neoVI RED 2

Vehicle Network Interface and Data Logger for CAN FD, LIN & 1Gb Ethernet (DoIP/XCP)

PC to Vehicle Interface and Data Logging Systems
8x CAN FD, 2x LIN, Ethernet: DoIP/XCP

The neoVI RED 2 combines the best of vehicle network interfaces with the Linux embedded operating system. The result is a solution unparalleled in capability with support for multiple network interfaces and standalone logging.

The neoVI RED 2 Series has up to eight dual wire CAN FD channels, two LIN channels, and two Gigabit Ethernet channels. The neoVI RED 2 fills the need for multiple protocol tools with a low-cost, high-value vehicle bus interface that fits in your backpack.

Features

- Option for 2, 4 or 8x DW CAN / CAN FD channels
- Up to 4x software enabled CAN termination
- 2x LIN channels
- 1x DoIP activation line
- 2x Gigabit Ethernet (1000BASE-T) for use with DoIP, XCPoE and more
- 10x Programmable tri-color LEDs
- 2x full-size SD cards for up to 2 terabytes of storage with support for SD 3.0 with 800 Mbps logging performance
- Real Time Clock for hardware timestamping of all messages and backup at 25ns
- Internal dual-band 802.11a/b/g/n Wifi, Secure Bluetooth SPP, and Bluetooth BLE with software selectable internal or external antenna
- Membrane LEDs to show link, error, and activity status
- Membrane Buttons to control trigger data logger
- Absolute orientation sensor combining accelerometer, gyroscope and magnetometer
- Internal extended temperature battery for safe shutdown
- High precision GPS with external GPS antenna
- Vehicle battery level wakeup
- Buzzer

Planned Future Development Features

- 1x USB type A connector for accessories such as RAD-IO2 or neoVI MIC2 manual trigger
- 4x General Purpose MISC IO
- Instant wake on 2 CAN FD channels
- Intrepid Security Module provides hardware cybersecurity and embedded C Code capability
- Generalized Precision Timing Protocol (gPTP)
- HD video recording for head unit, display and instrument cluster monitoring, active safety testing, lane departure, adaptive cruise control, back up camera testing, etc: Supports AXIS P-Series and F-Series cameras at 720p and up to 30 FPS
- Up to 4 Terabytes of storage

INTREPID CONTROL SYSTEMS
www.intrepidcs.com

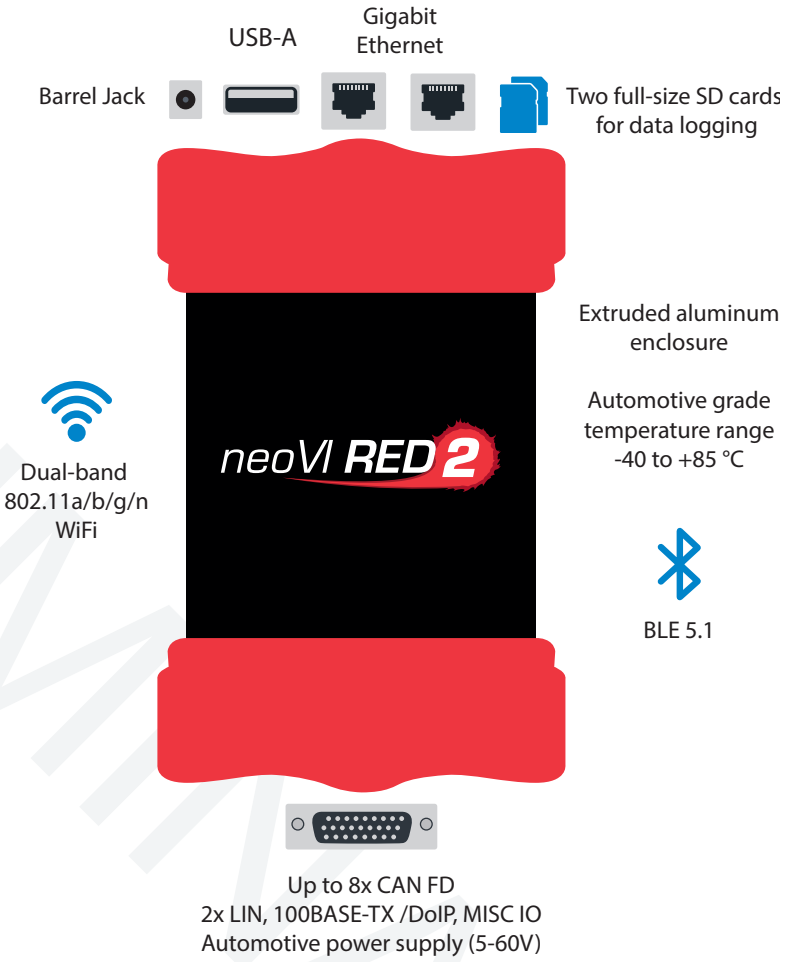
1850 Research Drive
Troy, MI 48083 USA
Phone: +1 (586) 731-7950
Fax: +1 (586) 731-2274

automotive engineering tool alliance
www.aeta-rice.com

neoVI RED 2

Applications

- Standalone data logger
- Data logger with auto-download via Wi-Fi or Ethernet
- Standalone ECU or vehicle simulator
- In-vehicle data acquisition system
- Captive test fleet data collection
- Fleet management
- Vehicle interface with J2534 and RP1210 support over 1000BASE-T1 (GM DPS, Ford DET, DiagRA, Chrysler CDA)



Standalone Logging, Scripting, and Simulation

In addition to working as a PC interface, the neoVI RED 2 can operate in standalone mode. It can run real-time scripts, log data to two removable full-size SD cards, and simulate ECUs and gateways. With these features, it is also possible to run a script to reflash ECUs using data from the SD card.

The neoVI RED 2 is capable of logging to two full-size SD cards, using real-time, fail-safe FAT32 storage for reliability and PC compatibility.

The neoVI RED 2 also has a real-time clock for hardware timestamping of all messages. A robust power management system automatically powers down the neoVI RED 2 and it wakes up again based on network activity or the connection of a PC.

The Power of Scripting – CoreMini

If you need to support a proprietary protocol, set up a simulation to run in parallel with the data logger, or any other custom action, the system offers a scripting environment for you to expand the base functionality to fit your unique needs. This makes the entire system very flexible and adaptable.

Remote Connectivity GPS Location

The neoVI RED 2 has an onboard dual-band 802.11a/b/g/n Wifi, Secure Bluetooth SPP, and Bluetooth BLE. In addition, the neoVI RED 2 has a 10 Hz GPS accurate to within 2.5 meters. GPS is provided both as a fleet management tool and within the data logging session for correlating location to your test data.

INTREPID CONTROL SYSTEMS
www.intrepidcs.com

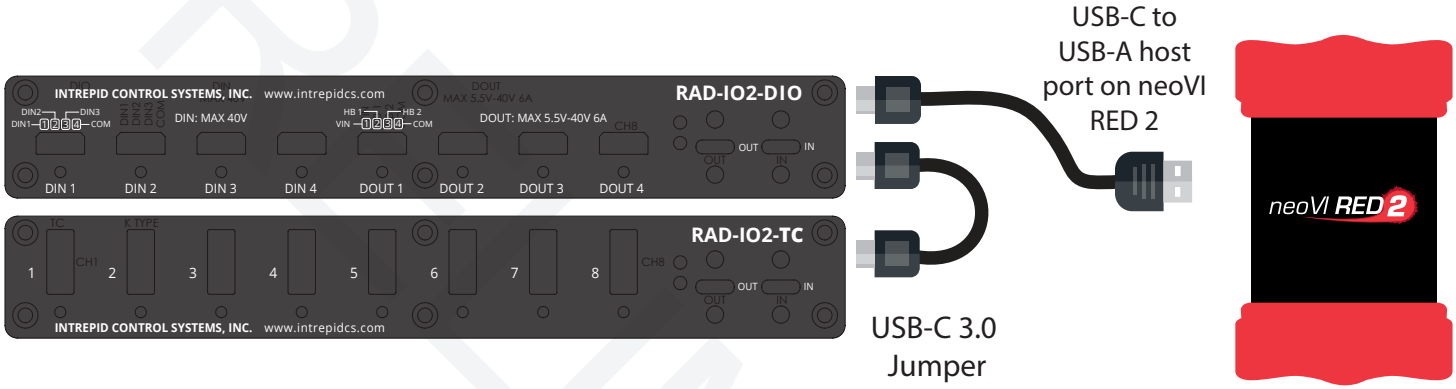
1850 Research Drive
Troy, MI 48083 USA
Phone: +1 (586) 731-7950
Fax: +1 (586) 731-2274

automotive engineering tool alliance
www.aeta-rice.com

neoVI RED 2

RAD-IO 2 Device Support

The neoVI RED 2 can also be paired with the ruggedized RAD-IO2 products that provide an isolated analog, digital or temperature interface to a PC via USB type C port. In addition, the RAD-IO2 family communicates on an open-source UART based serial communication protocol. Up to four devices can be daisy-chained. The chain length is limited by the current supplied to the chain through USB.



HD26 Pinout

1	MISC 1	14	DW CAN 1 H
2	DW CAN 4 L	15	DW CAN 8 H
3	DW CAN 5 L	16	DW CAN 2 H
4	DW CAN 1 L	17	DW CAN 3 H
5	DW CAN 8 L	18	DW CAN 6 H
6	DW CAN 2 L	19	VBAT
7	DW CAN 3 L	20	MISC 4
8	DW CAN 6 L	21	DW CAN 7 L
9	MISC 2	22	LIN 01 / ISO K 01
10	GND	23	LIN 02
11	MISC 3	24	EXT WAKE
12	DW CAN 4 H	25	ETH 01 ACTIVATE
13	DW CAN 5 H	26	DW CAN 7 H

Antenna

1	Wi-Fi
2	NC
3	GPS
4	Wi-Fi DIVERSITY

Intrepid Control Systems, Inc.
31601 Research Park Drive, Madison Heights, MI, USA 48071
Phone: +1 (586) 731-7950 | Fax: +1 (586) 731-2274
www.intrepidcs.com

neoVI RED 2

Protocol Support

- OBD
- J1939: Includes J1939 DBC, BAM, RTS/CTS
- UDS (ISO14229):
  - Services include $19, $22, $23, $2A, $2C
  - DBC, A2L (ASAP2 File), GDX, MDX, ODX support
- CCP: Includes A2L (ASAP2 file) and ROB support
- XCP: Includes A2L (ASAP2 file) and ROB support

Networks / Inputs

- 2, 4, or 8 x Dual wire CAN (all baud rates supported)
- 2 LIN / K Line / KW2K / ISO 9141
- 2 Gigabit Ethernet (1000BASE-T)

Device Specifications

- Low power consumption
- Comatose: 500 microamps
- Fast wake 70 milliamps
- Power supply: 5-60V operation
- LEDs: 10 programmable tri-color LEDs
- 2 LEDs for legacy status; 2 user buttons
- Temperature range: -40°C to +85°C
- On-board UPS power supply for safe shutdown of data logger
- Dimensions: 13.60cm by 11.22cm by 3.97cm
- LEDs (user programmable): 10 programmable tri-color LEDs
- SD card: 2 card slot support for up to 2 TB of storage; card formatted using FAT32 for PC compatibility
- DAQ Ethernet
- Vehicle connectors: 26-pin male HD D-sub
- One-year limited warranty
- Field-upgradeable flash firmware
- General purpose I/O: 4 MISC IO (0-40V); can be configured as analog/ PWMIO
- General purpose I/O rate report interval: 10 Hz to 1 kHz, or based on digital change
- USB host for RAD-IO2 or neoVI MIC2
- Standalone mode, including scripting, receive messages, transmit messages, expressions, I/O and transport layers
- J2534 and RP1210 A/B compatible for CAN / ISO15765-2:2016 (CAN FD)
- Battery-backed real-time clock (RTC)

Timing Specifications

- 64-bit timestamping to an accuracy of 25 nanoseconds on all networks
- Simultaneous operation on all CAN/LIN networks
- Transmit message double-buffering on all networks, allowing back-to-back message transmission

Network Specifications – CAN

- 2, 4 or 8 x ISO CAN FD channels
- CAN 2.0B compatible for all CAN networks
- 2-8 dedicated ISO11898 Dual Wire CAN FD physical layers (TJA1043)
- Up to 1 Mb/s software-selectable baud rate for arbitration phase (auto baud capable)
- Up to 8 Mb/s software-selectable baud rate for data phase (auto baud capable)
- Listen-only mode support

Network Specifications – LIN / K Line / KW2K / ISO 9141

Up to 2x LIN (Local Interconnect Network)

- 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
- 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
- Initialization Waveforms, including Fast Init, Five Baud, and Custom
- Software-selectable baud rate

Ordering Information

Part Number	Description
NEOVI-RED2-2	neoVI RED 2 with Vehicle Spy Trial - 2 CAN/CAN FD channel with two software enable CAN termination
NEOVI-RED2-4	neoVI RED 2 with Vehicle Spy Trial - 4 CAN/CAN FD channel with four software enable CAN termination
NEOVI-RED2-8	neoVI RED 2 with Vehicle Spy Trial - 8 CAN/CAN FD channel with four software enable CAN termination

 Rev. 20210324

INTREPID CONTROL SYSTEMS
www.intrepidcs.com

1850 Research Drive
Troy, MI 48083 USA
Phone: +1 (586) 731-7950
Fax: +1 (586) 731-2274

automotive engineering tool alliance
www.aeta-rice.com