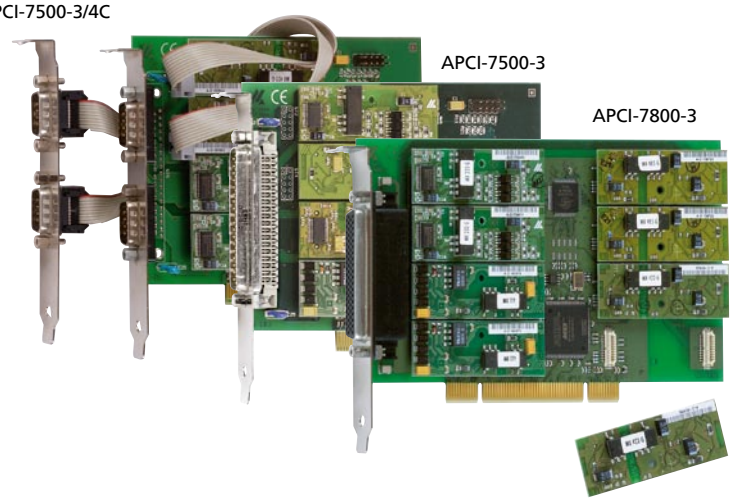
1 to 8-port serial interface, RS232, RS422, RS485, 20 mA CL, modular mounting through modules

APCI-7500-3/4C



APCI-7300-3 – 1-port serial interface
APCI-7420-3 – 2-port serial interface
APCI-7500-3 – 4-port serial interface
APCI-7800-3 – 8-port serial interface

RS232, RS422, RS485, 20 mA Current Loop

Free mode configuration for each port through MX modules

With/without optical isolation 1000 V

128-byte FIFO buffer for each port

16C950 UART downward compatible

PCI 3.3 V or 5 V

RoHS 2002/95/EC

PCI 32-bit

Also for PCI Express
See APCIe-7xxx, page 58

Also for *CompactPCI*™
See CPCI-7500, page 150

The APCI-7xxx-3 communication boards are configured by inserting MX modules which the board identifies automatically. The 1- to 8-port serial interfaces APCI-7xxx-3 can be used as universal PCI boards in 3.3 V or in 5 V systems, and in PCI or PCI-X systems. The serial interfaces can be configured through modules in the following modes: RS232, RS422, RS485 (with or without optical isolation) and 20 mA current loop (with optical isolation).
The MX modules with optical isolation allow a protection up to 1000 V for the use in noisy environments where earth loops can occur. The I/O lines are protected against short-circuits, fast transients, electrostatic discharge and high-frequency EMI. The interface is supported through a 128-byte FIFO buffer for sending and receiving data and guarantees reliable operation at high transfer rates.

Features

- Asynchronous communication adapter
- PCI 3.3 V or 5 V
- Modular mounting through MX modules
  1 socket for 1-port serial interface (APCI-7300-3)
  2 sockets for 2-port serial interface (APCI-7420-3)
  4 sockets for 4-port serial interface
  (APCI-7500-3 and APCI-7500-3/4C)
  8 sockets for 8-port serial interface (APCI-7800-3)
- Can be configured as RS232, RS422, RS485 with/without optical isolation, 20 mA Current Loop (active, passive), with optical isolation through separate MX modules
- Automatic addressing through BIOS
- Automatic module identification
- 128-byte FIFO buffer for sending and receiving data
- Programmable transfer rate
- 5, 6, 7 or 8-bit character
- 1, 1½ or 2 stop bits
- Parity: even, odd or none
- Automatic transmitter control for RS485 and transmitter control through FIFO level
- Common interrupt

Safety features

- MX modules available with optical isolation 1000 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Protection against fast transients (Burst)
- Short-circuit protection for RS422 and RS485
- Detection of false start bits
- Internal diagnostic possibility, break, parity, overrun and framing error

Applications

- Industrial serial communication
- Data acquisition • Industrial process control
- Multi-user systems
- PLC interface
- Modem and printer control
- Multidrop applications
- Weighting devices
- ...

Software drivers

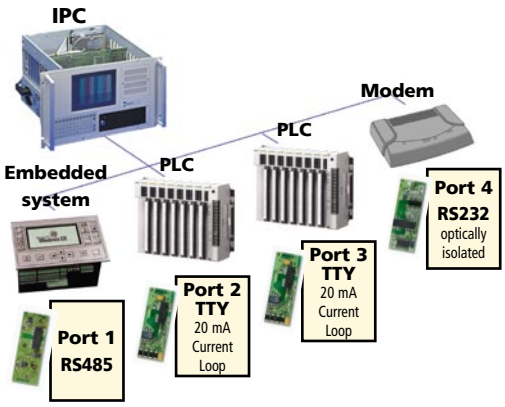
A CD-ROM with the following software and programming samples is supplied with the board.

Standard drivers for:
Windows (32-bit)/XP/2000/NT4.0/98/95:
Standard COM drivers

Samples for the following compilers:
Microsoft VC++ 5.0
Visual Basic 5.0
Delphi 4

On request:
Drivers for Linux Kernel version 2.4.2
MS-DOS, RTX
Free driver download on the web:
www.addi-data.com/download

Application example for APCI-7500-3



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1 to 8-port serial interface, RS232, RS422, RS485, 20 mA CL, modular mounting through modules

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MX modules

Operating mode	RS232		RS422		RS485		20 mA CL
	MX232-G	MX232	MX422-G	MX422	MX485-G	MX485	MXTTY
Optical isolation 1000 V	✓		✓		✓		✓
Creeping distance 3.2 mm	✓		✓		✓		✓
Short-circuit protection			✓	✓	✓	✓	
ESD protection	✓	✓	✓		✓		
Burst protection	✓	✓	✓	✓	✓	✓	✓
Duplex	Full	Full	Full/Half	Full/Half	Half	Half	Full
Max. Baud rate	115.2 kBaud 1MBaud opt.	115.2 kBaud 1MBaud opt.	115.2 kBaud 1MBaud opt.	115.2 kBaud 1MBaud opt.	115.2 kBaud 1MBaud opt.	115.2 kBaud 1MBaud opt.	19.2 kBaud
Modem control signals	✓	✓	Optional RTS/CTS (MX-422-PEP)				
Autom. transmitter control					✓	✓	
Current consumption	86 mA	10 mA	46 mA	10 mA	58 mA	10 mA	75 mA

Specifications

APCI-7300-3 / APCI-7420-3 / APCI-7500-3/4C / APCI-7500-3 / APCI-7800-3

Serial interface – 1-port, 2-port, 4-port, 8-port

Mode:	RS232, RS422, RS485, 20 mA Current Loop (active, passive) with or without optical isolation through separate MX modules
Transmission mode:	Asynchronous, full or half duplex (MX modules)
Addressing:	Automatic through BIOS
Memory:	128-byte FIFO buffer for transmitter and receiver
Transfer rate:	Programmable up to 115.2 kBaud Baud rate up to 1 MBaud on request
Protocol:	5-, 6-, 7- or 8-bit character 1,1½ or 2 stop bits
Parity:	Even, odd, none, mark, space
Interrupt lines:	Automatic configuration through BIOS

EMC – Electromagnetic compatibility

The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

Safety features

Optical isolation:	1000 V (MX modules)

Physical and environmental conditions

Dimensions:	151 x 99 mm / APCI-7800-3: 175 x 99 mm
System bus:	PCI 32-bit, 3.3 V/5V acc. to spec. 2.2 (PCISIG)
Space required:	1 PCI slot
Operating voltage:	+5 V, ± 5 % from the PC
Current consumption (without modules):	160 mA typ. / APCI-7800: 220 mA
Front connector:	9-pin SUB-D male connector (APCI-7300-3) 2x9-pin SUB-D male connector (APCI-7420-3) 4 x 9-pin SUB-D male connector on separate bracket (APCI-7500-3/4C) 37-pin SUB-D male connector (APCI-7500-3) 78-pin SUB-D female connector (APCI-7800-3)
Temperature range:	0 to 60 °C (with forced cooling)

Ordering information

APCI-7300-3 / APCI-7420-3 / APCI-7500-3 / APCI-7800-3

APCI-7300-3: 1-port serial interface (1 x 9-pin SUB-D)
APCI-7420-3: 2-port serial interface (2 x 9-pin SUB-D)
APCI-7500-3: 4-port serial interface (1 x 37-pin SUB-D)
APCI-7500-3/4C: 4-port serial interface incl. 4 x 9-pin SUB-D male connector on separate bracket (incl. ribbon cable)
APCI-7800-3: 8-port serial interface (1 x 78-pin SUB-D)
Each incl. technical description and software drivers.

MX modules: Please order the modules separately!

MX232-G: RS232 mode, optically isolated
MX232: RS232 mode
MX422-G: RS422 mode, optically isolated
MX422-PEP: RS422 mode, optically isolated, with RTS/CTS
MX422: RS422 mode
MX485-G: RS485 mode, optically isolated
MX485: RS485 mode
MXTTY: 20 mA Current Loop mode (active, passive), optically isolated
Option: Quarz: <1 MBaud transfer rate for RS232, RS422, RS485, TTY

Accessories

ST075: Shielded round cable, 37 to 4 x 9-pin (for APCI-7500-3)
ST074: Shielded round cable, 37 to 4 x 25-pin (for APCI-7500-3)
ST7809: Shielded round cable, 78 to 8 x 9-pin (for APCI-7800-3)
ST7825: Shielded round cable, 78 to 8 x 25-pin (for APCI-7800-3)

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