

GEOMATE

Super Base, Performance Fighter



GEOMATE MODEL 4 PRO

MULTI-PURPOSE SURVEY USV



Hydrographic and Bathymetric Surveys USV

The Model 4 Pro is a versatile Unmanned Surface Vessel (USV) designed to support a wide range of hydrological survey tasks. It is compatible with various mainstream Acoustic Doppler Current Profilers (ADCPs) and also supports the GEOMATE GM-400 Multibeam Echo Sounder (MBES) and automatic Sound Velocity Profiler (SVP) launching kit for underwater bathymetric surveys. The platform can be customized to carry water quality meters, side-scan sonar, and more.

TECHNICAL SPECIFICATIONS

Physical

Hull Dimension (L x W x H)	1.2 m x 0.75 m x 0.4 m
Material	High strength, high modulus carbon fiber
Weight (with instrument and batteries)	36 kg
Maximum Payload	50 kg
Anti-Wave & Wind	3rd wind level and 2nd wave level
Hull Design	Triple-hull vessel
GNSS	Internal GNSS dual antenna
Waterproof	IP67
Draft	8.6 cm (unladen)
Camera	360° omnidirectional video
ADCP Mounting Hole	240 mm
ADCP Compatibility	Compatible with RiverStar, M9, RiverPro, RiverRay, RioGrande and other ADCP
Available Instrumentation	ADCP, integrated compact multibeam echosounder, side scan sonar, water quality monitor, sampling bucket
Obstacle Avoidance Distance & Range	0.2–40 m (H: 112°, V: 14°)

Propulsion

Propeller Type	Brushless DC
Rated Motor Power	800 W
Maximum Motor Speed	7200 ± 5% RPM
Li-ion Battery Capacity	32.4 V, 23.1 Ah
Battery Endurance	9.8 h @1.5 m/s (1 battery set, expandable)
Battery Replacement	Hot swap supported
Charging Time	3 h
Maximum Speed	6.5 m/s

Remote control

Resolution Ratio	1920 x 1200
Battery Endurance	5 h
Communication Frequency	2.4 GHz

Communications

Data Communication	Standard 4G and Remote control
Remote Control Range	1 km (Remote); Unlimited (4G)
Navigation Mode	Manual or Auto-Pilot
Data Storage	Local (multi-channel) & Remote

Software

	Route planning and autonomous navigation. Total mileage statistics, remaining mileage reminder, multi-angle video and online map display.
	Hull parameter control, physical & virtual joysticks, system self-check at power-on. Waveform overlay and attitude correction. Coordinate conversion, trajectory, water depth, waveform and hull parameter real-time display.
Easysail	Online software/firmware updates. Export via USB/Type-C. Single beam mode: Data collection and post-processing. Hydrological mode: Flow test results output. Multibeam mode: Real-time parameter adjustment.

Positioning

Satellite System	BDS B11/B21/B31, GPS L1C/A/L2P(Y)/L2C/L5, Galileo E1/E5a/E5b, GLONASS L1/L2, QZSS L1/L2/L5
Single Point Position (RMS)	Horizontal: 1.5 m Vertical: 2.5 m
DGNSS Positioning Accuracy	Horizontal: ±(0.4 m + 1 ppm) Vertical: ±(0.8 m + 1 ppm)
RTK Positioning Accuracy	Horizontal: ±(8 mm + 1 ppm) Vertical: ±(15 mm + 1 ppm)
Heading Accuracy	0.1 ° @ 1 m baseline
Inertial Navigation Stability	6 %/h (accuracy attenuation 1 m after 20 s)
IMU Update Rate	200 Hz

D270 Single Beam Echo Sounder

Sounding Range	0.1 m to 200 m
Sounding Accuracy	±0.01 m + 0.1% x D (D is the depth of water)
Resolution	3 mm
Maximum Sampling Rate	30 Hz
Frequency	200 kHz
Beam Angle	6.2° ± 1°
Sound Velocity Adjustment Range	1400–1700 m/s
RTK Positioning Accuracy	-55°C~+100°C, real-time correction of the sound speed

*Specifications are subject to change without notice.