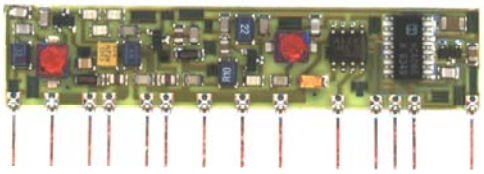
ABACOM
TECHNOLOGIES

AM-RTD-315 Transceiver Module

The AM-RTD-315 AM Digital data transceiver module is a low-cost device which allows for simple implementation of a half-duplex two-way radio link featuring fast Rx-Tx switching and low current operation. Typical data rates of 4800bps are possible with encoded data (eg Manchester encoding) or 10kbps are possible for unencoded data.



Technical Specification

- High-miniaturization SIL thick-film hybrid circuit
- Operating frequency: 315 MHz
- TX power: ~ 1 mW (0 dBm) with 50Ω load;
- RF sensitivity measured with input On-Off signal:
  better than 10mV (-87dBm)
- LF bandwidth : 10 KHz square wave
- Pin 8 (antenna) impedance : 50ς
- Dimensions: 63.5 x 14.5 x 3.5 mm. Pin pitch 2.54 mm

Consumption @ +5V

- Tx section : [10 mA
- Rx section: [3 mA
- With both sections Off: [1 mA (pin 1=0V and pin 25=+5V)

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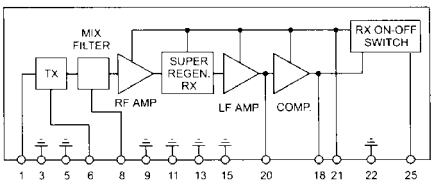
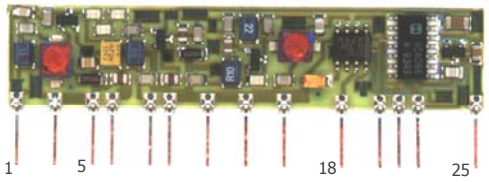
Pin-out

1) TX data input
   0V=Tx Off
   5V= Tx continuous On
3) Ground
5) Ground
6) Tx +5V supply
8) Antenna
9) Ground
11) Ground
13) Ground
15) Ground
18) RX data output
(5V logic level)
20) Test point
21) Rx +5V supply
22) Ground
25) Rx On-Off
   0V=Rx On
   5V=Rx Off
(On-Off switching time: <5ms)



Note the pin numbers in the block diagram refer to the actual pin numbers on the AM-RTD-315 transceiver module incrementing sequentially from pin 1 on the left of the components side, through to pin 25 on the right hand side. Pin numbers are based on 0.1" spacing.



External control of pin 25 enables a receiver On-Off switching time less than 5ms, allowing the receiver to be switched off during transmission resulting independent operation (half-duplex) of the TX and RX sections.

Power must be supplied to the device in order to satisfy the declared switching time.

If a switching time of about 100 ms is allowed, it is possible to obtain a null stand-by current (pin 1 and pin 25 = 0V, pin 21 = +5V when required).

Pin 6 (TX supply) can always be left at 5V.

Antenna

Attach a length of wire cut to 1/4 wavelength directly to the antenna pin, pin 8. For 315 MHz the total antenna length will be 22.7cm or 8.91in. measured from pin 8.

If the antenna is to be mounted a distance away from pin 8, then a 50Ω coaxial cable such as RG174U should be used from pin 8 and ground to the antenna.

Other antenna such as a tuned loop or a helical antenna may be employed, but by comparison, the 1/4 wave whip antenna will give best overall results

Keep the 'hot' end of the antenna well clear of surrounding objects, particularly large conductive surface areas such as batteries and ground planes. The antenna should have as much free space around it as possible.

Encoder / Decoder IC

The DPC-64 Manchester encoder/decoder and data packet controller IC is available to further simplify design integration and reduces design time significantly. For details on the DPC-64 please call us or visit our website at www.abacom-tech.com/encoders.htm