

AT-ANY2400-SC-3 Modules

A sophisticated IEEE 802.15.4 wireless networking module for worldwide 2.4 GHz ISM band provides exceptional transmission characteristics utilizing innovative RF technologies with the added benefit of antenna diversity. Despite packing an impressive feature set, an ultra-compact module offers low power consumption suited for advanced applications.

AT-ANY2400-SC-3 modules are fully integrated solutions that contain all of the digital and analog circuitry, required for easily establishing reliable wireless connectivity. Utilizing the robust and popular Microchip/Atmel platform, optimal RF characteristics are achieved via state-of-the-art antenna diversity mechanisms. An on-chip ceramic antenna, a U.FL connector (AT-ANY2400-SC3-1) or two U.FL connectors (AT-ANY2400-SC3-2) are perfectly geared for optimum performance. In addition, a special low noise amplifier front-end module fires up the transmitters output power to 18 dBm, so that even minimal incoming signal strengths of -121 dBm become receivable.

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.

Thanks to AT-ANY modules' impressive feature set, creating ambitious wireless IoT designs becomes a breeze.



Mechanical module size 40 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): ≤ 2.5 km
- Outstanding receiver sensitivity (-121 dBm) and transmitter output power ($\leq +18$ 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
- Extra 256 kB on-board DataFlash for storing firmware images, application data and OTA support
- Fully matched on-board ceramic chip antenna and U.FL connector (AT-ANY2400-SC3-1) or two U.FL connectors (AT-ANY2400-SC3-2, 50 Ω) for optimal antenna diversity gain
- 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-3 out-of-the-box devices (see AT-ANY2400-SC-3 BRICK, 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
- ✓ Easy firmware management using off-the-shelf tools and JTAG interface, including ISP, OTA 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	≤ 18 dBm for AT-ANY2400-SC-3
Receiver Sensitivity (per 1%)	≤ -121 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

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

*customization option on request

Interfaces

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

Electrical Characteristics

Voltage	3.0 V up to 3.6 V
Current Consumption at 25°C	TX: < 85 mA @ EIRPmax
	RX: < 22 mA
	Idle: 5 mA
	Sleep: < 10 µA

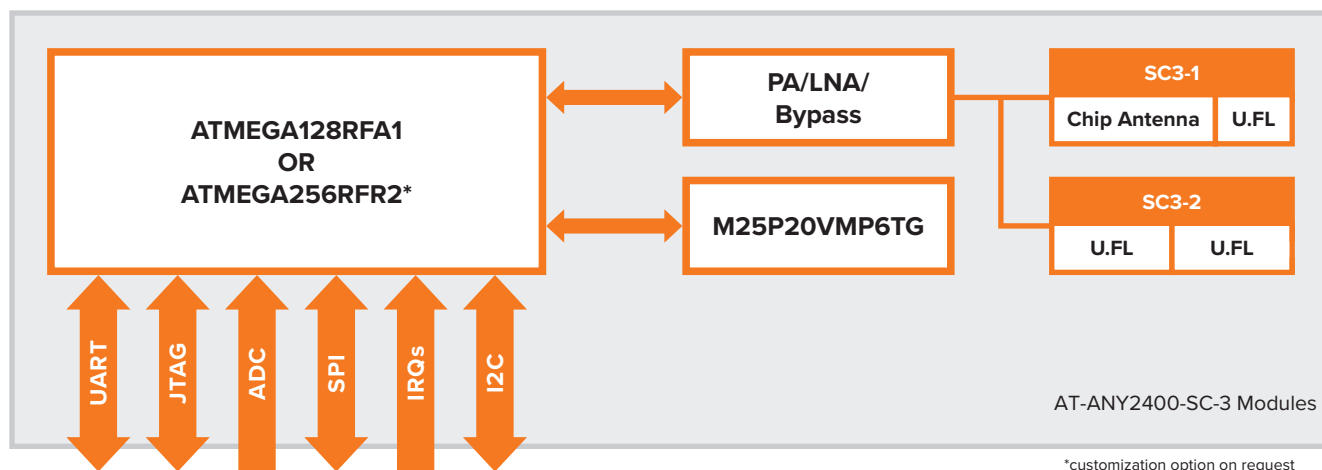
Certification

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

Ordering Information

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.

