

Kestrel/Carsonde

Instructions

Created by Émilie Bresson, 30 March 2015

Updated by Émilie Poirier, 1 April 2015

Updated by Juris Almonte, 1 April 2019

1. PREPARATION

On the Kestrel:

- Press power Φ twice to enter in the menu
- Select **Bluetooth** menu
 - check **Bluetooth** is off
 - exit
- Select **Memory Options** menu (NB: this step is a double check step)
 - Clear log
 - Set **Auto Store** to off
 - Set **Store Rate** to 5s
 - Set **Overwrite** to off
 - Set **Man Store** to off
 - Exit
- Select **Measurements** menu (NB: this step is a double check step)
 - Only this parameters should be set to **on**:
 - Date & Time
 - Temperature
 - Humidity
 - Dew Point
 - Wet Bulb
 - Baro
 - Altitude
 - Exit
- Select **Units** menu (NB: this step is a double check step)
 - Set **Wind Speed** to m/s
 - Set **Temp** to °C
 - Set **Pressure** to hPa
 - Set **Altitude** to m
 - Exit
- Select **System** menu (NB: this step is a double check step)
 - Set **Auto Shutdwn** to off
 - Exit



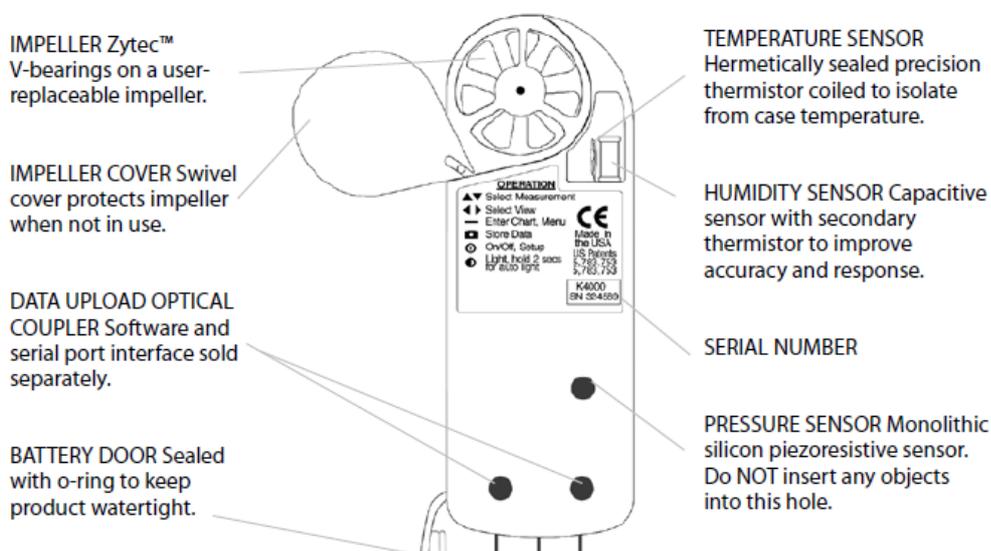


- Select **Date & Time** menu
 - Check **date** and **hour** => **UTC time**
 - If different times on two or more Kestrels make sure you put all at the same date and time!
 - Exit
- Set up the reference altitude
 - go to the **BARO** screen
 - press the **(-)** button
 - set the reference altitude according to the current altitude on the GPS
 - enter the value from the **BARO** screen as the reference pressure on the **ALTITUDE** screen

2. MEASUREMENT

On the Kestrel:

- When you are ready for the measurements, go to **Memory Options** menu
- Set **Auto Store** to **on**
- Make sure that the Kestrel is **well ventilated** and **far enough** of the car window/skiing person to avoid heat and moisture influence (impeller does not need to be open)
- Make sure the tape does not block the temperature/humidity and pressure sensors (see figure below)



- At the end of measurements, go to **Memory Options** menu
- Set **Auto Store** to **off**
- Shut down the Kestrel

3. EXPORT DATA

On the Kestrel:

- Select **Bluetooth** menu
 - **activate** the Bluetooth
 - select **info** menu
 - check ID (Kxxxx-xxxxxx)
 - exit

On the computer:

- In main menu, select **Devices and printers**
- Right click on the Kxxxx-xxxxxx
- Select **Properties**
- In tab **Hardware**, check **COM port**
- Close it
- In main menu, open **Kestrel communicator**
- In **Kestrel Tracker** tab, select the good **COM port**
- Click on **Load from Kestrel Tracker**
- When the data are loaded, check the data in **Data log** tab
- Under **Export data**, click on **All data**
- Save in **.txt** in the **Kestrel folder** in the **subfolder** named **AAAAMMDD**
- If a pop-up opens about an impossibility to re-import data, click on ok

On the Kestrel:

- In **Bluetooth** menu, **deactivate** Bluetooth signal
- In **Memory Options** menu, **clear log**
- Shut down the Kestrel

GPS Instructions

Created by Émilie Poirier, 30 March 2015

1. TRACKS

On the GPS (Magellan explorist 110)

- Press power Φ at the top of the GPS
- From the map screen, press **MENU**
- Select **Start New Track** with joystick and then press joystick button
- At the end of the ride, press **MENU** and then **Save Track**
- Close the GPS

2. ADD WAYPOINTS

On the GPS

- From the map screen, press **MENU**
- Select **Add Waypoint**
- Name the waypoint by selecting the **WP* name** and pressing the joystick (a keyboard will appear)
- Press **BACK** and save waypoint

3. EXPORT DATA

- Plug the USB cable to the GPS and the computer
- Copy the **TRK*.gpx** files from the Tracks folder and the **Magellan_New_Waypoints.gpx** file from the Waypoints folder to the **/CarSonde/DATE/GPS** folder of the Lacie hard drive

On the GPS

- From the map screen, press **BACK**
- Select **Tracks**
- Press **MENU**
- Select **Delete All**
- Press **BACK**
- Select **Waypoints**
- Press **MENU**
- Select **Delete All**

Appendix

Created by Émilie Poirier, 30 March 2015

Updated by Juris Almonte, 1 April 2015

1. CAR SONDE

Purpose : To find the rain-snow transition region and characterize the precipitation types within the transition region.

- Prepare your Kestrels as in step 1 of the Kestrel Instructions
- Strap 2 Kestrels at the top of a pole with electric tape
- At the bottom of Fortress Mountain, start your recording device and take a GPS waypoint
 - On western side of divide start from Sinclair Canyon to Olive Lake (535 m elevation gain). ** Option to drive down to Nipika (see maps to follow instructions)
 - Or start from Nipika Mountain Resort to Olive Lake (432 m)
- Start recording a new track with the GPS
- Start making measurements as in step 2 of the Kestrel Instructions
- Record all your observations, especially when taking a GPS waypoint
- When the rain changes to mixed precipitation, stop the car and take a GPS waypoint (this is the beginning of the snow/rain transition)
- When mixed precipitation change to snow, stop the car and take a GPS waypoint (this is the end of the snow/rain transition)
- At the top of Fortress Mountain, stop the car and take a GPS waypoint
 - Olive Lake pullout take pictures (Western side)
- Prepare the camera and take picture of snowflakes for 15-20 minutes
- On the way down, take two GPS waypoints at the snow/line boundaries and a last one at the bottom of the mountain (you should have a total of 7 points)
- Stop the measurements as in step 2 of the Kestrel Instructions
- Export the Kestrel data as in step 3 of the Kestrel Instructions