

Description

The PhotoniQ model MCPC618 is a complete, off-the-shelf, high speed, eight channel pulse counting system for PMTs, silicon photomultipliers (SiPM) and APDs. Implemented as a stand-alone laboratory instrument with a PC interface, the MCPC618 is used for discrimination, counting, and data acquisition (DAQ) of single pulse events across eight independent counting channels. Its front end design permits direct connection to most PMTs and SiPMs without the need for a preamplifier. Flexible intelligent triggering allows the unit to reliably acquire count data using one of several sophisticated triggering techniques. The MCPC618 is fully configurable through the PC via its USB 2.0 port using an included graphical user interface. Continuous high speed data transfers to the PC are also handled through this port. Additionally, a LabView™ generated DLL is provided for users who wish to write their own applications that interface directly to the unit.

Applications

- Fluorescence Spectroscopy
- Fluorescence Lifetime Measurement
- Chemiluminescence Detection
- Bioluminescence Detection
- Photon Correlation Spectroscopy
- Bioaerosol Detection and Discrimination
- LIDAR
- Optical Tomography of Biological Tissue
- Low Light Level Detection
- Flow Cytometry
- Single Molecule Detection
- Neutrino Detection
- Spatial Radiation Detection
- Confocal Microscopy
- Particle Physics



Features

- Includes eight independent counting channels with PMT / SiPM interface and discriminators
- Flexible control of counting period parameters such as delay, width, or external
- Threshold control of internal leading / trailing edge discriminators
- Adjustable microGate provides additional level of count gating at sub-nanosecond time resolution
- Pulse width discrimination based on user-defined minimum / maximum conditions
- Synchronization of microGate to external excitation source
- Pulse pair resolution of less than 4 nsec.
- Trigger stamping and time stamping with 100 nsec resolution
- Maximum count rate greater than 250 MHz per channel for a total of two billion counts per second
- USB 2.0 interface supports high data transfer rates
- Intelligent triggering supports external, internal, level, and continuous counting modes
- Graphical User Interface (GUI) for menu driven data acquisition and configuration
- LabVIEW™ generated DLL for interface to user custom applications



Software Features & Functions

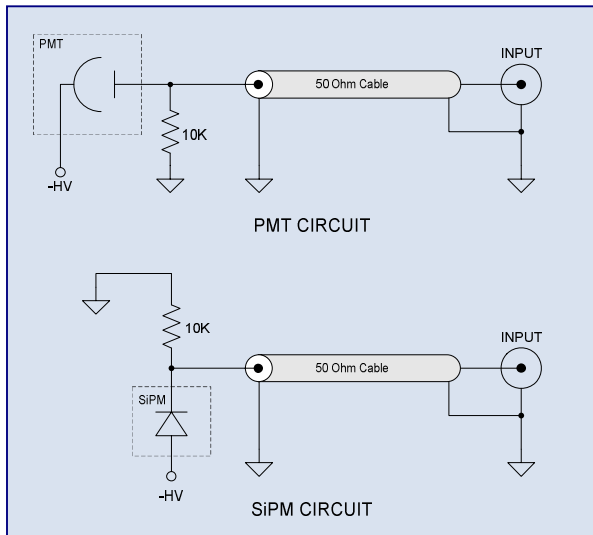
- Graphical User Interface (GUI) for menu driven data acquisition, configuration, and status
- Real time display shows total count for count period for all channels as bar graph, time plot (oscilloscope mode), or histogram
- Integrated log file viewer permits on-screen viewing of logged count records
- Microgate width and delay controllable in GUI with 500 psec resolution
- Fully programmable count period minimizes dead time
- High speed trigger counter and record counter
- Acquisition can be programmed to acquire for a preset number of records
- Trigger stamping and record time stamping with 100 nsec resolution
- USB 2.0 interface supports high transfer rates
- Included Microsoft Windows DLL for interface to custom user applications

Included Accessories and Software

The MCPC618 is enclosed in a rugged, EMI-shielded, instrument case and is shipped with the following standard components and software:

- PhotoniQ Control and Acquisition Interface Software CD-ROM
- DC power supply (+5V, 3A) with power cord
- USB 2.0 cable

Recommended Sensor Interface Circuits



Specifications

Description	Specification
Number of Channels	8
Input Impedance	50 ohm, AC coupled
Pulse Pair Resolution (PPR)	4 nsec max.
Minimum Detectable Pulse Amplitude	8 mV
Maximum Count Rate per Channel	250 MHz
Count Period Range	50 nsec to 100 msec
Maximum Count per Count Period	16,383
Maximum Trigger Rate	125 KHz
Sustained Trigger Rate (8 Channels Enabled)	128 KHz
Power Consumption	5 Watts typ.
Width	9.843 in. (250 mm)
Height	3.346 in. (85 mm)
Length	10.236 in. (260 mm)

* See MCPC618 User Manual for details



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