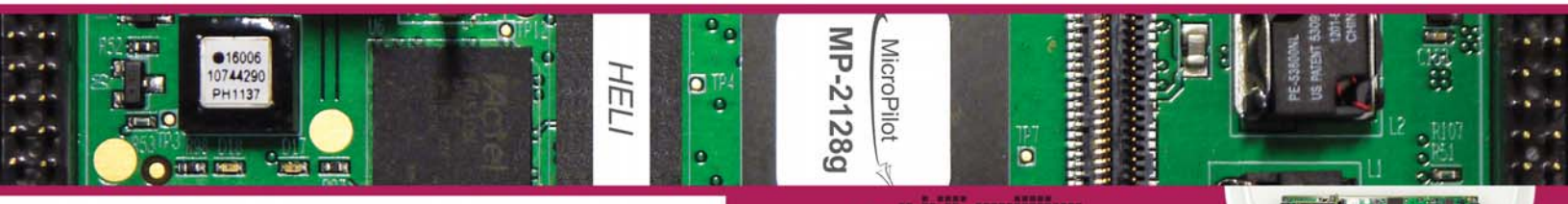
MicroPilot®

World Leader in Professional UAS Autopilots



MP2x28

Family of UAV Autopilots

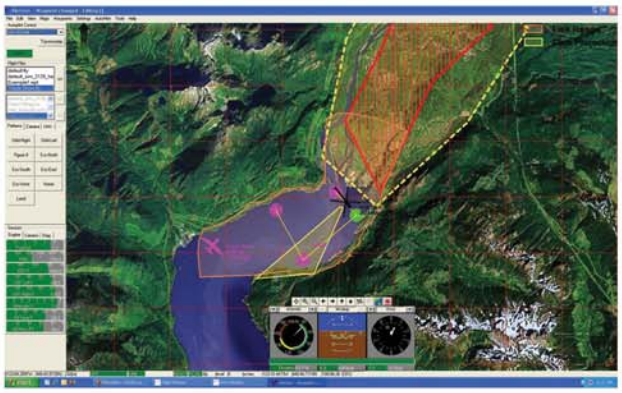
MicroPilot is the world's leading manufacturer of small autopilots for unmanned aerial vehicles (UAV) and micro aerial vehicles (MAV). We serve 850 customers in more than 70 countries

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:

- HELI Autopilots
- Fixed-Wing Autopilots
- Single Board Autopilots
- Enclosed Autopilots
- Triple Redundant Autopilots
- Surface Vehicle Autopilots
- Airship Autopilots
- Multi-Rotor Autopilots

HORIZON^{mp}



Included at NO EXTRA CHARGE

MicroPilot

The choice of over 850 clients in 70 countries

MicroPilot

Enclosed Autopilots

Triple Redundant

www.micropilot.com
info@micropilot.com | 1 (204) 344-5558

Specifications

Servos

	MP2128^{HELI2}	MP2128^{g2}	MP2028^{g2}	MP1028^{g2}
Elevon, flaperons, 4 servo flap/aileron	Yes	Yes	Yes	Yes
Separate flaps, split flaperons, y-tail, x-tail, split rudders, no rudder, differential thrust	Yes	Yes	Yes	Yes
3 servo mechanical, 3 servo 90° CCPM, 4 servo 90° CCPM, 3 servo 120° CCPM	Yes	No	No	No
4 servo 4 corner CCPM	Yes	No	No	No
Servos	24	24	16	8
Servos Update Rate	50 to 400 Hz	50 to 400 Hz	50 to 400 Hz	50 to 400 Hz
Pegasus Actuators / Volz Actuators Protocol	Yes	Partial[1]	No	No
Configurable I/O channels	Yes	Yes	No	No
Can Bus	Yes	Yes	No	No
CAN Open	Yes	No	No	No

Control System

Gain scheduling for optimum performance	Yes	Yes	Yes	Yes
Inner loop update rates	30 to 400 Hz	30 to 400 Hz	30 to 400 Hz	30 to 400 Hz
Autonomous takeoff and landing supported	Yes	Yes	Yes	Yes
User definable PID feedback loops	8	8	8	0
User definable table lookup functions	8	8	8	0
Plug-in compatible with XTENDER^{mp} software developer's kit	Yes	Yes	Yes	No
Surface Vehicles	Yes	Yes	Yes	Yes
Fixed Wing Aircraft and Blimps	Yes	Yes	Yes	Yes
Helicopters	Yes	No	No	No
Multi-rotor (3, 4, 5, 6, or 8 rotors)	Yes	Yes	Yes	Yes
Tumble Recovery / Autorotation	Yes	No	No	No
Stall recovery	Yes	Yes	No	No
Calculations	Yes	No	No	No
Vision System Input	Yes	Partial[1]	No	No

Navigation

GPS update rate	4 Hz	4 Hz	4 Hz	4 Hz
Position rate	30 - 200 Hz	30 - 200 Hz	30 - 200 Hz	30 - 200 Hz
User definable holding patterns	Yes	Yes	Yes	Yes
User definable error handlers	Yes	Yes	Yes	Yes
UAV, RPV, Arcade mode	Yes	Yes	Yes	Yes
Dead Reckoning if GPS is lost	Yes	Yes	Yes	No
1000 waypoint command buffer	Yes	Yes	Yes	Yes
Trimble RTK	Yes	Yes	No	No
Novatel Dual Freq RTK, Compass, Align	Yes	Partial[1]	No	No
Hemisphere VS101 GPS	Yes	Partial[1]	No	No
Thousands of waypoints	Yes	Yes	No	No
Defined Threads	24	16	8	4
Draping	Yes	Yes	No	No
Backtrack	Yes	Yes	No	No

Ground Control Station HORIZON^{mp}

HORIZON^{mp} ground control software included with system	Yes	Yes	Yes	Yes
MP2x28^{g} SWIL simulator for operator training	Yes	Yes	Yes	Yes
In-flight adjustable gains	Yes	Yes	Yes	Yes
Add & delete waypoints in flight	Yes	Yes	No	No
Move waypoints, Reprogram all waypoints in flight	Yes	Yes	Yes	Yes
Multi-UAV Support / Multi-GCS Support / Ownership / Binding	Yes	Yes	No	No
Point and click waypoint editor	Yes	Yes	Yes	Yes
Second GCS Port / Serial port pass through	Yes	Yes	No	No

1 Available only in fixed wing mode

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Board Autopilots

trueHWIL

Triple Redundant Autopilots^{mp}

Horizon Ground Control Station

Enclosed Autopilots

Telemetry, Datalog and Video

	MP2128HELI2	MP2128g2	MP2028g2	MP1028g2*
Telemetry (100 user definable fields transmitted five groups of twenty)	Yes	Yes	Yes	Yes
Telemetry update rate	5/30 Hz	5/30 Hz	5 Hz	5 Hz
Onboard datalog 47 fields plus, 1.5 MB	Yes	Yes	Yes	Yes
Datalog update rate	5/30 Hz	5/30 Hz	5 Hz	5 Hz
User definable datalog fields	24	24	0	0
Log feedback loop P/I/D term contributions	Yes	Yes	No	No
Autopilot version and model override	Yes	Yes	No	No

Other Features

Iridium Support	Yes	Yes	No	No
Transponder Support	Yes	Yes	No	No
Laser/Roke Manor Radar Altimeter Support	Yes	Yes	No	No
Programmable I/O Pins (PWM in, PWM out Serial, GPIO)	Yes	Yes	No	No
VRS Locking	Yes	Yes	Yes	Yes
trueHWIL	Yes	Yes	No	No
Support	12 Months	12 Months	6 Months	3 Months
Support service level	Premium	Premium	Basic	Basic
Warrantee	12 Months	12 Months	6 Months	3 Months

Sensors

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	5G, 3-axis	5G, 3-axis
3-axis rate gyro	Yes	Yes	Yes	Yes
Max angular rate 300° per sec	Yes	Yes	Yes	Yes
Attitude update rate	200 Hz	200 Hz	200 Hz	200 Hz
Altitude Accuracy (degrees)	<1°	<2°	<3°	<3°
Reverse filter to improve attitude estimate	Yes	No	No	No
Compass	Included	Option	Option	Option

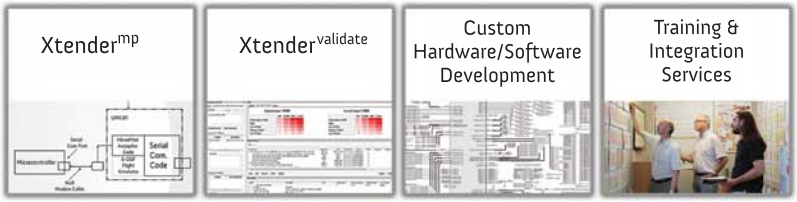
Camera

Stabilize and control Servo based cameras	Yes	Yes	Yes	Yes
Fly/Loiter by Camera	Yes	Yes	No	No
Point to Coordinate	Yes	Yes	Yes	Yes
Video overlay (16 user definable fields)	Yes	Yes	Yes	Yes
Top I Vision Camera	Yes	Yes	Yes	No
DST / DRS / Controp / UAV Vision	Yes	Yes	No	No
Sightline onboard video processor	Yes	Yes	No	No
High rate camera telemetry	Yes	Yes	No	No
NextVision Camera Support	Yes	Yes	Yes	No

Physical Characteristics

Weight (including GPS receiver, gyros and all sensors)	24 grams	24 grams	24 grams	24 grams
Supply voltage	6.5v to 30v	6.5v to 30v	6.5v to 30v	6.5v to 30v
Current @ 6.5V	192mA	192mA	192mA	192mA
10 cm in length 4 cm in width, 1.5 cm in height	Yes	Yes	Yes	Yes
Software upgradeable in the field	Yes	Yes	Yes	Yes
Calibration temperature range	"-40C to 85C"	"-20C to 65C"	"0C to 45C"	"10C to 30C"
Calibration points	10	8	5	3
Accelerometer and gyro alignment compensation	Yes	Yes	No	No
Certificate of Conformity	Yes	Yes	No	No
Conformal coat	Yes	No	No	No
Underfill	Yes	Yes	No	No
ESS Screening	100%	100%	Random sample	None
Final Check	Full	Full	Random sample	None

* Available only to previous customers



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** - 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.
- **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 HORIZON^{mp} simulator.

Four Autopilots, One Learning Curve

MP2128^{HELI2}

- Flies multi-rotor, fixed-wing and helicopter
- Richest feature set of all MP2x28 autopilots
- Tumble recovery and autorotation
- Sophisticated calibration and screening for widest temperature range and highest reliability
- Upward compatibility with all MP2x28 autopilots

MP2128^{g2}

- Flies multi-rotor and fixed-wing
- Expanded feature set for fixed-wing vehicles
- High quality components and wide temperature range
- Wide range of communication options

MP2028^{g2}

- Flies multi-rotor and fixed-wing
- Offers the flexibility you need to satisfy your customers
- Excellent price-performance

MP1028^{g2}

- Flies multi-rotor and fixed-wing
- Suitable for entry-level applications where cost is the overriding consideration

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