

Description

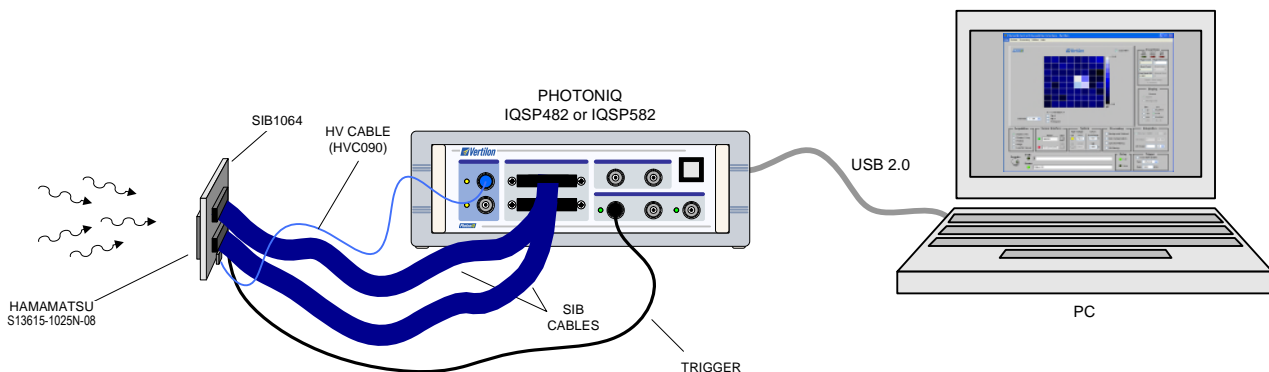
The SIB1064 sensor interface board allows for a Hamamatsu S13615-1025N-08 8 x 8 multi-pixel photon counter (MPPC) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The MPPC array is attached to the bottom side of the printed circuit board where its cathode output 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 MPPC 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



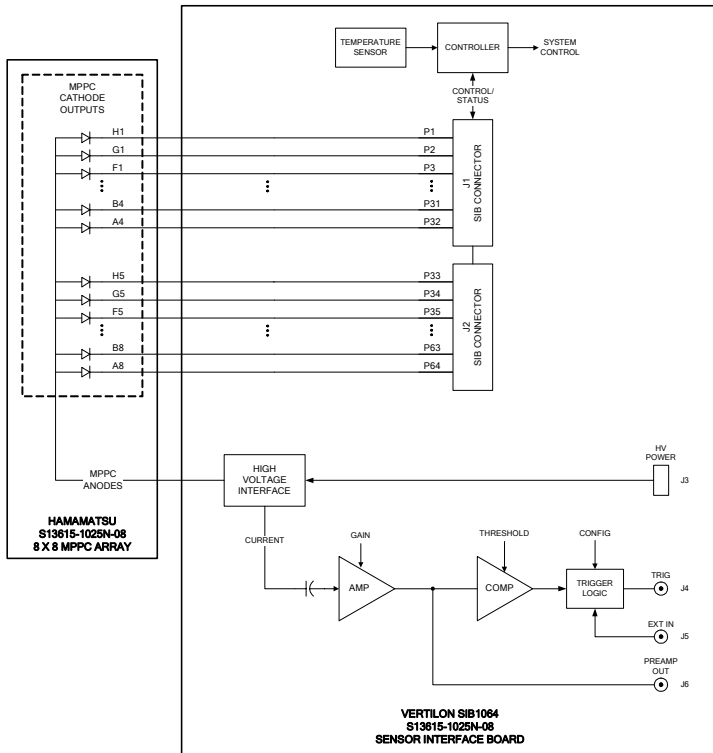
preamplifier that outputs the total charge signal measured on all 64 elements in the MPPC array. This signal is fed into a user-programmable leading edge discriminator that generates a trigger signal when an event exceeding a preset energy threshold is detected on the S13615-1025N-08 device. The trigger 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 MPPC array connected to the DAQ system's inputs.

Typical Radiation Detection Setup

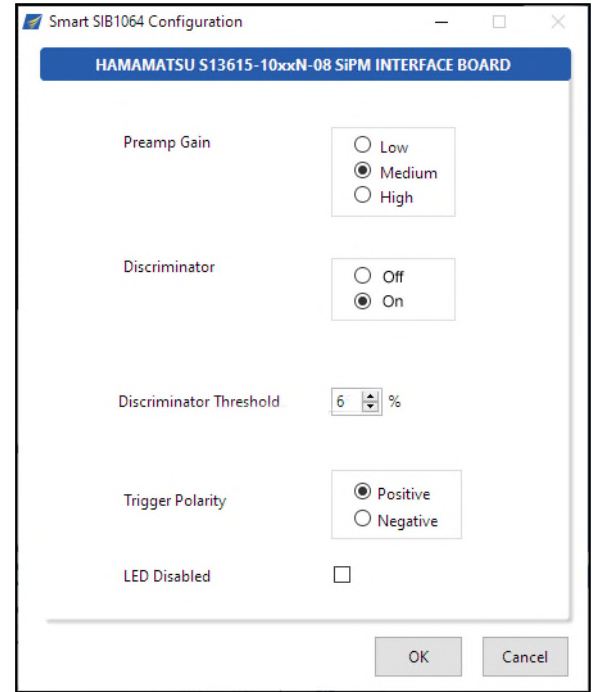
A typical radiation detection setup using a SIB1064 is shown below. The Hamamatsu S13615-1025N-08 multi-pixel photon counter array is attached to the SIB1064 which is positioned in an optical assembly to detect incoming radiation. The 64 outputs from the MPPC array are routed on the SIB1064 to the SIB connectors that connect via two high density cables to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel on the SIB1064 produces a trigger to the PhotoniQ whenever a radiation event is detected on any of the individual MPPCs 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 S13615-1025N-08 device are acquired by the PhotoniQ for each trigger produced by the SIB1064. 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

SIB1064 is directly compatible with Veritron PhotoniQ IQSP482 / IQSP582 64 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

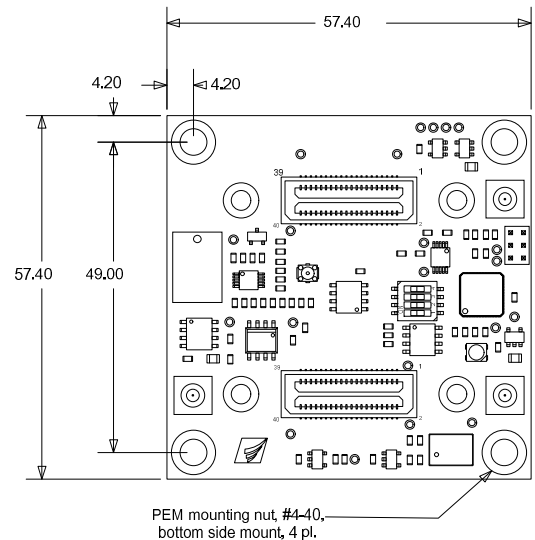
SIB1064 includes two SMB120 coaxial cables, SMB plug to BNC plug, 120 cm.

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

See SIB1064 User Guide for complete specification.

See Hamamatsu S13615-1025N-08 datasheet for specific device information

Mechanical Data



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