

1. Record Nr.	UNINA9910838377003321
Autore	Jenkins Kevin
Titolo	The Droner's Manual : A Guide to the Responsible Operation of Small Uncrewed Aircraft
Pubbl/distr/stampa	Newcastle, Washington : , : Aviation Supplies & Academics, Incorporated, , 2022 ©2022
ISBN	9781644252703
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (183 pages)
Soggetti	Drone aircraft Vehicles, remotely piloted
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Contents -- About the Author -- Introduction -- Abbreviations -- 1-Uncrewed System Components -- Ground Systems -- Interface Device -- Telemetry Transceiver (TX/RX) -- Remote-Control Transmitter (RC TX) -- Payload Interface -- Power Sources -- Remote-Control (RC) Systems -- Theory of Operation -- Configuration -- Selecting a System -- Aircraft Systems -- Introduction to Airframes -- Electrical System -- Flight Controller -- Flight Controller Sensors -- Telemetry Unit -- Maneuvering Controls -- Propulsion Systems -- Imaging Sensor Payloads -- Selecting Components for a Multicopter -- Selecting Components for an Airplane -- 2-Aircraft Set Up -- Assembly and Integration -- Fastener Retention Methods -- Using Caution with Electrical Components -- Planning Component Placement -- Protecting and Securing Connections -- Wiring and Routing -- Vibration Mitigation -- Upgrades, Replacement, and Maintenance -- Information Common to Multicopters and Airplanes -- Standard RC Connections -- Motor and ESC Set Up -- Multicopter Set Up -- Before Powering On -- Set-Up Process -- Airplane Set Up -- Before Powering On -- Set-Up Process -- 3-Flight Controller Fundamentals -- Common Flight Modes -- Stabilize (Fixed- and Rotor-Wing) -- Auto (Fixed- and Rotor-Wing) -- Return to Home (RTH) (Fixed- and Rotor-Wing) -- Land Now (Fixed- and Rotor-Wing) -- Aircraft-Specific Flight Modes -- Augmented

Rotor-Wing Control Modes -- Augmented Fixed-Wing Control Modes -- Flight Controller Failsafe -- Common Failsafe Conditions -- Actions -- Failsafe Summary -- 4-Regulations -- Recreational Use -- Commercial Use -- Small UAS Registration -- Remote Identification of Uncrewed Aircraft -- The Academy of Model Aeronautics (AMA) -- 5-Flight Testing Process -- Multicopter Flight Testing -- Selecting a Suitable Test Site -- Safety -- Arming and Tip Over/Control Checks. Low Hover Check -- Hover Throttle Setting with Dummy Payload Weight -- Pitch and Roll PID Tuning with Dummy Payload Weight -- Yaw Testing with Dummy Payload Weight -- Altitude Hold Tuning with Dummy Payload Weight -- Maximum Horizontal Speed Setting -- Climb Rate Settings -- Autonomous Test with Dummy Payload Weight -- Failsafe Test with Dummy Payload Weight -- Mode Checks with Dummy Payload Weight -- Flight Test with Live Payload -- Fixed-Wing Aircraft Flight Testing -- Selecting a Suitable Test Site -- Safety -- RC Flight Check with Dummy Payload -- Configuring the Flight Controller -- Stabilized Flight Check with Dummy Payload -- Autonomous Flight Check with Dummy Payload -- Autonomous Launch and Landing with Dummy Payload -- Failsafe Checks with Dummy Payload -- Flight Test with Live Payload -- PID Loops and Tuning -- PID Loops -- Tuning Process -- 6-Flight Operations -- Mission Planning -- Fixed-Wing Commands -- Rotor-Wing Commands -- Common Actions -- Developing a Checklist -- Power Off Preflight Checks -- Power On Procedure -- Power On Preflight Checks -- Arming and Launch -- In Flight -- Recovery and Shutdown -- Building a Field Kit -- Glossary -- Index.

Sommario/riassunto

The incredible advancements in the field of uncrewed aircraft over the last decade have made it possible for almost anyone to build and operate their own drone, creating exciting business opportunities in numerous fields ranging from video production to agriculture. However, many beginners and even more experienced hobbyists find these ventures daunting because reliable information for construction and programming of uncrewed aircraft is often scattered across various sources, and the industry is still establishing standards for safe and efficient operation of UAVs. The Droner's Manual compiles the most important and relevant knowledge into a guide for both beginner and experienced operators. With his expertise as a UAV operator for government, industry, and hobby uses, author Kevin Jenkins offers step-by-step guidance to build, program, test, and fly multicopter, fixed-wing, and hybrid airframe aircraft for a variety of purposes. This comprehensive manual covers uncrewed system components, aircraft set up, flight controller fundamentals and failsafe features, the flight-testing process, and flight operations. The second edition incorporates regulation exceptions for recreational flying and introduces The Recreational UAS Safety Test (TRUST), as well as offering new and updated information on smart batteries, solving GPS complications, drone photography, remote identification requirements, and the concepts of PID tuning. More than 70 illustrations provide detailed schematics and diagrams for the construction of complex systems such as first-person view (FPV) and imaging payloads. You will fly with confidence applying this book's direction on mission planning, checklists, and safe flight operations. Whether you use it to build your first unmanned aircraft or as a handy reference in the field, The Droner's Manual is essential for drone builders, pilots, and operators.
