

TYPE-CERTIFICATE

DATA SHEET

NO. EASA.A.573

For Type

Virus SW 121

Type Certificate Holder

Pipistrel Vertical Solutions d.o.o. Vipavska cesta 2, 5270 Ajdovščina Slovenia, Europe

For models:

- A) Virus SW 121
- B) Virus SW 128 (Commercial Designation: Velis Electro)
- C) Virus SW 121C (Commercial Designation: Velis Club)
- D) Virus SW 121A (Commercial Designation: Explorer)

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SECTION A: MODEL A DESIGNATION

A.I. <u>General</u>

- 1. Type/ Model/ Variant
 - 1.1 Type: Virus SW 121

1.2 Model: Virus SW 121

2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Goriška cesta 50a 5270 Ajdovščina SLOVENIA

4. EASA Type Certification Application Date:	16.07.2010
5. EASA Type Certification Date:	18.04.2016

A.II. EASA Certification Basis

 Reference Date for determining the applicable requirements: Airworthiness Requirements: 	29.07.2013 Certification Specifications and Acceptable Means of Compliance for Light Sport Aeroplanes CS-LSA, Amendment 1 from 29 July 2013.
3. Special Conditions:	SC-ELA.2015-01 (CRI F-101), Noise Requirements (CRI N-01)
	SC-OLSA-div-01 (CRI O-18) (see note 3)
4. Exemptions:	none
5. (Reserved) Deviations:	none
6. Equivalent Safety Findings:	none
7. Environmental Protection:	see TCDSN EASA.A.573.



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A.III. <u>Technical Characteristics and Operational Limitations</u>

1. Type Design Definition:	Master document list No. MDL-121-01-00-001 revision A00 or later approved revision	
2. Description:	Single engine, two-seat, high wing cantilever composite construction aircraft with T-tail empennage configuration and fixed tricycle landing gear.	
3. Equipment:	Minimum equipment see Pilot Operating Handbook POH- 121-00-40-001, Section 6.4	
4. Dimensions		
Length	6.40 m 20.99 ft	
Span	10.70 m 35.10 ft	
Height	1.69 m 6.23 ft	
Wing Area	9.51 m ² 102.4 ft ²	
5. Engine		
5.1. Model:	Rotax 912 S3-01	
5.2 Type Certificate:	EASA.E.121	
5.3 Limitations:	Maximum Power Rating: 73.5 kW / 5800 RPM max 5 min	
	Maximum Continuous Power: 69 kW / 5500 RPM	
5.4. Muffler model	Akrapovic iS, drawing number 121-78-00-000	
6. Load factors:	+4G/-2G	
7. Propeller		
7.1 Model:	MTV-33-1-A/170-200	
7.2 Type Certificate:	EASA.P.048	
7.3 Number of blades	2	
7.4 Diameter:	1700 mm	
7.5 Rotation direction	clockwise	
8. Fluids		
8.1 Fuel		
Refer to Pilot Operating Handbook POH-121-00-40-001, Section 2.8 8.2 Oil		
Refer to Pilot Operatir	g Handbook POH-121-00-40-001, Section 2.9	
8.3 Coolant		
Refer to Pilot Operatir	g Handbook POH-121-00-40-001, Section 2.9	
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9. Fluid	d capacities	
	9.1 Fuel	Total: 100 liters
		Usable: 99 liters
	9.2 Oil	Maximum oil capacity: 3.5 liters
		Minimum oil required: marked on dipstick
	9.3 Coolant system	2.3 liters (approximately)
10. Air	Speeds	V _{NE} : 163 KTAS (see note 1)
		V _{NO} : 120 KIAS (see note 2)
		V _A : 100 KIAS
		V _{FE} : 81 KIAS
		V _{AE} : 100 KIAS
11. Flig	ght Envelope	Maximum operating altitude 18,000 ft MSL
12. Ap Capab	proved Operations ility	VFR day operations; Night VFR operations (see note 3)
13. Ma	aximum Masses	Maximum takeoff - 600 kg / 1323 lbs
		Maximum landing - 600 kg / 1323 lbs
		Maximum zero fuel - 555 kg / 1221 lbs
14. Cei	ntre of Gravity Range	Forward CG limit – 25% MAC / 267 mm
		Aft CG limit – 35% MAC / 356 mm
15. Ret	ference datum	The wing's leading edge at the root of the wing
16. Co	ntrol surface deflections	Refer to AMM-121-01-00-001_A00 or later approved issue
17. Lev	velling Means	Refer to section 6.2 of the POH-121-00-40-001_A02 or later approved issue
18. Mi	nimum Flight Crew	One (1) pilot
	aximum Passenger g Capacity	One (1) passenger
20. Ba	ggage/ Cargo	Location – port side, aft of the door
Compartments		Maximum load – 25 kg / 55 lbs

Virus SW 121



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21. Wheels and Tyres	Main wheel – 4.00" x 6"
	Nose wheel – 4.00" x 4"
	For approved wheel and tyre types refer to the
	IPC-121-00-50-001_A00 or later approved issue
22. Lifetime limitations	Refer to AMM-121-01-00-001_A00 or later approved issue

A.IV. Operating and Service Instructions

1. Aircraft Flight Manual	POH-121-00-40-001_A02 or later approved issue
2. Aircraft Maintenance Manual	AMM-121-01-00-001_A00 or later approved issue
3. Structural Repair Manual	Refer to AMM-121-01-00-001_A00 or later approved issue
4. Weight and Balance Manual	Refer to POH-121-00-40-001_A02 or later approved issue
5. Illustrated Parts Catalogue	IPC-121-00-50-001_A00 or later approved issue

A.V. Notes

Note 1: VNE is reduced from 163 KIAS at sea level by 2.2 KIAS for every 1000 ft. Note 2: VNO decreases by 0.5 KIAS for every 1000 ft above FL100. Note 3: When Night VFR kit PN 1159663 or 1159679 or 1159680 is installed.



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SECTION B: MODEL B DESIGNATION

B.I. <u>General</u>

- Type/ Model/ Variant
 Type: Virus SW 121
 Model: Virus SW 128 (Commercial Designation: Velis Electro)
- 2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Goriška cesta 50a 5270 Ajdovščina SLOVENIA

4. EASA Type Certification Application Date: 24.10.2017

5. EASA Type Certification Date: 10.06.2020

B.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements: 24th October 2017

2. Airworthiness Requirements (note 1)	Certification Specifications and Acceptable Means of Compliance for Light Sport Aeroplanes CS-LSA, Amendment 1 from 29 July 2013; Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance CS ACNS issue 2 dated 26th April 2019 (subparts A, B, D)
3. Special Conditions:	SC-LSA-F2480-01 - LSA Propulsion Lithium Batteries; SC-LSA-15-01 - Electric Powerplant Installation for CS LSA aeroplanes; SC-ELA.2015-01 - Lithium battery installations;
4. Exemptions:	none
5. (Reserved) Deviations:	none



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6. Equivalent Safety Findings:	none
7. Environmental Protection:	see TCDSN EASA.A.573.

B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition:		Master Draw revision	ving List No. DWG-128-02-40-001 latest approved	
2. Description:		constructio	ine, two-seat, high wing cantilever composite n aircraft with T-tail empennage configuration, fixed ding gear and three-bladed composite fixed pitch	
3. Equipment:		For equipm Handbook,	ent list refer to POH-128-00-40-001 Pilot's Operating Section 2	
4. Dim	ensions			
	Length	6.47 m	21.22 ft	
	Span	10.71 m	35.13 ft	
	Height	1.90 m 9.51 m²	6.82 ft 102.4 ft²	
	Wing Area	9.51 11-	102.4 It ⁻	
5. Load factors:		+4G/-2G		
6. Eng	ine			
Ū	6.1. Type/Model:	Pipistrel elec	ctric engine E-811 / 268MVLC	
	6.2 Type Certificate:	EASA.E.234		
	6.3 Limitations:	Maximum Ta	ake-off Power MTOP: 57.6 kW / 2500 RPM max 90 s	
		Maximum Continuous Power: 49.2 kW / 2350 RPM		
7. Proi	peller (note 2)			
	7.1 Type/Model:	Pipistrel P-8	12 / 164-F3A	
	7.2 Number of blades:	3		
	7.4 Diameter:	1640 mm		
	7.5 Rotation direction:	clockwise		
	7.6 Pitch:	18° @615mr	n from axis	
	7.7 Weight:	4,88 kg		
	7.8 Control system:	N/A (fixed pi	itch)	
	7.9 Max speed:	2500 RPM		
	7.10 Max driving power:	57.6 kW		
	7.11 Max driving torque:	220 Nm		



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7.13 Designation system:	Type: P-812; Diameter in cm: 164; Pitch: F: fixed, G: ground
	adjustable, V: variable, C: Constant speed; Number of blades: 3;
	Blade type: A.

8. Energy Storage System (ESS)

Two (2) propulsion Lithium batteries connected in parallel. Pipistrel PB345V124E-L Type: Rated capacity at 23°C: 11.0 kWh (each) Nominal voltage: 345 VDC Cooling system: Liquid Battery management system (BMS): Integral

9. Fluids

9.1 Coolant:	Refer to POH-128-00-40-001 Pilot's Operating Handbook, Section 2
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10. Fluid capacities	
10.1 Coolant system	 for engine cooling system: 0.9 liters (approximately)
	 for battery cooling system: 5.4 liters (approximately)
11. Air Speeds	V _{NE} : 108 KIAS
	V _{NO} : 98 KIAS
	V _A : 100 KIAS
	V _{FE} : 81 KIAS
12. Flight Envelope	Maximum operating altitude 12.000 ft MSL
13. Approved Operations	VFR day operations
Capability	
14. Maximum Masses	Maximum takeoff - 600 kg / 1323 lbs
	Maximum landing - 600 kg / 1323 lbs
15. Centre of Gravity Range	Forward CG limit – 25.2% MAC / 269 mm
	Aft CG limit – 32.6% MAC / 336 mm
16. Reference datum	The wing's leading edge at the root of the wing

17. Control surface deflections Refer to AMM-128-00-60-001 Aircraft Maintenance Manual latest approved issue



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18. Levelling Means	Refer to section 6.2 of the POH-128-00-40- Handbook latest approved issue	001 Pilot's Operating
19. Minimum Flight Crew	One (1) pilot	
20. Maximum Passenger Seating Capacity	One (1) passenger	
21. Wheels and Tyres	Main wheel – 4.00" x 6"	
	Nose wheel – 4.00" x 4"	
	For approved wheel and tyre types refer to 001 Illustrated Part Catalogue latest appro	
22. Lifetime limitations	for the airframe: Refer to section 4 of the A Aircraft Maintenance Manual;	MM-128-00-60-001
	for the propeller: Refer to section 4 of the F Propeller Instruction Manual;	'IM-812-61-00-001
B.IV.	Operating and Service Instructions	
1. Aircraft Flight Manual	POH-128-00-40-001 Pilot's Operating Hand	lbook
	latest approved issue	
2. Aircraft Maintenance Manual	AMM-128-00-60-001 Aircraft Maintenance	e Manual
	latest approved issue	
3. Structural Repair Manual	Refer to AMM-128-00-60-001 Aircraft Main	ntenance Manual
4. Weight and Balance Manual	Refer to POH-128-00-40-001 Pilot's Operat	ing Handbook
5. Propeller Instructions Manual	Refer to PIM-812-61-00-001 Propeller Instr	uction Manual
5. Illustrated Parts Catalogue	IPC-128-00-50-001 Illustrated Part Catalogu	le latest approved issue



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B.V. <u>Notes</u>

- Note 1: Requirements 4, 5, 6.1, 6.2, 6.4, 6.7, 6.10, 6.11, 7.1, 7.3, 7.4 of ASTM F2840-11, as far as the engine and its parts are concerned, are covered through the corresponding certification basis in the engine TCDS EASA.E.234.
- Note 2: The propeller is certified as part of the aircraft and therefore is only certified for installation on SW128. For propeller Operating and Service Instructions see: PIM-812-61-00-001 Propeller Instruction Manual



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SECTION C: MODEL C DESIGNATION

C.I. <u>General</u>

- 1. Type/ Model/ Variant
 - 1.1 Type: Virus SW 121
 - 1.2 Model: Virus SW 121C (Commercial Designation: Velis Club)

2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Goriška cesta 50a 5270 Ajdovščina SLOVENIA

4. EASA Type Certification Application Date:	17.12.2020
5. EASA Type Certification Date:	25.01.2021

C.II. EASA Certification Basis

 Reference Date for determining the applicable requirements: Airworthiness Requirements: 	29.07.2013 Certification Specifications and Acceptable Means of Compliance for Light Sport Aeroplanes CS-LSA, Amendment 1 from 29 July 2013.
3. Special Condition:	SC-ELA.2015-01 (CRI F-101)
4. Exemptions:	none
5. (Reserved) Deviations:	none
6. Equivalent Safety Findings:	none
7. Environmental Protection:	see TCDSN EASA.A.573.



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C.III. <u>Technical Characteristics and Operational Limitations</u>

1. Type Design Definition:	Master document list No. MDL-121-01-00-001 revision B01 or later approved revision		
2. Description:	Single engine, two-seat, high wing cantilever composite construction aircraft with T-tail empennage configuration and fixed tricycle landing gear.		
3. Equipment:	Minimum equipment see Pilot Operating Handbook POH-121C- 00-40-100, Section 2.15.1		
4. Dimensions Length Span Height Wing Area	6.40 m 20.99 ft 10.70 m 35.10 ft 1.90 m 6.23 ft 9.51 m^2 102.4 ft^2		
5. Engine			
5.1. Model:	Rotax 912 S3-01		
5.2 Type Certificate:	EASA.E.121		
5.3 Limitations:	Maximum Power Rating: 73.5 kW / 5800 RPM max 5 min		
	Maximum Continuous Power: 69 kW / 5500 RPM		
5.4. Muffler model	Akrapovic iS, drawing number 121-78-00-000		
6. Load factors:	+4G/-2G		
7. Propeller			
7.1 Model:	MTV-33-1-A/170-200		
7.2 Type Certificate:	EASA.P.048		
7.3 Number of blade	2		
7.4 Diameter:	1700 mm		
7.5 Rotation direction	n: clockwise		
8. Fluids			
8.1 Fuel			
Refer to Pilot Opera 8.2 Oil	Refer to Pilot Operating Handbook POH-121C-00-40-100, Section 2.8 8.2 Oil		
	Refer to Pilot Operating Handbook POH-121C-00-40-100, Section 2.9		
	Refer to Pilot Operating Handbook POH-121C-00-40-100, Section 2.9		

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9. Fluid capacities	
9.1 Fuel	Total: 100 liters
	Usable: 99 liters
9.2 Oil	Maximum oil capacity: 3.5 liters
	Minimum oil required: marked on dipstick
9.3 Coolant system	2.3 liters (approximately)
10. Air Speeds	V _{NE} : 163 KTAS (see note 1)
	V _{NO} : 120 KIAS (see note 2)
	V _A : 100 KIAS
	V _{FE} : 81 KIAS
	V _{AE} : 100 KIAS
11. Flight Envelope	Maximum operating altitude 18,000 ft MSL
12. Approved Operations Capability	VFR day operations
13. Maximum Masses	Maximum takeoff – 600 kg / 1323 lbs
	Maximum landing – 600 kg / 1323 lbs
	Maximum zero fuel – 555 kg / 1221 lbs
14. Centre of Gravity Range	Forward CG limit – 25% MAC / 267 mm
	Aft CG limit – 35% MAC / 356 mm
15. Reference datum	The wing's leading edge at the root of the wing
16. Control surface deflections	Refer to SAMM-121C-00-60-100_A00 or later approved issue
17. Levelling Means	Refer to section 6.2 of the POH-121C-00-40-100_A00 or later approved issue
18. Minimum Flight Crew	One (1) pilot
19. Maximum Passenger Seating Capacity	One (1) passenger
20. Baggage/ Cargo	Location – port side, aft of the door
Compartments	Maximum load – 25 kg / 55 lbs (see note 3)

Virus SW 121



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21. Wheels and Tyres	Main wheel – 4.00" x 6" Nose wheel – 4.00" x 4"
	For approved wheel and tyre types refer to the IPC-121-00-50-001 revision D00 or later approved issue

22. Lifetime limitations Refer to AMM-121-01-00-001_B00 or later approved issue and SAMM-121C-00-60-100_A00 or later approved issue

C.IV. Operating and Service Instructions

1. Aircraft Flight Manual	POH-121C-00-40-100_A00 or later approved issue
2. Aircraft Maintenance Manual	AMM-121-01-00-001_B00 and SAMM-121C-00-60-100_A00 or later approved issues
3. Structural Repair Manual	AMM-121-01-00-001_B00 and SAMM-121C-00-60-100_A00 or later approved issues
4. Weight and Balance Manual	Refer to POH-121C-00-40-100_A00 or later approved issue
5. Illustrated Parts Catalogue	IPC-121-00-50-001_C00 or later approved issue

C.V. <u>Notes</u>

- Note 1: VNE is reduced from 163 KIAS at sea level by 2.2 KIAS for every 1000 ft.
- Note 2: VNO decreases by 0.5 KIAS for every 1000 ft above FL100.

Note 3: When baggage compartment (optional equipment) is installed.



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SECTION D: MODEL D DESIGNATION

D.I. <u>General</u>

- 1. Type/ Model/ Variant
 - 1.1 Type: Virus SW 121
 - 1.2 Model Virus SW 121A (Commercial Designation: Explorer)

2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Goriška cesta 50a 5270 Ajdovščina SLOVENIA

4. EASA Type Certification Application Date:	28.01.2021
5. EASA Type Certification Date:	17.12.2021

D.II. EASA Certification Basis

 Reference Date for determining the applicable requirements: Airworthiness Requirements: 	29.07.2013 Certification Specifications and Acceptable Means of Compliance for Light Sport Aeroplanes CS-LSA, Amendment 1 from 29 July 2013.
3. Special Conditions:	SC-ELA.2015-01 (CRI F-101), Noise Requirements (CRI N-01)
	SC-OLSA-div-01 (CRI O-18) (see note 3)
4. Exemptions:	none
5. (Reserved) Deviations:	none
6. Equivalent Safety Findings:	none
7. Environmental Protection:	see TCDSN EASA.A.573.



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D.III. <u>Technical Characteristics and Operational Limitations</u>

1. Typ	e Design Definition:	Master document list No. MDL-121-01-00-001 revision C03 or later approved revision	
2. Des	cription:	Single engine, two-seat, high wing cantilever composite construction aircraft with T-tail empennage configuration and fixed tricycle landing gear.	
3. Equ	ipment:	Minimum equipment see Pilot Operating Handbook POH-121A- 00-40-050_B00, Section 2.15.1	
4. Dim	ensions		
	Length	6.42 m	21.06 ft
	Span	10.70 m	35.10 ft
	Height	1.90 m	6.23 ft
	Wing Area	9.51 m²	102.4 ft ²
5. Eng	ine		
	5.1. Model:	Rotax 912 Sa	3-01
	5.2 Type Certificate:	EASA.E.121	
	5.3 Limitations:	Maximum Po	ower Rating: 73.5 kW / 5800 RPM max 5 min
		Maximum Co	ontinuous Power: 69 kW / 5500 RPM
	5.4. Muffler model	Akrapovic iS,	, drawing number 121-78-00-000
6. Load	d factors:	+4G/-2G	
7. Proj	peller		
	7.1 Model:	MTV-33-1-A	/170-200
	7.2 Type Certificate:	EASA.P.048	
	7.3 Number of blades:	2	
	7.4 Diameter:	1700 mm	
	7.5 Rotation direction:	clockwise	
8. Flui	ds		
	8.1 Fuel		
	Refer to Pilot Operating Handbook POH-121A-00-40-050_B00, Section 2.8		
	8.2 Oil		
	Refer to Pilot Operating Handbook POH-121-00-40-050_B00, Section 2.9		
	8.3 Coolant		
	Refer to Pilot Operating Handbook POH-121-00-40-050_B00, Section 2.9		



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9. Fluid capacities	
9.1 Fuel	Total: 100 liters
	Usable: 99 liters
9.2 Oil	Maximum oil capacity: 3.2 liters
	Minimum oil required: marked on dipstick
9.3 Coolant system	2.3 liters (approximately)
10. Air Speeds	V _{NE} : 163 KTAS (see note 1)
	V _{NO} : 120 KIAS (see note 2)
	V _A : 100 KIAS
	V _{FE} : 81 KIAS
	V _{AE} : 100 KIAS
11. Flight Envelope	Maximum operating altitude 18,000 ft MSL
12. Approved Operations Capability	VFR day operations; Night VFR operations
13. Maximum Masses	Maximum takeoff - 600 kg / 1323 lbs
	Maximum landing - 600 kg / 1323 lbs
	Maximum zero fuel - 555 kg / 1221 lbs
14. Centre of Gravity Range	Forward CG limit – 25% MAC / 267 mm
	Aft CG limit – 35% MAC / 356 mm
15. Reference datum	The wing's leading edge at the root of the wing
16. Control surface deflections	Refer to SAMM-121A-00-60-050_A01 or later approved issue
17. Levelling Means	Refer to section 6.2 of the POH-121A-00-40-050_B00 or later approved issue
18. Minimum Flight Crew	One (1) pilot
19. Maximum Passenger Seating Capacity	One (1) passenger
20. Baggage/ Cargo	Location – port side, aft of the door
Compartments	Maximum load – 25 kg / 55 lbs

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Issue: 10

21. Wheels and Tyres	Main wheel – 4.00" x 6"
	Nose wheel – 4.00" x 4"
	For approved wheel and tyre types refer to the IPC-121-00-50-
	001 revision D01 or later approved issue

22. Lifetime limitations Refer to AMM-121-01-00-001_B03 or later approved issue and SAMM-121A-00-60-050_A01 or later approved issue

D.IV. Operating and Service Instructions

1. Aircraft Flight Manual	POH-121A-00-40-050_B00 or later approved issue
2. Aircraft Maintenance Manual	AMM-121-01-00-001_B03 or later approved issue SAMM-121A-00-60-050_A01 or later approved issue
3. Structural Repair Manual	Refer to AMM-121-01-00-001_B03 or later approved issue SAMM-121A-00-60-050_A01 or later approved issue
4. Weight and Balance Manual	Refer to POH-121A-00-40-050_B00 or later approved issue
5. Illustrated Parts Catalogue	IPC-121-00-50-001_D01 or later approved issue

D.V. <u>Notes</u>

Note 1: VNE is reduced from 163 KIAS at sea level by 2.2 KIAS for every 1000 ft. Note 2: VNO decreases by 0.5 KIAS for every 1000 ft above FL100.



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SECTION ADMINISTRATIVE

I. Acronyms & Abbreviations

AMM	Aircraft maintenance manual
CS-LSA	Certification specification for light sport aeroplanes
EASA	European Union Aviation Safety Agency
ESS	Energy Storage System
IPC	Illustrated parts catalogue
KIAS	Indicated airspeed in knots
KTAS	True airspeed in knots
MAC	Mean aerodynamic chord
MSL	Mean sea level
MDL	Master document list
POH	Pilot's operating handbook
RPM	Revolutions per minute
VFR	Visual flight rules

II. Type Certificate Holder Record

Pipistrel Vertical Solutions d.o.o. Vipavska cesta 2, 5270 Ajdovščina Slovenia, Europe



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III. Change Record

Issue	Date	Changes	TC Issue No. & Date
Issue 01	18/04/2016	Initial Issue	18/04/2016
Issue 02	22/09/2017	Update for major change Night VFR operations	
lssue 03	12/03/2018	Corrected in section A.IV the reference to the Maintenance Manual	
Issue 04	15/10/2018	Change of Type Certification Holder, Removed reference to CRI A-01 from section A.II (2)	
Issue 05	10/06/2020	Model Virus SW 128 added	
lssue 06	10/06/2020	Corrected Commercial designation "Velis Electro" for Virus SW 128	
Issue 07	15/06/2020	Corrected typos (see right bar)	
Issue 08	25/01/2021	Model Virus SW 121C added	
Issue 09	08/02/2021	Correction to SW121 and SW 121 C engine designations, correction to SW 121 C, add reference to Commercial designation [Velis Club], and addition of Note 3 Optional baggage compartment.	
Issue 10	17/12/2021	Model Virus SW121A added, Manufacturer's name corrected, and type design information corrected.	

-END-



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