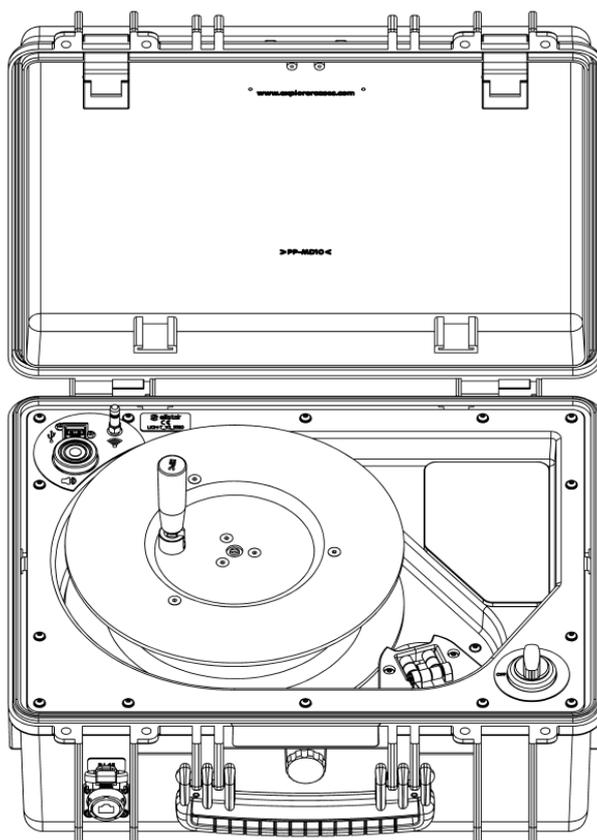


# LIGH-T<sub>V3</sub>

Product presentation v3.0

*Last edit – 20.04.2018*

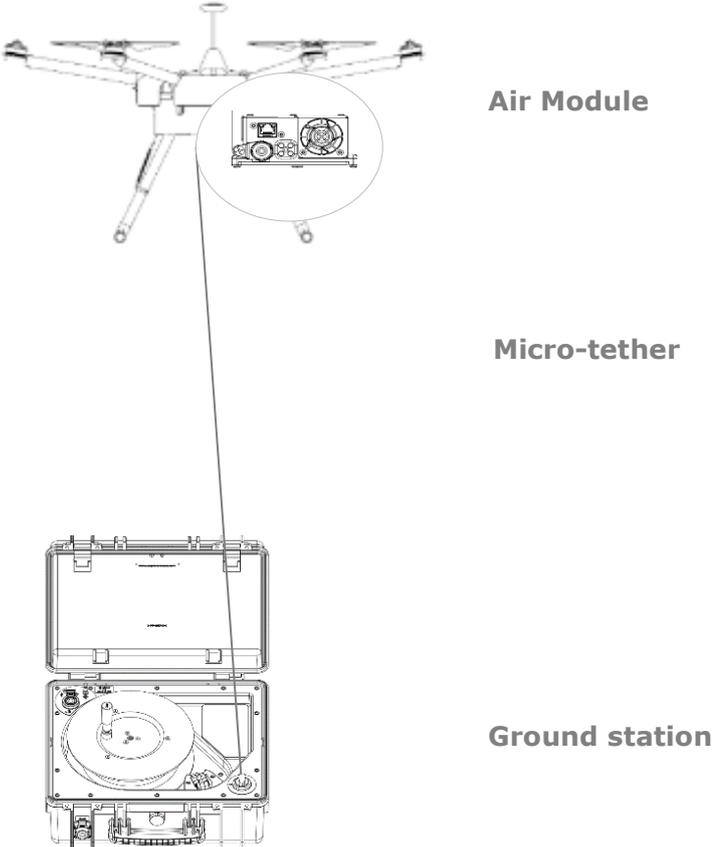


# General Description

## Overall Presentation

Ligh-T is a rugged tethering station for multirotor drones. This compact and robust solution enables the transmission of power from an external ground power supply unit to the drone through the micro-tether. The aramid core of the micro-tether ensures the drone remains attached to the base station providing a safe phase of flight.

Ligh-T comprises of three main parts: the ground station, the micro-tether and the air module.



## General Specifications

<b>Ground Station</b>	
Dimensions	475 x 415 x 211 mm
Weight	12kg
Micro-Tether Management	Manual with handle
Power Input	220-250VAC, 50-60 Hz, 3kW min.
Built-in protection	Fuse and Electronic crow bar
Connectivity	T-Monitor Android application (WIFI)
Handles	1

<b>Micro-Tethers (two options)</b>	
Available Lengths	60m / 195ft
Diameters	2.8mm, 10.5g/m 3.5mm, 16g/m
Weights	630g, 10.5g/m 960g, 16g/m

<b>Air Module</b>	
Weight	700g
Dimensions	168x108x54mm
Output voltage	23-25 VDC
Power Drone connectors	AS150 Red Female XT150 Black Female
Cable minimum section	6mm <sup>2</sup> 1200W 4mm <sup>2</sup> 800W
Safety battery connector	XT90 Male (request an WT90 female with anti-spark)
Safety switch	Included

<b>Optional: Data Transfer Feature</b>	
Data input and output connectors	Ethernet RJ45 (Ground station and Air Module)
Data speed	Up to 200 Mb/s

## Power Specifications

The Ligh-T station is available in different configurations depending on the drone that is to be connected: 16g/m micro-tether or 10.5g/m micro-tether, at a length of 60m (200ft).

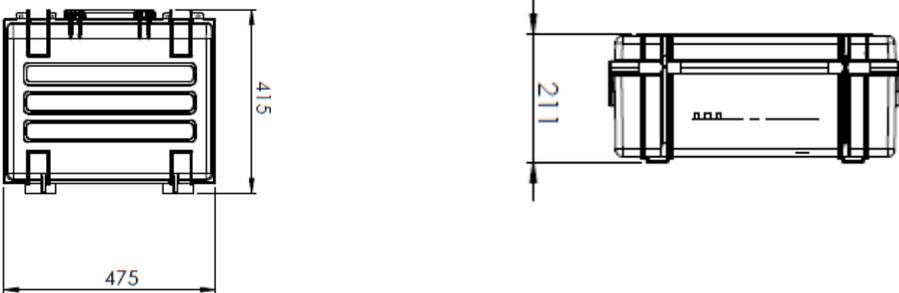
<b>Micro-tethers</b>	<b>10.5g/m</b>	<b>16g/m</b>
Tether strength	1000N	1500N
Tether total weight	630g	950g
Operational temperature	-10/+40°C	-10/+40°C
Max continuous Power	800W	1200W
Peak Power 10 s	2000W	2000W
Peak Power 3 s	2500W	2500W
Recommended safety battery	6S 5Ah 35C	6S 8Ah 35C
Tether operating range	20/60m (60/200ft)	20/60m (60/200ft)

## Main Interfaces

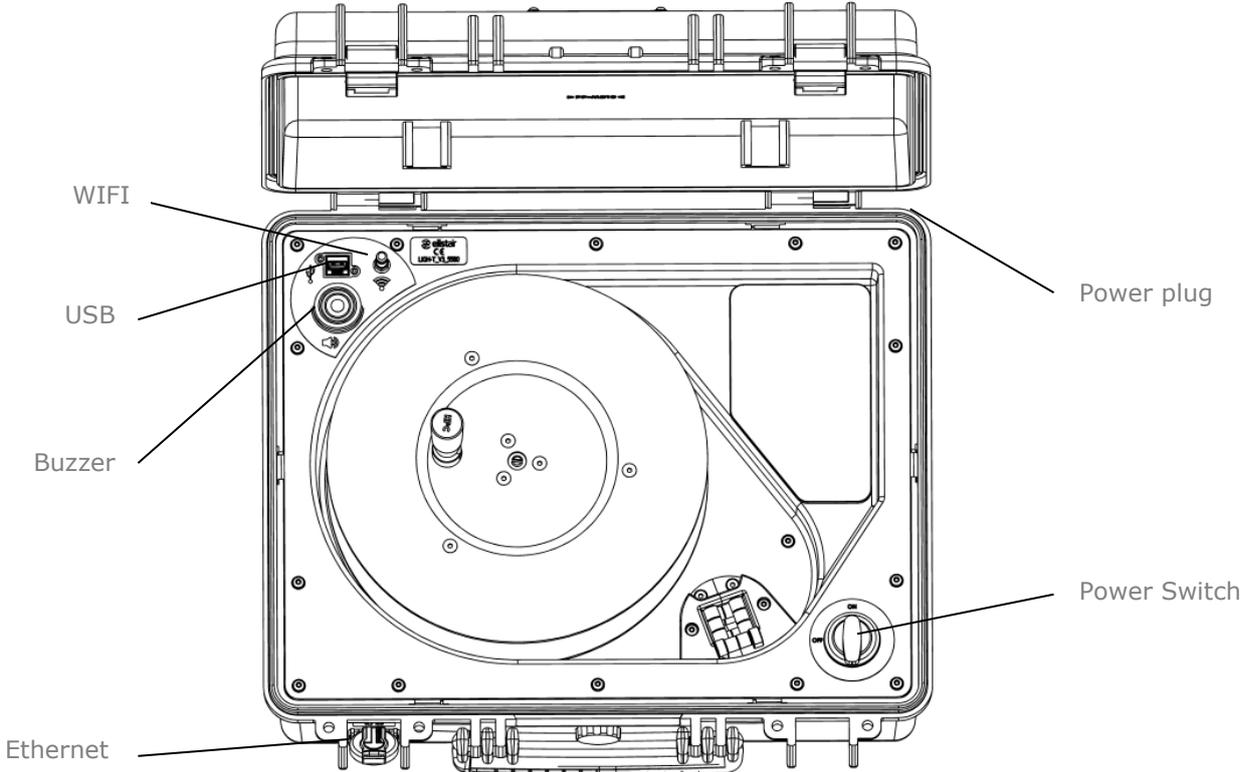
Power	Ground Station	Input	Cable – Type E	220-250VAC, 50-60Hz
Power	Air Module	Output	AS150 Red Female XT150 black Female	[22-25] VDC 1500 W max continuous
Power	Air Module Battery	Input	XT90 Male (with anti- spark)	
Data	Air Module	Input	Ethernet RJ45	Up to 200Mb/s
Data	Air Station	Output	Ethernet RJ45	Up to 200Mb/s

# Ground Station

The ground station is a ruggedized case with two main functions. Firstly, it adapts the power signal from an external power supply unit for the micro-tether and secondly it ensures an Ethernet communication between the drone and the ground station.



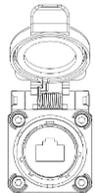
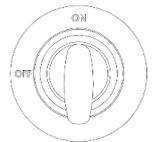
Non-conducting and crushproof, the Ligh-T case is tailored for demanding field operations. Its padded handle makes it easily transportable whilst the foam integrated lid protects and secures the micro-tether's integrity during transportation.



## Ground Station User Interface

The ground station user interface includes a control board with 4 elements:

1. **Power Socket:** The power socket is located on the back of the station. It allows the station to be connected to 230V 50Hz. In case of an emergency, unplugging the cable will cut the power supply to the station.
2. **Buzzer:** The buzzer alerts the user to an alarm (power consumption, temperature, power ON, power standby)
3. **USB:** The USB plug is used to upgrade the software of the SAFE-T station.
4. **WIFI:** The antenna sends data to a smartphone or android tablet
5. **Power Switch:** Power through the micro-tether needs to be activated with this actuator. Serious injury could occur if the micro-tether is manipulated once it is switched ON. Only turn the power switch ON when the drone is connected, and you are ready to take-off.
6. **Ethernet Plug:** The ethernet plug can be used to send and receive data to the drone.



## **Micro-Tether**

When the LIGH-T is in use, the micro-tether transmits electricity (inferior to 500V DC, low voltage). An alteration of the micro-tether may cause severe damage and injury. Please fly safely.

The LIGH-T supports two different micro-tethers with weights per meter at: 10.5g/m and 16g/m. Both weights are 60m (200ft) in length.

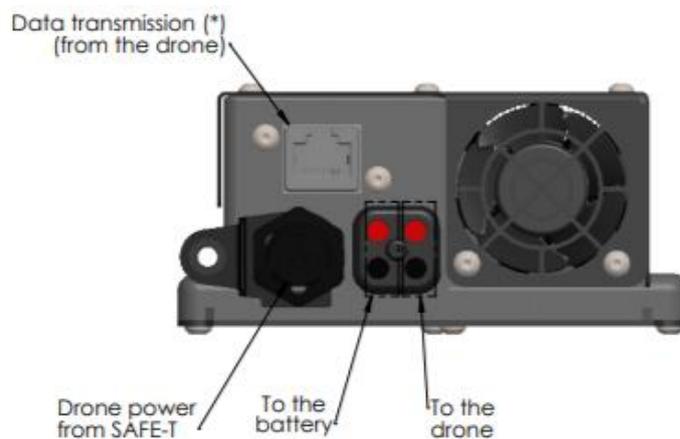
The micro-tether is composed of the following parts: a power transmission conductor, an aramid reinforced core and a black protective sheath. Its aramid reinforcement guarantees security of the drone's flight profile and makes it compliant to most civil aviation tethered drone regulations. The end connector is composed of a mechanical fastener, a power connector and a data connector.

## Air Module

The Air Module is a key component of the Ligh-T. Miniaturized and ruggedized to fit in standard battery compartments, this compact module delivers a continuous power supply to the drone, whilst also providing an extra level of security thanks to the safety battery feature.

This element includes the following connectors:

- Tether Connection
- Data connector: Ethernet RJ45
- Power connectors:
  - Drone cable connectors AS150 red (female connector)/XT150 black (female connector)
  - Safety battery XT90 (male connector) needs anti-spark



(\*): depends on the model of module

Please note that the length of drone and battery cables is around 15 cm.

Please note that the ventilation grid needs to be free of obstructions to ensure proper airflow and cooling of the air module. A 3D model of the air module can be supplied by Elistair (.step file) for integration work.

Please use XT90 battery connectors with anti-spark protection.

The module is designed to power a drone at 1200W average. The safety battery is not a battery for peak power absorption. It could damage the embedded power module.

The module is not compatible with regenerative braking esc or similar function. This function will generate a voltage peak on the module and damage some electrical components or the fan.

Module integration

Mechanical interface

