



# HERCULES

INDUSTRIAL HEAVY LIFT DRONE

# X4



Social Networks



BlackSquareSAS

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The drone HERCULES X4 is a quadcopter multirrotor design, this means, it has four motors distributed in four arms.



ADAPTABILITY



CARRYING  
CAPACITY



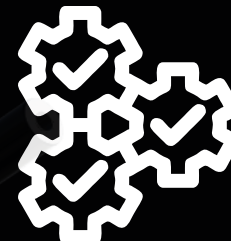
FLIGHT  
TIME



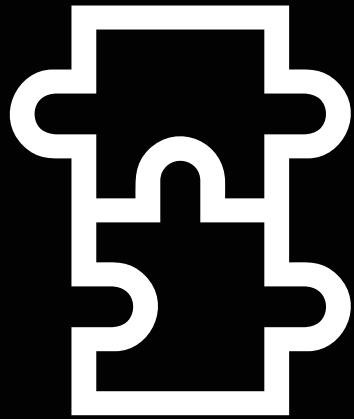
IN-AIR  
RELIABILITY



IMPROVED  
TRANSMISION SYSTEM



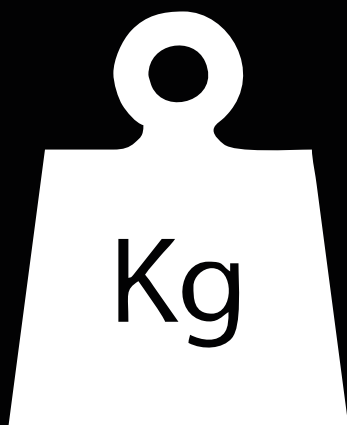
SUBSYSTEMS  
REDUNDANCY



## ADAPTABILITY

The drone HERCULES X4 was designed with the idea that it could be easily integrated with different kind of payloads, this way, the operator could give different functions to the vehicle depending on his particular needs.

- Photogrammetry
- Magnetometry
- Thermal
- LIDAR



## CARRYING CAPACITY

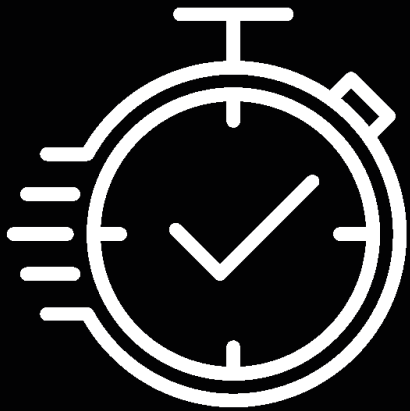
The drone HERCULES X4 can lift safely a payload of up to 6 kg while maintaining always an excess of thrust of at least 45%, in order to guarantee enough power for maneuvers and peaks of demand such as with the presence of gusts or high wind.

0 – 6 kg

Maximum payload weight

45 %

Minimum excess of thrust



## FLIGHT TIME

The drone HERCULES X4 can fly in a range between 30 – 55 min for the full envelope of operative scenarios according to the different payload weights (0 – 6 kg) and altitudes above sea level (0 – 4000 m), while maintaining a battery reserve of 25%.

30 – 55 min

Flight time

25 %

Battery reserve



## IN-AIR RELIABILITY

All of the materials used for the manufacturing of the drone , are produced by well-known manufacturers recognized for the quality of their components (Tmotor engines, Tattu batteries, Cube orange autopilots, etc.). These suppliers' products are widely recognized as the most robust and reliable in the market.

### Motors

Powered by T-Motors

### Batteries

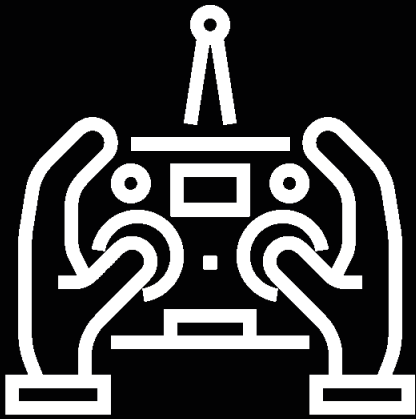
GensTattu (12S input)

### Autopilot

Ardupilot Ecosystem (Cube orange)

### Frame

Black Square



## IMPROVED TRANSMISION SYSTEM

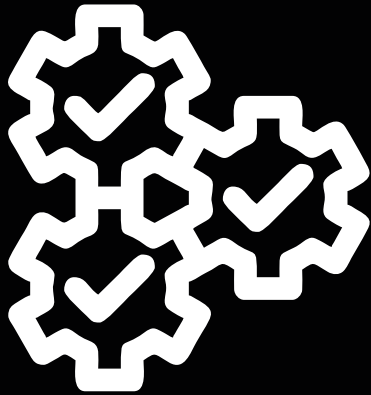
The transmission system installed in the drone HERCULES X4 can offer a reliable 10 km range of data link, thanks to its working frequency of 2.4GHz which is suitable for long range operations even with the presence of obstacles.

10 km

Transmission range

2.4 Ghz ISM

Working frequency



## SUBSYSTEMS REDUNDANCY

The electrical and navigation subsystems are natively redundant, thanks to the dual power module and the dual GPS module respectively, in order to guarantee a safely end of mission in case of a sudden failure or missbehaviour.

### Dual Power Module

Electrical subsystem

### Dual GPS Module

Navigation subsystem  
GPS L1C/A, GLONASS L1OF,  
BeiDou B1I



# SPECIFICATIONS

## AIRCRAFT

DIAMETER MOTOR TO MOTOR	1091 mm
HEIGHT OF BOTTOM PLATE ABOVE GROUND	510 mm
WEIGHT OF EMPTY FRAME (NO BATTERY, NO PAYLOAD)	6.3 kg
WEIGHT OF BATTERIES 2X16000mah 12S	8.5 kg
MAX TAKE OFF WEIGHT	18 kg
WATER & DUST PROTECTED	IP54

## DRIVE SUBSYSTEM

NUMBER OF ROTORS	4
ROTOR CONFIGURATION	QUADCOPTER
MOTOR MODEL	T-MOTOR U8II
MOTOR KV	100
MOTOR MAX RPM	3709
ESC MODEL	T-MOTOR ALPHA 60A HV
ESC PEAK CURRENT	100A
PROPELLER MODEL	T-MOTOR MF2815 FOLDING
BATTERY NOMINAL VOLTAGE	12 cells 44.4 V
BATTERY MAXIMUM VOLTAGE	50.4 V
BATTERY MINIMUM VOLTAGE	43.5 V

## ENVIRONMENTAL LIMITATIONS

MAXIMUM TEMPERATURE	40 C
MINIMUM TEMPERATURE	- 20 C
MAXIMUM ALTITUDE ABOVE SEA LEVEL	4000 M
MAXIMUM PITCH AND ROLL ANGLES	30 DEGREES
MAXIMUM GPS MODE HORIZONTAL SPEED	15 M/S
MAXIMUM MANUAL HORIZONTAL SPEED	30 M/S
WIND RESISTANCE	10 M/S

## NAVIGATION SUBSYSTEM

FLIGHT CONTROLLER MODEL	CUBE ORANGE
FLIGHT CONTROLLER FIRMWARE	ARUDCOPTER
FPV VIDEO	HD Camera
REMOTE CONTROLLER AND GCS	HERELINK (VIDEO AND TELEMETRY)
GNSS SYSTEMA	DUAL GPS HERE 3 (UBLOX M8P)
	GPS L1C/A, GLONASS L1OF,
	BeiDou B1I



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