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# KiDAU Basic

**Type K3882C...**

## On-board data acquisition unit

The KiDAU Basic Type K3882C... is a modular designed on-board adapter. It consists of two mechanically independent modules:

- Sensor Distribution (SD) Panel
- KiDAU Basic casing

The KiDAU Basic is characterized by excellent technical features:

- CrashLink interface
- 32 analog/16 digital channels
- Extended Li-ion battery technology for up to 20 minutes
- Direct recording in flash memory
- Compatible with CrashDesigner
- Complies with SAE J211 and ISO 6487

similar product image

### Description

A KiDAU Basic System has 32 analog and 16 digital inputs. The application of different connectors as well as pin assignments for the 32 analog inputs will be mapped by means of different SD-panels.

Each analog channel comprises a programmable input amplifier, bridge excitation circuit, low pass filter and 16 Bits A/D converter. The amplifier precision is typically better than 0.1% and the input impedance above 10 MΩ. The gain values can be programmed from 0.5 ... 10 000. An internal reference voltage is used for precise control of the amplifier setting, which is achieved via software loop.

The bridge excitation voltage is programmable separately for each channel. Bridge completion for half bridges can be switched internally. A short circuit limitation is provided. In contrast to former designs, the input low-pass filter is designed only as an adaptive anti-aliasing filter. All necessary filtering according to SAE filter classes has to be done in the evaluation and analysis software or the CrashDesigner. Each channel of the KiDAU has a dedicated separate converter with a 16 Bits resolution. Thus all channels are sampled simultaneously, ensuring that no time lack occurs between different channels.

### Technical data

| | | |
|---|---|---|
| Input voltage, relating to – EXC | V | –5 ... 10 |
| Programmable gain | | 0.5 ... 10 000 |
| Gain accuracy<br>at gain 0.5 ... 999<br>at gain 1 000 ... 10 000 | <br>%<br>% | <br><0.2<br><0.4 |
| Max. signal | V | ±5.0 |
| Linearity | % | <0.01 |
| Bridge excitation, regulated | V | 0 ... 10 |
| Bridge excitation accuracy<br>at load 250 Ω and excitation 0 ... 10 V | Max | –0.15% –3 mV ...<br>... +0.05% +3 mV |
| Programmable half bridge completion | | yes |
| Maximum rated output,<br>overall consumption restrained | mA | 60 |
| Filter | | adaptive anti-aliasing |
| A/D converter resolution | Bit | 24 |
| Oversampling<br>(6.4 MHz @ 100 kHZ) | | 64x |
| Data resolution | Bits | 16 |
| Sampling rate, max. | kHz | 100 |
| Programmable offset compensation | | yes |
| Signal bandwidth, max. | kHz | 40 |
| Sense line available[1)] | | yes |
| Shunt check | | 2 quadrant internal resistor |
| Recommended external shunt resistance | kΩ | >9.5 |
| Sensor ID verification | | Dallas[1)]<br>Endevco[1)] |
| Digital inputs | | 16 |
| Memory | | non-volatile flash |
| Recording time (32 ch @ 20 kHz),<br>flex. memory | s | 529 |
| Trigger | | double trigger<br>1 x analog trigger<br>start stop |
| Supply voltage | V | 20 ... 60 |
| Shock | g | 500 g for 1 ms |





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### Technical data – continuation

| | | |
|---|---|---|
| Operating temperature range | °C | 0 ... 40 |
| Storage temperature range | | |
| long term | °C | –25 ... 20 |
| short term (<1 week) | °C | –25 ... 50 |
| Humidity, max. (non-cond.) | % | 80 |
| Communication | | 100BaseTX |
| Ethernet | MBit/s | 100/10 |
| Battery (time for typical usage) | | Li-ion (20 min.) |
| Interfaces | | CrashLink in and out |
| Weight | kg | 2.2[2)] |
| Dimension (LxWxH) | mm | 231x64x90[2)] |

[1)] Depending on Pinout
[2)] With SD Panel Lemo 1B.307

The maximum sampling rate is 100 kHz for the KiDAU. Each channel of the KiDAU has a dedicated D/A converter of its own for compensation of the offset voltage. Neither potentiometers nor trimmers nor mechanical switches are used inside the device. All adjustments are implemented by software, automatically or by command.

### Application

The KiDAU Basic Type K3882C... is a very reliable data acquisition system designed for daily crash testing under harsh conditions.

The KiDAU can store data for a 100 s cycle at a sampling rate of 100 kHz which allows the user to start recording data before the vehicle or sled is actually started. This ensures that the measuring system works correctly and prevents data loss. The trigger point is registered and recorded as in previous systems. Once a valid trigger point is stored in the KiDAU data memory, the user can only select the actual measured data for transfer to a PC, and it is no longer necessary to read out the complete system memory. The KiDAU is designed with a trigger input and output for synchronization with other units. The first analog channel, two digital channels and a remote signal (software trigger) can be selected for triggering.

The trigger threshold and trigger criterion can be freely selected for the first analog channel. Batteries are no longer needed to retain the data because flash-EEPROMs are used for the memory. The data remain available for many years! The KiDAU system uses an internal Li-ion battery designed to run the complete system, including all connected sensors, for up to 20 minutes. External power supply using trailing cables is of course still possible. The size of the memory available in the KiDAU demands fast interfaces for data transfer. The standard interface for data transfer is 100BaseTx Ethernet with TCP/IP protocol. This interface supports high transfer rates and ensures perfect operation even when long umbilical cables are used. Both commands and data are transferred via this interface.

### Ordering key

**Type K3882C** ☐☐

**SD panel**

| | |
|---|---|
| None | **0** |
| Lemo 1B.307 or compatible | **1** |
| Tajimi 3RT01 | **2** |
| Amphenol/Souriau PT02 | **3** |

**Pin assignment**

| | |
|---|---|
| MD01[1)] | **M1** |
| MD02[1)] | **M2** |
| MD03[1)] | **M3** |
| MD04[1)] | **M4** |
| MD05[1)] | **M5** |
| MD06[1)] | **M6** |
| MD07[1)] | **M7** |
| MD08[1)] | **M8** |
| MD09[1)] | **M9** |
| MTE1[1)] | **T0** |
| MTE2[1)] | **T1** |
| MTE4[1)] | **T4** |
| MTE5[1)] | **T5** |
| MTE6[1)] | **T6** |
| F 01[1)] | **T8** |
| F 02[1)] | **T9** |
| MU[1)] | **A2** |
| MF[1)] | **A3** |
| Tajimi 3RT01[2)] | **SC** |
| Amphenol/Souriau PT02[3)] | **S3** |

[1)] Only in conjunction with Lemo 1B.307 connector
[2)] Only in conjunction with Tajimi 3RT01 connector
[3)] Only in conjunction with Amphenol PT02 connector

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