



Smart Technology. Delivered.™

RM1XX LORA® MODULES



LORAWAN™ + BLUETOOTH V4.0 INTEGRATED SOLUTION FOR LPWAN EIIOT APPLICATIONS

The RM1xx series of modules offer a powerful, convenient solution for long-range Enterprise IoT (EIIOT) deployments. Laird innovatively combines Bluetooth® v4.0 with LoRaWAN™, the emerging standard in Low Power Wide Area Networks (LPWAN) into one module. RM1xx modules aggregate and transmit data from Bluetooth® Smart (BLE) devices and sensors over LoRa® to gateways as far as 15 km (~10 miles) away. This bridges the personal area network to the wide area network in a unique way. The RM1xx will be LoRa® Alliance certified and fully interoperable with any LoRaWAN™-adherent gateway.

Designed for the EIIOT – Innovative combination of BT™ v4.0 and LoRa® makes the RM1xx the bridge between Bluetooth Smart devices and a network that intelligently uses their data.

Ultra-low power usage schemes – Allows years of use on a single battery.

Laird's unique smartBASIC language – Makes it extremely easy to create event-driven, hostless applications.

Upgradable firmware – Prepare for the future with access to feature and security updates.

Compliant with FCC, CE regulations – Available as the RM186 (CE) or RM191 (FCC).

Download the **NEW** UwTerminalX (<https://github.com/LairdCP/UwTerminalX>) as well

as the two companion applications: MultiDeviceLoader

(<https://github.com/LairdCP/MultiDeviceLoader>) and TermNotify

(<https://github.com/LairdCP/TermNotify>)

Buy the RM191 from our distribution partners:

Digi-Key: Module (<http://www.digikey.com/product-search/en/rf-if-and-rfid/rf-transceiver-modules/3539948?k=rm191>) and Development Kit (<http://www.digikey.com/product-search/en/rf-if-and-rfid/rf-evaluation-and-development-kits-boards/3539644?k=rm191>)

Mouser: Module (<http://www.mouser.com/search/ProductDetail.aspx?R=0virtualkey0virtualkeyRM191-SM-01>) and Development Kit (<http://www.mouser.com/ProductDetail/Laird-Technologies-Wireless-M2M/DVK-RM191-SM-01>)

Arrow: Module (<https://www.arrow.com/en/products/rm191-sm-01/lsr>) and Development Kit (<https://www.arrow.com/en/products/dvk-rm191-sm-01/lsr>)

Future Electronics: Module (<http://www.futureelectronics.com/en/Technologies/Franchised/Product.aspx?ProductID=RM191-045SM-04501LRD&IM=0>) and Development Kit (<http://www.futureelectronics.com/en/Technologies/Franchised/Product.aspx?ProductID=DVK-045RM191-045SM-04501LRD&IM=0>)

Avnet: Wireless Solutions

(https://products.avnet.com/wps/portal/ema/mkttechmenu/networking/wireless-solutions/laird-lsr-wireless-solutions!/ut/p/z1/jZDBboJAEIafxQNXdkB3w_Y2UoPAKi2RSvfSoMGVBlmDVF6_m9YeaVbK3gNPQ8X1YJCJDQJq6zzPuiCUwsv4CBPLZHMEVHtIJIF-yCCIGmLhE3uPDP4Vw25dDJHBD4wmPO_MXDrHDfgNJ_PRodnCYZmKc0vgHuJZhC,UvT51JB-S5HjlcqjCd1qfBeJo9AI-0wRn/dz/d5/L2dBISvZ0FBIS9nQSEh/)

Buy the RM186 from our distribution partners:

Digi-Key: Module (<http://www.digikey.com/product-search/en/rf-if-and-rfid/rf-transceiver-modules/3539948?k=rm186>) and Development Kit (<http://www.digikey.com/product-search/en/rf-if-and-rfid/rf-evaluation-and-development-kits-boards/3539644?k=rm186>)

Mouser: Module (<http://www.mouser.com/ProductDetail/Laird-Technologies-Wireless-M2M/RM186-SM-01>) and Development Kit (<http://www.mouser.com/ProductDetail/Laird-Technologies-Wireless-M2M/DVK-RM186-SM-01/>)

Arrow: Module (<https://www.arrow.com/en/products/rm186-sm-01/lsr>) and

Development Kit (<https://www.arrow.com/en/products/dvk-rm186-sm-01/lsr>)

Future Electronics: Module

(<http://www.futureelectronics.com/en/Technologies/Franchised/Product.aspx?ProductID=RM186-045SM-04501LRD&IM=0>) and Development Kit

(<http://www.futureelectronics.com/en/Technologies/Franchised/Product.aspx?ProductID=DVK-045RM186-045SM-04501LRD&IM=0>)

Avnet: Wireless Solutions

(<https://products.avnet.com/wps/portal/ema/mkttechmenu/networking/wireless-solutions/laird-lsr-wireless-solutions>!

ut/p/z1/jZDBboJAEIafxQNXdkB3w_Y2UoPAKi2RSvfSoMGVBImDVF6_m9YeaVbK3gNPQ8X1YJCJDQJq6zzPuiCUwsv4CBPLZHMEVHtIJIF-

yCCIGmLhE3uPDP4Vw25dDJHBD4wmPO_MXDrHDfgNJ_PRodnCYZmKc0vgHuJZhC/UvT51JB-S5HjlcqjCd1qfBeJo9AI-0wRn/dz/d5/L2dBISvZ0FBIS9nQSEh/)

Features

AGGREGATE AND UTILIZE EIoT DATA BLE + LoRa

Enables automated, intelligent monitoring and control of BLE devices, creating scenarios that were previously impossible.

BRIDGE TO LPWAN YOUR WAY

Combination of physical and wireless interfaces including: Bluetooth v4.0 (BLE Central), physical UART, SPI, I2C, GPIO, or ADC.

COMPREHENSIVE, MULTI-LAYER ENTERPRISE SECURITY

Robust security on either public or private LoRa networks, with three layers of keys and AES-128 encryption.

SPEED TO MARKET WITH smartBASIC

Easily write event-driven apps for any use case.

BASED ON AWARD WINNING BL6x0 SERIES

Includes Whisper Mode for proximity pairing, low power BLE operation, and onboard microcontroller for hostless operation.

PERSONAL SUPPORT FROM DESIGN TO MANUFACTURE

Support works onsite with Laird engineering to speed your design to market.

Specifications

Applications

Smart Metering and Remote Sense, Industrial Automation/Monitoring and Control, Agricultural

Approvals

Bluetooth: SIG Listed. LoRa Alliance Certified. CE, FCC/IC

and Rural (Farm Sense/Control)

Bluetooth Version V4.0 –Bluetooth Smart– Central mode	Connector Type U.FL
Data Rates LoRa: 250bps - 50 kbps (RM186 Europe). 980 bps - 21.9 kbps (RM191 US). Bluetooth: 1 Mbps	Dimensions 25.4 mm x 25.4 mm x 3.2 mm (1" x 1" x 0.126")
External Antenna Available antenna options include Laird antenna part number 0600-00060: Dipole Antenna, 863 - 928MHz, coaxial cable to u.FL connector	Frequency 863 - 870 MHz (LoRaWAN EU), 902 - 928 (LoRaWAN US), 2.402 - 2.480 GHz (BLE)
Industries Industrial / Production	Interface Bluetooth v4.0 (BLE central), physical UART, SPI, I2C, GPIO, or ADC lines
Internal Antenna On-board Chip Antenna	Lead Free Lead-free and RoHS compliant
Max Transmit Power RM186 (Europe): 14dBm to 0dBm ERP (2dBi dipole). RM191 (US): 15dBm to 0dBm ERP (2dBi dipole). BLE: 3dBm radiated (by on-board chip antenna)	Modulation LoRa – Chirp Spread Spectrum
Operating Temperature -40C to 85C (-40F to 185F)	Ordering Information RM186-XX LoRa/BLE Module (868MHz LoRa for Europe). RM191-XX LoRa/BLE Module (915MHz LoRa for US / Canada). DVK-RM186-XX Development Kit for LoRa/BLE Module (868MHz LoRa for Europe). DVK-RM191-XX Development Kit for LoRa/BLE Module (915MHz LoRa for US / Canada)
Product Line LoRaWAN™ + Bluetooth v4.0 Integrated Solution for LPWAN EIoT Applications	Protocols Any that can be implemented using smartBASIC
Receiver Sensitivity Up to -135 dBm	UART TX, RX, CTS, RTS lines. Default config: 115200, N, ,8, 1.
UART Interface Baud Rate Baud from 1,200 to 460800bps	Voltage (Supply) 1.8V – 3.6V – Internally regulated
Warranty Limited Lifetime Warranty	Wireless Specification LoRa MAC Class A Specification, Bluetooth V4.0 - Central Mode



LoRa™
Alliance
Certified