Dronavia

MADE IN FRANCE

USER'S MANUAL & INSTRUCTIONS

MOC2511 EXTERNAL FTS FOR DJI MATRICE 3D / 3TD

FLIGHT MANUAL (2511) - FTS-MOC KRONOS MATRICE 3D

WWW.DRONAVIA.COM | +33 (0) 354 400 078 | VERSION 3.0

SUMMARY

External MOC2511 FTS for DJI Matrice 3D

INTRODUCTION
by our CEO

"At Dronavia, we've been developing a wide, innovative range of accessories to secure your professional drones since 2015. Based in France, we think up all our products in our design office, before bringing them to life in our workshop, with unique technological know-how.

The result of more than 8 years of research and innovation, our new range of Kronos FTS has been developed and tested to EASA standards to comply with MOC2511.

Thanks to its standardised safety accessories, Dronavia ensures that remote pilots have the best risk management and safety measures at their disposal during their flying missions. You'll be flying your DJI Matrice 3D / 3TD in complete safety.

Thank you for your confidence & enjoy your flight!

Ludovic Pelletey, Dronavia's CEO.

GENERAL presentation

Dear customer,

Congratulations on your purchase of the new MOC2511 Kronos external Flight Termination System (FTS) for your DJI Matrice 3D / 3TD drone.

You've chosen the device that we're confident is the best performing system of its kind. Extensive research and testing have gone into making it as safe and effective as possible.

Based in Remiremont, France, DRONAVIA is at your service to advise you on the purchase of your MOC2511 Kronos external Flight Termination System for DJI Matrice 3D / 3TD and to answer any questions of a technical or commercial nature.

GENERAL presentation

The MOC2511 Kronos external Flight Termination System (FTS) for DJI Matrice 3D / 3TD has been developed to meet the requirements of MOC 2511 published by EASA:

"A Flight Termination System (FTS) is a system which, when activated, terminates the flight. By its very nature, it is an emergency measure and not a precautionary one. Its purpose is to ensure that an out-of-control UAS does not enter adjacent areas with an indefinite trajectory but, on the contrary and preferably, that it stops, and that its crash/debris zones are kept strictly within the ground risk buffer zone. "

EASA
European Aviation Safety Agency

The aim of these requirements is to enable the remote pilot to intervene in the event of the drone escaping due to a failure of the flight controller or its sensors. In such situations, autonomous Flight Termination Systems (FTS) can make the difference between a simple scare and a more serious accident. The MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD can be activated in less than a second.

GENERAL presentation

TO BE READ CAREFULLY

These emergency devices do not protect the integrity of the equipment or prevent damage to property or persons; they are a safety feature that complements other safety features. DRONAVIA and its distributors may not be held responsible for any malfunction or operation deemed insufficient or even ineffective.

Any use on a drone other than a DJI Matrice 3D / 3TD is prohibited. The configuration of the Flight Termination System (FTS) must not be modified so as not to affect its correct operation.

Activate a drone Flight Termination System (FTS) module is not a harmless, risk-free operation. It should only be carried out in an emergency situation.

WARNINGS & precautions for use

TO BE READ CAREFULLY

Dronavia may suspend the warranty and disclaim all liability to any person who fails to observe the basic safety instructions set out below.

Before handling the MOC2511 Kronos external Flight Termination System for DJI Matrice 3D / 3TD, you must read this manual carefully. It provides information on how to use Flight Termination System (FTS). In addition to the important notes and information given in this manual, the owner of the device must observe all the important instructions given below.

WARNINGS & precautions for use

TO BE READ CAREFULLY

The MOC2511 Kronos external Flight Terminal System (FTS) for DJI Matrice 3D / 3TD is a safety device which, under certain conditions, prevents the drone fitted with it from leaving its regulatory flight envelope by cutting (manually or automatically) the drone's power supply.

Activation of the FTS inevitably results in the drone crashing.

This equipment does not prevent technical problems occurring on the drone. Any flight with a drone implies the existence of a danger for the equipment and people in the vicinity, regardless of the safety equipment used. The use of the MOC2511 Kronos external Flight Termination System (FTS) for DJI Matrice 3D / 3TD should in no way increase your risk.

11 INSTRUCTIONS

to follow

1. It is forbidden to carry out any manipulations other than those specified in the manual.

2. The device should only be used by or under the supervision of a responsible adult. Always keep the device out of the reach of children. Do not let them play with it.

3. Under no circumstances should you dismantle the various parts of the device.

4. Do not place the device in a damp or wet environment and keep it out of direct sunlight.

5. Do not expose the system to high temperatures, strong shocks, shock hazards, contact with chemicals or acids, or long-term storage in a high-humidity or dusty environment. The maximum operating temperature is 40°C and the minimum operating temperature is -15°C.

6. The condition of the MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD should be checked before each use. Do not use the device if it is damaged or malfunctions. If necessary, contact your reseller.

7. The MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD cannot prevent the drone from malfunctioning.

8. Any flight with a drone implies the existence of a risk for equipment and people in the vicinity, with or without a MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD.

TO BE READ CAREFULLY

11 INSTRUCTIONS

to follow

9 The use of a MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD should in no way increase your risk.

10 The MOC2511 Kronos external FTS for DJI Matrice 3D / 3TD must be actively triggered by the user. Regular training is necessary to be able to react correctly in an emergency. For the safety of the equipment and third parties, carry out a dummy ground exercise once a day.

11 After switching on the system, if the LED changes to a steady red, the system will not be operational. Contact your reseller for assistance.

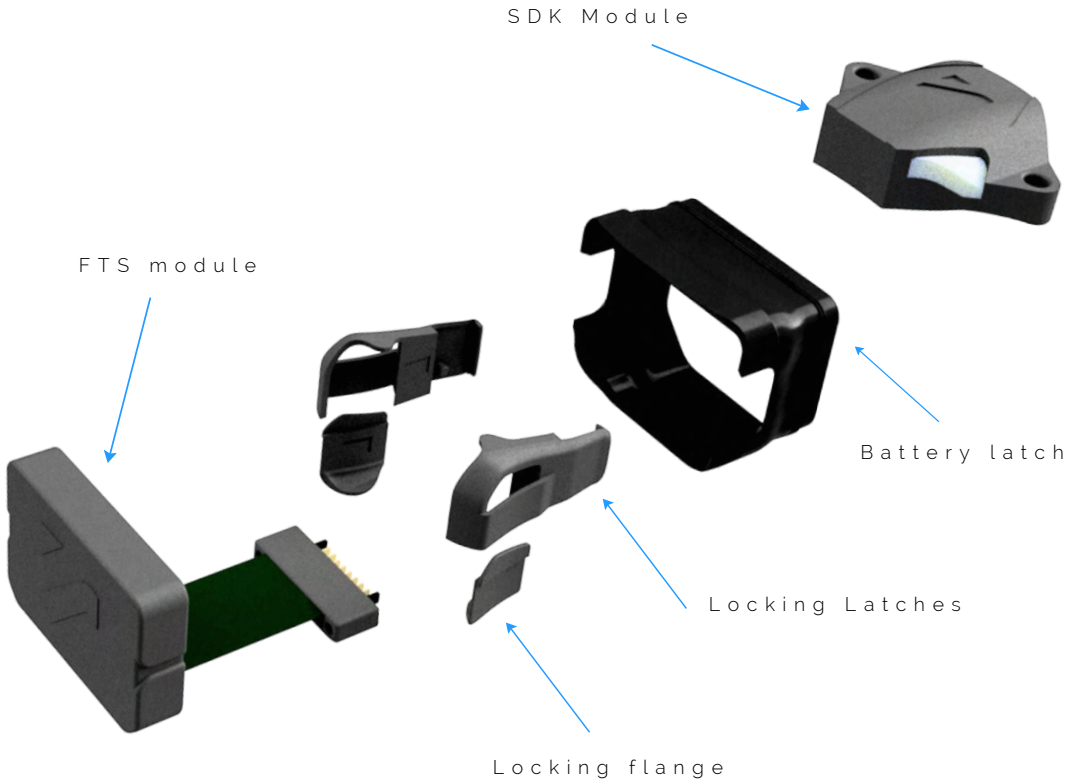
TO BE READ CAREFULLY

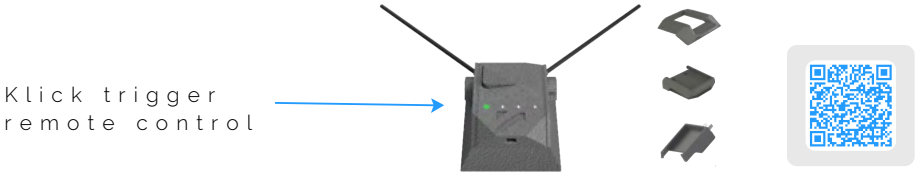
KRONOS SYSTEMS

MOC2511 EXTERNAL FTS FOR DJI MATRICE 3D / 3TD

COMPONENTS

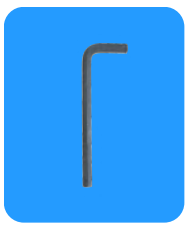
presentation





ADDITIONAL ACCESSORIES SUPPLIED

Double-sided adhesive



Allen Key 2mm

Screw x2

KRONOS M3D

Technical specifications

TOTAL WEIGHT	78 G
COMMUNICATION WIRELESS RADIO	SRD860 WITH ENCRYPTED KEY (869 MHZ / 100 MW)
RANGE OF THE REMOTE CONTROL	1 500 M
AUTONOMY REMOTE CONTROL	20 HOURS
OPERATING TEMPERATURE	-5°C to 40°C
WATERPROOFING LEVEL	IP54

MOC 2511 COMPLIANCE

KRONOS M3D

Minimum size of buffer zone for ground-related risks (in metres)

OPERATING VOLUME LIMIT	SOIL-RELATED RISK BUFFER ZONE
10	67
20	76
30	83
40	88
50	93
60	98
70	102
80	106
90	110
100	113
110	117
120	120

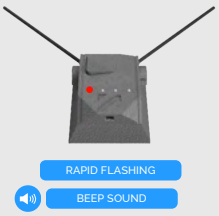
Assumptions
Flight mode : normal - Max speed : 15 m/s - Max wind speed : 12 m/s - Human latency : 3 s

Custom ground risk buffer can be calculated with different drone parameters and assumptions. Please refer to the dedicated document ground risk buffer, if you need to calculate more precise ground risk buffers in accordance with your application.

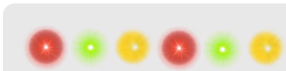
MOC 2511 COMPLIANCE

THE STATES
system

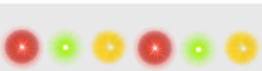
STARTING



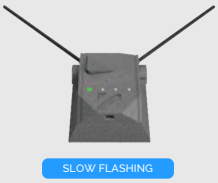
System start-up



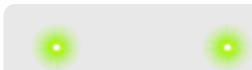
System start-up



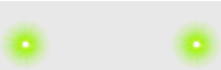
CONNECTION



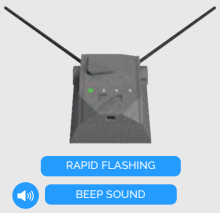
FTS only connected



SDK connected



ACTIVATION AND DEPLOYMENT



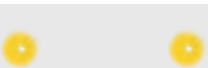
Single FTS activated

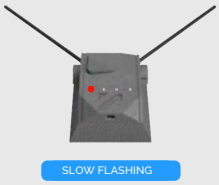
FTS activated by SDK

THE STATES
system

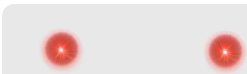
SYSTEM & BATTERY ALERTS

No remote control signal (Klick)

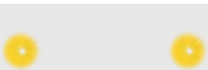




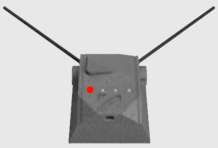
Low battery



No SDK signal (Klick)



Battery charging



System error

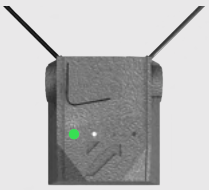
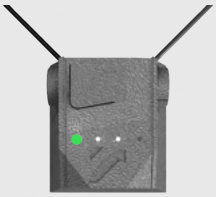
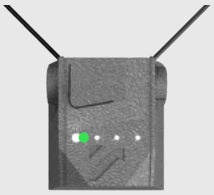
Battery charged

System error

THE STATES
signal

Four indicator lights let you check the signal level between the Klick trigger remote control and the accessory kit (PRS and FTS). Signal level is defined by the number of indicators lit.

The different LED states

Lost signal	Low signal	Medium signal	High Signal
			
LED STEADY LONG BEEP	SLOW FLASHING DOUBLE SHORT BEEP	SLOW FLASHING	SLOW FLASHING

Warning

In the event of signal loss, manual deployment of the parachute system and FTS is impossible. Reduce the distance between your drone and your Klick trigger remote control.

INSTALLATION
of the FTS

Kronos M3D Flight Termination System (FTS) can be installed in just a few minutes. To install the FTS, please follow the instructions below in order:

Instructions

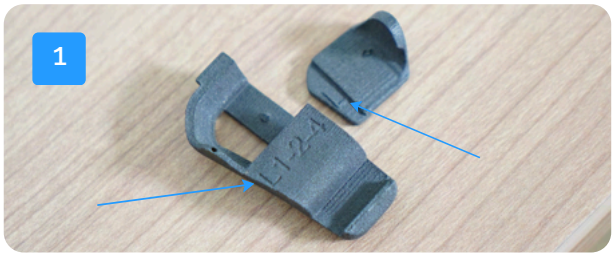
1 Remove the batterie from the DJI Matrice 3D.

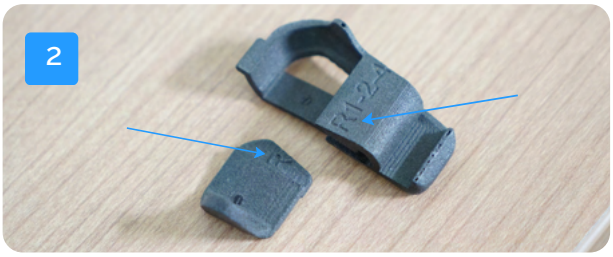
2 Insert the left Dronavia locking latch into the left DJI Matrice 3D battery latch. Then insert the Dronavia locking bracket. Insert the right Dronavia locking latch into the right battery latch on the DJI Matrice 3D. Then insert the Dronavia locking bracket.

INSTALLATION
of the FTS

Warning

To ensure that the locking catches and locking clamps are positioned on the correct side, an L (Left) and an R (Right) are inscribed on each of them.





3 Next, fit the protective cover around the DJI Matrice 3D battery.

INSTALLATION
of the FTS

Warning

Before inserting the protective cover, make sure that the 3 small holes are located on the underside of the battery.

Warning

Check that the protective cover fits tightly around the perimeter of the DJI Matrice 3D battery, to ensure a perfect seal.

INSTALLATION
of the FTS

4 Attach the double-sided adhesive to the FTS module. Then connect the FTS to the DJI Matrice 3D drone battery connector. Finally, attach the FTS module to the battery by applying pressure to secure the adhesive.

INSTALLATION
of the FTS

5 Insert the battery into the DJI Matrice 3D drone. Lock the DJI Matrice 3D drone latches by lowering them.




Warning

You need to hear a 'click' sound to ensure that your battery is correctly inserted.

INSTALLATION
of the FTS

6 Insert the SDK module into the USB-C socket on the DJI Matrice 3D drone. Then fix it in place using the 2 screws supplied.




7 Your external FTS for DJI Matrice 3D is operational.

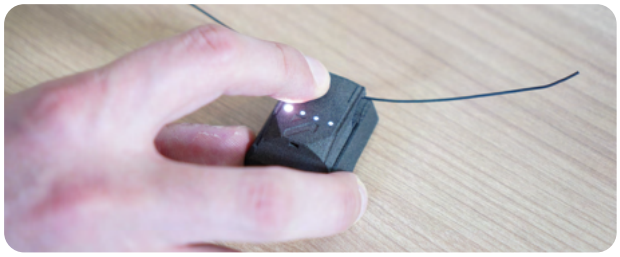
START-UP
of the FTS

To activate the Flight Termination System (FTS), follow the instructions below in order:

Instructions

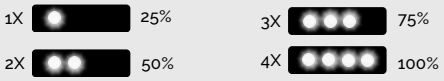
1 Switch on your DJI Matrice 3D drone. The FTS will switch on automatically.

2 Switch on your Klick trigger remote control. When the FTS is properly connected, a green LED flashes on the Klick trigger remote control.

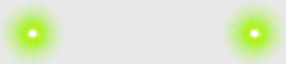


The different Klick remote control LED states

System initialisation

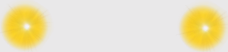


Battery level indicator

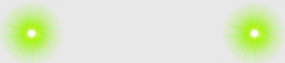


FTS only connected

The different SDK LED states



SDK module initialisation



SDK module connected


YOUR FTS IS
ACTIVE AND
OPERATIONAL!

KLICK

manual activation of the FTS

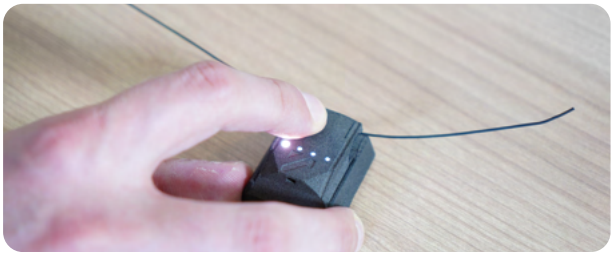
Consult our Klick user manual

PROCEDURE
of FTS test

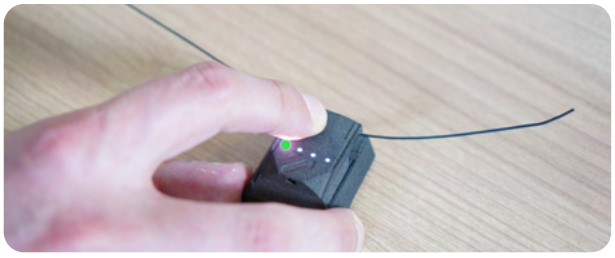
Before the flight or before the first flight of the day, you can test the Flight Termination System (FTS). Follow the instructions below in order:

Instructions

1 Switch on your DJI Matrice 3D and Klick trigger remote control.



2 Check that the LEDs on your Klick trigger remote control is flashing green.



PROCEDURE
of FTS test

3 Arm the motors and initiate rotation while keeping the drone on the ground.

4 Stop the rotation of the motors by pressing the release button on the Klick trigger remote control. Check that the motors stop correctly and that the green light on the Klick trigger remote control.

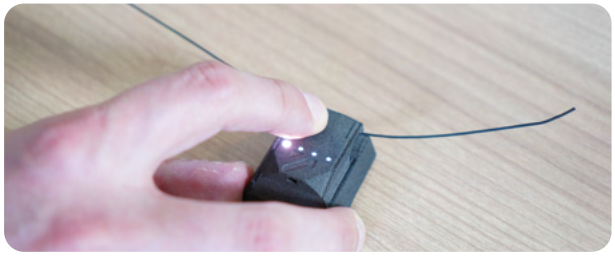
STOP
& resetting FTS

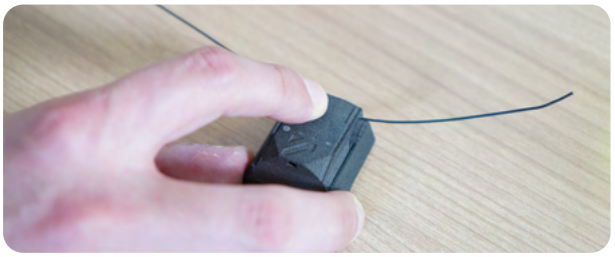
To stop, switch off and reset the Flight Termination System (FTS), follow the instructions below in order:

Instructions

1 Switch off your DJI Matrice 3D drone and the FTS will shut down automatically.

2 Switch off your Klick trigger remote control.





DISASSEMBLY
of the FTS

To dismantle the Flight Termination System (FTS), follow the instructions below in order:

Instructions

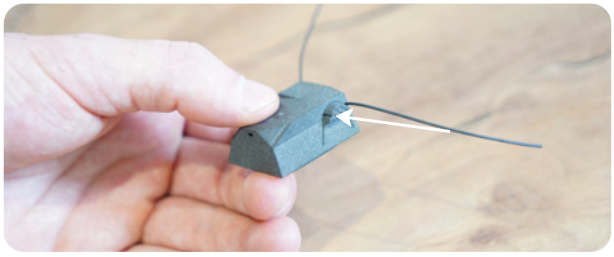
1. To disassemble the system, simply follow the installation instructions in reverse order. The Klick trigger remote control module can remain installed on the DJI Matrice 3D radio controller without affecting its operation.

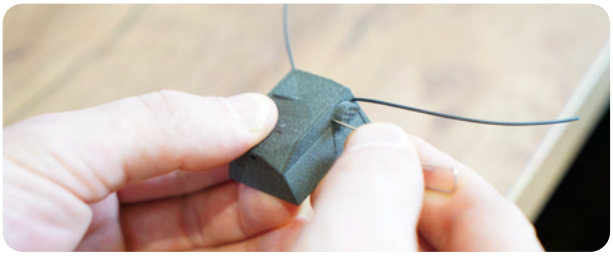
RESETTING
of the FTS

In the event of a malfunction or any other bug, follow the instructions below in order:

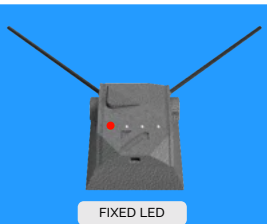
Instructions

1 To reset the Klick trigger remote control, you'll find a small hole on the left-hand side. Insert a paper clip or other thin object into the hole and press it down briefly.





If the malfunction persists



Contact Dronavia customer service, or your reseller.

MAINTENANCE & guarantees

STORAGE

Store the MOC2511 Kronos external FTS system for DJI Matrice 3D in a dry place, at a temperature between 10°C and 30°C, clean and protected from UV light.

GUARANTEE

Dronavia takes great care in the design and production of its products. We guarantee our FTS systems for one year from the date of purchase against any defect or design fault that may arise during normal use of the product. Any abusive or incorrect use, or exposure to aggressive factors (high humidity, excessively high temperatures, etc.) that could lead to damage will invalidate this warranty.

NOTICE OF LIABILITY

Flying a drone, whether manual or automatic, is an activity that requires attention, specific knowledge and good judgement. Be cautious, get trained in appropriate structures, take out insurance and comply with the requirements defined by the DGAC decrees of 11 April 2012 and 17 December 2015 and the EASA.

Ask our sales team your questions

LINKS to know

For France, we recommend that you consult the website of the Ministry of Ecology, Sustainable Development and Energy if you have any doubts or questions. For Europe, we recommend that you consult the EASA website. Remember that you are flying under your own responsibility.

Website of the Ministry of Ecological Transition and Territorial Cohesion

Details of MOC 2511 published by EASA :

The IGn map of restricted areas for drones

Details of the M2 MOC published by EASA :

The French Civil Aviation Authority (DGAC)

European Union Aviation Safety Agency (EASA)

Ask our sales team your questions

CONTACT US

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| Dronavia Channel

FTS-MOC KRONOS MATRICE 3D

VERSIONS note

Version 1 (01/05/24)

Version 2 (29/05/24) :

- "Minimum size of buffer zone for ground-related risks"chapter added
- " System Installation" chapter modified : Add SDK module installation

Version 3 (26/11/24) :

- Manual update version MOC25-11