



A^{RF27} Transmitters & Receivers



User Guide

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Table of Contents

| | |
|--|-----------|
| About this Document | 2 |
| Declaration of Conformity | 3 |
| General description..... | 4 |
| Synoptics..... | 5 |
| Product interface | 6 |
| Transmitter | 6 |
| Receiver | 8 |
| Specifications..... | 10 |

About this Document

This guide describes the A^{RF27} devices, their options and accessories.

Declaration of Conformity



Manufacturer's name:
 Manufacturer's address

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declares that the product if used and installed according to the user guide available on our web site www.adeunis-rf.com

Product Name: **ARF27**

Product Number(s): **ARF7243B / ARF7246A**

is designed to comply with the RTTE Directive 99/5/EC:

EMC: according to the harmonized standard EN 301 489.

Safety: according to the standard EN 60950-1/2001

Radio: according to harmonized standard EN 300-220 covering essential radio requirements of the RTTE directive.

Notes: - Conformity has been evaluated according to the procedure described in Annex III of the RTTE directive.

- Receiver class (if applicable): 3.

According to the 1999/519/EC recommendation, minimum distance between the product and the body could be required depending on the module integration.

Warnings: - CE marking applies only to End Products: Because this equipment is only a subassembly, conformity testing has been reduced (equipment has been design in accordance to standards but full testing is impossible). Manufacturer of End Products, based on such a solution, has to insure full conformity to be able to CE label marking.

- As the integration of a radio module requires wireless technological knowledge, ADEUNIS RF proposes its technical proficiency to its customers for a pre-compliance qualification of end products. In case of no-conformity, ADEUNIS RF will not be held back responsible if this stage has not been realised.

Crolles, November 6th, 2007
 VINCENT Hervé / Quality manager

A handwritten signature in black ink, appearing to be 'V. Hervé', is written over the printed name.

Download of the user guide

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Index **Products**

Paragraph **OEM Modules > Transmitters & Receivers**

Print version available upon request

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General description

The ARF7243A module is an Xtal based reference 869.525 MHz ASK transmitter. Its power is adjustable with a maximum of 500mW on 50 ohms. This transmitter is compatible with any ASK receiver able to handle 100% modulations as the ARF7246A receiver (description enclosed).

The ARF7246A receiver is a very high sensitivity ($0.5\mu\text{V}$ / -113dBm) ASK single heterodyne module.

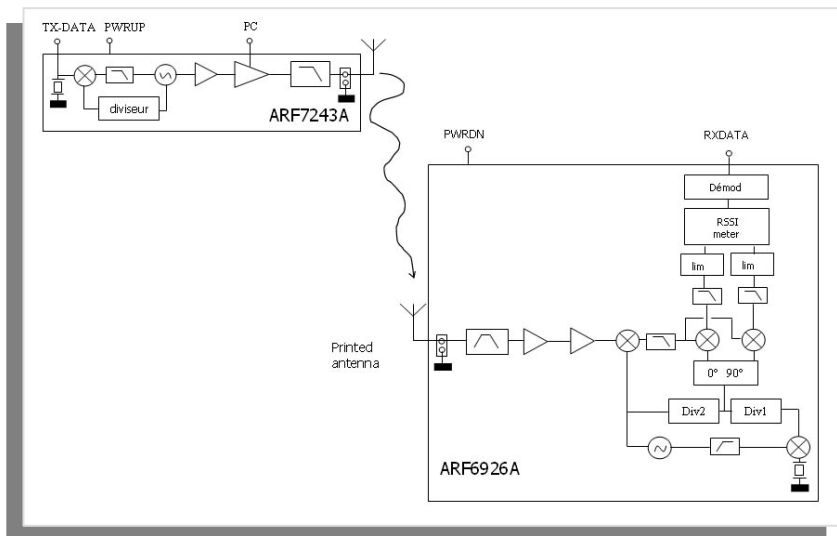
It could function with all ASK 100% Xtal based transmitter (bandwidth: 100kHz). These modules are supplied without antenna. To increase the performances, we recommend the use of a « Whip » antenna.

The receiver is equipped with an antenna printed directly on the PCB. The antenna performances are directly linked to the module integration on the motherboard.

All these modules build rough radio links; bit coding and frame coding has to be process by associated digital controller.

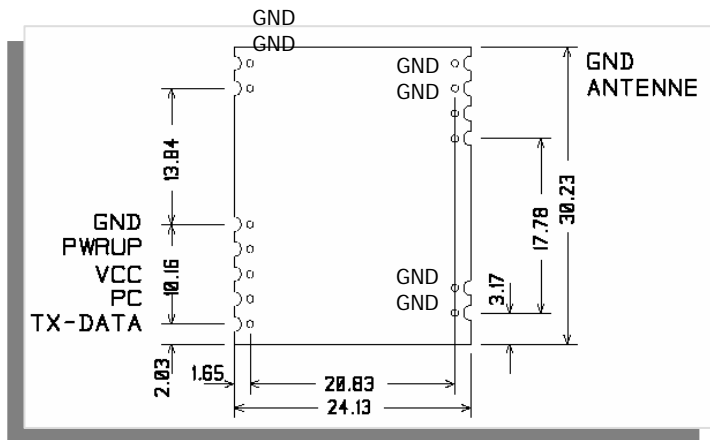
There are all available as subassembly daughter boards to complete an electronic digital motherboard.

Synoptics



Product interface

Transmitter



Size / Electric pin assignment:

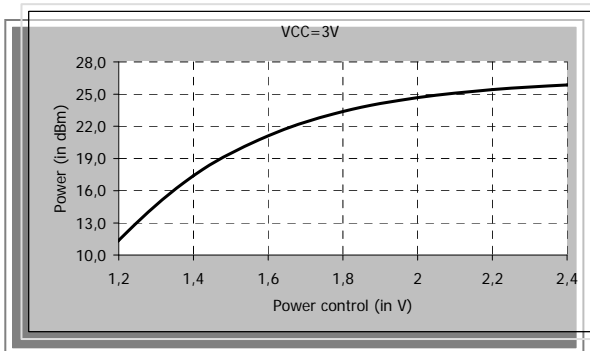
- PC: Management of the product power.
- TX-DATA: Data input.
- PWRUP: power-up input.

NOTE

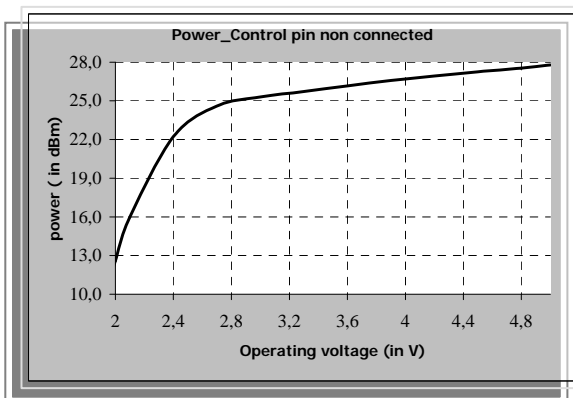
- dimensions are given in mm
- Antenna & connectors (2.54mm pitch) non-supplied.
- Radio module has to be powered using an external power supply connected between VCC and GND. Operating voltage has to be in the 2 – 5V range.
The maximum power is obtained through a 5V operating voltage.
- Power is triggered using the PWRUP pin:
 - PWRUP = "1" → Transmitter on.
 - PWRUP = "0" → Transmitter off.

- When in standby mode, "TX-DATA" pin has also to be logical 0.
- The PC pin (Power_Control) allows the modification of the transmitter power.

The diagram gives a view of the power evolution regarding the operating voltage on the POWER_CONTROL :

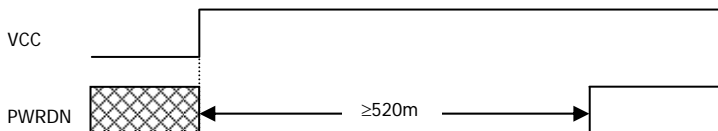


- When the Power_control pin is non connected, le product gives its maximum power (more or less 1 dB). The diagram gives a view of the product typical evolution regarding the operating voltage (Power_control pin non connected) :



ATTENTION : If using a pull down resistor on PWRDN, its value has to be less than 220 Ohms!

If the receiver stand-by mode is activated immediately after powering up the equipment, please use timings below (for good receiver IC internal Reset).



- The antenna is directly printed on the PCB. (Avoid any high component close to the antenna)

Specifications

Transmitter

| | | |
|-------------------------|---------------------------------------|-----------------|
| Operating frequency | 869.525 MHz | - |
| Conducted power | from 25 mW (+14dBm) to 500mW (+27dBm) | on 50 Ohm at 5V |
| Modulation | ASK | - |
| Operating voltage (VCC) | from 2.7 to 5V | |
| Digital input levels | 0 / VCC | - |
| Electric consumption | from 150 mA to 600mA | - |
| Standby current | <10 μ A | - |
| Start time | 2 ms | - |
| Pinning | see chapter 4.2 | - |
| Size | 24,1 x 30,2 x 7 without antenna | - |

Receiver

| | | |
|-------------------------|--|----------------|
| Frequency | 869.525 MHz | - |
| Sensitivity | 0.5 μ V (-113dBm) for 10 ² /PN9 | On 50 Ω |
| Demodulation | ASK | - |
| Bandwidth | 100 kHz | - |
| Operating voltage (VCC) | from 2.2V to 5V | Nominal: 3V |
| Serial digital output | 0 / VCC | - |
| Consumption | 10 mA | - |
| Standby current | <1 μ A | - |
| Start time | 5 ms | - |
| Pinning | see chapter 4.2 | - |
| Size | 48 x 15 x 7 with printed antenna | - |

Complete set

| | |
|---------------------|----------------------------------|
| Link settling time | 2.5ms |
| Range in open field | 2000m |
| Binary rate | from 1.2 to 2.4 kbps Manchester |
| Temperature | from -20°C to +70°C |
| Standards | Radio: EN300220 CEM: EN301489 |