



# BayPac™ Model BP-1 Packet Modem

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## - INSTALLATION -

### INTRODUCTION

The BayPac Model BP-1 comes completely assembled and tested. Installing it is a two-step process. The first step involves connecting the BayPac to your radio and computer. This document will help you thru that process. The second step involves setting the transmit and receive audio levels. We have provided a setup program on disk to make that task very easy. In addition, you will of course need to install Baycom software on your computer. We have supplied a complimentary copy of this software on our setup disk for your convenience.

### WHAT YOU WILL NEED

To run the Baycom software you will need an IBM PC/XT/AT or fully compatible clone. To install the BayPac modem, your computer will need a serial port. In addition you will need whatever connectors are required to attach to the external speaker jack and microphone input on your radio. These parts may have been supplied with your radio or may be purchased from your local electronics dealer.

### CONNECTING THE COMPUTER

If your computer has a DB-25 connector on its serial port (PC/XT), you simply need to plug the BayPac into the connector. If your computer uses a DB-9 connector, you will need an adapter cable. A suitable cable is available from Tigertronics (Part # ADAPT-25M/9S) or from your local computer store. If you wish to build the cable, refer to the diagram in Figure 1. Be sure to remember whether you have connected to COM1 or COM2 on your computer. You will need this information when running the setup program and during Baycom software installation.

### CONNECTING THE RADIO

There are only four wires required to connect the BayPac to a transceiver. The connector pin-out is shown in Figure 2.

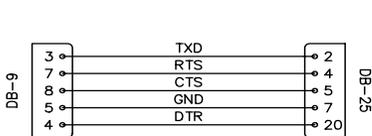


Figure 1

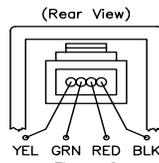


Figure 2

**CAUTION** Notice the orientation of the colored wires with respect to the body of the connector. BE SURE that the cable you plug into the BayPac does not have these wires in reverse order! Remember that when viewing the connector from the rear, with the release lever on the top, the left most wire MUST BE YELLOW.

If you only plan to receive packet (not transmit), you can simply connect the Black ground wire and the Green audio input wire to the external speaker jack on your radio or scanner as shown in Figure 3. These are the only connections necessary to receive packet transmissions.

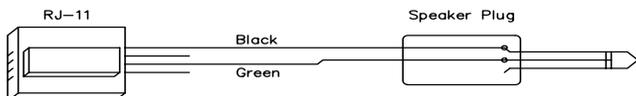


Figure 3

If you are connecting the BayPac to a transceiver, you will also need to connect the PTT line (Red) to key the transmitter and the Audio Out line (Yellow) to the microphone input. Exactly where these connections are made will vary with each model of radio. Most base station and mobile radios of recent manufacture have all the required connections (including the speaker output) available on the microphone connector. This is the ideal situation since it makes the cabling simple. If your radio does not have the speaker connection on the mic connector you might consider modifying it so that it does. You will find it worth the effort. You will need to refer to your radio manual for the specific pins to connect to.

If your radio does not have the speaker signal on the mic connector, you will need to run a short jumper cable to the external speaker jack. Note that having the speaker cable exit from the mic connector housing (rather than splitting the cable outside the connector) makes a much nicer installation. Refer to Figure 4.

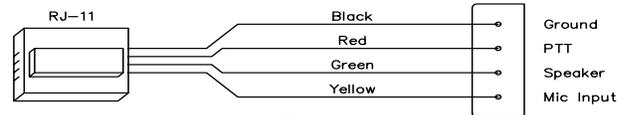


Figure 4

You should verify that your radio requires the PTT line to be grounded to key the transmitter. This is the case for the vast majority of radios. The BayPac expects to pull the PTT line to ground to enable the transmitter. The PTT output is a FET transistor capable of sinking about 300 ma at 12 volts. If your radio needs some other keying arrangement (not likely) you will need to provide it.

### HT OPERATION

If you are connecting the BayPac to an HT you may find that there is no PTT line available. Many of these radios key the PTT by grounding the mic input thru a resistor as shown in Figure 5. The value of the resistor is not critical. A value of 4.7k ohms is generally acceptable. Refer to your radio manual for specific recommendations. NOTE: When using your HT for packet, WE STRONGLY RECOMMEND that you use AN EXTERNAL ANTENNA located at least a few feet away from both the BayPac and the computer. The connections on most HTs are a fraction of an inch from the antenna and will almost certainly pick up enough RF to cause some sort of problem. Refer to the section on RF Interference in this document for further information.

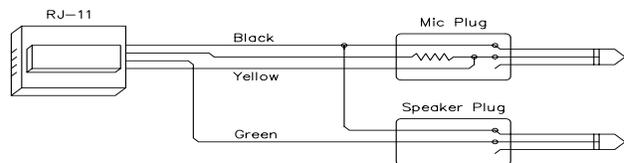


Figure 5

### SETUP DISK

We have provided a disk with the BayPac modem that contains several files of interest. Print or list the THISDISK.DOC file on the disk for an explanation of each file. We have also supplied you with a customized copy

of Baycom in a separate subdirectory. If you don't currently have a copy, you will want to copy the entire Baycom subdirectory onto your computer and then read the FAST\_RUN.DOC file that we have added to get you up and running quickly.

### CALIBRATION

Most functions within the BayPac are self-calibrating. However, there are two adjustments which must be made by the user since they vary with the type of radio being used. The first is the modulation "Level Adjust" located on the top of the BayPac unit. This adjusts the level of the tones going to the microphone input of the radio. It must be set to provide a transmitter deviation of about 4 KHz. The second adjustment is the receiver volume control. This setting is not particularly critical. You may notice that the calibration program has you set the level rather high. This is done so that the BayPac can scale the level to its needs. Both of these adjustments can be made using the BAYPAC.EXE program provided on the BayPac Setup Disk. Instructions for making these adjustments are provided by a Help Screen within the program. You will need a second receiver to listen to your signal during the test. Be sure to perform the testing on an unused (Not Packet!) frequency. Use a dummy load if at all possible and keep your transmissions short.

### CALIBRATION PROBLEMS

The tone level from the BayPac is adjustable from zero to about 1.25 volts peak to peak. This wide adjustment range may cause the adjustment to be critical on radios with very sensitive mic inputs. If you feel it is a problem in your case, you can insert a resistor in series with the mic audio (Yellow line) to reduce the sensitivity of the adjustment. The resistor value will vary with the radio, but a good starting value is 10k ohms. The resistor will fit easily inside the connector housing.

### RF INTERFERENCE

The BayPac modem was designed with RF immunity in mind. Not only is its circuitry designed to minimize the generation of radio emissions, but it is also designed to suppress emissions from your computer. Nevertheless, if you operate the unit in the presence of excessively high RF fields, you are probably going to have problems with both the computer (especially laptops) and the BayPac. If this situation is unavoidable, you can increase your chances for success by using shielded cables from an interface box as shown in figure 6. This approach is especially helpful when using an HT in portable operation. RF induced problems are easily identified since they generally cause the BayPac and/or computer to become totally inoperative (lock up). You can reset either by simply turning off the power and then restarting the program. **WARNING** Excessively high levels of RF could permanently damage your equipment. Try to keep your antenna at least a few feet away.

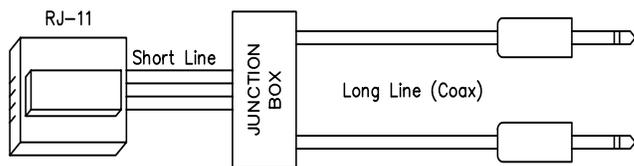


Figure 6

### HELPFUL HINTS

Check the BayPac Setup Disk for the HINTS.DOC file containing operating tips to increase your enjoyment of both the BayPac modem and the Baycom software.

### TECHNICAL SUPPORT

If you encounter problems that you cannot resolve with BayPac (not Baycom), you can reach the Tigertronics technical support staff at (503) 474-6702. Be sure to have your equipment and manuals available when you call. **PLEASE DO NOT MAIL** your technical inquiries to us. We realize a call is a little more expensive, but more can be accomplished in a few minutes on the phone than can be done in hours of writing!

### LIMITED WARRANTY

Tigertronics warrants the BayPac Model BP-1 to be free of defects in material and workmanship for a period of 90 days from the date of shipment. Tigertronics will repair or replace, at its option, any parts found to be defective during the warranty period. This warranty does not include any unit which has been subject to misuse, neglect, improper installation or operation. This warranty is in lieu of all others, express or implied, and no person or representative is authorized to assume for Tigertronics any other liability in connection with the sale or use of this product. Tigertronics will not be responsible for any expense or loss of revenue or property incurred by the user due to operation or malfunction of this equipment. Tigertronics reserves the right to make circuit or component changes, or to incorporate new features, at any time, without obligation.

### RETURN POLICY

A Return Material Authorization number (RMA#) must be obtained from the factory before any product will be accepted for return or repair. Items received at the factory without an RMA# clearly marked on the **OUTSIDE** of the package **WILL NOT BE ACCEPTED**. Items being returned must be sent prepaid. All items being returned should have a tag attached giving the RMA#, customer name, address, phone number, and the reason for the return. Units being returned for warranty repair must be accompanied by a copy of the original sales invoice showing the date of purchase.

Customers wishing to return a product for REFUND, for any reason, must receive an RMA# within 15 days from the shipping date indicated on the original sales invoice. Customers returning products for refund will be charged a Restocking Fee equal to 20% of the invoice value of the item to cover the cost of retesting and restocking. Products which have been damaged or modified in any manner may not be returned for refund.

Call the Technical Support Hotline at (503) 474-6702 to obtain an RMA#. Have a copy of your Sales Invoice available for reference when calling.

### SUPPORT THE BAYCOM TEAM

The Baycom Terminal Program, written by DL8MBT and DG3RBU in Germany, is the product of enormous effort and considerable expense. Hopefully, the current release of Baycom is but the first in a series of releases that will follow in the footsteps of its forerunner Digicom (Commodore 64). Tigertronics encourages you to support the authors with a contribution to their effort. You can find their address and further information near the end of the Baycom manual. Please do it today!

### YOUR COMMENTS WELCOME

Tigertronics has made every effort to make BayPac a superior product. We believe BayPac represents a major technological breakthrough in packet radio and hope we have anticipated your every need in using it. We welcome any comments and suggestions you might have regarding this or any of our other products. Please drop us a note to let us know about your experiences, tips you would like to share with other users, or how we might do a better job for you. Would you be interested in a BayPac/Baycom Newsletter? What other products would you like us to make?

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Rel. 1.00