

# BERG 5\*DSP

## FM mini Receiver

### Full Range Receiver

## Berg-5\*DSP FM RECEIVER

Thank you for purchasing the **Berg-5\*DSP FM** receiver. The greatest care has been put into the design and manufacture to provide to you the best in state of the art performance to be found in a R/C receiver available today. Its small, lightweight size is due to surface mount technology used throughout. Attention to detail shows with features such as selectable modulation shift making it compatible with all brands of FM transmitters. And a new feature called **DSP**, "Digital Signal Processing" Which by the power of it's micro processor and software is able to detect, filter and cleanup any signal noise and throw away false signals.

You may notice that your servos may slowly move very slightly around center even with a strong transmitter signal. This is GOOD! It is a normal function of the precision digital signal processing routines in the **Berg-5\*DSP** and shows that the microcomputer in the **DSP** part of the receiver is 'doing its job' in constantly trying to calculate the best signal to pass on to the servos. It is **NOT** an indication of a weak signal, interference or a radio problem unless it becomes severe enough to result in complete loss of signal (and for that, you have to walk a g-r-e-a-t distance away in your range test). This is not noticeable in flight, to the contrary, because of its precision, you will experience the solid locked in "feel" that only digital processing can give you, during flight.

Advanced ultra narrow-band circuitry design that deals directly with the types of interference found in our r/c world lets you fly worry free and makes the BERG 5 receiver one of the most stable receiver on the market today.

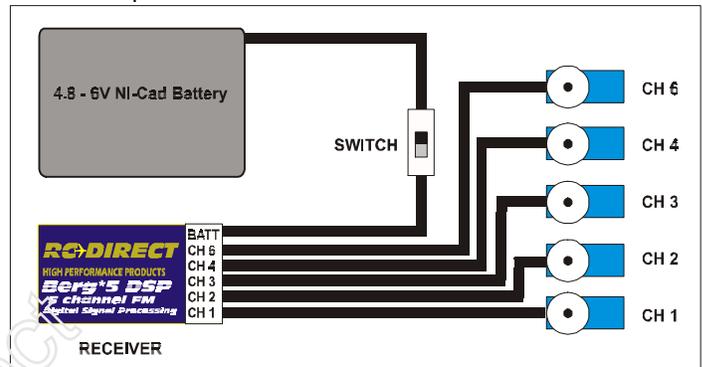
### Crystal

The **Berg-5\*DSP** receiver comes without a crystal installed. This receiver was designed to work with our own crystal, PN RCDXFRxx (replace the xx with channel number). These crystals have tight tolerances and should be the only crystal used with your **Berg-5\*DSP** receiver. The **Berg-5\*DSP** receiver will not operate with other manufacturers crystals.

### Hookup

The **Berg-5\*DSP** receiver has 5 output channels & 1 battery port. Outputs 1 thru 4 are throttle, aileron, elevator, & rudder.

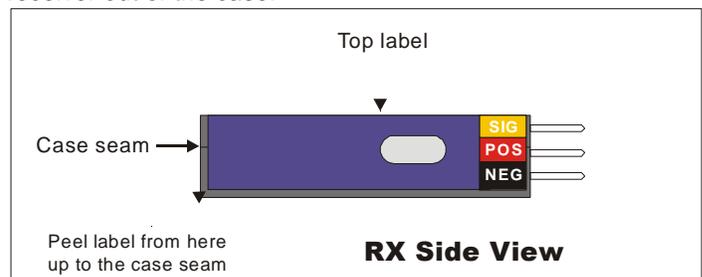
The 5th output is for transmitter channel 6. This allows for mixed outputs that utilize channel 6 for the 2nd servo such as used for flaperons.



### Packaging

Your **Berg-5\*DSP** receiver is supplied in a hard plastic case but you have the option of removing it from the hard case and putting it into the supplied clear shrink tubing. This will save you 3.5 grams.

Remove the case by lifting the top label and then lifting the receiver out of the case.



Insert receiver into the clear heat shrink tubing, center it, and shrink the tubing using a shrink covering heat gun. Trim around the plugs and you are done.

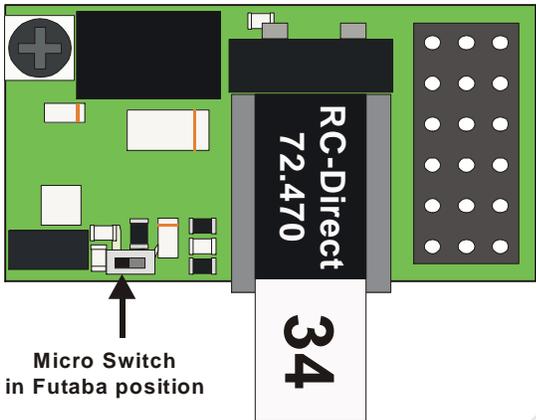
### Modulation Setup

When you purchased your **Berg-5\*DSP** receiver you specified the brand transmitter you were going to use it with. This is because not all transmitters modulate the RF in the same polarity. It is now widely accepted that Futaba and Hitec use

'negative shift' and JR and Airtronics use positive shift. I don't know if that is correct or not, but that is how it looks coming out of the detector on the receiver. The receiver logic section is set up to have either a positive shift signal or a negative shift signal as it will only work one way. So at the factory it is set up for one or the other type of signal.

The Berg-5\*DSP receiver was designed so that either polarity signal can be used. It does this with the use of an inverter and three solder pads on the circuit board. On early models, the polarity of the signal it will operate on depends on the bridging of the three jumper pads on the receiver. On later models, we have incorporated a switch to do the job. The drawing below shows the addition of an aerospace quality micro slide switch that allows you to switch between positive and negative depending on which brand of transmitter you use. In the drawing it shows the switch in the Futaba/Hitec position. Use something small & pointy to change the switch to the right position for use with JR/Airtronics transmitters.

**Berg receiver w/case removed**



Micro Switch  
in Futaba position

The Berg 5\*dsp receiver now comes with an aerospace quality slide switch to shift the modulation between positive and negative position.

The above only applies to 72 mhz receivers. 50 mhz receivers will work with all brands of transmitters with no change.

We have found our receiver will not work with Futaba transmitters using the Futaba synthesized RF module or a Futaba transmitter using a Hitec synthesized RF module. It will work with a Hitec transmitter using a Hitec synthesized RF module.

## Wiring for Batteries and Servos

The Berg-5\*DSP receiver is wired according to industry standard and is the same as JR, Futaba, and HiTec brand radios. If you have Airtronics or other brand equipment, check with the manufacturer first before you plug a battery into your receiver. Plugging an Airtronics (non "Z" type) battery into your receiver will blow the unit out rendering it useless. It also voids your warranty!

Make sure that any servos that you plug into your receiver are also wired correctly or are using the proper adapter cord. Plugging an incorrectly wired servo into any of the servo outputs will burn out the amplifier of the servo. It is possible to know of this by the way the servo does not operate and the terrible smell coming from it! Again, warranty does not apply!

## Crystals

Use only genuine Berg crystals in your Berg receiver. They were designed to have very tight tolerances and have gold plated pins for greater reliability. Using other manufactures crystals may degrade the performance of your Berg receiver and may void your warranty. Even though another brand crystal may work in your Berg receiver, remember that it was designed to operate in an entirely different oscillator circuit and may be putting out erroneous signals. Always insist on genuine Berg crystals for use in your Berg receivers.

## Specifications

Operating Voltage ..... 4. 8-6 volts  
 Current Draw ..... 8ma  
 Antenna Length ..... 38"  
 Weight w/case ..... 13.5 grams  
 Weight w/o case ..... 10 grams  
 Size w/case..... 0.525" x 0.85" x1.65"  
 Sensitivity..... 2uv  
 Bandwidth ..... 5khz or better

## Warranty

All Berg-5\*DSP receivers are backed by a 1 year Limited Warranty. RC-Direct does not warranty for other than radio controlled model use, crash damage or problems caused by neglect or abuse by the user, or suitability for a specific application. Wiring the receiver incorrectly may damage the receiver and this will not be covered. We exclude modifications of any kind, components worn by use, application of improper voltage or current.

Our warranty liability shall be limited to repairing the unit to our original specifications. RC-Direct will repair or replace, at its option, a defective unit within the one year period. Thereafter, the charge for repair shall not exceed 50% of the list price. A copy of the sales receipt must accompany any warranty repair

For technical support or service, call, fax, e-mail RC-Direct at the numbers listed below.

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