

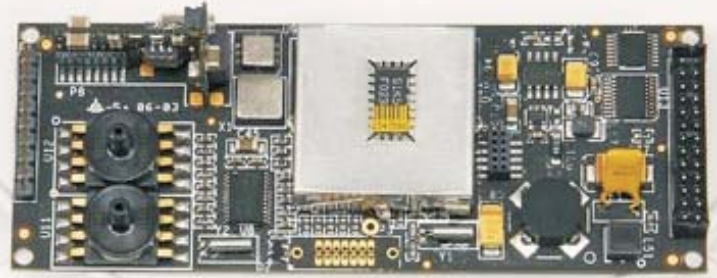
MicroPilot



MP2028^{LRC}

MP2128^{LRC}

Advanced Miniature UAV Autopilots



As world leaders in miniature UAV autopilots, MicroPilot is continually developing dynamic new systems to serve clients in the industry. Recent members of the MicroPilot family are the MP2028^{LRC} and MP2128^{LRC}. “LRC” stands for “long range communication,” which refers to their most significant benefit, a redundant, long-range data communication link allowing greater distance and flexibility. The LRC ground unit uses standard, off-the-shelf radio modems. The ground station adds RC control

information to the existing GCS datalink and a second redundant datalink, which reduces possible failure modes. Emergency override on the LRC units is automatic. Their small, low-weight, but rugged aluminum enclosures protect sensitive electronics and are convenient to install in a variety of airframes. The MP2028^{LRC} and MP2128^{LRC} are the autopilots of choice for UAV operators who need a reliable, integrated system that performs in all scenarios.

range and redundancy = reliability

- The LRC’s 1-watt data radio modem provides reliable, redundant communications for telemetry and control at a range of up to 50km.
- Multiple communications frequency capability of the groundside RC transmitter lets you manually pilot your UAV at a range of 50 km. The increased range provides excellent immunity to outside sources of RF interference, which enhances reliability.
- Redundant control layers give you unparalleled emergency response.

integration = simple installation

- By preventing interference with other UAV subsystems, the aluminum enclosure provides optimum EMI/RFI protection that simplifies integration.
- The LRC’s high current drivers simplify on/off control of onboard devices such as lights and cameras.
- Aviation grade connectors and integrating the data radio modem, RC receiver, ADC converters and high current drivers into a single package dramatically simplifies your wiring harness, which reduces possible failure modes.



Low-weight but rugged aluminum enclosure protects sensitive electronics and is convenient to install in a variety of airframes.

control = confidence

- With three control modes including autopilot, manually piloted and emergency direct servo override, you can be confident that your UAV will perform in all scenarios. Automatic switch between manually piloted and emergency direct servo mode allows instant recovery.
- In the event of a complete failure, a failsafe watchdog timer activates the parachute.

convenience = time to market

- The LRC's small, low-weight, but rugged aluminum enclosure protects sensitive electronics and is convenient to install in a variety of airframes.

specifications

servos

- elevon, flaperons, 4 servo flap/aileron, separate flaps, v-tail, x-tail, split rudders
- 12 servo outputs
- 50 Hz servo update rate
- separate servo and main battery power supply
- separate voltage monitor for main and servo battery power supplies
- integrated RC override
- 11 bit servo resolution

control system

- 30 Hz PID loop update rate
- gain scheduling for optimum performance
- rudder aileron feed forward for improved turn performance
- aileron elevator feed forward for improved altitude hold during turns
- autonomous takeoff and landing
- user definable PID feedback loops
- user definable table lookup functions

sensors

- airspeed max speed: 500 kph
- altimeter max altitude: 12000 m
- 2G, 3-axis accelerometers
- 3-axis rate gyro
- max angular rate: 150° per sec.

telemetry, datalog & video

- telemetry (100 user defined fields transmitted each second)
- 5 Hz telemetry update rate
- onboard datalog: 47 fields, 1.5 MB
- 5 hz datalog update rate

navigation

- 1 Hz GPS update rate
- move servo at waypoint
- change altitude at waypoint
- change airspeed at waypoint
- user definable holding patterns
- user definable error handlers
- RPV and UAV modes
- supports DGPS accuracy
- 1000 waypoint command buffer

HORIZON^{mp}

- HORIZON^{mp} ground control software included with system
- MP2028^g/MP2128^g simulator for operator training
- in-flight adjustable gains
- change waypoints in-flight
- payload servos controlled from ground station
- Point-and-click waypoint editor

physical characteristics

- embedded long-range data communication link, frequency-hopping, spread-spectrum 2.4 Ghz, 900 Mhz, other frequency optional
- 8 high current drivers, GCS controlled (extendable up to 8)
- 4 analog sensor inputs to be displayed on the GCS
- 3 control modes
 - autopilot mode (UAV/RPV)
 - manually piloted mode
 - emergency (DSC) direct servo control mode
- wide range of input voltage (6-18V)
- weight 330gr (400gr with MUX inside)
- L175 x W75 X H48mm
- failsafe watchdog timer



We are μ p.

When test flights are launched at MicroPilot's 40-acre Flight Test Facility, staff announce the occasion with the words, "We are up." To everyone in the on-site office, this is not only notification of a test flight in progress, but a celebration of the continued success of MicroPilot's products. Our family of miniature unmanned aerial vehicle autopilots serves over 350 clients in 49 countries. With more than 15 developers, a ground-breaking research and development philosophy, a fully-equipped test flight facility and a reputation for quality, MicroPilot is unparalleled in the growing miniature UAV autopilot industry. We are up!