BlueNRG Modules

Simplifying the adoption of Bluetooth Low Energy technology

BlueNRG-M0 and BlueNRG-M2 modules for fast time-to-market and significant engineering cost savings

Bluetooth Low Energy (BLE) modules simplify connectivity adoption in every design. No expertise in Radio Frequency is required, and ready-to-use products are provided to enable wireless connected solutions. Available in a tiny form factor, ST’s BlueNRG Modules are Bluetooth SIG End-Product-certified, and have obtained pre-certification across major worldwide regions. They are suitable to operate in industrial environments up to +85 °C and are included in ST’s 10-year longevity program.

KEY FEATURES
- Multi-regional certifications and Bluetooth SIG End-Product Certification
- Wireless connectivity as easy as a modular drop-in add-on
- Scalable offer in terms of cost, features and capabilities
- -40 to 85°C operating temperature range

KEY BENEFITS
- Engineering and certification cost saving
- No RF expertise required
- Fast time-to-market
- Suitable for a wide range of industrial applications
- Guaranteed supply for 10 years (10-year longevity program)

KEY APPLICATIONS
- Human Machine Interface
- Remote Monitoring
- Remote Configuration
- Machine to Machine communication
- Cable replacement
- Smart Home and Building Automation
- Lighting Control
- Presence Detection
- Beaconeing and Asset Tracking
- Assisted Living

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BlueNRG Modules product family
BlueNRG-M0A and BlueNRG-M0L modules are built around the BlueNRG-MS BLE4.2 network processor chip. BlueNRG-M2SA and BlueNRG-M2SP modules are built around BlueNRG-2: BLE5.0 wireless processor chip based on ultra-low power Cortex-M0 core, embedding 256 kB programmable Flash and 24 kB RAM with data retention. Download BlueNRG Navigator GUI, part of STSW-BLUENRG1-DK, to browse, flash, and run application examples. While -M0A and M2SA devices include a 32 KHz oscillator and an SMPS inductor for very low-power applications, -M0L and M2SP are specifically designed for cost constrained applications. Moreover, -M2SP modules use a printed antenna to further reduce costs. All devices are Bluetooth SIG end-product certified, and Bluetooth SIG Mesh-ready.

BlueNRG product family

Device summary

<table>
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<tr>
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<tbody>
<tr>
<td>SPI to BLE</td>
<td>BT4.2</td>
<td>BLE4.2</td>
<td>BLE5.0</td>
<td>BLE5.0</td>
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<tr>
<td>Antenna</td>
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<td>Full / SMD</td>
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<td>no / LDO / PCB</td>
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<tr>
<td>Memory</td>
<td>256 K6 / 24 K6</td>
<td>BLE4.2 / D043964 – QDID 122868</td>
<td>BLE5.0 / D043965 – QDID 121363</td>
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<tr>
<td>Core / Flash size / RAM size</td>
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<td>BLE4.2 / 256 KB / 24 KB RAM</td>
<td>Cortex-M0 up to 32 MHz / 256 KB Flash / 24 KB RAM</td>
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<td>Bluetooth / SIG end-product certification</td>
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<td>BLE5.0 / D043965 – QDID 121363</td>
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<td>Regional certification</td>
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<td>Europe, USA, Canada, Japan, China(*)</td>
<td>Europe, USA, Canada, India</td>
<td>Europe, USA, Canada, Japan, India</td>
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<tr>
<td>LSE clock presence / Regulator / Antenna</td>
<td>no / LDO / SMD</td>
<td>yes / SMPS / SMD</td>
<td>no / LDO / PCB</td>
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<tr>
<td>Sensitivity / Output Power</td>
<td>-85 dBm / +6 dBm</td>
<td>-85 dBm / +5 dBm</td>
<td>-85 dBm / +7 dBm</td>
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<tr>
<td>Size / Temperature range / Power supply range</td>
<td>13.5 X 11.5 X 2 mm / -40 TO +85 °C / 1.7 TO 3.6 V</td>
<td>13.5 X 11.5 X 2 mm / -40 TO +85 °C / 1.7 TO 3.6 V</td>
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<td>Hardware evaluation kit</td>
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<td>STEVAL-IDB008V1M</td>
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<td>Software development kit</td>
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<td>STSW-BLUENRG1-DK</td>
<td>X-CUBE-BLE2(*)</td>
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Note: (*) Acting as Network Processor; (**) Expected in Q2 2020