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dresden elektronik

deRFnode | deRFgateway

development boards and devices

IEEE 802.15.4 | sub GHz | 2.4 GHz

Applications

- deRFnode as end device | router
- deRFgateway as coordinator | router
- in 6LoWPAN | ZigBee | RF4CE wireless sensor networks

- smart metering
- building automation
- industrial automation
- personal sensors | health care
- logistics | transportation

ZigBee®
Control your world

Development boards and devices deRFnode and deRFgateway

The versatile development boards deRFnode and deRFgateway are optimally tuned to the existing radio modules of dresden elektronik. Equipped with temperature, light and acceleration sensors they can be employed for measurement tasks in home and industrial environments.

With on board Ethernet (deRFgateway only), USB, sensors, LEDs and user buttons, the boards are suited for evaluation and development of IEEE 802.15.4 based wireless sensor networks using ZigBee or 6LoWPAN protocols, but also for the immediate implementation in an end user application.
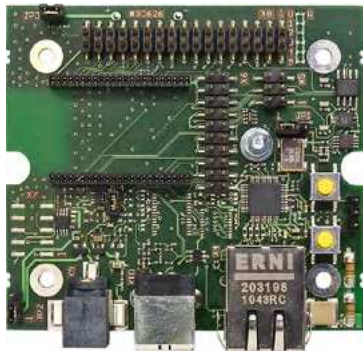
The version with female connector for all pluggable deRF modules gives the user a high flexibility in terms of processor type and performance as well as the frequency range. Since all deRF modules are pin compatible the user can select the best match or even change easily during the development process. The transition from 2.4 GHz to sub GHz, the change from AVR to ARM processor or the exchange of the chip ceramic antenna with an external antenna has never been easier. For higher volumes, a version for all solderable deRF modules is also available.
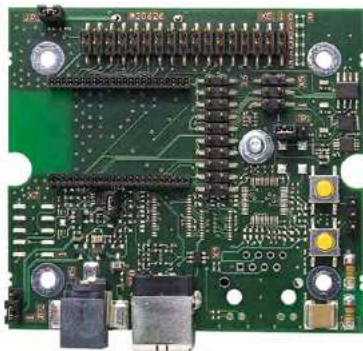
The power to deRFnode and deRFgateway is either supplied by USB, an AC adapter or 3xAA batteries. As programming interface, the standard JTAG connections for ARM and AVR are present together with other standard interfaces like SPI, UART and I2C. Additional sensors for special measurement tasks can be connected using the 34 pin expansion header.

The Ethernet connection opens up a wide field of applications, such as a ZigBee gateway, IPv4/IPv6 access to 6LoWPAN networks as well as back end connections in widely spread sensor networks. Due to the relatively high current consumption of the Ethernet transceiver a deRFgateway is poorly suited as a sleeping end device. For this purpose, the particularly power saving deRFnode has been developed. The strict low power design of the deRFnode and all its components makes it especially useful for end devices. On battery operation it can easily reach a life time of several years. Due to its extremely low current consumption of only a few µA the board can even be powered by Energy Harvesting.

Both development boards will be available with a case and for an external antenna. The plain boards are part of the new development kits for 6LoWPAN, ZigBee and ARM7.

Key Features

- 70 x 68 x 33 mm (without case) / 85 x 81 x 40 mm (with case)
- support all solderable & pluggable deRF radio modules
- AC adapter / DC / USB / battery powered
- Ethernet interface (only at deRFgateway with deRFarm7)
- temperature, light and acceleration sensors
- buttons and LEDs
- 4MBit Flash for firmware update/user data
- standard JTAG-connector for ARM and AVR
- I2C, SPI and UART interfaces are available

Benefits

- compact and versatile evaluation board with rich features
- ready to use for most applications without hardware changes
- perfectly tuned to all deRF radio modules
- easy transition between frequency ranges, processors and antennas
- optionally available with case
- fully supported by the IEEE 802.15.4 MAC stack with source code examples for each board feature
- easily extendable with own sensors/pheriperals using the 34 pin expansion header

Contact

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