Dronavia

MADE IN FRANCE

USER MANUAL & INSTRUCTIONS

CONVERSION KIT C5 FOR DJI MATRICE 30

FLIGHT MANUAL (C5) - PRS-FTS-MOC KRONOS AD MATRICE 30 V1.1

SUMMARY

1 INTRODUCTION

2 PARACHUTE SYSTEM

3 ANNUAL MAINTENANCE

SUMMARY

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 internal Flight Termination System — is the result of 8 years of research and development, fully complying with EASA requirements for C5 Class.

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 Pelletey, Dronavia's CEO.

VERSION NOTE

Version 1.0

- Initial release.

Version 1.1 – 12/06/2025

- Improved power-on logic: the parachute system can now only be activated when connected to the drone, significantly reducing the risk of improper handling and accidental deployment.

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 C5 conversion kit, which includes a Parachute Recovery System & autonomous Flight Termination System, specifically designed for the DJI Matrice 30 drone.

The Kronos M30 C5 conversion kit complies with the technical requirements of the EASA-defined C5 Class category and has been developed through a rigorous R&D process, ensuring the highest level of safety for flight operations under STS-01 scenarios.

Based in Remiremont, France, Dronavia is here to support you with the use of your Kronos M30 C5 conversion 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 C5 Class

TO BE READ CAREFULLY

The Kronos M30 Parachute Recovery System and Flight Termination System form a conversion kit specifically designed to upgrade a Class C2 drone to Class C5, in full compliance with the technical and regulatory requirements set by EASA.

COMPLIANCE with C5 Class

EXTRACT FROM REQUIREMENTS PUBLISHED BY EASA

A Class C5 UAS complies with the requirements defined in Part 4, except for those specified in points 2) and 10) of Part 4.

In addition, it meets the following requirements:

1. It must be an aircraft other than a fixed-wing aircraft, unless it is a tethered aircraft;
2. If equipped with a geo-awareness function, it must comply with point 10) of Part 4;
3. During flight, it must provide the remote pilot with clear and concise information regarding the UA's height above the surface or take-off point;
4. Unless it is a tethered aircraft, it must be equipped with a selectable low-speed mode that limits the maximum ground speed to 5 m/s;
5. Unless it is a tethered aircraft, it must provide the remote pilot with a means to interrupt the UA's flight, which must:
6. a) Be reliable, predictable, and independent of the automatic flight guidance and control system—including its activation;
7. b) Force the descent of the UA and prevent horizontal powered movement;
8. c) Include a means to reduce the impact energy of the UA;
9. Unless it is a tethered aircraft, it must allow the remote pilot to continuously monitor the quality of the command and control link and provide:
10. a) An alert when the link is about to degrade or disconnect to the extent that safety is compromised;
11. b) A second alert when the link is fully disconnected;
12. In addition to the instructions specified in point 15(a) of Part 4, the manufacturer's instructions must also include a description of the flight termination method as defined in point 5);
13. A Class C5 UAS may be a Class C3 UAS fitted with an accessory kit that transforms it into a Class C5 UAS. In this case, the C5 class label must be affixed to all accessories.

The accessory kit may only transform a Class C3 UAS that complies with point 1) and includes the necessary interfaces for use with the accessories.

The accessory kit must not include any modifications to the software of the Class C3 UAS.

The accessory kit is designed and each component is identified in a way that ensures it can be completely and correctly installed by a UAS operator on a Class C3 UAS, following the instructions provided by the kit manufacturer.

The accessory kit may be placed on the market independently of the Class C3 UAS it converts. In this case, the kit manufacturer must place on the market a conversion kit that:

1. Does not compromise the compliance of the Class C3 UAS with Part 4 requirements;
2. Ensures that the UAS equipped with the accessory kit meets all additional requirements outlined in this part, except for point 3) above;
3. Is accompanied by manufacturer's instructions that include:
4. i) A list of all Class C3 UAS models compatible with the kit;
5. ii) Detailed instructions on how to properly install and operate the accessory kit.

EASA European Aviation Safety Agency APPROVED

COMPLIANCE with C5 Class

The Kronos AD Matrice 30 and 30T drones are specially designed and tested by Dronavia, based on DJI drones originally marked as C2 — specifically the DJI Matrice 30 and 30T models.

The information contained in this manual is intended to complement the original DJI drone manual. In the event of conflicting information, the content of this manual shall prevail. The Kronos AD Matrice 30 and 30T drones are C5-classified systems, based on the original C2 classification of the DJI Matrice 30 and 30T.

The modifications made to the DJI Matrice 30 and 30T include the integration of a Parachute Recovery System (PRS), an independent Flight Termination System (FTS) not connected to the flight controller, a dedicated remote control (FT Link) for triggering the PRS and FTS—independent from the main C2 communication link—and additional components designed to minimize drone damage in the event of parachute deployment.

The C5 classification is only valid when all required components are present during flight: PRS / FTS / RC and the additional protective elements. The original DJI warranty remains valid, provided the drone is restored to its original factory condition before being sent to DJI for after-sales service. Please contact Dronavia or your authorized reseller for further information.

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WARNINGS & safety precautions

TO BE READ CAREFULLY

The Kronos M30 conversion 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.

15 SAFETY

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. 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.

15 SAFETY

instructions to follow

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.

LISTING

and identification of accessories

PART	QUANTITY	IMAGE	C5 LABEL	DESCRIPTION
PRS	1		YES	The Kronos Matrice 30 plug & play Parachute Recovery System for DJI Matrice 30 makes your flights safer by slowing your drone's fall speed and impact energy in the event of a problem. The parachute can be deployed automatically or manually using the Klick trigger remote control.
FTS	1		YES	The Kronos Matrice 30 plug & play Flight Termination System, developed for the DJI Matrice 30, prevents the drone fitted with it from leaving its regulation flight envelope by cutting (manually or automatically) the drone's power supply in less than a second.
KLICK	1			The Klick trigger remote control offers a fast, secure way of remotely deploying your Kronos safety accessories (PRS and FTS). Totally independent of the drone, this lightweight, ergonomic remote control features LED status indicators and a secure wireless connection.

PART	SOFTWARE VERSION	VERIFICATION METHOD	DIMENSIONS	MASS
PRS	Para_MOC_IA_v1.9	See 'System states' on page 30	145 x 100 x 80 mm	340 G
FTS	CC_MOC_M30_v1.0	See 'System states' on page 30	95 x 58 x 15 mm	70 G
KLICK	Radio_MOC_v1.3	See 'System states' on page 30	32 x 28 x 13 mm	20 G

LISTING

of drones compatible with the conversion kit

MODEL	MANUFACTURER	CONFIGURATION	VERSION OF SOFTWARE TESTED	ORIGINAL C2 DECLARATION OF CONFORMITY
Matrice 30	DJI	Any payload if the take-off weight is less than 1.15 KG, including conversion kit.	?	See appendix

CONFIGURATION

of the C2/C5 conversion kit

Depending on the nature of your missions and the associated regulatory requirements, two flight configurations are available: C2 and C5. To switch from one configuration to the other, follow the instructions below in order:

1 When the Kronos M30 conversion kit (PRS + FTS) is installed on the DJI Matrice 30 drone, your drone is configured for C5 flight classification.

2 To operate in C2 flight configuration, simply uninstall the parachute system (PRS) and the flight termination system (FTS) from the DJI Matrice 30 drone.

Warning

When returning the drone to DJI for after-sales service, the Kronos M30 safety accessories (PRS + FTS) must first be removed. Once this operation has been carried out, the drone will be returned to its original C2 class configuration, guaranteeing that the DJI manufacturer's warranty will remain in force.

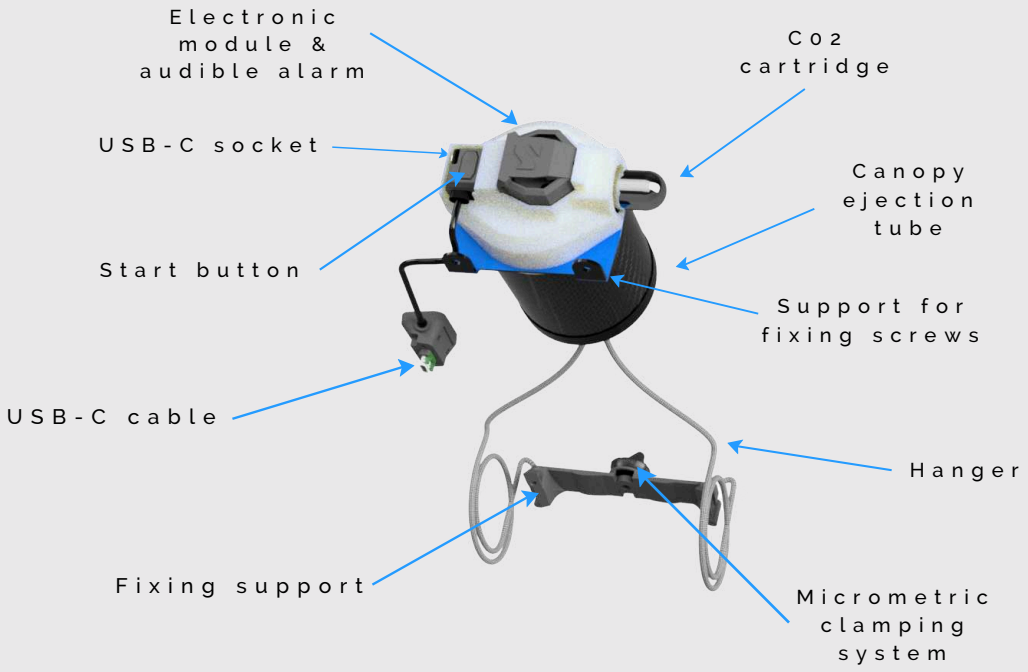
SECTION

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

System Visual Representation

KRONOS M30

Overview of Key System Figures

KRONOS M30

Technical specifications

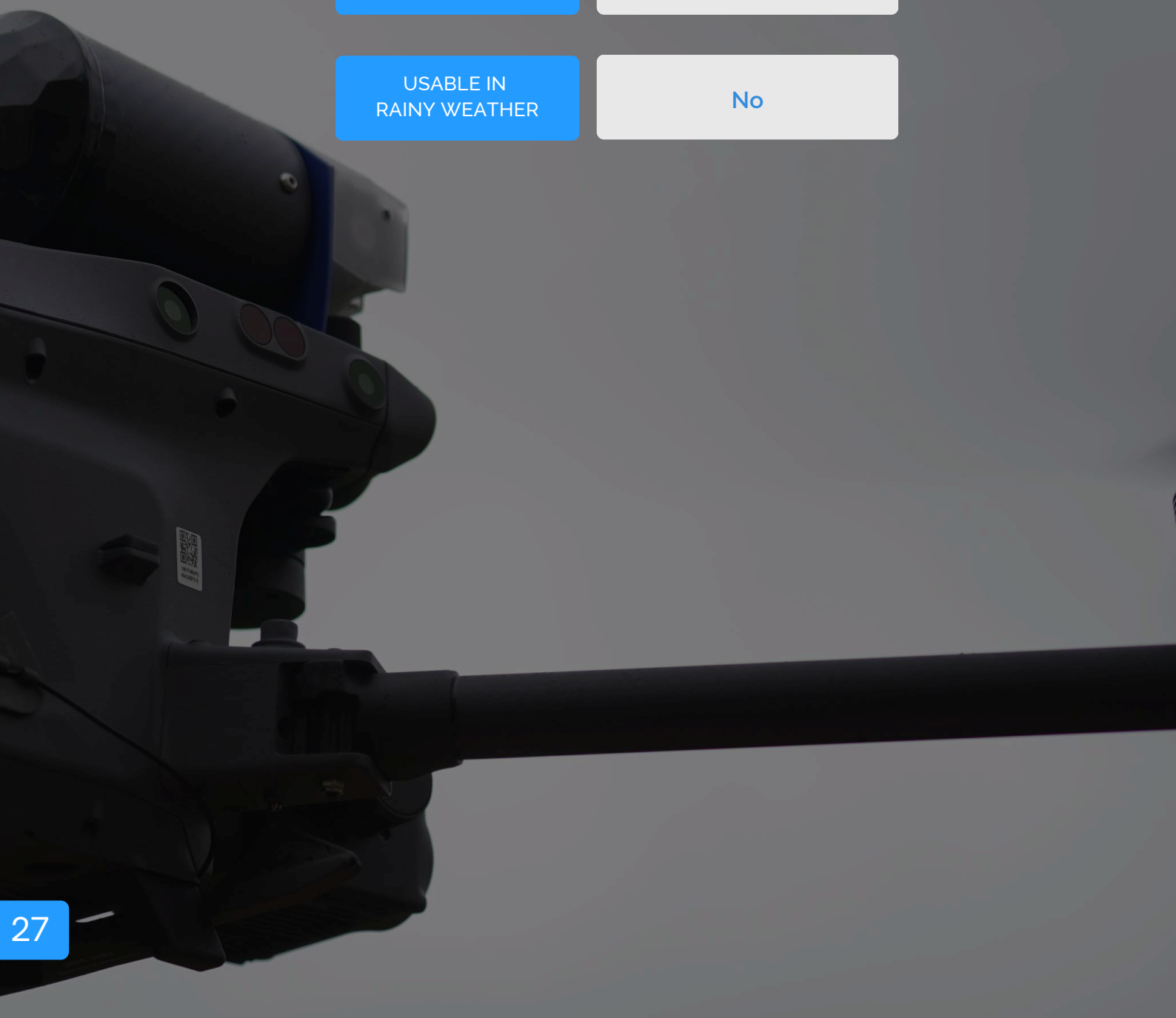
TOTAL WEIGHT	340 GRAMS
EJECTION DEVICE	SPRING C02 CARTRIDGE (4G)
MINIMUM HEIGHT EFFICIENCY	FROM 34 METERS
COMMUNICATION WIRELESS RADIO	SRD860 WITH ENCRYPTED KEY (869 MHZ / 100 MW)
RANGE OF THE KLICK REMOTE CONTROL	1500 METERS*
PARACHUTE AUTONOMY	10 HOURS
KLICK REMOTE CONTROL AUTONOMY	30 HOURS
ENERGY 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

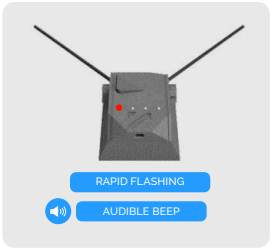
Minimum Size of the Ground Risk Buffer (GRB)

OPERATING VOLUME VERTICAL LIMIT	GROUND RISK BUFFER ZONE
30	79
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

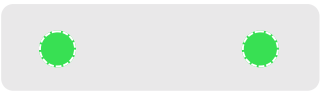
INITIALIZATION



System initialization

CONNECTION

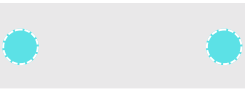
FTS Connected



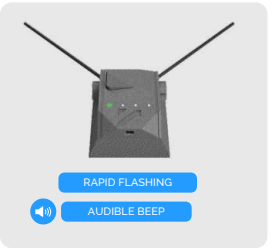
FTS & PRS Connected

FTS & PRS Connected with Autonomous Deployment

FTS not connected (Only the PRS is connected)



ACTIVATION AND DEPLOYMENT



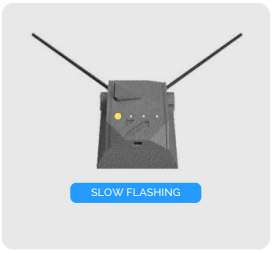
FTS triggered only

FTS triggered & PRS deployed

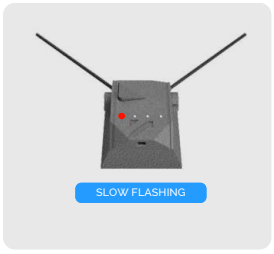
FTS triggered & PRS deployed with Autonomous deployment

SYSTEM states

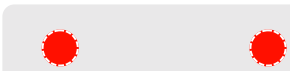
SYSTEM & BATTERY ALERTS

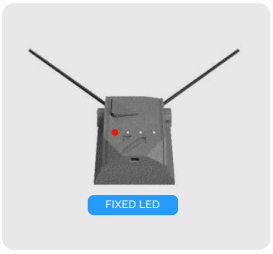


Signal lost with remote control (Klick)



Low battery

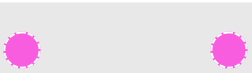




System error

Charging the battery

Signal scrambled



Battery charged

SIGNAL states

Four LEDs let you check the status of the link between the Klick trigger remote control and your Kronos M30 conversion kit. The signal level is represented by the number of lights on: the more lights, the more stable the connection.

The different LED states

Lost signal

FIXED LED

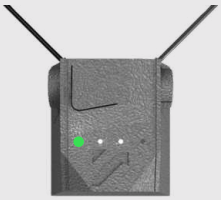
LONG BEEP

Low signal

FIXED LED

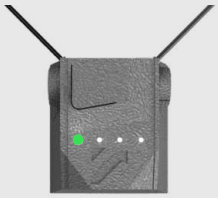
DOUBLE SHORT BEEP

Medium signal



FIXED LED

Strong signal



FIXED LED

Warning

If the signal is lost, the manual release of the Parachute Recovery System and the Flight Termination System will become inoperative. Move closer to the drone to re-establish the link with the Klick remote control.

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

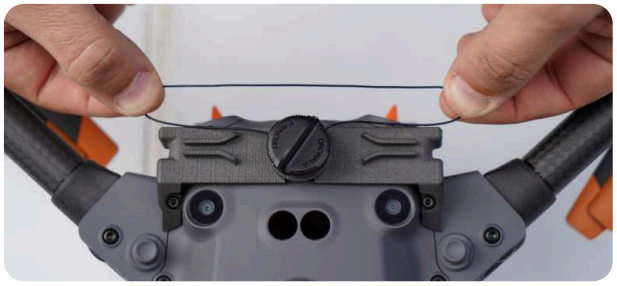
For reasons of operational safety and to prevent inadvertent deployment, the M30 Parachute Recovery System incorporates an automatic lock that prevents deployment at altitudes below 20 metres. This limitation ensures that the parachute system can only be activated in conditions that guarantee the minimum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

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

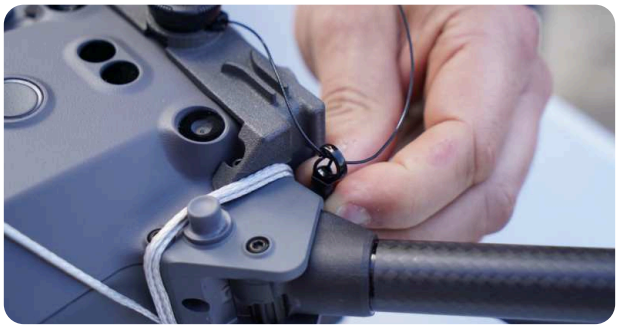
4 Remove the operculum from the POD, then screw the POD onto the previously installed parachute mount until the POD is fully tightened. You should hear a slight 'click'.

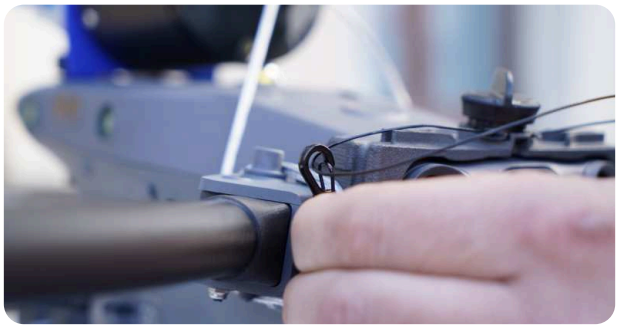
5 Separate the two parachute lines, one on the right of the drone and the other on the left of the DJI Matrice 30.

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.

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

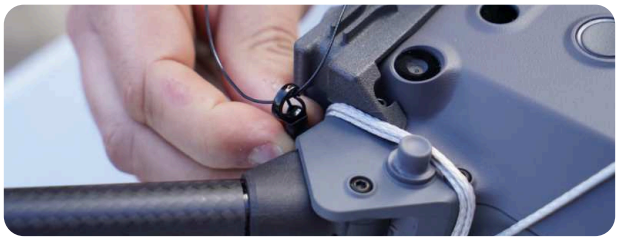


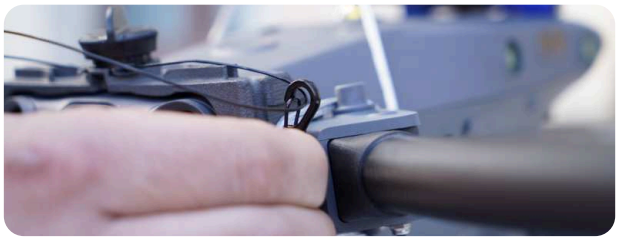


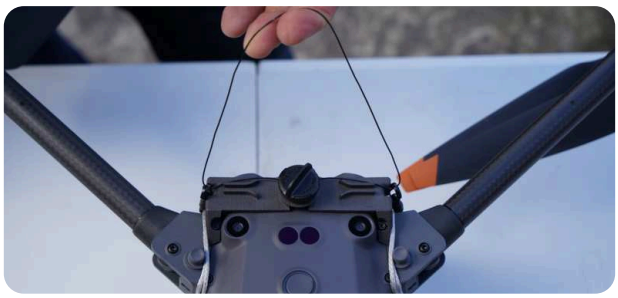
INSTALLATION
of the parachute system

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.

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







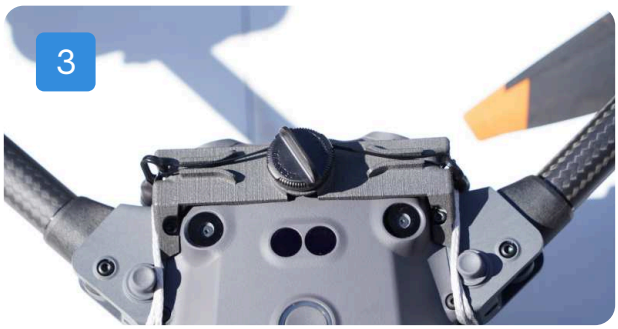
INSTALLATION
of the parachute system

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.

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.

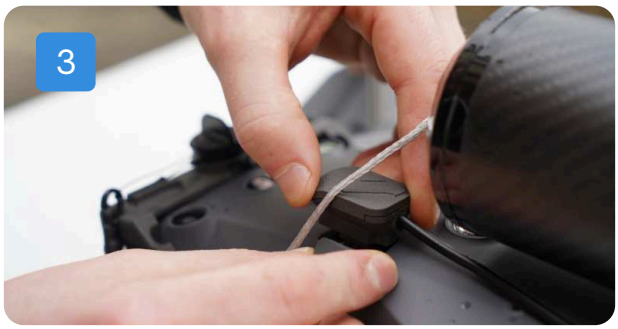


Warning

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.



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 65.**

INITIALIZATION
of the parachute system

To initialize the Kronos M30 parachute system, follow the steps below in order:

Instructions

1. Power on your DJI Matrice 30 drone. Ensure that the USB-C cable is properly connected between the parachute system and the drone. This connection is essential to allow the automatic initialization of the parachute system.

2. Power on the Klick trigger remote. Once the connection with the parachute system is established, a cyan-blue LED flashes on the Klick trigger remote, and an initialization sequence appears on the module's LED, confirming successful startup and operational readiness of the system.

3. At the end of this sequence, the LED on the parachute module and the LED on the Klick remote flash cyan blue when a connection with the parachute system is established, and cyan blue and green when the connection is established with both the parachute system and the Flight Termination System (FTS).

4. **Your Kronos M30 parachute system is now initialized.**

INITIALIZATION
of the parachute system

Warnings

For operational safety and to prevent any accidental deployment, the Kronos M30 parachute system can only be powered on when it is connected to the DJI Matrice 30 drone via the USB-C cable and the drone is powered on. The system cannot be activated without a valid USB-C connection.

The power button on the parachute module serves only two functions: checking the battery level via the LED indicator and manually shutting down the system.

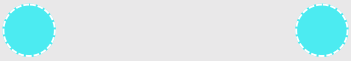
The different LED states

System initialization

RAPID FLASHING AUDIBLE BEEP

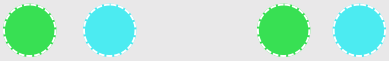
Parachute on, waiting to be activated

RAPID FLASHING



FTS & PRS Connected

SLOW FLASHING BIP SONORE



FTS not connected (Only the PRS is connected)

SLOW FLASHING BIP SONORE

ACTIVATION

of the autonomous deployment function of the parachute system

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

Warning

For operational safety and to prevent any unintentional deployment, the Kronos M30 parachute system includes an automatic lockout that prevents deployment below 20 meters altitude. This limitation ensures that the parachute can only be deployed under conditions that guarantee a minimum level of effectiveness. Warning: Manual deployment of the parachute system remains possible at any time via the Klick trigger remote.

Instructions

1. The Kronos M30 parachute system automatically detects the drone's takeoff. During this phase, the LEDs on both the parachute module and the Klick remote flash purple, and double audible beeps are emitted.

2. When the drone reaches an altitude of 20 meters, two distinct audible beeps confirm that the minimum threshold required for activation of the autonomous parachute deployment function has been reached. The LEDs on both the parachute module and the Klick remote then flash dark blue.

3. Your Kronos M30 parachute is now active with the autonomous deployment function enabled.

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. A minimum altitude of 20 meters is required to enable the autonomous deployment function.

ACTIVATION

of the autonomous deployment function 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

FTS not connected (Only the PRS is connected)

SLOW FLASHING

AUDIBLE BEEP

Autonomous deployment being activated

CONTINUOUS DOUBLE BEEP

SLOW FLASHING

Autonomous deployment activated

2 SHORT, LOUD BEEPS

SLOW FLASHING

DEACTIVATION

of the autonomous deployment function of the parachute system

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

Instructions

1 The Kronos M30 parachute system automatically detects the landing of the DJI Matrice 30 drone. Approximately 5 seconds after detection, an audible beep is emitted and the dark blue LED turns off. The takeoff detection module then automatically deactivates. It will reactivate on the next flight once the drone reaches a minimum altitude of 20 meters.

Warning

If the dark blue LED on the Kronos M30 parachute system remains illuminated, it indicates that the autonomous deployment function is still active. Do not handle the drone to avoid any risk of unintentional deployment. Wait an additional 5 seconds for the system to automatically deactivate.

The autonomous deployment function of the Kronos M30 parachute system is now deactivated; however, the parachute remains active and can still be deployed using the Klick trigger remote.

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

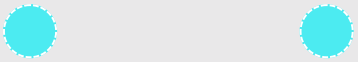
4 To completely deactivate your Kronos M30 parachute system: If the parachute system is connected to the drone using the provided cable, simply power off the DJI Matrice 30 drone and the parachute system will shut down automatically. Otherwise, turn off the Kronos M30 parachute system by pressing and holding the power button for 2 seconds.

DEACTIVATION
of the parachute system

The different LED states

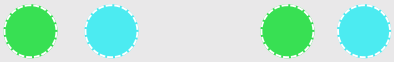
Parachute not connected to the Klick remote control

SLOW FLASHING AUDIBLE BEEP



Parachute connected to the Klick remote control

SLOW FLASHING AUDIBLE BEEP



FTS not connected (Only the PRS is connected)

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

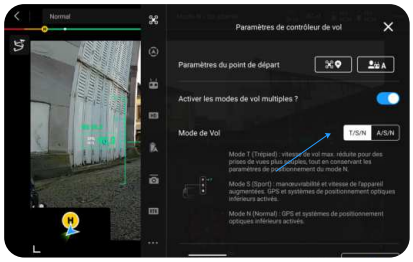
LOW-SPEED
mode

European EASA regulations require the inclusion of a low-speed mode that can be selected on the drone and activated manually by the drone operator. When the low-speed mode is activated, the drone cannot exceed a speed of 5 m/s. To activate the low-speed mode (Mode T), follow the instructions below in order:

Instructions

1 Switch on your DJI remote control.

2 Access the camera view, then click on the menu represented by the 3 dots at the top right of the screen. Check that the T/S/N flight mode is selected.



3 Switch the flight mode selector on the DJI RC Plus radio control from mode N to mode F. Mode F corresponds to mode T.

SPORT mode

The use of mode S (Sport) is prohibited when the C5 conversion kit is installed on the DJI Matrice 30 drone. All validation tests on the Kronos M30 system were carried out exclusively in N (Normal) mode, guaranteeing behaviour that complies with safety requirements.

Warning

When using SPORT mode, Dronavia accepts no responsibility for non-deployment, partial or delayed deployment of the parachute system, due to flight dynamics incompatible with the system's deployment parameters.

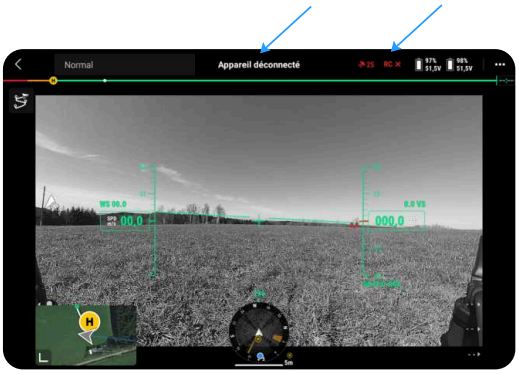
STATES
of DJI remote controller

Indicators on the DJI remote controller allow you to check the signal status between the DJI Matrice 30 drone and the DJI remote controller during a flight.

Strong signal

Low signal

Lost signal



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 FTS 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.

Advice

If the parachute system is not manually powered off, it will automatically shut down after 30 seconds. The Flight Termination System (FTS) powers off automatically when the DJI Matrice 30 drone is turned off.

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 65.**

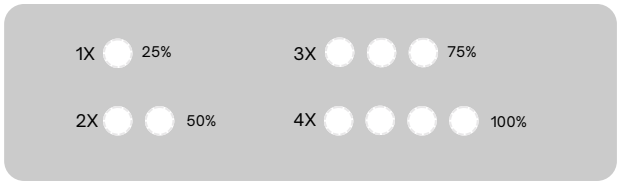
CHECKING
of the parachute system battery

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

Instructions

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

The different LED states



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 initialization 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 **or** Repackaging of the canopy	Final user **or** DRONAVIA or any certified partner
Every 5 years	Mandatory manufacturer global maintenance	Manufacturer
After every deployment	Rearming of the parachute system	Final user **or** DRONAVIA or any certified partner
After every deployment	Inspection of the CO_2 system	Final user **or** DRONAVIA or any certified partner
After every deployment	CO_2 cartridge replacement	Final user **or** DRONAVIA or any certified partner
After every deployment	Replacement of the POD **or** Repackaging of the canopy	Final user **or** 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

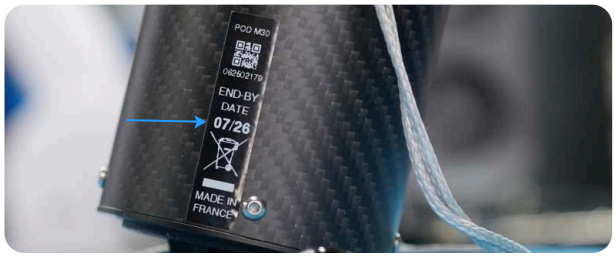
To be maintained in optimum working order, each Parachute Recovery System must be monitored for installation, de-installation, firmware updates, preventive or post-deployment maintenance. Here is a table summarising the operations to be listed:

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.

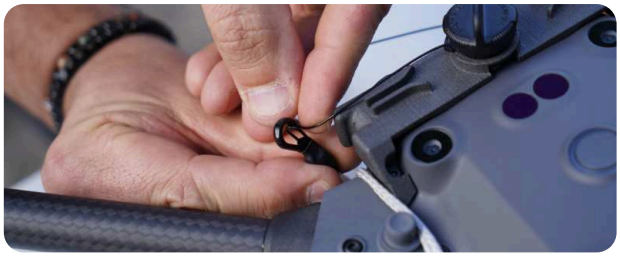
Instructions

1 Switch off your Kronos M30 parachute system.

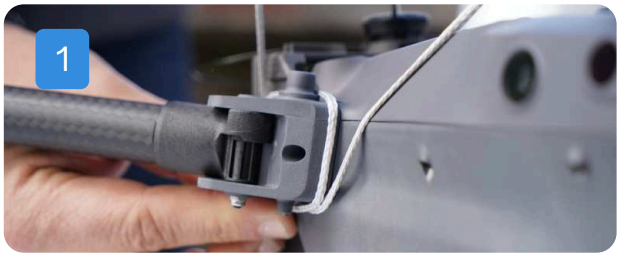
2 Unlock the micrometer system by pulling the collar upwards until you hear a slight click. Then loosen the cable by turning the mechanism anti-clockwise.

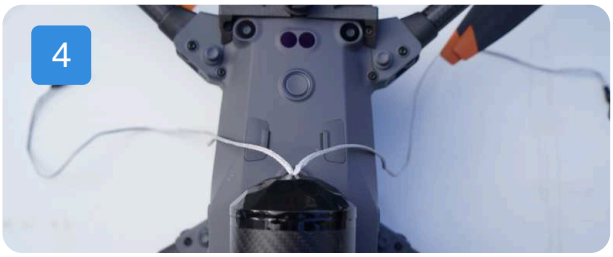
REARMING
of the parachute system

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.



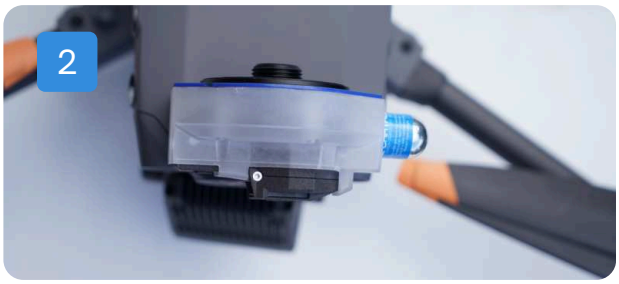
4 Unwind the right parachute line, previously wrapped around the drone's right arm. Repeat the operation in the same way for the left parachute line.





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.



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 CO_2 cartridge by unscrewing it.

INSPECTION
of the CO2 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 CO2 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 CO2 cartridge

11 Remove the tool, then install a new CO2 cartridge.

12 **Each CO2 cartridge replacement must be entered in the 'List of installations and de-installations and maintenance operations' section on page 65.**

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 65.**

16 **Your Kronos M30 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 CO2 cartridge

TYPE	CARTRIDGE OF CO2
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 CO2 cartridge is used.

12 INSTRUCTIONS
to follow

1. Keep the CO_2 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_2 cartridges at normal temperatures between 10 and 20°C. CO_2 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

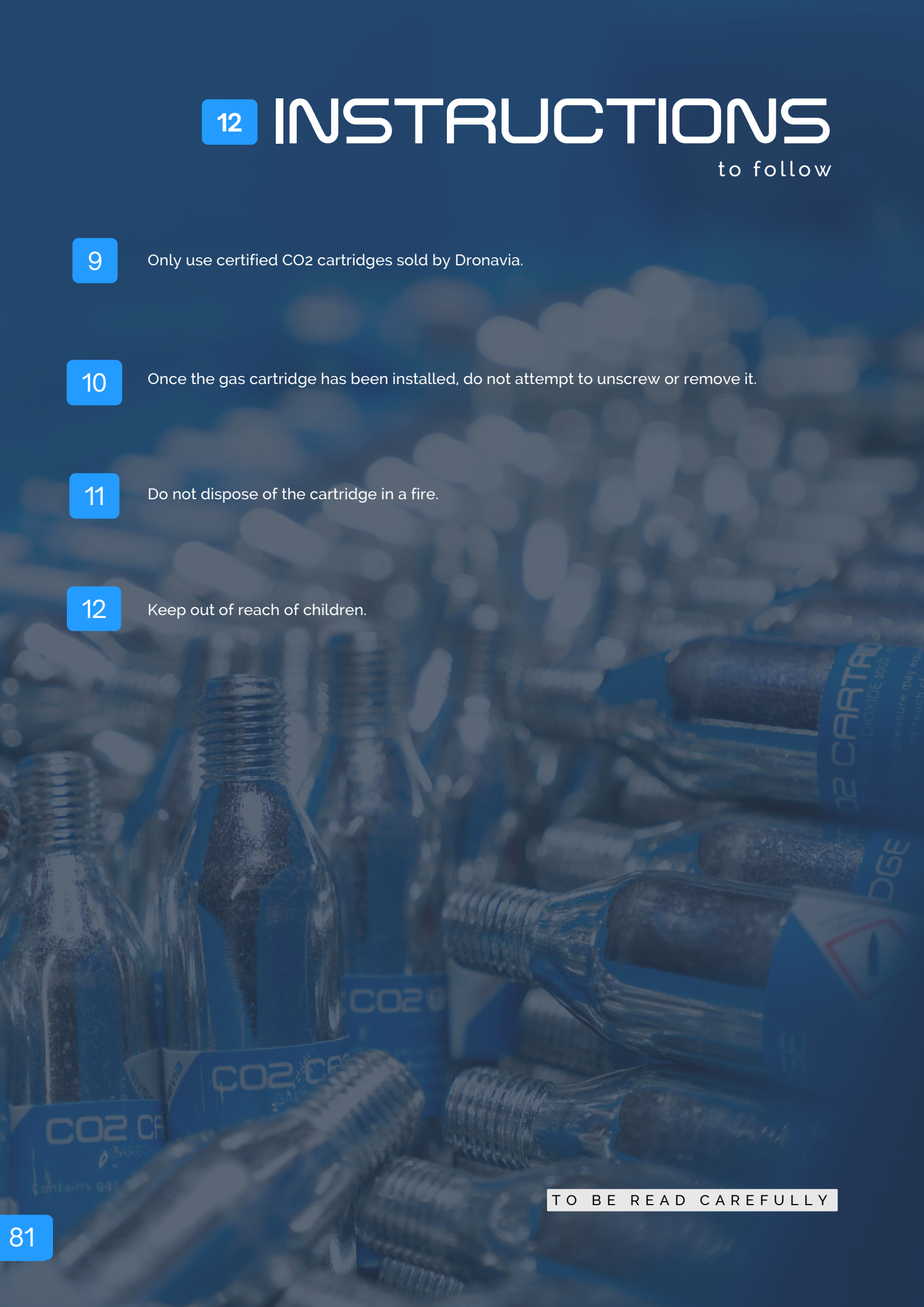
12 INSTRUCTIONS
to follow

9 Only use certified CO_2 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

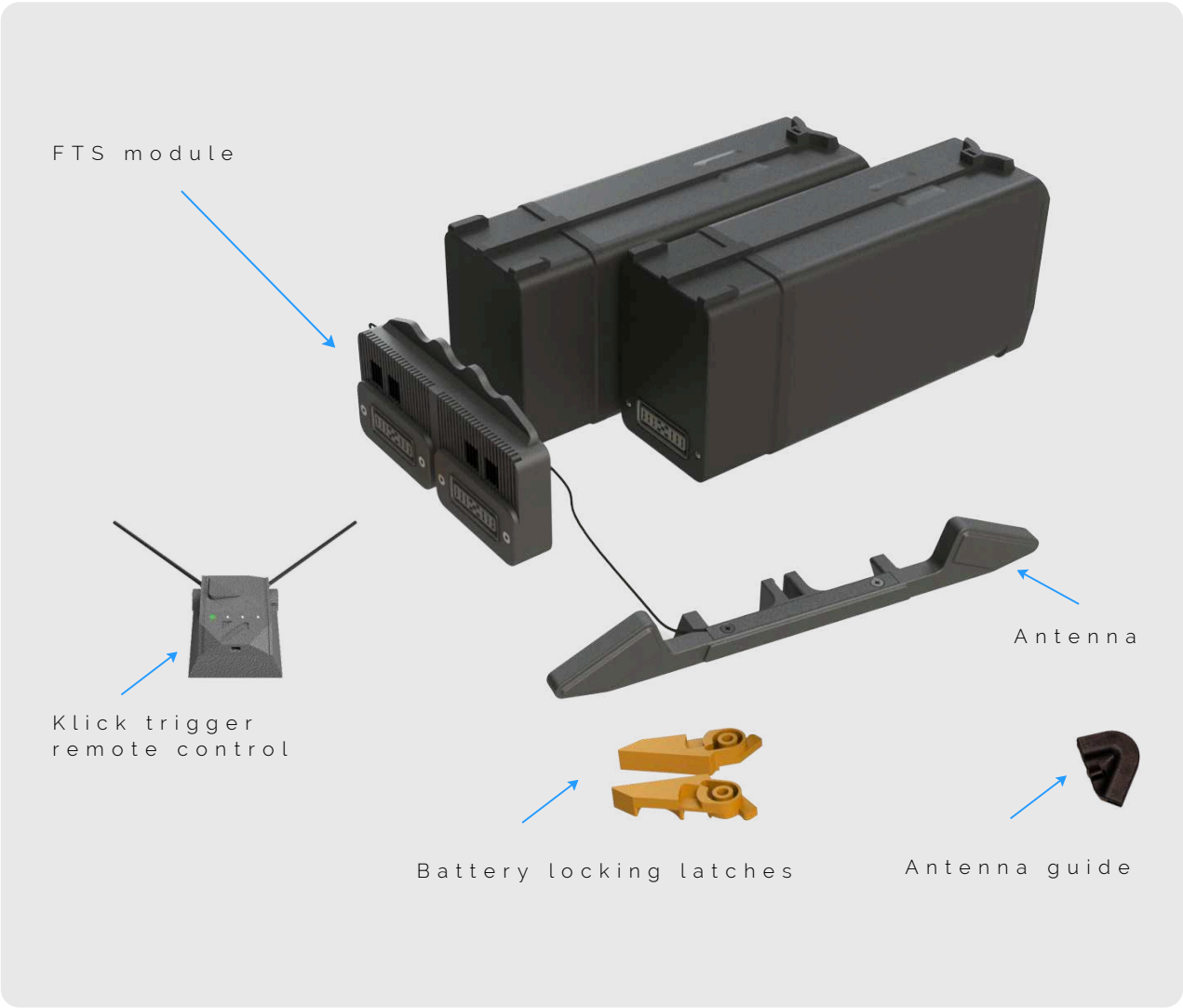
SECTION

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 86.

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 90.

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.

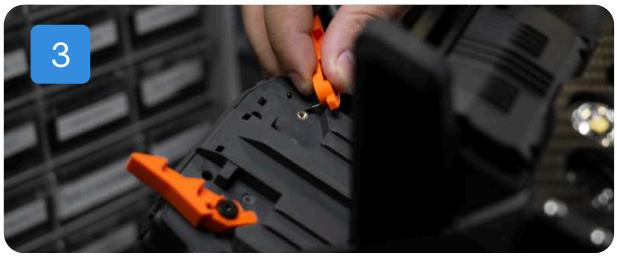
INSTALLATION
of the FTS

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.



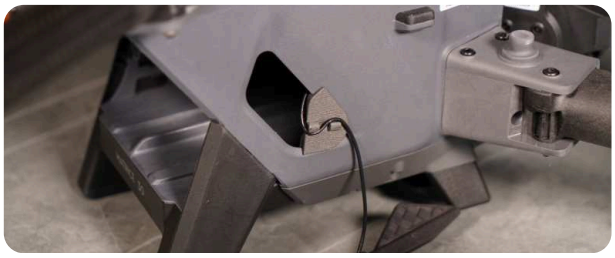
INSTALLATION
of the FTS

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

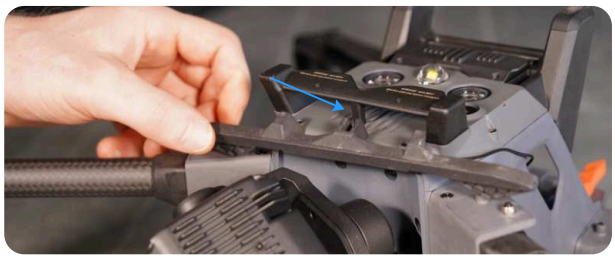
4 Pass the antenna of the FTS through the space on the side of the DJI Matrice 30 drone as shown below.

INSTALLATION
of the FTS

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 the FTS

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 the FTS

To initialize 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.

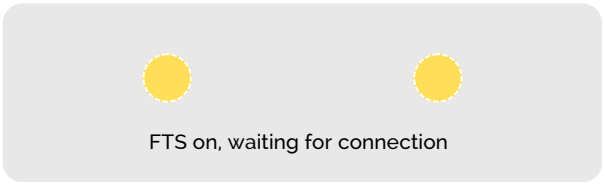
3 **Your external FTS Kronos M30 is initialization started.**

INITIALIZATION
of the FTS

Warning

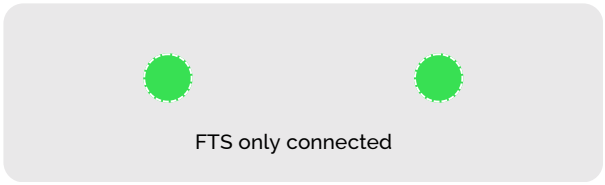
If your Flight Termination System module is connected to a Kronos parachute system for DJI Matrice 30 a green and turquoise LED flashes on the Klick trigger remote control and on your parachute module.

The different LED states



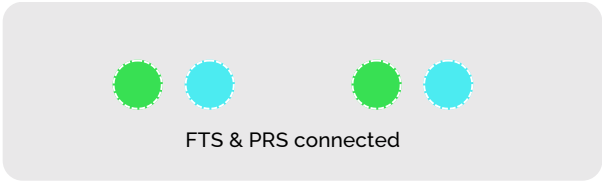
FTS on, waiting for connection

SLOW FLASHING



FTS only connected

SLOW FLASHING AUDIBLE BEEP



FTS & PRS connected

SLOW FLASHING


YOUR FTS IS ACTIVE
AND OPERATIONAL!

MANUAL
activation of FTS

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 FTS

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.

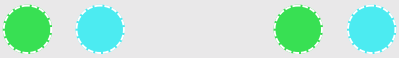
2 Switch on your Klick trigger remote control. When the M30 Flight Termination System is properly connected, a green LED flashes on the Klick tirgger remote control and on the FTS module.

3 When the parachute system is deployed, the Flight Termination System is automatically activated via a secure radio link, pre-configured by Dronavia's experts using encrypted pairing between the two on-board modules.

AUTONOMOUS
activation of FTS

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 FTS testing

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

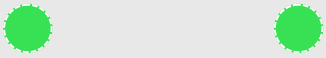
If the Kronos M30 Parachute Recovery System remains connected to the drone via the USB-C cable, it will deploy during the Kronos M30 Flight Termination System test procedure. Remember to disconnect the Parachute Recovery System from the DJI Matrice 30 drone.

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

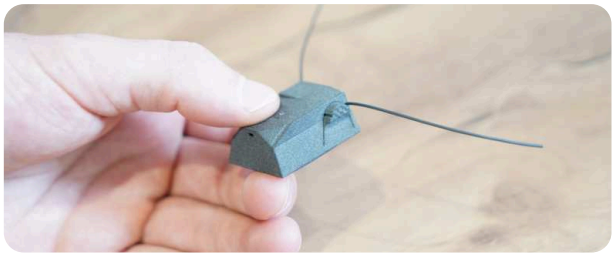
1. To dismantle the system, simply follow the installation instructions in reverse order. The Klick trigger remote control module can remain installed on the DJI Matrice 30 remote controller without affecting its operation.

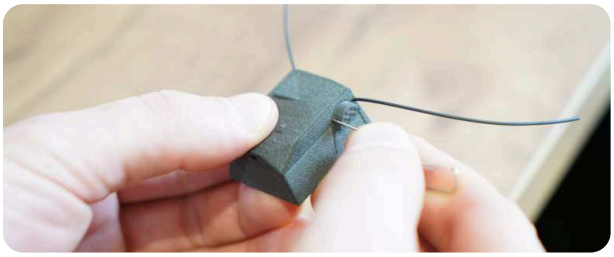
RESET
of Flight Termination System

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

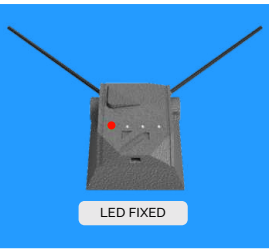
Instructions

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 C5 conversion 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 C5 conversion 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

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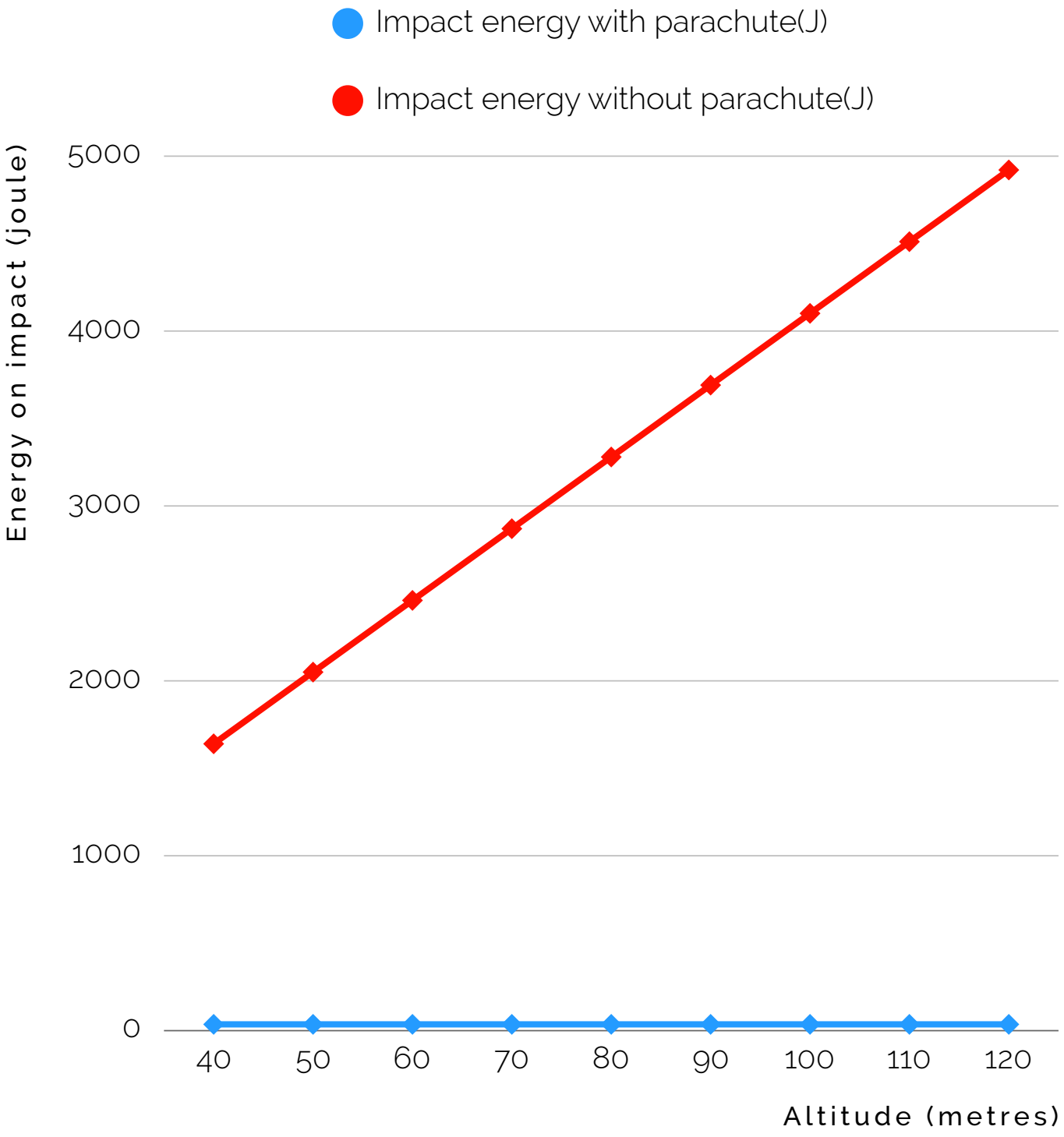
| Dronavia Channel

APPENDICES

Impact energy (joule) / Altitude (metres)



APPENDICES

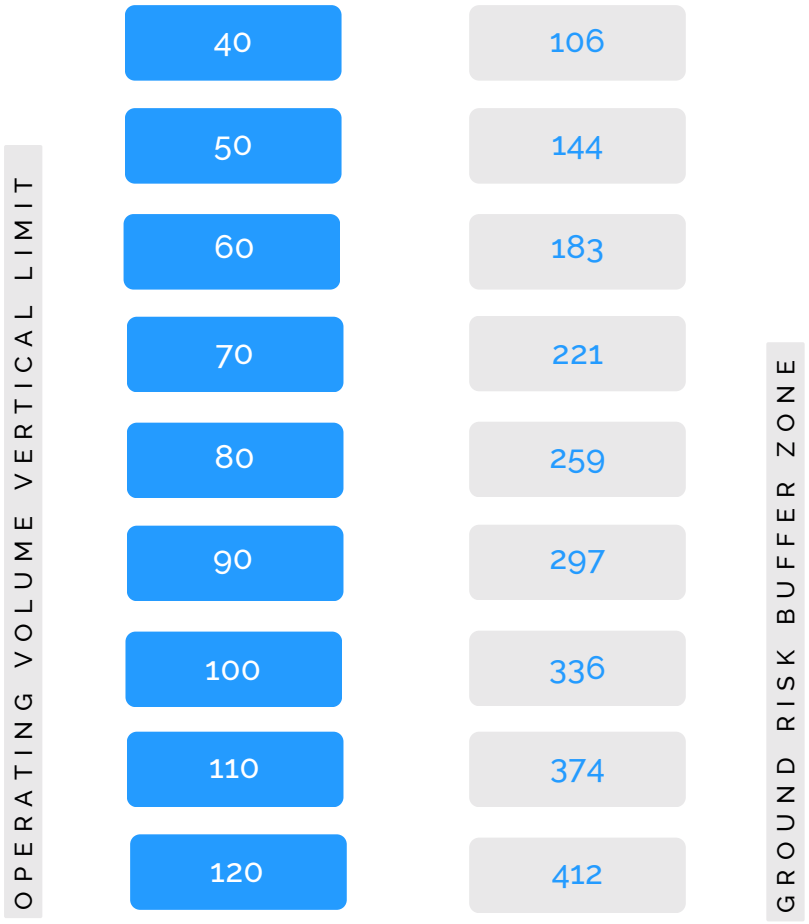
Falling speed (m/s) / Weight (kg)

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)



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.