

AT-ANY2400-SC Modules

A cutting-edge IEEE 802.15.4 wireless networking module for international 2.4 GHz ISM band that combines exceptional transmission characteristics and industry leading low power consumption in an ultra-small form factor ideally suited for battery powered applications.

AT-ANY2400-SC modules are fully integrated solutions that contain all of the digital and analog circuitry required for easily establishing wireless connectivity. Utilizing the robust and popular Microchip/Atmel platform, the modules achieve optimal RF characteristics are achieved with either an on-chip ceramic antenna (AT-ANY2400-SC-1) or a U.FL connector (AT-ANY2400-SC-2), providing ultimate flexibility of external antenna adaptations.

The module eliminates the need for costly and time-consuming RF development and shortens time to market for a wide range of standards-based wireless products.

Ensure the quick setup by ordering the product preprogrammed with either our AT-command-based Smart MAC Suite firmware, your own firmware, or common stacks such as 6LoWPAN, Zigbee PRO or Lightweight Mesh.

With AT-ANY2400-SC module's impressive feature set, creating ambitious wireless IoT designs becomes a breeze.



Mechanical module size 24 x 13.5 x 3 mm

Key Features

- Full compliance to IEEE 802.15.4-2006, Zigbee PRO and more
- Outdoor range (line of sight): ≤ 500 m (AT-ANY2400-SC-1), ≥ 500 m (AT-ANY2400-SC-2)
- Excellent receiver sensitivity (-101 dBm) and transmitter output power (+3.5 dBm)
- For international ISM band at 2.4 GHz
- Network topology:
 - P2P, P2MP, Star, Tree, Mesh (IEEE802.15.4 and Zigbee PRO)
- Other IEEE 802.15.4 based stacks applicable
- Smart MAC Suite is provided for easy prototyping and quick setup
- EEPROM profiler software is available for easy preconfiguring of SMS node settings
- Fully matched on-board ceramic chip antenna (AT-ANY2400-SC-1) or U.FL connector for custom antennas (AT-ANY2400-SC-2, 50Ω)
- Integrated JTAG interface allows ISP, OTAU and serial flashing
- Data rate: ≤ 2 Mbps, e.g. Zigbee: 250 kbps gross

Benefits

- ✓ Stamp-shaped soldering pattern, visually controllable, high mechanical strengths
- ✓ Full EN300328, FCC CFR Part 15, RoHS and REACH compliance
- ✓ Easy development with ready-to-use AT-command-based Smart MAC Suite firmware, app examples, Development Kits and full technical support
- ✓ Fast prototyping with preprogrammed firmware (SMS or other common stacks especially preconfigured for modules, e.g. Zigbee)
- ✓ Accelerated project bring-up and testing with AT-ANY2400-SC out-of-the-box devices (see AT-ANY2400-SC BRICKs, USB Dongle or Development Kit)
- ✓ Best-in-class range and excellent wall penetration for indoor usage
- ✓ Self-contained structure perfected for extremely low energy consumption, ideal for battery operated devices
- ✓ No RF-knowledge needed, and in-circuit programming made as easy as it can be
- ✓ Easy firmware management using off-the-shelf tools and JTAG interface, including ISP, OTAU or serial flashing via bootloader

Applications



Smart Buildings



Smart Energy & Metering



Industrial Automation



Healthcare & Fitness



Agriculture



Automotive & Transport



Smart Cities & Environment



Event Management

Specifications

RF Characteristics

| | |
|--------------------------------------|--|
| Max. Transceiver Output Power | ≤ 1.0 dBm EIRP for AT-ANY2400-SC-1 ≤ 3.5 dBm for AT-ANY2400-SC-2 |
| Receiver Sensitivity (per 1%) | ≤ -101 dBm |
| Data Rate | ≤ 2 Mbps (proprietary), e.g. 250 kbps @ Zigbee |
| Frequency | international 2.4 GHz ISM band, 16 channels |
| Data Encryption | AES 128 supported |
| Modulation | O-QPSK (IEEE 802.15.4 compliant) |
| Applicable Network Topologies | P2P, P2MP, Tree, Star, Mesh and other IEEE 802.15.4 based topologies |

Hardware Characteristics

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|--|---------------------------------|
| Operating Temperature Range | -40°C to +85°C |
| Microcontroller & Transceiver | ATmega128RFA1 or ATmega256RFR2* |
| On-Chip Flash | 128 kB (256 kB*) |
| On-Chip RAM | 16 kB (32 kB*) |
| On-Chip EEPROM | 4 kB (8 kB*) |

*customization option on request

Interfaces

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|-------------------|----------------------------------|
| ADC | 4 ADC lines |
| GPIOs | up to 30 configurable GPIOs |
| IRQs | 2 IRQ lines |
| Interfaces | JTAG, SPI, TWI/I2C, UART, 1-Wire |

Electrical Characteristics

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|------------------------------------|---|
| Voltage | 1.8 V up to 3.6 V |
| Current Consumption at 25°C | TX: < 15 mA @ EIRPmax RX: < 13 mA Idle: 4.5 mA Sleep: < 1.5 µA |

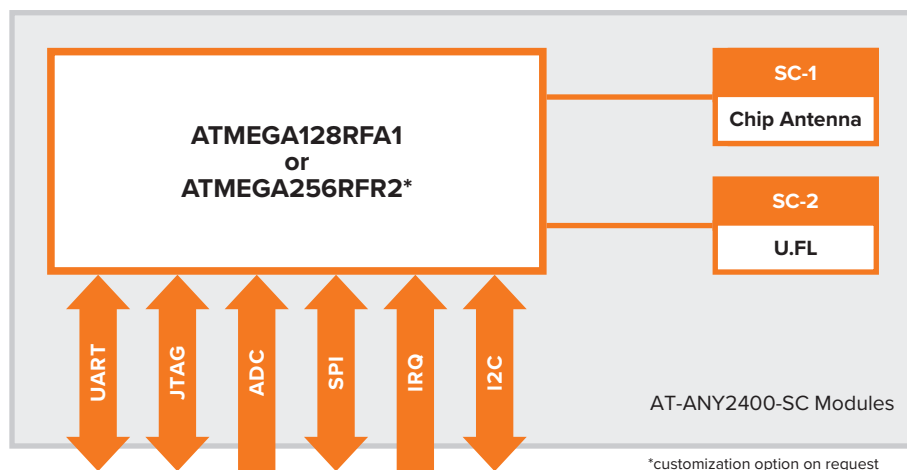
Certification

| | |
|-------------------------|---------------------------|
| Radio Compliance | EN300328, FCC CFR Part 15 |
| Manufacturing | RoHS & REACH |

Ordering Options

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|----------------|-------------------------------------|
| Packing | Tray and Tape & Reel 13" (Dry pack) |
| MOQ | 300 pcs. @Trays/ 500 pcs. @ T&R 13" |

Block Diagram



Further Information

For additional information or support, see www.an-solutions.de or contact us at support@an-solutions.de.
For more product details and ordering information, see the product data sheet.

