# PRODUCT CATALOG

**AV** AeroVironment™

AEROVIRONMENT HAS DELIVERED THE **VAST MAJORITY** OF ALL
UNCREWED AIRCRAFT IN THE U.S. DEPARTMENT OF DEFENSE INVENTORY*

# CONTENTS

## 35K+ UNITS DELIVERED WORLDWIDE

## 4 MM+ ACCUMULATED UAS FLIGHT HOURS (EST)

## 55+ ALLIED NATIONS USE OUR LMS, UAS, UGV & SUPPORT SERVICES

# WHO WE ARE

At AeroVironment, we are relentless in our efforts to deploy technology in ways that push beyond the realm of what's possible. With each innovation, we strive to broaden our customers' horizons and elevate their capacity to make smarter, quicker decisions.

We develop technologies and solutions that enable customers to operate beyond the horizon, enabling them to see the world in powerful new ways, complete ever-more ambitious missions and overcome seemingly intractable challenges. By pushing the boundaries of future-defining technologies, we move beyond what is currently possible to create a powerful, interlocking family of products spanning missions, domains and worlds.

*Source: United States Department of Defense Unmanned Systems Roadmap 2013-2038, page 5*

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# MULTI-DOMAIN ROBOTIC SYSTEMS

INTRODUCING **JUMP** 20-X

**JUMP** 20

**T**-20

**SOLAR** HAPS

**PUMA** LE

**PUMA** 3 AE

**SWITCHBLADE** 600

**SWITCHBLADE** 300 BLOCK 20

**P550**

**PUMA** VTOL KIT

**RAVEN** B

**BLACKWING**

**VAPOR** 55 MX

**DDL** NETWORK ANTENNAS

**TOMAHAWK** GROUND CONTROL STATIONS

**UNCREWED GROUND VEHICLES**

# LOITERING MUNITION SYSTEMS

## + LMS

AeroVironment's Switchblade® loitering munition systems (LMS) close the gap between observation and action, giving troops the ability to identify threats and precisely deliver a lethal payload with minimal collateral effects. Their small size and low acoustic, visual and thermal signatures make Switchblade systems difficult to detect or track, even at close range.

Rapidly deployable and highly maneuverable with high-performance optics and scalable munition payloads, our LMS enable warfighters to easily launch, track and engage beyond-line-of-sight targets, including light armored vehicles, across domains. These qualities make Switchblade the loitering munition of choice in Ukraine.

# SWITCHBLADE® 600 LOITERING MUNITION
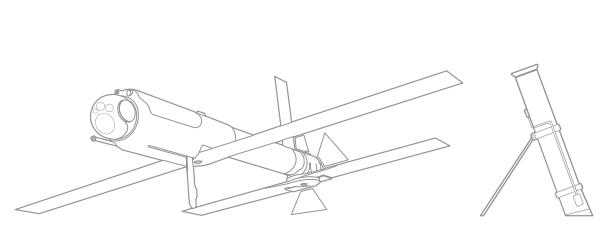


**LAUNCHER DIMENSIONS**
Length: 60 in (1.5 m)
Diameter: 7.5 in (19.2 cm)

**WEIGHT**
Munition: 33 lb (15 kg)
AUR: 65 lb (29.5 kg)

**》RANGE**
37.2 mi (60+ km)
56+ mi (90+km)
w/ Forward Pass

**》ENDURANCE**
40+ min

**》SPEED**
Loiter: 70 mph (113 km/h)
Sprint: 115 mph (185 km/h)

**》EFFECTS ON TARGET**
Anti-armor &
anti-personnel effects

| | |
|---|---|
| **FIRE CONTROL SYSTEM** | Tablet-based FCU with tap-to-target guidance & built-in mission planner & trainer |
| **TARGETING OPTICS** | 2-axis, 4-sensor gimbal (Dual EO/IR) integrated sensor suite |
| **OPERATING ALTITUDE** | Below 650 ft (198 m) AGL; ceiling >15,000 ft (4572 m) MSL |
| **LAUNCH METHOD** | Self-contained launcher for ground, air & maritime |
| **LETHALITY** | Precision strike with anti-armor warhead |

**KEY FEATURES**

》 *Patented wave-off feature & recommit capability*

》 *Enhanced frequency hopping Digital Data Link™ covering more frequencies & supporting AES-256-bit encryption*

》 *Intuitive touch screen tablet Fire Control Unit (FCU)*

》 *<10 minute system setup & launch*

**ALL-IN-ONE, MAN-PORTABLE, ANTI-ARMOR, SMART MUNITION SYSTEM**

Best-in-Class Sensor Suite

Anti-Armor Warhead
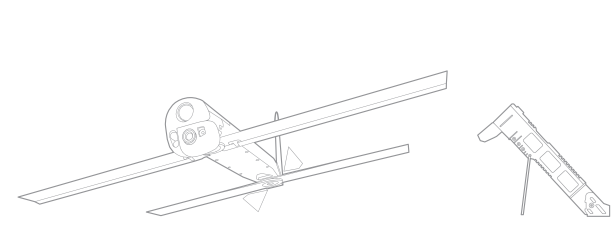
Self-Contained Tube-Launcher

Mission Planning on FCU

Integrated Training Simulator (T-sim)

Fire Control System

# SWITCHBLADE® 300 BLOCK 20



**WEIGHT**
Munition: 3.69 lb (1.68 kg)
AUR: 7.2 lb (3.27 kg)

**》RANGE**
30 km with
Extended Range Antenna

**》ENDURANCE**
20+ min

**》SPEED**
Loiter: 63 mph (101 km/h)
Sprint: 100 mph (161 km/h)

| | |
|---|---|
| **FIRE CONTROL SYSTEM** | Tablet-based FCU with tap-to-target guidance & built-in mission planner & trainer |
| **TARGETING OPTICS** | Enhanced EO/IR with forward to left hand panning camera suite |
| **OPERATING ALTITUDE** | Flight <500 ft (152.4 m) AGL; supports operation >15,000 ft (4572 m) ASL |
| **LAUNCH METHOD** | Self-contained launcher for ground, air & maritime; configurable multipack capability |
| **LETHALITY** | Anti-personnel effects; precision strike with low collateral effects |

**KEY FEATURES**

》 *Patented wave-off feature & recommit capability*

》 *Enhanced frequency hopping Digital Data Link™ covering more frequencies & supporting AES-256-bit encryption*

》 *Intuitive touch screen tablet Fire Control Unit (FCU)*

》 *Advanced Munition—multiple commit angles, user-selectable point of detonation, left hand commit with continuous Positive Identification (PID)*

3 USER-SELECTABLE ATTACK ANGLES

45°
33°
20°

DIRECT ATTACK FROM ORBIT // MAINTAIN PID
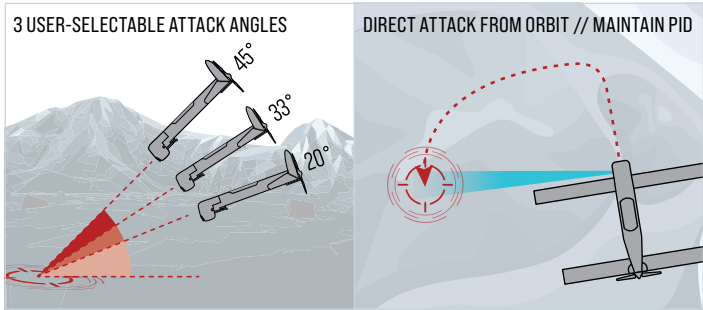
# BLACKWING™ LOITERING RECONNAISSANCE SYSTEM
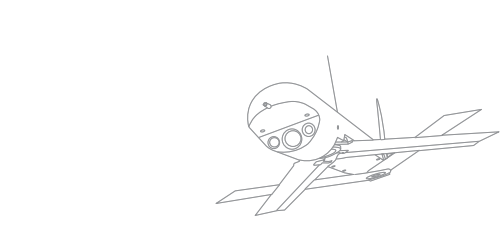


**DIMENSIONS**
Wingspan: 27 in (68.6 cm)
Length: 19.5 in (49.5 cm)
Diameter: 3 in (7.6 cm)
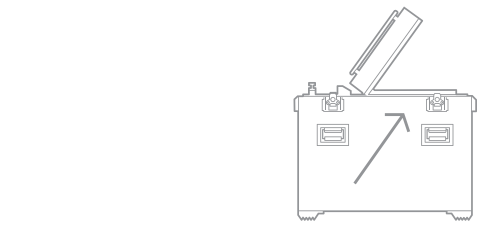
**WEIGHT**
4 lb (1.8 kg)

| | |
|---|---|
| **SENSORS** | Integrated EO/IR sensors—day/night operations |
| **LAUNCH METHOD** | Underwater-to-air delivery canister, tube, MPL |

**KEY FEATURES**

》 *Rapid response ISR*

》 *C3 tactical data relay from UAS to UUV*

》 *Modular payload*

# MPL MULTIPACK LAUNCHER



**DIMENSIONS**
36 in D x 30 in W x 36 in H

**WEIGHT**
~130 lb empty
~160 lb loaded

| | |
|---|---|
| **CONFIG-URATIONS** | 6-pack standard (Alternates for 2-20 AURs possible) |
| **MOUNTING** | Hold-downs for vehicle or shipboard use |
| **POWER** | Solar panel & internal battery, Shore/TacVeh power augments to maintain internal operating temps |
| **CONTROL** | 100 ft remote operation control cable (FOB/COP ops cell bunker/buildings, tactical vehicles, ship CIC) |

**KEY FEATURES**

》 *Compatible with Switchblade® 300 & Blackwing™*

》 *Rapid Reload—<30 seconds per round*

》 *Low observable remote ops*

》 *Tactical vehicle/MRAP*

# SMALL UAS



## ✛ SUAS

Over the last decade, members of AeroVironment's growing family of small uncrewed aircraft systems (SUAS) — P550™, Puma™ LE, Puma™ 3 AE, Raven® and VAPOR® Helicopter UAS — have been adopted by more than 55 allied nations.

The reason for their appeal is straightforward. Under battlefield conditions, they have proven themselves ideal for low-altitude intelligence, surveillance and reconnaissance missions. Lightweight, rugged and easy to operate, our SUAS deliver real-time color and/or infrared imagery to ground control and remote viewing stations. With their enhanced communications and interoperability, they are critical for multi-domain operations.

## P550™ AUTONOMOUS eVTOL UAS
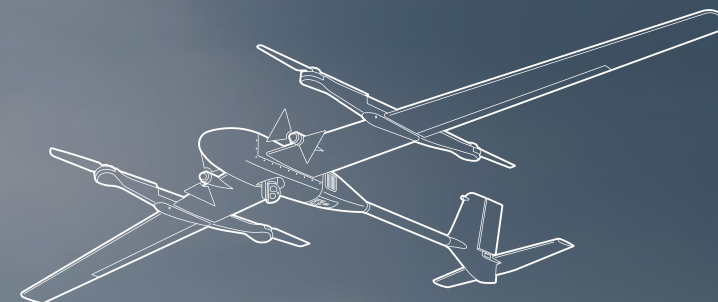


**DIMENSIONS**
Wingspan: 17 ft (5 m)
Length: 9 ft (2.8 m)

**WEIGHT**
Up to 55 lb (24.9 kg) MGTOW

**≫ LINK RANGE**
40 km Standard;
Up to 60 km with DDL range depending on GCS Radio

**≫ ENDURANCE**
Up to 5 hr

**≫ TOTAL PAYLOAD CAPACITY**
Up to 15 lb (6.8 kg)

| | |
|---|---|
| SPEED | 15-27 m/s (30-52 kts) |
| OPERATING ALTITUDE | Max. Flight DA 14K ft (4267 m) Max. Launch DA 10K ft (3000 m) |
| GCS | Vigilant Spirit GCS with Quattro STANAG 4586 (Baseline) & Kinesis GCS |
| LAUNCH & RECOVERY | VTOL |

### KEY FEATURES

≫ *Advanced mission system enabling secure ATR/ Autonomous missions*

≫ *mDDL-FH // Advanced Day-Night VIO Navigation for A2/ AD Ops*

≫ *Modular architecture supporting 3rd party payloads, radios, and control options*

# PUMA™ LE LONG ENDURANCE
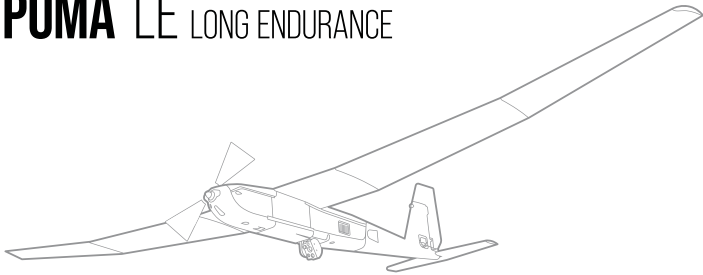


**DIMENSIONS**
Wingspan: 15 ft (4.6 m)
Length: 7.3 ft (2.2 m)

**WEIGHT**
23.8 lb (10.8 kg) with Mantis™ i45/i45 N

**》》LINK RANGE**
12.4 mi (20 km) standard
24.8 mi (40 km) with ERA
37.3 mi (60 km) with LRTA

**》》ENDURANCE**
6.5 hr with Mantis i45/ i45 N

**》》TOTAL PAYLOAD CAPACITY**
5.5 lb (2.5 kg)

| | |
|---|---|
| SPEED | Cruise: 29 mph (47 km/h) 25 kts Dash: 47 mph (76 km/h) 41 kts |
| OPERATING ALTITUDE | 300-3000 ft (91-914 m) AGL, typical Max. launch 10K ft (3,048 m) DA |
| GCS | Tomahawk or Legacy GCS |
| LAUNCH METHOD | Hand-launched, bungee or vehicle launch |
| RECOVERY METHOD | Autonomous or manual skid landing; land or sea |

### KEY FEATURES

» 6.5 hours of ISR capability & full-motion video in all environments

» Support two flights with 2-case mission packout

» Dedicated secondary payload bay with power supply & Ethernet

**INTEROPERABLE LRU SHARING ACROSS PUMA™ PRODUCT LINE**

Puma™ 3 AE and Puma™ LE share many of the same Line Replaceable Units (LRUs), retaining similar operation, transport and logistics support within the Puma™ family.



i45/i45 N    Motor/Props    Avionics    GPS/INS    DDL™ Radio    GCS    Servo    Batteries    UBC    Laptop

# RAVEN® B RQ-11B
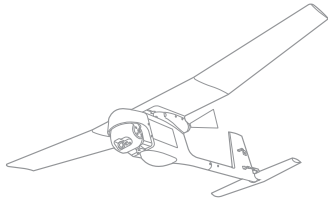


**DIMENSIONS**
Wingspan: 4.5 ft (1.4 m)
Length: 3 ft (0.9 m)

**WEIGHT**
4.8 lb (2.2 kg)

**》》LINK RANGE**
6.2 mi (10 km)

**》》ENDURANCE**
75+ min

| | |
|---|---|
| SPEED | Cruise: 32 km/h (17 kts), Dash: 81 km/h (44 kts) |
| OPERATING ALTITUDE | 100–500 ft (30–152 m) AGL, typical Max. launch 14K ft (4,267 m) MSL |
| GCS | Tomahawk GCS |
| LAUNCH METHOD | Hand-launched |
| RECOVERY METHOD | Autonomous or manual deep-stall |

# PUMA™ 3 AE ALL ENVIRONMENT // RQ-20C



**DIMENSIONS**
Wingspan: 9.2 ft (2.8 m)
Length: 4.6 ft (1.4 m)

**WEIGHT**
15.6 lb (7.1 kg)

**》》LINK RANGE**
12.4 mi (20 km) standard
24.8 mi (40 km) with ERA
37.3 mi (60 km) with LRTA

**》》ENDURANCE**
2.5 hr with Puma™ Smart Battery*
3 hr with PS2500 Battery*

**》》TOTAL PAYLOAD CAPACITY**
4 lb (1.8 kg); 6.5 lb (2.9 kg) with Heavy Lift Software

*with the Mantis i45

| | |
|---|---|
| SPEED | Cruise: 30 mph (49 km/hr) 26 kts Dash: 47 mph (76 km/h) 41 kts |
| OPERATING ALTITUDE | 300-3000 ft (91-914 m) AGL, typical Max. launch 10K ft (3,048 m) MSL |
| GCS | Tomahawk or Legacy GCS |
| LAUNCH METHOD | Hand-launched, optional bungee launch or VTOL kit |
| RECOVERY METHOD | Autonomous or manual deep-stall; land or sea; VTOL option |

### KEY FEATURES

» Increased payload capacity with optional underwing transit bay for secondary payloads

» Single-case mission packout provides two full flights

# PUMA™ KITS AND ACCESSORIES

**COMPATIBLE WITH PUMA PRODUCT LINE**

**PUMA™ BUNGEE LAUNCH SYSTEM**

» For environmental scenarios where hand launch is not preferred

» Setup & operational in <10 min

» Multiple ground fastener options securely installed in a variety of soil types or mounted to low, immovable objects

**COMPATIBLE WITH PUMA 2 AE AND PUMA 3 AE**

**PUMA™ VTOL KIT ***

» Automated one-button launch & recovery in confined environments

» Fixed-wing to VTOL in minutes

» Available as add-on or retrofit kit

**COMPATIBLE WITH PUMA 3 AE ONLY**

**PUMA™ UNIVERSAL TRANSIT BAY**

» Optional under-wing transit bay for additional payload capacity

» Easy integration of third-party payloads
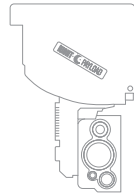
» Three heights available: 1.75 in, 2.25 in & 3 in

**PUMA™ VNS VISUAL NAVIGATION SYSTEM ***

» Seamless mission continuity through GPS-denied environments

» Low-SWAP retrofit kit on existing & new Puma™ AE

» Enables integration of future autonomy capabilities

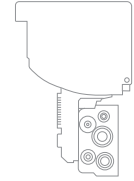*Puma VTOL kit and Puma VNS cannot be installed and operated at the same time.

# MANTIS™ IMAGING PAYLOAD SENSORS

**COMPATIBLE WITH PUMA™ PRODUCT LINE**



**MANTIS™ i45 N**

» Maximum visibility during night & low-light ISR

» Wide & narrow LWIR camera imagers

» 5 MP monochrome Low Light camera
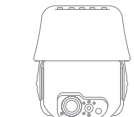
» Enhanced laser illuminator



**MANTIS™ i45**

» Superior daylight & low-light capabilities

» Dual 15 MP high-res EO cameras

» Low Light, LWIR cameras

» Laser illuminator

**COMPATIBLE WITH RAVEN®**



**MANTIS™ i23 D**

» High-performance daytime imaging

» Dual 18 MP high-res EO sensors

» 25x digital zoom



**MANTIS™ i23**

» Daylight & thermal imaging system

» 5 MP EO camera imager

» Laser illuminator

# VAPOR® 55 MX ALL-ELECTRIC HELICOPTER UAS
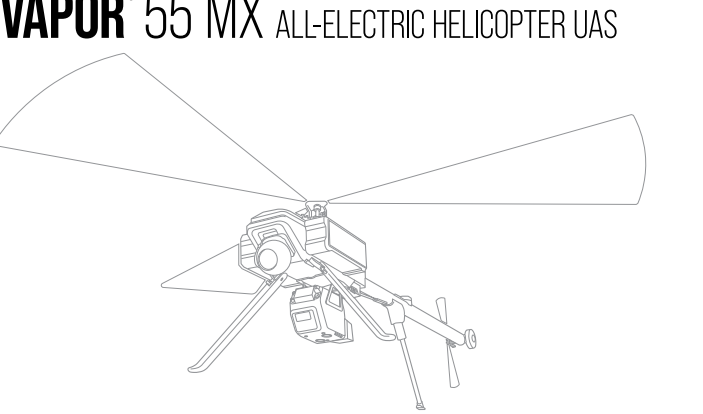


**DIMENSIONS**
Aircraft: 6 ft x 2.2 ft x 2.1 ft (1.8 m x 0.67 m x 0.64 m)
Rotor Diameter: 7.5 ft (2.29 m)

**GTOW WEIGHT***
55 lb (24.9 kg) for commercial use
68 lb (30.8 kg) for defense missions with less endurance

**》》RANGE**
Up to 19.8 mi (32 km)

**》》ENDURANCE**
Cruise: 75 min, Hover: 60 min (2-batteries)*
Cruise: 105 min, Hover: 80 min (3-batteries)*

**》》USABLE PAYLOAD***
Up to 10 lb (4.5 kg) @ 55 lb
Up to 24 lb (10.9 kg) @ 68 lb

| | |
|---|---|
| GROUND SPEED LIMIT | 33 mph (15 m/s) |
| OPERATING ALTITUDE* | 0-12,000 ft (3,657 m) MSL (density) |
| MAX WIND PEAK* | Sustained: 34.5 mph (30 kts) |
| DATA LINKS | 900 MHz, 2.4 GHz or 5.89 GHz (video), Persistent Systems MPU5 (Standard), options Silvus, DTC |

*FAA restricts the max Gross Take-off Weight (GTOW) of drones operating in the NAS to 55 lb unless you have special authorization

### KEY FEATURES

» Payload Flexibility—payload modules with rail design enables quick & easy payload integration for increased mission flexibility

» Sleek, modular airframe design for easy assembly & disassembly

» Telescoping tail & folding landing gear for greater portability

**EXAMPLES OF POSSIBLE PAYLOADS**



EO/IR Sensor    SIGINT    Drop Mechanism**    Lidar

Hyperspectral    PPK Mapping    Multi-Payload

**With HD-25 - up to a 15-18 lbs droppable payload

# MEDIUM UAS

## + MUAS

With a 185-kilometer operating range, AeroVironment's fixed-wing medium uncrewed aircraft systems (MUAS)—JUMP® 20-X, JUMP® 20 and T-20™—are excellent choices for exacting reconnaissance, surveillance and target acquisition applications, due to their ability to carry some of the most powerful and versatile imaging sensors available.

JUMP 20-X is an advanced, Group 3 VTOL UAS designed for unmatched flexibility and precision to meet the demands of evolving missions. Featuring a multi-fuel, multi-payload design, it excels across all domains. Its modular, open-system approach (MOSA) supports payload-agnostic, radio-agnostic, and STANAG-compliant communications ensuring seamless integration and adaptability.

# JUMP® 20-X HEAVY-FUEL VTOL FIXED-WING
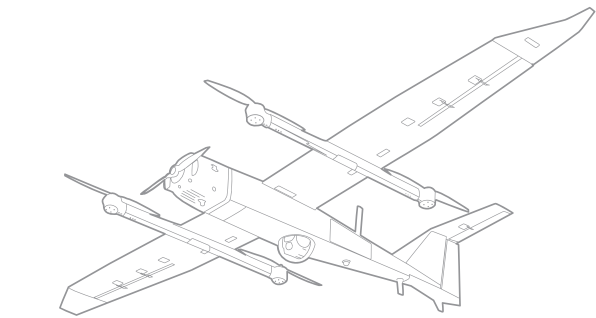
**DIMENSIONS**
Wingspan: 18.8 ft (5.7 m)
Length: 9.5 ft (2.9 m)

**WEIGHT**
215 lb MGTOW* (97.5 kg)
Fuel & Payload

>> **LINK RANGE**
115 mi (185 km); and BLOS capability

>> **ENDURANCE**
13+ hr

>> **USABLE PAYLOAD CAPACITY**
Up to 30 lb (13.6 kg)

>> **POWER SUPPLY**
230cc, heavy fuel engine, 2-stroke JP-5, JP-8, Jet A, or Gasoline Battery Powered VTOL Jump

| OPERATING ALTITUDE | 17,000 ft DA |
|---|---|
| GCS | Common GCS with T-20, Jump 20 |
| LAUNCH METHOD | No launch system or runway required; vertical take-off & landing (VTOL) |
| RECOVERY METHOD | VTOL landing |

*MGTOW - Maximum Gross Take-off Weight

## KEY FEATURES

» *Multi-fuel, multi-INT/multi-domain in a single aircraft*

» *Engineered for extreme maritime conditions*

» *Fully autonomous precision landing*

» *Modularity supporting 3rd party payloads, radios & control options*

» *Beyond-line-of-site (BLOS)—multiple SATCOM options*

### MODULAR VERSATILE MULTI-PAYLOADS

| EO Sensor | IR Sensor | Optical | Sensor Fusion |
| SIGINT | EW Attack | Munitions | Machine Learning |
| Data Links | Anti-Jam | Radar | RF Scan |

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# JUMP® 20 VTOL FIXED-WING
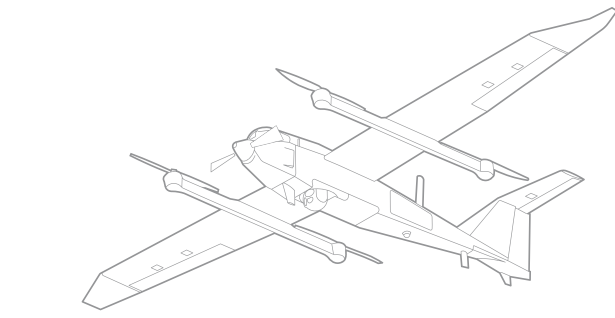
**DIMENSIONS**
Wingspan: 18.8 ft (5.7 m)
Length: 9.5 ft (2.9 m)

**WEIGHT**
215 lb (97.5 kg) MGTOW*
Fuel & Payload

>> **LINK RANGE**
115 mi (185 km)

>> **ENDURANCE**
13+ hr

>> **USABLE PAYLOAD CAPACITY**
Up to 30 lb (13.6 kg)

>> **POWER SUPPLY**
MOGAS, 190 cc EFI Engine Battery Powered VTOL Jump

| OPERATING ALTITUDE | 17,000 ft DA |
|---|---|
| GCS | Common GCS with T-20, JUMP 20-X |
| LAUNCH METHOD | No launch system or runway required; vertical take-off & landing (VTOL) |
| RECOVERY METHOD | VTOL landing |

*MGTOW - Maximum Gross Take-off Weight

## KEY FEATURES

» *Multi-INT/multi-domain in a single integrated aircraft*

» *Best-in-class range & endurance, delivering superior performance*

» *Fully Integrated Payload Options—synthetic aperture radar, mapping capabilities, laser designation, anti-jamming, COMINT/SIGINT*
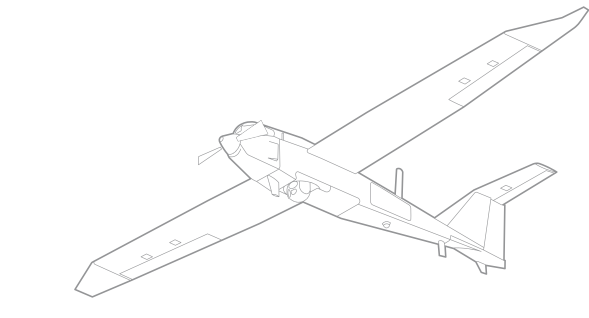
» *Compatible with ACE™ (Autonomous Control Engine) enabling fully-autonomous launch & landing from a moving vehicle or vessel*

### SENSOR OPTIONS

| HOODTECH 09E0960/09E0IR3 | HOODTECH 11EOIR5 | HOODTECH 06EOIR | TRILLIUM HD80/95 |
|---|---|---|---|
| EO, MWIR, SPOTTER | EO, MWIR, LD | EO, MWIR/SWIR, SPOTTER | EO, MWIR, SPOTTER |

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# T-20™ RUNWAY INDEPENDENT

**DIMENSIONS**
Wingspan: 18.8 ft (5.7 m)
Length: 9.5 ft (2.9 m)

**WEIGHT**
225 lb (102 kg) MGTOW*
Fuel & Payload

>> **LINK RANGE**
115 mi (185 km)

>> **ENDURANCE**
24+ hr

>> **USABLE PAYLOAD CAPACITY**
Up to 50 lb (22.7 kg)

>> **POWER SUPPLY**
MOGAS, 190 cc EFI Engine

| OPERATING ALTITUDE | 20,000 ft DA |
|---|---|
| GCS | Common GCS with JUMP 20, JUMP 20-X |
| LAUNCH METHOD | Catapult-launched |
| RECOVERY METHOD | Autonomous or manual skid landing |

*MGTOW - Maximum Gross Take-off Weight

## KEY FEATURES

» *Runway Independent—small operational footprint with PLS (catapult)*

» *High-Performance Optics—long-range day/night imaging, onboard tracking & stabilization*

» *Class-leading endurance & payload flexibility in a Group 3 UAS*

» *Group 4 capabilities in a Group 3 footprint*

### SENSOR OPTIONS

| HOODTECH 09E0960/09E0IR3 | HOODTECH 11EOIR5 | HOODTECH 06EOIR | TRILLIUM HD80/95 |
|---|---|---|---|
| EO, MWIR, SPOTTER | EO, MWIR, LD | EO, MWIR/SWIR, SPOTTER | EO, MWIR, SPOTTER |

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## ISR SERVICES

AeroVironment's ISR services ensures uninterrupted operations and mission success through effective mission planning, on-site operational support, maintenance, repairs, and timely supply chain management. Our highly trained staff of Field Service Representatives (FSR) are ready to quickly mobilize to support customer mission requirements in any theater of operation.

>> **FULLY EQUIPPED & STAFFED TURNKEY SOLUTIONS** *for COCO & GOCO operations*

>> **OEM-SME** *remote pilot certified operators, instructors & maintainers*

>> **DESIGN & DEVELOPMENT** *of mission-tailored TTPs & SOPs*

>> **DEVELOPMENT** *of on-site sustainment operations & delivery*

>> **TOTAL LOGISTICAL & OPERATIONAL SUPPORT** *mission planning, coordination & monitoring*

>> **MAINTENANCE & REPAIR SERVICES** *on-site to ensure mission sustainment & success*
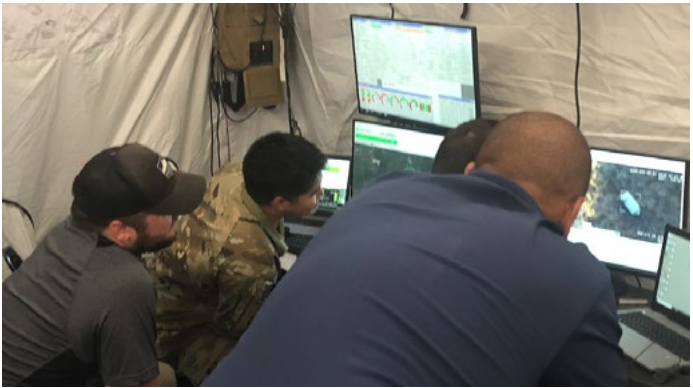
# AUTONOMY & PERCEPTION

AeroVironment's AI-driven autonomy and perception technologies provide warfighters with critical advantages from reduced cognitive load to faster decisions across any domain and platform – accelerating autonomy on every level.

For currently fielded Group 1+ UAVs, the ARK™ (Autonomy Retrofit Kit) is a quick-connect payload that introduces a new suite of AI-enabled mission capabilities and collaborative teaming operations, safely bringing critical intelligence and oversight to warfighters.

Pre-installed with AVACORE™ and SPOTR-Edge™ software, ARK enables rapid development of autonomy behaviors and delivers one of the most powerful computer vision platforms in defense.

# ARK™ AUTONOMY RETROFIT KIT

ARK is a quick-connect payload that brings AV's accelerated autonomy to fielded Group 1+ UAV assets and future uncrewed platforms, providing critical advantages to warfighters. Directly compatible with Puma™ 3 AE and Puma™ LE, ARK is designed as an open and modular system that also enables easy integration of AI-driven autonomy and computer vision on a wide range of uncrewed platforms.

The ARK system accelerates autonomy across uncrewed platforms, allowing defense forces to accomplish various tasks without constant operator oversight. ARK enhances mission efficiency while enabling faster responses to dynamic situations.

### ENABLING TEAM COLLABORATION

Operators can task single UAVs or teams with autonomous missions, distributing intelligence and oversight to dismounted units using a mesh network and ATAK. ARK also enables networked remote tasking for powerful control of aircraft and sensors between primary operators and command personnel – wherever they are located.

**≫ COMPATIBILITY**
Puma™ 3 AE & Puma™ LE

**≫ INTEGRATION**
ATAK & MANET Radio

### SINGLE- OR MULTI-AGENT CAPABILITIES

| | |
|---|---|
| **MULTI-REGION SEARCH** | Terrain-aware sensor coverage of multiple search regions using onboard AI target detection |
| **AREA SURVEY** | Create 3D area map with EO or IR imagery |
| **OVERWATCH** | Persistent observation of desired area for target detection |
| **TRACK & FOLLOW** | Track and follow targets, including evasive targets |
| **ISTAR WITH STRATEGIC COMMS** | Automatically configure UAV radio to comply with geo-tagged EMCON rules while conducting autonomous ISTAR missions |
| **TRIPWIRE** | Event or condition-based responses to real-time perception |
| **CROSS-CUE** | Accept and/or send target information from/to other assets |
| **COMPOSITE MISSIONS** | Combine above capabilities for composite multi-stage missions |



# AVACORE™ AUTONOMY SOFTWARE

AVACORE is AV's autonomy software that implements autonomous missions for uncrewed systems. It provides a framework for rapidly adopting new behaviors and algorithms for these missions.
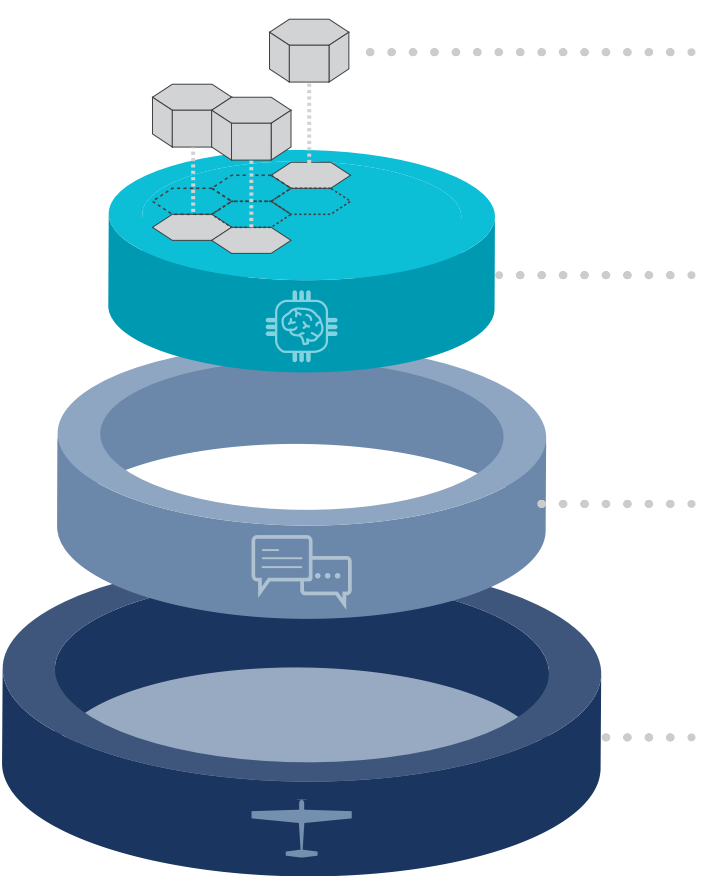


**PLUG-INS**
· Plug-in interfaces allow alternative waypoint planning, target detection, team behaviors, and other algorithms
· Discovered at run-time to dynamically enhance behaviors

**AVACORE**
· Executes complex, adaptable missions for single agent or team autonomy
· Missions are defined by behavior trees that can be loaded at run-time, delivering maximum flexibility for users
· Common message definitions provide the canonical data model for adapting specialized platform hardware to mission

**BRIDGE**
Software interface adapters for each of the platform devices

**PLATFORM**
Uncrewed vehicle platform to be enhanced by AVACORE

· Autopilots
· Sensors
· Emitters/Designators
· Kinetic Payloads
· Radios
· Drop Mechanisms
· User Interfaces



Through AVACORE, ATAK with SPOTR-Edge™ provides multi-agent collaborative autonomy
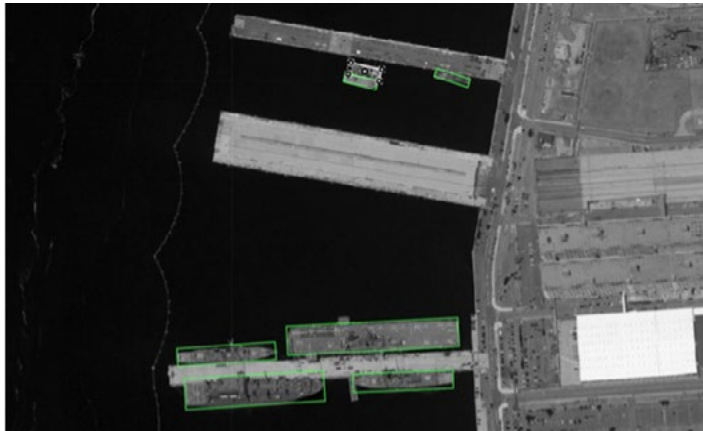


Modular to support mission specific or third-party AI models

# SPOTR-Edge™ COMPUTER VISION SOFTWARE

SPOTR-Edge is a suite of computer vision and video analytics capabilities for embedded applications including robotic systems, edge devices, and other low size, weight and power (SWaP) environments. Core functions include object detection, classification, localization / geolocation, tracking, and re-identification – day or night. SPOTR-Edge consumes video and metadata sources in standard formats and outputs real-time data products to the onboard autonomy software and/or other downstream consumers.

Messaging APIs adhere to an interface control document (ICD) and streaming outputs include MISB-compliant KLV (key-length-value) metadata for platform and target track data. The baseline software includes a library of operationally relevant object classes including persons and different types of vehicles and maritime vessels; additional models can be provided to meet mission-specific requirements and use cases. Target models are swappable in the field and online for maximum flexibility, and to allow for upgrades and extensibility.





# AUTONOMY LEARNING AND EXPERIMENTATION CLASS (ALEC)

**TRAIN TODAY. LEAD TOMORROW.** As a leading innovator in mission autonomy, AeroVironment has resources to help your organization train, trial and integrate advanced AI solutions such as ARK™ and AVACORE™ into your fielded Puma™ assets or other UAS.

As a leading innovator in this space, AeroVironment has developed resources to help your organization train, trial and integrate advanced AI solutions such as ARK and AVACORE into your uncrewed operations.

Train with our experts at our place or yours. AV offers an educational training and experimentation course designed to empower your organization with practical knowledge and skills required to integrate AI and unlock its unlimited potential.



**4-DAYS AT AEROVIRONMENT**

Visit AV! Hosted at our East or West Coast locations, this hands-one experience pairs your team with multiple Pumas enhanced with ARK.

Fly AI-enabled single or multi-agent missions and more. Training developed for up-to 10 participants.

**4-DAYS ON-SITE**

AV brings the action to you? This immersive course held at your location, features multiple Pumas equipped with ARK.

Run a variety of AI-enabled missions under real-world scenarios relevant to your operation. Train up-to 12 participants.

# ACE™ AUTONOMOUS CONTROL ENGINE

ACE (Autonomous Control Engine) is a vision-based navigation solution that enables fully-autonomous UAS operation, including push-button takeoff and landing from confined spaces, moving vehicles, and moving vessels. ACE enables centimeter-level precision landing in dynamic conditions without GPS.

## KEY FEATURES

» *Suitable for UAS that needs to operate from moving vehicles and vessels on land or at sea*

» *GPS-optional operation*

» *Standard open interfaces for compatibility with third-party and legacy systems*

» *Enables mobile tethered UAS for long duration missions*



This optical guidance system enables fully autonomous UAS launch and recovery onto a small passive optical marker, without GPS.



ACE system tracks a passive visual fiducial called a "tag" during takeoff and landing to achieve centimeter-level accuracy and real-time operation.

# AVACORE™ SDK // RAPIDLY BUILD MISSION AUTONOMY

**LEVERAGE PRE-BUILT RESOURCES.** The AVACORE SDK enables UxS development teams to build custom autonomy tasks and behaviors for robotic systems and teams. It allows for quick deployment of new AI-powered mission capabilities to multiple UxS platforms working the tactical edge. Each SDK release includes a dev container environment with all necessary dependencies and tools, ensuring efficient setup and project initiation.

**JUMPSTART DEVELOPMENT**. The AVACORE SDK includes apowerful starter project template for development, with instructions for building:

• *Custom packages – Modular software units within the stack*

• *Bridge applications – Interface layer applications*

• *Plug-ins – Custom mission- and platform-specific applications*

**TRIAL TODAY**. AVACORE SDK is available at no cost to any government lab or AeroVironment customer for trial.
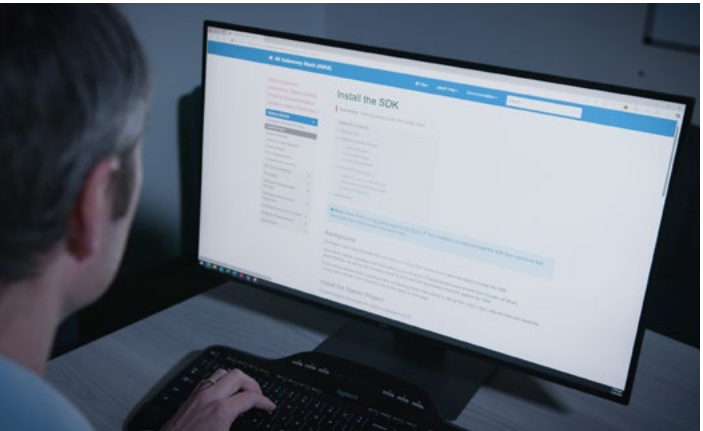
# NETWORK CONNECTIVITY

AeroVironment's small UAS feature a completely refreshed ground control experience and integration with Tomahawk's Grip controller and Kinesis software ecosystem. Tomahawk™, an AeroVironment product line, provides operators with a new core GCS software architecture and tactical hardware.

The Tomahawk GCS seamlessly integrates with the broadband digital network module, Digital Data Link™, for enhanced command and control in a network-centric battlefield.Featuring robust data encryption across multiple frequency bands, this IP-based module is designed for maximum flexibility and interoperability between small airborne systems and ground systems with limited power requirements.

## INTRODUCING GRIP TA5

The Grip TA5 is Tomahawk's next-generation 8" tactical controller, built to enhance situational awareness and precision strike capabilities. Designed around the Samsung Tab Active 5 Tactical Edition, the Grip TA5 delivers seamless command cand control with enhanced processing power, security, and connectivity. Its ergonomic improvements and streamlined tablet installation reduce operator fatigue and setup time, ensuring mission success in dynamic environments.

**KEY FEATURES**

» *8 in ruggedized controller optimized for precision strike & multi-domain operations*

» *Supports ISR and fire control functions*

» *Seamless integration with the Samsung Tab Active5 Tactical Edition*

» *Enhanced software security & advanced networking capability*

» *Ergonomic design with optimized button placement for ease of use*

» *Toolless USB-C access for fast, reliable connectivity*

» *Simplified tablet installation for rapid deployment*

# TOMAHAWK™ GROUND CONTROL STATIONS



The Tomahawk GCS is an AI-enhanced, open-architecture common control system providing multi-domain, multi-robotic command-and-control capabilities. Tomahawk's Kinesis software and Kinesis SDKs enable rapid development, integration, and deployment of 3rd-party technology to the warfighter at the edge, and unlock an extensive ecosystem of protocols, comms, robotic platforms, and AI to the warfighter.

## TOMAHAWK HARDWARE

**(A) GRIP S20**

Grip S20 is a rugged controller designed around the Samsung Galaxy S20 Tactical Edition smartphone. Grip S20 is military-hardened and provides an intuitive UI to simplify UxV control. Available with an optional hinged MOLLE chest mount.

**(B) KxM**

KxM is a 4-port hub and edge processor providing users with a ruggedized platform to ingest large amounts of data for high-speed, body-worn computation at the tactical edge, reducing cognitive load, and fusing raw intelligence data for real-time decision-making. KxM can host a federated TAK/ATAK server while performing AI-based video classification.

**(C) MxC-MINI**

MxC-Mini is a Nett Warrior-compliant data link that seamlessly integrates with the leading tactical UxVs. Available with multiple operating frequencies and radio modules including Wi-Fi - choose your uncrewed system, strap the corresponding MxC-Mini to your kit, and deploy the UxV with the knowledge that the link is secure and reliable across the tactical network.

**(D) RAID**

RAID is a modular, all-in-one tactical GCS designed to provide advanced networking, edge processing, and AI-driven C2 capabilities. With hot-swappable radios and batteries, it supports adaptable, multi-robotic control via the Grip and TA5 controllers. Built with a Modular Open Systems Approach (MOSA), RAID enables seamless integration of future technologies, ensuring a scalable, mission-ready solution. It consolidates the full functionality of the KxM and Kinesis ecosystem into a lightweight, snag-free backpack.

## TOMAHAWK ULTRALIGHT GCS
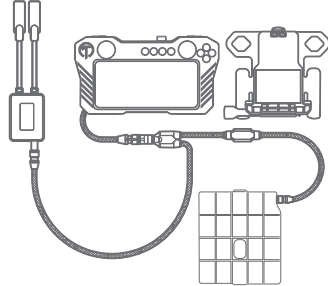


>> **PORTABILITY**
Wearable

>> **SETUP TIME**
5 min

>> **LINK RANGE**
5 km

>> **WEIGHT**
System: 4.7 lb (2.1 kg)

**USE CASE**

Single operator (wearable); ideal for on-the-move and mobile ISR operations; virtual touch screen or tactile joystick of UAS and payloads

## TOMAHAWK TACTICAL GCS



>> **PORTABILITY**
Backpackable

>> **SETUP TIME**
10 min

>> **LINK RANGE**
20 km

>> **WEIGHT**
System: 8.6 lb (3.9 kg)

**USE CASE**

Single operator deployment and launch; full control of UAS and payloads through virtual or tactile joysticks; wearable, lightweight, rugged for use in any environment with an operational range up to 20 km

## TOMAHAWK COMMON CONTROL GCS



>> **PORTABILITY**
Wearable

>> **SETUP TIME**
5 min

>> **LINK RANGE**
Determined by Datalink

>> **WEIGHT**
System: 5.4 lb (2.4 kg)

**USE CASE**

Single operator (wearable); provides situational awareness, battlefield coordination and support to large and/or small teams; multi-domain and multi-robotic control

## TOMAHAWK COMMAND GCS



>> **PORTABILITY**
Man-packable

>> **SETUP TIME**
15 min

>> **LINK RANGE**
20 km

>> **WEIGHT**
System: 14.3 lb (6.49 kg)

**USE CASE**

Single or dual operator deployment; all-in-one modular and flexible ground control system and payloads through tactile joysticks; ideal for AI-enhanced command-level operations; semi-fixed positions

## KINESIS SOFTWARE

At the heart of the Tomahawk GCS is Kinesis, a powerful tactical software solution enabling multi-robotic command-and-control, tactically-optimized mission planning, TAK/ATAK integration to provide video rebroadcasting, COT messaging, and bi-directional syncing of POIs. Kinesis optimizes the vehicle pairing process, enables UxV formations and control, and a map engine that supports multiple sources via layers, DTED, and coordinates in both Lat Long and MGRS.
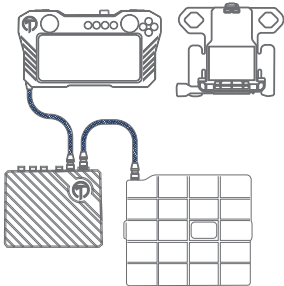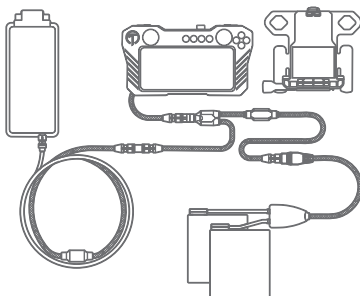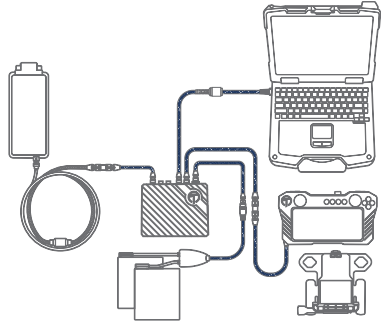
## CONFIGURE TO ORDER

Each Tomahawk GCS configuration supports various operational needs, from wearable ISR solutions to full-scale command deployments. The configure-to-order process allows operators to tailor their GCS setup by selecting compatible controllers, networking modules, radios, and power solutions to meet mission-specific requirements. For streamlined procurement and deployment, customers can work with Tomahawk representatives to configure their ideal GCS package, ensuring seamless integration with existing systems and maximizing operational effectiveness in multi-robotic, multi-domain environments.
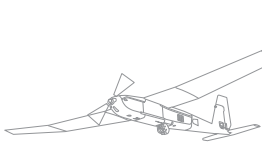
# DDL™ NETWORK ANTENNAS

AeroVironment's Digital Data Link™ (DDL™) is a small, lightweight, broadband digital network module enabling enhanced command and control of SUAS and LMS. DDL is IP-based, allowing maximum flexibility and interoperability between small airborne and ground systems with limited power and bandwidth to maximize the number of systems that can operate in a given area. DDL is compatible with AeroVironment's network connectivity solutions and antennas, providing command and control ranges that extend from the wearable, short-range pDDL™ (5 km) to the Long Range Tracking Antenna (60 km).
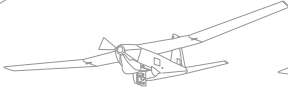
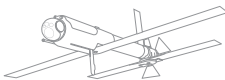| DDL™ FREQUENCIES | COMPATIBLE UAS | | | | |
|---|---|---|---|---|---|
| M1/2/5 OR M3/4/6 | PUMA™ LE | PUMA™ 3 AE | RAVEN® | SWITCHBLADE® 600 | SWITCHBLADE® 300 BLOCK 20 |

### LONG RANGE TRACKING ANTENNA
PORTABILITY // MAN-PORTABLE
RANGE // 60 km

### EXTENDED RANGE ANTENNA
PORTABILITY // MAN-PACKABLE
RANGE // 40 km

### STANDARD PATCH ANTENNA
PORTABILITY // BACKPACKABLE
RANGE // 20 km

### STANDARD OMNI ANTENNA
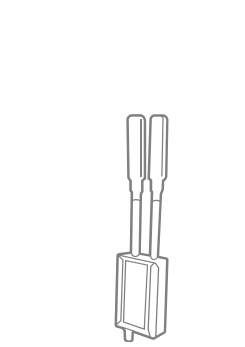PORTABILITY // BACKPACKABLE
RANGE // 10 km

### pDDL™ ANTENNA
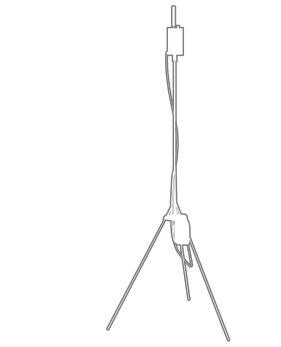PORTABILITY // POCKETABLE
RANGE // 5 km

## pDDL™ ANTENNA

DIMENSIONS
4 in x 2.25 in x 0.75 in
(10.2 cm x 5.7 cm x 1.9 cm)

WEIGHT
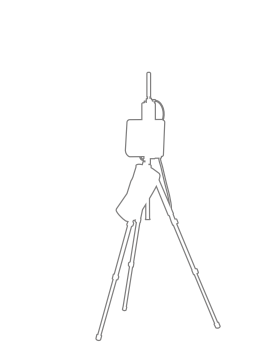7.1 oz (201 g)

## STANDARD RANGE ANTENNA

DIMENSIONS
Height: 6.5 ft (2 m)
Base Diameter: 3 ft (0.9 m)

WEIGHT
3 lb (1.3 kg)

## ERA EXTENDED RANGE ANTENNA

DIMENSIONS
Height: 4.25–7 ft (1.3–2.2 m)
Base Diameter: 3.75–8.2 ft (1.1–2.5 m)

WEIGHT
10.8 lb (4.9 kg)
Note: excludes the GCS RF Head, hub and system battery

## LRTA LONG RANGE TRACKING ANTENNA
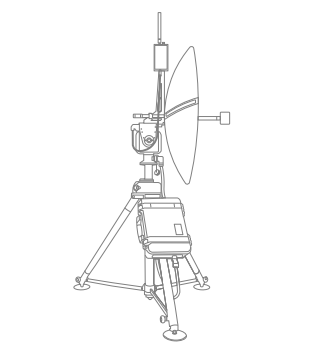
DIMENSIONS
Height: M1/2/5: 5.8–9.4 ft (1.8–2.9 m)
M3/4/6: 5.25–8.8 ft (1.6–2.7 m)
Base Diameter: 5.3 ft (1.6 m)

WEIGHT
M1/2/5: 304 lb (138 kg)
M3/4/6: 300 lb (136 kg)

| | pDDL | STANDARD RANGE | ERA | LRTA |
|---|---|---|---|---|
| **LINK RANGE** | Up to 5 km | Up to 20 km | Up to 40 km | Up to 60 km |
| **OPERATING BANDS** | M1/2/5 or M3/4/6 | M1/2/5 or M3/4/6 | M1/2/5 or M3/4/6 | M1/2/5 or M3/4/6 |
| **RX SENSITIVITY** | -98 dBm @ 2 Mbps -93 dBm @ 6 Mbps | -98 dBm @ 2 Mbps -93 dBm @ 6 Mbps | -98 dBm @ 2 Mbps -93 dBm @ 6 Mbps | -98 dBm @ 2 Mbps -93 dBm @ 6 Mbps |
| **POWER CONSUMPTION** | 9 W | 20 W | 20 W (pass through, not additional) | 275 W (nom., heater off) 460 W (max., heater on) |
| **OPERATING VOLTAGE** | 5.5–16 V | 5.5–16 V | 5.5–16 V | 90–250 V ac, 47–65 Hz |
| **DATA RATE** | 4.5 Mbps | 4.5 Mbps | 4.5 Mbps | 4.5 Mbps |
| **SUPPORTED COMPRESSION** | MPEG2 or H264 SD | MPEG2 or H264 SD | MPEG2 or H264 SD | MPEG2 or H264 SD |
| **INTERFACES** | USB | Ethernet/RS-232/RS-485 | Ethernet/RS-232/RS-485 | Ethernet/RS-232/RS-485 |
| **ENCRYPTION** | AES-128/AES-256 | AES-128/AES-256 | AES-128/AES-256 | AES-128/AES-256 |

# UNCREWED GROUND VEHICLES

## UGV

Our family of uncrewed ground vehicles (UGV) share the same purpose as our uncrewed aircraft and loitering munition systems: to keep operators out of harm's way.

Our UGVs have proven themselves in a variety of dangerous ground applications, including the localization and mitigation of threats due to explosive ordnance disposal (EOD), hazardous materials handling (HAZMAT), chemical, biological, radiological and nuclear (CBRN) threat assessments, and special weapons and tactics (SWAT) team operations.

With their advanced, specialized, precision manipulators, autonomous functionality and intuitive operation, our rugged, all-terrain UGVs accommodate a high degree of mission flexibility. That's why they have been adopted in 45 countries for homeland security, emergency response and defense purposes.

# tEODor™ EVO
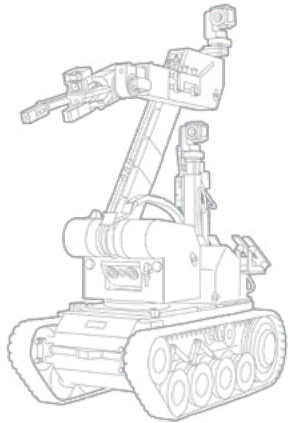


**DIMENSIONS**
54 in x 27 in x 44 in
(1370 mm x 685 mm x 1130 mm)

**WEIGHT**
844 lb (383 kg)

≫ **LIFTING CAPACITY**
220 lb (100 kg)

≫ **GRIPPER WIDTH**
12 in (300 mm)

≫ **MANIPULATOR**
6-axis manipulator with linear axis

≫ **CLIMB STAIRS & SLOPES**
45°

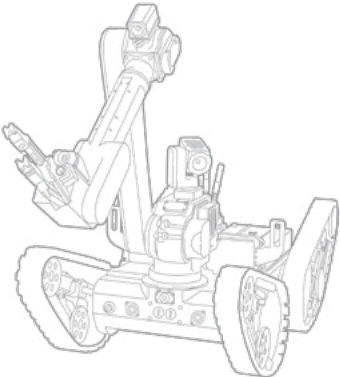| TOTAL PAYLOAD CAPACITY | 771 lb (350 kg) |
|---|---|
| SPEED | 1.8 mph (3 km/h) |
| DRIVE MECHANISM | Dual track—independent high-torque motors |
| FUNCTION-ALITY | Upward Reach with Vertical Gripper: 113 in (2860 mm) Upward Reach with Horizontal Gripper: 95 in (2410 mm) Forward Reach: 73 in (1860 mm) Downward Reach: 50 in (1260 mm) |
| GCS | Robo Command |

**KEY FEATURES**

≫ Laser rangefinder, video input & data interface integrated into gripper

≫ Universal interfaces—multiple firing system connection options

≫ Expansive payload bay eliminates round-trip load-outs

# telemax™ EVO PLUS



**DIMENSIONS**
34 in x 27 in x 29 in
(870 mm x 680 mm x 740 mm)

**WEIGHT**
249 lb (113 kg)

≫ **LIFTING CAPACITY**
176 lb (80 kg)

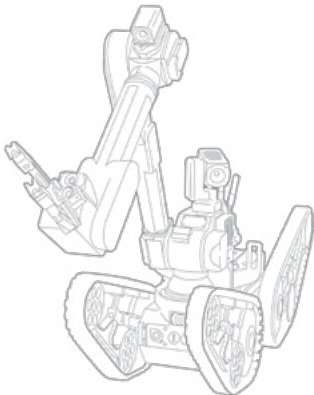≫ **GRIPPER WIDTH**
8 in (200 mm)

≫ **MISSION DURATION**
Up to 12 hr

≫ **CLIMB STAIRS & SLOPES**
45°

| TOTAL PAYLOAD CAPACITY | 154 lb (70 kg) |
|---|---|
| SPEED | 3.1 mph (5 km/h) |
| DRIVE MECHANISM | 4-track running gear with individually adjustable flippers |
| FUNCTION-ALITY | Obstacle Height: 16 in (400 mm) Gap Width: 20 in (500 mm) |
| GCS | Robo Command |

**KEY FEATURES**

≫ Heavy lift capable precision 6-axis manipulator

≫ Tool Center Point Control provides precise, humanlike movement of the manipulator

≫ Double payload bay provides space for additional batteries & sensors

≫ Pre-programmed automatic manipulator & flipper motion sequences

# telemax™ EVO HYBRID



**DIMENSIONS**
32 in x 16 in x 30 in
(815 mm x 400 mm x 770 mm)

**WEIGHT**
Max. 176 lb (80 kg)

≫ **LIFTING CAPACITY**
82 lb (37 kg)

≫ **GRIPPER WIDTH**
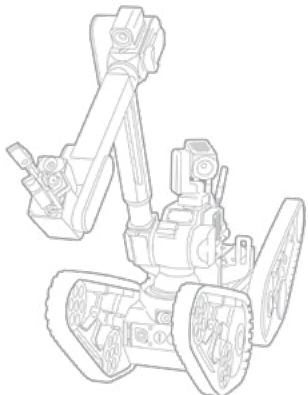8 in (200 mm)

≫ **MISSION DURATION**
Up to 10 hr

≫ **CLIMB STAIRS & SLOPES**
45°

| TOTAL PAYLOAD CAPACITY | 68 lb (31 kg) |
|---|---|
| SPEED | Max. 6.2 mph (10 km/h) |
| DRIVE MECHANISM | 4-track running gear with individually adjustable flippers; optional wheels |
| FUNCTION-ALITY | Obstacle Height: 20 in (500 mm) Gap Width: 24 in (600 mm) |
| GCS | Robo Command |

**KEY FEATURES**

≫ Compact design suited for confined spaces, e.g., airplanes, underground trains & buses

≫ Tool Center Point Control provides precise, humanlike movement of the manipulator

≫ Pre-programmed automatic manipulator & flipper motion sequences

# telemax™ EVO PRO



**DIMENSIONS**
31 in x 16 in x 29 in
(775 mm x 400 mm x 750 mm)

**WEIGHT**
Max. 169 lb (77 kg)

≫ **LIFTING CAPACITY**
44 lb (20 kg)

≫ **MANIPULATOR**
7-axis with telescopic reach

≫ **MISSION DURATION**
Up to 10 hr

≫ **CLIMB STAIRS & SLOPES**
45°

| TOTAL PAYLOAD CAPACITY | 77 lb (35 kg) |
|---|---|
| SPEED | Max. 6.2 mph (10 km/h) |
| DRIVE MECHANISM | 4-track running gear with individually adjustable flippers; optional wheels |
| FUNCTION-ALITY | Obstacle Height: 20 in (500 mm) Gap Width: 24 in (600 mm) Gripper Width: 4.7 in (120 mm) Reach Height: 106 in (2690 mm) |
| GCS | Robo Command |

**KEY FEATURES**

≫ Telescopic joint allows for extended horizontal & vertical reach

≫ Tool Center Point Control provides precise, humanlike movement of the manipulator

≫ Pre-programmed automatic manipulator & flipper motion sequences

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**MISSION VARIANTS**

**EOD**
Explosive Ordnance Disposal

**HAZMAT**
Hazardous Materials

**CBRNE**
Chemical, Biological, Radiological, Nuclear & Explosives

**SWAT**
High Risk Law Enforcement Operations

**INTERCHANGEABLE ACCESSORIES**

Optics/Visual Augmentation

UGV Communications

Power Sources

Wheels/Tracks (Wheels for Hybrid & Pro only)

Tooling & Hauling

Render Safe Options

# FIELD OPERATIONS AND CUSTOMER SUPPORT

## SUPPORT SERVICES

### FIELD OPERATION SERVICES

» AeroVironment provides world-class field operation services on a global scale. Our field operation services include fully-equipped and staffed turnkey solutions and outstanding OEM-certified operators, instructors and maintainers.

### FIELD SERVICE REPRESENTATIVES

» Our Field Service Representatives (FSRs) provide on-site field service support and act as the liaison between customers and our engineering team. The FSRs are highly qualified to provide on-site flight standardization program development and training support package development.

### PROGRAM MANAGEMENT AND SME SUPPORT

» We supply customer-focused program management and subject matter expert (SME) support. Our exceptionally skilled staff provides tailored mission planning and operational support, and we include engineering support from the original equipment manufacturer. We also offer on-site sustainment operations development and delivery.

### SUSTAINMENT OPERATION

» We support our customers with sustainment operations, including professional inventory control and comprehensive logistical services. Our logistical support includes extensive planning, coordination and monitoring to successfully plan and maintain operations.

## AIRWORTHINESS

» AeroVironment's airworthiness organization monitors and evaluates airworthiness regulation initiatives in key markets and regions across the globe to ensure our products conform to our customers' airworthiness certification needs.

## TRAINING

» We specialize in student-centered learning using state-of-the-art, interactive 3D digital training media that aids in the retention of information and promotes student participation. Courses include simulator-focused mission scenarios providing a real world digital experience, hands-on practical exercises, mission planning and live flight field operations. We offer all levels of operator training from basic to advanced courses in a safe and controlled environment. Our distinctive training program is recognized both domestically and internationally.

## QUALITY

» AeroVironment's ISO-9001:2015 production and service facility ensures the highest level product and support quality. The company's unmatched experience and technology roadmap combine to deliver an outstanding customer experience in situations where reliability and effectiveness can make the difference between success and failure.