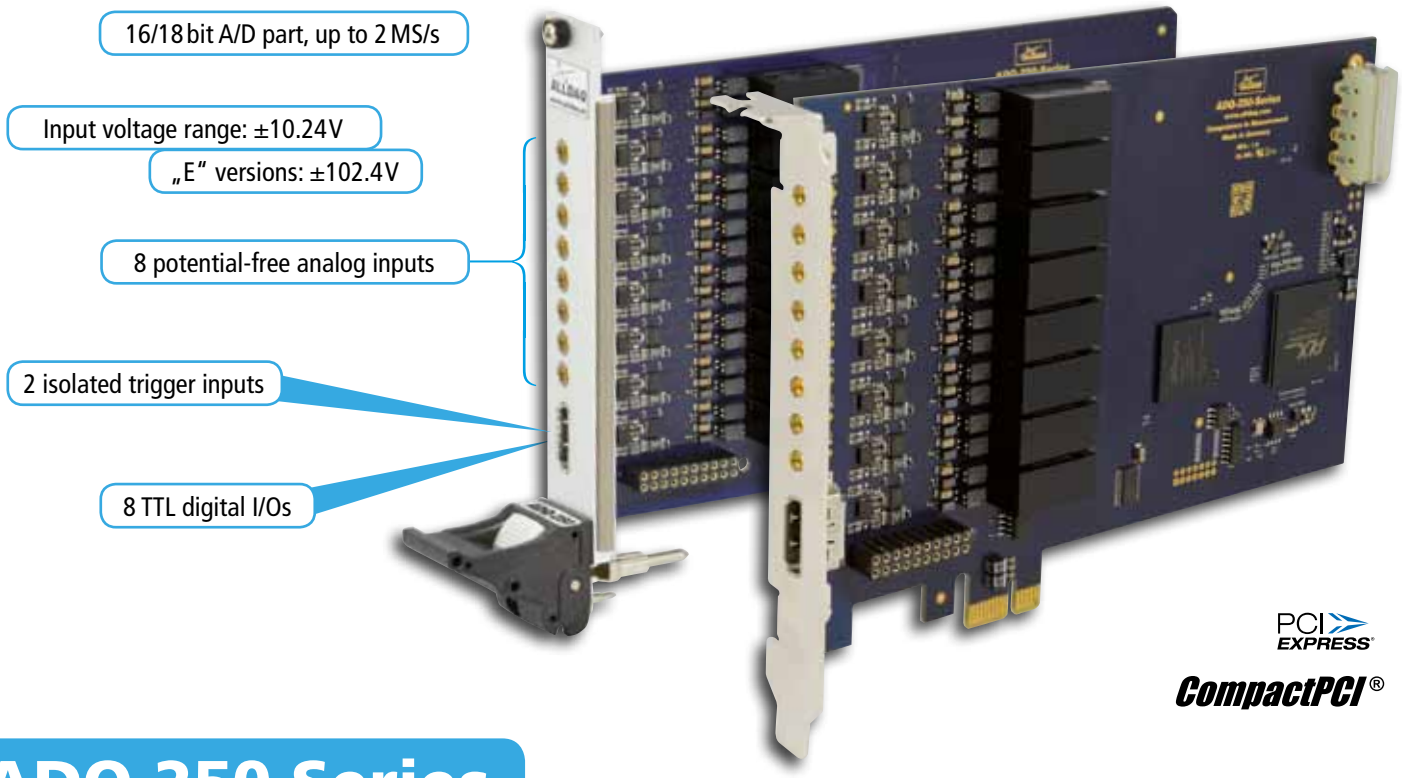
ALLDAQ – Your partner for
measurement and automation

ALLDAQ
Competence in Measurement

# Potential-free, precise, powerful!




# ADQ-250 Series

## Potential-free 8 channel voltage measurement board, high-precision A/D conversion up to 2 MS/s, 8 digital I/Os

### Ideal for highspeed data-logging and audio signal analysis

The measurement boards of the ALLDAQ ADQ-250 series are CompactPCI or PCI-Express boards for high-precise and fast voltage measurements in industry and laboratory. By the potential-free voltage inputs and the full differential sampling parasitic effects like ground loops and common mode errors can be largely rejected. The input voltage range is from -10,24 V to +10,24 V for full ±10 V peak to peak. Optional an input voltage range of ±102,4 V is possible. By the high A/D converter resolution of 16 bit resp. 18 bit (depending on model) a very high accuracy is achieved without the need of switching between several measurement ranges. The 8 analog channels are electrically isolated up to 700 $V_{RMS}$ between each other and towards PC ground.

Depending on the application you can choose between 3 models: the ADQ-255 with 8 x 16 bit A/D converters up to 250 kS/s sampling rate, the ADQ-256 with 8 x 16 bit A/D converters up to 2 MS/s sampling rate and the ADQ-258 with 8 high-precision 18 bit A/D converters sampling with 1.6 MS/s. All channels are always sampled synchronously. The values can be acquired as single values or timer-controlled. On demand the measurement can be started or stopped by two external trigger inputs, which are isolated towards PC ground and to the analog channels.

The 8 bit TTL digital I/O port can be either attached by the HDMI connector at the front panel or via adapter cable to an additional mounting bracket with a 25-pin D-Sub female connector. If the digital port is configured as input the inputs can be monitored on bit-pattern change and can generate an interrupt.

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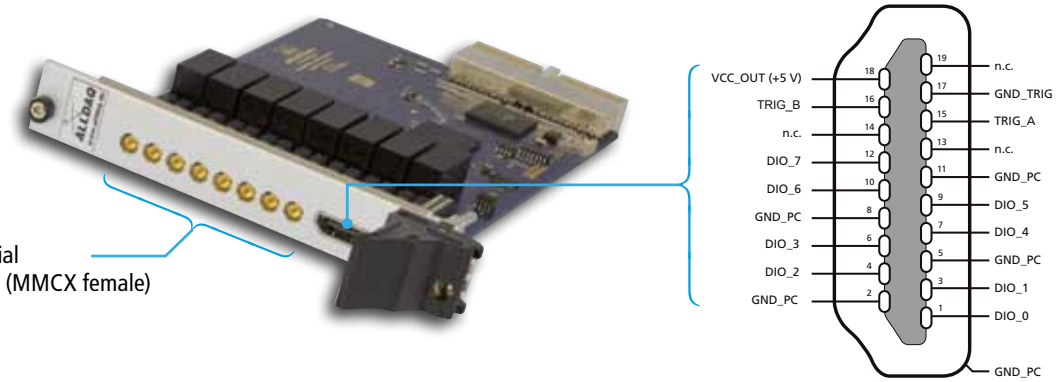
## Specifications

<table>
<tr><th>Element</th><th>Specification</th></tr>
<tr><td>PC interface (depending on model)</td><td>CompactPCI bus (32 bit, 33 MHz) Rev. 2.2 or PCI-Express x1 Rev. 1.0</td></tr>
<tr><td>Analog input</td><td>
<table>
<tr><th></th><th>ADQ-255</th><th>ADQ-256</th><th>ADQ-258</th></tr>
<tr><td>Channels</td><td>8 differentiell</td><td>8 differentiell</td><td>8 differentiell</td></tr>
<tr><td>Resolution</td><td>16 bit</td><td>16 bit</td><td>18 bit</td></tr>
<tr><td>Sampling rate</td><td>250 kS/s</td><td>2 MS/s</td><td>1.6 MS/s</td></tr>
<tr><td>Bandwidth</td><td>tbd.</td><td>tbd.</td><td>tbd.</td></tr>
<tr><td>Signal noise ratio</td><td>91,7 $dB_{FS, RMS}$</td><td>91,7 $dB_{FS, RMS}$</td><td>102,3 $dB_{FS, RMS}$</td></tr>
<tr><td>Input voltage range</td><td>±10.24 V</td><td>±10.24 V</td><td>±10.24 V</td></tr>
<tr><td>Input inpedance</td><td colspan="3">$R_i$ > 100 MΩ, typ. 240 MΩ, $C_i$ = 4 pF</td></tr>
<tr><td>Total accuracy</td><td colspan="3">see manual</td></tr>
</table>
Synchronous sampling of all channels using separate A/D converters (no multiplexers)<br>Programmable channel list: max. 8 entries<br>Sample time range: up to ~65 s, adjustable in steps of 15,15 ns<br>Transfer rate to the PC: max. 25 MHz (cPCI) resp. 30 MHz (PCIe) depending on system*<br>Start/Stop trigger: software, timer, ext. digital trigger (rising/falling edge)<br>Isolation up to 700 VDC/$VAC_{RMS}$ (channel to channel and towards PC ground)
</td></tr>
<tr><td>Trigger inputs for A/D part isolated</td><td>2 external trigger inputs via HDMI connector, which can be equally used for starting or stopping the acquisition; trigger clock: corresponds with the max. sample rate of the board<br>Input level: $U_{IL}$ at $V_{CC}$ = 5V: max. 0.8 V; $U_{IH}$ at $V_{CC}$ = 5V: min. 2.2 V<br>Isolation up to 500 VDC (signal to PC ground)</td></tr>
<tr><td>TTL digital I/Os</td><td>One bi-directional 8 bit TTL port via HDMI connector (direction programmable by port)<br>Input level: $U_{IL}$ at $V_{CC}$ = 5V: max. 0.8 V; $U_{IH}$ at $V_{CC}$ = 5V: min. 2.0 V<br>Output level: $U_{OL}$ at 24 mA: max. 0.5 V; $U_{OH}$ at -24 mA: min. 2.4 V</td></tr>
<tr><td>Operating temperature</td><td>0..70 °C (reasonable air circulation must be guaranteed)</td></tr>
<tr><td>Power consumption board</td><td>cPCI/PCIe models: +3.3 V: max 150 mA; +5 V: max. 220 mA; +12 V: max. 1.5 A</td></tr>
<tr><td>Dimensions</td><td>cPCI models: 3 U high / 4 HP wide;<br>PCIe models: 158 mm x 111.15 mm (W x H)</td></tr>
<tr><td>Connectors</td><td>8 MMCX coaxial female connectors for analog inputs<br>HDMI male connector (type HEC) for digital I/Os and trigger inputs</td></tr>
<tr><td>Certifications</td><td>EMC directive 2004/108/EG, emission EN 55022, noise immunity EN 50082-2, RoHS</td></tr>
<tr><td>Manufacturer warranty</td><td>36 months</td></tr>
</table>

* The effective transfer rate depends largely on the performance of your computer, the number of installed boards and the number of channels used.

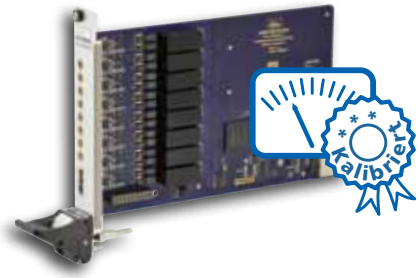
## Pinout



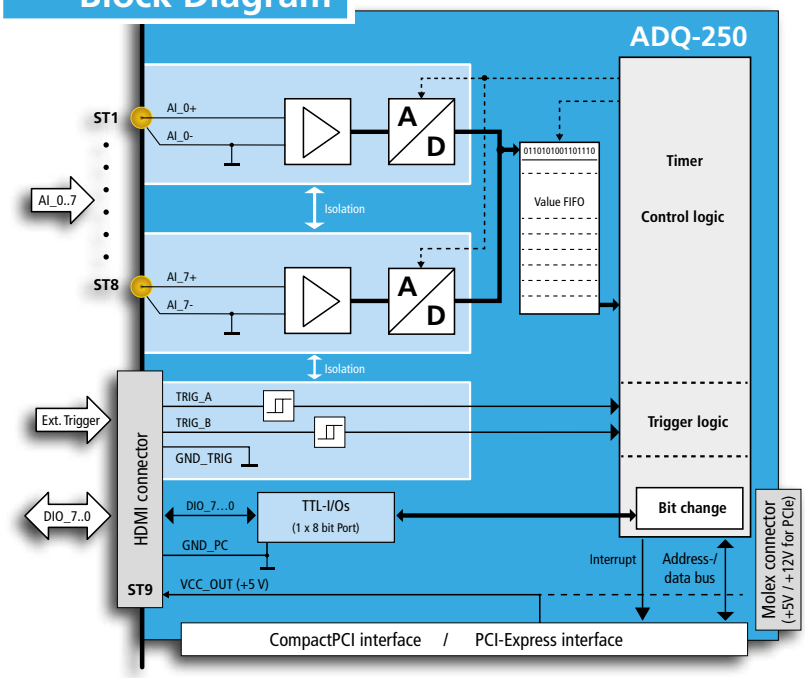
## Calibration Certificate

### Calibration certificate required?

We collaborate with independent test laboratories accredited by the Deutsche Akkreditierungsstelle GmbH (DAkkS). Contact us!




## Block Diagram




## Software Support

- Drivers for Windows 10/8.1/8/7/Vista SP2 (32 and 64 bit)
- API with a unique programming logic
- Programming support (SDK) with examples for C++, C#, Visual Basic, Delphi/Pascal and Python included
- ALLDAQ Manager - Utility software offers a quick overview of parameters of the ALLDAQ driver system and offers a central access to the SDK, software tools and help files

▸ Do you need further software support - also for third-party manufacturer? Our software specialists like to advice you!

### ALLDAQ Manager

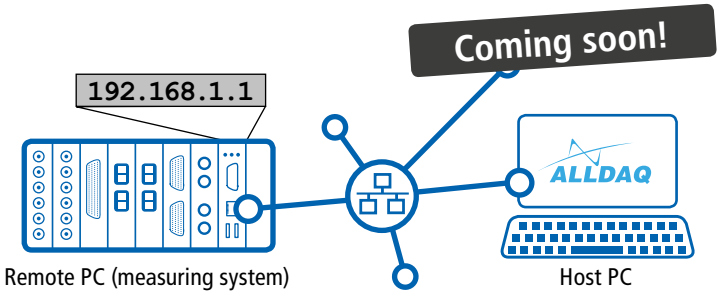
- Informations on the installed ALLDAQ hardware in overview
- XML export of the driver configuration for archiving and support
- Tool for interactive illustration of the pin-assignment with the possibility to generate a PDF file
- Tool for user calibration
- Convenient access to the software developer kit (SDK) for high-level language programming with examples and simple test programs as well as to the help files

### Remote Access via Ethernet

NEW!

ADQ LAN

The newest extension of the ADQ driver system enables the easy access to your ALLDAQ hardware via the local network (LAN). The programming is done as usual by the standard-API functions.




### LabVIEW™ VIs

LabVIEW

For LabVIEW™ users we provide a library with virtual instruments (VIs) for easy access to your ALLDAQ hardware.

### MATLAB® Support

MATLAB

An adapted MATLAB® interface for the ALLDAQ hardware with examples and a help file is included with the ALLDAQ SDK.

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# ADQ-250 Series – Isolated 8 Channel Voltage Measurement Board

## Complete Solutions

### Everything from one source.

Complete systems for measurement and control in a compact desktop housing or for mounting in a 19" rack. Alternatively with a bus extension or with an independent slot CPU.

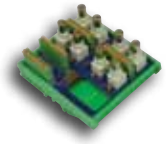
## TOP! Bundle Offerings

### Contact us for our attractive bundle offerings!

Figure:
ADQ-250-cPCI resp. PCIe including special terminal block, 8 connection cables from MMCX male connector to MMCX male connector (1 m) and a HDMI cable.

## Ordering Info

cPCI- or PCIe board of the ADQ-250 series



Special terminal block for ADQ-250 series (ADQ-TB-ADQ-250-HUT)

8 coaxial cables from MMCX male connector to MMCX male connector or BNC male connector, length: 1 m

HDMI cable to connect the digital-I/Os and trigger signals with the terminal block (ADQ-HDMI-MM-1m)

Documentation and driver software available by download under: www.alldaq.com/downloads.

Optional with ±102,4 V inputs!

| Name | Art. No. | Description |
|---|---|---|
| ADQ-255-cPCI | 122581 | CompactPCI measurement board with 8 potential-free voltage inputs, 16 bit 250 kS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| ADQ-256-cPCI | 122582 | CompactPCI measurement board with 8 potential-free voltage inputs, 16 bit 2 MS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| ADQ-258-cPCI | 122583 | CompactPCI measurement board with 8 potential-free voltage inputs, 18 bit 1.6 MS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| ADQ-255-PCIe | 126175 | PCI-Express measurement board with 8 potential-free voltage inputs, 16 bit 250 kS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| ADQ-256-PCIe | 126176 | PCI-Express measurement board with 8 potential-free voltage inputs, 16 bit 2 MS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| ADQ-258-PCIe | 126177 | PCI-Express measurement board with 8 potential-free voltage inputs, 18 bit 1.6 MS/s ADCs, 2 ext. trigger inputs, 8 TTL DIOs |
| **Suitable accessory** | | |
| ADQ-TB-COAX-HDMI-HUT | 127389 | Special terminal block for ADQ-250 series and ADQ-610 series, analog inputs can be either connected via 8 BNC female connectors or Phoenix type clamps, digital I/Os, trigger inputs and auxiliary power via 10-pin Phoenix type clamps |
| ADQ-CR-MMCXM-MMCXM-8x-1m | 122585 | 8 x Coaxial cable from MMCX male connector to MMCX male connector (1 m) |
| ADQ-CR-MMCXM-BNCM-8x-1m | 122586 | 8 x Coaxial cable from MMCX male connector to BNC male connector (1 m) |
| ADQ-HDMI-MM-1m | 127015 | HDMI cable (all lines 1:1 fed through), black, shielded, gold-plated contacts (1 m) |

**Do you need an individual offer? Contact our sales team under: +49 (0)89-894 222 74 or per email: sales@alldaq.com.**



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