

# Frontline® X240

## Wireless Wideband Analyzer



### Key Features and Benefits

- Flexible configuration options available
- Captures the technologies you need – Bluetooth (Classic/LE/Dualmode), 802.11 a/b/g/n/ac, or 802.15.4
- All Bluetooth profiles and protocols supported through the latest Bluetooth core spec v6.2
- Supports 802.11 a/b/g/n/ac 3x3 MU-MIMO with autoconfiguration using Wi-Fi scanner
- Supports all major 802.15.4 based IoT technologies – Zigbee, Thread and Matter
- Small footprint, USB bus powered and car adapter (included) for exceptional mobility
- Live or post-capture decryption and analysis
- Manual and automatic gain controls for easy adaptations to every environment
- Excursion Mode allows for one-button PC-free captures
- Spectrum analysis helps identify potential RF conflicts in busy environments
- Support for latest mesh technology
- 16 channel logic capture and analysis using two highly user configurable 8-lead Logic Pods
- Simultaneous Wireless and Wired HCI UART (H4, H5, BCSP, WCI-2), HCI SPI and digital I2S capture
- Faster root cause analysis of audio issues with the integrated Bluetooth Audio Expert System
- Audio latency measurement and analysis using Audio Analysis kit accessory
- Wireless Protocol Suite software now supported on all major OS – Windows, macOS and Linux with lifetime software updates
- Rich and mature Automation API for remote capture

Teledyne LeCroy's Frontline X240 Wireless Wideband Analyzer, featuring flexible technology-based licensing and exceptional portability, brings 2.4GHz and 5GHz ISM bands analysis to every lab and every environment efficiently and affordably. Coupled with Teledyne LeCroy's Wireless Protocol Suite software's streamlined UI and superior decoding engine, the X240 is equipped to decode Bluetooth® BR/EDR, Low Energy, Bluetooth Dual-Mode (BR/EDR and LE), 802.11, and 802.15.4 traffic for more rapid, robust, and cost-effective wireless development, testing and troubleshooting.

With the Frontline X240 Wireless Wideband Analyzer, Teledyne LeCroy takes wireless protocol analysis to the next level for the maximum value. With Bluetooth audio analysis, spectrum analysis, Excursion Mode for PC-free captures, up to 16 logic channels, and powered by USB, the Frontline X240 makes it possible to capture and decode the wireless technology you're developing or troubleshooting in even the most challenging settings.

### The Right Tool for the Job

The à la carte licensing allows the user to create the right tool for every job. Equip the X240 with any single technology (Bluetooth BR/EDR, Bluetooth LE, Bluetooth Dual-Mode (BR/EDR and LE), 802.11 a/b/g/n and ac, or 802.15.4) or any combination of those technologies for a tool that's no less than exactly what you need, and no more than you need to buy. CrossSync™ functionality allows you to connect multiple X240 units together to capture multiple technologies simultaneously, and facilitates antenna diversity.



### Maximum Mobility

Since wireless applications are ubiquitous, the need for mobility during testing is essential. The Frontline X240 was designed with this need in mind. Teledyne LeCroy has packed maximum capturing power in a package that's only a little bigger than a paperback novel.

But portability is about more than just size. The Frontline X240 comes equipped with a car adapter for mobile automotive applications, and can be powered by USB when AC power is hard to come by. And when true mobility is called for, Excursion Mode will allow the user to capture everything in the air at the push of a button, without any PC attached.

## Specifications

- Power**  
 USB Type C connector  
 USB Wall Adapter with Power Delivery  
 USB Car Adapter with Power Delivery  
 12V/3A Locking connector (with X240i)
- Weight and Dimensions**  
 X240 - 1.5 lbs  
 7.5x4x1" (190.5x101.6x25.4 mm)  
 X240i - 2.3 lbs  
 8.9x4.2x2.1" (227.6x108.2x54.4 mm)
- Bus Type**  
 USB 2.0, USB 3.0  
 Ethernet (10, 100, 1000 Mbps)
- Excursion mode On-board Memory**  
 64 GB (internal)
- Operating Frequency of SDR**  
 BT/802.15.4 2395MHz - 2485MHz
- Operating Frequency of Wi-Fi**  
 802.11 b/g/n 2.4GHz (20/40 MHz)  
 802.11 a/n/ac 5GHz (20/40/80 MHz)
- Sensitivity Range**  
 -90dBm to +10 dBm
- Supported Demodulators**  
 BR/EDR and LE (GFSK,  $\pi$ /4DQPSK, 8DPSK)  
 802.15.4 (OQPSK)
- Logic Analyzer Timestamp Resolution**  
 5ns
- Operating Temperature**  
 0° to +40°C (32° to 104°F) (X240)  
 -40° to +70°C (-40° to 158°F) (X240i)
- Humidity**  
 Operating: 10% to 90% RH (noncondensing)
- OS Supported**  
 Windows 10, 11/macOS/Linux

## Frontline X240i for Extreme Environments

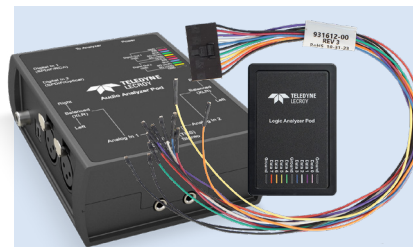
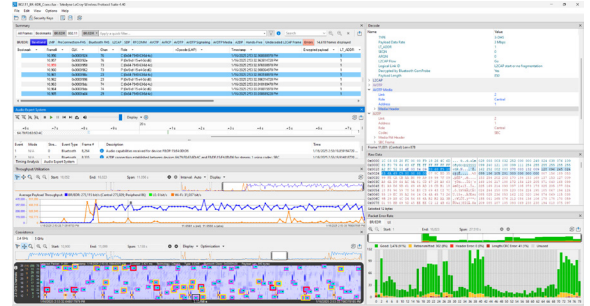
The Frontline X240i is built for dependable performance in harsh conditions like Automotive and Industrial environments, and can operate in wider temperatures ranges and heavy vibrations. Whether in standard operation or enhanced Excursion Mode, it's easy for anyone to use with no protocol expertise required. It can automatically capture and time-stamp data to internal storage or external logging systems, making it simple to correlate with other devices and sensors for complete, synchronized insight.

- Vibration:** 10-1000 Hz, 33.80 m/s<sup>2</sup> (3.447 grms) per IEC 60068-2-64:2008 Spectrum A.3 Category 1
- Shock:** 400m/s<sup>2</sup> (40g), 11msec, Half-sine per IEC 60068-2-27:2008
- Operating Temperature:** -40°C to +70°C (-40°F to 158°F)



## Streamlined User Interface

The Wireless Protocol Suite unites Frontline's proven protocol analysis with a modern, customizable docking interface. Access message charts, error stats, throughput graphs, timelines, and more—all backed by decades of decoding expertise. Seamlessly integrate with other Teledyne LeCroy tools for cross-protocol debugging. Paired with the Frontline X240 Wireless Wideband Analyzer, it delivers world-class analysis tailored to your environment and budget. Automation API support enables scripted workflows, test-framework integration, and fully automated validation for development and QA teams.



The Audio Analyzer Pod and the Logic Analyzer Pod enable precise measurement of total system delay, including transport, presentation, and audio processing delays - critical metrics during the development of next-generation LE Audio devices. These capabilities also extend to Bluetooth® Classic devices, offering broad applicability across Bluetooth audio technologies.

## Ordering Information

### Product Description

Frontline X240 System Hardware  
 Frontline X240i System Hardware  
 Audio Analysis Kit (Includes one Audio Analyzer pod and one Logic Analyzer pod)  
 8-Channel Logic Analyzer Pod  
 CrossSync Cable Kit

Bluetooth LE Software License  
 BR/EDR Software License  
 Dual-Mode Bluetooth Licence  
 Upgrade License from Single to Dual Mode  
 802.11 a/b/g/n and ac Software License  
 802.15.4 Software License

Spectrum Analysis License  
 Excursion Mode License

### Product Code

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 2014-26010-000  
 2300-00039-000  
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2013-22260-001  
 2013-22260-002  
 2013-22260-013  
 2013-22260-014  
 2013-22260-003  
 2013-22260-004

2013-22260-005  
 2013-22260-006



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