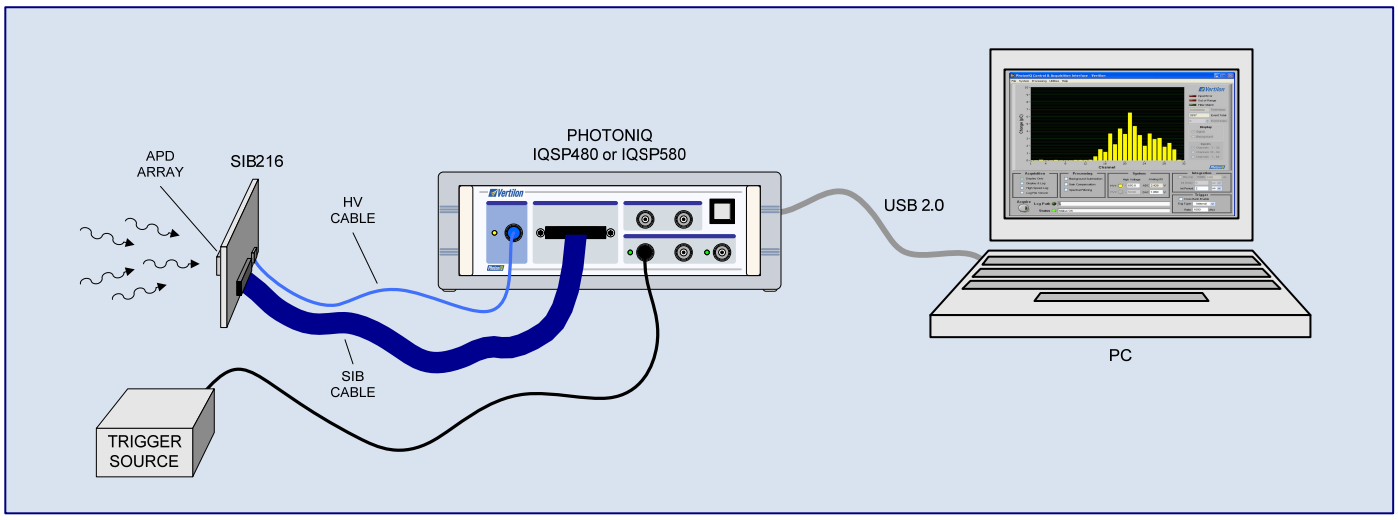
Product Sheet

Description



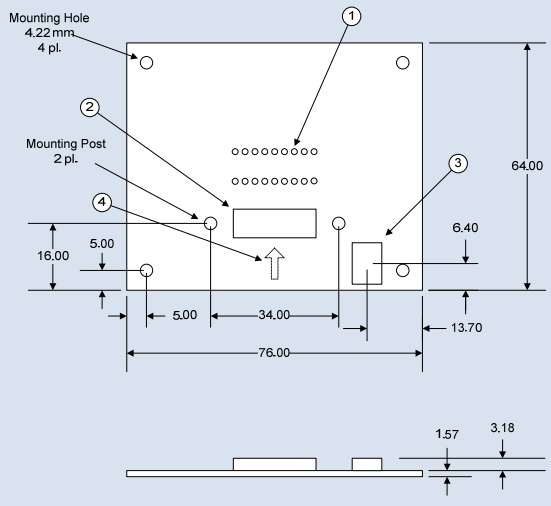
The SIB216 Sensor Interface Board (SIB) provides the electrical and mechanical connectivity between a Silicon Sensor 500038 (Pacific Silicon Sensor AD-LA-16-9-DIL18) avalanche photodiode (APD) array and a Vertilon PhotoniQ multi-channel data acquisition system. The APD array mounts directly to the bottom of the SIB216 through 18 socket pins where electrical connections to the cathodes of the 16 avalanche photodiode elements are made. These signals are routed to the SIB connector located on the top of the board. The SIB connector conforms to Vertilon's standard, low-noise, multi-channel, cable interconnection system. It mates to a micro-coaxial cable assembly that connects the 16 APD cathodes to the PhotoniQ. The high voltage bias to the common anode of the APD array is made through a separate dedicated connector where a high voltage cable connects between it and the high voltage output on the PhotoniQ. A passive circuit on the SIB216 divides the raw high voltage output from the PhotoniQ by a factor of three for input to the APD array.

Typical Setup



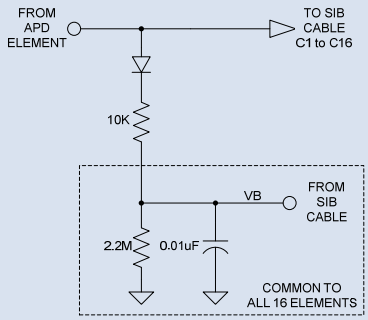
In a typical setup the Silicon Sensor 500038 APD array is plugged into the SIB216 Sensor Interface Board which in turn connects to a Vertilon PhotoniQ IQSP480 or IQSP580 multi-channel data acquisition system using a SIB cable. When triggered from an external source, the PhotoniQ integrates and digitizes the 16 charge signals from the array and outputs a data packet to the PC over a USB connection. The PhotoniQ also supplies the high voltage bias to the common anode of the APD array through a specialized high voltage cable.

Mechanical Data

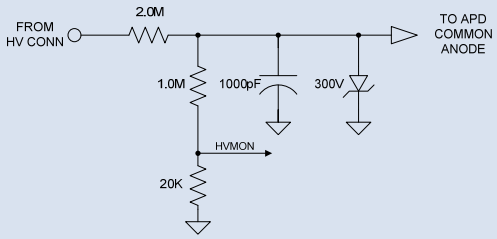


Notes: Item #1 is APD socket pins. APD centered on bottom side of PCB.
Item #2 is SIB connector. Height is 9.7 mm with cable installed.
Item #3 is high voltage cable connector.
Item #4 indicates cable entry direction.
All dimensions in millimeters.

Electrical Data



APD ELEMENT
EQUIVALENT CIRCUIT



HIGH VOLTAGE INPUT
EQUIVALENT CIRCUIT

General Safety Precautions

Warning: HIGH VOLTAGES – Voltages can exceed 1000V

Operate device within specified range

Electrostatic discharge sensitive

Do not operate in wet, damp or explosive atmosphere

See Silicon Sensor 500038 datasheet or Pacific Silicon Sensor AD-LA-16-9-DIL18 data sheet for specific handling information

SIB Connector Pinout

#	NAME		#	NAME
1	VB		2	HVMON
3	SIB DIN		4	SIB CLK
5	C16		6	N/C
7	C15		8	N/C
9	C14		10	N/C
11	C13		12	N/C
13	C12		14	N/C
15	C11		16	N/C
17	C10		18	N/C
19	C9		20	N/C
21	C8		22	N/C
23	C7		24	N/C
25	C6		26	N/C
27	C5		28	N/C
29	C4		30	N/C
31	C3		32	N/C
33	C2		34	N/C
35	C1		36	N/C
37	SIB DOUT		38	SIB NCS
39	SIBDAC		40	+5V

Pins 3, 4, 37, 38, 39, 40 used by PhotoniQ and should be left unconnected

Pin 1 grounded when not connected to a PhotoniQ

Ground supplied through cable shielding

Vertilon

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Vertilon Corporation, 66 Tadmuck Road, Westford, MA 01886 / Tel: (978) 692-7070 / Fax: (978) 692-7010 / www.vertilon.com