VEX AIR

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NEW

STEM Skills Take Flight

AGES 14+



Pictured: **VEX AIR Drone & Remote**



VEX CODE

Code with **Blocks**, **Python**, and **Switch** on all platforms
Software available at no cost
Laptop not included

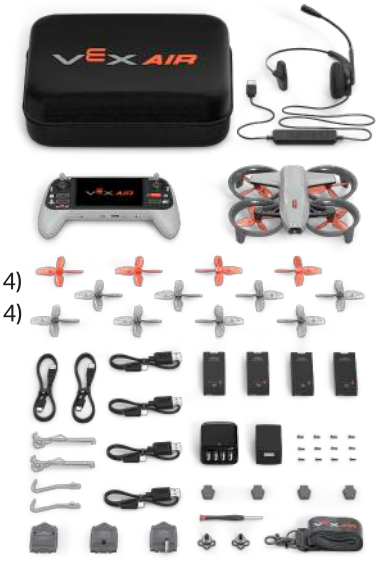
Drone Perfect Size: **About 187.5 mm (L) x 217.5 mm (W)**
Remote Size: **About 235.4 mm (L) x 123.6 mm (H) x 55.2 mm (W)**



VEX AIR Competition Drone

What's Included:

(1) VEX AIR Drone
(1) VEX AIR Drone Controller
(1) Module 1 - Passive
(1) Module 2 - Motorized
(1) Module 3 - Magnetic
(2) High Capacity Battery
(2) Low Capacity Battery
(1) Communication Headset
(1) Extra Propeller Set A (QTY 4)
(2) Extra Propeller Set B (QTY 4)
(2) USB-A to USB-C Cable (1pk, 1m)
(4) USB-A to USB-C Cable (4pk, 300mm)
(1) AC to USB-A Adapter (1-port, 15W)
(1) AC to USB-A Adapter (4-port, 48W)



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Instructional Integration

Discover the educational and competitive benefits of the **VEX AIR Drone.** This advanced tool enhances STEM learning by allowing students and educators to delve into the principles of robotics, technology, and aeronautics. Incorporate it into your activities and competitions to see the difference it can make. This drone, built upon the knowledge and experience of VEX Robotics, has been designed to enhance **Career and Technical Education** (CTE) and support the development of some of the most critical student skills in robotics. For indoor use only.

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Coding

- Programmable using VEXcode Blocks, Switch, and Python. Advanced programming with Microsoft's Visual Studio Code extension available soon. Control flight, navigation, on-screen graphics, and sound
- Windows, Mac, Chromebook, and Browser

Drone Physical

Compliance: Section 889 Compliant
Size: 217.5 (width) x 187.5 (length) x 56mm (height)
Weight: 239g
- Meets the FAA Exception for Limited Recreational Operations

Power Source: 7.4v Lithium Polymer Battery
Motors: Brushless DC
Propeller Guards: Permanent 360-degree propeller duct

Touch Screen Controller with Video Streaming

Controls: Quality joysticks, user-mappable buttons
Screen: 5" touch screen controller with live video feeds from cameras (aids in navigation, object interaction, and precise landings)
Video: Views cameras on screen for first-person flying, landing, and alignment
Data: Telemetry data overlay on video feeds for enhanced situational awareness
Audio: Internal speaker for audio feedback. Wired communication headset included
Connectivity: Dual Band WiFi and USB
Controlling Modes: Multiple Control Modes
Flight Modes: Multiple Flight Modes

Drone Electronics

Forward facing camera: First person flight view
Downward facing camera: Landing and object detection
Optical Detection: AprilTags
Flight: Optical position stabilization and navigation
Inertial: Gyroscope and accelerometer
Altitude: Bottom rangefinder under 5m altitude and barometer
Connectivity: Dual Band WiFi and USB
Storage: Up to 2 GB storage for images and video
Firmware Security: Hardware-enforced firmware verification

Advanced Camera System Details

- Dual-cameras for aerial flying.
- Forward camera assists in navigation around obstacles
- Downward camera aligns with ground objects for precise movement tracking and optical position holding
- AprilTag detection for precise identification and location of supply depots, drop-off zones, and landing zones

Drone (Mission) Modules

Module 1: Passive hook and magnet
Module 2: Motorized hook
Module 3: Motorized magnetic object pickup and drop-off

Sensor Array Details

- Equipped with sensors to improve navigation and coding precision
- Forward-facing rangefinder for front range detection
- Downward-facing rangefinder for accurate vertical positioning
- State-of-the-art gyroscopes and accelerometers for stable, controlled flight
- Advanced battery management system for accurate calculation of remaining flight time

Mission Modules Details

- Designed for versatility with interchangeable mission modules.
- Modules attach to the underside of the drone
- Enable functions including object interaction, pickup, transport, and drop-off
- Available in various forms: passive mechanisms, motor-powered manipulators, magnetic object handlers
- Quickly hot swapped to alter the drone's operational capabilities

Safety Features

- Equipped with permanent propeller ducts
- Propeller safety interlock
- Motors shut down if flight is outside parameters

Specifications listed are subject to change.