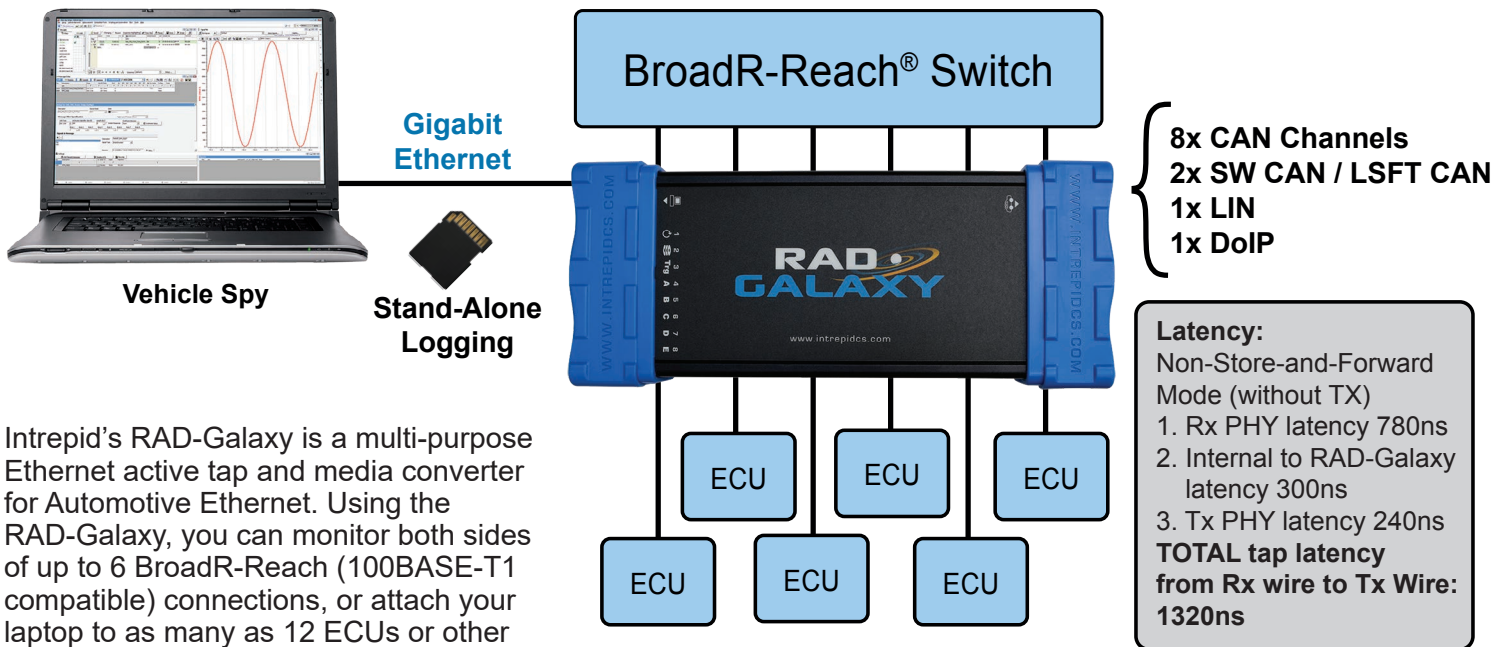


RAD-Galaxy

Multi Active Tap and Gateway for Automotive Ethernet with CAN FD



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 compatible) connections, or attach your laptop to as many as 12 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 compatible) 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, a LIN channel, DoIP support and standalone operation capability.

The RAD-Galaxy has 12 BroadR-Reach (100BASE-T1 compatible) 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, a LIN channel, DoIP support and standalone operation capability.

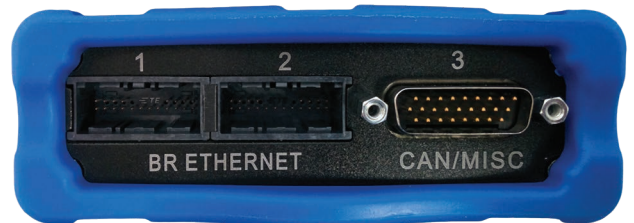
Features

- Taps copy full-duplex communications between Automotive Ethernet devices with sub-microsecond latency
- 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
- Full version of Vehicle Spy software included

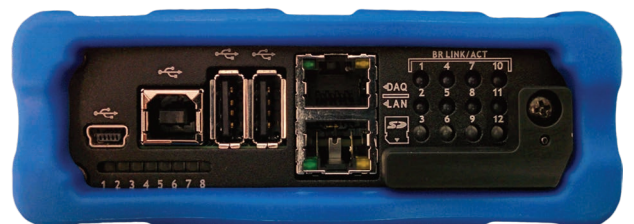
Applications

The RAD-Galaxy's broad network support and many features make it ideal 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 / LIN gatewaying
- Standalone data logging
- Gang (multiple ECU) reflashing over CAN FD / Automotive Ethernet



2x NanoMQS connectors for BroadR-Reach networks (TE 2177367-3)



Full-sized SD card slot with removable cover for data logging



INTREPID
CONTROL SYSTEMS
 www.intrepidcs.com

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



www.aeta-rice.com

RAD-Galaxy

System Level / Gateway ECU Testing

The RAD-Galaxy has the unique ability to test a full system of up to 6 ECUs / nodes connected to an Automotive Ethernet switch, plus 8 CAN FD networks, with 10 ns time accuracy. This makes it ideal for Gateway ECU and 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 ECU-to-switch or ECU-to-ECU Automotive Ethernet devices. 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, perform direct diagnostics or do ECU flashing.

Vehicle Spy Software

The RAD-Galaxy includes one license for Intrepid's powerful Vehicle Spy Enterprise software. Vehicle Spy allows you to view traffic on your tapped or media-converted Automotive Ethernet networks, transmit on them, 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 I/O channels configurable as 0-40V analog in or PWM in or out
- 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-sized SD card slot with support for capacity up to 128 GB or the limit of newer SDHC cards; card formatted FAT32 for PC compatibility
- Battery-backed real time clock (RTC).
- Dimensions: 10.63" x 4.53" x 1.57" (27 x 11.5 x 4 cm)
- Weight: 1.42 lb (645 g)

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 with Vehicle Spy

Network Specifications – Automotive Ethernet

- 12 Broadcom BroadR-Reach® (100BASE-T1 compatible) 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 and 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. All trademarks are the property of their respective owners.

Rev. 20200616



INTREPID
CONTROL SYSTEMS
www.intrepidcs.com

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



www.aeta-rice.com