LETO™ WirelessUSB™ Device Modules

☐ **A low-cost adaptation of the Universal Serial Bus for connecting a variety of low-data rate devices to host systems**

☐ **A drop-in design solution using native HID Operating Systemdrivers to seamlessly enumerate and operate mouse, keyboard, and gaming devices**

☐ **East integration via a simple SPI interface for a host of consumer electronic and traditional computer input devices**

— LETO modules features unprecedented performance characteristics, such as 1000 meter operation, high data rate; DSSS data rates up to 250 kbps, GFSK data rate of 1 Mbps, extremely low power consumption; 21mA (typical) and offers the smallest module footprints in the industry; 0.98" x 0.65" x 0.175" (25mm x 16.5mm x 4.4mm).

— The new LETO Series Modules are designed to fulfill an increasing range of applications precipitated by an unprecedented growth of the WirelessUSB™ LP Technology.

— LETO family of modules features Cypress' CYRF6936 WirelessUSB™ Chipset easily enables endless applications with robust Cypress RF technology Unigen has been on the forefront of wireless module technology. Unigen's ongoing success is a testament to our know-how on module design and support.

— LETO product family meets all necessary FCC and ETSI (CE) compliance in addition to Industry Canada (IC) certification and come with Modular Approval (MA) to ease the RF compliance burden that many OEM's would otherwise face.

LETO-M, is designed specifically with size and performance in mind. With its 0.98" x 0.65" x 0.175" (25mm x 16.5mm x 4.4mm) footprint, makes it ideal for space limiting applications. Additionally, the LETO-M requires only 21mA (nominal), operating current, thus surpassing all WirelessUSB modules available today. The LETO-M is an ideal Module for applications requiring DSSS data rates up to 250 kbps, or 1 mbps with GFSK modulation when power consumption is critical.

LETO-LPA we have pushed the technology envelope in WirelessUSB to new limit! In addition, to supporting DSSS data rates up to 250 kbps the LETO-LPA has the ability to transmit data up to 1000 meters with FSK BER rates that are worlds best. The LETO-LPA will pioneer new application spaces for WirelessUSB.
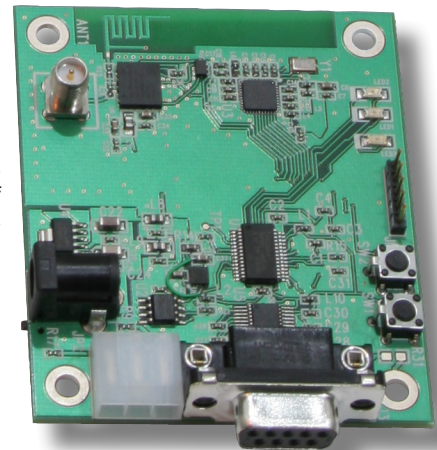
LETO-MBP is a reference design from Cy- press and will come complete with Cypress's development kit, thus providing a quick path from design to implementation. In addition, the LETO-MBP has the ability to operate without its USB power source. It has the capability to power the MCU via an external battery cell.

LETO-USB / LETO-USB-PA / LETO-USB-SL, is a product de- signed for HID USB applications. With the Cypress CYPF6936 LP chip, the LETO-USB is optionally available with a PA (LETO-USB-PA) which increases the transmission range of this USB wireless dongle to greater than 1,000 feet. The LETO-USB-SL shares the same characteris- tics as the LETO-USB with only one difference, it incorporates a Silicone Labs C8051F342 processor versus the Cypress Encore processor. LETO-USB series is also available with an optional esthetically pleasing plastic package and comes with complete product certification.

LETO-WHP module is specifically designed for the Smart Appliance Market. The LETO-WHP incorporates an on board processor along with a signal amplifier, which increases the transmission range of this USB wireless module to greater than 1000 feet. A standard RS-232 interface (9-Pin D connector) is provided for easy integration.

LETO-M Specifications:
Transceiver Radio Chip: CYRF6936 LP 2.4$_{GHz}$ DSSS Radio SOC
Operating Frequency: 2.4$_{GHz}$ to 2.483$_{GHz}$
GFSK data rate: 1$_{Mbps}$
DSSS data rate: 250$_{kbps}$
Transmission Range: >10$_{Meters}$
Antenna: On-Board Trace Antenna
Module Interface: User Specified

Operating Voltage: 2.7$_V$ to 3.6$_V$
Operating Current: 21$_{mA}$ to 35$_{mA}$
Operating Temperature: 0^o_C to 70^o_C
Form Factor: 0.98$_{inches}$ x 0.65$_{inches}$ x 0.175$_{inches}$
Power Source: Via Module Interface
Operating Relative Humidity: 10% to 90%
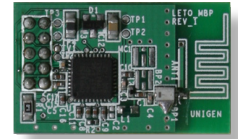Non-Con densating @ 50^o_C

Shown in Actual Size

LETO-MBP Specifications:
Transceiver Radio Chip: CYRF6936 LP 2.4$_{GHz}$ DSSS Radio SOC
Operating Frequency: 2.4$_{GHz}$ to 2.483$_{GHz}$
GFSK data rate: 1$_{Mbps}$
DSSS data rate: 250$_{kbps}$
Transmission Range: >10$_{Meters}$
Antenna: On-Board Trace Antenna
Module Interface: User Specified

Operating Voltage: 2.7$_V$ to 3.6$_V$
Operating Current: 21$_{mA}$ to 35$_{mA}$
Operating Temperature: 0^o_C to 70^o_C
Form Factor: 0.98$_{inches}$ x 0.65$_{inches}$ x 0.175$_{inches}$
Power Source: Charge Pump Circuit for DC Power Cells
Operating Relative Humidity: 10% to 90%
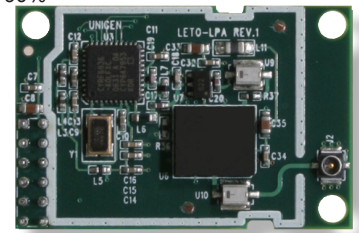Non-Condensating @ 50^o_C

Shown in Actual Size

LETO-LPA Specifications:
Transceiver Radio Chip: CYRF6936 LP 2.4$_{GHz}$ DSSS Radio SOC
Operating Frequency: 2.4$_{GHz}$ to 2.483$_{GHz}$
GFSK data rate: 1$_{Mbps}$
DSSS data rate: 250$_{kbps}$
Transmission Range: >1,000$_{Meters}$
Antenna: External via Coax Connector
Form Factor: 0.98$_{inches}$ x 0.65$_{inches}$ x 0.175$_{inches}$
Operating Relative Humidity: 10% to 90% Non-Condensating @ 50^o_C

Operating Voltage: 2.7$_V$ to 3.6$_V$
Operating Current: 21$_{mA}$ to 35$_{mA}$
Operating Temperature: 0^o_C to 70^o_C
Power Source: Via Module Interface
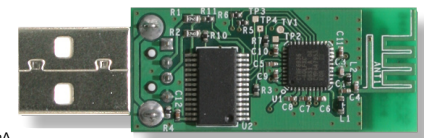**Module Interface:** User Specified

Shown in Actual Size

LETO-USB / LETO-USB-PA / LETO-USB-SL Specifications:
Transceiver Radio Chip: CYRF6936 LP 2.4$_{GHz}$ DSSS Radio SOC
Operating Frequency: 2.4$_{GHz}$ to 2.483$_{GHz}$
Antenna: On-Board Trace Antenna
Module Interface: Standard Type A USB Connector
Power Source: Via Type A USB Connector
Operating Relative Humidity: 10% to 90% Non-Condensating @ 50^o_C
Transmission Range: >10$_{Meters}$ (LETO-USB / LETO-USB-SL),
>1,000$_{Meters}$ (LETO-USB-PA)
Processor: Cypress Encore III (LETO-USB / LETO-USB-PA),
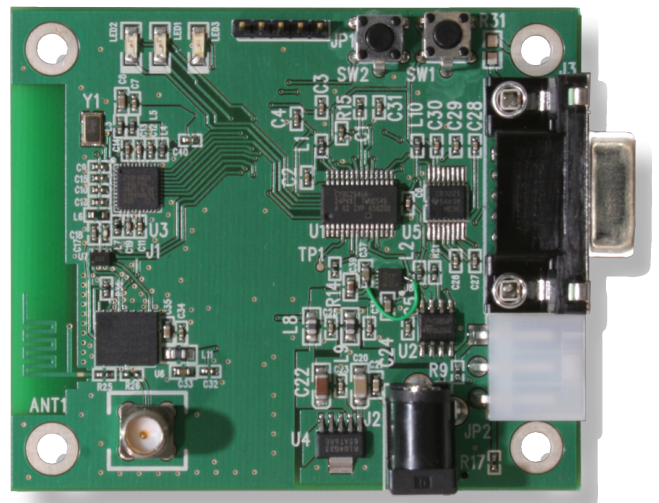Silicon Labs C8051F342 (LETO-USB-SL)

GFSK data rate: 1$_{Mbps}$
DSSS data rate: 250$_{kbps}$
Operating Voltage: 2.7$_V$ to 3.6$_V$
Operating Current: 21$_{mA}$ to 35$_{mA}$
Operating Temperature: 0^o_C to 70^o_C
Form Factor: 0.98$_{inches}$ x 0.65$_{inches}$ x 0.175$_{inches}$

Shown in Actual Size

LETO-WHP Specifications:
Transceiver Radio Chip: CYRF6936 LP 2.4$_{GHz}$ DSSS Radio SOC
Operating Frequency: 2.4$_{GHz}$ to 2.483$_{GHz}$
GFSK data rate: 1$_{Mbps}$
DSSS data rate: 250$_{kbps}$
Transmission Range: >1,000$_{Meters}$
Antenna: On-Board Trace Antenna and COAX Connector for External Antenna
Module Interface: Standard RS-232, 9-Pin D Connector
Processor: Cypress CY8C29466
Operating Voltage: 2.7$_V$ to 3.6$_V$
Operating Current: 21$_{mA}$ to 35$_{mA}$
Power Source: External Connector
Operating Temperature: 0^o_C to 70^o_C
Operating Relative Humidity: 10% to 90% Non-Condensating @ 50^o_C
Form Factor: 0.98$_{inches}$ x 0.65$_{inches}$ x 0.175$_{inches}$

Shown in Actual Size

LETO WireLess USB™ Ordering Guide

PRODUCT	ORDERING CODE	ANTENNA	WIRELESS CHIP	PROCESSOR	AMPLIFIED	INTERFACE	POWER SOURCE	DEVELOPMENT KIT
LETO-M	UGWG4USHN33A	Trace	CYRF6936	N/A	N/A	User Specified	Interface	N/A
LETO-LPA	UGWJ4USHN33A	External	CYRF6936	N/A	Yes	User Specified	Interface	N/A
LETO-MBP	UGWE4USUHN33A	Trace	CYRF6936	N/A	Yes	User Specified	DC Power Cells	Included
LETO-USB	UGQLUE4USE050A	Trace	CYRF6936	Cypress Encore III	N/A	Type A USB	Type A USB	N/A
LETO-USB-PA	UGQLPE4USE050A	Trace	CYRF6936	Cypress Encore III	Yes	Type A USB	Type A USB	N/A
LETO-USB-SL	UGQLSL4USE050A	Trace	CYRF6936	Silicon Labs C8051F342	N/A	Type A USB	Type A USB	N/A
LETO-WHP	UGWF4US50A	Trace / External	CYRF6936	Cypress CY8C29466	Yes	User Specified	External	N/A

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