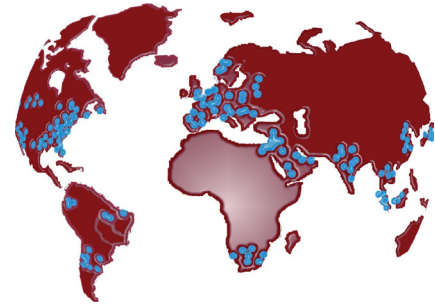


# MP2x28 Family of UAV Autopilots

In business since 1994

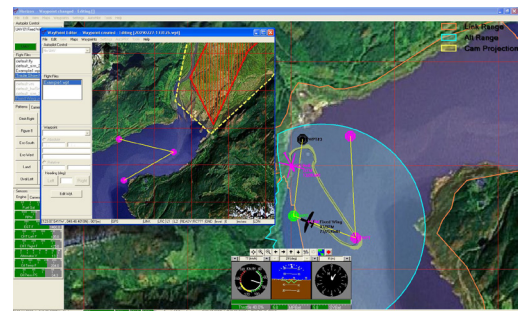


650 clients in 60 countries

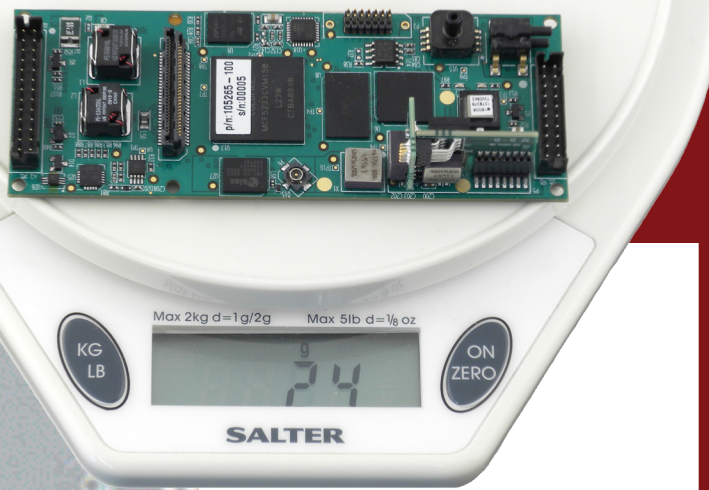
Celebrating its 15th year in business, MicroPilot is the world's leading manufacturer of small autopilots for unmanned aerial vehicles (UAV) and micro aerial vehicles (MAV). We serve some 600 customers in more than 60 countries.

We fly a wide variety of aircraft (HELIs, small fixed wing, jets, etc.). The MP2x28 family of autopilots are the world's smallest full featured UAV autopilots. Capabilities include airspeed hold, altitude hold, turn coordination, GPS navigation, vertical takeoff and landing (VTOL), plus autonomous operation from launch to recovery.

At the lowest cost offered on the market for similar products, the MP2x28 family provides the UAV autopilots of choice for your high performance miniature UAV.



Included at no charge with MicroPilot's autopilot packages is the HORIZON<sup>mp</sup> Ground Control Software. It offers a user-friendly point-and-click interface for mission planning, parameter adjustment, flight monitoring and mission simulation.



HELI Autopilots ✓

Fixed Wing Autopilots ✓

Single Board Autopilots ✓

Enclosed Autopilots ✓

Triple Redundant Autopilots ✓

Surface Vehicle Autopilots ✓

Airship Autopilots ✓

Multi Rotor Autopilots ✓

## Also From MicroPilot



MP2128<sup>HELI-LRC</sup>

MP2128<sup>3X</sup>



World Leader in Small UAV Autopilots



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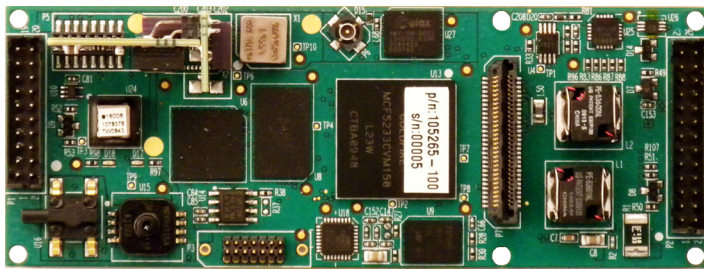
# Specifications

|                                                                                                              | MP2128 <sup>HELI2</sup> | MP2128 <sup>g2</sup> | MP2028 <sup>g</sup> | MP1028 <sup>g</sup> |
|--------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|---------------------|---------------------|
| <b>Servos</b>                                                                                                |                         |                      |                     |                     |
| Elevon, flaperons, 4 servo flap/aileron                                                                      | •                       | •                    | •                   | •                   |
| Separate flaps, split flaperons, y-tail, v-tail, x-tail, split rudders, no rudder, differential thrust       | •                       | •                    | •                   |                     |
| 3 servo mechanical, 3 servo 90° CCPM, 4 servo 90° CCPM, 3 servo 120° CCPM, 4 servo 4 corner CCPM, Quad rotor | •                       |                      |                     |                     |
| Servos                                                                                                       | 8/16/24                 | 8/16/24              | 8/16/24             | 8                   |
| Servo update rate                                                                                            | 50 to 180 Hz            | 50 Hz                | 50 Hz               | 50 Hz               |
| Separate servo and main battery power supply                                                                 | •                       | •                    | •                   | •                   |
| Separate voltage monitor for main and servo battery power supplies                                           | •                       | •                    | •                   | •                   |
| Integrated RC override                                                                                       | •                       | •                    | •                   | •                   |
| 11 bit servo resolution                                                                                      | •                       | •                    | •                   | •                   |
| Optional ADC channels available                                                                              | 8/16                    | 8/16                 | 8                   |                     |
| Optional 3-axis magnetometer                                                                                 | •                       | •                    | •                   |                     |
| <b>Control System</b>                                                                                        |                         |                      |                     |                     |
| Gain scheduling for optimum performance                                                                      | •                       | •                    | •                   | •                   |
| Rudder aileron feed forward for improved turn performance                                                    | •                       | •                    | •                   | •                   |
| Aileron elevator feed forward for improved altitude hold during turns                                        | •                       | •                    | •                   | •                   |
| Inner loop update rates                                                                                      | 30 -180 Hz              | 30 Hz                | 30 Hz               | 30 Hz               |
| Autonomous takeoff and landing supported                                                                     | •                       | •                    | •                   | •                   |
| User definable PID feedback loops                                                                            | •                       | •                    | •                   |                     |
| User definable table lookup functions                                                                        | •                       | •                    | •                   |                     |
| Plug-in compatible with XTENDER™ software developer's kit                                                    | •                       | •                    | •                   |                     |
| Fixed Wing Aircraft and Blimps                                                                               | •                       | •                    | •                   | •                   |
| Helicopters                                                                                                  | •                       |                      |                     |                     |
| Multi rotor (3, 4, 5, 6 or 8 rotors)                                                                         | •                       |                      |                     |                     |
| Surface Vehicles                                                                                             | •                       | •                    | •                   | •                   |
| <b>Navigation</b>                                                                                            |                         |                      |                     |                     |
| GPS update rate                                                                                              | 4 Hz                    | 4 Hz                 | 1 Hz                | 1 Hz                |
| Position output                                                                                              | 30/60/90 Hz             | 4 Hz                 | 1 Hz                | 1 Hz                |
| Move servo at waypoint                                                                                       | •                       | •                    | •                   | •                   |
| Change altitude at waypoint                                                                                  | •                       | •                    | •                   | •                   |
| Change airspeed at waypoint                                                                                  | •                       | •                    | •                   | •                   |
| User definable holding patterns                                                                              | •                       | •                    | •                   | •                   |
| User definable error handlers                                                                                | •                       | •                    | •                   | •                   |
| UAV, RPV modes                                                                                               | •                       | •                    | •                   | •                   |
| Arcade modes                                                                                                 | •                       | •                    | •                   |                     |
| Supports DGPS accuracy                                                                                       | •                       | •                    | •                   |                     |
| Dead Reckoning if GPS is lost                                                                                | •                       | •                    | •                   |                     |
| 1000 Waypoint command buffer                                                                                 | •                       | •                    | •                   | •                   |

|                                                                    | MP2128 <sup>HELI2</sup> | MP2128 <sup>g2</sup> | MP2028 <sup>g</sup> | MP1028 <sup>g</sup> |
|--------------------------------------------------------------------|-------------------------|----------------------|---------------------|---------------------|
| <b>Telemetry, Datalog and Video</b>                                |                         |                      |                     |                     |
| Telemetry (100 user definable fields transmitted each second)      | ●                       | ●                    | ●                   | ●                   |
| Telemetry update rate                                              | 5/30 Hz                 | 5/30 Hz              | 5 Hz                | 5 Hz                |
| Onboard datalog: 47 fields plus, 1.5 MB                            | ●                       | ●                    | ●                   | ●                   |
| Datalog update rate                                                | 5/30 Hz                 | 5/30 Hz              | 5 Hz                | 5 Hz                |
| User definable datalog fields                                      | 24                      | 24                   | 24                  | 24                  |
| <b>Sensors</b>                                                     |                         |                      |                     |                     |
| Max altitude                                                       | 12,000 m                | 12,000 m             | 12,000 m            | 1,000 m             |
| Max airspeed                                                       | 500 kph                 | 500 kph              | 500 kph             | 150 kph             |
| Accelerometers                                                     | 5G, 3-axis              | 5G, 3-axis           | 2G, 2-axis          | 2G, 2-axis          |
| 3-axis rate gyro                                                   | ●                       | ●                    | ●                   | ●                   |
| Max angular rate: 300° per sec                                     | ●                       | ●                    | ●                   | ●                   |
| Attitude update rate                                               | 200 Hz                  | 30 Hz                | 30 Hz               | 30 Hz               |
| <b>Ground Control Station HORIZON<sup>mp</sup></b>                 |                         |                      |                     |                     |
| HORIZON <sup>mp</sup> ground control software included with system | ●                       | ●                    | ●                   | ●                   |
| MP2x28 <sup>g</sup> simulator for operator training                | ●                       | ●                    | ●                   | ●                   |
| In-flight adjustable gains                                         | ●                       | ●                    | ●                   |                     |
| Add, delete and move waypoints in flight                           | ●                       | ●                    | ●                   |                     |
| Reprogram all waypoints in flight                                  | ●                       | ●                    | ●                   |                     |
| Multi-UAV Support                                                  | ●                       | ●                    | ●                   |                     |
| Multi-GCS Support                                                  | ●                       | ●                    | ●                   |                     |
| Payload servos controlled from ground station                      | ●                       | ●                    | ●                   | ●                   |
| Point and click waypoint editor                                    | ●                       | ●                    | ●                   | ●                   |
| <b>Other Features</b>                                              |                         |                      |                     |                     |
| Remote Serial Port                                                 | ●                       | ●                    |                     |                     |
| Iridium Support                                                    | ●                       | ●                    | ●                   |                     |
| Transponder Support                                                | ●                       | ●                    | ●                   |                     |
| Laser/Radar Altimeter support                                      | ●                       | ●                    | ●                   |                     |
| Programmable I/O Pins (PWM in, PWM out Serial, GPIO)               | ●                       | ●                    | ●                   | ●                   |
| <b>Payload Features</b>                                            |                         |                      |                     |                     |
| Stabilize and control Servo based cameras                          | ●                       | ●                    |                     |                     |
| Control Controp, Dayview, Nightview and UAV Vision payloads        | ●                       | ●                    | ●                   |                     |
| Fly/Loiter by Camera                                               | ●                       | ●                    | ●                   |                     |
| Point to coordinate                                                | ●                       | ●                    | ●                   |                     |
| Video overlay (16 user definable fields)                           | ●                       | ●                    | ●                   | ●                   |
| <b>Physical Characteristics</b>                                    |                         |                      |                     |                     |
| Weight (including GPS receiver, gyros and all sensors)             | 24 grams                | 24 grams             | 28 grams            | 28 grams            |
| Supply voltage                                                     | 6.5v to 30v             | 6.5v to 30v          | 4.2v to 27v         | 4.2v to 27v         |
| Current @ 6.5V                                                     | 192mA                   | 192mA                | 140mA               | 140mA               |
| 10 cm in length, 4 cm in width, 1.5 cm in height                   | ●                       | ●                    | ●                   | ●                   |
| Software upgradeable in the field                                  | ●                       | ●                    | ●                   | ●                   |



# Four Autopilots, one learning curve



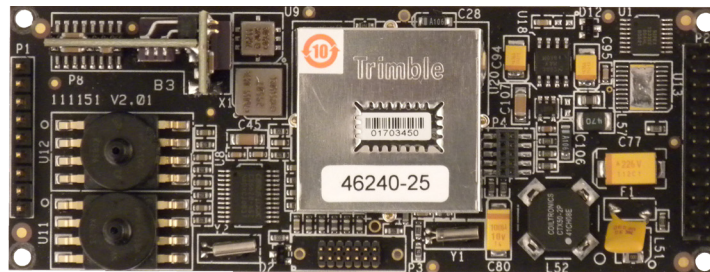
MP2128<sup>g2</sup> / MP2128<sup>HELI2</sup>

## MP2128<sup>HELI2</sup>

- Based on proven MicroPilot autopilot technology, it flies both fixed wing and VTOL UAV's
- Upward compatible with the MP2028 family of autopilots
- Includes an ultrasonic altitude sensor (AGL-v2), Ublox 4hz GPS module, and compass module
- Supports autonomous takeoff and landing

## MP2028<sup>g</sup>

- Established a new benchmark for lightweight UAV autopilots
- Only 28 grams including all sensors and a GPS receiver
- Proven track record
- Everything you need in one powerful autopilot



MP1028<sup>g</sup> / MP2028<sup>g</sup>

## MP2128<sup>g2</sup>

- Offers upward compatibility with MP2028<sup>g</sup>
- Provides 50 fold increase in processor power
- Twice the RAM and triple the input/output channels of MP2028<sup>g</sup>
- Maximum flexibility and control
- Includes the Ublox 4hz GPS module

## MP1028<sup>g</sup>

- Same renowned small size and weight as the MP2028<sup>g</sup>
- Offers all the reliability and most important features of MP2028<sup>g</sup>
- Suitable for entry level applications in which cost is the overriding consideration

## CONFIGURATION TOOLS

- Setup Wizard – provides a step by step guide to configuring a MicroPilot autopilot for Fixed wing, Heli or Quad rotor style vehicles
- Vibration Analyzer – provides frequency analysis of vibration data from both accelerometers and gyros.
- Datalog Viewer – powerful post flight analysis tool
- qHWIL – Quasi hardware in the loop simulator allows simulation via serial port
- Status Monitor – Powerful in-flight analysis tool that allows you to see the inner workings of your MicroPilot autopilot in flight. Provides feedback loop configuration, graphs of autopilot information
- Configuration Analyzer – Automatically reviews your autopilot configuration for conflicting or incorrect settings.
- ADC Calibrator – Calibrate extra ADC channels for higher precision information
- AVL Editor – An easy to use setup utility for the open source CFD program AVL. Enter your aircraft, use AVL to generate its linearized stability derivatives and automatically import them into the HORIZONmp simulator.



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