
Maestro Wireless Solutions

Maestro uses AirPrime® modules for global coverage in a single, compact footprint - A Sierra Wireless® fleet management solution



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CUSTOMER CRITICAL CHALLENGE

- Managing complex inventories is a huge cost center for organizations
- 2G networks are sun setting in key markets, need to transition to newer technologies

SOLUTION

- Sierra Wireless® AirPrime® HL Series: 1 module footprint = worldwide connectivity
- Cat-1 provides a path for 2G/3G products to transition to 4G LTE

BENEFITS

- 1 product design for any market on any technology reduces overall inventory cost and risk

Business Challenge

One of the fastest growing segments of the Internet of Things (IoT) is vehicle telematics, a group of applications that use tracking devices to gather vehicle data and then transmit the information to a back-end application, where it can be processed, viewed, and analyzed. Vehicle telematics originated with fleet management and vehicle tracking, but now includes things like car sharing, bike rentals, and even golf carts at clubs and resorts.

Many telematics applications use cellular connectivity to transmit data, but the specific cellular standard used can vary by region. For example, 2G is still in widespread use in Europe, 3G is the norm in Asia, and the United States is already transitioning to 4G LTE.

Companies that service telematics applications around the world need to support whichever standard is used in a given region. That typically involves specifying, configuring, stocking, and assembling different components for each standard. The result is extra design work, extra inventory, and more complex assembly – all of which push up costs and increase risk.

Headquartered in Hong Kong and employing fewer than 130 people, Maestro is a small but well-established company with customers around the globe. Maestro runs a tight ship, and can't afford to be weighed down by complex design-ins and excess inventory. At the same time, they need to service a wide range of customers to maintain their competitive advantage. Their products are known for being especially rugged, and need to retain their compact form factor even as next-generation cellular standards and tracking features are added.

Sierra Wireless AirPrime® Solution

Maestro has designed with Sierra Wireless technology for more than 15 years. The company's development team always evaluates the most current technology for each new product, and consistently chooses Sierra Wireless for their leadership in RF, very high level of integration, and ability to innovate. Maestro's latest family of tracking devices, the MT-40 Series, use the Sierra Wireless HL Series embedded module. The HL Series delivers the reliability Maestro is known for, requires very little space, and, perhaps most important, supports worldwide use in a single footprint.

Rugged Performance

Maestro's MT-40 family of tracking devices is dirtproof, waterproof, and completely rustproof, and has an operating temperature range that covers everything from arctic winter to desert summer. Drive a truck through the mud or leave a bike in a snowstorm – the MT-40 Series can take it. What's more, Maestro adds a special technique for resisting power surges. If the battery is disconnected, the resulting electrical spikes won't harm MT-40 operation. The HL Series adds to

ruggedness with its superior ability to find and keep a cellular signal. The HL Series supports dual-SIM setup, so there's always a backup for cellular connectivity. If the primary signal is weak or not present, the module can use the second network signal as an alternative. The module is also compatible with the GPS and GLONASS satellite networks, for improved location accuracy in challenging urban environments. In fact, the HL Series delivers such reliable connectivity that Maestro is considering it for their new line of routers, too.

Cutting-Edge Cellular

Maestro is the first to use the LTE Cat-1 capabilities of the HL Series. Cat-1 is an evolution of LTE, designed for the IoT, that operates at a lower data rate and uses less power. Cat-1 is especially important for regions sunsetting 2G, since it provides a way to maintain continuity while enabling higher performance in existing applications. A few network providers, including Verizon in the U.S., are already configured for Cat-1 operation and are in trials, while many others – especially in Europe, where 2G is still prevalent – are planning Cat-1 deployments. By configuring the HL Series for Cat-1, Maestro is an early entrant in an emerging market, and offers their customers direct access to the next phase of IoT expansion.

More Than Track and Trace

Having a cellular modem onboard gives MT-40 devices the ability to do more than the track-and-trace functions offered by GPS-only systems. The MT-40 device can be connected to a meter, to collect data, can connect to a sensor to gauge temperature, or can be loaded with the driver's ID. All this information can be transmitted over the HL Series module's cellular connection, for use by the back-end telematics application.

Compact Design

Maestro uses the AirPrime HL Series in the CF3 package. The CF3 (which stands for Common Flexible Form Factor) creates a footprint of just 22 x 23 mm. The HL Series is the first cellular module in the industry to use 3D packaging, which allows PCB boards to be stacked. As a result, the HL Series uses only half the space of a typical cellular module. The small module size is part of what lets Maestro term their products "micro trackers."

Faster Development, Leaner Inventory

The CF3 pinout is consistent across the entire HL Series, so the modules are interchangeable. Maestro only needs to do one round of design-in, and then can add modules to an entire family of designs. They can swap out modules, to change the cellular standard supported, or add new features without a redesign. The CF3 package also supports two methods of assembly – snap-in for quick prototyping, and solder-down for large-scale manufacturing – so Maestro can use whichever method suits their immediate purpose.

Global Coverage with One Footprint

The HL Series is the smallest module on the market sharing a common form factor across 2G, 3G, and 4G technologies. With just one PCB design, Maestro can easily deploy in any region, on any wireless mobile network. That brings significant benefit to procurement, assembly, and manufacturing, and gives Maestro the flexibility to respond quickly to any order, from anywhere.

BENEFITS

Sierra Wireless helps Maestro stay at the leading edge of their market, and helps them stay lean and nimble as a company. The HL Series embedded module provides all the rugged performance they want in a cellular modem. The CF3 package offers the small size and design-in flexibility they need to modify or expand their product portfolio quickly.

The company can add features or issue next-generation functionality without having to qualify, procure, and work with a new set of configuration requirements for cellular connectivity.

Having one module that supports worldwide cellular operation – from 2G and 3G to 4G LTE Cat-1 – makes Maestro more streamlined, with a more efficient and cost-effective approach to inventory, assembly, and manufacturing.