

RAD-Gigastar

1000Base-T1 Active Tap, Gateway, Media Converter, Vehicle Interface & Data Logger

The RAD-Gigastar is the most versatile Automotive Ethernet network tap available. The RAD-Gigastar works as an active tap, media converter, vehicle interface, and Ethernet data logger.

The RAD-Gigastar can monitor one pair of 100/1000BASE-T1* connections with an additional pair of SFP cages to support optical/ copper SFP transceivers. In addition, the RAD-Gigastar can also operate as a programmable gateway to create an Ethernet-to-Ethernet or a CAN-Ethernet gateway.

The RAD-Gigastar makes any standard Ethernet device, laptop, or data logger compatible with 100/1000BASE-T1. The RAD-Gigastar includes Serializer/Deserializer (SerDes) technology for high-speed transmission, useful for data streams that make in-vehicle video, audio, and communications possible. In addition to its Automotive Ethernet capabilities, it offers 6x ISO CAN FD channels, 2x FlexRay channels, and standalone operation capability.

Features:

- 2x 100/1000BASE-T1 using the Marvell 88Q2112 PHY
- 2x 100BASE-TX/1000BASE-T/1000BASE-X SFP ports
- 6x ISO CAN FD channels with selectable on-board termination
- 2x FlexRay receive channels with selectable on-board termination
- 1 LIN/K Line
- 1 DoIP activation line
- Flexible media conversion between 100/1000BASE-T1, 100BASE-TX, 1000BASE-T and 1000BASE-X¹, and other PHYs via SFP².



- Supports and powers high-speed SerDes (LVDS/FPD-Link/GMSL) for camera, radar, or display with up to 2x SerDes tap pairs
- Intrepid's SerDes module allows tapping FPD Link III, GMSL, and future SerDes protocols by switching SerDes modules
- Fully supports standalone mode, data logger mode, Wireshark and Vehicle Spy
- Full-size SD card with support for SD 3.0 (800 Mbps logging performance) and RTC Backup
- Intrepid Time Sync (ITS) provides hardware synchronization with other Intrepid tools and autonomous logger systems
- Isolated USB 3.1 connection or Gigabit Ethernet (1000BASE-T) for PC connection, depending on configuration
- 5.5-60V power range, compatible with in-vehicle power
- Push buttons to control modes, master/slave and speed settings
- Membrane LEDs to show link, error, and activity status
- Automatic power management wake up modes
- Intrepid Time Sync using Ethernet or CAN FD channel

* - BroadR-Reach® devices also supported; 1 - 1000BASE-X supported via SFP; 2 - Check with Intrepid for SFP compatibility.



Intrepid Control Systems, Inc.

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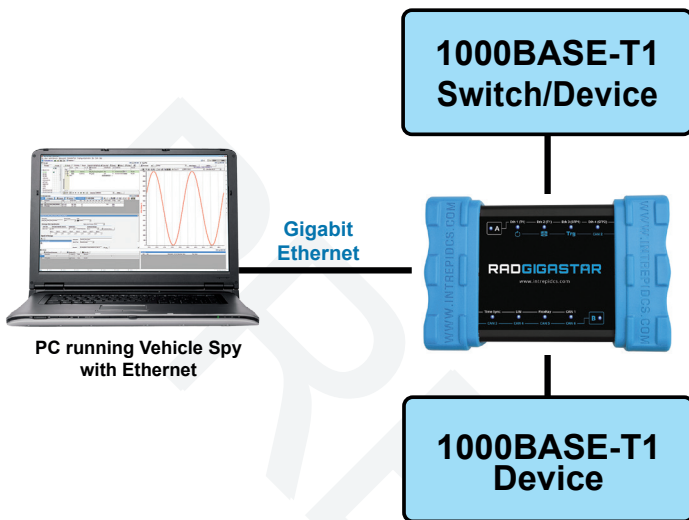
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RAD-Gigastar



Using the RAD-Gigastar as an active tap

Applications:

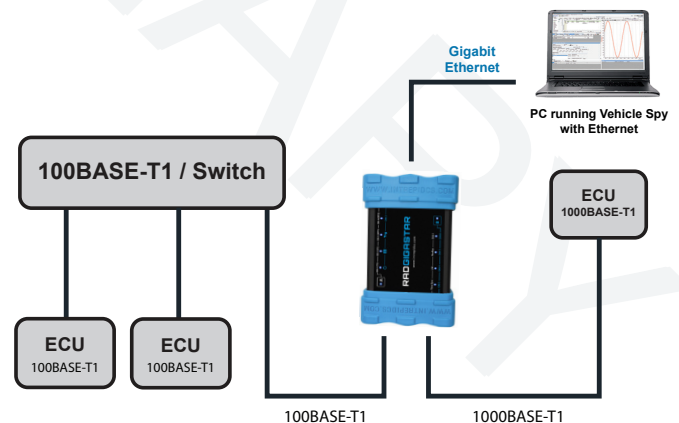
- ECU level and system level automated testing
- SerDes camera to Ethernet gateway
- Automotive Ethernet tap
- Automotive Ethernet to CAN FD or FlexRay gateway
- SoAd/DoIP/ISO 15765 reflashing over Automotive Ethernet or CAN FD
- Standalone data logging for Automotive Ethernet

Active Tap Configuration

A primary use of the RAD-Gigastar is to act as an active tap, transparently interposing itself between a pair of Automotive Ethernet devices or SerDes devices. This can be either an ECU-to-switch, an ECU-to-ECU link, or a SerDes device. The traffic from each device on a tapped link is forwarded to its partner, ensuring seamless operation of the network. Copies of all messages/streams are also aggregated and sent to the PC over the RAD-Gigastar's Gigabit Ethernet link, where they can be analyzed using Vehicle Spy Enterprise software. The RAD-Gigastar includes Serializer/Deserializer (SerDes) technology for high-speed transmission. This is useful for data streams that make an in-vehicle video, audio, and communications possible. The RAD-GigaStar can log and forward uncompressed camera data from multiple FPD-Link III, GMSL or any other SerDes Protocol with addition of a SerDes module.

Media Converter Mode

The RAD-Gigastar can act as a media converter for 100/1000BASE-T1, 100BASE-TX, 1000BASE-T, 1000BASE-X to standard 10/100/1000 Ethernet which is useful for connecting a PC to a 100/1000BASE-T1 host or switch. This allows you to simulate nodes or perform direct diagnostics or ECU flashing. In addition, the "pure" media converter mode disables encapsulation of messages and allows connections between media of differing bit rates, buffering as needed.



Using the RAD-Gigastar as a media converter



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RAD-Gigastar

Stand-Alone Logging, Scripting, and Simulation

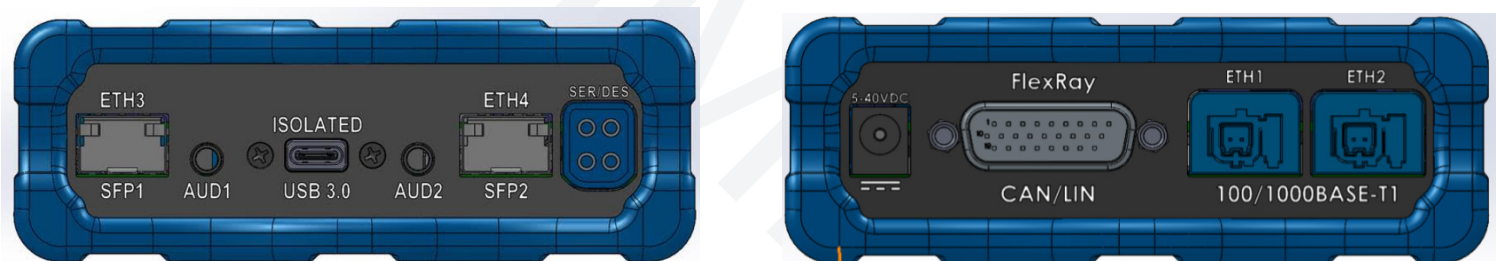
The RAD-Gigastar is capable of running real-time scripts and logging data to a removable, full-size SD card using the SD 3.0 Interface. With features like Real Time Clock (RTC) backup and supercap logging protection, RAD-Gigastar helps protect your data against unexpected power failure and crank events.

Intrepid Time Sync

RAD-Gigastar can be linked with other Intrepid tools and autonomous logger systems using the Intrepid Time Sync format. ITS uses a proprietary method to provide very tight microsecond timing sync to all connected devices. For example, by using ITS between a RAD-Gigalog and RAD-Gigastar, you can record a multigigabit data stream with up to 6 terabytes with the RAD-Gigalog, while recording even more data with the RAD-Gigastar. Both datasets will be fully synced.

Central Gateway Testing

The RAD-Gigastar is uniquely configured to test central gateways. Connect to the “clean” and “dirty” side of the central gateway with four Ethernet ports, as well as the 6x CAN FD networks. All data is synchronized with better than 10 ns accuracy



Automotive Ethernet PHY Testing

RAD-Gigastar's user friendly and powerful design allows you to validate and debug physical layer/PHY issues. The RAD-Gigalog provides PHY-level information including signal quality measurement, master/slave or negotiation modes, and other qualities available from the PHY.

Ordering Information

Part Number	Description
RAD-Gigastar	Active Tap / Gateway / Media Converter / Vehicle Interface, & Data Logger

Specifications subject to change; please contact Intrepid for the latest information. All trademarks are the property of their respective owners.

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