

## **YOUR QUICKEST PATH TO MARKET**

**Saint-Gobain Crystals and Bridgeport Instruments have combined radiation detection expertise with an advanced integrated MCA to provide:**

- » Optimized detection solution to match the application
- » Ready to use software interface or customizable by user
- » Fully optimized vertical integration (crystal, PMT and electronics)
- » Ideal solution for high count rate applications
- » Solution for all detection needs (gamma, neutron, alpha, beta, X-ray) with standard or customizable detectors
- » Low power consumption
- » Performance stabilization option
  - Providing a constant gain over the operating temperature range
  - Providing a constant energy resolution over the operating temperature range.
  - Maintaining the best possible pileup rejection

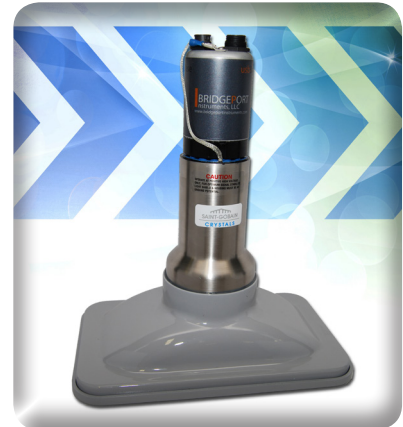
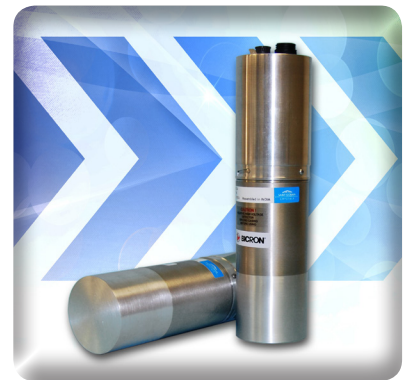
### **Benefits**

- » Quick access to the market
- » Reduced development time, risk and cost
- » Single source for full detection solution
- » Get it right the first time with matching of components
- » Open-source, open access application for programmers
- » Extended battery life for mobile systems
- » Designed for consistent output in changing environmental conditions
- » Add additional counting detector without additional electronics
- » Custom firmware

### **Applications:**

**Prompt gamma neutron  
activation analysis  
Whole body counters  
Portal monitoring  
Food monitoring  
Handheld**

***What could you build  
with the **SENSOR KIT**?***



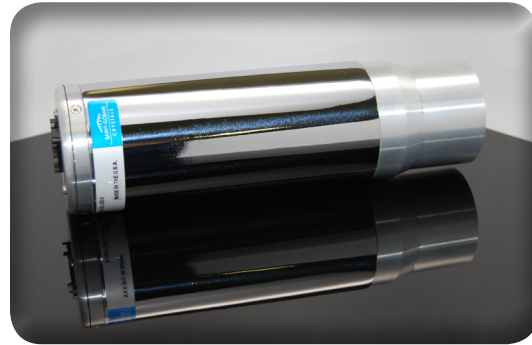
*Working together with*

Contact Saint-Gobain Crystals about your application and needs to have a Sensor unit designed to meet your requirements through Crystal, PMT and MCA selection with optimized settings.

Ready to collect data after USB connection or customize to work with your software.

## Radiation Detector

- A wide range of commercially available radiation detectors for X-ray, gamma, neutron, alpha, and beta applications
- One source for all radiation detectors
  - Inorganics: BrilLanCe™ 380 [LaBr<sub>3</sub>(Ce)], NaI(Tl), CsI(Na), BGO, PreLude™ 420 [LYSO], CLLB and other elpasolites
  - Plastic scintillators
  - Neutron detectors
  - Other advanced materials
- Access to standard and custom designs
- Performance stabilization system stability of  $\pm 5\%$  between  $-20^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$  for Sensor Kit based NaI(Tl) (see Figure 1)

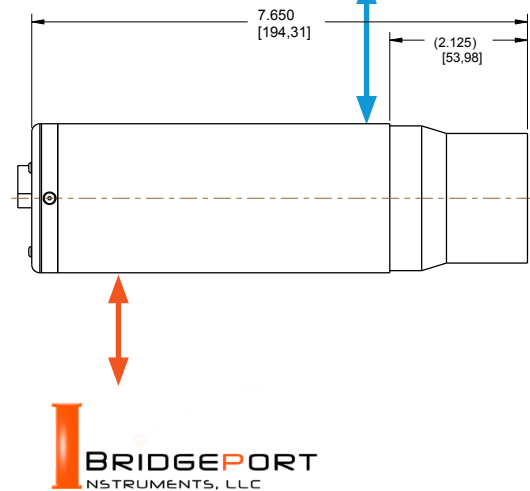
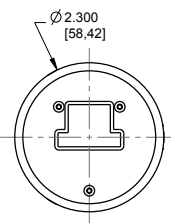


Example of a fully integrated design



## MCA usbBase - typical features

- USB-powered & controlled
- On Board energy histogram 4096 x 32
- Accurate count rates and real time measurement
- List mode: Stores energies and time stamps
- Integrated non-volatile memory
- Low-power HV unit
- Sealed construction; IP67 water tight connectors
- Open source application programmer's interface (API in Python and C++)
- GPIO supports DAQ synchronization between modules.
- Morpho Data Server supports native apps and web-browsers
- Operational from  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$



## MDS (Morpho Data Server)

- The Morpho Data Server (MDS) handles the low level USB communication with the eMorpho MCA units.
- The MDS communicates with the world through TCP/IP - zeroMQ - XML command and data tags.
- Clients connect to the MDS via native apps or a web-browser.
- Clients can be local or remote.
- Clients can run on any platform, under any OS and can be written in most languages such as:
  - C, C++
  - Python™
  - PHP™
  - Java™ on Android™
  - LabVIEW™

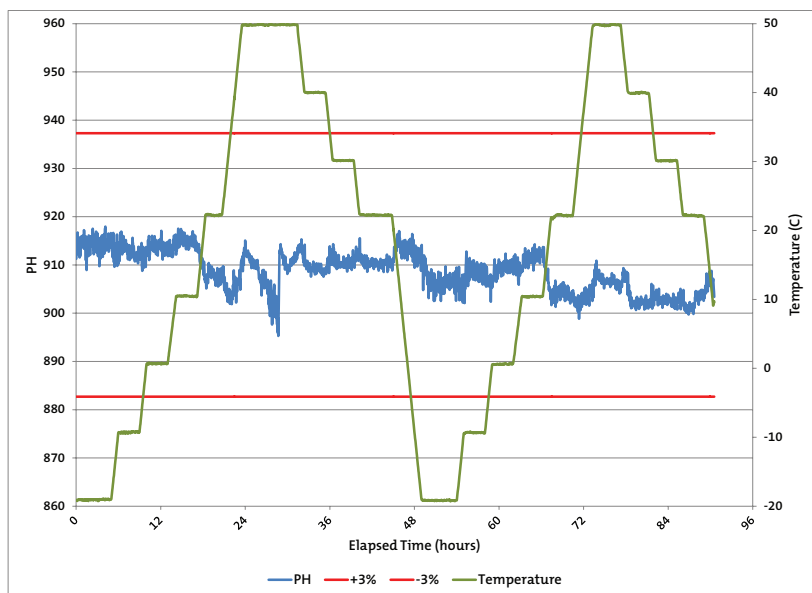
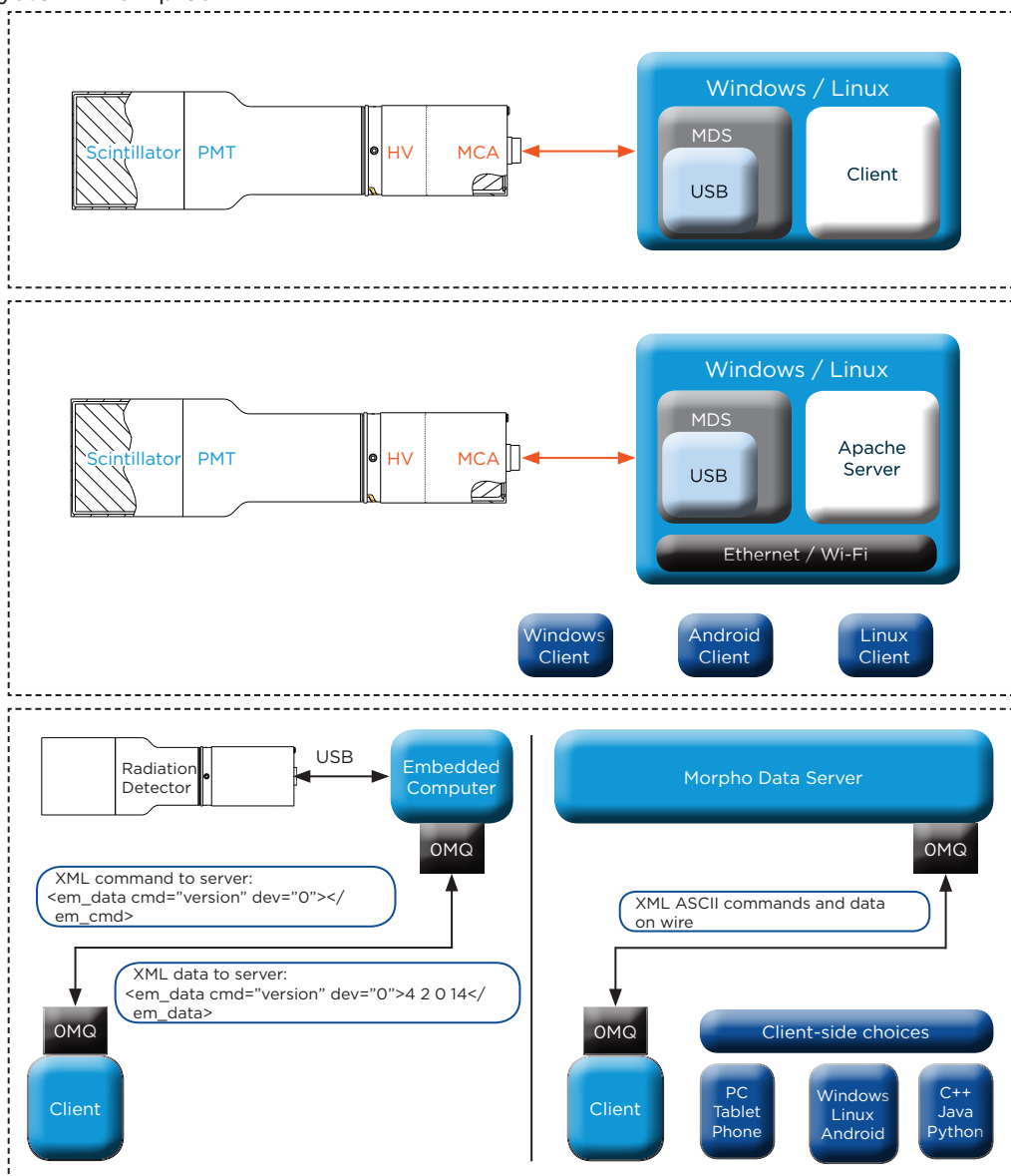


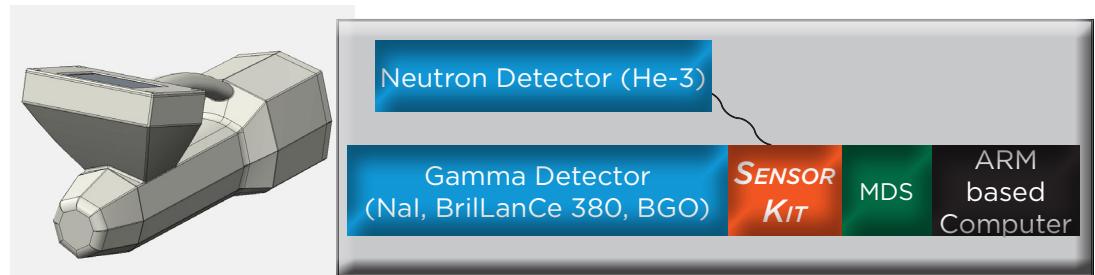
Figure 1: Typical performance data collected with NaI(Tl) model 2X4H4/2A-LED-MCA-X

## System Examples

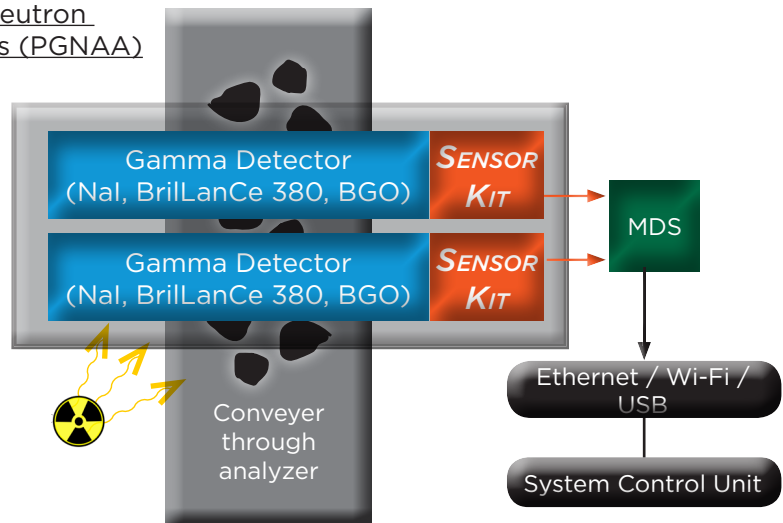


# WHAT COULD YOU BUILD WITH A **SENSOR KIT**?

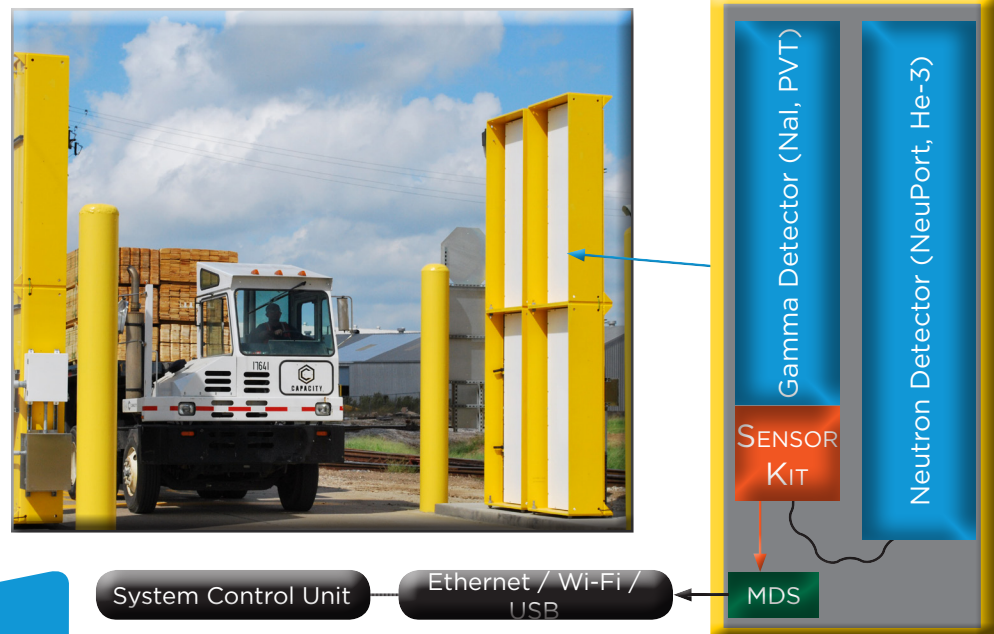
## Handheld



## Prompt gamma neutron activation analysis (PGNAA)



## Portal Monitor



Saint-Gobain Crystals

[www.crystals.saint-gobain.com](http://www.crystals.saint-gobain.com)

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