The intelligent mapping & inspection drone
3 reasons to choose albris

- **1 flight, 3 types of imagery**
  With the senseFly albris you can switch between capturing high-res still, thermal and video imagery during the same flight, without landing to change cameras. Thanks to the drone’s unobstructed field of view and its head’s 180º vertical range of motion, you can capture clear, stabilised imagery ahead of, above and below the albris.

- **Advanced situational awareness**
  The senseFly albris features five dual-sensor modules, positioned around the drone. These provide the situational awareness required to operate albris close to structures and surfaces, even in confined environments, in order to achieve sub-millimetre image resolutions (without the movement issues caused by zooming in from afar).

- **Choose your flight mode**
  The albris offers full flight mode flexibility. Choose the mode that best fits your project: an Autonomous, GPS-guided mapping mission or a live-streaming Interactive ScreenFly flight. Or start in mapping mode and ‘go live’ on demand.
Main camera
(HD video & high-res still camera)

Thermal camera + edge overlay
(video & images)

Head navcam
(wide-angle video camera)
1 flight, 3 types of imagery

The senseFly albris is a sensor-rich platform with the widest camera breadth of any civilian drone. Its fully stabilised TripleView camera head allows you to switch between HD and thermal video imagery, live during your flight, plus you can capture high-resolution still images on demand. All of this data can be saved for further analysis post-flight, and all without landing to change payloads.

**TripleView head**

* 180° vertical range of motion
* 6x digital zoom
* Approx. 1 mm still image resolution at 5 m (16.4 ft) distance
* Active gimbal stabilisation
* Unobstructed field of view
Advanced situational awareness

The senseFly albris is designed from the ground up to perform live inspections of buildings and other structures. Its onboard navcams and ultrasonic sensors provide the visual and proximity feedback you require to take the right decisions and maximise every mission’s chances of success.

Head position
- Navigate, check for obstacles, keep constant distance from vertical surfaces
- Navigate, check for obstacles, see side views

Bottom
- Navigate, check for obstacles, land autonomously

Left/Right
- Navigate, check for obstacles, see side views

Rear
- Navigate, check for obstacles, reverse safely
Choose the flight mode that suits your project

**Fully autonomous**

Are you looking to map a small site, such as a plant or construction site, directly from above? Or maybe a specific point of interest such as a building or tower? If so, choose an autonomous albris mission.

- Specify your area/point of interest in the drone's supplied eMotion X software
- eMotion X generates a GPS waypoint-based flight plan
- The albris takes off, flies, acquires imagery & lands itself
- View albris' live video stream during flight
- Record imagery on albris' SD card as required for post-flight analysis
- Use image processing software to generate 2D maps & 3D models

**Suits:** High-res 2D mapping, 3D building mapping, construction monitoring, agricultural & archaeological mapping.

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**Interactive ScreenFly mode**

Need to perform a live inspection? Use the drone’s supplied ScreenFly controller to fly an assisted interactive mission.

- Take-off in interactive mode (or switch into this during an autonomous flight)
- ‘See what albris sees’ on-screen via its multiple live video feeds
- Anti-Drift, Cruise Control & Distance Lock
- Centre albris’ cameras on a target
- Capture high-res still images on demand
- GNSS Off option to fly in GNSS-deprived environments

**Suits:** Structural inspection & documentation, crack/defect detection, solar panel analysis, tower inspection etc.
Close-object operation
Advanced situational awareness and flight stabilisation are enabled by the drone’s:
- 5 ultrasonic sensors
- 5 navcams (visual sensors)

Live feedback
See what albris sees via its wide-angle navcams

Instant operation
The senseFly albris is ready to fly straight out of its supplied carry case – no construction required

Safety smart
Numerous self-monitoring & automated failsafe procedures reduce the risk of inflight issues, minimising potential danger to structures, people & the albris airframe
Onboard albris

The senseFly albris is lightweight, shock-absorbent and durable, designed to operate in tight working environments. With its forward-positioned TripleView camera head and open-fronted airframe it offers an unrivalled field of view, while its propellers are fully protected by its advanced carbon fibre shrouding.

Electric powered
Low noise, no pollution, and easy battery swapping for prolonged use

Bump-safe construction
The senseFly albris’ shock-absorbent carbon fibre shrouding protects the drone in case of low-speed surface contact

Leading autopilot technology
The artificial intelligence built into the senseFly autopilot analyses a raft of data to optimise every aspect of your flight
Horizontal Mapping

Use this mission block to fly a ‘bird’s eye’, top-down mapping mission (senseFly eBee style). Just set a few key mission parameters, such as your preferred ground resolution, and eMotion X does the rest — creating flight lines and setting GPS waypoints, which are adapted to the terrain, automatically.

Around Point of Interest

This mission block automatically centres the drone’s flight path around a specific point of interest. Once you’ve set the resolution/distance required, eMotion X automatically programs the image capture points. Use this mission block to create a 3D model of an object.

Panorama

This mission block suits a wide range of applications. You could fly a panoramic mission to gain an initial overview of a concave location, such as the curved cliff face of an open pit mine, to give that wow effect to reporting and documentation, to enhance the quality of 3D models... the choice is yours!

Custom Route

This mission block is perfect for guiding the drone through complex environments. Or if you want to use different types of mission block during a single flight, you can link these together using custom routes.
Every senseFly albris is supplied with eMotion X software, senseFly’s proprietary flight planning, control and feedback program. Developed specifically for albris, eMotion X is your flight control centre — featuring live streaming video feedback, full control of what imagery albris captures, access to sensor and flight data, plus full flight planning functionality.

Choose your mission block

Flight planning in eMotion X is simple: just select the pre-programmed mission block that best suits your project. Further advanced mission blocks and software updates will be available for free.

* Accessible via my.senseFly at no extra cost.
Create geo-referenced maps & models

After albris lands, simply use eMotion X’s built-in Flight Data Manager to pre-process, geotag and organise its images, before starting image processing.

Then use professional image processing software to transform the drone’s images into geo-referenced 2D orthomosaics, 3D building models, 3D point clouds, triangle models, digital surface models and more.
High-resolution mapping
Create high-resolution 2D and 3D maps, or complement fixed-wing drone data by mapping a site’s highly inclined and vertical surfaces

3D modelling
Capture high-resolution aerial imagery and transform this into full 3D models of buildings and small/medium-sized infrastructure

Inspection
Examine and document surfaces and objects—such as bridges, towers, rooftops and cliff faces—in high-resolution

Plus...
- Crack detection
- Bridge, pipe & tower inspection
- Plant inspection & documentation
- Stockpile assessment
- Construction monitoring
- Close agricultural & archaeological mapping
- Solar panel hotspot detection
- Conservation & environmental monitoring

... and much more
## Flight modes

<table>
<thead>
<tr>
<th>Types</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic</td>
<td>Switch between modes at any time</td>
</tr>
<tr>
<td>Interactive ScreenFly</td>
<td></td>
</tr>
<tr>
<td>Manual (RC)</td>
<td></td>
</tr>
</tbody>
</table>

### Automatic
- **Control interface**: Mouse, keyboard or touchscreen
- **Mission planning**: Drag-and-drop mission blocks
- **Types of mission blocks**: Horizontal mapping, Around point of interest, Panorama, Custom route
- **In-flight mission changes**: Yes: manual waypoint changes and updates possible at any time

### Interactive ScreenFly
- **Primary control interface**: Screen-based actions & USB controller
- **Flight assistance (depending on the flight phase)**: Cruise control, Distance lock, Range sensing

### Manual (RC)
- **Primary control interface**: RC (remote control)

## On-board computing

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quad-core processor</td>
<td>Principal autopilot &amp; artificial intelligence</td>
</tr>
<tr>
<td>Dual-core processor</td>
<td>Video co-processing</td>
</tr>
<tr>
<td>Single-core processor</td>
<td>Low-level autopilot (safety fallback) and motor control</td>
</tr>
<tr>
<td>Single-core processor</td>
<td>Communication link management</td>
</tr>
</tbody>
</table>
## Flight system

<table>
<thead>
<tr>
<th>Type</th>
<th>V-shaped quadcopter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (incl. shrouding)</td>
<td>56 x 80 x 17 cm (22 x 32 x 7 in)</td>
</tr>
<tr>
<td>Engines</td>
<td>4 electric brushless motors</td>
</tr>
<tr>
<td>Propellers</td>
<td>4</td>
</tr>
<tr>
<td>Take-off weight</td>
<td>1.8 kg (3.9 lb) incl. battery, payload &amp; shrouding</td>
</tr>
<tr>
<td>Flight time (full system)</td>
<td>Up to 22 min</td>
</tr>
<tr>
<td>Max. climb rate</td>
<td>7 m/s (15 mph)</td>
</tr>
</tbody>
</table>
| Max. airspeed         | Automatic flight: 8 m/s (18 mph)  
Manual flight: 12 m/s (27 mph) |
| Wind resistance       | Automatic: up to 8 m/s (18 mph)  
Manual: up to 10 m/s (22 mph) |
| Autopilot & control   | IMU, magnetometer, barometer & GPS/GNSS |
| Materials             | Composite body, moulded carbon fibre arms and legs, precision-molded magnesium frame, precision-molded injected plastic |
| Operating temperature | -10 to 40º C (14º-104º F) |

## Wireless communication

### Main communication link

<table>
<thead>
<tr>
<th>Type</th>
<th>Digital, dual omnidirectional antennas, dual band, encrypted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2.4 GHz &amp; 5 GHz ISM bands (country dependent)</td>
</tr>
<tr>
<td>Data transmitted</td>
<td>Commands, main camera stream, navcam stream, sensor data, etc.</td>
</tr>
<tr>
<td>Range</td>
<td>Up to 2 km (1.2 mi)</td>
</tr>
</tbody>
</table>

### RC (Remote control)

<table>
<thead>
<tr>
<th>Type</th>
<th>Digital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2.4 GHz</td>
</tr>
<tr>
<td>Range</td>
<td>Up to 800 m (0.5 mi)</td>
</tr>
</tbody>
</table>

## System power

<table>
<thead>
<tr>
<th>Technology</th>
<th>Smart battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>LiPo, 3 cell, 8500 mAh</td>
</tr>
<tr>
<td>Power level display</td>
<td>LED display on battery, on-screen information</td>
</tr>
<tr>
<td>Charging time</td>
<td>1 - 1.5 h</td>
</tr>
</tbody>
</table>
## Integrated payloads

### TripleView head

#### Main camera
- **Still images**: 38 MP, mechanical shutter, DNG (RAW image with correction metadata)
- **Video**: HD (1280 x 720 pixels)
- **Horizontal field of view**: 63 degrees
- **Digital zoom**: 6x
- **Ground sampling distance (GSD)**:
  - 1 mm/pixel at 6 m
  - 1 cm/pixel at 60 m
- **Recorded on board**: Geo-referenced (position & orientation)

#### Thermal camera
- **Still images/video**: Thermal (80 x 60 pixels) overlaid on main camera stream
- **Horizontal field of view**: 50 degrees
- **Edge enhancement**: Yes

#### Head navcam (visual sensor)
- **Video**: VGA (640 x 480 pixels)
- **Video live streaming range**: Up to 2 km (1.24 miles)
- **Horizontal field of view**: 100 degrees

#### Lights
- **Headlamp**: Yes, used for video
- **Flash**: Yes (via future firmware update)

### Additional navcams (visual sensors)
- **Number**: 4 navcams
- **Positions**: Left, right, rear, bottom
- **Video**: VGA (640 x 480 pixels)
- **Horizontal field of view**: 100 degrees
- **Availability**: One navcam at a time
- **Operational use**: Side views (w/o turning main camera) & parallel flight along objects
  - Back-up safely & control in tight environments
  - Landing & ground proximity
## Situational awareness & assistance

### Multidirectional video feed

<table>
<thead>
<tr>
<th>Source</th>
<th>Navcams (visual sensor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>5</td>
</tr>
<tr>
<td>Video</td>
<td>VGA (640 x 480 pixels)</td>
</tr>
<tr>
<td>Horizontal field of view</td>
<td>100 degrees</td>
</tr>
<tr>
<td>Availability</td>
<td>One navcam at a time</td>
</tr>
</tbody>
</table>

### Object & range detection

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Ultrasonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>5</td>
</tr>
<tr>
<td>Range</td>
<td>Up to 6 m (20 ft)</td>
</tr>
<tr>
<td>Feedback</td>
<td>Audio and visual object warning</td>
</tr>
</tbody>
</table>

## Operational safety

### Shrouding

<table>
<thead>
<tr>
<th>Material</th>
<th>Carbon fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Defines propeller rotation area Protects from damage at low speed</td>
</tr>
</tbody>
</table>

### Signalisation lights

- **Navigation lights**: 2 green on the right, 2 red on the left
- **Anti-collision lights**: 1 top strobe, 1 bottom strobe

### Ground proximity detection

- **Avoidance procedure**: Automatic stop (can be deactivated)
- **Warning signals**: Audio & visual

### Flight assistance features (Interactive mode)

- **Cruise control**: Maintains (low) constant speed in a given direction
- **Distance lock**: Keeps distance to frontal objects 3 - 5 m (9.8 – 16 ft)
- **Obstacle avoidance**: Depending on flight phase

### Safety procedures

- **Automated failsafe behaviours**: Geofencing, return home, emergency stop, emergency landing
- **Operator triggered**: Hold position, return home, go land, land now, emergency motor cut-off

### Autopilot fallback

- **Type**: Independent low-level autopilot (backup for main autopilot)
- **Manual RC control**: Independent RC controller (take manual control at any time)
## Ground station software

<table>
<thead>
<tr>
<th>Software application</th>
<th>senseFly eMotion X (supplied)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission planning</td>
<td>Intuitive 3D user interface</td>
</tr>
<tr>
<td></td>
<td>Click and drag to set mission blocks</td>
</tr>
<tr>
<td></td>
<td>Automatic 3D flight planning</td>
</tr>
<tr>
<td></td>
<td>Edit mission plans during flight</td>
</tr>
<tr>
<td>Flying</td>
<td>Automated system checks</td>
</tr>
<tr>
<td></td>
<td>Automated take-off &amp; landing</td>
</tr>
<tr>
<td></td>
<td>Real-time flight status</td>
</tr>
<tr>
<td></td>
<td>Main camera video feed integration</td>
</tr>
<tr>
<td></td>
<td>Thermal video feed integration</td>
</tr>
<tr>
<td></td>
<td>Navcam video feed integration</td>
</tr>
<tr>
<td></td>
<td>Fully automatic flight</td>
</tr>
<tr>
<td></td>
<td>Interactive ScreenFly</td>
</tr>
<tr>
<td></td>
<td>Manual flight (with assistance functions)</td>
</tr>
<tr>
<td></td>
<td>In-flight switch between flight modes</td>
</tr>
<tr>
<td></td>
<td>Black-box recording of all flight &amp; mission parameters</td>
</tr>
<tr>
<td>After your flight</td>
<td>Project &amp; data management</td>
</tr>
<tr>
<td></td>
<td>DNG to JPEG conversion</td>
</tr>
</tbody>
</table>

## Package contents

- 1 senseFly albris drone
- 1 Interactive ScreenFly controller
- 2.4 GHz remote control (for safety pilots)
- 2.4 GHz/5GHz dual band USB radio modem
- 2 SD memory cards (32 GB)
- 2 batteries
- 2 single battery chargers w/power supplies
- 1 wheeled carry case
- 1 user manual
- 1 USB cable set
- 1 spare leg set
- 1 spare propeller set
- eMotion X flight planning & control software
About senseFly: At senseFly we develop and produce aerial imaging drones for professional applications. Safe, light and easy to use, these tools are employed by customers around the world in fields such as surveying, agriculture, GIS, industrial inspection, mining and more. senseFly is the commercial drone subsidiary of Parrot Group, the world leader in consumer drones.

How to order your albris? Visit www.sensefly.com/about/where-to-buy to locate your nearest distributor.

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