



# WIRELESS RF MODULE MANUAL

**27985**

912 MHz TRANSCIVER

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## 3 General

This manual covers one item:

- **27985** RF Transceiver Module  
It receives RF and outputs your data (and)  
It accepts your data and outputs RF.  
This RF module is used to send remote control data back and forth  
between two or more Basic Stamps.

Reference the color label on the modules pin names on the back  
of the module.

### Transceiver hook-up (TRANSMIT)

1. Plug the transmitter into a solderless breadboard, do not  
solder directly to the pins of the module.
2. The module itself should be positioned vertically, so it is  
perpendicular to the bread board and any solid ground area  
you might have under it (this will give you more range).

3. Connect all pins labeled GND to ground. (Make sure the  
ground is common with your Basic Stamp.) You only really  
need one pin connected to ground, but connecting the other  
ones, may give you a better ground connection for purposes  
of range.
4. Connect the +3V to +5VDC pin to a clean, regulated +3V to  
+5VDC (+/- 5%) power supply at 30mA. (If you are using a  
B.O.E. type of Parallax Board, you can connect it to the  
+5VDC supply on the board. Typically this will be the output  
of a 7805 voltage regulator.
5. Connect the TXD (Transmit Data) pin to any I/O on your  
Basic Stamp.

5. Apply power to the Stamp and the Transceiver. (Now your  
ready to start using your Transceiver to send serial bytes.)
7. Using the **SEROUT** instruction, you can send a serial byte to  
another Transceiver. (**Make sure you use the baud rate of  
9600, N, 8, 1**) (If you are using the BS2 an example would  
be "SEROUT 1, 84, [your-data]").

### Transceiver hook-up (RECEIVE)

1. Plug the Transceiver into a solderless breadboard, do not  
solder directly to the pins of the module.
2. The module itself should be positioned vertically, so it is  
perpendicular to the bread board and any solid ground area  
you might have under it (this will give you more range).

6. Connect all pins labeled GND to ground. (Make sure the  
ground is common with your Basic Stamp.)
4. Connect the +3V to +5VDC pin to a clean, regulated +3V to  
+5VDC (+/- 5%) power supply at 30mA. (If you are using a  
B.O.E. type of Parallax Board, you can connect it to the  
+5VDC supply on the board. Typically this will be the output  
of a 7805 voltage regulator.
5. Connect the RXD (Receive Data) pin to any I/O on your Basic  
Stamp. (**Make sure this pin is configured as an INPUT.**)
6. Apply power to the Stamp and the Transceiver. (Now your  
ready to start using your Transceiver to receive serial bytes.)
7. Using the **SERIN** instruction, you can receive a serial byte  
sent by another Transceiver. (**Make sure you use the baud  
rate of 9600, N, 8, 1**). (If you are using the BS2 an example  
would be "SERIN 1, 84, [variable-to-receive-data-byte]").

7. **Antenna and Grounding**
  - Do not allow the antenna to touch any surface or conductive  
material.
  - Unfold antenna and make sure its pointing straight. If it can not  
be straight due to your application having limited space it is ok to  
fold it, but your range will be reduced.
  - Do not attempt to increase the length or change the antenna, as  
it will reduce performance and or damage the module.
  - When ever possible, provide as much ground area under the  
module as possible. For example a copper clad circuit board that  
is one foot square, directly under the bread board the modules is  
mounted on, is perfect. Note it is very important to connect a thick  
ground strap (wire) from the module grounds to the ground area  
for it to be effective. • **Do not allow the antennas to touch.**

8. **Misl.**
  - Single direction communication requires at least:**  
2 Transceivers.
  - Bi-directional communication requires at least:**  
2 Transceivers.
  - Multi Point Communications can be achieved by:**  
Placing one transmitter at each node that needs to send  
information.

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Placing one receiver at each node that needs to receive information.

Placing one transceiver at each node that needs to send and receive information.

### Regulatory Warnings

These modules (boards) are NOT FCC approved. They are designed to comply with the FCC Part 15 Rules and Regulations. They are not in a finished product form. They are strictly intended for experimental purposes only. If you wish to use these modules in an actual product (a non-experimental capacity), the module must first be designed into the product, then the whole product must be approved by the FCC. For a list of FCC approved Labs

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### WARRANTY

Parallax Inc. warrants its products against defects in materials and workmanship for a period of 90 days from receipt of product. If you discover a defect, Parallax Inc. will, at its option, repair or replace the merchandise, or refund the purchase price. Before returning the product to Parallax, call for a Return Merchandise Authorization (RMA) number. Write the RMA number on the outside of the box used to return the merchandise to Parallax. Please enclose the following along with the returned merchandise: your name, telephone number, shipping address, and a description of the problem. Parallax will return your product or its replacement using the same shipping method used to ship the product to Parallax.

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that can test your final product for compliance contact RF Digital Corporation at (818) 541-7622 or visit the web site at <http://www.rfdigital.com>.

It is the responsibility of the user to be aware of the regulatory requirements in their area of operation and application. For exact information contact the FCC Office at:

Federal Communications Commission  
<http://www.fcc.gov>

USE OUTSIDE OF THE U.S.A. It is the responsibility of the user to be aware of the regulatory requirements in their area of operation and application. Contact your local regulatory agency and obtain compliance information.

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For O.E.M. Design-In Guidance for the modules please contact::

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### Operational Warnings

Do not expose the boards to direct outdoor environment. If they will be used outdoors, keep them away from water, moisture and direct sunlight.

The serial input and output pins operate at +3v to +5V and 0V logic levels. Do not attempt to connect directly to a computer RS232 port as this will damage the module. Typical levels at a

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computer RS232 port are +10V and -10V; these voltages would immediately damage the module. The module is intended to interface directly with the Basic Stamp, other +3V to +5V logic devices and controllers.

In classroom environments, many transmitters and receivers may be within communication range. When not in use, disconnect power from your project, including the module, to assure there is no chance for unintentional transmission. Transmissions from other devices can disallow other students to perform their wireless experiments.

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