

# UniCAN 2 Logger

- ▶ Stand-alone Data Logger for time-based data acquisition of hundreds of signals
- ▶ Up to 4 CAN interfaces (High-Speed, Low-Speed, optionally isolated)
- ▶ GPS transceiver integrated (optional)
- ▶ Removable CF Card
- ▶ Remote access via GPRS and UMTS/3G through integrated modem (optional)
- ▶ CCP data logging
- ▶ Variable filter- and trigger conditions
- ▶ Highest data security due to FPGA based design
- ▶ Extended temperature range -40 °C to +85 °C
- ▶ Low stand-by current, important e.g. for after treatment testing



UniCAN 2 Logger is a **stand-alone data logger** for acquisition of data coming from up to 4 CAN busses and GPS data.

Due to its unique FPGA based design, **UniCAN 2 Logger combines highest data security** with a very **short startup time**.

UniCAN 2 Logger is able to record hundreds of signals (measurement values with equidistant time base). All data is written on a removable CF Card.

## Fields of Application

The universal design of UniCAN 2 Logger makes it perfectly suitable for a wide range of CAN data acquisition, especially in long-term monitoring, benchmarking and all kinds of testing of:

- ▷ Cars, Trucks, Busses, Offroad Vehicles
- ▷ Agricultural Engines (Tractors, ...), Construction Machinery
- ▷ Aircrafts, Trains, Military

## Configuration and Data Access

UniCAN 2 Logger provides different ways for fast and comfortable configuration and data transfer:

- ▷ Removable CompactFlash Card
- ▷ GPRS, EDGE and UMTS/3G

GPRS, EDGE and UMTS/3G is supported via **built-in modem**.

For comfortable configuration of UniCAN 2 Logger, the Windows tool **UniCAN 2 Config** is available.

Data transfer from UniCAN 2 Logger to PC or FTP server is working simultaneously, without interruption of data recording. Exception: In case of data-transfer via CF Card.

## Signal Sources

UniCAN 2 Logger is recording signals from multiple data sources. The signals to be recorded are defined with the UniCAN 2 Config specified by CANini, **CANdb** or **A2L** description files.

Signal sources are:

- ▷ **CAN, free running, based on CANdb files**
- ▷ **CAN in online communication with ECUs using CCP protocol**
- ▷ **GPS data**

The total **number of signals** depends on the configured signal types and time bases. Using a 10 ms time base, the Logger can record more than 1000 signals.

### **Logging Method**

Signals, which are available on free running CAN bus are selected from a **CANdb** or **CANini** signal database.

Signals, which are provided from the ECU on request, are selected from the **A2L description file** of the ECU.

For recording, the following logging parameters have to be supplemented using the UniCAN 2 Manager:

- ▷ **Data source (CAN 1 to 4) or system channels (e.g. GPS)**
- ▷ **Time base for measurement on CAN: 1ms, 2ms, 5ms, 10 ms, ....., 10 s, 30 s, 60 s**

For each signal an individual time base can be defined. So the amount of data can be limited.

### **Trigger Conditions**

With UniCAN 2 Config flexible recording conditions can be defined. The following parameters are available:

- ▷ **Data content (physical value, defined by CANdb, CANini or A2L files)**
- ▷ **GPS input**

Up to 8 of these parameters can be combined with **AND** respectively **OR** to a recording condition. For each parameter the selection of either a **trigger** or **gate function** is available.

#### **□ Trigger and Gate Function**

If a **trigger function** is defined for a value, then this value has to reach the specified threshold once only to fulfill the respective condition permanently.

For the **gate function** the recording occurs as long as the value is inside (or outside) a defined interval. For short-term or "single" events (appearance of identifier or fault condition) a hold time (1 ms up to 60 s) can be specified to record the post-trigger history.

#### **□ Pre-Trigger history**

Independent of the selected trigger condition, a **pre-trigger history** of approximately 250 KB of data can be recorded. The pre-trigger data is stored on the CF Card.

#### **□ Start Delay**

For turn on of ignition a **start delay** (100 ms to 60 sec) can be defined. During this time the recording will be disabled. Through this irregular conditions on the CAN bus can be disregarded.

### **Log File**

The following status information including time stamp is stored into a separate log file:

- ▷ **Ignition state** (on / off)
- ▷ **Recording (active / interrupted)**

### **Storage Formats and Memory**

All recorded data is stored on the CompactFlash Card. A **fail-safe file system** can hold different types of data:

- ▷ **Ring:** storage for recorded signals. If it is full, the oldest data is overwritten by the new data.
- ▷ **Linear:** storage for recorded signals. If it is full, recording in this storage is stopped. Data is never overwritten.

The amount of data, which can be stored on the CompactFlash Card is limited up to **2 GB**.

### **Data Analysis**

After recording UniCAN 2 Manager is also used for data transfer to the computer. For data analysis with standard software, the recorded data can be converted into **multiple Data Formats**. E.g.:

**ASCII format**, which can be imported into **EXCEL** and other programs for further processing. In addition, established **binary file-formats** of well-known DAQ SW tools (CANalyzer, CANgraph, DIAdem, INCA, ...) are supported.

UniCAN 2 Logger Manager can divide large volumes of data into handy packages. The number of single files can be determined by selecting of file length or time frame (day, hour, minute).

For data transfer via modem, UniCAN 2 Logger sends its data to a FTP server, as configured. Data files arriving from different loggers are fully automated collected from the FTP server and converted in the required output format. This is handled by a stand alone software tool.



## Further planned functionalities

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For time schedule of realisation, please ask CSM

### Signal Sources

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Additional signal sources:

- ▷ **CAN in online communication with ECUs using standard protocols: J1939 Protocol**
- ▷ **Digital Inputs**

### Signal Groups

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Due to a completely new storage concept, the logged signals can be assigned to up to 4 independent **signal groups**. The same signals can be present in different signal groups. Each signal group has its own individual trigger conditions and can be managed as linear or ring buffer.

E.g.: Long time data acquisition with many signals and slow data rates in one signal group, with data stored in a ring buffer, and event triggered high speed data acquisition with linear buffer, which cannot get overwritten, in a second signal group.

For **processing** of signals two **different methods** are available. **Each signal group** can be processed according to:

- ▷ **Time based Logging Method** as described above.
- ▷ **Histogram**: classifies data based on configurable algorithms (1D/2D, number of classes, ...).

### Trigger Conditions

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Additional trigger condition:

- ▷ **External digital inputs.**

#### □ Pre-Trigger history

Due to the new storage concept, for each signal group, independent of the selected recording condition, a pre-trigger history can be recorded.

Now the **pre-trigger data is directly online stored on the CF Card**. This allows to record a huge amount of data for **long-time histories**, if needed. The limitation is solely the capacity of the CF Card. The recording can be stopped with a user-defined stop condition.

### Storage Formats and Memory

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New:

- ▷ **Histogram**: Array of data containing the results of classifying algorithms.
- ▷ **CompactFlash Card-Slot prepared for data storage up to 128 GB**

For industrial temperature range, actually CompactFlash Cards up to 16 GB are available.

### Configuration and Data Access

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New: Now also

- ▷ **USB 2.0 connection with a PC**



# Specification UniCAN 2 Logger

Item	UniCAN 2 Logger as external box with slot protection cover
Dimensions (W x H x T) Weight	Metal case approx. 109 x 35 x 150 mm approx. 500 g
Power Supply	6,5 V to 50 V DC
Power Consumption	PowerDown (PowerControl OFF) < 500 µA at 12 V approx. 3 W (in operation, without options)
CAN	up to <b>4 x CAN 2.0B</b> <b>High-Speed CAN</b> (ISO 11898-2), max. 1 MBit/s, <b>Low-Speed CAN</b> (ISO 11898-3) Electrically isolated (Option)
GPRS/EDGE or UMTS/3G	Internal <b>GPRS/EDGE/UMTS</b> modem with external antenna (Option)
GPS	Internal <b>GPS</b> module with external passive or active antenna (Option)
USB2.0	1 x <b>USB Type B</b> (connection with a PC)
RS232	1 x <b>external</b> (up to 115.2 kBaud)
Digital IN	4 x <b>digital IN</b> (TTL-threshold) (Option)
CF Card Slot	one slot for <b>CompactFlash Card</b> (type I) at front, Card exchangeable
LED Indicators	2 x multi color LED at rear for indication of operation mode 2 x multi color LED at front (operation mode and card access)
Environment	- 40 °C to + 85 °C (operation and storage) humidity max. 90 % (non-condensing)
Conformity	CE

## Standard Shipping Contents:

- ▷ **UniCAN 2 Logger**  
in external metal box with Installation Guide
- ▷ **CD with UniCAN 2 Software Tools:**  
UniCAN 2 Config and Manager  
for Windows Vista, XP or 2000 plus detailed  
documentation

## Accessories:

- ▷ **Power Supply Cable** (end open)
- ▷ **CAN splitter cable**  
to connect up to 4 CAN bus
- ▷ **Various cables and antennas**
- ▷ **UniCAN 2 DataCard**  
available in capacities up to 16 GB

## Optional available Expansions:

- ▷ **Internal GPS module**  
16-channel ANTARIS 4 positioning engine, 4Hz position update rate
- ▷ **Internal GPRS/EDGE/UMTS modem**
- ▷ **CAN electrically isolated**
- ▷ **Digital inputs**

**CSM GmbH, Raiffeisenstr. 34, 70794 Filderstadt, Germany**

Phone: +49 711 77964-20 Fax: +49 711 77964-40

E-mail: info@csm-products.com, [www.csm-products.com](http://www.csm-products.com)

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