



The CarryAir is a compact VTOL aircraft that can be assembled and operated by one person within 2 minutes. It is designed for a wide range of applications and offers an all-purpose load volume of 60 liters which is protected against water ingress.

Its maximum take-off mass is 24.7kg with a wingspan of 2.99m.

Depending on the desired range, up to 7kg payload can be added next to the batteries. This gives enough payload for high quality Cameras and/or Sensor solutions.

It has a redundant hover as well as a redundant electric drive for wing flight.

The aircraft structure is manufactured from aircraft certified materials, same like used for our manned airplanes.

#### Features and benefits

- Aircraft grade composite glasfiber structure (low radar signature)
  - Redundant 6 Motor hover system
  - Silent redundant dual front motor
  - Parachute Option possible
  - Large Payload Compartment offers a lot of Payload solutions
  - High Payload within <3m Wingspan Jarus class
  - Easy to fly
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- One man assembly within 2 min. possible
  - Only one transport box for Aircraft and payload
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- Different Battery Options possible
  - Different connectivity options
  - Automatic wind detection for autonomous landing
  - Failsafe in case of connection loss or low battery

## CarryAir Full Electro

## CarryAir with Range Extender

### Basic Information

Drone type	VTOL; Blended Wing Body	VTOL; Blended Wing Body
Payload position	Payload integrated in the aircraft waterproofed payload bay	Payload integrated in the aircraft waterproofed payload bay
FTS (Optional)	DRS-15 autonomous parachute system (Weight 650g)	DRS-15 autonomous parachute system (Weight 650g)
Structure Material	Aircraft certified materials Carbon Glas Nomex Honeycomb structure	Aircraft certified materials Carbon Glas Nomex Honeycomb structure
Drone battery	4x 6S LiPo Battery 30.000mAh 4x 6s LiPo 22.000 mAh	2x 6S LiPo Battery 10.000mAh (recharged by the Range Extender)
Propulsion	6 × brushless electric for Hover with carbon folding propeller 2 x brushless electric for redundant front propulsion on one Propeller with carbon fixed pitch propeller	6 × brushless electric for Hover with carbon folding propeller 2 x brushless electric for redundant front propulsion on one Propeller with carbon fixed pitch propeller
Flight modes	Flight modes QHover and QLoiter , FBWB, Auto, Loiter	Flight modes QHover and QLoiter , FBWB, Auto, Loiter
Flight Operation	Operating speed of 23 m/s Enables the use of lidar scanners and other sensons and cameras	Operating speed of 23 m/s Enables the use of lidar scanners and other sensons and cameras
Payload	7kg max @ 2 x 22.000 mAh 40 min (approx 56km Range) 5 kg max @ 2 x 6S 30.000mAh / 1 hour (approx 90 km Range) 4 kg max @ 4 x 6S 22.000mAh / 1,7 hour (approx 140km Range) 1,5 kg max. @ 4 x 6S 30.000mAh / 2,3 h (approx 190 km Range)	Payload 4,5 kg max @ 2,5kg fuel / 2,5 hour flight (200km Range) Payload 1kg max @ 6,5kg fuel / 7,5 hour flight (600 km Range)
Propulsion type	No tilting rotors mechanics for higher reliability and less maintenance. (Can be Certified) Reduction of complex parts to the minimum, only two elevon servos only one wing and simple undercarriage.	Build in two stroke gasoline Range Extender. No tilting rotors mechanics for higher reliability and less maintenance. (Can be Certified) Reduction of complex parts to the minimum, only two elevon servos only one wing and simple undercarriage.

## Technical Data

<b>Dimensions</b>	299cm × 159cm × 47cm (Aircraft) 152cm x 84cm x 52cm (Case)	299cm × 159cm × 47cm (Aircraft) 152cm x 84cm x 52cm (Case)
<b>Weight</b>	Empty Weight 12 kg (without battery) / Max. 24.7 kg	Empty Weight 17,5 kg / Max. 25 kg
<b>Flight speed</b>	Cruise Speed in flight (fly by wire) Min. 70km/h / Max. 100km/h Stallspeed 52km/h Speed in Hover: 0m/s min 4 m/s in (QLoiter mode)	Cruise Speed in flight (fly by wire) Min. 70km/h Max. 100km/h Stallspeed 52km/h Speed in Hover: 0m/s min 4 m/s in (QLoiter mode)
<b>Climb speed</b>	Rate of climb and descent 3m/s in hover 4m/s in flight	Rate of climb and descent 3m/s in hover 4m/s in flight
<b>Max. flight time / Payload</b>	7kg max @ 2 x 22.000 mAh 40 min (approx 56km Range) 5 kg max @ 2 x 6S 30.000mAh / 1 hour (approx 90 km Range) 4 kg max @ 4 x 6S 22.000mAh / 1,5 hour (approx 127km Range) 1,5 kg max. @ 4 x 6S 30.000mAh / >2 h (approx 180 km Range)	Payload 4,5 kg max @ 2,5kg fuel / 2,5 hour flight (200km Range) Payload 1kg max @ 6,5kg fuel / 7,5 hour flight (600 km Range)
<b>Max. altitude</b>	Flight altitude (dynamic) 3000m MSL  Multicopter Mode (static) 2700m MSL (24,5" Prop) (Higher altitudes on request with different Propellers)	Flight altitude (dynamic) Max. 2000m MSL  Multicopter Mode (static) 1500m MSL (Higher altitudes on request with different Propellers)
<b>Wind resistance</b>	Gust wind resistance 22 knots at hover; 26 knots in flight	Gust wind resistance 22 knots at hover; 26 knots in flight
<b>Operating temperature</b>	dt= -20 to 45°C (no icing conditions and preheated Batteries at temperatures lower then 15°C)	dt= -10 to 35°C (no icing conditions and preheated Batteries at temperatures lower then 15°C)
<b>Weather limits</b>	No operation during heavy rain, icing conditions, hail and thunder storms.	No operation during heavy rain, icing conditions, hail and thunder storms.
<b>Landing accuracy</b>	On normal GPS operation +/- 1,5m	On normal GPS operation +/- 1,5m

Electronic

<p><b>Avionics</b></p>	<p>GNSS RTK Antenna and Compass / 2 x high precision redundant RTK GPS with compass heading          1x Rainproof Pitot tube + 1x redundant Synthetic airspeed          2x Barometer          Integrated backup system for in-flight recovery and manual override with dedicated processor and stand-alone power supply (fixed-wing use)          Backup system integrates mixing, providing consistent autopilot and manual override mixing modes (fixed wing use)          Redundant power supply inputs and automatic failover</p>	<p>GNSS RTK Antenna and Compass          1x Rainproof Pitot tube + 1x redundant Synthetic airspeed          2x Barometer          Integrated backup system for in-flight recovery and manual override with dedicated processor and stand-alone power supply (fixed-wing use)          Backup system integrates mixing, providing consistent autopilot and manual override mixing modes (fixed wing use)          Redundant power supply inputs and automatic failover</p>
<p><b>Failsafe</b></p>	<p>The Carryair has a lot of different failsafe functions to get the operation in the field as simple as possible for the drone pilot.</p> <ul style="list-style-type: none"> <li>- Return to launch at loss of connectivity (Radio / LTE)</li> <li>- Return to launch at transition failure</li> <li>- Return to launch at low battery Voltage</li> </ul>	<p>The Carryair has a lot of different failsafe functions to get the operation in the field as simple as possible for the drone pilot.</p> <ul style="list-style-type: none"> <li>- Return to launch at loss of connectivity (Radio / LTE)</li> <li>- Return to launch at transition failure</li> <li>- Return to launch at low battery Voltage</li> </ul>
<p><b>Awareness systems</b></p>	<p>AVEO Position and anti collision lights (Aircraft Grade)          Lidar Ground Altimeter (Optional)          ADSB receiver integrated (Aircraft avoidance can be activated)          ADSB Transceiver or Transponder or Mode S on request.</p>	<p>AVEO Position and anti collision lights (Aircraft Grade)          Lidar Ground Altimeter (Optional)          ADSB receiver integrated (Aircraft avoidance can be activated)          ADSB Transceiver or Transponder or Mode S on request</p>
<p><b>Awareness radios</b></p>	<p>1 x FLARM on request          1 x ADS-B in          1 x remote ID can be activated on request</p>	<p>1 x FLARM on request          1 x ADS-B in          1 x remote ID can be activated on request</p>
<p><b>Connectivity (on request)</b></p>	<p>cellular telemetry // 3G, 4G and 5G          Satellite / Starlink end 2023          Radio BKM Custom: Doodle Labs, DTC</p>	<p>cellular telemetry // 3G, 4G and 5G          Satellite / Starlink end 2023          Radio: Doodle Labs, DTC, Microhard</p>
<p><b>Flight Controller</b></p>	<p>Option 1 Herelink          Option 2 H16 Video Controller          Option 3 UXV Controller          Option 4 BKM Custom Solution          Option 5 Globe UAV Control Station (LBA Sail 3 Level)</p>	<p>Option 1 Herelink          Option 2 H16 Video Controller          Option 3 UXV Controller          Option 4 BKM Custom Solution          Option 5 Globe UAV Control Station</p>

## Payloads

### Laserscanner

Riegl VUX120 custom solution  
Yellowscan Voyager  
Phoenix Lidar

For Range Extender Version a payload of max 3 kg is recommended to keep the advantage of long endurance flights with enough fuel.



Fig 1. Installed Yellowscan Explorer



Fig 2. Sony A7R Camera



Fig 3. Medical transport box



Fig 4. Gimbal 3 Axis / 50mm IR / 30x zoom / 5km Lasertracker AI



Fig 5. Riegl VUX 120



Fig 6. Workswell Wiris Agro Thermal Camera