

SYSTEM DESCRIPTION—Control Station

Summary: This describes the control station of the DragonEye UAS.

Description:

The DragonEye UAS as configured for this COA application is operated solely under radio control by the PIC. The control system is the Futaba 7CAP system described here:



SYSTEM INCLUDES:

One Futaba 7CAP 7-Channel Aircraft Radio with
Four S3151 Digital Servos
R138DP FM receiver
600mAh NT8S600B TX battery
600mAh NR-4RJ RX battery

TRANSMITTER SPECIFICATIONS:

Transmitting Frequency: 72 MHz band
Modulation: FM/PPM or PCM, switchable
Power Supply: 9.6V NT8S600B NiCd battery
Current Drain: 250 mA
Run Time: Tested at RCU over 1H 45M on stock battery



RECEIVER SPECIFICATIONS

FP-R138DP PCM Dual Conversion Receiver:
Receiving Frequency: 72 MHz band
Intermediate Frequency: 10.7 MHz & 455 kHz
Power Requirement: 4.8 - 6V NiCd battery
Current Drain: 16 mA
Size: 2.56" x 1.42" x 0.85" (65mm x 36mm x 21.5mm)
Weight: 1.42 oz (40.3g)

FAIL-SAFE FUNCTIONALITY

The fail-safe feature is used to tell a PCM receiver what to do in the event radio interference is received. On the 7CAP you can adjust each channel separately. The **NOR** setting will keep the

servo in the last commanded position while the **FS** function will move the servo to a preset position.

There is also a battery fail-safe feature which goes into action if the rx battery falls under 3.8 volts. If the voltage drops under the 3.8 volt level the engine will go to idle (if you haven't set a predetermined position). At this point you should land right away. If necessary you can reset the battery fail-safe by moving the throttle to idle which will give you about 30 seconds of throttle control before it goes back into fail-safe mode. It should be noted you should not rely on this battery fail-safe if using a 6 volt battery. By the time the 6 volt battery hits 3.8V it may drop so fast that you may not have enough time left to have control for a landing.

Safety features included with the Futaba 7CAP system are transmitter battery voltage display (to alert if battery becomes low), and receiver fail safe feature.

The Futaba 7CAP transmitter has a power output of 750 mW which gives the DragonEye a range of well over a mile (beyond the pilot's line of sight).

The complete operating manual for the Futaba 7CAP system may be viewed online at the Futaba web site: <http://www.futaba-rc.com/manuals/manual-7c.html>

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