

Multi-Site Controller

Wide Area AVL & Mobile Data Applications

The Multi-site Controller (MSC) is an intelligent router that directs messages to the best choice radio Base Station to communicate with a particular mobile user. This improves the efficiency of radio channel usage and provides for a virtual link for multiple host systems with up to 64 for Base Station Controllers. Updates are in Real-Time to reflect the roaming positions of the mobiles and to ensure fast data flow for up to 8,000 mobile remotes. Network Management Diagnostics include Base Station control as well as logging and display of all routing transactions.

Forward Error Correction (FEC) is used to build an extra measure of integrity into the data in an effort to ensure that it is received correctly. This will drastically reduce the requirement for retries.

Applications

- f Public Safety - Police, Ambulance & Fire Departments
- f Automatic Vehicle Location & Asset Tracking
- f Public Transit
- f Fleet Management
- f Taxi Cab
- f Railways

The variations of the MSC are differentiated by the user data protocol. The user data protocol is determined by the host application and the terminal units connected to the mobile RF modems. The MSC variations fall into the following categories:

- f **ATCS:** Supports the ATCS (Advanced Train Control System) Protocol for railway control systems.
- f **ARIA-GLB:** Supports ARIA-GLB's AVL/Mobile Data Protocol. This supports GPS/DGPS positioning as well as vehicle digital/analog I/O using ARIA-GLB's line of products.
- f **Internet Protocol:** Supports TCP/IP from Host through a commercial router to provide gateway information.
- f **User:** The MSC routing engine is designed to be modified to cater to most custom user protocols.



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Base Station Controller (BSC) Features

- f Appends over the air messages with base identifier information and forwards
- f Receives packet from MSC and converts it to the RF layer Protocol with FEC and transmits it over the air
- f Provides FEC to improve message integrity and minimizes airtime loss due to "Retries"
- f Provides DSMA (Busy Bit) protocol to minimize the possibility of on-air data collisions
- f Allows selective acknowledgement at the RF link layer to be directed by the Application layer protocol

Multi-site Controller Features

- f Keeps a dynamic routing table of users and the user site affiliation
- f Interprets addressing of an IP encapsulated Host Protocol for the purpose of routing
- f Routes outbound messages to the Base Station Controller at the user affiliated site
- f Broadcasts DGPS or other messages in systems

Multi-site System Interface

- f Host LAN interface is Ethernet 10BaseT
- f IP address is configurable
- f Capable of being reconfigured with the IP addresses for other Hosts/BSC LANS
- f Interface to the BSC is a separate 10BaseT interface

Mobile Radio Controller Features

- f Integrated DGPS
- f Data Rates up to 19.2 Kbps
- f I/O capabilities of 4 Digital out, 4 Digital in, 2 Analog in
- f 25 Watt Power output
- f Forward Error Correction software
- f Serial port for user terminal

