Vertilon

Description

The SDS232 SMB Distribution System provides electrical connectivity between Vertilon's PhotoniQ multi-channel PMT & APD data acquisition systems, and up to 32 charge output devices. Multiple single element PMTs and/or avalanche photodiodes are interfaced to the SDS232 through SMB male bulkhead jacks mounted to its front panel. The SDS232 through a connector on its back panel, is connected to the PhotoniQ using a multi-channel, micro-coaxial cable that conforms to Vertilon's standard sensor interface board mating system. This separately ordered cable utilizes Vertilon's low-noise, interconnection method where 32 coaxial connections are made using a single plug.

The SDS232 is useful in PET and SPECT nuclear imaging as well as other applications such as high energy physics and radiation detection where multiple single element photomultiplier tubes or avalanche photodiodes are employed. New high gain solid-state devices like silicon photomultipliers (SPM) and multi-pixel photon counters (MPPC) are easily connected to the SDS232. Having performance approaching PMTs but in a single silicon package, these novel devices combine the small size, low voltage operation and robustness of APDs, with the high gain and stability of PMTs. The SDS232 is particularly well-suited for use with SensL's SPM devices and Hamamatsu's S10362-11 series of MPPCs.

Specifications	
Description	Specification
Maximum Charge Signal	2 nC with IQSP480/482, 500 pC with IQSP580/582
Input Noise Charge (RMS)	30 fC with IQSP480/482, 55 fC with IQSP580/582
Crosstalk	< -84 dB
Enclosure Width	9.843 in. (250 mm)
Enclosure Height	3.346 in. (85 mm)
Enclosure Depth	10.236 in. (260 mm)
Panel Connector Type	SMB Male Bulkhead Jack
Compatibility	Models: IQSP480, IQSP482, IQSP580, IQSP582

Front Panel View

Rear Panel View

Typical Setup

The photo shows an SDS232 connected to a PhotoniQ IQSP480 32-channel PMT / APD data acquisition system. Two channels of the SDS232 are connected to single element silicon photomultiplier (SPM) devices.

Vertilon

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

## Description

The SIB416 sensor interface board allows up to four Hamamatsu S11064 multi-pixel photon counter (MPPC) devices to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The devices are inserted into receptacle pins where their cathode output signals are routed to connectors that connect the device outputs to the PhotoniQ. Bias to MPPC arrays 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 output from the bias interface circuitry is sent to a variable gain preamplifier to represent the total charge signal measured by all four MPPC arrays. This signal is fed into a user-programmable threshold leading edge discriminator that generates a trigger signal when an event exceeding a particular energy threshold is detected on any of the S11064 devices. The trigger output is typically connected to the trigger input on the PhotoniQ data acquisition system. Alternatively, the trigger output can be sent to other external hardware that could perform coincidence detection or precise time-to-digital conversion. The full functionality and operation of the SIB416 is conveniently controlled through the PhotoniQ's graphical user interface.

Typical Setup
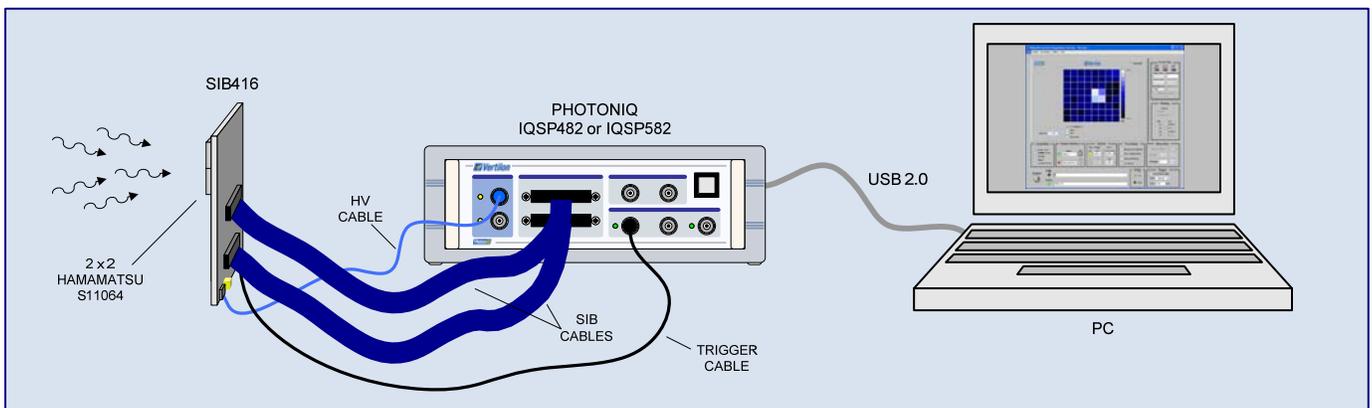
Four Hamamatsu S11064 MPPCs in a 2 x 2 arrangement are attached to the SIB416 which is positioned in an optical assembly to detect incoming radiation. The 64 cathode outputs from the MPPC arrays are routed on the SIB416 to the SIB connectors that connect to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel produces a trigger to the PhotoniQ whenever a radiation event is detected on any of the MPPCs. 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 S11064 devices are acquired by the PhotoniQ for each trigger produced by the SIB416. 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
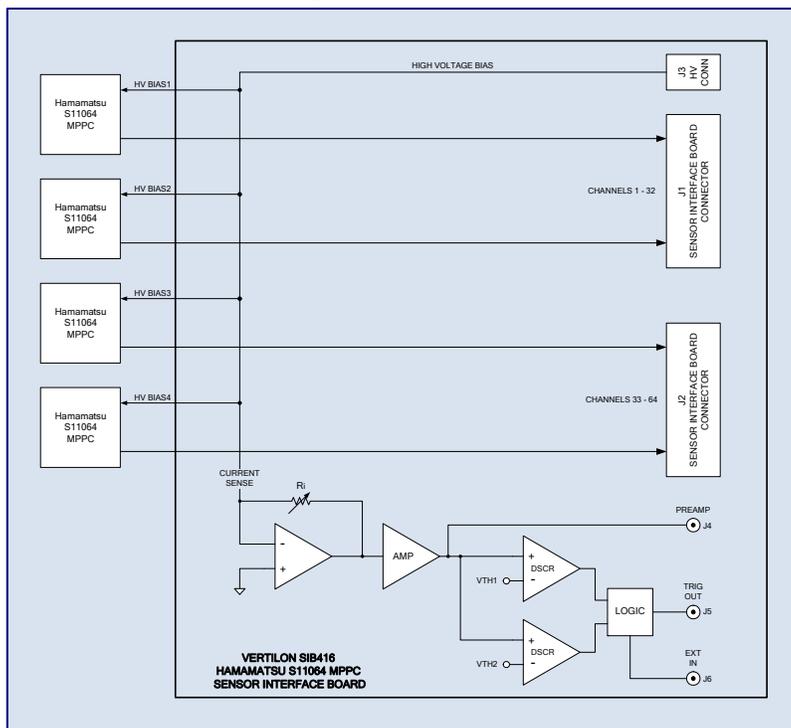
Configuration Dialog Box
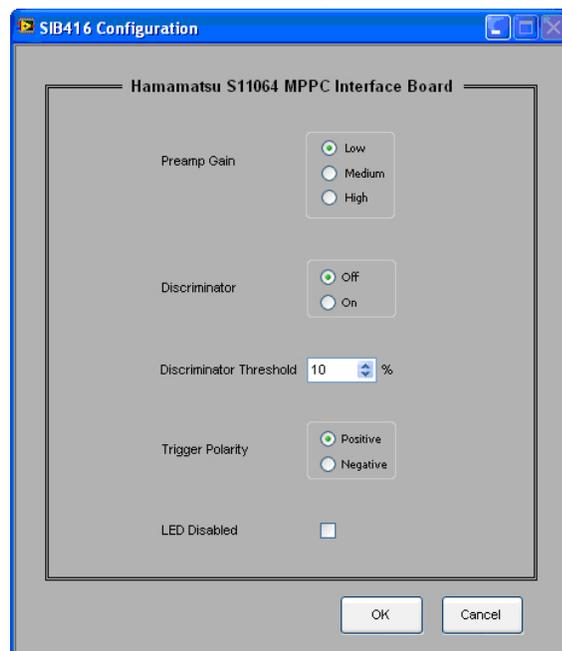
Ordering Information

SIB416 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.

SIB416 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 SIB416 User Guide for complete specification.

See Hamamatsu S11064 datasheet for specific device information

Mechanical Data

ALL DIMENSIONS IN MILLIMETER

Description

The SIB464 sensor interface board allows for a SensL ArrayC-60035-64P 8 x 8 silicon photomultiplier (SiPM) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The SiPM is inserted into the bottom side of the printed circuit board where its 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 array is provided by an on-board adjustable high voltage bias supply. A special current-sense output on the supply is available that represents the AC charge signal produced by the SiPM 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 ArrayC-60035-64P 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.
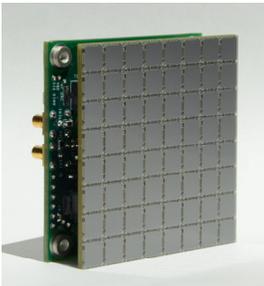
Typical Setup
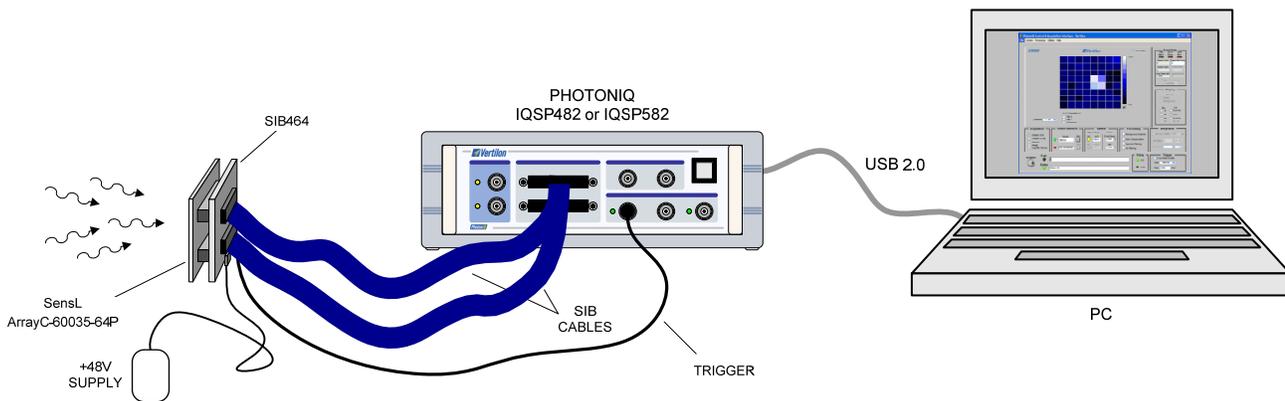
The SensL ArrayC-60035-64P silicon photomultiplier is inserted into the SIB464 which is positioned in an optical assembly to detect incoming radiation. The 64 outputs from the SiPM array are routed on the SIB464 to the SIB connector that connects to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel produces a trigger to the PhotoniQ whenever a radiation event is detected on the SiPM. 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 ArrayC-60035-64P device are acquired by the PhotoniQ for each trigger produced by the SIB464. 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
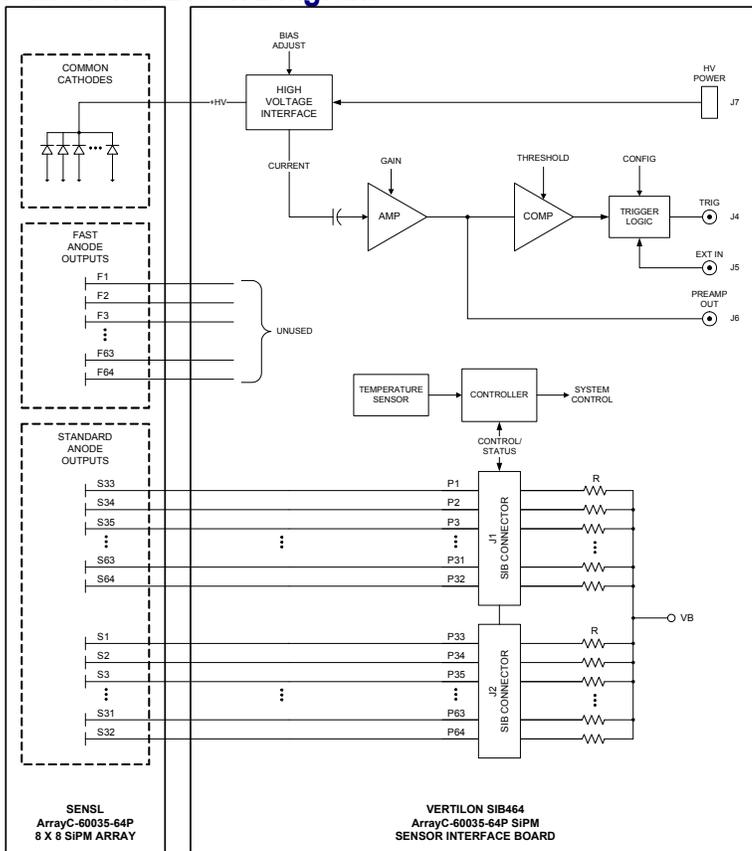
Configuration Dialog Box
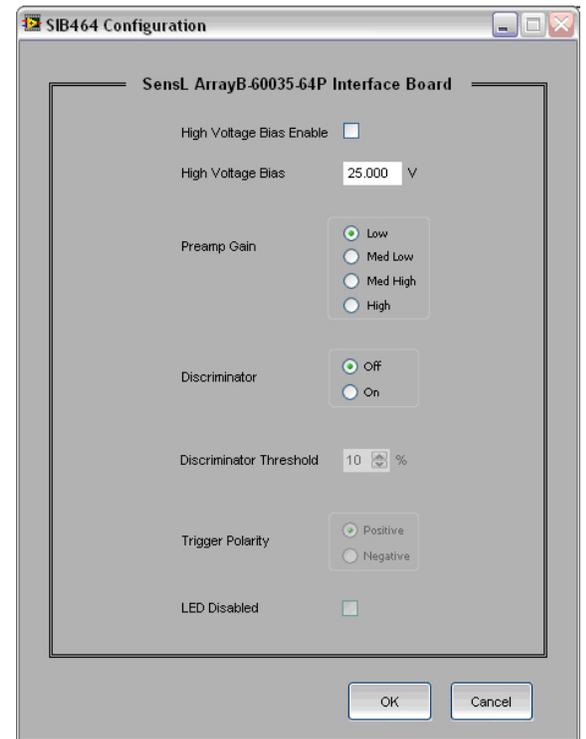

Ordering Information

SIB464 directly compatible with Vertilon PhotoniQ IQSP482 / IQSP582 64 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB464 includes +48V power source for high voltage bias supply 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 SIB464 User Guide for complete specification.

See SensL ArrayC-60035-64P datasheet for specific device information

ALL DIMENSIONS IN MILLIMETER

PS2731.1.1   Oct 2014

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

Description

The SIB616 sensor interface board allows for a SensL ArrayC-30035-16P 4 x 4 silicon photomultiplier (SiPM) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The SiPM is inserted into the bottom side of the printed circuit board where its anode output signals are routed directly to a sensor interface board (SIB) connector. The SIB connector mates to a micro-coaxial cable assembly that connects the 16 device outputs to the PhotoniQ. Bias to SiPM array is provided by an on-board adjustable high voltage bias supply. A special current-sense output on the supply is available that represents the AC charge signal produced by the SiPM 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 ArrayC-30035-16P 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.
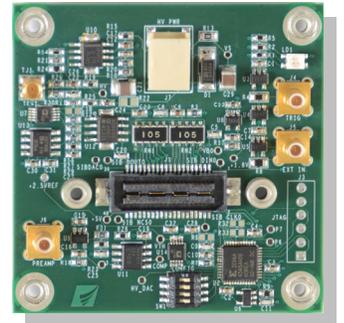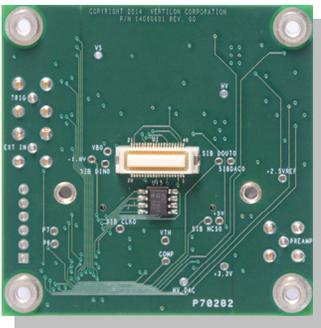
Typical Dual Sensor Setup
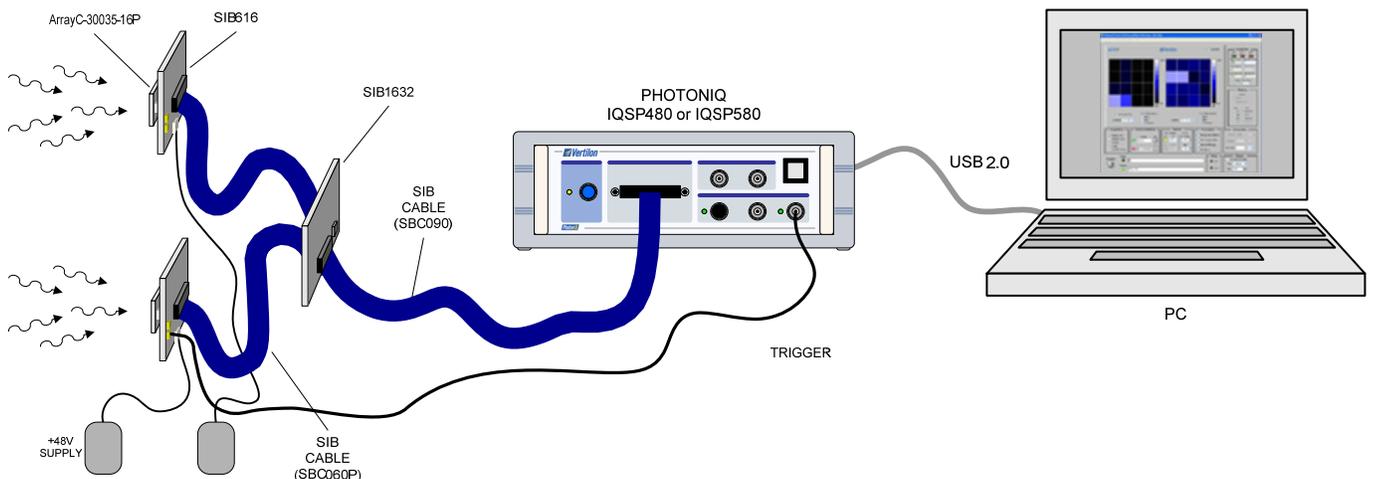
The SensL ArrayC-30035-16P silicon photomultipliers are inserted into the SIB616s which are positioned in an optical assembly to detect incoming radiation. The SIB cables from each SIB616 connects to a Vertilon SIB1632 where the 16 outputs from each SiPM array are combined into one SIB cable (SBC090) that connects to a PhotoniQ IQSP480 or IQSP580 multichannel data acquisition system. The discriminator channel from one SIB616 produces a trigger to the PhotoniQ whenever a radiation event is detected on the SiPM. The energy level threshold for the radiation event is set by the user through the PhotoniQ graphical user interface. Charge signals from the 32 anodes from the two ArrayC-30035-16P devices are acquired by the PhotoniQ for each trigger produced by the SIB616. 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 a dual 4 x 4 image of the energy levels for each event captured.

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

Functional Block Diagram
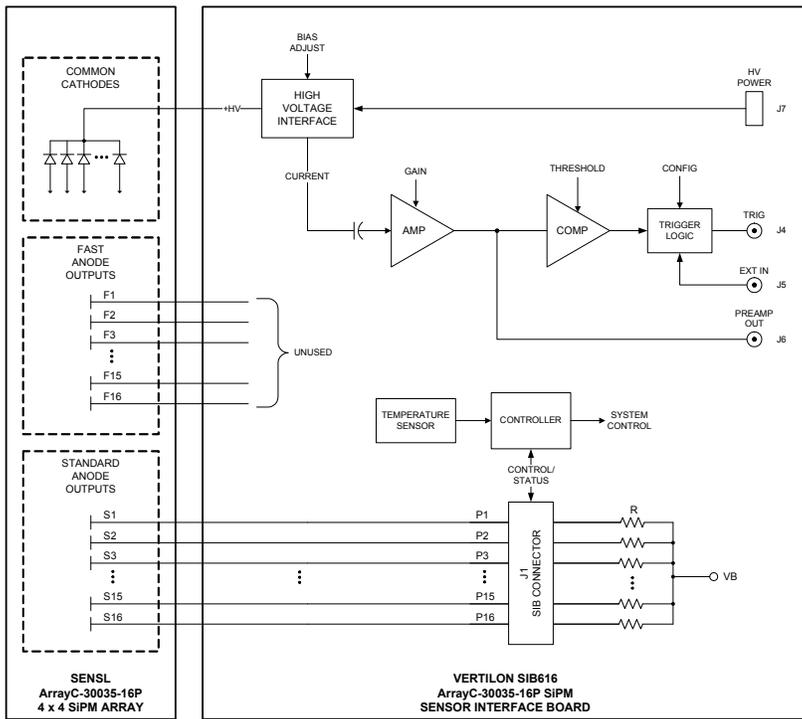
Configuration Dialog Box

Mechanical Data

ALL DIMENSIONS IN MILLIMETER

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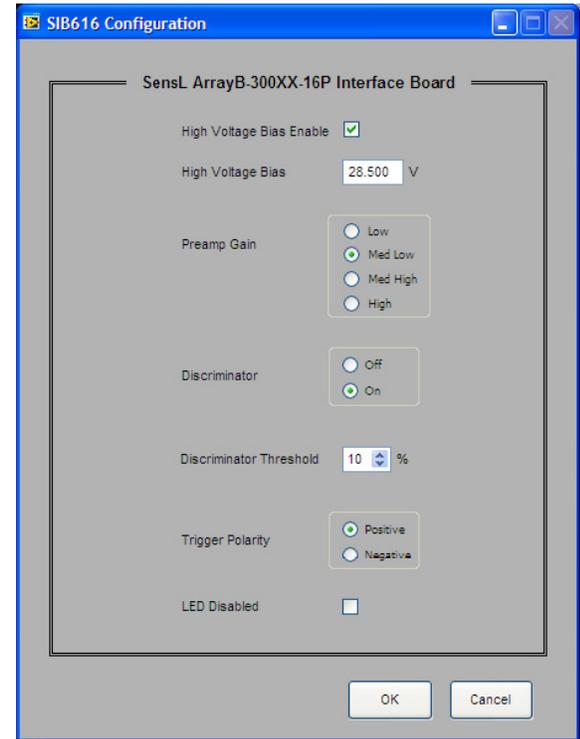
Ordering Information

SIB616 is directly compatible with Vertilon PhotoniQ IQSP480 / IQSP580 32 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB616 includes +48V power source for high voltage bias supply 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 SIB616 User Guide for complete specification.

The Vertilon SIB1632 is an optional product that allows two SIB616 sensor interface boards to be used with one Vertilon 32 channel data acquisition system. See SIB1632 product sheet for details.

See SensL ArrayC-30035-16P datasheet for specific device information

PS2732.1.1   Oct 2014

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

SIB716 Sensor Interface Board Hamamatsu S13361-3050AE-04 — Product Sheet

Description

The SIB716 sensor interface board allows for a Hamamatsu S13361-3050AE-04 4 x 4 multi-pixel photon counter (MPPC) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The MPPC array is inserted into the bottom side of the printed circuit board where its cathode output signals are routed directly to a sensor interface board (SIB) connector. The SIB connector mates to a micro-coaxial cable assembly that connects the 16 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 16 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 S13361-3050AE-04 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.
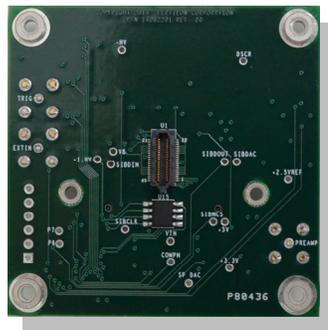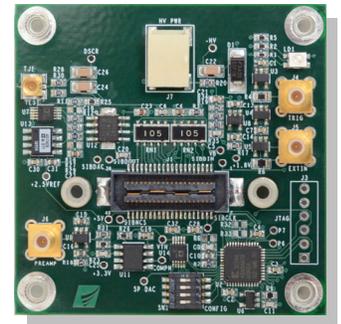
Typical Dual Sensor Setup
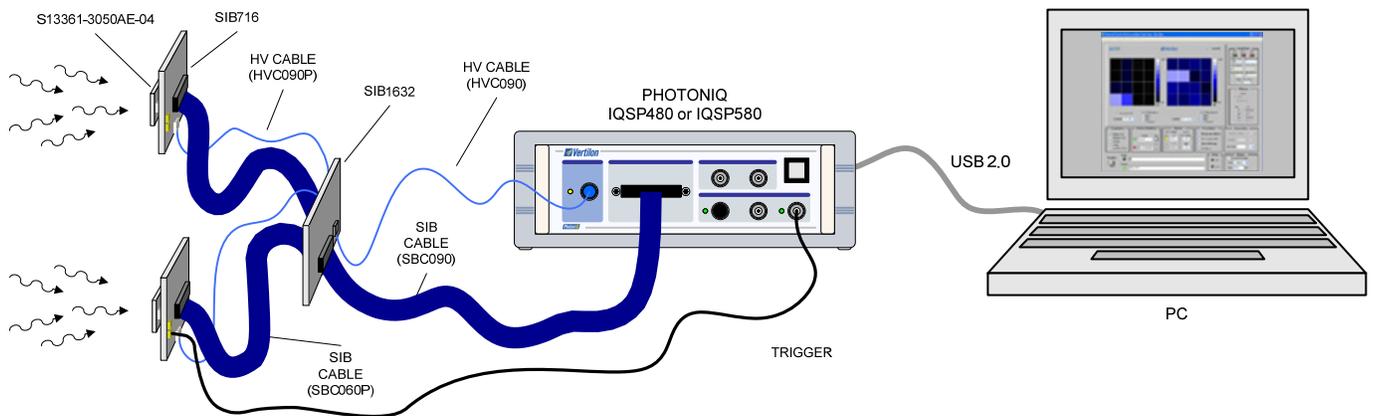
The Hamamatsu S13361-3050AE-04 multi-pixel photon counters are inserted into the SIB716s which are positioned in an optical assembly to detect incoming radiation. The SIB cables from each SIB716 connect to a Vertilon SIB1632 where the 16 outputs from each MPPC array are combined into one SIB cable (SBC090) that connects to a PhotoniQ IQSP480 or IQSP580 multichannel data acquisition system. The discriminator channel from one SIB716 produces a trigger to the PhotoniQ whenever a radiation event is detected on the MPPC. The energy level threshold for the radiation event is set by the user through the PhotoniQ graphical user interface. Charge signals from the 32 cathodes from the two S13361 devices are acquired by the PhotoniQ for each trigger produced by the SIB716. 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 a dual 4 x 4 image of the energy levels for each event captured.

Functional Block Diagram

TEMPERATURE SENSOR → CONTROLLER → SYSTEM CONTROL

CONTROL/STATUS

D4K — P1
C4K — P2
B4K — P3
B1K — P15
A1K — P16

J1 SIB CONNECTOR

R — VB

HAMAMATSU S13361-3050AE-04 4 x 4 MPPC ARRAY

-HV — HIGH VOLTAGE INTERFACE

HV POWER — J7

CURRENT — AMP (GAIN) — COMP (THRESHOLD) — TRIGGER LOGIC (CONFIG)

TRIG — J4
EXT IN — J5
PREAMP OUT — J6

VERTILON SIB716 S13361-3050AE-04 MPPC SENSOR INTERFACE BOARD

Configuration Dialog Box

SIB716 Configuration

Hamamatsu S13361-3050-AS-04 MPPC Interface Board

Preamp Gain
- ○ Low
- ○ Medium
- ○ High

Discriminator
- ○ Off
- ● On

Discriminator Threshold 32 ↕ %

Trigger Polarity
- ● Positive
- ○ Negative

LED Disabled ☐

OK   Cancel

Mechanical Data

57.40
4.20
4.20
57.40
22.60

ALL DIMENSIONS IN MILLIMETER

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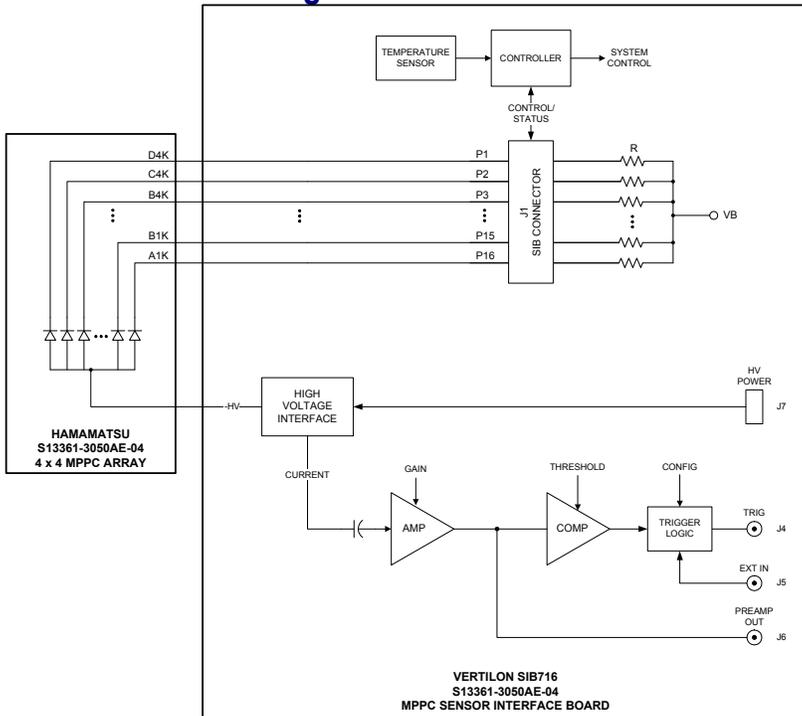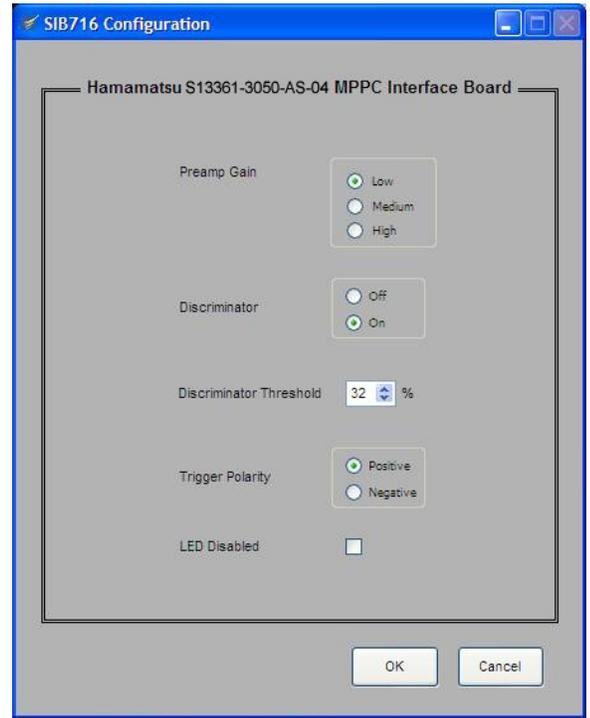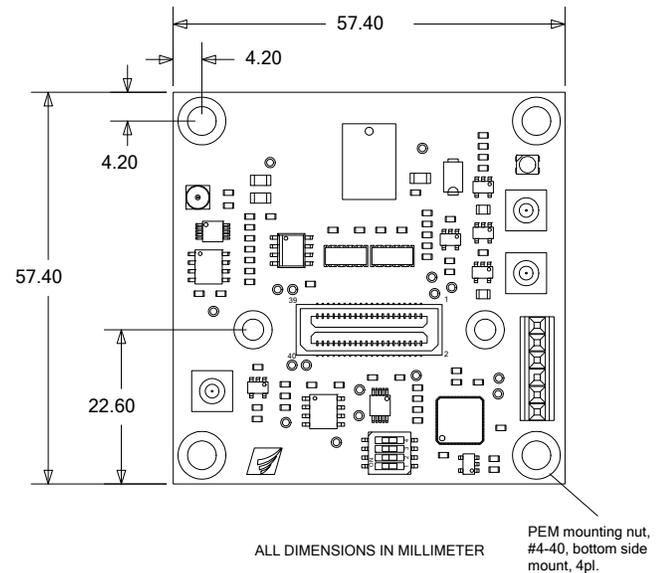
Ordering Information

SIB716 is directly compatible with Vertilon PhotoniQ IQSP480 / IQSP580 32 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB716 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 SIB716 User Guide for complete specification.

The Vertilon SIB1632 is an optional product that allows two SIB716 sensor interface boards to be used with one Vertilon 32 channel data acquisition system. See SIB1632 product sheet for details.

See Hamamatsu S13361-3050-AE-04 datasheet for specific device information

Description

The SIB764 sensor interface board allows for a Hamamatsu S13361-3050NE-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 S13361-3050NE-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 SIB764 is shown below. The Hamamatsu S13361-3050NE-08 multi-pixel photon counter array is attached to the SIB764 which is positioned in an optical assembly to detect incoming radiation. The 64 outputs from the MPPC array are routed on the SIB764 to the SIB connectors that connect to a PhotoniQ IQSP482 or IQSP582 multichannel data acquisition system. The discriminator channel on the SIB764 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 S13361-3050NE-08 device are acquired by the PhotoniQ for each trigger produced by the SIB764. 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.
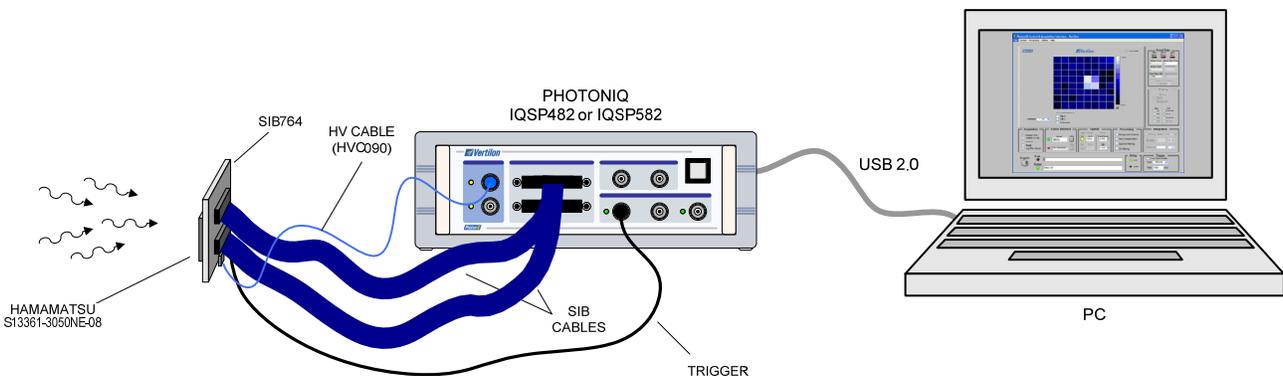
Functional Block Diagram
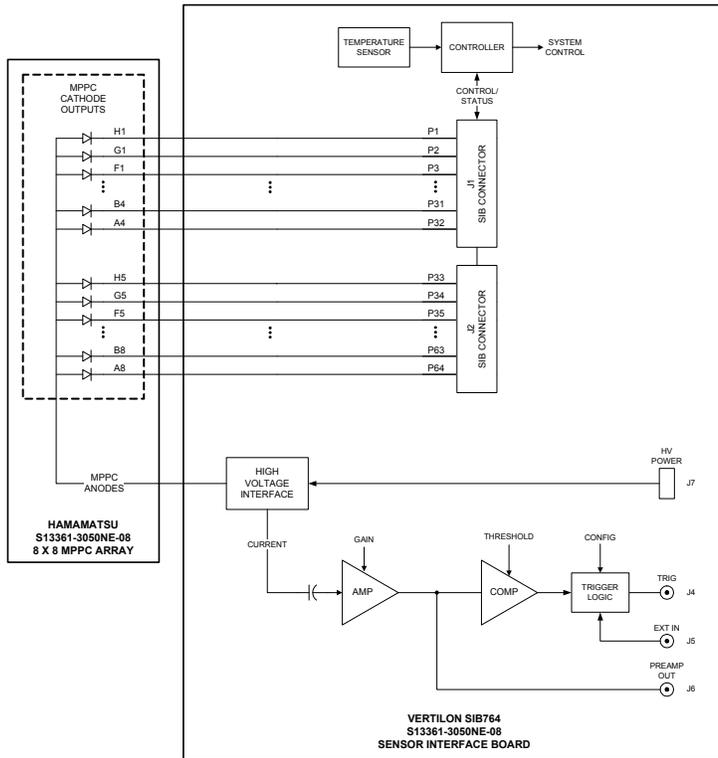
Configuration Dialog Box
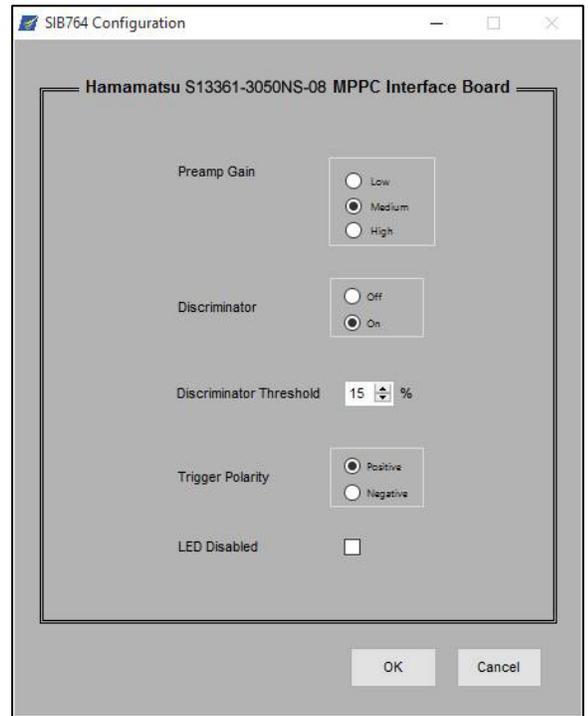
Ordering Information

SIB764 is directly compatible with Vertilon PhotoniQ IQSP482 / IQSP582 64 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB764 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 SIB764 User Guide for complete specification.

See Hamamatsu S13361-3050NE-08 datasheet for specific device information

Mechanical Data

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

ALL DIMENSIONS IN MILLIMETER

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

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.
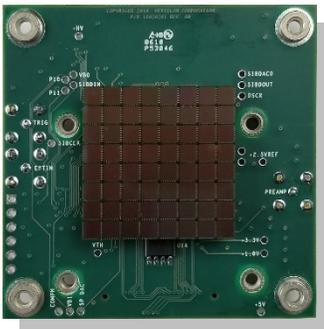
Typical Radiation Detection Setup

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.
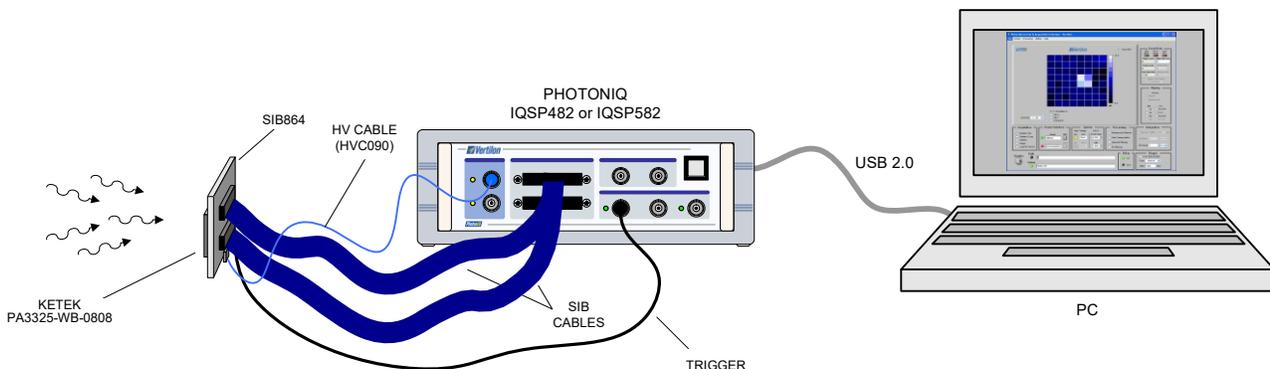
Functional Block Diagram
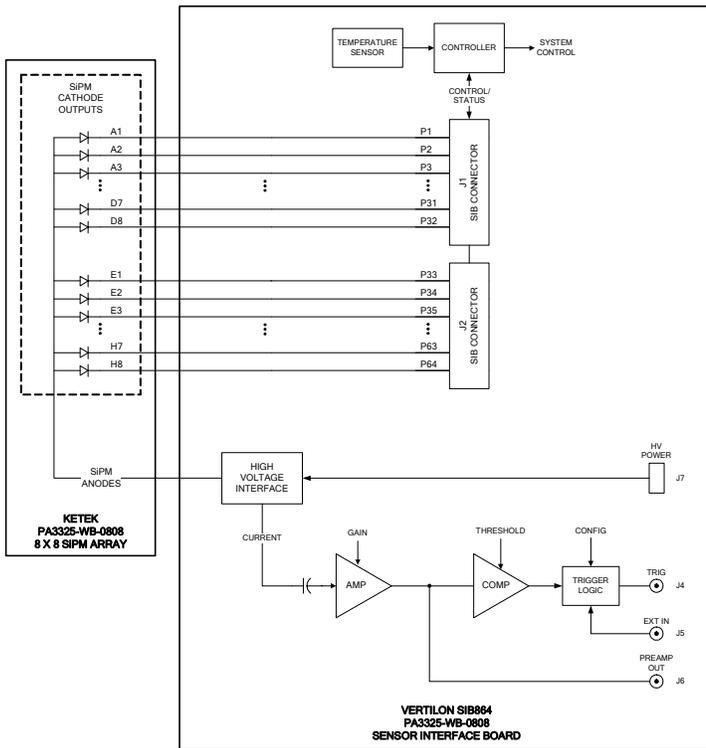
Configuration Dialog Box
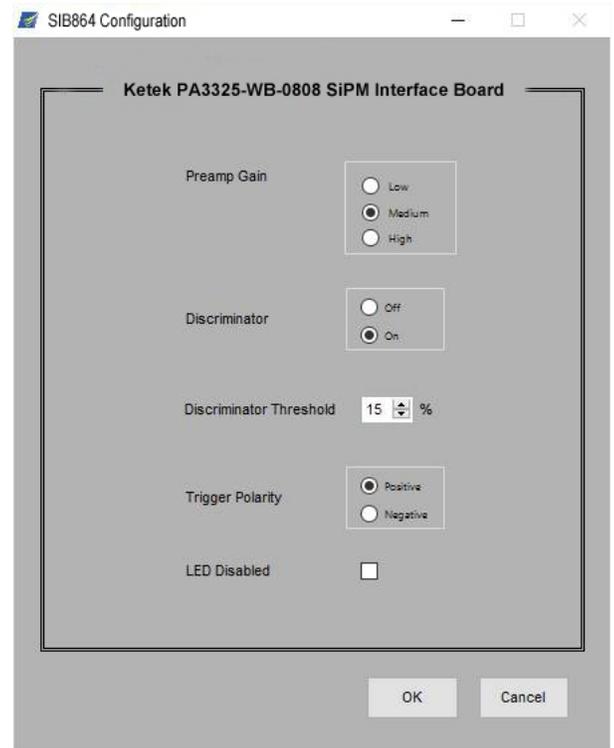
Ordering Information

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.

ALL DIMENSIONS IN MILLIMETER

PS2745.1.1   Feb 2018

Vertilon

Description

The SIB916 sensor interface board allows for the Broadcom AFBR-S4N44P163 4 x 4 silicon photomultiplier (SIPM) array to easily interface to a Vertilon PhotoniQ multichannel data acquisition system. The SIPM array is attached to the bottom side of the printed circuit board where its cathode output signals are routed directly to a sensor interface board (SIB) connector. The SIB connector mates to a micro-coaxial cable assembly that connects the 16 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 simultaneously on all 16 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 AFBR-S4N44P163 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. Alternatively, the discriminator signal can be fed to the on-board coincidence detector and used with a second SIB916 to generate triggers only when two near-simultaneous events are detected.
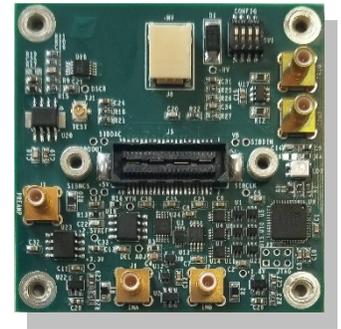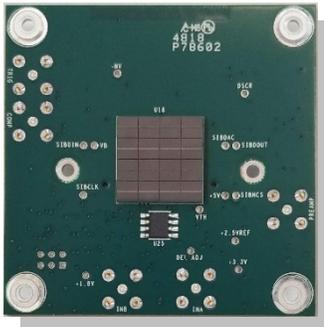
Typical Dual Sensor Setup
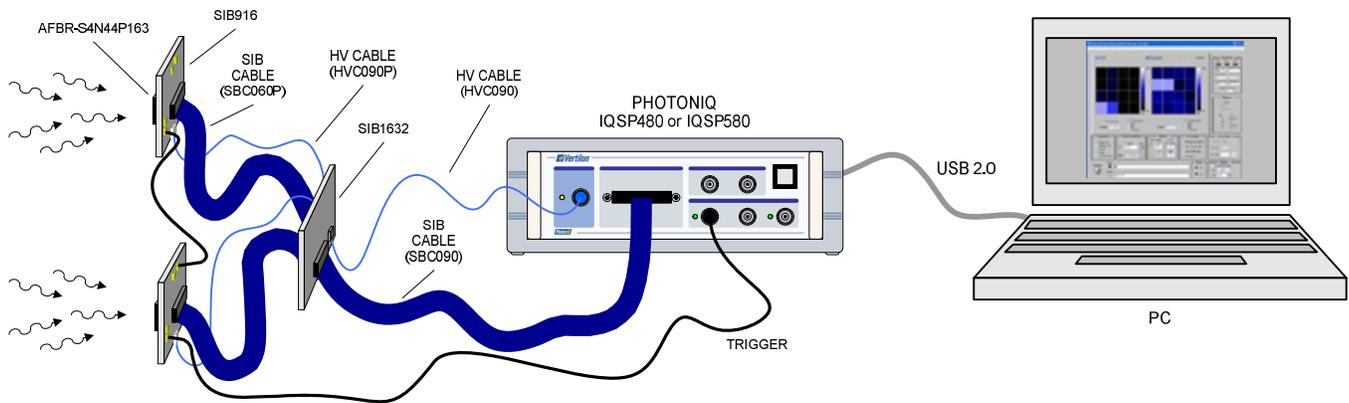
The Broadcom AFBR-S4N44P163 4 x 4 SiPM arrays are mounted to the SIB916s which are positioned in an optical assembly to detect incoming radiation. The SIB cables from each SIB916 connect to a Vertilon SIB1632 where the 16 outputs from each SiPM array are combined into one SIB cable (SBC090) that connects to a PhotoniQ IQSP480 or IQSP580 multichannel data acquisition system. The discriminator output from one SIB916 is fed to the coincidence detector input on the other SIB916 so that a trigger to the PhotoniQ is produced whenever a near-simultaneous radiation event is detected on both SiPM arrays. The energy level threshold for the radiation event is set by the user through the PhotoniQ graphical user interface. Charge signals from the 32 cathodes from the two AFBR-S4N44P163 devices are acquired by the PhotoniQ for each coincidence trigger produced by the SIB916. 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 a dual 4 x 4 image of the energy levels for each event captured.

Functional Block Diagram
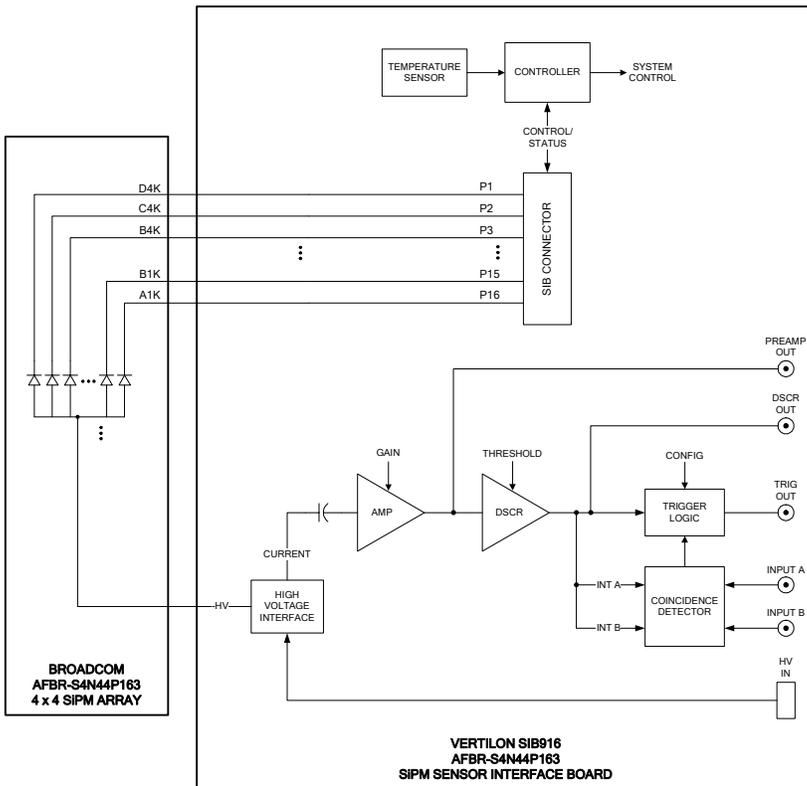
Configuration Dialog Box
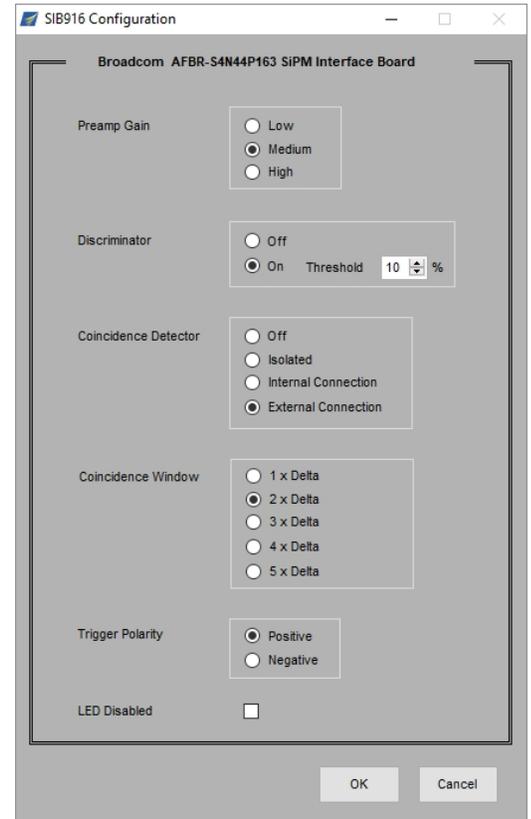
Ordering Information

SIB916 is directly compatible with Vertilon PhotoniQ IQSP480 / IQSP580 32 channel data acquisition systems. PhotoniQ systems sold separately. See User Manual for performance specifications.

SIB916 includes three SMB120 coaxial cables, SMB plug to BNC plug, 120 cm.

When using the coincidence detector with two SIB916, a coaxial cable consisting of an SMB plug on each end is required.

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

See SIB916 User Guide for complete specification.

See Broadcom AFBR-S4N44P163 datasheet for specific device information

Mechanical Data

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

ALL DIMENSIONS IN MILLIMETER

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

SIB1064 Sensor Interface Board Hamamatsu S13615-1025N-08   *Product Sheet*

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.
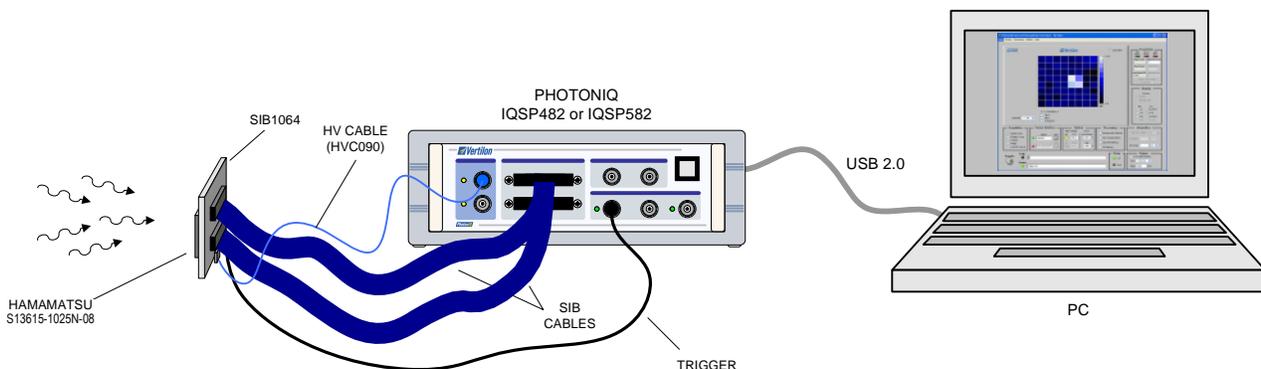
Functional Block Diagram
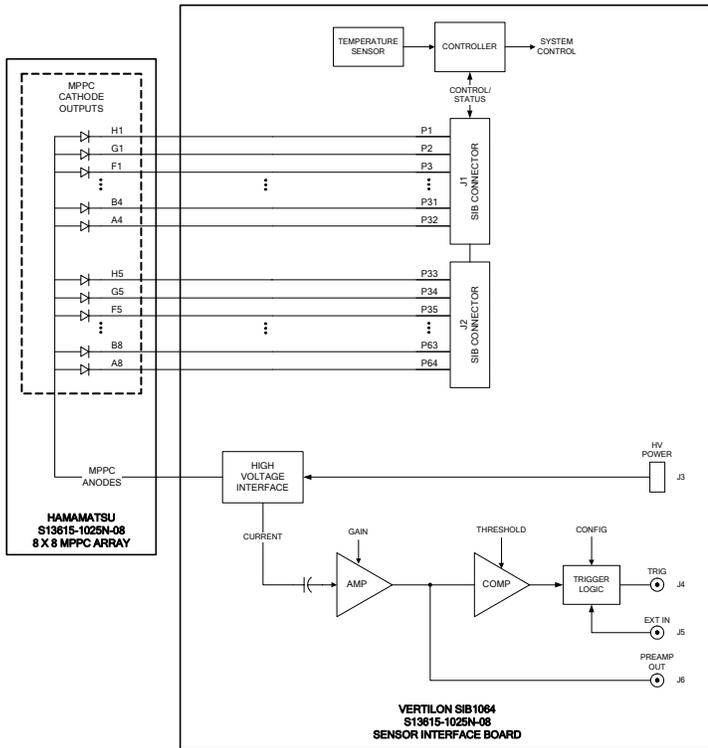
Configuration Dialog Box
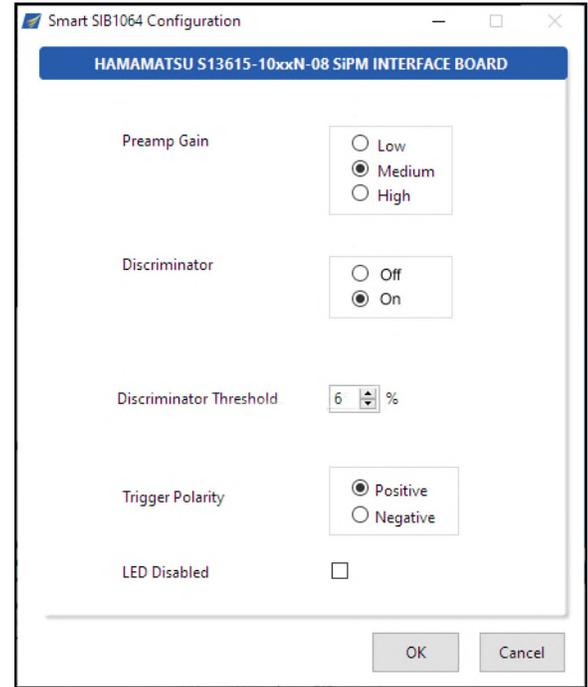
Ordering Information

SIB1064 is directly compatible with Vertilon 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

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

PS2748.1.0   Oct 2020

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