

Digital ALMEMO® D6 measuring module for DC voltage and DC current

Overvoltage proof measuring input. Galvanically isolated up to 6 kV.
For connection to all ALMEMO® V6 / V7 measuring instruments.



ZAD 900-ABx

ZAD 901-ABx

Applications

ALMEMO® D6 measuring modules can be used for a wide variety of applications. Examples:

- Inexpensive monitoring of several DC voltage signals with a large number of measuring modules.
- Monitoring the charge and discharge processes (current, voltage) during the development of rechargeable batteries/batteries for electromobility and for other battery-operated devices.
- Monitoring the supply voltage and the current consumption of DC motors and other consumers.
- Checking switches.
- Monitoring of the electrical parameters voltage, current in addition to the physical measured variables such as temperature, pressure, air flow, flow rate, etc.

Technical data and functions

- The digital ALMEMO® D6 measuring module uses its own integrated AD converter. The overall accuracy of the measurement is independent from the ALMEMO® display unit/data logger.
- The signals are measured at the internal sampling rate of 1 kHz and max, min and average values are calculated from them. The measured value and the calculated values are digitally interrogated by the ALMEMO® measuring instrument at the conversion rate / measuring cycle of the measuring instrument.
- The ALMEMO® measuring instrument saves the measured values, and the measuring software WinControl will display them graphically.
- The measuring input is overvoltage proof and galvanically isolated from the ALMEMO® measuring device.

Technical data

Input sockets:	Safety sockets CAT III, 20 A, Ø 4 mm	Temperature drift:	max. 0.003 %/K (30 ppm/K)
Galvanic isolation:	6 kV	Suitable conditions:	+5 to +40 °C (Storage temperature: -20 to +60 °C), 10 to 90 % RH (non-condensing), maximum height above mean sea level: 2000 m
Sampling rate:	1 kHz internal	Housing:	ABS, dimensions 127 x 83 x 42 mm (LxWxH)
Refresh rate:	depending on measuring cycle / conversion rate of the ALMEMO® measuring device	Connecting cable:	2 m, permanently connected
Measuring range:	see types	ALMEMO® D6 plug:	for measuring channels see Types, Configuration via the ALMEMO® device
Resolution:	see types	Supply voltage:	9 to 12 V via ALMEMO® device
Overload:	see types	Current consumption:	approx. 85 mA (plug and module)
Internal resistance:	see types		
Accuracy:	±0,1% of fin. val.±2 Digit		
Nominal conditions:	23 °C ±2 K, 10 to 90% RH (non-condensing)		

Accessories**Order no.**

DIN rail mounting
Magnetic fastening

ZB2490HS
ZB2490MH



DIN rail mounting



Magnetic fastening

ALMEMO® extension cable, length = 4 m (see chapter 6)
ALMEMO® extension cable, length = 10 m (see chapter 6)

ZA9060VK4
ZA9090VKC10

Types

Measuring module including touch-proof connecting cable, ALMEMO® connection cable permanently connected to the ALMEMO® D6 plug

DC voltage

4 ALMEMO® measuring channels: voltage, maximum value, minimum value, average value

Measuring range	Resolution	Overload	Input resistance	Order no.
±60 V DC	0.01 V	±90 V	1 MOhm	ZAD900AB3
±400 V DC	0.1 V	±400 V	4 MOhm	ZAD900AB5

DC current

4 ALMEMO® measuring channels: current, maximum value, minimum value, average value

Measuring range	Resolution	Overload	Input resistance	Order no.
±20 mA DC	0.01 mA	±500 mA	4.7 Ohm	ZAD901AB1
±200 mA DC	0.1 mA	±500 mA	1 Ohm	ZAD901AB2
±2 A DC	0.001 A	±4 A	100 mOhm	ZAD901AB3
±10 A DC*	0.01 A	±20 A	8 mOhm	ZAD901AB5

* Extended range up to 20 A without specification. Continuous operation up to a maximum of 10A. For currents exceeding the maximum of 10 A, the measuring period is 10 minutes. After that, the device needs to cool down to room temperature.

Other version**ALMEMO® D7 measuring module ZED7 0x-ABx**

see chapter 11

Power calculation via simultaneous measurement of voltage and current in one measuring module or dynamic measurements of DC signals (up to 1000 measurements/s).



Fast digital ALMEMO® D7 measuring module for DC voltage / DC current / DC power

Dynamic measurement of DC signals with 1000 mops (measuring operation per second).

Overvoltage proof measuring input. Galvanically isolated up to 6 kV.

For connecting current ALMEMO® V7 measuring instruments: ALMEMO® 500, 710, 809, 202-S, 204



ZED7 00-ABx



ZED7 01-ABx



ZED7 07-ABxx

Applications

ALMEMO® D7 measuring modules can be used for a wide variety of applications. Examples:

- Inexpensive monitoring of several DC voltage signals with a large number of measuring modules.
- Monitoring the charge and discharge processes (current, voltage, power) during the development of rechargeable batteries/ batteries for electromobility and for other battery-operated devices.
- Monitoring the supply voltage and the current consumption during switch-on and switch-off processes of DC motors and other consumers.
- Checking switches and circuit breakers using fast switching cycles.
- Measuring the response time of electronic switches.
- Calculating the power by simultaneously measuring voltage and current in one measuring module.
- Monitoring the electrical parameters voltage, current and power of photovoltaic modules and photovoltaic systems while environmental parameters such as temperature, global radiation, and other meteorological parameters are recorded at the same time.
- Measuring fast changes in power during load tests with rapid load changes.

Technical data and functions

- The digital ALMEMO® D7 measuring module uses its own integrated AD converter. The overall accuracy of the measurement is independent from the ALMEMO® V7 display unit/data logger. The measurement rate is solely defined by the integrated AD converter. On the ALMEMO® V7 measuring instrument all D7 measuring plugs work in parallel at their own measuring rate.
- Dynamic measuring signals are measured by the ALMEMO® D7 measuring module at a fast conversion rate.
- The ALMEMO® V7 measuring instrument saves the measured values, and the measuring software WinControl will display them graphically.
- The maximum, minimum, and average values can be calculated by measuring functions in the measuring device or in the measuring software.
- The measuring input is overvoltage proof and galvanically isolated from the ALMEMO® V7 measuring device.

Technical data

Input sockets:	Safety sockets CAT III, 20 A, Ø 4 mm	Temperature drift:	max. 0.003 %/K (30 ppm/K)
Galvanic isolation:	6 kV	Suitable conditions:	+5 to +40 °C (Storage temperature: -20 to +60 °C), 10 to 90 % RH (non-condensing), maximum height above mean sea level: 2000 m
Sampling rate:	1 kHz	Housing:	ABS, dimensions 127 x 83 x 42 mm (LxWxH)
Output cycle:	1 ms (1000 mops)	Connecting cable:	2 m, permanently connected
Measuring range:	see types	ALMEMO® D7 plug:	for measuring channels see Types, Configuration via the ALMEMO® V7 device
Resolution:	see types	Supply voltage:	9 to 12 V via ALMEMO® device
Overload:	see types	Current consumption:	approx. 60 mA (plug and module)
Internal resistance:	see types		
Accuracy:	±0,1% of fin. val.±2 Digit		
Nominal conditions:	23 °C ±2 K, 10 to 90% RH (non-condensing)		

Accessories

Order no.

DIN rail mounting
Magnetic fasteningZB2490HS
ZB2490MH

DIN rail mounting



Magnetic fastening

Types

Measuring module including touch-proof connecting cable, ALMEMO® connection cable permanently connected to the ALMEMO® D7 plug

DC voltage

1 ALMEMO® measuring channel: voltage

Measuring range	Resolution	Overload	Input resistance	Order no.
±60 V DC	0.01 V	±90 V	1 MOhm	ZED700AB3
±400 V DC	0.1 V	±400 V	4 MOhm	ZED700AB5

DC current

1 ALMEMO® measuring channel: current

Measuring range	Resolution	Overload	Input resistance	Order no.
±20 mA DC	0.01 mA	±500 mA	4.7 Ohm	ZED701AB1
±200 mA DC	0.1 mA	±500 mA	1 Ohm	ZED701AB2
±2 A DC	0.001 A	±4 A	100 mOhm	ZED701AB3
±10 A DC*	0.01 A	±20 A	8 mOhm	ZED701AB5

* Extended range up to 20 A without specification. Continuous operation up to a maximum of 10A. For currents exceeding the maximum of 10 A, the measuring period is 10 minutes. After that, the device needs to cool down to room temperature.

DC power

3 ALMEMO® measuring channels: voltage, current, power

Measuring range voltage**	Measuring range current**	Measuring range power (calculated)	Resolution power	Order no.
±60 V DC	±2 A DC	120 W	0.1 W	ZED707AB33
±60 V DC	±10 A DC*	1.2 kW	0.01 kW	ZED707AB35
±400 V DC	±2 A DC	800 W	0.1 W	ZED707AB53
±400 V DC	±10 A DC*	8 kW	0.01 kW	ZED707AB55

* Extended range up to 20 A without specification. Continuous operation up to a maximum of 10A. For currents exceeding 10 A, the maximum measuring period is 10 minutes. After that, the device needs to cool down to room temperature.

** Resolution, Overload, Input resistance see further above.