



SHERPA

PRODUCT SPECIFICATIONS
Version 2.0
9 / 10 / 24

AIRFRAME

Airframe:	Multicopter Hexacopter
Max Diagonal Wheelbase:	53"
Arms and Antennas Unfolded Dimensions:	53" x 53" x 28" (L x W x H)
Arms Folded Dimensions:	24" x 24" x 24" (L x W x H)
Airframe Material(s):	Carbon Fiber, ABS, Aluminum, Stainless, Silicone, EPDM, Nylon
Anti-Collision Lights:	6x LED (RGB)
Motor Configuration:	Pusher (inverted)
Fuselage Waterproof Rating:	Comparable to IPX6 standards
Airframe Dry Weight:	21.8 lbs
Spraying Payload Weight:	2.4 lbs
Window Cleaning Payload Weight:	3.8 lbs
Airframe + Spraying Payload Weight:	24.2 lbs
Airframe + Window Cleaning Payload Weight:	25.6 lbs
Battery Weight (2x 10,000 mAh 12S):	6.5 lbs each = 13 lbs total battery weight
Airframe + Spraying Payload + 2x Battery Weight:	37.2 lbs
Airframe + Window Cleaning Payload + 2x Battery Weight:	38.6 lbs
Max PSI	4500psi (*newer models w/ high pressure payload hardware)

AIRFRAME CASE

Make	SKB
Model	rSeries 2727-27

Material(s):	Impact-resistant/UV stabilized LLDPE, Stainless hardware
Exterior Dimensions:	31" x 31" x 32" (L x W x H)
Interior Dimensions:	27.25" x 27.25" x 27.25" (L x W x H)
Weight:	46.45lbs
Padding:	Laser-Cut Foam

PROPULSION SYSTEM

Motors:	6x Brushless DC
Stator Size:	70mm
KV:	170
Max Thrust:	12kg/rotor
Weight:	720g / Rotor
Waterproof Rating:	IPX7
Max Working Current:	80A / Rotor (Continuous)
Max Peak Current:	100A / Rotor (10s)
Max Working Voltage:	52.2V
Propeller Type:	Folding Carbon Fiber Composite
Diameter x Pitch:	23x8.8
Propeller Weight	36g
Anti-Collision Lights:	6x LED (RGB)

SPRAYING PAYLOAD

Valve Type:	Servo-actuated ball valve
Spray Modes:	Off / Low Flow / High Flow
Inlet Connection Material:	303 Stainless
Inlet Connection Type:	3/8" Quick Connect
Max Rated Pressure:	4500 psi
Plumbing Material:	Stainless
Stock Nozzle Tip:	Assassin 0 degree #50

Nozzle Tip Flow Rate:	Varies based on pump
Max Nozzle Length:	18"
Nozzle Tip Material:	Stainless
Nozzle Connector Type:	1/4" Quick Connect
Nozzle Connector Material:	303 Stainless
Recommended Hose Type:	3/8" Flexzilla - 1/2" Flexzilla
Compatible Tip Types:	Fan, upward-facing, downward-facing
Plumbing Seal Material:	Non-permanent PTFE (in-field repairable)
Spraying Payload Weight:	3.4 lbs

COLLISION PREVENTION SYSTEM

Type:	Forward-Facing RADAR
Operating Frequency:	24Ghz
Precision:	6.0cm(<1m), 4.0cm(>1m)
Power Consumption:	2W
Obstacle Sensing Range:	0.5m - 50m
Field Of View:	W: 43 degrees x H: 30 degrees
Waterproof Rating:	IP67
Night-Operations Capable:	Yes

FPV CAMERA

Lens Type:	Fisheye wide-view
Waterproof Rating:	<400m fully submersible
Resolution:	1920 x 1080
Video Transmission:	Digital
Camera Tilt:	Manual
Camera Pan:	N/A
Removeable:	Yes

OPERATING SPECIFICATIONS

Maximum All-Up Weight (Operational Capability)	80lbs
Maximum All-Up Weight (FAA-Limitation)	55lbs
Battery Type:	10,000 mAh 12s (2x) in parallel
Max Tilt Angle:	[Position Mode]: 45 deg. [Manual Mode]: 20 deg.
Default Horizontal Operating Speed:	4 mph (1.79 m/s) (manufacturer-limited for cleaning operations)
Maximum Verticle Speed:	4.47 mph (2 m/s) (manufacturer-limited for cleaning operations)
Max Tested Speed:	50mph
Max Wind Resistance:	20mph (we do not recommend flying in winds this high)
Operating Temperature:	0 degrees C - 40 degrees C

TRANSMITTER & GROUND STATION

Transmitter Range:	15km (unobstructed, free of interference)
Image Transmission:	Digital
Resolution:	1080P@60fps Video
Operating System:	Android 9.0 OS for UAV
CPU:	8-Core CPU, 2G RAM, 16G ROM
Waterproof Rating:	IP53
Screen Type:	5.5" 1000 cd/m2 High Brightness HD screen
Battery:	10400 mAh 7.4V 2S L-ion
Dimensions:	189mm x 138mm x 41mm
Weight:	850g
Charger Type:	USB C
Video Output:	HDMI and Ethernet
Charging Time:	3.2 Hours (estimated @ 30W fast charge) *not included 4.5 Hours (estimated @ 20W fast charge)
Battery Life:	12 Hours (estimated)
Operating Temperature:	-10C - 55C
Antenna Type:	Folding omnidirectional

LTE Capable:	Yes (*SIM card not included in ground station)
Case Type:	Soft-shell zipper

INTELLIGENT BATTERY CHARGER

Make:	Tattu
Model:	TA3200
Type:	Dual Channel AC/DC Smart Charger
Number of Batteries	2x
Battery Chemistry Supported:	LiPo, LiHv
Cell Count Supported:	6S - 14S
Output Current	AC100-240V 50/60Hz 15A(Max)
Charging current:	Up to 60A

Refer to the Tattu TA3200 manual, provided by Tattu, for more detailed information

INTELLIGENT BATTERIES

Battery Chemistry:	LiPo
Capacity:	10000mAh (per battery)
Configuration:	12S1P / 44.4v
Discharge Rate:	30C
Max Burst Discharge Rate:	60C
Net Weight(±50g):	2760g
Dimensions:	182mm x 67mm x 115mm (L x W x H)
Balancer Connector Type	Molex 16-pin
Power Connector Type:	Gasketed AMASS AS-150U anti-spark
Battery Charge Status Indicator Lights:	LED
Charging Time:	50min (avg. @ 16A)

MISSION COMPUTER

Processor Architecture:	ARM Cortex-A53 Quad Core 1.8GHz
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Embedded GPU:	GCNanoUltra for 3D acceleration and GC320 for 2D
Memory:	4GB LPDDR4
Storage:	eMMC 16GB, plus internal SD card 32GB
High-Speed Interfaces:	100Base-T Ethernet, USB 2.0, USB 2.0 OTG
Wireless Interfaces (WiFi / Bluetooth):	QCA9377, 802.11a/b/g/n/ac (2.4 + 5GHz) + Bluetooth 5
LTE:	2x Internal Antenna. Can be disabled on special order Cat-4, 50MBit/s upload and 150MBit/s download HL7588 (US), 704MHz - 2155MHz RC7620 (EMEA), 703MHz - 2690 MHz
Software Stack:	Auterion Enterprise PX4
Video Encode	1080p60 H.264 in hardware
Video Decode	1080p60 H.264 and H.265 in hardware

FLIGHT MANAGEMENT UNIT

ECCN:	7E994
Fault Monitor:	Deadman Interface
Waypoint Mission Planning:	Capable of storing 5,000 waypoints saved in autopilot
Black box:	50 hours continuous recording, no-logging mode supported
Specific Operations Risk Assessment (SORA):	Can be used for operations in the open and specific category.

AUTOPILOT

Flight Controller Architecture:	FMUv5X (Pixhawk Autopilot Standard compliant)
Flight Controller:	STM32F765 2MiB Flash, 512KiB RAM
IO Coprocessor:	STM32F103
Inertial Sensors:	3 axis gyroscopes, 2000°/sec. 3 axis accelerometers, up to ±24g
Supported Takeoff Weight:	1-1000 pounds / 0.5 500 kg (expandable)
CAN:	Dual redundant CAN
Ethernet:	100Base-T (onboard switch with VLAN)

REMOTE ID

Remote ID Equipped:	Yes
Remote ID Standard:	ASTM F3411-19
The ASTM remote ID standard supports the remote identification of unmanned aircraft, which is required by international regulatory bodies such as FAA and EASA. The standard is implemented on Bluetooth and Wifi 802.11 and has a range of several hundred meters.	

SAFETY AND SECURITY

RC Loss Failsafe:	Hold 60 sec. -> If not regained, conduct automated landing
Heading Sources:	3x (GNSS, Compass, GSF)
Low Battery Warning:	Audible and visual on-screen warnings
Critical Battery Failsafe:	Auto-land (allows pilot to reassume control as-needed)
Flight Mode Fallback Sequence:	Loiter -> GSF -> Manual Mode
Emergency Stop:	Pilot-initiated Emergency Stop via transmitter arrests motors
Auto-Takeoff:	Yes
Auto-Land:	Yes
Auto-Disarm:	When landing detected after 2 seconds
Land Detection:	Yes
Collision Prevention System Check:	Warn pilot when OFF
Obstacle Nearby:	On-screen status indicator
Flight-Systems Check on Boot-Up:	Yes
Default Flight Mode:	Automation-assisted hover (loiter in place)
IMU Safety:	Triple Redundant
Transmitter Low Battery:	Audible + LED battery level indicators + onscreen
Position Source:	High Precision Dual GNSS
Battery Connectors:	2x Gasketed AMASS AS-150U Anti-Spark
Balance Cable Protection:	Onboard "Dummy Ports" for corrosion prevention
Avionics Shielding:	Machined Aluminum
Power Input Wire Jacket:	Fiberglass/Silicone, Flame Rated VW-1, 390 degrees F

HIGH PRECISION GNSS SYSTEM

GNSS System:	Lucid Dual U-Blox F9P Module
Antenna Type:	(2x) Active Dual-Band Helical
Amplifier Gain:	28dbi (typ)
Primary Heading Source:	Moving-Baseline RTK-enabled heading
GNSS Receiver Shielding:	Machined Aluminum housing, edge-plated PCB
GNSS Jamming Protection:	Narrow-band jamming indicator capable (*request only)
GNSS Jamming/Interference Monitor:	Broadband and continuous wave detection capable (*request only)
GNSS Receiver Boot-Up Security:	Blocks unsigned/non-genuine firmware versions
GNSS Firmware Security:	Firmware image encrypted and signed
Anti-Spoofing:	Advanced anti-spoofing algorithms
GNSS Constellations:	GPS, GLONASS, BeiDou, Galileo, SBAS, QZSS
Number of Concurrent GNSS:	4
GNSS Bands:	L1 / L2
RTK Correction Source:	RTK Corrections over IP capable (*request only)
ROHS Compliance:	2015/863/EU
EU Radio Equipment Directive Compliance:	2014/53/EU

FLEET MANAGEMENT SOFTWARE

Software	Auterion Suite
Primary Communication Source	Onboard LTE (while aircraft powered ON)
Log Retrieval Method:	Automated OTA, near real-time
API Integrations Available:	Yes (inquire to learn more)
Automated Log Analysis:	Yes
Vehicle Fault Flagging:	Yes
Vehicle Health Monitoring:	Yes
Remote Operations:	Coming Soon
Live Video Streaming OTA:	Coming Soon

Mission Planning:	App-based (standard on transmitter) or Web-based (request only)
Configurable On-Screen Pre-Flight Checklist:	Coming Soon
Flight log export available:	Yes
Flight Replay:	3D simulation
Pilot Compliance Tracking:	Available (inquire to learn more)
Battery usage monitoring:	Voltage, current, mAh consumed

WINDOW CLEANING PAYLOAD

Tank Size:	0.5 gal
Tank Location:	Onboard tank
Tank Material:	HDPE
Refill Method:	Wide-mouth threaded cap
Required flow rate (at injector):	Variable - Inquire for more information
Maximum Pressure (at injector):	4500psi
Valve Type:	Solenoid (NC)
Valve Material:	PTFE
Valve Control:	Toggle switch on transmitter
Injector Type:	Passive (non-mechanical)
Proportioning Mechanism:	Replaceable threaded tip
Number of Proportioning Tips Included:	14
Hose Material:	PVC
Hose Replaceable:	Yes
Payload Weight (dry):	4.1 lbs
Payload Weight (wet - full tank):	8.3 lbs
Recommended Cleaning Solution:	Lucid Clear (50:1 ratio) + Deionized water
Nozzle Type:	Same as spraying payload