

# Sentrius™ MG100 Gateway

Open Development device

Multi-wireless IoT gateway with LTE-M/NB-IoT and Bluetooth 5



## Features at a Glance

### OPEN DEVELOPMENT DEVICE

Zephyr RTOS based board file available for the MG100, as well as Canvas firmware as a template for application development and device management.

### WIRELESS CONNECTIVITY

Gather BLE sensor data with long range Bluetooth 5 and then send it over low power LTE-M / NB-IoT cellular networks to the cloud.

### CERTIFIED FOR DEPLOYMENT AROUND THE WORLD

Regulatory approvals for FCC (USA), ISED (Canada), CE (EU), UKCA, and cellular approvals PTCRB, GCF, AT&T & Verizon certifications.

### CUSTOM APPLICATION DEVELOPMENT

Leverage the Sentrius MG100's Canvas Firmware to develop your own specific Zephyr applications.

### 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.

Powered by Laird Connectivity's Pinnacle™ 100 Modem, the **Sentrius MG100 Gateway** captures data from Bluetooth 5 long range sensors and sends it to the cloud via a global low power cellular (LTE-M/NB-IoT) connection.

#### Open Development Device for Custom Application Development

Leverage the power and simplicity of Zephyr RTOS programming on the integrated Cortex-M4F microcontroller to tailor your application specifically for your needs.

There are two application development paths on offer;

- Using our Canvas platform firmware and sample applications as the basis for your application giving a head start on your development
- Ground up using Zephyr RTOS board files provided by Laird Connectivity

#### Flexible Power Options

Power the gateway with an external USB power supply with product options for a rechargeable backup battery in the event of a short-term power outage.

#### Antenna Choice

Use low-cost internal LTE and Bluetooth antennas or choose the external antenna variants to suit your application environment.

- **Software / RTOS Environment:**
  - nRF Connect SDK / Zephyr RTOS SDK for customizable applications
- **Option for Canvas Device Management**
  - Application development environment to develop Laird Canvas device management
  - LWM2M and MQTT protocols supported by Canvas firmware for telemetry data transfer to any cloud.
  - Advanced deployment tools including mobile app (Android and iOS) to register devices, and engineering services support.
- LTE-M/NB-IoT radio via Sierra Wireless HL7800 module (Chipset: Altair ALT1250)
- LTE bands 1, 2, 3, 4, 5, 8, 12, 13, 20, 28
- Nordic nRF52840 – Bluetooth v5, Coded PHY (Long range), 1MPHY & 2MPHY support
- Onboard Cortex-M4F Microcontroller – 32-bit @ 64 MHz, 256 KB of RAM, 1 MB internal flash, 8 MB QSPI
- NFC Support and integrated antenna
- Certifications – FCC, ISED, CE, UKCA, Bluetooth SIG plus PTCRB, GCF and End Product certified – AT&T and Verizon
- Antenna options – Unique integrated antenna variant plus external variant with SMA connectors
- Battery backup options for mains power outage needs
- Multi-purpose button and three configurable LEDs
- Compact form factor: 110.28 mm x 99.16 mm x 35.32 mm
- Customization – Custom branding, packaging, application development all available.



Bluetooth 5 Sensor Connectivity



Industrial IoT



Cold Chain Monitoring



Smart Buildings



Transportation

## SENTRIUS MG100 GATEWAY SPECIFICATIONS

<b>Wireless</b>	Bluetooth	<ul style="list-style-type: none"> <li>▪ Bluetooth 5.0 – Single mode</li> <li>▪ 4x Range (CODED PHY support) – Bluetooth 5.0</li> <li>▪ 2x Speed (2M PHY support) – Bluetooth 5.0</li> <li>▪ LE Advertising extensions – Bluetooth 5.0</li> <li>▪ Concurrent master, slave</li> <li>▪ Diffie-Hellman based pairing (LE Secure Connections) – Bluetooth 4.2</li> <li>▪ Data packet length extension – Bluetooth 4.2</li> <li>▪ Link Layer Privacy (LE Privacy 1.2) – Bluetooth 4.2</li> <li>▪ LE Dual Mode Topology – Bluetooth 4.1</li> <li>▪ LE Ping – Bluetooth 4.1</li> </ul>
	Cellular	<ul style="list-style-type: none"> <li>▪ Multi-band cellular operation for world-wide operation</li> <li>▪ Category LTE M and category NB-IoT support</li> <li>▪ Power class 3</li> <li>▪ Sensitivity: LTE M: -105 dBm</li> <li>▪ Sensitivity: NB-IoT: -114 dBm</li> </ul>
<b>Compute</b>	MCU	Nordic nRF52840 Cortex-M4F
<b>Device Programming</b>	Tools required	Laird Connectivity USB-SWD Programming Kit ( <a href="#">453-00062-K1</a> ) TC2030-CTX 6-Ping Legged TC2030 Plug-of-Nails™ cable
<b>Memory</b>	RAM	256 KB
	Onboard Flash	1 MB
	Additional Storage	SD card support with Zephyr board file ( <b>SD card not included</b> )
<b>External Interfaces</b>	USB	1x USB 2.0 Host
	SD Card	1x MicroSD slot (SDHC, SD Card 2.0) for additional external storage
<b>Physical</b>	Dimensions	110.28 mm x 99.16 mm x 35.32 mm
<b>Electrical</b>	Input Voltage	4.35-5.5V (standard USB power)
<b>Accelerometer</b>	Sensitivity	±2g/±4g/±8g/±16g dynamically selectable full scale
	Input	I2C
<b>NFC</b>	Specification	13.56 MHz, Data rate 106 kbps, NFC Type2 and Type 4 tag emulation
<b>Temperature</b>	Operating Range	-40° to +80° C ( <i>non-battery backup version</i> )
<b>Power</b>	Battery Backup	Lithium Ion 18650 size
		2600 mAh standard capacity Built-in protection circuit module (PCM)
<b>Certifications</b>	Regulatory	FCC (US), ISED (Canada), CE (Europe), UKCA (UK)
	Industry	PTCRB, GCF
	Carrier	AT&T and Verizon

## Ordering a Sentrius MG100

### Micro-Gateways

PART NUMBER	DESCRIPTION
450-00011-K1	Sentrius MG100 micro gateway, LTE-M & NB1 modem, Bluetooth LE, MVNO SIM
450-00038-K1	Sentrius MG100 micro gateway, LTE-M & NB1 modem, Bluetooth LE, battery backup, MVNO SIM
450-00039-K1	Sentrius MG100 micro gateway, LTE-M & NB1 modem, Bluetooth LE, external antenna, MVNO SIM
450-00054-K1	Sentrius MG100 micro gateway, LTE-M & NB1 modem, Bluetooth LE, external antenna, battery backup, MVNO SIM

### Power Supplies

PART NUMBER	DESCRIPTION
223-00010	AC Adapter, 5V-2A, US, five-pin micro-B USB plug
223-00011	AC Adapter, 5V-2A, EU, five-pin micro-B USB plug
223-00012	Adapter, 5V-2A, UK, five-pin micro-B USB plug

Introducing

# CANVAS™ DEVICE MANAGER

Laird Connectivity's industry leading IoT sensors and gateways are deployed and successfully enhancing business outcomes for customers every day. As these systems grow, ensuring uptime poses larger, more complex tasks demanding additional tools to manage.

Introducing Canvas™ Device Manager, our device management platform that simplifies workflows for configuration and maintenance of IoT device deployments. Easily setup your devices, monitor performance, and keep software up-to-date across your entire IoT device fleet.

## Remote Device Management Platform

Canvas Device Manager expands our world class hardware with software services that support key device management workflows. Product developers benefit from a cohesively designed hardware + software solution ensuring robust connectivity is maintained in the field. Canvas Device Manager will continue to grow alongside our products ensuring compatibility across the ecosystem. Get started with our gateway and sensor open development devices today.



## Why Device Management?



### Control your devices

Remotely manage device parameters and monitor performance, keeping your IoT-driven services and revenue streams online.



### Deliver end-to-end solutions

View and organize large numbers of devices to quickly build and maintain IoT solutions for your enterprise customers.



### Cut the cost of ownership

Reduce time-to-market with pre-provisioned devices, remotely apply software updates and rapidly scale up your solutions.



### Ensure your devices are secure

Remotely deploy software updates to your fielded devices, allowing rapid response to the accelerating pace of security attacks.



### Keep your devices compliant

Ensure devices are configured the way you need to keep your valuable data streams online.



### A path to scalability

API-based access to devices reduces the need for on-site assistance by automating management of a large number of IoT devices.

## Supported Features



Fleet Management



Provisioning



Monitoring & Alerts



Software Management



Security

Learn more at [lairdconnect.com/iot-software/canvas-device-manager](https://www.lairdconnect.com/iot-software/canvas-device-manager)