Efficiency is in the field.

The eBee Ag is a reliable, affordable fixed-wing drone that helps farmers, agronomists and service providers map and monitor crops quickly and easily. With its fixed Duet M multispectral/RGB camera, automated flight and vast coverage, eBee Ag delivers accurate and timely plant health insights for making better decisions to improve crop yields, save on inputs, allocate resources and achieve greater profit potential.

“Thanks to the eBee Ag multispectral maps we have managed to reduce our operational and logistical costs by 30%, through being able to define different sugarcane harvest zones based on the crop’s quality in different regions. That work resulted in an increase of 15% in the value of the product we sold to our customers.”

Jorge Gomez Andrade, CEO, Agronos Soluciones Agropecuarias

Up to 55 minutes flight time*
45 minutes with standard battery and up to 55 minutes with available endurance battery

Down to 2.5 cm absolute accuracy with RGB
Available RTK allows you to achieve the high precision accuracy your project requires, without GCPs.

Optimized multispectral outputs
Comes with senseFly Duet M Camera a dual sensor of senseFly S.O.D.A. & Parrot Sequoia+

Lightweight and durable
Designed to operate in the harshest conditions, thanks to its optimized airframe and ultra-tough under-body skin.

Safe and easy to use
Simply plan your mission. Launch the drone and collect critical project data in minutes.

*Results can vary depending on the flight conditions
The advanced dual-purpose agricultural camera

The senseFly Duet M is an innovative dual-purpose RGB and 4-band multispectral mapping camera. By combining multispectral and RGB, users can quickly spot troublesome areas from above in high-resolution RGB and gain critical NDVI data invisible to the naked eye—all in one flight. Use it to create geo-accurate multispectral maps and digital surface models (DSMs) quickly and easily.

Vegetation indices (CCCI, GNDVI, LCI, MCARI, NDRE, NDVI, SIPI2)

Use cases:

- Crop Planning
- Planting (stand & population counts)
- Plant health monitoring
- Crop scouting
- Water and soil management
- Pest, diseases and weed tracking
- Prescription maps
- Fertilizer and input efficacy
- Yield monitoring & forecasting
- Crop insurance assessments
A drone’s flight management software defines your experience—if this is complicated or confusing, operations can quickly become a chore. eMotion is different: it’s advanced, scalable drone software that anyone can use.”

Scott Hiebert, CEO, Green Aero Tech

Beginner-friendly, yet packed with advanced features to tackle the toughest jobs, our eMotion flight planning software optimizes every step, helping to get your eBee Ag in the air quickly and with ease, so you can focus on what’s important—collecting and analyzing plant health and operations data critical to your fields.

“With eMotion, flights are built using mission blocks. Just choose your block, highlight the region you want to map, define key settings, and eMotion auto-generates your drone’s flight plan. Multi-flight missions are supported and you can activate/import elevation data for even safer, terrain-accurate flights.

Upload your flight plan wirelessly to your drone. After a simple hand launch, your eBee Ag drone will then fly, capture images and land by itself.

eMotion’s built-in Flight Data Manager automatically handles the georeferencing & preparation of images required for post-processing in software such as Pix4Dmapper or Pix4Dfields.

Compatible Farm Management Software (FMS) and precision agriculture equipment

Pix4Dmapper & Pix4Dfields, Agisoft PhotoScan, Esri Drone2Map, DroneDeploy, Trimble Ag Software, FarmLogs, AgWorld, Granular, Climate FieldView, My John Deere Operations Center, AGCO Fuse, Apex, SMS, Farm Works Software, Xarvio and more.
Farm-ready and easy to maintain

The eBee Ag is designed for maximum uptime and offers incredible reliability in the field. Its robust underbody protects it from damage, while its modular design lets you easily swap out parts as needed.

Global network = local support
senseFly’s renowned Technical Support is never far. Get your senseFly drone repaired locally, thanks to our global network of authorized repair centers.
All you need to survey with your eBee Ag. On your back.

The eBee X series backpack is a smart and durable way to carry everything you need to transport your new senseFly drone into and out of the field.
The senseFly eBee Ag comes with...

1x eBee Ag Drone
2x Spare Propellers
10x Spare Propeller attachment rubber bands
2x Lithium-Polymer Standard Batteries
1x Lithium-Polymer Battery Charger
3x Spare Pitot Kit
1x USB Ground Modem
3x USB Cable
To connect your computer to the drone and some cameras
1x Backpack
1x senseFly Duet M Camera

Go further, fly longer with senseFly extensions

Remote Control
Operate your eBee Ag drone manually with the available remote control

USB Ping
View live air traffic data directly within eMotion

Spare Pitot Pro Kit
Contains 3 pitot kit. The Pitot Tube is used by the eBee Ag to measure wind speed and direction for course correction as well as landing optimization.

Radio Tracker
This accessory is a useful final safeguard against unexpected aircraft loss

RTK Activation
Achieve absolute accuracy of down to 2.5 cm (1 in) with available RTK

Endurance Battery
Available Endurance Batteries allow for flight times of up to 55 minutes

Hard case
For safe transport in a harsh environment

Extended Warranty
1 year warranty extension

Geobase
Enable high-accuracy workflows with this plug-and-play GNSS instrument

Certified Operator Program
www.senseflyacademy.com

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Put accurate data to work.
Get the most out of eBee Ag with active RTK

While laying ground control points (GCPs) has been a necessary step in drone surveying workflows from the beginning, advancements in GNSS technology have led to the evolution of real-time kinematic (RTK) and post-processing kinematic (PPK) methods. Thanks to the improved vertical and horizontal accuracy, RTK is ideally suited for surveying stockpiles, land change mapping and more. The following is a quick look at the use of Ground Control Points and the added benefit of a drone with active RTK.

Ground Control Points (GCPs)

A Ground Control Point is a location or object on the ground that has precisely known coordinates. GCPs are used to accurately geo-reference and align projects from absolute accuracy—one to two meters—to absolute accuracy—two to five centimeters.

This method has been used for years and trusted to consistently produce a high level of precision and overall accuracy. Also, GCPs used as checkpoints allow the production of a defensible quality report to prove the validity of technology and are used for consistent ground-truthing of a project’s accuracy. There are some downsides however, as GCPs can take much longer to set up in comparison to RTK and large worksites may require an entire crew to set points. This can be a dangerous endeavor in certain environments and may require additional equipment including a GPS rover, base, VRS network license in addition to spray paint and targets. Also, there is a possibility of targets moving between the setup and data collection, impacting the accuracy of the results. And GCPs may require operator input during the processing phase to click on the target.

GCPs have been a proven method of accuracy for years, but with safer and faster methods available, it should be used only when RTK and PPK are not possible.

Real-Time Kinematic (RTK)

Real-time kinematic is a technique used to enhance the precision of position data derived from satellite-based positioning systems, which relies on a single reference station or interpolated virtual station to correct geotagged locations while in flight. In other words, RTK is a correction method that enhances GNSS precision. RTK is advantageous for many surveying professionals because it increases safety.

The technique eliminates the need for teams to maneuver through dangerous terrain to set GCPs while also efficiently saving time and productivity. RTK provides corrections to the drone onsite and is ideal for geo-tagging in absolute accuracy throughout flights in real-time. GNSS post-processing can be avoided as the eBee Geo can directly geo-tag the images in real-time during flight. Following, the images can be used for processing from the payload SD card. This technique does require a base station and a consistent connection to process data in real-time. While this extra piece of equipment provides the benefit of increased accuracy, it also has a moderate possibility of malfunctioning.

As an operational best practice, it’s ideal to use RTK on flights in open terrain and within two or three kilometers of the ground station to maintain the communications link. These flights can deliver highly accurate results without the need for using GCPs. This is an extremely helpful advantage for land surveyors working in dense vegetation, crops and other hard to distinguish terrain.

When considering factors such as ease of use, time and expense, the advantages of an RTK drone become more apparent. Difficult terrain, unreachable spots and safety concerns can be deterrents for using GCPs, not to mention the amount of time it could take to plan and measure each. By contrast, post-processing imagery collected via drone normally takes 10 to 20 minutes. And lastly, the measurement of GCPs is an expense you’ll need to factor into every project unlike the one-time activation of RTK on a drone, which ultimately is a better investment long term.
**Flight performance**

- **Cruise speed**: 40-110 km/h (11-30 m/s or 25-68 mph)
- **Max wind resistance**: Up to 46 km/h (12.8 m/s or 28.6 mph)
- **Landing type**: Automatic linear landing (5 m/16.4 ft accuracy in 20° angle cone)
- **Service temperature**: -15° to 45°C *
- **Humidity**: Light rain resistance
- **Ground avoidance**: Yes - LiDAR (range 120m)

*Working above 35°C/95°F requires to protect the drone from the sun while on the ground

**Coverage & accuracy**

- **Max. nominal coverage at 122 m (400 ft)**: 160 ha (395 ac) with Standard battery, 200 ha (494 ac) with Endurance battery
- **Ground sampling distance at 122 m (400 ft)**: 2.8 cm/px (1.1 in/px) RGB, 11.5 cm/px (4.5 in/px) Multispectral
- **Lowest ground sampling distance (42m)**: 1.1 cm/px (0.4 in/px) RGB, 4 cm (1.6 in) Multispectral

**High Precision**

- **Upgradable on demand**: Yes
- **RTK**: Virtual Base Station, Base Station Unknown point, Base Station Known point
- **GNSS**: GPS+GLONASS

**Flight time**

<table>
<thead>
<tr>
<th>Flight time (minutes)</th>
<th>Standard Battery</th>
<th>Endurance Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3700 mAh</td>
<td>4900 mAh</td>
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<tr>
<td>10</td>
<td>330g</td>
<td>420g</td>
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<td>80</td>
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<tr>
<td>90</td>
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</tbody>
</table>

**Hardware Datasheet**

- **eBee Ag**
  - **Wingspan**: 116 cm (45.7 in)
  - **Material**: Expanded Polypropylene (EPP)
  - **Underbody skin**: Curv® Polypropylene thermoplastic composite
  - **Weight (Empty)**: 0.8 kg
  - **Max Take-off weight**: 1.6 kg
  - **Backpack dimensions**: 75 x 50 x 29 cm (29.5 x 19.7 x 11.4 in)
  - **Motor**: Low-noise, brushless, electric
  - **Detachable wings**: Yes
  - **Empty backpack weight**: 4.6 kg

**Maintenance and service**

- **Spare Parts Available**: Pitot Tubes, Wings, Propellers and vertical surfaces
- **Modular Repair**: Auto Pilot Stack, Upper Body and Lower Body
- **Service**: Every 100 flight hours

**Battery**

- **Power**: Standard 3700 mAh, Endurance 4900 mAh
- **Voltage**: Standard 15.2V, Endurance 15.2V
- **Number of cells**: Standard 4 Cell, Endurance 4 Cell
- **Type**: Standard LiHV, Endurance LiHV
- **Energy**: Standard 56.24Wh, Endurance 74.48Wh
- **Weight**: Standard 330g, Endurance 420g

**Radio Link**

- **Certification**: CE or FCC
- **Range**: 3 km nominal (up to 8 km) / 1.9 mi (up to 5 mi)
- **Frequency**: 2.400 - 2.4835 GHz
- **Encryption AES 254**: Available
- **EIRP**: CE/JP 20.0 dBm max, FCC 22.5 dBm max

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**How long can you fly with your eBee Ag?**

- **Flight time (minutes)**: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90

**Automatic safe return when the battery is low**

- **Mission**: The drone is performing its mission and capturing images.
- **Low endurance**: 15% and below is enough to return Home and land.
- **Low battery**: Below 10%, it is no longer possible to continue the mission. The drone returns home to land.

The above figures represent optimal flight conditions. It is not representative of all flight times and will vary depending on flight conditions. Also note that the condition of the pitot tube can influence flight time.
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At senseFly, we believe in using technology to make work safer and more efficient. Our proven drone solutions simplify the collection and analysis of geospatial data, allowing professionals in surveying, agriculture, engineering and humanitarian aid to make better decisions, faster. The company is a commercial drone subsidiary of Parrot Group.

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