CANedge2: 2x CAN Bus Data Logger (SD + WiFi)

General Features

- Standalone CAN bus data logger featuring an SD card, two CAN/LIN channels (including CAN FD), and WiFi connectivity.
- Free firmware updates are supported, allowing new features to be added over time.
- Device configuration is managed using files based on the widely adopted open source JSON schema.
- A free, open source editor tool is available for both offline and online device configuration.
- The CANcloud telematics platform is provided as a free, open source solution for managing devices and data through a web browser.
- Multiple tools enable easy mounting of your S3 server as a local drive for convenient access.
- Open source asammdf software and API offer editing, DBC conversion, and plotting of MF4 data formats.
- MF4 converters are available as free, open source tools—simply drag and drop log files to convert to formats like CSV, ASC, or TRC.

- A free, open source Python API is provided for automated data processing, reporting, and integration.
- Telematics dashboards offer browser-based visualization of DBC decoded data, all open source and free.
- Certified for CE-RED, FCC, IC, RoHS, ECE R10 (automotive EMC), WPC ETA (India), RCM (Australia), and ICASA (South Africa).
- A certified ‘PB’ variant with an internal WiFi antenna is available for Korea and Japan (KC, GITEKI).
- Variants for South Korea, Japan, and other regions are available on request.
- Includes a one-year warranty and free, responsive support.
- Designed and manufactured in Denmark.

CAN Bus Specifications

- Equipped with two CAN channels, both supporting CAN FD.
- Compliant with ISO 11898, supporting standard CAN (up to 1 Mbit/s) and ISO & Bosch CAN FD (up to 5 Mbit/s payload rate).
- Capable of logging raw data from CAN-based protocols such as J1939/FMS, CANopen, NMEA 2000, OBD2, CAN FD, UDS, and more.
- Supports CAN 2.0A (11-bit ID) and 2.0B (29-bit ID) specifications.
- Bit rate can be set manually or detected automatically.
- Allows configurable retransmission of frames lost due to arbitration or errors.
- Transceivers offer robust protection: ±16 kV HBM ESD, ±15 kV IEC ESD, ±70 V bus fault, and short circuit protection.
- Common mode input voltage range: ±30 V.
- TXD dominant timeout feature helps prevent network blockage in case of failure.

LIN Bus Specifications

- Supports two LIN channels, each configurable as a subscriber or publisher for LIN data transmission.
- Custom frame lengths are supported.
- Fully compliant with LIN 2.0 (up to 20 Kbit/s), supporting both Classic and Enhanced checksum formats.
- Transceivers provide protection: ±8 kV HBM ESD, ±1.5 kV CDM, and ±58 V bus fault.
- TXD dominant timeout ensures network stability during faults.

Data Logging Capabilities

- Comes with an 8 GB industrial micro SD card (Class 10, SDHC), with an optional upgrade to 32 GB; read speeds up to 80 MB/s.
- Simultaneously records data from up to two CAN and two LIN channels.
- Integrates a real-time clock with 50 microsecond resolution for precise date and timestamping of CAN frames, with battery backup.
- The RTC can be configured for local time zones (default is UTC) and synchronized via WiFi or CAN message (such as from a GNSS timestamp).
- Logs data in industry-standard binary MF4 format, easily convertible to CSV, ASC, pandas, MATLAB, and more.
- Embedded log file compression reduces file sizes by approximately 50–80%.
- Configurable silent mode: restricted (acknowledgement only) or monitoring (no transmission).
- Per-channel filtering: up to 128 regular and 64 extended ID filters (range, mask, acceptance, rejection).
- Prescale CAN frames to record by time intervals or specific data changes.
- Transmit lists of CAN frames per channel (single-shot or periodic), useful for OBD2/UDS/XCP/J1939 requests.
- Gateway routing allows data transfer between CAN1/2 and LIN1/2, with optional ID remapping.
- Supports logging of CAN and LIN error frames, as well as remote CAN frames (RTR).
- Optional cyclic logging mode deletes oldest files first when SD card is full.
- Advanced triggers enable custom start/stop logging rules based on CAN IDs and data thresholds.
- Can transmit a CAN heartbeat frame containing device status, storage usage, and RTC time.
- Configurable log file splitting by size (1–512 MB) or time period (0–86,400 seconds).
- Power safe data logging ensures no file corruption if power is disconnected unexpectedly.
- Each device has a globally unique ID for log file naming.
- Supports encryption of log files at rest on the SD card for enhanced security and compliance (including integrity checks).

WiFi Connectivity

- Station mode allows connection to WiFi access points for data transfer.
- Supports HTTP/HTTPS protocols for stable and secure big data telematics transfers.

- Up to four WiFi access points can be added, with prioritization based on signal strength.
- Over-the-air (OTA) configuration and firmware updates are supported, with a configurable sync rate and the option to disable.
- WiFi heartbeat option enables the device to periodically check in with the server by uploading a status file.
- Uploading of log files can be enabled or disabled via OTA configuration.
- Features a strong external WiFi antenna for extended range.
- Supports IEEE 802.11 b/g/n standards (2.412–2.472 GHz, 18.5 dBm power output, 11 Mbps for 802.11b).
- Antenna is external (SMA, <2 dBi gain) and can be replaced or extended, for example, with a rooftop antenna.
- Data can be uploaded to cloud servers like Amazon, Google, Azure, or a self-hosted server (e.g., MinIO).
- Web server interface allows data retrieval from the SD card via WiFi, using a browser or REST API, with no server required.

WiFi Security

- Data and OTA updates can be transmitted via HTTPS (TLS 1.2) for high security.
- Supports WPA and WPA2 encryption standards.
- WiFi access point and S3 server credentials can be encrypted in the device's SD card configuration.
- Firmware updates are digitally signed to verify authenticity.
- Access rights for devices and users can be customized using S3 policies.

Electrical Specifications

- Accepts +7V to +32V DC input through Channel 1 DB9 connector (e.g., CAN connector power pin).
- Extremely low power consumption (approximately 1 W), preventing battery drainage.
- Reverse voltage protection on CAN-bus supply.
- Transient voltage event protection on supply lines.

Mechanical Details

- Compact aluminum enclosure measuring 75 x 47 x 20 mm (width x length x height, excluding flanges and antenna connector); weight: 100 grams.
- WiFi antenna is included.

- Flanges with four M3 screw holes (head diameter < 6 mm); mounting kit available.
- Two standard D-sub 9 (DB9) connectors; optional OBD2/J1939 adapters available.
- DB9 connector pin-outs are detailed in the product manual.
- Channel 2 can be configured to supply 5V to external modules such as CANmod sensor-to-CAN modules.
- Status LEDs for power, Channel 1, Channel 2, memory, and WiFi.
- Operational temperature range: –25°C to +70°C.
- IP40 rating for ingress protection.