WINGRC COMMANDER

ENGLISH

MANUAL

WINGit
kite-boat-systems.com

Dear customer,

We are pleased that you have chosen a WINGit Kiteboating product. The WINGit Kiteboating product serves as a control unit for kites to propel boats powered by kites.
With the quiet and nature-powered-kite for your yacht, protect the environment and show responsibility towards future generations. They belong to the pioneers of green boating- so, do we.
Kite propulsion systems are a recent development. With its purchase, you contribute significantly to the further development of this trend-setting propulsion technology. Thank you for that. We are pleased, if we can still stay in contact and get to know about your experiences and thoughts.
You can reach us on the Internet at www.kite-boat-systems.com

Please read all instructions and manuals that come with the device carefully and completely before taking the device out of the packaging, installing and operating. Heed all warnings listed in the user manual!

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Limitation of liability

You hereby agree that, - before using the WINGit Kiteboating product- you have received expert instruction in dealing with kites on water and on land and that you have read and understood all instructions and warnings. All issues relating to technology and the use of the product are answered fully and properly by the user manual or by telephone or personal support of WINGit Sportartikelvertrieb UG. (If you did not request paid personal briefing by WINGit Sportartikelvertrieb UG, you agree that you deliberately waive this.) You understand that the incorrect use of the product can lead to a total loss or destruction of the product and damage to the yacht and can represent a significant hazard to life, health and property to you, your crew and third parties.

In addition, you agree to ensure that - before you allow someone else to use your WINGit Kiteboating product - this other user (who permanently or temporarily takes the product from you) must have read and understood all necessary and relevant safety information about this WINGit kiteboating product including all warnings and safety regulations.

Associated Risks

The use of WINGit kiteboating product and its components involve certain risks of serious personal injury or death to both to the user or third parties and the risk of serious damage to property. By using the WINGit kiteboating product you agree to assume all known and unknown, likely and unlikely risks of injury and damage. The dangers associated with the use of this product may be reduced by following the warnings in this document, as well as the necessary care required in the particular case. The risks inherent in the use of this product can be reduced to a large extent, if one considers both the safety instructions listed in this document, as well as common sense.

Disclaimer and waiver of Claims

By concluding the purchase contract for a WINGit Kiteboating product you agree to the following points - within the limits prescribed by law you agree to -:

The waiver of all claims whatsoever arising from the use of the WINGit Kiteboating product and all its components that you now have or may have in the future against the WINGit Sportartikelvertrieb UG and all other contractors

The Release of the WINGit UG sporting goods sales and all other Contracting Parties from any claims of loss, damage, injury or expenses, you, your next of kin and relatives or any other user of your WINGit Kiteboating product or strangers may suffer, arising from the use of the WINGit Kiteboating product, including negligence or breach of contract on the part of WINGit Sportartikelvertrieb UG and all related parties in the design or manufacture of WINGit Kiteboating products and all its components.

In the event of death or incapacitation, all provisions contained herein enter into force and bind your heirs, next of kin and relatives, estate and asset managers, successors and legal representatives. The WINGit Sportartikelvertrieb UG and all related parties have made no other oral or written representations and expressly deny that this was done, with the exception of what is listed herein.

Important safety instructions

When kiteboating, unpredictably high natural forces can occur anytime

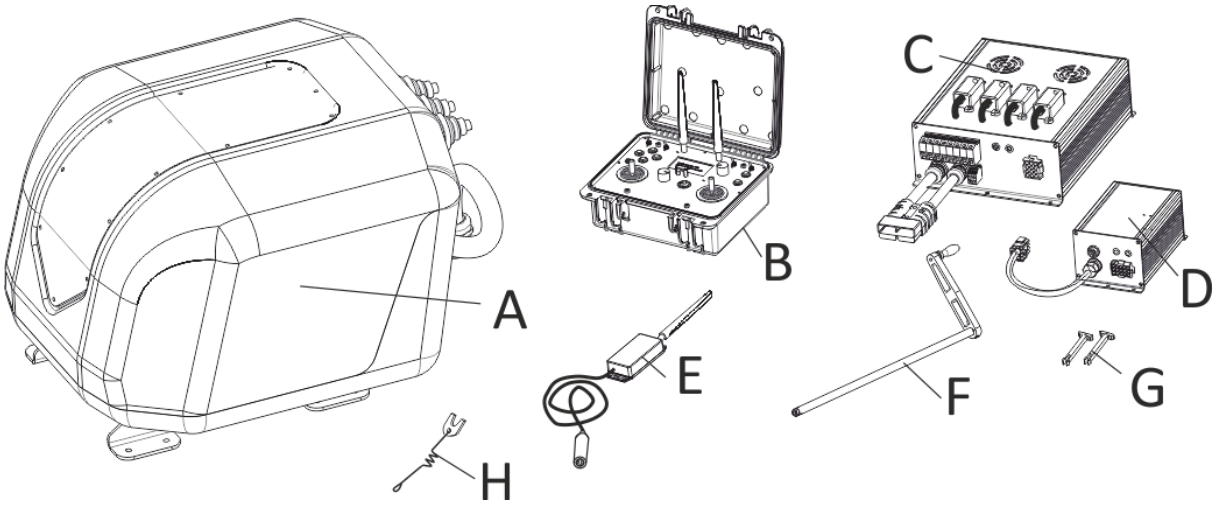
• Get professional training if you want to learn kiteboating.
• Always exercise extreme caution when using this product.
• Only use this product when you are in good physical and mental condition.
• For safety reasons, WINGit kiteboating products should only be used on and above the water.
• When using this product, you are responsible both for your safety and for the safety of others. The kite and the lines present significant risks which can be life-threatening to people on board and to people and objects in the vicinity of the yacht. During operation of the kite no person should be located in the action area of the kite and its line and near anchors or line guiding members.
• Only use the product when you are at a safe distance from other boats or objects. Note: Follow the safety instructions in the manual of the kite manufacturer for kite related hazards.
• When kiteboating, high forces occur which can damage the boat and can also pose a threat to safety. Before using WINGit kiteboating products the manufacturer of the boat should be consulted for information relating to the strength of suspension points. Always use only breakpoints that are suitable for the existing forces of the kites used. The user of WINGit Kiteboating products bears sole responsibility for the safe and secure installation of the product.
• Always use your skills, your experience and the varying wind conditions for the corresponding kite size. The information in the manual of the Kite manufacturer is very important for use in kitesurfing. Ride a small kite until you have mastered control of the kite and the safe use of WINGit Kiteboat products.
• Never use your Wingit Kiteboating product if childrens are on bord.
• Always bear in mind that gusts can be extremely dangerous. Any advice referred from experts regarding the wind range is not binding.
• Never use the Kiteboat system when obstacles are in your vicinity. Use the product only when you are at a safe distance from other boats or objects.
• Always bear in mind the risk of injury from uncontrolled lifting of the kite from the water.
• Gusts pose a risk of collision with obstacles in close proximity.
• There is a risk of hurting bystanders when alighting kites.
• Drive Kiteboats only on waters where there are no obstacles.
• Make sure your canopy does not fall on any humans, animals or other objects on and off the water.
• Ensure that neither people nor obstructions are within approximately five line lengths or at least within a radius of 300m.
• Improper use of lines can increase risk of injury to yourself and bystanders.
• The lines pose a high risk of injury when people get caught in it. You may suffer from severe cuts or burns. During startup and operation of the kite no persons should be found in the action field of the lines.
• Always wear the WingCommander remote control, so that you can react immediately in every situation.
• Always keep an eye on the kite even if you use, an autopilot system.
• Kites must be secured against flying away whenever they are not in use. An unsecured kite can fly away at any time and hurt other people, or even kill in extreme cases.
• In the event of a crashed or wrecked kite, never leave the boat to swim in the direction of the lines or the kite. They present an absolute danger.

• Never touch the kite lines when the canopy is filled with wind, because the lines can become dangerously hot when under tension.
• Never use damaged kite lines. Check them before each use and replace damaged lines immediately!

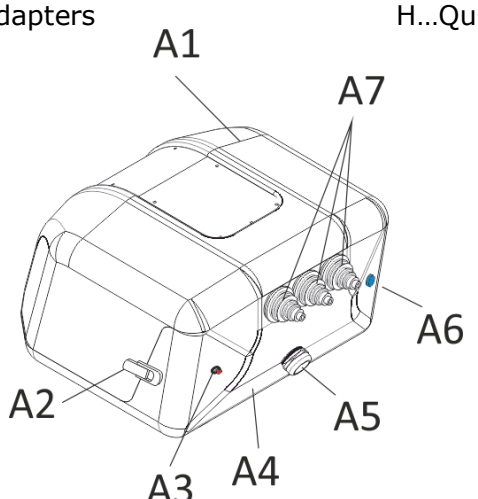
• Do not use lines with knots. Knots can weaken the lines by 50%.
• Never touch the lines that are attached to the canopy, unless the kite is secured to the ground. An unsecured kite can rise suddenly and dangerously stretch the lines!
• Never wrap the lines around your arms or other parts of the body!
• Never endanger bystanders and other water sports enthusiasts through your actions or equipment.
• Test all safety-relevant parts and mechanisms for proper functioning before using your equipment!
• Always keep all moving parts free from sand and other dirt which could impair the mobility of the parts
• Never touch the housing of the winding unit when the system is plugged in. Always disconnect the main plug from the mains before opening the housing cover! There is a high risk of injury from rotating parts!

• Always have another drive element on board, so you can save yourself and your crew in case of an accident. The WINGit Kiteboat system depends on unpredictable natural influences. It is therefore not intended to serve as a main drive of a yacht.
• Follow all safety precautions of other associated products. The instructions this document does not override them.
• The WINGit autopilot is to facilitate the control of the kite. It does not replace the control of the kite and the boat by the skipper.
• Keep the components of the system (for example; remote control, Quick-stop switch ...) out of the reach of children.
• The WINGIt autopilot is a beta version and has not yet been sufficiently tested. There is the danger of malfunction or failure with considerable risk to the safety of people and the boat. It must not be used unattended.

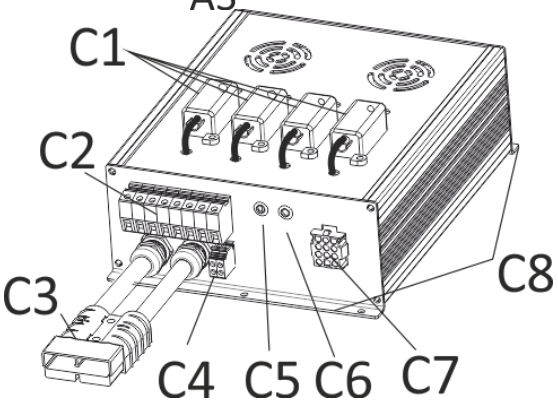
Product Overview



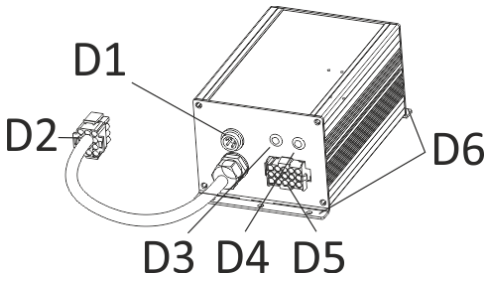
A… Winch-Unit
B… Remote Control
C… Motor controller
D… CPU-Unit
E… Radio-Unit
F… Crank
G… Adapters
H…Quick-Stop-Key



A1…Housing Cover
A2…Housing Fastener
A3…Quick-Stop-Switch
A4…Housing Bottom
A5…Cable Gland Winch-Bus-Cable
A6…Connector Line Sensor Autopilot
A7…Line Outlet



C1…Fuses of the motors
C2…Connector Motor-cables
C3…Mains Connector 24V
C4… Additional on/off switch
C5…Signal light 5V
C6…Signal light 24V
C7…Connector CPU-Cable
C8…Screwing tab



D1…Connector Radio Unit
D2…Connector CPU-Cable
D3…Signal light Com
D4… Signal light Power
D5…Connector Sensor cable Winch
D6… Screwing tab

General information

Enormous forces can occur when using kites for the propulsion of boats. The installation of WingCommander should therefore be performed by qualified personnel who are able to ensure a secure and tight fitting of all components on the boat. Before installing the WingCommander the manufacturer of the boat should be consulted with regards to the strength of suspension points. Use only breakpoints that are suitable for the existing forces of kites used. WINGit Sportartikelvertrieb UG assumes no liability or warranty for damages resulting from the application of the system.
Safe installation: The connection of all components must be done by qualified personnel in accordance with the applicable national standards.

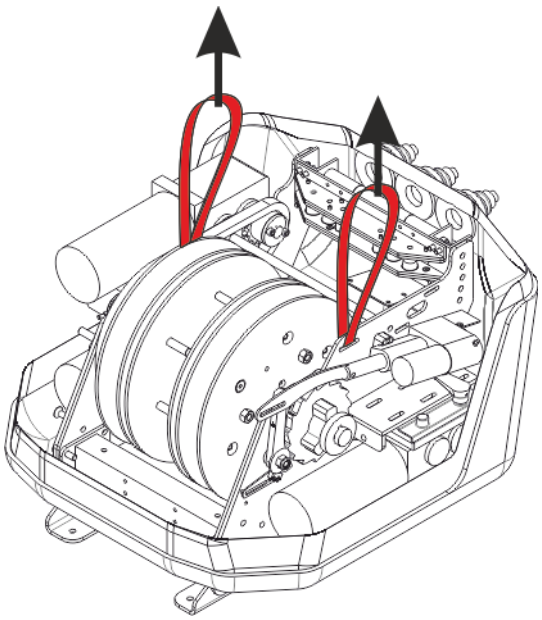
WARNING

Never touch the housing of the winding unit when the system is plugged in. Always disconnect the main plug from the mains before opening the housing cover! There is a high risk of injury and death from rotating parts!
Make sure that the quick-stop key (H) is removed from the winch.

WingCommander Installation

WARNING

Raise the WingCommander never allow it do contact the housing! The machine has carrying straps on which the unit can be transported
Save installation: Only allow professionals to install WingCommander on your boat.

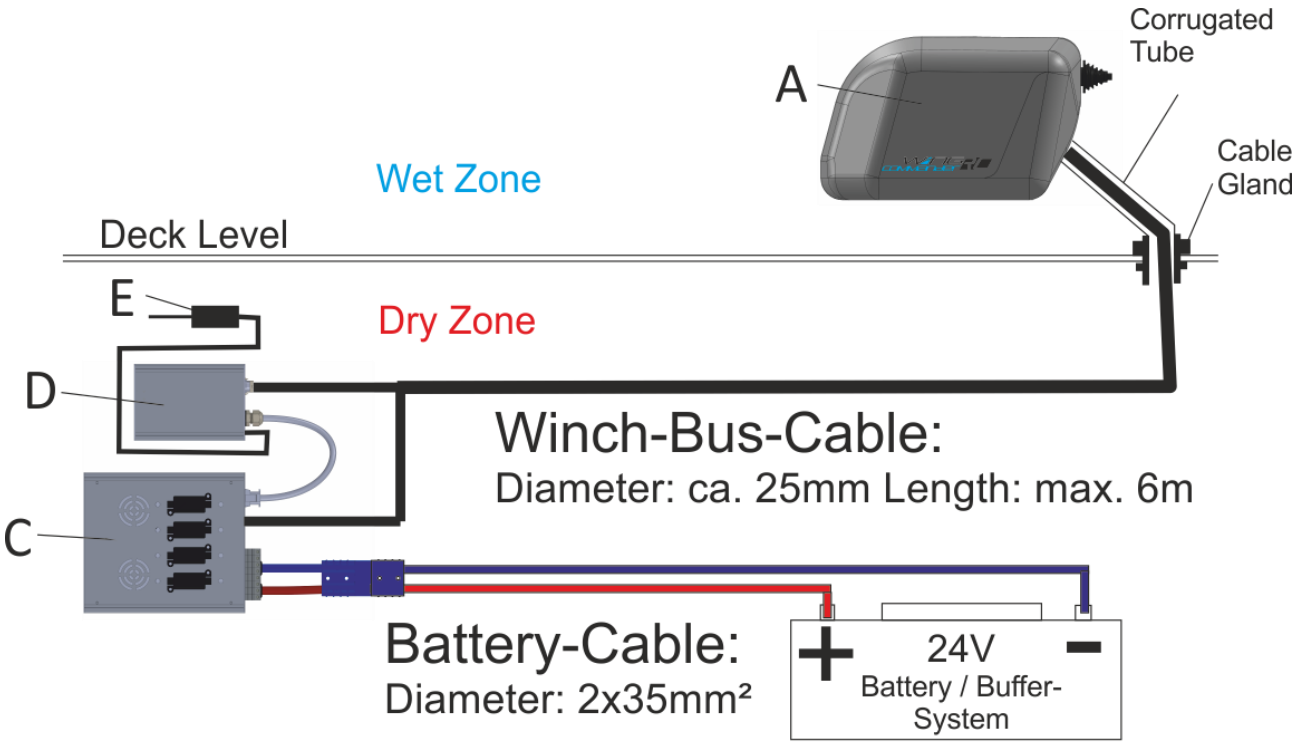


The lines should be fixed on the drums. Do not loosen the fixation of the lines before all functions of the system are tested and operate safely. Exposed lines represent an incorrect wiring of the system. It poses a high safety risk and can damage the system.

Screw the Winch to the Deck
Position the winch to the desired location of the boat. Mark the screw points of the four brackets on the deck. Then drill the holes if the Screws.

Secure the screw with counter-plates (not included) on the underside of the deck. Screw the winch and check the tightness of the fittings.

The electronics boxes must be installed in the dry and well aerated area of the boat and protected against the ingress of water. Please when choosing the installation location, take into account that the antenna module must always have good radio contact with the remote control.



Find a suitable location for the breakout to the wiring Winch with electronics boxes. The maximum cable length between the Winch and the electronics boxes must not be longer than 6m. The wiring on deck should be kept as short as possible.
Use the supplied cable connectors for cable management in the breakout.
Cut the corrugated pipe to the proper length, so it can be positioned draft-free between the cable connectors.

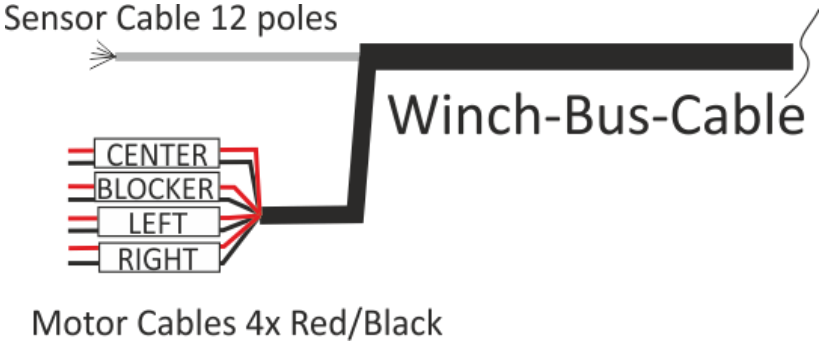
Pull the wire harness (Winch-Bus-Cable) from the Winch through the corrugated pipe and through the cable connector on the deck and fix the corrugated pipe using the cable connector. Lay the cable harness between the deck breakout and the position of the electronics boxes according to the set national standards.

Electrical installation

WARNING

Save installation: Only allow professionals to install WingCommander according to the set national standards on your boat. Incorrect installation or cabling is a high risk for man and machine.

The harness (Winch Bus Cable) consists of several lines: 4 cable pairs (red and black) for controlling the motors and 1 sensor cable (gray with crimped plug contacts).

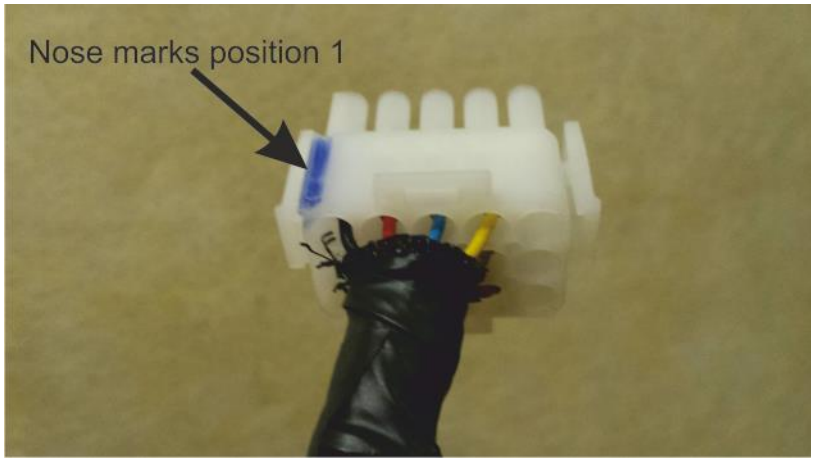


Wiring CPU housing

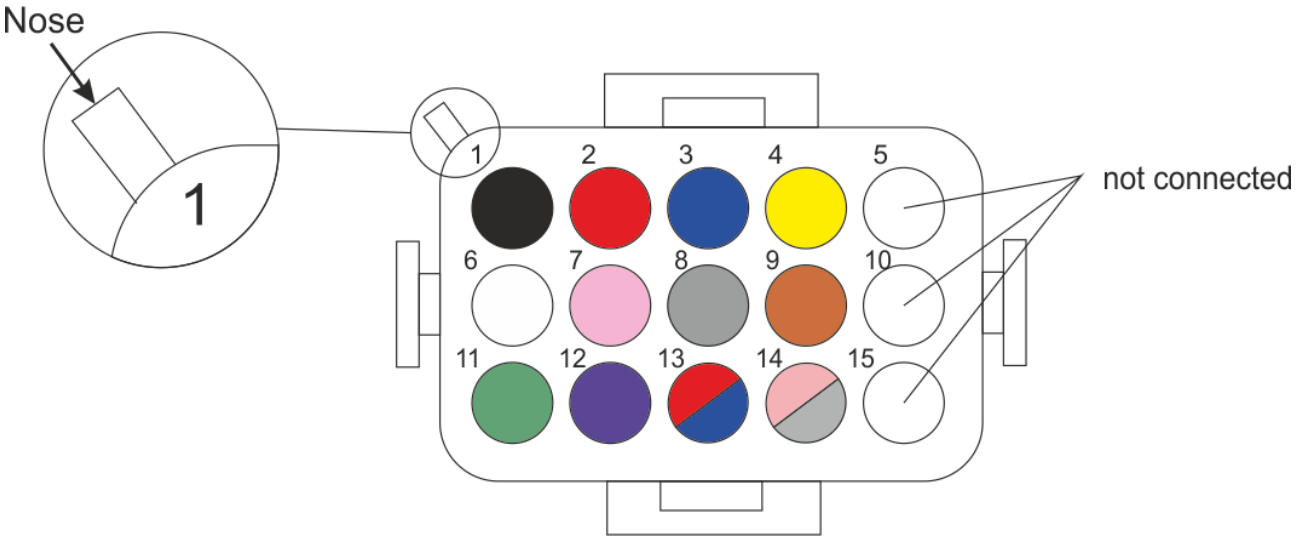
To make the necessary breakouts for wiring as small as possible, the sensor cable is supplied without assembled connector housing. This must be done after the running of the cable through all holes.

WARNING

The proper installation of the individual plug contacts in the plug housing has a decisive influence on the functioning of the WingCommanderRC. Please with every single step, check the correct color coding of the wire. Subsequent pulling of the plug contact is not possible! Incorrect pin assignment may result in damage or destruction of the electronics. So, check twice!!!



Plug the pins, step by step into the backside of the connector housing until it snaps in.



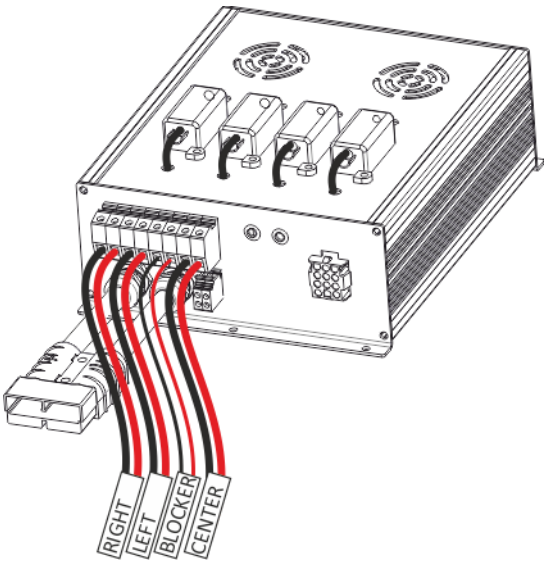
1 BLACK	**2 RED**	**3 BLUE**	**4 YELLOW**	**5 n.c.**
6 WHITE	**7 PINK**	**8 GREY**	**9 BROWN**	**10 n.c.**
11 GREEN	**12 PURPLE**	**13 RED/BLUE**	**14 PINK/GREY**	**15 nc**

Color Coding for the CPU Connector

After installing the cables with a small cable strap approximately 1.5cm below the connector housing bundle, slip on the braided cover and secure it with electrical tape. Now plug the connector into the corresponding socket of the CPU housing(D).

Now connect the supplied radio module (E) to the CPU housing(D). Attach the radio module so that there is always a good radio-link to the remote control.

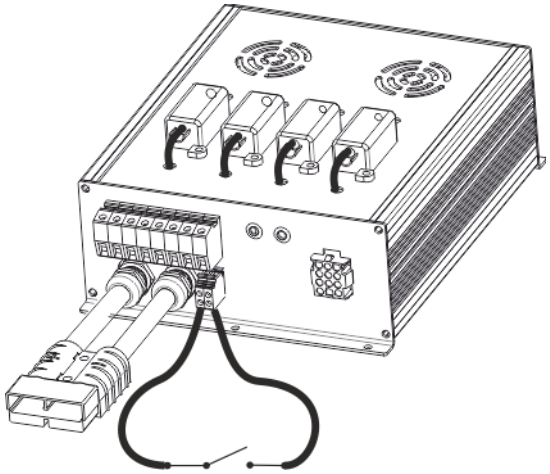
Cabling the motor driver



Connect the cable pairs (red and black) for controlling the motors as shown in the figure. Pay attention to the correct alignment of the labeled cables to the appropriate port. Now connect the motor driver and the CPU box with the cable (D2).

If you are not able to clearly allocate the cables. Please stop installation and contact our Support!

Additional on/off switch



It is possible to integrate a second on/off switch in the system, in addition to the Quick-stop switch which can switch the entire system on and off. If this function is not needed, the factory-fitted bridge can be left on the motor driver.

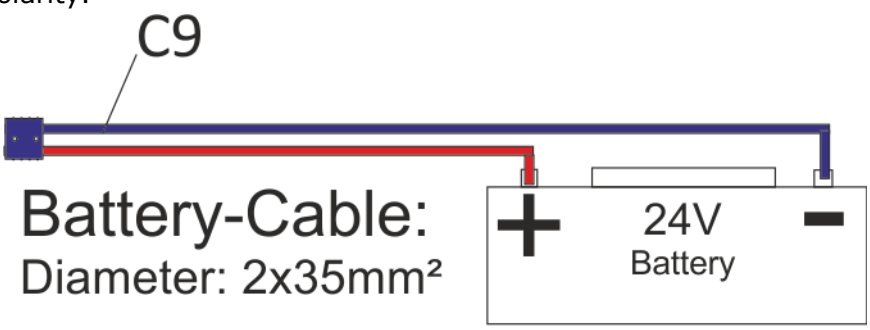
Mains connection

WARNING

The WingCommander works exclusively with 24 volts.
Caution: Both overvoltage and undervoltage can lead to malfunctions and failures of the system. An incorrect polarity will result in serious damage to the system!

Only batteries may serve as voltage source. The minimum capacity depends on the battery type. The direct connection to a voltage transformer is not permitted. The **maximum voltage is 29.8V.**

Connect the supplied 35mm² cable (C9) firmly to the 24V electrical system. Pay attention to the correct polarity.



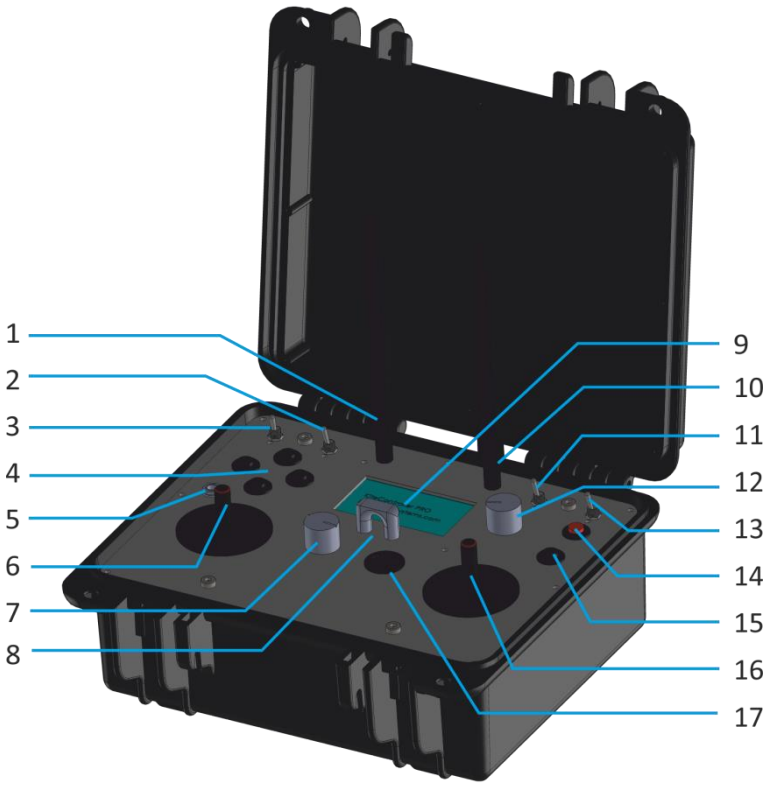
Caution: Do not do not plug the High Current Connector(C9) of the mains cable into the Connector (C3) of the Motor Driver at this point of time. This will follow at a later point of time

Remote control operation

WARNING

The Remote Control contains functions that can be used only in conjunction with the autopilot system. It is a beta product. Please refer to the Terms and Conditions for the autopilot!

Turn on the remote control with the switch (17) and familiarize yourself with the functions and the menu structure of the remote control.



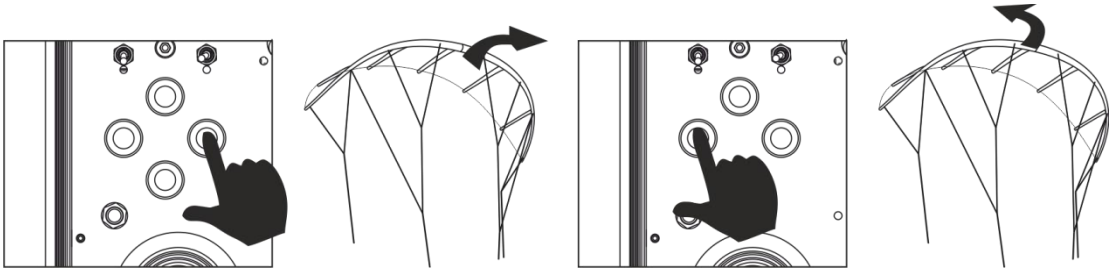
Remote Controller Diagram

1 **Antenna autopilot (optional)**
Long antenna for receiving the signals of the kite sensor.

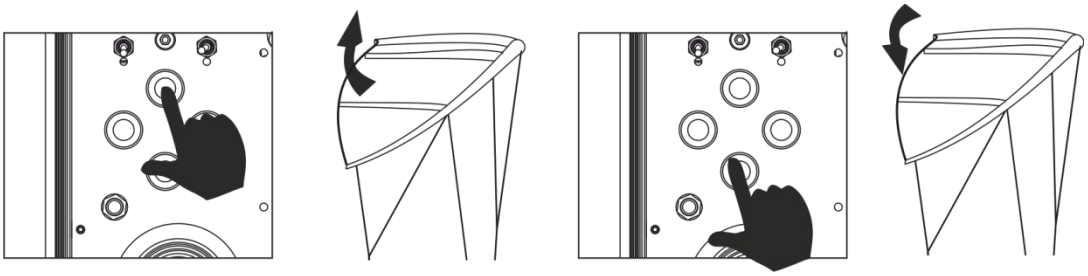
2 **Winch ON/OFF**
Activate and deactivate the return stop to hold and release the leash

3 **Autopilot ON/OFF**
Activate and deactivate the autopilot. Attention: If the autopilot is deactivated by deflecting the control lever [16] or via the app, the switch has to be switched at OFF before next use.

4 Trim



Trim the kite(over the steering lines) to the right and left.



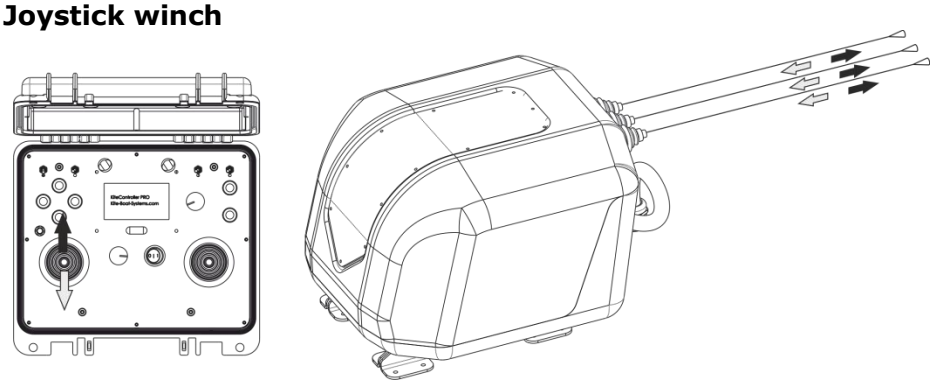
Depowern Anpowern

Trimming of power (via steering lines).

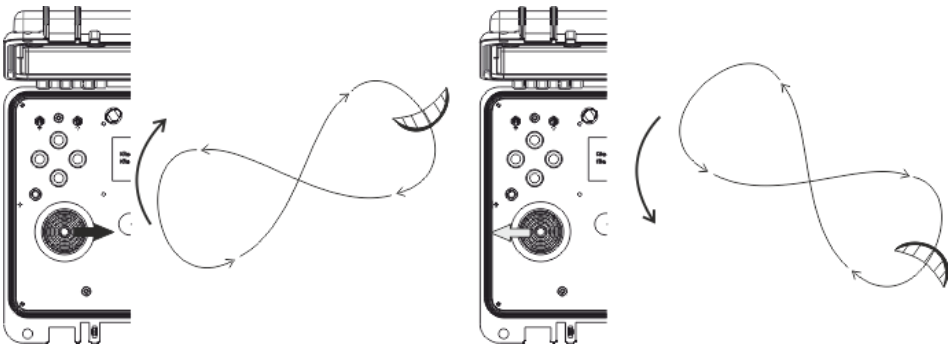
5 Charge socket

Charging of control battery. NiMh 9.6V 0.8A charging current

6 Joystick winch



Pull in / release lines. Is activated by switch [2].



Manual trimming of the eight in autopilot mode

7 Dual rate

Adjusts the maximum steering angle

8 Retaining tab

For mounting the shoulder strap

9 LCD-Display
Digital display

10 Antenna winch
Short antenna for connecting to the winch unit

11 Auto mode
Switch between hold and eight mode of the autopilot

12 Control display
Control knob with button for controlling the LCD-Display

13 Dual rate x 2
Doubling of the dual rate if especially long control trail is necessary, e.g. for start on the water.

14 Safety button
Activate and deactivate the safety function.

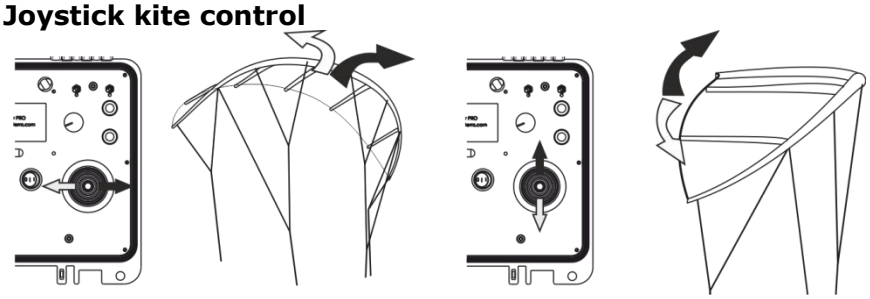
WARNING

Pressing the safety button on the WingCommander unwinds a predefined line length from the control line drums. After triggering the safety function, always check the smooth progress of the line from the drum out of the housing. After repeated pressing of the safety button (deactivation of Safety), the WingCommander retracts the previously unwound line-length very quickly. Make sure to stay clear of the line and never grasp the line. There is a high risk of injury!

After pressing the safety button, the button is disabled for 3 seconds to avoid malfunction resulting from repeated pressing.

15 Learn button
Train the central position of the eight of the autopilot by pressing this button.

16 Joystick kite control



Right-left for steering, up-down for decreasing and boosting of kite

17 ON/OFF switch

Menu and settings

Menu structure:
The Navigation between the menus of remote control is done by using the control knob [12] to the right of the display. By pressing of the spin encoder you can reach the next deeper menu level. After choosing the desired function you can save the value by pressing the encoder button. You can reach the next higher menu level by spinning counter clock wise until an arrow appears in the upper right corner of the display. Then press encoder button

Menüpunkt CONTROL

Menu item	Subitem	Function
ST		control deflection
AD		trimming
PWR WI		tension wind unit
PWR KI		tension kite sensor

Menu item Autopilot

Menu item	Subitem	Function
Cen		Azimuth center of the eight in autopilot mode „eight"
Hol		Elevation angle center of the eight in autopilot mode „eight" and fixing bracket in autopilot mode „hold"
Ran		Width of the eight in autopilot mode „eight"
Cal		calibration mode in autopilot mode „eight"
	Man	Manual calibration via encoding wheel or lateral axis of the left joystick
	Kite	At a stable, consistent flight
	Line	Under rough conditions, short leash, strong wind and small width of eight
	Mix	Automatic adjustment of calibration
Mode		Switch between autopilot modes
	hold	Hold mode holds the kite at a predefined elevation angle
	<><>	„eight"-mode flies a lying eight
	Zenith	flies the kite to the zenith and keeps it there
UDM		Up-Down-Mode
	down	Flies an eight from top to bottom
	up	Flies an eight from bottom to top
ORI		Orientation of kite position
	Boat	Orientation of the azimuth center of the eight of the driving direction of the boat. If the driving direction turns about 10 degrees, the center of the eight is displaced with the boat
	Compass	Orientation of the azimuth center of the eight at the compass angle. If the driving direction turns about 10 degrees, the center of the eight stays at an unchanged compass angle
Wind		Manual input of wind direction
OPT		Optimization of the azimuth center of the eight in autopilot mode „eight". Can only be activated if a wind direction is entered manually.
	off	Manual mode, no optimization
	hint	The system gives a suggestion for optimal positioning of the eight (circle in the azimuth illustration)
	auto	The system automatically sets the optimal position for the center of the eight. The optimal angle adjusts to the course of the boat.

Menu item Settings

Menu item	Subitem	Function
Safety range		Leash length that is skipped by triggering the safety
Sensor		Control values for the autopilot sensors
sP		P-limb of the PID parameters in auto mode „eight"
sI		I-limb of the PID parameters in auto mode „eight"
sD		D-limb of the PID parameters in auto mode „eight"
outputLimit		Amplitude limit in autopilot mode
Emergency		Emergency-Program when single motors break down . In this mode it is possible to drive the motors individually and move the lines separately. !!! Caution, the back rotation lock is closed when this mode is activated !!! To deactivate the emergency program, select Remote Emergency off in the menu, then turn the winch, wait at least 20 seconds and then turn the winch again.
	off	Emergency mode deactivated
	right	Motor on the right is active. All other motors are turned off.
	left	Motor on the left is active. All other motors are turned off.
	center	Motor center (main carrying cord) active. All other motors are turned off.
sPh		P-limp of the PID parameters in auto mode „hold"
sIh		I-limp of the PID parameters in auto mode „hold"
sDh		D-limp of the PID parameters in auto mode „hold"
Tone		Activate /deactivate acoustic signals
	on	All signals on
	off	All signals off
Reset Settings		Reset controller settings to standard values
	NO	Values not reset
	YES	Values are reset to standard values

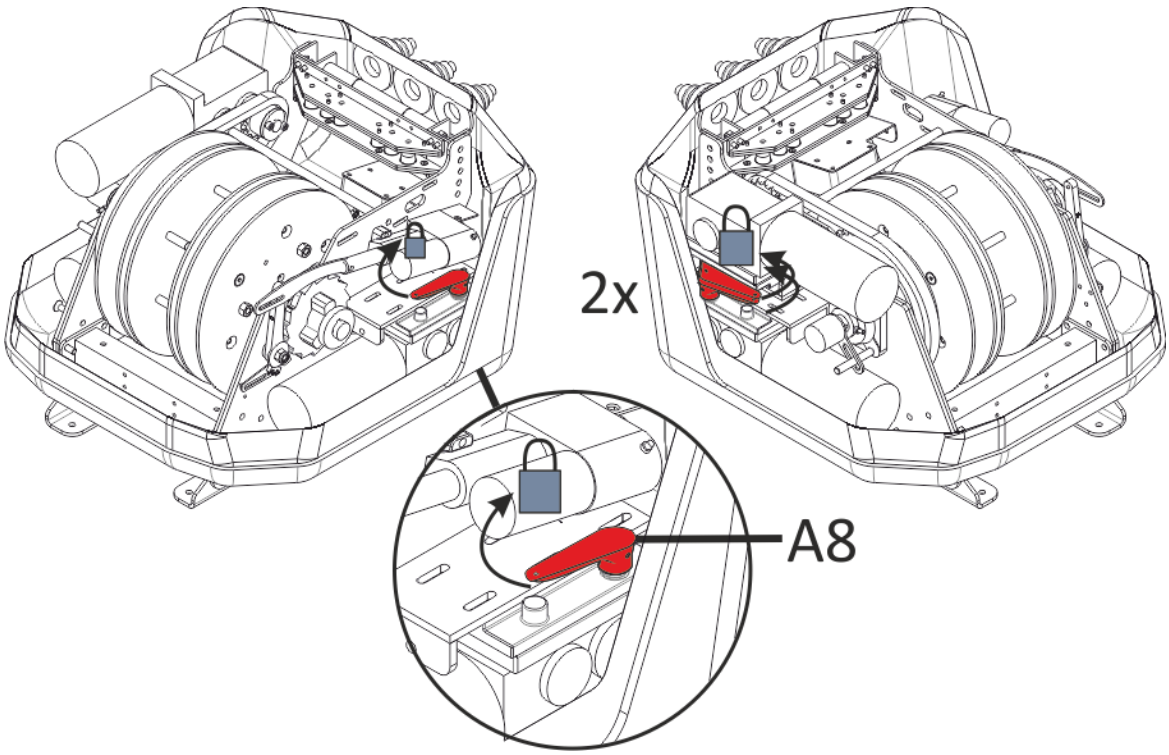
Never use the heading values of the Remote Control to navigate the boat. It is not exact enough for that!

WingCommander operation

Before switching on the WingCommander:

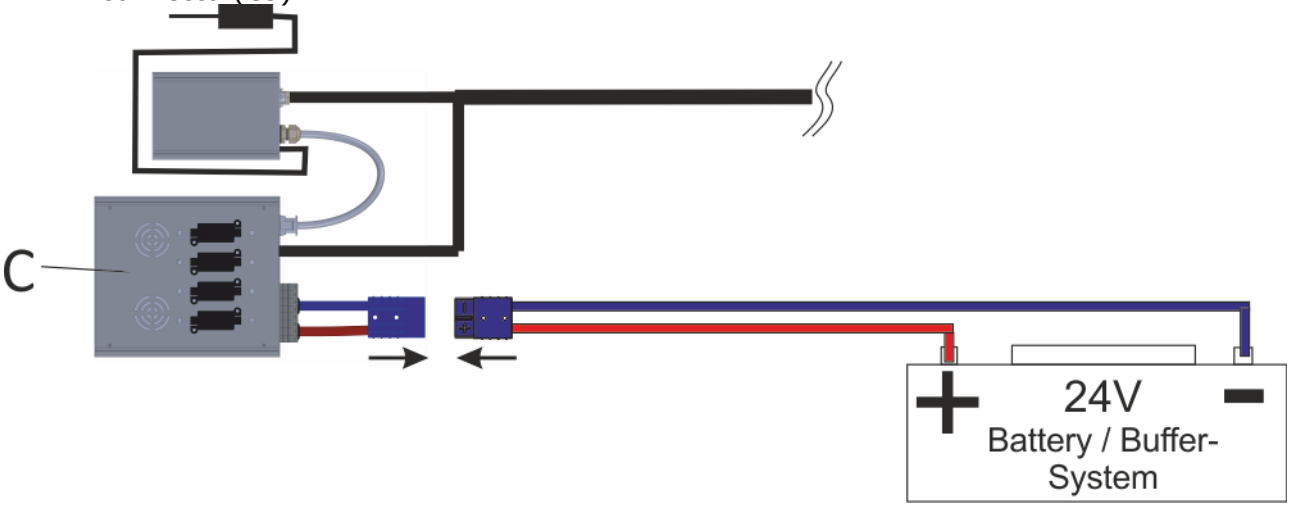
Make sure that the Quick Stop key(H) is of the winch is unplugged.
All lines must be fixed firmly on their drums and secured against accidental unwinding.

Check all cables are secure and have the correct polarity.
Check whether the 3 clutch levers (A8) of the drive motors are in the "Closed" position.

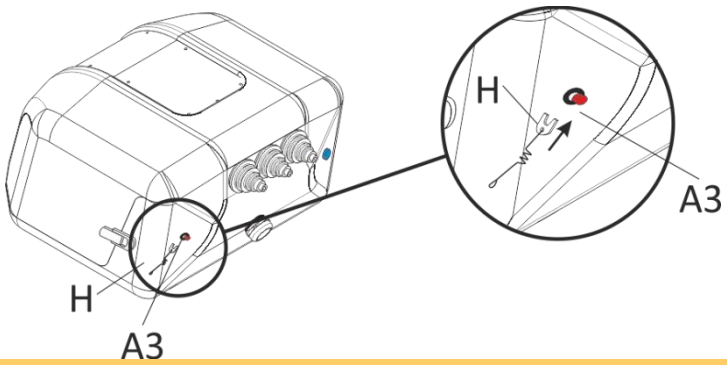


Switching on the WingCommander

- Turn on the remote control using the on/off switch(17).
- Connect the high current connector(C9) of the mains supply to the motor driver Mains connector(C3).



- Turn on the WingCommander a by plugging in the Quick Stop key(H) into the switch(A3)



Attention! The Power LEDs in motor driver and CPU housing have to light up and a short beep sound produced from the CPU cabinet. The COM LED on the CPU cabinet must flicker. Check that the drums of WingCommander do not move.
Otherwise, switch off the WingCommander immediately via the Quick Stop switch, disconnect the device from the mains and contact our telephone support. Get the number from: www.kite-boat-systems.com

Function test

- Press the "Winch on / off" switch (2) on the remote control. The back rotation lock opens audibly.
- Turn the control lever (16) now. The line drum moves to a defined position and then stops again.

Attention! If the line drum does not stop, there is a fault. Then immediately turn off the Quick-Stop switch, disconnect the device from the mains and contact our telephone support. Get number from: www.kite-boat-systems.com

- Release the lever again. The line drum should now move back to its original position and stop.
- Now release the back rotation lock (switch 2), move the control lever (6) forward. All three line drums should now rotate smoothly until you return the lever to the zero position. The steering line drums (right and left) possibly turn only slightly and adjust themselves.

Get to know the system

As long as the lines are firmly fixed on the line drums, there is the opportunity to try out almost all functions of the system. Familiarize yourself with the functions of the remote control and the WingCommander. Pay special attention to the reaction of line drums and test the safety button of the remote control. The line drums should always move after the execution of a control command and hold their position. Otherwise there is a fault.

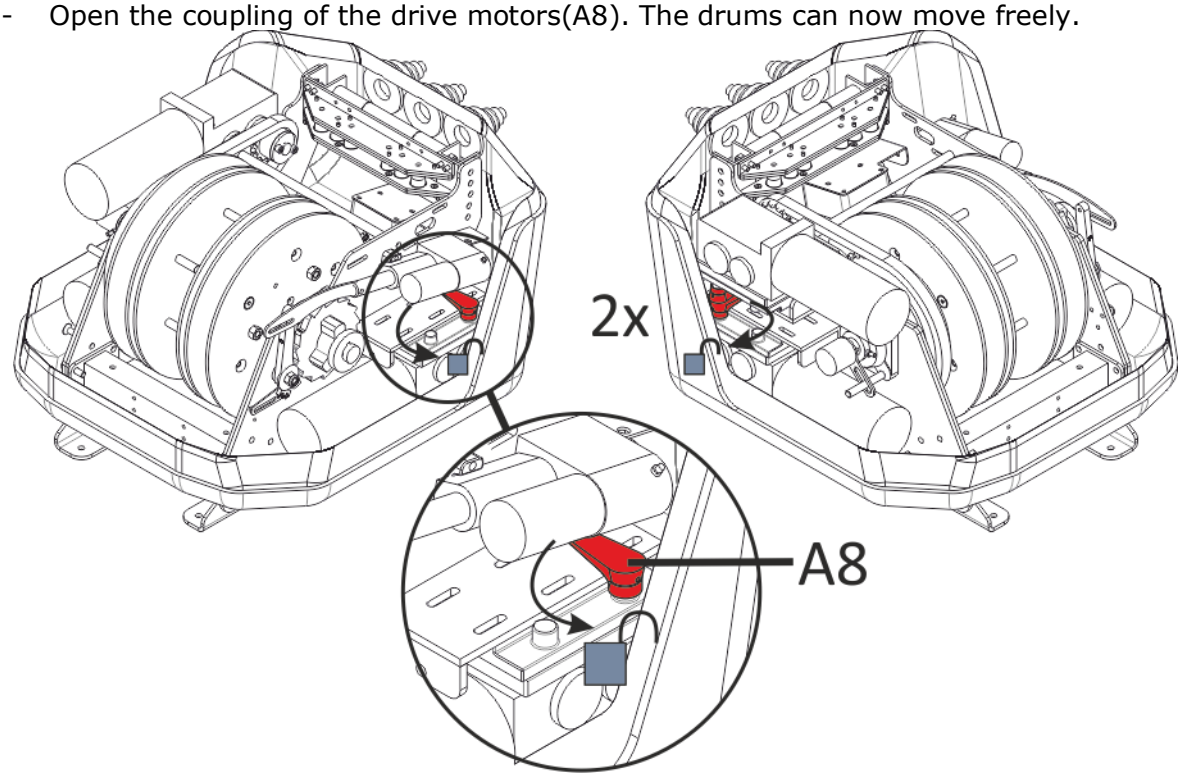
Prepare the line

If you are now sufficiently familiar with the system and understand all functions, disconnect the WingCommander from the power supply to pull the lines out of the WingCommander housing.

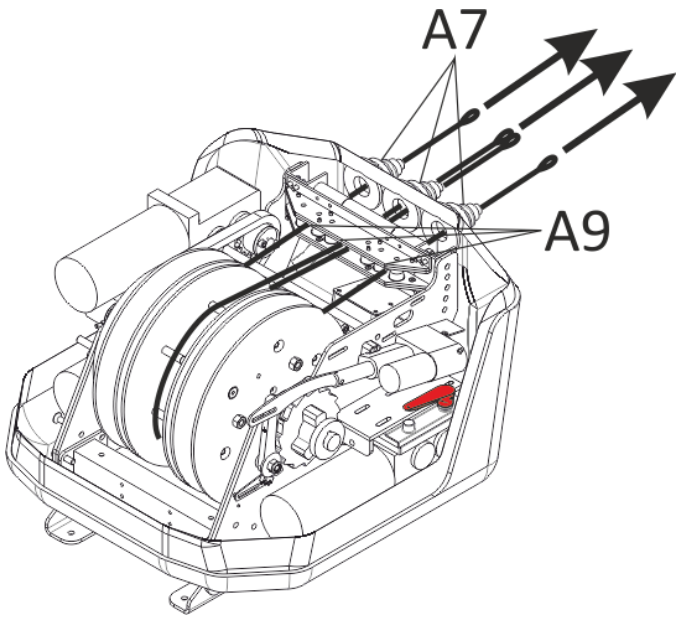
WARNING

Never open the housing cover and reach into the machine while the machine is connected to the mains. Always disconnect the mains plug(C9) before opening the housing of the WingCommander. There is a high risk of injury and danger for life by rotating parts! The Quick-Stop Key(H) also have to be unplugged.

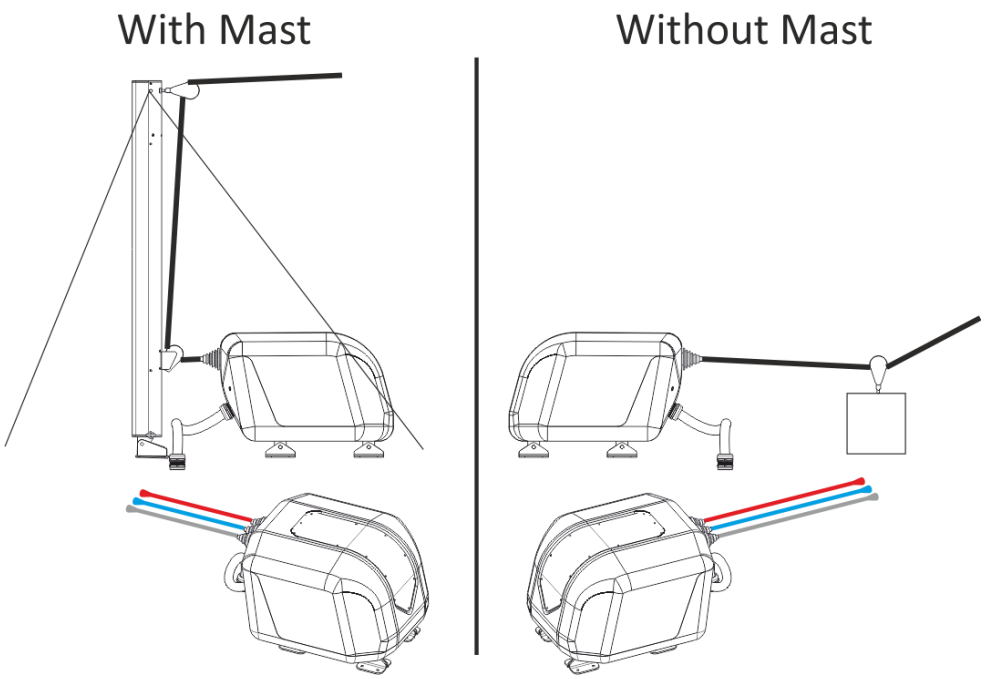
- Open the coupling of the drive motors(A8). The drums can now move freely.



- Remove the safety catches of the line on the drum.
- Run the lines through the line guides (A9) and bellows (A7) from the housing.



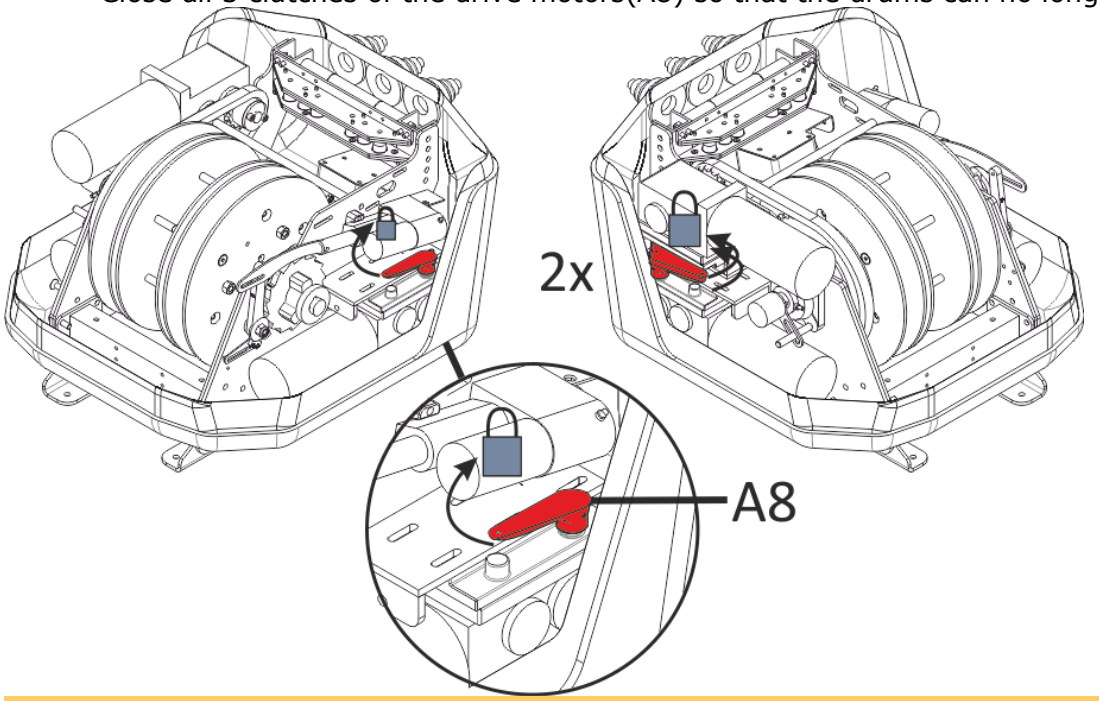
Depending on the model and type of installation of the WingCommander, there are several ways the lines can lead up to the connection points of the kite.



WARNING

Never change the way the lines are guided to the connectors of the kite by yourself. The WingCommander is specially programmed for this. This can only be changed by factory. If you are not sure how to guide the lines correctly, please contact our support!

- Close all 3 clutches of the drive motors(A8) so that the drums can no longer move.



Attention: Ensure that the drums can no longer be moved.
Secure the lines to prevent accidental slipping.

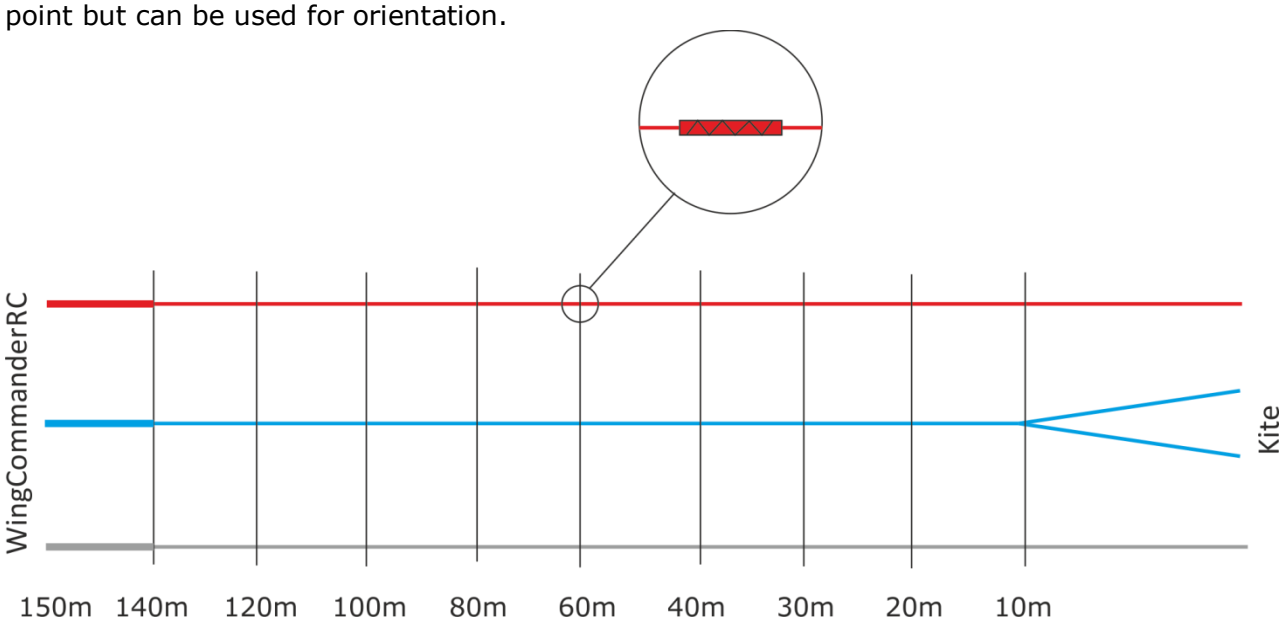
- Close the housing cover

Handling the lines

WARNING

Exposed lines represent an increased safety risk. Always make sure that the lines are under tension during winding and unwinding on the drums and that they are wound evenly on the drums.
After each triggering of the safety function, check if the lines are channeled smoothly from the housing to the drum. A disruption of lines in the housing or a shift to a different drum represents an increased safety risk.

All lines are marked for the trimming. This markers does not indicate the perfect trimming point but can be used for orientation.



Emergency line caps

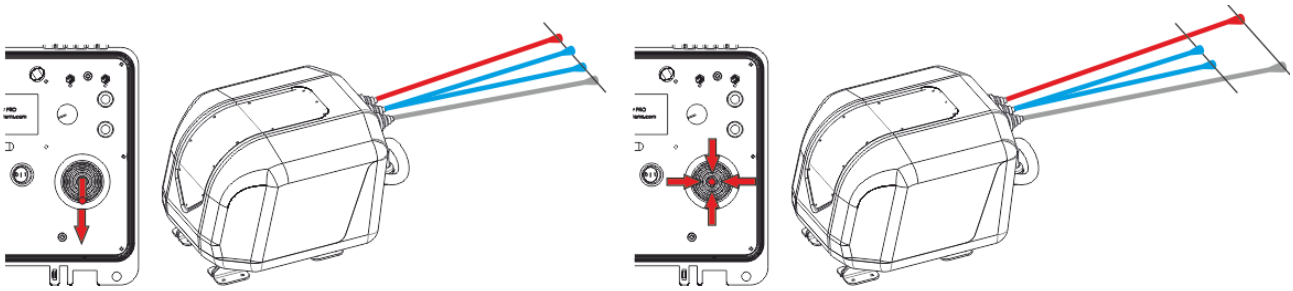
Should an emergency release of the safety function of the remote control not lead to controlled, safe landing of the kite, you can separate the canopy from boat using the line caps. Always keep a suitable tool available with which you can cut all the lines and separate the boat from the kite in an emergency.

WARNING

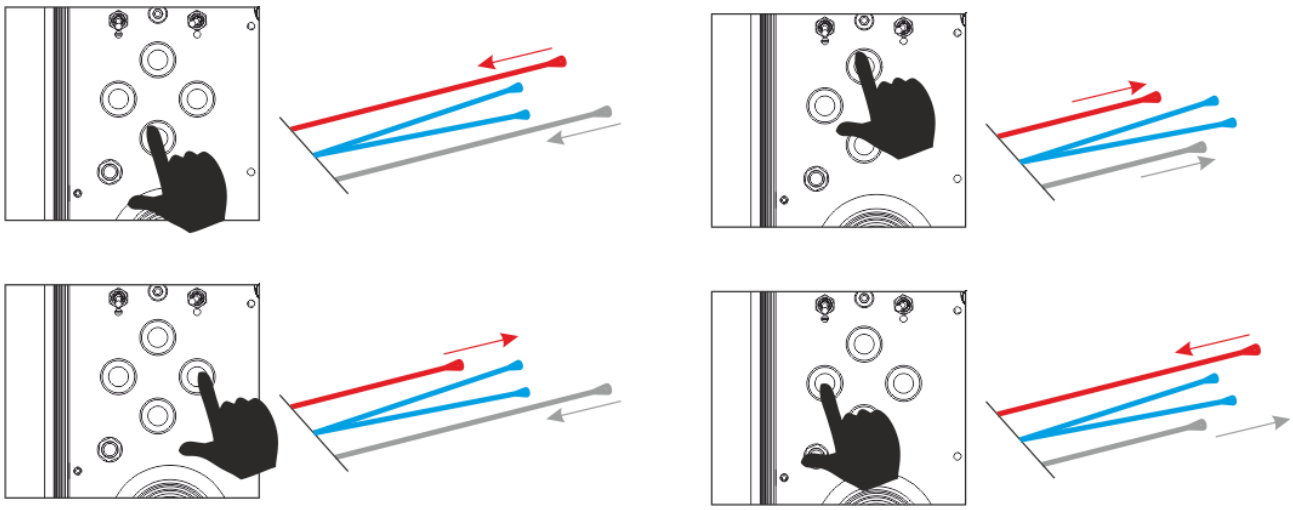
Lines lying in the water represent an increased safety risk for your boat and others. Make sure that you never drive your boat over a line. Never swim towards the kite as this represents an absolute danger to life!

Trim the lines before tying up the kite

Before every launch and during the flight, it may be necessary to trim the line lengths to their correct length.



All lines in their **fully powered state** (control lever 16 pulled backwards) should have the same length. If this is not the case, use the trim buttons (4) on the remote control for subsequent adjustments.



Preparing the kite launch

Attention! We recommend that you only perform the following steps with the assistance of at least 1 to 2 helpers to ensure the safe operation of the first flight and the first cycle of the kite. Each helper must be familiar with the features and security risks that are described in this manual.

The Kite

WARNING

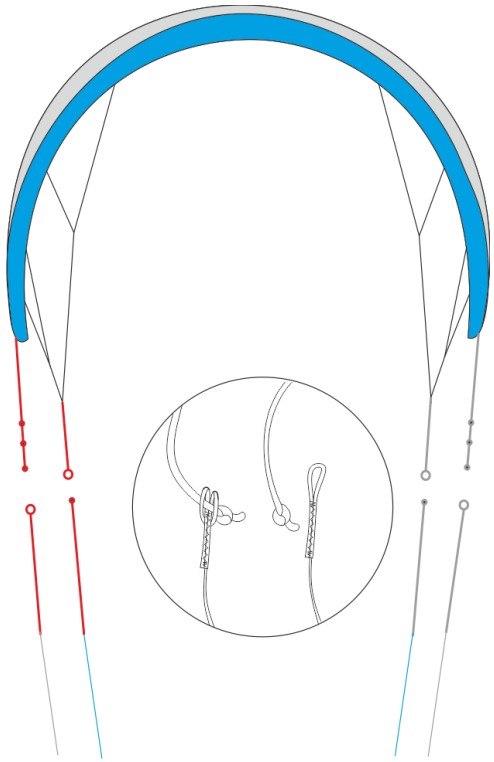
Get yourself trained in a certified kite school on the safe handling of the kite before first use of the WingCommander. Train yourself intensively on the launching of the kite from the water after the triggering of the Safety function, as this procedure must be performed every time you start the kite with the WingCommander. Work out intensively on the secure retrieval of the kite after Safety is tripped.

- **Use the system only if you are familiar with all safety-related functions and can control the kite safely.**
- **First, select a small kite and test or practice you with low wind until you have fully mastered the system and its safe function.**
- **Only use the kite with a Double Front-Line Safety System. All other safety systems provide insufficient security in conjunction with the WingCommander. Contact us in case of any doubts on the choice of the kite.**
- **Use the kite only in the wind range recommended by the manufacturer of kite for kitesurfing.**
- **Adjust the Dual Rate and the Safety Range on the remote control to the kite size.**

Inflating the kite

Inflate the kite as specified by the kite manufacturer and secure it against accidental flying away.

Connect the lines to the kite



WARNING

Double check the correct allocation of lines! Incorrectly tied lines render the kite uncontrollable and represent a significant security risk.

Activate the safety function of the WingCommander before tying the lines.

Attention! Make sure you keep the brakes tight to prevent uncontrolled unwinding of the lines in the housing.

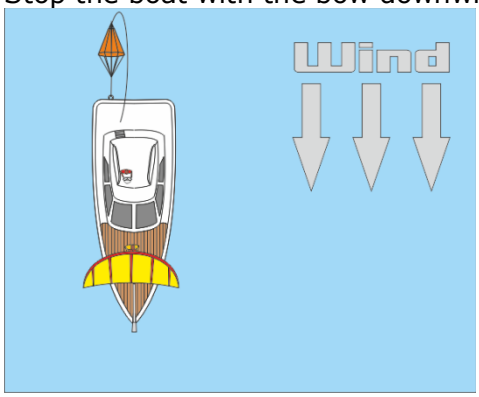
Connect the lines of WingCommander to the kite as shown in the illustration.

Launching the Kites

Observe the above-mentioned Precautions! Launch the kite in a safe and secure waters and wind conditions. Always keep a safe distance from obstacles, other boats and the shore.

Positioning the boat

Stop the boat with the bow downwind. Avoid drifting downwind.



Launching the kite from the water

1. Activate the safety function and lay the kite Face-to-face on the water. Let the kite drift away from the boat while the lines are released carefully and under constant tension from WingCommander. The boat should possibly stand still or slightly drift forward.

Attention! Never pull the kite backward against the wind, because it can otherwise be pulled under the water, making a launch impossible and posing a security risk.

2. Release about 20-30 m line until you see a mark on the Center line. Now close the back rotation lock (remote control switch 2).
3. Disable Safety, at this point, the WingCommander pulls the steering lines. Ensure that this is done under tension, so that the control lines are wound smoothly on the drums.
4. Check and if necessary, trim the steering lines in relation to the center line. Trim as described above.
5. As learned in the kitesurfing course, roll the Kite into an easy-to-launch position and let it drift at the edge of the wind window.
6. Launch the kite at the edge of the wind window by deflecting the control lever (16) and fly to the zenith.
7. Disable the back rotation lock by pushing the switch (2)
8. Gently skip the kite to the desired altitude.

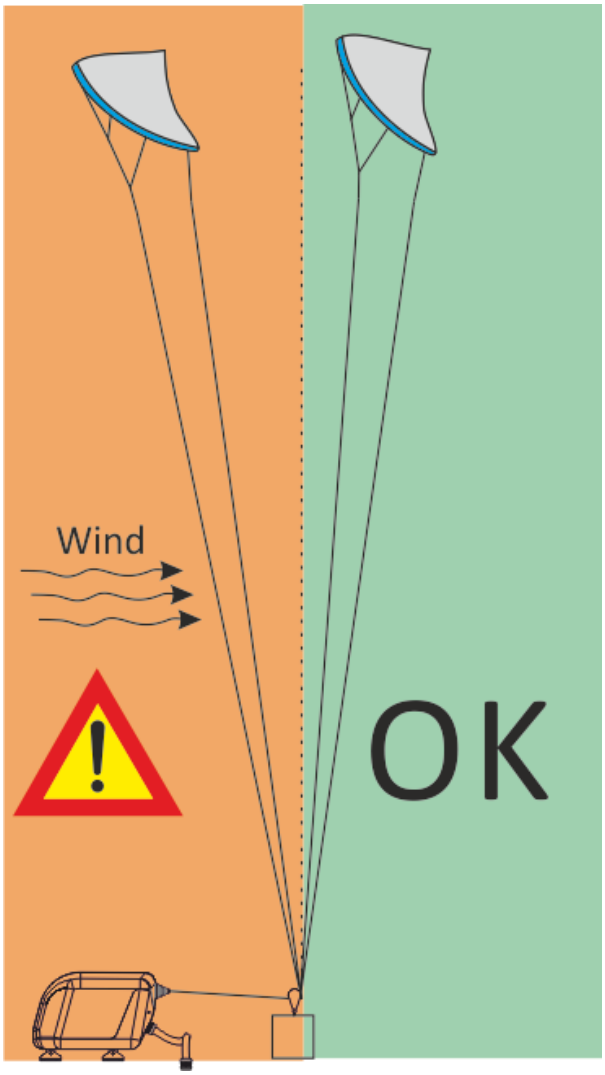
Attention! Because of varying tension on the 3 lines when retracting the lines, the lines wrap differently on the drums. Thus, a steady after-trimming of the lines is necessary during retraction, as well as during release.
Do you need to permanently counteract during this phase, it is a sure sign that the lines must be trimmed down. Therefore, always focus on to the length markings drawn on the lines.

WARNING

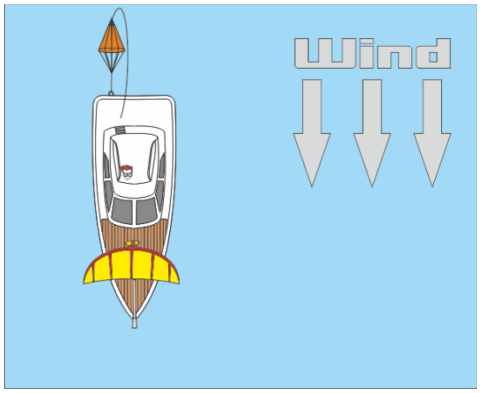
Always close the back rotation lock when the kite reaches the desired altitude, as the kite will otherwise steadily draw kite line.
Never release more than 140m line to ensure the function of the safety system in an emergency. You will recognize the 140m mark as the steering lines pass into thicker leader lines.

Hauling and landing the kites

Electric hauling of the kite



1. Stop the boat with the bow downwind. Avoid drifting downwind.



2. Fly the kite in the zenith and minimize its pull
3. Open the back rotation lock (switch 2). Retract the lines slowly and evenly.

   Attention! Sometimes the kite tends to fly over the WingCommanders,. If so, interrupt pulling fly the back to a safe position. Continue the retraction until the desired altitude of about 20m is reached.

4. Land the kite at the edge of the wind window and activate safety just before placing the kite on the water.
5. Check whether the lines were reeled smoothly when the Safety was triggered.
6. Pull in the kite with activated safety.
7. Once the kite is on board, secure the kite from flying away and disconnect the lines from the kite.
8. Use the trim function to get all the lines back to the same length.

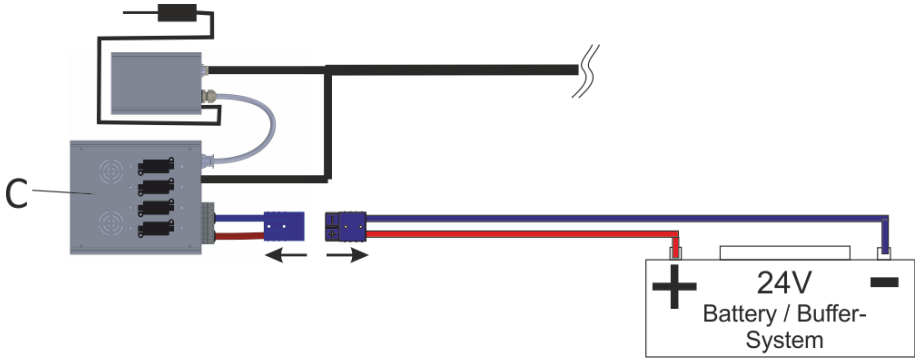
Attention! If you have brought down the kite to change to a different kite size, the remote control and WingCommander must be switched off respectively for at least 1 minute to reset the currently activated Safety.

After use, release the Quick Stop key from WingCommander.

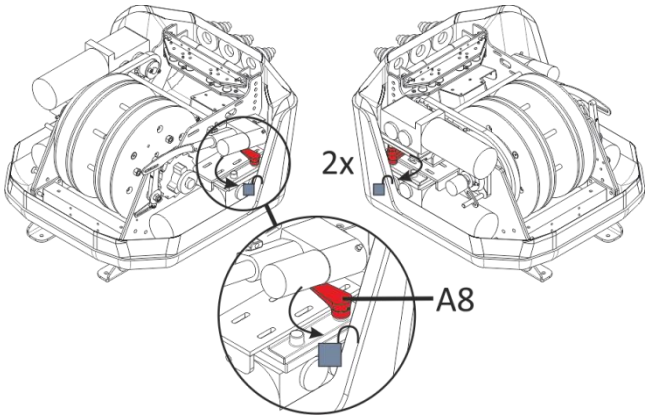
Manual recovery of lines

Should there by a defect in the WingCommander such that it is not possible to pull the lines and the kite electrically, this can be done manually.
Proceed as follows.

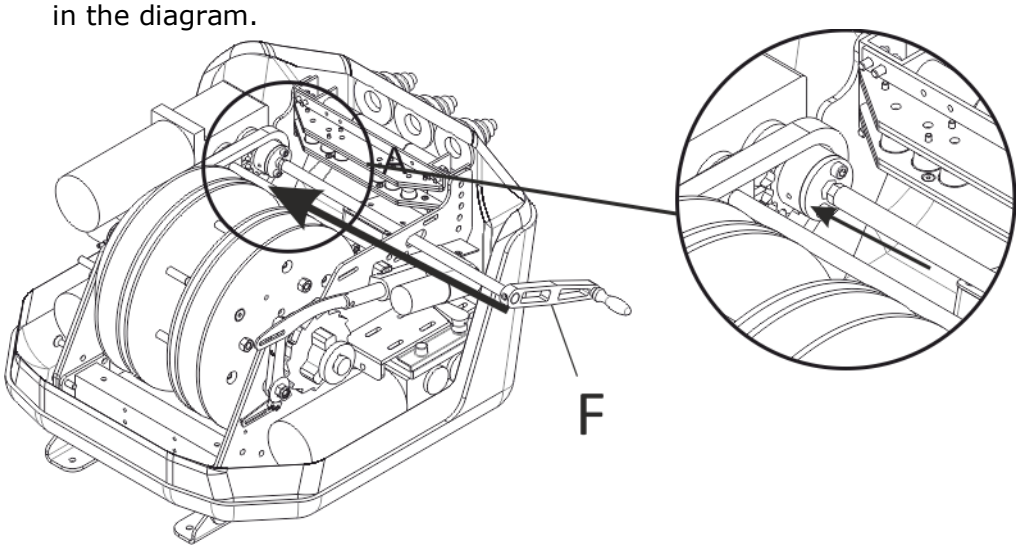
1. Disconnect WingCommander from the mains.



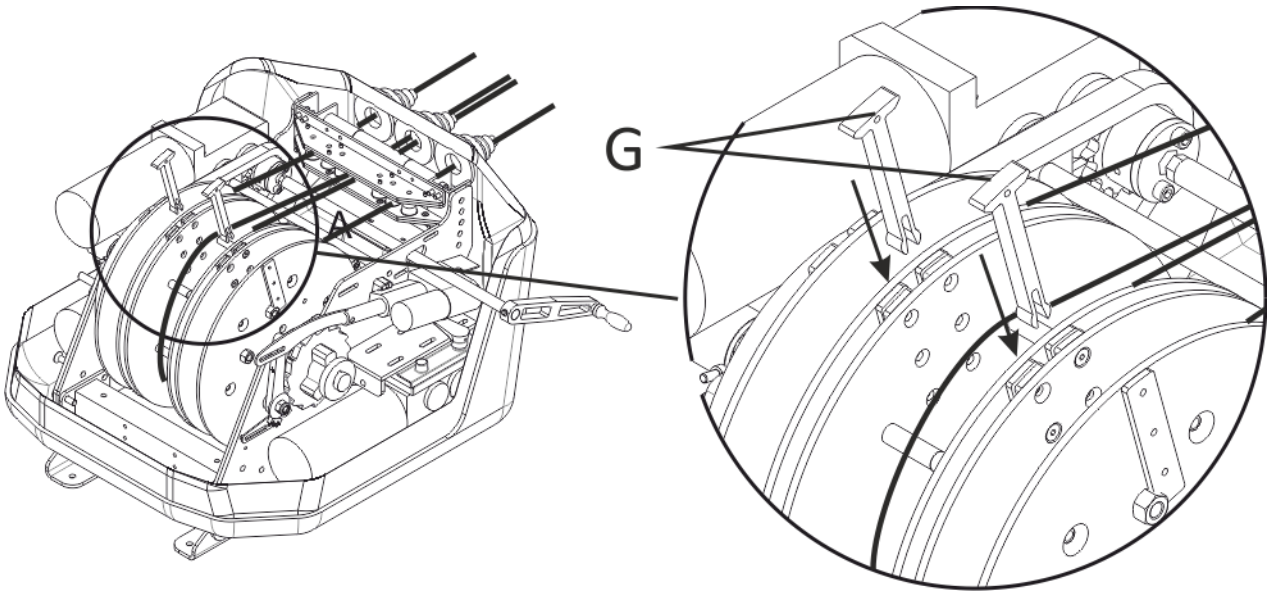
2. Remove the housing cover from the Winch
3. Open couplings of all motors.



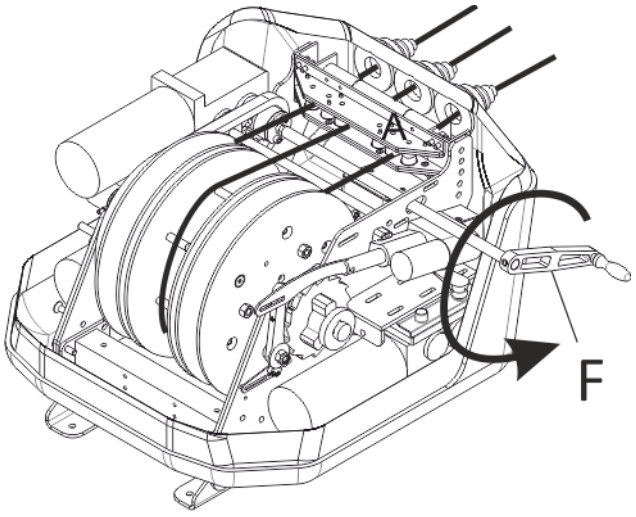
1. If necessary leave the steering lines at a point where the kite is located in a safety position.
2. Set the crank(F) provided from the side of the drive sprocket of the main line as shown in the diagram.



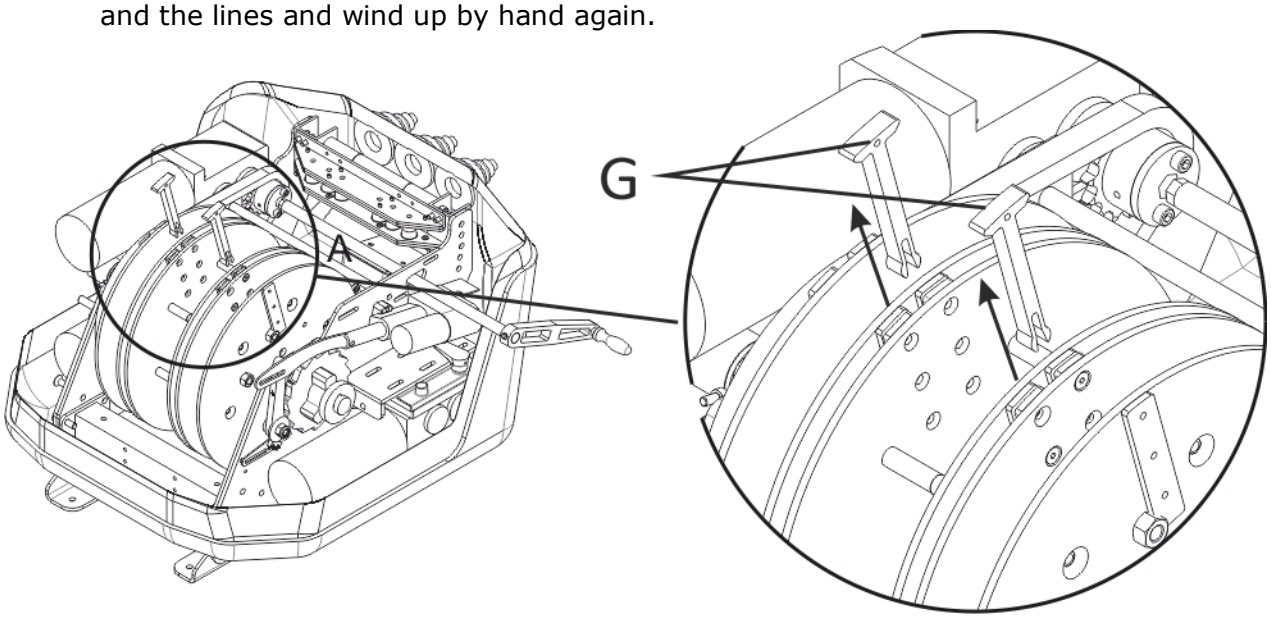
3. Position and connect the drums with the supplied adapters(G) as in the figure below.



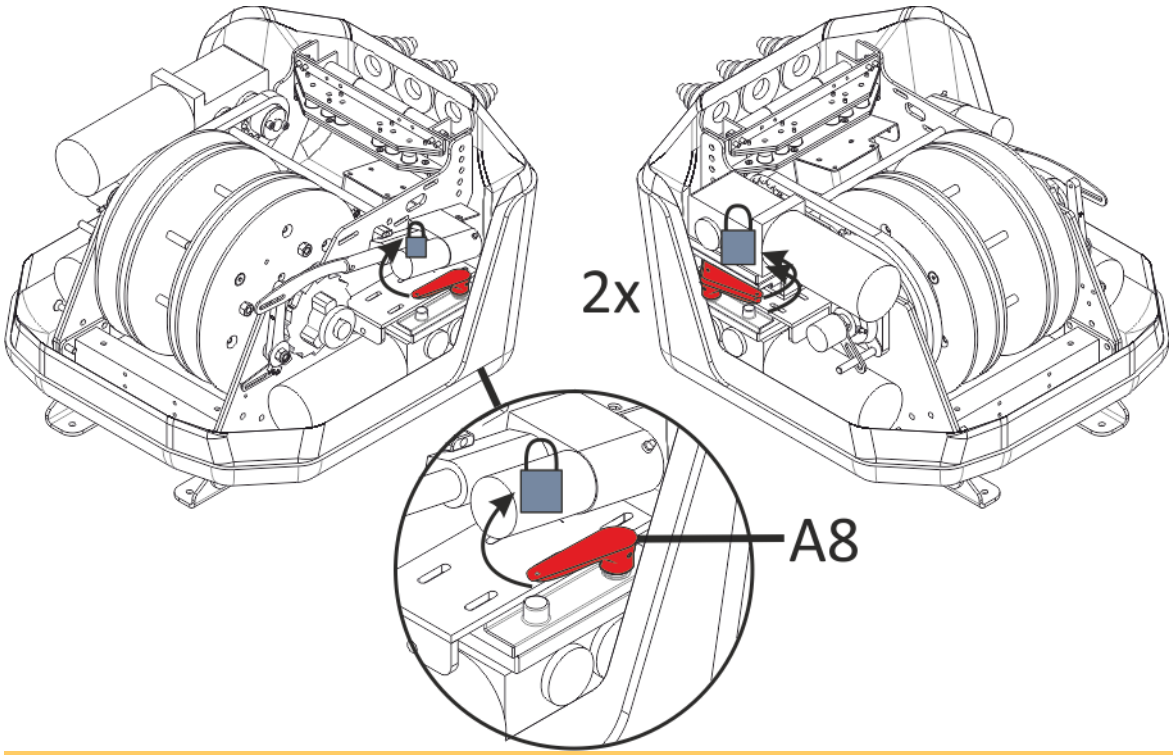
4. Wind line by pulling manually.



5. After pulling in the lines and securing the kite, remove the adapter between the drums and the lines and wind up by hand again.



6. Secure the drums from rolling away by closing all the couplings of the 3 motors.



Attention! It is mandatory to contact our customer service after a defect to avoid further damage that may occur by restarting the machine.

Autopilot Unit

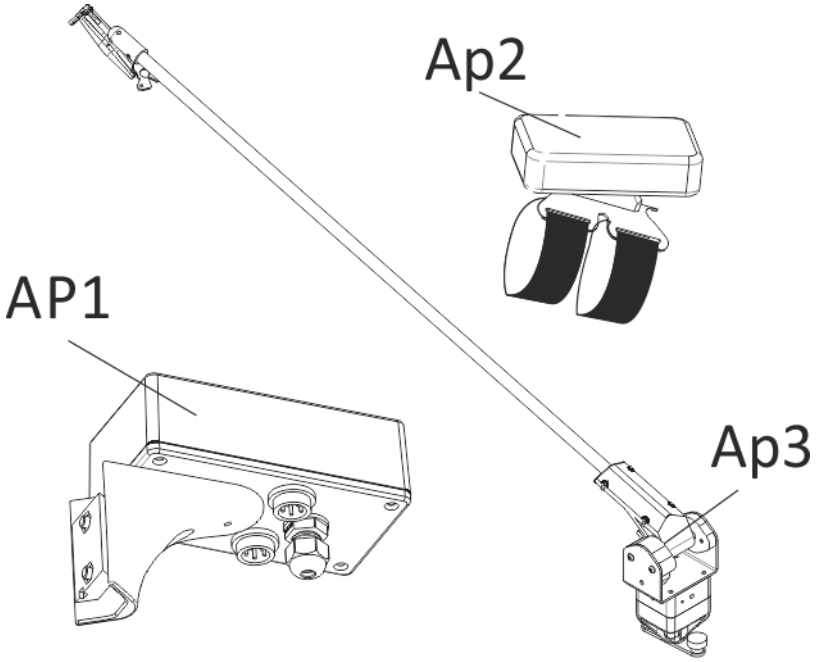
Conditions of use of the autopilot

WARNING

The Autopilot is a BETA-PRODUCT that is under development and not tested to the end. The product was sold at the express request of the customer and that can use the system at its own risk. You appreciate that using this product can result in complete loss or destruction of the WingCommander or the boat, as well as it is a high risk for Life, health and possession of you, your crew and others.

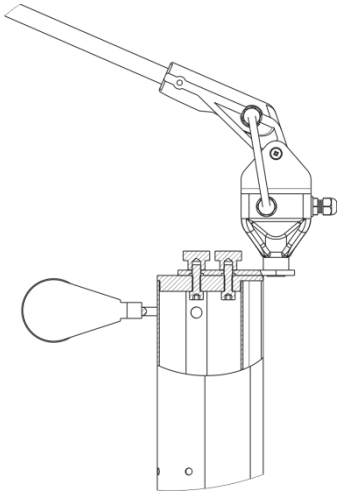
There is no warranty for any function of the system. We strongly recommend to permanently watching the kite! Never put away the remote control! Always have the ability to manually take control of the kite in any case of malfunction of this system

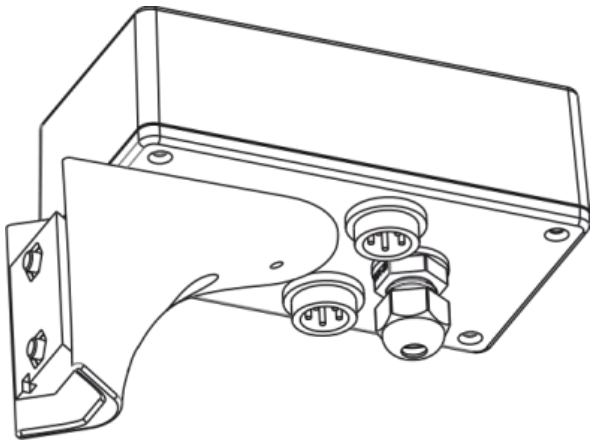
Product Overview



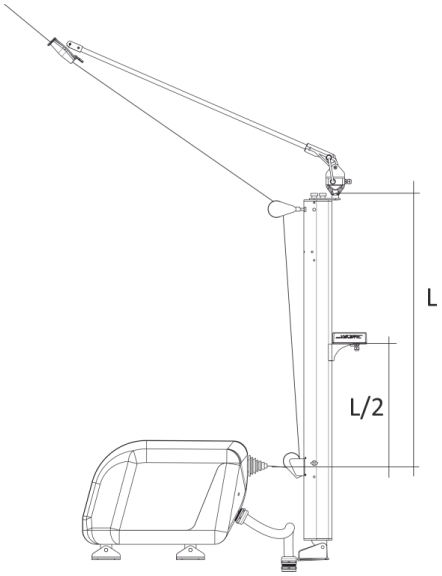
AP1… Compass-Unit AP2…Kite-Sensor AP3… Line-Sensor

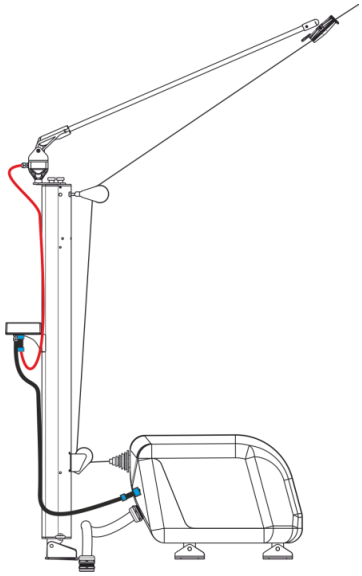
Installation Line-Sensor





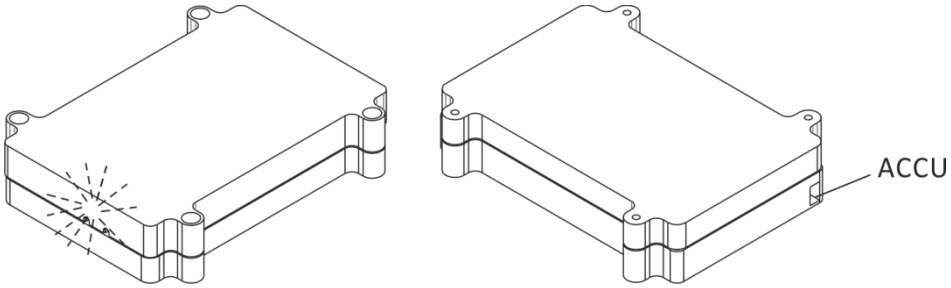
1. Take of cap
2. Screws M8. Screw in from the downside of the cap and tighten.
3. Screw leash sensor with provided knurled nut to the cap
4. Apply compass unit to mast slot
5. Fasten cap to the mast



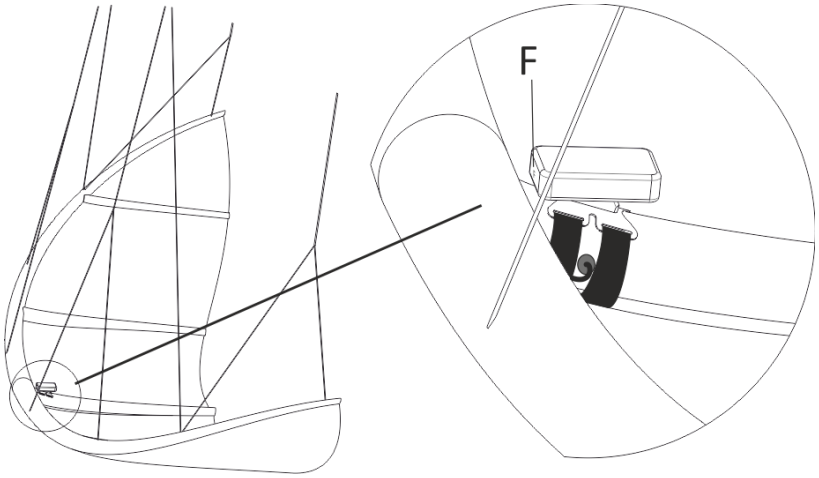


6. Screwing of the compass unit to the mast. Distance to leash sensor approximately 50% of the distance between leash sensor and leash outlet on the wind unit
7. Connect plug of the leash sensor with compass unit, then connect compass unit with the wind unit

Installation kite sensor



Before installation, connect the battery with the jack to the sensor unit inside the Kite Sensor Box to activate the kite sensor. The diode on the opposite site of the battery jack is now flickering. When closing the kite sensor case, watch out for leakproofness.

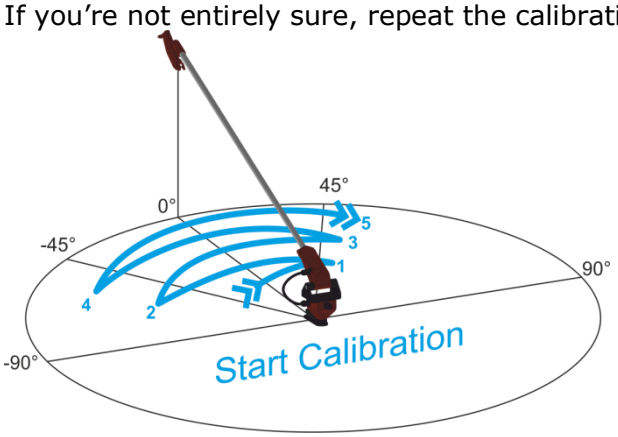


The installation of the kite sensor takes place at the middle strut of the kite, close to the front tube. Watch for the correct orientation of the sensor. The side of the Sensor box market with a "F" have to be directed to the Fronttube! Lay and fasten belts around middle strut when kite is inflated. The kite sensor should not be in contact with the front tube.

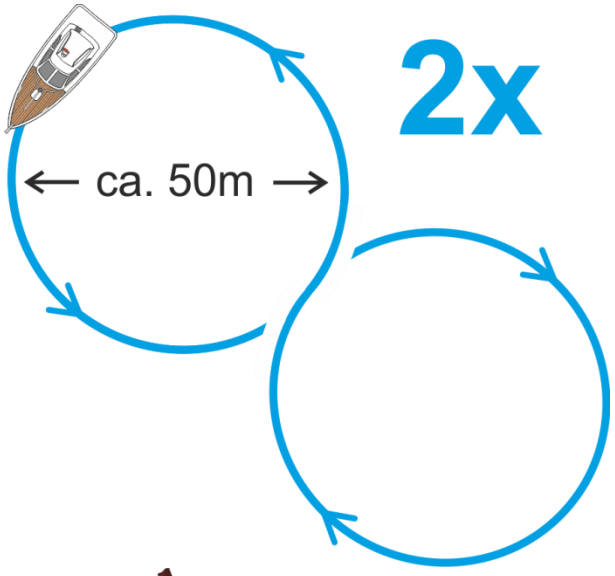
After usage the kite sensor should be detached from the kite, the battery disconnected and both stored in a dry place separately from the kite.

Calibrate leash sensor

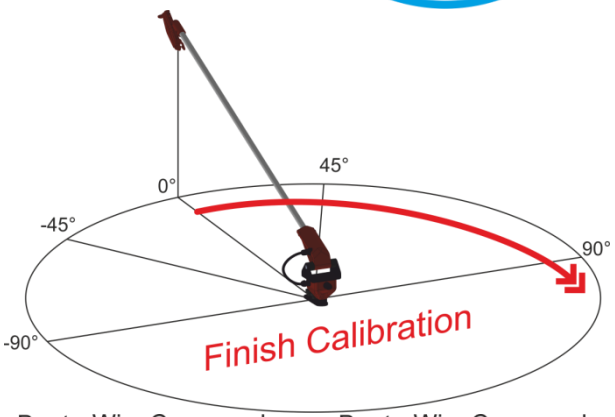
This have to be done after installing the autopilot or changes at the boat or larger changes of the position where you use the system. When calibrating please follow exactly the instructions. A poorly calibrated compass can heavily influence the functions of the autopilot and steering errors might occur that could lead to an uncontrolled crash of the kite.
If you're not entirely sure, repeat the calibration process.



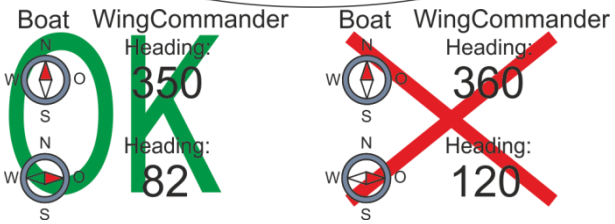
1. Deflect sensor arm according to the arrow five times, at least to -45/45 degrees, to initiate calibration (pay attention to the order shown in the picture). The time between the single deflections should not take longer than a second. If the initialization was done correctly, the diode on the compass case is no longer blinking. If the calibration is initiated, no metallic items should come close to the compass. The sensor arm can be placed down, but should not be deflected over -90/90 degrees, because this will end the calibration process.



2. Drive now with the boat two eights (without kite) with a diameter of approximately 50m and a speed of approximately 5knt.



3. End calibration by deflection of the sensor arm over 90 degrees. The diode on the compass case continues to blink.



4. Now test the calibration by comparing the values on the remote control with the compass values of the ship. Thereby not the exact alignment of the heading values northwards is important, but a constant angle difference. A mistake of 3 – 4 degrees is tolerable. If the calibration was no success, it has to be repeated. For that to happen, start again at article 1.

Using the Autopilot

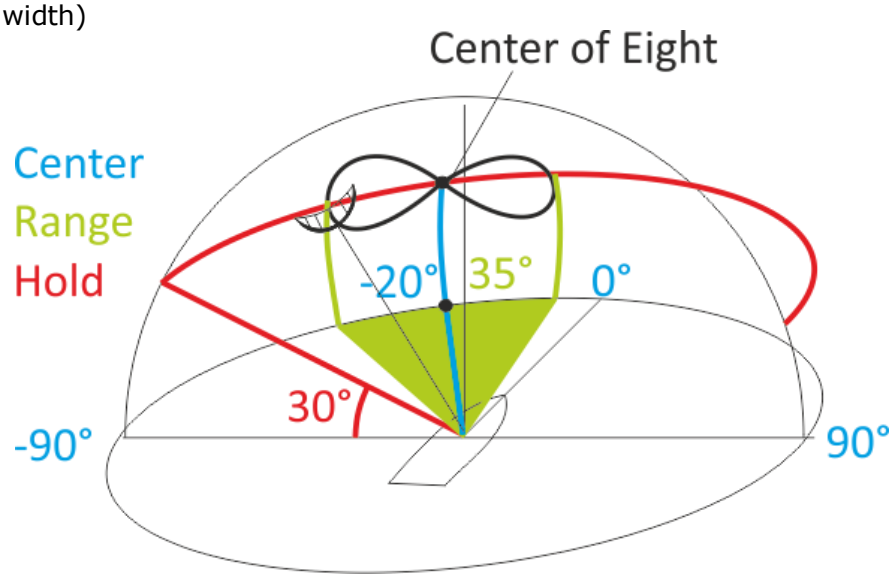
Please note the detailed description of the functions and controls of the autopilot at the article describing the remote control.
Before activating one of the autopilot functions, you should check the following things:

- The kite is perfectly trimmed? If you release the steering Joystick for some seconds with the kite in zenith position the kite stays there and doesn't turn to any direction
- The power is trimmed in a way that makes it easy to fly all autopilot functions manually without moving the steering joystick for more than 50% of its possible displacement and without pulling the joystick backwards.

Autopilot-Modes

Eight-Mode:
In this mode the autopilot tries to fly the kite in a lying figure eight. Mit diesem Modus beschreibt der Kite eine Flugbahn ähnlich einer liegenden Acht. Position and width of the eight can be defined by the user. The eight is defined by 3 parameters:

- Hold-angle
- Center-angle
- Range(width)



Hold-angle:
Is defined as the elevation angle of the center of the eight.
0° - Kite is on the water
90° - Kite is in Zenith position
We recommend to use a hold angle between 30 and 50 degrees.

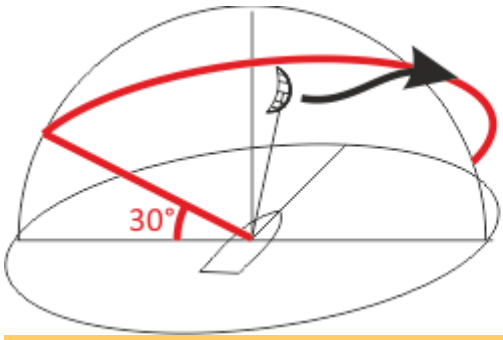
Center-angle:
Is defined as the azimuth angle of the center of the eight in relation to the direction the boat is driving.
0° - direction the boat is driving
-90° - 90° Portside
90° - 90° Starbord

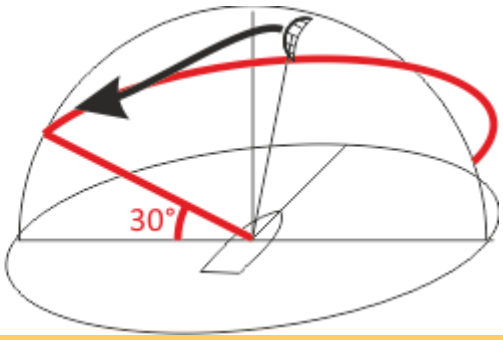
Range-angle:
Width of the lying eight.

Example1:	Example2:
Center: 0° Range: 30° ➔ Kite flyes between -15° and +15° azimuth angle	Center: -30° Range: 40° ➔ Kite flyes between -50° and -10° azimuth angle.

We recommend to use a range between 20 and 40 degrees.

Hold-Mode:
In this mode the autopilot tries to hold the kite in a fixed hold-angle at the edge of the wind window. The edge of the wind window chosen by the autopilot depends on the direction the kite is flying at the moment the mode is activated,

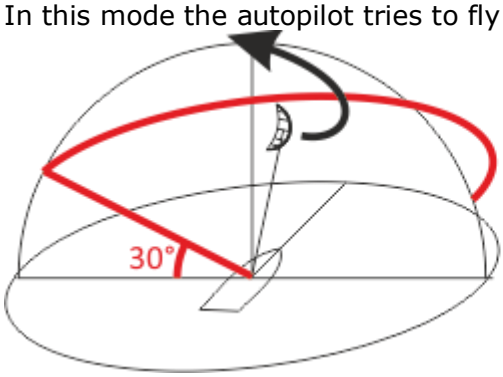


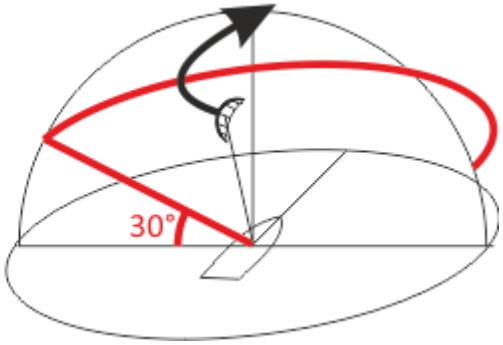


Attention! Activate this mode while the kite is parked close to the position that shall be hold.

Zenith-Mode:

In this mode the autopilot tries to fly the kite to zenith position and hold it there.





Control parameters

WARNING

Changing the control parameters sP,sI,sD, sPh,sIh,sDh and outputLimit in the Settings Menu of the Remote Control or App is not recommended. This can result in malfunction of the Autopilot.

Automatic control of a kite is a difficult job because of the changing environmental influences, different type of kites and sizes. So there is no perfect set of control parameter that fits every situation. That is why we made it possible to change the parameters **for advanced users only** that want to do this at their own risk to optimize their system. If you want to do that, you are doing this at your own risk. Please contact us before so we can discuss the effect of changes to your system!

Warranty Conditions

WINGit Sporting goods sales guarantees the initial purchaser of this product with respect to the fact that the product is free of major material and manufacturing defects.
Should damages which are due to material or manufacturing occur to this product within the first six (6) months after the purchase, WINGit Sporting goods sales will ensure that the damaged part is repaired free of charge or replaced if necessary. This guarantee is a personal guarantee to the original purchaser. It is not transferable and does not apply to rental, training and commercial use. The use of the guarantee can only be made when the product is registered accordingly within 7 days of purchase via email.

The product is to be registered via info@kite-boat-systems.com.

You will receive an email or a postal mail with the confirmation of your registration from us.

In addition to the proof of purchase/receipt, the name and address of the dealer and the date of purchase is submitted in a legible form in case of assertion of the warranty.

WINGit Sportartikelvertrieb UG reserves the right to decide on the existence of a warranty claim. WINGit Sportartikelvertrieb UG reserves the right to request submission of evidence of the existence of a warranty claim. This may be in the form of photographs representing the faults in detail or if necessary a will be asked to send the defective goods to the WINGit general agency. The shipment of the product must be done with prepaid postage. If the defectiveness of the product is detected by WINGit Sportartikelvertrieb UG, the framework of guarantee includes the repair or replacement of faulty parts. Further costs associated with the faulty product will not be covered by WINGit Sportartikelvertrieb UG. WINGit Sportartikelvertrieb UG is not responsible for any costs, losses or damages, nor for loss of use, which was caused by the failure of the product.

The warranty does not cover damages that:
are caused by abuse, misuse, negligence or by normal wear and tear, including but not limited to rigging with other than WINGit components; Damage caused by excessive exposure to solar radiation; Damage caused by excessive tightening or improper installation of screws, handling and storage; Damage caused by the use of the product on waves or shore breaks and damage that is caused by factors other than materials and manufacturing.

If a WINGit product is repaired or modified without our express permission, any warranty claims against WINGit Sportartikelvertrieb UG will be void.

The warranty period is determined from the original date of purchase even for repaired or replaced products

Before returning the defective goods to WINGit Sportartikelvertrieb UG you must first request an RMA (Return Merchandise Authorization) number and indicate this in all communication with WINGit Sportartikelvertrieb UG. Packages without a clearly visible RMA number will not be accepted.

For any claims, your contact is your dealer.

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