



## MCA-Selection Guide

There are four active members in the Bridgeport MCA family. Users select their device according to performance, environmental and economical requirements. For any combination of these factors one device will be most suitable.

<i>MCA Built-in Functions</i>	
<i>Device</i>	<i>Description</i>
SiPM-1000	SiPM power supply, 1K/2K MCA, counting, alarming, statistical analysis, sample vs background, portal monitor, time histogram, 2-channel logger, gain-stabilization
SiPM-2000	SiPM power supply, 2K/4K high speed MCA, counting, list mode, pulse shape capture, pulse shape discrimination, 2-channel logger, gain-stabilization
PMT-1000	PMT high-voltage supply, 1K/2K MCA, counting, alarming, statistical analysis, sample vs background, portal monitor, time histogram, 2-channel logger, gain-stabilization
PMT-2000	PMT high-voltage supply, 2K/4K high speed MCA, counting, list mode, pulse shape capture, pulse shape discrimination, 2-channel logger, gain-stabilization

<i>Silicon Photomultiplier vs Vacuum Photomultiplier Tube</i>			
<i>General Selection Criteria</i>	<i>SiPM</i>	<i>PMT</i>	
Smallest size, lowest weight, no hazardous voltages	✓		
Small-diameter ( $\leq 50\text{mm}$ ), bright scintillators NaI(Tl)	✓		
Highest achievable count rate with short pulses ( $< 100\text{ns}$ )			✓
Large-diameter ( $\geq 75\text{mm}$ ) or dim scintillators (PVT)			✓
High-precision scintillator ( $\text{LaBr}_3$ ), slow scintillators ( $> 2\mu\text{s}$ )			✓
Pulse Shape Discrimination $< 1\mu\text{s}$			✓

<b>Recommended Device</b>	
<b>Requirement</b>	<b>Device</b>
Lowest power and size with MCA	SiPM-1000
Small detector with high speed MCA	SiPM-2000
Large-diameter detector, dim or slow scintillator	PMT-1000
High-precision scintillator, high count-rates	PMT-2000

<b>Choose by Specification</b>				
<b>Feature</b>	<b>SiPM-1000</b>	<b>SiPM-2000</b>	<b>PMT-1000</b>	<b>PMT-2000</b>
Counting Speed; 100kcps to 560kcps				
Histogram Size, 1K to 4K MCA bins				
List mode, pulse shape capture, pulse shape discrimination				
Statistical analysis, sample vs background, portal monitor				
Power Consumption, 75mW to 150mW				
On-board flash memory, 0 to 32MB				

<b>Suitability for Application</b>				
<b>Application</b>	<b>SiPM-1000</b>	<b>SiPM-2000</b>	<b>PMT-1000</b>	<b>PMT-2000</b>
Education				
Low-Contamination Soil Measurement				
Handheld Radiation Detection Pipe and tank fill-level determination				
Backpack Radiation Detection				
Mobile Portal Monitor				
Portal Monitor with Neutron Detector Integration				
Stationary Portal Monitor				