



Manual Compass K22 DPV





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General remarks



Please read the instruction manual carefully before using the compass.



This compass is intended for recreational purposes only and it is not a toy.



Careful inspect/check the operation of your entire dive equipment before diving.



You are responsible for your own safety. Dive only if you are in good health.



Merope Engineering is in no way liable for any damage resulting from use of this compass. By using this compass you agree with the general terms and conditions of Merope Engineering.

These can be found on our website: www.merope-engineering.com.

Conformity declaration

Hereby Merope Engineering declares that the compass complies with the directive 2014/53 / EU.
The Declaration of Conformity can be downloaded from the website: merope-engineering.com.

Manufactured by:
Merope-Engineering, Nederland

on / menu - select

confirm



1. General

The compass is intended to be mounted on a DPV, also known as an underwater scooter. The compass is an electronic instrument that indicates magnetic north on a display. It also contains a depth gauge, a dive timer and a GPS receiver. **This instrument is not a dive computer.**



Always take a spare compass with you, because it is an electronic instrument and all electronic instruments can malfunction.

1.1 Technical data

Operating Temperature Range	2 up to 50 °C
Storage temperature	-5 up to 40 °C
Compass accuracy	+/- 3 degrees; resolution 1 degree
Maximum depth	100 meter // denotation: 99.9mtr // resolution: 10 cm
Battery	Rechargeable LiPo; operating life ca. 6 hr, fully charged at 15° C
Temperature range thermometer	-20 up to 50 °C
GPS receiver	GPS/GNSS Quectel



Do not exceed the maximum depth!



Disposal of the compass at end of life: All waste must be handled and disposed of in accordance with local laws and regulations. Return the compass at the end of its lifetime to the dive shop or a designated collection point.



1.2 Warranty

The warranty period is 2 years after purchase of the product. The purchase invoice must be submitted in case of a warranty claim.

What is not covered by the warranty:

- Normal wear and tear such as scratches, damage, possible discoloration;
- Damage caused by, e.g. dropping the compass or careless handling;
- Repair (or attempted repair) by an unauthorised dealer;
- Attempted self-opening of the compass;
- Use of an incorrect charger. The charger must be a CE marked USB adaptor; 5 Volt and 1 Ampere.

2. Using the compass

2.1 Turn on the compass

Briefly press the left button. A start screen appears with the question: Power on: Yes/No.

If the button corresponding to “Yes” is pressed, the compass will start up and the main screen will appear. If no button is pressed, the compass will automatically turn off after about 5 seconds. The name of the compass owner is also displayed during the main screen. This name can be entered via the K22 DPV PC software.

2.2 Main screen

After start-up, the main screen appears. In this screen, several functions are active.



Top left corner: the battery status. This is divided into 5 segments. From 100% full to 10% (=almost empty). After being 100% charged, the battery lasts approximately 6 hours. This depends on the ambient temperature and the aging of the battery.

3 of the 5 segments are green (100-20%). Yellow means that the battery has about 15 minutes of charge left and is therefore almost empty. Red means the battery has 5 minutes of charge left. The display will automatically dim to save energy.



When the red indicator is activated, only a few minutes of display time remain.

Always fully charge the compass before each dive.



Right next to the battery status is the satellite indicator “S”. This indicates how many satellites are in use by the compass. When the compass starts up, it will be set to S00. After about a minute, it will indicate the number of satellites being received. This number can vary depending on the strength of the satellite signal.

In the top center is the compass direction in decimal degrees. This is a decimal representation of the round compass rose in the center.

In the top right corner is the temperature indication. It measures the temperature of the housing. Underwater, the water temperature is indicated. The display can be changed from Celsius to Fahrenheit in the menu.

The middle left shows a table with 4 lines. The first line is marked “A”, then 1, 2 and 3 are shown. A = Active, the selected heading in use. 1, 2 and 3 show the previously selected headings.

This table stores multiple heading(s) selected with the right button.

In the center of the compass is the compass rose. In the Screen settings menu you can choose N (north) and S (south). Or for an analogous representation of the north and south direction. North is a red sphere. South is a white sphere.

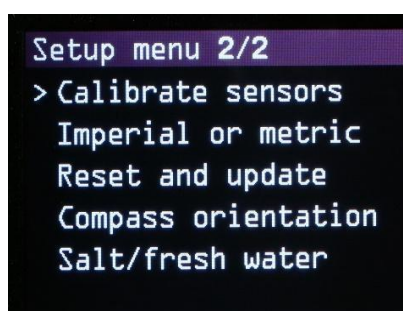
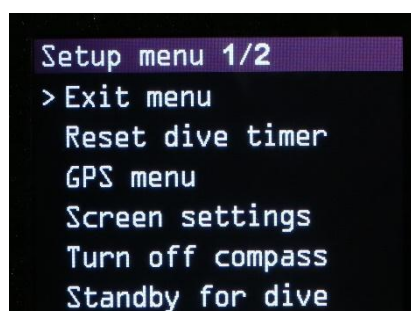
In the center of this compass rose there is a tip-tilt indicator (oval sphere).

At the bottom left of the screen the dive timer (bottom timer) is located. It starts automatically from a depth of 1.5 meters. The compass must be turned on first.

In the top right of the screen the average depth is indicated by AV followed by 00.0. See section 2.3.3 (Average Depth Display) for an explanation of this feature.

On the bottom right of the screen is the depth gauge with, on the left, an indicator that shows whether the depth remains the same or whether you are ascending or descending.

2.3 Menu structure



Pressing the left button brings up the setup menu. There are 2 pages.

“>” (menu indicator) shows which menu will be selected. Select the sub menu “>” by using the left push button. The right push button confirms the selection. Then you enter the submenu.

2.3.1 Exit menu: Exit this menu and go back to a previous menu, or to the main screen.

2.3.2 Reset dive timer:

```
Setup menu 1/2
Exit menu
> Reset dive timer
GPS menu
Screen settings
Turn off compass
Standby for dive
```

```
Reset timer
> Exit menu
Reset timer
```

```
Dive timer reset
```

If required, the dive timer can be reset. After the reset this timer will be set to 000.00 minutes. The dive timer will count the number of minutes and will show, for example, 075:12. This means that you have dived for 75 minutes and 12 seconds.

2.3.3 GPS menu:

Load GPS position:

```
Setup menu 1/2
Exit menu
Reset dive timer
> GPS menu
Screen settings
Turn off compass
Standby for dive
```

```
GPS menu
> Exit menu
Load GPS position
Save GPS position
Set GPS position
GPS status
```

```
Load GPS position
Exit menu
> 1 home
2 Rijnaak
3
4
5
```

```
Load GPS position

1 home

lat: 052.266327
lon: 005.191649

exit      use
```

```

s08 242° 21C°
A 121
-1 242
-2 -
-3 230
D 0179 m
000:00 00.0 m
```

This function shows the GPS positions that have been uploaded to the compass. Uploading is done via the Windows program: K22 DPV. Here you can put known GPS locations (eg. wreck locations) in the table and upload them to the compass.

Waypoints:

- Above water: use the active GPS location as the starting point. Then choose the destination from the list of GPS points.
- Underwater: choose a previously entered GPS point from the list. This point must of course correspond to the current location. Then select the destination.

The route can be started. Once arrived at the destination, a new location can be selected (under water). You will be asked whether the current location should be used as the starting point. Answer with “yes”. The new route is shown. Make sure that this starting point is the actual GPS point.

If you answer “no”, the compass returns to the main menu. If necessary, you can ascend to surface for an active GPS location and plan a new route.



Save GPS position:

```
Save GPS position
> Exit menu
1
2
3
4
5
```

```
Save GPS position
17
No GPS fix available
Waiting for GPS
cancel
```

Here the current GPS position can be saved in the compass. There are 20 memory slots available, divided into 4 pages. If a new coordinate is written at a position, it is stored at the selected position.

A new coordinate can be saved at any position, overwriting the old position.

Choose a memory position where the coordinate should be stored. E.g. nr 5. Then, when GPS signals are active, the coordinates can be saved directly.

If there is no reception, the screen will blink: "No GPS fix available. Waiting for GPS".

2 situations:

- 1) on land you can wait until enough satellites are found;
- 2) underwater: let the compass rise to the surface on a deco buoy or floating platform. Leave the compass on the surface for 2 minutes. When the compass has found enough satellites, the location is automatically stored at the chosen memory position.

When the compass is left floating for positioning purposes, it is important that the compass is placed vertically with the knobs facing up. The buttons should be a few centimeters above the surface, otherwise the built-in antenna will not receive signals.

Average Depth Display:

When the compass is raised for GPS positioning, the active depth measurement stops and the compass takes the last measured depth for calculation. Depth measurement stops the moment it is selected: GPS menu -> Save GPS -> Position number: waiting for GPS signal. It is assumed that the last measured depth is the diver's depth. The dive time and depth continue at this depth. The assumption is that the diver maintains his depth during surfacing of the compass and that it does not change. If the depth does change, the average depth is incorrect.

After saving or cancelling the GPS coordinate, the average depth measurement starts again with active depth values.



NEVER use the average depth function of this compass for gas calculations or decompression calculations!!!! Always use the dive computer!

Set GPS position

```
GPS menu
Exit menu
Load GPS position
Save GPS position
> Set GPS position
GPS status
```

```
Set GPS position 4/4
Exit menu
16
> 17
18
19
20
```

```
Set GPS position
17 Manual stored 0
lat: +000.000000
lon: +000.000000
cancel      save
next       set
```

This allows a GPS location to be entered manually. First set the GPS memory number, e.g. number 17. Then an identification number can be added (e.g. 0). Use the set button to select and adjust a position in lat/long. Exit the menu by saving the data. Or select cancel.

The manual stored position can be found in the menu: “Load GPS position” and can be used.

GPS status:

```
GPS
Exit menu
Load GPS position
Save GPS position
> GPS status
```

```
GPS status
In view : 12
Used : 04 2D fix
Latitude : 052.267181N
Longitude: 005.187905E
exit
```

The built-in GPS receiver displays the number of satellites received and the number of satellites used for positioning.

2.3.4 Screen settings

```
Setup menu 1/2
Exit menu
Reset dive timer
GPS menu
> Screen settings
Turn off compass
Standby for dive
```

```
Screen settings
> Exit menu
Rotate screen
Brightness
Set color
Switch buttons
Course indicators
```

Rotate screen:

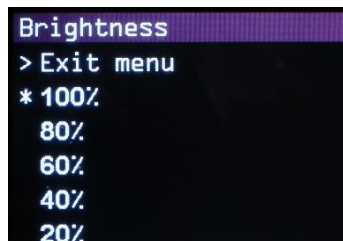
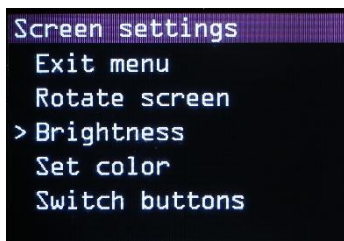
```
Screen settings
Exit menu
> Rotate screen
Brightness
Set color
Switch buttons
```

```
Rotate screen
Exit menu
> Rotate screen
```

The display is rotated 180 degrees.

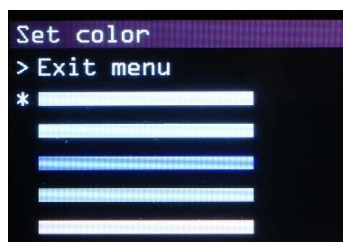
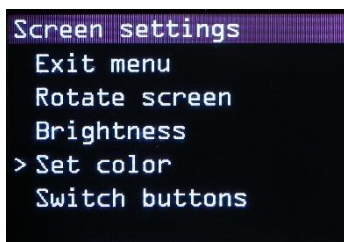


Brightness:



5 settings: 100%, 80% ,60%, 40% and 20%. "*" indicates the active setting.

Set colour:



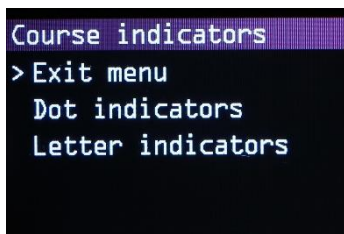
Choose one of the colours from the list. The active colour is used for all indications, except for the the compass rose colours.

Switch buttons



Selecting the menus and confirming them can be reversed using the switch buttons function. The on-off button always remains active under the left button (buttons on top of the compass).

Course indicators



Choose either Dot indicators (dots) or Letter indicators (N and S) here.



2.3.5 Turn off compass:

```
Setup menu 1/2
Exit menu
Reset dive timer
GPS menu
Screen settings
> Turn off compass
Standby for dive
```

```
Turn off compass
> Exit menu
  Turn off compass
```

This turns off the compass.

2.3.6 Standby for dive:

```
Setup menu 1/2
Exit menu
Reset dive timer
GPS menu
Screen settings
  Turn off compass
> Standby for dive
```

```
Standby for dive
> Exit menu
  Standby compass
```

The screen turns off to save power. The compass remains active in the background. At a depth of about 30 cm, the display turns on again automatically. Or when a button is pressed.

2.3.7 Calibrate sensors

```
Setup menu 2/2
> Calibrate sensors
  Imperial or metric
  Reset and update
  Compass orientation
  Salt/fresh water
```

```
Calibrate sensors
> Exit menu
  Calibrate compass
  Calibrate depth
  Raw sensor values
  IMU sensor values
  Set declination
```

Calibrate compass

```
Calibrate sensors
Exit menu
> Calibrate compass
  Calibrate depth
  Raw sensor values
  IMU sensor values
  Set declination
```

```
Place the compass on
a flat surface with
the screen facing up

Press ok when ready
cancel          ok
```

This function is intended to calibrate the compass sensor. This is done on a calibrated horizontal plate and normally does not need to be repeated.



Calibration by the end user may only be done when a perfectly horizontal (level) plate (in x- and y- direction) is available.

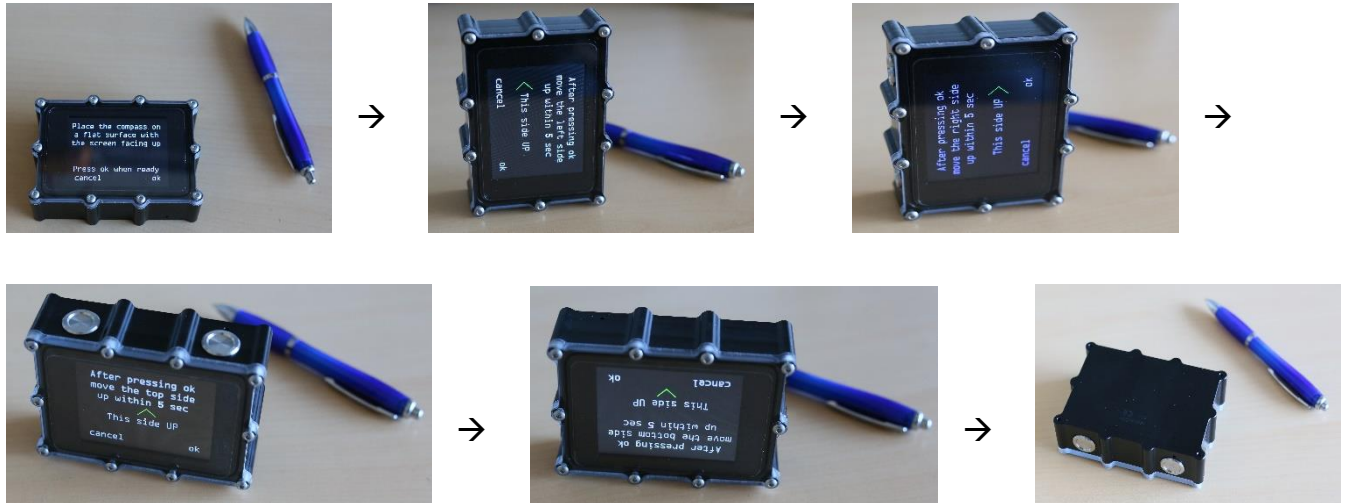


Please note that there is no magnetic influence by e.g. metals, magnets, electrical appliances, mobile phones, etc.

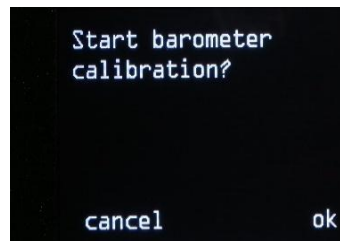
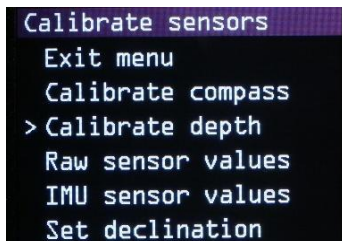


Calibrate only on a perfectly horizontal surface; use a spirit level for this!!! Otherwise there will be a deviation in the purity of the compass.

Follow the instructions for calibrating the compass and save the values.



Calibrate depth

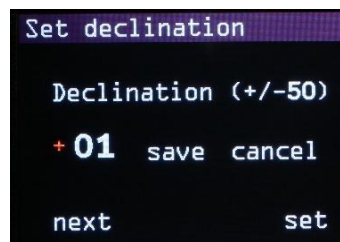
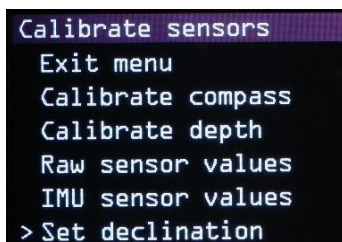


The depth indication also responds to air pressure/atmospheric pressure. Therefore, it is possible that the depth display does not show 00.0 when switched on. But for instance on 00.2. This can be reset to 00.0 in this menu.

Raw sensor values and IMU sensor values

This is digital output from the MEMS sensor. This is only intended for service point maintenance applications.

Set declination



Magnetic north and true north (geographic poles) are not the same. The value varies per location and can be positive or negative. Also, this value varies slowly over time.

For example in 2021:



- the Netherlands + 1.88//Germany +3.1//United Kingdom +0.3//Belgium +1.92//France +2.3



This value needs to be adjusted according to the location of the dive. There are several websites where these values can be found. ("declination magnetic field calculators")



If the declination value is not entered or not entered correctly, the north will differ from the actual north.

2.3.8 Imperial or metric

```
Setup menu 2/2
Calibrate sensors
> Imperial or metric
Reset and update
Compass orientation
Salt/fresh water
```

```
Imperial or metric
> Exit menu
* Metric
Imperial
```

Select the applicable unit system here.

2.3.9 Reset and update

```
Setup menu 2/2
Calibrate sensors
Imperial or metric
> Reset and update
Compass orientation
Salt/fresh water
```

```
Reset and update
> Exit menu
Connect to computer
Reset factory values
```

In this menu are "Connect to computer", "Reset factory values".

Connect to computer

After this choice, "Listening to computer" appears on the screen and the compass becomes visible on the PC. The K22 DPV software can now be connected to the compass. To update the software, see chapter 8 "Update firmware".

Reset factory values

This function resets the following values to the factory settings:

Metric/screen orientation/screen colour/compass&barometer calibration/brightness 100%/declination = 0

2.3.10 Compass orientation

```
Setup menu 2/2
Calibrate sensors
Imperial or metric
Reset and update
> Compass orientation
Salt/fresh water
```

```
Orientation
> Exit menu
Horizontal
* Vertical
Auto detect
```

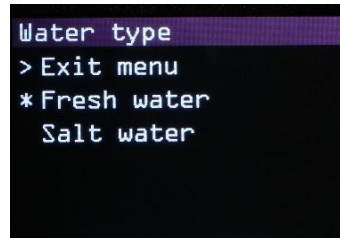
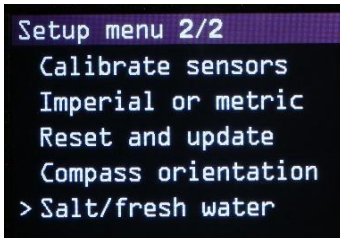
Choose here whether the compass is to be used horizontally or vertically. This is important as the tilt compensation is calculated accordingly.



The tip tilt has a compensation range of + and -90 degrees. If the compass is outside this range, the compass rose turns red. This indicates that the compass can no longer compensate for tip and tilt.

The Auto detect function automatically checks the position of the compass during start-up.

2.3.11 Water type



Select here whether it is fresh or salt water.

3. Installing the compass on the scooter

Mount the compass at a place on the scooter where it is easy to read and operate. A good spot is at the trigger handle.

An aluminium bracket with adapter block to mount the compass on the trigger handle of the scooter is available separately.





3.1 Magnetism

As the compass reacts to magnetism, it will also react to other magnetic fields, caused e.g. by the current through the motor cables or the magnets in the motor. The location of the compass should be chosen so that its influence is minimal. Testing can be done by giving more or less “throttle” You can see the influence of the magnetism of the motor or cables.



When mounting the compass, make sure that no magnetic metals are used. Some stainless steel variants are magnetic. Ordinary steel is unsuitable.



Another scooter close by can also affect the magnetic field. Always keep at least 1 meter distance.

After mounting, the scooter balance must be checked in the water. The compass is approx. 110 grams negative.

4. Determine direction

Make sure the double line of the compass rose is parallel to the length of the scooter.

The red dot (or the ‘N’) indicates north; the white dot (or the ‘S’) opposite, the south.

Manual heading function:

By using the manual heading function, the direction can easily be fixed in the compass rose.

Do this as follows:

Point the scooter in the direction of the object you want to navigate to. Press the right button once. A yellow dot will appear in the compass rose. At the same time, the heading is digitally added in the table under “A”.



The yellow dot must remain at the top of the double line. This is the direction of the selected course/heading.

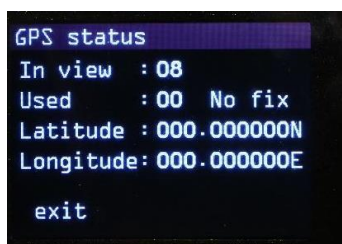
GPS heading function:

This function only works if GPS signals can be received. To do this, the compass must have an unobstructed view of the sky. Preferably a range as large as possible. For example, 360 degrees unobstructed view.

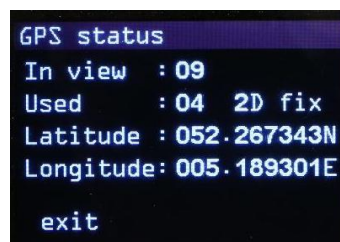


This means that the GPS signal cannot be received under water or in a cave, for example.

If enough GPS satellites are received, “Sxx” will appear in the top left corner of the main screen. If there are more than 4 satellites in this field, positioning is possible. More satellites makes positioning more accurate.



Bad GPS signal



Good GPS signal

When a location is selected from the saved GPS locations, the heading will be set automatically (yellow dot). The distance to the object is also displayed under the temperature indication: D xxxxm. For example: D 0179m. This means that the distance to the selected GPS location is 179 meters.

The GPS heading can be chosen both above and under water. For the correct distance to the target, GPS reception must be available.

After selecting the GPS heading above water, you can dive. The compass heading remains active under water.



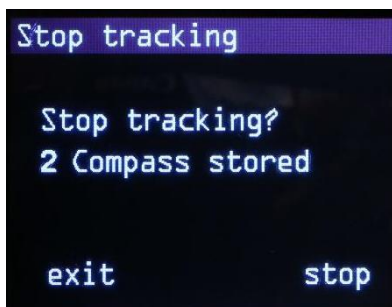
The distance will only change if a GPS signal is active. If there is no GPS signal, the distance will remain unchanged.

The heading dot, the heading under “A” and the distance are shown in yellow.

When D 9999m is displayed, this means that the distance to the object is greater than 9999metres.

A new heading can be entered by pressing the right button twice. The active heading is moved down one position and to make room for the new heading.

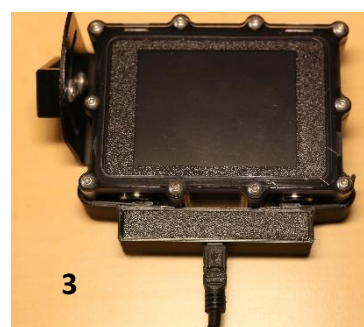
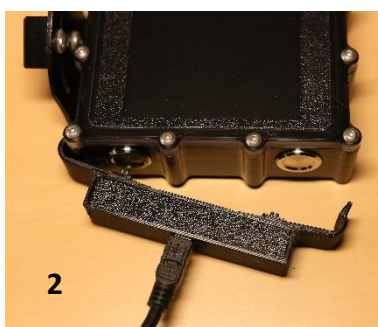
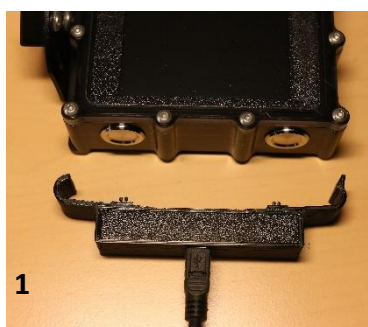




If the GPS heading is active and the right button is pressed, the compass will ask if the heading should be stopped and a new one chosen. "Stop tracking? 1,2,3,4,5 "

If you choose "stop", the yellow heading disappears from the screen. The destination does remain in the memory.

5. Charging the compass



Press the charging clip onto the compass. The two gold-coloured pins must make contact with the buttons. See the pictures above for attaching 1->2->3. The procedure for detaching the clip is reversed: 3->2->1. Do not move the clip while it is attached. This may damage the spring-loaded pins.

Then connect the mini USB cable to an USB charger. When the battery is being charged, a charging screen appears on the screen. The charging percentage is indicated. This screen turns off after about 2 minutes. Charging continues until the battery is full. After that, charging automatically switches off. Charging a completely empty battery takes approx. 6-8 hours.

Tapping the housing during charging, will bring up the charging screen for a short time.

Charging the battery only works when the ambient temperature is below 30 °C.

If the battery is/will be full and the charging clip is used, the charging screen will not appear.



Only use a CE marked charger that delivers a minimum current of 1 Ampere at a voltage of 5 Volt.

A higher voltage than 5 Volts will damage the compass irreparably.

6. Maintenance

After the dive: Rinse the compass under tap water or in a container of clean tap water.



7. Installing the K22 DPV DPV software on computer (Windows)



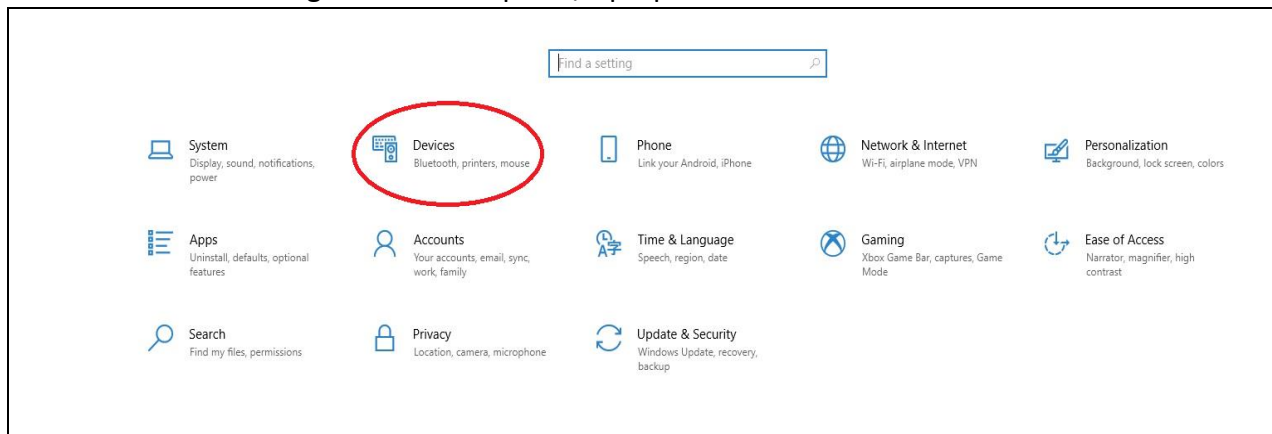
This software is required to transfer the GPS coordinates to the K22 DPV compass.



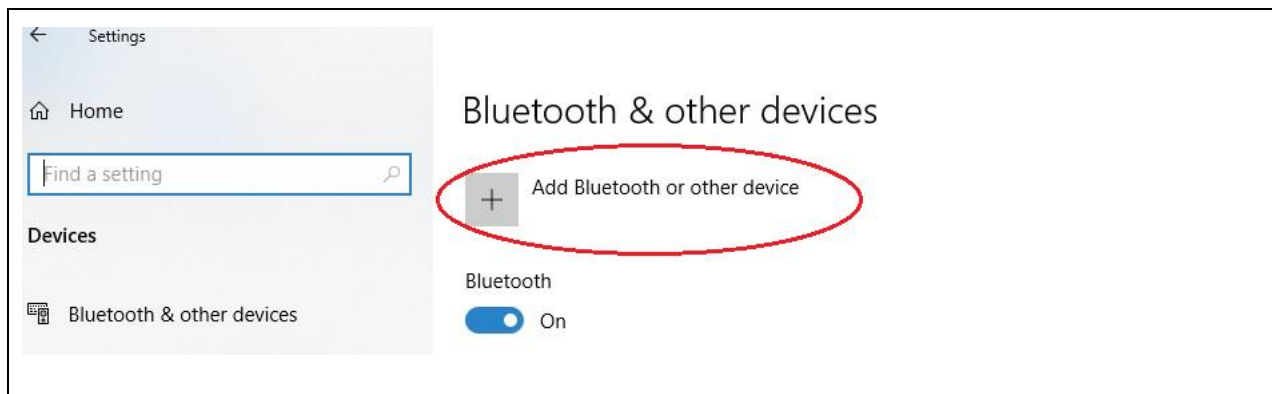
This manual assumes a computer with Windows 10.

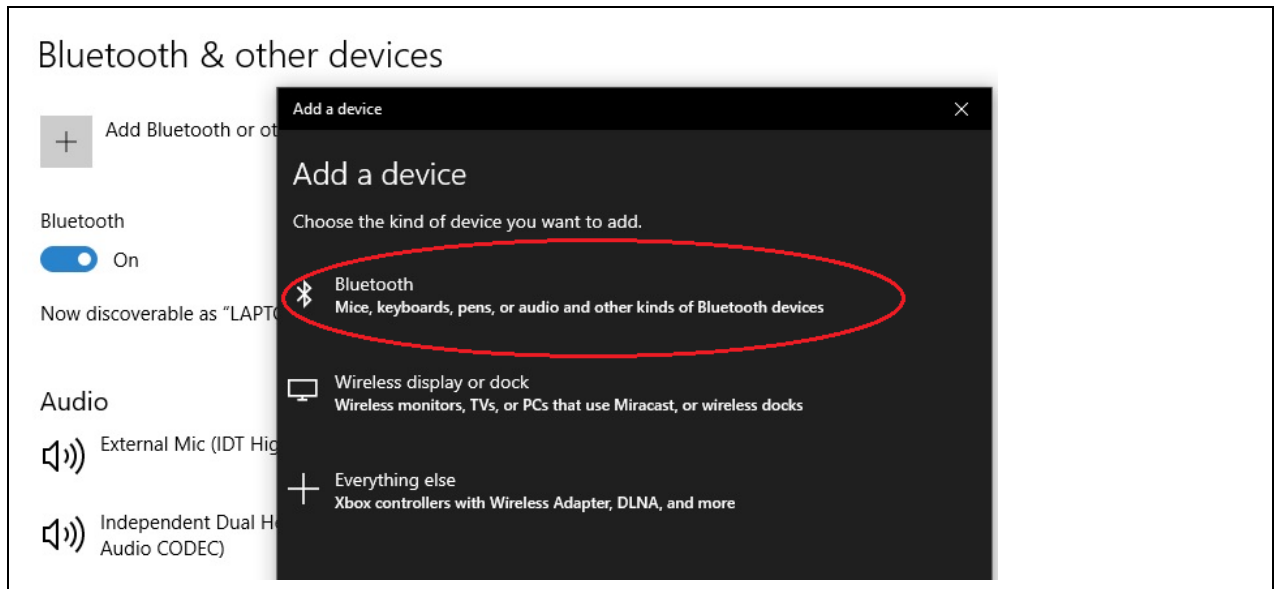
Turn on the compass and go to Menu -> Reset and update -> Connect to computer. The screen now will now read: Listening to computer.

Go to the menu “settings” on the computer/laptop and select ‘Devices’.

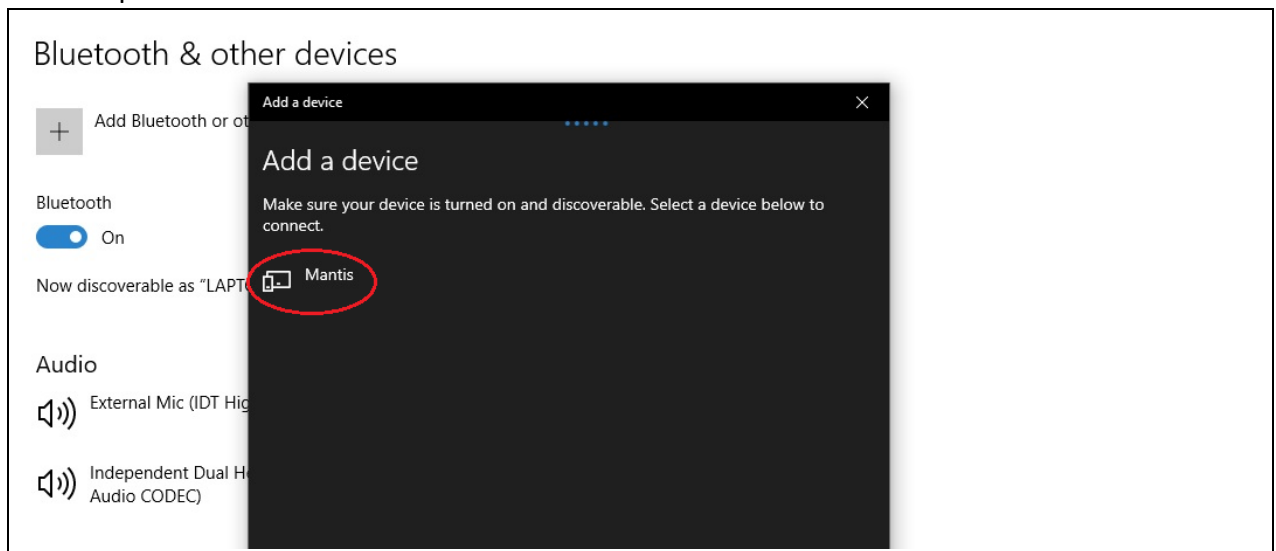


Then choose ‘other devices’ and click and click on the following steps as circled.

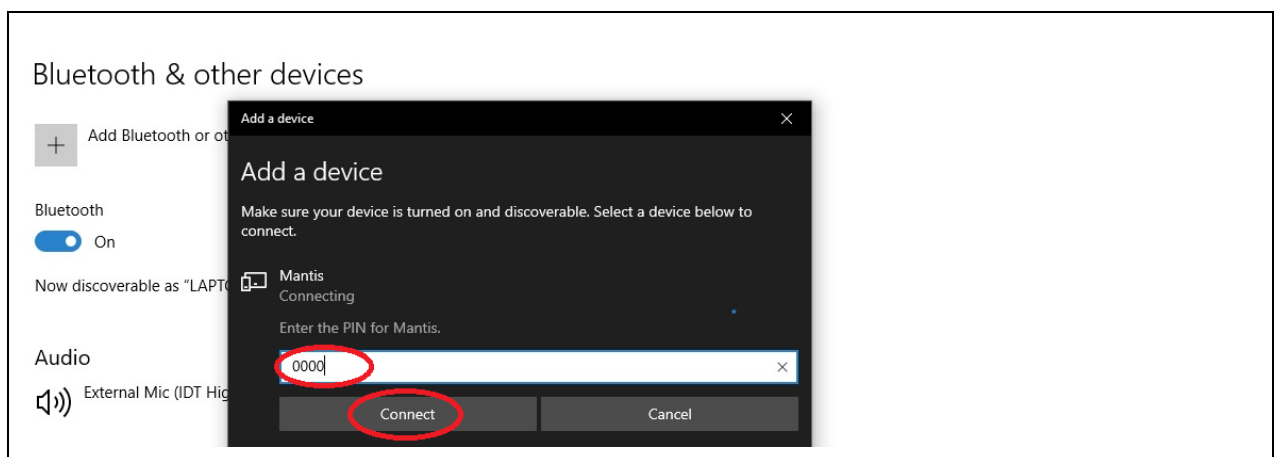




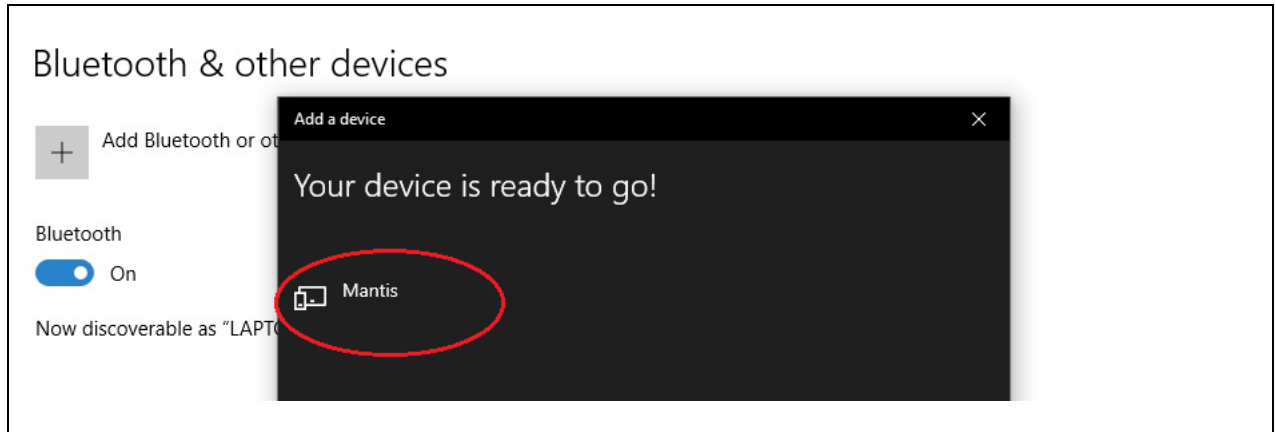
The computer detects 'Mantis'. Click 'Mantis' to add the device.



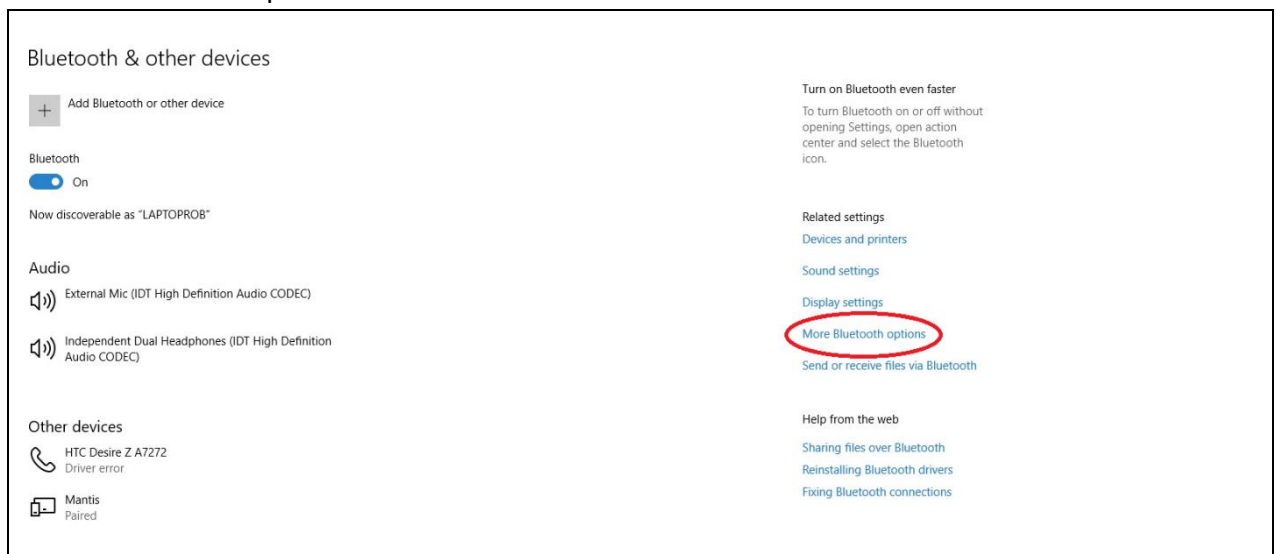
Enter the password. The password is 0000 and cannot be changed by the user. Click 'Connect' to establish the connection.



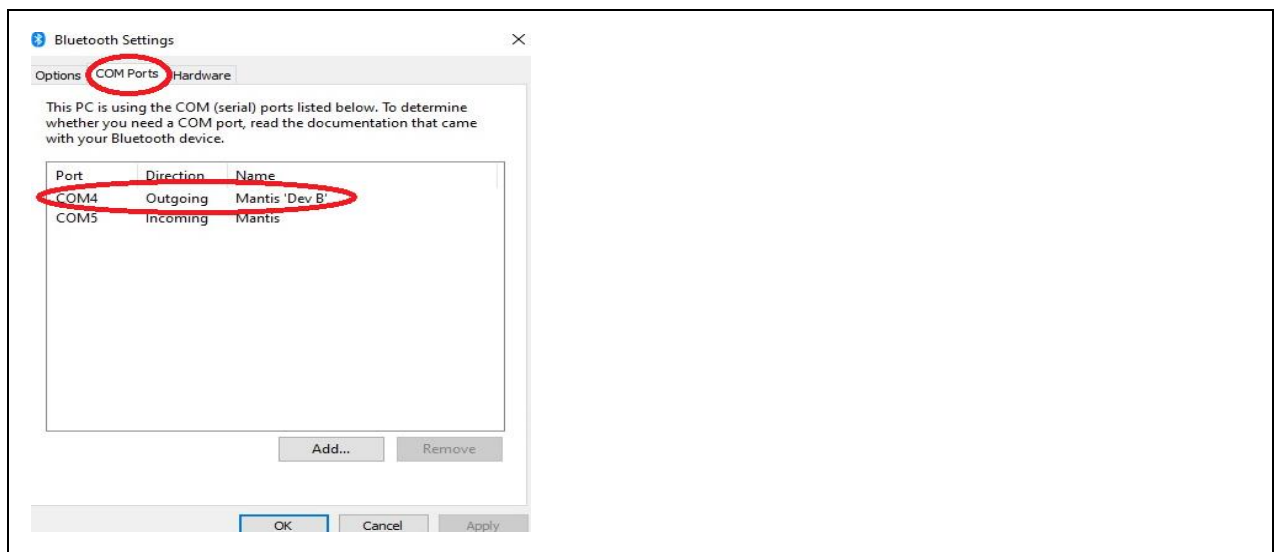
After activating the connection, Mantis (K22 DPV) is paired. The connection is now ready for use.



Then select 'More options'.



Then select the 'COM ports' tab to find out the ports connected to the K22 DPV. The outgoing communication port is the port with which the K22 DPV communicates. This COM port number varies in Windows.

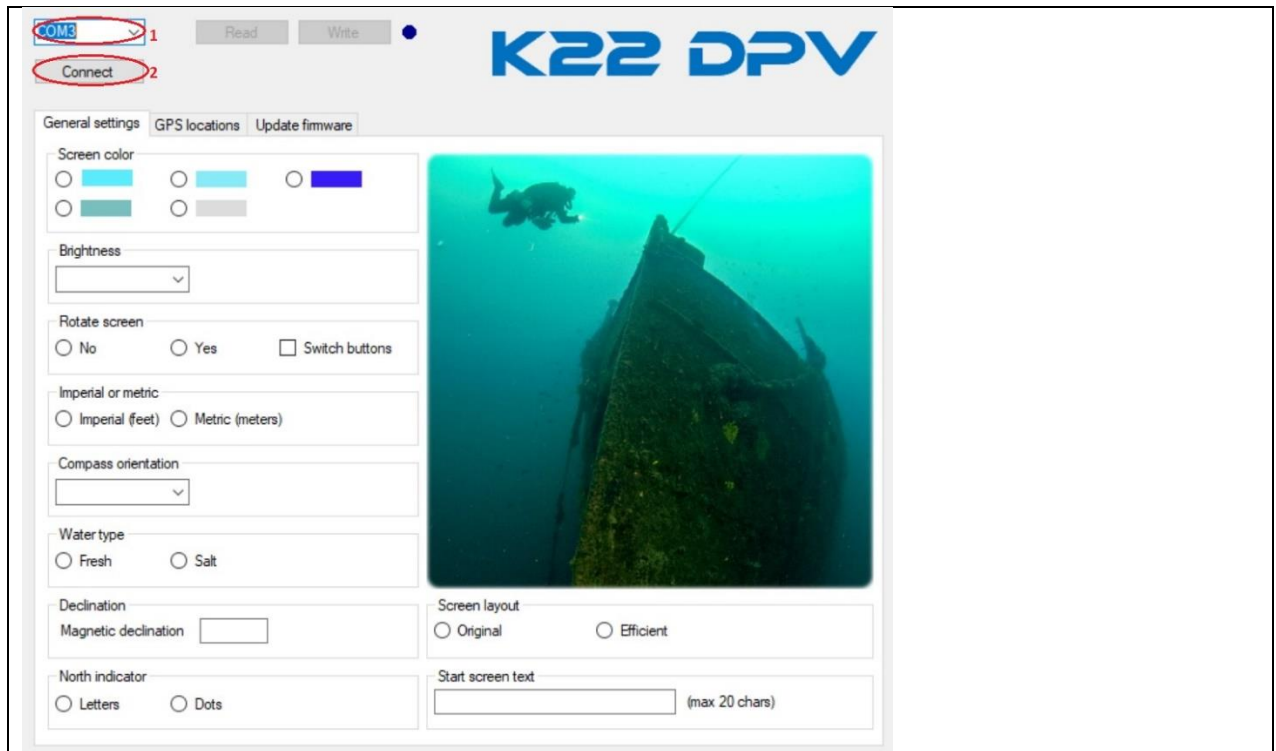




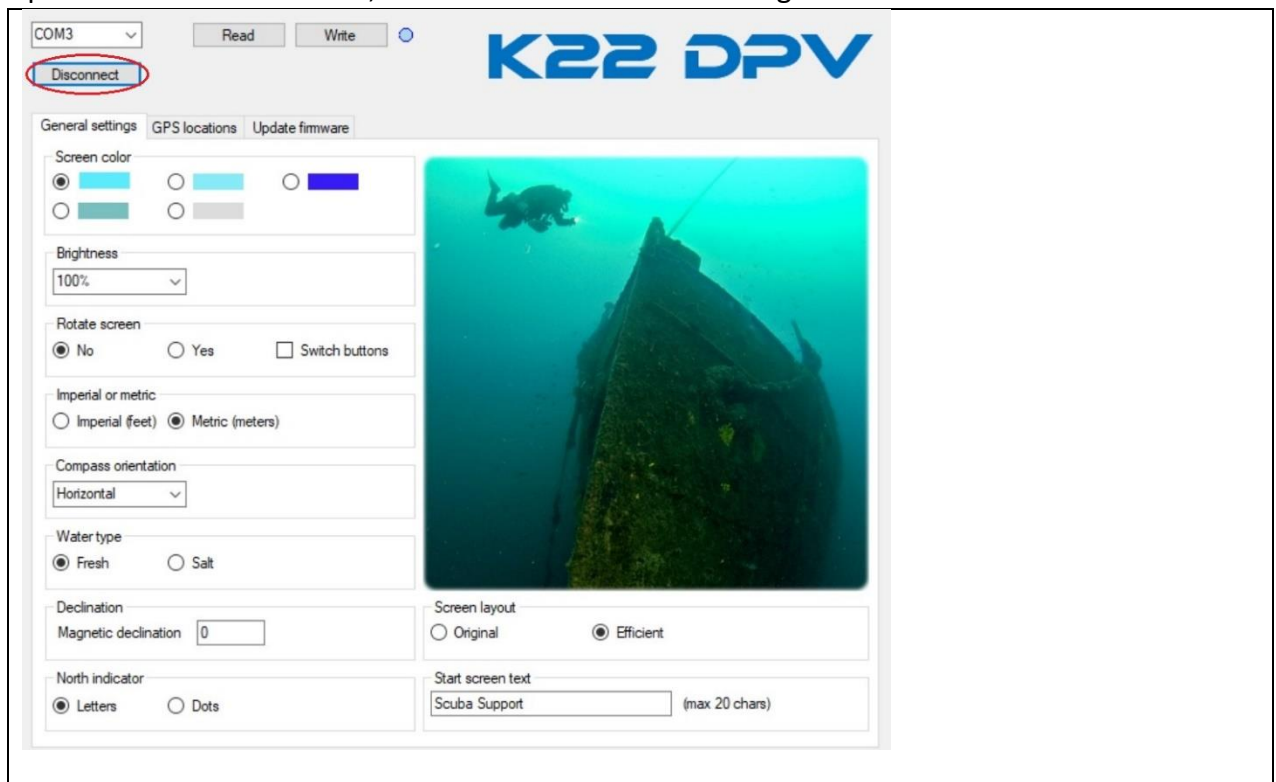
Using the K22 Win Software

Now start the K22 DPV.exe program and follow the next steps:

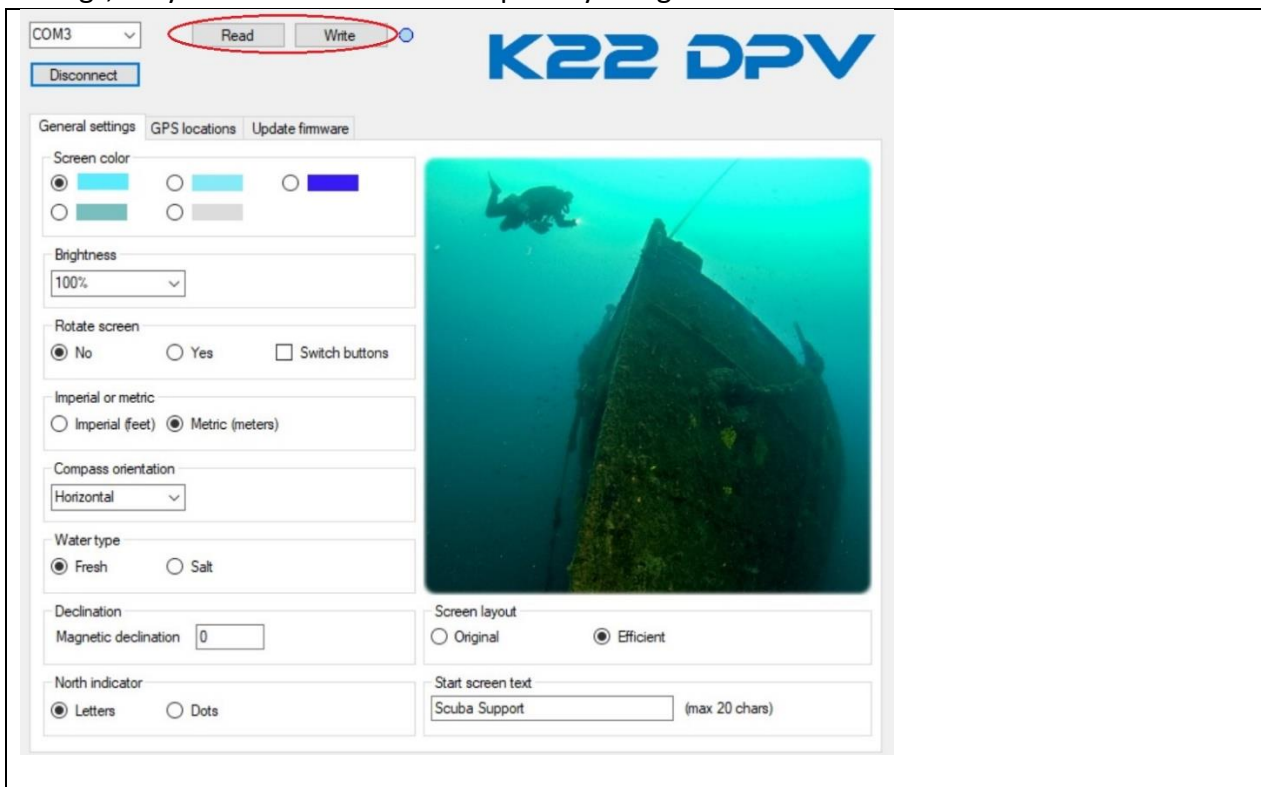
1. Click on the drop down menu to choose a communication port and select the K22 DPV 'outgoing' communication port. In this example COM3.
2. Click on 'Connect' to activate the connection.



Upon successful connection, the 'Connect' button will change to 'Disconnect'.



The settings of the K22 DPV can be retrieved using the 'Read' button. After adjusting the desired settings, they can be saved in the compass by using the 'Write' button.



COM3 Read Write Disconnect

K22 DPV

General settings | GPS locations | Update firmware

Screen color
☒ ☐ ☐
☐ ☐

Brightness
 100% ▼

Rotate screen
☒ No ☐ Yes ☐ Switch buttons

Imperial or metric
☐ Imperial (feet) ☒ Metric (meters)

Compass orientation
 Horizontal ▼

Water type
☒ Fresh ☐ Salt

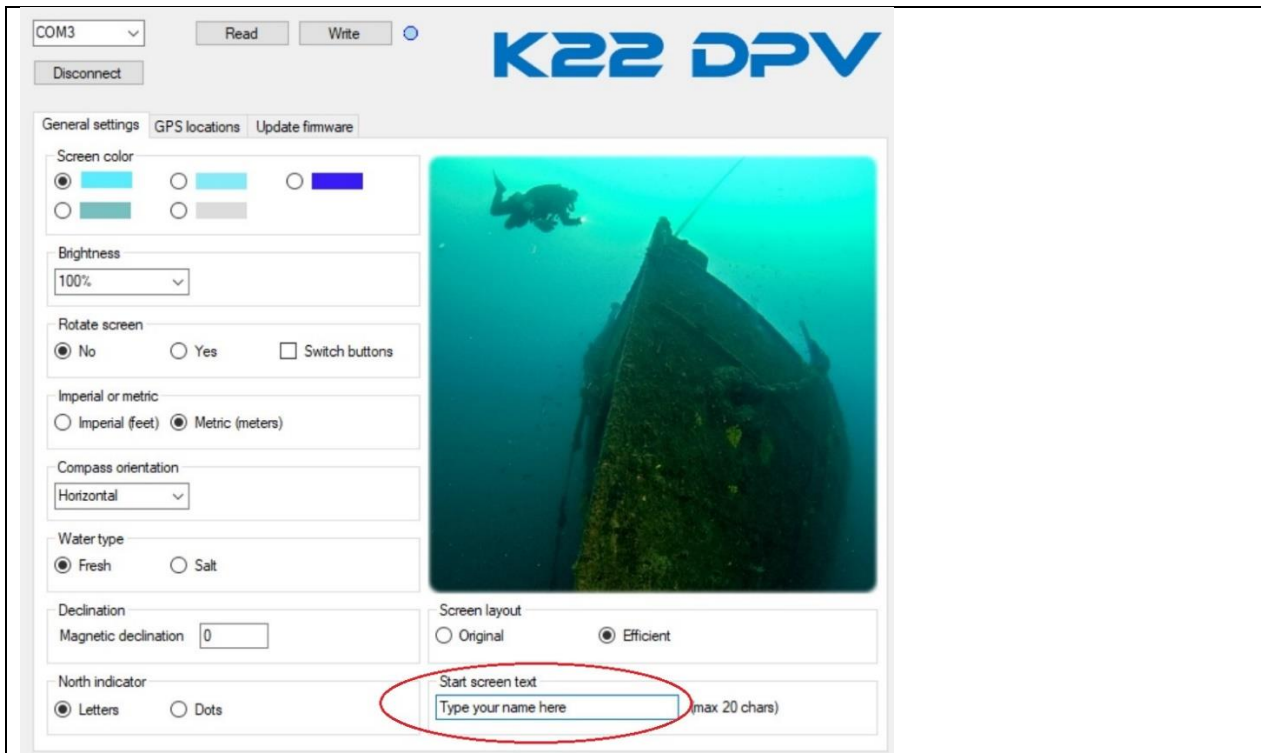
Declination
 Magnetic declination

North indicator
☒ Letters ☐ Dots

Screen layout
☐ Original ☒ Efficient

Start screen text
 Scuba Support (max 20 chars)

Here you can enter the text you would like to see on the start screen of your compass, for example your name or company.



COM3 Read Write Disconnect

K22 DPV

General settings | GPS locations | Update firmware

Screen color
☒ ☐ ☐
☐ ☐

Brightness
 100% ▼

Rotate screen
☒ No ☐ Yes ☐ Switch buttons

Imperial or metric
☐ Imperial (feet) ☒ Metric (meters)

Compass orientation
 Horizontal ▼

Water type
☒ Fresh ☐ Salt

Declination
 Magnetic declination

North indicator
☒ Letters ☐ Dots

Screen layout
☐ Original ☒ Efficient

Start screen text
Type your name here (max 20 chars)



GPS locations

Once the compass is connected to the computer, the compass memory locations must be read into the programme. This is done using the "Read" button at the top of the K22 page (next to the "Write" button).

The "Computer memory locations" creates a file on the PC. In this file 50 locations can be stored. A location can be retrieved from this file and copied to the compass data field. The compass itself has up to 20 memory locations. Then select a memory location in the compass and perform a "Write".

You can also copy a memory location from the compass to the computer. To do so, use the two arrows in the centre of the screen.

8.Update software



Check for updates to the K22 DPV compass at: www.merope-engineering.com/downloads

Download and save the firmware file.

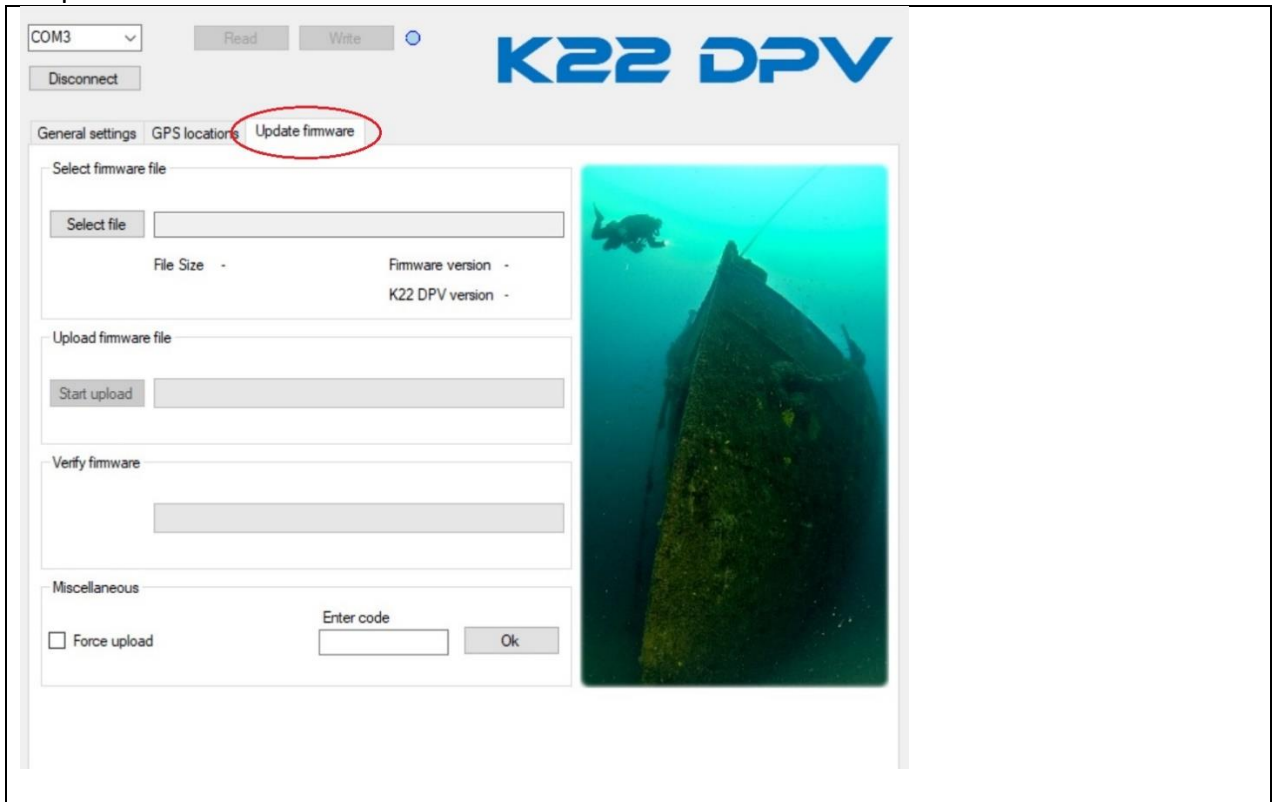
- Connect to the compass as described above and go to the third tab: 'Update firmware'.
- On the 'Select file' line, select the file that has just been downloaded. (That's the file with the extension .mmf)

The Windows software shows the version that is in the compass and the version that will be uploaded.

- Then click on 'Start upload'. The K22 DPV screen will show a countdown of 3, 2, 1 and then the upload starts. The green bar appears and will turn completely green. Then the second bar fills with



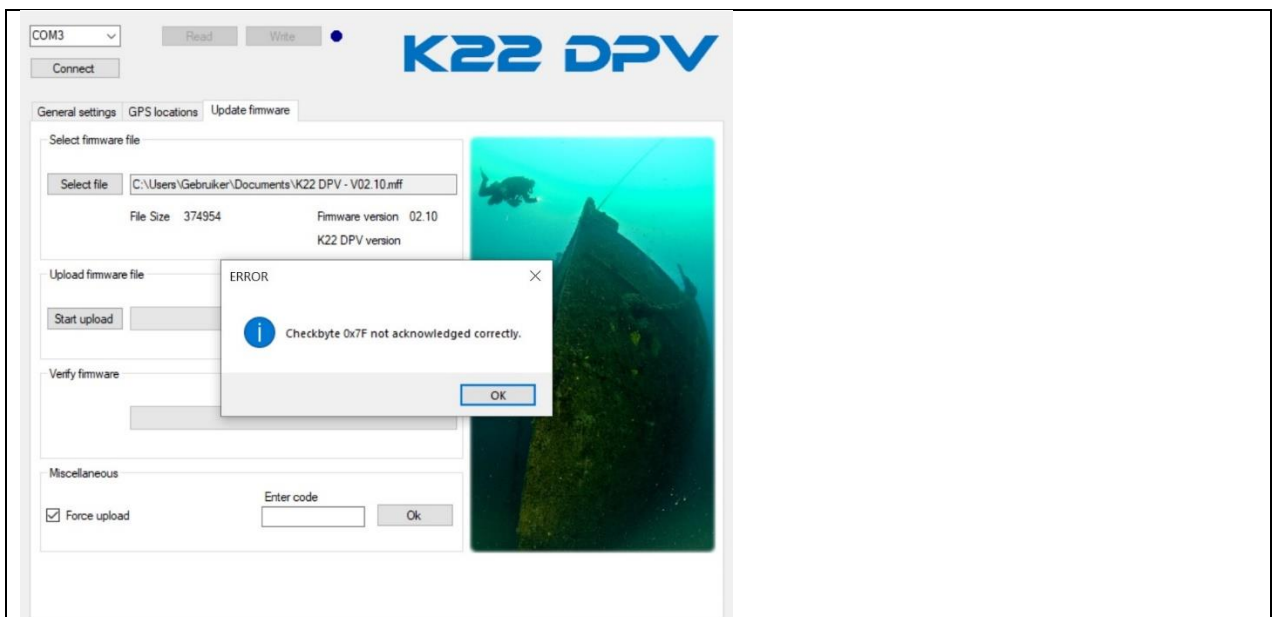
green. This one, like the first bar, should become completely green. The upload is then complete. The compass starts up automatically once and then turns off. Press the power-button to start the compass.



Error during update

What to do if an error occurs during the update firmware process:

If there is an error on the K22 DPV Windows screen, something went wrong with the upload of the software.





After this error occurs, two situations can arise:

- 1) The K22 DPV compass can be started up as usual;
- 2) The compass does not start up and the screen remains black.

In case 1, repeat the software update procedure to ensure that the new version is installed correctly.

It is important that the compass is brought as close as possible to the transceiver in the PC or laptop. Sometimes a USB dongle is used. Place the compass as close as possible to it.

Sometimes a USB dongle is used. In that case: keep a distance of approx. 10 cm. (see "USB Dongle")
In the second case, wait 10 minutes before it is possible to restart the K22 DPV (on-/ off-button).
If this succeeds, start the standard update procedure as discussed under 1.

If this does not work, perform the following:

Turn on the compass. Press the on-button, the screen remains black. This is normal. Then follow the next steps:

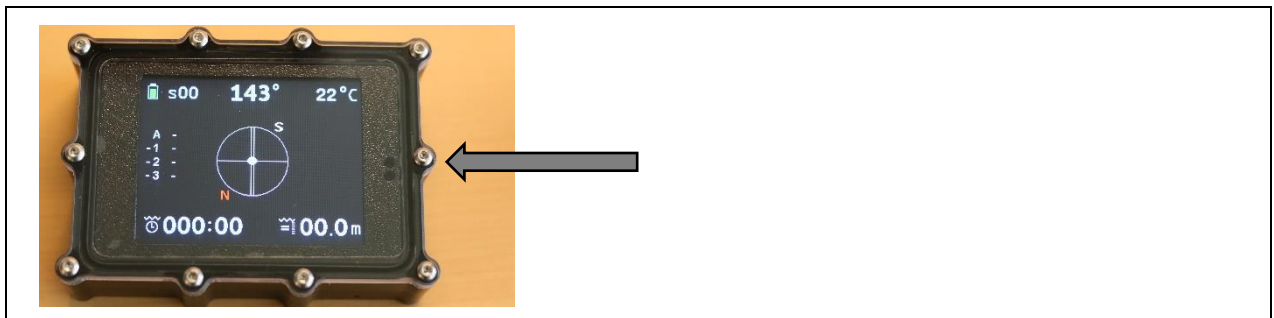
Restart the K22 DPV Windows software!

Go directly to the 'update Firmware' tab -> choose 'Force Upload' at the bottom. And execute the instructions that appear in the help menu. Choose the correct file and click upload.

When the force upload is started, the green progress bar appears.

USB Dongle

In case the compass is equipped with InfraRed communication



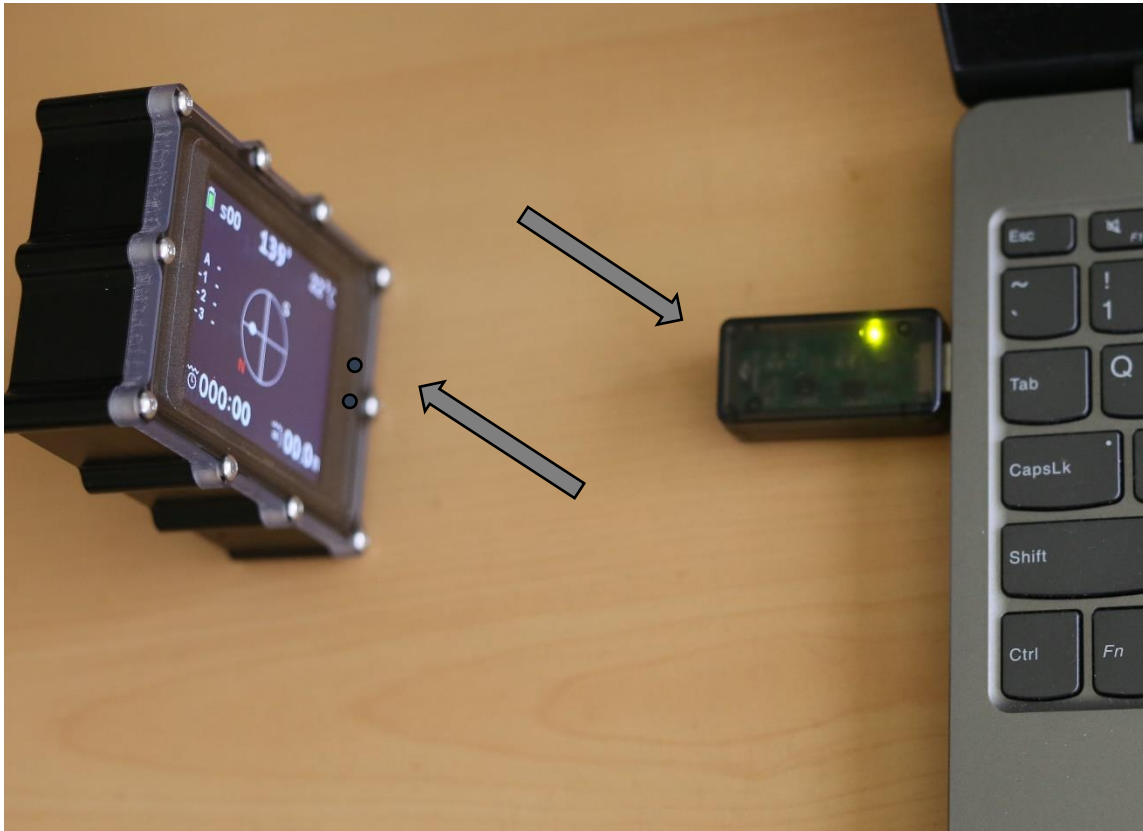
These compasses can be recognised by two holes in the front; on the right side. Behind these holes is the InfraRed transceiver. Connection to the PC is made via the supplied USB dongle. This dongle must be plugged into a Windows 10 PC or Windows laptop. Windows will install the drivers automatically.

The USB dongle has a power "ok" LED indicating a working USB connection. This Power "ok" LED is constantly on. During sending and receiving, a red and a green LED will blink alternately. These LEDs indicate that the data transfer is active.

The Infra Red LEDs work invisible; they are behind the end of the USB dongle (see arrow)



As InfraRed communication works with light, the compass must "see" the side of the USB dongle. Position the compass so that the two holes in the compass face the side of the USB dongle. Choose a distance of about 10 cm between the USB dongle and the compass.(See picture).



- 1) Prepare the compass for data connection (Reset and update->Connect to computer ->Listening to computer via Infrared).
- 2) In the K22 win app, select the corresponding Com port of the USB dongle.
- 3) Choose "connect"; the PC will connect to the compass after which "connect" will change to "disconnect".
- 4) General settings, GPS locations and update firmware tabs can now be used.

Further use of the K22 Win software: follow the instructions in "**Using the K22 Win software**" (see above)