Data loggers - Details

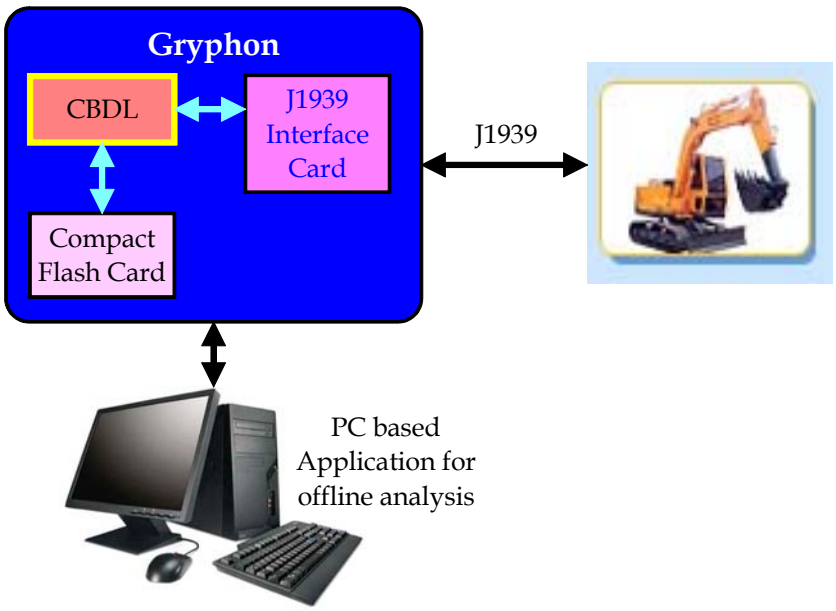
Euro –III Data logger

This system records the Euro – III compliant engine data through KWP2000 interface. Gryphon has been used as Hardware interface with EDC (Electronic Diesel Controller).

Following are the features:

- Resides inside the vehicle and perform the data logging on K-line continuously without any user intervention
- Performs the data logging while the vehicle is on the move
- The data storage is through the flash disk mounted in the PCMCIA slot
- Generic architecture that can be expandable to other networks like CAN

This system extensively used by R&D, Engineering departments to capture the Engine real time data.



CBDL continuously records the active and inactive fault code data from the ECU. The data logger automatically sends out diagnostic requests to the ECU to read the Diagnostic Trouble Codes (DTCs) at predefined intervals. These requests will be in the form of J1939 diagnostic services. The ECU shall respond to this request with the DTC codes and status.

CBDL needs to process the responses from ECU and store the resulting fault codes to a file. The file resides on the compact flash disk inserted in the PCMCIA slot of the Gryphon family device.

CAN Based Data Logger (CBDL) Features

Data Logging

- Data Logging shall be done through CAN/J1939.
- The Data Logger shall get powered up as soon as Ignition Key ON and shall start logging the data. It should be powered OFF with Ignition Key OFF.
- The data shall be logged as and when it comes on J1939 bus. No pre configuration is necessary.
- Parameters mentioned as part of Reference#1 shall be monitored on the bus and data shall be stored.
- Diagnostics Data: This shall be done based on Diagnostics request – response mode. Data logger shall send the Diagnostics request messages periodically at a predefined interval and receive the responses from ECU.

Data Storage

- The parameters and fault codes along with time stamp shall be stored on to the compact flash memory card inserted into the PCMCIA slot of data logger.
- The maximum logging can happen up to a month on a Flash card.
- The compact flash card can be taken out and can be connected to a Windows based PC to view the data in the file by using a compact flash disk reader / writer or the data can be directly downloaded to PC even without removing the flash card form the hardware box.
- PC based application shall be able to interpret the stored data and present it to user

Gryphon Family Hardware

The following are the some of the features of Gryphon Family devices:

- It is a hardware interface that provides remote connectivity for multiplexed automotive communication networks.
- It uses Ethernet connection to provide high-speed user interface for applications like Data logging, Diagnostics and custom applications etc.
- An embedded Linux operating system and a standard Transmission Control Protocol / Internet Protocol (TCP / IP) services ensure inter-connectivity with a large number of existing PCs, workstations and network hardware systems.
- Users can write their own client or stand-alone applications using the provided client communication protocol specification. This specification defines the format for messages passed over TCP connection between Gryphon family device and a client.
- It can do the data logging in stand-alone mode without connecting the PC.

Case Studies

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1	Company	Eaton Corporation, USA
	Hardware	Gryphon
	Vehicle Bus	J1939
	Description	The data logger logs the J1939 data related to Engine and vehicle speeds, clutch and gear positions based on the gear shift event. The data logger processes the logged data and calculates the level of energy absorbed by clutch during the gear shift to determine the wear and tear of the clutch. A Windows based Graphical User Interface (GUI) application provides configuring the parameters used in determining the gear launched and also calculating the energy absorbed by clutch. It also provides an analysis window with a bar chart that shows the average energy that got absorbed for each gear launch during the vehicle test run.
2	Company	Ashok Leyland, India
	Hardware	Gryphon
	Vehicle Bus	KWP2000
	Description	The data logger logs the Engine Diagnostics data on KWP2000 bus to monitor the different Engine parameters including sensors and actuators data. It logs the data continuously with out any manual intervention upto several days. The data can be downloaded to PC to plot different parameters and see their variations at different times. A Windows based GUI application is provided to configure the parameters to be logged and their logging intervals.
3	Company	Hortan Inc, USA
	Hardware	Gryphon
	Vehicle Bus	J1939
	Description	On power up the Gryphon will monitor the RPM data on the network. Once the RPM reaches 200 rpm or above Gryphon will start recording the selected parameters once a second. As data may be arriving randomly or at different rates every second the last known value of the parameter is recorded. When the RPM drops below 200 rpm the recording will stop. The data will be stored in tab delimited format and all values will be in engineering units. All values will be rounded off to the nearest integer. The user will utilize Microsoft excel or another similar application to view and manipulate the data.