Data Acquisition Modules

Setting the Standard

RTD was founded on data acquisition nearly 30 years ago, and has since been providing the PC/104 industry with dataModules that are second to none. We provide a wide array of data acquisition and control modules with auto-calibrating analog I/O, advanced digital I/O, SyncBus for multi-board simultaneous sampling, and a high-speed McBSP serial port. In today’s high accuracy environments, where discerning signals from noise at high throughput rates is the difference between success and failure, RTD is continually redefining the DAQ industry.

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### Analog I/O

#### Features

- **Bus**: Active Bus, Passthrough Bus, DMA or PCI Bus Master, McBSP Sync Serial Interface

#### Analog Input

- **Single-Ended Inputs**: 16, 16, 32, 16, 16, 16, 16/8, 32
- **Differential Inputs**: 8, 8, 16, 8, 8, 8, 4/8, 4/16
- **Max Throughput (KHz)**: 1250, 1250, 500, 100, 1250, 1250, 1250, 1538, 100, 1250
- **Resolution (bits)**: 12, 12, 12, 16, 12, 12, 18, 24, 12
- **Input Ranges**: 3, 3, 3, 1, 3, 3, 9, 1, 3
- **Programmable Gains**: ✔
- **Autonomous Calibration**: ✔
- **Data Marker Inputs**: 3, 3, 3, 3
- **Analog Trigger**: ✔

#### Analog Output

- **Analog Outputs**: 2, 2, 4, 2, 2, 2, 4/8, 8/16, 4
- **Max Throughput (KHz)**: 200, 200, 200, 100, 200, 200, 1000, 100, 200
- **Resolution (bits)**: 12, 12, 12, 16, 12, 16, 16, 12
- **Output Ranges**: 4, 4, 4, 1, 4, 4, 6, 1, 4
- **D/A FIFO Buffer**: 8K, 8K, 8K, 8K, 8K, 8K, D/A, D/A, D/A

### Advanced Features

- **ScanBurst/Multi-Burst**: ✔
- **Channel-Gain Table**: 1K, 1K, 1K, 1K, 1K
- **A/D FIFO Buffer**: 8K, 8K, 8K, 8K, 8K, 8K, D/A, D/A, D/A
- **Sample Counter**: ✔
- **SyncBus™**: ✔
- **Simultaneous Sampling**: ✔

### Digital I/O

- **Total Digital I/O**: 16, 16, 32, 16, 16, 16, 16, 16, 32, 14, 32, 48, 48, 48, 48
- **Bit Programmable I/O**: 8, 8, 16, 8, 8, 8, 32, 14, 32, 48, 24, 48, 48
- **Input FIFO Buffer**: 8K, 8K, 8K, 8K, 8K, 8K, D/A
- **Max Digital Clock Rate (KHz)**: 1250, 1250, 500, 100, 1250, 1250, 500, 500, 40M, 25000, 25000
- **Opto-Isolated Inputs**: ✔
- **Opto-Isolated Outputs**: ✔
- **User Timer/Counters**: 3, 3, 2, 2, 3, 3
- **Advanced Features**: ✔
- **Versatile Memory Buffer**: ✔
- **4M 4M**
- **Incremental Encoders/PWMs**: ✔
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- **Incremental Encoders/PWMs**: ✔
- **Operating Temperature**: -40 to +85°C
- **Power Consumption (W, +5V, typical)**: 4.0, 4.0, 3.2, 3.5, 2.5, 3.1, 5.0/9.0, 4.0/8.0, 4.35, 1.2, 1.2, 1.5, 1.5

visit www.rtd.com for a complete selection of dataModules

“MIL Value for COTS Prices” | www.rtd.com
**1.5 MHz 18-bit A/D Simultaneous Sampling DAQ**

The DM35218 and DM35418 are high speed 18-bit data acquisition modules in a PCIe/104 format. The DM35218 provides 4 differential or single-ended analog input channels with programmable gain and input ranges; the DM35418 provides 8 channels. Each module has simultaneous or independent sampling rates up to 1.5 MHz. The DM35418 and DM35218 also provide 4 or 8 individually controlled analog outputs, multiple board synchronization with the SyncBus.

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**Delta-Sigma 24-Bit A/D Simultaneous Sampling DAQ**

The DM35224 and DM35424 are software configurable simultaneous sampling PCIe/104 data acquisition modules. The DM35224 provides 8 differential analog input channels, with programmable gains. It also provides 8 individually controlled analog outputs and digital I/O. The DM35424 doubles the number of analog I/O to 16. These boards are targeted to sensors that require high precision with a low signal level, such as accelerometers, pressure transducers, and Resistance Temperature Detectors (RTD). The DAC output can provide sufficient current and voltage for the excitation voltage of most sensors.

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**Xilinx Spartan-6 User Programmable FPGA**

The FPGA3556046 and FPGA3556101 are PCIe/104 FPGA modules with a PCIe/104 stackable bus structure. These modules provide a platform for customer developed FPGA code. They are based on a Xilinx Spartan-6 with a hardware PCIe x1 endpoint to provide the interface to the host CPU. On board DDR2 memory provides dedicated storage space for the FPGA application. A total of 88 I/O pins interface the FPGA to the outside world, and allow for a variety of signal levels. These modules include four RS-232/422/485 transceivers connected to FPGA pins allowing custom serial port implementation.

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*RTD’s stackable packaging allows systems to scale to the user’s needs. The system shown here includes multiple analog and digital DAQ modules for an application requiring high levels of data acquisition.*