BEDROCC ADVANCED CONTROL SYSTEM

The Broad Environment Deployable Remote Operations Control Centre, or “BEDROCC” is an all-weather all-purpose all-in-one command and control platform, enabling reliable operation and monitoring of remote equipment in even the most extreme, hazardous, or unpredictable environments.

- **Compatible with any ground control software**
- **80km maximum recommended control range**
- **10 hour battery life per charge**
- **Fully internal directional high gain antennas**
- **Corning Gorilla glass protected screens**
- **Waterproof while open and in operation**
- **Highly impact and drop resistant**
- **Illuminated control panel (>1000 lux)**
- **Fire resistant (>99% non-flammable materials)**
- **Fully dual redundant power system**
- **Backup battery enabled link modules**
- **Waterproof / impact resistant link modules**
- **64 bit windows 11 operating system**
- **>1000GB internal solid state storage**
- **Long range tracking functionality**
- **Wide input voltage range (12V, 24V, 36V, 48V)**
- **Integrated Dual frequency 56 + 9 channel AVRX**
- **Proprietary near indestructible control input device**
- **WIFI 6E tri-band and Bluetooth 5.2 enabled**
- **Aerospace grade aluminium construction**
- **All input black box functionality**
- **LED strobe / anticol control features**
- **Integrated GPS/GNSS positioning system**
- **Ultra-compact handheld form factor (22 x 17 x 10 cm)**

DROP SAFE

The DROP SAFE feature is a unique preventative safeguard that immediately disables all control inputs if the BEDROCC system is dropped, impacted, or tilted beyond safe operational thresholds. This ensures that no accidental commands are sent to remote vehicles, aircraft, or machinery during handling events such as fumbling, catching, or repositioning the controller. Once the system is stationary and level, control is seamlessly restored. This function is crucial in hazardous environments where unintended input during a physical disturbance could result in catastrophic outcomes.

SAFETY MASTER

The SAFETY MASTER function provides a critical layer of safety and intentionality to system operation. By requiring the simultaneous pressing of two user-definable buttons to activate specific outputs or SBUS channels, this dual-action mechanism eliminates the risk of unintended triggers caused by slips, bumps, or signal glitches, preventing accidental activation of dangerous subsystems such as armament, heavy machinery actuation, or irreversible single-action commands. This is enforced both in firmware and hardware via a bi-directional software interlock, ensuring that dangerous operations cannot be triggered unless expressly authorized by the operator and system. SAFETY MASTER is particularly important for industrial, agricultural, and unmanned applications where personnel safety or system integrity must be maintained at all times.

TRACKING / RECOVERY MODE

In the event that connection between the BEDROCC base station and link module is lost for more than 30 seconds, RECOVERY MODE activates autonomously. The link module begins emitting periodic tracking pulses containing limited telemetry data, which can be picked up and displayed by any BEDROCC system within range (roughly 20km). This self-initiated recovery beacon dramatically improves the chances of locating and recovering lost or crashed assets, even in complex environments such as dense forest, desert terrain, or industrial worksites. This mode can remain active for an extended period of time, even after a complete power system failure of the connected equipment due to the link modules internal backup battery systems.

BLACK BOX INPUT LOGGING

BEDROCC includes an always-on black box-style logging system that records every user interaction. Every button press, joystick movement, and settings change made on the BEDROCC control system is logged in a tamper-proof format with over 10 years of storage capacity. This forensic-level feature allows post-operation auditing, liability protection, and compliance validation in the event of an incident or accident. Whether used for process investigation, training analysis, or operational auditing, this internal input log provides an immutable record of user actions, bolstering both accountability and compliance in professional, defense, or industrial applications.

MADSTIC JOYSTICKS

The proprietary MADSTIC (Multi Axis Deflection Sensing Translative Interface Controller) joysticks represent a significant leap in durability and precision. Designed without traditional gimbals, these magnetic, hall-effect-driven pads are nearly impervious to wear and damage. Capable of operating reliably in extreme temperatures, moisture, and impact conditions, MADSTICs provide precise and intuitive control even under the harshest operational scenarios-crucial for mission-critical systems that cannot afford input failure.

INTEGRATED GPS/GNSS

The BEDROCC GCS contains a fully integrated Global Navigation Satellite System compatible with GLONASS, GPS, Galileo, and BeiDou satellite constellations providing fast locking, highly accurate, and reliable positional data. Enabling real-time navigation, automatic moving-ground-station positional updates, and facilitating the use of RTK GPS for absolute positioning and high precision mapping, the integrated positioning system provides the seamless utilization of live-update mapping and flight monitoring software that would otherwise require cumbersome and often-unreliable external dongles or 'plug and play' -GPS devices.

BATTERY LIFE AND CHARGING POWER

BEDROCC is engineered for extended field deployment, offering up to 10 hours of continuous operation on a single charge. The system supports a wide input voltage range (9-59V), with an 80W maximum charging power through magnetic, polarity-independent contacts, enabling rapid top-ups from virtually any field power source. This endurance and flexible charging architecture minimize operational downtime and make BEDROCC ideal for long missions in remote or infrastructure-sparse environments such as mining sites, agricultural zones, or disaster response areas.

INTERNAL DIRECTIONAL ANTENNA SYSTEM

Unlike typical hand-held controllers utilizing external antenna systems that are fragile and susceptible to damage, BEDROCC integrates high-gain directional antennas directly within its chassis. These antennas are finely tuned for the 920MHz band and housed in a radiation-optimized layout, delivering robust link stability without compromising portability or weather resistance. By aiming the case toward the connected link module, users benefit from improved signal fidelity, reduced interference, and control ranges exceeding 80km. This frequency may be changed upon request to match local laws, regulations, and operational requirements.

DUAL REDUNDANT POWER SYSTEM

BEDROCC incorporates a fully dual-redundant power and charging architecture, including hot-swappable link module power sources and internal battery backups. This aerospace-grade power system topology ensures ultimate reliability in all possible applications by ensuring that the BEDROCC system can remain operational during events that would render a conventional control system inoperable. This design feature is shared by the Heavy duty link module, providing surety of continued operation and redundant operation in unexpected circumstances. Even in the event of complete vehicle power loss, link modules can remain active for up to 48 hours. This ensures critical telemetry and recovery functionality remains operational, allowing time for retrieval and reducing the chance of asset loss.

INTERNAL WINDOWS COMPUTER AND INDUSTRIAL CONNECTIVITY

At the heart of the BEDROCC system is a full-featured, Windows 11, 64 bit PC. Equipped with a 3.8GHz 8-core Intel N305 processor, 16GB of LPDDR5 RAM, and over 1000GB of internal NVMe storage, the onboard computer provides desktop-class performance in a field-hardened enclosure. Integrated Wi-Fi 6E and Bluetooth 5.2 allow seamless connectivity to existing industrial networks, inspection drones, survey tools, cloud services, and other Windows-based software. This ensures direct compatibility with virtually all mission planning, mapping, telemetry, and payload control software - eliminating the need for external laptops or converters.

GORILLA GLASS PROTECTED SCREENS

All three display panels on the BEDROCC system are bonded to 0.4mm Corning Gorilla Glass Grade 3, a chemically hardened aluminosilicate layer rated to MOHS 9 hardness. This ensures extremely high scratch resistance, excellent visibility, and superior impact tolerance.

LINK MODULE AUTONOMY AND FAILSAFE BEHAVIOR

BEDROCC link modules are not only rugged, they're intelligent. They can detect power anomalies, communication loss, or system faults in the connected vehicle and autonomously trigger emergency outputs such as fail-safe landings or safety cutoffs. The modules also support programmable modes including MAVLink 1/2, LTM, and raw UART passthrough, ensuring compatibility across a wide range of autonomous platforms.

HEAVY DUTY VS. LIGHT DUTY LINK MODULES

BEDROCC offers two rugged link module variants-HDLM (Heavy Duty Link Module) and LDLM (Light Duty Link Module)-each tailored for different deployment scenarios. The HDLM features a stainless-braided aircraft-grade connector and 48-hour internal battery, making it ideal for permanent installations or high-shock environments. The LDLM, while more compact and lighter, offers the same core functionality with a ribbon connector and an 8-hour backup battery. Both are waterproof, impact resistant, and include isolated internal power systems, ensuring uninterrupted operation even in the event of vehicle or platform failure.

OVERHEAD CONTROL PANEL LIGHTING

Integrated high-output overhead LED lighting provides uniform illumination of the control panel, with adjustable brightness levels directly accessible from the on-screen menu. Delivering over 1000 lux of output, the system ensures full operability in total darkness, night operations, or underground environments. This lighting also enhances safety by allowing the operator to identify control positions and joystick orientation without relying on ambient light or external torches.

INTEGRATED DUAL FREQUENCY ANALOG VIDEO RECEPTION SYSTEM

BEDROCC features a built-in, dual-frequency analog video receiver supporting both 5.8GHz and 1.2GHz. With support for 56 channels on 5.8GHz and 9 channels on 1.2GHz, it offers excellent compatibility with legacy and long-range FPV systems. Each band features an auto-scan mode to locate active video feeds within seconds. The system's internal directional high-gain antennas and optimized reception hardware allow real-time video reception of aerial and ground feeds even in EMI-dense or long-distance scenarios, eliminating the need for external goggles or monitors.

FULL SBUS AND UART COMPATIBILITY WITH FAILSAFE OPTIONS

The BEDROCC system provides SBUS output and UART communication through hardened ports on its link modules, supporting MAVLink 1, MAVLink 2, LTM, and generic passthrough protocols. What sets BEDROCC apart is the ability to define failsafe behavior directly within the link module: if power drops, telemetry stalls, or a system fault occurs, the link module can autonomously pull the MASTER CONTROL pin low, activating emergency procedures on the connected device. Combined with the 3.3-48V flexible signal voltage reference system, BEDROCC achieves seamless integration into virtually any unmanned or industrial control system.

TRI-MODE INPUT SYSTEM (SBUS / USB-JOY / BIOS CONTROL)

BEDROCC's control outputs are not limited to SBUS, users can seamlessly switch between three operational modes. In SBUS mode, all joystick and button data is transmitted via 16-channel SBUS for real-time remote control. USB-JOY mode turns the integrated MADSTIC joysticks into a fully compliant USB game controller, instantly usable with simulation, mapping, or flight software on the onboard Windows environment. BIOS mode remaps inputs to emulate keyboard functions, allowing full control of system BIOS or remote PCs. This flexibility makes BEDROCC equally effective for field deployment, simulation, and diagnostics.

TOOL-FREE, FIELD-SERVICEABLE DESIGN

BEDROCC is built with real-world servicing in mind. The magnetic charging contacts, removable MADSTIC friction pads, drain ports, and field-washable fan inlets all reflect an operator-first mindset. Even under field conditions; in sand, in snow, in the rain, or covered in dust, dirt, or debris, users can clean, maintain, or reposition system components without tools. This minimizes downtime and maximizes reliability in unforgiving environments like mining pits, maritime decks, and tundra or desert biomes.

PAIRING SECURITY AND LIMITED-RANGE AUTHORIZATION

To prevent unauthorized control or accidental linking, BEDROCC features an optionally passcode protected, secured pairing process limited to sub-50-meter range. This ensures that link modules can only be paired when intentionally brought near a trusted base station. Paired devices exchange settings, and mismatches trigger confirmation prompts to prevent desynchronization. This unique feature allows the BEDROCC system to instantly import complete control configuration profiles from any link module, providing immediate operation-readiness of connected hardware and completely removing the time and complexity typically involved in connecting and configuring new control systems.

LOCALLY ENGINEERED FOR GLOBAL APPLICATION

BEDROCC is designed and manufactured by ACCID Technologies in Western Australia, each unit is built to the highest standards of durability, reliability, and interoperability, ensuring seamless integration with global industrial, defense, and research systems. With robust environmental hardening, broad protocol support, and a strong focus on long-term serviceability, BEDROCC delivers a dependable and adaptable control solution for local and international operators working in critical and remote environments.

The BEDROCC system is a ruggedized, all-in-one command and control platform engineered for extreme environments and mission-critical applications. Designed and manufactured in Australia, it combines an ultra-durable chassis with a full-featured Windows 11 industrial computer, long-range telemetry, and unmatched control flexibility via its proprietary MADSTIC joysticks and customizable input system. With dual-band analog video reception, directional internal antennas, SBUS and UART output, and advanced safety features like DROP SAFE, SAFETY MASTER, and autonomous RECOVERY MODE, BEDROCC provides robust, secure, and dependable control of drones, rovers, vessels, and remote machinery. The accompanying link modules, available in Heavy Duty and Light Duty variants - are waterproof, impact-resistant, and equipped with independent backup batteries, supporting extended operation, signal recovery, and failsafe command execution even during complete vehicle power failure. Together, BEDROCC and its link modules form an unmatched solution for professional remote operations in mining, agriculture, defense, disaster response, and beyond.

BASE STATION:

CONSTRUCTION . . . . . 7075-T6 HARDENED ANODIZED ALUMINIUM
OPERATING TEMPERATURE . . . . . MIN -20C / MAX +50C
INPUT VOLTAGE . . . . . MIN 9V / MAX 59V
MAX CHARGING POWER 80W
LINK FREQUENCY 920MHZ
OPERATING SYSTEM . . . . . WINDOWS 11 64-BIT
PROCESSOR . . . . . INTEL N305 8-CORE 3.8GHZ
INSTALLED RAM 16GB LPDDR5
INSTALLED MEMORY 1000GB (1TB)
BLUETOOTH . . . . . BT5.2 [2.4GHZ]
GNSS COMPATIBILITY . . . . . GPS, GLONASS, GALILEO, BEIDOU
WIFI . . . . . WIFI 6E tri-band [2.4GHZ, 5GHZ, 6GHZ]
BATTERY LIFE . . . . . UP TO 10 HOURS
CONTROL RANGE . . . . . TESTED TO 80KM
WEIGHT / DIMENSIONS . . . . . 4KG / 215x180x100
IP RATING / IK RATING . . . . . IP67 / IK10

COMPATIBLE 1.2GHZ FREQUENCIES

1080, 1120, 1160, 1200, 1240, 1280, 1320, 1360, 1258

COMPATIBLE 5.8GHZ FREQUENCIES

5865, 5845, 5825, 5805, 5785, 5765, 5745, 5725, // Band A
5733, 5752, 5771, 5790, 5809, 5828, 5847, 5866, // Band B
5705, 5685, 5665, 5645, 5885, 5905, 5925, 5945, // Band E
5740, 5760, 5780, 5800, 5820, 5840, 5860, 5880, // Band F
5658, 5695, 5732, 5769, 5806, 5843, 5880, 5917, // Band R
5362, 5399, 5436, 5473, 5510, 5547, 5584, 5621, // Band L
4990, 5020, 5055, 5080, 5110, 5140, 5170, 5200. // BAND X

LINK MODULES:

CONSTRUCTION . . . . . 7075-T6 HARDENED ANODIZED ALUMINIUM
OPERATING TEMPERATURE . . . . . MIN -20C / MAX +50C
INPUT VOLTAGE . . . . . MIN 4.5V / MAX 5.5V
MAX CURRENT DRAW . . . . . LDLM 1.5A / HDLM 2.5A
BACKUP BATTERY LIFE . . . . . LDLM ~8HRS / HDLM ~48HRS
LINK FREQUENCY 920MHZ
IP RATING / IK RATING . . . . . IP67 / IK10
WEIGHT . . . . . LDLM 60g / HDLM 200g