buildkitboards

How to Install the Xenith on the BKB Duo

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TOOLS:

- M2 Allen Wrench (1)
- M2.5 Allen Wrench (1)
- Hot Glue (1)
- Computer with an available USB-A connector
- (1)

PARTS:

- BKB Xenith (1)
- USB C Cable (1)

Step 1 — How to Install the Xenith on the BKB Duo



- Remove the enclosure from the deck and set aside the mounting hardware
- Unplug the motors, battery, and charge port

Step 2



• Flip the enclosure over and remove the two M3 bolts securing the heatsink to the enclosure



- Unplug the switch from the VESC
- Remove the VESC from the enclosure

Step 4



- Remove the two M3 bolts securing the heatsink to the VESC
- Remove the heatsink



Remove the charge port and switch from the enclosure

Step 6



- You will now need to secure the heatsink to the Xenith. You will use the two holes circled in green
- Remove any stickers from the bottom of the Xenith



- Secure the Xenith to the heatsink with the bolts you just removed (be sure to place the bolts in the threaded holes circled in green, previous step)
- Secure the Xenith and heatsink to the enclosure using the bolts you remove prior.

Step 8



- Since the switch on the Xenith is smaller, you will need an enclosure spacer to fill in the gaps.
 Please email use after placing your order so we can include one free of charge.
 - (i) If you already have your Xenith and didn't receive one, you can download the STL and 3d print it yourself (file is at the bottom of this guide). If you do not have a printer we will send one if you cover the shipping.
- Place adhesive (superglue) on the outer rim of the spacer. Then press it into the enclosure with the rim inwards.



- Install the charge port and switch onto the enclosure
 - (i) The switch and charge port have now swapped positions

Step 10



- Plug the switch into the Xenith
- Reconnect the charge port



- Plug in the yellow motor connectors and sensor wires.
- Plugin the power cable as shown

Step 12



- Now it is time to transfer the receiver. The lid slides off of the 3d printed housing
- Carefully remove the black glue, and then remove the 3pin connector



- Attach the connector provided with the Xenith to the receiver as shown
- Secure it with some kind of adhseive/glue
- Slide the lid back onto the case

Step 14



 Plug the receiver into the Xenith and place it in the enclosure



- Now its time to program the Xenith!
- Plug the USBC cable into the Xenith (it may require some force to snap-in, be careful!!)
- Plug the other end of the cable into your computer and turn the switch on



- Download the VESC Tool from this link
 - Click the download button in the upper right hand corner.
 - Once the file is downloaded, navigate to your downloads folder and unzip the compressed file VESC Tool 2.06.zip
 - Open the folder and double click vesc_tool_2.06
- If you get a blue security popup click more info, Run Anyway



- Once the VESC Tool is open you should get a popup saying that there is a new version available.
 Ignore this and click OK
- Click the AutoConnect button at the bottom of the screen. The VESC Tool should say Connected COM# in the bottom right
- Click Setup Motors FOC at the bottom of the screen

Step 18

Detect FOC Parameters on all VESCs	Detect FOC Parameters on all VESCs	Detect FOC Parameters on all VESCs
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g	Battery Type BATTERY_TYPE_LIION_3_0_4_2 · ± ® ©	Setup
Small Outrunner (~200 g)	Battery Cells Series 10 -	ਦੇ □Direct Drive
dva	Battery Capacity 9.000 Ah	بق Motor Pulley: 15 • ث
Medium Outrunner (~750 g)	THE ACCOUNTS OF THE ACCOUNTS O	Wheel Pulley: 40 •
		Wheel Diameter
- vinext		97.00 mm •
Battery	*Pievious vivext	◆Previous ®Run Detection (no CAN) ®Run Detection
Setup	Setup	
Directions	Directions	Directions
Close	Close	Close

- Select Medium Outrunner and then click next
- Change the battery cells series value to 10 and the capacity to 9.00Ah. Click next
- Change the motor pulley value to 15, wheel pulley to 40, and wheel diameter to 97 (if you have the speed upgrade, 48t pulley, or other wheels these values should be different). Then click run detection.



- You will then get a popup saying that the motors will spin and to make sure everything is clear. Verify that nothing will get caught by the wheels spinning, and then click ok.
- When the motor detection is completed you will get a popup similar to this (your values will be slightly different). Click ok
- Now its time to select the motor direction. You can click FWD on each motor to spin it in the forward direction. To determine which direction is correct place your finger on top of the motor with light force. Then click the FWD button and see what way the motor takes your finger.
 - If it drags your finger in towards the truck, it is spinning in the proper direction.
 - If it drags your finger out towards the enclosure it is spinning in the wrong direction. Select the inverted box next to the FWD button and repeat the process. It should now drag your finger in towards the trucks.
 - Repeat this process for LOCAL VESC motor and CAN VESC motor. Both motors should spin in towards the truck
- Then click finish

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- Then select general under motor settings. Navigate to the current tab at the top.
- Change the Battery Current Max value from 99.00 A to 60.00 A
- Change the Battery Current Max Regen value from -60.00 A to -30.00 A

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File ConfBackup Wizards Commands Terr	ninal Developer Help	- 5 ×	File ConfBackup Wizards Commands Ten	minal Developer Help	- 5 x
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Log Analysis			E Log Analysis		
E VESC Terminal			VESC Terminal		
SWD Prog			SWD Prog		
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- Then navigate to the Voltage tab at the top of the screen
- Change the Battery Voltage Cutoff Start value to 31.00 V
- Change the Battery Voltage Cutoff End value to 28.00V
- Click the **downward M arrow** on the right side of the screen
- At the bottom right of the VESC tool it will say MC Configuration Updated



- Navigate to the welcome and wizards tab
- Select Setup Input
- Click Next
- Click Next

Step 23

		🖉 App Setup Wizard	?	×
□ App Setup Wizard	? ×	PPM Mapping Map your PPM receiver.		Ø
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NRF controller.		PPM Pulselength Mapping		
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- Make sure PPM input is selected and then click Next
- Change the input deadband value from 15% to 10%

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- Now turn the remote on and apply full throttle on the remote
 - You should see the bottom bar fill with green
 - Then apply full brake on the remote. You should see the bottom bar fill with red
 - Repeat this by applying full throttle and full brake one more time
- Then select apply

Step 25

App Setup Wizard	? ×	App Setup Wizard	? ×	7 App Setup Wizard		? ×
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Duty Cycle No Reverse	Cancel		< <u>B</u> ack <u>N</u> ext > Cancel		< <u>B</u> ack <mark>, N</mark> ext :	> Cancel

- From the drop-down select Current No Reverse With Brake
- Click Next
- Click Next



• That's it! The Xenith is now programmed! You can unplug the USB cable and test the throttle. If something does not work, please re do the programming steps and follow them exactly.



- As it stands now, the remote indication will not work on the remote. This is because there is no voltage wire. So the light will continually blink.
 - We are working on an adaptor cable to ensure the battery indication works (timeline TBD for availability).
- In the mean time, you can use an Arduino jumper wire to connect the + voltage from the Xenith to the outer most pin on the receiver. This will allow the battery indication to work.

If you do this MAKE SURE to secure the wire!! Use some kind of hot glue or adhesive to make sure the wire does not come out of the Xenith OR the receiver