

# DATENBLATT

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DAQ/DAQe-2213/2214

## **HABEN SIE FRAGEN ODER WÜNSCHEN SIE EIN INDIVIDUELLES ANGEBOT?**

Unser Team berät Sie gerne persönlich.

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## **ADRESSE**

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D-82239 Alling bei München



# DAQ/DAQe-2213/2214

16-CH 16-Bit 250 kS/s Low-Cost Multi-Function DAQ Cards



DAQ-2213 / 2214



DAQe-2213 / 2214

## Features

- Supports a 32-Bit 3.3 V or 5 V PCI bus (DAQ-2213, DAQ-2214)
- x1 lane PCI Express® Interface (DAQe-2213, DAQe-2214)
- Onboard 1 k-sample A/D FIFO
- Bipolar or unipolar analog input ranges
- Programmable gains: x1, x2, x4, x8
- 512-configuration channel gain queue
- Scatter-gather DMA
- 2-CH 12-Bit multiplying analog outputs with waveform generation (DAQ/DAQe-2214)
- Onboard 1 k-sample D/A FIFO (DAQ-2214, DAQe-2214)
- 24-CH TTL digital input/output
- 2-CH 16-Bit general-purpose timer/counter
- Analog and digital triggering
- Fully auto calibration
- Multiple cards synchronization through SSI (System Synchronization Interface) bus
- Supported Operating System
  - Windows 7/8 x64/x86, Linux
- Driver and SDK
  - LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET
- Software Utility
  - AD-Logger

## Terminal Boards & Cables

- DIN-68S-01
- ACL-10568-I
- ACL-SSI-2/3/4 (for DAQ/DAQe-2214)

## Ordering Information / Quick Selection Guide

| Model Name    | Analog Input    |            |               |                  | Analog Output   |            |               | DIO             | Timer/Counter   |
|---------------|-----------------|------------|---------------|------------------|-----------------|------------|---------------|-----------------|-----------------|
|               | No. of channels | Resolution | Sampling rate | Input range      | No. of channels | Resolution | Sampling rate | No. of channels | No. of channels |
| DAQ/DAQe-2213 | 8 DI/16 SE      | 16 Bit     | 250 kS/s      | ±1.25 V to ±10 V | -               | -          | -             | 24-CH 8255 PIO  | 2-CH, 16-Bit    |
| DAQ/DAQe-2214 | 8 DI/16 SE      | 16 Bit     | 250 kS/s      | ±1.25 V to ±10 V | 2               | 12 Bit     | 1 MS/s        | 24-CH 8255 PIO  | 2-CH, 16-Bit    |

## Specifications

| Model Name                    | DAQ/DAQe-2213                                                                                                                                             |                                                    | DAQ/DAQe-2214                                                                     |  |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------|--|
| Analog Input                  |                                                                                                                                                           |                                                    |                                                                                   |  |
| Resolution                    | 16 Bit, no missing codes                                                                                                                                  |                                                    |                                                                                   |  |
| Number of channels            | 16 single-ended or 8 differential (software selectable per channel)                                                                                       |                                                    |                                                                                   |  |
| Channel gain queue size       | 512                                                                                                                                                       |                                                    |                                                                                   |  |
| Maximum update rate           | 250 kS/s                                                                                                                                                  |                                                    |                                                                                   |  |
| Programmable gain             | 1, 2, 4, 8                                                                                                                                                |                                                    |                                                                                   |  |
| Bipolar input ranges          | ±10 V, ±5 V, ±2.5 V, ±1.25 V                                                                                                                              |                                                    |                                                                                   |  |
| Unipolar input ranges         | 0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V                                                                                                                          |                                                    |                                                                                   |  |
| Offset error                  | ±1 mV                                                                                                                                                     |                                                    |                                                                                   |  |
| Gain error                    | ±0.06% of FSR                                                                                                                                             |                                                    |                                                                                   |  |
| Input coupling                | DC                                                                                                                                                        |                                                    |                                                                                   |  |
| Overvoltage protection        | Power on: Continuous ±30 V, Power off: Continuous ±15 V                                                                                                   |                                                    |                                                                                   |  |
| Input impedance               | 1 GΩ /100 pF                                                                                                                                              |                                                    |                                                                                   |  |
| Trigger sources               | Software, external digital/analog trigger, SSI bus                                                                                                        |                                                    |                                                                                   |  |
| Trigger modes                 | Pre-trigger, post-trigger, middle-trigger, delay-trigger, and repeated trigger                                                                            |                                                    |                                                                                   |  |
| FIFO buffer size              | 1 k samples                                                                                                                                               |                                                    |                                                                                   |  |
| Data transfers                | Polling, scatter-gather DMA                                                                                                                               |                                                    |                                                                                   |  |
| Analog Output                 |                                                                                                                                                           |                                                    |                                                                                   |  |
| Number of channels            | -                                                                                                                                                         | 2 voltage outputs                                  |                                                                                   |  |
| Resolution                    | -                                                                                                                                                         | 12 Bit                                             |                                                                                   |  |
| Output ranges                 | -                                                                                                                                                         | 0-10 V, ±10 V, 0-AOEXTREF, ±AOEXTREF               |                                                                                   |  |
| Maximum update rate           | -                                                                                                                                                         | 1 μs                                               |                                                                                   |  |
| Slew rate                     | -                                                                                                                                                         | 20 V / μs                                          |                                                                                   |  |
| Settling time                 | -                                                                                                                                                         | 3 μs to ±0.5 LSB accuracy                          |                                                                                   |  |
| Offset error                  | -                                                                                                                                                         | ±2 mV                                              |                                                                                   |  |
| Gain error                    | -                                                                                                                                                         | ±0.04% of max. output                              |                                                                                   |  |
| Driving capacity              | -                                                                                                                                                         | ±5 mA                                              |                                                                                   |  |
| Stability                     | -                                                                                                                                                         | Any passive load, up to 1500 pF                    |                                                                                   |  |
| Trigger sources               | -                                                                                                                                                         | Software, external digital/analog trigger, SSI bus |                                                                                   |  |
| Trigger modes                 | -                                                                                                                                                         | Post-trigger, delay-trigger, and repeated trigger  |                                                                                   |  |
| FIFO buffer size              | -                                                                                                                                                         | 1 k samples                                        |                                                                                   |  |
| Data transfers                | -                                                                                                                                                         | Programmed I/O, scatter-gather DMA                 |                                                                                   |  |
| Digital I/O                   |                                                                                                                                                           |                                                    |                                                                                   |  |
| Number of channels            | 24-CH 8255 programmable input/output                                                                                                                      |                                                    |                                                                                   |  |
| Compatibility                 | 5 V/TTL                                                                                                                                                   |                                                    |                                                                                   |  |
| Data transfers                | Programmed I/O                                                                                                                                            |                                                    |                                                                                   |  |
| General-Purpose Timer/Counter |                                                                                                                                                           |                                                    |                                                                                   |  |
| Number of channels            | 2                                                                                                                                                         |                                                    |                                                                                   |  |
| Resolution                    | 16 Bit                                                                                                                                                    |                                                    |                                                                                   |  |
| Compatibility                 | 5 V/TTL                                                                                                                                                   |                                                    |                                                                                   |  |
| Base clock available          | 40 MHz, external clock up to 10 MHz                                                                                                                       |                                                    |                                                                                   |  |
| General Specifications        |                                                                                                                                                           |                                                    |                                                                                   |  |
| Auto Calibration              | Yes (+5 V, ±2 ppm/°C)                                                                                                                                     |                                                    |                                                                                   |  |
| Dimensions                    | 175 mm x 107 mm (6.82" x 4.17") (not including connectors) (DAQ-2213/2214)<br>168 mm x 107 mm (6.55" x 4.17") (not including connectors) (DAQe-2213/2214) |                                                    |                                                                                   |  |
| Connector                     | 68-pin VHDCI female x 2                                                                                                                                   |                                                    |                                                                                   |  |
| Operating temperature         | 0°C to 55°C (32°F to 131°F)                                                                                                                               |                                                    |                                                                                   |  |
| Storage temperature           | -20°C to 70°C (-4°F to 158°F)                                                                                                                             |                                                    |                                                                                   |  |
| Humidity                      | 5 to 95%, non-condensing                                                                                                                                  |                                                    |                                                                                   |  |
| Power requirements            | +5 V 1.2 A typical (DAQ-2213)<br>+3.3 V 0.84 A, +12 V 0.604 A typical (DAQe-2213)                                                                         |                                                    | +5 V 1.2 A typical (DAQ-2214)<br>+3.3 V 0.77 A, +12 V 0.572 A typical (DAQe-2214) |  |