

CAMFLIGHT BG-200

UNMANNED AIRCRAFT SYSTEM



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It is our pleasure to present Camflight FX8/BG200:

About Nordic Unmanned

Nordic Unmanned AS manufactures proprietary high-spec drones, and deliver high-end services and products related to drones and data capture. We are located in Sandnes, Norway, and are working to become the preferred provider of unmanned systems and services within Energy, Maritime and Governmental segments in Europe.

1. System description

The Camflight BG-200 all-weather system is a X8 multirotor with eight coaxial motors. This provides robustness, versatility and reliability.

It is designed to operate from sub-arctic to semi-arid and tropic climate zones thus adaptable to operations worldwide. This implies a great variation in environmental conditions.

The system is capable of day and night operations, and has also been adapted to withstand rain, salinity, snow, sand, dust and wind.

The Camflight is also available in a non-roughed version called the Camflight FX 8. The FX8 have non- foldable arms and a lower IP rating making it unsuitable for operations in rainy and snowy conditions.

1.1 General Specification

Camflight BG-200	
Physical dimensions	1000 x 1000 x 622 mm
Dimensions folded	610 x 610 x 622 mm
Propeller size	28" x 9.2
Empty Weight	8,5 kg
Payload capacity	9 kg
Max Takeoff Weight	25 kg
Batteries	12S LiPo 32 Ah 7,5 kg
Endurance no payload	60+ min
Max Speed	<20 m/s
Max windspeed	22 m/s (BG200) 15 m/s (FX8)
Operating temperature	-20 °C to 48,8 °C
IP rating	IP 55 / IP 41 (FX8)

1.2 Airframe

The airframe is constructed with a combination of lightweight carbon fiber material and high-performance 3D-printed polymers. It has four fixed landing legs and four foldable arms. The frame has a payload mount on the bottom side.



Figure 1: System seen from above with arms folded

Optionally the foldable arms can be replaced with fixed ones, for use cases when ease of transport and storage aren't a priority.

1.3 Batteries and endurance

The system is powered by two 6S LiPo battery packs wired in series, supplying 44,4 V with a total capacity of 32 Ah. Optionally the system can be provided with a 44 Ah battery set. Note that this will give a higher system weight and affect payload capacity.



Figure 2: 6S Battery



Figure 3: System with batteries mounted

The plot below shows how payload mass affects the endurance for the 32 Ah and the 44 Ah battery options. Note that to stay below a take-off weight of 25 kg, the 32 Ah batteries allow a payload of 9 kg and the 44 Ah batteries allow a 6.4 kg payload.

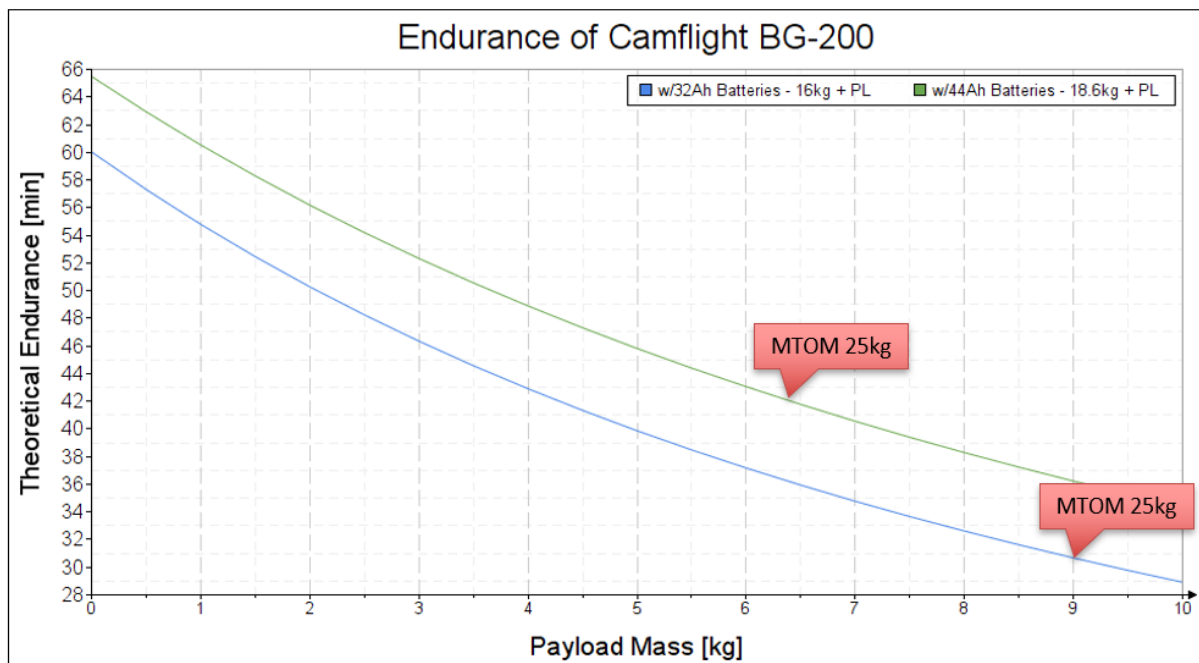


Figure 4: Endurance vs payload mass

Note: The endurance data provided are based on theoretical models. Many operational aspects will influence the actual endurance, like degree of discharge, operational margins, battery aging, ambient temperature, flight characteristics, and more.

1.4 Control system option 1: Pixhawk

The autopilot used in the system is a Pixhawk 3 Pro. This has integrated IMU with gyro, accelerometer and magnetometer. External connected modules provide GPS, barometer and compass data for position, altitude and orientation.

The system has a 2,4 GHz radio link for manual control, and a 433 MHz radio link for the Ground Control Station (GCS) system. The radio range is 1,5 km.

The hand control is a Frsky Taranis X7. Other low-cost options from Frsky or Futaba is also available.

Optional:

- Long range Radio-Nord system with 20+ km range for government users. Export regulations apply.



Figure 5: Pixhawk 3 Pro



Figure 6: Taranis X7 hand controller

1.5 Control system option 2: DJI A3

Optionally the Pixhawk can be replaced with a DJI A3 pro flight control system with a DJI Lightbridge 2 receiver and hand controller. This supports the use of DJI Go software and FlyLitchi. The Lightbridge 2 link is capable of transmitting HD video up to 2 km away.



Figure 7: DJI A3 flight control system + Lightbridge 2 link

1.6 Other optional features

Lights

The system can be fitted with strobe lights with a strength of over 10 candela and blinks more than 20 times per minute. The lights can be switched on and off from the hand controller.

Heating for the avionics

For cold weather operations, heating for the avionics can be added to the system. A power supply is connected to pre-warm the avionics and must be disconnected before takeoff.

1.7 Accessories

Charger

The iCharger 406Duo is used for charging the BG-200 battery packs safely and efficiently. The maximum charge power capacity is up to 1400W, the maximum charge/discharge current of a channel is up to 40A, and two channels in Synchronous Mode are up to 70A.



Figure 8: Battery charger

Casing

Casing for safe storage and transport can be provided. The case measures 40x82x70 cm.



Figure 9: Casing

2. Pricing overview

Item	Part number	Qty**	Unit Price	Total Price	Remarks
Camflight BG 200		1			System comes with: 1 x batteri sett 32k mAh 1 x battery charger 1 x Transport case (Pelicase)
Contact Nordic Unmanned for pricing details and further information					
Optional equipment, please contact Nordic Unmanned for details and discussion.					

3. Training course

Item	Qty recommended	Remarks	Total Price	Remark
Basic Operator Course	1	1-2-day familiarization	incl	At customer location

4. Maintenance

All items in need of repair can be returned to Nordic Unmanned AS for an advanced survey and repair, either on a case by case basis or as part of a service agreement.

For more information about this, please contact the undersigned.

For and on behalf of Nordic Unmanned As,

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