GL Logger Family – The Professional Data Loggers

Mohamad Sah
Agenda

- **Versatility**
  - Tool Chain
  - Data Analysis
  - Additional Data Sources
  - Remote Access
GL Family Approach

**GL1000 Family**
- 2 CAN, 2 LIN and I/Os
- GL1010 as waterproof IP65 variant
- Very compact housing

**GL1000 Family**
- **NEW:** GL2400 with 4 CAN FD
- 4 CAN, 2 LIN and I/Os
- Wireless data transfer via 4G
- GL2010 as waterproof IP65 variant

**GL3000/GL4000 Family**
- 9 CAN, 2 LIN, 2 FlexRay, 1 MOST150 and I/Os
- 2 independent logging memories for separate configuration
- High storage capacities on CF card, SSD
- Wireless data transfer via Wi-Fi, 4G

**GL3000/GL4000 Family**
- **NEW:** GL2400 with 4 CAN FD
- 4 CAN, 2 LIN and I/Os
- Wireless data transfer via 4G
- GL2010 as waterproof IP65 variant

**GL5000 Family**
- Up to 24 CAN, thereof up to 12 CAN FD, 6 LIN, 2 FlexRay, 1 MOST150 and I/Os
- 2 independent logging memories for separate configuration
- High storage capacities on SSD
- Wireless data transfer via Wi-Fi, 4G

**GL5000 Family**
- **NEW:** GL2400 with 4 CAN FD
- 4 CAN, 2 LIN and I/Os
- Wireless data transfer via 4G
- GL2010 as waterproof IP65 variant
Various Data Sources: Vehicle Networks & ECU Access

**Vehicle Networks:**
Access to ECU communication
- Messages & signals in vehicle
- CAN (FD), LIN, FlexRay, MOST

**Vehicle Diagnostics:**
Access to series ECUs
- ECU identification data, measurement values & fault memory (DTCs)
- UDS, KWP2000, OBD II

**CCP/XCP:**
Development access to ECU
- Firmware variables
- Measured signals
- On CAN, FlexRay, Ethernet
- VX module & POD
- DAQ or polling mode
- Seed & Key

**Various ECU Ports:**
Proprietary debug ports of ECUs
- RS232
- Ethernet
Versatility

Various Data Sources: Vehicle Environment & Operator Input

**GPS:**
Register vehicle location synchronously to measurement

**Physical Measurement:**
Access to ECU environment

- Analog measurements
- Temperatures, pressure, voltage, ...
- CSM Measurement modules over CAN or Ethernet

**Camera:**
Capture environment visually

- Actions of driver or instruments, outside environment
- Configurable resolution, compressed images, ...

**Various Accessories:**
Easy operation by test drivers

- Remote control, display
- Voice recording
- Web-Display
Agenda

Versatility

- **Tool Chain**
  - Data Analysis
  - Additional Data Sources
  - Remote Access
Vector Logger Configurator

Easy-to-use graphical configuration program

Import databases

- DBC
- LDF
- XML
- A2L
- CDD
- ODX
- MDX

Export logged data

- BLF
- ASC
- MDF
- TXT
- MAT
- HDF
- ADTF

Download configuration

Upload logged files

CAN/CAN FD, LIN, FlexRay, MOST150
Configure the logger with the suitable mode for your logging use case:

1. **Permanent long-term logging:** Record all data directly after start of the test drive until the end.

2. **Conditioned long-term logging:** Record data between start and stop conditions.

3. **Triggered logging:** Record data of a trigger event with pre- and post-trigger time.

... and use filters for further data reduction → optimal for long-term logging.
Configure Power Management: Sleep vs. Standby

- Permanent supply of logger from vehicle battery
- Bus idle
  - Enter sleep mode → <1 mA
  - Enter standby mode → >1 mA but << normal operation
- Automatic wake on bus activity or ignition
  - From sleep: Wake-up time 20-200 ms
  - From standby: No message lost

Tool Chain

Vehicle

Battery

Ignition

optional

CAN

Vehicle

Battery

Vector

Logger On

Sleep

Wake

Logger On

Logger On

Logger On

Logger On

Standby

Current

1 mA

time

last message on bus

timeout to sleep

wake-up
Comfortable analysis with the Vector tools CANoe/CANalyzer and CANape/vSignalyzer or 3rd party tools

- CAN data
- GPS position
- Camera images
- Trigger events
- Voice notes
- Data Mining
- Offline Classifications

Logging formats:
- BLF
- ASC
- MDF
- IMG
- MAT
- TXT
- HDF5
- CSV
- ADTF

Raw format with CANoe/CANalyzer

3rd party tools with CANape, vSignalyzer
Agenda

Versatility
Tool Chain
Data Analysis

- **Additional Data Sources**
  Remote Access
Additional Data Sources

Diagnostics, OBD II, Trigger on DTC

- Gather additional information via diagnostic access
- Either with diagnostic description database or via OBD II
- Trigger on DTC: React to selected error conditions

Vector Logger Configurator

CANoe, CANalyzer

CANape, vSignalyzer

Integrated OBD II Standard

Download config
Upload log data

Export format
Additional Data Sources

**ECU Measurement via CCP/XCP, optionally with VX Modules and POD**

- Recording additional internal ECU measurement data via CCP/XCP
- XCP on Ethernet allows for a much higher data rate than XCP on CAN
- VX module and POD: allow to record internal ECU data without load on vehicle buses
CSM is Vector’s partner for measurement equipment

- CAN or Ethernet based measurement modules for a variety of physical values
- Temperature, pressure, strain, voltage, ...
- Logger can record output of modules
- Export values as signals e.g. to MDF
- Trigger on analog signal values (limitations may apply)
- Logger configures measurement modules remotely
## Additional Data Sources

### Logger Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Short description</th>
<th>GL1000</th>
<th>GL2000</th>
<th>GL3000</th>
<th>GL4000</th>
<th>GL5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINprobe</td>
<td>Additional LIN channels</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CANgps</td>
<td>Record GPS information</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>VoCAN</td>
<td>Voice recording and voice output</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CASM2T3L</td>
<td>Voice recording</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HostCAM</td>
<td>Record color images</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>VX modules</td>
<td>Record internal ECU signals</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CSM modules</td>
<td>Record sensor data</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Agenda

Versatility
Tool Chain
Data Analysis
Additional Data Sources

- Remote Access
Remote Access

Wireless Data Exchange

- Upload logging data with automatic conversion to desired format and automatic update of a new configuration
- One common solution for Wireless LAN and 4G/LTE with GL3000/GL4000/GL5000
- Solution for 4G/LTE also available with GL2000
Vector Logger Cloud

- Data center locations in the following regions:
  - USA (Buffalo), Germany (Frankfurt), Japan (Tokyo)
- Customer-specific data location policy
  - e.g. Europe only
- Operated by certified partners
For more information about Vector and our products please visit

www.vector.com

Author:
Mohamad Sah
Vector India