CP-TR10-5020 Transient Recorder

Features

- 16 channels.
- Simultaneous sampling.
- 100 kHz bandwidth.
- 200 kS/s per channel.
- Input range +/- 10 Volt.
- 16 bit resolution.
- Differential input.
- Common mode range +/- 270 Volt.
- Input protection +/- 500 Volt
- Galvanic isolation.
- 2 MS of onboard memory per channel.
- Samples also available via FIFO's
- Selectable trigger options.
- Pre and post trigger recording.
- 6U, single slot CompactPCI form factor.

Description

The TR10 module is a galvanic isolated 16 channel digitizer with onboard memory in a 6U high CompactPCI form factor. The 16 channels are sampled simultaneous with 16 bit resolution. 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. 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 be copied to the PC memory with DMA transfers. In parallel samples are also available through FIFO's at sub sample rates for control applications. The depth of the FIFO's is software selectable, up to 16 samples per channel.

Modules may be connected via the front panel trigger and clock signals to increase the number of channels.

The plug and play functionality provides easy setup and use. The module includes software drivers for Linux.

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Technical Specifications

INPUT

- Number of inputs : 16
- Input type : differential
- Input range : +/- 10 Volt, other ranges on request
- Full power bandwidth : 100 kHz
- Small signal bandwidth : 100 kHz
- Full scale step response overshoot : < 10 %
- Differential input impedance : typ. 800 kOhm
- Common mode rejection : > 80 dB @ 50 Hz
- Common mode range : +/- 270 Volt
- Damage limit : +/- 500 Volt differential or common mode
- Input connector : 37 pole D-connector, female. JET standard pin out YA-A009-0436

TRANSFER CHARACTERISTICS

- Sample rate : max 200 kS/s per channel
- Resolution : 16 bits
- No missing codes : typ. 16 bits, min. 15 bits
- INL : typ. +/- 1 LSB max. +/- 3 LSB
- DNL : typ. 0.5 LSB, min. –2 LSB, max. +3 LSB
- SNR : > 80 dB @ 10 kHz full scale
- THD : < –70 dB @ 10 kHz full scale
- Gain error : < 0.05% of full scale range over operating temperature range
- Offset error : ≤ 3 LSB over operating temperature range
- Cross talk between channels : < -80 dB

MEMORY

- Record length : max. 2 MS per channel
- FIFO depth : max.16 samples per channel
- Number of FIFO's : 16, one for each channel

DMA

- DMA transfer rate : > 100 Mbyte/s sustained

SAMPLE CLOCK

- Source : internal or external
- Sample rate internal clock : 200 kS/s divided by 1 to 65535, 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

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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 : > 200 V working voltage (RMS or DC)
  > 1500 V RMS 50/60 Hz, 1 min.
- Signal transfer : capacitive couplers
- Power transfer : DC/DC converters, no external power required

MECHANICAL

- Height : 6U
- Width : 1 slot

ENVIRONMENTAL CONDITIONS

- Max. operating relaltive humidity : 90 %, no condensation
- Operating temperature : 15 – 40 ℃
- Power supply requirements : + 5 and + 3.3 Volt derived from CompactPCI,
  1.5A max (5V), 0.5A max (3.3V)
- Magnetic field : upto 3mT with decay time of 10-20 msec when
  external shielding is used.

WARRANTY : 1 year

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