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.

**SIGNLED 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.

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**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

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**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 SAM5D46)
- 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

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**Hardware Specifications**

- **Dimensions:** 212mm x 144mm x 42mm (8.3in x 5.6in x 1.6in)
- **Weight:** 300g (11oz)
- **Power Supply:** 12V DC, 5V USB
- **Operating Temperature:** 0° to +85° C (-32° to 185° F)
- **Humidity:** 95% non-condensing

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**Application Areas:**

- **Bluetooth 5 Sensor Connectivity**
- **Industrial IoT**
- **Medical IoT**
- **Smart Buildings**

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**For more information, visit:**
https://www.lairdconnect.com/iot
<table>
<thead>
<tr>
<th><strong>IG60-BL654</strong></th>
<th><strong>IG60-BL654-LTE</strong></th>
<th><strong>IG60-SERIAL</strong></th>
<th><strong>IG60-SERIAL-LTE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compute</strong></td>
<td>MPU</td>
<td>Microchip SAM5D36 – Cortex A5, 536 MHz</td>
<td></td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>RAM</td>
<td>256 MB LPDDR RAM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Onboard Flash</td>
<td>512 MB NAND Flash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional Storage</td>
<td>SD card support</td>
<td></td>
</tr>
<tr>
<td><strong>External Interfaces</strong></td>
<td>Ethernet</td>
<td>1x 10/100 Mbit/s and 1x 10/100/1000 Mbit/s with IEEE 1588</td>
<td></td>
</tr>
<tr>
<td></td>
<td>USB</td>
<td>1x USB 2.0 Host</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD Card</td>
<td>1x MicroSD slot (SDHC, SD Card 2.0) for additional external storage</td>
<td></td>
</tr>
<tr>
<td><strong>Wi-Fi</strong></td>
<td>Wi-Fi Standard</td>
<td>802.11ac with 2x2 MU-MIMO</td>
<td></td>
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<tr>
<td></td>
<td>Radio</td>
<td>Marvell 88W8997</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Security Standards</td>
<td>WEP, WPA, WPA2, EAP-FAST, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-TLS*, EAP-TTLS*</td>
<td>*Note: Available with Linux software version only</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td>Dimensions</td>
<td>85mm x 22mm 100mm (without antennas or mounting brackets)</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td>Input Voltage</td>
<td>9-30 VDC (AC power adapters available)</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>Relative Humidity</td>
<td>0-95% Non-condensing</td>
<td></td>
</tr>
</tbody>
</table>

**IG60-BL654**

**Specification**
- Bluetooth
**PHY Support**
- LE, 1M, 2M
**Radio**
- Nordic nRF52840
**CPU**
- Cortex-M4F
**Memory**
- 1 Mbit Flash, 256k RAM
**Software**
- Laird smartBasic
- Nordic SoftDevice
- Zephyr
**Co-Processor**
- FreeRTOS

**Cellular**
- 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

**Certifications**
- RF: FCC, IC, CE, MIC
- Safety: CE, UL, IEC62368-1

**Antenna Ports**
- 3x SMA, front-face
**Mounting**
- DIN-rail, wall mount

**IG60-BL654-LTE**

**Specification**
- Bluetooth
**PHY Support**
- LE, 1M, 2M
**Radio**
- Nordic nRF52840
**CPU**
- Cortex-M4F
**Memory**
- 1 Mbit Flash, 256k RAM
**Software**
- Laird smartBasic
- Nordic SoftDevice
- Zephyr
**Co-Processor**
- FreeRTOS

**Cellular**
- 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

**Certifications**
- RF: FCC, IC, CE, MIC
- Safety: CE, UL, IEC62368-1

**Antenna Ports**
- 3x SMA, front-face
**Mounting**
- Wall mount only

**IG60-SERIAL**

**Specification**
- Bluetooth
**PHY Support**
- LE, 1M, 2M
**Radio**
- Nordic nRF52840
**CPU**
- Cortex-M4F
**Memory**
- 1 Mbit Flash, 256k RAM
**Software**
- Laird smartBasic
**Co-Processor**
- Nordic SoftDevice
- Zephyr
**Cellular**
- 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

**Certifications**
- RF: FCC, IC, CE, MIC
- Safety: CE, UL, IEC62368-1

**Antenna Ports**
- 2x SMA, front-face
**Mounting**
- DIN-rail, wall mount

**IG60-SERIAL-LTE**

**Specification**
- Bluetooth
**PHY Support**
- LE, 1M, 2M
**Radio**
- Nordic nRF52840
**CPU**
- Cortex-M4F
**Memory**
- 1 Mbit Flash, 256k RAM
**Software**
- Laird smartBasic
**Co-Processor**
- Nordic SoftDevice
- Zephyr
**Cellular**
- 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

**Certifications**
- RF: FCC, IC, CE, MIC
- Safety: CE, UL, IEC62368-1

**Antenna Ports**
- 2x SMA, front-face
**Mounting**
- 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

<table>
<thead>
<tr>
<th>IoT Technology</th>
<th>Application</th>
<th>AWS IoT Greengrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scripting Languages Supported</td>
<td>Python, Node.JS</td>
<td></td>
</tr>
<tr>
<td>Data Broker</td>
<td>AWS IoT Core (MQTT)</td>
<td></td>
</tr>
<tr>
<td>IoT Security</td>
<td>X.509 Certificates</td>
<td></td>
</tr>
<tr>
<td>Mobile App Support</td>
<td>iOS, Android</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Embedded Security</th>
<th>Secure Boot</th>
<th>Hardware Root-of-Trust Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over-the-Air Linux Security Updates</td>
<td>2 years</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Linux</th>
<th>Linux Kernel</th>
<th>v4.19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build Environment</td>
<td>Buildroot</td>
<td></td>
</tr>
<tr>
<td>Development Tools</td>
<td>Use precompiled SDKs &amp; images or build your own. Host communications API, Eclipse IDE Support, Laird Connection Manager</td>
<td></td>
</tr>
</tbody>
</table>

| Security                       | 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**

<table>
<thead>
<tr>
<th>GATEWAY</th>
<th>CONTENTS</th>
<th>SOFTWARE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG60-BL654</td>
<td>1x Sentrius IG60 Bluetooth 5 (BL654) and Wi-Fi</td>
<td>Laird Linux</td>
<td>455-00076</td>
</tr>
<tr>
<td></td>
<td>3x dipole antennas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1x DIN-rail mounting bracket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1x wall mounting bracket</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>8x screws for mounting brackets</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Power supply not included – choose an option below</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IG60-BL654-LTE</td>
<td>1x Sentrius IG60 Bluetooth 5 (BL654), Wi-Fi, and LTE gateway</td>
<td>Laird Linux</td>
<td>455-00088</td>
</tr>
<tr>
<td></td>
<td>5x dipole antennas</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2x SIM cards (AT&amp;T and Global)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1x wall mounting bracket</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>8x screws for mounting brackets</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><em>Power supply not included – choose an option below</em></td>
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</tr>
<tr>
<td>IG60-serial</td>
<td>1x Sentrius IG60 Serial, BLE4.2, and Wi-Fi gateway</td>
<td>Laird Linux</td>
<td>455-00006</td>
</tr>
<tr>
<td></td>
<td>2x dipole antennas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1x DIN-rail mounting bracket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1x wall mounting bracket</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8x screws for mounting brackets</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1x AC power supply included</td>
<td>AWS IoT Greengrass</td>
<td>455-00008</td>
</tr>
<tr>
<td></td>
<td>1x DC power cable included</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IG60-serial-LTE</td>
<td>1x Sentrius IG60 Serial, BLE4.2, Wi-Fi, and LTE gateway</td>
<td>Laird Linux</td>
<td>455-00084</td>
</tr>
<tr>
<td></td>
<td>4x dipole antennas</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2x SIM cards (AT&amp;T and Global)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1x wall mounting bracket</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>8x screws for mounting brackets</td>
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<td></td>
<td><em>Power supply not included – choose an option below</em></td>
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</tbody>
</table>

**Power Supplies**

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

For documentation visit documentation.lairdconnect.com

To launch the out-of-box demonstration, visit 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

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentrius Wireless IoT Starter Kit with IG60-BL654 and BT510s (Wi-Fi and Ethernet uplink)</td>
<td>455-00113</td>
</tr>
<tr>
<td>Sentrius Wireless IoT Starter Kit with IG60-BL654-LTE and BT510s (Wi-Fi, Ethernet, and LTE uplink)</td>
<td>455-00114</td>
</tr>
</tbody>
</table>