

GM-MCP Gate Module



Fast switching of microchannel plates in single or double MCP systems



Applications:

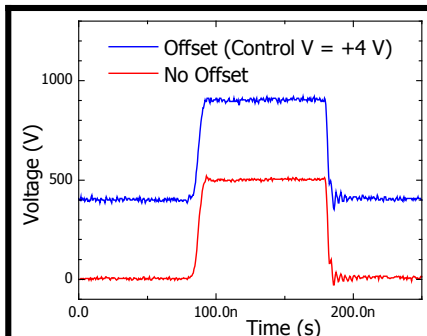
- Time-Resolved ion or photon imaging
- Detector protection from overload signal

GM-MCP-1 **GM-MCP-2**

Single MCP Analogue Systems
Double MCP Photon Counting Systems

	Minimum	Maximum
Pulse Width T_g	9 ns FWHM	Duty Cycle or R-C Limited*
Repetition Rate	0 Hz "Single Shot"	1 KHz Self-limited
ON Voltage Output	+500 V	
OFF Voltage Output	0 V	
Trigger Input	+3.2 V High Ω input	+5.5 V High Ω input
Power Supply	+11.4 V	+12.6 V
Maximum Capacitance Load	400 pF	
Minimum Resistance Load	10 M Ω	
Jitter	80 ps r.m.s.	

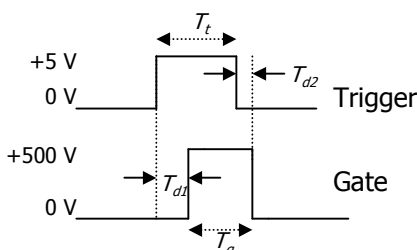
* The gate pulse is a.c. coupled, so the duty cycle of ON to OFF time is limited to 10%. In low rate systems, the longest ON time will be limited by the R-C time constant of the MCP combined with an internal 100 M Ω load.



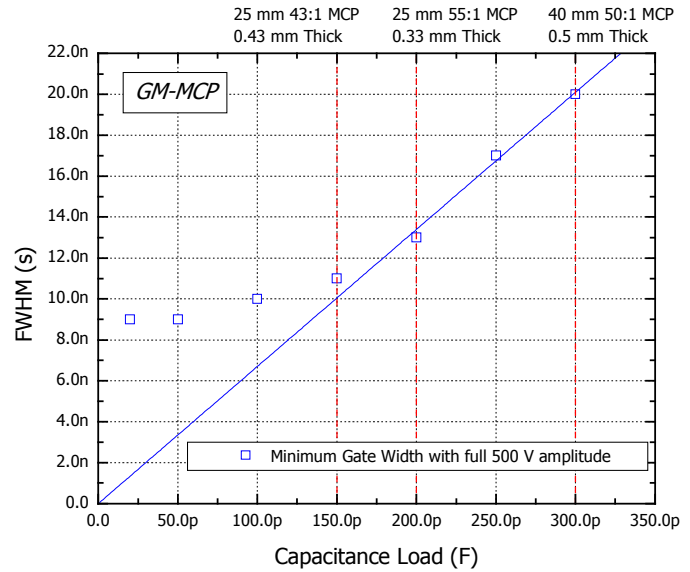
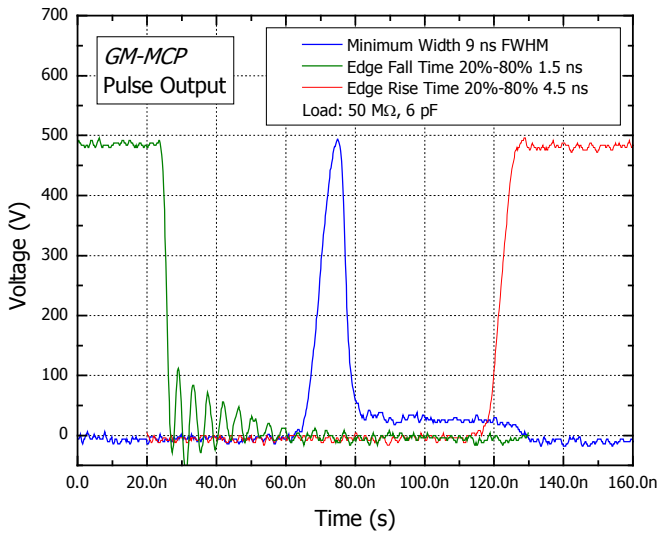
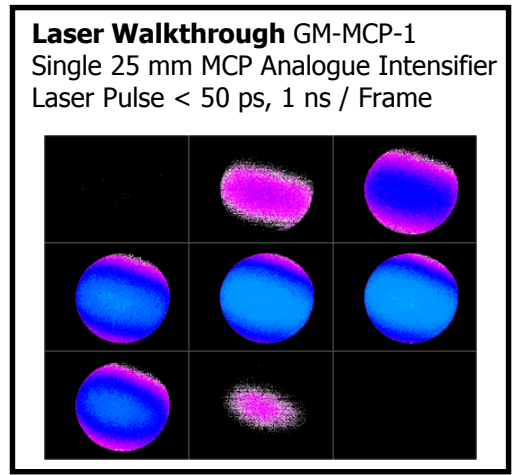
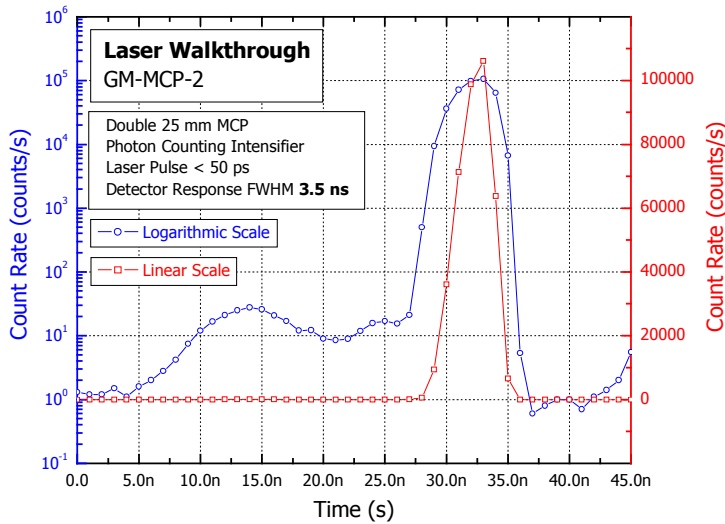
The GM-MCP works by coupling the +500 V gate pulse onto a fixed voltage offset that sits below the working voltage of the MCP. The GM-MCP-1 has an internal offset supply while the GM-MCP-2 needs an external offset supply.

	GM-MCP-1	GM-MCP-2
Minimum Supply Current @ +12 V (no trigger)	160 mA	115 mA
Maximum Supply Current @ +12 V	300 mA	200 mA
Maximum Offset	+1 KV	+3 KV

If the offset exceeds an internally defined level the gate pulse is suppressed to protect the MCP.



Leading Edge Propagation Delay	T_{d1}	70 ns
Trailing Edge Propagation Delay	T_{d2}	65 ns
Trigger / Gate Offset Time $T_t - T_g$	$T_{d1} - T_{d2}$	5 ns
Dead Time after Trailing Edge		900 ns



<i>Mechanical</i>		Housed	Bare PCB
Height		45 mm	27 mm
Width		80 mm	60 mm
Length (148 mm including connectors)		126 mm	120 mm
Weight (GM-MCP-1)		355 g	175 g
Weight (GM-MCP-2)		310 g	130 g
Connectors	Trigger Input	SMA*	
	Power Input	SMB*	
	Offset Control (+1 V gives +100 V)	SMB* (GM-MCP-1 only)	
	Gate Output	MHV Socket**	
	Offset Input	MHV Socket** (GM-MCP-2 only)	

* Vertical connectors on bare PCB available on request. ** SHV plug or SHV socket available on request.

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