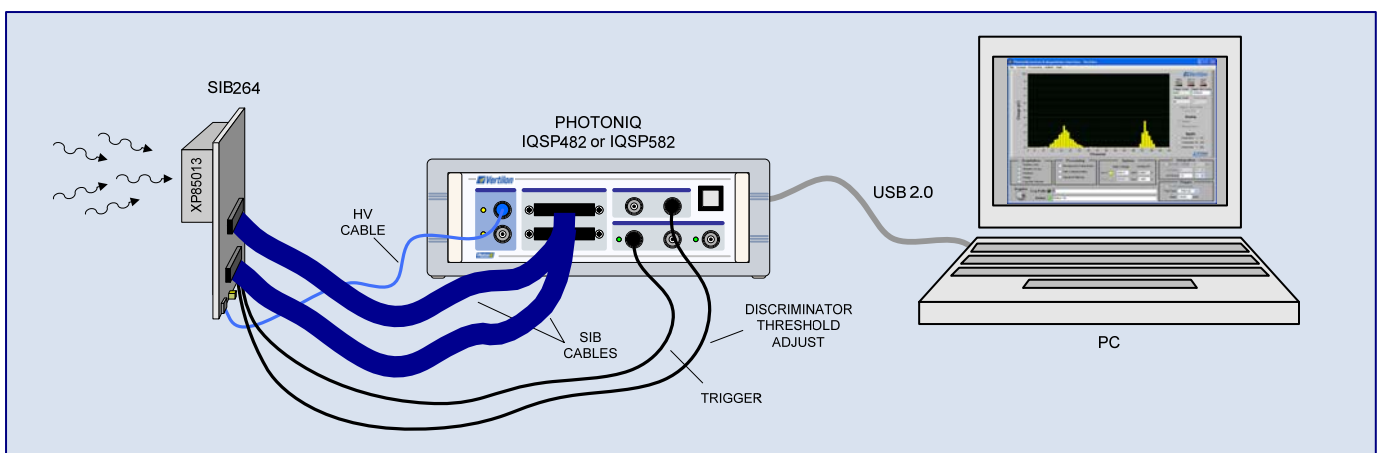
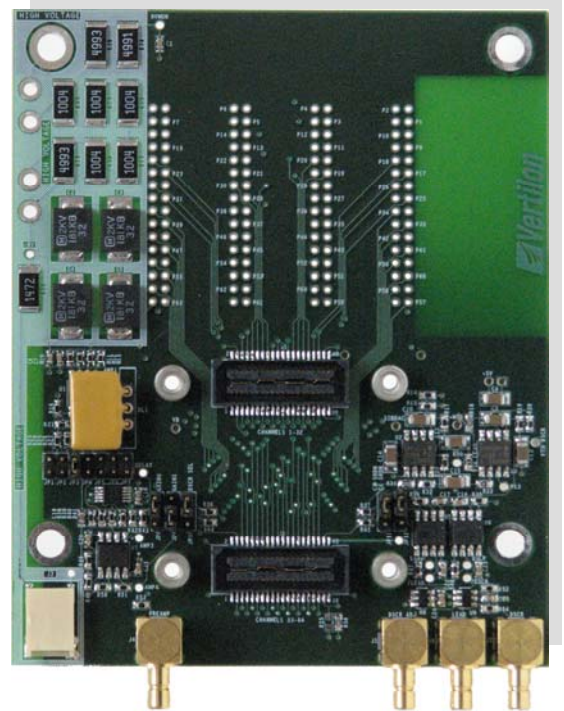


SIB264 MCP-PMT Sensor Interface Board XP85013 Series

Product Sheet

Product Overview

- Mounting board for Photonis XP85013 64 channel MCP-PMT
- Provides 64 channel interface to data acquisition systems
- Separate high voltage input for MCP-PMT cathode bias
- High speed preamplifier for microchannel plate output
- Leading edge, constant fraction, and zero slope discriminators
- Adjustable gain and discriminator thresholds
- 100% compatible with Vertilon's PhotoniQ multichannel DAOs
- No external power supply required



Typical Setup

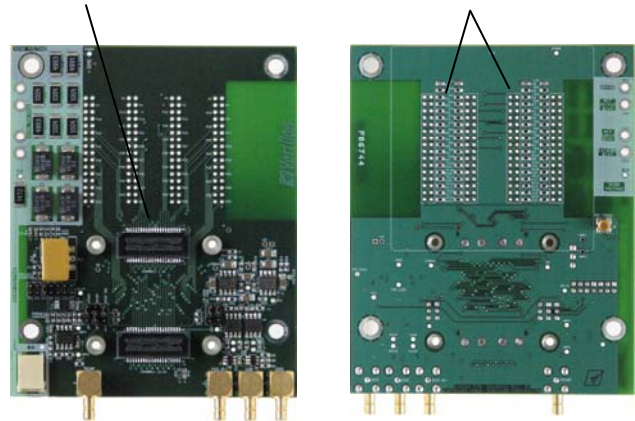
Description

The SIB264 multianode photomultiplier tube interface board provides the mechanical and electrical connectivity between the Photonis XP85013 series 64 anode MCP-PMT and external signal processing electronics such as Vertilon's PhotoniQ multichannel data acquisition systems. The XP85013 is mounted to the bottom side of the SIB264 through 128 socket pins that connect the MCP-PMT's 64 anode signals to the board. The anode signals are routed to two connectors located on the top of the board that each connect to a specialized high density coaxial cable assembly. This arrangement allows the SIB264 to be conveniently mounted directly into the user's optical setup with the MCP-PMT facing outward from the bottom of the board and the sensor interface board (SIB) cables exiting from the top. The SIB cables

carry the 64 anodes from the XP85013 to the PhotoniQ where the charge from each is separately integrated, digitized, and sent to a PC for display or further signal processing. The negative high voltage bias to the MCP-PMT's cathode is supplied directly from the PhotoniQ on a high voltage cable to a dedicated connector on the SIB264. This voltage is used by an on-board bias generator circuit to derive the required high voltages for the XP85013's microchannel plate. For applications requiring timing pickoff from the XP85013, the SIB264 includes a two stage high speed preamplifier for the microchannel plate output and three types of pulse discriminators. The outputs from a leading edge, constant fraction, and zero slope discriminator respectively generate trigger signals based on a threshold, percentage of pulse height, and pulse peak. These outputs as well as the preamplifier output are available to the user for connection to the PhotoniQ or other external electronics. Several user adjustments are included for optimizing system gain and trigger thresholds for the discriminators.

SIB Cable Connectors

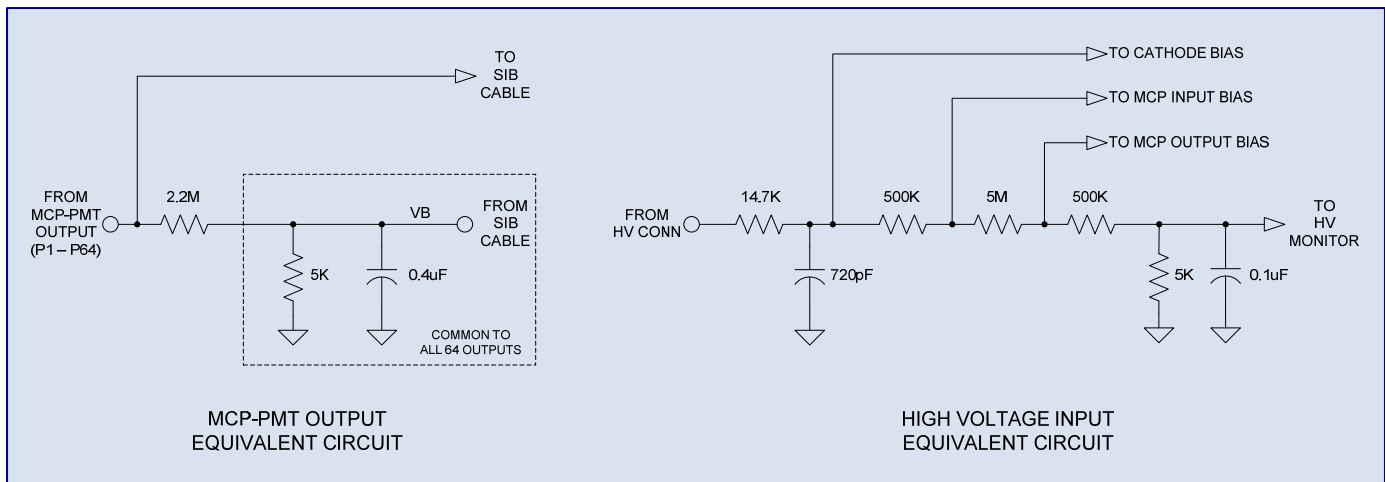
XP85013 Mounting Pins



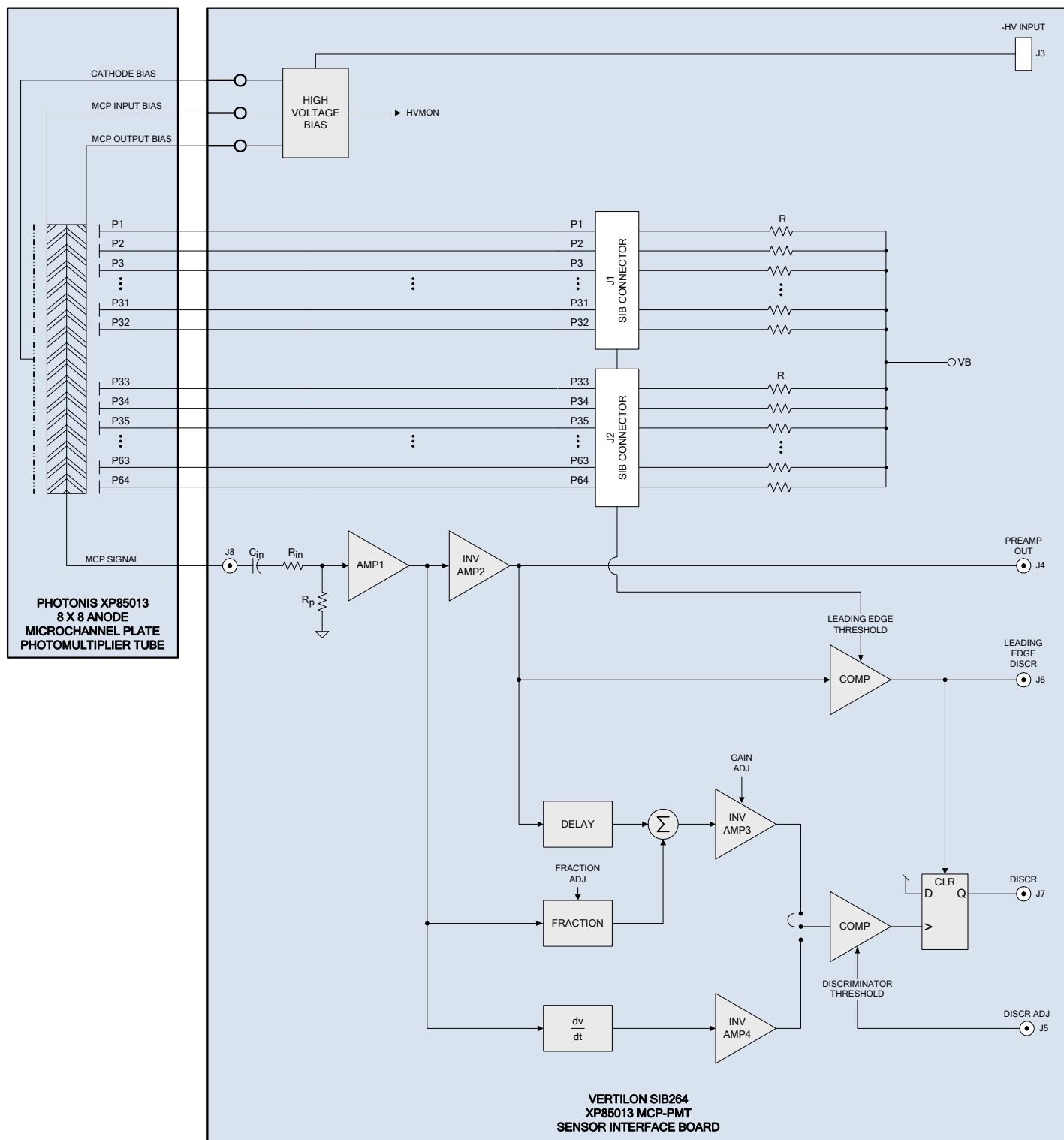
Top View

Bottom View

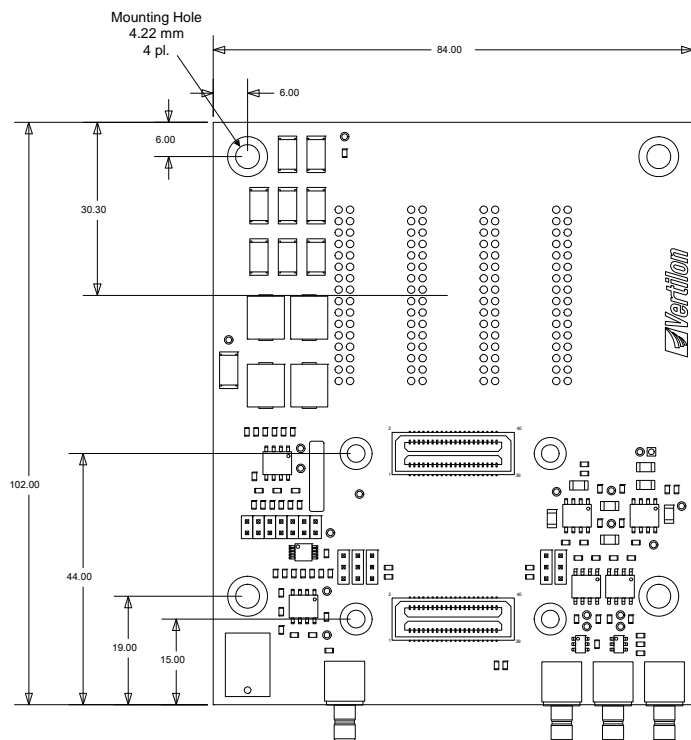
Electrical Interface Circuits



Functional Block Diagram



Mechanical Data



ALL DIMENSIONS IN MILLIMETER

Specifications

| Description | Specification |
|--|-----------------------------|
| Number of Anode Circuits | 64 |
| MCP Preamplifier Gain | 18.6 dB, inverting |
| Leading Edge Discriminator Time Delay | 5 nsec |
| Leading Edge Discriminator Time Walk | 3 nsec |
| Input Signal Range: 30 - 150mV | |
| Constant Fraction Discriminator Time Delay | 5 nsec |
| Constant Fraction Discriminator Time Walk | 2 nsec |
| Input Signal Range: 20 - 100mV | |
| Zero Slope Discriminator Time Delay | 5 nsec |
| Zero Slope Discriminator Time Walk | 3 nsec |
| Input Signal Range: 20 - 150mV | |
| Discriminator Jitter | <500 psec |
| Supply Voltage | +5.0 V |
| Supply Current | +60 mA |
| Width | 84 mm |
| Length | 102 mm |
| Height | 2.5 mm (PCB thickness only) |

General Safety Precautions

Warning: HIGH VOLTAGES – Voltages can exceed 2500V

Operate device within specified range

Electrostatic discharge sensitive

Do not operate in wet, damp or explosive atmosphere

See XP85013 data sheet for specific handling information



Ordering Information

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.

Order PhotoniQ data acquisition system separately. SIB264 directly compatible with Veritron IQSP482 and IQSP582 64 channel data acquisition systems. See PhotoniQ User Manual for performance specifications.

High voltage cable not included with SIB264. Included with high voltage power supply option HVPS001 or HVPS002 for IQSP482 / IQSP582.

See SIB264 User Guide for complete specification.

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AP Technologies Limited The Coach House Watery Lane Bath BA2 1RL
T: +44 (0) 1225 780 400 F: +44 (0) 8701 266 449 E: info@aptechnologies.co.uk

AP Technologies
www.aptechnologies.co.uk

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