Dronavia

MADE IN FRANCE

USER'S MANUAL & INSTRUCTIONS

C5 ACCESSORY KIT (PARACHUTE RECOVERY SYSTEM & FLIGHT TERMINATION SYSTEM) FOR DJI MATRICE 350

PRS-FTS-MOC KRONOS AD MATRICE 350 (C5)

WWW.DRONAVIA.COM | +33 (0) 354 400 078 | VERSION 2.1

SUMMARY

Kronos Matrice 350 C5 accessory kit

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INTRODUCTION
by our CEO

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

The fruit of more than 8 years of research and innovation, our new range of Kronos Parachutes Recovery Systems (PRS) and Flight Termination System (FTS) has been developed and tested in accordance with the standards imposed by the EASA and the DGAC, to make your drones compliant with C5 class.

Thanks to its standardised safety accessories, Dronavia ensures that remote pilots have the best risk management and safety measures at their disposal during their flying missions. You'll be flying your DJI Matrice 350 in complete safety.

Thank you for your confidence & enjoy your flight!

Ludovic Pelletey, Dronavia's CEO.

GENERAL presentation

Dear customer,

Congratulations on the purchase of your new C5 accessory kit, including a CO2-deployed Parachute Recovery System (PRS) & a autonomous external Flight Termination system (FTS) for your DJI Matrice 350 drone.

You've chosen what we're sure are the best performing systems of their type. Extensive research and testing have gone into making them as safe and effective as possible.

Based in Remiremont, France, DRONAVIA is at your service to advise you on the purchase of your C5 accessory kit for DJI Matrice 350 and to answer any questions of a technical or commercial nature.

GENERAL presentation

The Kronos PRS Matrice 350 and the Kronos external FTS for Matrice 350 have been designed for DJI Matrice 350 aircraft with the aim of deploying as quickly as possible while keeping the sink rate to a minimum.

Multi-rotor UAVs, even when properly used and maintained, can sometimes find themselves in a critical emergency situation where immediate rescue is required, due to severe weather conditions, radio transmission failure, technical failure of the propulsion system, loss of GPS signal, and soon.

In such situations, the FTS coupled with the quick-release PRS can make the difference between a simple scare and a more serious accident. The Kronos PRS Matrice 350 and the FTS Kronos external Matrice 350 can be activated & deployed in less than a second.

GENERAL presentation

TO BE READ CAREFULLY

These emergency devices do not protect the integrity of the equipment or prevent damage to property or persons; they are a safety feature that complements other safety features. Neither DRONAVIA nor its distributors may be held responsible for any malfunction or operation deemed insufficient or even ineffective.

CERTIFICATION by EASA

The Kronos Matrice 350 Parachute Recovery System and the Kronos Matrice 350 Flight Termination System together form an accessory kit developed to transform a C3 class drone into a C5 class drone, while meeting the requirements published by the EASA:

(8) A class C5 UAS may consist in a class C3 UAS fitted with an accessories kit that ensures the conversion of the UAS C3 into a class C5 UAS. In this case, the class C5 label shall be affixed on all the accessories.

An accessories kit may only ensure conversion of a class C3 UAS that complies with point (1) and provides the necessary interfaces to the accessories.

The accessories kit shall not include changes to the software of the class C3 UAS.

The accessories kit shall be designed, and each accessory shall be identified, to ensure a complete and correct installation by a UAS operator on a class C3 UAS following the instructions provided by the manufacturer of the accessories kit.

The accessories kit may be placed on the market independently from the class C3 UAS for which they ensure the conversion. In this case, the manufacturer of the accessories kit shall place on the market a single conversion kit that shall:

(1) not alter the compliance of the class C3 UAS with the requirements of Part 4

(2) ensure compliance of the UAS fitted with the accessories kit with all additional requirements defined in this Part with the exception of point (3) above

and(3) be accompanied by manufacturer's instructions providing:

(i) the list of all class C3 UAS to which the kit can be applied

and(ii) instructions on how to install and operate the accessories kit.

EASA
European Aviation Safety Agency

WARNINGS & precautions for use

TO BE READ CAREFULLY

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

Dronavia accepts no responsibility for damage or injury caused directly or indirectly by the use of CO_2 cartridges or by the use of CO_2 cartridges that do not comply with safety requirements and standards.

Before handling the Kronos systems for Matrice 350 you must read this manual carefully. It provides information on how to use the parachute. In addition to the important notes and information mentioned in this manual, the owner of the device must comply with all the important instructions set out below.

WARNINGS & precautions for use

TO BE READ CAREFULLY

The C5 accessory kit for Matrice 350 consists of 2 safety devices which, under certain conditions, prevent the drone fitted with them from leaving its regulatory flight envelope by cutting its engines, and prevent the drone fitted with them from free-falling.

Activation of the FTS and/or PRS inevitably involves the drone falling.

This equipment does not prevent technical problems occurring on the drone. Any flight with a drone implies the existence of a danger for the equipment and people in the vicinity, regardless of the safety equipment used. Using the Kronos FTS and PRS for the DJI Matrice 350 should in no way increase your risk.

15 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. Incorrect use could cause the CO2 cartridge to burst, endangering your life. The maximum operating temperature is 40˚C and the minimum operating temperature is -5˚C.

6. The condition of the Kronos PRS and FTS system for Matrice 350 should be checked before each flight. Do not use the device if it is damaged. If necessary, contact your reseller.

7. The Kronos PRS and FTS for Matrice 350 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 the Kronos safety systems for Matrice 350.

TO BE READ CAREFULLY

15 INSTRUCTIONS

to follow

9 The use of a Kronos PRS and FTS system for Matrice 350 should in no way increase your risk.

10 The Kronos PRS for Matrice 350 attempts to prevent a malfunctioning drone from free-falling. However, there are fall situations in which the effectiveness of the Kronos PRS for Matrice 350 may be limited or impeded.

11 The Kronos PRS and FTS system for Matrice 350 must be actively activated by the user. Regular training is necessary to be able to react correctly in an emergency.

12 The CO2 cartridge and ejection system work only once. You can recharge the system yourself by following the instructions in this manual. It is your responsibility to ensure that the system is covered by 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 firing pin could be ejected and cause serious injury. Safety glasses must be worn.

14 After the device has been deployed, it is advisable to inspect each component carefully to ensure its integrity. If in doubt, contact your resseler.

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

TO BE READ CAREFULLY

LISTING

& accessories identification

PART	QUANTITY	IMAGE	C5 LABEL	DESCRIPTION
PRS	1			The Kronos Matrice 350 plug & play Parachute Recovery System for the DJI Matrice 350 makes your flights safer by slowing your drone's rate of descent 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			The Kronos Matrice 350 plug & play Flight Termination System, developed for the DJI Matrice 350, 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 and secure means of remotely deployment your Kronos safety accessories (PRS / FTS). Totally independent of the drone, this lightweight, ergonomic remote control is equipped with LED status indicators and a secure wireless connection. Designed to adapt to the different uses of professional drone operators and different DJI radio controllers, the Klick trigger remote control is supplied with 3 fixing supports.

PART	SOFTWARE VERSION	VERIFICATION METHOD	DIMENSIONS	MASS
PRS	Para_MOC_IA_v1.2	See "System states" on page 17	9 X 12 X 20 cm	450 G
FTS	CC_MOC_M300_v1.0	See "System states" on page 17	9 x 5.9 x 2 cm	136 G
KLICK	Radio_MOC_v1.1	See "System states" on page 17	32 x 28 x 13 mm	20 G

LISTING

of drones compatible with the accessory kit

MODEL	MANUFACTURER	CONFIGURATION	TESTED SOFTWARE VERSION	ORIGINAL C3 DECLARATION OF CONFORMITY
Matrice 350	DJI	Any payload if take-off weight is less than 9.2 KG, kit included	Aircraft firmware v09.01.01.02	See appendix

KRONOS SYSTEMS

PARACHUTE RECOVERY SYSTEM FOR DJI MATRICE 350

COMPONENTS

presentation

CO2 cartridge (8G)

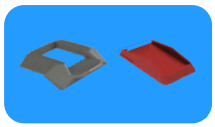
POD (canopy ejection)

Electronic module / Co2 / audible alarm

POD support

Parachute fixing support

Klick trigger remote control



Straps with fastening latch

ADDITIONAL ACCESSORIES SUPPLIED

USB-C cable

Allen key 4mm

Reset tool

Threaded reset tool

Parachute attachments x2

USB kit

KRONOS M350

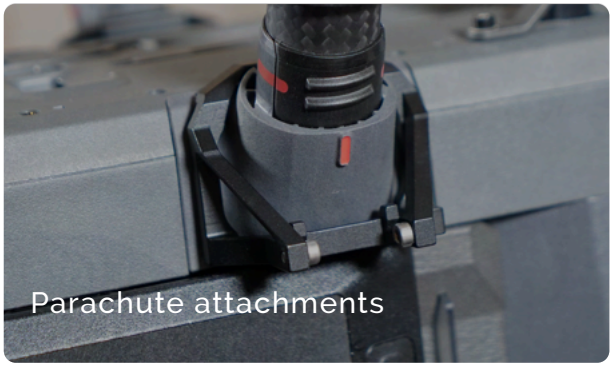
System image

KRONOS M350

System image

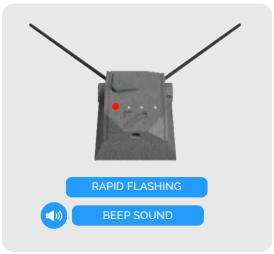
ELEMENTS

of the parachute system



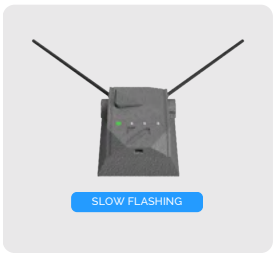
THE STATES
system

STARTING

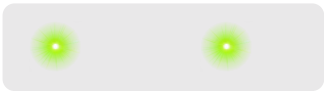


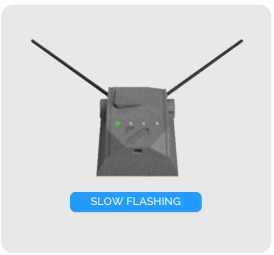
System start-up

CONNECTION

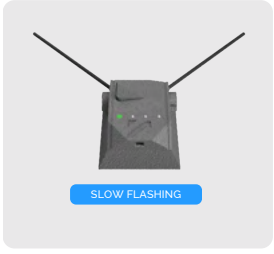


FTS only connected





FTS & PRS connected



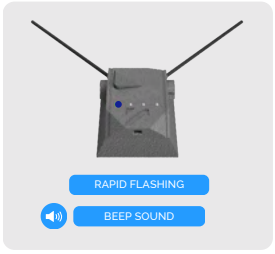
FTS & PRS connected with autonomous deployment

THE STATES
system

ACTIVATION AND DEPLOYMENT

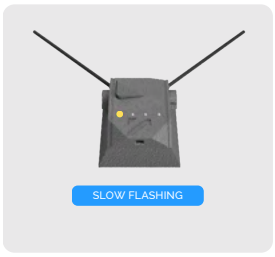
Single FTS triggered

FTS triggered & PRS deployed

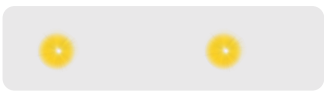


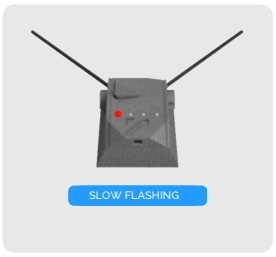
FTS triggered & PRS deployed with autonomous deployment

SYSTEM & BATTERY ALERTS

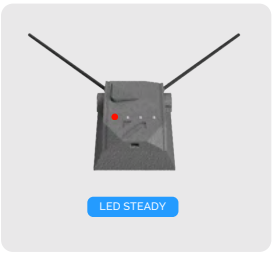


No remote control signal (Klick)

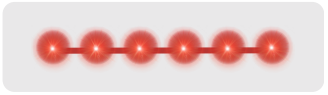




Low battery

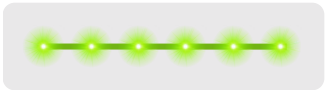


System error



Battery charging

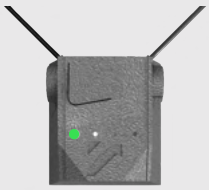
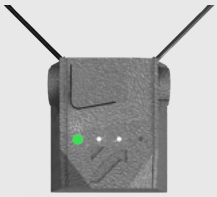
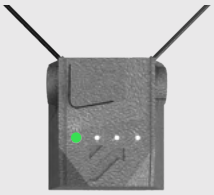
Battery charged



THE STATES
signal

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

The different LED states

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

Warning

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

KRONOS M350

system figures

KRONOS M350

Technical specifications

TOTAL WEIGHT	450 GRAMMES (WITH CARTRIDGE)
EJECTION DEVICE	CO2 CARTRIDGE 4 GRAMS
MINIMUM HEIGHT EFFICIENCY	FROM 39 METERS
COMMUNICATION WIRELESS RADIO	SRD860 WITH ENCRYPTED KEY (869 MHZ / 100 MW)
RANGE OF THE KLICK REMOTE CONTROL	1.5 KILOMETERS
PARACHUTE AUTONOMY	5 HOURS
KLICK REMOTE CONTROL AUTONOMY	23 HOURS
ENERGY GROUND IMPACT	< 77 JOULES
OPERATING TEMPERATURE	-5°C À 40°C

KRONOS M350

Operational limits

MAXIMUM WIND SPEED AT GROUND LEVEL	9,34 m/s
MINIMUM FLIGHT ALTITUDE (AGL)	39 m
OPERATING TEMPERATURES	MIN. TEMPERATURE: -5 °C MAX. TEMPERATURE : 40 °C
USABLE IN RAINY WEATHER	No

KRONOS M350

Dimensions and weights

DRONE

81 x 67 x 43 cm

6 470 to 9 200 g

PARACHUTE

9 X 12 X 20 cm

450 g

PARACHUTE + DRONE

81 x 67 x 63 cm

6 920 to 9 200 g

KRONOS M350

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

OPERATING VOLUME VERTICAL LIMIT	GROUND RISK BUFFER ZONE
40	68
50	90
60	113
70	135
80	157
90	180
100	202
110	225
120	247

INSTALLATION
of the parachute system

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

Skills & tools required

Installing the parachute requires no special technical skills. A 4mm allen key (supplied by Dronavia) is required for installation.

Instructions

1 Unscrew the protective cover from your new POD. Install the POD on its central support.

Advice

Be sure to keep the POD's protective cover so that you can use it when returning the POD for annual maintenance.

INSTALLATION
of the parachute system

2 Remove the two arms from the DJI Matrice 350 drone. Insert the two parachute attachments supplied in the kit. Then reassemble the two drone arms with the parachute attachments.

INSTALLATION
of the parachute system

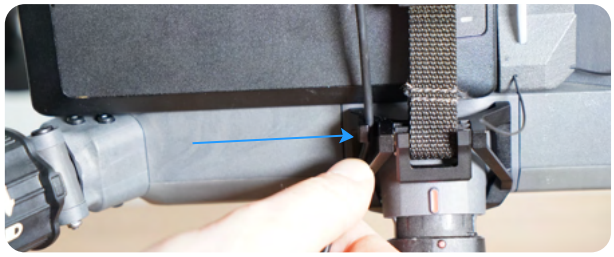
3 Place the fixing support on the top of the DJI Matrice 350 drone, as shown below. Let the mounting straps hang down on either side of the drone. Check that the port on the drone is accessible.

4 Attach the two attachment straps to the parachute attachments previously installed on the arms of the DJI Matrice 350 drone. It may be necessary to adjust the length of the attachment straps.

INSTALLATION
of the parachute system

5 Check that the parachute system's USB-C cable is properly connected and that it is firmly attached to the guide on the parachute's carbon support. Then pass this cable through the guide on one of the parachute attachments. Finally, plug the USB kit into the socket on the underside of the drone.



6 Your Kronos Matrice 350 parachute is now operational.

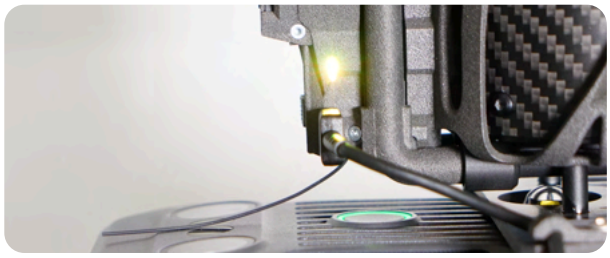
7 Each installation must be entered in the "List of installations, de-installations and maintenance operations" section on page 55.

START-UP
of the parachute system

To start-up the parachute system, follow the instructions below in order:

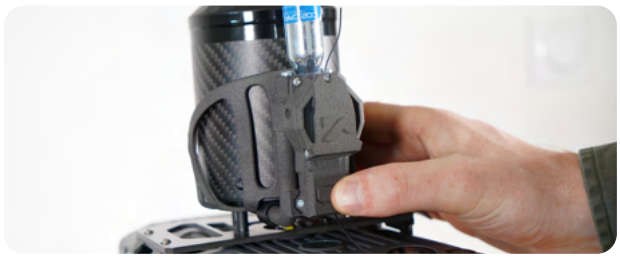
Instructions

1 Switch on your DJI Matrice 350 drone. If you have connected the parachute to the drone using the cord supplied, the parachute and FTS will switch on automatically.



Installation of the FTS on the DJI Matrice 350 drone is described on page 76.

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

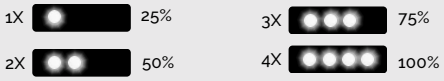


3 Your Kronos Matrice 350 parachute is switched on.

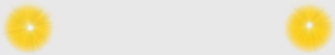
START-UP
of the parachute system

The different LED states

System initialisation



Battery level indicator



Parachute on, awaiting activation

ACTIVATION
of the parachute system

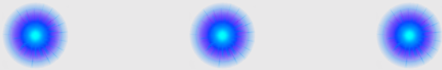
To activate the parachute system, follow these steps in order:

1 The parachute automatically detects the ignition of your drone's engines (or any other movement), during this phase double beeps are emitted. Once take-off has been detected, 2 beeps are emitted and the LED on the parachute and on the Klick trigger remote control now flash dark blue to indicate that autonomous deployment is active.

The different LED states

Autonomous deployment being activated

CONTINUOUS DOUBLE BEEP



Autonomous deployment activated

2 SHORT, LOUD BEEPS

Warning

If you notice that the parachute system does not detect the take-off correctly (no beep and no dark blue LED), this may be due to a slow take-off or a low take-off height. We advise you to launch quickly from a height of at least 5 metres.

If you are not about to take off with your DJI Matrice 350 and you hear continuous double beeps (purple LED), your parachute system has detected vibrations. A risk of autonomous deployment activation may exist. Switch off your parachute system, otherwise the autonomous deployment may be activated and your parachute system unintentionally deployed.

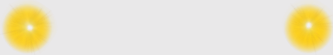
2 Your Kronos Matrice 350 parachute is active with autonomous deployment.

DEACTIVATION
of the parachute system

To deactivate the parachute system, follow these instructions in order:

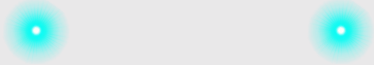
1 The parachute automatically detects a landing. After a period of approximately 5 seconds. 1 beep is emitted by the parachute and the parachute LED is no longer dark blue. The take-off detection module is deactivated (it will reactivate automatically if you take off again).

The different LED states



Parachute on and not connected to Klick trigger remote control

BEEP SOUND



Parachute on and connected to Klick trigger remote control

BEEP SOUND

Warning

If you notice that the parachute system does not detect the landing correctly (no beep and no purple LED), do not handle the drone as this could deployed the parachute. Wait a further 5 seconds.

2 Autonomous deployment of the parachute system is deactivated, but your parachute remains active and can be deployed using the Klick trigger remote control.

3 To deactivate your parachute system completely, switch off the parachute system by holding down the black ignition button for 1 second, or by switching off the DJI Matrice 350 drone.


YOUR PARACHUTE IS
ACTIVE AND
OPERATIONAL!

DEPLOYMENT
of the parachute system

To deploy the Kronos Matrice 350 parachute system (with autonomous deployment or manually), observe the following safety instructions:

Warning

1. Never attempt to deploy the parachute on the ground.

2. The Kronos Matrice 350 parachute is designed to be deploy at a minimum height of 39m from the ground in standard atmospheric conditions.

3. For a fall from a height of 39 m, the impact on the ground is less than 44 joules with the Kronos Matrice 350 parachute system, compared with 2747 joules without any device.

This data may vary according to altitude above sea level, relative wind and many other external factors. That's why we recommend a minimum height of 39 m above ground level to deploy the Kronos Matrice 350 parachute system and sufficiently limit the impact of your drone on the ground.

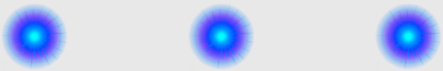
AUTONOMOUS
system deployment

1 When autonomous deployment is activated, no manual action is required to deployed the parachute. Our autonomous deployment technology implemented in our parachutes enables the parachute to be deployed automatically, should the drone find itself in a critical loss-of-control situation.

Warning

If you find that the parachute system does not detect take-off correctly (no beep and no dark blue LED), this may be due to a slow take-off or a low take-off height. We advise you to launch quickly from a height of at least 5 meters.

The different LED states



Autonomous deployment enabled

BEEP SOUND

MANUAL
system deployment

To deploy the parachute manually, observe the following safety instructions:

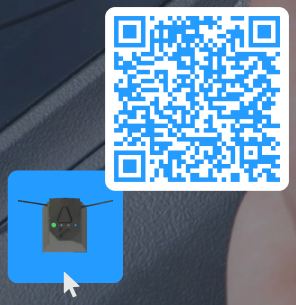
Instructions

1. Find out how to deploy your Kronos Matrice 350 parachute system manually using our Klick trigger remote control instruction and user manual.

KLICK

manual deployment of the PRS

Consult our Klick user manual



new version

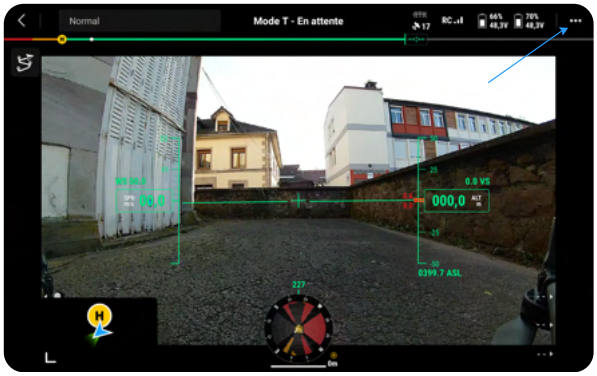
MODE
low speed

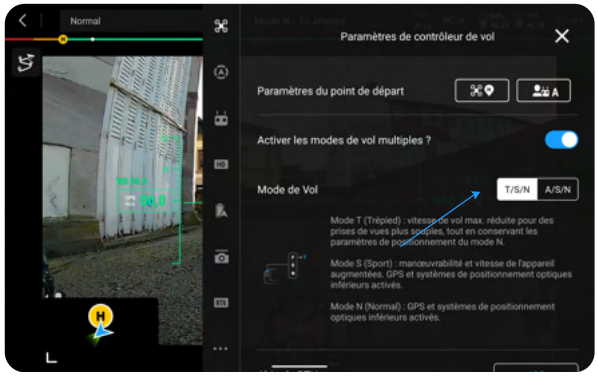
European EASA regulations require the inclusion of a low-speed mode that can be selected on the drone and activated manually by the drone operator. When low-speed mode is activated, the drone cannot exceed a speed of 5 m/s. To activate the low-speed mode (Mode T), follow the steps below in order:

Instructions

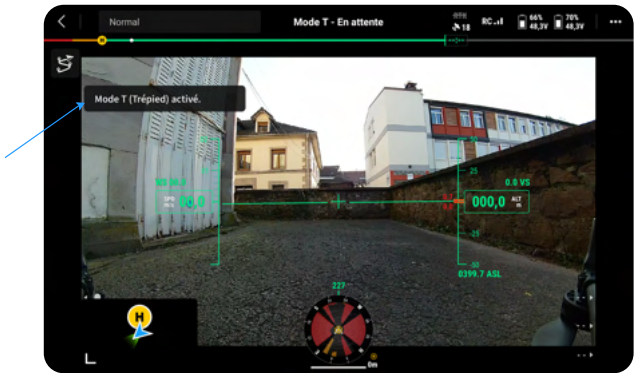
1 Switch on your DJI RC Plus remote controller.

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





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



MODE

sport

The use of mode S (Sport) when using the C5 accessory kit on the DJI Matrice 350 drone is prohibited. All tests carried out on the Kronos Matrice 350 accessory kit were performed in N (Normal) mode.

Warning

When using the SPORT mode, Dronavia accepts no responsibility for the parachute system not deployment, partially deployment or deployment more slowly.

STATES
of DJI remote controller

Indicators on the DJI RC Plus remote controller allow you to check the signal status between the DJI Matrice 350 drone and the DJI RC Plus remote controller during a flight.

Strong signal

Low signal

STATES

of DJI remote controller

Lost signal

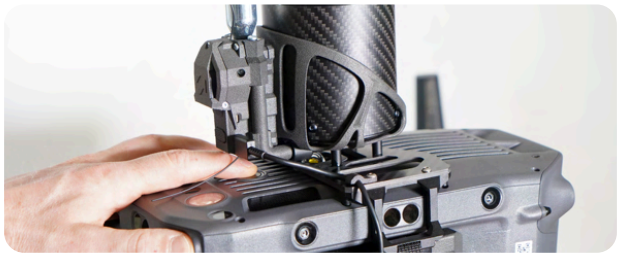
STOP

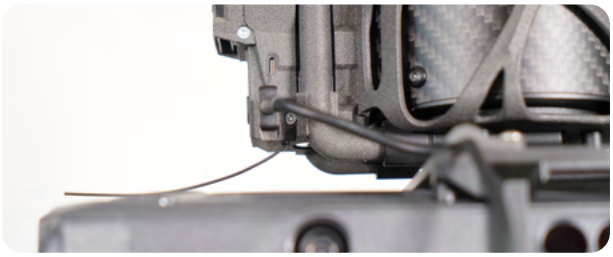
& resetting the parachute system

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

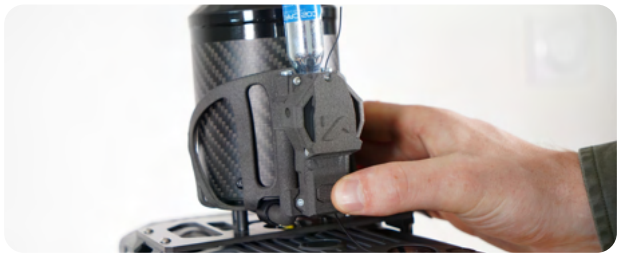
Instructions

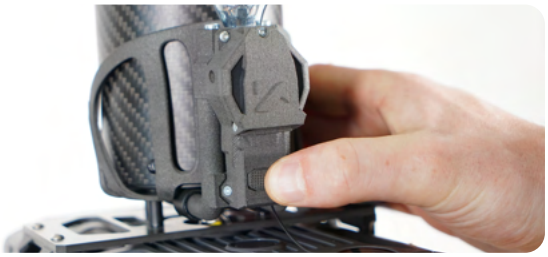
1 Switch off your DJI Matrice 350 drone. If you have connected the parachute to the drone using the cord supplied, the parachute and the FTS will switch off automatically.





2 If you have not connected the parachute to the drone using the cord supplied, to switch off the parachute immediately, hold down the ignition button for 5 seconds. Then switch off the DJI Matrice 350 drone.





STOP

& resetting the parachute system

3 Switch off your Klick trigger remote control.

Advice

If you forget to switch off the parachute system manually, it will switch off automatically after 10 minutes. The FTS system automatically switches itself off when the DJI Matrice 350 is switched off.

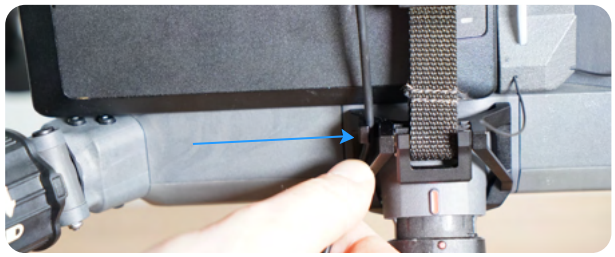
DISASSEMBLY

the complete parachute system

To disassemble the entire parachute system, follow the instructions below in order:

Instructions

1 Disconnect the USB Kit from the socket on the underside of the drone. Then remove the cable from the guide on one of the parachute attachments.



DISASSEMBLY

the complete parachute system

2 Untie the parachute securing straps.

3 Disengage the drone's parachute system.

DISASSEMBLY

the complete parachute system

4 Dismantle the two arms of the DJI Matrice 350 drone. Remove the two parachute attachments supplied in the kit. Then reassemble the two arms without the attachments.

5 Each de-installation must be entered in the "List of installations, de-installations and maintenance operations" section on page 55.

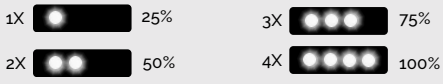
CHECKING
of the parachute system battery

To check the battery status of the 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



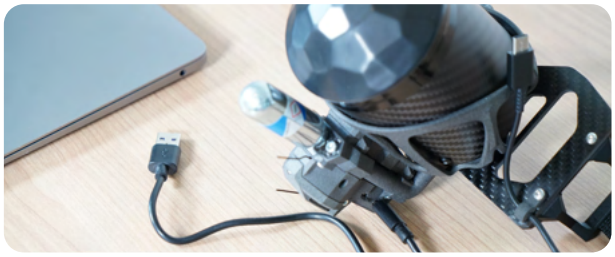
Battery level indicator

CHARGING
of the parachute system battery

To charge the parachute 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 connector into a computer.



The different LED states

Battery charging

Battery charged

RESETTING
of the parachute system

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

Instructions

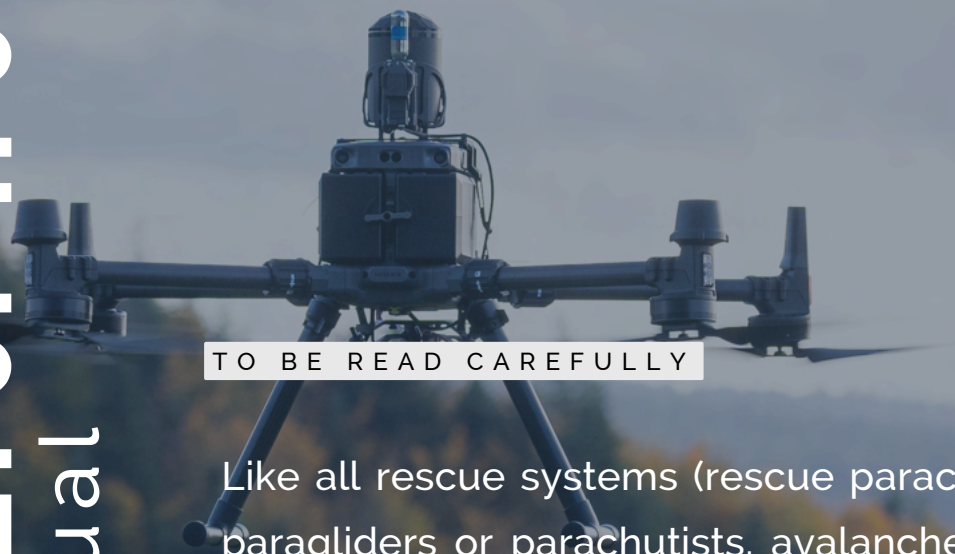
1 To reset the parachute system, there is a small hole in the back of the parachute. Slide a paper clip or other thin object through the hole, and a short press will reset the entire parachute system.

Warning

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

MAINTENANCE

parachute annual



TO BE READ CAREFULLY

Like all rescue 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 system 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 global maintenance yourself, Dronavia will disengage its responsibility for the system, in addition to cancelling the warranty.

LISTING

parachute deployment failures

If the Kronos Matrice 350 parachute system deployment fails during flight, record the following:

UAS Concerned with the failed activation	Accumulated Flight Hours at activation failure	Distance between Control Unit and UAS at activation attempt	Location of the operation	Presence of high power emitter in the operational volume

LISTING

voluntary and intensive parachute deployments

If the Kronos Matrice 350 parachute system is deployed during flight, record the following:

UAS Concerned with the activation	Accumulated Flight Hours at activation	Distance between Control Unit and UAS at activation attempt	Location of the operation	Was the activation commanded or un-commanded	Presence of high power emitter 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

of installations / de-installations & maintenance operations

To be kept in optimum working order, each parachute system must be monitored for installation, de-installation, firmware updates, preventive or post-deployment maintenance. The following table summarizes the operations to be listed:

Date	Operation	Issues	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

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 299€

1 Buy a POD in advance from your reseller. 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 special price.

Warning

Plan in advance the time needed to contact your reseller (order, delivery time, etc.) so as not to exceed the expiry date and compromise your flight missions.

DISASSEMBLY
of the POD system for maintenance

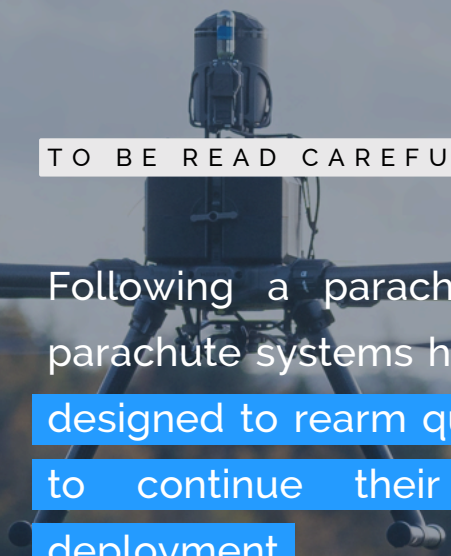
To remove the POD from the parachute system, follow the instructions below in order:

Instructions

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

REARMING

the Kronos parachute system



TO BE READ CAREFULLY

Following a parachute deployment, Kronos parachute systems have been thought out and designed to rearm quickly and allow telepilots to continue their missions following a deployment.

Changing your POD, replacing your CO2 cartridge, checking the firing pin tip - all these procedures need to be carried out following a deployment. As some procedures are dangerous, we advise you to read this section carefully.

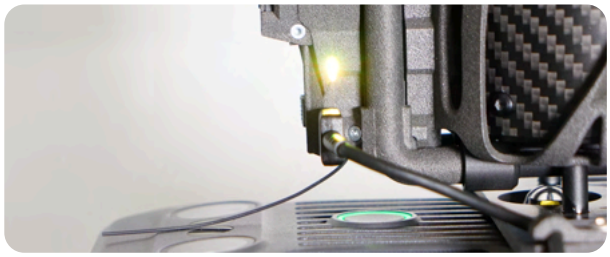
A use-by date is set for each POD. Dronavia disclaims all liability and voids the warranty if your POD has exceeded this use-by date.

REARMING
of the parachute system

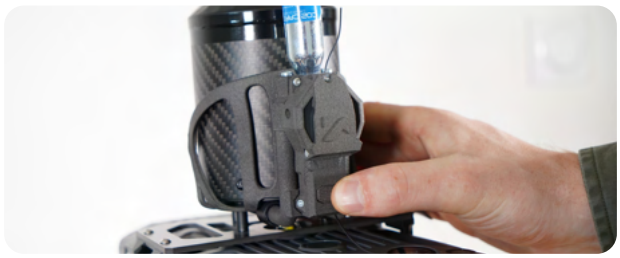
To rearm your parachute system, follow the instructions below in order:

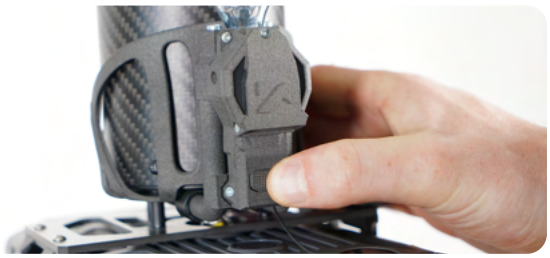
Instructions

1 Switch off your DJI Matrice 350 drone. If you have connected the parachute to the drone using the cord supplied, the parachute and the FTS will switch off automatically.



2 If you have not connected the parachute to the drone using the cord supplied, switch off the parachute system by holding down the ignition button for 5 seconds. Then switch off the DJI Matrice 350 drone.





REARMING
of the parachute system

3 Disconnect the supplied cable linking the parachute to the drone. Then disconnect the USB kit.

4 Unscrew the deployed POD from its central support. Then remove the POD.

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.

INSPECTION
of the CO2 system

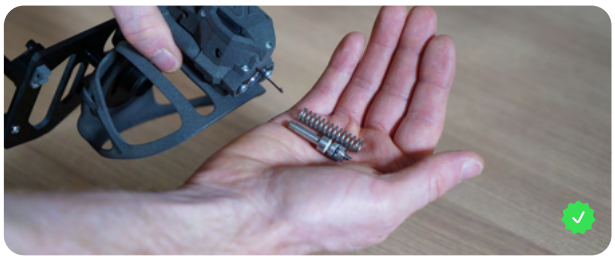
1 Remove the CO2 cartridge by unscrewing it.

2 Untie the parachute securing straps.

INSPECTION
of the CO2 system

3 Disengage the drone's parachute system.

4 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.

REPLACEMENT
of the CO2 cartridge

Warning

Before replacing the CO2 cartridge, please read pages 69, 70 & 71.

1 Reinsert the spring, then reinsert the firing pin.

2 Then insert the reset tool into the hole left by the CO2 cartridge.

3 Push the tool in as far as it will go and hold it during step 4. There must be some force against this operation.

REARMING
of the parachute system

4 Switch on the Klick trigger remote control and the parachute system. Wait for the system to initialise. The force described above should disappear and the LED on the module should flash green and turquoise (if this is not the case, repeat steps 2 and 3 until the force disappears and the LED flashes green and turquoise).

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

6 Each CO2 cartridge replacement must be entered in the "List of installations, de-installations and maintenance operations" section on page 55.

REPLACEMENT
of the POD system

1 Unscrew the deployed POD from its central support. Then remove the POD.

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

3 For each POD system replacement, please refer to chapter "Listing of installations, de-installations and maintenance operations" on page 55.


YOUR PARACHUTE IS
REARMED!

PROCEDURE

for returning a used POD

There are several options for returning your used POD:

Buy 299€

1 Buy a POD from your reseller. Then carry out maintenance on your used POD.

Exchange 99€

2 Return your used POD to a reseller and receive a new POD at a special price.

Warning

Plan in advance the time needed to contact your reseller (order, delivery time, etc.) so as not to exceed the expiry date and compromise your flight missions.

REPLACEMENT

the parachute's CO2 cartridge

TYPE	CARTRIDGE OF CO2
VOLUME	8 CC
TOTAL WEIGHT	30G (+/- 2G)
CAPACITY	8G (+/- 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.

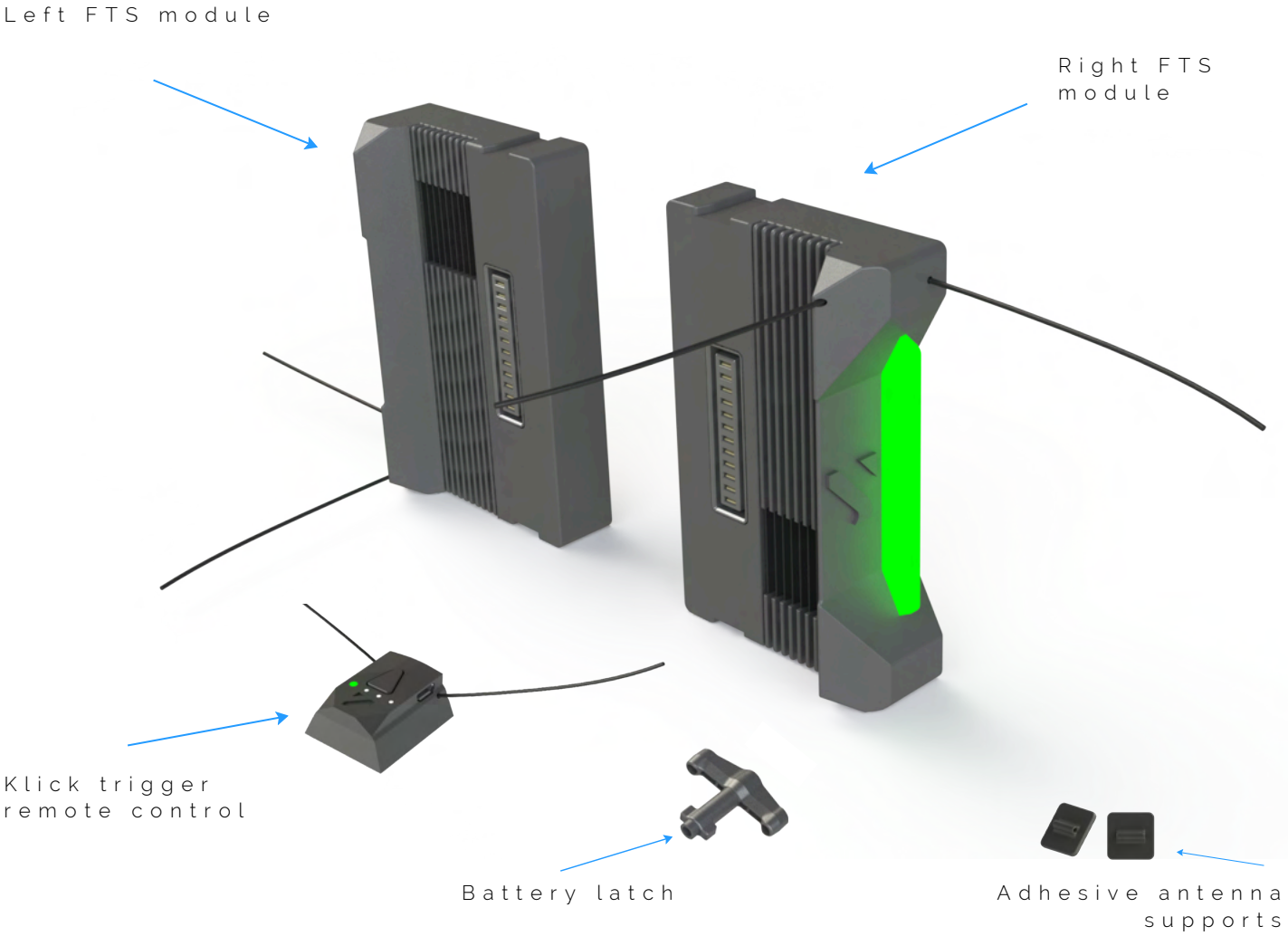
TO BE READ CAREFULLY

KRONOS SYSTEMS

EXTERNAL FLIGHT TERMINATION SYSTEM FOR DJI MATRICE 350

COMPONENTS

presentation



ADDITIONAL ACCESSORIES SUPPLIED

USB-C cable

Allen Key 2mm / 2.5mm

Installation tutorial

available on our Youtube channel

KRONOS M350

Technical specifications

TOTAL WEIGHT	136 GRAMMES
COMMUNICATION WIRELESS RADIO	SRD860 WITH ENCRYPTED KEY (869 MHZ / 100 MW)
RANGE OF THE KLICK REMOTE CONTROL	3000 METERS
AUTONOMY KLICK REMOTE CONTROL	23 HOURS
OPERATING TEMPERATURE	-25°C À 40°C

DESCRIPTION
of the FTS

Description

The Kronos Matrice 350 FTS, developed for the DJI Matrice 350, prevents the drone equipped with it from leaving its regulation flight envelope by cutting (manually or automatically) the drone's power supply in less than a second.

Installation

The Kronos Matrice 350 FTS 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 brought about by installing the FTS on the drone is the battery locking latch, which must be changed to maintain optimum hold of the drone's batteries. Installation is detailed on page 76.

Start-up

To start the Matrice 350 FTS system, switch on your DJI Matrice 350 drone and the FTS system will switch on automatically, then switch on your Klick trigger remote control by pressing and holding the start button on the Klick trigger remote control. When the FTS system 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 81.

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 FTS is detailed in the Klick trigger remote control user manual.

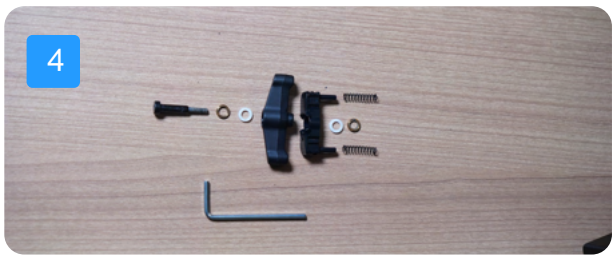
INSTALLATION
of the FTS

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

Instructions

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

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

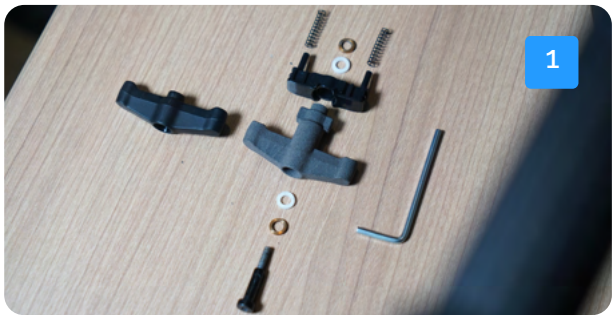


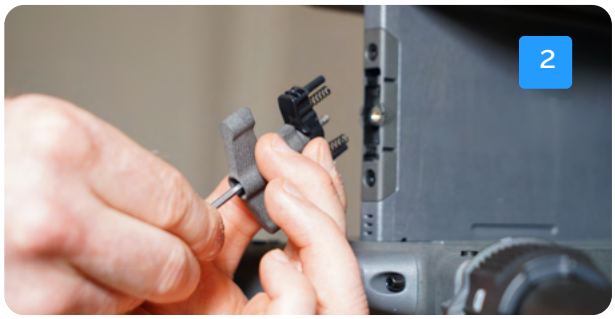
INSTALLATION
of the FTS

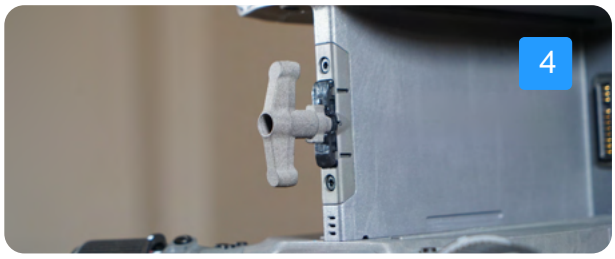
Warning

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

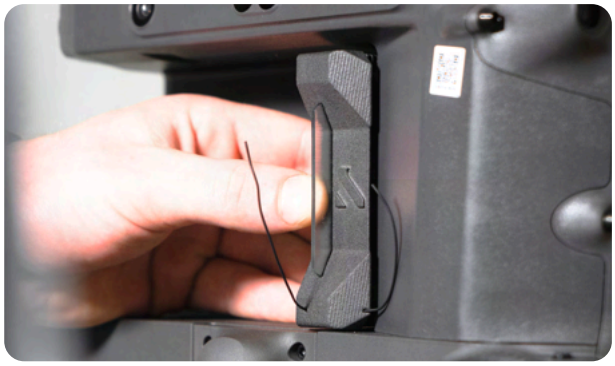
3 Replace the original latch with the one supplied and reassemble the assembly, checking as below that the 2 springs and 4 washers are correctly repositioned.







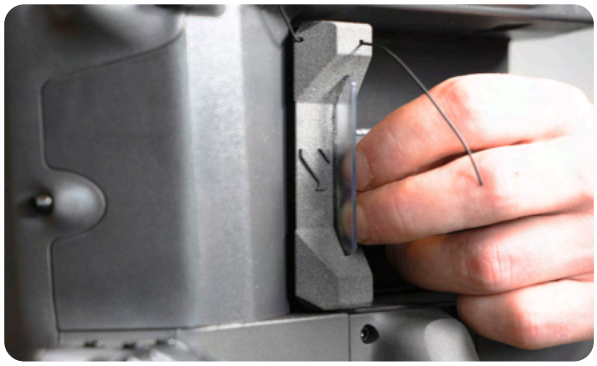
4 Place the right-hand FTS by sliding it in from the back in the same way as a battery, with the LED pointing outwards and the flat part facing the battery. Then insert your right-hand battery.



INSTALLATION
of the FTS

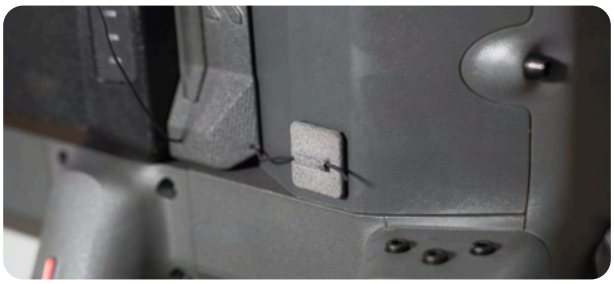
5 Attach the adhesive antenna support, as shown below, to ensure optimum connection between your module and your Klick trigger remote control. Then insert the FTS module's antenna into the bracket.

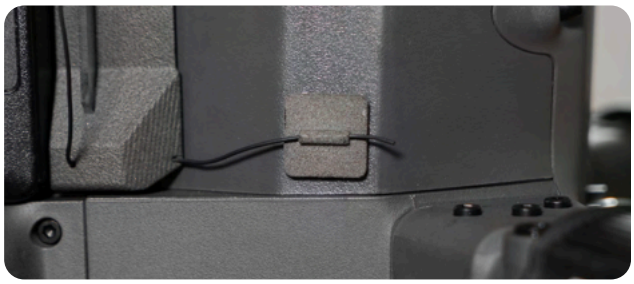
6 Place the left-hand FTS by sliding it in from the back in the same way as a battery, with the LED pointing outwards and the flat part facing the battery. Then insert your left battery.

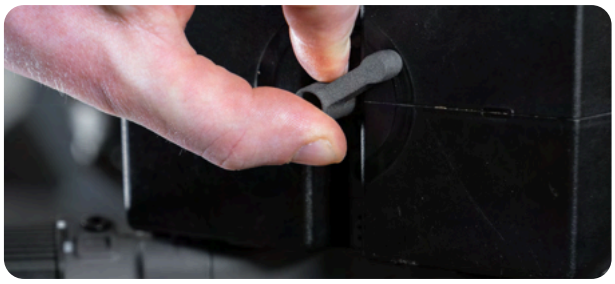


INSTALLATION
of the FTS

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







Warning

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

Error notifications

DJI RC Plus remote controller screen

8 Your external FTS for Matrice 350 is now operational.

START-UP of the FTS

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

Instructions

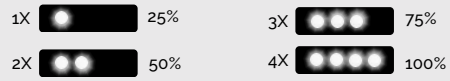
1 Switch on your DJI Matrice 350 drone. The FTS system will switch on automatically.

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

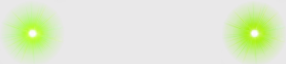
START-UP
of the FTS

The different LED states

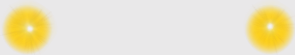
System initialisation



Battery level indicator



FTS only connected

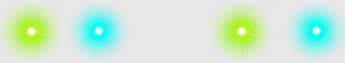


FTS on, waiting for connection

OPTIONAL

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

The different LED states

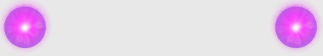


FTS & connected parachute

Warning

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

The different LED states



Malfunction of one of the FTS modules


YOUR FTS IS ACTIVE
AND OPERATIONAL!

ACTIVATION

manual of the FTS

To activate the FTS manually, observe the following safety instructions:

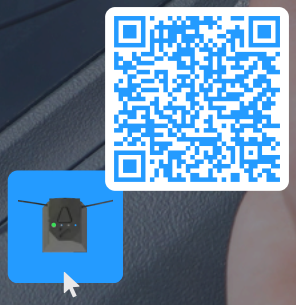
Instructions

1 Find out how to activate your Kronos Matrice 350 FTS system manually using our user and instruction manual for the Klick trigger remote control.

KLICK

manual activation of the FTS

Consult our Klick user manual



new version

ACTIVATION

automatic of the FTS

To automatically activate your FTS, follow these instructions in order

Instructions

1 Switch on your DJI Matrice 350 drone. The FTS will switch on automatically.

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

3 When the parachute system deploys, the FTS system also activates automatically, thanks to a wireless connection and pairing between the two systems by Dronavia's experts.


GEOCAGING
automatic activation of the FTS
Discover our solutions now
INCLUDING THE SCALEFLYT GEOCAGING SOLUTION DEVELOPED BY THALES

PROCEDURE

FTS system

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

Warning

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

Instructions

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

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

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

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

STOP
& resetting FTS

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

Instructions

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

2 Switch off your Klick trigger remote control.

DISASSEMBLY
of the FTS

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

Instructions

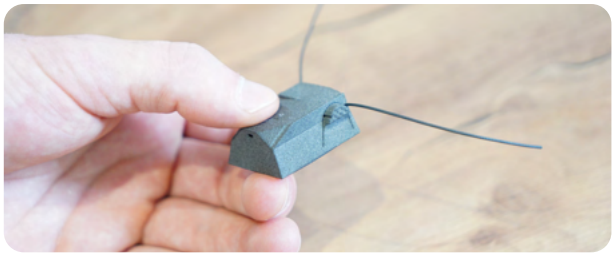
1 To disassemble the system, simply follow the installation instructions in reverse order. The Klick trigger remote control module can remain installed on the DJI Matrice 350 remote controller without affecting its operation.

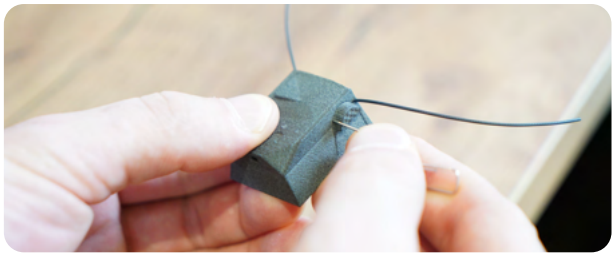
RESETTING
of the FTS

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

Instructions

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





Warning

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

MAINTENANCE & guarantees

STORAGE

Store the Kronos Matrice 350 C5 accessory kit for DJI Matrice 350 in a dry place, at a temperature between 10°C and 30°C, clean and protected from UV light.

GUARANTEE

Dronavia takes great care in the design and production of its products. We guarantee our 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.

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

CONTACT US

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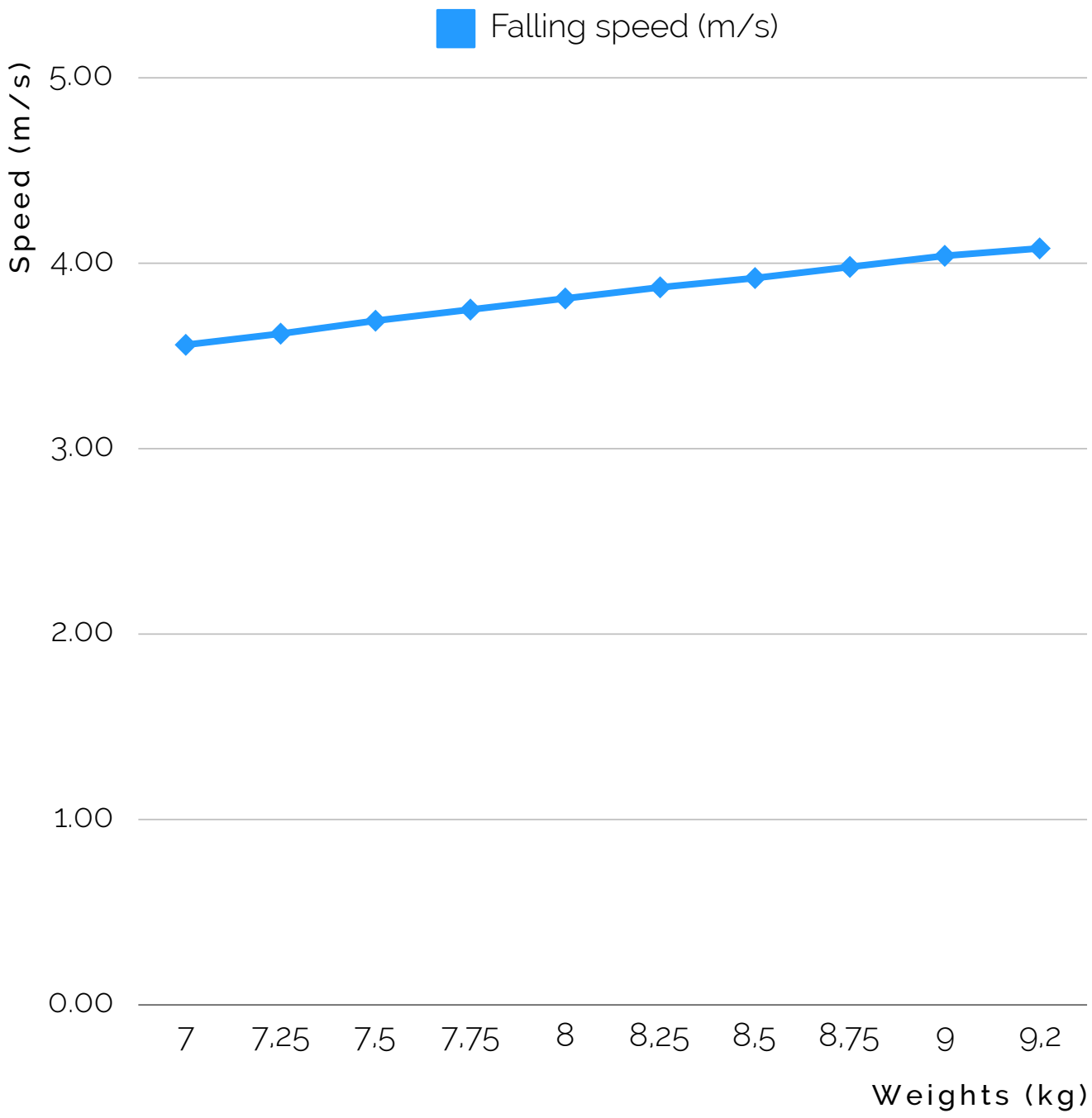
www.dronavia.com

| Dronavia Channel

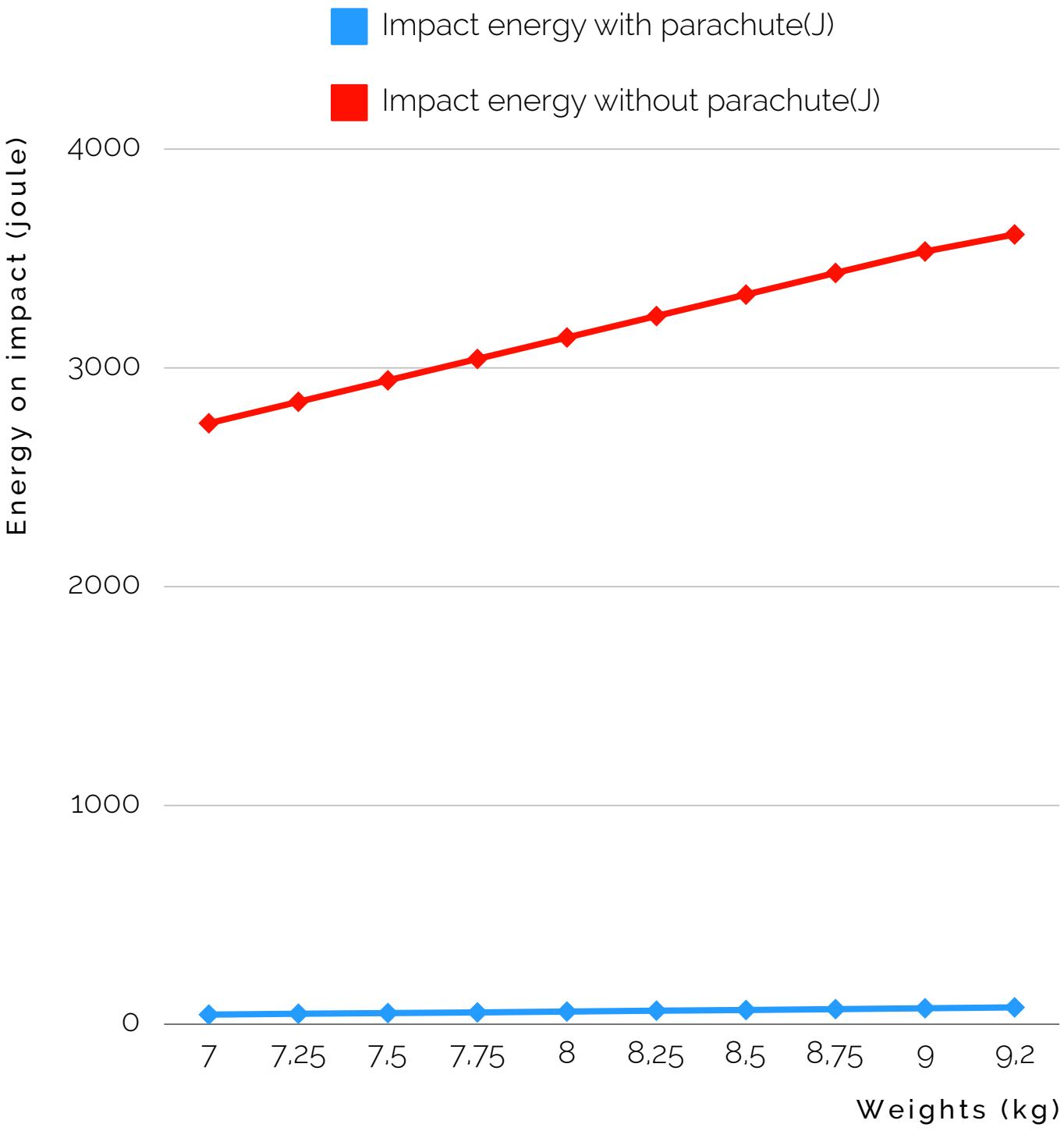
APPENDICES

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



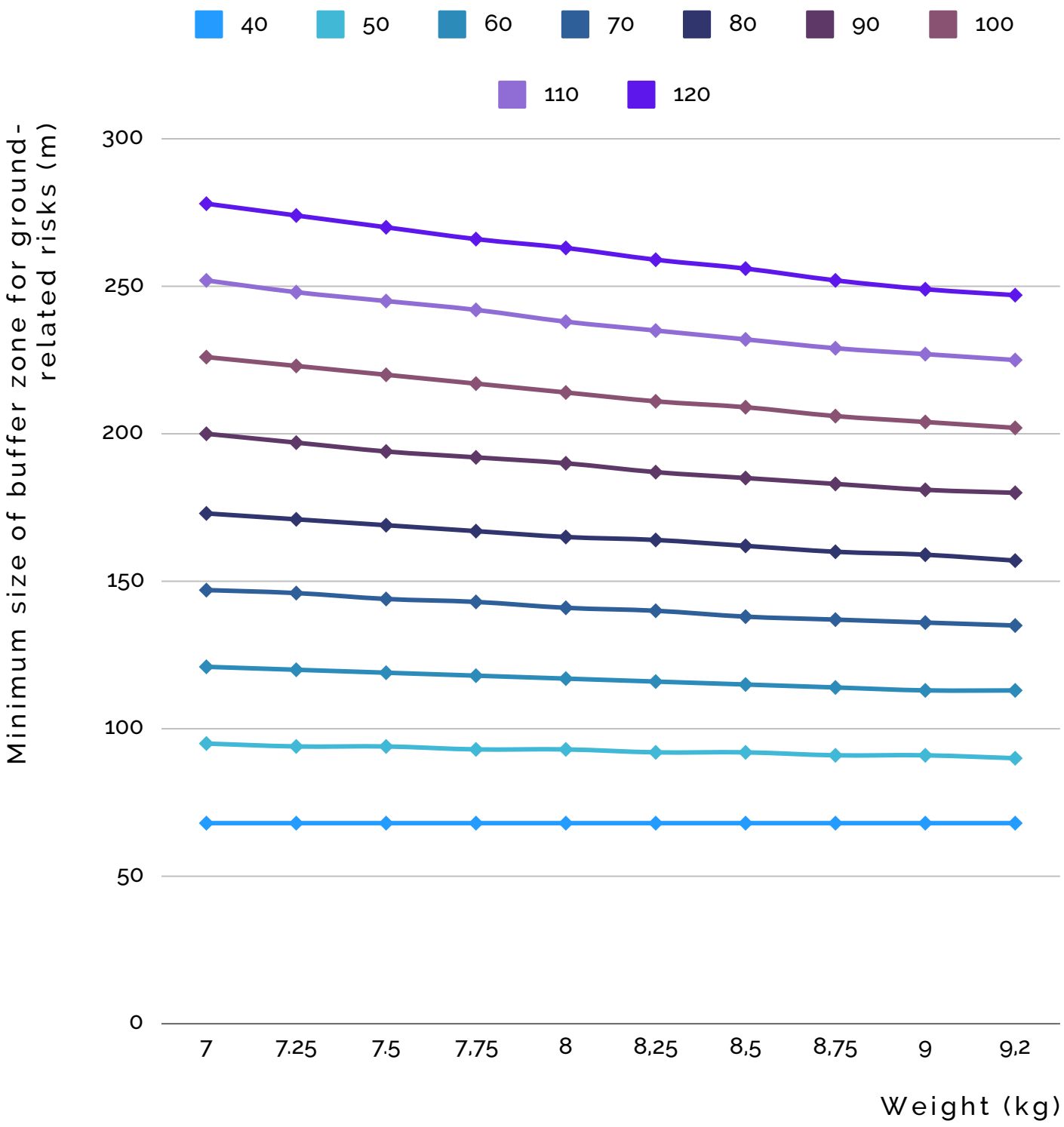
APPENDICES

Impact energy (joule) X Weight (kg)



APPENDICES

Minimum extent of buffer zone for ground-related risks (m) X Weight (kg) X Deployment height (m)



DECLARATION

of C3 class label conformity

Declaration of Conformity

Product : Matrice 350 RTK
Model Number : M350 RTK
UAS Class : C3
Guaranteed sound power level: 97dB(A)
Manufacturer's Name : SZ DJI TECHNOLOGY CO., LTD.
Manufacturer's Address : Lobby of T2, DJI Sky City, No. 53 Xianyuan Road, Xili Community, Xili Street, Nanshan District, Shenzhen, China.

We, SZ DJI TECHNOLOGY CO., LTD. declare under our sole responsibility that the above referenced product is in conformity with the applicable requirements of the following directives:

RED Directive : 2014/53/EU
RoHS Recast Directive : 2011/65/EU, (EU) 2015/863
WEEE Directive : 2012/19/EU
REACH Regulation : (EC) No 1907/2006
Battery Directive : 2006/66/EC
UAS Delegated Regulation : (EU) 2019/945 amended by (EU) 2020/1058
Conformity with these directives has been assessed for the product by demonstrating compliance to the following technical standards and/or regulations:

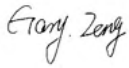
Radio Spectrum	EN 300 328 V2.2.2 EN 301 893 V2.1.1 EN 303 413 V1.2.1 EN 300 440 V2.2.1
Safety	EN 62368-1:2014+A11:2017
Health	EN 62479:2010 EN IEC 62311:2020
EMC	EN 301 489-1 V2.2.3 EN 301 489-3 V2.1.1 EN 301 489-17 V3.2.4 EN 301 489-19 V2.1.1 EN 55032:2015+A11:2020 EN 55035:2017+A11:2020
RoHS	2011/65/EU; (EU) 2015/863
WEEE	2012/19/EU
REACH	(EC) No 1907/2006
Battery	2006/66/EC
UAS Safety	prEN 4709-001:06.2021 with WD 2022-04 prEN 4709-002:12.2020 with Edition P 1, October 2021 prEN 4709-003:12.2020 with WD 2022-05; prEN 4709-004:12.2020 with WD 2021-06 2006/42/EC Annex I

The notified body, NavCert GmbH, notified body number: 2603, performed the EU-type examination in
according with Module B as per Annex II to decision No 768/2008/EC, and issued the EU-type examination certificate.

CE

The notified body, TÜV Rheinland LGA Products GmbH, notified body number: 0197, performed the EU-type examination in according with Annex III, Module B of Council Directive 2014/53/EU, and issued the EU-type examination certificate.

Signed for and on behalf of: SZ DJI TECHNOLOGY CO., LTD.
Place: Shenzhen, China Date: 2024-2-21
Name: Gary Zeng Position: Certification manager

Signature: 

VERSION NOTE

Version 2.0

Version 2.1 (07/11/07) :

"Changing the cable (USB-C instead of Micro-USB) connecting the parachute to the DJI Matrice 350/300 drone"