

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



The MPA-3 Multiparameter System is designed as an ultra fast list mode system with input ports for 2, 4, 8, 12 or 16 ADCs, multiscalers or time-of-flight devices.

Features

- Ultra fast Multiparameter Multichannel Analyzer
- ADC-port modules allow the flexible configuration of 2, 4, 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
- 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

Applications

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



Description

The MPA-3 Multiparameter System is designed as an ultra fast list mode system with input ports for 2, 4, 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 XP / Vista / 7 (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)

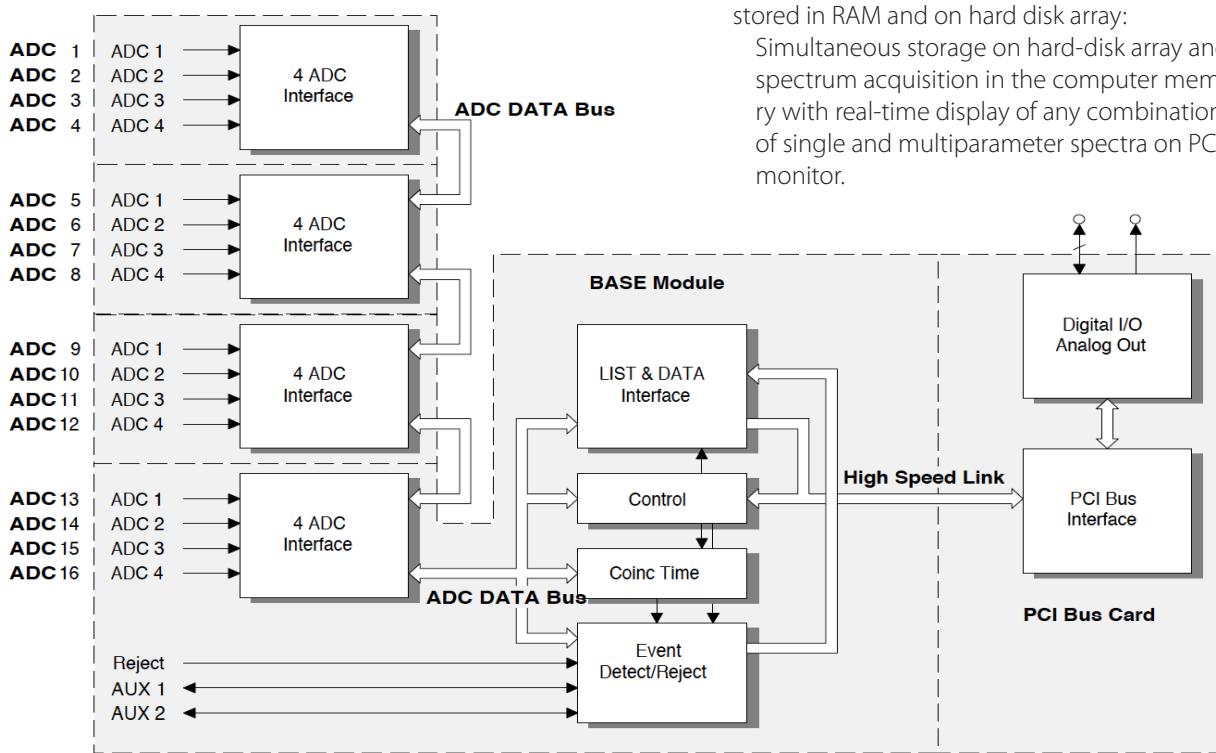
PHA-MODE (on-line histogramming):

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 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.)

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

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

Size: 260 x 48 x 265 [mm]

Order No. MP3PORT

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



Front Panel



Rear Panel

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 ∞

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

Order Information

Model	Description	Order No.
MPA-3-2	Dual-Parameter MPA-3 System consisting of MPA-3 Base with 2 ADC interface, MPA-3 PCI Interface card and cable, MPA-NT Analysis program (not expandable)	MP3Y09
MPA-3-4	Multiparameter-3 System consisting of MPA-3 Base, MPA-3 PCI Interface card and cable, MPA-NT Analysis program	MP3Y02
MPA-3-8	Multiparameter-3 System consisting of MPA-3 Base, MPA-3 Port, MPA-3 PCI Interface card and cables, MPA-NT Analysis program	MP3Y01
MPA-3-12	Multiparameter-3 System consisting of MPA-3 Base, 2 x MPA-3 Port, MPA-3 PCI Interface card and cables, MPA-NT Analysis program	MP3Y10
MPA-3-16	Multiparameter-3 System consisting of MPA-3 Base, 3 x MPA-3 Port, MPA-3 PCI Interface card and cables, MPA-NT Analysis program	MP3Y11
MPA-3-4-16	Multiparameter-3 System consisting of MPA-3 Base, MPA-3 PCI Interface card and cables, 16k Fifo, MPA-NT Analysis program	MP3Y06
MPA-3-8-16	Multiparameter-3 System consisting of MPA-3 Base, MPA-3 Port MPA-3 PCI Interface card and cables, 16k Fifo, MPA-NT Analysis program	MP3Y05
MPA-3RTC	Real time clock option	MP3RTC
MPA-3 Port	Quad ADC Port (Expansion Module)	MP3PORT
MPA-3 Fifo16	MPA-3 16k fifo option on PCI card	MP3F01
MPA-3 RPlay	MPA-3 Replay progr. for off-line reconstr. of spectra from listmode	MP3S02
MPA-3R Play_Ex	MPA-3 Replay program, runs on computer without MP3 system	MP3S04
MPA-3 EXTCTRL	MPA-3 external control software	MP3S03
MPA-3 NTDLL32	MPA3 DLL for Labview /"C"/ Visual Basic incl. VIs	MP3S80



MPA-3-4 with 4 ADC interface



PCI-Interface-Card



MPA-3-2 with 2 ADC interface