



UTILITY NETWORKS

Microwave radio solutions for remote monitoring and control applications

Application Overview 7

Application overview

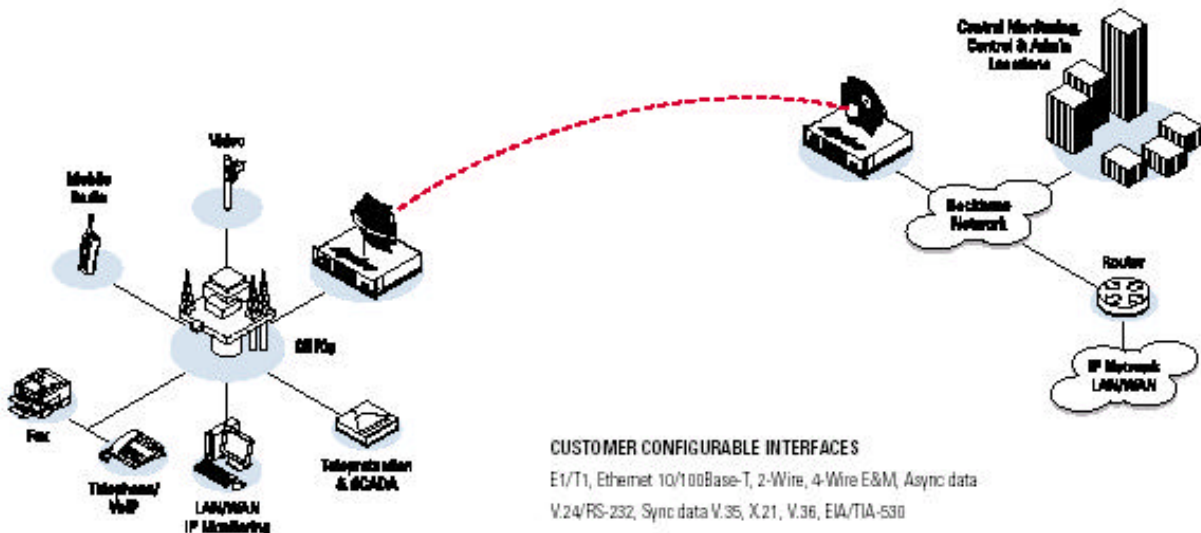
Gas, oil, electricity, water and transport utility companies deploy point-to-point digital microwave radio systems for the transport of data, voice and IP traffic in remote monitoring and control applications. The applications enable utilities to gain greater knowledge and control of their infrastructures securing valuable resources and delivering operational efficiencies. The systems are typically deployed where distance, difficult terrain or harsh environments mean the speed or costs of deployment for wired, fiber, and satellite communications is not viable or commercially feasible.

Commercial perspectives

This microwave radio solution enables utility companies to [1] swiftly deploy new generation remote monitoring and control applications over long distances and difficult terrain [2] aggregate and more efficiently transport mixed communications drawn from various sources, and [3] lower the total cost of network ownership through optimising the capital investment, and reducing equipment and operational costs.

Aprisa™ digital microwave radios

The REMEC HIMARK Telecom Aprisa digital microwave radio enables connectivity between two fixed points up to 100 kilometres apart. They transport data for SCADA, telemetry, teleprotection, and signalling applications; voice services including phone, PABX, mobile radio; and IP traffic such as LAN, VoIP and video. The radios are typically deployed in remote monitoring and control applications, for connections to backbone networks, and backhaul to central administration and control locations.



Aprisavantage

The Aprisa radio delivers two vital benefits for utility network operators.

Superior performance Sub 3 GHz licensed frequency bands enable extremely reliable transmission over long distances and difficult terrain, particularly over water and partly obscured paths. These regulated bands permit exclusive frequency assignment

guaranteeing carrier-class performance and minimizing interference. The RF design integrates high-performance digital processing techniques including FEC (Forward Error Correction), interleaving, and advanced radio equalization to minimize transmission degradation from interference and atmospheric effects. Sophisticated modulation techniques in the radio platform enable highly efficient transmission in narrow channels. This enables the optimisation of available spectrum where that resource may be limited and/or expensive.

Straightforward integration and flexibility The design of the Aprisa enables swift network integration and redeployment. The radio features an in-built multiplexer managing integrated data, voice and IP traffic, which reduces costs by eliminating the requirement for external equipment. Advanced plug-in, customer-configurable interface modules facilitate ease of integration with both legacy and new generation network elements to safeguard the communications infrastructure from redundancy concerns. The embedded element management applications enable remote configuration, diagnostics and monitoring; and SNMP allows straightforward integration to management systems. These features minimize field service calls, and reduce the cost of installation and ongoing management supervision.

Noted applications

1. Providing monitoring and interconnection to a communications backbone for a national electricity grid
2. Enabling gas flow monitoring data transmission and connections to offshore gas platforms
3. Achieving operational efficiencies for a railway sector controller by combining voice and data interfaces in a common narrowband RF channel to deliver on-demand real-time status and location information
4. Providing voice and data connections for remote exploration and mining sites

Specification overview

Frequencies	Licensed 330 MHz to 2.7 GHz
Channel spacing	25 kHz to 3.5 MHz
Capacity	64 kbps to 16 Mbps (8E1)
Modulation	16, 32, 64 QAM and QPSK
Interfaces	2-Wire, 4-Wire E&M, E1/T1, Ethernet 10/100Base-T, V.35, X.21, V.24
Installation	19" rack mount, with 24/48 VDC or AC options
Certification	ETSI performance certification

Indirect competition

Alternative access technologies such as wire, satellite and unlicensed frequency bands may not deliver comparative performance. They can be expensive and slow to deploy, and difficult to evolve in the face of changing conditions and technological development. Satellite communications can have latency issues for realtime monitoring and are often significantly more expensive to operate. Radios operating in the unlicensed frequency bands may not be suitable for mission-critical communications due to unmanaged interference concerns.

REMEC HIMARK Telecom

REMEC HIMARK Telecom is in the vanguard of digital microwave radio and wireless product development. The company provides high-performance access solutions to leading network operators and telecommunication and utility companies for wireless applications in Europe, the Middle East, Africa, Asia, Oceania and the Americas.

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