

# INTREPID CONTROL SYSTEMS, INC.

# neo ■ VI FIRE

## neoVI FIRE : 6x CAN, 4x LIN

Today's vehicles are pushing the limits on the number of CAN and LIN networks. neoVI FIRE addresses these issues by providing six channels of CAN and four channels of LIN in one tool. All channels run simultaneously and are time stamped in hardware. A fully isolated USB interface allows a PC to send and receive messages without worry of damage to the PC.

## Stand-Alone Logging, Scripting, and Simulation

In addition to working as a PC interface, neoVI FIRE supports operating in stand-alone mode. In this mode, neoVI FIRE can run real-time scripts, log data to a removable microSD card, and simulate ECUs and gateways. With these features, it is possible to run a script to reflash ECUs using the data from the microSD card.



## neoVI DLL, J2534, Linux, and RP1210 Support

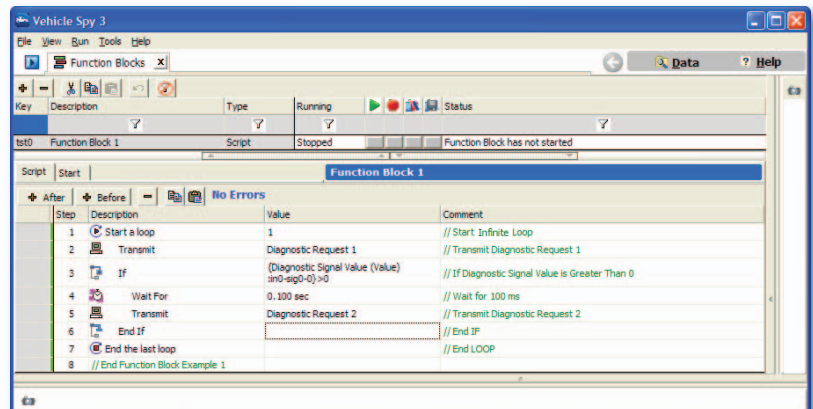
Some users prefer to write their own software. In response to this need, neoVI FIRE supports three open APIs: neoVI DLL API, SAE J2534 API and the TMC RP1210 A/B API. The neoVI DLL API is compatible with all popular development environments including C#, VB.NET, VB6, Delphi, C++ Builder, Visual C++, MATLAB, LabVIEW, LabWindows, and Java. We also have examples and drivers for Linux.

## Vehicle Spy Application Software

Our Vehicle Spy software fully supports neoVI FIRE. With Vehicle Spy, users can monitor and transmit on all neoVI FIRE networks simultaneously. Vehicle Spy is used (and required) to configure stand-alone mode. Users can take advantage of the powerful interface to load databases and to write and debug scripts before downloading them to the device.

## Hardware-in-the-Loop Real-Time Performance

neoVI FIRE includes a real-time scripting engine that can be used to perform real-time messaging. For example, someone creating an application can load a script into the hardware and interface with the script variables allowing microsecond measurement and control. Through a new feature called hardware acceleration, Vehicle Spy can also be configured to send real-time functions to the device such as periodic messaging, replay, or scripting.



**Intrepid Control Systems, Inc.**

31601 Research Park Drive Madison Heights, MI 48071 USA (ph) +1-586-731-7950 (fax) +1-586-731-2274

[www.intrepidcs.com](http://www.intrepidcs.com)

Rev.08242011

## Logging Features

neoVI FIRE is capable of logging to a removable microSD card. This logging feature includes a real-time, fail-safe FAT32 storage system. neoVI FIRE also has a real-time clock for hardware timestamping all messages. Finally, a robust power management system automatically powers down neoVI FIRE and can wake the device again based on network activity or PC connection.

## General Purpose I/O and Expansion

neoVI FIRE has six general purpose I/O lines. Each line can be programmed to a digital input or output of which four can be analog inputs. All of these I/O can be measured or controlled by both the PC host application or the embedded real-time scripting engine. For example, very precise timing measurements can be made using script for I/O to network message timing applications.

### Device Specifications

- neoVI 3G Architecture over 10x performance over previous devices
- 3 DSPs and 1 RISC processor for 125 MIPS of processing
- Power Consumption (typical) : 150mA @ 14.4 VDC
- Sleep Power Consumption (typical) : 12mA @ 12.0 VDC
- Power Supply: 6-27 Volt Power Operation (6-40 Volt version, "neoVI FIRE", available)
- Dual User Notification LED (red and green)
- Temperature Range: -40C to +85C
- Vehicle Connectors: 25 pin male D-SUB and 9 pin male D-SUB
- Warranty: One Year Limited Warranty
- Firmware: Field upgradeable design (flash firmware)
- General Purpose IO: 6 MISC IO (0 - 3.3V), 4 IO can be configured as analog
- General Purpose IO Rate Report Interval: 10 Hz to 1 Khz or based on digital change
- Microsoft Certified USB drivers
- Isolated USB
- Stand-Alone Mode Including Scripting, Receive Messages, Transmit Messages, Expressions, IO, and Transport Layers
- J2534 and RP1210 A/B compatible for CAN/ISO15765, Keyword, ISO9141, and J1850 VPW
- microSD card slot support for up to 32 Gigabytes of storage (or up to the limit of newer SDHC cards). The removable card is formatted using FAT32 for direct usage in a PC
- Battery backed real time clock (RTC)

### Networks - General

- 64 Bit time stamping to accuracy of 10 microseconds on CAN and LIN networks and never overflows. 0.5 microsecond accuracy timestamp available if using one network only
- Simultaneous operations on all CAN/LIN/J1850 networks
- Transmit message double-buffering on all networks allows back to back message transmission

*\*All trademark references are trademarks of their respective companies. Specifications subject to change. Please contact Intrepid for the latest information.*

### Ordering Information:

Part Number	Description
NEOVI-FIRE	neoVI FIRE device with Vehicle Spy 3 Trial
NEOVI-BOB	neoVI FIRE Breakout Box

### Network Specifications

#### 6x CAN Channels

- 4 Dedicated ISO11898 Dual Wire CAN Physical Layer (TJA1040)
- 1 Dedicated ISO11519 Low Speed Fault Tolerant CAN Physical Layer (TJA1054A)
- 1 Dedicated Single Wire CAN Physical Layer GMW3089 / SAE J2411 (MC33897)
- CAN 2.0B Active
- Up to 1 M-Bit Software Selectable Baud Rate (auto baud capable)
- Capable of generating and detecting error frames (with firmware update)
- Graphical Bit Time / Baud Rate Calculator
- Listen only mode support
- High Speed Mode, Test Tool Resistor, and High Voltage Wakeup support
- Capable of generating CAN errors on specific bits/bytes for stressing CAN networks and causing CAN error frames (with firmware update; may require two CAN channels)

#### 4x LIN (Local Interconnect), ISO9141, Keyword 2000, or K and L Line

- Full support for LIN 1.X, 2.X and J2602
- LIN J2602 / 2.X compatible physical layer
- Software enabled 1K LIN Master Resistor PER CHANNEL
- Capable of generating LIN waveforms (including errors) using dedicated output compare hardware (with firmware update)
- LIN Bus Monitor Mode identifies errors: Sync Break Error State and Length, Sync Wave Error, Message ID parity, TFrameMax/Slave Not Responding, Checksum Error and Transmit Bit Errors
- LIN Bus Master Mode operates at same time as LIN Bus Monitor
- LIN Bus Slave simulation - with or without an LDF file
- LIN Bus hardware schedule table with support for LIN diagnostics
- UART based state machine
- Only first channel supports L
- Programmable Timing Parameters including Inter-Byte, TX Inter-Frame, RX Inter-Frame and Initialization Waveforms (0.5 ms Resolution)
- Initialization Waveforms including Fast Init, Five Baud, and Custom
- Software Selectable Baud Rate
- Software enabled 512K resistor (channel one only)

#### 1x J1850 VPW (GM Class 2)

- VPW Physical Layer capable of TX and RX operations (MC33390)
- Reception of IFR data during TX and RX

#### 1x GM CGI

- Software enabled (disables LIN2)
- Programmable Bit Rate (625K, 115.2K, others)
- Full block mode message reception only
- Transmission option available in CGI Simulation Toolkit