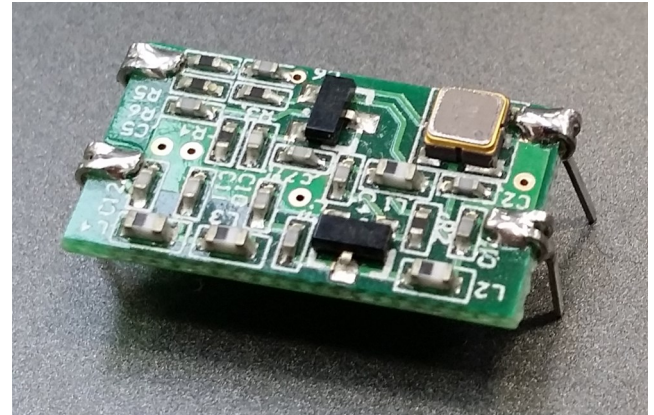


Long Range AM Transmitter Module

Features

- Complete RF Transmitter
- CMOS / TTL Input
- No Adjustable Components
- Very Stable Operating Frequency
- Low Current Consumption
- Low Spurious Emissions
- High Output Power
- PLL Design
- Range 100+ metres



Applications

- Wireless Security Systems
- Car Alarms
- Remote Gate Controls
- Remote Sensing
- Data Capture
- Sensor Reporting

General Description

The R F Solutions Ltd. AM-RT14 high power AM transmitter module provides a complete RF transmitter which can be used to transmit data at up to 9,600Kbps from any standard CMOS/TTL source.

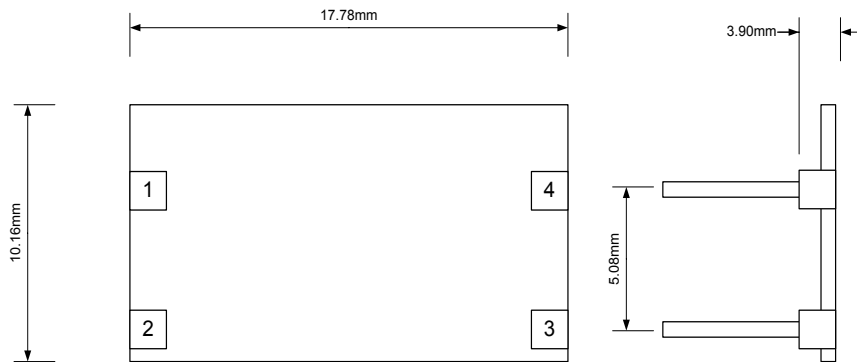
The module is very simple to operate and offers low current consumption (typ. 8 mA). Data can be supplied directly from a microprocessor or encoding device, thus keeping the component count down and ensuring a low hardware cost.

The module exhibits extremely stable electronic characteristics with no adjustable components and very reliable operation. The modules are compatible with R F solutions Ltd. range of AM receivers to provide a complete solution.

Ordering Information

Part Number	Description
AM-RT14-433P	DIL AM Transmitter Module 433.92MHz
AM-RT14-433PSO	SMT AM Transmitter Module 433.92MHz
AM-RT14-433PSOTR	SMT Tape & Reel AM Transmitter Module 433.92MHz

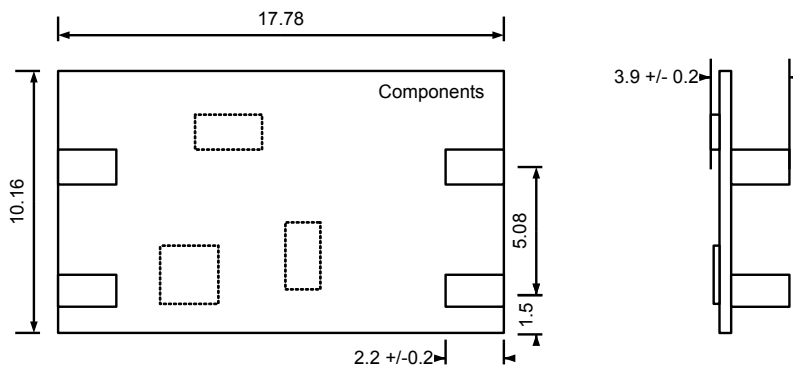
Transmitter Connection Diagram and Mechanical Dimensions



Notes

- Pin Dimensions: 0.6 x 0.60mm
- All measurements in mm
- Tolerance: +/- 0.2mm

AM-RT14-433SO



Pin Description

Vcc (pin 1) : +Ve supply pin. The module will generate RF when Vcc is present.

RF GND (pin 2) :RF ground pin, internally connected to pin 4 (0v). This pin should ideally be connected to the nearest ground plane (e.g coax braid, main PCB ground plane etc.).

RF IN (pin 3) : Data input.

Pin No	Name	Description
1	Vcc	Supply Voltage
2	GND	Ground, Connect to RF earth return path
3	IN	Data input
4	ANT	External Antenna

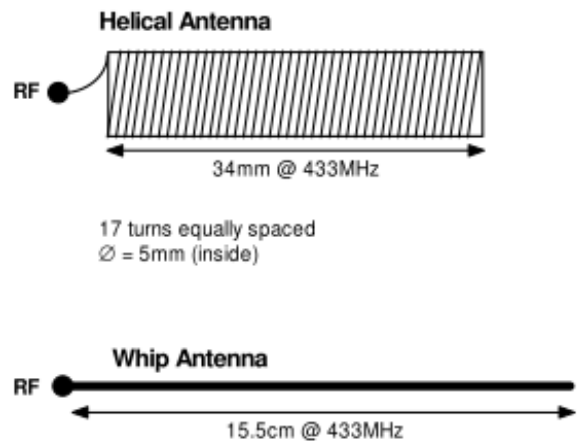
Antenna Design

The design and positioning of the antenna is as crucial as the module performance itself in achieving a good wireless system range. The following will assist the designer in maximising system performance.

The antenna should be kept as far away from sources of electrical interference as physically possible. If necessary, additional power line decoupling capacitors should be placed close to the module.

The antenna 'hot end' should be kept clear of any objects, especially any metal as this can severely restrict the efficiency of the antenna to receive power. Any earth planes restricting the radiation path to the antenna will also have the same effect.

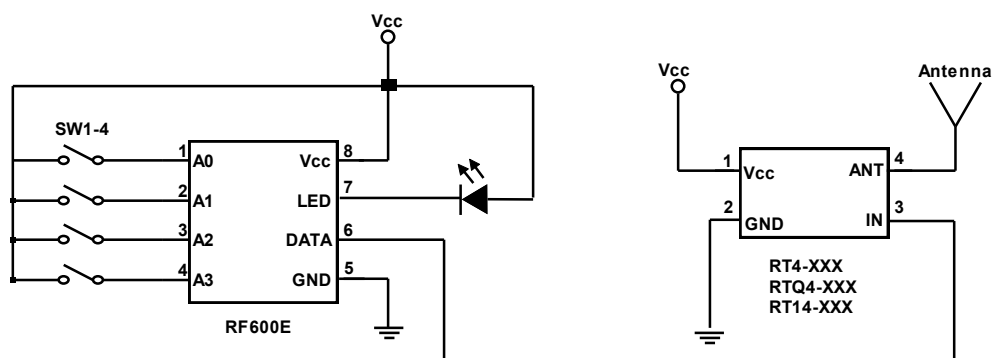
Best range is achieved with either a straight piece of wire, rod or PCB track @ $\frac{1}{4}$ wavelength (~16cm @ 433.92MHz). Further range may be achieved if the $\frac{1}{4}$ wave antenna is placed perpendicular in the middle of a solid earth plane measuring at least 16cm radius. In this case, the antenna should be connected to the module via some 50 ohm characteristic impedance coax.



Application Circuit

The application circuits a remote control Schematic, for further Data please see DS600.

Transmitter Circuit



The transmitter application circuits generates a highly secure Keeloq protocol four switch transmitter encoder with LED indication or Transmission.

Absolute Maximum Ratings: Transmitter (all voltage versions)

Characteristic	Min.	Max.
Operating Temperature	-25°C	+80°C
Storage Temperature	-50°C	+100°C
Supply Voltage	-	24V
Data Input	-	10V

Electrical Characteristics: Transmitter

Ambient Temp 25 Unless Stated otherwise stated

	Min.	Typ.	Max.	Units	Note
DC Levels					
Supply (5V variants)	2		9	Vdc	
Supply current		8		mA	Vcc=5V IN=1kHz
RF & Data (All Variants)					
Working Frequency		433.92 868.65		MHz	
RF Output Power	+10	+12		dBm	Measured into a 50W Vcc=4V.
Harmonic Spurious Emissions		-55		dBc	
Input Voltage High	2			V	
Data Rate	50		9600	Hz	

RF Solutions Ltd. Recycling Notice

Meets the following EC Directives:

DO NOT

Discard with normal waste, please recycle.



ROHS Directive 2002/95/EC

Specifies certain limits for hazardous substances.



WEEE Directive 2002/96/EC

Waste electrical & electronic equipment. This product must be disposed of through a licensed WEEE collection point. RF Solutions Ltd., fulfills its WEEE obligations by membership of an approved compliance scheme.

Waste Batteries and Accumulators

Directive 2006/66/EC

Where batteries are fitted, before recycling the product, the batteries must be removed and disposed of at a licensed collection point.

Environment Agency producer registration number:

WEE/JB0104WV.

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