dji D-RTK Handheld Mapper User Guide

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Contents

Warnings

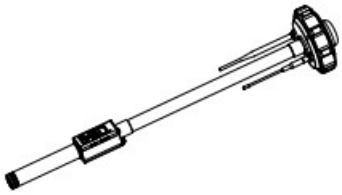
1. Only use the D-RTK Handheld Mapper in the corresponding frequency band and in accordance with local laws and regulations.
2. Only operate in an open environment free from radio interference. To avoid interference, turn off nearby devices using the same frequencies as the D-RTK Handheld Mapper (e.g. radio transceivers).
3. Ensure that the antennas are unobstructed during use.
4. Pay attention to the following when using the Intelligent Batteries and Charging **Hub:**
    - a. Make sure to fully charge the Intelligent Batteries before first-time use.
    - b. The Charging Hub is only compatible with one specific model of DJI Intelligent Battery. DO NOT attempt to use the Charging Hub with any other battery.
    - c. Place the Charging Hub on a flat and stable surface when in use. Ensure the device is properly insulated to prevent fire hazards.
    - d. DO NOT touch the metal terminals on the Charging Hub.
    - e. If there is a noticeable buildup of debris, wipe the metal terminals with a clean, dry cloth.
5. Only use genuine DJI parts or parts certified by DJI. Unauthorized parts or parts from non-DJI certified manufacturers may cause the system to malfunction and compromise safety.
6. Ensure that the D-RTK Handheld Mapper and its components are free from contamination (e.g. water, oil, soil, and sand).
7. DO NOT attempt to disassemble any part of the D-RTK Handheld Mapper that has already been mounted prior to shipping.
8. Operate the sharp end of the pole with caution.
9. Operate with caution and protect the D-RTK Handheld Mapper from lightning strikes in lightning storms.

Introduction

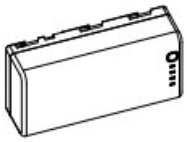
The D-RTK Handheld Mapper is specially designed for the AGRASTM MG-1S RTK. When used with the D-RTK Base Station, it can obtain centimeter-level positioning accuracy for more accurate field planning. The operation panel of the D-RTK Handheld Mapper is equipped with buttons to make it easy to mark edges and obstacles. The screen and indicator will show the system status during operation. Measurement data can be transmitted to the DJI MG app for using the built-in intelligent operation planning system.

In the Box

Mapper × 1

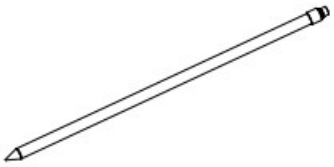


Intelligent Battery × 2



Charging Hub × 1

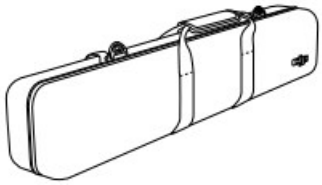
Pole × 1



Charger × 1

Power Cable × 1

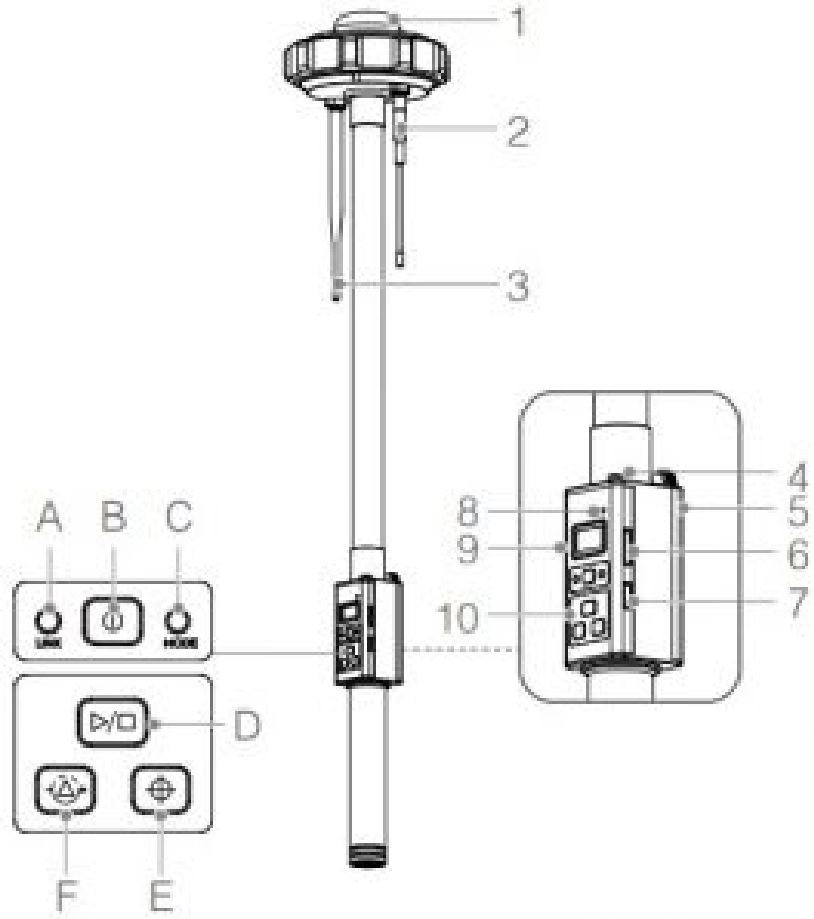
Carrying Case × 1



Micro SD Card × 1 (16GB)

Micro USB Cable × 1

Overview



1. D-RTK Antenna
2. Datalink Pro Antenna
3. Datalink 3 Antenna
4. Bubble Level
5. Battery Compartment Cover
6. Micro SD Card Slot
7. Micro USB Port
8. Indicator
9. Screen
10. Operation Panel
    - A. Link Button
    - B. Power Button
    - C. Mode Button
    - D. Start/Stop Measurement Button
    - E. Add Waypoint Button
    - F. Obstacle Measurement Button

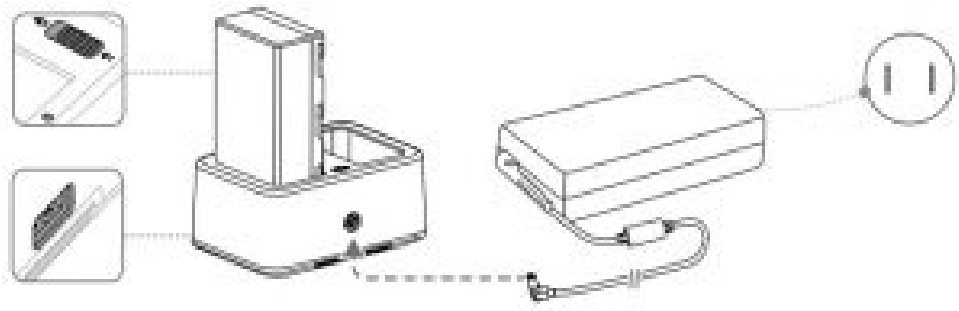
Installation

Battery Installation
Charging the Battery
Press the battery level button once to check the battery level. Fully charge the batteries before first-time use.

1. Place the battery into the Charging Hub, connect the charger to the Charging Hub, and then connect the

charger to a power outlet (100240V, 50/60Hz).

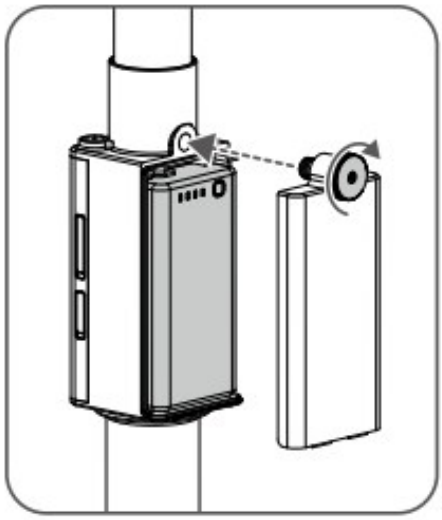
2. The Charging Hub will intelligently charge batteries in sequence according to battery power levels from high to low.
3. The Status LED blinks green when charging and turns solid green when fully charged. The buzzer will begin beeping when charging is complete. Remove the battery or turn off the buzzer to stop it.



- The maximum run time of a fully charged battery is approximately five hours.
- USB power supply port can be used to charge a 5V/2A mobile device.
- Refer to the Charging Hub (WCH2) User Guide and the Intelligent Battery (WB37) Safety Guidelines for more details. **http://www.dji.com/crystalsky/info#downloads**

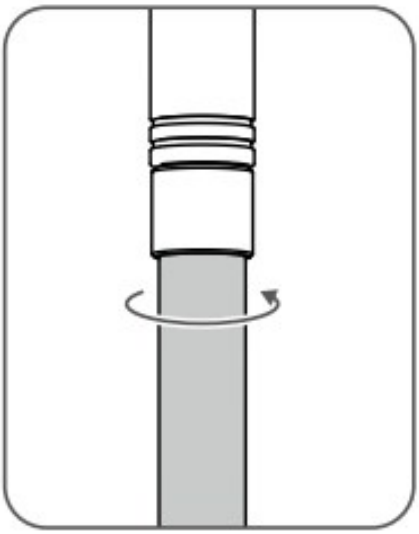
Mounting the Battery

1. Loosen the screw on the battery compartment cover, then remove the cover.
2. Place the battery into the battery compartment securely.
3. Re-mount the cover and tighten the screw.



Pole Installation

Insert the pole into the bottom of the mapper and rotate it until it tightens.



Turn the Mapper On/Off

Press the power button of the mapper, then again and hold to turn it on or off. The mapper will turn off automatically if it is idle (i.e. there are no button inputs on the operation panel) for 30 minutes.

Activation

Make sure to activate the mapper using DJI ASSISTANT 2 before first-time use.

1. Visit the official DJI website. Download and install the latest version of the DJI Assistan software. http://www.dji.com/mg-1s/info#downloads
2. Turn on the mapper. Connect it to your computer via a Micro USB cable.
3. Run DJI Assistant 2 and click “MG-1S RTK”. Activate the device following the instructions in the pop-up window.
4. Restart the mapper manually after activation.

DO NOT change any of the settings in DJI Assistant 2. Use the product under the default settings.

Linking

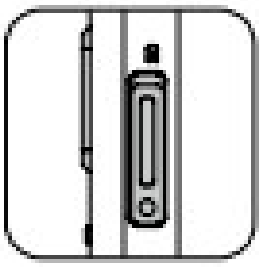
1. Turn on the D-RTK Base Station. “GNSS” in the lower left corner of the screen indicates a successful start.
2. Turn on the mapper. “GNSS” in the lower left corner of the screen indicates a successful start.
3. Ensure that the upper left corner of the screen shows “BS”, which indicates Base Station RTK Mode. If it shows “RC”, press and hold the Mode button to switch to “BS”.
4. Press and hold the Link button on the mapper. “Linking with BS” on the screen indicates that the mapper has initiated linking.
5. Press and hold the Link button on the base station and it will beep for five seconds. “Linking Successful” on the screen of the mapper during beeping indicates successful linking.

- If there is no device linked with the base station when beeping, it will exit linking and stop beeping automatically
- Press the power button on the base station or mapper once to cancel when linking is initiated.
- Linking is required only for first-time use with the same mapper and base station. The two will connect to each other automatically during future use.

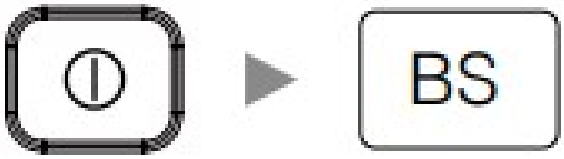
Usage

Field Planning

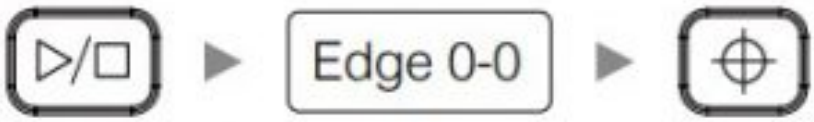
1. Ensure that the mapper has adequate power, sufficient free space on the Micro SD card (max capacity 16 GB) and that it is inserted into the slot on the mapper correctly.



2. Press the power button once, then again, and hold to turn on the mapper.
3. Ensure that the upper left corner of the screen shows “BS”. If it shows “RC”, press and hold the Mode button to switch to “BS”.



4. Wait for initialization to complete. The lower left corner of the screen shows “GNSS” and the center shows “Ready” if RTK data is obtained and used.
5. Press and hold the Start/Stop Measurement button to start.
6. The center of the screen will show “Edge X-Y”. “X” means the recorded point number for the edge measurement and “Y” means the recorded calibration point number.
7. Walk alongside the boundary of the field and press the Add Waypoint button once to record a point. The corresponding number will increase by one.



8. If any obstacles are in the operating area, press the Obstacle Measurement button once to enter Obstacle Measurement mode. The center of the screen will show “Obstacle Z-N.” “Z” is for the recorded point number around the obstacle. Walk alongside the boundary of the obstacle and press the Add Waypoint button once to record a point. Z will increase by one. “N” refers to the Nth obstacle being measured, meaning that each time you enter Obstacle Measurement mode N will increase by one. After obstacle measurement, press the Obstacle Measurement button once to exit from the mode and continue edge measurement.

9. Calibration points are required to rectify measurement bias caused by the positioning difference between the mapper and aircraft. Ensure that the screen displays “Edge”. If it displays “Obstacle”, press the Obstacle Measurement button once to switch. Choose at least one fixed reference point for calibration like a metal peg or obvious marker. Then press and hold the Add Waypoint button. The mapper will beep for one second to indicate that the calibration point has been recorded.
10. After measurement complete, press and hold the Start/Stop Measurement button. The screen will display “Ready”.

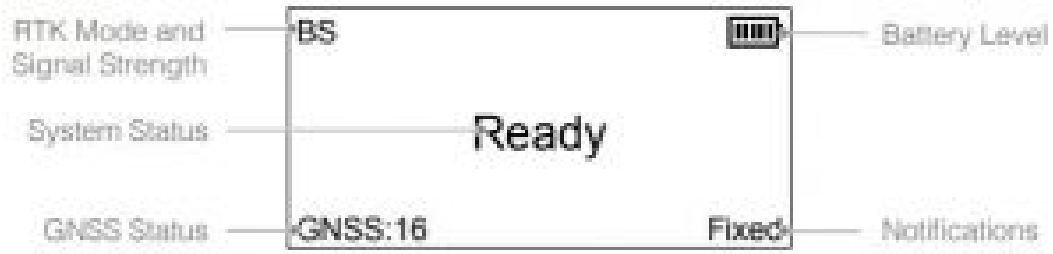
- More than one calibration point can be recorded for the field, but at least one is required. Measurement cannot be stopped by pressing and holding the Start/Stop Measurement button. The mapper will sound an alarm if no calibration point is recorded. Record at least one calibration point and then stop measurement by pressing and holding the button.
- Try to keep the mapper upright and level during measurement by monitoring the bubble level. When the bubble is within the black circle, the mapper is vertical.

Importing Data
Measurement data is saved to the Micro SD card in the mapper. Export it to the remote controller for use.

1. After a measurement is complete, turn off the mapper. Take out the Micro SD card and insert it into the Micro SD card slot on the remote controller.
2. Power on the remote controller and go to the DJI MG app.
3. Select “Handheld RTK Task” in the pop-up box. Data in the Micro SD card will be listed and sorted by time. Select the data corresponding to the desired field and tap “Import”.
4. After importing, enter Operation View. Tap the Task List and sort by time. Here you can find the last imported task.

Screen

Interface Descriptions
The interface consists of five parts:



Display Descriptions
Determine the system status via prompts on the screen. Resolve any potential issues if an abnormal status is displayed. The language can be switched to English or Chinese using DJI Assistant 2.

Displays	Descriptions

RTK Mode and Signal Strength	
BS	Base Station mode. Link and use the mapper in this mode when used with D-RTK Base Station
RC	Network RTK Mode via the remote controller. This mode is not supported yet.
	Data transmission signal strength.
System Status	
System Initializing	The system is initializing. The system will remain in this state for an extended time if there are not enough satellites for positioning. Make sure that the D-RTK Base Station is working normally and move the mapper to a location where there is a strong satellite signal within the transmission range of the base station.
Ready	The mapper is working normally.
Linking with BS	Linking with the base station.
Linking Successful	Linked with the base station.

Locating Satellites	Satellite signal is weak. Measurement cannot be continued in this status. Check if there is any obstruction or interference. Then wait for display on the screen back to what it was before to continue measurement.
Edge X-Y	Measuring the edge of the field. “X” means the recorded point number for the edge measurement, and “Y” means the recorded calibration point number.
Obstacle Z-N	Measuring obstacle. “Z” means the recorded point number around the obstacle and “N” means the Nth obstacle being measured.
No SD Card!	No Micro SD card detected. Insert an available card correctly.
File Error!	File storage error. Check if the Micro SD card is damaged or if it has enough free space. The max supported SD card capacity is 16 GB. Check if the capacity is at or below 16 GB.
Activate in Software	Device not activated. Connect it to DJI Assistant 2 for activation.
GNSS Status	

GNSS: XX	GNSS board initialization succeeds. XX indicates the number of satellites.
N/A	GNSS board initialization failed. Please contact DJI Support or an authorized dealer.
Notifications	
>>>–	Arrows will appear and disappear to indicate system initialization.
Fixed	The position of the mapper is confirmed.
Not Fixed	The position of the mapper cannot be obtained. This may be caused by cable connection issues, damage, obstruction, interference, or insufficient satellite signal for the base station positioning. If troubleshooting doesn't work, contact DJI Support or an authorized dealer.
No BS Data	No base station data received. This may be caused by cable connection issues, damage, obstruction, or interference, or being too far away from the base station. If troubleshooting doesn't work, contact DJI Support or an authorized dealer.

Indicator Light		Descriptions
G ____	Solid Green	Ready
R	Blinking Red	System initializing
R ____	Solid Red	System error. Check the notifications on the screen

Updating Firmware

1. Turn on the mapper and connect it to DJI Assistant 2. There will be two connected devices.
2. Click each device and download the latest firmware on the Firmware Update page, and then follow the instructions to complete updates. Make sure to update the firmware for both devices.
3. Restart it manually after the firmware update.

Specifications

Integrated Performance	
GNSS Frequency	Mainland China/South Korea: GPS L1&L2, BEIDOU B1&B2 CE/FCC: GPS L1&L2, GLONASS F1&F2
Communication Frequency Band	Datalink 3 Antenna 2.400–2.483 GHz Datalink Pro Antenna Mainland China: 430–432 MHz South Korea: 447.8625–447.9875 MHz CE: 869.525 MHz FCC: 903–925.5 MHz

Transmission Range	Mainland China/South Korea/CE: 400 m FCC: 600 m (Unobstructed and free of interference with a height of 3.2 m from the D-RTK antenna to the end of the tripod)
Power Consumption	7 W
EIRP	Datalink 3 Antenna Mainland China/South Korea/CE: 19 dBm FCC: 24 dBm Datalink Pro Antenna Mainland China/South Korea: 10 dBm CE: 13 dBm FCC: 27dBm
Supported SD Cards	Micro SD Max capacity: 16 GB. Class 10 or UHS-1 rating required.
Weight (Carrying case excluded)	1.92 kg
Height (Mapper with pole)	1.8 m
Operating Temperature	0° to 45°C (32° to 113°F)
Intelligent Battery	

Model	WB37-4920mAh-7.6V
Battery Type	LiPo battery
Capacity	4920 mAh
Voltage	7.6 V
Energy	37.39 Wh
Charging Temperature	5° to 40°C (41° to 104°F)
Charging Hub	
Model	WCH2
Input Voltage	17.3–26.2 V
Output Voltage and Current	8.7 V, 6 A; 5 V, 2 A
Operating Temperature	5° to 40°C (41° to 104°F)
Charger	
Model	A14-057N1A

Voltage	17.4 V
Operating Temperature	5° to 40°C (41° to 104°F)

This content is subject to change without priority.
Download the latest version from **htt://www.dji.com/mg-1s**

Documents / Resources

	**dji D-RTK Handheld Mapper** [pdf] User Guide D-RTK Handheld Mapper