



DESIGN AUTHORIZATION DATA SHEET N° ERPAS-5733896-00

ERPAS-5733896-00

Authorization Holder:

ENERGIAS – Assessoria em Sistemas de Energia e Comércio Ltda

Rua 24 de maio, 225-Cj. 10, República, São Paulo/SP

CEP: 01041-001

Brazil

Sheet 01

ENERGIAS
RPAS-112

10 June 2021

This data sheet, which is part of Design Authorization Process N° 00066.008064/2018-21, prescribes conditions and limitations under which the product, for which the Design Authorization was issued, meets the requirements of the Brazilian Civil Aviation Special Regulation RBAC-E N° 94.

I - Model RPAS-112, approved in May 2021.

RPAS	This is a Remotely Piloted Aircraft System (RPAS) that is comprised of the Remote Piloted Aircraft (RPA), a ground data terminal and the Remote Pilot Station (RPS).
RPA	Type: Monoplane fixed-high wing, pusher configuration, fixed main landing gear and retractable nose one. Wingspan: 4.1 m (13.5 ft). Length: 2.9 m (9.5 ft). Height: 0.55 m (1.8 ft). Structure: Composite material comprised mainly of glass fiber and carbon fiber.
ENGINE (PROPULSIVE UNIT)	Propulsion System PN: 1107200. ANAC Engine Type Certificate: None. Type: Single cylinder engine, normally aspirated, carbureted. Sub-Assembly Engine: Units: Manufacturer: 3W-Modellmotoren GmbH. Model: 3W-28i CS. ENERGIAS PN: 1107201 (See NOTE 12).
ENGINE LIMITS (PROPULSIVE UNIT LIMITS)	Power output: 2,650 W (3.6 hp). Max. RPM: 8,500 RPM.
FUEL	Gasoline (min 92 octans).
OIL	MOTUL 800, fully synthetic oil (2 stroke).
FUEL-OIL MIX CAPACIT	1.5 liter (0.4 gallons), 1:50-1:80 ratio.
PROPELLER AND PROPELLER LIMITS	ENERGIAS 18x10L propeller PN: 1106101. Manufacturer: APC – USA. ANAC Propeller Type Certificate: None. Type: glass fiber, 2-blade, fixed pitch, pusher. Max. Speed: 10.555 RPM.

ELECTRIC GENERATOR	<p>Generator: Manufacturer: Sullivan. Model: S676-300F-01. ENERGIAS PN: 1102401 (See NOTE 12). 16.8 Vdc, 120- 475 W.</p>
BACKUP BATTERY	<p>Manufacturer: Tattu. Model: LiPo 3,700 mAh, 14.8 Vdc, 45C. ENERGIAS PN: 1102406 (See NOTE 12).</p>
EMERGENCY BATTERY	<p>Manufacturer: Tattu. Model: LiPo 1,300 mAh, 14.8 Vdc, 95C. ENERGIAS PN: 1102502 (See NOTE 12).</p>
AVIONICS	<p>ENERGIAS Automatic Flight Navigation, Guidance, C2 data-link, Video FPV data-link, and Anti-collision and Navigation Illumination Systems:</p> <p>Automatic Flight Navigation, Guidance and C2 data-link Unit: Integrated Processing Unit: Manufacturer: Embention. Model: Veronte Autopilots. ENERGIAS PN: 1002201 (See NOTE 11). RPA firmware version: PA 5.24.1. C2 data-link frequency: 900 MHz. ANATEL Homologation Certificate: 05272-11630 (See NOTE 10).</p> <p>Video FPV radio data-link: Manufacturer: Silvus. Model: SC 4210-235-EB. ENERGIAS PN: 1002301 (See NOTE 11). Radio data-link frequency: 2.4 GHz. ANATEL Homologation Certificate: 05206-18-11628</p> <p>Anti-collision Illumination: Two Anti-collision systems installed one on belly and another on empennage. Model: DS-30A-1. ENERGIAS PN: 1103402.</p> <p>Navigation Illumination: Navigation illumination system installed on both wingtips. Model: Silverton MK-3 (Green&Red LED). ENERGIAS PN: 1103401.</p>
LAUNCH SYSTEM	Not applicable.
RECOVERY SYSTEM	<p>ENERGIAS Recovery System PN: 1102500. Type: Ballistic Parachute.</p> <p>Sub-Assembly Units: Manufacturer: Galaxy. Model: GBS 10/350. ENERGIAS PN: 1102501.</p>
RPS	<p>ENERGIAS RPS Model RPS-102. Type: Ground Control Station and remote-radio control.</p> <p>Ground Control Assembly Box: Manufacturer: ENERGIAS. ENERGIAS PN: 1022501.</p> <p>Remote-radio control: Manufacturer: Futaba. Model: 14SG. ENERGIAS PN: 1022202.</p> <p>Video FPV radio data-link: Manufacturer: Silvus. Model: SC 4210-235-EB. ENERGIAS PN: 1002301 (See NOTE 11). Radio data-link frequency: 2.4 GHz. ANATEL Homologation Certificate: 05206-18-11628</p>

RPS (CONT.)	Battery:	Manufacturer: Tattu. Model: LiPo 22,000 mAh, 22.2 Vdc, 25C. ENERGIAS PN: 1002401 (See NOTE 12).
C2 LINK (RPS)	ENERGIAS Ground Data Terminal (GDT). Manufacturer: Embention. Model: Veronte Autopilots. ENERGIAS PN: 1002301 (See NOTE 12). Firmware version: PA 5.24.1. C2 data-link frequency: 900 MHz. ANATEL Homologation Certificate: 05272-11630 (See NOTE 10).	
COMPUTER SOFTWARE	Veronte autopilots PIPE V5.24.5 or later (See NOTE 9).	
RPAS SUPPORT EQUIPMENT	Not applicable.	
AIRSPPEED LIMITS (IAS)	V_{MAX} (See Note 5): 26.3 m/s (51.1 KIAS). V_{MIN} (See Note 5): 15.0 m/s (29.2 KIAS). V_{CRUISE} (See Note 5): 22.0 m/s (42.8 KIAS).	
C. G. RANGE	1,208 mm – 1,236 mm (MTOW 25 kg).	
EMPTY WEIGHT C. G. RANGE	1,222 mm (zero fuel).	
DATUM	Most forward tip of the nose cone.	
LEVELING MEANS	Spirit level placed on the tail boom.	
MAXIMUM WEIGHT	25 kg (55.1 lb).	
EMPTY WEIGHT	23.2 kg (51.1 lb).	
MINIMUM CREW	One remote pilot and one ground station operator.	
NUMBER OF SEATS	Not applicable.	
MAX. OPERATING ALTITUDE/HEIGHT	120 m (400 ft) AGL (See NOTE 13).	
CONTROL SURFACE MOVEMENTS	Aileron (Measured at the wingtip): Up 10 mm, Down 8 mm. Elevator (Measured at the Elevator root): Up 12 mm, Down 12 mm. Rudder (Measured at the top): Left 20 mm, Right 20 mm. Flap (Measured at the wing root): UP = Neutral or Zero degrees. Take-Off = 15 Degrees down. Landing = 35 Degrees down.	
NOMINAL ENDURANCE	65 minutes (flight conditions: temperature 30°C, 120 m (400 ft) AGL, wind 7,0 m/s).	
FLIGHT LIMITATIONS	1. Daylight Visual Flight Rules (VFR) in visual meteorological conditions (VMC), airspace classes F or G. 2. Wind: The wind limitations are described in ENERGIAS SFM (See NOTE 3). 3. Beyond visual line of sight (BVLOS) up to 7.2 km (4.5 NM) from Ground Data Terminal - GDT. 4. Operation is permitted in non-urban areas. 5. Operation with any inoperative (or missing) instruments or equipment is prohibited.	

SERIAL NUMBERS APPROVED	1 and following.
AUTHORIZATION BASIS	Brazilian Special Aeronautical Regulation RBAC-E N° 94, Subpart E, dated 3 May 2017.
PRODUCTION BASIS	None (See NOTE 1).

NOTES:

- NOTE 1** A declaration of conformity must be furnished by the authorization holder for each aircraft for issuance of its airworthiness certificate.
- NOTE 2** Markings and placards: all markings and placards required by Brazilian Special Aeronautical Regulation RBAC-E N° 94 must be installed in the appropriated locations.
- NOTE 3** The RPAS shall be operated under RBAC-E N° 94 and in accordance with ENERGIAS Flight Manual N° 112-MVO-01, Rev. "A", or later. The operation shall also be conducted in accordance with DECEA regulations applicable.
- NOTE 4** The RPAS must be maintained in accordance with ENERGIAS Maintenance Manual N° 112-MMN-01, Rev. "A" or later.
- NOTE 5** The RPAS by design sets the flight speed at V_{CRUISE} . The pilot cannot directly change the RPAS flight speed. The RPAS will automatically terminate the flight above V_{MAX} and below V_{MIN} .
- NOTE 6** The RPAS is approved for a single C.G. and weight setting.
- NOTE 7** Personnel Keep Out Zones. Typical exclusion zones apply for Take-off and Recovery as described in the Flight Manual N° 112-MVO-01, Rev. "A", or later.
- NOTE 8** Operations shall be conducted by properly designated personnel who have completed training, checking, currency, and recency of experience requirements as defined by ANAC.
- NOTE 9** The Veronte Autopilot firmware and PIPE software version is updated whenever a new version is released. The operator can be updated if he deems necessary.
- NOTE 10** License is not required to utilize the allocated frequencies.
- NOTE 11** A statement from the manufacturer detailing all internal components part number must be available to ANAC at the time of the aircraft inspection.
- NOTE 12** Some of the external components have its own manufacturer model and PN markings, which are equivalent to ENERGIAS PN for inspection purposes.
- NOTE 13** The RPAS was tested up to 2.300 ft above mean sea level.

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MÁRIO IGAWA
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AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL

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Ofício nº 496/2021/GTPR/GCPP/SAR-ANAC

São José dos Campos, 10 June 2021.

ENERGIAS - Assessoria em Sistemas de Energia e Comércio Ltda.

Rua 24 de maio, 225 - Cj. 10, República
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Brazil

Subject: **Design Authorization of the RPAS ENERGIAS RPAS-112.**

Enclosed: **Design Authorization Data Sheet (DADS) No. ERPAS-5733896-00.**

1. After receiving the data you submitted to comply with requirements of the Brazilian Special Aeronautical Regulation RBAC-E No. 94, the ANAC grants to ENERGIAS - Assessoria em Sistemas de Energia e Comércio Ltda. this **design authorization** for the RPAS **ENERGIAS RPAS-112**.
2. ANAC also hereby issues the **Design Authorization Data Sheet No. ERPAS-5733896-00** related to this authorization.

Roberto José Silveira Honorato
Airworthiness Superintendent

Mario Igawa
Aeronautical Product Design Certification Branch, Manager



Documento assinado eletronicamente por **Mário Igawa, Gerente de Certificação de Projeto de Produto Aeronáutico**, em 10/06/2021, às 10:05, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do [Decreto nº 8.539, de 8 de outubro de 2015](#).



Documento assinado eletronicamente por **Roberto José Silveira Honorato, Superintendente de Aeronavegabilidade**, em 10/06/2021, às 11:22, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do [Decreto nº 8.539, de 8 de outubro de 2015](#).



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