Berg-6 G III Receiver

Thank you for purchasing the **Berg-6 GIII 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 microprocessor 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-6 GIII** 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.

The Berg-6 GIII receiver has features found in no other receiver on the market today such as Fail Safe and Signal Hold. Auto-detect modulation polarity shift, programmable channel 5 or channel 7.

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 6 receiver one of the most stable receiver on the market today.

Crystal

The **Berg 6*dsp III** 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 6*dsp III** receiver. The **Berg 6*dsp III** receiver will not operate with other manufacturers crystals.

Specifications

Servo outputs = 6
Fixed channels = 1-2-3-4-6 Selectable channels = 5 or 7
Front end filtering: Triple tuned RF
IF filtering: Transformer + 6-pole ceramic filter
Shift: Auto Shift Detect with TSR
Decoder filtering: True *Digital Signal Processing* (DSP) in the Microprocessor decoder, with adaptive algorithms based on signal to noise ratio of the received signal.
Sensitivity: About 2uv
Modulation shift polarity: Auto-detect (works w/all txs)
Dimensions: 0.525" x 0.85" x 1.65"
Fly-wheel HOLD mode: All servo signals are held hard in position of last good signal seen before signal loss.
Failsafe ON mode: Upon loss of signal, servo outputs will be held for approximately 1 1/2 seconds before driving to pre-programmed fail-safe positions.

Customer Programming

Channel 5 output on channel 5 output port.
Channel 7 output on channel 5 output port.
Fly-wheel mode ON.
Fail-safe mode OFF.
Fail-safe mode ON, one-step programming of all servo positions.
Required for Programming: Your transmitter and 2 jumper plugs (supplied).

Defaults: The Berg-6 GIII is shipped with the Fail-safe Hold mode ON, Fail-safe mode OFF, and channel 5 output on output port 5.

Programming

The major programming decisions should be made prior to installation in the aircraft. Major programming is activated by placing a jumper on channel 2 output and a servo in channel 1 output.
All programming steps start with the receiver OFF.

Select channel 5 output for output port 5.

- Put the second jumper on output port 3.
- Turn the transmitter ON.
- Turn the receiver ON.
- Wait for the servo to rotate signaling "command accepted".
- Power off, remove jumpers.

Select channel 7 output for output port 5.

- Put the second jumper on output port 4.
- Turn the transmitter ON.
- Turn the receiver ON.
- Wait for the servo to rotate signaling "command accepted".
- Power off, remove jumpers.

Select Fail-safe OFF/HOLD.

- Put the second jumper on output port 5.
- Turn the transmitter ON.
- Turn the receiver ON.
- Wait for the servo to rotate signaling "command accepted".

Select Fail-safe mode ON.

- Put the second jumper on output port 6.
- Turn the transmitter ON.
- Turn the receiver ON.
- Wait for the servo to rotate signaling "command accepted".

When you are finished programming the receiver, power off and remove all jumpers and install it in the aircraft.

Programming Fail-Safe Servo Positions

Before you can program in predetermined servo positions, you must setup your transmitter and aircraft for servo directions, travel amounts, dual rates, etc., and fly the plane and trim it out. Once that has been done you may follow the procedure below to set your fail-safe servo positions.

CAUTION: With electric powered aircraft, REMOVE THE PROPELLER!

- With the receiver in the aircraft and the aircraft on the bench, turn on the transmitter and receiver. Operate the transmitter sticks and set and hold the sticks to the positions you would like your servos to go to in the event you completely lost the transmitter signal.
- Hold the sticks in these positions. Keep the transmitter ON.
- Turn the receiver OFF.
- Put a jumper in any of the receiver channels, e.g. the aileron servo extension cable may accessible, or the landing gear output.
- Turn the receiver ON.
- Count to 10.
- Remove the jumper plug from the receiver.
- Done.

Test Fail-Safe operation:

- Turn the transmitter ON.
- Turn the receiver ON.
- Check for control of all servos on the correct sticks.
- Put all sticks in random positions and turn the transmitter OFF.
- All servos will assume their pre-programmed positions approximately after 2 seconds of turning the transmitter OFF.

NOTE: If at anytime during this HOLD or Fail-Safe time frame, if signal is regained, the servos will immediately respond to the transmitter control inputs.

NOTE: When turning OFF a computer transmitter, it may take up to eight seconds for the transmitter to boot up when switched back on, so the control delay may be as much as up to eight seconds.

SUGGESTION: NEVER make this test 'in the air' by turning your transmitter OFF and then ON again, or this may be your last flight of the day. Warranty shall not apply!

CAUTION

When being used in electric airplanes, the receiver and servos are frequently supplied their power via the throttle channel cable from the Electronic Speed Control (ESC). Most ESCs are equipped with a voltage regulator circuit, which acts as a Battery Eliminator Circuit (BEC). BECs are specified to supply a certain (maximum) current – should this current limit be exceeded then the output voltage will be reduced. This means that your receiver and servos could now be operating at voltage levels below their specified minimum. This may cause servo slowdown, motor cut-out and, in worst case, failure of the radio link. With several of the small servos which are used these days, we have measured startup and reversal currents in excess of 1 Amp each!

Example: a popular 25A ESC with a 1 ½ amp BEC, specifies 3 'standard' servos max at 11 Volts. A typical 3-cell LiPo battery produces about 12 Volts. The BEC capacity of the ESC, when using 2 miniature servos, is probably reached. With 3 servos, the limit may be exceeded at short intervals; with 4 servos, failure is likely to occur.

Suggestion: Always check the maximum BEC current specified by the manufacturer of the ESC and dimension your servo count accordingly to prevent BEC overload and possible unexpected motor shut down and/or radio link failure.

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

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