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 vehicletelematics, a group of applications that use tracking devices to gather vehicle data andthen transmit the information to a back-end application, where it can be processed,viewed, and analyzed. Vehicle telematics originated with fleet management andvehicle tracking, but now includes things like car sharing, bike rentals, and even golfcartsat clubs and resorts.

Many telematics applications uses cellular connectivity to transmit data, but thespecific cellular standard used can vary by region. For example, 2G is still in widespreaduse in Europe, 3G is the norm in Asia, and the United States is already transitioning to4G LTE.

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

Headquartered in Hong Kong and employing fewer than 130 people, Maestro is asmall but well-established company with customers around the globe. Maestro runsa tight ship, and can’t afford to be weighed down by complex design-ins and excessinventory. At the same time, they need to service a wide range of customers tomaintain their competitive advantage. Their products are known for being especiallyrugged, and need to retain their compact form factor even as next-generation cellularstandards and tracking features are added.

Sierra Wireless AirPrime® Solution

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

Rugged Performance

Maestro’s MT-40 family of tracking devices is dirtproof, waterproof, and completelyrustproof, and has an operating temperature range that covers everything fromartic winter to desert summer. Drive a truck through the mud or leave a bike in asnowstorm – the MT-40 Series can take it. What’s more, Maestro adds a specialtechnique for resisting power surges. If the battery is disconnected, the resultingelectrical spikes won’t harm MT-40 operation. The HL Series adds to ruggednesswith its superior ability to find and keep a cellular signal. The HL Series supports adual-SIM setup, so there’s always a backup for cellular connectivity. If the primarysignal is weak or not present, the module can use the second network signal asan alternative. The module is also compatible with the GPS and GLONASS satellitenetworks, for improved location accuracy in challenging urban environments. In fact,the HL Series delivers such reliable connectivity that Maestro is considering it fortheir 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 isan evolution of LTE, designed for the IoT, that operates at a lower data rate anduses less power. Cat-1 is especially important for regions sunsetting 2G, since itprovides a way to maintain continuity while enabling higher performance in existingapplications. A few network providers, including Verizon in the U.S., are alreadyconfigured for Cat-1 operation and are in trials, while many others – especially inEurope, where 2G is still prevalent – are planning Cat-1 deployments. By configuringthe HL Series for Cat-1, Maestro is an early entrant in an emerging market, andoffers 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 thanthe track-and-trace functions offered by GPS-only systems. The MT-40 devicecan be connected to a meter, to collect data, can connect to a sensor to gaugetemperature, or can be loaded with the driver’s ID. All this information can betransmitted over the HL Series module’s cellular connection, for use by the back-endtelematics application.

Compact Design

Maestro uses the AirPrime HL Series in the CF3 package. The CF3 (which standsfor Common Flexible Form Factor) creates a footprint of just 22 x 23 mm. The HLSeries is the first cellular module in the industry to use 3D packaging, which allowsPCB boards to be stacked. As a result, the HL Series uses only half the space of atypical cellular module. The small module size is part of what lets Maestro term theirproducts “micro trackers.”

Faster Development, Leaner Inventory

The CF3 pinout is consistent across the entire HL Series, so the modules areinterchangeable. Maestro only needs to do one round of design-in, and then canadd modules to an entire family of designs. They can swap out modules, to changethe cellular standard supported, or add new features without a redesign. The CF3package also supports two methods of assembly – snap-in for quick prototyping,and solder-down for large-scale manufacturing – so Maestro can use whichevermethod suits their immediate purpose.

Global Coverage with One Footprint

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

BENEFITS

Sierra Wireless helps Maestro stay atthe leading edge of their market, andhelps them stay lean and nimble asa company. The HL Series embeddedmodule provides all the ruggedperformance they want in a cellularmodem. The CF3 package offers thesmall size and design-in flexibility theyneed to modify or expand their productportfolio quickly.

The company can add features orissue next-generation functionalitywithout having

to qualify, procure, andwork with a new set of configurationrequirements for cellular connectivity.

Having one module that supportsworldwide cellular operation – from2G and 3G to 4G LTE Cat-1 – makesMaestro more streamlined, with amore efficient and cost-effectiveapproach to inventory, assembly, andmanufacturing.