

# BRIDGEPORT INSTRUMENTS, LLC MCA-BASE

**Plug-On MCA for Scintillator Detectors**  
 Very fast — Low power — Low cost  
**ONLY \$2500**

[www.BridgeportInstruments.com](http://www.BridgeportInstruments.com)

## Overview



MCA-base combines MCA and HV generator.

The MCA-Base combines a multichannel analyzer with a high-voltage generator and divider forming a sealed compact unit that plugs onto the back of a photomultiplier.

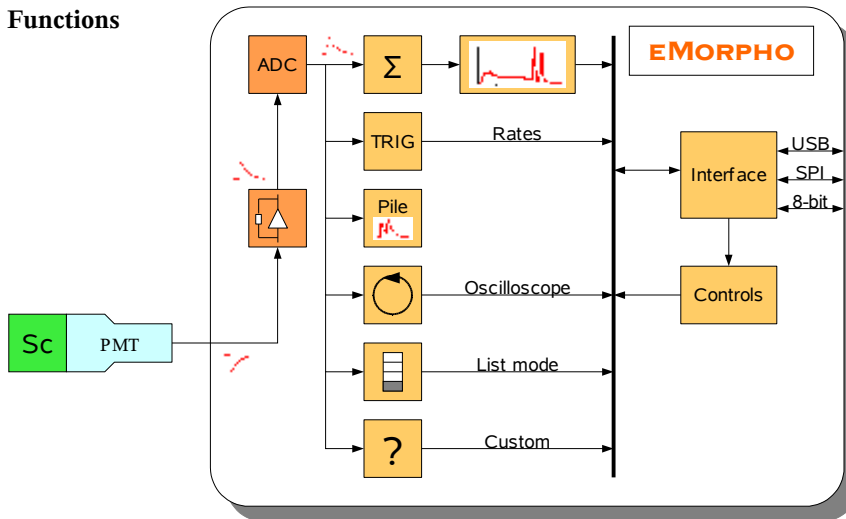
This is a versatile device that will work with any scintillator and a large variety of photomultipliers.

Open source software, modular firmware structure and plenty of resources in the embedded signal processor make the MCA-Base an ideal component to create unique instrumentation.

It features a large non-volatile memory (128 kB) and 8 programmable GPIO pins that can be used to support an SPI communications interface as well as functions to connect several MCA-bases.

- Combined low-power HV + MCA
  - 2" diameter
  - Powered and controlled by USB
    - 250 mW for the MCA (min.)
    - 75 mW for the USB interface
  - USB or SPI interface
  - Internal or external temperature sensor.
  - Non-volatile memory (128 kB)
- Easy to use and integrate
  - Open source software
  - Auxiliary I/O and interfaces

## Functions



- MCA (embedded eMorpho)
  - 4096 channels, 32-bit
  - Best energy resolution and highest histogramming rate for any scintillator
  - Maximum rate: 16 Mcps
  - Uses pulse shape information for adaptive pile-up rejection
- Added features
  - Oscilloscope, List mode, n/γ, α/β discrimination
  - User-specified signal processing

## Applications

- Make full use of the great precision and speed of LaCl<sub>3</sub> and LaBr<sub>3</sub>;
- Operate many detectors synchronously;
- Perform coincidence or gated spectroscopy;
- Add functionality to the MCA to create a unique instrument;
- Perform real time pulse shape analysis for particle discrimination.

- Ideal for embedded systems:
  - Very low power consumption
  - Programmable I/O for local communication and control
- Code extensions:
  - Split histogram memory
  - Gain stabilization
  - Multi-detector support