BROADCOM®

Installation Guide

AFBR-S4KPEBIAS

SiPM Bias Source for WB-Type and WL-Type SiPMs and SiPM Arrays

Description

The Broadcom® single silicon photomultipliers (SiPM) bias source powers all AFBR-S4K silicon photomultipliers. It is an ideal addition to the SiPM evaluation kit and can be used with any single SiPM or SiPM array.

The active area of these SiPMs is 3.0 × 3.0 mm^2 with single-photon avalanche diode (SPAD) pitches of 15 µm, 35 µm or 47 µm. The WL-type series stands for high efficiency and improved low noise performance. Its excellent timing enables easy replacement of PMTs, APDs, and PIN diodes.

Safety

This document contains some information and warnings which have to be followed by the user to ensure safe operation and to retain the instrument in a safe condition.

The SiPM Bias Source is intended for evaluation purposes only. It has been designed for indoor use in laboratory environment for a temperature range 5°C to 40°C, 20% to 80% RH (non-condensing). Do not operate while condensation is present.

Use of the AFBR-S4KPEBIAS Bias Source in a manner not specified by these instructions may impair the safety protection provided. Do not operate it outside its rated supply voltages or environmental range.

When the Bias Source is connected to its supply, the Bias Output is live. Opening the covers or removal of parts exposes live parts. It must be disconnected from all voltage sources before it is opened for any adjustment, replacement, maintenance or repair which may be only carried out by a trained person who is aware of the hazard involved.

CAUTION! This product is intended for evaluation purposes only. Therefore, it is to be handled only by trained personnel in a laboratory environment.

Features

- Benchtop Bias Supply for any AFBR-S4K SiPM
- Switchable Polarity, 20V to 40V output
- Switchable Current Limit 2 mA/20 mA
- Low Output Voltage Ripple < 2 mV RMS
- Bias Voltage Regulation by Potentiometer
- International Power Supply included

NOTE: All values in this data sheet are typical values if not marked with min., max., <, or >.

Preamplifier Specifications

Parameter	Specification
Power Input	12V DC
Output Voltag	20V to 40V, SMA type
Output Current Limit	2 mA or 20 mA, switchable
Output Polarity	Positive or negative, switchable
Output Ripple	Y 2 mV RMS
Operating Range	+5°C to 40°C
EMC Norm	EN 61326:2013
EMC Specification	EN 55011, class B
EMC Frequency Range	30 MHz to 1 GHz
Dimensions	71 x 57 x 18 mm^3 (L x W x H)
Power Adapter Input	90V to 264V AC, 47 to 63 Hz
Power Adapter Output	12V DC, 0.85 A
Power Adapter Specification	Meets CEC + ErP Level V

Front and Rear Panel Connections

The front and rear panels with their corresponding controls are shown in Figure 1 and Figure 2. As soon as the Bias Source is powered the green Power On LED lights up and the Bias Output is switched on.

The bias voltage is set with a screwdriver at the potentiometer and can be measured with a multimeter to adjust the required value.

The Current Limit LED is only lit in case the set current limit is reached. All controls can be switched while the power is on.

Figure 1: PEBIAS Front Panel

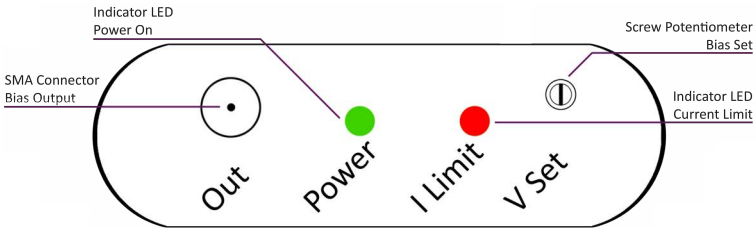
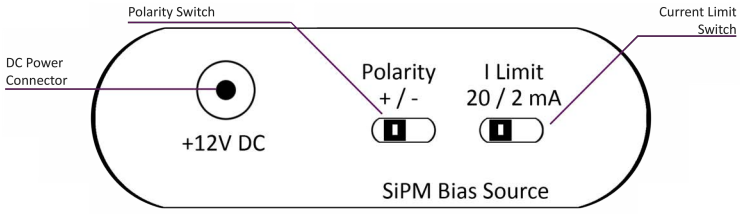


Figure 2: PEBIAS Rear Panel



BROADCOM®

Lead (Pb) Free
RoHS 6 fully compliant
RoHS 6 fully compliant options available;
-xxxE denotes a lead-free product