Isolated 4-port serial interface

ADDI-DATA®

CPCI-7500

4-port, RS232, RS422, RS485, 20 mA Current Loop

Free mode configuration for each port through MX modules

With/without optical isolation

Free mode configuration for each port

128-Byte FIFO buffer

MTBF: 98,551 hours at 45 °C
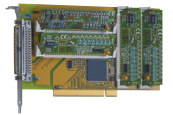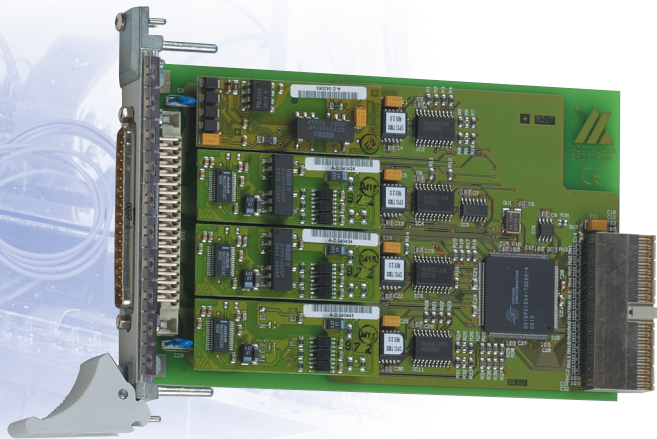
also for **PCI**

The board CPCI-7500 is a 4-port serial interface for industrial applications. It is configured by inserting MX modules which the board identifies automatically. The serial interface can be configured through modules in the following modes: RS232, RS422, RS485 (with or without optical isolation) and Current Loop (with optical isolation).

The 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

- PCI interface to the 32-bit data bus
- Asynchronous communication adapter, 4-port serial interface
- 4 sockets for MX modules
- Modular structure through MX modules
- Can be configured as RS232, RS422, RS485 with/without optical isolation, 20 mA current loop (active, passive), with optical isolation
- Addressing through software
- No jumper: software configuration
- Automatic module identification
- 128-byte FIFO memory
- Common interrupts
- Programmable transfer rate
- 5, 6 or 8-bit character
- 1, 1½ or 2 stop bits
- Parity: even, odd or none
- Automatic transmitter control for RS485

Safety features

- MX modules available with optical isolation
- Protection against fast transients (Burst)
- Short-circuit protection for RS422 und RS485
- Internal diagnostic, break, parity, overrun and framing error
- Creeping distance IEC 61010-1 (VDE411-1), MX modules

EMC tested according to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

Applications

- Data acquisition
- Industrial process control
- Industrial serial communication
- Multi-user systems
- Modem and printer interface
- Multidrop applications

Software drivers

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

Standard drivers for:
Windows XP/2000/NT/98/95/EmbeddedNT:
Standard COM-Treiber

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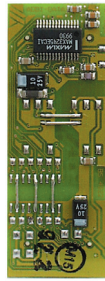Microsoft VC++ 5.0
Visual Basic 5.0
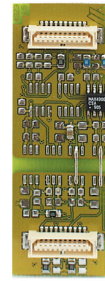Delphi 4

On request:
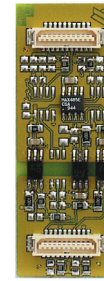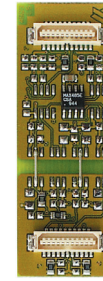Driver for Linux kernel version 2.4.2
Windows 3.11 • MS-DOS
Embedded NT

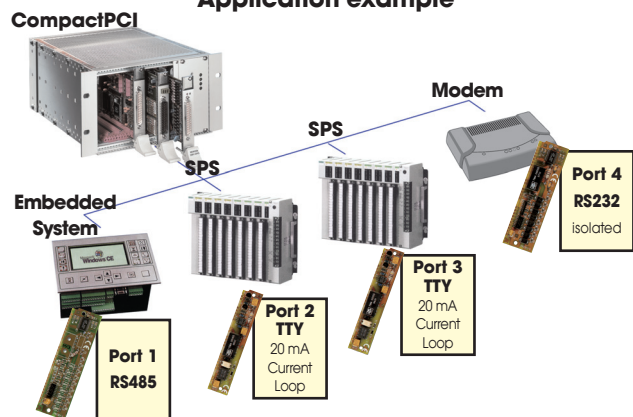Current driver list on the web: www.addi-data.com
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MX MODULES

The MX modules can be freely selected for each port.
They are not included with the board and have to be ordered separately.

Operating mode	RS232		RS422		RS485		20 mA CL

Modules	MX232-G	MX232	MX422-G	MX422	MX485-G	MX485	MXTTY
Optical isolation 1000 V	yes		yes		yes		yes
Creeping distance 3.2 mm	yes		yes		yes		yes
Short-circuit protection			yes	yes	yes	yes	
ESD protection		yes	yes				
Burst protection				yes	yes	yes	yes yes
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	through software	through software	Automatic	Automatic	Automatic	Automatic	Automatic
Automatic transmitter control					yes	yes	
Current consumption	86 mA	10 mA	46 mA	10 mA	58 mA	10 mA	75 mA

CPCI-7500

Specifications

4-port serial interface

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

Safety features

Optical isolation:	1000 V (MX modules)

Noise immunity

Test level:	- ESD: 4 kV - Fields: 10 V/m
	- Burst: 4 kV - Cond. radio interferences: 10 V

Physical and environmental conditions

Dimensions:	3U/4TE
System bus:	CompactPCI 32-bit 5 V acc. to spec. 2.1 (PCISIG)
Place required:	1 slot
Operating voltage:	+5 V, ± 5 % from the PC
Current consumption:	192 mA typ.
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)
MTBF:	98,551 hours at 45 °C

Application example

CompactPCI

Embedded System

Port 1 RS485

Port 2 TTY 20 mA Current Loop

SPS

SPS

Port 3 TTY 20 mA Current Loop

Modem

Port 4 RS232 isolated

Connection cable

37-pin SUB-D female connector

4 x 9-pin SUB-D male connector (ST075)
or
4 x 25-pin SUB-D male connector (ST074)

ORDERING INFORMATION

ADDICOM CPCI-7500

CPCI-7500: 4-port serial interface, 3U European size. Incl. technical description and software drivers.

SI-Module: Please order the modules separately!

MX232-G:	RS232 mode with optical isolation
MX232:	RS232 mode
MX422-G:	RS422 mode with optical isolation
MX422:	RS422 mode
MX485-G:	RS485 mode with optical isolation
MX485:	RS485 mode
MXTTY:	20 mA Current Loop mode (active, passive), with isolation

Option:

URS-7500-6U:	6U Bracket for mounting in a 6U housing
Quartz:	Transfer rate up to 1 MBaud

Connection cable:

ST075:	cable, 37-pin auf 4 x 9-pin
ST074:	cable, 37-pin auf 4 x 25-pin