

# Features at a Glance

## WIRELESS AND WIRED CONNECTIVITY

Gather data via Bluetooth 5, Ethernet, Serial, and USB, and then send it over high-performance 2x2 MIMO 802.11ac Wi-Fi or Global LTE Cat 1 (3G/2G fallback) to the cloud.

## SOFTWARE SUPPORT FOR THE CLOUD-NATIVE OR EMBEDDED-EXPERT

Choose the best software for you – go cloud-native with built-in integration of AWS IoT and AWS IoT Greengrass or use our long-term supported Linux BSP.

## SIGNED AND SECURED AT EVERY LAYER

Our Chain of Trust architecture creates secure devices that only runs approved software and stores data and files in encrypted memory.

## STAY SECURE FOR YEARS

Get peace of mind with Laird Connectivity's continuous security updates to the Laird Connectivity OS. With the AWS variant, get updates deployed over-the-air right to your gateways in the field.

## CERTIFIED FOR DEPLOYMENT AROUND THE WORLD

Regulatory approvals for FCC (USA), IC (Canada), CE (Europe), MIC (Japan), UL. LTE variants carry PTCRB, GCF, AT&T.

## PERSONAL SUPPORT AND SERVICES FOR YOUR IMPLEMENTATION

Laird Connectivity's Tier 2 and FAE support bring expert assistance to your integration, working with you and our engineering team to reduce your time to market.



# Sentrius™ IG60 Wireless IoT Gateways

Multi-wireless IoT gateways with Bluetooth 5, Wi-Fi, LTE Cat 1, Ethernet, USB, Serial (RS-232/422/485), and SD card

- Best-in-class wireless performance with Bluetooth 5, 802.11ac Wave 2 Wi-Fi, Global LTE Cat 1
- Over-the-air security and application updates and hardware root-of-trust security
- Cloud-native software and mobile app allows AWS connectivity in minutes with no coding
- Linux BSP provides an option for embedded experts

## The Sentrius™ IG60 brings all of Laird Connectivity's industrial wireless and IoT capabilities into one unique solution.

Based on Laird Connectivity's 60-series and BL654, capture data from legacy serial (RS-232, 422, 485) industrial devices or Bluetooth 5 sensors, add edge intelligence, and send to the cloud with 802.11ac Wi-Fi and global LTE Cat 1 (3G/2G fallback) wireless connectivity.

### For cloud-native organizations:

#### AWS IoT Greengrass Version:

- Manage your applications over-the-air, from the cloud, using integrated AWS IoT Greengrass
- Take the expertise out of deployment with our iOS and Android mobile app
- Stay secure in the field with automatic over-the-air security updates for 2 years

### For embedded Linux experts:

**Laird Connectivity Linux Version:** A long-term supported, open platform for your application, provided with our Linux Buildroot platform, hardware root of trust, and development tools.

- 802.11ac Wave 2 Wi-Fi (Marvell 88W8997) - 2x2 MIMO
- Onboard Cortex A5 (Microchip SAMA5D36)
- Nordic nRF52840 (IG60-BL654 variant only) – BT v5, Coded PHY (long range), 2MPHY, Cortex-M4F co-processor
- LTE Cat 1 global connectivity with 3G/2G fallback (Gemalto PLS62-W, LTE variants only)
- Industrial Temp Range – Operating range -30° to +85° C (+60° C for LTE variants)
- Globally & Carrier Certified – FCC, IC CE, MIC, UL, BT SIG plus PTCRB, GCF and End Device certified – AT&T
- Native AWS IoT Greengrass integration – iOS and Android mobile app allow connection to your AWS account in minutes with no coding
- Long term OS updates, delivered over-the-air (AWS variant only) or through Laird Connectivity's support team (Linux variant)
- Hardware root-of-trust based secure boot



Bluetooth 5 Sensor Connectivity



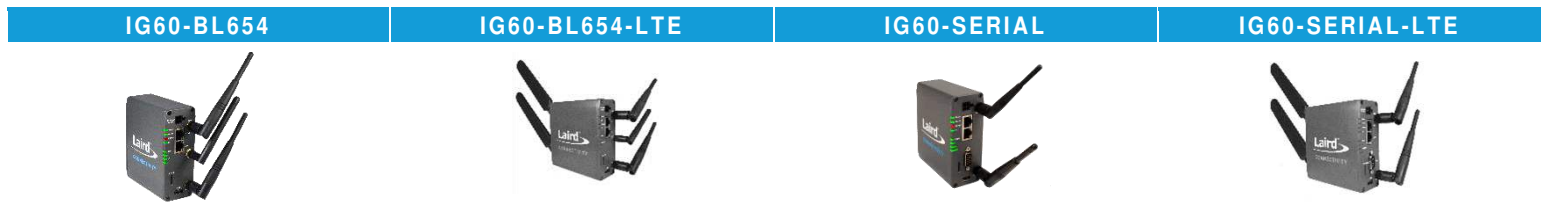
Industrial IoT



Medical IoT



Smart Buildings



**COMMON TO ALL IG60 GATEWAYS**

|                            |                    |   |
|----------------------------|--------------------|---|
| <b>Compute</b>             | MPU                | Microchip SAMA5D36 – Cortex A5, 536 MHz   |
| <b>Memory</b>              | RAM                | 256 MB LPDDR RAM  |
|                            | Onboard Flash      | 512 MB NAND Flash   |
|                            | Additional Storage | SD card support   |
| <b>External Interfaces</b> | Ethernet           | 1x 10/100 Mbit/s and 1x 10/100/1000 Mbit/s with IEEE 1588   |
|                            | USB                | 1x USB 2.0 Host   |
|                            | SD Card            | 1x MicroSD slot (SDHC, SD Card 2.0) for additional external storage   |
| <b>Wi-Fi</b>               | Wi-Fi Standard     | 802.11ac with 2x2 MU-MIMO   |
|                            | Radio              | Marvell 88W8997   |
|                            | Security Standards | WEP, WPA, WPA2, EAP-FAST, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-TLS*, EAP-TTLS*<br>*Note: Available with Linux software version only |
| <b>Physical</b>            | Dimensions         | 85mm x 22mm 100mm (without antennas or mounting brackets)   |
| <b>Electrical</b>          | Input Voltage      | 9-30 VDC (AC power adapters available)  |
| <b>Environmental</b>       | Relative Humidity  | 0-95% Non-condensing  |

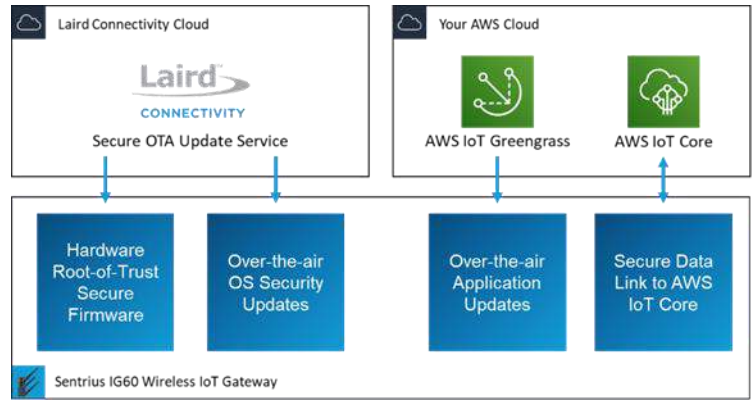
|                                    | IG60-BL654                     | IG60-BL654-LTE                          |
|------------------------------------|--------------------------------|---|
| <b>With Bluetooth Co-Processor</b> |                                |   |
| <b>Specification</b>               | Bluetooth 5                    | Bluetooth 5                             |
| <b>PHY Support</b>                 | LE, 1M, 2M                     | LE, 1M, 2M                              |
| <b>Radio</b>                       | Nordic nRF52840                | Nordic nRF52840                         |
| <b>CPU</b>                         | Cortex-M4F                     | Cortex-M4F                              |
| <b>Memory</b>                      | 1 Mbit Flash                   | 1 Mbit Flash                            |
|                                    | 256k RAM                       | 256k RAM                                |
| <b>Software</b>                    | Laird <i>smartBasic</i>        | Laird <i>smartBasic</i>                 |
|                                    | Nordic SoftDevice              | Nordic SoftDevice                       |
|                                    | Zephyr                         | Zephyr                                  |
|                                    | FreeRTOS                       | FreeRTOS                                |
| <b>Cellular</b>                    | N/A                            |   |
| Radio                              |                                | Gemalto PLS62-W                         |
| Region                             |                                | Global                                  |
| 4G LTE                             |                                | Bands 1,2,3,4,5,7,8,12,18,19,20,28      |
| 3G                                 |                                | Bands 1,2,4,5,8,9                       |
| 2G                                 |                                | 850, 900, 1800, 1900 MHz                |
| <b>Certifications</b>              |                                |   |
| RF                                 | FCC, IC, CE, MIC               | FCC, IC, CE, MIC                        |
| Safety                             | CE, UL, IEC62368-1             | CE, UL, IEC62368-1                      |
| Cellular Certifications            | N/A                            | PTCRB, GCF, AT&T, Vodafone              |
| <b>Operating Temperature</b>       | -30° to +85°C (-22° to +185°F) | -30° to +60°C (-22° to +140°F)          |
| <b>Antenna Ports</b>               | 3x SMA, front-face             | 3x SMA, front-face<br>2x SMA, back-face |
| <b>Mounting</b>                    | DIN-rail, wall mount           | Wall mount only                         |

|                              | IG60-SERIAL                    | IG60-SERIAL-LTE                         |
|------------------------------|--------------------------------|---|
| <b>With Serial Port</b>      |                                |   |
| <b>Connector</b>             | 1x DB-9                        | 1x DB-9                                 |
| <b>Standards</b>             | RS-232/422/485                 | RS-232/422/485                          |
| <b>Isolation</b>             | 1.5 kV                         | 1.5 kV                                  |
| <b>Protocols</b>             | ASCII                          | ASCII                                   |
|                              | Modbus                         | Modbus                                  |
|                              | Proprietary                    | Proprietary                             |
| <b>Bluetooth</b>             |                                |   |
| Specification                | Bluetooth 4.2                  | Bluetooth 4.2                           |
| Radio                        | Marvell 88W8997                | Marvell 88W8997                         |
| Software                     | BlueZ (HCI)                    | BlueZ (HCI)                             |
| <b>Cellular</b>              | N/A                            |   |
| Radio                        |                                | Gemalto PLS62-W                         |
| Region                       |                                | Global                                  |
| 4G LTE                       |                                | Bands 1,2,3,4,5,7,8,12,18,19,20,28      |
| 3G                           |                                | Bands 1,2,4,5,8,9                       |
| 2G                           |                                | 850, 900, 1800, 1900 MHz                |
| <b>Certifications</b>        |                                |   |
| RF                           | FCC, IC, CE                    | FCC, IC, CE                             |
| Safety                       | CE, UL, IEC62368-1             | CE, UL, IEC62368-1                      |
| Cellular Certifications      | N/A                            | PTCRB, GCF, AT&T, Vodafone              |
| <b>Operating Temperature</b> | -30° to +85°C (-22° to +185°F) | -30° to +60°C (-22° to +140°F)          |
| <b>Antenna Connectors</b>    | 2x SMA, front-face             | 2x SMA, front-face<br>2x SMA, back-face |
| <b>Mounting</b>              | DIN-rail, wall mount           | Wall mount only                         |

## For cloud-native organizations without embedded or wireless expertise

Sentrius IG60 with integrated AWS IoT Greengrass, deployment tools, and managed IoT security services

- Securely connect to your AWS cloud in minutes with a mobile app – *no coding or compiling required!*
- Deploy your applications instantly, over-the-air, using AWS IoT Greengrass
- Data flows directly to your cloud via AWS IoT Core
- Gateways in the field receive automatic, over-the-air security updates
- All gateway firmware is secured out-of-box with a hardware root-of-trust



|                          |                                     |                                |
|--------------------------|-------------------------------------|--------------------------------|
| <b>IoT Technology</b>    | Application                         | AWS IoT Greengrass             |
|                          | Scripting Languages Supported       | Python, Node.JS                |
|                          | Data Broker                         | AWS IoT Core (MQTT)            |
|                          | IoT Security                        | X.509 Certificates             |
|                          | Mobile App Support                  | iOS, Android                   |
| <b>Embedded Security</b> | Secure Boot                         | Hardware Root-of-Trust Enabled |
|                          | Over-the-Air Linux Security Updates | 2 years                        |

## For engineering organizations with embedded experience looking for multi-wireless connectivity

Sentrius IG60 with Laird Linux and Chain of Trust Security

- Develop your application on top of a long-term supported (LTS) Buildroot environment
- Complete set of development tools including precompiled SDK and tool chain, IDE support, and a host communications API
- Annual major releases and bi-annual minor releases for new security updates
- Achieve best-in-class wireless performance using our performance-optimized Wi-Fi supplicant and Bluetooth programming language, *smartBasic* (IG60-BL654 only).
- Secure processes for secure boot and ongoing security maintenance via Laird's Chain of Trust



|                 |                   |   |
|-----------------|-------------------|---|
| <b>Linux</b>    | Linux Kernel      | v4.19   |
|                 | Build Environment | Buildroot   |
|                 | Development Tools | Use precompiled SDKs & images or build your own. Host communications API, Eclipse IDE Support, Laird Connection Manager |
| <b>Security</b> | Chain of Trust    | Secure boot, encrypted file system  |

# One wireless IoT hardware platform. Two software approaches to match your needs.

## Ordering a Sentrius IG60

### Gateways

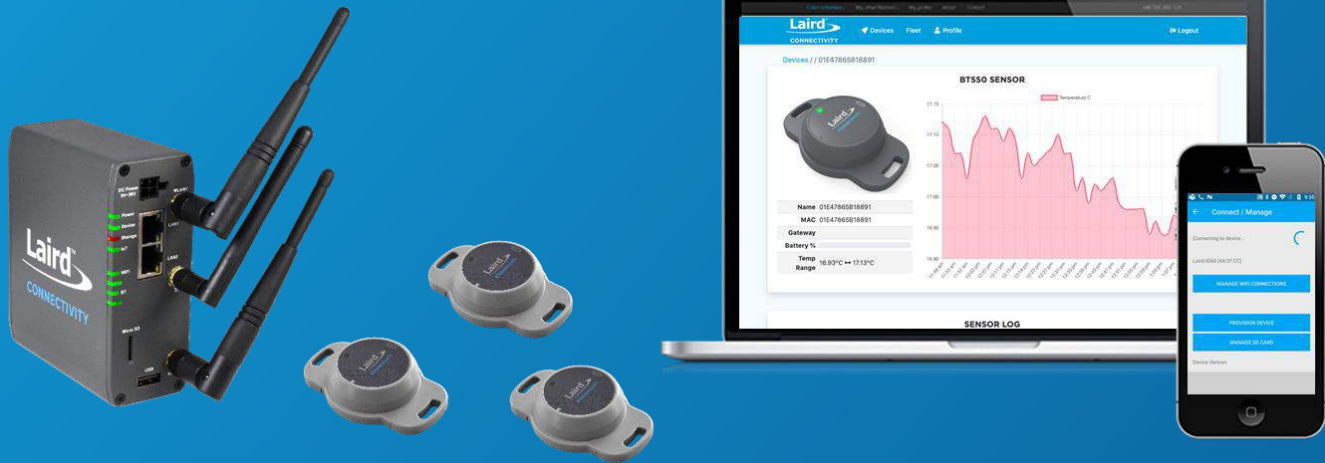
| GATEWAY         | CONTENTS   | SOFTWARE           | PART NUMBER |
|-----------------|--|--------------------|-------------|
| IG60-BL654      | <ul style="list-style-type: none"> <li>1x Sentrius IG60 Bluetooth 5 (BL654) and Wi-Fi</li> <li>3x dipole antennas</li> <li>1x DIN-rail mounting bracket</li> <li>1x wall mounting bracket</li> <li>8x screws for mounting brackets</li> </ul> <p><b>Power supply not included – choose an option below</b></p>                     | Laird Linux        | 455-00076   |
|                 |  | AWS IoT Greengrass | 455-00081   |
| IG60-BL654-LTE  | <ul style="list-style-type: none"> <li>1x Sentrius IG60 Bluetooth 5 (BL654), Wi-Fi, and LTE gateway</li> <li>5x dipole antennas</li> <li>2x SIM cards (AT&amp;T and Global)</li> <li>1x wall mounting bracket</li> <li>8x screws for mounting brackets</li> </ul> <p><b>Power supply not included – choose an option below</b></p> | Laird Linux        | 455-00088   |
|                 |  | AWS IoT Greengrass | 455-00089   |
| IG60-SERIAL     | <ul style="list-style-type: none"> <li>1x Sentrius IG60 Serial, BLE4.2, and Wi-Fi gateway</li> <li>2x dipole antennas</li> <li>1x DIN-rail mounting bracket</li> <li>1x wall mounting bracket</li> <li>8x screws for mounting brackets</li> <li>1x AC power supply included</li> <li>1x DC power cable included</li> </ul>         | Laird Linux        | 455-00006   |
|                 |  | AWS IoT Greengrass | 455-00008   |
| IG60-SERIAL-LTE | <ul style="list-style-type: none"> <li>1x Sentrius IG60 Serial, BLE4.2, Wi-Fi, and LTE gateway</li> <li>4x dipole antennas</li> <li>2x SIM cards (AT&amp;T and Global)</li> <li>1x wall mounting bracket</li> <li>8x screws for mounting brackets</li> </ul> <p><b>Power supply not included – choose an option below</b></p>      | Laird Linux        | 455-00084   |
|                 |  | AWS IoT Greengrass | 455-00085   |

### Power Supplies

| REGION      | DESCRIPTION   | PART NUMBER |
|-------------|---|-------------|
| US          | AC Adapter, 12V-4A, US, 4-pin 7.5mm x 9.2mm Plug      | 223-00007   |
| Europe      | AC Adapter, 12V-4A, EU, 4-pin 7.5mm x 9.2mm Plug      | 223-00008   |
| UK          | AC Adapter, 12V-4A, UK, 4-pin 7.5mm x 9.2mm Plug      | 223-00009   |
| Global - DC | DC Cable, 20AWG, UL2464, 41 Strands, Black            | 131-00225   |
| Global – AC | AC Adapter, Global (US, EU, UK) – <b>Not UL Rated</b> | 223-00004   |

For documentation visit [documentation.lairdconnect.com](https://documentation.lairdconnect.com)

To launch the out-of-box demonstration, visit [demo.lairdconnect.com](https://demo.lairdconnect.com)



## Laird Connectivity's Sentrius Wireless IoT Starter Kit

Everything you need in one box to start your wireless IoT proof-of-concept in minutes.

### Contains:

- ✓ 1x Sentrius IG60-BL654 Wireless IoT Gateway
- ✓ 3x Sentrius BT510 – Long-range Bluetooth 5 temperature, motion, and open door sensor
- ✓ Laird Connectivity's free AWS-based IoT monitoring platform
- ✓ Sentrius IG Connect - iOS and Android mobile app for fast, in-field provisioning
- ✓ Global AC and DC power supplies

### Use Cases:

- Cold chain transportation monitoring
- Refrigeration monitoring
- Discover the power of Bluetooth 5, long-range battery-powered sensors

| DESCRIPTION  | PART NUMBER |
|--|-------------|
| Sentrius Wireless IoT Starter Kit with IG60-BL654 and BT510s (Wi-Fi and Ethernet uplink)           | 455-00113   |
| Sentrius Wireless IoT Starter Kit with IG60-BL654-LTE and BT510s (Wi-Fi, Ethernet, and LTE uplink) | 455-00114   |