10.1" UNIVERSAL DRONE/ROBOTICS CONTROLLER | GCS–100

Integrated Fiber Optic Communication for Interference–Immune, Mission–Critical Control

KEY FEATURES

- 10.1" 1200-nit sunlight-readable display for outdoor mission visibility
- Long-range dual-band RF (2.4 / 5.8 GHz, FHSS-based) supporting up to 20 km LOS (environment-dependent)
- Integrated hardware-accelerated low-latency video decoding for real-time awareness
- Qualcomm® octa-core platform for stable command, control & processing performance
- Multi-axis control system with dual joysticks, auxiliary controls & programmable switches
- MAVLink-compatible for seamless integration with UAV and robotics platforms
- Hybrid communication: RF + fiber optic interface for interference-resistant operation
- Rugged IP54 & MIL-STD-810H design for field deployment
- High-capacity 20,000mAh battery supports up to 6–8 hours operation
- Android 14 with optional Linux or Windows support via ODM customization
- Fully customizable ODM/OEM platform (hardware, I/O, UI, branding)

The GCS-100 10.1" Universal Drone/Robotics Controller is a modular control platform engineered for long-range UAV, UGV, and industrial robotics applications. Featuring a 1200-nit sunlight-readable display, Qualcomm® octa-core processing platform, and integrated hardware-accelerated low-latency video decoding, it enables stable command, telemetry, and real-time video monitoring in demanding environments. Designed as a fully customizable ODM/OEM solution, the GCS-100 allows partners to tailor hardware architecture, communication interfaces, control layouts, and software integration to meet specific mission requirements—accelerating development while maintaining full system flexibility.

SPECIFICATIONS

RUGGEDNESS

IP Rating	IP54
Drop Rating	MIL-STD-810H

SYSTEM

Processor	**Qualcomm® Octa-core Platform** Reference Sample: Snapdragon™ 778G 5G (ODM configurable)
GPU	Qualcomm® Adreno™ 643 (model varies by configuration)
Memory	8GB LPDDR4X/5
Storage	128GB UFS
OS	Android 14 (Optional: Linux or Windows via ODM customization)

DISPLAY

Screen Size	10.1-inch IPS LCD
Resolution	1920 x 1200
Brightness	1200 nits
Touch Screen	10-point capacitive touchscreen (supports operation with gloves and in wet conditions)
Glass Coating (Optional)	Anti-Reflective (AR) coating Anti- Glare (AG) coating Anti-Fingerprint (AF) coating

COMMUNICATIONS

Wi-Fi	Dual-band Wi-Fi 6 (2.4 GHz / 5 GHz, IEEE 802.11 a/b/g/n/ac/ax)
Bluetooth	Bluetooth 5.2
4G LTE (Optional)	Supports 4G LTE via SIM card slot
RF Transmission	Frequency Range: 2.4GHz / 5.8GHz Modulation: Frequency Hopping Spread Spectrum (FHSS) Channels: 16 (integrated video, data, and telemetry) RF Output Power: up to 23 dBm (CE/FCC compliant) Transmission Range: up to 20 km LOS (environment-dependent)
Wired Communication	Fiber Optic Communication Interface

PROTOCOL & INTEGRATION

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

POWER

Power Adapter	USB Type-C, supports USB Power Delivery (PD) 45W fast charging
Battery	20,000mAh Li-ion battery, supports up to 6–8 hours operation

I/O INTERFACE

Audio	1 x Microphone 2 x Speakers
Antenna	1 x Detachable Dual-Band Antennas (2.4 GHz / 5.8 GHz, 4 dBi Gain)
I/O Ports	1 x PPM Input/Output (RC Signal Interface) 1 x 10/100/1000Base-T Gigabit Ethernet (RJ-45) 1 x SIM Card Slot 1 x USB Type-C (PD Charging / Data / DisplayPort Output) 1 x USB Type-A (Data / Firmware Upgrade) 1 x Fiber Optic Communication Interface (FC Connector)
Controls	2 x Main Joysticks (X1/Y1, X2/Y2) 2 x Auxiliary Mini Joysticks (X3/Y3, X4/Y4) 2 x 3-Position Toggle Switches (SW1, SW2) 2 x Rotary Control Knobs (AUX1, AUX2)
Buttons	1 x Power Button 1 x Return-to-Home (RTH) Button 6 x Programmable Buttons (L1, L2, R1, R2 + 2 custom)

MECHANICAL

Dimensions	359.7 x 194.7 x 50mm
Weight	1830g

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.

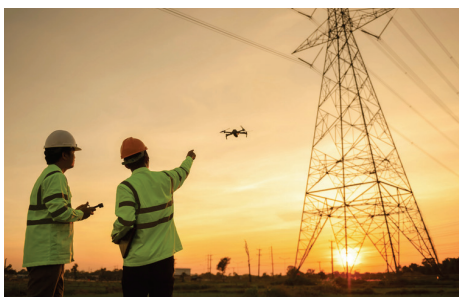
APPLICATIONS

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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