

# Model MPA-3, PC-card Multiparameter Multichannel Analyzer System

## FEATURES

- Ultra fast Multiparameter Multichannel Analyzer
  - ADC-port modules allow the flexible configuration of 8, 12 or 16 parameter systems
  - ADC ports for 64k (16 bit) ADCs (and/or other compatible frontends like Multiscalers, Position Analyzers, Time-of-Flight devices etc.)
  - Ultra high data throughput:
    - >6.000.000 events/s (converted ADC data) integral using 16 ADCs, single parameter mode
    - >6.000.000 events integral for list mode recording of 16 coincident ADCs. (not adjusted for coincidence time settings)
  - Livetime correction on all ADC inputs
  - PCI-bus interface card
  - Extended data storage facility on Hard-Disk Array for on-line list data recording of up to 15 x 19 ADC events
  - Options:
    - 48-bit Realtime-Clock with a time resolution of 50 ns for time tagging of events, spectrum multiscaling and sequential access to the data memory
  - Modular construction for great flexibility in configuring the system to any specific application
- Parameters completely under software control
  - Fully remote-controllable by host computer (RS232C, experiment control line or Ethernet)
  - Excellent reliability by extensive use of a high density gate-array
  - Easy to use multiparameter operating software MPA-NT
  - High resolution graphics display

## APPLICATIONS

- Ultra fast multiparameter list mode data acquisition with up to 16 external ADCs, multiscalers or Time-of-Flight front-ends
- Ultra fast single parameter list mode data acquisition
- Ultra fast multi-spectrum acquisition and display



MPA-3 Rev2 15032004 Specifications are subject to change without prior notice

## DESCRIPTION

The MPA-3 Multiparameter System is designed as an ultra fast list mode system with input ports for 8, 12 or 16 ADCs, multiscalers or time-of-flight devices. The open system technology concept is capable of accomodating future system expansion.

For dependent single- and multiparameter acquisitions, coincidence resolving times from approx. 150 ns to more than 3 ms can be selected in 50 ns steps.

A monitoring mode is available to view single or dual parameter spectra on-line during active data acquisition. List data can be stored on the local hard disk device or any other directly addressable storage device.

PHA mode will enable to accumulate and histogram multiparameter spectra in the RAM memory of the PC. Multiple windows of dualparameter spectra can be simultaneously displayed.

Any combination of ADCs can be selected. It is therefore possible to define several single- and dualparameter spectra which can be simultaneously acquired and displayed.

The MPA-NT software is a true 32-bit operating program and operates under Microsoft WINDOWS NT/2000/XP/Vista (32 bit).

### LIST-MODE (event by event storage):

Max. Throughput: List-Mode data stored in RAM or on hard disk array:

**>6.000.000 events/s (converted ADC data) integral using 16 ADCs, single parameter mode**

**>6.000.000 events integral for list mode recording of 16 coincident ADCs, (not adjusted for coincidence time settings)**

### PHA-MODE (on-line histogramming):

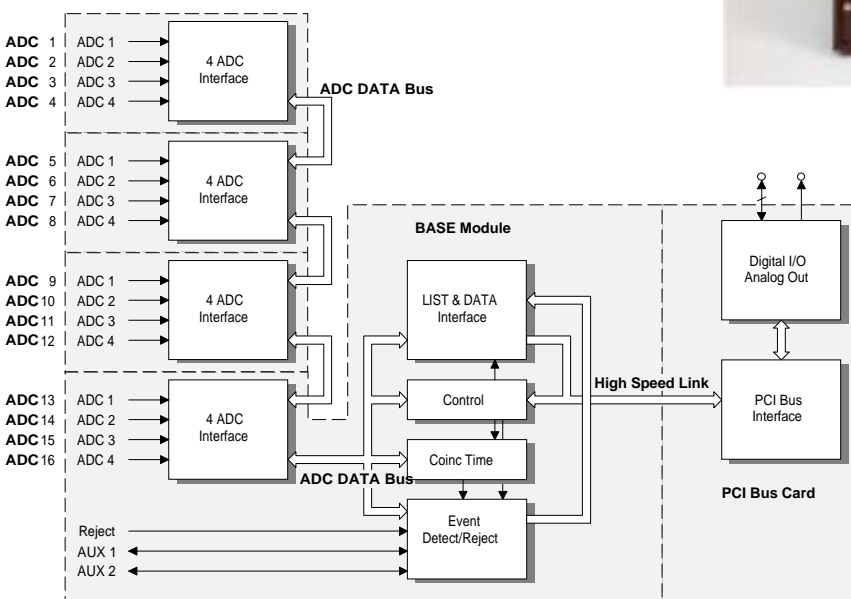
Single parameter mode: Spectrum acquisition and histogramming from up to 16 ADC's

Multiparameter mode: Spectrum acquisition and histogramming, with display of any (ADC) combination of dual parameter spectra.

Simultaneous single- and multiparameter acquisition and and histogramming, display of single- and multiparameter spectra

### Combined List-MODE and PHA MODE data stored in RAM and on hard disk array:

Simultaneous storage on hard-disk array and spectrum acquisition in the computer memory with real-time display of any combination of single and multiparameter spectra on PC monitor.



# Model MPA-3 Quad ADC Port Module

## FEATURES

- Quad ADC-port extension module to allow the flexible configuration of 8, 12 or 16 parameter systems
- ADC ports for up to 64k (16 bit) ADCs (and/or other compatible frontends like Multiscalers, Position Analyzers, Time-of-Flight devices etc.

### CONNECTORS:

**ADC port:** four 25 pin D-SUB (female) for data input and control lines for external ADC

**FAST Multiparameter Bus (FMP- Bus)** 50-pin Centronics (female) for module interconnection



## APPLICATIONS

- Ultra fast single- and multiparameter list mode data acquisition system expansion to 8, 12 or 16 ports for external ADCs, multiscalers or TOFs

## DESCRIPTION

The Quad ADC Port Module extends the MPA-3 Multiparameter System inputs for 12 or 16 ADCs, multiscalers or time-of-flight devices in increments of four ports.

## SPECIFICATIONS

### Quad ADC Port Module

**ADC-port:** four 16 bit ADC ports, data (64k) and control lines. Each ADC port can be software configured to be compatible to practically every existing model of nuclear ADC (Canberra, ND, Ortec, Silena, Laben, TN etc.)

### DISPLAYS:

Seven segment display indicates module address for easy identification of port number

**Size:** 260 x 48 x 265 [mm]

### Ordering Information:

Order No. MP3PORT

shipment includes MPA-3 Quad ADC Port Module with Module Bus cable and X-TRA power cable



Rear Panel

MPA-3 Specifications are subject to change without prior notice

# Model MPA-3 Base Module

## Features

The Base Module contains all control circuitry of the MPA-3 System and interfaces to the Quad ADC Port Modules and the PCI-Bus card. Up to 16 ADCs can be handled by the programmable coincidence logic. Three front panel LEDs indicate the system status. Frontpanel BNC connectors can be configured as additional inputs to the coincidence logic - like strobe signals, a 17th coincidence input etc.



## PERFORMANCE:

**BASIC OPERATING MODE:**List-Mode, PHA (Pulse Height Analysis) performed by MPA-NT

## LIST-MODE:

Max. Throughput: List-Mode data stored in RAM or on optional hard disk array:

**<6.000.000 events/s (converted ADC data) integral using 16 ADCs, single parameter mode**

**<6.000.000 events integral for list mode recording of 16 coincident ADCs, (not adjusted for coincidence time settings) without monitor**

## SPECIFICATIONS:

**ADC-port:** four 16 bit ADC ports, data (64k) and control lines. Each ADC port can be software configured to be compatible to practically every existing model of nuclear ADC (Canberra, ND, Ortec, Silena, Laben, TN etc.)

**Coincidence resolution:** 150 ns to 3,2 ms, programmable in 50 ns steps

**Live/True Time:** resolution 1 ms

**Preset Range:** 1 ms to  $\infty$

**Digital Stabilizer:** Multipoint Gain and Zero stabilization

## DISPLAYS:

Seven segment display indicates module address for easy identification of port number,

Power Good LED, Active LED, Busy LED

## CONNECTORS:

**ADC port:** four 25 pin D-SUB (female) for data input and control lines for external ADC

**AUX1 & AUX2:**BNC (female) bidirectional TTL I/O several functions can be programmed.

**REJECT:** BNC (female) TTL input can be used to selectively prevent storage of incoming data.

**FAST High Speed Link (FHS):**37-pin D-SUB (male) for MPA-3/PC communication

**FAST Multiparameter Bus (FMP-Bus)**50-pin Centronics (female)

**X-TRA POWER-In:** 9-pin D-SUB (male) for supplementary power

**POWER-Out:** 9-pin D-SUB (female) for powering ADC Port modules

## PCI-INTERFACE CARD:

**FAST High Speed Link (FHS):**37-pin D-SUB (f) for MPA-3/PC communication

**I/O Port:** connector cable with PC-mounting bracket with 15-pin D-SUB connector

## ORDERING INFORMATION:

Order No. **MP3Y01** - MPA-3 System includes: MPA-3 Base Module, MPA-3 Quad ADC Port Module with FMP-cable, PCI Card with FHS-cable, MPA-NT Multiparameter Software for WIN-NT/2000/XP/Vista (32 bit)

## Options:

Order No. **MPA-3 RTC** - 48 bit Realtime Clock

Order No. **MP3PORT** - MPA-3 Quad ADC Port Module - extends MPA-3 system by four ADC ports (max. two additional Quad ADC Port modules per system)

Size: 260 x 90 x 265 [mm]

Shipping Weight: **approx. 2.5 kg**

