




MADE IN FRANCE 

# USER MANUAL & INSTRUCTIONS

ACCESSORY KIT MOC2511/12 FOR *dji* MATRICE 30

FLIGHT MANUAL (MOC) - PRS-FTS-MOC KRONOS AD MATRICE 30 V1.0

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# WE MAKE YOUR DRONE SAFER



Since 2015, Dronavia has been designing innovative accessories in France to enhance the safety of professional drones. Developed and manufactured in our own workshops, the Kronos range — including Parachute Recovery System and Flight Termination System — is the result of 8 years of research and development, fully complying with EASA requirements for Means of Compliance (MOC) 2511 & 2512 (M2).

Thanks to these certified safety systems, drone pilots benefit from the highest levels of protection and risk management for their flight operations.

Thank you for your trust, and enjoy your flight with the DJI Matrice 30.

Ludovic Pelletay, Dronavia's CEO.



# VERSION NOTE

## Version 1.0

- Initial release.

# TUTORIAL

Parachute Recovery System Rearming



Flight Termination System Installation



Flight Termination System Testing Procedure



User's manual Klick trigger remote control



# DRONAVIA UPDATER

Dronavia has recently launched an innovative software solution specifically designed to simplify the updating of Kronos systems. Thanks to this new software, Dronavia customers can now manage and update their systems more quickly and easily.

Download Dronavia  
Updater software



# GENERAL presentation

Congratulations on acquiring your Kronos M30 MOC2511/12 accessory kit, which includes a Parachute Recovery System & autonomous Flight Termination System, specifically designed for the DJI Matrice 30 drone.

The Kronos M30 MOC2511/12 accessory kit meets the technical requirements defined by EASA, and has been developed according to a rigorous research and development process, guaranteeing the highest level of safety for flight operations.

Based in Remiremont, France, Dronavia is here to support you with the use of your Kronos M30 MOC2511/12 accessory kit and to answer any technical or commercial questions you may have.



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# GENERAL presentation

The Kronos M30 Parachute Recovery System and Flight Termination System have been specifically designed for DJI Matrice 30 drones, with the primary goal of ensuring ultra-fast deployment to optimize deceleration and minimize impact energy in the event of an in-flight issue.

Multirotor drones, even when properly maintained and operated, can sometimes encounter emergency situations—such as severe weather conditions, radio transmission failure, propulsion system malfunction, or GPS signal loss—where immediate activation of a safety system is crucial.

In such critical scenarios, the combined deployment of the Flight Termination System and Parachute Recovery System can mean the difference between a minor incident and a serious accident. Kronos M30 systems are engineered to activate and deploy in under one second.



# GENERAL presentation

## TO BE READ CAREFULLY

These safety devices do not guarantee the integrity of the equipment, nor the absence of damage to property or injury to persons. They are complementary safety features, designed to enhance existing safety measures. Under no circumstances shall Dronavia or its distributors be held liable for any malfunction, perceived performance shortcomings, or failure to deploy.

# COMPLIANCE

with MOC2511 / 2512

The Kronos Matrice 30 MOC2512 (M2) Parachute Recovery System has been developed to meet the requirements of the Means of Compliance with Light-UAS.2512 published by the EASA:

The Light-UAS.2512 standard offers several options for complying with the SORA's M2 mitigation measures. M2 mitigation measures are designed to reduce the effect of ground impact once control of the operation is lost. This is done by reducing the effect of the UA impact dynamics (i.e. area, energy, impulse, transfer energy, etc). '



The Kronos Matrice 30 MOC2511 Flight Termination System has been developed to meet the requirements of the Means of Compliance with Light-UAS.2511 published by the 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.



# WARNINGS & safety precautions

## TO BE READ CAREFULLY

The Kronos M30 accessory kit includes two safety accessories designed to, under certain conditions, prevent the equipped drone from exiting its regulatory flight envelope by cutting its motors, and to avoid free fall in the event of a critical failure.

Activating the Flight Termination System and/or the Parachute Recovery System will inevitably result in the drone falling.

These systems do not prevent technical failures from occurring. Any drone operation inherently involves a risk to equipment and nearby individuals, regardless of the safety systems in place. The use of the Kronos M30 Flight Termination System and Parachute Recovery System must never lead to increased risk-taking during flight operations.



# WARNINGS

## & safety precautions

### TO BE READ CAREFULLY

Dronavia may suspend the warranty and disclaim any responsibility for anyone who fails to adhere to the basic safety instructions outlined below.

Before handling the Kronos M30 systems, you must carefully read this manual. It provides information on the deployment of the Parachute Recovery System and the Flight Termination System. In addition to the important notes and information mentioned in this manual, the device owner must comply with all the essential safety instructions outlined below.

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

Do not under any circumstances dismantle the various parts of the device, except when resetting it in accordance with the instructions in this manual.

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 -5°C.

6

Check that the Kronos Matrice 30 Parachute Recovery System and Flight Termination System is in good condition before each use. Do not use the device if it is damaged. If necessary, contact your dealer.

7

The Kronos Matrice 30 Parachute Recovery System and Flight Termination System 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 Kronos Matrice 30 safety systems.

9

Using a Kronos Matrice 30 Parachute Recovery System and Flight Termination System should in no way increase your risk.

10

The Kronos Matrice 30 Parachute Recovery System and Flight Termination System attempts to prevent a drone experiencing a malfunction from free-falling. However, there are fall situations in which the effectiveness of the Kronos Matrice 30 parachute system may be limited or impeded.

11

The Kronos Matrice 30 Parachute Recovery System and Flight Termination System can be actively deployed by the user. Regular training is necessary to be able to react correctly in an emergency.

12

The spring ejection system only works once. You can recharge the system yourself by following the instructions in this manual. It is your responsibility to ensure that the system is under warranty.

13

When reloading, it is forbidden to do so with people nearby, and especially with the barrel pointing in their direction. You must take the same precautions as when handling a loaded rifle. In the event of accidental firing during this stage or mishandling, the spring could be ejected and cause serious injury. Safety glasses must be worn.

14

After deploying the device, we recommend that you carefully inspect each component to ensure its integrity. If in doubt, contact your reseller.

15

After switching on the system, if the LED changes to a steady red, do not use it and contact your dealer for assistance.

SECTION

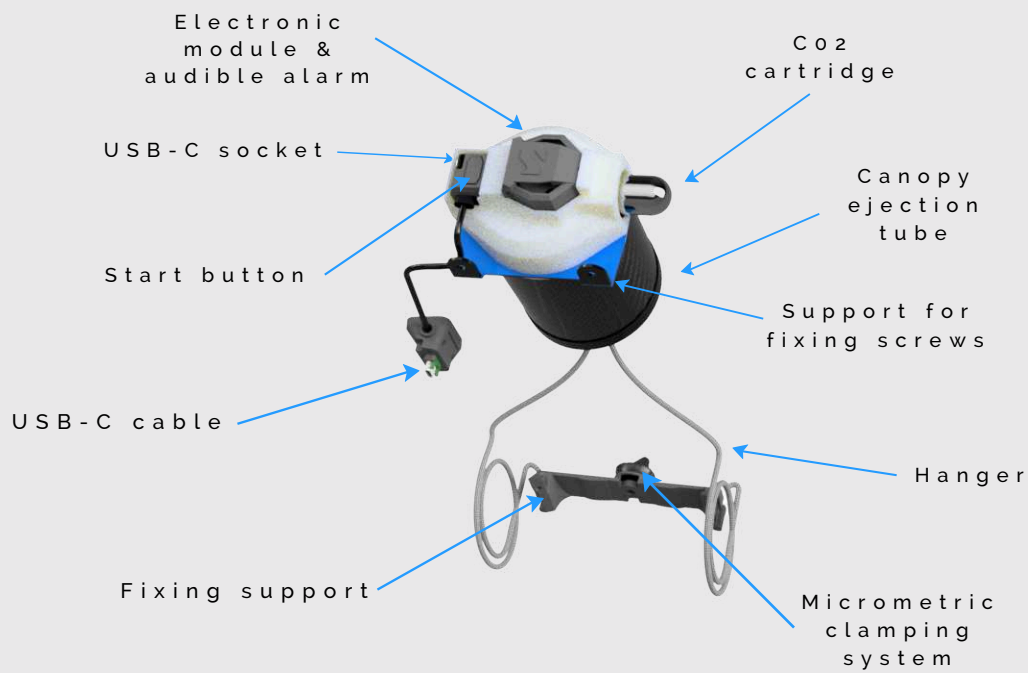
# KRONOS m30

PARACHUTE RECOVERY SYSTEM FOR *dji* MATRICE 30 



# COMPONENTS

presentation



## ADDITIONAL ELEMENTS INCLUDED



USB-C  
cable



Allen key  
2mm



Rearming  
tool



Knurled  
screw x2



M2.5x12 screw  
x2

# KRONOS M30

System Visual Representation

Kronos M30 Parachute  
Recovery System



Drone DJI Matrice 30

# KRONOS M30

System Visual Representation

DJI Matrice 30 Remote  
Controller

Klick trigger  
remote control

# KRONOS m30

Overview of Key System Figures



# KRONOS M30

## Technical specifications

TOTAL WEIGHT

340 GRAMS

EJECTION DEVICE

SPRING  
CO<sub>2</sub> CARTRIDGE (4G)

MINIMUM HEIGHT  
EFFICIENCY

FROM  
34 METERS

COMMUNICATION  
WIRELESS RADIO

SRD860 WITH  
ENCRYPTED KEY  
(869 MHz / 100 MW)

RANGE OF THE KLIK  
REMOTE CONTROL

1500 METERS\*

PARACHUTE  
AUTONOMY

10 HOURS

KLIK REMOTE  
CONTROL AUTONOMY

30 HOURS

ENERGY GROUND  
IMPACT

36 JOULES

OPERATING  
TEMPERATURE

-5°C TO 40°C

STORAGE  
TEMPERATURE

10°C TO 40°C

\*can reach up to 1.5 km, under optimum conditions and in an environment free of obstacles and interference.

# KRONOS m30

Operating limits

MAXIMUM WIND SPEED  
AT GROUND LEVEL

9.1 m/s

MINIMUM FLIGHT  
ALTITUDE (AGL)

34 metres

OPERATING  
TEMPERATURES

MIN : -5 °C  
MAX : 40 °C

USABLE IN  
RAINY WEATHER

No



# KRONOS M30

Dimensions and weights

## DRONE



470 x 585 x 215 mm

3770 G

## PARACHUTE



145 x 100 x 80 mm

340 G

## PARACHUTE + DRONE + ACCESSOIRES



470 x 585 x 215 mm

4180 G

# KRONOS m30

Minimum Size of the Ground Risk Buffer (GRB)

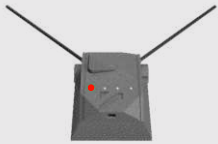
OPERATING VOLUME VERTICAL LIMIT	30	79	GROUND RISK BUFFER ZONE
	40	110	
	50	141	
	60	172	
	70	203	
	80	234	
	90	265	
	100	295	
	110	326	
	120	357	

The ground risk threshold can be calculated as a function of different drone parameters and different assumptions. Please refer to the document dedicated to calculating the ground risk threshold, if you need to calculate more precise ground risk thresholds for your application.

# SYSTEM


states

## INITIALIZATION

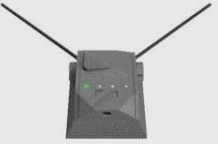

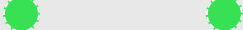
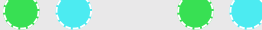
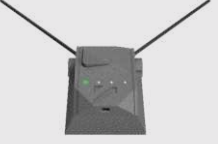
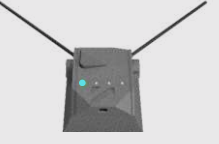
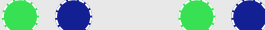
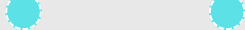


RAPID FLASHING  
AUDIBLE BEEP

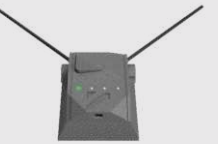



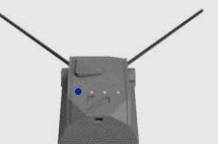

System  
initialization



## CONNECTION

 <p>SLOW FLASHING</p>	FTS Connected	 <p>SLOW FLASHING</p>	FTS & PRS Connected
			
 <p>SLOW FLASHING</p>	FTS & PRS Connected with Autonomous Deployment	 <p>SLOW FLASHING</p>	FTS not connected (Only the PRS is connected)
			


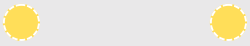
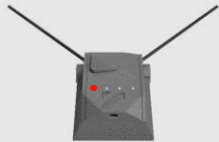
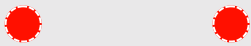
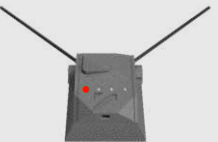



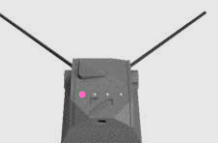
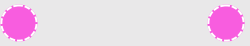


## ACTIVATION AND DEPLOYMENT

 <p>RAPID FLASHING AUDIBLE BEEP</p>	FTS triggered only	 <p>RAPID FLASHING AUDIBLE BEEP</p>	FTS triggered & PRS deployed
			
 <p>RAPID FLASHING AUDIBLE BEEP</p>	FTS triggered & PRS deployed with Autonomous deployment		
			

# SYSTEM

states

## SYSTEM & BATTERY ALERTS

 SLOW FLASHING	Signal lost with remote control (Klick) 	 SLOW FLASHING	Low battery 
 FIXED LED	System error 	 FIXED LED	Charging the battery 
 SLOW FLASHING	Signal scrambled 	 FIXED LED	Battery charged 

# INSTALLATION

## of the parachute system

The Kronos M30 parachute system can be installed in just a few minutes. To install it, please follow the instructions below in order:

### Skills & tools required

Designed to be quick and easy to use, the parachute system can be installed without any specific technical skills.

### Warning

For reasons of operational safety and to prevent inadvertent deployment, the M30 Parachute Recovery System incorporates an automatic lock that prevents deployment at altitudes below 20 metres. This limitation ensures that the parachute system can only be activated in conditions that guarantee the minimum effectiveness of the system. However, manual deployment of the parachute via the Klick trigger remote control remains possible. Be cautious when handling the powered-on parachute to avoid any unintentional ground deployment, which could cause physical injury or material damage.

### Instructions

1

Install the micrometric fixing support at the rear of the drone, in place of the two original screws. Then secure it with the two screws supplied by Dronavia, using a screwdriver ?

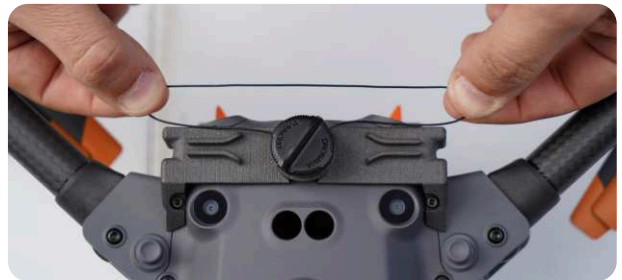


# INSTALLATION

## of the parachute system

2

Unlock the micrometer support by pulling the collar upwards until you hear a slight click. Then release the adjustment so that the cable fits the width of the drone perfectly.



3

Install the parachute on the front of the DJI Matrice 30 in place of the two original screws. Then insert the two knurled screws supplied by Dronavia into the two holes in the parachute support. Tighten them until they are fully seated.

1



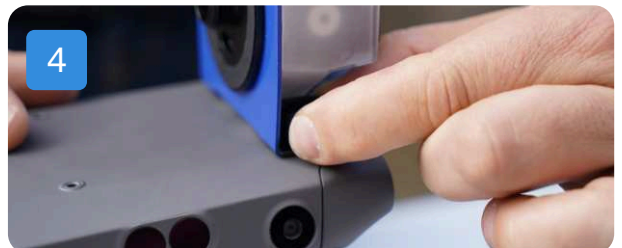
2



3



4



## Warning

The parachute system must be installed with the Dronavia logo facing the front of the DJI Matrice 30 drone.

# INSTALLATION

## of the parachute system

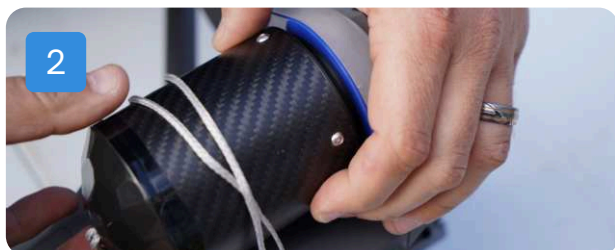
4

Remove the operculum from the POD, then screw the POD onto the previously installed parachute mount until the POD is fully tightened. You should hear a slight 'click'.

1



2



3

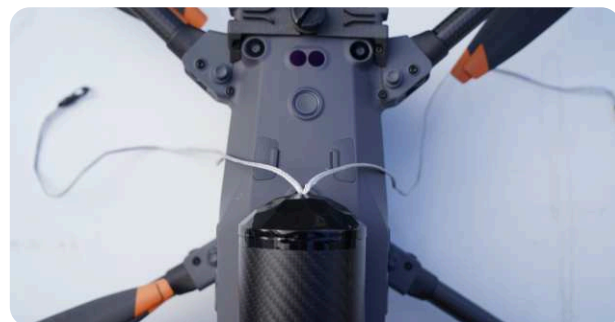


4



5

Separate the two parachute lines, one on the right of the drone and the other on the left of the DJI Matrice 30.



# INSTALLATION

## of the parachute system

6

Tension the left parachute line against the drone, then make a first turn around the left arm. Then maintain the tension and make a second turn around the same arm.

1



2



3

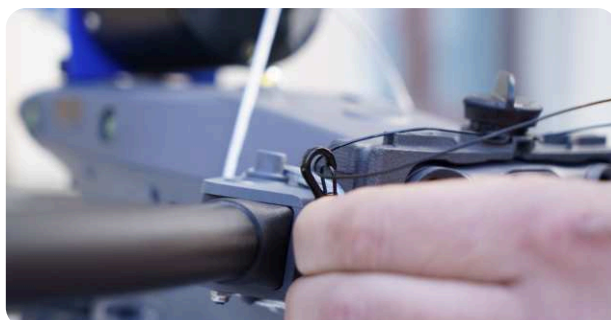


4



7

Then attach the karabiner on the left-hand line of the parachute to the cable of the micro-metric system previously installed.



# INSTALLATION

of the parachute system

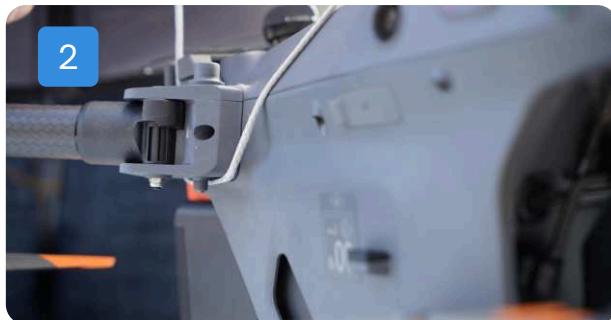
8

Tension the right parachute line against the drone, then make a first turn around the right arm. Then maintain the tension and make a second turn around the same arm.

1



2



3

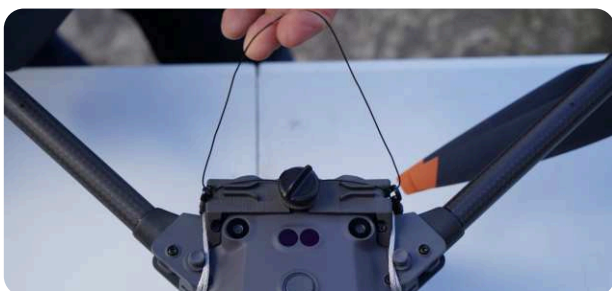


4



9

Then attach the karabiner on the right-hand line of the parachute to the cable of the micro-metric system previously installed.



# INSTALLATION

## of the parachute system

10

Unlock the micrometer system by pulling the collar upwards until a slight 'click' is heard. Then tighten the cable until it is close to the micrometer fixing mechanism, leaving a gap the width of a finger.

1



2



3



4



11

Then pass the cable from the micrometer system through the two grooves on either side of the micrometer system.



# INSTALLATION

## of the parachute system

12

Make sure that the cable is correctly positioned inside the two grooves, then tighten the micrometer mechanism by turning it clockwise. Press down on the micrometer system to lock it again.

1



2



3



4



### Warning

It is essential that the cable of the micrometric mechanism is perfectly inserted into the two grooves; otherwise, the parachute could become detached during deployment.

# INSTALLATION

of the parachute system

13

Connect the USB-C cable to your parachute, then connect it to your DJI Matrice 30 drone.

1



2




3



4



14

Your Kronos Matrice 30 parachute is now operational. 

15

Each installation must be entered in the 'List of installations and de-installations and maintenance operations' section on page 56.

# INITIALIZATION

## of the parachute system

To initialize the Kronos M30 parachute system, follow these instructions in order:

### Instructions

1

Switch on your DJI Matrice 30 drone. If you have connected the parachute to the drone using the cord supplied, the Parachute Recovery System and Flight Termination System will switch on automatically. The LED on the parachute signals activation with a sequence of colours, while the audible alarm emits three beeps to confirm that it is operating correctly. The LED then indicates the battery level, and a flashing yellow LED indicates that the parachute is powered up and ready for use.



2

If you have not connected the parachute to the drone using the cord supplied, switch on the parachute system by pressing the initialization button for 2 seconds.



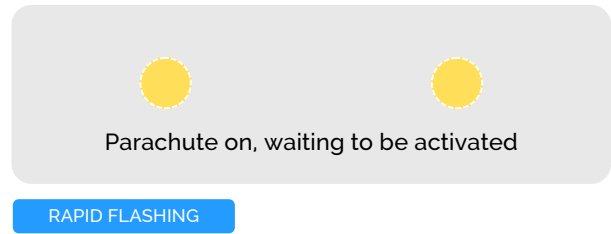
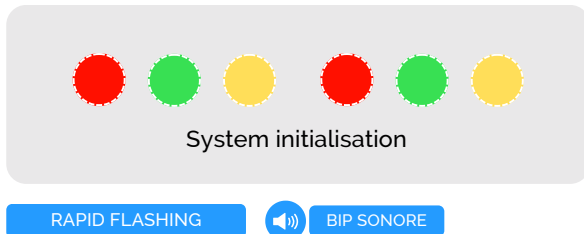
3

Your Kronos M30 parachute system is initialization started. ✓

# INITIALIZATION

of the parachute system

## The different LED states



# ACTIVATION

## of the parachute system

To activate the Kronos M30 parachute system, follow the instructions below in order:

### Warning

For reasons of operational safety and to prevent inadvertent deployment, the M30 Parachute Recovery System incorporates an automatic lock that prevents deployment at altitudes below 20 metres. This limitation ensures that the parachute can only be activated in conditions that guarantee the minimum effectiveness of the system.

### Instructions

1

The Kronos M30 Parachute Recovery System automatically detects when your drone is ready to take off. During this phase, the LEDs on the parachute module and on the Klick remote control flash purple, and double beeps are emitted.

2

When the drone reaches an altitude of 20 metres, two distinct beeps confirm that the minimum threshold required to activate the autonomous parachute deployment function has been reached. The LEDs on the parachute module and on the Klick remote control then flash dark blue.

3

Your Kronos M30 parachute system is active with the autonomous deployment function. ✓

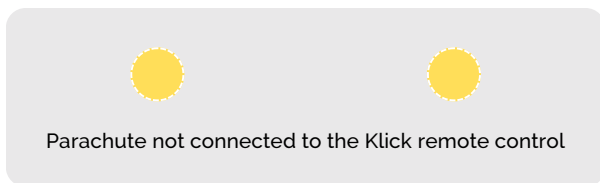
### Warning

If there is no audible signal or dark blue LED, it is likely that the autonomous deployment function has not yet been activated due to insufficient altitude. To activate the autonomous deployment function, a minimum altitude of 20 metres is required.

# ACTIVATION

of the parachute system

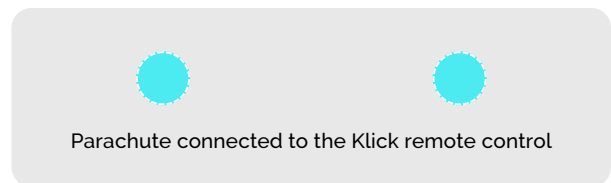
## The different LED states



SLOW FLASHING



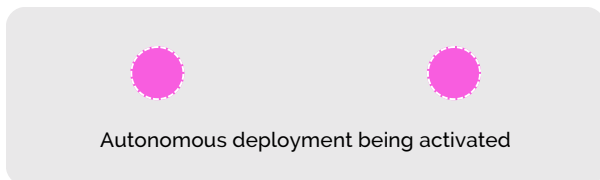
AUDIBLE BEEP



SLOW FLASHING

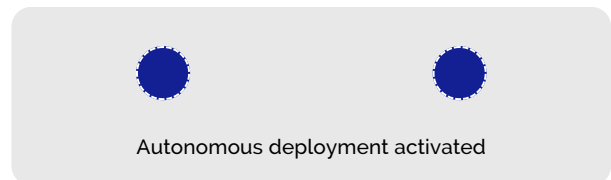


AUDIBLE BEEP



CONTINUOUS DOUBLE BEEP

SLOW FLASHING



2 SHORT, LOUD BEEPS

SLOW FLASHING

# DEACTIVATION

## of the parachute system

To deactivate the Kronos M30 parachute system, follow the instructions below in order:

### Instructions

1

The Kronos M30 Parachute Recovery System automatically detects the landing of the DJI Matrice 30 drone. Approximately 5 seconds after detection, a beep is emitted and the LED stops glowing dark blue. The take-off detection module is then automatically deactivated. It will reactivate on the next flight, as soon as the drone reaches a minimum altitude of 20 metres.


### Warning

**If the dark blue LED on the Kronos M30 Parachute Recovery System remains lit, this indicates that the autonomous deployment function is still active. Do not manipulate the drone to avoid any risk of involuntary deployment. Wait a further 5 seconds for the automatic deactivation.**

2

The autonomous deployment of the Kronos M30 parachute system is deactivated, but your parachute remains active and can be deployed using the Klick trigger remote control.

3

**Your Kronos M30 parachute system is active without the autonomous deployment function.** 

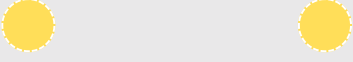
4

To completely deactivate your Kronos M30 parachute system, if you have connected the parachute system to the drone using the cord supplied, switch off the DJI Matrice 30 drone and the parachute system will switch off automatically. Otherwise, switch off the Kronos M30 parachute system by pressing the start button for 2 seconds.


# DEACTIVATION

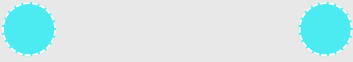
of the parachute system

## The different LED states




Parachute not connected to the Klick remote control

SLOW FLASHING  AUDIBLE BEEP



Parachute connected to the Klick remote control

SLOW FLASHING  AUDIBLE BEEP



 YOUR PARACHUTE  
IS OPERATIONAL &  
ACTIVE!

# DEPLOYMENT

## of the parachute system

To deploy the Kronos M30 parachute System (with autonomous deployment or manually), observe the following safety instructions:

### Warning

- 1 Never attempt to deploy the M30 Parachute Recovery System on the ground.
- 2 The Kronos M30 Parachute Recovery System is designed to be deployed at a minimum height of 34 m from the ground in standard atmospheric conditions.
- 3 For a fall from a height of 34 metres, the impact on the ground is less than 36 joules with the Kronos M30 Parachute Recovery System, compared with 1394 joules without any device.

### Warnings

This data may vary depending on altitude above sea level, relative wind and many other external factors. That's why we recommend a minimum height of 34 m above ground level to deploy the Kronos M30 Parachute Recovery System and sufficiently limit the impact of your drone on the ground.

For reasons of operational safety and to prevent inadvertent deployment, the M30 Parachute Recovery System incorporates an automatic lock that prevents deployment at altitudes below 20 metres. This limitation ensures that the parachute can only be activated in conditions that guarantee the minimum effectiveness of the system.

# AUTONOMOUS

deployment of the parachute system

## Instructions

1

When autonomous deployment is activated, the parachute system analyses the flight parameters (altitude, acceleration, inclination, angular velocity) in real time. If any abnormal behaviour is detected, indicating a loss of control, the M30 Parachute Recovery System is automatically triggered, without pilot intervention.

## The different LED states



Parachute deployed with autonomous deployment function



AUDIBLE BEEP

RAPID FLASHING

# MANUAL

## deployment of the parachute system

To manually deploy the Kronos M30 parachute system, follow the instructions below in order:

### Instructions

1

Find out how to deploy your Kronos M30 Parachute Recovery System manually with the help of our user and instruction manual for the Klick remote activation system.

# Klick

manual deployment of the parachute

Consult our Klick user manual



# STOP

## of the parachute system

To stop the Kronos M30 parachute system, follow the instructions below in order:

### Warning

If the dark blue LED on the Kronos M30 parachute system remains lit, this indicates that the autonomous deployment function is still active. Do not manipulate the drone to avoid any risk of involuntary deployment. Wait a further 5 seconds for the automatic deactivation.

### Instructions

1

Shut down your DJI Matrice 30 drone. If you have connected the parachute system to the drone using the cord supplied, the parachute system and circuit breaker will stop automatically.



2

If you have not connected the parachute to the drone using the cord supplied, switch on the parachute system by pressing the initialization button for 2 seconds.



# STOP

of the parachute system

3

Remember to turn off your Klick trigger remote control.



4

Your Kronos M30 parachute system has been shut down. ✓

# DISMANTLING

of the parachute system

To dismantle the entire Kronos M30 Parachute Recovery System, follow the installation instructions in reverse order.

## Instructions

- 1 Each de-installation must be entered in the 'List of installations, de-installations and maintenance operations' section on page 56.

# CHECKING

## of the parachute system battery

To check the battery status of the M30 parachute system, follow the instructions below in order:

### Instructions

1

Press the parachute ignition button quickly. The number of flashes indicates the remaining charge level.



### The different LED states

1X ● 25%

3X ● ● ● 75%

2X ● ● 50%

4X ● ● ● ● 100%

RAPID FLASHING

# CHARGING

## of the parachute system battery

To charge the M30 parachute system battery, follow the instructions below in order:

### Instructions

1

To recharge the parachute's battery, simply connect the USB-C cable supplied to the parachute's USB-C socket located near the ignition button. Then plug the USB socket into a computer.

### The different LED states



Batterie en charge

FIXED LED



Batterie chargée

FIXED LED

# RESETTING

of the parachute system

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

## Instructions

1

To reset the parachute system, there is a small hole in the back of the parachute. Slide a paper clip or other thin object through the hole, and a short press will reset the entire parachute system.



## Warning

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



# ANNUAL

## maintenance of parachute

### TO BE READ CAREFULLY

Like all rescue parachute systems (rescue parachutes for paragliders or parachutists, avalanche airbags, etc.) Dronavia parachutes must undergo preventive maintenance to be kept in optimum working order. The only preventive maintenance operation is to replace the POD. It's a quick and easy operation, which means that pilots never have to leave their drone standing idle.

A use-by date is set for each POD. Dronavia disclaims all liability and cancels the warranty if your POD has exceeded this use-by date.

# PROCEDURES

## maintenance requirements

To be kept in optimum working order, each Parachute Recovery System (PRS) must undergo preventive or post-deployment maintenance. Here is a summary table of the mandatory maintenance operations:

FREQUENCY	OPERATION	CAN BE MADE BY
Every year	Replacement of the POD <b>or</b> Repackaging of the canopy	Final user <b>or</b> DRONAVIA or any certified partner
Every 5 years	Mandatory manufacturer global maintenance	Manufacturer
After every deployment	Rearming of the parachute system	Final user <b>or</b> DRONAVIA or any certified partner
After every deployment	Inspection of the CO2 system	Final user <b>or</b> DRONAVIA or any certified partner
After every deployment	CO2 cartridge replacement	Final user <b>or</b> DRONAVIA or any certified partner
After every deployment	Replacement of the POD <b>or</b> Repackaging of the canopy	Final user <b>or</b> DRONAVIA or any certified partner
After 30 deployments	Mandatory manufacturer global maintenance	Dronavia

### Warning

If you wish to carry out comprehensive maintenance yourself, Dronavia will not be liable for the system and the warranty will be void.

# LISTING

## parachute deployment failures

If the deployment of the Kronos M30 Parachute Recovery System fails during flight, record the following:

Drone affected by activation failure	Accumulated flight hours at the time of activation failure	Distance between the control unit and the drone during the activation attempt	Location of the operation	Presence of a high-power transmitter in the operational volume

# LISTING

## voluntary and untimely deployment of the parachute

If the Kronos M30 Parachute Recovery System is deployed during flight, record the following:

Drone affected by activation failure	Accumulated flight hours at the time of activation failure	Distance between the control unit and the drone during the activation attempt	Location of the operation	Was the activation ordered or not ordered?	Presence of a high-power transmitter in the operational volume

### Warning

If the probability of failure observed in service is greater than  $10^{-2}/FH$  (taking into account the statistical uncertainty), the operator must inform the competent authority.

# LISTING

## monitoring of installations / de-installations & maintenance operations

To be maintained in optimum working order, each Parachute Recovery System must be monitored for installation, de-installation, firmware updates, preventive or post-deployment maintenance. Here is a table summarising the operations to be listed:

Date	Operation	Problems	Operator and signature

# USE-BY DATE

for the POD

Each POD has a use-by date to ensure that it remains in optimum working order:

The optimum life of a POD is 1 year. The use-by date is shown on the label on the back of the POD.



## Warning

If a POD is used after its use-by date, Dronavia accepts no liability for partial or slower deployment of the parachute system.

# PROCEDURE

## of return of the POD for maintenance

There are several options for exchanging your POD that is past (or close to) its use-by date:

Buy 259€

1

Buy a POD in advance from your dealer. You'll be able to continue flying during the annual maintenance of your first POD.

Exchange 99€

2

Return your POD to a reseller and receive a new one at a preferential price.

### Warning

Please plan in advance how long it will take to contact your reseller (order, delivery time, etc.) so as not to exceed the use-by date and jeopardise your flight missions.

# DISMANTLING

of the POD system for maintenance

To remove the POD from the M30 parachute system, follow the instructions below in order:

## Instructions

- 1 Unlock the POD by unscrewing it from its central support. Then remove the POD.



# REARMING

## of the Kronos Parachute Recovery System

### TO BE READ CAREFULLY

Once the Parachute Recovery System has been deployed, Kronos systems have been designed to be rearmed quickly, enabling telepilots to resume their missions without undue delay.

Simple reactivation procedures should be followed. As some of them may present risks, it is imperative that you read the instructions in this section carefully.

A use-by date is defined for each POD. Dronavia disclaims all liability and voids the warranty if your POD has exceeded this use-by date.

# REARMING

## of the parachute system

To rearm your M30 parachute system, follow the instructions below in order:

### Warning

For reasons of operational safety and to prevent inadvertent deployment, the M30 Parachute Recovery System incorporates an automatic lock that prevents deployment at altitudes below 20 metres. This limitation ensures that the parachute system can only be activated in conditions that guarantee the minimum effectiveness of the system. However, manual deployment of the parachute via the Klick trigger remote control remains possible. Be cautious when handling the powered-on parachute to avoid any unintentional ground deployment, which could cause physical injury or material damage.

### Instructions

- 1 Switch off your Kronos M30 parachute system.



- 2 Unlock the micrometer system by pulling the collar upwards until you hear a slight click. Then loosen the cable by turning the mechanism anti-clockwise.



# REARMING

of the parachute system

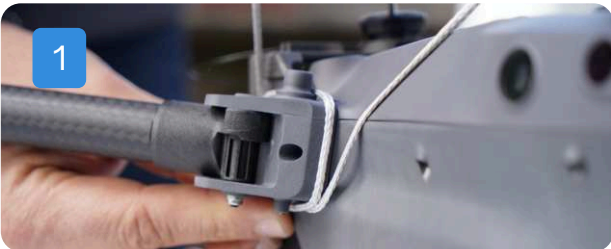
3

Then detach the carabiner on the right-hand parachute line from the micrometer system cable. Repeat the same operation for the carabiner on the left-hand line.



4

Unwind the right parachute line, previously wrapped around the drone's right arm. Repeat the operation in the same way for the left parachute line.



# REARMING

of the parachute system

5

Unscrew the POD from its fixing support. Remove the parachute from the DJI Matrice 30 by unscrewing the two knurled fixing screws.



2



3



4



## Warning

When unscrewing the used POD, be careful of the sharp edges of the carbon tube, which can cause cuts and/or carbon spikes on your hands.

6

Remove the CO2 cartridge by unscrewing it.

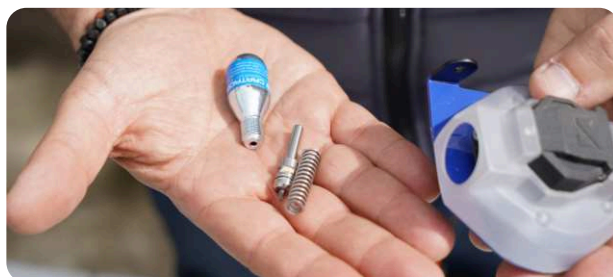


# INSPECTION

of the CO<sub>2</sub> system

7

Turn the parachute system over to remove the firing pin and spring. Check that the firing pin is in good condition.



## Warning

Check that the tip of the firing pin is not chipped. If the tip is chipped, the firing pin must be replaced. If in doubt, contact your reseller.

8

Reinsert the spring, then reinsert the firing pin.



# REPLACEMENT

of the CO<sub>2</sub> cartridge

9

Switch on the parachute, then very quickly insert the reset tool as far as it will go. There should be resistance to this operation.



10

Hold the reset tool firmly until the resistance previously felt disappears. The LED on the parachute module should then flash green.



## Warning

If the resistance persists, the parachute system has not been correctly reset. Repeat step 9 until the resistance disappears and the LED flashes green.

# REPLACEMENT

of the CO<sub>2</sub> cartridge

11

Remove the tool, then install a new CO<sub>2</sub> cartridge.



## Warning

Before replacing the CO<sub>2</sub> cartridge, please read pages 70, 71 & 72.

12

Each CO<sub>2</sub> cartridge replacement must be entered in the 'List of installations and de-installations and maintenance operations' section on page 56.

# REPLACEMENT

of the POD system

13

Unscrew the protective cover from your new POD. Insert the new POD into its central support, then screw it in until the POD locks into place.




14

Reinstall the parachute system on your DJI Matrice 30 drone, carefully following the installation steps described above.

15

Each time the POD system is replaced, the information must be entered in the 'Listing of installations and de-installations and maintenance operations' section on page 56.

16

Your Kronos Matrice 30 parachute is rearmed. 



 YOUR PARACHUTE IS  
REARMED!

# PROCEDURE

for returning a used POD

There are several options for returning your used POD:

Buy 259€

1

Buy a POD in advance from your dealer. You'll be able to continue flying during the annual maintenance of your first POD.

Exchange 99€

2

Return your POD to a reseller and receive a new one at a preferential price.

## Warning

Please plan in advance how long it will take to contact your reseller (order, delivery time, etc.) so as not to exceed the use-by date and jeopardise your flight missions.

# REPLACEMENT

the parachute's CO<sub>2</sub> cartridge

TYPE	CARTRIDGE OF CO <sub>2</sub>
VOLUME	4 CC
TOTAL WEIGHT	18G (+/- 2G)
CAPACITY	4G (+/- 1G)
LID	WELDED
CONTAINER	UNWELDED STEEL
RECYCLING	100% RECYCLABLE
TRANSPORTABILITY	PLANE / TRAIN /BOAT

## Warning

Only cartridges officially sold by Dronavia may be used, as they are subject to specific checks. Dronavia disclaims all responsibility and voids the warranty if any other type of CO<sub>2</sub> cartridge is used.

# 12 INSTRUCTIONS

to follow

- 1 Keep the CO<sub>2</sub> cartridge at a temperature below 45°C.
- 2 Do not leave full cartridges in the car when the temperature is too high.
- 3 In the event of prolonged inactivity, store your CO<sub>2</sub> cartridges at normal temperatures between 10 and 20°C. CO<sub>2</sub> cartridges may burst at temperatures above 70°C.
- 4 High temperatures can increase the pressure in the cartridge and this can prevent the device from working, possibly damaging it.
- 5 Avoid hitting the cartridge.
- 6 If corrosion spots appear on the surface of the cartridges, change them immediately.
- 7 Make sure the used cartridge is completely empty before removing it.
- 8 Do not cut or puncture the cartridge.

TO BE READ CAREFULLY

12

# INSTRUCTIONS

to follow

9

Only use certified CO2 cartridges sold by Dronavia.

10

Once the gas cartridge has been installed, do not attempt to unscrew or remove it.

11

Do not dispose of the cartridge in a fire.

12

Keep out of reach of children.

TO BE READ CAREFULLY

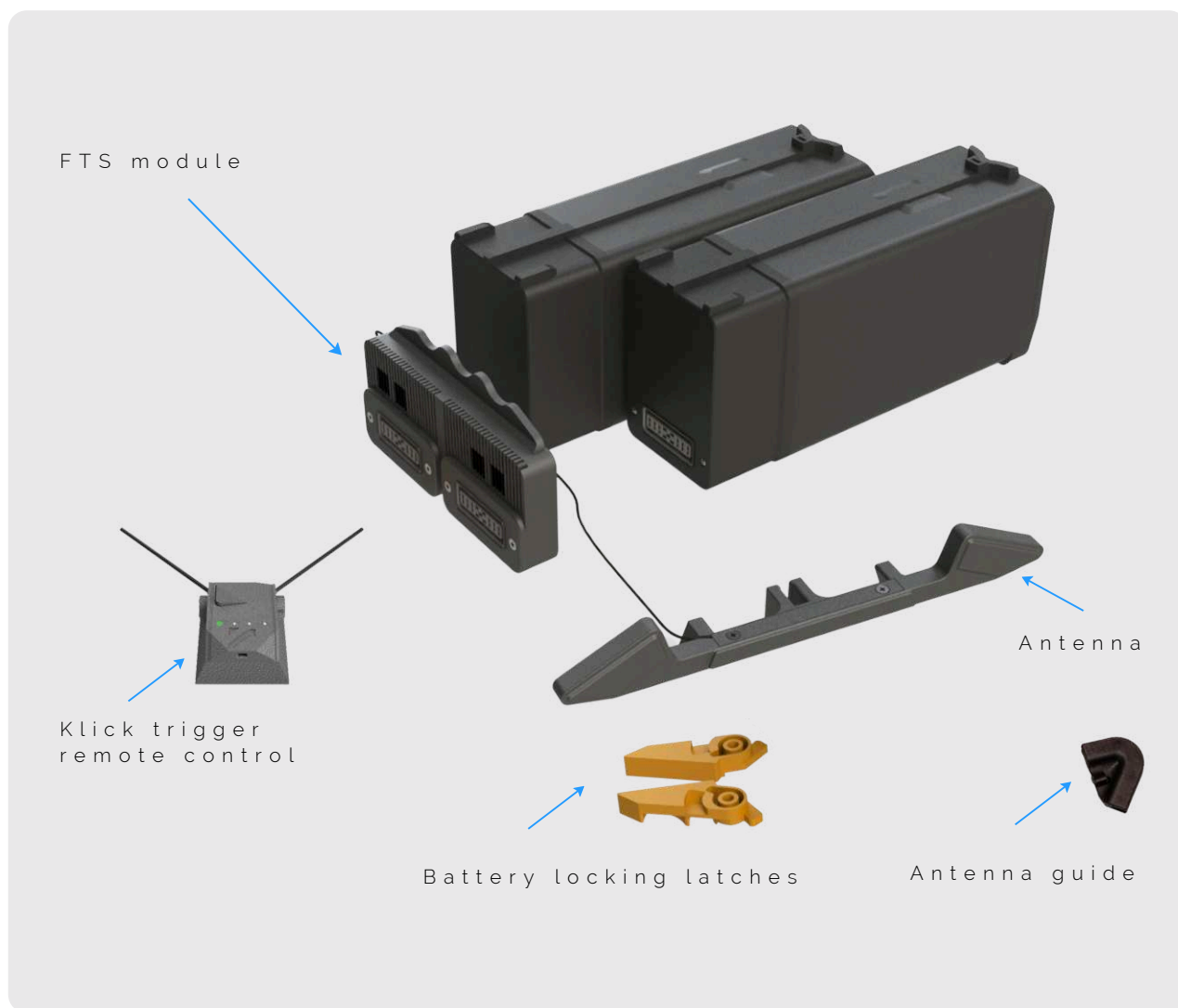
SECTION

# KRONOS m30

FLIGHT TERMINATION SYSTEM FOR *dji* MATRICE 30 

# PRESENTATION

of components



# KRONOS m30

## Technical specifications

TOTAL WEIGHT

70 GRAMS

COMMUNICATION  
WIRELESS RADIO

SRD860 WITH  
ENCRYPTED KEY  
(869 MHz / 100 MW)

RANGE OF THE  
REMOTE CONTROL

1500 METERS\*

AUTONOMY  
REMOTE CONTROL

30 HOURS

OPERATING  
TEMPERATURE

-5°C À 40°C

\*The range can be up to 1.5 km, under optimum conditions and in an environment free of obstacles and interference.

# DESCRIPTION

## of the Flight Termination System

### Description

The Kronos M30 Flight Termination System, developed for the DJI Matrice 30, prevents a drone equipped with it from leaving its regulatory flight envelope by cutting (manually or automatically) the drone's power supply in less than a second.

### Installation

The Kronos Matrice 30 Flight Termination System is installed between the drone and the drone batteries. Simply insert the left and right modules into the battery slots, then insert the drone batteries. The only modification made by installing the FTS on the drone is the battery latch, which must be changed to ensure that the drone's batteries are held securely. Installation is detailed on page 77.

### Initialization

To switch on the Kronos M30 Flight Termination System, switch on your DJI Matrice 30 drone and the Flight Termination System will switch on automatically, then switch on your Klick trigger remote control by pressing and holding the start button. When the FTS is properly connected, a green LED flashes on the Klick trigger remote control and on the FTS module. Activation is described in detail on page 83.

### Activation

In order to keep the possibility of activation at your fingertips and to be as reactive as possible, a simple gesture allows you to cut the drone's power supply and deploy your parachute (if your drone is equipped with one). Simply press the triangular button on the Klick trigger remote control for at least 1 second. Activation of the M30 Flight Termination System is described in detail in the Klick trigger remote control user manual.

# INSTALLATION

## of Flight Termination System

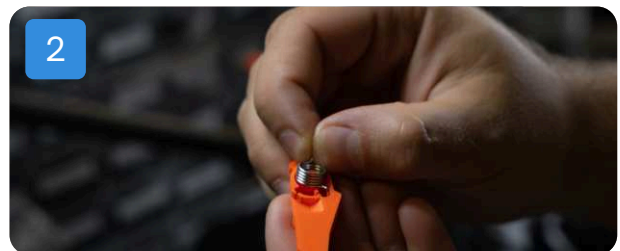
The Kronos M30 FTS can be installed in just a few minutes. To install the FTS, please follow the instructions below in order:

### Instructions

- 1 Remove the batteries from the DJI Matrice 30. Using a screwdriver, unscrew the locking latches on the batteries installed on the DJI Matrice 30.



- 2 Using a screwdriver, replace the original locking catches with the locking latches supplied by Dronavia.



# INSTALLATION

## of Flight Termination System

3

Insert the FTS module into the bottom of the battery compartment of the DJI Matrice 30.



4

Pass the antenna of the FTS through the space on the side of the DJI Matrice 30 drone as shown below.



# INSTALLATION

## of Flight Termination System

5

To protect the aerial cable, insert your aerial guide into the space on the side of the drone, as shown below. Then insert your aerial cable into the inner socket and the two outer sockets as shown below.



6

Carefully turn the DJI Matrice 30 drone over. Clip the antenna support onto the drone base as shown below.



# INSTALLATION

## of Flight Termination System

7

Insert the batteries all the way into their slots, then check that the locking catches securely hold the batteries in the DJI Matrice 30 drone.

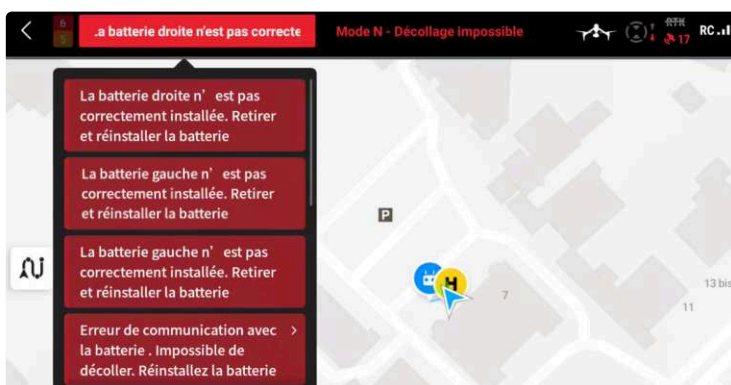


### Warning

This step is essential for the correct operation of the drone and the FTS. If you do not push the latches as far as they will go, an error message may appear on your DJI radio control system.

### Error notifications

DJI RC Plus remote control screen



8

Your external FTS Kronos M30 is operational. ✓

# INITIALIZATION

## of Flight Termination System

To switch on the M30 Flight Termination System, follow the instructions below in order:

### Instructions

1

Switch on your DJI Matrice 30 drone. The M30 Flight Termination System will switch on automatically.



2

Switch on your Klick remote control. When the Flight Termination System is properly connected, a green LED flashes on the Klick remote control and on the Flight Termination System module.



3

Your external FTS Kronos M30 is initialization started. 🟢

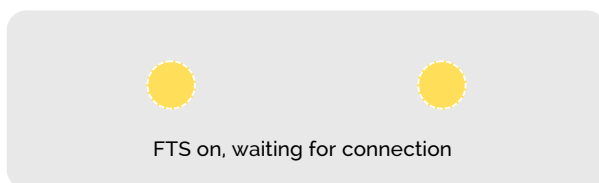
# INITIALIZATION

## of Flight Termination System

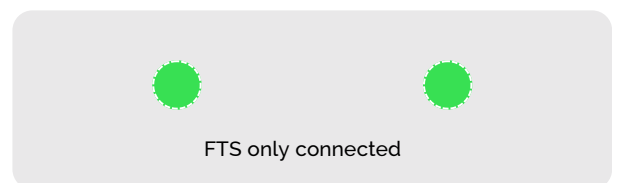
### Warning

If your Flight Termination System module is connected to a Kronos parachute system for DJI Matrice 30 a green and turquoise LED flashes on the Klick trigger remote control and on your parachute module.

### The different LED states



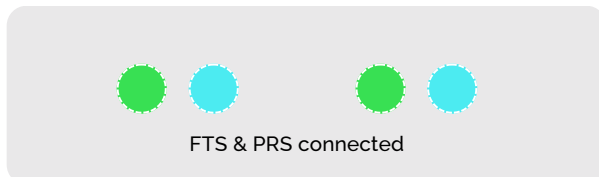
SLOW FLASHING



SLOW FLASHING



AUDIBLE BEEP



SLOW FLASHING

A close-up photograph of a person's hand using a pair of black pliers to cut a thin, light-colored wire. The wire is attached to a black electronic device, which has a USB-C port visible. The background is dark and out of focus.

 YOUR FTS IS ACTIVE  
AND OPERATIONAL!

# MANUAL

## activation of Flight Termination System

To activate the M30 Flight Termination System, follow the instructions below in order:

### Instructions

1

Find out how to activate your Kronos M30 Flight Termination System manually using our user and instruction manual for the Klick trigger remote control.

# Klick

manual deployment of the parachute

Consult our Klick user manual



# AUTONOMOUS

## activation of Flight Termination System

To automatically activate your M30 Flight Termination System, follow these instructions in order

### Instructions

1

Switch on your DJI Matrice 30 drone. The Flight Termination System will switch on automatically.



2

Switch on your Klick trigger remote control. When the M30 Flight Termination System is properly connected, a green LED flashes on the Klick trigger remote control and on the FTS module.



3

When the parachute is deployed, the Flight Termination System is automatically activated via a secure wireless link, established beforehand by Dronavia experts through precise pairing between the two modules.

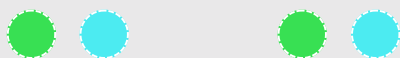
# AUTONOMOUS

activation of Flight Termination System

4

Your external FTS Kronos M30 has been triggered. ✓

## Les différents états LEDs



FTS & PRS connected

RAPID FLASHING



AUDIBLE BEEP



FTS triggered & PRS deployed

RAPID FLASHING



AUDIBLE BEEP



FTS triggered & PRS deployed with Autonomous deployment

RAPID FLASHING



AUDIBLE BEEP

# PROCEDURE

## of Flight Termination System Test

Before the flight or before the first flight of the day, you can test the M30 Flight Termination System. Follow the instructions below in order:

### Instructions

1

Switch on your DJI Matrice 30 drone. Switch on your Klick trigger remote control. Check that the LED on your M30 Flight Termination System and your Klick trigger remote control is flashing green. If your drone is equipped with a parachute, check again that it is disconnected from the DJI Matrice 30 drone.



### Warning

If the Kronos M30 Parachute Recovery System remains connected to the drone via the USB-C cable, it will deploy during the Kronos M30 Flight Termination System test procedure. Remember to disconnect the Parachute Recovery System from the DJI Matrice 30 drone.

2

Arm the motors and initiate the rotation while keeping the DJI Matrice 30 drone on the ground.



# PROCEDURE

## of Flight Termination System Test

3

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 flashes rapidly, both on the Klick remote control.



### The different LED states



FTS only connected

SLOW FLASHING



AUDIBLE BEEP



FTS triggered

CLIGNOTEMENT RAPIDE



AUDIBLE BEEP

# STOP

## of Flight Termination System

To stop, switch off and reset the M30 Flight Termination System, follow the instructions below in order:

### Instructions

- 1 Switch off your DJI Matrice 30 drone and the M30 Flight Termination System will automatically shut down.



- 2 Switch off your Klick trigger remote control.



- 3 Your external FTS Kronos M30 has been switched off. ✔

# DISMANTLING

## of Flight Termination System

To dismantle M30 Flight Termination System, follow the instructions below in order:

### Instructions

1

To dismantle the system, simply follow the installation instructions in reverse order. The Klick trigger remote control module can remain installed on the DJI Matrice 30 remote controller without affecting its operation.

# RESET

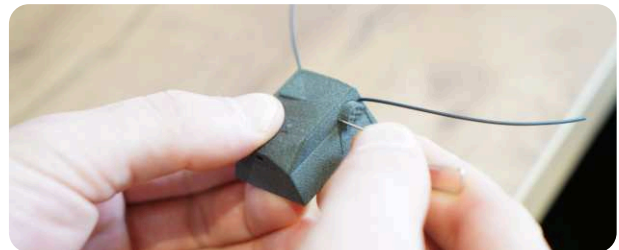
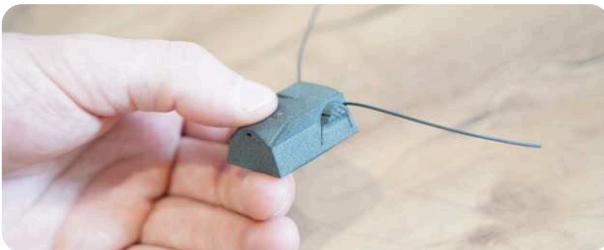
## of Flight Termination System

In the event of a malfunction or 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 & warranty

## STORAGE

Store the Kronos Matrice 30 accessory kit for DJI Matrice 30 in a dry place, at a temperature between 10°C and 30°C, clean and protected from UV light.

## SPECIFIC MAINTENANCE

In the event of contact with moisture, chemicals or other substances, the POD must be replaced immediately.

## WARRANTY

Dronavia takes great care in the design and production of its products. We warranty our accessory kit 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. It is strictly forbidden to replace the batteries in the DJI Matrice 30 drone when it is switched on (Hot Swap), as this may damage the system and invalidate the 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 class C5  
published by EASA :



The IGN map of  
restricted areas for  
drones



European Union Aviation  
Safety Agency (EASA)



The French Civil Aviation  
Authority (DGAC)



Ask our sales team your questions



# DRONAVIA

## Updater

Dronavia has recently launched an innovative software solution specifically designed to simplify the updating of Kronos systems. Thanks to this new software, Dronavia customers can now manage and update their systems more quickly and easily.

Download Dronavia  
Updater software



# CONTACT US



+33 3 54 40 00 78



[distri@dronavia.com](mailto:distri@dronavia.com)



[www.dronavia.com](http://www.dronavia.com)

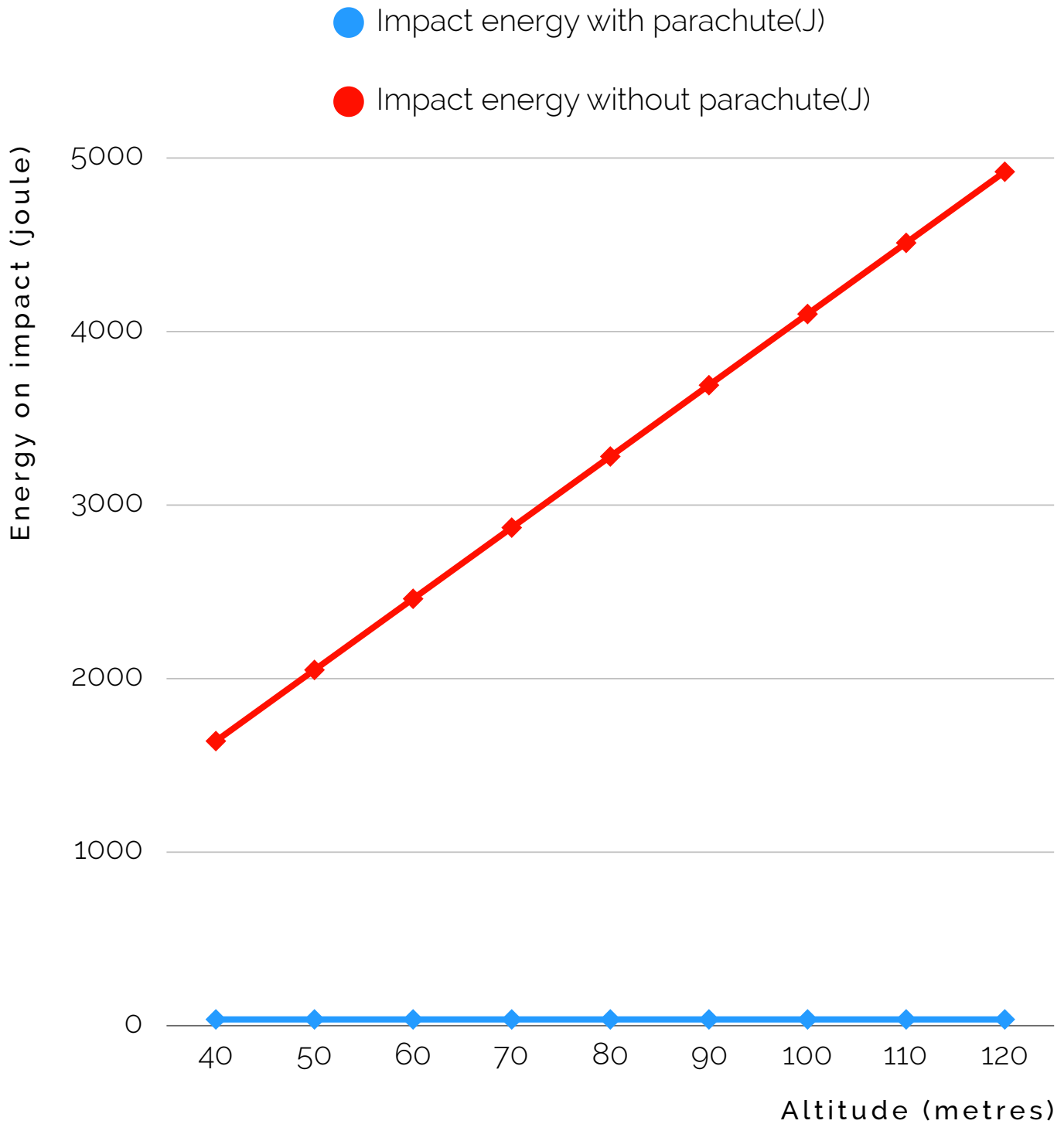


| Dronavia Channel



# APPENDICES

Impact energy (joule) / Altitude (metres)



# APPENDICES

Falling speed (m/s) / Weight (kg)

Weight (kg)	Falling speed (m/s)	Fall speed without parachute (m/s) * (m/s)
4,18 kg	4,15 m/s	28 m/s

\*for a fall from a height of 20 metres

# APPENDICES

Deployment height (m) / Minimum extent of buffer zone for ground-related risks (m)

OPERATING VOLUME VERTICAL LIMIT	40	106	GROUND RISK BUFFER ZONE
	50	144	
	60	183	
	70	221	
	80	259	
	90	297	
	100	336	
	110	374	
	120	412	

The ground risk threshold can be calculated as a function of different drone parameters and different assumptions. Please refer to the document dedicated to calculating the ground risk threshold, if you need to calculate more precise ground risk thresholds for your application.