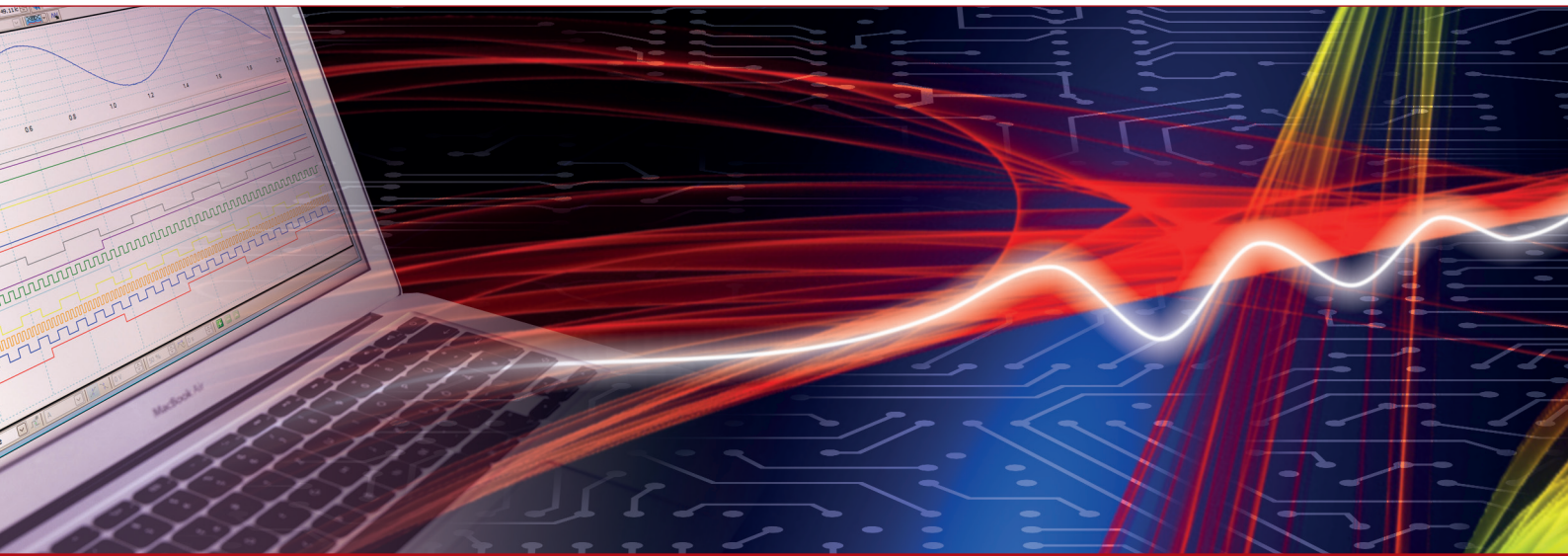


Product Datasheet - Technical Specifications



More information in our Web-Shop at ► www.meilhaus.com and in our download section.

Your contact

**Technical and commercial sales, price information,
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www.meilhaus.de

■ USB-AD16f

USB Data Acquisition System

Measurement & Control. Extremely Powerful.

Precisely record and output signals with the USB-AD16f: The high-performance USB data acquisition system accommodated in a stable aluminum housing impresses by high technical standard and excellent price-performance ratio. It is especially suitable for dynamic applications.

16 Analog Inputs. 250kHz 16 Bit. $\pm 10V$, $\pm 5V$, $\pm 2V$, $\pm 1V$.

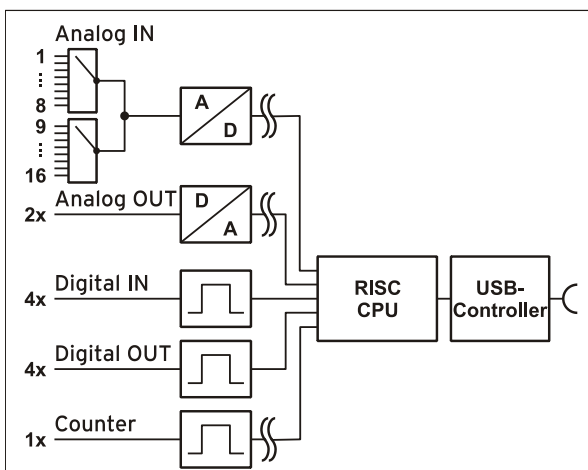
16 analog inputs can be sampled with 16 bit resolution and 250kHz total sampling rate so that even slightest peaks of high-frequent signals do not remain undetected. The measuring range is selected via software for each channel separately.

2 Analog Outputs. 16 Bit. $\pm 10V$.

The two 10V outputs can be used for analog controls with 16 bit accuracy.

Clearly Safe.

Due to the galvanic isolation of the analog channels the DAQ system and the PC are perfectly protected.



Functional diagram

4 Digital Inputs/Outputs Each. 1 Counter.

Digital states are recorded or set at four digital inputs and outputs each. Digital inputs are sampled time-synchronously with the analog inputs. The additional counter input is galvanically isolated.

Plug & Play.

The connection to the PC is realized via USB. The USB-AD16f provides all typical USB features (e.g. Plug&Play, Hot-Plug). Up to 127 devices can be connected and installed during operation.

Powered by USB.

The device is supplied with power via the USB interface. This reduces cabling efforts to a minimum and makes mobile measurements a lot easier.

Open for Everyone.

Widely supported: The data acquisition system can be used under Windows® XP/7/8/10 as well as under Mac OS X, Free BSD, and Linux. The complete software for installation and programming of the USB-AD16f is included for free.

NextView®. Try for Free.

The DAQ system is supported by NextView®, the software for data acquisition and analysis. A fully functional 14-day trial is included with delivery to directly test the functionality of the USB-AD16f.

Technical Data

(typical at 20°C, after 5min., +5V supply)

• Analog Inputs

Channels // Resolution:

Sampling rate:

Measuring ranges:

Noise in the relevant meas. range:

Surge protection:

Input resistance // Input capacity:

Zero shift // Gain drop:

Frequency accuracy // Frequency drift:

16 single-ended electrically isolated from PC // 16 bit			
max. 250kHz total sampling rate*			
±10V	±5V	±2V	±1V
±5 LSB	±7 LSB	±8 LSB	±8 LSB
max. ±35V (when turned on), ±20V (when turned off), max. ±20mA in total of all input channels!			
1MΩ (with PC turned off: 1kΩ) // 5pF			
±50ppm/°C // ± 50ppm/°C			
max. ±50ppm // max. ±50ppm/°C			

* The total sampling rate is the sum of the sampling rates of the individual used channels (e.g. if 5 channels are scanned with 50kHz, the total sampling rate adds up to 250kHz).

• Analog Outputs

Voltage range // Output current:

Resolution // Accuracy:

Zero shift // Gain drop:

2 voltage outputs with ±10V // 1mA max.	
16 bit // typ. 1mV	
±50ppm/°C // ± 50ppm/°C	

• Digital Inputs/Outputs

Channels // Level:

Current pick-up per output pin:

Surge protection:

Counter:

4 input and 4 output channels // CMOS/TTL compatible (low: 0V..0.7V; high: 3V..5V)	
1mA (with app. 4V level), max. 2.5mA (with app. 3V level)	
max. ±5.5V, protected with 1kΩ, max. max. ±20mA in total of all channels!	
1MHz, 16 bit, galvanically isolated, 5..12V input voltage	

• General Data

Power supply:

USB interface:

Connections analog:

Connections digital:

LEDs:

CE standards:

ElektroG // ear registration:

Max. permissible potentials:

Temperature ranges // Relative humidity:

Dimensions // Protection type:

Delivery:

Available accessories (optional):

Warranty:

+4.5V..+5.5V from USB connection to the PC, max. 100mA	
USB 2.0 compatible (high-speed)	
all channels at a 37-pin D-Sub female at the device front	
all channels at a 15-pin D-Sub female at the device back	
device status is indicated by 4 LEDs at the device back	
EN61000-6-1, EN61000-6-3, EN61010-1	
RoHS and WEEE compliant // WEEE Reg.-No. DE75472248	
60V DC acc. to VDE, max. 1kV ESD on open lines	
operating temp. 0..70°C, storage temp. -25..+85°C // 0-90% (not condensing)	
167 x 113 x 30 mm // IP30	
device in aluminum housing, 1m USB connection cable	
DIN rail set ZU-SCHI, current shunt ZU-CS250R, D-Sub plugs ZU37ST, ZU15ST, connecting cables ZUKA37SB, ZUKA37SS, connector boards ZU37BB/CB/CO, waterproof housing ZU-PBOX-PG	
2 years from date of purchase at bmcm, claims for damages resulting from improper use excluded	

• Software

Software free of charge download:

NextView® (optional):

LIBAD4 SDK for C/C++ programming on Windows-XP/7/8/10, Mac OS X, Unix (FreeBSD, Linux); trial version of the measuring software NextView® to test and operate the hardware	
professional software (versions: Professional, Lite) for the acquisition and analysis of measurement data on Windows- 8/10	

USB-AD14f

Data Acquisition System (USB)



Measurement & Control. Super-Low Priced.

Record and output signals with the USB-AD14f. The USB data acquisition system accommodated in a stable aluminum housing is ideal for medium-class applications impressing by universal applicability and an excellent price-performance-ratio.

16 Analog Inputs. 20kHz. 14 Bit. $\pm 10V$.

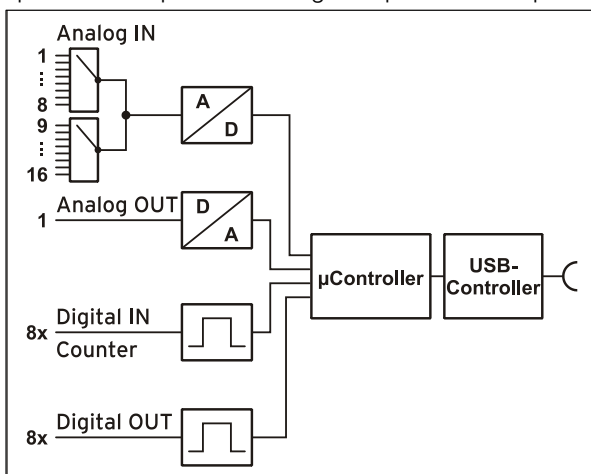
Voltage signals in the $\pm 10V$ range are connected at 16 analog inputs. Sampling is done with 14 bit resolution and 20kHz total sampling rate.

1 Analog Output. 12 Bit. $\pm 5V$.

The 5V output can be used for analog control with 12 bit accuracy.

8 Digital IN. 8 Digital OUT. 1 Counter.

Digital states are recorded or set at eight digital inputs and outputs each. Digital inputs are sampled



Functional diagram

time-synchronously with the analog inputs. The USB-AD14f features a 16-bit counter for the acquisition of counting pulses.

Plug & Play.

The connection to the PC is realized via USB. The USB-AD14f provides all typical USB features (e.g. Plug&Play, Hot-Plug). Up to 127 devices can be connected and installed during operation.

Powered by USB.

The device is supplied with power via the USB interface. This reduces cabling efforts to a minimum and makes mobile measurements a lot easier.

Open for Everyone.

Widely supported: The data acquisition system can be used under Windows® XP/7/8/10 as well as under Mac OS X, Free BSD, and Linux. The complete software for installation and programming of the USB-AD14f is included for free.

NextView®. Try for Free.

The DAQ system is supported by NextView®, the software for data acquisition and analysis. A fully functional 14-day trial is included with delivery to directly test the functionality of the USB-AD14f.

Accessory. Makes Everything so Easy.

Use the demo board ZU-DBD featuring various operating controls and sensors to generate 16 analog signals and record them with the USB data acquisition system.

Technical Data (typical at 20°C, after 5min., +5V supply)

• Analog Inputs

Channels // Resolution // Sampling rate:
Measuring range // Accuracy // Noise:
Surge protection:
Input resistance // Input capacity:
Zero shift // Gain drop:
Frequency accuracy // Frequency drift:

16 single-ended // 14 bit (1.2mV) // max. 20kHz total sampling rate*
±10V // ±3mV // ±2 LSB
max. ±35V (when turned on), ±20V (when turned off), max. ±20mA in total of all input channels!
1MΩ (with PC turned off: 1kΩ) // 5pF
±50ppm/□C // ±50ppm/□C
max. ±50ppm // max. ±50ppm/□C

* The total sampling rate is the sum of the sampling rates of the individual used channels (e.g. if 4 channels are scanned with 5kHz, the total sampling rate adds up to 20kHz).

• Analog Outputs

Voltage range // Output current:
Resolution // Accuracy:
Zero shift // Gain drop:

1 voltage output with ±5V // 1mA max.
12 bit // typ. ±4 LSB, max. ±8 LSB
±50ppm/□C // ±50ppm/□C

• Digital Inputs/Outputs

Channels // Level:
Current pick-up per output pin:
Surge protection:
Counter:

8 input and 8 output channels // CMOS/TTL compatible (low: 0V..0.7V; high: 3V..5V)
1mA (with app. 4V level), max. 2.5mA (with app. 3V level)
max. ±5.5V, protected with 1kΩ, max. max. ±20mA in total of all channels!
100kHz, 16 bit, 0..5V input voltage

• General Data

Power supply:
USB interface:
Connections analog:
Connections digital:
CE standards:
ElektroG // ear registration:
Max. permissible potentials:
Temperature ranges // Relative humidity:
Dimensions // Protection type:
Delivery:
Available accessories (optional):

+4.5V..+5.5V from USB connection to the PC, max. 100mA
USB 2.0 compatible (full speed)
all channels at a 37-pin D-Sub female at the device front
all channels at a 25-pin D-Sub female at the device back
EN61000-6-1, EN61000-6-3, EN61010-1
RoHS and WEEE compliant // WEEE Reg.-No. DE75472248
60V DC acc. to VDE, max. 1kV ESD on open lines
operating temp. 0..70□C, storage temp. -25..+85□C // 0-90% (not condensing)
167 x 113 x 30 mm ₃ // IP30
device in aluminum housing, 1m USB connection cable
demo board ZU-DBD, DIN rail set ZU-SCHI, current shunt ZU-CS250R, connecting cables ZUKA25, ZUKA37SB, ZUKA37SS, 37-pin D-Sub plugs ZU37ST, ZU25ST, connector boards ZU37BB/CB/CO, waterproof housing ZU-PBOX-PG
2 years from date of purchase at bmcm, claims for damages resulting from improper use excluded

Warranty:

• Software

Software free of charge download

NextView® (optional):

LIBAD4 SDK for C/C++ programming on Windows® XP/7/8/10, Mac OS X, Unix (FreeBSD, Linux); trial version of the measuring software NextView to test and operate the hardware
professional software (versions: Professional, Lite) for the acquisition and analysis of measurement data on Windows® 8/10



USB-AD

Data Acquisition System (USB)

Measurement & Control. Quite Simple.

Record and output signals with the USB-AD: The USB data acquisition system is ideal for universal applications and due to the small size perfectly suitable for mobile use - just plug in and get going!

Extra Small. Extra Red. Extra Low-Priced.

The unique idea of the USB-AD: the data acquisition system is accommodated in the D-Sub connector housing. Not only the size is extra small but also the price.

16 AI_n. 1 AO_{ut}. 12 Bit. $\pm 5V$.

Voltages in the $\pm 5V$ range are connected at 16 analog inputs. Sampling is done with 12 bit resolution and 10Hz per channel. The $\pm 5V$ output can be used for analog control with 12 bit accuracy.

4 DI_n/DO_{ut} Each. 1 Counter.

Digital states are recorded or controlled at four digital inputs and outputs each. Digital inputs are sampled time-synchronously with the analog inputs.

Plug & Play.

The connection to the PC is realized via USB. The USB-AD provides all typical USB features (e.g. Plug&Play, Hot-Plug). Up to 127 devices can be connected and installed during operation.

Powered by USB.

The device is supplied with power via the USB interface. This reduces cabling efforts to a minimum and makes mobile measurements a lot easier.

Open for Everyone.

Widely supported: The data acquisition system can be used under Windows® XP/7/8/10 as well as under Mac OS X, Free BSD, and Linux. The complete software for installation and programming of the USB-AD is included for free.

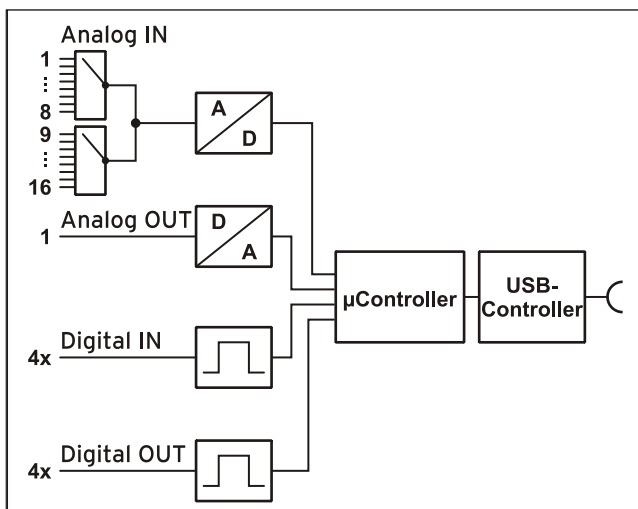
NextView®. Try for Free.

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Accessory.

Makes everything so easy.

Use the demo board ZU-DBD featuring various operating controls and sensors to generate 16 analog signals and record them with the USB data acquisition system.



Functional diagram

Technical Data

(typical at 20°C, after 5min., +5V supply)

• Analog Inputs

Channels // Resolution:

Sampling rate // Abs. accuracy:

Measuring range // Noise:

Surge protection:

Input resistance // Input capacity:

Zero shift // Gain drop:

Frequency accuracy // Frequency drift:

16 single-ended // 12 bit (2.5mV)
up to 500 values/second can be sampled (depending on software and PC) // $\pm 5\text{mV}$
$\pm 5\text{V}$ // $\pm 1\text{ LSB}$
max. $\pm 12\text{V}$ (when turned on), $\pm 7\text{V}$ (when turned off), max. $\pm 20\text{mA}$ in total of all input channels!
$1\text{M}\Omega$ (with PC turned off: $1\text{k}\Omega$) // 5pF
$\pm 50\text{ppm}/\square\text{C}$ // $\pm 50\text{ppm}/\square\text{C}$
max. $\pm 50\text{ppm}$ // max. $\pm 50\text{ppm}/\square\text{C}$

The values for accuracy always relate to the respective measuring range. Errors might add at worst.

• Analog Output

Voltage range // Output current:

Resolution // Accuracy:

Zero shift // Gain drop:

1 voltage output with $\pm 5\text{V}$ // 1mA max.
12 bit // typ. $\pm 4\text{ LSB}$, max. $\pm 20\text{ LSB}$
$\pm 50\text{ppm}/\square\text{C}$ // $\pm 50\text{ppm}/\square\text{C}$

• Digital Inputs/Outputs

Channels // Level:

Input resistance:

Current pick-up per output pin:

Surge protection:

4 input and 4 output channels // CMOS/TTL compatible (low: $0\text{V}..0.7\text{V}$; high: $3\text{V}..5\text{V}$)
min. $1\text{M}\Omega$ (with PC turned off: $1\text{k}\Omega$)
1mA (with app. 4V level), max. 2.5mA (with app. 3V level)
max. $\pm 5.5\text{V}$, protected with $1\text{k}\Omega$, max. max. $\pm 20\text{mA}$ in total of all channels!

• General Data

Power supply:

USB interface:

Connections (analog + digital):

CE standards:

ElektroG // ear registration:

Max. permissible potentials:

Temperature ranges:

Relative humidity:

Dimensions // Protection type:

Delivery:

Available accessories (optional):

Warranty:

$+4.5\text{V}..+5.5\text{V}$ from USB connection to the PC, max. 100mA
USB 2.0 compatible (full speed)
all channels at 37-pin D-Sub female
EN61000-6-1, EN61000-6-3, EN61010-1
RoHS and WEEE compliant // WEEE Reg.-No. DE75472248
60V DC acc. to VDE , max. 1kV ESD on open lines
$-25^{\circ}\text{C}..+70^{\circ}\text{C}$
0-90% (not condensing)
$71 \times 45 \times 16\text{ mm}^3$, USB cable app. 1.1m // IP30
device in plastic housing with USB cable
demo board ZU-DBD, connecting cables ZUKA37SB, ZUKA37SS, 37-pin D-Sub plug ZU37ST, connector boards ZU37BB/CB/CO
2 years from date of purchase at bmcm, claims for damages resulting from improper use excluded

• Software

Software free of charge download:

NextView (optional):

LIBAD4 SDK for C/C++ programming on Windows® XP/7/8/10, Mac OS X, Unix (FreeBSD, Linux); trial version of the measuring software NextView® to test and operate the hardware
professional software (versions: Professional, Lite) for the acquisition and analysis of measurement data on Windows® 8/10