SAFE-T 2

Product Specifications

V2.4

www.elistair.com
Safe-T 2 – The Tethering Station for All Your Missions

The Safe-T 2 is Elistair most advanced tethering system. Built on the success of the flagship Safe-T product line which has been deployed in over 65 countries by governments, industrial groups and security forces; Safe-T 2 takes tethering operations to a new level. Thanks to its rugged and weather-resistant design, its innovative spooling system, and its patented Dynamic Voltage Optimization (DVO) providing unmatched power efficiency; the Safe-T 2 enables safe and persistent flight time for your UAV.

Safe-T 2 features a new datalink option: the tethered “Dual-Coms”. With the integration of Fiber Optics and BPL datalinks in parallel, you can now benefit from a redundant tethered data link, or you can select which technology suits best your aircraft and/or your payload.

With its modular metallic structure, its compact size and optional software development kit; the Safe-T 2 has also been designed for seamless integration into vehicles and fixed structures, whilst also being agile enough for a single operator to deploy.

Thanks to its innovative winch system, the Safe-T 2 can be quickly reconfigured to use the best tether weight/power range for each drone. This means that the operator no longer has to compromise and can choose the best configuration for the job. A patented Brake system also allows the user to adapt the maximal tether length, depending on the safety zone he needs around the aircraft, for instance in urban or crowded environments. The Safe-T 2 is compatible with the largest number of drones on the market and users can switch between drones easily by using the Elistair Air Module range.

- Weather-resistant design at IP54 level
- Industry-leading weight/power ratio from our patented DVO (Dynamic Voltage Optimization)
- Up to 125 m / 400 feet of micro-tether
- Secured Dual-Coms Option (Fiber Optics and BPL)
- Safety Brake Option (patented)
- Swappable micro-tether
- Vehicle-Integration kit, including hardware, and software
- Improved spooling capabilities
- IEC 60950 standard
Air Module

The Safe-T 2 is compatible with Elistair’s range of Air Modules1, providing flexibility and compatibility with a variety of drones. The example below is standard 6S and 12S Air Module with data option.

The Air Module is a key component of the Safe-T system. Miniaturized and ruggedized to fit in standard battery compartments, this compact module delivers a continuous DC power supply to the drone, whilst also providing a failsafe feature with a safety battery system.

Smart Tether Management System

The Safe-T 2 includes Elistair’s intelligent winch software enabling adaptive control of the tether tension and reducing the impact of the tether on the drone’s flight. The Micro-tether Tension Knob (9) on the front panel allows the user to adjust the amount of tension depending on the drone, the mission and the wind. The following protocols are implemented in the Safe-T:

- **Reset**: Allows the user to reset the winch system
- **Tangle limitation**: Reduces the spool inertia by increasing the tension of the tether when unwinding
- **Landing Tether Protection**: Stops the tether tension for the last 10 meters of the micro-tether (allowing sufficient tether for a safe landing)
- **Ground tether Reduction**: Improves the rolling system performance which reduces the amount of tether on the ground.

These parameters as well as the alarm triggers can be adjusted with the Developer Option.

1 Air Modules can be purchased separately from Elistair or official partners.
Specifications

- **Safe-T 2**
  - Dimensions Closed: 610x410x265 mm (24x16x11 in) (without feet)
  - Weight: 25 kg (57 lbs)
  - Power Source Requirements: 220-250 VAC, 50-60 Hz, 4 kW min
  - Power Supply Cable: Type E
  - Built-in protection: Fuse
  - Micro-tether management: 10 presets, smart pre-programmed laws and reset function
  - Wi-Fi Connectivity: Protocol 802.11 b/g/n, Frequency 2.4G-2.5G (2400M-2483.5M)
  - Carriage: 2 folding handles
  - Brake: Blocking Strength: 36N
  - Optical Fiber: OM3 Multimode
  - Ingress Protection Level: IP54

- **Micro-tether configurations**
  - Length: 100 m (330 ft)
  - Linear Weight: 16 g/m
  - Total Weight: 1600 g
  - Tensile Strength: 150 daN
  - Diameter: 2.4 mm
  - Max continuous Power: 1500 W
  - Peak Power 10 s: 1800 W
  - Peak Power 3 s: 2300 W
  - Alarm: 2300 W
  - Recommended safety battery: 6S 5Ah 35C
  - Micro-tether Out: 50 to 100 m
  - Operational temperature: -10° to 45° C
    - (14° to 113° F)

- **Air Module (Standard version)**
  - Dimensions: 168x109x54 mm
  - Weight: 700 g
  - Output Voltage: 6S / 24 V (±2 V) or 12S / 48 V (±3 V)
  - Safety Battery Cable dimension: 15 cm
  - Safety Battery Cable Connector: XT90 Male (to be connected to XT90 female with anti-spark)
  - Drone Cable dimension: 15 cm
  - Drone Cable Connectors: AS150 RED Female, XT150 Black Female
  - Recommended Cabling min section: 6 mm² (1200W to 1500W drone power consumption)
    - 10 mm² (1800W drone power consumption)

Data Option - data speed: 80Mb/s minimum (up to 200Mb/s, depends on the packet size)
Data Option - data connectors: Ethernet RJ45 (Air Module and Safe-T)
Developer Option - Remote controls: Control Power, Torque, pre-programmed laws, alarms
Developer Option - Remote telemetry: Displays Power consumption, tether unwound, tether speed, temperature, flight duration