

Atmel ATA8520x SIGFOX-Compliant RF Solutions



The Atmel® ATA8520, ATA8520D and ATA8520E RF transmitters and transceivers provide a turn-key solution for up-/downlink or uplink-only operation in the European 868MHz or US 902MHz SIGFOX network. The devices are SIGFOX compliant and offer the ideal add-on to existing microcontroller (MCU) solutions, making it easy to bring SIGFOX wireless connection into your design through an SPI interface.

ATA8520x Target Applications

Internet-of-Things (IoT) or Machine-to-Machine (M2M) applications using the cellular SIGFOX Low Power Wide Area Network (LPWAN). Applications are:

- Facility- / Building management
- Smart Metering & Leak Detection
- Security Systems
- Parking Space Management
- Logistics & Supply Chain Tracking
- Environmental Sensors
- Assisted Living / Home Care

Accelerating your RF Designs

To help accelerate design development, Atmel offers ATA8520x SIGFOX devices as out of the box solutions for fast integration. A certified SIGFOX reference design, extension boards for Xplained Mini/Xplained Pro evaluation kits and Arduino Uno shield all support the wide range of SIGFOX applications.

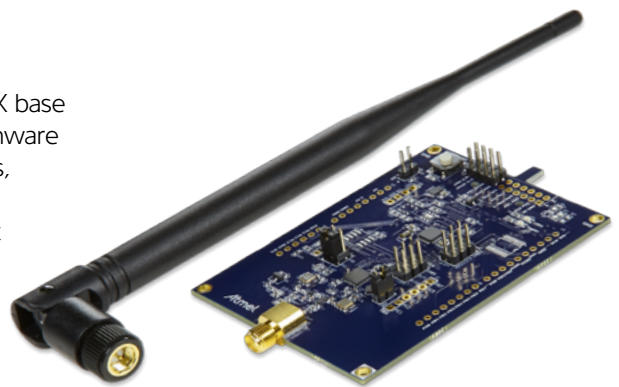
Architecture and Consumption

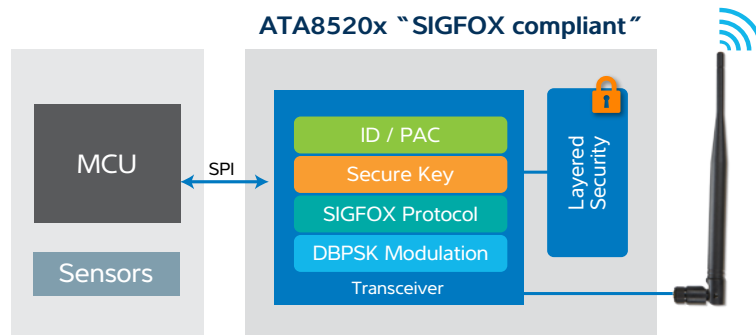
The devices incorporate an RF front end for communication to a SIGFOX base station, a digital baseband and a microcontroller in a single chip. The firmware stored and locked in the internal memory supports the chip's operations, including handling of the SIGFOX protocol. The ATA8520x devices offer the most flexible SIGFOX RF solution that can be connected to any host microcontroller, including Atmel AVR® and Atmel MCUs or MPUs. A Serial Peripheral Interface (SPI) is available for external control and device configuration.

The ATA8520x transmitters and transceivers have been designed to maximize the wireless range and battery life for power-sensitive systems.

Key Features

- Out of the Box solution with highest integration level of SIGFOX functionalities: DBPSK modulation, SIGFOX protocol stack
- The SIGFOX ID, PAC code and encryption key are stored and secured inside the chip - no way to extract
- Flexible concept - can be combined with any MCU selected optimal for the user application
- Extreme low current consumption for battery powered IoT applications





SoC Devices "SIGFOX compliant"

| Ordering Code | Description | Mode/ISM Band | Availability |
|---------------|------------------------------|------------------------------------|--------------|
| ATA8520-GHQW | SIGFOX Transmitter | EU (ETSI)/868MHz | Yes |
| ATA8520D-GHQW | SIGFOX Transceiver | EU (ETSI)/868MHz | Yes |
| ATA8520E-GHQW | SIGFOX Dual Mode Transceiver | EU (ETSI)/868MHz + US (FCC)/902MHz | Yes |

Evaluation Kits "SIGFOX Ready certified"

| Frequency | Output Power | Ordering Code | Description | Availability |
|------------------|--------------|---------------|---|--------------|
| EU (ETSI)/868MHz | Class 1 | ATA8520-EK1-E | Stand-alone evaluation kit | Yes |
| | | ATA8520-EK2-E | Extension board for Xplained Mini-/ArduinoUNO | Yes |
| | | ATA8520-EK3-E | Extension board for Xplained Pro | Yes |
| | Class 0 | ATA8520-EK4-E | Stand-alone evaluation kit | July 2016 |
| | | ATA8520-EK6-E | Extension board for XplainedPro | July 2016 |
| US (FCC)/902MHz | Class 0 | ATA8520-EK1-F | Stand-alone evaluation kit | July 2016 |
| | | ATA8520-EK3-F | Extension board for Xplained Pro | July 2016 |

- The 868MHz kits ATA8520-EKx-E are SIGFOX Ready certified and ETSI compliant. The 902MHz kits ATA8520-EKx-F are SIGFOX Ready certified and FCC compliant.
- All kits support up- & downlink operation
- Each kit comes with a fully preprogrammed ATA8520x device including SIGFOX ID & PAC code for registration in the SIGFOX backend and an antenna to be connected to the SMA connector. The ID & PAC code is printed on a sticker at the bottom of the board.
- The XplainedMini-, ArduinoUNO- and XplainedPro development boards are not included in the SIGFOX kit and have to be purchased individually.

A tool pack, hardware documentation and user guide is available on the ATMEL web page.

<http://www.atmel.com/devices/ATA8520.asp>



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