



Roadway Communications Solutions

Roadways



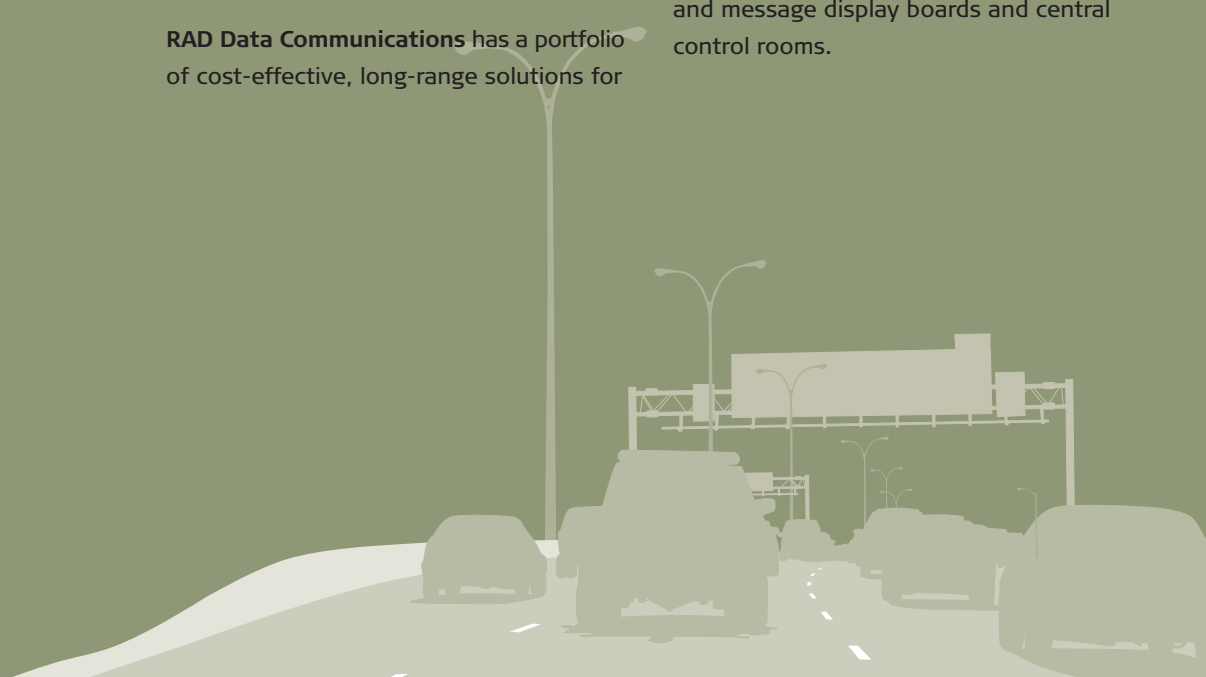
data communications
The Access Company

Keep Traffic Flowing with an End-to-End Roadway Communications Network

The modern highway system is the principal means of conveying commercial and passenger traffic in many parts of the world. Individuals, businesses and entire communities are dependent on the smooth and unimpeded stream of freight and people across regional, state, interstate, federal, and national highway networks. Providing motorists and commercial drivers with real-time information about sudden changes in driving conditions, including traffic jams, lane closures, roadwork, emergencies, and adverse weather, is essential for the safe and continuous operation of these vital transportation arteries.

RAD Data Communications has a portfolio of cost-effective, long-range solutions for

intelligent roadway system communications needs. RAD's diverse and innovative standards-based products support multiple applications, converging video, data and voice over any type of media: copper, fiber or wireless. RAD's solutions leverage existing legacy infrastructure, using multiple topologies: point-to-point, daisy-chain, star, and ring. The solutions enable roadway communications network operators to quickly deploy a highly reliable, scalable, end-to-end communications network that is sufficiently robust to broadcast information for the entire length of a highway, between widely dispersed sensors and message display boards and central control rooms.





Monitoring and Control Systems

Monitoring road conditions is a data-intensive operation, requiring multiple technologies to collect information from myriad highway sensors and measuring devices, including automatic incident detection, traffic counting stations, weather and pollution monitors, fire detection systems, speed limit enforcement radar, and floating probe vehicles. Roadway operators need a communications network that can reliably and efficiently transfer multiple types of data collected from heterogeneous control equipment for transfer over shared communications links.

RAD provides a comprehensive solution for transmitting multiple types of data real time to a central control room over the highway authority's transport network. The access products can collect data from supervisory control and data acquisition (SCADA) systems – whose remote terminal units (RTUs) aggregate multiple data types from telemetry devices, controllers and other sensors – and transmit the information over radio, fiber, satellite, or copper links. RAD solutions, controlled by a single network management platform, support any available transport network and are suitable for various topologies, such as daisy-chain, star or ring.

Intelligent, End-to-End Connectivity

Roadway operators require a variety of information collection and dissemination devices for the processing and transmission of low speed and high speed data, voice and video. RAD has solutions for reliable end-to-end transmission over discrete or converged networks for all roadway communications equipment. Depending on the network infrastructure, topology and range, these solutions can include multiple repeaters, fiber modems, SHDSL modems, wireless multiplexers, multiservice access multiplexers, and LAN bridges. These devices are able to deliver and aggregate single or multiple services from many points across any transport network: SDH/SONET, ATM or IP/Ethernet/MPLS. An SNMP-based central management platform gives network managers the ability to monitor and configure remote units among heterogeneous networks. For economical multi-site connectivity, RAD supports local access rings over redundant, long distance rings, adding resiliency and saving on multiple long distance links.

Video Surveillance

Video surveillance is a critical application in traffic flow management, accident detection, speed limit enforcement, automated toll-road payment, and homeland security. To attain widespread coverage, highway authorities place CCTV cameras in strategic areas, including intersections, tunnels and bridges. The information is broadcast to a central control room for monitoring and processing. Road conditions and other traffic information can also be transmitted via broadband for viewing by motorists.

The distributed CCTV network requires communications devices that can reliably extend the range of real-time video traffic over wireline and wireless networks. RAD offers a suite of products that supports both Ethernet and n x 64 kbps interfaces on video surveillance systems. These products include data and voice multiplexers, modems and wireless multiplexers. RAD also makes a miniature remote Ethernet bridge, which can extend Ethernet-based cameras beyond the 100-meter (62.5-ft) LAN coverage area.



Variable Message Signs

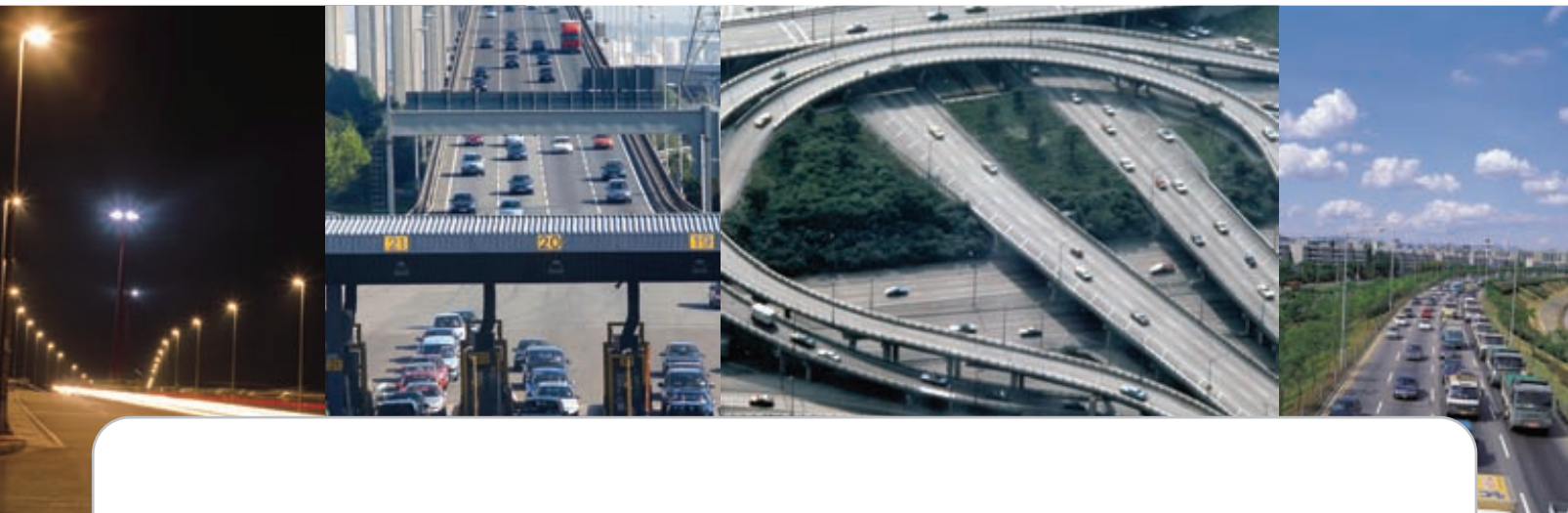
Modern expressways rely on variable message signs (VMS) for intelligent traffic management. Information collected along the highway is transferred in real time to drivers by VMS. The panels are a service to drivers, who receive information on road conditions and travel times, enabling them to make decisions on choosing alternative routes and informing them of estimated arrival time. VMS operation also serves as a safety measure that helps prevent secondary accidents. Displays are situated along both highways and at rest stops.

For seamless transport of information between control centers and VMSs, RAD's modems and SHDSL repeaters, which extend ranges between modems, use an Ethernet interface to transfer data over an extended area. RAD products can support daisy-chain, ring and drop-and-insert topologies to enable display connectivity over any infrastructure to the control center, while ensuring high reliability of information thanks to line protection mechanisms.

Emergency Telephones

Emergency telephones along stretches of rural or metropolitan highways provide added security for motorists as they travel about their business. The phones are situated in enclosed boxes connected to a network that transfers voice to a central control room. RAD's compact multiplexers are economical remote distribution nodes that are ideally suited for installation at emergency telephone stands and central control sites. They groom services over copper, DSL, fiber, wireless, and satellite circuits in point-to-point, point-to-multipoint, daisy-chain, and ring topologies. The multiplexers include fail-safe mechanisms that are vital for emergency networks. The database flip feature automatically reroutes calls in case of failure on any portion of the ring.

RAD Data Communications roadway communications solution reduces backhaul costs and improves resiliency.



RAD offers a wide range of communications solutions to meet the needs of modern roadways, including voice, data and video transmission for monitoring and control systems, video surveillance, variable message signs, and emergency telephones.

Benefits and Features of RAD's Roadway Communications Solutions

Quality. Support for multiple control systems improves the flow of highway traffic.

Safety. Real-time transmission of highway conditions to information displays boosts safety for drivers.

Speed. Fast relay of traffic and road conditions results in quicker adaptation or repair of adverse conditions.

Security. Extended range for CCTV brings more coverage and more security.

Savings. Aggregation equipment enables transfer of multiple services.

Profits. Efficient management of traffic flow keeps drivers satisfied and encourages use of toll roads.

Ease of Deployment. RAD's plug-and-play devices involve minimal installation costs.

Manageability. Single SNMP-based management platform for RAD system.



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