

RC EYE 650 Firmware v7.0 - Initial Release Notes

In order to further enhance the RC EYE's flight experience and our continued commitment towards constant product improvement, we are proud to announce the preliminary release details of our new RC EYE 650 firmware version 7.0 which will be available later in May 2012 for download at RC Logger's official website.

Firmware version 7.0 significantly improves the main flight control QC-09 characteristics of the RC EYE. Response to stick inputs has been further enhanced. Position hold is noticeably improved. FW version 7.0 also introduces two "directional flight modes", the 'x' and '+' mode. DIP switch assignment has been re-defined and added. Additionally pilots will benefit from an enhanced sensor calibration algorithm as well as simplified configuration options.

Please read this document carefully and completely to familiarize yourself fully with the changes and new features introduced with firmware version 7.0, as important procedures and functions have been significantly improved.

1.) New DIP Switch Assignment

DIP Switch 1 (Sport mode / Beginner mode):

Toggle between **Sport** and **Beginner** mode. If using **Beginner** mode stick input control the flight angle. No stick input brings the RC EYE in horizontal position. In **Sport** mode stick input is translated into rotation rate of the respective axis. No stick input holds the current flight angle.



The **Beginner** mode is designed for hovering and slow flight. Fast flight movements, especially loops may result in shifting the neutral position, thus forcing the EYE into an uncontrollable flight condition! Risk of crash!

Thus, experienced pilots are advised to use the Sport mode! The **Sport** mode is designed to simulate the flight performance of RC helicopters, allowing seamless maneuvers such as fast loops, rolls and even flying a looping!

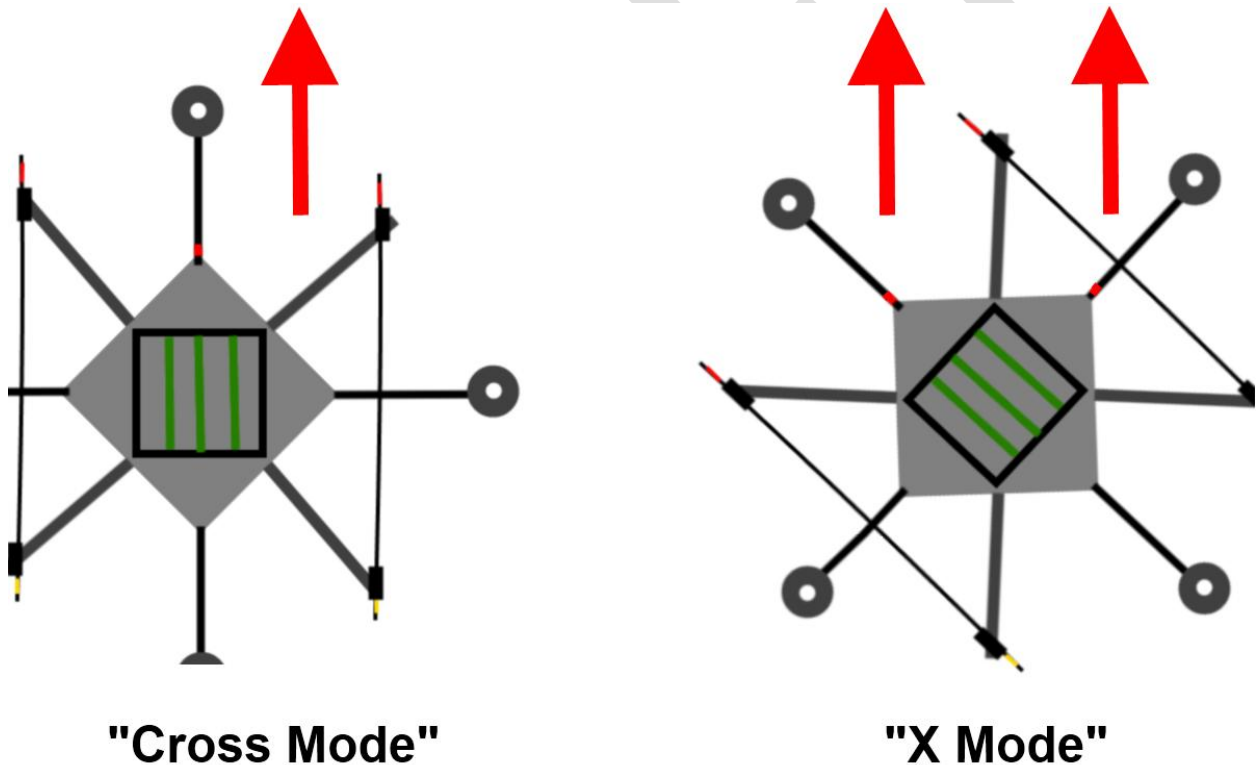
DIP Switch 2 (User mode / Standard mode):

Toggle between **Standard** mode parameter set and **User** mode parameter set. **Standard** mode parameters cannot be altered. **User** mode parameters can be altered in combination with the RC EYE Tweaker PC software and the data kit (interface cable). **Standard** mode parameters as well as **User** mode parameters apply to **Sport** and **Beginner** mode.

The **Sport** mode replaces the previous known "**Agility**" mode.

DIP Switch 5 (Directional Flight +/-):

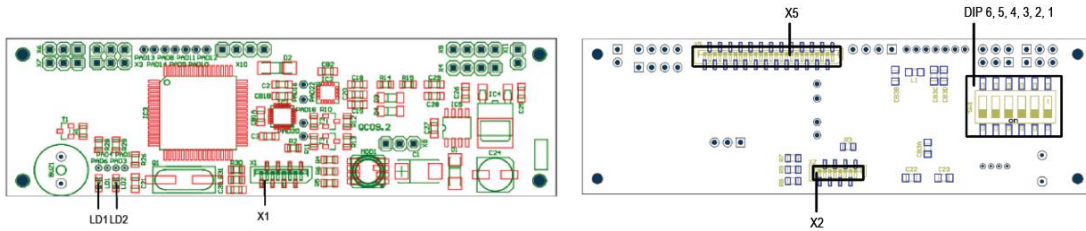
Toggle between 'x' and '+' directional flight modes. 'x' directional flight mode requires a carbon fiber adapter plate upgrade (available from RC Logger) in order to rotate the landing gear to its intended flight direction respectively.



(Image 1: Directional Flight Modes)

DIP 5 in ON position -> 'x' mode ("X Mode")

DIP 5 in OFF position -> '+' mode ("Cross Mode")



(Image 2: DIP Switch Location)

2.) Adjusting Flight Parameter (RC EYE Tweaker)

- *Aileron, Elevator and Rudder Factor* are to be expressed with decimal point, e.g. **10** refers to **1.0**
- *Flight Angle Limitation* has been removed
- *ROC* has been removed
- *Position F1* has been removed
- *Position F2*, response speed of GYRO and ACC adjustment in **Beginner** mode
- *Emergency Throttle, Throttle Min and Throttle Max* are expressed in percent (%)

Before we continue, a small word of caution and concern. Flight parameter adjustment require a basic understanding of RC helicopters response to pilots stick inputs, GYRO response (gain), tail rotation and the relationship between tail and pitch servos. Always adjust parameters gradually until you notice unexpected flight behavior. Default values work best in most cases. We have carefully selected default values; however as your experience with the RC EYE increases, so will your level of confidence and comfort zone increase, allowing you to explore the possibilities of flight parameter tweaking.

Alternatively, if you are a beginner, please consider not to experiment extensively with flight parameter adjustment, since you may force your RC EYE to become uncontrollable and crash! Consult our team or experienced pilots to assist you until you have gained sufficient experience and confidence to enjoy the full potential of the RC EYE 650.

NR P: Elevator (Nick), Aileron (Roll) P and Rudder (Gier) P. These parameter set determine the responsiveness of the main flight control in terms of set value and actual flight angle. Decreasing the set value, results in less response of the RC EYE to pilots stick inputs and less flight angle (leveling) auto correction. In contrast, increasing the set value, increases the responsiveness of the main flight control in terms of pilots stick inputs and external disturbances.



*Increasing the **NR P** parameter extensively may result in strange flight behavior such as strong oscillation of the RC EYE, leading to uncontrollable flight performance! Risk of crash!*

NR I: Elevator (Nick), Aileron (Roll) I and Rudder (Gier) I. These parameter set define the RC EYE's damping. Increasing the set value renders the RC EYE to move slower around its respective axis. Decreasing the set value makes the RC EYE less responsive to external disturbances.



*Increasing or decreasing the **NR I** parameter set extensively may result in strange flight behavior such as strong oscillation of the RC EYE, leading to uncontrollable flight performance! Risk of crash!*

Pos F2: This parameter is only applicable in *Beginner* mode. During some flight conditions such as fast loops, strong rudder inputs, result in various data (position angles) generated by the acceleration and GYRO sensor, which need to be synchronized by the main flight control as soon as the model returns back to hover or level flight. This parameter defines how fast the angles will be synchronized. Increasing the set value reduces the synchronization, decreasing the set value increases the synchronization.

Gier (Rudder) Expo, Nick (Elevator) Expo, Roll (Aileron) Expo: Increasing the set value reduces the response to stick inputs around the sticks neutral position. Around maximum stick position the responsiveness increases. Setting the value to **0**, result in linear stick response of the main flight control QC-09. The maximum response at 100% stick input, respond identical for both conditions.

Gier (Rudder) Factor, Nick (Elevator) Factor, Roll (Aileron) Factor: This set of parameter define the level of response from the main flight control QC-09 to pilots stick inputs (gain). The range is defined as **0 – 100**. Aileron, Elevator and Rudder Factor are to be expressed with decimal point, e.g. an input value '**10**' refers to 1.0, and '**13**' as 1.3 respectively.

3.) Further Enhancements

Activating Bootloader mode

From FW version 7.0 **Bootloader** mode may be entered by selecting “Goto Bootloader” software button without having to alter the DIP (DIP 3) switch located on main flight control QC-09. Respectively exiting the **Bootloader** mode simply requires clicking the “Start application” button.

Restoring Standard Parameter

Version 7.0 introduces the button “Standardparameter”. Selecting this button restores the standard parameters and displays the standard (default values) values for each input field respectively. Users may change these parameters to their personal flight preferences and transfer them back into the main flight control PCB where they will be stored. This function is only available in “**User** mode”. This function allows restoring default parameters in case they have been altered unintentionally.

Sensor Calibration

Version 7.0 provides an improved sensor calibration method while connection the flight battery and while performing the reference position calibration. It is required to have the RC EYE positioned absolutely steady on a level surface without disturbing (not touching) the model until the calibration has been completed. If the model is not kept steady for at least 20 seconds during calibration, the RC EYE may drift unexpectedly strong during hover! This will also result in an extended power-up time of up to 30 seconds, during which the RC EYE must be placed absolutely level and must not be touched, until the RC EYE is ready to fly.