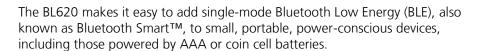# BL620 Series
Central Mode BLE Module Featuring *smart*BASIC

The BL600 Series modules from Laird have been enhanced with the addition of the BL620 part numbers. The BL620 uses the same module hardware as the BL600 but has a new firmware supporting Central mode connectivity.

The BL620 makes it easy to add single-mode Bluetooth Low Energy (BLE), also known as Bluetooth Smart™, to small, portable, power-conscious devices, including those powered by AAA or coin cell batteries.

The unique feature of this module is *smart*BASIC, an event-driven programming language that enables standalone operation of the module. *smart*BASIC on BL620 enables wireless connections to peripheral devices that are in turn connected to sensors so that the data can be collected via GATT operations. *smart*BASIC has been proven to speed time to market and significantly simplifies BLE integration for embedded devices.

Based on the award winning Nordic Semiconductor nRF51822 chipset, BL620 modules provide exceptionally low power consumption with outstanding wireless range, all within a compact footprint of 19 mm x 12.5 mm. The modules incorporate all the hardware and firmware required to support development of BLE Central mode applications, including:

- Radio hardware
- UART, SPI, I2C, ADC, and GPIO interfaces for connecting peripherals and sensors
- A complete BLE software stack
- Central role functionality with GATT client and server
    - Ability to connect up to four simultaneous connections
- Custom Services to suit any application's needs
- Series addition of a packaged USB Dongle - BL620-US

The BL620-US USB Dongle has been developed to take advantage of the BL620 module, providing the ability to add BLE Central Mode capabilities to Windows operating systems supporting a USB interface and virtual COM port. The control and configuration is via a standard virtual COM port and *smart*BASIC. The dongle provides the ability to load smartBASIC applications over the air (OTA) to a BL600 peripheral mode module.

In addition to carrying FCC modular, IC, and CE approvals, BL620 modules are fully qualified as a Bluetooth End Products, enabling designers to integrate the modules in devices without the need for further Bluetooth Qualification testing.

Customers can use the DVK-BL600 series low-cost developer's kit including simple software tools to develop with the BL620 central mode firmware.

BL620 Series

Central Mode BLE Module Featuring *smart*BASIC

CATEGORIES	FEATURE	IMPLEMENTATION
Wireless Specification	Bluetooth®	V4.0 – Single-Mode – Central mode
	Frequency	2.402 - 2.480 GHz
	Max Transmit Power	4dBm
	Receive Sensitivity	-91dBm (typical)
	Whisper Mode	Down to -55dBm (Transmit)
	Link Budget	95 dB (@ 1 Mbps)
	Raw Data Rates	1 Mbps (over the air)
Host Interfaces	Total	28 lines – multi function
	UART	TX, RX, CTS, RTS
		DTR, DSR, DCD, RI can be implemented in *smart*BASIC
		(CTS, RTS, DTR, DSR, DCD, and RI are NOT connected on the BL620-US)
		Default 9600, N, ,8, 1
		From 1,200 to 115,200bps
	GPIO	Up to 28 lines
	SPI	3 lines
	I2C	2 lines
	ADC	6 lines (plus ADC reference)
Services		GATT Client and Server Capability
Control Protocols		Any that can be implemented using *smart*BASIC
Encryption	AES	128 bit using CCM encryption
Supply Voltage	Supply	1.8V – 3.6V – internal LDO
		2.1V – 3.6V – internal DCDC converter
Power Consumption	Current	'System Idle' – 3.5uA
		'Transmit' – 10.5mA @ 0dBm
Physical	Dimensions	19mm x 12.5mm x 3mm
Environmental		-40° to +85° C when powered at 3.3 V +/- 10%
	Operating Temperature	-25° to +75° C when powered at 1.8V
		(contact Laird for any query)
	Storage Temperature	-40°C to +85°C
Miscellaneous	Lead Free	Lead-free and RoHS compliant
	Warranty	Limited Lifetime Warranty
Development Tools	Development Kit	Development board and free Software Tools **
Approvals	Bluetooth®	End Product Listing (EPL)
	FCC / IC / CE	All BL620 Series

*The details contained within the document are subject to change. Download the product specification from www.lairdtech.com/bluetooth for the most current specification.

Ordering Information

BL620-SA-0x	Single Mode BLE Module featuring *smart*BASIC (internal antenna)
BL620-SC-0x	Single Mode BLE Module featuring *smart*BASIC (IPEX MHF4 antenna connector)
BL620-ST-0x	Single Mode BLE Module featuring *smart*BASIC (trace pin)
BL620-US-0x	Packaged BL620 USB Dongle
DVK-BL600-SA / ST / SC-0x	Development kit for each BL620 series module
	**Use standard DVK-BL600 and upgrade the firmware

Version	Date	Description	Approver
1.0	10/15/14	Initial Release	JK