5.5" UNIVERSAL DRONE/ROBOTICS CONTROLLER | GCS–50



KEY FEATURES

- 5.5" Full HD (1920 × 1080) 1200-nit sunlight-readable display for clear outdoor visibility
- Long-range dual-band RF (2.4 / 5.8 GHz, FHSS-based) supporting up to 5–20 km LOS (environment-dependent)
- Real-time video transmission and telemetry for stable situational awareness and mission control
- Qualcomm® octa-core platform with Adreno™ GPU for reliable command, control, and processing performance
- Precision multi-axis control system with dual joysticks, programmable buttons, toggle switches, and scroll wheels
- MAVLink-compatible with SDK support for seamless UAV, UGV, and robotics system integration
- Hybrid connectivity architecture: RF wireless with optional 4G LTE connectivity
- Rugged IP54 & MIL-STD-810H design for dependable field deployment
- 10,000 mAh battery with USB Type-C PD fast charging, supporting up to 4–8 hours of operation
- Android 13 with optional Linux or Windows support via ODM customization
- Customizable ODM/OEM platform covering hardware, I/O, control layout, firmware, and branding

The 5.5" Handheld Drone/Robotics Controller is a compact, field-ready control platform designed for reliable UAV, UGV, and industrial robotics operations. Featuring a 1200-nit sunlight-readable Full HD display, Qualcomm® octa-core processing platform, and integrated low-latency video decoding, it ensures stable command, telemetry, and real-time situational awareness in demanding outdoor environments. Built with an intuitive multi-axis control layout, dual-band RF communication (2.4 / 5.8 GHz, FHSS), and MAVLink compatibility, the system supports seamless integration with leading UAV and robotics ecosystems. Its rugged IP54 and MIL-STD-810H design enables dependable performance across diverse field conditions. As a fully customizable ODM/OEM platform, this controller serves as a reference design. Hardware, I/O configuration, wireless modules, OS (Android, Linux, or Windows), and branding can be tailored to meet specific project requirements and deployment scenarios.

SPECIFICATIONS

RUGGEDNESS

IP Rating	IP54
Drop Rating	MIL-STD-810H

SYSTEM

Processor	**Qualcomm® Octa-core Platform**
	Reference Sample: Snapdragon™ 680 (ODM configurable)
GPU	Qualcomm® Adreno™ 610 (model varies by configuration)
Memory	4GB LPDDR4X
Storage	64GB UFS
OS	Android 13 (Optional: Linux or Windows via ODM customization)

DISPLAY

Screen Size	5.5-inch IPS LCD
Resolution	1920 x 1080 (Full HD)
Brightness	1200 nits
Touch Screen	10-point capacitive touchscreen
	(supports operation with gloves and in wet conditions)
Glass Coating	Anti-Reflective (AR) coating
(Optional)	Anti-Glare (AG) coating
	Anti-Fingerprint (AF) coating

COMMUNICATIONS

Wi-Fi	Dual-band 2.4 GHz / 5 GHz (IEEE 802.11 a/b/g/n/ac)
Bluetooth	Bluetooth 5.1
4G LTE (Optional)	Supports 4G LTE via SIM card slot
RF Transmission	Frequency Range: 2.4GHz/5.8 GHz
	Modulation: Frequency Hopping Spread Spectrum (FHSS)
	Channels: 12 (integrated video, data, and telemetry)
	RF Power: 20 dBm (CE), Optional: 23 dBm (FCC)
	Transmission Range: 5–20 km (ground-to-air, line-of-sight)

POWER

Power Adapter	USB Type-C, supports USB Power Delivery (PD) 45W fast charging
Battery	10,000 mAh Li-ion battery, support up to 4–8 hours operation

I/O INTERFACE

Audio	1 x Microphone
	2 x Speakers
Antennas	2 x Detachable Dual-Band Antennas (2.4 GHz / 5.8 GHz, 4 dBi Gain)
Ports	1 x USB Type-C (PD Charging / Data / DisplayPort Output)
	1 x USB Type-A (Data / Firmware Upgrade)
	1 x PPM Input/ Output (RC Signal Interface)
	1 x SIM Card Slot
Controls	2 x 3-Position Toggle Switches (SW1, SW2)
	2 x Joystick (X1/Y1, X2/Y2)
	2 x Scroll Wheels (GImbal/Payload Control)
Buttons	1 x Power Button
	4 x Programmable Buttons (A, B, C, D)

PROTOCOL & INTEGRATION

Protocol Support	MAVLink compatible
SDK Development	Available for custom software, system integration, and
Support	protocol development
Compatibility	Support QGroundControl, Mission Planner,
	and other MAVLink-based UAV systems
Optional Package	SDK and integration support package available upon request

MECHANICAL

Dimensions	209.1 x 149.7 x 50.2mm
Weight	880g

ENVIRONMENTAL

Temperature:	
- Operation	-10°C to 55°C
- Storage	-20°C to 50°C
Humidity	≤ 85% (non-condensing)
Atmospheric Pressure	86kPa to 106kPa

REGULATORY

Certification	FCC, CE, RoHS (others available upon request)

Note: Specifications are based on a reference sample unit.
Final configuration, performance, and features are fully customizable based on project requirements and may vary by implementation.

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DIMENSIONS AND SYSTEM LAYOUT



*Interfaces and control layout are customizable based on project requirements.

APPLICATIONS



Unmanned Aerial Vehicles (UAVs)

Supports multirotor, fixed-wing, and vTOL drones with MAVLink protocol for real-time telemetry, flight control, and payload operation.



Robotics & UGV Systems

Serves as a mobile control terminal for unmanned ground vehicles, inspection robots, and autonomous platforms.





Industrial & Infrastructure Inspection

Enables HD live video transmission and control for aerial or ground inspections in power lines, oil pipelines, and communication towers.



Agricultural & Surveying Operations

Integrates with agricultural UAVs and mapping drones for precision spraying, data collection, and mission planning.



Security & Public Safety

Used by law enforcement, firefighting, and rescue teams for surveillance, situational awareness, and real-time coordination.

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