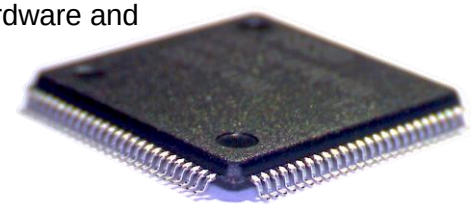
CVCI Chip

The CVCI protocol chip will be integrated into your telematics hardware and allows access to the commercial vehicle data via the following interfaces:



- FMS CAN
- CAN of the digital tachograph
- D8 info link of the digital tachograph

With these connections not only the complete real-time vehicle operational data and the ID numbers of the driver cards are available but also access to the data storage of the digital tachograph. Using CVCI chip as access device to the vehicles electronics the telematics unit is able to download the complete tachograph data for archival storage without any manual intervention. The laborious and error-prone handling of the USB Download Stick is a thing of the past.

High Performance

The CVCI chip is based on an LPC2364 from NXP and comes in an LQFP 100 housing. Only two CAN transceivers, two crystals, two diodes and some capacitors and resistors are required as external circuitry. Communication with the host system is via UART. With an internal clock speed of 72 MHz, this controller also provides sufficient reserve for future firmware extensions.

72 MHz

FMS CAN

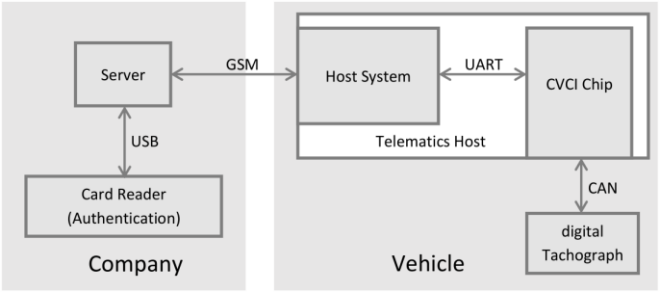
All messages defined in the FMS Standard 03 (truck and bus) are supported by the CVCI chip. If the vehicle is equipped with FMS version 2 or 3, the connection of the D8 Info interface can generally be omitted because the information about inserted driver cards is provided by the new FMS standards.

D8 Info Interface of the digital tachograph

The digital tachograph features a serial output on its rear panel, where the driver's card data and some vehicle operational data are transmitted cyclically. Unfortunately the data format is not specified in the EU regulation paper and therefore the tachograph manufactures use different data formats. In its actual revision the CVCI chip supports the VDO and the Stoneridge formats, other tachographs will be added on request.

Remote Download

The Remote Download function via FMS CAN has been published end of 2008. The CVCI chip grants access to this helpful feature without having to learn the related CAN protocol. A special UART protocol provides access to authentication and data download. On the telematics host side we provide a run time API which realizes most of the programming tasks and facilitates building the Remote Download application. The API offers the functions to open a session, to realize the authentification processs and to download the tachograhp's and the driver cards data. To further facilitate the programming work the example application which is delivered with the CVCI chip is available as a source code package.

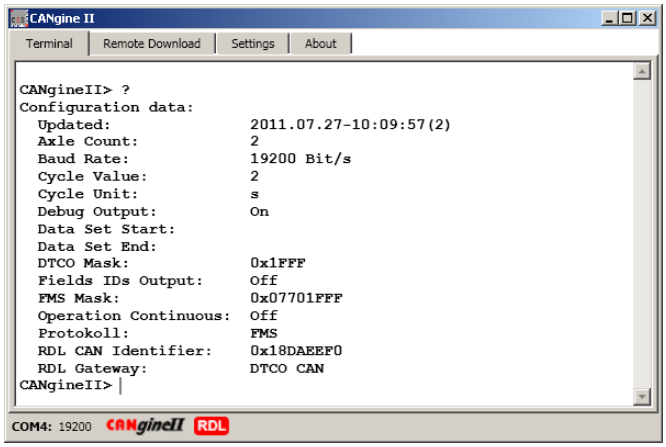


With the help of the Remote Download function companies are able to fulfil the compulsory archiving without manual intervention of the driver. Data downloaded by the Remote Download Function contains a digital signature as requested by the law in most European countries. If the vehicle does not yet support the Remote Download feature on the CAN FMS the CVCI chip can be connected to the rear panel of the digital tachograph.

CVCI Chip

Parameterising

The CVCI chip can be parameterised by a lot of useful parameters and in this way be adapted to nearly any special demands of a given telematic application. The telematics host is not bound to read all the real time variables. With the help of parameterrising commands the variables are selectable by masks as well as the time or distance period of the output cycle.



Overview Parameterising

Output of Real Time Values

The cyclic output of realtime values can be done in two different formats. The so called debug format is used for the initial operation procedure and for monitoring after modification of parametrising. In normal operation mode when data is transmitted to the telematic host a compressed format is used, where no leading text and no physical units are output. In this format the values are separated by semicolons and can be prefixed by an optional index value.

```
T-LocalOffset: 01:00
T-Speed: 71.59 kmh
T-Distance: 4487.385 km
T-TripDist: 4487.385 km
T-kFactor: 6.700 pulse/m
T-EngSpeed: 1739.125 rpm
F-EngSpeed: 1739.125 rpm EngTorq:23 %
F-EEC2: Accel:64.8 % EngLoad:72 %
F-Speed: 71.59 kmh CC:0 BR:0 CS:0 PB:0
F-Distance: 4574.140 km
F-EngHours: 15680.05 h
F-FuelC: 1528.00 L
F-EngTemp: +82 degC
F-FuelLev: 56.0 %
```

Sample output in the DebugOutput format

```
#0101:00;#0371.59;#044487.385;#054487.385
;#066.700;#071739.125;$001739.125;23;$016
4.8;72;$0371.59;0;0;0;0;$054574.140;$0615
680.05;$071528.00;$09+82;$1056.0
```

Sample output of table format with indexes

Technical Data

Power Supply	3,3 VDC
Power Consumption	typ. 31 mA
CAN Baud Rate	250, 500 oder 666 kbit/s
UART Baud Rate	4800 .. 115200 baud
Displays (optional)	LED RUN (green) LED ERR (red)
Package	LQFP 100 (SOT407-1)
Operating Temperature	-40 .. +85 °C

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