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Sentrius™ BT610 I/O Sensor + Ultrasonic/Pressure Assemblies

Long Range Bluetooth 5 Sensor + Ultrasonic/Pressure Assemblies (**sold separately**)



Features at a Glance

RUGGED PRODUCT WITH LONG RANGE LE CONNECTIVITY

Gather sensor data from the harshest environments and ensure the wireless signal gets through.

MULTIPLE SENSOR INTERFACE OPTIONS FOR ULTIMATE DESIGN CHOICE

Analog (Voltage or Current), digital inputs, dry contact, digital outputs, I2C, UART, SPI, and external sensor power source.

BROAD CERTIFICATION AND APPROVALS

Fully certified for FCC, IC, CE, MIC and ASNZS as well as Bluetooth SIG listing.

OVER-THE-AIR UPDATES AND CLOUD PLATFORM CAPABLE

Stay up to date with OTA capabilities from supporting mobile applications as well as Cloud deployment with integrated support with Laird's Sentrius™ gateways.

PERSONAL SUPPORT FOR YOUR IMPLEMENTATION

Partner with Laird Connectivity's Tier 2 support and engineering to help configure and deploy your application.

Laird Connectivity's **Sentrius™ BT610** I/O Sensor with Bluetooth 5 will instantly turn your wired sensors into an IP67-rated battery-operated wireless node, providing robust, secure, and cloud ready messaging. Leveraging Laird Connectivity's BL654 module, it provides full Bluetooth 5 capabilities, including long-range LE Coded PHY support for 4x the range of Bluetooth 4.2, opening up industrial and equipment monitoring applications.

This pre-canned configuration is designed with tank level monitoring in mind, enabling administrators to remotely monitor tank fluid levels using ultrasonic and/or pressure sensors.

This configuration enables the user to read and report sensor data into the cloud via Bluetooth connected gateway as well as set alarms and configure the sensors through a mobile app.

- **Two Software Options**
  - Ready-to-deploy Binary Software + Mobile App
  - Application development environment using nRF Connect SDK / Zephyr RTOS SDK for customizable applications
- **Comprehensive Certifications** for FCC, IC, CE, ASNZS, NCC
- **Industrial temperature range** (-40º to +85º C)
- **Industrial IP67 enclosure**
- **Advanced deployment tools** including mobile app (Android and iOS), sensor to cloud ecosystem, and engineering services.
- **Industry-leading support** works directly with our engineers to help customize and deploy your design. Replaceable large capacity battery

Zephyr™ Project

NORDIC SEMICONDUCTOR

Bluetooth®



Tank Monitoring



Level Monitoring

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Sentrius™ BT6xx I/O Sensor
Product Brief

Shared Specifications

Category	Feature	Specification
Chipset	Bluetooth® 5	Laird BL654 module with Nordic nRF52840
	Processor	Cortex M4F – 1MB Flash and 256k RAM
Antenna	Integrated	Laird FlexPIFA
Interfaces	Wired	Internal Screw Terminal Block for sensor connections Relevant to this focused application: 4x Analog inputs, 1x sensor power source (supporting 2x sensors) *See datasheet for more details.*
	Buttons	2x buttons (accessible with cover removed) for reset, configuration, and pairing
	Magnet switch	1x for pairing
	LED Indicator	Red/Green indicator visible outside housing for configuration, pairing, and activity indication
Power	Battery	3.6V Lithium Thionyl Chloride AA size - replaceable
Software	Configuration	Mobile App – Android & iOS – Configuration and/or sensor data IoT Gateway – Configuration and/or sensor display to Cloud
	OTA Update	Mobile App – Android and iOS – OTA firmware update
	Programming	Field accessible 10-pin ARM Cortex micro header (cover removed)
Regulatory	Approvals	FCC, IC, CE, ASNZS, NCC, and Bluetooth SIG
Physical	Dimensions	126.5mm x 81.5mm x 40mm
Environmental	Operating Temp.	-40° to +85°C
Enclosure	Housing	IP67 moulded Polycarbonate plastic housing with pressure equalising vent and removable cover
	Tamper Detection	Indication provided when cover is removed during operation
	Cable Glands	4x M12 waterproof inlets with IP-rated gaskets for wiring to external sensors
	Plugs	3x M12 waterproof plugs with IP-rated gaskets to cap off inputs where not required
	Mounting	Screws, Bracket Mounts
Accessories	Included	Magnet (for external activation of pairing mode)
Warranty		1 Year
Customization	Options**	Branding on front label, packaging, or mobile app. Enclosure colors. Custom firmware

**Dependent on commercial case

Ultrasonic Sensor (133-00723)

The Ultrasonic sensor enables the BT610 to measure the distances between the sensor and objects such as tank level / bin level applications.
A maximum of 1 individual ultrasonic sensor is supported per BT610

Feature	Specification
Sensor Operating Temperature	-40˚C to +65˚C
Max. measurement distance	10 m
Min.measurement distance	50 cm
Sensor resolution	1 cm
Ultrasonic sensor cable Length	914 mm (+/152 mm)
Ultrasonic sensor dimensions	43.8 mm diameter x 77 mm length
Environmental	IP67 rated Sensor
Customization Options*	Ultrasonic sensor cable length, measurement distances

*Dependent on commercial case

Pressure Sensor (133-00724)

The pressure sensor enables the BT610 to measure the pressure in a gas, liquid, or vapor supply lines and wirelessly report the measurement.
A maximum of **up to 2** individual pressure sensors is supported per BT610

Feature	Specification
Sensor Operating Temp.	-20˚C to +80˚C
Media	Gas, Vapor, Liquid
Pressure Type	Sealed Gauge
Full Scale Pressure	300 PSI
Full-scale Accuracy	±0.5 % typical
Response Time	<4 ms
Port/Fitting	¼” NPT
Housing	Wetted part: ASTM S31603 (AISA316L) Housing: ASTM S30400 (AISI304)
Cable length	2m (+/-20 mm)
Supply voltage	+5VDC
Customization Options*	Cable length, Full scale pressure, port/fitting

*Dependent on commercial case

Ordering Information

Note: Sensor cable assemblies sold **separately**. Order a BT610 I/O Sensor in addition to your chosen sensor assemblies.

Part	Description
450-00121-K1	Sentrius™ BT610 I/O Sensor – including magnet kit
450-00136B	Sentrius™ BT6xx Magnet Kit – Bulk (50x Magnets)

Cable Assemblies

Part	Description
133-00723	Sentrius™ BT6xx Ultrasonic Sensor Assembly
133-00724	Sentrius™ BT6xx Pressure Sensor Assembly
133-00724B	Sentrius™ BT6xx Pressure Sensor Assembly – BULK Carton 8pcs