TinyGateway WiFi BLE
Bluetooth Low Energy gateway
Data sheet

Key features

- **Low-power and low-cost gateway**
- **WiFi connectivity based on ESP32 SoC (IEEE 802.11 b/g/n)**
- **Based on Nordic nRF52832 for BLE**
- **Network communication protocols: HTTP(S), MQTT(S), UDP, TCP**
- **Compact light-weight plastic enclosure**
- **Dual power-supply: USB-C or internal connector**

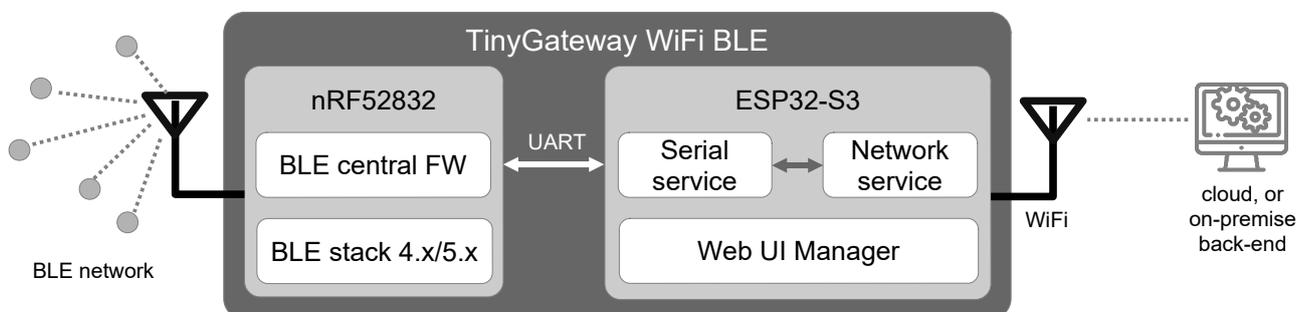| Key features |
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| Low-power Bluetooth Low Energy gateway with WiFi connectivity |
| Supported Bluetooth LE stack: 4.x and 5.x |
| Operating modes: Bluetooth LE central |
| Network interface: Wireless LAN |
| Support of the following set of connection protocols: HTTP(S), MQTT(S), UDP, TCP |
| Multiple data encoding options: JSON, ASCII, raw-data |
| Easy-to-use web UI manager dashboard for configuration and management |
| Complete remote configurability via HTTP or MQTT API |
| Possibility to operate simultaneously in scanning mode (BLE receiver) and advertising mode (BLE beacon) |

TinyGateway WiFi BLE: architecture and interfaces

Device specifications

Hardware specifications

Platform	Espressif Systems ESP32S3WROOM-1
Processor	ESP32-S3 series, Xtensa® dual-core 32-bit LX7 microprocessor, up to 240MHz
Memory	384 KB ROM, 512 KB SRAM, Up to 8 MB PSRAM
Connectivity	WiFi (802.11), Bluetooth Low Energy (v4.x / 5.x)
User interfaces	Power-on LED, Bluetooth LE LED, WiFi RGB LED, factory-reset button

WiFi specifications

Core module	Espressif Systems ESP32-S3
Protocol	IEEE 802.11 b/g/n
Authentication	WPA/WPA2/WPA2 Enterprise (EAP-TLS, EAP-PEAP, EAP-TTLS)
Frequency band	2.412 to 2.484 GHz
Channel spacing	20 MHz (802.11 b/g/n), 40MHz (802.11n)
Sensitivity	-98 dBm (802.11b, 1 Mbps)
TX Power	20.5dBm (max, 802.11b, 1 Mbps)
Antenna type	Meander Planar Inverted F-antenna
Antenna gain	0dBi

Bluetooth Low Energy specifications

Core module	Nordic Semiconductor nRF52832 SoC, 32-bit ARM Cortex-M4
Protocol	Bluetooth Low Energy (v4.x / 5.x)
Frequency band	2.402 to 2.480 GHz
Channel spacing	2 MHz
Sensitivity	-96 dBm
TX power	4dBm (max)
Antenna type	Planar Inverted F-antenna
Antenna gain	2dBi

Power supply

Power voltage	• 5 Vdc (USB) • 4.5 to 30 Vdc (internal 2-port)
Power connector	• USB: USB-C connector • Internal 2-port: pluggable connector, Würth series 301/3157 compatible. Rear knockout for cable entry (20mm diameter)
Current	240 mA @5Vdc (max, with 802.11b, 1 Mbps, @20.5 dBm)

Mechanical specifications

Material	Recyclable ABS plastic (flame-resistant UL94V-0)
Color	White
Size	74 x 74 x 25.5 mm
Weight	50 gr
Protection	IP40

Mechanical specifications (cont.)	
Assembly	Front and back clip together construction (tool required for disassembly once mounted)
Mounting options	Dual-adhesive or screws
Environmental specifications	
Operating temperature	-20°C to +65°C
Storage temperature	-40°C to +85°C