

INDUSTRIAL PRODUCT DATASHEET

Semtech LR2021 LoRa Plus Evaluation Kit-CN490 | Semtech | LoRa | XIAO nRF54L15

Next-generation Semtech LR2021 LoRa Plus Evaluation Kit-CN490 with XIAO nRF54L15 enables high-speed FLRC up to 2.6 Mbps, dual-band global coverage, multi-modulation flexibility, and best-in-class energy efficiency for rapid...

SKU

100025096

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PRICE

\$99.00(Excl. VAT)



Overview



The Semtech LR2021 LoRa Plus Evaluation Kit-CN490, featuring the XIAO nRF54L15, delivers high-speed FLRC modulation up to 2.6 Mbps, dual-band Sub-GHz and 2.4 GHz coverage, and support for LoRa, FLRC, FSK, and OQPSK, along with compatibility with Amazon Sidewalk, W-MBUS, Wi-SUN FSK, and Z-Wave. It offers best-in-class energy efficiency with lower transmission current, higher receiving sensitivity, and Fast CAD, and is ready-to-go with real-time OLED feedback and plug-and-play Grove connectors for Arduino Uno, STM32 Nucleo, and Nordic DK platforms, targeting applications such as global shipping and logistics tracking, wireless video and image transmission, audio communication, converged networks, and high-speed OTA updates.

Key Features

- **High-Speed Breakthrough:**

The next-generation Semtech LR2021 not only retains the ultra-long-range communication of traditional LoRa but also introduces the new **FLRC modulation**, achieving a remarkable communication rate of up to **2.6 Mbps**. This capability extends its use to bandwidth-sensitive applications, such as audio streaming and image transmission.

- **One Hardware, Global Coverage**

With broad dual-band coverage (Sub-GHz & 2.4GHz) and the switch-less front end design, a single hardware design achieves global compatibility. Significantly streamline the design process and accelerating your market entry.

- **Universal Platform**

By integrating multiple modulation schemes (**LoRa, FLRC, FSK, OQPSK**) within a single silicon platform. LR2021 allows developers to choose the optimal combination for any scenario from ultra-low-power sensors to high-speed-controls without hardware redesign. Compatible with various low-power wireless protocols including **Amazon Sidewalk, W-MBUS, Wi-SUN FSK**, and **Z-Wave**, LR2021 enables true one-platform-fits-all development, dramatically reducing time-to-market and strategic risk.

- **Best-in-Class Energy Efficiency & Performance**

LR2021 delivers a definitive generational leap, outperforming predecessors like the SX1262 across most key metrics. Lower transmission current and higher receiving sensitivity will translate directly into longer battery life and more reliable connections for your devices.

- **Enhanced Channel Activity Detection (CAD):**

The LR2021 employs Fast CAD technology featuring an intelligent adaptive threshold and early termination mechanism, which substantially reduces both the power consumption and time required for idle channel detection, further improving device energy efficiency.

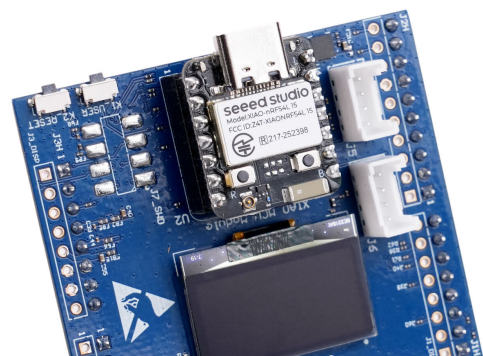
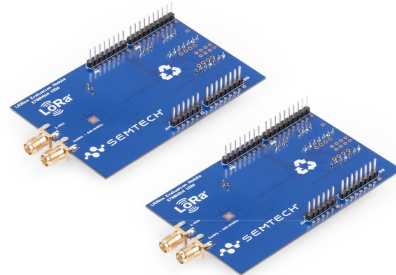
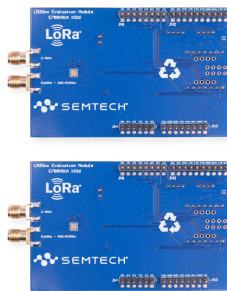
- **Ready-to-Go for Arduino, STM32 & Nordic DK**

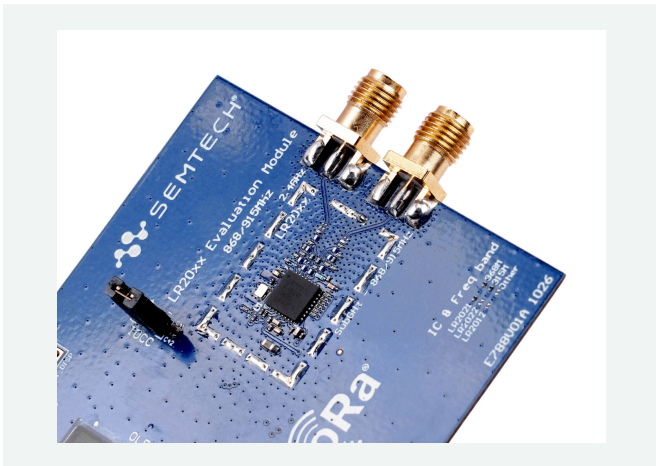
This integrated kit combines real-time OLED feedback and plug-and-play Grove connectors for rapid sensor integration. Its hardware is pin-compatible with **Arduino Uno, STM32 Nucleo**, and **Nordic DK** platforms, ensuring your validated design moves seamlessly to production.

Note:

Learn [more](#) about the next-generation performance of the Semtech LoRa Plus™ LR2021.

Product Gallery



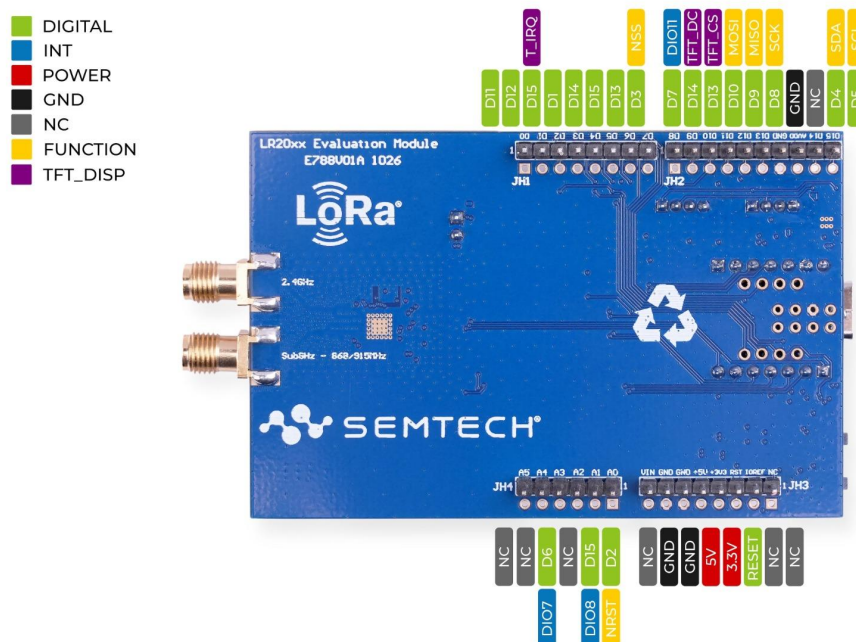
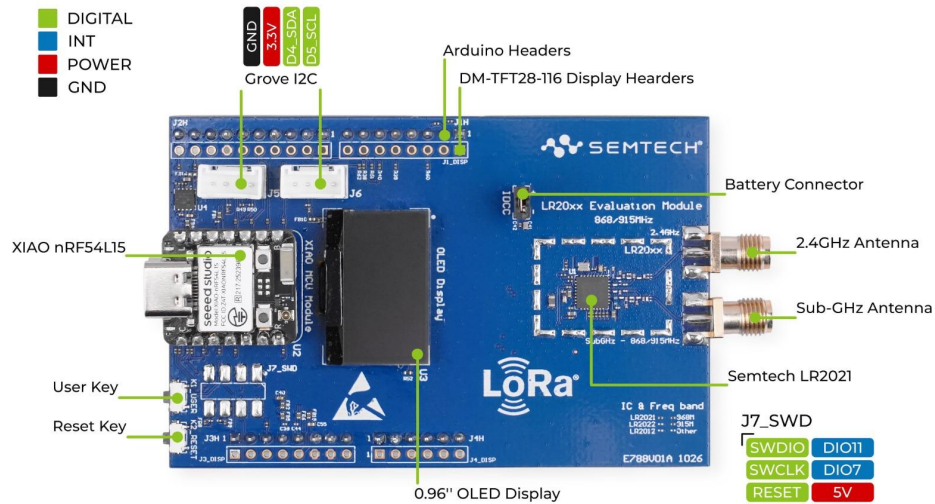


Specification

Main Chip	LR2021
Chip Size	5(W)*5(L)*0.9(H)mm
Chip Package	QFN-48
Power Supply	1.8 - 3.7V, 3.3V (typical)
Sleep Current	470nA (without RTC) 1.28uA (with RTC)
Power Distortion Mode	SIMO DC-DC LDO
Maximum Operating Current (Transmitter)	Sub-GHz: 105mA @ +22dBm 2.4 GHz: 27mA @ +14dBm
Maximum Operating Current (Receiver)	LoRa SF7 @ 125KHz: 5.7mA FLRC: 10.9mA
Output Power	Sub-GHz: +22dBm to -10dBm 2.4 GHz: +12dBm
Receiving Sensitivity	LoRa SF12 @ 125kHz: -141.5dBm FLRC @ 260kbps: -111dBm BLE @ 2Mbps: -97dBm
Harmonic Noise	915MHz @ 100kHz: -104dBc/Hz 2.45GHz @ 100kHz: -93dBc/Hz
Antenna	RFL_LF (Sub-GHz) RFL_HF (2.4GHz) Impedence: 50Ω
Interface	SPI
Working Temperature	-40°C to +85°C

Board Size	65(W) x 73(L)mm x 27(H)mm
Voltage	3.3V (USB type-C)
Button	K1: User button K2: Reset button
Display	0.96" OLED, 128 x 64 pixel
Grove Interface	I2C x 2 UART x 1
Debug Interface	SWD SAMD
Antenna	Sub-GHz 2.4 GHz

Hardware Overview



Applications

- **Global Shipping and Logistics Tracking:** Enable seamless global asset tracking. The LR2021 allows devices to automatically comply with regional radio standards, providing uninterrupted data from port to port.
- **Wireless Video & Image Transmission:** With FLRC speeds up to 2.6 Mbps, LR2021 sends images within a second, enabling low-power visual monitoring for security, industrial, and environmental applications.
- **Audio Communication:** LR2021 makes low-power audio communication practical—enabling safety intercoms on remote worksites, spoken alerts for equipment and voice-activated sensing in smart environments.
- **Converged Network:** Unify dedicated short-range networks (for high-speed data collection) and wide-area networks (for continuous cloud connectivity) on a single device. This architectural shift eliminates redundant infrastructure.
- **High-Speed OTA for Critical Assets:** LR2021's high-throughput link ensures robust and rapid firmware updates. It enables guaranteed, zero-downtime updates for critical infrastructure sensors.

Part List

Seeed Studio XIAO nRF54L15 Module	x2
LoRa Plus Expansion Board	x2
LF Antenna (490 MHz)	x2
HF Antenna (2.4 GHz)	x2
USB Cable Type-A Male to Type-C Male (1m)	x2
Read Me Note	x1

Compliance & Logistics

HSCODE	8543709990
USHSCODE	8517620090
UPC	
EUHSCODE	8517180000
COO	CHINA

Resource Links

- <https://www.seeedstudio.com/LR2021-LoRa-Plus-Evaluation-kit-490Mhz-CN-p-6699.html>
- [Semtech LR2021 Datasheet](#)
- [Semtech LR2021 CN490 Expansion Board Schematic](#)

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