

Communications

The AeroScout is flown in manual mode during takeoff and landing, using a 72 MHz modified Futaba transmitter and receiver pair designed to be more reliable than standard COTS RC equipment. Figure 1 shows the transmitter, and Figure 2 shows the receiving antenna on the helicopter. A frequency monitor is used to observe all 72 MHz radio signals that may potentially interfere with the helicopter operation.

When the helicopter is switched over to autonomous flight, the wePilot is commanded from the ground control station (GCS) via a 900 MHz 802.11 radio. This radio is dedicated to support only communications between the GCS and the helicopter. Additionally, certain payloads will use a 2.4 GHz 802.11 radio, operated by the payload controller.

During flight operations, the pilot and all ground personnel remain in constant contact due to proximity or through the use of duplex radios. The mission coordinator / observer provides primary commands to the pilot, relaying any navigational information originating from the payload operator. The mission coordinator serves as the observer and monitors air traffic communications by listening to a handheld aircraft transceiver set to the KPSK CTAF frequency. The mission coordinator has the authority to override flight commands / actions from the pilot, payload operator and GCS operator in the event that a safety of flight issue is detected. The mission coordinator / observer stands within 1m of the pilot at all times and scans the airspace for intruding manned aircraft.

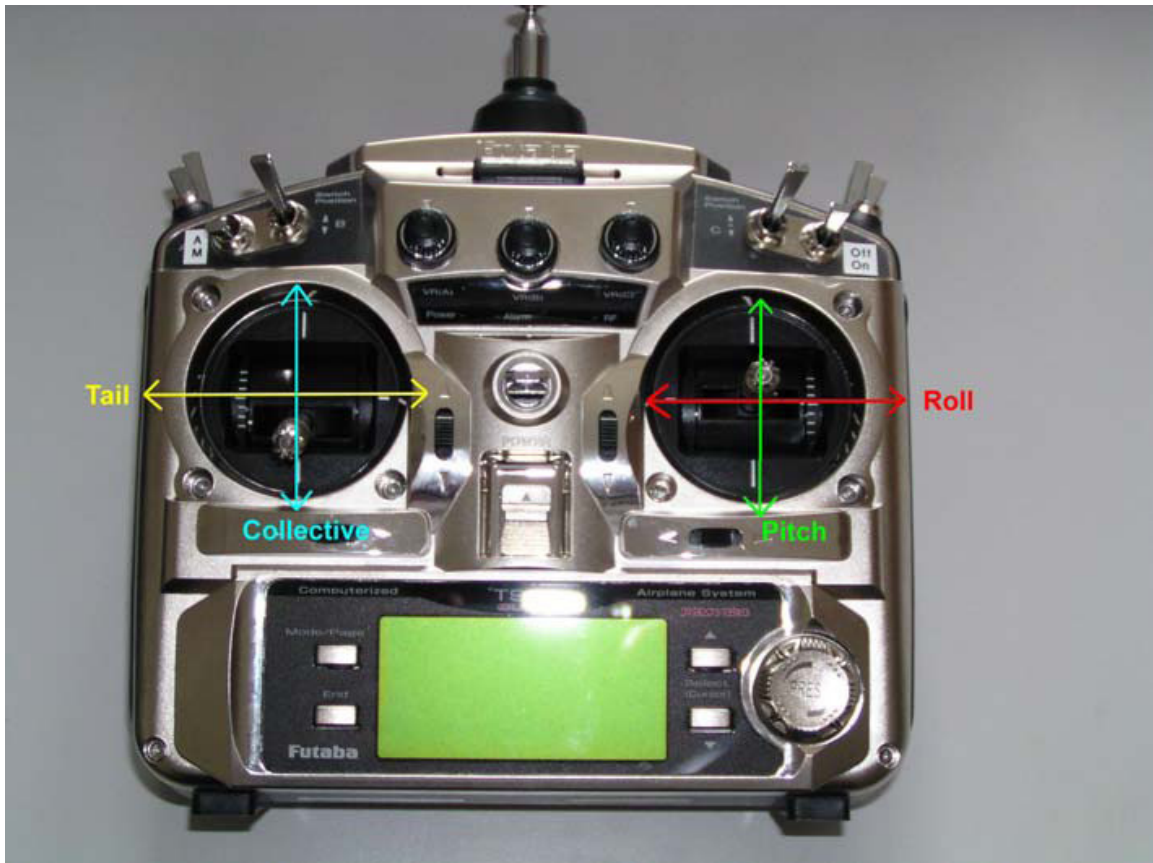


Figure 1 – RC Transmitter for B1-100



Figure 2 – B1-100 antenna placement