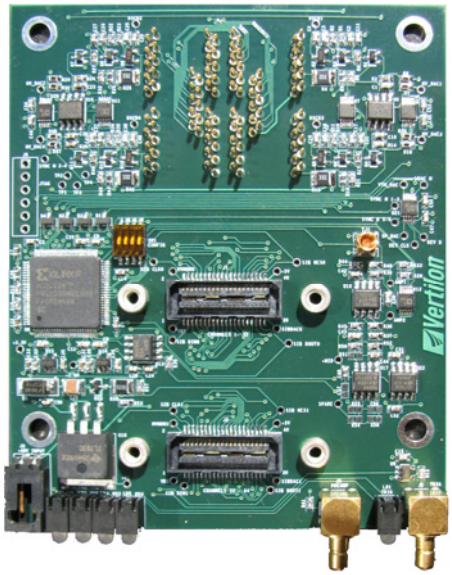
SIB1256 Sensor Interface Board SensL ArraySM-4

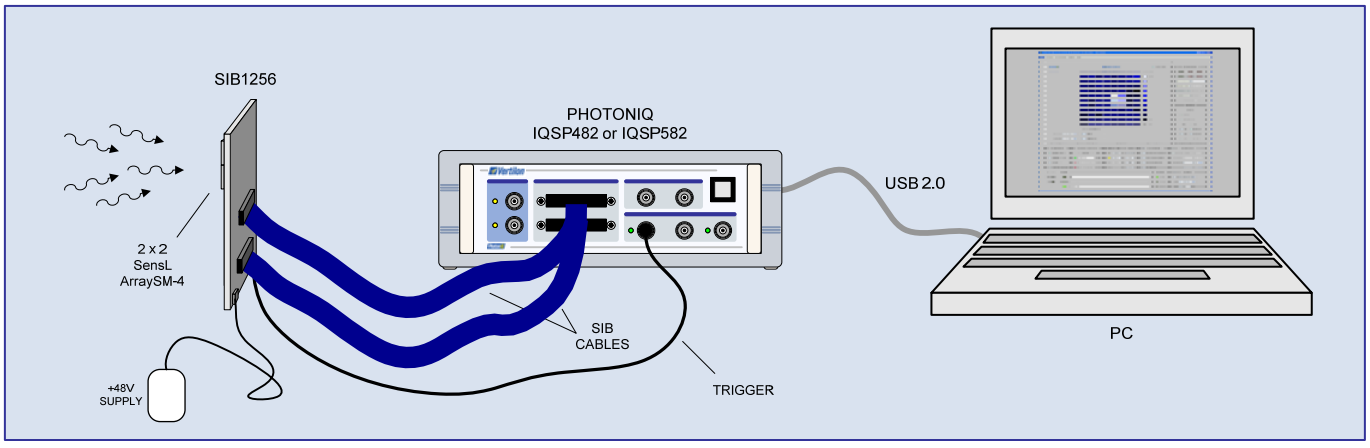
Product Sheet

Description

The SIB1256 sensor interface board allows up to four SensL ArraySM-4 silicon photomultiplier arrays (SiPM) to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The SiPM devices are inserted into the bottom side of the printed circuit board where their anode output signals are routed directly to two sensor interface board (SIB) connectors. Each connector mates to a micro-coaxial cable assembly that connects 32 device outputs to the PhotoniQ. Bias to SiPM arrays is provided by four on-board adjustable high voltage bias supplies that include a voltage trimming function for gain matching between the arrays. A special current-sense output from each bias supply is summed together to represent the total AC charge signal measured by all four SiPM arrays. This signal is fed into a user-programmable leading edge discriminator that generates a trigger signal when an event exceeding a preset energy threshold is detected on any of the ArraySM-4 devices. The trigger output is typically connected to the trigger input on the PhotoniQ data acquisition system where it is used to initiate the collection of the energy signals from the sensor devices connected to the DAQ system's inputs.

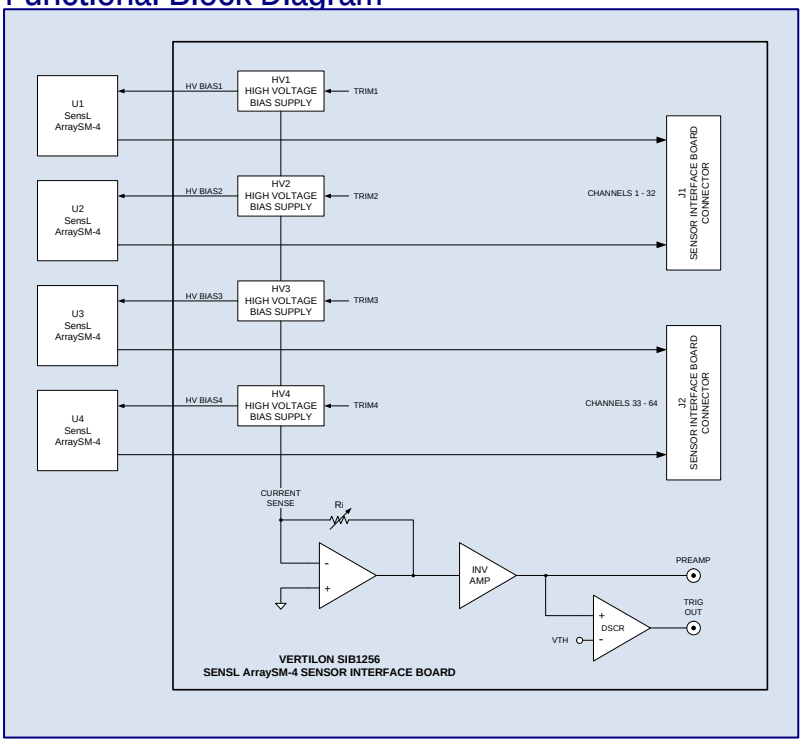


Typical Setup

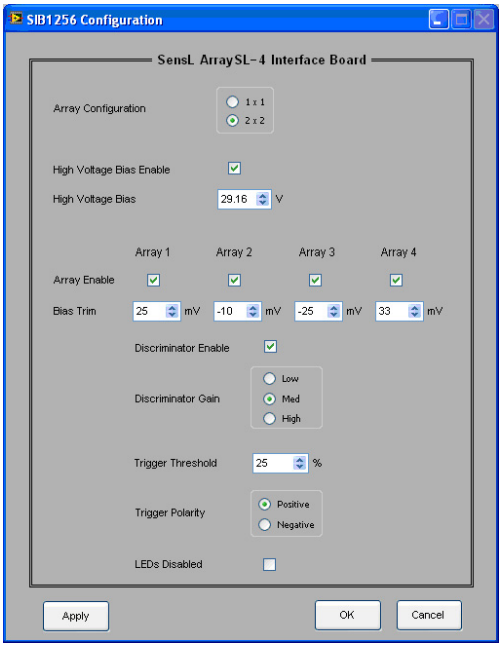


Four SensL ArraySM-4 silicon photomultipliers in a 2 x 2 arrangement are attached to the SIB1256 which is positioned in an optical assembly to detect incoming radiation. The 64 outputs from the SiPM arrays are routed on the SIB1256 to the SIB connector that connects to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel produces a trigger to the PhotoniQ whenever a radiation event is detected on any of the SiPMs. The energy level threshold for the radiation event is set by the user through the PhotoniQ graphical user interface. Charge signals from the 64 anodes of the ArraySM-4 devices are acquired by the PhotoniQ for each trigger produced by the SIB1256. Digitized output data from the PhotoniQ is sent through a USB 2.0 connection to a PC for display, logging, or real time processing. In the figure above, the PhotoniQ GUI is set to display an 8 x 8 image of the energy levels for each event captured.

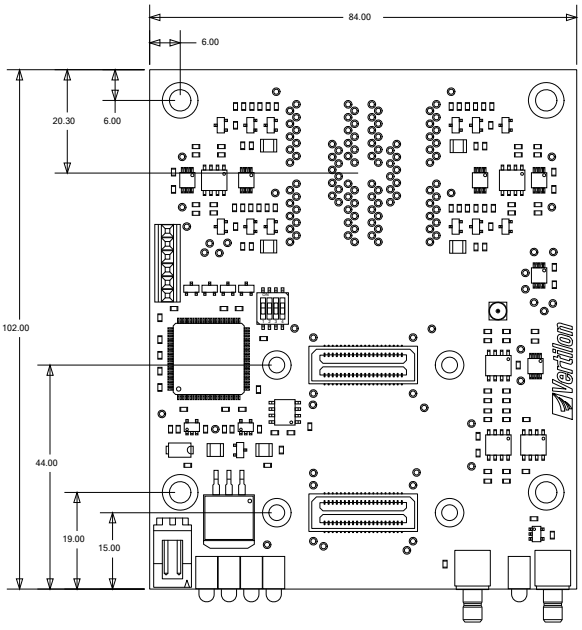
Functional Block Diagram



Configuration Dialog Box



Mechanical Data



Ordering Information

SIB1256 directly compatible with Vertilon PhotoniQ IQSP480 / IQSP580 32 channel and IQSP482 / IQSP582 64 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB1256 includes +48V power source for high voltage bias supplies and two SMB120 coaxial cables, SMB plug to BNC plug, 120 cm.

Sensor interface board (SIB) cables ordered separately. Specify part number SBCxxx, where “xxx” equals length in centimeter.

See SIB1256 User Guide for complete specification.

See SensL ArraySM-4 datasheet for specific device information

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