Watchdog board, optically isolated, 7 watchdogs/timer

New!*

PCI EXPRESS®

APCIe-040

7 watchdogs/timer

8 electromechanical relays
with change-over contacts

7 digital inputs 24 V

2 alarm levels

Temperature monitoring from -35 °C to + 85 °C

Optical isolation 1000 V

RoHS 2002/95/EC
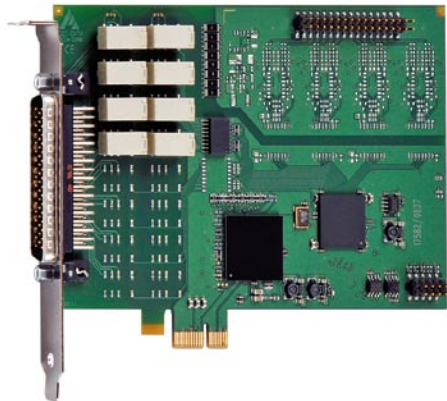
Also for PCI
see APCI-035, page 164

on request

LabVIEW™
on request

Features

Maximise the reliability of your telecom, ISP, Voice Mail, File Server or industrial systems under Windows operating systems with the APCIe-040 PCI Express watchdog board. The board is equipped with 7 watchdogs for simultaneous software and hardware monitoring. External devices can thus be monitored (e. g. alarm systems, PLCs) and controlled (e. g. modems, dialing devices).
In addition, the PCI Express watchdog board APCIe-040 has a two-level alarm system and can initiate a hardware reset in case of emergency. The principle is based on the computer software having to send signals to the board at regular intervals.
If the board does not receive an expected signal within a certain period of time, the first alarm level is activated. The emergency program is started which determines the cause and tries to remove the error. If this fails, the operating system and, if necessary, external devices are prepared for the hardware reset. The second alarm level is automatically triggered after a defined timeout.
The internal PC temperature can be monitored through the onboard temperature sensor.

Watchdog
- 7 watchdogs/timers
- 7 trigger channels/Gate inputs (24 V)
- Activation through software
- Configuration through software, readable
- Can be triggered through software or digital input
- Time base for the watchdog/timer: µs, ms, s, min
- Several alarm levels are possible for each watchdog
- Level 1 generates an interrupt or switches the warning relay, level 2 switches the reset relay (only watchdog 0 has 2 relays)
- With the two-level alarm, the operating system can be warned through an interrupt that a hardware reset is going to take place. There is then enough time to close the active tasks or to reset the warning relay.
- The alarm time can be read back at any time, so that the time remaining for further tasks can be established.
- Switching time of the reset relay: 2 s

Defined state after booting
- The watchdogs are switched off through the system reset

Diagnostic
- The status of the 7 watchdogs is readable
- 7 digital inputs (watchdog trigger or timer gate)

Safety
- Optical isolation 1000 V

Temperature measurement
- 1 temperature onboard sensor
- Alarm function when a programmable limit value is exceeded

Digital inputs
- 7 inputs, optically isolated
- Input voltage 24 V

Software drivers

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:
- C#.NET, C

On request:
Further operating systems, compilers and samples.

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

*Preliminary
product information

ADDI-DATA®
SPIRIT OF EXCELLENCE

Specifications*

Relays

Type of contacts:	8 change-over
Max. switching voltage:	200 VDC, 200 VAC
Max. switching current:	2 A
Max. switching capacity:	60 W
Contact resistance:	< 100 mΩ
Contact material:	Ag and Au plated
Response time:	Max. 4 ms, typ. 2.5 ms
Release time:	Max. 4 ms, typ. 0.9 ms
Mechanical life:	5×10^8 operations
Electrical life:	10^5 operations at rated load

Watchdogs/timers

Depth:	8-bit
Switching time of the reset relay:	2 s
Programmable time of the 7 watchdogs/timers:	Can be set from 2 µs to 255 min.
Time units:	µs, ms, s, min

Digital inputs

Number of inputs:	7
Optical isolation:	Through opto-couplers, 1000 V
Nominal voltage:	24 V
Input current:	5 – 8 mA
Signal delay:	70 µs (at 24 V)
Maximal input frequency:	10 kHz (at 24 V)

Temperature monitoring

|	
Accuracy:	± 1 °C
Measurement range:	-35 °C to 85 °C (real range of application 0-60 °C)
Resolution:	8-bit

Safety

Test voltage:	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

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Dimensions:	149 x 99 mm
System bus:	Acc. to PCI Express base specification, Revision 1.0a (PCI Express 1.0a)
Space required:	1-/4-lane, 1 PCI Express slot
Operating voltage:	+3.3 V from the PC
Max. current consumption:	0,67 A ±10 %
Front connector:	50-pin D-Sub male connector
Temperature range:	0 to 60 °C (with forced cooling)

Simplified block diagram
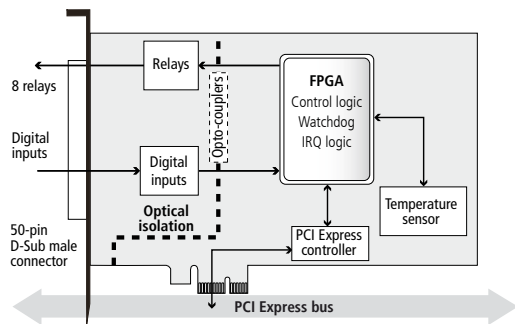
Pin assignment

Pin		Pin				Pin	
34	OC of relay 0	18	CC of relay 0	34		CO of relay 0	1
35	OC of relay 1*	19	CC of relay 1*	35		CO of relay 1*	2
36	OC of relay 2	20	CC of relay 2	36		CO of relay 2	3
37	OC of relay 3	21	CC of relay 3	37		CO of relay 3	4
38	OC of relay 4	22	CC of relay 4	38		CO of relay 4	5
39	OC of relay 5	23	CC of relay 5	39		CO of relay 5	6
40	OC of relay 6	24	CC of relay 6	40		CO of relay 6	7
41	OC of relay 7	25	CC of relay 7	41		CO of relay 7	8
42	Digital input 0 (+)	26	-	42		Digital input 0 (-)	9
43	Digital input 1 (+)	27	-	43		Digital input 0 (-)	10
44	Digital input 2 (+)	28	-	44		Digital input 0 (-)	11
45	Digital input 3 (+)	29	-	45		Digital input 0 (-)	12
46	Digital input 4 (+)	30	-	46		Digital input 0 (-)	13
47	Digital input 5 (+)	31	-	47		Digital input 0 (-)	14
48	Digital input 6 (+)	32	-	48		Digital input 0 (-)	15
49	-	33	-	49		-	16
50	-			50		-	17

OC: opening contact   CC: closing contact   CO: change-over contact   * = reset relay

ADDI-DATA connection

Screw terminal panel PX8001 with cable ST370-16
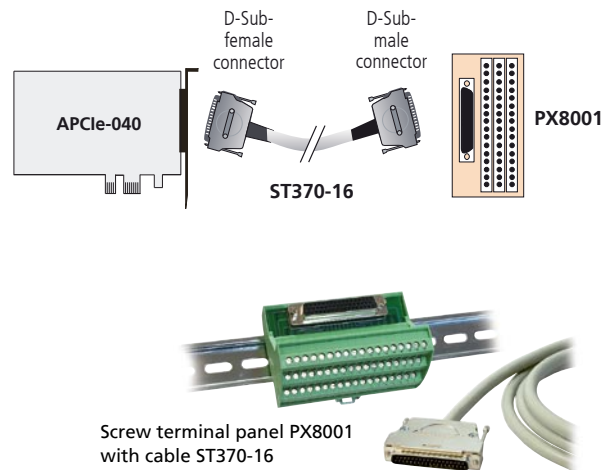
Ordering information

APCIe-040

Watchdog board, optically isolated, 7 watchdogs/timer. Incl. technical description and software drivers.

APCIe-040: 7 watchdogs, 8 relays, 7 digital inputs, 24 V
Accessories
PX8001: 3-row screw terminal panel, 50-pin, for DIN-rail mounting
ST370-16: Shielded round cable, 2 m

*Preliminary product information