格物光学 GOPTICA
Consultation: +86 150 0085 3620 sales@goptica.com

Microchannel plate type photomultiplier tube

Overview

Special photodetectors are primarily used for detecting ultra-weak and ultra-fast optical signals, mainly including series microchannel plate photomultiplier tubes, Fabry-Perot interferometric semiconductor ultra-fast detectors, etc.

The microchannel plate photomultiplier tube is an ultra-weak light detector with single-photon sensitivity, capable of detecting weak light, high-energy rays, and particles. Compared to traditional dynode photomultiplier tubes, microchannel plate photomultiplier tubes (MCP-PMT) offer significant advantages in time resolution, strong magnetic field resistance, and spatial resolution performance. The series fast-response MCP-PMT, including general-purpose fast-response MCP-PMT, gated fast-response MCP-PMT, wide dynamic range MCP-PMT, gated wide dynamic range MCP-PMT, multi-channel position-sensitive MCP-PMT, and large-area MCP-PMT, etc., have performance indicators that reach international advanced levels and are commonly used in experiments at major universities and research institutions, such as laser fusion, radiation pulse scintillation measurement, particle detection, and fluorescence measurement.

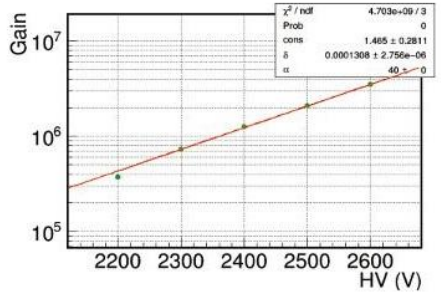
Main Applications

- Fluorescence Measurement
- Fast Neutron Detection
- γ Detection
- High-energy particle detection
- Electron/Ion detection

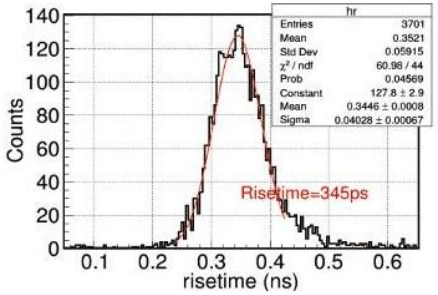
General-purpose fast response MCP-PMT

Effective Detection Area	Φ18mm、Φ25mm、Φ50mm
Spectral Response Range	200-800nm or custom-made according to requirements
Gain	＞1E6
Rise time	＜350ps
Single photon transit time spread	＜60ps

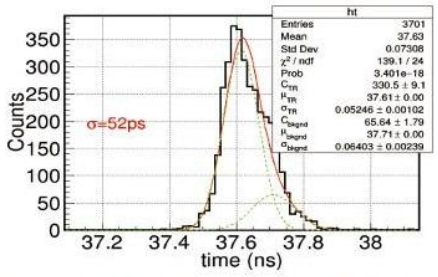
Gain test results



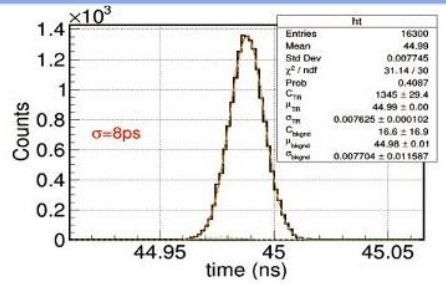
Rise time test results



Single photon transit time dispersion



Multi-electron transit time spread



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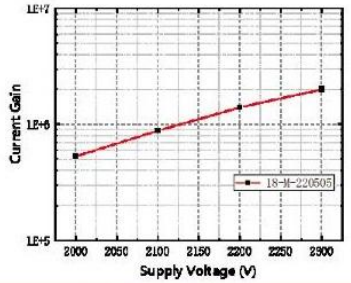
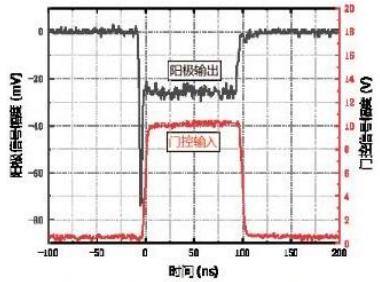
Gated Fast Response MCP-PMT

Effective Detection Area	Φ18mm
Spectral Response Range	200-800 or custom-made according to requirements
Gain	＞1E6
Rise time	＜500ps
Gate response time	＜5ns
Gate open time	5ns-DC continuous adjustable

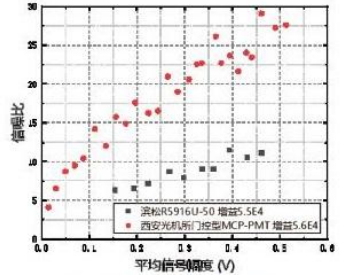
Gain test results



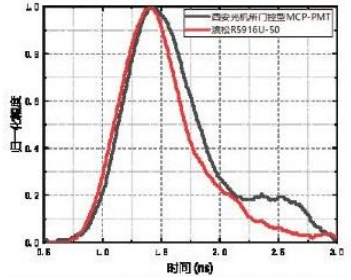
Gate control response performance



Signal-to-noise ratio test results



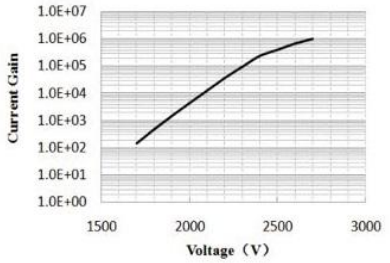
Time performance test results



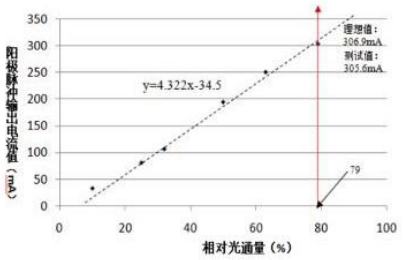
Gated High Dynamic Range MCP-PMT

Spectral Response Range	200-800nm or custom-made according to requirements
Gain	＞1E6
Maximum output current	＞300mA@250ns
Gate response time	＜50ns
Dark Current	＜10nA

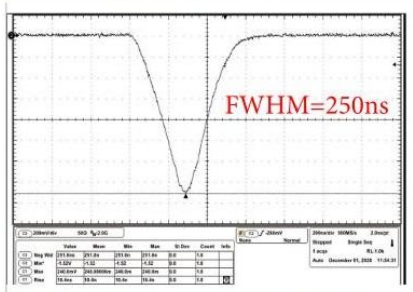
Gain test results



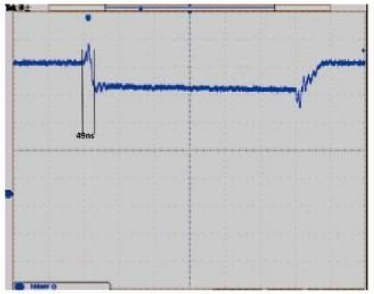
Linear Test Results



Output pulse waveform (10x attenuation)



Gate control response test



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Microchannel plate type photomultiplier tube

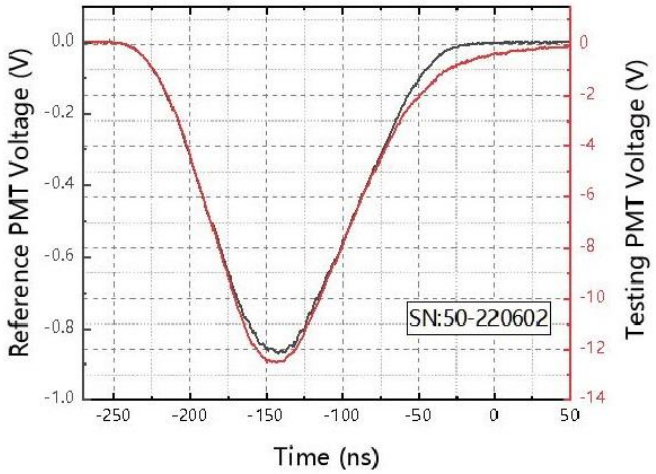
Fast response,wide dynamic range MCP-PMT

Spectral Response Range	200-800nm or custom-made according to requirements
Gain	＞1E5
Maximum output current	＞250mA@100ns
Rise time	＜0.8ns
Pulse Half-Height Width	＜1.5ns
Dark Current	＜10nA

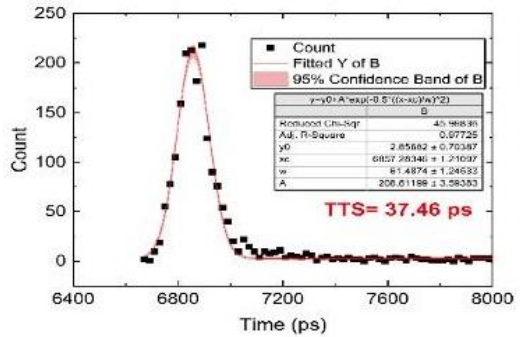
Multi-anode Position-sensitive MCP-PMT

Spectral Response Range	200-800nm or custom-made according to requirements
Gain	＞1E7
Single-electron transit time spread	＜38p
Rise time	＜350ns
Number of channels read out	≥16
Crosstalk	＜10%

Output pulse waveform



Single-photon transit time spread test results (Including system jitter)



Single-photon peak-to-valley ratio test results