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dresden elektronik

# Radio module deRFarm7 15A02

Datasheet

- The pluggable radio module deRFarm7-15A02 features an AT91SAM7X512 microcontroller and a Sub-GHz transceiver AT86RF212. The module complies with the IEEE 802.15.4 standard and can be used for ZigBee / 6LoWPAN / RF4CE or proprietary applications.
- The 15A02 module has two 23 pin male connectors (1.27 mm pitch) which give access to most functions of the AT91SAM7X512.
- The onboard coaxial jack (U.FL) allows the connection of different antennas using standard pigtails. The transceiver generates up to +10 dBm transmit power and has a receiver sensitivity of –110 dBm giving a link budget of up to 120 dB. A hardware 128-Bit AES encryption engine is part of the transceiver.
- The power supply range is from 3.0 VDC to 3.6 VDC with transmit and receive currents of approx. 45 mA @ 12MHz CPU clock. A current consumption of less than 250 µA can be achieved in sleep mode.
- Special features of the deRFarm7 module family are the integrated Ethernet MAC (EMAC) and the integrated USB device port (UDP).

## Technical Data

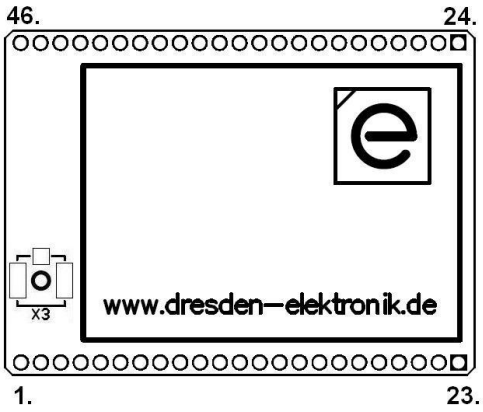
**Technical Data**

| | | |
|---|---|---|
| **Dimensions** | 30 x 22.7 x 8.2 mm | |
| **Operating temperature** | -40 to +85°C | |
| **Control and display elements** | no | |
| **Power supply** | 3.0 – 3.6 VDC | |
| **Power consumption** | Active: 45 mA @ 12MHz | Sleep: < 250 µA |
| **Connections** | 2 x 23 Pin I/O Connector<br>U.FL coaxial jack | |
| **Antenna** | no | |
| **Antenna gain** | no | |
| **Antenna diversity** | no | |
| **Range** | Depending upon the antenna used<br>> 250 m (line of sight) with a 0dB antenna | |
| **Frequency range** | 868MHz / 902 – 928 MHz (915 MHz) | |
| **Transmitting power** | +5 dBm @ 868 MHz / +10 dBm @ 915 MHz | |
| **Receiver sensitivity** | -110 dBm | |
| **IEEE Standard** | IEEE 802.15.4 | |
| **Data rate (brutto)** | 20kBit/sec, 40kBit/sec, 250 kbit/s, 500 kbit/s, 1 Mbit/s | |
| **Microcontroller** | AT91SAM7X512 | |
| **Transceiver** | AT86RF212 | |
| **Interfaces** | JTAG, DBGU, I2C, SPI, UART, USB, RMII, GPIO, ADC | |
| **Certification** | CE, ETSI, FCC | |

## Pin configuration

Connections

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1: | VCC | 13 | PA18 | 24: | VCC | 36: | PB28 |
| 2: | DGND | 14: | PA3 | 25: | DGND | 37: | PB5 |
| 3: | ADVREF | 15: | PA17 | 26: | PA27 | 38: | TCK |
| 4: | USBDM | 16: | PB0 | 27: | PA0 | 39: | PB7 |
| 5: | RSTN | 17: | PA16 | 28: | PA28 | 40: | TMS |
| 6: | PB3 | 18: | PB8 | 29: | PA4 | 41: | PB1 |
| 7: | PA11 | 19: | PB6 | 30: | PB9 | 42: | TDO |
| 8: | PB26 | 20: | PB18 | 31: | PB21 | 43: | JTAGSEL |
| 9: | PA10 | 21: | PB15 | 32: | USBDP | 44: | TDI |
| 10: | PA1 | 22: | DGND | 33: | PB19 | 45: | DGND |
| 11: | PB25 | 23: | DGND | 34: | PB27 | 46: | DGND |
| 12: | PB2 | | | 35: | PA14 | | |




Top View deRFarm7-15A02

## Scope of delivery

Order Information

| | Order No. |
|---|---|
| Radio Module deRFarm7-15A02 | BN-030974 |

## Board variants

Variants

| | |
|---|---|
| Radio Module deRFarm7-25A02 | BN-027265 |
| Radio Module deRFarm7-25A00 | BN-027264 |

More information about the variants are described in detail in the user manual.
Order online: https://shop.dresden-elektronik.de/

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