



Interchangeable Sensor Linear Mode APD Module

The QO-APD1 module is a sensitive and flexible light level detection sensor. This module consists of a sensor card and a control card. The control card enables the connection of different sensor cards to the device, allowing it to work compatibly with various Avalanche Photodiode (APD) sensors.

The sensor card is equipped with an APD sensor and a temperature sensor. The control card regulates the voltage control of the sensor based on the temperature data it receives from the sensor card. This enables the system to generate a linear voltage output dependent on the amount of light incident on the sensor, facilitating precise measurements.

The QO-APD1 module can easily connect to your computer through a micro USB connection and can be controlled through the user-friendly interface we have developed. The interface serves various functions, such as transmitting sensor information to the control card and controlling the temperature-voltage operating ranges of the sensor. Additionally, real-time temperature and voltage data can be observed graphically through the interface.

In case of any error in the system, it will notify the user. Any changes made through the UART connection in the interface can also be implemented by other microcontrollers, making it easy to integrate the module into other systems.

The QO-APD1 module is designed to cater to users seeking a reliable and high-performance light level detection solution. Its flexible structure allows for easy integration into various projects, making it a versatile choice for a wide range of applications.

Features

- » Sensitivity to different wavelengths with interchangeable sensors.
- » Easy configuration and error detection through the computer interface.
- » Communication with other microcontrollers through UART connection.
- » Logarithmic and amplified SMA/MOLEX output options.
- » Precise measurements even in low-light conditions.

Applications

- » Flow cytometry
- » Scanning Laser Ophthalmoscope (SLO)
- » Optical distance measurement devices
- » Optical communication
- » Systems that require precise light measurement

Absolute Maximum Values and Characteristic Features ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Maks	Unit
Power input	V_{IN}	9	12	18	V
Operating Temperature	T_{OPR}	-20	25	50	$^\circ\text{C}$
Storage Temperature	T_{STG}	-20	25	70	$^\circ\text{C}$
Current Consumption	I_C	0.4	0.5	0.6	A
Output Impedance	Z_O	-	50	-	Ω
Gain-Temperature Stability	-	-	-	± 5	%
Cutoff Frequency (High)	F_{HIGH}	-	120	-	MHz
Cutoff Frequency (Low)	F_{LOW}	DC	-	-	-