

### Berg-4\*DSP micro-stamp receiver

Thank you for purchasing the Berg-4\*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. A newly developed feature called DSP, "Digital Signal Processing" which, by means of its micro-processor and software is able to detect, filter and cleanup most signal noise and interference, 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-4\*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-4\*DSP receiver one of the most stable receiver on the market today.

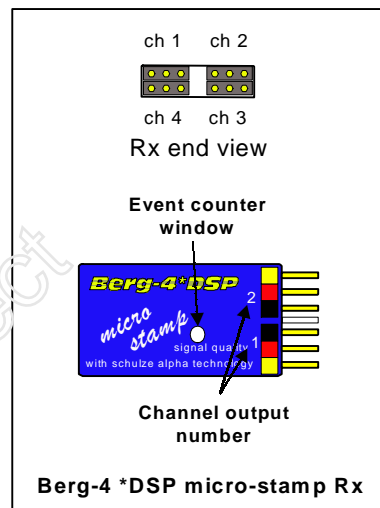
### Interference detection and monitor displays

The digital signal processing eliminates the usual warning of interference, which takes the form of unexpected movements in the model, and to compensate for this we have fitted a **reception quality indicator** (event counter) LED.

The receiver counts invalid transmitter signals it picks up and informs you of the number of unrecoverable frame errors in reception due to



Loss Of Signal (**LOS**) and/or interference, by the following pattern of flashing:



- 1\* flash = 1 event
- 2\* flashes = 2 ... 3 events
- 3\* flashes = 4 ... 7 events
- 4\* flashes = 8...15 events
- 5\* flashes = 16...31 events
- 6\* flashes = 32...63 events
- 7\* flashes = 64...127 events

The LED glows continuously if interference occurs more than 128 times.

**We** suggest that you experiment with various arrangements of your receiving system and power supplies in the model (receiver position, antenna position, receiver battery position, flight or drive battery position) and read off the event count after each test flight or test run. In this way you can establish the optimum installation of the components in your model by adopting the configuration which reduces the **event count to a minimum.**

The event counter is reset by switching off the receiver

### Receiver installation

**We** recommend packing the receiver in soft foam rubber inside the fuselage.

**Ensure** that the reception quality indicator LED is visible. Even though we use aerospace quality contacts in our crystal sockets, we recommend that you apply a piece of tape over the crystal to ensure that it cannot slip out.

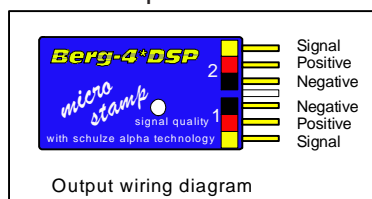
## Antenna routing

**Run** the receiver antenna out of conductive fuselages (carbon) by the shortest possible route. The antenna must not be deployed close to cables, or parallel to steel wire or carbon fiber pushrods or linkages, or any other metallic components (e.g. helicopter chassis, or metal antenna supports).

**If** you have "excess range" (e.g. in slow flyers) it is permissible to shorten the antenna in increments to a minimum of 12 inches (the above stated LED should remain off after test flights). **The** ideal way to deploy a short antenna is to let it trail freely underneath the model aircraft. Never run it horizontally, either along the fuselage or in the wing.

## Connecting the channels

**The** four channels are connected in such a way that the signal wires in the servo cables face out. **Four** channel sockets are available, and can be used, for example, for elevator, rudder, ailerons and BEC speed controller or receiver battery.



**The** receiver can be fed its operating voltage via any channel socket (however preferably on a channel with

very low current draw as e.g. the throttle servo); just make sure that the polarity is correct. On the servo label above or below each servo output port, are 3 colors showing the colors of the servo wires and how they should be plugged into the receiver. Black = negative, Red = positive, Yellow = servo output signal (JR orange, Futaba white, Airtronics blue, Hitec white).

**If** you wish to use two separate aileron servos, they must be connected to the aileron output using a Y harness.

## Specifications

Receiver type: single conversion, triple tuned  
 Operating mode: FM / PPM  
 Negative modulation shift only (Futaba/Hitec)  
 Channel separation: 10 kHz (narrow band)  
 Sensitivity < 8  $\mu$ V

Antenna length: 39 inches, can be shortened to 12" (do a range test!)

Weight: 7 grams including antenna & crystal

Intermediate frequency: 455 kHz

Current draw LED: about additional 1 mA

Noise suppression: digital-squelch

Operating voltage range 4-5 cells = 4.8 ... 6 V  
 nominal voltage = 3.6 ... 9 V min / max.

Operating pulse range Pulse width 850...2350  $\mu$ s  
 (V1=2220  $\mu$ s), pulse interval: 11...32 ms

Crystal type: Berg mini crystal only

## Battery hookup using Y harness

The receiver battery should - if all other channels are used - be connected preferably on the throttle channel using a "y harness" (For safety reasons because of the additional contact resistance).

## Crystals

Mini crystal part number: **BRGMCH # #**

# # = channel number (replace # with channel number).

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.

## US Distributor

RC-Direct

4428 Convoy St. #330  
 San Diego, CA 92111

