CAN Bus logger with SD-card

# What is it?

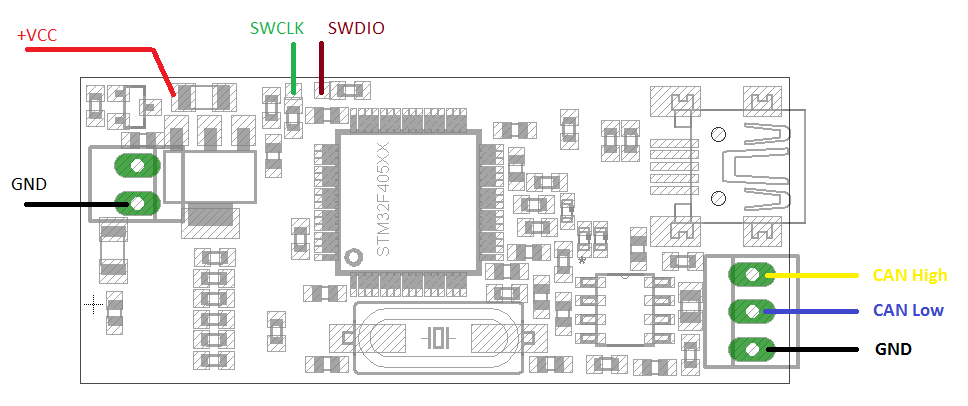
This is just simple logger which writes everything from CAN bus to text file on a micro SD card. It has following features:

* + - * Easy to use: only one start/stop button and all the settings are stored in configuration text file on SD card.
      * Optional message filtering based on ID mask matching
      * Selectable listen-only mode (without CAN bus acknowledge)
      * Three LEDs for indication of logger status packet acceptance filter for every port based on CAN ID mask matching,

Device specification:

|  |  |
| --- | --- |
| Parameter | Value |
| Power supply voltage | 5V-20V |
| Current consumption | 60mA at 5V input |
| CAN baudrate | up to 1Mbps (any non-standard baudrate supported) |
| CAN ID mask filters | 1 |
| Microcontroller | STM32F405RGT6 |
| CAN transceiver | SN65HVD232DR |
| PCB size | 48.26 mm x 20.85 mm (1.9 in x 0.82 in) |

Board connections:



LEDs:

* Green: power on, also toggling every time when the CAN receiving and accepting message,
* Blue: blinking each time when block of data has been written to the SD card,
* Red: fault indication (see below).

# How to start

* Connect CAN bus
* Connect power supply (make sure the correct polarity and voltage range is connected!)
* Place Config.txt file to the root folder of SD card (here is [example](https://github.com/akpc806a/CAN_Logger/blob/master/Doc/Test/Config.txt) of the file)
* Insert SD card
* Press "START" button to start log
* The blue LED should blinking periodically (with speed dependant from writing rate)
* Press "START" button again to stop the log
* The log file placed to root folder and has name in format: HH-MM-SS.csv , where HH-MM-SS is time from power cycling of the device

# Configuration file format

All numbers in Config.txt should be decimal (even filter data mask, sorry of inconvenience)

|  |  |
| --- | --- |
| Parameter | Meaning |
| baud | CAN bus baudrate in kbps |
| ack\_en | If 1 then CAN logger is responding with ACK slot on reception of a valid CAN frame. Set to 0 for silent (listen-only) mode. |
| id\_filter\_mask | Bit mask for ID filtering |
| id\_filter\_value | Expected value for ID |
| log\_std | Messages with standard (11 bit) ID are accepted if set to 1 |
| log\_ext | Messages with extended (24 bit) ID are accepted if set to 1 |
| timestamp | If 1 then every record in log file has timestamp (in milliseconds) |

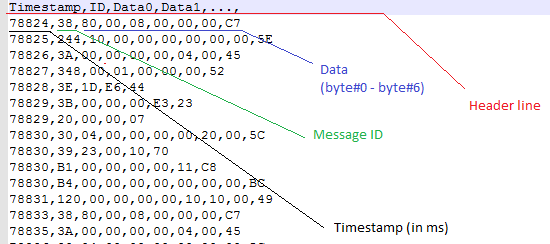
The ID filter acceptance criteria is:

Message ID *bitwise and* id\_filter\_mask = id\_filter\_value *bitwise and* id\_filter\_mask

For example if id\_filter\_mask = 10 = 1010 binary and the id\_filter\_value = 2 = 0010 binary. It means that the bit #1 and bit #3 of CAN identifier will be checked, and the bit #1 is expected to be 1 and bit #3 to be 0. Thus only identifiers with binary ending of …0X1X will be accepted by CAN1, i.e. in hex 0x?2, 0x?3, 0x?6, 0x?7.

Set id\_filter\_mask = 0 for disabling ID filter.

# Log file format



# Faults and indication

* If red LED and blue LED are both on just after pressing "START" button, then this is Config.txt file problem, check configuration file.
* If red LED is on during logging then this is either data buffer overflow or SD card problem: check if there is enough free space on SD card or SD card has acceptable writing speed rate.