

The Assured Satellite Link for **Long Range and BVLOS UAVs**

**Reliable message-based and IP satellite
connectivity for commercial, industrial,
and defense UAV platforms.**

As drones take on more demanding roles - mapping, inspection, environmental monitoring, ISR, and border security - they must operate in places where cellular networks are patchy, congested, or entirely absent.

Even when coverage exists, it often cannot guarantee the continuous quality required for BVLOS missions, especially at low altitudes or over challenging terrain. A resilient satcom link provides not only global reach but also predictable performance, which matters for regulated airspace and high value missions.



Why Satellite Orbit Height Matters for UAV Builders

Satellite connectivity gives UAV designers something no terrestrial network can: **global consistency**.

It ensures the aircraft can transmit and receive vital data, regardless of terrain, altitude, borders, weather, or operator location.



Iridium's Low Earth Orbit (LEO) Network

Iridium operates the only truly global L band satellite constellation; **66 cross-linked satellites in Low Earth Orbit at 780 km altitude.**

For UAVs, this delivers several engineering advantages:



Low latency, ideal for telemetry and C2



Full global coverage including poles and oceans



Resilience through crosslinking



No antenna pointing or orientation constraints



Unaffected by terrain shadows or infrastructure outages



Much more resilient to weather conditions (than, for example, Starlink)



Proven for safety of life and mission critical applications



Lower power draw, increasing endurance or freeing up power for sensors



This removes uncertainty from mission planning, and enables OEMs to build reliable, repeatable operational models for long range, industrial, and government UAV applications.

Three Satellite Paths for UAV Connectivity

Our UAV portfolio supports three Iridium L-band communication links so you can match connectivity to the mission:

- ★ **Short Burst Data (SBD):** Ultra-lean command and telemetry
- ★ **Iridium Messaging Transport (IMT):** Richer message-based telemetry at fleet scale
- ★ **Iridium Certus 100:** An IP-based, live data pipe into the aircraft

SBD & IMT: Message Links for C2 and Telemetry

SBD: Ultra-lean control channel

Best for: Basic commands, GPS positions and health status on size/power constrained UAVs.

Simple, proven global control link

Tiny module, minimal power draw

Very low monthly data use

Data profile:

up to 340 B uplink / 270 B downlink per message, with seconds-level latency.

Hardware:

RockBLOCK 9603:
compact SBD plug-in widely used for lightweight C2 and telemetry.



IMT: Richer messaging at scale

Best for: BVLOS telemetry, logs and fleet operations.

Larger messages for richer telemetry and event logs

Cost efficient for frequent reporting

Optimized for low power on battery systems

Data profile:

message payloads up to 100 KB, with ~10 seconds latency on the Iridium LEO network.

Hardware options:

RockBLOCK 9704:
IMT only C2/telemetry module

RockREMOTE UAV / UAV Mini: IMT plus Certus 100 IP in a single airborne unit



Certus 100 IP for Live UAV Data

For missions that go beyond simple messages, Certus 100 adds a compact, always-on IP link into the aircraft.

Why OEMs choose IP

- ★ Works with autonomy stacks and companion computers that expect IP
- ★ Enables near real time C2
- ★ Streams high value telemetry and situational data to cloud systems
- ★ Uses standard IP protocols, easy to integrate with existing ground infrastructure



Data profile:

up to 22 kbps up / 88 kbps down,
with 270-400 ms latency and global Iridium coverage.

Hardware:

RockREMOTE UAV / RockREMOTE UAV Mini UAV-optimized
Certus 100 terminals with IMT built in.



One module, two bearers

With RockREMOTE UAV you can:

- ✗ Run IMT as the default, efficient telemetry and safety channel
- ✗ Escalate to IP for autonomy, live diagnostics or critical mission phases
- ✗ Switch between IMT and IP per mission, per aircraft or per phase of flight

Alongside **RockBLOCK 9603 (SBD)** and **RockBLOCK 9704 (IMT)**, this gives manufacturers a clear connectivity ladder, from ultra-lean C2 to full IP, all on the same Iridium L-band ecosystem.

RockBLOCK 9603

Ultra-lean satellite C2 link for UAVs

RockBLOCK 9603 gives drone manufacturers a tiny, rugged Iridium SBD modem that bolts straight into existing avionics to deliver a global command and telemetry channel. At 39 g (including antenna) with a 45 x 45 x 15 mm footprint, it fits comfortably inside small airframes without rewriting the weight and power budget.

It's widely used as a BVLOS safety link and backup control path, sending simple commands and status messages wherever the aircraft flies, from medical delivery eVTOLs crossing the Solent to inspection and survey platforms operating beyond radio and cellular coverage.



Ideal for **BVLOS UAVs needing a small, independent C2 / telemetry channel, redundant satcom alongside RF or cellular links**



Tiny UAV-friendly footprint

45 x 45 x 15 mm, 39 g module drops into tight avionics bays without reworking the airframe.



Purpose built for simple commands

Send up to 340 bytes up / 270 bytes down per message for positions, health flags and “go home / hold / terminate” instructions.



Proven BVLOS safety link

Used as part of a dual-redundant comms stack on medical delivery flights, providing a guaranteed way to reach the aircraft over water and in remote airspace.



Low power for long endurance

Designed for low duty cycle messaging, so you can maintain a satellite control channel without sacrificing flight time or battery life.



ArduPilot integration

Supported in ArduPilot 4.4+ as a global MAVLink link, giving you a straightforward path to add satellite C2 on existing vehicles.



Cloud ready delivery of telemetry

With Cloudloop Data handling decoding and routing, RockBLOCK messages flow straight into REST APIs, webhooks, MQTT or cloud queues.



See how drone OEMs are using RockBLOCK 9603 to add a dependable, global C2 channel in just a few lines of code.

RockBLOCK 9704

IMT satellite messaging for richer UAV telemetry

RockBLOCK 9704 gives drone manufacturers a global Iridium Messaging Transport (IMT) link when SBD is too tight but full IP is overkill. It delivers two way messages from a few bytes up to 100 KB, typically landing in your cloud in under 10 seconds, ideal for BVLOS telemetry, logs and regulatory data blocks.

The board builds on the Iridium Certus 9704 module with onboard power regulation, UART and USB-C, GNSS passthrough and patch or SMA antenna options, so you can drop it into existing avionics and start moving more data without rewriting the aircraft.



Ideal for **OEMs stepping up from SBD to richer telemetry and logs, BVLOS fleets sending larger status blocks, event logs and config bundles**



Bigger messages, same sky

Send and receive 25 B to 100 KB per message over Iridium IMT, with typical end-to-cloud latency of < 10 seconds for BVLOS telemetry and logs.



Designed for UAV power budgets

Runs from 4.0–5.3 V DC, peaking at 1.4 W, with < 60 mW idle and < 5 mW sleep, so you can keep the satcom link without sacrificing endurance.



UAV-friendly form factors

Patch antenna and SMA variants under 50 g, with compact PCB footprints that fit easily into avionics bays and payload pods.



Flexible interfaces for flight stacks

A 3.3 V TTL UART, USB-C serial bridge, GNSS passthrough and GPIO make it straightforward to wire into flight controllers, companion computers and power systems.



Cloud ready by default

Messages land in your systems via Cloudloop Data, with HTTPS / MQTT delivery options, REST APIs and dashboards for device state and message history.



ArduPilot integration

Supported via an official ArduPilot Lua applet, giving you a straightforward path to add satellite MAVLink telemetry on existing vehicles without changing the core flight stack.



How RockBLOCK 9704 helps UAV teams move from “just enough bytes” to richer BVLOS telemetry without jumping straight to full IP.

RockREMOTE UAV OEM

Embedded Certus 100 satcom for BVLOS-capable UAVs

RockREMOTE UAV OEM is an embedded Iridium Certus 100 module for fixed wing and VTOL UAVs that need a dedicated satellite backbone but can't spare the volume for a full enclosure. It combines IMT messaging with optional Certus 100 IP in a small form factor optimized for tight avionics bays.

It's built for UAV teams who want to treat satcom as part of the flight stack: route telemetry, C2 and status through the same module, choose IMT for lean routine reporting, and enable IP on higher end platforms or missions that demand continuous data.



Ideal for **OEMs needing low-SWaP embedded satcom for compact BVLOS aircraft, Designs that start with IMT telemetry and later enable IP-based C2 or payload data, Programmes spanning small UAVs to larger, certified RPAS, but wanting one satcom building block.**



Low SWaP embedded module

175 x 60 x 37 mm and 287 g, with mounting options for standoffs, rails and internal bays so it disappears cleanly into small UAV fuselages.



Dual IMT + IP connectivity

Supports Iridium Certus 100 IP (22/88 kbps) alongside IMT messages up to 100 KB, letting you tune the mix of live IP and event-driven telemetry per platform.



Autopilot-friendly interfaces

A 30-way header exposes power, RS-232 / RS-4xx, logic-level UART, Ethernet and GPIO, so you can wire it to flight controllers, companion computers and dock controllers without exotic cabling.



Power profile tuned for UAVs

Runs from 10–30 V DC, with sleep <10/30 mW (12/24 V), idle <250 mW and transmit peaks designed to sit within typical RPAS power budgets.



Ready for modern flight stacks

IP and UART interfaces are designed to sit alongside autopilot ecosystems (e.g. ArduPilot and PX4-based controllers), with dedicated documentation and reference integrations in development.



Part of a single ecosystem

Shares Cloudloop management, airtime models and data delivery workflows with RockREMOTE UAV and RockBLOCK modules, so you can mix embedded and enclosed terminals across the same fleet.



See how RockREMOTE UAV OEM lets you embed a resilient Certus 100 backbone into compact BVLOS airframes without blowing your SWaP budget.

RockREMOTE UAV

Sealed Certus 100 terminal for BVLOS drones and infrastructure

RockREMOTE UAV is a rugged Iridium Certus 100 midband IP datalink, built for UAV manufacturers who need global BVLOS communications, C2 and telemetry in a finished, flight-ready enclosure. It delivers 22 kbps uplink and 88 kbps downlink over IP, plus Iridium Messaging Transport (IMT) for efficient, event-driven messaging when every watt and byte matters.

It's designed for larger airframes and UAV infrastructure: mount it in an avionics bay, dock housing or ground cabinet, route RF to a Certus 100 antenna, and treat it as the satellite backbone that stays up even when LTE, Wi-Fi or RF don't.



Ideal for: **Medium / large RPAS with space for a sealed satcom enclosure, Docked and infrastructure-based UAV systems needing an always available backhaul, BVLOS missions where C2 plus telemetry must be maintained in all conditions, Operators standardizing one satellite backbone across fleets and ground systems.**



IMT + IP in one unit

Combines Iridium Certus 100 IP (22 kbps up / 88 kbps down) with IMT messaging up to 100 KB, so you can mix live IP and lean telemetry on the same hardware.



Built for real UAV environments

182 x 74.5 x 53 mm, 646 g aluminium enclosure rated IP66, vibration tested, and designed for permanent installation onboard or in ground infrastructure.



Straightforward integration

Ethernet with PoE and RS-232 / RS-485 expose a simple IP / IMT datalink to flight controllers, companion computers, dock controllers and ground systems, while BLE simplifies setup.



Power friendly for continuous use

Accepts 10–30 V DC or PoE+, with ~300 mW receive and low sleep power, making it viable for solar-backed docks and remote ground stations as well as vehicle power buses.



Flexible antenna placement

Supports 0.5–9 m antenna cable runs so you can hide the terminal where volume is available and put the antenna where the sky view is best.



Fleet wide control with Cloudloop

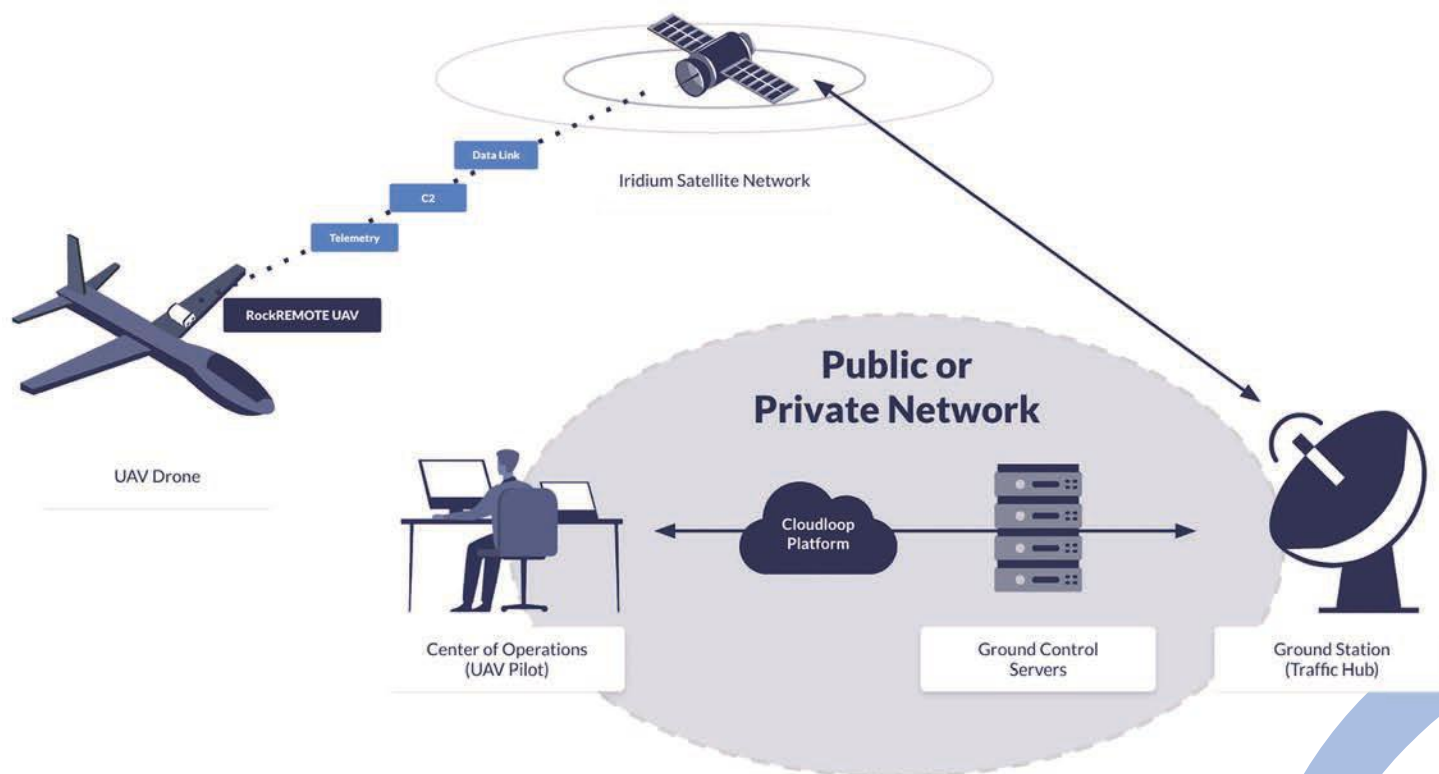
Works with Cloudloop Subscription Manager, Device Manager and Data for airtime control, remote diagnostics and routing IMT/IP traffic into your own C2 and analytics stack.



See how RockREMOTE UAV becomes the satellite backbone for BVLOS fleets, docks and ground systems.

UAV Architecture: How the Link Fits Into Your System

The satcom module sits alongside the flight controller or companion computer, providing a clean and predictable pipeline for outgoing telemetry and incoming commands.



The architecture supports:

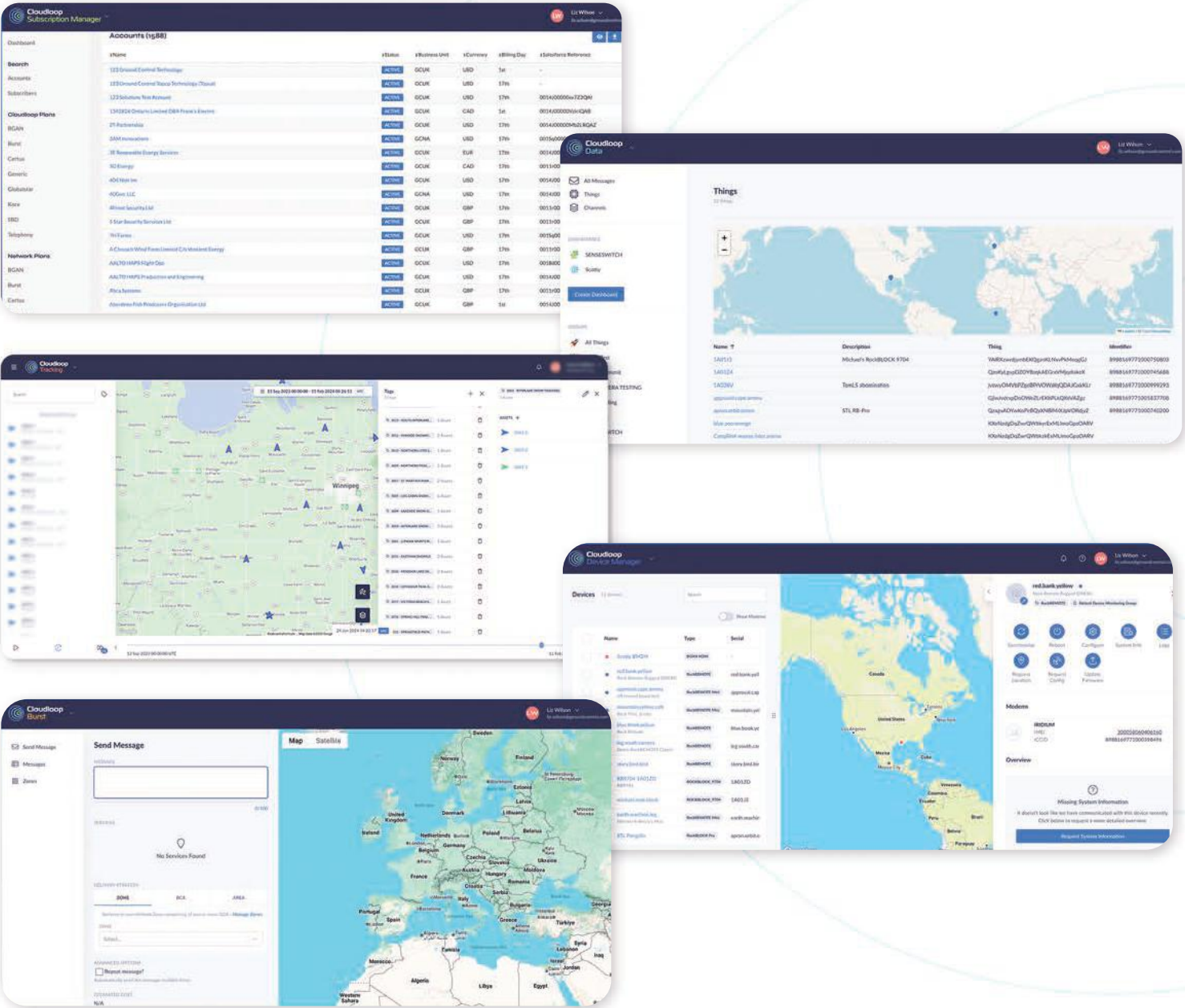
- ★ Direct passthrough of telemetry messages
- ★ Data routing using both IMT and IP
- ★ Add a cellular modem and the flight controller or companion computer can manage automatic routing and failover to satellite
- ★ Consistent link behaviour across platforms and mission types

For OEMs building repeatable UAV products, this creates a stable communications foundation no matter where the aircraft is deployed.

Cloudloop: Control, Monitoring, and Fleet Oversight

Cloudloop provides a centralized platform to manage every device, link, and message across your UAV fleet whether running IMT, IP, or both.

Cloudloop








For integrators and OEMs, Cloudloop turns satellite connectivity into a controlled, predictable part of the UAV ecosystem.

Your UAVs. Globally Connected. Mission Ready.

Satellite connectivity transforms what a UAV can do. From long range industrial inspection to high stakes government operations. With a reliable IMT and IP link, the drone stays visible, the operator stays informed, and missions become more resilient and scalable.

Our assured links for long range and BVLOS UAVs give OEMs:

-  A dependable link in any environment
-  Flexible data paths for telemetry, C2, and autonomy
-  Hardware designed for drone integration
-  Platform-level control through Cloudloop
-  Global visibility, control and peace of mind

Let's build your next UAV capability together.



Speak to our engineering team for integration guidance, evaluation hardware, or example configurations for ArduPilot, PX4, and custom stacks.

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