

Echo R-T (Repeater/Translator)



The Echo R-T repeater translator provides network communications extension and bridging. Echo R-T offers built in wireless Ethernet (802.11b/g) and a 902-928 MHz data link (76 Kbps). The modularity of the design allows for seamless integration of various radio frequency (RF) devices to meet your specific needs. Echo R-T is designed for use both as a deployable repeater, extending communications range, and as an on board protocol translator. The intelligent routing built into the Echo R-T can provide an on-robot bandwidth optimizing bridge between disparate RF links.

Echo R-T, is a self-contained repeater/translator for improved wireless communications over long-range and non-line-of-sight applications. The compact and lightweight design makes it suitable for a wide variety of domains such as unmanned ground systems, search and rescue, and mining.

Applications include use as a radio on board robots or at control stations, protocol translator for AS5669 Serial to/from Ethernet, and as a multi-protocol repeater for communications challenged environments. Echo R-T acts as intermediary for wireless communication traffic between two endpoints. This extends the reach and reliability of the network, in both indoor and outdoor environments. With its embedded high-speed, low-power processor, additional overhead and latency are minimized

Echo R-T offers a number of connectivity options, including wired 100Mbps Ethernet (TCP/IP or UDP), wireless 802.11b Ethernet (TCP/IP or UDP), and an on-board 900 MHz radio. The proprietary radio uses frequency hopping, spread spectrum technology to improve performance in challenging RF environments. Echo R-T is based on a modular design for all hardware and the default radio can be quickly and easily replaced with an application-specific solution on an as-needed basis.

Echo R-T features a rechargeable lithium-ion battery pack for long run times and short recharge times. The modular hardware design also supports military grade batteries, such as the BB-2590/U Li-Ion, should the application demand it. Other power options include direct application of power from a host system.

'Jr' JAUS Repeater Middleware is used in Echo R-T to provide a digital interface that is compliant to the SAE Aerospace Standard 5669, otherwise known as the JAUS Transport Standard. The protocol allows for UDP, TCP, and serial communications while enabling priority queuing, guaranteed delivery, and transport-independent addressing. Furthermore, Echo R-T can act as a bridge between disparate communication types, allowing for protocol translation between the different networks such as an IP-based platform to seamlessly communicate with an RS-232 based device.



About DeVivo AST

DeVivo AST, Inc. offers engineering solutions and support for unmanned systems in both the defense and commercial marketplace. Expertise provided by the company consists of software and systems design, development and integration, test support and training. This expertise includes the development of embedded systems, control systems, training and training aids, simulations (embedded and graphical), and all aspects of unmanned systems development. Additionally, the staff provides research and preparation of trade studies and analyses, proposal support and program management.

DeVivo AST staff offers years of unmanned systems engineering experience. This experience ranges from research and development efforts in military programs and projects to applied automation with industrial robotics manufacturers. Specific applications of unmanned systems that DeVivo employees have been involved with include EOD robotics (both detection and neutralization), UAV - UGV Communications Link/Repeater, Future Combat Systems, DARPA Urban Challenge, Remote Clearance (including high end simulation), robotic/remote firefighting, high speed vehicles, autonomous navigation, interface design & development, and testing.

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