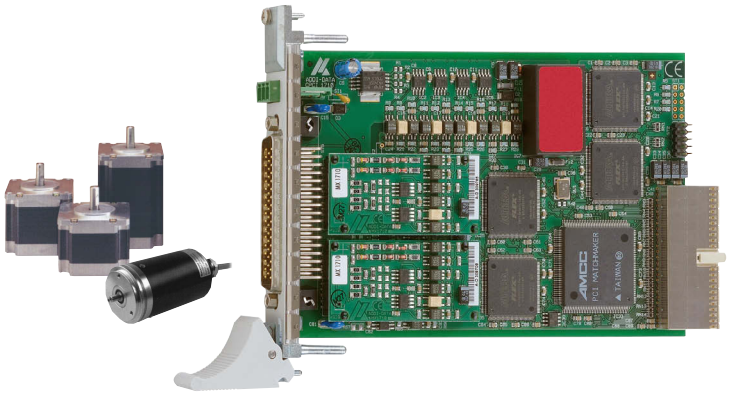
Multifunction counter board, optically isolated, encoder, incremental counter, timer/counter, SSI, PWM, ...



CPCI-1710

Incremental counter, SSI synchronous serial interfaces, counter/timer, pulse acquisition, frequency , pulse width , period duration , velocity measurement, PWM, digital inputs and outputs, ...

Function selection through software

Optical isolation, MTBF: 54 287 hours at 45 °C

TTL, RS422, 24 V

Customised functions

RoHS 2002/95/EC

CompactPCI™ 32-bit

Also for PCI EXPRESS® see page 128

Also for PCI see page 166

URS-1710-6U
6U bracket

Description of the **functions** see datasheet of the **APCI-1710** page 166

Windows 64/32-bit drivers

LabVIEW™

DASYLab10 Data Acquisition System Laboratory

DIAdem®

The board CPCI-1710 is a fast multifunction and multi-channel counter board for the CompactPCI bus.
The strengths of this board are its wide range of applications and high precision, speed and reliability for though industrial applications. With this board you can realise many different applications on the same hardware base.
The board is supplied with a pool of functions which are individually configured for each channel through the supplied software. The flexible programming facilities on this board allow many different user applications to be quickly and easily developed or reconfigured as further requirements arise. Thanks to the FPGA board structure, further counting applications can be realised through software adaptation. Contact us!

Features

- Can be inserted in PXI systems, with restricted functionality
- 32-bit data access
- Counter component with 32-bit counting depth and 5 MHz counting frequency
- Signals in TTL or RS422 mode, 24 V signals optional
- Four onboard function modules
- Reprogrammable functions

Functions (detailed description see APCI-1710)

- Acquisition of incremental encoders (90° phase-shifted signals)
- Synchronous serial interface for systems allowing an absolute position information through serial data transfer
- Counter/timer (82C54)
- Pulse acquisition
- Frequency measurement
- Pulse width modulation / PWM
- Period duration measurement
- Velocity measurement
- Digital inputs and outputs
- Customised functions

Available channels for all four function modules

- 20 channels for digital inputs, optically isolated
- 8 channels, programmable either as digital inputs or outputs, optically isolated
- 4 digital power outputs, optically isolated

Available lines for each function module

8 lines are available for each function module

Versionen

	RS422/ TTL I/O	24 V inputs	5 V inputs	24 V outputs	5 V outputs
APCI-1710	16	12	–	4	–
APCI-1710-24V	–	28	–	4	–
APCI-1710-5V-I	16	–	12	4	–
APCI-1710-5V-I-O	16	–	12	4	4

Safety features

- Creeping distance IEC 61010-1
- Optical isolation 1000 V
- Noise neutralisation of the PC supply

Applications

- Event counting • Position acquisition
- Motion control • Batch counting • ...

Software

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

Standard drivers for:

- Linux
- 32-bit drivers for Windows 8 / 7 / Vista / XP / 2000
- Signed 64-bit drivers for Windows 8 / 7 / XP
- Real-time use with Linux and Windows on request

Drivers and samples for the following compilers and software packages:

- .NET
- Microsoft VC++ • Microsoft C
- Borland C++ • Borland C
- Visual Basic • Delphi
- LabVIEW • DIAdem

On request:

Further operating systems, compilers and samples.

Driver download: www.addi-data.com/downloads

Phone: +49 7229 1847-0 info@addi-data.com
Fax: +49 7229 1847-222 www.addi-data.com

ADDI-DATA® SPIRIT OF EXCELLENCE

Specifications

Free programming of the functions

	32-bit or 16-bit acquisition of incremental encoders
	Acquisition of absolute encoders/SSI
	Counter/timer
	Chronos/TOR for frequency measurement
	Pulse acquisition
	Chronos for pulse width modulation
	Chronos for period duration measurement
	TOR for velocity measurement
	Digital I/O, 24 V, TTL, RS422
	PWM
	Customised functions

Signals

Digital I/O signals, TTL or RS422

Inputs

Number of inputs:	20	
Differential inputs or outputs		
Differential inputs, 5 V:	8/16 (8 can be used as inputs or outputs)	
Nominal voltage:	5 VDC	
Common mode range:	+12 / –7 V	
Max. differential voltage	± 12 V	
Input sensitivity:	200 mV	
Input hysteresis:	50 mV	
Input impedance:	12 kΩ	
Terminal resistor:	150 Ω serial with 10 nF (typ.)	
Signal delay:	120 nS (at nominal voltage)	
Max. input frequency:	2.5 MHz	
Mass-related inputs, 24 V (channels E, F, G):		
Number of inputs:	12	
Nominal voltage:	24 VDC	
Input current at nominal voltage:	11 mA	
Logic input levels:	Unominal:	24 V
	UH max.:	30 V
	UH min.:	19 V
	UL max.:	15 V
	UL min.:	0 V
Signal delay:	120 ns (at nominal voltage)	
Maximal input frequency:	1 MHz	

Outputs

Nominal voltage:	5 VDC
Maximum output frequency:	2.5 MHz (diff. outputs)
Max. number of outputs:	8 (if they are not used as diff. inputs)
Digital outputs, 24 V:	
Output type:	High-side (load to ground)
Number of outputs:	4
Nominal voltage:	24 VDC
Range of the supply voltage:	10 V up to 36 VDC (via 24 V ext. pin)
Maximum current for 4 outputs:	2 A typ. (limited to the voltage supply)
Maximum output current:	500 mA
Short-circuit current/ output at 24 V, R_{last} < 0.1 Ω:	1.5 A max. (output switchs off)
ON-resistance of the output (RDS ON-resistance):	0.4 Ω max.
Overtemperature:	170 °C (all outputs switch off)

Overtemperature protection (24 V outputs)		
Activated:	From approx. 150-170 °C (chip temperature)	
Deactivated (automatically).:	From approx. 125-140 °C (chip temperature)	
Outputs (at overtemperature):	Outputs switch off	
Protection against undervoltage	(effective at V ext. <5 V):	
Outputs (at undervoltage):	All outputs switch off	
Switching characteristics of the outputs		
(V ext. = 24 V, T = 25 °C, ohmic load: 500 mA):		
	Switch ON time:	200 µs
	Switch OFF time:	15 µs
Digital outputs, 5 V (option)		
Output type:	TTL	
Number of outputs:	4	
Nominal voltage:	5 VDC	
Switching characteristics of the outputs		
(T = 25 °C, TTL load):		
Switch ON time:	0.06 µs	
Switch OFF time:	0.02 µs	
Technical data for the option 24 V		
	24 V inputs (channels A up to G). This board version is intended for the connection of 24 V encoders. Only 24 V signals can be connected to the input channels.	
Nominal voltage:	24 VDC / 10 mA	
Max. input frequency:	10 kHz	
Logic input levels : (Standard)	Unominal:	24 V
	UH max.:	25 V
	UH min.:	15 V
	UL max.:	11 V
	UL min.:	0 V

Safety

Optical isolation:	1000 V

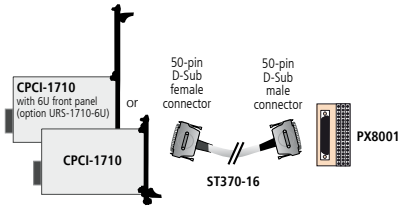
EMC – Electromagnetic compatibility

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.

Physical and environmental conditions

Dimensions:	3U/4TE
System bus:	CompactPCI 32-bit (5 V signal voltage)
Space required:	1 slot
Operating voltage:	+5 V, ± 5 % from the PC +24 V ext. / 10 mA
Current consumption:	CPCI-1710: 877 mA typ. ± 10 %
Front connector:	50-pin D-Sub male connector
Temperature range:	0 to 60 °C (with forced cooling)
MTBF:	54287 hours at 45 °C

ADDI-DATA connection



Ordering information

CPCI-1710: Multifunction counter board, optically isolated, encoder, incremental counter, timer/counter, SSI, PWM. Incl. technical description and software drivers.

MX1710: Peripheral module for the board CPCI-1710. 2 modules are necessary for each CPCI-1710 board. **Please order with the board!**

Options

URS-1710-6U: 6U bracket for mounting in 6U housing

Option 24V: 24 V for differential inputs (channels A up to G, A and B for counter, I (index) and UAS (error) signals)

Option 5V: 5 V outputs instead of 24 V (E, F, G)

Accessories

ST370-16: Shielded round cable, 2 m

PX8001: 3-row screw terminal panel, 50-pin, for DIN-rail mounting