Cube Orange+ Standard Set with ADS-B IN

Technical datasheet for aircraft integration and compatibility review

Complete CubePilot autopilot package combining the Cube Orange+ module, a full-size carrier board with integrated 1090 MHz ADS-B IN, Power Brick Mini and core connection accessories. Intended primarily for multirotor, fixed-wing and VTOL aircraft using ArduPilot or PX4.



Document	Product
Product datasheet	SKU / MPN HX4-06222 | GTIN 9359453000374
At a glance	Verified value
Processor / memory	STM32H757 dual-core MCU | 2 MB flash | 1 MB RAM
Sensor architecture	3 IMUs: 2 mechanically isolated + 1 fixed | 2 barometers | 1 magnetometer
Traffic receiver	Integrated uAvionix 1090 MHz ADS-B IN receiver and antenna
Control / data	14 PWM | 5 serial | 2 CAN | 2 I2C
Software	ArduPilot and PX4
Compliance	CubePilot declaration: NDAA and Executive Order 13981

Supplied configuration

Qty.	Included component	Qty.	Included component
1	Cube Orange+	1	ADS-B Carrier Board
1	Power Brick Mini	1	I2C Board
1	Buzzer Cable	2	CAN Cables
1	Power Brick Mini Cable	1	GPS1 Cable
1	Micro USB Cable	2	I2C Cables
4	Mounting screws	9	3M pads: 3 large, 2 medium, 4 small

SELECTED SEPARATELY GNSS/compass; telemetry or other command-and-data link; RC receiver if required; airframe, propulsion, battery and power distribution; mission payloads; optional second regulated power path.

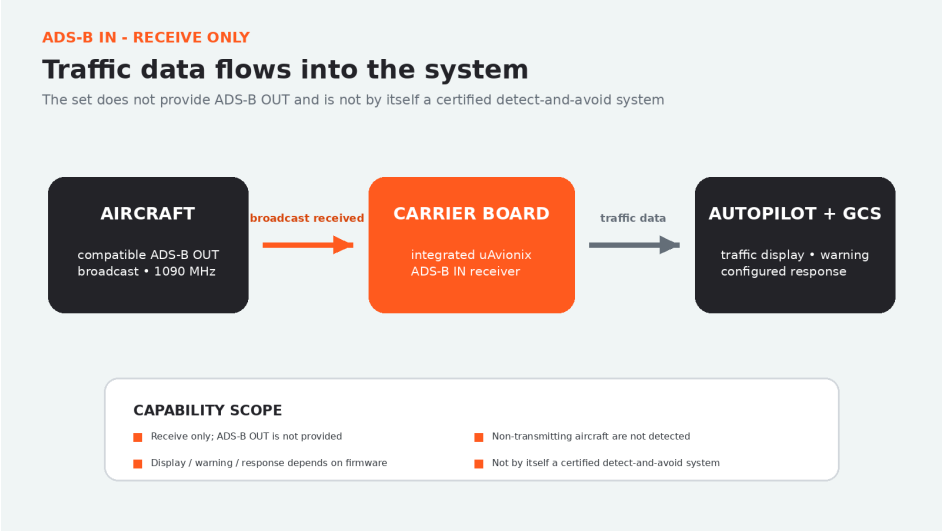
CONFIGURATION FIT Use when 1090 MHz traffic awareness, a full-size carrier board, broad I/O and a starting accessory set are required. Choose another configuration for ADS-B OUT, minimum installation size or module-only replacement.

SYSTEM / CAPABILITY BOUNDARY This is an autopilot and connection package, not a complete aircraft, navigation solution, communication link or propulsion system. ADS-B is receive-only; the set is not by itself a certified detect-and-avoid system.

COOPERATIVE TRAFFIC AWARENESS

Integrated 1090 MHz ADS-B IN

The carrier board integrates a uAvionix receiver and antenna. It receives compatible broadcasts from nearby aircraft equipped with ADS-B OUT and passes available traffic information to the autopilot and connected ground station.



ADS-B parameter	Verified scope
Direction	Receive only; ADS-B OUT is not provided
Frequency	1090 MHz
Receiver / antenna	uAvionix receiver with antenna integrated on the carrier-board assembly
Internal connection	Serial 5
Traffic data	Position, altitude, speed and identification, where transmitted by the detected aircraft
Firmware handling	Display, warning and configured response depend on firmware and system configuration

OPERATIONAL LIMIT Non-cooperative or non-transmitting traffic is not detected. Hardware installation alone does not guarantee automatic collision avoidance.

ADS-B IN Carrier Board manual

Use the current manufacturer-controlled instructions for configuration and traffic-response settings.

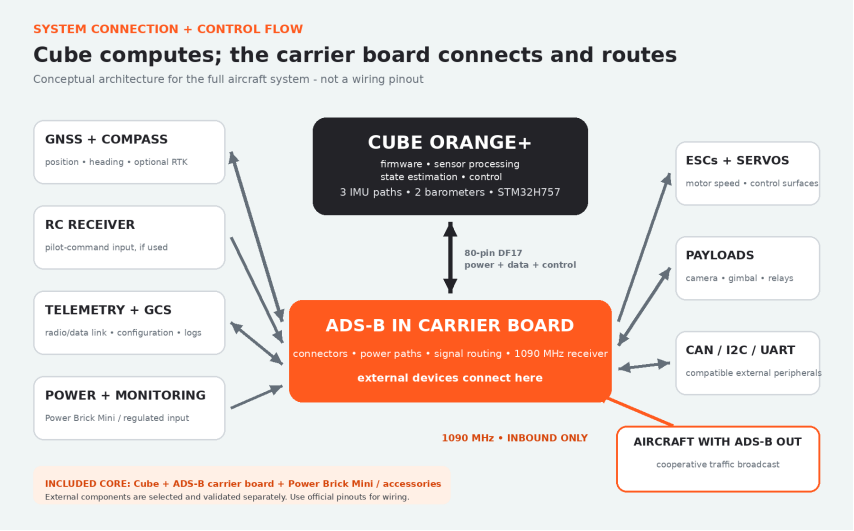
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Configuration decision

Appropriate when	Consider another configuration when
The aircraft benefits from 1090 MHz ADS-B IN traffic awareness.	The project requires ADS-B OUT transmission.
Full-size carrier I/O and a starting accessory set are required.	Minimum installation size or module-only replacement is the priority.

CARRIER-BOARD INTERFACES

Power, control, data and peripheral connection paths



Conceptual architecture only; use the current controlled CubePilot pinout for wiring.

Interface	Capability	Integration note
PWM outputs	14 total	8 I/O + 6 FMU; I/O supports up to 400 Hz and can be used as GPIO
I/O PWM voltage	3.3 V / 5 V	Software selectable; verify servo and carrier-board requirements
Serial / UART	5 interfaces	3.3 V CMOS, 5 V tolerant; two support flow control; Serial 5 is used by ADS-B IN
CAN / I2C	2 CAN + 2 I2C	Compatible CAN, DroneCAN and I2C sensors and peripherals
External SPI	1 unbuffered port	3.3 V CMOS, 5 V tolerant; use short connections only
Analog / RSSI	3 analog + RSSI	Analog 1-3: 0-3.3 V scaled, protected to 12 V; RSSI shares a pin with S.Bus output
RC / S.Bus	Input and output	CPPM, Spektrum/DSM and S.Bus input; S.Bus output
USB	Carrier-board port	Configuration, firmware installation and servicing
Buzzer / status	Supported	External piezo buzzer, safety LED and I2C-compatible RGB LED paths
Safety switch / LED	Supported	External safety switch and status indication
Cube-to-carrier	80-pin Hirose DF17	Carries power, inputs, outputs and communication interfaces

FIRMWARE BOUNDARY Cube Orange+ is supported in the ArduPilot and PX4 ecosystems. Available functions depend on installed firmware, connected hardware and configuration.

Interface specifications and pin assignments

Verify connector assignment, signal level, supply limits and the current controlled pinout before freezing a harness.

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NDAA and procurement documentation

CubePilot states that Cube Orange+ is NDAA compliant and compliant with Executive Order 13981. This manufacturer declaration supports supply-chain and procurement review; project-specific approval remains the buyer's responsibility.

Manufacturer declaration: CubePilot US Defence documentation

PROCESSOR, SENSING, POWER AND MECHANICS

Published values for compatibility and installation review

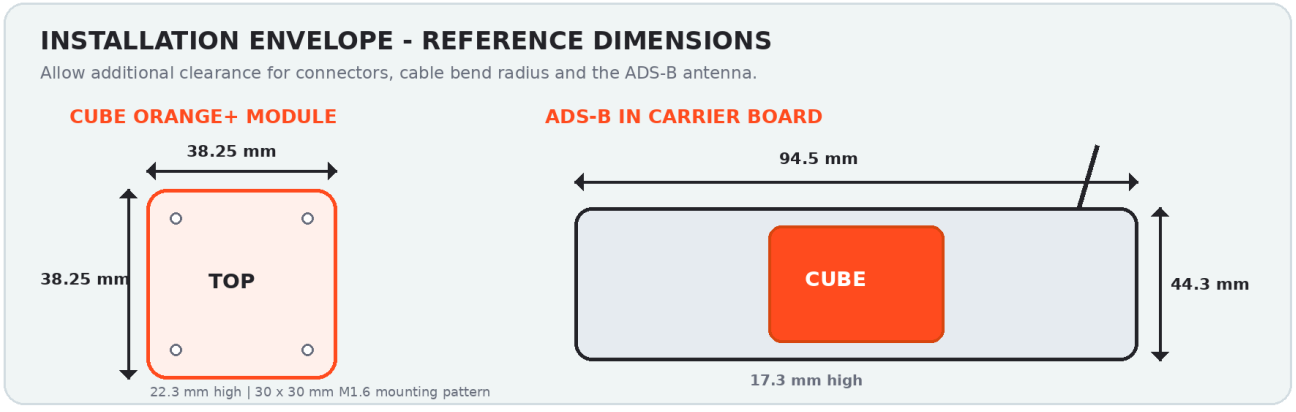
Processor and sensors

Parameter	Published value
Processor and memory	STM32H757 dual-core Arm Cortex-M7 + Cortex-M4 | 2 MB flash | 1 MB RAM
IMU architecture	3 IMUs: 2 mechanically isolated + 1 fixed
Exact IMU components	Hardware-revision dependent; verify current CubePilot IMU-board documentation
Pressure / magnetic sensing	2 x MS5611 barometers | 1 onboard magnetometer
Thermal control / sensor bus	Onboard heater-based IMU control | internal SPI sensor bus
Logging	microSD via SDIO

Sensor revision mapping: CubePilot IMU board versions

Power, mechanical and environment

Parameter	Verified publishing value
Cube operating range	4.0 to 5.5 V compliant | 3.8 to 5.7 V absolute
Published set input	4.1 to 5.7 V | 2.5 A
Power inputs	POWER1 / brick, POWER2 / auxiliary and USB accept 4.0 to 5.7 V
H7 FMU + I/O budget	550 mA, including LEDs and piezo buzzer
Peripheral power limit	2.5 A total; individual port groups have lower limits
Servo rail	4.0 to 10.5 V for I/O failsafe only; externally powered; The Cube does not power servos
Cube dimensions	38.25 × 38.25 × 22.3 mm
Cube mounting geometry	30 × 30 mm M1.6 mounting-hole pattern | 35 × 35 mm footprint
Carrier-board dimensions	94.5 × 44.3 × 17.3 mm
Installation envelope	Allow space for the assembly, connectors, cables and ADS-B antenna
Recommended temperature	-10 to +55 deg C
Waterproofing	Not waterproof; external environmental protection is required



Reference dimensions; not a manufacturing drawing.

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