



## Sierra Wireless® HL Series Embedded Modules

### UNLIMITED FOTA INCLUDED

Powered by AirVantage®, this cloud-based service makes it easy to keep the module firmware updated and your deployments healthy in the field.



## Compact, Flexible, and Future Proof 2G, 3G, and 4G Essential Modules

Sierra Wireless® AirPrime® HL embedded modules offer everything device manufacturers need to meet essential connectivity requirements. Key differentiators include a common form factor, small size, low-power consumption, enhanced RF performance, optional GNSS (GPS and GLONASS), and worldwide coverage.

### COMPACT: THE SMALLEST 2G TO 4G FORM FACTOR ON THE MARKET

The HL Series is the smallest module on the market sharing a common form factor across 2G, 3G, and 4G technologies. Now, with just one PCB design, device manufacturers can easily integrate voice and data connectivity and deploy in any region, on any wireless mobile network.

### FLEXIBLE: SOLDER DOWN OR SNAP-IN SOCKET OPTIONS

The compact form factor offers the choice of soldering down the module for efficient high-volume production or, using a snap-in socket on the same solder pads for total flexibility in prototyping or smaller volume runs. The innovative snap-in socket allows device manufacturers to deploy or change modules at any point in the production and product life cycles.

### FUTURE PROOF: INTELLIGENT PIN-TO-PIN COMPATIBILITY

The pin-out on the common form factor enables forward and backward compatibility between the different 2G, 3G, and 4G module variants. This means that the mechanical pin location delivers the same function across the series. The pin-out of the HL series is compatible with the application processing WP Series

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## HL SERIES EMBEDDED MODULES

	HL6528	HL75xx Series	HL76xx Series	HL85xx Series
<b>FORM FACTOR</b>	LGA	LGA	LGA	LGA
<b>AIR INTERFACE</b>	GSM/GPRS	LTE & LTE/HSPA	LTE CAT1 & LTE CAT1/HSPA	GSM/GPRS/EDGE/HSD/PA/HSUPA
<b>FREQUENCY BANDS</b>				
<b>LTE</b>		HL7519: B2/B4/B13 HL7528: B1/B3/B5/B7 HL7548: B2/B4/B5/B17 HL7549: B3/B7/B28 HL7588: B2/B4/B5/B13/B17	HL7618: B4/B13 HL7648: B2/B4/B12 HL7690: B3/B8/B20 HL7692: B3/B8/B20	
<b>HSPA</b>		HL7588: B2/B5		B1/B2/B5/B6/B8 HL8548: B1/B2/B5/B6/B8
<b>EDGE</b>				850/900/1800/1900 HL8548: 850/900/1800/1900
<b>GSM/GPRS</b>	850/900/1800/1900		HL7692: 900/1800	850/900/1800/1900 HL8548: 850/900/1800/1900
<b>APPROVALS</b>				
<b>Regulatory</b>	CE, FCC, PTCRB, GCF, IC, Anatel, CCC	PTCRB, FCC, GCF, IC, KC Mark	PTCRB, FCC, GCF, IC, CE	CE, FCC, PTCRB, GCF, IC, Anatel, CCC HL8548: Anatel, CCC
<b>Carrier</b>	Approved by many carriers over the world	Depends on Models: AT&T, Verizon, Rogers, KT, SKT, LGU+...	Depends on Models: AT&T, Verizon, Vodafone...	AT&T, Vodafone, NTT... HL8548: AT&T, Vodafone, Rogers, Telstra, NTT...
<b>CURRENT CONSUMPTION</b>				
<b>Power Supply for Extended Battery Life Alarm (leakage only)</b>	2.8V supports 35µA	2.8V supports 110µA	2.8V supports 110µA	2.8V supports 40µA HL8548: 40µA
<b>Standby and Idle (Typ Sleep)</b>	1 mA	LTE: 1.5 mA	LTE: 1.4 mA	1 mA HL8548: 1.2 mA
<b>GSM/GPRS max (2Tx/3 Rx)</b>	450 mA			360 mA HL8548: 475 mA
<b>HSxPA max</b>		HL7588: 560 mA	HL7688: 560 mA	560 mA
<b>LTE max</b>		CAT 4: 945 mA	CAT 1: 610 mA	
<b>AUDIO</b>				
<b>Analog Audio</b>	✓			
<b>Digital Audio</b>	✓	✓ depends on the variants	✓ depends on the variants	✓
<b>Codec</b>	HR, FR, EFR, AMR	depends on the variants	depends on the variants	HR, FR, EFR, AMR
<b>Echo Cancellation &amp; Noise Reduction</b>	✓	depends on the variants	depends on the variants	✓
<b>DTMF</b>	✓	depends on the variants	depends on the variants	✓
<b>INTERFACES</b>				
<b>UART</b>	✓ 8 lines	✓ 8 lines	P 8 lines	✓ 8 lines
<b>USB</b>	✓	✓	✓	✓
<b>SPI</b>	✓	✓	✓	✓
<b>ADC</b>	2	2	2	2
<b>GPIO</b>	8	8	8	8
<b>Flash LED Output</b>	✓	✓	✓	✓
<b>PWM (Buzzer)</b>	2	1	1	1
<b>Tx Burst Indicator</b>	✓	✓	✓	✓
<b>SIM interface 1.8V/3V</b>	2 SIM DSDS support	✓	1 SIM DSDS support	1 SIM DSDS support
<b>LOCATION SOLUTION</b>	GPS & Glonass Sirf V			GPS & Glonass Sirf V (all but HL8548)
<b>CLOUD SERVICES</b>	FOTA through AirVantage	FOTA through AVMS	FOTA through AVMS	FOTA through AirVantage
<b>INTERNET SERVICES</b>	TCP+UDP+FTP+HTTP+HTTPS	TCP+UDP+FTP	TCP+UDP+FTP+HTTP+HTTPS	TCP+UDP+FTP+HTTP+HTTPS
<b>DRIVERS</b>		"Linux Driver: Standard ECM Android RIL"	"Linux Driver: Standard ECM Android RIL"	"Linux Driver: Standard ECM Android RIL"
<b>DEVICE DIMENSIONS</b>	22x23x2.5 mm	22x23x2.5 mm	22x23x2.5 mm	22x23x2.5 mm
<b>TEMPERATURE RANGE</b>	- 40°C / + 85°C	- 40°C / + 85°C	- 40°C / + 85°C	- 40°C / + 85°C

### About Sierra Wireless

Sierra Wireless is building the Internet of Things with intelligent wireless solutions that empower organizations to innovate in the connected world. We offer the industry's most comprehensive portfolio of 2G, 3G, and 4G embedded modules and gateways, seamlessly integrated with our secure cloud and connectivity services. OEMs and enterprises worldwide trust our innovative solutions to get their connected products and services to market faster.

For more information, visit [www.sierrawireless.com](http://www.sierrawireless.com).