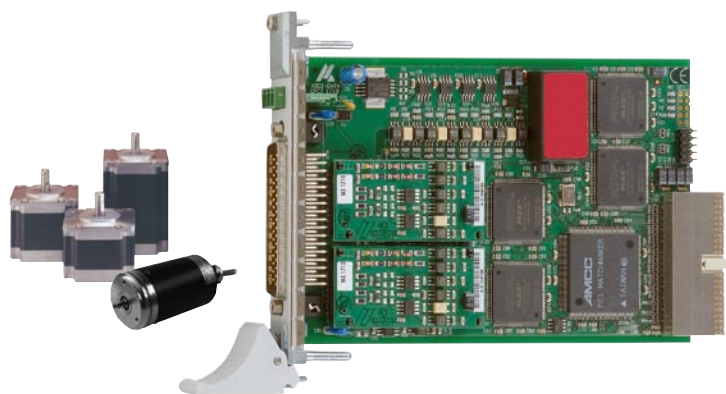


Multifunction counter board, optically isolated, encoder, incremental counter, timer/counter, SSI, PWM, ...



CompactPCI™ 32-bit



Also for **PCI**
See page 84



URS-1710-6U
with 6U bracket

Description of the **functions** see datasheet of the **APCI-1710** page 84



Customer-tailored modifications

designed to suit your needs. Hardware and software, firmware, PLDs, ...

Contact us!

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 tough 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 functionalities
- 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) (page 86)
- Synchronous serial interface for systems allowing an absolute position information through serial data transfer (page 86)
- Counter/timer (82x54) (page 88)
- Pulse acquisition (page 90)
- Frequency measurement (page 87)
- Pulse width modulation / PWM (page 90)
- Period duration measurement (page 87)
- Velocity measurement (page 84)
- BiSS-Master (page 87)
- Digital inputs and outputs (page 91)
- 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

CPCI-1710

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

Function selection through software

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

TTL, RS422, 24 V

Customised functions

8 lines are available for each function module

- Input lines:
 - 2 x TTL and RS422 (CPCI-1710) or 2 x 24 V (option)
 - 3 x 24 V, optional 5 V for channels E, F, G
- Output lines:
 - 1 x 24 V, optional 5 V (power output)
- 2 channels, programmable either as digital inputs or outputs, optically isolated: 2 x TTL, RS422

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:

Windows Vista (32-bit)/XP/2000/NT/98, Windows 3.11, MS-DOS, Real-time drivers for Windows Vista/XP/2000/NT/98
On request: RTX drivers

Samples for the following compilers:

Depending on the function, the samples are not always available for all compilers. You will find a detailed list on the web.

Microsoft VC++ 5.0 • Microsoft C 6.0
Borland C++ 5.01 • Borland C 3.1
Visual Basic 1.0; 4.0; 5.0 • Delphi 1 • Delphi 4
Turbo Pascal 7.0

Drivers for the following software packages:

LabVIEW 5.01 (depending on the function)

On request: DasyLab 6/7 • DIAdem 6/7

Free driver download on the web:
www.addi-data.com/download

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

Specifications

CPCI-1710

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
BiSS-Master
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 V / -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:	5 MHz (at nominal voltage)
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.: 17 V UL max.: 15 V UL min.: 0 V
Signal delay:	120 ns (at nominal voltage)
Maximal input frequency:	2.5 MHz (at nominal voltage)

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, $R_{\text{load}} < 0.1 \Omega$:	1.5 A max. (output switched 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 Vext < 5 V):	
Outputs (at undervoltage):	All outputs switch off

Switching characteristics of the outputs

(Vext = 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 D).

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:	1 MHz (at nominal voltage)
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
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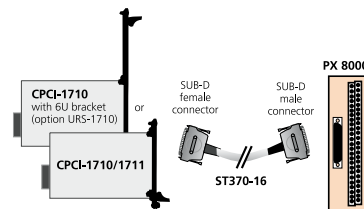
EMC – Electromagnetic compatibility

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 acc. to spec. 2.1 (PCISIG)
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 SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)
MTBF:	54 287 hours at 45 °C

ADDI-DATA connection



Ordering information

CPCI-1710:	Multifunction counter board, optically isolated, encoder, incremental counter, timer/counter, SSI, PWM, incl. 2 x MX1710 peripheral modules. Incl. technical description and software drivers.
CPCI-1710-10K20:	Same as CPCI-1710, with additional function for connecting a BiSS interface, incl. 2 x MX1710 peripheral modules.
CPCI-1711:	Multifunction counter board, optically isolated, with 2 function modules. Incl. technical description and software drivers.

Options

URS-1710-6U:	6U bracket for mounting in 6U housing
Option 24 V:	24 V for differential inputs (channels A up to G, A and B for Counter), I (Index) and UAS (error) signals

Option 5 V 24 V inputs are supplied with 5 V (channels E, F, G)

Accessories

ST370-16:	Shielded round cable, 2 m
PX 8000:	Screw terminal panel, for DIN rail