CANedge1: 2x CAN Bus Data Logger (SD + RTC + GPS/IMU)

General Features

- Works as a standalone CAN bus data logger with SD card support, two CAN/LIN channels (including CAN FD), and GNSS/IMU capabilities.
- Supports free firmware updates, allowing additional features to be added over time.
- Configuration utilizes open source JSON schema files, ensuring flexibility and transparency.
- Comes with a free, open source editor tool for device configuration, available both offline and online.
- Includes asammdf software and API for editing, DBC conversion, and MDF4 data plotting.
- Provides free converters for MF4 files, enabling easy drag-and-drop conversion to formats like CSV, ASC, and TRC.
- An open source Python API is available for automated data processing, reporting, and integrations.
- Offers free, open source telematics dashboards for visualizing DBC-decoded data in a browser.
- Certified for safety by CE-RED, FCC, IC, RoHS, ECE R10, KC, and ICASA.
- Comes with a one-year warranty and free, high-quality support.
- Product is made in Denmark.

CAN Bus Specifications

- Features two CAN channels with CAN FD support, compliant with ISO 11898.
- CAN: up to 1 Mbit/s; CAN FD: up to 5 Mbit/s payload rate (ISO & Bosch compliant).
- Logs raw data from protocols such as J1939/FMS, CANopen, NMEA 2000, OBD2, CAN FD, UDS, and others.
- Supports CAN 2.0A (11-bit ID) and 2.0B (29-bit ID) identifiers.
- Bit rates can be auto-detected or set manually.
- Frame retransmission can be configured for lost arbitration or error disturbances.
- Transceiver offers protection: ±16 kV HBM ESD, ±15 kV IEC ESD, ±70 V bus fault, short circuits, common mode input voltage up to ±30 V.
- Includes TXD dominant timeout to prevent network blocking during failures.

LIN Bus Features

- Two LIN channels included.
- Each channel can be set as a subscriber or publisher, supporting LIN data transmission and custom frame lengths.
- Compliant with LIN 2.0 up to 20 Kbit/s, supporting classic and enhanced checksum formats.
- Transceiver protection: ±8 kV HBM ESD, ±1.5 kV CDM, ±58 V bus fault.
- TXD dominant timeout to prevent network blocking.

Data Logging Capabilities

- Supplied with an 8 GB extractable Class 10 industrial micro SD card (SDHC), optional upgrade to 32 GB; read speed up to 80 MB/s.
- Can simultaneously record from 2 CAN and 2 LIN channels.
- Integrated real-time clock with 50 microsecond resolution for timestamping; battery backup included.
- Time zone configuration and auto-sync via CAN message (e.g., from GNSS timestamp).
- Data logged in MF4 binary format; easily converted to CSV, ASC, pandas, MATLAB, etc.
- Embeds configurable log file compression, reducing size by 50-80%.
- Silent mode options (restricted or monitoring), 128/64 ID filters per channel, and prescaling by time or data changes.
- Transmits lists of CAN frames per channel, supporting single-shot and periodic transmissions (e.g., OBD2/UDS/XCP/J1939 requests).

- Gateway routing for data transfer between CAN/LIN channels and optional ID re-mapping.
- Logs CAN and LIN error frames, remote CAN frames (RTR), and supports optional cyclic logging.
- Advanced triggers for starting/stopping logging based on custom CAN IDs and data thresholds.
- Optional heartbeat CAN frame with status, storage usage, and RTC time.
- Configurable log file split by size (1-512 MB) or time period (0-86400s).
- Ensures 100% power-safe logging with no file corruption on disconnect.
- Devices have unique IDs for distinctive log file naming.
- Supports encryption of log files at rest for security, GDPR, and CCPA compliance.

GNSS & 3D IMU Integration

- Equipped with a professional-grade u-blox NEO-M9V sensor (92 channels) with built-in gyroscope and accelerometer.
- Compatible with multiple GNSS systems: GPS, Galileo, BeiDou, GLONASS.
- Sensor fusion (UDR) enables up to 3x improved positional accuracy and enhanced coverage in challenging environments.
- Position accuracy: 2.0 m CEP; heading: 0.3°; pitch: 0.4°; roll: 0.6° (68% at 30 m/s); velocity: 0.08 m/s.
- High sensitivity: tracking/navigation at 160 dBm; cold starts at 148 dBm; acquisition time of 25 s for cold starts.
- GNSS antenna required for GNSS-based data; not needed for IMU data only.

Data Parameters

- GNSS and IMU data encoded as CAN messages in log files, on a separate channel.
- Filtering and prescaling options for GNSS/IMU messages; can record only if valid.
- Signals include longitude, latitude, GNSS time, status, speed, altitude, orientation (roll, pitch, heading), odometer, 3D acceleration, and geofence status, updated at 5 Hz (for most signals).

Electrical Specifications

- Input supply range: +7V to +32V DC via Channel 1 DB9 connector.
- Very low power consumption (~1 W), preventing battery drain.
- Reverse voltage protection on CAN-bus supply and transient voltage protection on supply lines.

Mechanical Details

- Compact aluminium enclosure (75 x 47 x 20 mm, excluding flanges); total weight: 100 grams.
- GPS antenna included.
- Flanges with four M3 screw holes; optional mounting kit available.
- Two standard D-sub 9 (DB9) connectors; optional adapters (OBD2/J1939/etc.).
- See product manual for DB9 pin-outs.
- Channel 2 can provide 5V to external modules (e.g., CANmod sensors).
- Logger status indicated by four external LEDs: Power, CH1, CH2, Memory.
- Operating temperature: -25°C to +70°C.
- IP Rating: 40.