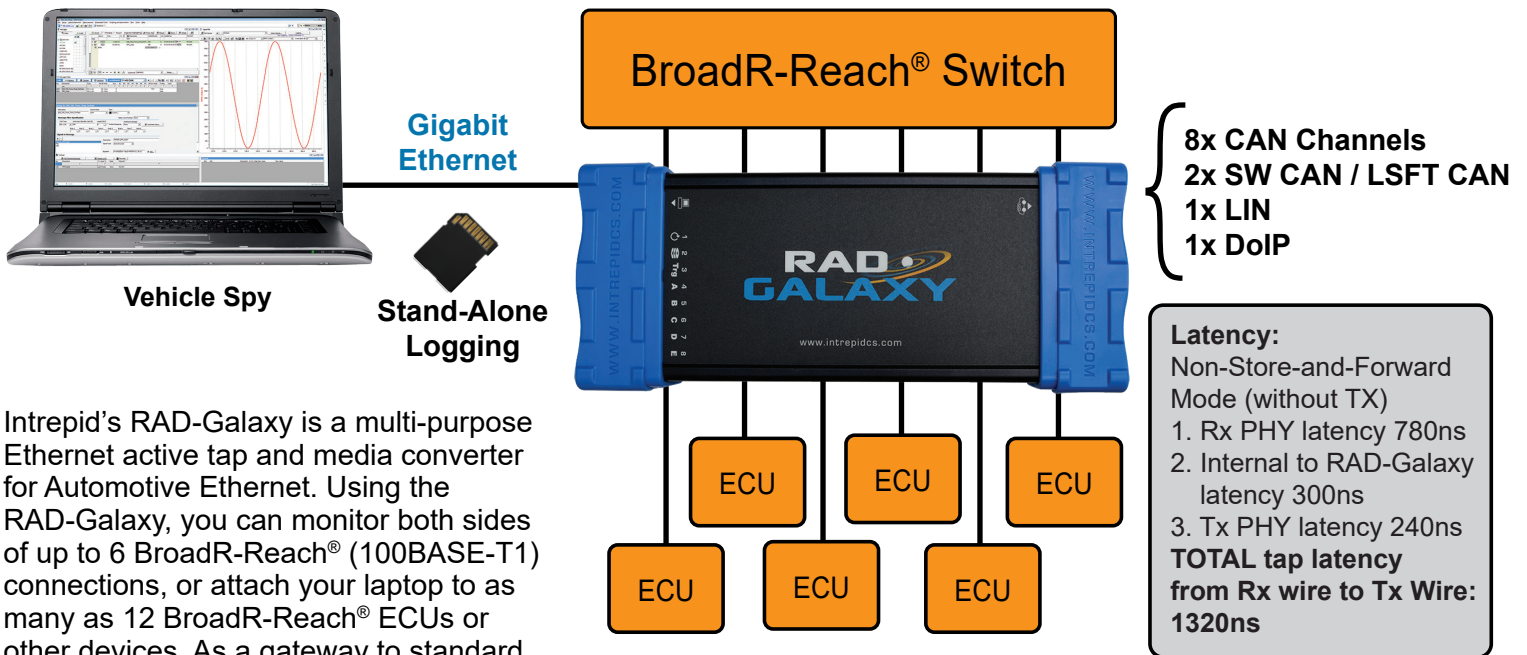


RAD-Galaxy

Multi Active Tap & Gateway for Automotive Ethernet with CAN FD Support



Intrepid's RAD-Galaxy is a multi-purpose Ethernet active tap and media converter for Automotive Ethernet. Using the RAD-Galaxy, you can monitor both sides of up to 6 BroadR-Reach® (100BASE-T1) connections, or attach your laptop to as many as 12 BroadR-Reach® ECUs or other devices. As a gateway to standard 8-wire Gigabit Ethernet, RAD-Galaxy

makes any standard Ethernet device, laptop, or data logger compatible with BroadR-Reach®.

The RAD-Galaxy has 12 BroadR-Reach / 100BASE-T1 PHYs, allowing it to tap 6 links between ECUs and/or switch ports. It can also be configured to act as a media converter for up to 12 devices. In addition to its Automotive Ethernet capabilities, it offers 8x CAN FD channels, 1 LIN channel, DoIP support and standalone operation capability.

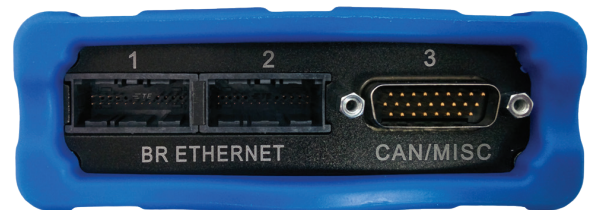
Features

- Taps copy full-duplex communications between Automotive Ethernet master and slave on each link with sub-microsecond latency
- Taps have basic filtering and routing capabilities
- Can serve as a BroadR-Reach® to Gigabit Ethernet bridge
- Precision Time Protocol (PTP) Support
- Audio Video Bridging (AVB) Support

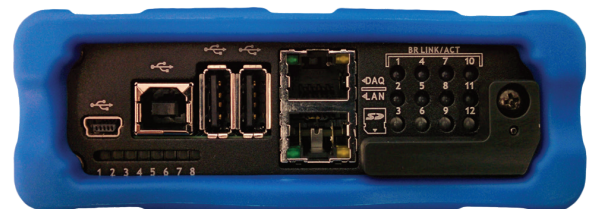
Applications

The RAD-Galaxy's broad network support and many features make it the ideal tool for a variety of applications, including:

- ECU level and system level automated testing
- Automotive Ethernet network monitoring
- Network simulation / Restbus simulation
- Automotive Ethernet to CAN FD or LIN gateway applications
- Standalone data logging applications
- Gang (multiple ECU) reflashing over CAN FD and Automotive Ethernet



2x NanoMQS connectors for BroadR-Reach® networks (TE2177367-3)



Full size SD card slot with removable cover for data logging.



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tool alliance



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RAD-Galaxy

RAD-Galaxy System Level / Gateway ECU Testing

The RAD-Galaxy has the unique ability to test an entire system of up to 6 ECUs / nodes connected to an Automotive Ethernet switch, plus 8 CAN FD networks, with up to 10 ns time accuracy. This makes it ideal for Gateway ECU testing applications, as well as whole system testing.

Active Tap Mode

A primary use of the RAD-Galaxy is to act as an active tap, transparently interposing itself between up to 6 pairs of BroadR-Reach® (100BASE-T1) Automotive Ethernet devices. These can be any combination of 6 ECU-to-switch or ECU-to-ECU links. The traffic from each device on a tapped link is forwarded to its partner, ensuring seamless operation of the network. Copies of all messages are also sent to the PC over the RAD-Galaxy's Gigabit Ethernet link, where they can be analyzed using the included Vehicle Spy software.

Media Converter Mode

The RAD-Galaxy can also be configured to act as a media converter, allowing a PC to interact with up to 12 Automotive Ethernet ECUs. This allows you to simulate nodes, or perform direct diagnostics or ECU flashing.

Vehicle Spy Software

One license for Intrepid's powerful Vehicle Spy Professional software is included with each RAD-Galaxy. Vehicle Spy will allow you to view traffic on your tapped or media-converted Automotive Ethernet networks. You can also transmit messages from the PC to Automotive Ethernet ECUs, and much more.

General Specifications

- Fourth-generation neoVI architecture: over 10x the performance of earlier devices
- Low power consumption
- Power Supply: 4.5-40V operation
- 20 LEDs indicate link status and logger status
- Temperature Range: -40°C to +85°C
- One-year limited warranty
- Field-upgradeable flash firmware
- Four MISC I/O channels configurable as 0-40V analog input or PWM input or output
- Three 0-5V analog outputs
- Standalone mode including scripting, receive messages, transmit messages, expressions, I/O, and transport layers
- J2534 and RP1210 A/B compatible for CAN/ISO15765
- Full-size SD card slot with support for cards with capacities up to 128 GB (or the limit of newer SDHC cards); card is formatted using FAT32 for PC compatibility.
- Battery-backed real time clock (RTC).
- Dimensions: 10.63" x 4.53" x 1.57" (27cm x 11.5cm x 4cm)
- Weight: 1.42 lbs (645g)

Timing Specifications

- FPGA-measured 64-bit timestamping with 10 ns accuracy on all CAN/LIN/Ethernet networks
- Simultaneous operation on all CAN/LIN/Ethernet networks
- Transmit message double-buffering on all networks, allowing back-to-back message transmission

Optional Accessories

- **neoVI MIC** - for manual triggering and audio logging with GPS
- **HD Camera** - for capturing HD video and syncing it with GPS and vehicle network data

Ordering Information:

Part Number	Description
RAD-GALAXY	RAD-Galaxy Device

Network Specifications – Automotive Ethernet

- 12 Broadcom BroadR-Reach® (100BASE-T1) Automotive Ethernet physical layer transceivers
- PHYs can be configured to operate as active taps for up to 6 node pairs, media converters for up to 12 nodes, or a combination of up to 6
- Full-duplex operation on all links
- Automatic master/slave configuration

Network Specifications – CAN

- 6 Dedicated ISO11898 Dual Wire CAN channels with ISO CAN FD support
- 2 additional CAN channels switchable between ISO CAN FD or SW CAN (GMW3089 / SAE J2411)
- Up to 1 Mb/s software-selectable arbitration phase baud rate
- Up to 8 Mb/s software-selectable data phase baud rate for CAN FD
- Listen-only mode support
- Single Wire High Speed Mode, Test Tool Resistor, and High Voltage Wakeup support
- CAN FD implemented using the Bosch MCAN CAN Controller IP

Network Specifications – LIN

- 1x 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
- Software-selectable baud rate

Network Specifications – DoIP/XCP/Automotive Ethernet

- 10/100/1000 Ethernet PHY with low-power mode
- DoIP activation line implemented with LIN channel

**Specifications subject to change. Please contact Intrepid for the latest information.*

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