

Union Robotics

HereLink Blue



HereLink Blue

Overview

Herelink Blue is an integrated remote controller, ground station and wireless digital transmission system designed to be used with the Cube Autopilot, Ardupilot or PX4.

HereLink Blue allows RC control, HD video and telemetry data to be transmitted up to 20km between the ground station and air unit, the HereLink Blue remote controller features a custom UR/Solex TX application and both air unit and ground station feature an integrated 8 core SOC for custom application development.

Features

- Android based smart device with 5.46 inch 1080P capacitive touch screen.
- Integrated digital transmission system simultaneously transmitting video, telemetry and control.
- Custom UR/Solex TX ground station software with MAVlink support for Ardupilot and PX4.
- Dual hall effect self centering gimbals with removable sticks.
- 1080P HD video with dual digital video inputs.
- Dual S.bus signal output for simultaneous control of autopilot and pan/tilt cameras.

• Dual 5MP digital camera for omnidirectional control of take-off and landing cameras.

- 6 customizable Mavlink buttons and Mavlink/Sbus hardware wheel.
- Tether and share video and telemetry via wifi ground station such as Mission Planner.
- Onboard Arm Cortex A53 & Cortex A53 SOC in both air and ground units for custom applications.
- Precision machined 6061 aluminum housing, hard-anodized
- Waterproof hard storage case

Accessories

- 1x HereLink Blue Air Unit
- 1x HereLink Blue Ground Station
- 2x Joystick
- 2x Air Unit Antenna
- 2x Ground Station Antenna
- 1x HDMI Cable
- 1x USB/Micro USB Cable
- 1x 2-Pin JST-GH Power Cable
- 1x 3-Pin JST-GH UART Cable
- 1x 4-Pin JST-GH S.bus Cable
- 1x Neck Strap
- 1x 5V 2A USB Wall Charger
- 1x Waterproof Hard Shell Storage Case

Technical specifications

Feature	Specification
Model Name	HereLink Blue
C2/RF Link Encryption	AES 128
SOC:	ARM Cortex A53 4 core 2.2GHz + Cortex A53 4 core 1.4GHz
Processor:	SoC Pinecone S1
AP:	4x large core Cortex A53 2.2GHz, 4x small core Cortex A53 1.4GHz

GPU:	4 core, Mali-T860
SDR:	A7 + DSP
Memory:	Air Unit LPDDR3 1GB, Ground Station LPDDR3 2GB
Transmission Range:	FCC20km, CE/SRRC 12km
Frequency Band:	2.4GHz ISM
Receive Sensitivity:	-99dBm@20MHz BW
Interference recovery:	<1s
Latency:	Min 110ms
Resolution:	720p@30fps, 1080p@30/60fps

Ground Station



HereLink Blue Ground Station

Feature	Specification
Screen:	5.46 inch 1080P, 16 million colors, capacitive touch screen
Audio:	Built-in speaker × 1, built-in microphone × 2
Remote control:	Hall effect gimbals with removable sticks × 2, scroll wheel × 1, bottom button × 6 with backlight, top button × 1 (right)
Wireless:	Bluetooth / WIFI / GPS / 2.4G map transmission ground
Inputs:	MicroUSB × 1, Micro SD × 1 (supports maximum 64GB)
Antenna:	2.4GHz (1.9dBic) × 2 detachable ,built-in wifi antenna, built-in GPS antenna, external GPS antenna interface × 1 (optional)
Power :	Built-in 4950 mAh Li-ion Battery
Charging :	Support micro USB port 5v 2A current charging
Power consumption:	The average power consumption does not exceed 4W (only picture transmission work, medium screen brightness, WiFi off, GPS off)
Size:	245mm × 116mm × 40mm not including external antenna and joystick

Air Unit





HereLink Blue Air Unit

Feature	Specification
Video-Input:	Micro HDMI x 2: Input for external camera video, supports 720P 30fps & 1080P 30/60fps
Power Input:	2 Pin interface x 1: Recommended supply voltage ~7V: minimum 6V: maximum 12V and avoid sharing BEC with servos, the average power consumption of the single-sided module is less than 4W
Telemetry:	3 Pin interface x 1:3.3V / 5V level UART interface Mavlink Compatible
Control Output:	4 Pin interface x 1: Two 3.3V level RC output connectors (S.bus in phase, S.bus inverting or PPM signal output, ground terminal control)
USB:	Micro USB x 1: for debugging upgrades, support OTG mode
Antenna:	MMCX antenna jack x 2: used for signal transmission and ground communication
Size:	104.5mm x 30.5mm x 16mm

HereLink Blue User Guide

Air Unit





Air Unit Specifications

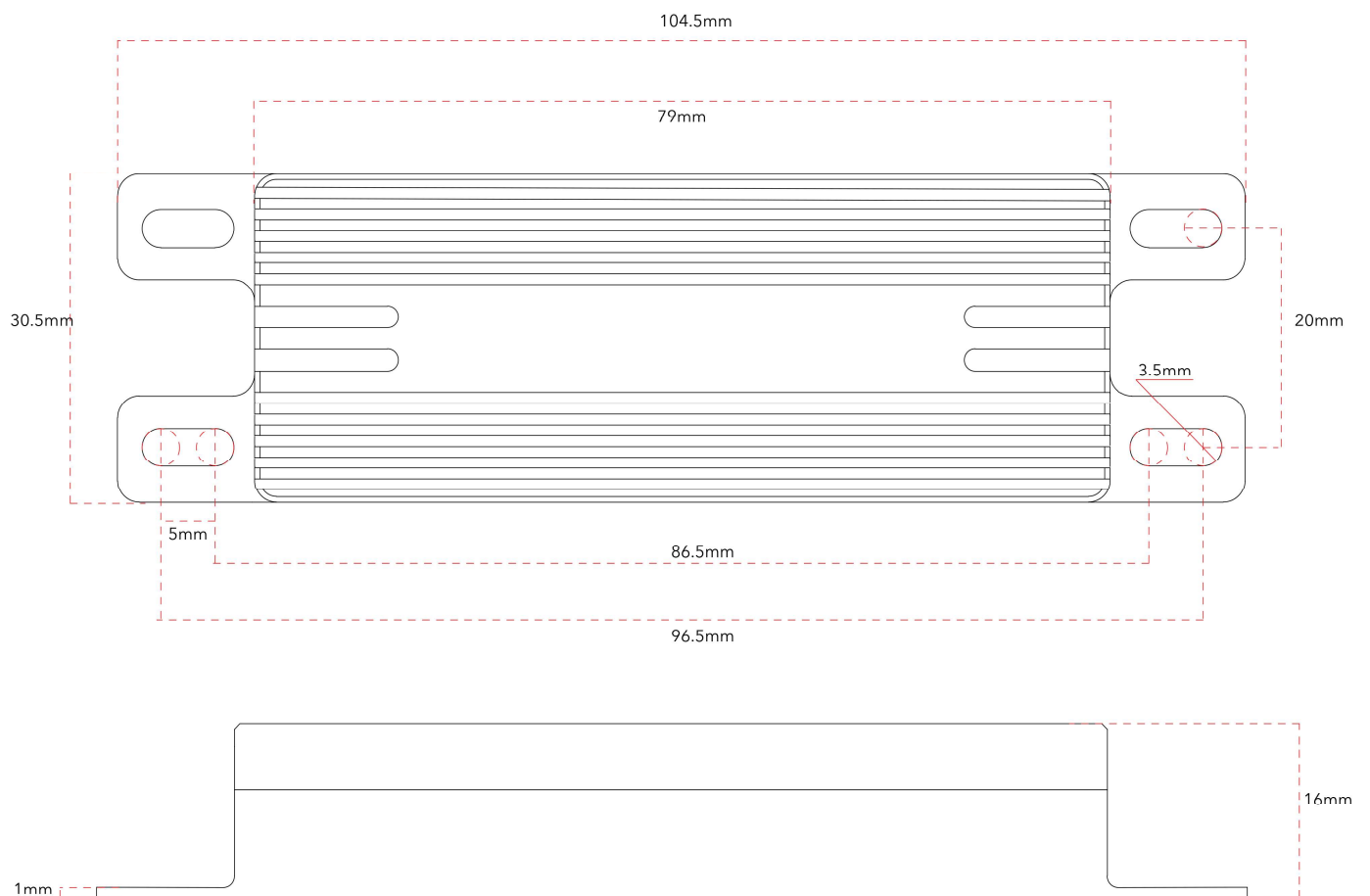


Air Unit LEDs



Air Unit Interface & Installation

Air Unit Specifications



HereLink Blue Air Unit Dimensions

Feature	Specification
Housing:	6061 Aluminum
Dimensions:	104.5mm x 30.5mm x 16mm
Weight:	90g (w/ antennas)

Antennas:	2x circularly polarized antenna 1.9dbic
Signal Bandwidth:	20MHz/10MHz
Power Consumption:	<4W

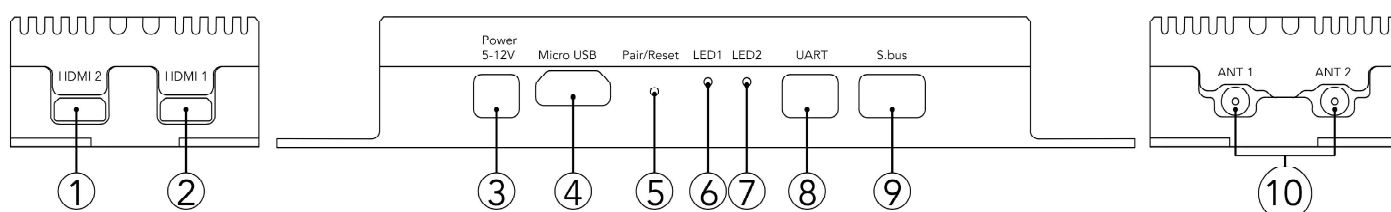
Air Unit LEDs

LED 1 (left)

Feature	Specification
Steady Green Light:	Receiving HDMI 1 Signal
Steady Red Light:	Receiving HDMI 2 Signal
Steady Yellow Light:	Receiving flight control data signal
Changing Green-Yellow-Red Light:	Receiving two video signals and flight controller signal
No Light:	Receiving no valid video signal or flight controller signal

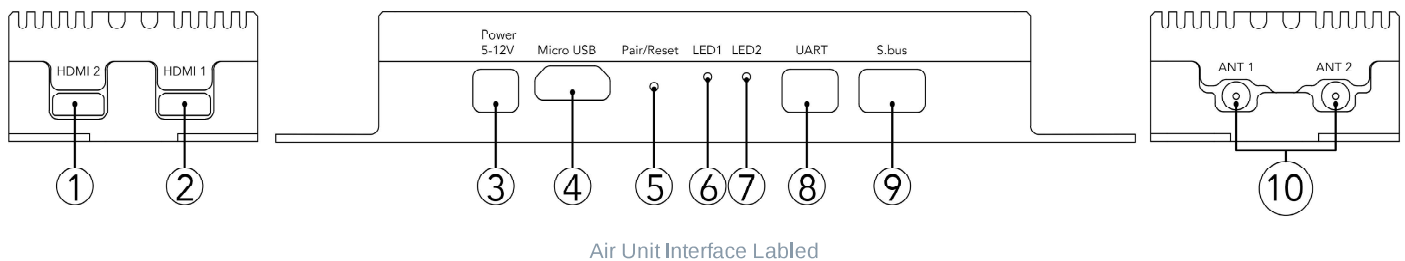
LED 2 (right)

Feature	Specification
Flashing Green Light:	Pairing
Steady Green Light:	Receiving valid controller signal, and power is normal
Steady Yellow Light:	Unpaired/no valid signal received
Flashing Red Light:	Unstable power
No Light:	Rover Unit is not powered



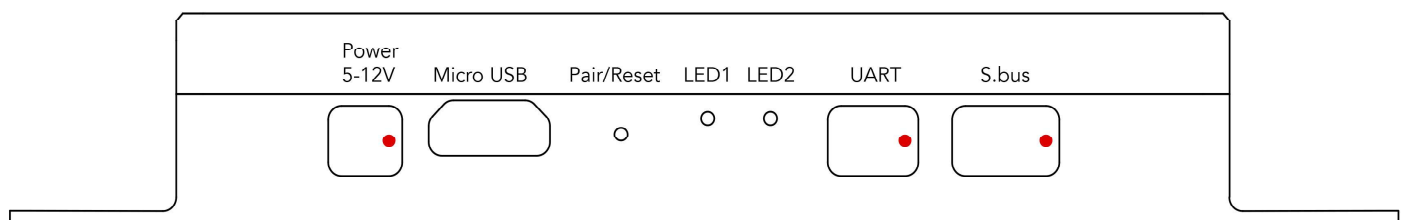
Air Unit Interface & Installation

Connector Inputs

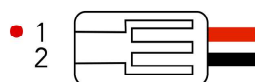


1. HDMI 2: Micro HDMI, for video input
2. HDMI 1: Micro HDMI, for video input (preferred)
3. Power: 6V - 12.6V max (3s Lipo supported) power input **avoid sharing BEC with servos*
4. Micro USB: For debug or upgrade, support OTG
5. Pair/Reset: For pairing and rest
6. LED 1,2: To indicate pairing status and transmission status
7. UART: 3.3V / 5V UART
8. S.bus: Tow 3.3V RC output
9. Antenna 1,2: MMCX, for signal transmission and communication

Pin Out

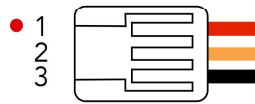


Power (2-Pin JST-GH)



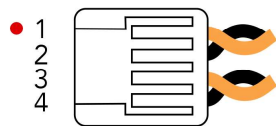
Pin #	Name	Description
1	Power	Power In 5V - 12.6V max (3s Lipo supported)
2	GND	Ground Pin

UART (3-Pin JST-GH)



Pin #	Name	Description
1	RXD	RX of rover module 3.3V / 5V TTL
2	TXD	TX of rover module 3.3V / 5V TTL
3	GND	Ground Pin

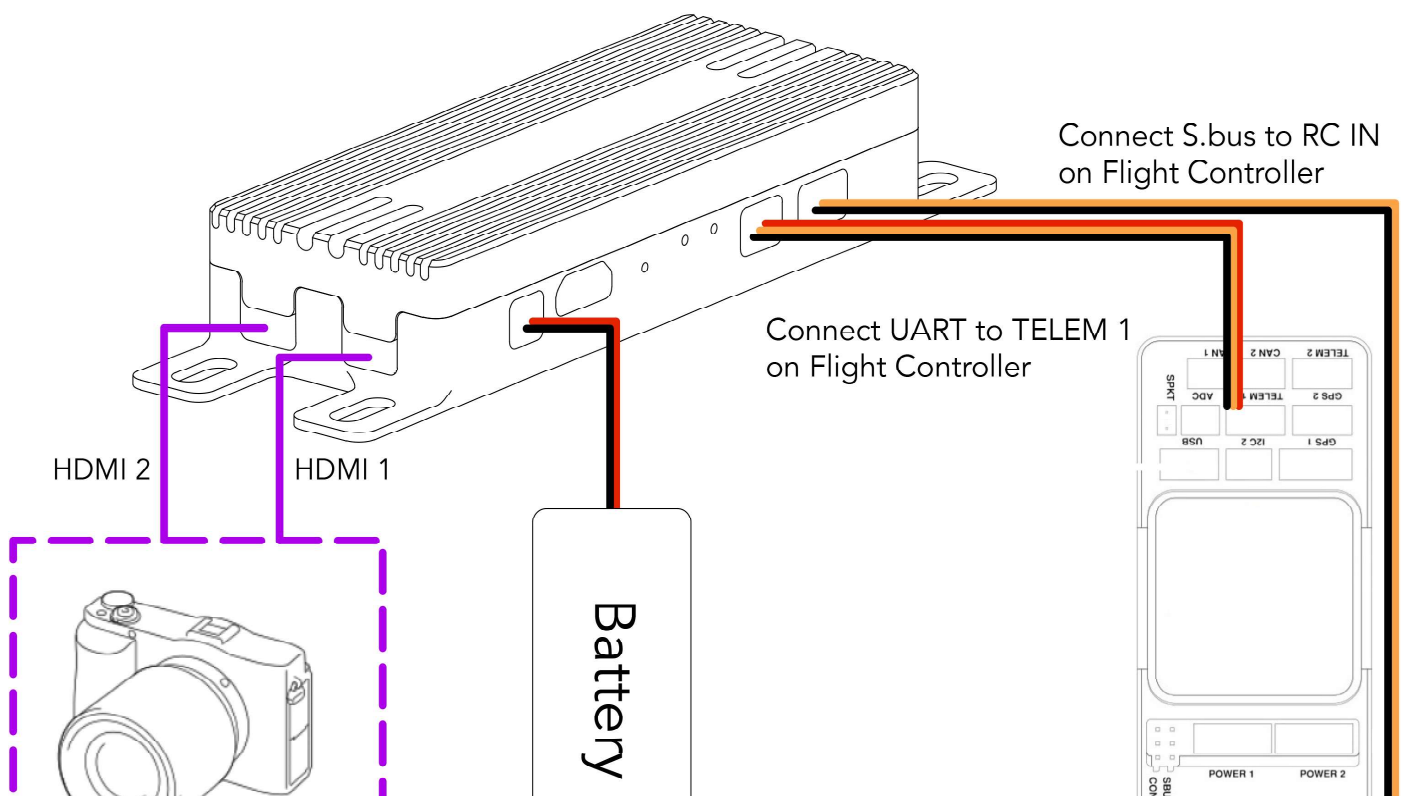
S.bus (4-Pin JST-GH)

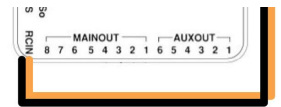
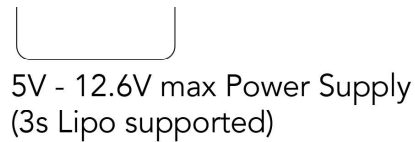


Pin #	Name	Description
1	S.bus out 1	RX of rover module 3.3V / 5V TTL
2	GND	Ground Pin
3	RSVD	For future use
4	GND	Ground Pin

Air Unit Pin Out

Connector Routing





Installation

- Mount the Rover Unit securely to the drone
- Choose the best position to attach the rover unit antennas.
- Connect the antennas to ANT 1, ANT 2 (MMCX) on the Rover unit. There shall be no metal parts or any conductor attached to the antennas.
- Connect S.bus on the Rover Unit to the RC IN on the Flight Controller.
- Connect UART on the Rover unit to the TELEM 1 or TELEM 2 on the Flight Controller.
- Connect 5V - 12.6V max (3s Lipo supported) battery to the power input on the Rover Unit.
- Connect a camera to HDMI 1 (preferred) on the Rover Unit. If you are using two cameras, connect the second camera to HDMI 2. You may switch from Stream 1 and Stream 2 on the Ground Station to display the corresponding video stream.

Ground Station





Ground Station Specifications

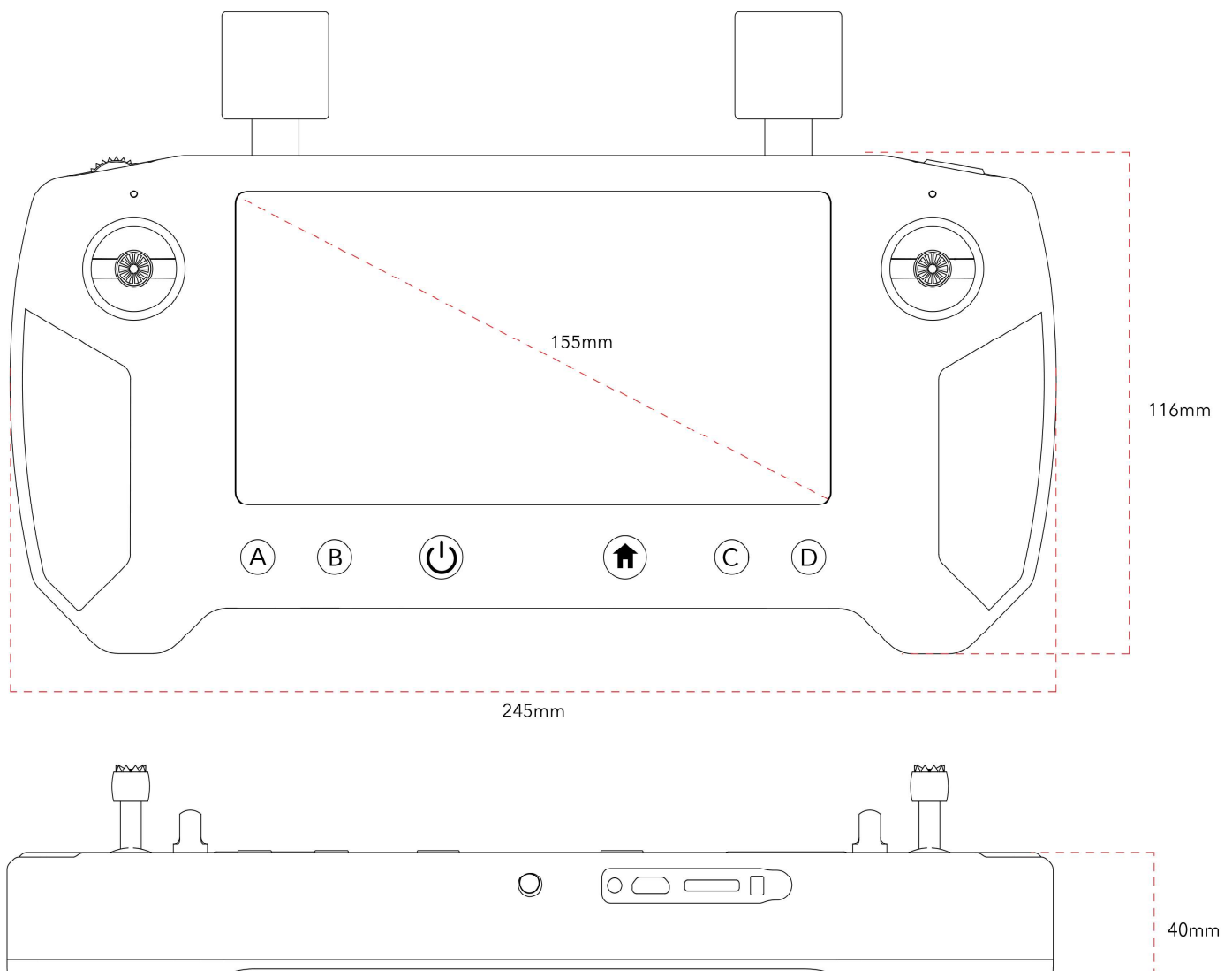


Ground Station Buttons & LED



Ground Station Charging

Ground Station Specifications



HereLink Blue Ground Station Dimensions

Feature	Specification
Housing:	6061 Aluminum
Dimensions:	245mm × 116mm × 40mm not including external antenna and joystick
Weight:	920g (w/ antennas)
Screen:	5.46 inch, 1080P, 16 Million Colors, Capacitive Touch Screen
Audio:	1x Built-in Speaker, 2x Built-in Microphone
Remote Control:	2x Joystick, 1x Wheel, 6x Button, 1x Upper Right Button
Communication:	WIFI/GPS 2.4GHz
LED:	2x tricolor LED (left, right)
Interface:	1x MicroUSB, 1x Micro SD Card Slot (extendable to max 64GB)
Antenna:	2.4GHz (1.9dBic) × 2 detachable ,built-in wifi antenna, built-in GPS antenna, external GPS antenna interface x 1 (optional)
Power:	4950mAh built-in Li-ion battery
Charging:	Support Micro USB 5V 2A
Power Consumption:	<4W Average (with transmission on, medium screen brightness, WIFI off, GPS off)

Ground Station Buttons & LED

