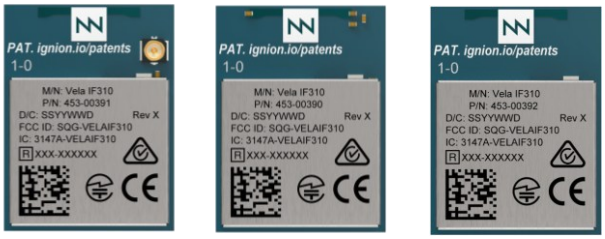
Next-Generation Audio-Centric Bluetooth Core 6.0 Classic + LE Connectivity

Built on Infineon's AIROC™ CYW55310, the Vela IF310 brings together Bluetooth Classic (BR/EDR) and the full Bluetooth 6.0 LE feature set—including LE Audio with LC3, Isochronous Channels, Auracast, LE Coded & 2 MPHY and Advertising Extensions—so you can refresh legacy Classic designs and embrace the latest LE Audio opportunities with one module.

A 192 MHz ARM® Cortex-M33, integrated audio interfaces, up to +10 dBm output power and a very flexible HCI UART interface for a variety of hosted/hostless SW architecture options deliver a low-risk, fast-to-market platform for demanding medical or industrial audio and data applications.

Engineered for high-reliability environments, the Vela IF310 is the answer to connectivity challenges where failure is not an option. Whether it's minimizing downtime in clinical settings or ensuring interference-resistant audio in industrial spaces, this module is built to perform. Its rugged –40 °C to +85 °C operation, robust security features including TrustZone® and CryptoCell-312, and versatile footprint options reflect Ezurio's commitment to dependable, application-ready solutions. Combined with our personal, hands-on support through every stage of development, the Vela IF310 doesn't just deliver technology—it delivers peace of mind.



- **Bluetooth Core 6.0 Classic + LE:** LE Audio (LC3), Auracast. LE Isochronous, LE 2M & Coded PHY, BR/EDR profiles.
- **Output Power:** Programmable up to +10 dBm PA paths for Class 1 range.
- **Powerful MCU Subsystem** – 192 MHz Cortex-M33, 2 MB ROM, 768 KB SRAM with TrustZone® & CryptoCell-312 security.
- **Rich Audio Interfaces:** Dual TDM/I²S plus PCM for HFP, A2DP, LE Audio and multi-stream use cases.
- **Single 12 × 16 mm Footprint, Multiple Antenna Options**: Integrated Ignion antenna, MHF4 connector or RF trace pad.
- **Industrial Operating Range:** –40 °C to +85 °C for every component.
- **Flexible Software Paths:** Hosted to Linux/Android MPUs, hosted to MCU RTOS, or hostless / standalone via Infineon ModusToolbox® and external flash / PSRAM.
- **M.2 2230 Reference Platform:** Integrated IF310 mdoule, PSRAM, Flash and pin compatible plug in for Infineon LE Audio EVK and associated codec shield.

Three Architecture Options

Hosted – MCU
- Ideal for embedded RTOS environments where system control and Bluetooth management share resources
- Seamless integration with third-party Bluetooth stacks (e.g., BlueKitchen) for Classic and LE Audio profile support
- Reduces wireless development complexity with seamless interoperability of HCI UART interface

Hosted – MPU
- Leverages open-source BlueZ / Android or commercial 3rd party Bluetooth stacks to access full Classic + LE Audio capabilities
- Enables high-level system integration for multimedia, infotainment, or gateway-class applications
- Broad software ecosystem support, with Ezurio and partner expertise available for integration and certification

Hostless / Standalone
- No external Bluetooth stack required—run Classic and LE Audio profiles on module using Infineon ModusToolbox®
- Requires external (off module) Flash and optional PSRAM depending on application complexity.

Key Features

Bluetooth Core 6.0
Classic + LE – LE Audio (LC3), Auracast. LE Isochronous, LE 2M & Coded PHY, BR/EDR profiles.

Powerful MCU Subsystem
192 MHz Cortex-M33, 2 MB ROM, 768 KB SRAM with TrustZone® & CryptoCell-312 security.

Rich Audio Interfaces
Dual TDM/I²S plus PCM for HFP, A2DP, LE Audio and multi-stream use cases.

Single Footprint, Multiple Antenna Options
Single 12 x 16 mm footprint with Integrated Ignion antenna, MHF4 connector or RF trace pad.

Flexible Software Paths
Hosted to Linux/Android MPUs, hosted to MCU RTOS, or hostless standalone mode via Infineon ModusToolbox® and external Flash / PSRAM

Personal Support from Design to Manufacture
Our industry-renowned support is passionate about helping you speed your design to market.

Application Areas

- **Fitness Equipment**
- **Automotive Infotainment**
- **Intercom and VoIP Endpoints**
- **POS and Barcode Scanners**
- **Medical Monitors**
- **Auracast Broadcast Audio**

Specifications

Category	Feature	Specification
Chipset	SoC	Infineon AIROC™ CYW55310
	MCU Core	ARM Cortex-M33 @ 192 MHz
	Memory	2 MB ROM, 768 KB SRAM
Wireless	Bluetooth	Classic BR/EDR + LE Core 6.0
	Frequency	2.402 – 2.480 GHz ISM band
	Rx Sensitivity	–110.5 dBm (LE 125 kbps)
	Tx Power	Upto +10 dBm selectable
Host	Host Interface	4-wire HCI UART up to 4 Mbps
I/O	Audio	2× TDM / I²S (up to 96 kHz, 24-bit) PCM (8-ch)
	GPIO	22
	Memory	SMIF_SPHB x1
	Analog microphone	MIC_P x1
	Digital microphone	DMIC x1
	Wake Up	BT_DEV_WAKE x1 BT_HOST_WAKE x1
Supply Voltage	VBAT	3.0–4.8V (3.3 V typ)
	VDDIO	1.8 V typ
Physical	Dimensions	12 × 16 × ≈2 mm
Antenna	Antenna Options	Integrated Ignion Antenna MHF4 Connector Trace Pin
Environmental	Operating Temp	–40 °C to +85 °C
Software	Modes	Hosted MCU - Bluetooth stack hosted on an external microcontroller Hosted MPU - Bluetooth stack hosted on an application processor running Linux/Android Hostless / Standalone - Modus Toolbox supported (external Flash / PSRAM requirements based on application need)
Regulatory	Certifications	Bluetooth SIG / FCC/CE/ISED / UKCA / RCM/ MIC / KCC – pending
Miscellaneous	Warranty	One Year
	Lead Free	RoHS and REACH
	MSL	4 (Modules) N/A (DVK)

Ordering Information

Part	Description
453-00390R	Module, Vela IF310, Integrated Antenna, Tape and Reel
453-00391R	Module, Vela IF310, MHF4, Tape and Reel
453-00392R	Module, Vela IF310, Trace Pin, Tape and Reel
453-00390C	Module, Vela IF310, Integrated Antenna, Cut Tape
453-00391C	Module, Vela IF310, MHF4, Cut Tape
453-00392C	Module, Vela IF310, Trace Pin, Cut Tape
453-00390-K1	Development Kit, Module, Vela IF310, Integrated Antenna
453-00391-K1	Development Kit, Module, Vela IF310, MHF4

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