

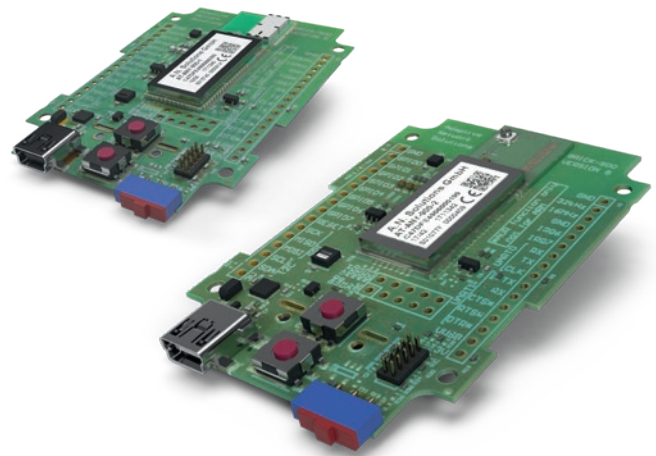
# @ANY900 BRICK Boards

Extended development board for easy application development using IEEE 802.15.4 Sub-1-GHz @ANY900 modules. Featuring integrated sensors, battery- and USB-powered operation, programmable buttons, and full module interfaces, the board serves as a reference design for @ANY900 modules and offers a complete toolset for developing a wireless application.

@ANY900 BRICKs are reliable standalone nodes based on the @ANY900 modules. Powered by USB, a battery pack (2 x AAA) or via 2.54 mm pin socket, they encompass a wide range of use cases. Thanks to the on-board UART chip, a serial connection to a host or other device is easily set up either via USB interface or by using the corresponding pins. Supported with off-the-shelf drivers by the commercially maintained FTDI Driver Suite, the USB interface ensures maximum interconnectivity and seamless integration to various operating systems.

In addition to the integrated on-board temperature, humidity, dewpoint, acceleration, and battery voltage sensors, external devices can be easily attached to various interfaces such as TWI/ I2C or SPI via the pin socket. Customized BRICK nodes with robust ABS enclosure, RF pigtail connector, and optional external antenna, enable seamless product infrastructure setup.

Our Smart MAC Suite AT-command-based firmware and the included application examples guarantee a quick bring-up.



Mechanical module size 68.5 x 46.5 x 5 mm

## Key Features

- USB 2.0 compliant IEEE 802.15.4 -2006 based development hardware platform within compact design form factor
- Supports European, US, Japanese, and Chinese Sub-1 GHz software adjustable ISM bands
- Complete @ANY900 module interface accessible via 2.54 mm pin sockets for application development
- Versatile integrated temperature, humidity, dewpoint, acceleration, and battery voltage sensors
- Power options incl. USB interface, battery holder (AAA) or pin socket
- Programmable push-buttons and status LEDs
- Commercially maintained FTDI Driver Suite ensure a seamless OS integration and support
- Outdoor range (line of sight): ≤ 250 m (@ANY900-1 Brick) and ≤ 2.5 km (@ANY900-2 Brick)
- Integrated power supply monitoring for battery operation

## Benefits

- ✓ Self-contained design with versatile powering options and full interface access to @ANY900 modules for building tailored IEEE 802.15.4 based applications
- ✓ Easy development with ready-to-use AT-command-based Smart MAC Suite firmware, app examples, Development Kits and full technical support
- ✓ Full EN300220, FCC CFR Part 15, RoHS and REACH compliance
- ✓ Seamless USB connectivity via commercially maintained FTDI driver suite ensures easy infrastructure bring up and customization
- ✓ Simple data exchange via human readable console output to accelerate system design
- ✓ Best-in-class range and excellent wall penetration for indoor usage
- ✓ Easy firmware management using off-the-shelf tools and JTAG interface, including ISP, OTA or serial flashing via bootloader
- ✓ Customized BRICK Nodes with ABS enclosure and collaterals are available to facilitate the productization process

## Applications



Smart Buildings



Smart Energy & Metering



Industrial Automation



Healthcare & Fitness



Retail



Agriculture



Automotive & Transport



Smart Cities & Environment



Event Management

# Specifications

## RF Characteristics

<b>Max. Transceiver Output Power</b>	≤ 2.0 dBm EIRP for @ANY900-1 BRICK ≤ 10 dBm for @ANY900-2 BRICK
<b>Receiver Sensitivity (per 1%)</b>	≤ -110 dBm
<b>Data Rate</b>	≤ 1 Mbps (proprietary), e.g. 250 kbps @ Zigbee
<b>Frequency</b>	European SRD band (868 MHz), North American ISM band (915 MHz), Japanese band (928 MHz), Chinese WPAN band (780 MHz)
<b>Data Encryption</b>	AES 128 supported
<b>Modulation</b>	O-QPSK (IEEE 802.15.4 compliant), BPSK
<b>Applicable Network Topologies</b>	P2P, P2MP, Tree, Star, Mesh and other IEEE 802.15.4 based topologies

## Hardware Characteristics

<b>Operating Temperature Range</b>	-40°C to +85°C
<b>Platform</b>	ATmega1281V AT86RF212B
<b>On-Chip Flash</b>	128 kB
<b>On-Board DataFlash</b>	256 kB
<b>On-Chip RAM</b>	8 kB
<b>On-Chip EEPROM</b>	4 kB
<b>Interfaces</b>	JTAG, USB 2.0

## Extensions

<b>Optical Elements</b>	3 Status LEDs (programmable)
<b>Supported Sensors</b>	Temperature (LM73) Humidity & Dewpoint (SHT21) Acceleration (BMA253)
<b>Connectivity</b>	mini USB Plug (optional micro USB)
<b>Others</b>	2x AAA battery holder ON/OFF switch 2x Push Button

## Electrical Characteristics

<b>Voltage</b>	5.0 V USB-powered Battery Power 2 x AAA GPIO powered 3.3 V or 5.0 V
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## Interfaces

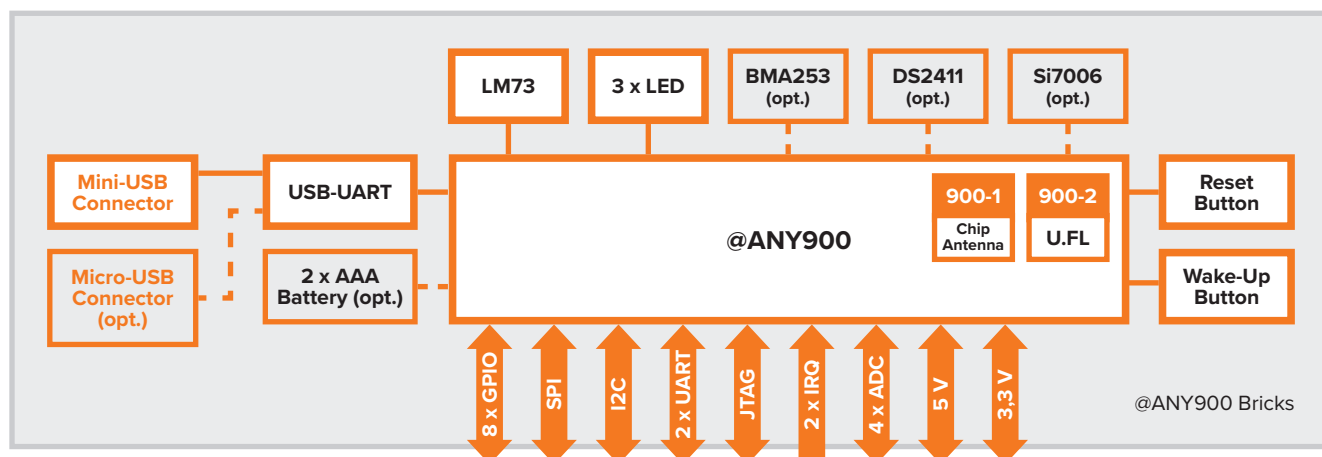
<b>GPIOs</b>	up to 30 configurable GPIOs (4 ADC lines, TWI/I2C, 2 UART, 1-Wire, SPI, 2 IRQ lines)
<b>USB Interface</b>	FT234 USB

## Ordering Information

<b>Order Number</b>	ANY900-1 BRICK
	ANY900-2 BRICK
	ANY900-1 BRICK Node*
	ANY900-2 BRICK Node*

\* ANY900-x BRICK completed with ABS enclosure and required antenna collaterals

## Block Diagram



## Further Information

For additional information or support, see [www.an-solutions.de](http://www.an-solutions.de) or contact us at [support@an-solutions.de](mailto:support@an-solutions.de).  
For more product details and ordering information, see the product data sheet.

