Data sheet

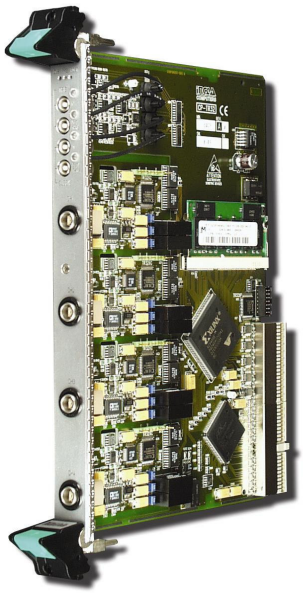
CP-TR32-5026

CompactPCI board level product

Your partner in automation

Transient Recorder

Features



- 4 separately isolated channels.
- Simultaneous sampling.
- 3 MS/s per channel
- 14 bit resolution.
- 14 bit no missing codes.
- Bandwidth: -3dB @ 1.5 MHz.
- 14 input ranges; +/- 10 Volt down to +/- 0.125 Volt.
- 256 MS of onboard memory; 64MS per channel.
- Samples are also available through FIFO's or ring-buffers at subsample speed and through ADC registers.
- Selectable trigger options.
- Pre and post trigger recording.
- CompactPCI form factor.
- Synchronisation of several modules.

Description

The TR32 module is a 4 channel digitizer with onboard memory in a CompactPCI form factor. The 4 channels are separately isolated and are sampled simultaneous (not multiplexed) with 14 bit resolution at a speed of max. 3MS/s per channel.
The analog input signals are received by, so-called, instrumentation amplifiers. The instrumentation amplifiers have a software selectable gain of 1, 2, 4 or 8. A buffer placed after this amplifier gives an extra software selectable gain or 1, 0.5, 0.25 or 0.125. Using this PGA functionality a fairly large range of input signal ranges can be mapped on the ADC range efficiently. An analog filter attenuates the higher frequencies present in the input signal. The filter is built as an active 2nd order Bessel multi feedback filter. The cut-off frequency (-3dB) is at 1.5 MHz.
The samples are stored in onboard memory. The memory is organized as a ring buffer. On every sample clock the A to D converters convert the analog inputs and send the samples over the isolation barrier where they are stored into the ring buffer.

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After the event of a trigger a programmable number of post trigger samples will be stored into this ring buffer before sampling stops. The samples in memory can then be copied to off-board memory with DMA transfers.
For real-time control applications samples are also available through FIFO's at sub sample rates. The depth of the FIFO's is software selectable. In addition to this the samples are available through ADC registers.
The module accepts external clock and trigger signals. Modules may be connected in parallel via the trigger and clock signals to increase the number of channels.
The plug and play functionality (not hot swap) provides easy setup and use.
A software driver for Linux is available.

Technical Specifications

INPUT

- Number of inputs : 4
- Input type : isolated per channel, differential
- Input range : 7 ranges, software selectable
  +/- 10V, +/- 5V, +/- 2.5V, +/- 1.25V, +/- 0.625V, +/- 0.3125V, +/- 0.15625V
- Extra input range (by digital multiplication) : 7 ranges, software selectable
  +/- 8V, +/- 4V, +/- 2V, +/- 1V, +/- 0.5V, +/- 0.25V, +/- 0.125V
- Full power bandwidth : -3 dB @ 1.5 MHz
- Full scale step response overshoot : < 10 %
- Input impedance : > 1 MOhm, differential
- Damage limit : > +/- 35 Volt
- Input connector : 2 pole LEMO 0S connector per channel

TRANSFER CHARACTERISTICS

- Sample rate : max 3 MS/s per channel
- Resolution : 14 bits
- No missing codes : up to 14 bits
- INL : typ. +/- 0.5 LSB, max. +/- 1 LSB
- DNL : typ. 0.3 LSB, max. +0.75 LSB
- Gain error : +/- 1 LSB typ, gain is calibrated
- Offset error : +/- 1 LSB typ, offset is calibrated

MEMORY

- Record length : 256 MS, max. 64 MS per channel.
- FIFO/ring buffer depth : <= 8kS

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DMA

- DMA transfer rate : > 100 Mbyte/s sustained over CompactPCI bus

SAMPLE CLOCK

- Source : internal or external
- Sample rate internal clock : 3 MS/s max. software programmable
- Internal sample clock stability : 50 ppm over operating temperature range.
- Sample clock input : TTL, 50 Ohm termination selectable, edge selectable
- Sample clock output : TTL, short circuit protected, 50 Ohm driving capability
- Sample clock connectors : 2 x LEMO 00

TRIGGER

- Source : internal or external
- Trigger input : TTL, 50 Ohm termination selectable, edge selectable
- Trigger output : TTL, short circuit protected, 50 Ohm driving capability
- Trigger connectors : 2 x LEMO 00

ISOLATION

- Isolation barrier per channel : up to 1500 V rms for 1 minute
- Signal transfer : digital couplers
- Power transfer : DC/DC converters, no external power required

MECHANICAL

- Size : single slot, 6U high CompactPCI module

ENVIRONMENTAL CONDITIONS

- Max. operating relative humidity : 90 %, no condensation
- Operating temperature : 15 – 40 ℃
- Power supply requirements : + 5 and + 3.3 Volt derived from CompactPCI

WARRANTY

: 1 year

ORDERING INFORMATION

- CP-TR32-5026 : 27-12881-3

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