



MADE IN FRANCE 

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# USER'S MANUAL & INSTRUCTIONS

MOC2511 EXTERNAL FTS FOR **dji** MATRICE 350 

FTS-MOC KRONOS MATRICE 350

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External FTS MOC2511 for DJI Matrice 350/300

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# 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 350 in complete safety.

Thank you for your confidence & enjoy your flight!



Ludovic Pelletay, Dronavia's CEO.





# GENERAL presentation

Dear customer,

Congratulations on your purchase of the new MOC2511 Kronos external FTS for your DJI Matrice 350/300 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 FTS for Matrice 350/300 and to answer any questions of a technical or commercial nature.



The MOC2511 Kronos external FTS system for Matrice 350/300 has been developed to meet the requirements of MOC 2511 published by EASA:

"A Flight Stop 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."



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 FTS systems can make the difference between a simple scare and a more serious accident. The MOC2511 Kronos external FTS for Matrice 350/300 can be activated in less than a second.

# GENERAL presentation



# 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 350/300 is prohibited. The configuration of the FTS system must not be modified so as not to affect its correct operation.

Triggering a drone 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 FTS system for Matrice 350/300, you must read this manual carefully. It provides information on how to use the fuse. 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 FTS for Matrice 350/300 is a safety device which, under certain conditions, prevents the drone fitted with it from leaving its regulatory flight envelope by cutting its engines.

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 MOC 2511 Kronos external FTS for Matrice 350/300 should in no way increase your risk.





# 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 Matrice 350/300 should be checked before each use. Do not use the device if it is damaged or malfunctions. If necessary, contact your dealer.
- 7 The MOC2511 Kronos external FTS for Matrice 350/300 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 Matrice 350/300.

TO BE READ CAREFULLY





# INSTRUCTIONS

to follow

9

The use of a MOC2511 Kronos external FTS for Matrice 350/300 should in no way increase your risk.

10

The MOC2511 Kronos external FTS for Matrice 350/300 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



MOC 2511  
COMPLIANCE 

# KRONOS SYSTEMS

MOC2511 EXTERNAL FTS FOR **dji** MATRICE 350/300 

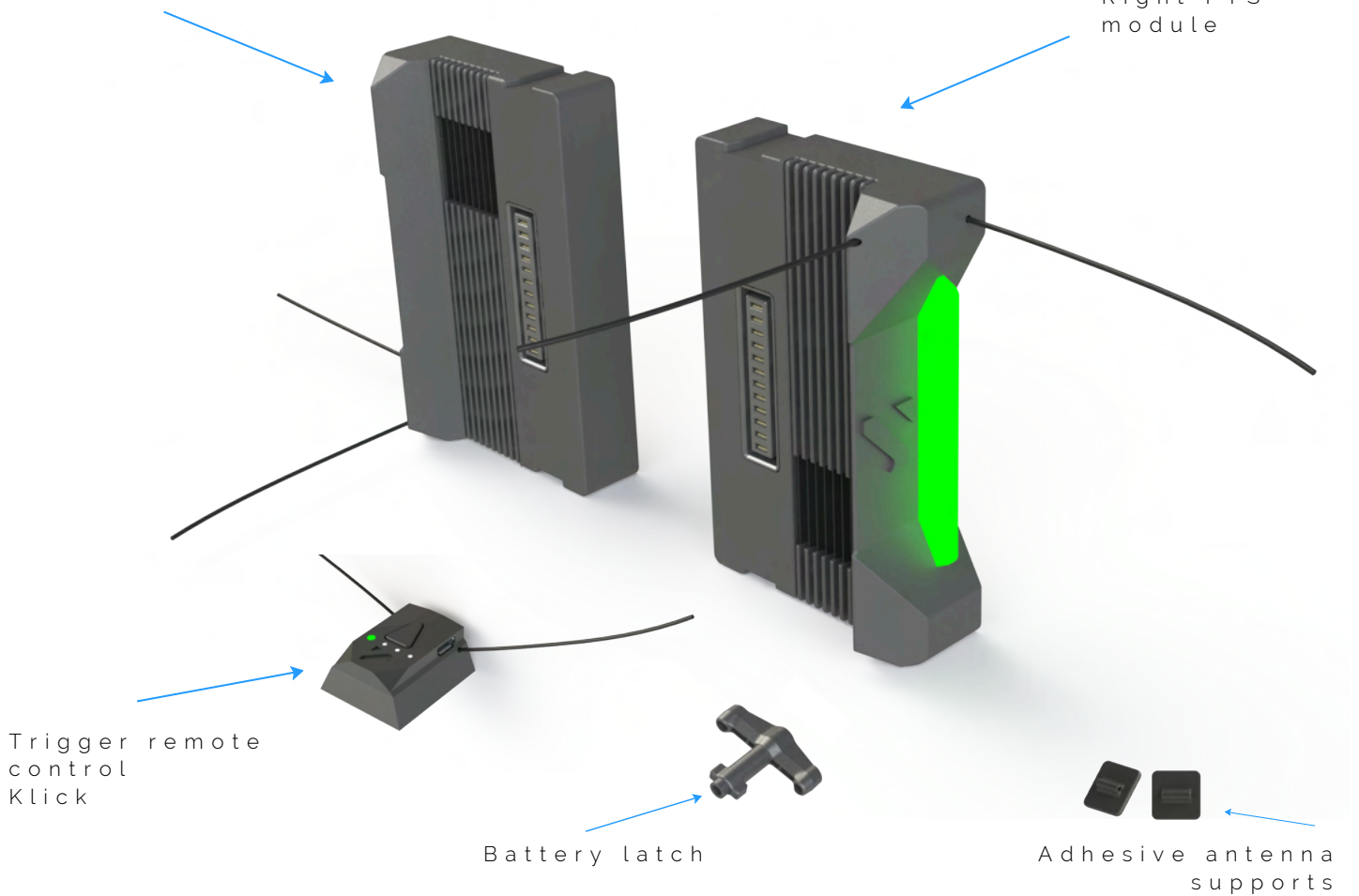


# COMPONENTS

presentation

Left FTS module

Right FTS module



## ADDITIONAL ACCESSORIES SUPPLIED



Micro-USB  
cable



Allen Key  
2 mm / 2.5 mm

**Installation  
tutorial**

available on our Youtube channel





# KRONOS M350

Technical specifications

TOTAL WEIGHT

136 GRAMMES

COMMUNICATION  
WIRELESS RADIO

SRD860 WITH  
ENCRYPTED KEY  
(869 MHz / 100 MW)

RANGE OF THE  
REMOTE CONTROL

3000 METERS

AUTONOMY  
REMOTE CONTROL

30 HOURS

OPERATING  
TEMPERATURE

-5°C À 40°C

MOC 2511  
COMPLIANCE



# KRONOS M350

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

|     |     |
|-----|-----|
| 30  | 126 |
| 40  | 135 |
| 50  | 143 |
| 60  | 150 |
| 70  | 156 |
| 80  | 162 |
| 90  | 168 |
| 100 | 173 |
| 110 | 178 |
| 120 | 183 |
| 130 | 188 |
| 140 | 192 |
| 150 | 197 |

OPERATING VOLUME LIMIT

SOIL-RELATED RISK BUFFER ZONE

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.





# INSTALLATION

of the FTS system

The Kronos FTS system for Matrice 350/300 can be installed in just a few minutes. To install the FTS, please follow the instructions below in order:

## Instructions

- 1 Unlock the battery latch. Remove the batteries from the DJI Matrice 350/300.



- 2 Remove the battery latch using the Allen key supplied. When dismantling, take care to retain the 4 washers fitted to the original screw and the 2 springs.







# INSTALLATION

of the FTS system

## Warning

A white washer may be stuck inside the original battery latch. Remember to check that you have all the parts before reassembling the latch supplied by Dronavia.

3

Replace the original latch with the one supplied and reassemble the assembly, checking as below that the 2 springs and 4 washers are correctly repositioned.



4

Place the right-hand FTS by sliding it in from the back in the same way as a battery, with the LED pointing outwards and the flat part facing the battery. Then insert your right-hand battery.







# INSTALLATION

of the FTS system

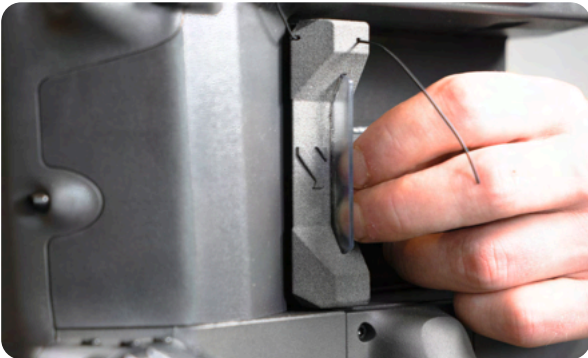
5

Attach the adhesive antenna support, as shown below, to ensure optimum connection between your module and your trigger remote control. Then insert the FTS module's antenna into the bracket.



6

Place the left-hand FTS by sliding it in from the back in the same way as a battery, with the LED pointing outwards and the flat part facing the battery. Then insert your left battery.





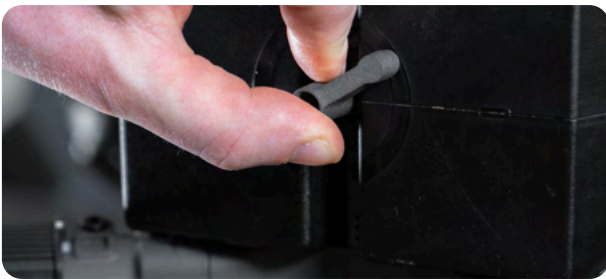
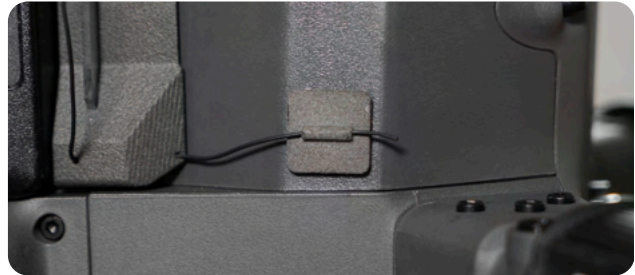


# INSTALLATION

of the FTS system

7

Attach the adhesive antenna support, as shown below, to ensure optimum connection between your module and your trigger remote control. Then insert the antenna of the FTS module inside the support. Lock the batteries by turning the latch.



## Warning

This step is essential for the correct operation of the drone and the FTS. The latch must be locked and the batteries must be fully inserted. If the FTS is incorrectly installed, an error message may appear on your DJI remote control.

## Error notifications

DJI RC Plus radio control screen







# INSTALLATION

of the FTS system

8

Your MOC2511 external FTS for Matrice 350/300 is now operational. 





# ACTIVATION

of the FTS system

To activate the FTS, follow the instructions below in order:

## Instructions

- 1 Switch on your DJI Matrice 350/300 drone. The FTS system will switch on automatically.



- 2 Switch on your Klick remote control. When the FTS system is properly connected, a green LED flashes on the remote control and on the FTS module.

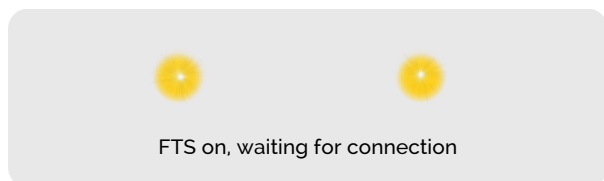
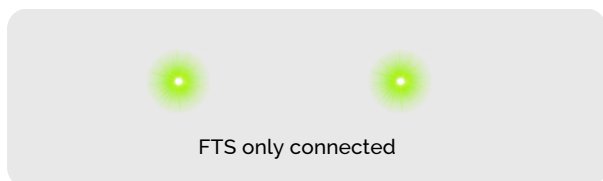
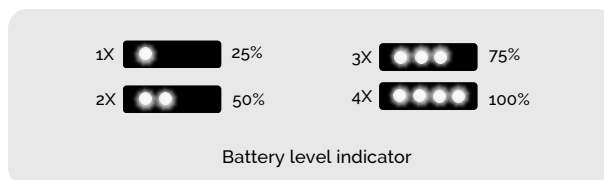
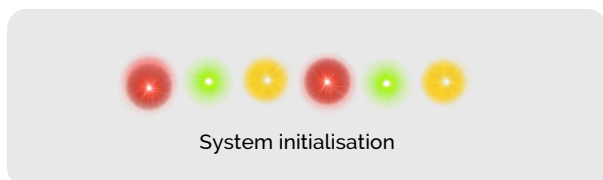




# ACTIVATION

of the FTS system

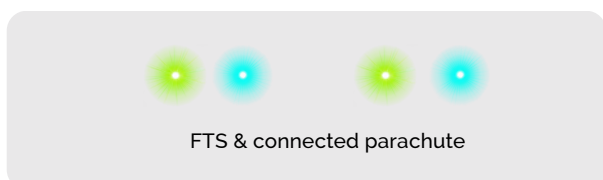
## The different LED states



### OPTIONAL

If your FTS module is connected to a Kronos parachute system for DJI Matrice 350/300 a green and turquoise LED flashes on the Klick trigger remote control and on your parachute module.

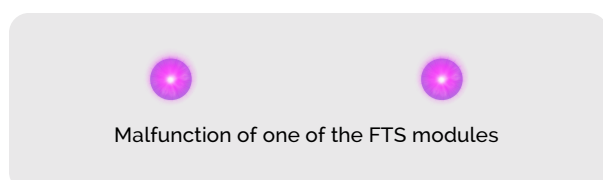
## The different LED states



## Warning

If the Klick trigger remote control flashes purple, one of the two FTS modules (right or left) has malfunctioned. If the problem persists, contact your reseller or Dronavia.

## The different LED states







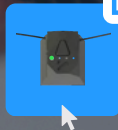
**YOUR FTS IS ACTIVE  
AND OPERATIONAL!**



# KLICK

manual activation of the FTS

Consult our Klick user manual



new version

# GEOCAGING

automatic triggering of the FTS

Discover our solutions now



INCLUDING THE SCALEFLYT GEOCAGING SOLUTION DEVELOPED BY **THALES**





# PROCEDURE

## FTS system test

Before the flight or before the first flight of the day, you can test the FTS system. Follow the instructions below in order:

### Warning

If your drone is fitted with a parachute, remember to disconnect the cable linking the parachute to the drone before carrying out the test. Otherwise, the parachute will be triggered at the same time as the engine cut-out.

### Instructions

1

Disconnect the cable linking the parachute system to the drone. Switch on your DJI Matrice 350/300 drone. Switch on your Klick trigger remote control.



2

If your drone is fitted with a parachute, check again that it is switched off.



# PROCEDURE

## FTS system test

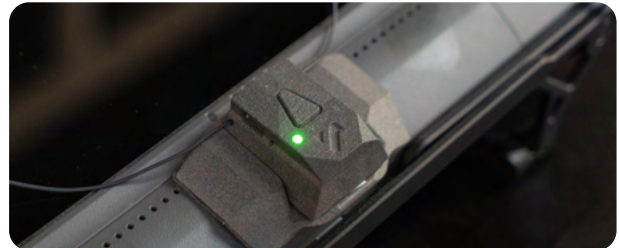
3

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 remote control. Check that the motors stop correctly and that the green light on the Klick remote control and on the FTS flashes rapidly.





# STOP

## & resetting FTS system

To stop, switch off and reset the FTS, follow the instructions below in order:

### Instructions

1

Switch off your DJI Matrice 350/300 drone and the FTS system will shut down automatically.



2

Switch off your Klick trigger remote control.



# DISASSEMBLY

of the FTS system

To dismantle the FTS system, follow the instructions below in order:

## Instructions

1

To disassemble the system, simply follow the installation instructions in reverse order. The Klick remote control module can remain installed on the DJI Matrice 350/300 radio control without affecting its operation.



# RESET

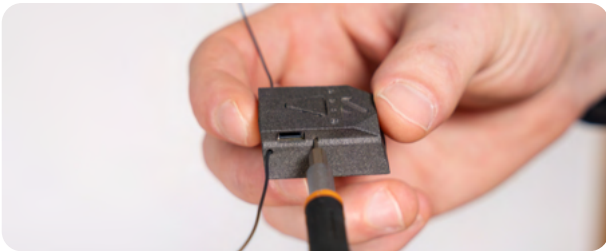
of the FTS system

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

## Instructions

1

To reset the Klick 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.



## Warning

If the malfunction persists, contact Dronavia customer service or your reseller.

# MAINTENANCE & guarantees

## STORAGE

Store the MOC2511 Kronos external FTS system for Matrice 350/300 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





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)



# LINKS to know



Ask our sales team your questions





# CONTACT US



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