



## PRODUCT SPECIFICATION

The FirePrograms 'Link<sub>2</sub>' data module shall consist of a J1939 enabled hardware device installed by the OEM or service technician and connected into the chassis J1939 Controller Area Network (CAN) data bus. The Link<sub>2</sub> is capable of monitoring and writing to non-volatile memory J1939 CAN data transmitted over the data bus. The device shall 'internet enable' the host apparatus, providing useful operation and diagnostic data to be transmitted to the internet for retrieval, analysis and automatic user notifications.

Collected data shall be capable of being wirelessly uploaded to the customer's configured, in-house WiFi 802.11 a/b/g/n network access point.

The Link<sub>2</sub> product shall typically be configured to monitor CAN messages broadcast over the apparatus J1939 CAN data link including:

- **Engine/PTO/Aerial/Generator Hours**
- **Mileage**
- **Engine diagnostic Codes (CEL/SEL)**
- **ABS diagnostic codes**
- **Transmission diagnostic codes**
- **Run Status**
- **Emergency Warning Status**
- **Interlock Status**
- **Low Voltage**
- **Park and Service Brake actuation**
- **Event Fuel Consumption (Gallons per hour)**
- **Other data as deemed available by the OEM**
- **Records and alarms user defined items**
- **Interfaces with select J1939 enabled Pump Pressure Governors**
- **Interfaces with select J1939 enabled Tank Level systems to provide tank level status**

The Link<sub>2</sub> hardware device shall consist of an industry proven Deutsch IP6# sealed enclosure with corresponding dual Deutsch harness connectors. Provisions shall be made for an active antenna output with antenna routed to the vehicle roof.

Diagnostic PC Board LEDs shall provide the technician with visual reference to the module's operational readiness (power, communication) and status of WiFi 802.11 a/b/g/n network connectivity.

A USB connector installed on the PC board shall provide for programming capabilities while the module is disconnected from the host chassis.

The **Link<sub>2</sub>** shall interface with FirePrograms' Link<sub>2</sub> Maintenance Module web application to synchronize the vehicle's recorded data. The web enabled Link<sub>2</sub> Maintenance Module shall compile and parse collected data, providing useful vehicle information to the End User, Maintenance Facility, Service Center and OEM via the web interface and automatic email notifications.

**Link<sub>2</sub>** data collection is enabled by the availability of data transmitted on the J1939 CAN Data bus. As such, various component manufacturers within the drive train and the overall chassis affect availability of certain chassis data. The apparatus OEM shall be responsible for ensuring the above data elements are accessible to be recorded by the Link<sub>2</sub>. To enable non-CAN functions to be recorded, a series of analog, digital and frequency inputs are available to the OEM or installer. The OEM or installer shall be responsible for determining if a particular data parameter shall be accessed via the J1939 CAN or provisioned via available hardware input circuits.

Due to on-board date recording and WiFi data transmission functions, the Link<sub>2</sub> hardware shall be wired and installed in strict compliance with installation instructions and industry best practices. The device shall incorporate a twenty (20) year rated lithium battery to maintain real-time clock functions. The Link<sub>2</sub> requires connection to constant battery voltage necessary to perform operational transmit and receive functions for a period of time after the apparatus is powered down.

Additional CAN messages may become available on the apparatus data bus from new equipment installed on the apparatus during its useful service life.