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DJI M300/M350 SETUP GUIDE

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1. DJI M300/M350 setup

This instruction outlines how to set up a DJI M300/M350 drone so that it can carry Hovermap. Once set up, it will also be able to send autonomy command data and receive GPS through the Hovermap serial cable. The key steps are:

1. Mount Hovermap using a custom mounting bracket.
2. Update and configure the DJI software development kit (SDK).

For information on how to use DJI GPS data to georeference and automatically merge your scans, refer to the Emesent Aura user manual.

> To be automatically merged, GPS data must be present in all merged scans. Walking or driving scans without GPS data can be merged with flight scans using the “rough align” merge process. Refer to the Emesent Aura user manual for more information.

Figure 1 Complete DJI M300 cable assembly

1.1 Hovermap mount installation

Install the DJI M300/M350 Hovermap mount as follows.

> The mount installation instructions apply to both M300 and M350 drones.

1. Place the mount onto the drone.
2. Insert and partially tighten the screws on the front of the drone.

Figure 2 DJI M300/M350 front mounting supports

3. Insert and partially tighten the screws into the bottom of the drone.

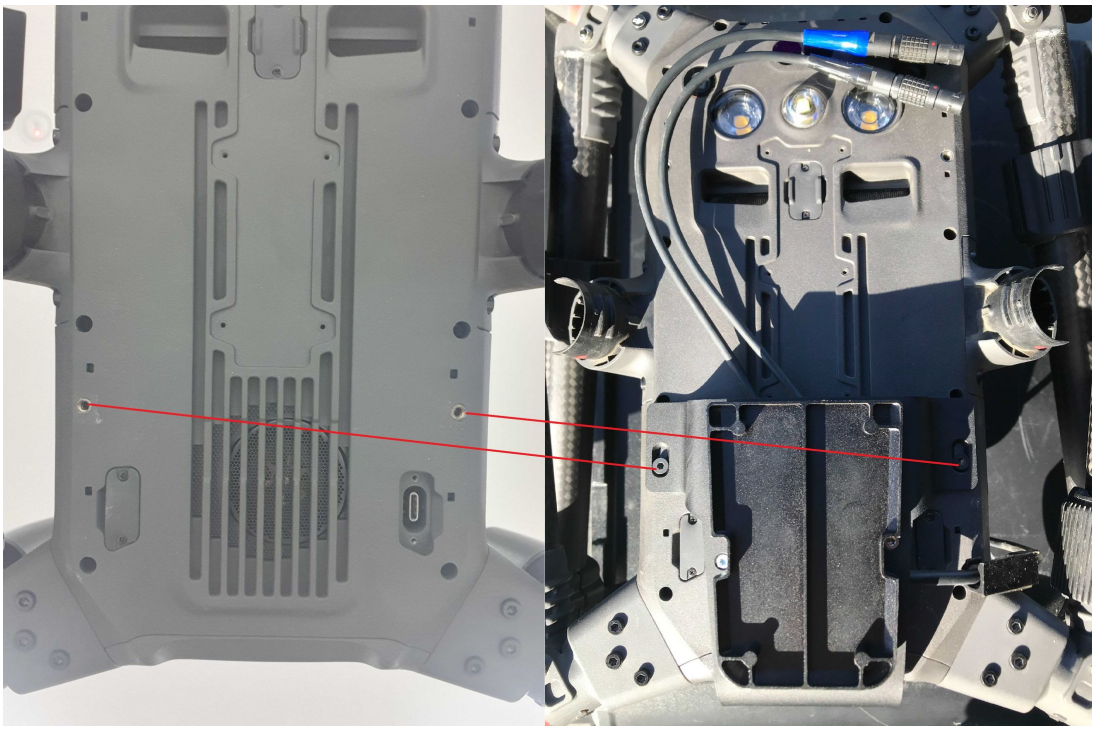


Figure 3 DJI M300/M350 underside mounting supports

4. Completely tighten the screws on the front of the drone.
5. Completely tighten the screws on the bottom of the drone.
6. On the top of the DJI M300/M350, plug the OSDK connector into the OSDK port.

Figure 4 DJI M300/M350 cable routing

7. Using the provided retainer, fix the cable guide to the side of the DJI M300/M350. Make sure to clear the camera. To do this, peel off the 3M tape backing and press firmly to the drone body.

Figure 5 Cable fixing and routing

2. Galaxy Tablet Mount Setup

The Samsung Galaxy Active Tab tablet case is provided in its original wrapping, you will need to attach the mount receiver to the tablet case.

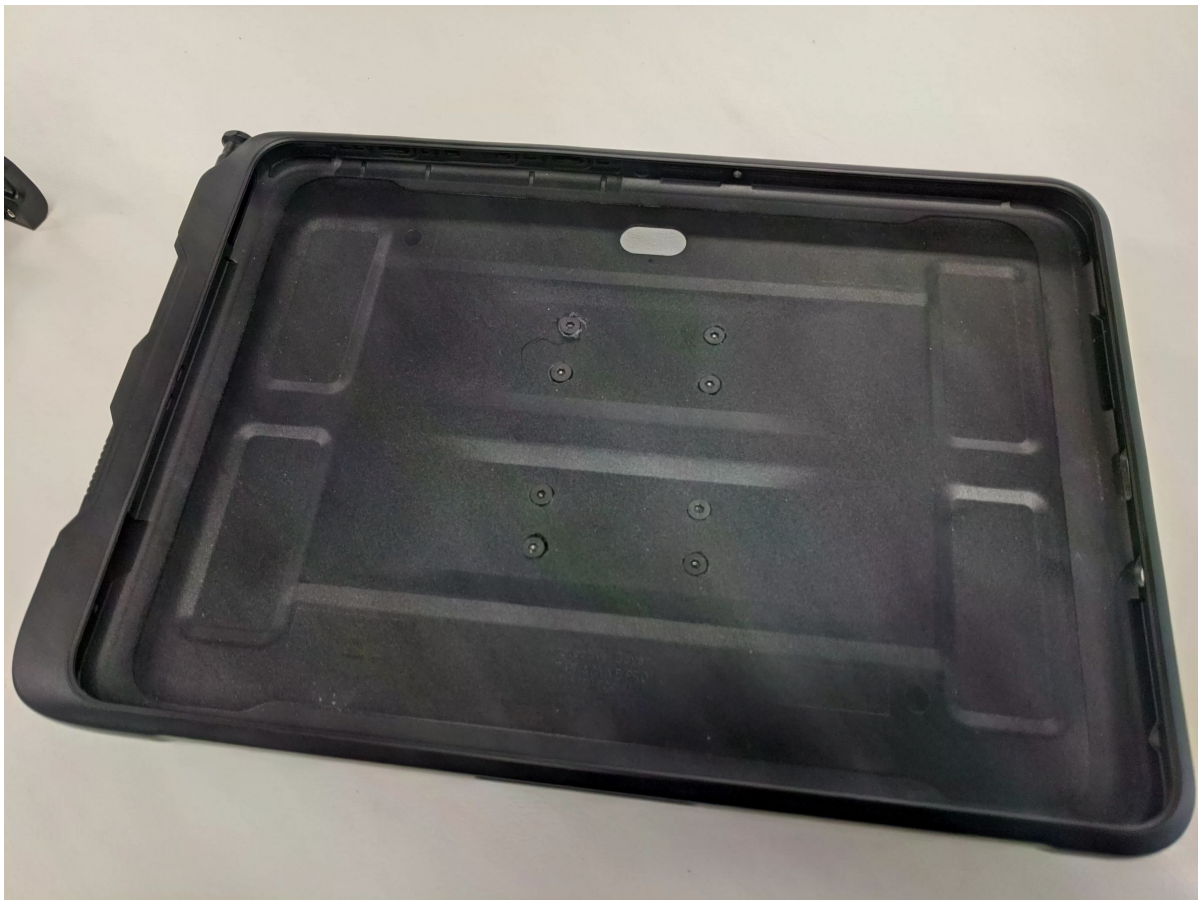
You will need

- The case
- The aluminum mount
- M3 x 6 mm screws (provided)
- A drill

> The Samsung Galaxy Tab Active (2, Pro and 4) have been replaced by the Samsung Galaxy Tab S9 as Emesent's recommended tablet. The Galaxy Tab S9 no longer requires this mounting plate for compatibility with Emesent products. Consequently, this document is relevant only for users of these older Samsung Galaxy Tab Active Tablets.

2.1 Instructions

1. Print and follow the instructions in Drill template for Galaxy Active Tab Pro to drill holes in the correct location on the case.
2. Screw on the mount, as shown.



3. Clip your case back onto your tablet. You will now be able to either mount your tablet to the controller (via the clamp-mount) or hold it by the velcro strap.

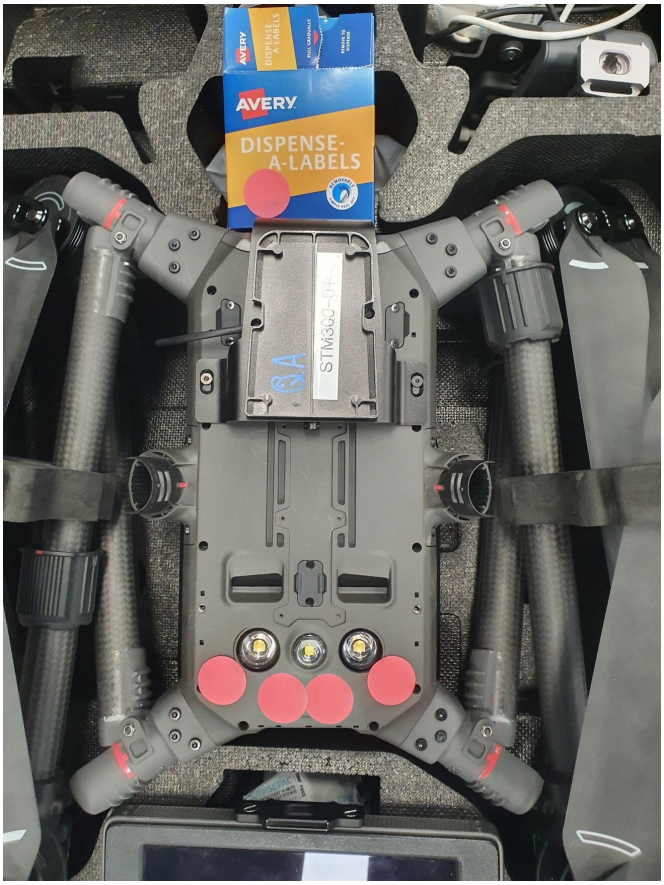
4. Should you have any trouble completing the mounting procedure, please contact Customer Success.

3. Cover the Downward Vision Sensors

Following recent DJI firmware updates, some users have reported an 8012 error when flying in partial light environments on the surface. DJI has informed us that the only way to prevent this issue is to cover the downward vision sensors.

While we finalize a hardware solution for this purpose, we recommend that you cover all four downward-facing vision sensors when operating on the surface. Do this with sticky labels or tape to prevent the error from appearing during a mission.

Please see the following image for optimal sticker placement.



4. Compatible Aircraft and Firmware

Table 1 Hovermap-supported drone firmware

Airframe	Approved firmware
DJI M300	V03.00.0101 and above
DJI M350	V07.00.0101 and above

4.1 DJI M300/M350 activation

If you are using a new drone, it needs to be activated, configured, and prepared for standard operations, as per DJI's instructions. We recommend that you read DJI's user manual and ensure that you have a good working knowledge of local and federal regulations for safe operations in your region, regardless of whether you're using the drone with Hovermap.

You are responsible for safe operation and compliance with local regulations.

4.1.1 Update DJI firmware

Be careful to choose the firmware versions that work with your combination of M350 or M300 and controller. Refer to the PDF Compatible Firmware Update Guide for M300 RTK and M350 RTK.

- Do not upgrade your drone beyond the Emesent-approved firmware version.
- Recheck all your drone settings after updating the DJI firmware, as the settings may have reset.

Installing the incorrect firmware on the DJI RC Plus controller will stop the DJI Smart Controller working with the drone.

> ⚠ Do not make any changes to the DJI drone firmware if it was supplied with a barometric modification. Updating or changing the drone firmware will remove the modification.

4.1.2 Install DJI Assistant 2 (Enterprise Series)

The DJI onboard SDK allows communication between the Hovermap and the drone. To enable this communication, do the following:

1. Download the DJI Assistant 2 (Enterprise Series) software from the DJI download center and install it on your computer.
2. Log into your DJI account.
3. Ensure that the first four options under the settings tab are turned on.
4. Go to the **Settings** tab and turn on the following options:
    - User account information
    - DJI device serial number
    - Payload SDK Product ID and License information
    - Onboard SDK APP ID

4.1.3 DJI SDK configuration

Configure the onboard SDK for the DJI M300/M350 as follows:

1. In the USB port next to the port labelled OSDK, connect the drone to your computer with the DJI-supplied USB cable.
2. Power on the drone.
3. Launch DJI Assistant 2.
4. Click on the drone name to configure the settings.
5. On the **Firmware** tab, ensure that the drone has the latest firmware that is supported by Hovermap. Refer to Table 1. If the drone's firmware version is lower than the version supported by Emesent, log in to your DJI account and click **Upgrade**.
6. On the **Onboard SDK** tab, configure the following settings:
    - **Enable API Control:** Checked

- **Ground Station Status:** Unchecked
- **Enable SDK Failsafe Action:** Checked
- **Baud Rate:** 230400
- **Remote Controller Channel Data:** 50 Hz
- **SDK Failsafe Action:** Hover

7. All other parameters are set by Hovermap when it is turned on.
8. In DJI Assistant 2, click **Back**.
9. Reboot the drone.
10. Restart DJI Assistant 2.
11. Check that the SDK settings have been saved correctly.

4.1.4 Initial DJI settings

1. On the tablet connected to the controller, launch DJI Pilot.
2. Allow any updates during start-up.
3. In the three-dot menu at the top-right of the screen, set the following:
   a. On the **Main Controller Settings** tab:
      i. **Multiple flight modes:** On
      ii. **Set Max Height:** 119 m
   b. On the **Aircraft Battery** tab, disable **Smart Return to Home**.
4. Close DJI Pilot.

If your M300/M350 batteries will not charge in the battery station and an authentication alert is displayed: 'Battery authentication failed, could not launch' the fix is to update the battery firmware:

1. Connect the controller to the battery charge case with WiFi connection.
2. If you cannot see the battery charge case in the HMS then update the controller (not the drone) to the latest DJI firmware from the DJI download center.
3. Insert the batteries in the charge case

4. Update all firmware for the charge case and the batteries.

Note: If your drone has a barometric modification, please ignore the drone notifications requesting a firmware update.

4.1.5 DJI Onboard SDK activation

SDK activation only needs to be done once per drone. Register and activate the onboard SDK application as follows:

> This activation process is only required for the M210 and M300. Onboard SDK activation is not needed for the M350.

1. Power on the controller.
2. Power on the drone.
3. With DJI Assistant 2 running, connect the M210 or M300 drone to the USB port of the computer.
4. In DJI Assistant 2, click **Onboard SDK**. Ensure that all fields are ticked (as above).
5. Connect the computer to the internet.
6. Double-check the SDK settings.
7. With Hovermap correctly mounted and connected to the drone (via the Emesent-supplied cable):
   a. Open the DJI Pilot app on the controller.
   Note: Make sure that the controller is connected to a Wi-Fi network with access to the Internet to proceed with the SDK activation.
   b. Press the power button on the Hovermap.
   c. Start a scan and let it run for 2 minutes.
8. Stop the scan and power off the drone and the controller.
9. Disconnect the USB cable between the drone and the computer.
10. Power on the drone and controller again.

4.1.6 DJI Mobile SDK activation

SDK activation only needs to be done once per mobile device. Perform the activation as follows:

1. Power on the device.
2. Install Emesent Commander.
3. Connect the device to the internet.
4. Launch Emesent Commander.
5. Allow permission requests when prompted.
6. Enter the user information then select the **Allow registration with DJI to use drones** option.
7. Connect to Hovermap Wi-Fi.

4.2 Sanity check for Hovermap communications

Perform a quick sanity check to ensure that the DJI drone, the Hovermap and remote controllers are configured correctly and that communications between the drone and the Hovermap has been established.

1. Mount Hovermap to the drone and connect the power and the serial cables.
2. For Hovermap autonomy operations, connect the Samsung Galaxy tablet to the controller.
3. Power up the controller.
4. Power up the drone first, and then power on Hovermap.
5. When prompted, open the Emesent Commander app, or touch once and select **Only once**.
6. Click on CONNECT
7. Select your mission type: Assisted or Autonomous
8. Confirm pre-mission checks are complete
9. Confirm the network Commander is connecting to.
10. Adjust the pre-mission settings if required. Click on CONTINUE.
11. Enter the scan name and click on START SCAN.
12. Hovermap will then run pre-scan checks. If the pre-scan checks fail, please close Commander and start the Mission again.
13. When the pre-scan check is complete you're ready for the mission.

4.3 Troubleshooting

Problem	Solution
120 m AGL warning	This warning occurs when the ceiling height has been set to 120 m above ground level (AGL). To solve this, change the height setting to 119 m.
DJI RTK warning	The error will occur when the drone is in partial or no GPS signal is available to the M300/M350. The RTK setting needs to be turned off. 1. Open DJI Pilot App, Manual Flight. 2. Open the top-right menu then go to the RTK settings. 3. Set to **OFF**.
Tablet is not recognized by DJI Smart Controller	The DJI Smart Controller is set to a different USB mode. To toggle the USB mode, swipe down from the controller's main screen then tap the USB icon. The icon's color will change from blue to white.
If unsuccessful	Click the status indicator in the top-right corner. Take a photo of any warnings or cautions. Contact Technical Support Services, attaching the photo.
Hazardous incident or unexpected flight behavior	You can report an incident to Emesent and share your flight log files through the Customer Support form online. See the article on how to Recover DJI flight logs.

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