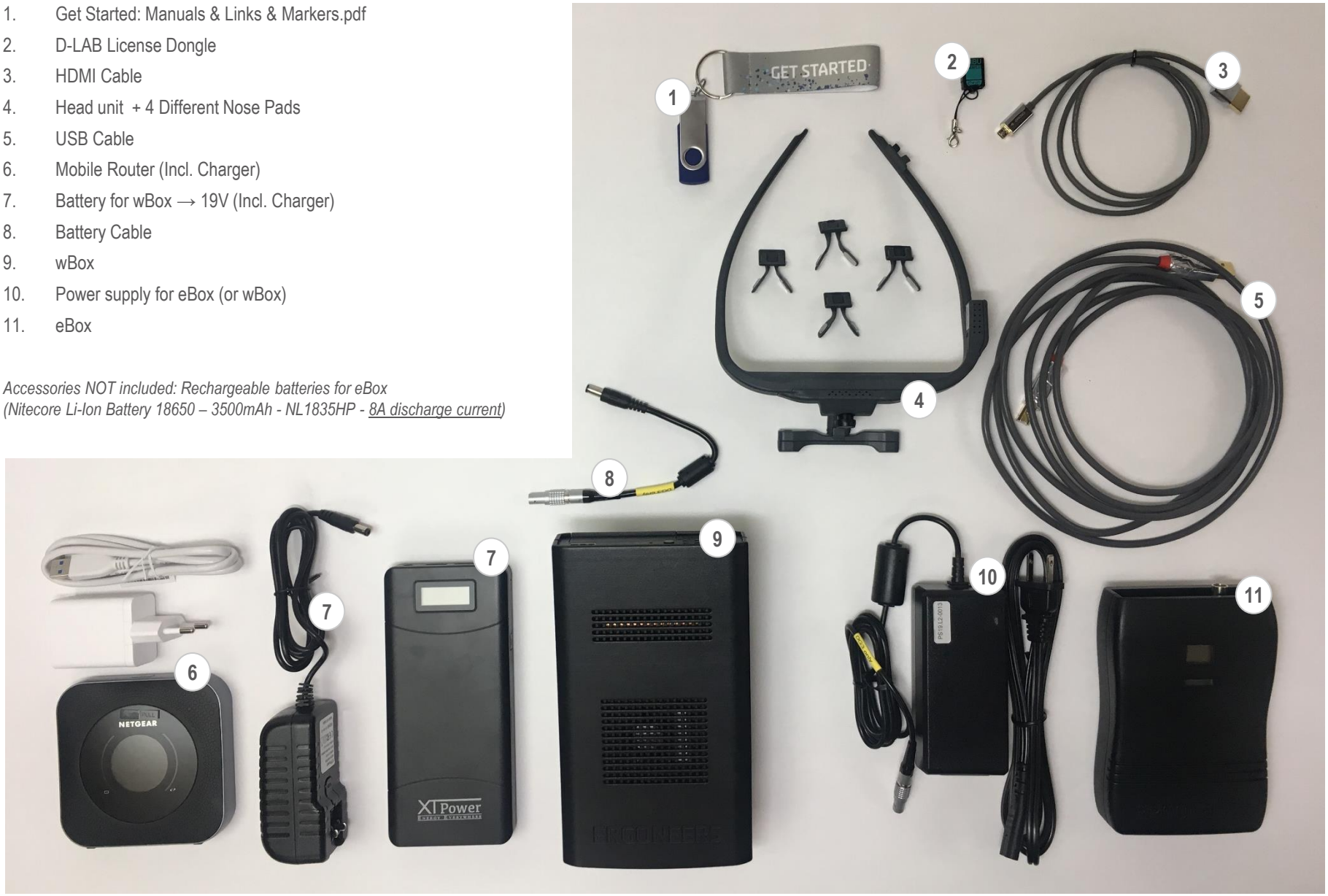
QUICK START GUIDE – CONTENTS

DIKABLIS GLASSES 3 - CONTENTS

ERGONEERS
FROM SCIENCE TO INNOVATION

1. Get Started: Manuals & Links & Markers.pdf
2. D-LAB License Dongle
3. HDMI Cable
4. Head unit + 4 Different Nose Pads
5. USB Cable
6. Mobile Router (Incl. Charger)
7. Battery for wBox → 19V (Incl. Charger)
8. Battery Cable
9. wBox
10. Power supply for eBox (or wBox)
11. eBox

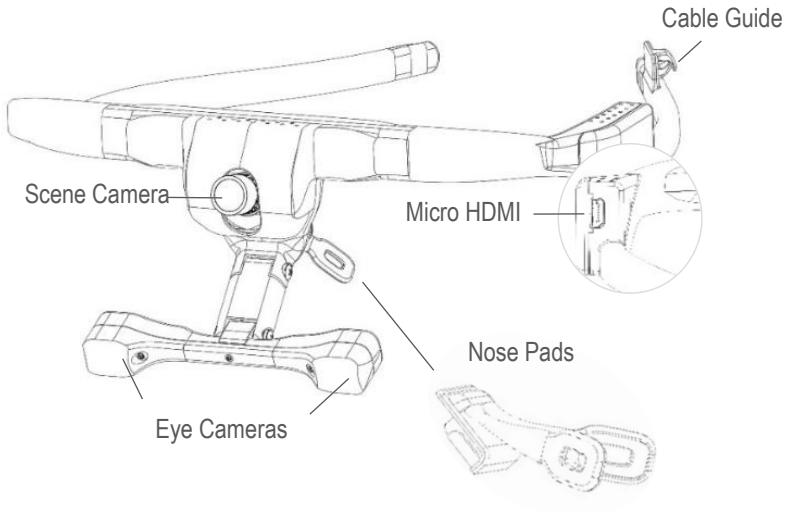
Accessories NOT included: Rechargeable batteries for eBox
(Nitecore Li-Ion Battery 18650 – 3500mAh - NL1835HP - 8A discharge current)



General Specifications

Operating Temperature Range	5°- 35°C
Housing Material	Polyamide
Specifications for the Head unit	
Weight	52g
Field camera resolution	FULL HD 1920(H)X1080(V) @30fps
FOV(Horizontal/Vertical/Diagonal)	116°/60°/144.5°
Eye cameras resolution	648 x 488 (EIA & CCIR)
IR Frequency/Intensity	875nm/17nW/sr

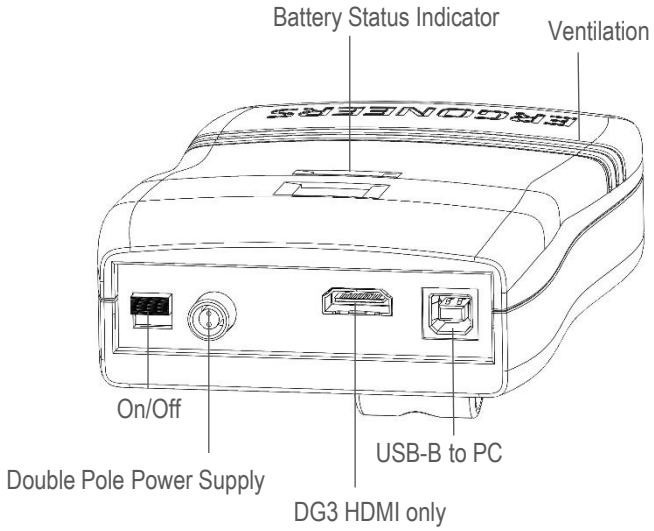
Head unit



Specifications for eBox	
Dimension	165mm × 110mm × 45mm
Weight	262g
Power Consumption *	12V(635mA)
Battery Recording Time **	<90min
Double Pole Power Supply	Lemo 2 pole, 19V/2A

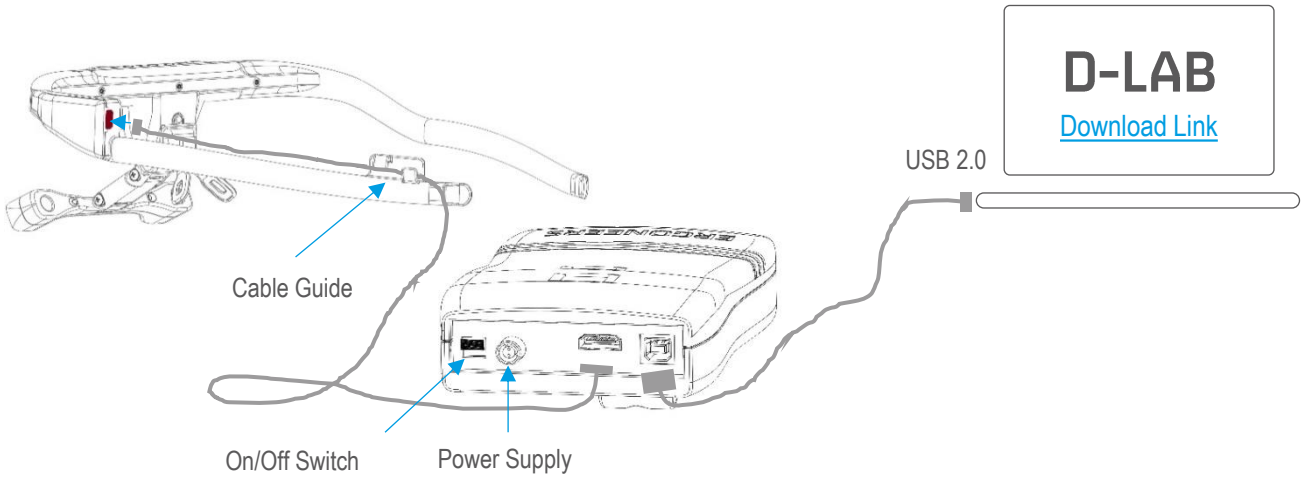
**Nitecore Li-Ion battery for eBox is not included! DO NOT use the wBox battery to power the eBox.*
***For a fully charged Nitecore Li-Ion battery while recording with Dikablis Glasses 3.*

eBox



Battery Status Indicator

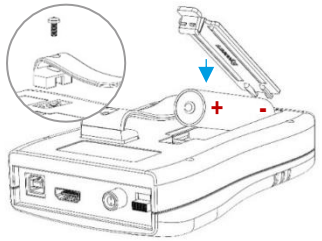
90 - 30 min	Green
30 - 15 min	Orange
< 15 min	Red
< 5 min	Sound



Hardware Setup

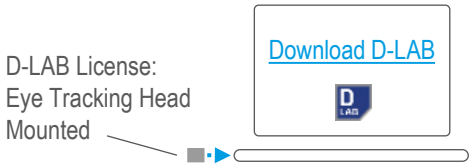
Use the supplied HDMI cable (3) to connect the Head Unit (4) to the eBox (11). Use the cable guide on the Head Unit to secure the cable.
Connect eBox (11) and Laptop with the supplied USB cable (5). Use the Power Supply (10) or insert a fully charged Nitecore Li-Ion battery. Turn on the eBox by pushing the On/Off switch downward.

Optional:
- Remove clip



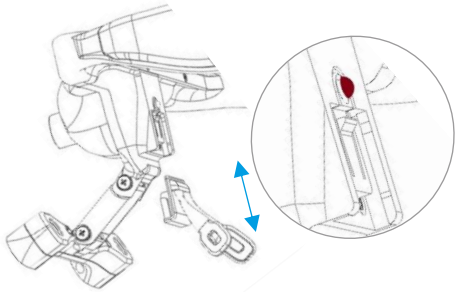
Software Installation

Download D-LAB Setup from the Ergoneers FAQ page and follow the installation instructions. Connect the license dongle to the D-LAB computer and start D-LAB.



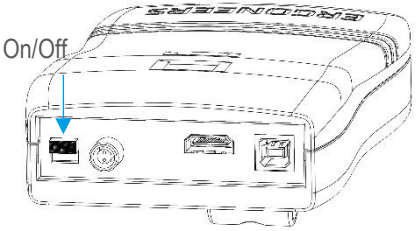
1 Select a Nose Pad

Choose one of the four different nose pads for a comfortable fit of the Head Unit. To remove a nose pad push down the small button above it and slide the nose pad downwards.



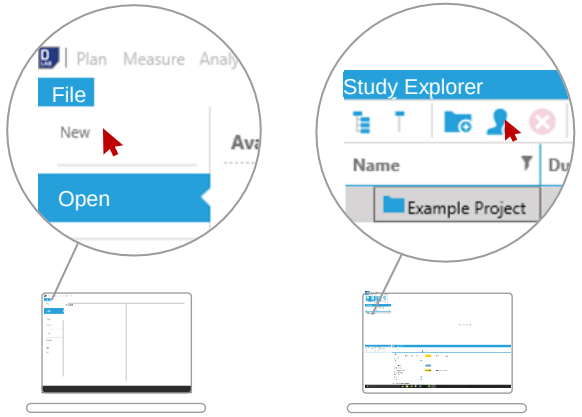
2 Turn On Dikablis Glasses 3 - Cable

Connect the eBox to power or insert a Nitecore Li-Ion battery. Flip the On/Off switch to turn on the unit. The LED on the front will turn green. If you use a battery, it displays the charge level.



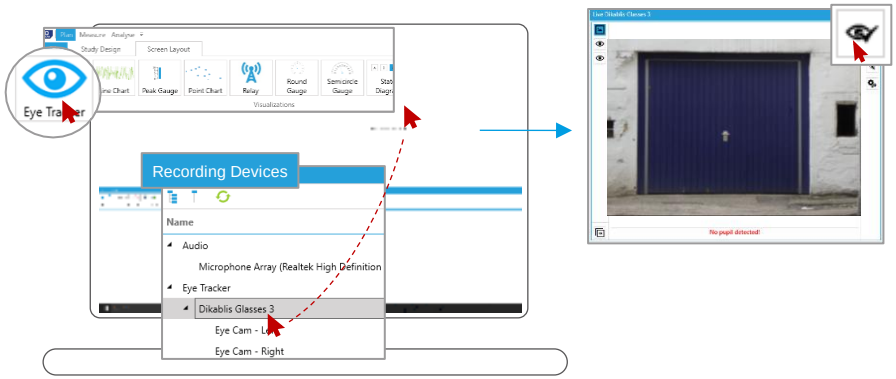
3 Start D-LAB

Start D-Lab. Open an existing study or create a new study and add a Participant in the Study Explorer (Plan mode). Once connected, the Dikablis Glasses 3 will appear in the Recording Devices Window automatically.



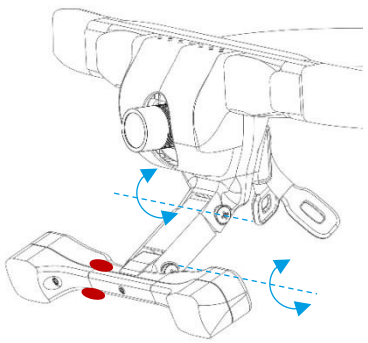
4 Open the Calibration Wizard

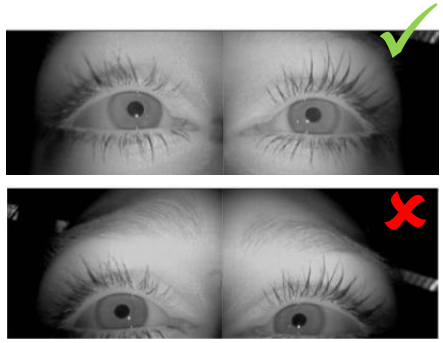
Go to the Screen Layout tab and click on Eye Tracker. Drag & drop the Eye Tacker Dikablis Glasses 3 from the Recording Devices window into the empty Eye Tracker visualization. Click on the eye icon with the tick mark on the right panel of the Eye Tracker visualization to start the Calibration Wizard.



5 Adjust the Eye Cameras

Grasp the T-shaped eye camera bar with two fingers (red dots) and rotate / move it until the eyes are horizontally aligned in the center of the eye videos. Work your way through the steps of the Calibration Wizard by using the arrows on the top-right side of the Eye Tracker visualization.

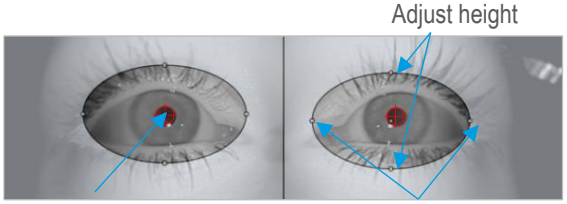




6 Set Pupil Detection Mask

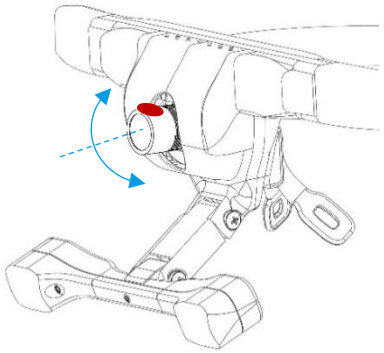
Set the area (mask) of the eye image that is scanned for pupil detection. The size of the mask can be changed by dragging the white dots on the outline of the mask. The mask can be moved by clicking and dragging the white dot in the center of the mask.

Check to ensure that both pupils are tracked at all times during normal eye movements. Use the small arrow on the top right of the visualization to go to the last step of calibration.



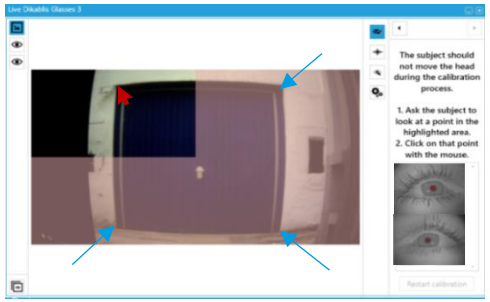
7 Adjust Scene Camera

Adjust the angle of the Scene Camera by tilting the lens up or down manually. After this step the relevant areas and the related Markers for the eye tracking study should be visible in the field camera. Rotate the lens to adjust the focus if necessary.



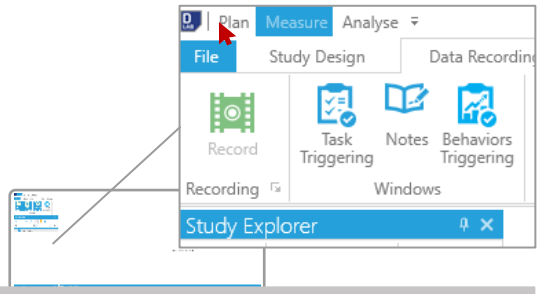
8 Four-Point Calibration

Choose four calibration points such that each one appears in a different quadrant of the Scene Camera image. Instruct the subject to lock their fixation at the first calibration point and click on the corresponding point within the highlighted quadrant. Repeat this step for points 2, 3, and 4 while making sure that the subject does not move their head. After all four points are clicked, the calibration is complete and the subject may then move their head freely.



9 Switch to D-LAB Measure Mode

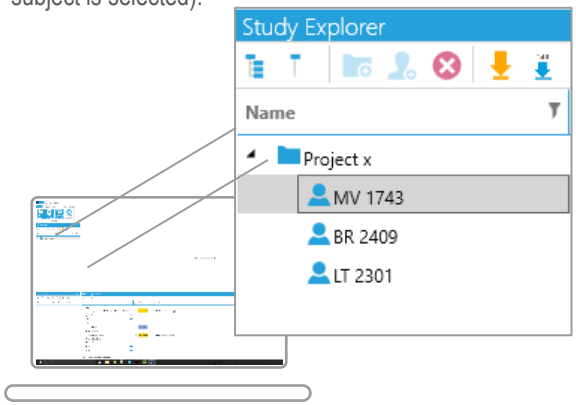
Click on Measure at the very top left corner of D-LAB to switch to Measure mode.



NOTE: To use automatic glance calculations towards Areas of Interest, place markers in the experimental environment before starting a recording!

10 Select a Subject

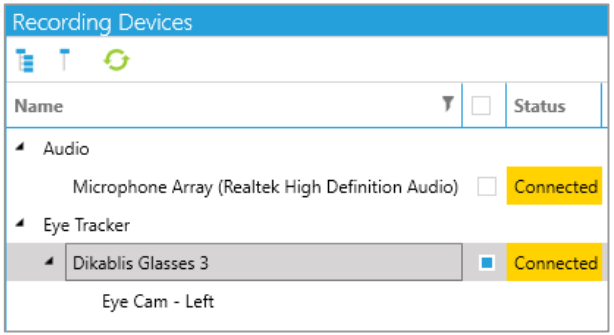
Chose an existing subject or create a new one to start a recording (The Record button will only be enabled if a subject is selected).



11 Select Dikablis Glasses 3 for Recoding

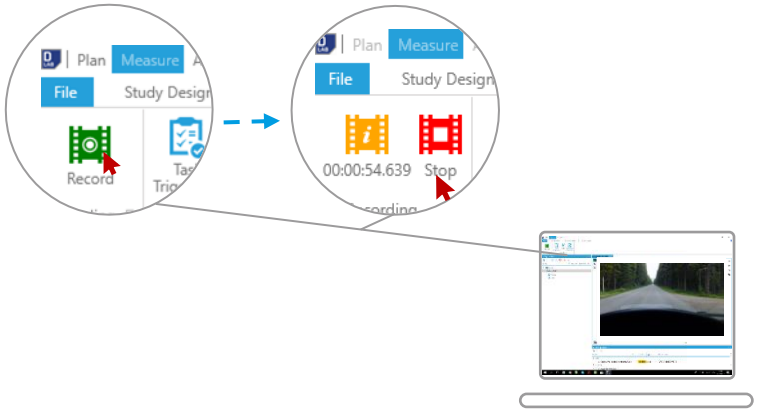
Ensure that the blue checkbox next to Dikablis Glasses 3 is checked in order to record the Eye-Tracker.

CAUTION: No eye-tracking data will be saved if this box is not checked.



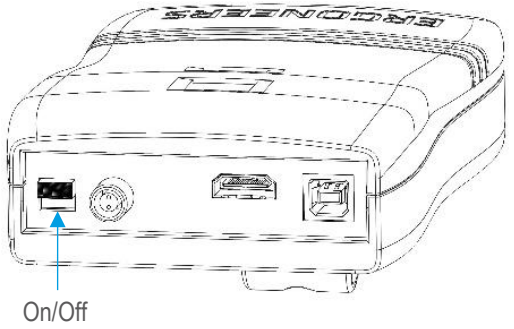
12 Start & Stop the Recording

Start the recording by clicking the Record button (Recording tab within Measure mode). The status in the Recording Devices Window will change to green "Recording" for the selected sensors. End the recording using the Stop button.



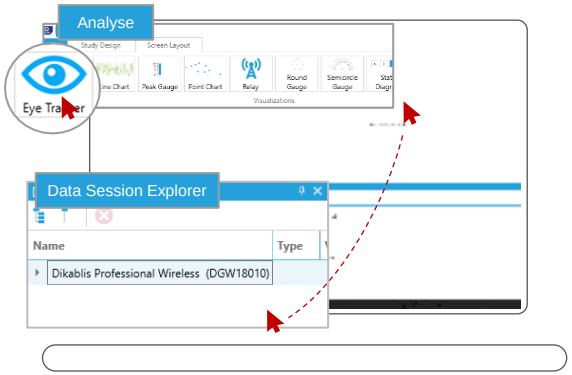
13 Turn Off Dikablis Glasses 3

Flip the On/Off Switch to turn off the eBox - the status LED on the front will turn off.



14 Switch to D-LAB Analyse Mode

Open an Eye Tracker visualization from the Screen Layout Tab. Drag & drop the Dikablis Glasses 3 device from the Data Session Explorer on to the empty visualization. Then proceed with a quality check of Pupil Detection Rate etc. as described in the “Quick Start Guide – Eye Tracking with D-Lab 3.5” available on the Ergoneers FAQ.

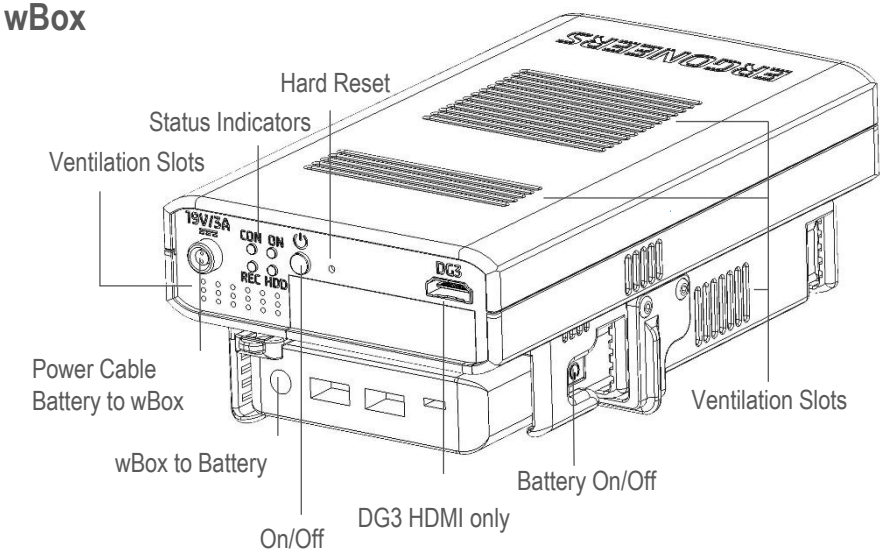


Specifications for wBox and Wireless Accessories

Dimensions (including battery)	35x190x110 mm (70x190x110 mm)
Weight (wBox + Battery)	750g + 400g
Storage Capacity of wBox	150GB (approx. 3.5 – 4 hrs recording time)
Voltage	19V
Battery Recording Time*	<120min
Battery Cable	Lemo 2 pole, 19V/2A
Router Specification	Mobile Router Nighthawk® M1 by Netgear
**For a fully charged battery while recording Dikablis Glasses 3.*	

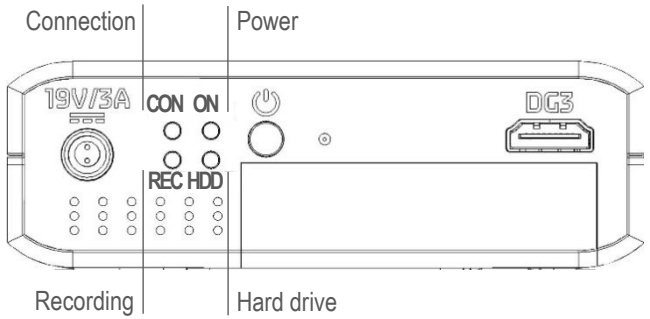
CAUTION: Do NOT block any of the ventilation slots during the recording. In case of overheating the wBox turns off and the current recording will be lost!

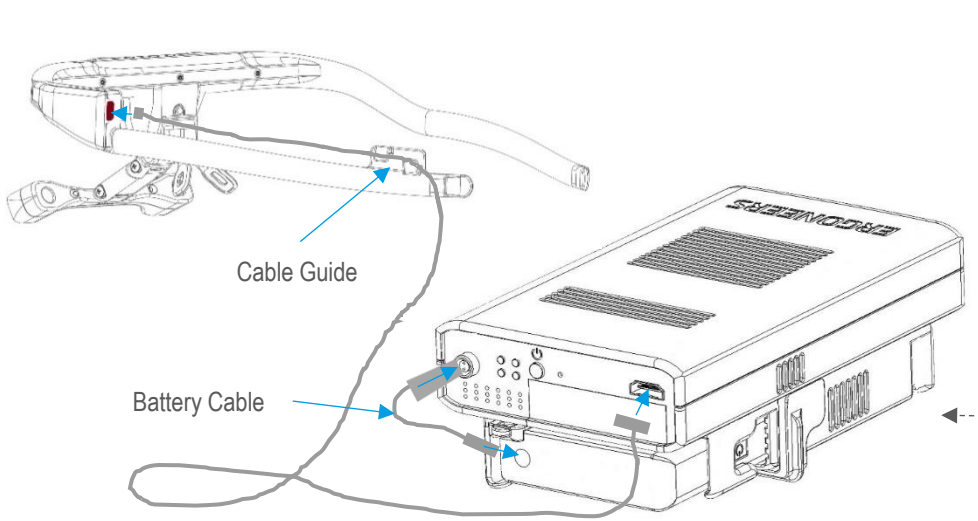
wBox

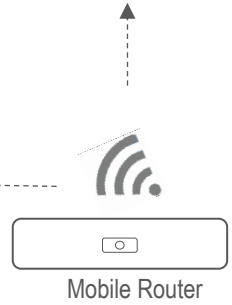


Status Indicators wBox

LED	State	Description
ON	Off	wBox is turned off
	Green	wBox is turned on
HDD	Off	No HDD activity
	Flashing Green	Active HDD during start, recording or update
CON	Off	No connection from wBox to any device
	Yellow	wBox connected to Wi-Fi but not connected to D-LAB
	Green	wBox connected to D-LAB (ready for recording)
REC	Off	No data recording in progress
	On	Active data recording in progress







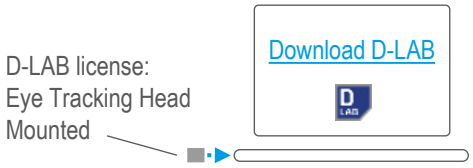
Hardware Setup

Use the supplied HDMI cable (3) to connect the Head Unit (4) to the wBox (9) and secure the HDMI cable using the cable guide. Use the Battery Cable (8) to connect battery (7) and wBox (9). Turn on the Mobile Router by pressing the ON button (6) and connect the D-Lab-Laptop to the Dikablis Wi-Fi ("DG3_*NameOfRouter*_5G").
The router displays the password on its screen upon pressing the On button several times.

Software Installation

Download D-LAB Setup from the Ergoneers FAQ page and follow the installation instructions. Connect the license dongle to the D-LAB computer and start D-LAB.

When using Dikablis Glasses 3 Wireless, make sure you download D-LAB Mini with the same version number to update the wBox. For more information see page 15.



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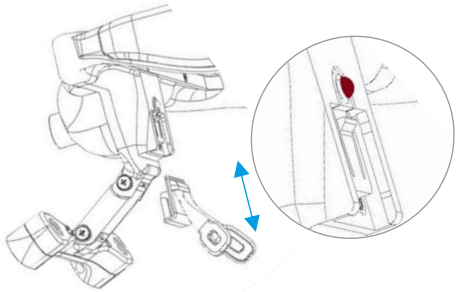
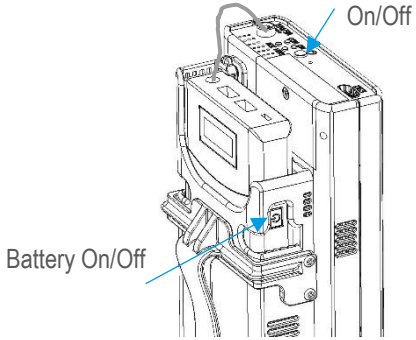


2 Turn on Wireless Box

Press the On/Off button on the right side of the battery (short press) to turn on the power supply for the wBox. The battery display will turn on and show 19V. Turn on the wBox by pressing the On/Off button (short press). The On LED will turn green and HDD will flash while the device boots up. The wBox will connect to the WiFi of the Mobile Router (Network name: "DG3_*NameOfRouter*_5G") automatically and the Eye-Tracker will be shown in the Recording-Devices-Window of D-Lab.



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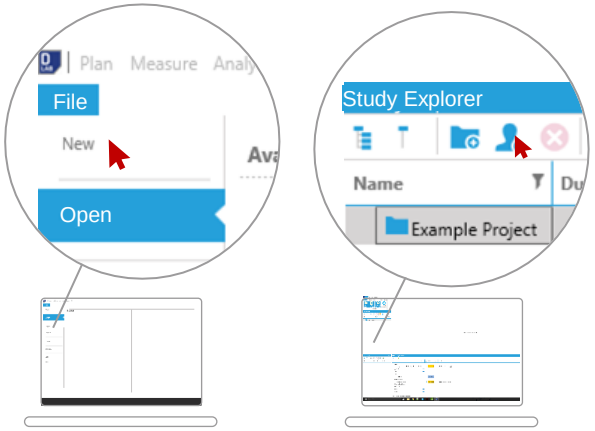
Start D-Lab. Open an existing study or create a new study and add a Participant in the Study Explorer (Plan mode).



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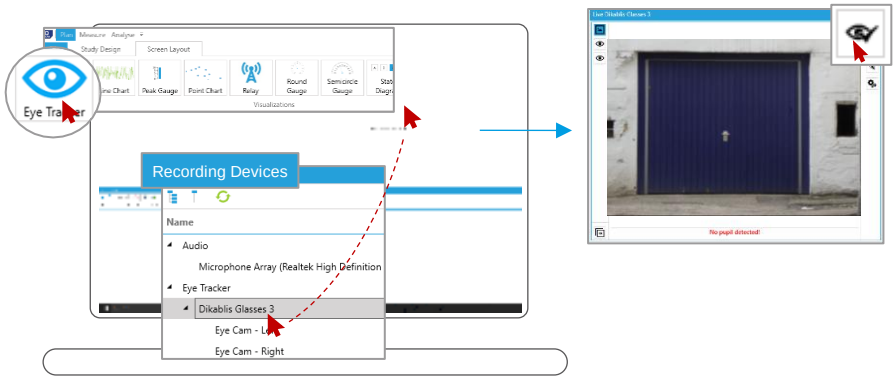

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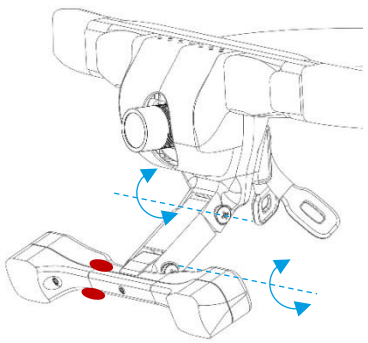

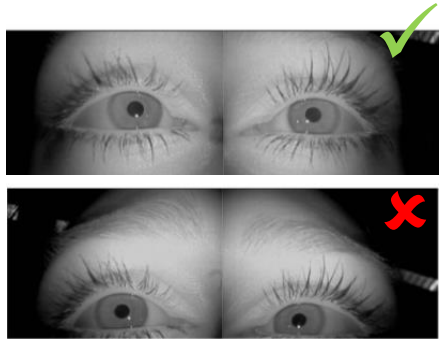

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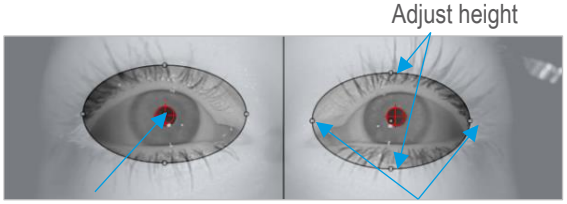

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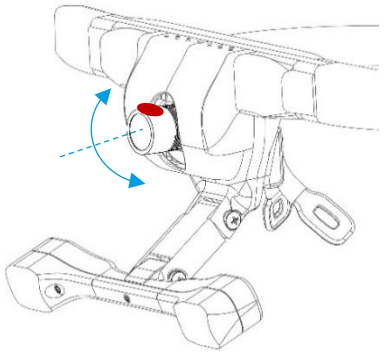

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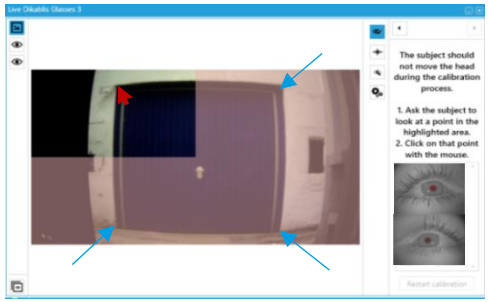
Choose four calibration points such that each one appears in a different quadrant of the Scene Camera image. Instruct the subject to lock their fixation at the first calibration point and click on the corresponding point within the highlighted quadrant. Repeat this step for points 2, 3, and 4 while making sure that the subject does not move their head. After all four points are clicked, the calibration is complete and the subject may then move their head freely.



9 Switch to D-LAB Measure Mode

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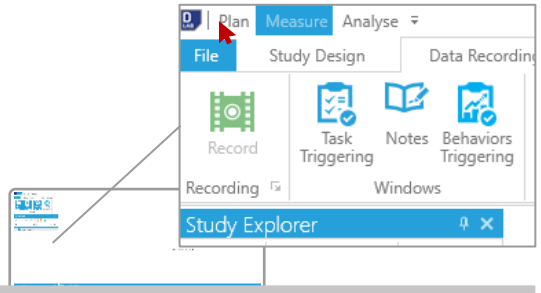

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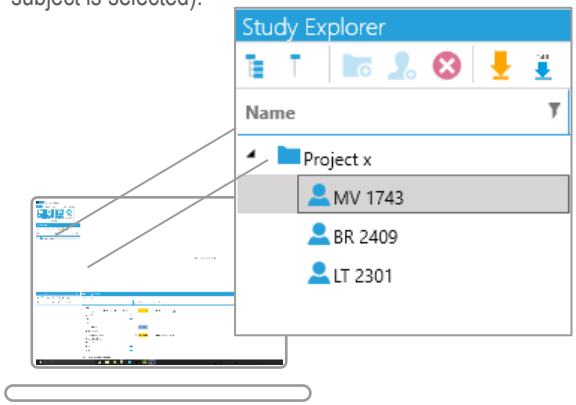
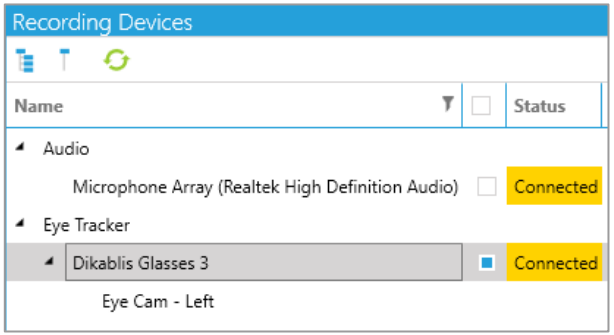


11 Select Dikablis Glasses 3 for Recoding

Ensure that the blue checkbox next to Dikablis Glasses 3 is checked in order to record the Eye-Tracker.

CAUTION: No eye-tracking data will be saved if this box is not checked.

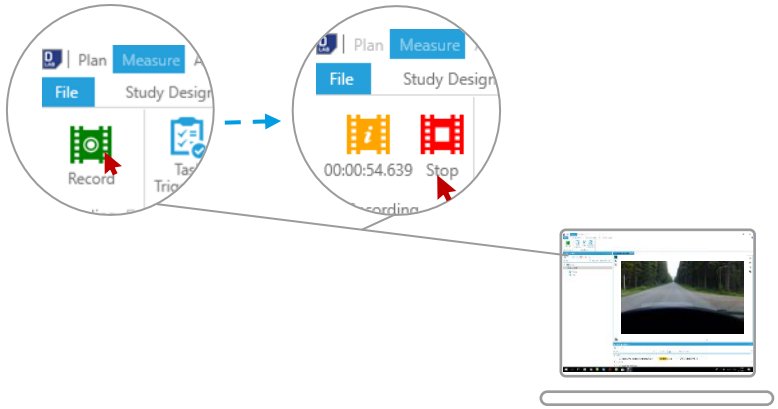


12 Start & Stop the Recording - Wireless

The start and stop of data recording is controlled by D-LAB. The subject wearing the Dikablis Glasses 3 and wBox must be within Wi-Fi range of the Mobile Router to start and stop a recoding. Start the recording by clicking the Record button (Recording tab of Measure mode). The subject can leave the Wi-Fi range during a recoding, but has to return within Wi-Fi range to stop the recording. Stop the recording by pressing the Stop button. Recorded data is stored on the wBox and has do be downloaded to the D-LAB PC for analysis (see 14W).

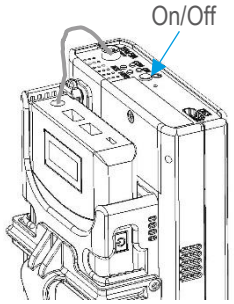
CAUTION: Only stop a Recording when Subject is within Wi-Fi range. Check to make sure live stream of the DG3 scene camera is visible, the status of the Eye-Tracker is "Recording" (in the Recording Device window) and the "CON" LED on the wBox is green before stopping a recording.

NOTE: Check the battery charge level and free storage on the wBox before starting a recording. See p.8 how to free up memory.



14 Turn Off wBox

Press the On/Off button on the wBox to shut it down. A short press initiates regular shutdown. A long button press will force a shutdown. Only use force shutdown if device does not shut down otherwise. All LEDs will turn off.

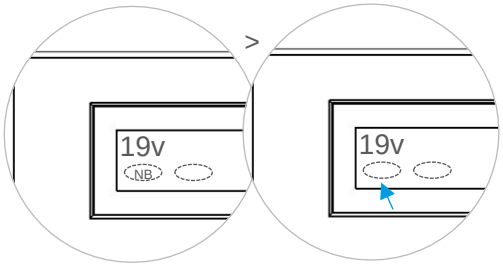


15 Turn Off Router

Press and hold the power button on the Mobile Router to turn it off.

16 Turn off Battery

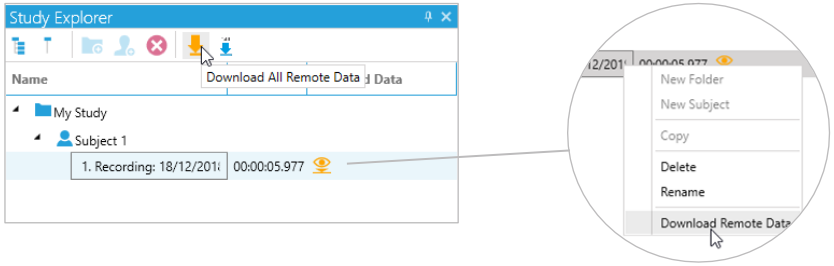
Turn off the battery after each use. To do this briefly press the On / Off button. The “NB” indicator on the display will disappear and the battery will turn off in about 15-20 seconds..



NOTE: Turn of the battery after each use. It does not turn of automatically

13 Switch to D-LAB Analyse Mode & Download Remote Data

Recorded Eye-Tracking data must be downloaded from the wBox for Analysis. Turn on the wBox and Mobile Router to connect the wBox to the D-LAB PC. Switch to Analyse Mode and click the orange arrow to download all remote data. To download a single recording, right click on the recording and select "Download Remote Data".

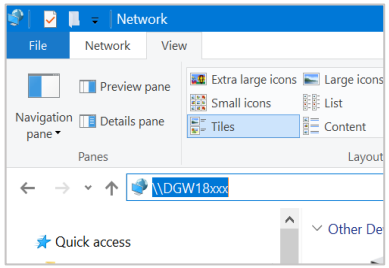


NOTE: Downloaded data will be automatically removed from the wBox after successful download.

Update D-LAB Mini on wBox

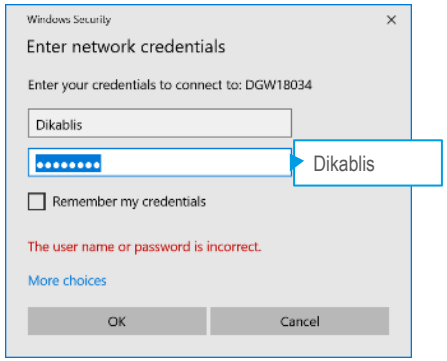
A wBox Login via Network Sharing

To log on to the wBox, turn it on and wait until it connects to the D-LAB PC via the Mobile Router. Enable Network discovery within the Windows Network & Sharing Center on the D-LAB PC. Access the wBox via the Windows Explorer by typing "\\" followed by the serial number of the wBox (e.g. \\DGW18034).



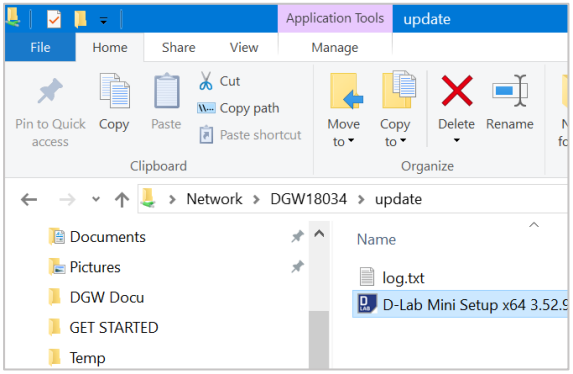
B User ID and Password

Enter the following credentials to access the wBox.
User: Dikablis
PW: Dikablis



C Copy D-LAB Mini to the "Update" Folder

Download the latest D-LAB Mini and copy it to the "Update" folder.



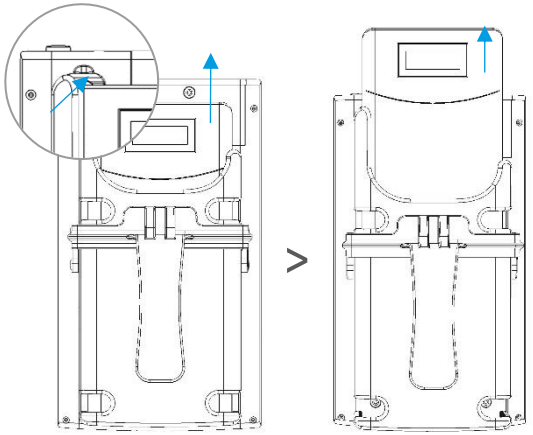
D Restart the wBox

Turn off the wBox by pressing the ON/Off button. Wait for 10sec and turn it on again. It can take up to 1min until the update is completed.

NOTE: Update D-LAB on the PC to the same version number in order to enable a successful connection.

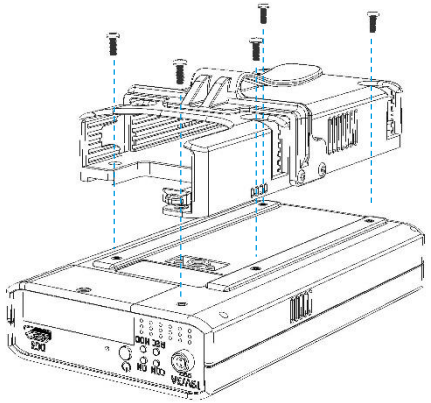
Remove Battery from wBox

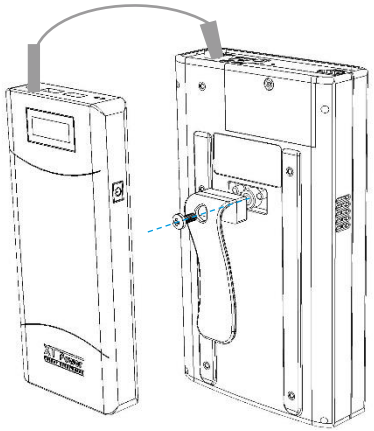
A Push down on the tab at the top left side of the battery compartment and pull the battery upwards simultaneously.



Remove Battery Compartment

B Unscrew the five screws that hold the battery compartment and remove it from the wBox.



Attach Belt Clip

C Attach the supplied spare belt clip to the back of the wBox. The wBox and battery can be stored side by side.