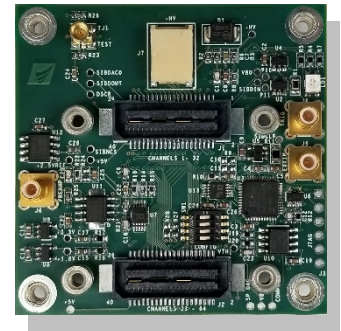
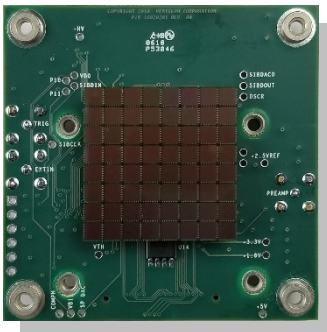


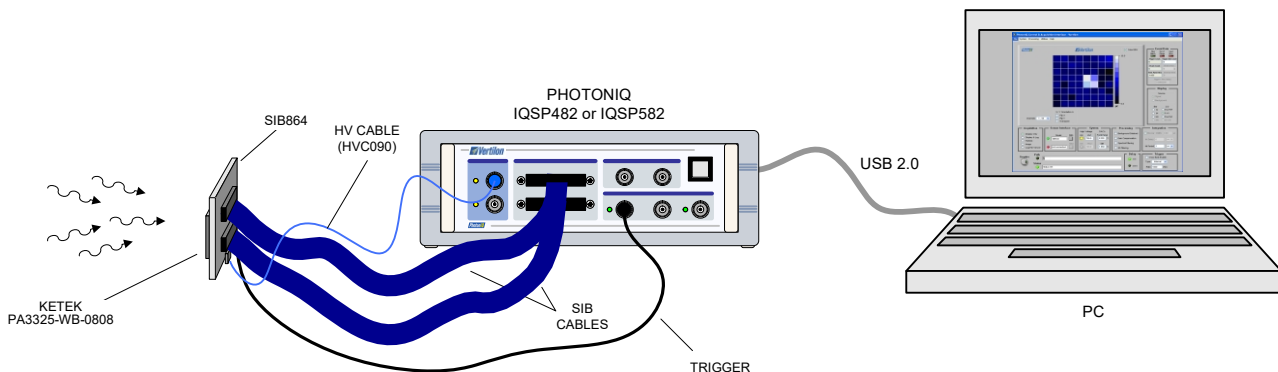
Description

The SIB864 sensor interface board allows for a Ketek PA3325-WB-0808 8 x 8 silicon photomultiplier (SIPM) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The SIPM array is plugged into the bottom side of the printed circuit board where its cathode output signals are routed directly to two sensor interface board (SIB) connectors. The SIB connectors mate to micro-coaxial cable assemblies that connect the 64 device outputs to the PhotoniQ. Bias to SIPM array is provided on a high voltage cable by the PhotoniQ where it can be enabled and configured through the PhotoniQ graphical user interface. A special current-sense tap from the bias interface circuitry is sent to a variable gain preamplifier that outputs the total charge signal measured on all 64 elements in the SIPM array. This signal is fed to a user-programmable leading edge discriminator that generates a trigger signal when an event exceeding a preset energy threshold is detected on any element of the PA3325-WB-0808 device. 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 SIPM array connected to the DAQ system's inputs.

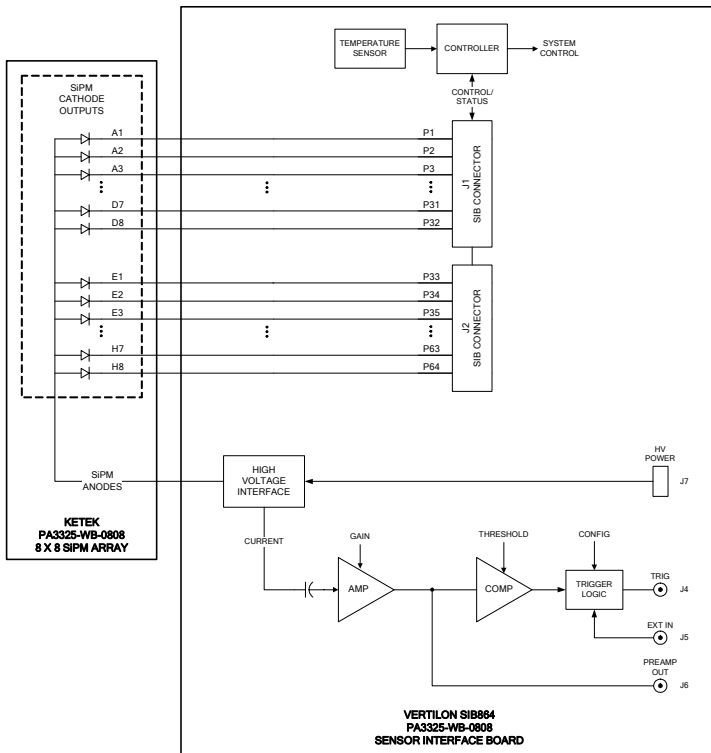


Typical Radiation Detection Setup

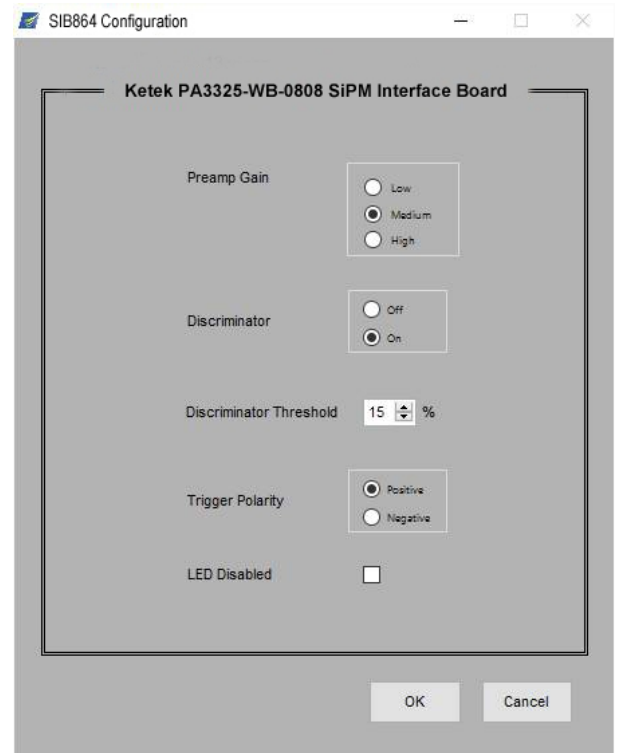
A typical radiation detection setup using a SIB864 is shown below. The Ketek PA3325-WB-0808 silicon photomultiplier array is attached to the SIB864 which is positioned in an optical assembly to detect incoming radiation. The 64 outputs from the SIPM array are routed on the SIB864 to the SIB connectors that connect to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel on the SIB864 produces a trigger to the PhotoniQ whenever a radiation event is detected on any of the individual SIPMs in the array. The energy level threshold for the radiation event is set by the user through the PhotoniQ graphical user interface. Charge signals from the 64 cathodes of the PA3325-WB-0808 device are acquired by the PhotoniQ for each trigger produced by the SIB864. 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 below, 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



Ordering Information

SIB864 is directly compatible with Vertilon PhotoniQ IQSP482 / IQSP582 64 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

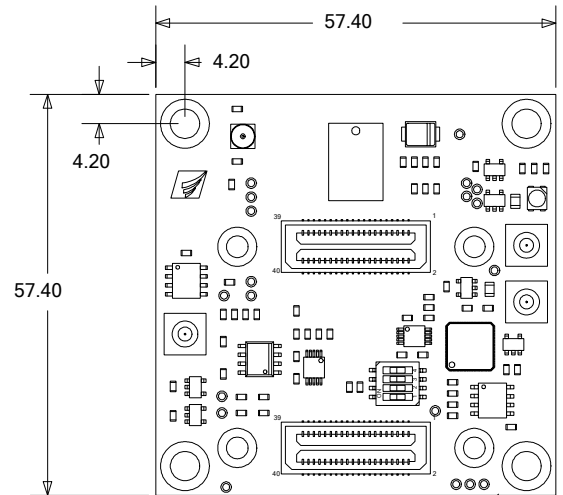
SIB864 includes two SMB120 coaxial cables, SMB plug to BNC plug, 120 cm.

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

See SIB864 User Guide for complete specification.

See Ketek PA3325-WB-0808 datasheet for specific device information

Mechanical Data



PEM mounting nut, #4-40, bottom side mount, 4pl.

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