

RT-DAC USB 2.0 I/O Module RT-DAC PCI Board

Hardware reconfigurable by software. Real-time measurements and controls.



This is an omnipotent functionality that conforms to a given application. The RT-DAC family of PCI boards has A/D, D/A converters and digital I/O lines. All the I/O functions are realisable by hardware due to the on-board programmable logic FPGA chip. The OMNI board equipped with an EEPROM memory is used to store the ready-to-use or user-defined logic. Once installed in the computer the board suits to a number of applications that require different types and numbers of I/O channels. It is not necessary to change the board for a new application. Only the board's logic is replaced. The OMNI board behaves like an omnipotent I/O device.

RT-DAC/PCI (general) consists of 16 boards.

RT-DAC/PCI-OMNI is the most potent among the general boards in the family. The default board functions can be replaced by a new logic structure that implements new functions.

Specification:

- 16 analog inputs, 12 bits resolution, 1.8 μ s conversion time per channel, input range +/-10V
- analog amplifier 1, 2, 4, 8 and 16 V/V
- 4 analog outputs; 8/12-bit resolution, output ranges +/-10, -10-0, 0-10 V
- 32 general purpose digital I/O signals, change-of-state (COS) interrupt from selected digital inputs
- 4 PWM outputs, 8/12 bits resolution, frequency range from 0.15Hz to 156kHz
- 4 incremental encoder inputs, 32-bit counters
- 2 32-bit timers, 25ns resolution
- 2 32-bit counters
- 2 digital signal generators, selectable duty cycle, maximum output frequency 20MHz
- interrupt controller, interrupt source timer, COS of digital inputs, 2 dedicated interrupt input signals

RT-DAC/USB is a portable version of the RT-DAC I/O boards. This real-time control and measurement module transfers signals between a computer and a process or a plant. Therefore RT-DAC/USB is a perfect device to be plugged-in to a laptop and to be connected to sensors and/or actuators of the process constituting a portable control and measurement stand.

FPGA technology:

Reconfigurability of the digital I/O according to user requirements

Software:

- Compatible with MATLAB/Simulink
- RTCON (if MATLAB/Simulink are applied)
- RT-DAC/USB may operate directly from MS Excel sheets
- Affected OS: MS Windows

Digital USB module:

- 26 digital I/O signals
- 4 PWM channels: 8/12 bits resolution (4 DO shared with 4 digital I/Os)
- digital generators: 1 channel, dedicated trigger and gating signals (1 DO and 2 DI shared with 3 DI/O)
- encoders: 4 channels, optional index signal, defined active level of the index signal (12 DI shared with 12 DI/O)

Analog USB module:

- ADC: 12 bits, +/-10V, 16 channels software programmable gains: 1, 2, 4, 8, 16 Noise (input grounded at connector) for gain = 16: 1.0 LSB
- Throughput: 100 kSample/sec (data acquisition mode), 1 kSample/sec (close-loop control mode)
- DAC: 12 bits, 4 channels.