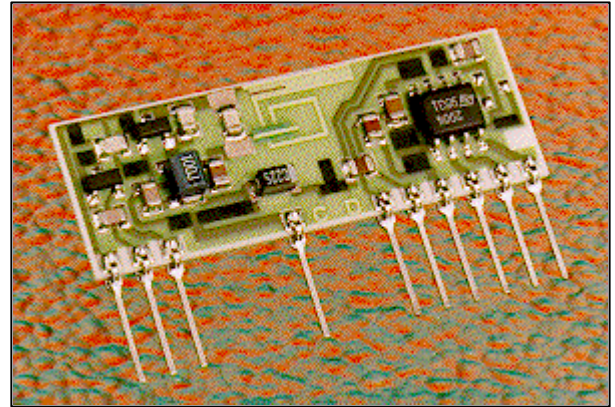


- COMPACT HYBRID MODULE.
- VERY HIGH FREQUENCY STABILITY (with no adjustable components).
- RECEIVING RANGE UP TO 45 METRES.
- CMOS/TTL COMPATIBLE OUTPUT.
- LOW CURRENT CONSUMPTION;
  - ⇒ RR3 TYP 2.5mA.
  - ⇒ RR6/8 TYP 0.5mA.
- SINGLE SUPPLY VOLTAGE 3V or 5V.
- COMPATIBLE WITH R.F. SOLUTIONS AM TRANSMITTERS.
- PATENTED LASER TRIMMED INDUCTOR.
- AVAILABLE FROM 250-450MHz
- COMPLIANT TO ETSI 300-220.
- REQUIRES NO RADIO LICENCE TO OPERATE.



## Description

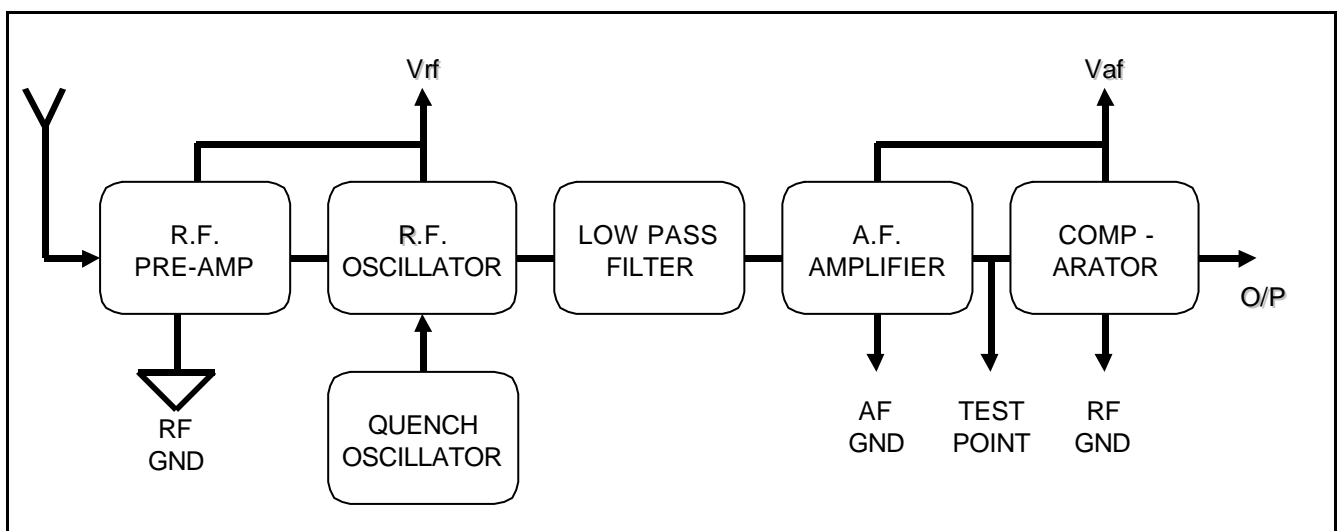
The R.F. Solutions AM Receiver modules are compact hybrid RF receivers, which can be used to capture undecoded data from any 418 or 433MHz AM Transmitter, such as R.F. Solutions AM-TX1, or AM-RT4 / 5 range of transmitters. (See AM Transmitter data sheet)

These modules show a very high frequency stability over a wide operating temperature even when subjected to mechanical vibrations or manual handling.

A unique laser trimming process which has been patented gives a very accurate on board inductor, removing the need for any adjustable components.

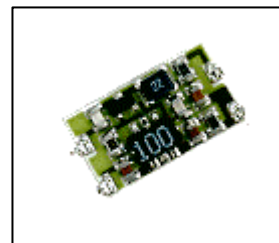
All receivers are compatible, producing a CMOS/TTL output, and require connections to power and antenna only. The HRR6 is a version with Very Low Current consumption which has a typical quiescent current drain of only 0.5mA. In addition the HRR8 operates from a 3Vdc supply.

## Block Diagram



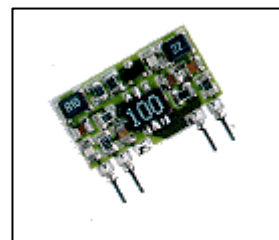
## FEATURES

- COMPLETE RF TRANSMITTER
- TRANSMIT RANGE UP TO 70m
- CMOS/TTL INPUT
- AVAILABLE IN DIL OR SIL PACKAGE
- NO ADJUSTABLE COMPONENTS
- VERY STABLE OPERATING FREQUENCY
- LOW CURRENT CONSUMPTION (TYP 4mA)
- LOW SPURIOUS EMISSIONS (-35dBc)
- WIDE OPERATING VOLTAGE (2-14V)
- AVAILABLE AS 315, 418 OR 433 MHz
- COMPATIBLE WITH RF SOLUTIONS RECEIVERS



## APPLICATIONS

- WIRELESS SECURITY SYSTEMS
- CAR ALARMS
- REMOTE GATE CONTROLS
- REMOTE SENSING
- DATA CAPTURE
- SENSOR REPORTING



## DESCRIPTION

The R F Solutions Ltd. AM hybrid transmitter module provides a complete RF transmitter which can be used to transmit data at up to 4 kHz from any standard CMOS/TTL source.

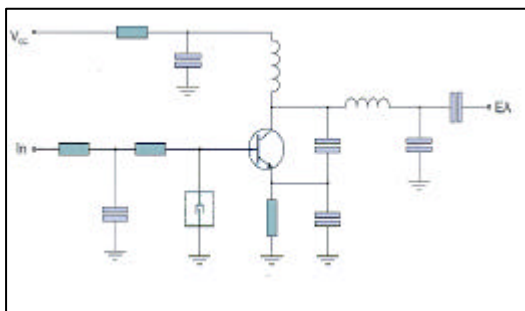
The module is very simple to operate and offers low current consumption (typ. 4 mA). Data can be supplied directly from a microprocessor or encoding device, thus keeping the component count down and ensuring a low hardware cost.

The module exhibits extremely stable electronic characteristics due to the use of 'Thick-Film' hybrid technology, which uses no adjustable components and ensures very reliable operation.

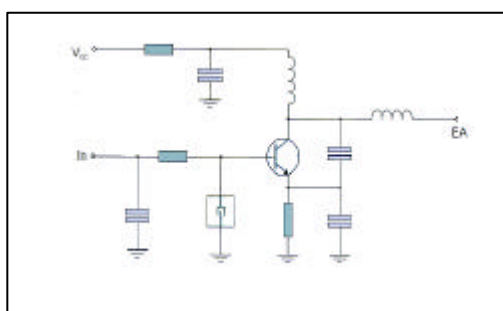
The modules are compatible with R F solutions Ltd. range of AM receivers to provide a complete solution.

## CIRCUIT SCHEMATICS

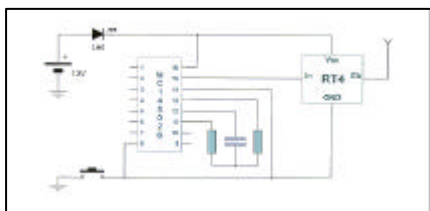
RT4



RT5

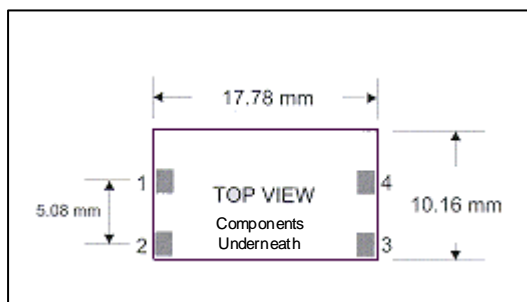


## TYPICAL APPLICATION

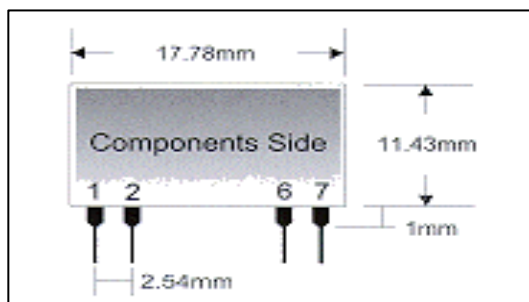


## MECHANICAL DIMENSIONS

RT4



RT5



## PIN DESCRIPTIONS

RT4 Pin	RT5 Pin	Name	Description
1	7	Vcc	Supply Voltage
2	6	GND	Ground, Connect to RF earth return path
3	2	IN	Data input
4	1	EA	External Antenna

## ELECTRICAL CHARACTERISTICS

Ambient temp = 25°C unless otherwise stated.

Characteristic	Min.	Typ.	Max.	Dimensions
Supply Voltage	2		14	Vdc
Supply Current (Vcc=5V IN=1kHz)		4		mA
Supply Current (Vcc=5V IN=DC)		50		nA
Working Frequency	303.8		433.92	MHz
RF Output Power into 50Ω (Vcc=5V)		0		-dBm
Harmonic Spurious Emissions		-30		-dBc
Input Voltage High	2		Vcc	V
Time from Power on to data transmission		10		μSec
Data Rate	50		4000	Hz
Operating Temperature	-25		+80	°C

## PART NUMBERING

PART Number	Description
AM-RT4-418	DIL AM Transmitter Module 418 MHz
AM-RT4-433	DIL AM Transmitter Module 433 MHz
AM-RT5-418	SIL AM Transmitter Module 418 MHz
AM-RT5-433	SIL AM Transmitter Module 433 MHz

Should you require further assistance, please call;

**R. F. Solutions Ltd.,**  
**Unit 21, Cliffe Industrial Estate,**  
**South Street,**  
**Lewes,**  
**E Sussex, BN8 6JL. England.**

**Tel +44 (0)1273 898 000. Fax +44 (0)1273 480 661.**

**Email [sales@rfsolutions.co.uk](mailto:sales@rfsolutions.co.uk)**

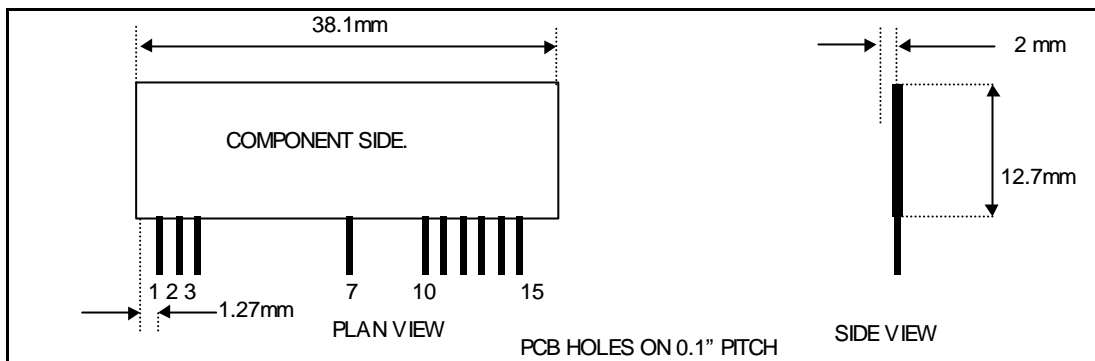
**<http://www.rfsolutions.co.uk>**

R F Solutions Ltd is a member of the Low Power radio Association



Information contained in this document is believed to be accurate, however no representation or warranty is given and no liability is assumed by R.F. Solutions Ltd. with respect to the accuracy of such information. Use of R.F.Solutions modules as critical components in life support systems is not authorised except with express written approval from R.F.Solutions Ltd.

## Mechanical Details



## Pin Description

Pin No	Pin Name	Pin No	Pin Name
1	RF +Vcc	8, 9	NC
2	RF GND	10	AF +VCC
3	DATA IN (Ant)	11	AF GND
4	NC	12	AF +VCC
5	NC	13	TEST POINT
6	NC	14	DATA OUT
7	RF GND	15	AF +VCC

## Part Numbering

Part Number	Description
AM-HRR3-XXX	Receiver Module
AM-HRR6-XXX	Receiver Module Very Low Power
AM-HRR8-XXX	Receiver Module Low Voltage Supply, Very Low Power

## Electrical Characteristics

Ambient temperature = 25° Celsius.

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Storage Temperature Range	-30		+85	° C
Operating Temperature Range	-25		+85	° C
Working Frequency Range	200		450	MHz
Tuning Tolerance		+/- 0.2	+/- 0.5	MHz
-3dB Bandwidth		+/- 2	+/- 3	MHz
Data Rate	50		2000	Hz
Level of Emitted Spectrum		-65	-60	dBm
High Level Output Voltage	4.5			V
Output Voltage @ 1mA sink		0.6		V
Data Output Current (AM-HRR3-XXX @3.6V)			10	mA

## Electrical Characteristics for AM-HRR3-xxx

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Supply Voltage (RF+Vcc, AF+Vcc)	4.5	5	5.5	V
Supply Current		2.5	3	mA
Time from Power HRR3 / 4 / 5 on to Valid Output Signal		1.2		Secs
R.F Sensitivity 100% AM (AM-HRR3-XXX)	-100	-105		dBm

## Electrical Characteristics for AM-HRR6-xxx, & AM-HRR8-xxx

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION
Supply Voltage (RF+Vcc, AF+Vcc) for AM-HRR8 only	2.7	3	3.3	V
Supply Current		0.5		mA
Time from Power on to Valid Output Signal		150		mSecs
R.F Sensitivity 100% AM (AM-HRR6-XXX)		-95		dBm
R.F Sensitivity 100% AM (AM-HRR8-XXX)		-90		dBm

