Radiomodule RF-Modem-CC1020

Hardware-Version 1.0
Software-Version 2.13 (06-22-2007)
FFC ID: VLA-RFM16109 (in process of application)

Topview

Bottomview

Abstract

The module is driven by 3.3 Voltage DC (min. 2.7V, max. 3.6V). With a maximum power consumption of 30mA and built-in power management the module is suitable for battery-driven applications. The RF-Modem was designed to be attached to a suitable main-board which provides the necessary 3.3V via a power regulator and converts the low-voltage signals of the module. The module is not suitable for "Stand-Alone" applications.

Communication with the module can be established via two serial ports (LVL, 19200 Baud) and the radio link. Mixed communication is also possible. Via the second serial port further peripherals may be connected.

The frequency of the radio link is in the 915MHz-Range (ISM, USA). The module is a narrow band system and operates conform to norms ARIB STD T-67.

Depending on the demands of the application the internal microcontroller from Atmel can be programmed to drive a series of I/O-ports. Some of the I/O-ports may be used as analog input as well.

Communication takes place via a custom protocol, called GPIO. The enduser has no access to the configuration or programming of the microcontroller resp. the radio link.

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Statements according to FCC

Statement according to FCC part 15.19:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Statement according to FCC part 15.21:
Modifications not expressly approved by this company could void the user's authority to operate the equipment.

Statement according to FCC part 15.105:
Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

. Reorient or relocate the receiving antenna.
. Increase the separation between the equipment and receiver.
. Connect the equipment into an outlet on a circuit different from that to which the receiver isconnected.
. Consult the dealer or an experienced radio/TV technician for help.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: VLA-RFM16109” or “Contains FCC ID: VLA-RFM16109.” Any similar wording that expresses the same meaning may be used.

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Technical Data(US-Version)

Common:

Dimensions: L: 51mm, B: 40mm, H(PCB): 4mm, H(w. connector) 12mm
Max. Humidity: 85%
Working Temperature Range: -10°C bis +70°C
Operating Voltage: min. 2.7V, max. 3.6V
Interface-Levels: min. 0V, max. 3.6V (LVL)

Transmitter:

RF-Frequency: 915Mhz
RF-Output Rating: min. -20dBm, max. +5dBm
Antenna Type: $\lambda^1/_4$ – PCB-“Stub“ (onboard printed F-Type), Gain ca. +/- 0dB

Used Signal Type: digital, 1-Channel
Modulation: Manchester /GFSK
Frequency Deviation: 50kHz
Data Rate via HF: 19200 Baud gross / 9600 bps net

Receiver:

Receiver Type: Superhet
RF-Frequency: 915Mhz
Intermediate Frequency: 50kHz
Channel Width: 50Khz
Filter Bandwidth: 25kHz
Maximum Deviation (f_0): 4.95kHz
Input Sensitivity: -110dBm
Data Rate via RF: 19200 Baud gross / 9600 bps net

Pin Assignment Connector:

Two-row pinheader, 26-way,
RM 2.54