

CYC MOTOR LTD

X1 PRO

USER MANUAL

14S Controller Version 2.0

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Please read through the entire user manual as it contains important information for the X1 PRO's proper usage and reduced user risk. Keep the manual for reference.

Your personal safety is your own responsibility. If you have any questions or misunderstanding, please contact your X1 PRO dealer or component manufacturer.

Some X1 PRO accessories may present a choking hazard to small children. Keep these accessories away from children.

RIGHT-HAND and LEFT-HAND sides are determined by the bike handle, RIGHT-HAND corresponds to the right handle.

All components attached to the drive unit may be replaced only with identical components or components specifically approved by the bicycle manufacturer. This protects the drive unit against overload and damage.

The X1 PRO does not comply with EU or US e-bike regulations, it is for off-road and private-track use only. User please follow all local, state and federal regulations when registering and using the drive unit.

Operating Safety

Before the ride:

Check that the drive unit chain has the proper tension. Before connecting any power supply, make sure the power supply is completely connected.

Make sure that no loose wire is dangling from the bike that could be jammed into any moving parts.

Before turning on the system, ensure that the throttle can be twisted freely without friction, that the throttle can return to its original position and double check that the throttle is restored to its ORIGINAL POSITION.

Ensure that the chains are properly lubricated.

Check the chains regularly for proper tension.

Check electrical wires and plugs to see if there is any damage.



Proper Use:

Do not install anything other than the parts and accessories that came with the drive unit, doing so could damage the product,

Never interfere with the movable parts when the drive unit is connected to power supply.

The drive system can be activated by holding down the on/off button on the display.

Do not change the bike gear (note: this is different from the electronic gear in your app) when the drive unit is powering the bike, this will lead to excessive wear on chain and chain rings leading to chain failure.

To change gear, please use only your own pedaling power. After the gear is changed, you may accelerate again with the throttle.

Take off with the appropriate gear; choose the gear you can power at take off, then slowly twist the throttle to reach the desired power.

Overloading the drive unit for an extended period of time will damage the materials used.

The X1 PRO is splash proof, rain proof but not water proof, do not submerge it underwater or ride through streams.



General

Rated Voltage	36 - 72V D.C.
Max. rpm	> 180 rpm
Rated Power	3000W
Max Torque	≥ 180 N.m.
Overall efficiency	≥ 80%
Bottom bracket	BSA / PressFit
Color	Black
Total Weight	3.5kg
Bracket Materials	7075-T6
Crank Arm	7075-T6 170mm
Q Factor	190mm - 210mm
Compatibility	Bike frame with standard BB thread and width of 68 / 73/ 83 / 100, or press fit frames with 41mm diameter with width of 92mm or less

Gearbox

First-stage	1:6 hardened steel planetary
Second-stage	1:6 72T Chainring 11:63 63T Chainring 11:53 53T Chainring
Overall reduction ratio	~1:36



Parts List

Common Parts

Motor body (includes controller)

Chainring

Display

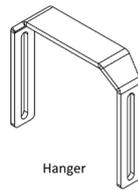
Thumb Throttle

1 to 4 Controller Wire

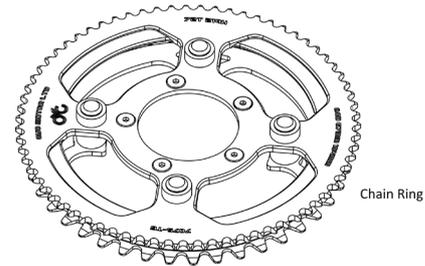
E-Brakes

219H Chain

Bike Hanger (83mm or 100mm)



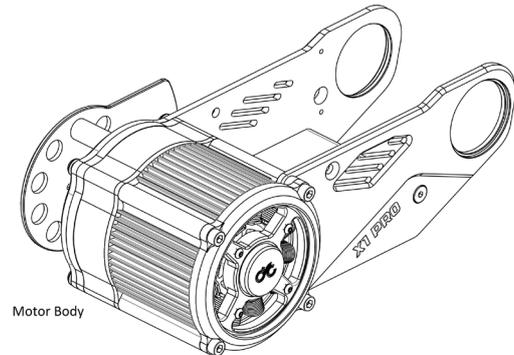
Hanger



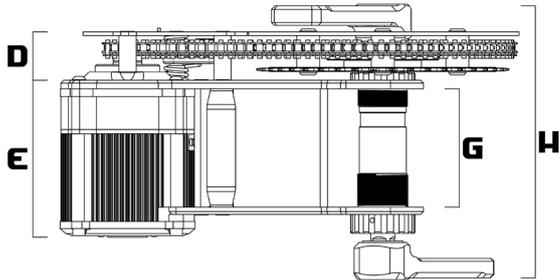
Chain Ring



Display



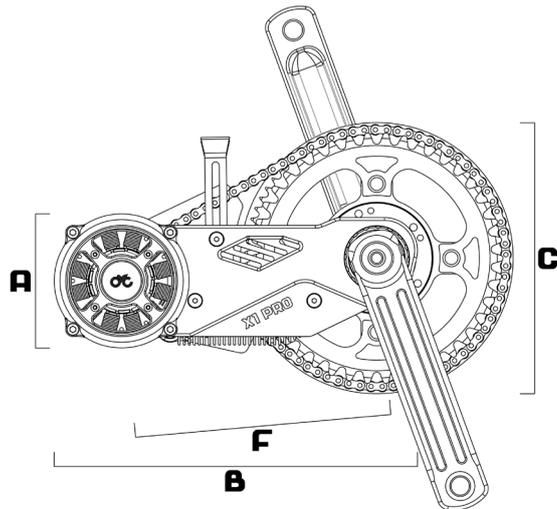
Motor Body



83mm BSA Torque Sensing Version

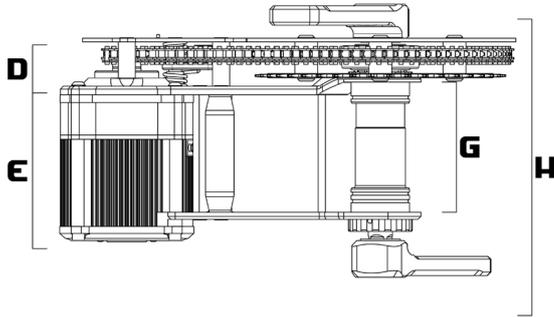
Dimensions

- A: 94mm
- b: 253mm
- c: 190mm
- D: 34mm
- e: 110mm
- F: 178.6mm
- G: 83mm
- H: 190mm



83mm BSA Torque Sensing Version Extra Parts

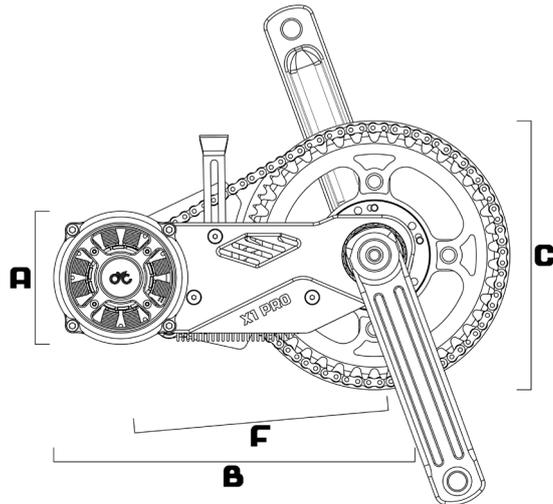
- 83mm BSA Torque Sensing Version Crank Set
- 3mm, 5mm, 7mm Spacers



92mm PressFit Torque Sensing Version

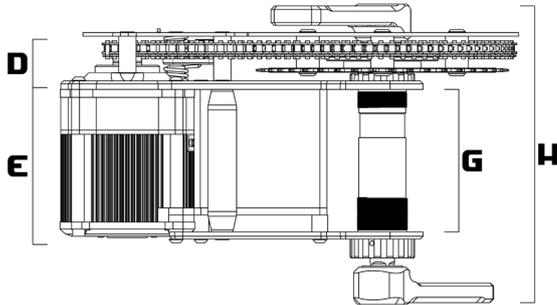
Dimensions

- A: 94mm
- b: 253mm
- c: 190mm
- D: 34mm
- e: 110mm
- F: 178.6mm
- G: 92mm
- H: 190mm



92mm PressFit Torque Sensing Version Extra Parts

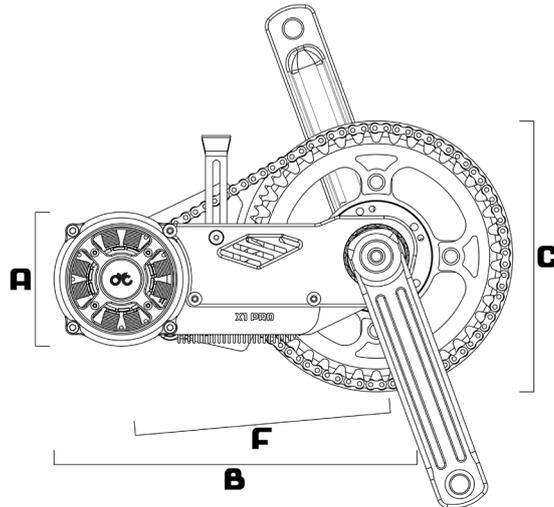
- 92mm PressFit Torque Sensing Version Crank Set
- 1mm, 2mm Spacers



100mm BSA Torque Sensing Version

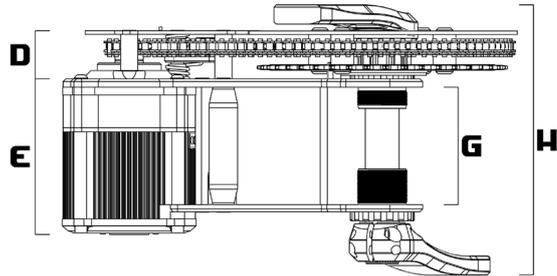
Dimensions

- A: 94mm
- b: 253mm
- c: 190mm
- D: 34mm
- e: 110mm
- F: 178.6mm
- G: 100mm
- H: 210mm



100mm BSA Torque Sensing Version Extra Parts

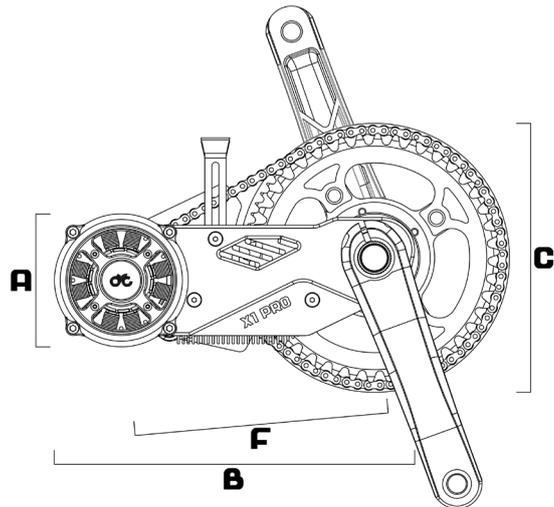
- 100mm BSA Torque Sensing Version Crank Set
- Extra Plate & Spacers



83mm BSA Cadence Sensor Version

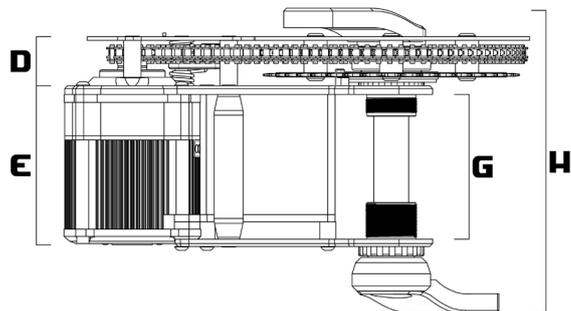
Dimensions

- A: 94mm
- b: 253mm
- c: 190mm
- D: 34mm
- e: 110mm
- F: 178.6mm
- G: 83mm
- H: 190mm



83mm BSA Cadence Sensor Version Extra Parts

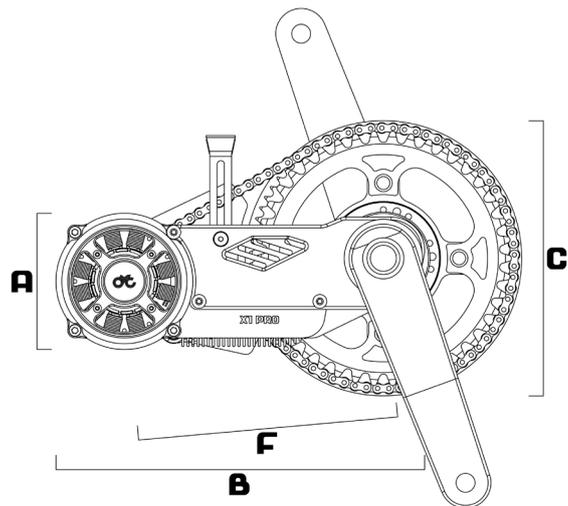
- 83mm BSA Cadence Sensor Version Crank Set
- 3mm, 5mm, 7mm Spacers



100mm BSA Cadence Sensor Version

Dimensions

- A: 94mm
- b: 253mm
- c: 190mm
- D: 34mm
- e: 110mm
- F: 178.6mm
- G: 100mm
- H: 210mm



100mm BSA Cadence Sensor Version Extra Parts

- 100mm BSA Cadence Sensor Version Crank Set
- Extra Plate & Spacers



Motor

Motor type	In-runner
Stator O.D.	80mm
Stator I.D.	46.4mm
Thickness	40mm
Stator lamination	0.2mm
Magnet	N45SH (>150°C)
Wiring	0.7mm
Efficiency	≥ 90%
Maximum RPM	≈ 6500rpm
Rated Torque	4N.m.
Transparent cover	Tempered glass
Epoxy sealed	Yes

Controller

Chipset	Spintrol
Rated Voltage	36-72V D.C.
Max. input current	65A
Bluetooth	BLE
Mobile App	IOS / Android
Throttle Control mode	Current / Power / rpm
PAS Torque simulation	9-Axis gyroscope
Mounting position	Integrated between bracket / mounted separately



Hex Keys

3mm hex key for screws
&
10mm hex key for crank screws



Wrench



Wire Cutter



Press Fit Bottom Bracket Removal Tools



Crank Puller

for removing the crank arms



Cutter



Bottom Bracket Tool

for installing and removing the 20
splined cover caps



Bottom Bracket Tool

for installing and removing
the bottom bracket caps,
the tool needs to have an
opening on its end as shown

03 INSTALLATION

02 Adjusting the Width of the Bottom Bracket



Mounting Options for Controller

The controller can be mounted right below the bottom bracket or mounted under the seat.

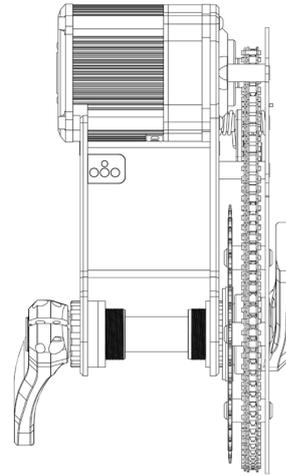
NOTE: The controller comes pre-assembled at the bottom bracket.

Adjusting the Width of the Bottom Bracket

In order for the X1 PRO to fit on all different widths of bottom brackets, there are several spacers that come with the pack, these spacers are designed to provide the 68mm and 73mm bottom brackets with necessary spacing between the X1 PRO brackets.

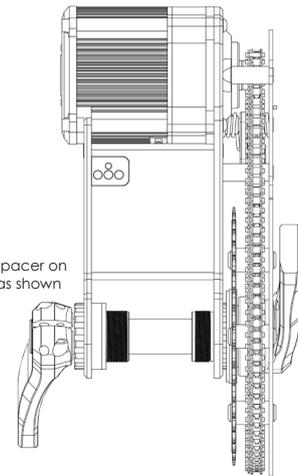
The preferred mounting set-ups are shown on the right for 68mm and 73mm bottom brackets.

Before mounting the motor body to your bike frame, the existing crank system and bottom bracket must be removed.



68mm bottom bracket requires a 7mm and a 5mm spacer on the left and a 3mm spacer on the right as shown

73mm bottom bracket requires a 7mm spacer on the left and a 3mm spacer on the right as shown

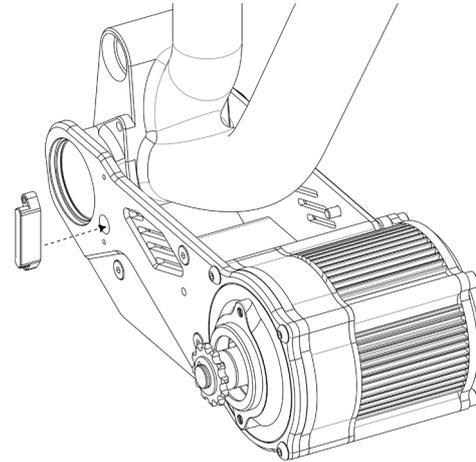




Mounting the Cadence Sensor

The Cadence Sensor is to be installed on the right side of the X1PRO.

The outlet of the PAS sensor passes through the internal side of the plate and connects to the controller via the 3-pin socket at the controller end.



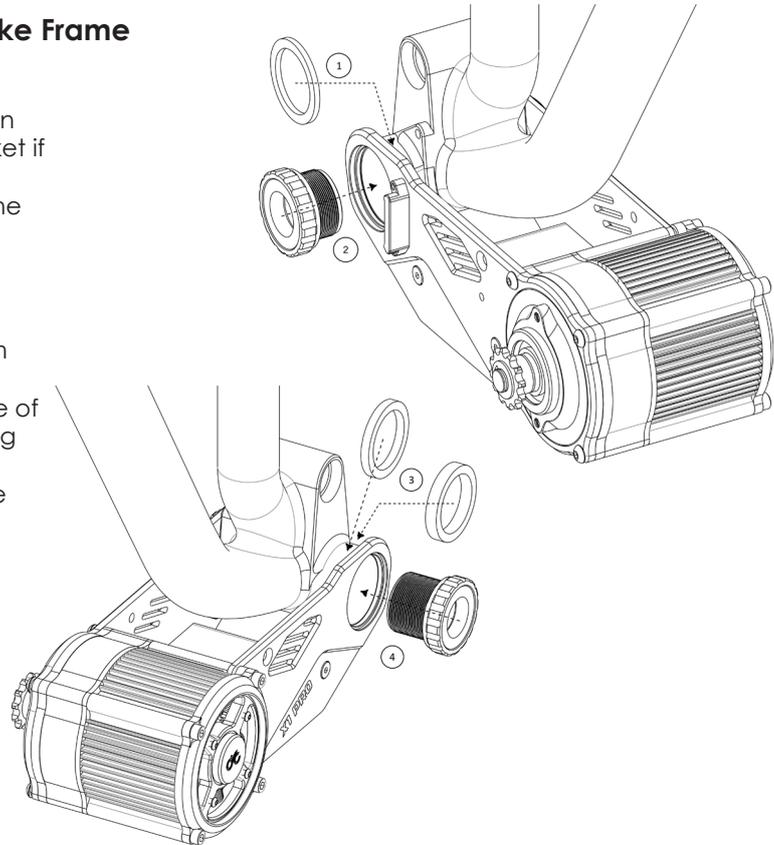
03 INSTALLATION

04 Mounting the X1 PRO for BSA Versions



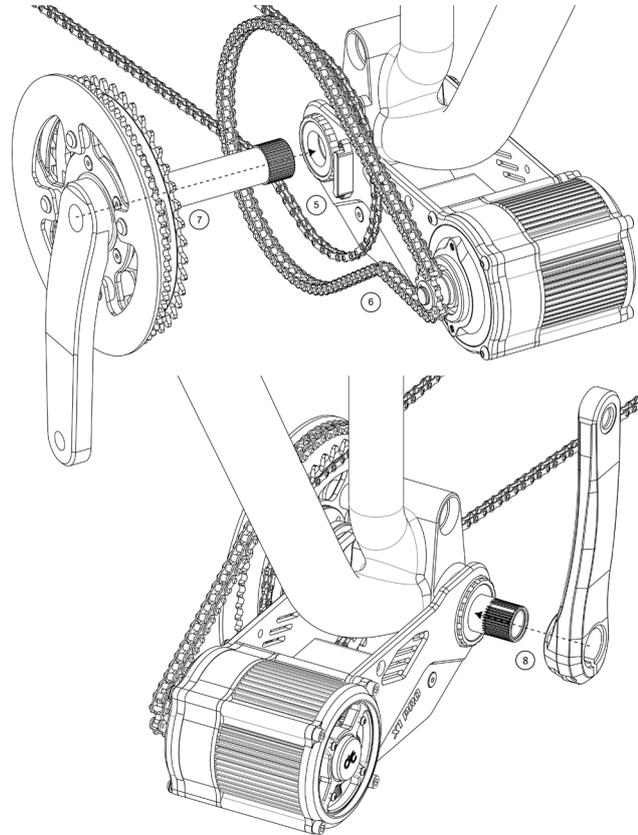
Mounting the BSA Crank Versions to the Bike Frame

1. Line up the motor body with your bike at the bottom bracket. (Place a 3mm spacer between the right mounting plate and the bottom bracket if you have a 68mm wide bottom bracket)
2. Thread in the right mounting bracket through the rear hole on the right mounting plate (and the 3mm spacer if required) into the bike's bottom bracket. Note that the thread is in reverse.
3. If you have a 68mm wide bottom bracket, use a 5mm and a 7mm spacer, if you have a 73mm wide bottom bracket, use a 3mm and a 7mm spacer. Place the spacers between the left side of the bike's bottom bracket and the left mounting plate.
4. Thread in the left mounting bracket through the rear hole on the LEFT mounting plate (and the spacers) into the bike's bottom bracket.





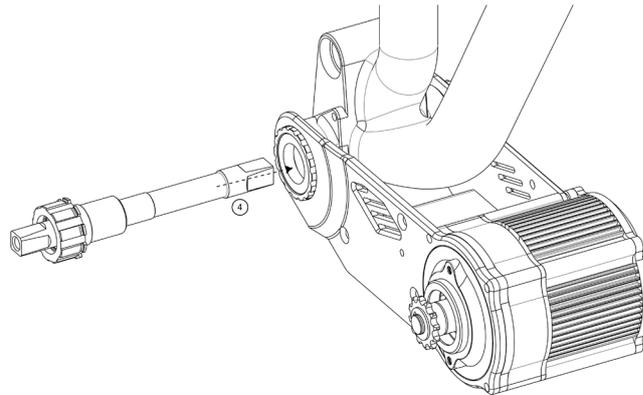
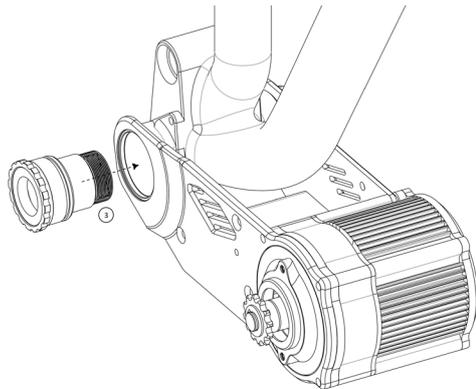
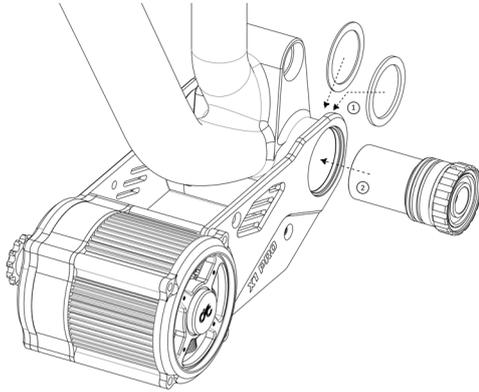
5. Hang your bike chain on the spindle.
6. Put on the golden chain, it lies on the outside of the bike's chain.
7. Put on the crank. Your bike chain should go on the inner chainring and the golden chain should go on the outer chainring. (If you find it difficult to install the golden chain, please unscrew the 5 counter-sunk screws on the chainring, put on the golden chain and then screw on the screws again.)
8. Put on the left crank arm and screw on with crank bolt.





Mounting the PressFit Crank Versions to the Bike Frame

1. Line up the motor with your bike at the bottom bracket. (Place the necessary spacers between the LEFT mounting plate and the bottom bracket if there is a gap between the two parts.)
2. Insert in the LEFT mounting bracket (The one with a wire coming out) through the rear hole on the LEFT mounting plate into the bike's bottom bracket. Please use the pressfit installation tools.
3. Thread in the RIGHT mounting bracket through the rear hole on the RIGHT mounting plate into the bike's bottom bracket.
4. Insert the spindle from the RIGHT side of the rear mounting bracket hole through to the LEFT side of the rear mounting bracket hole.

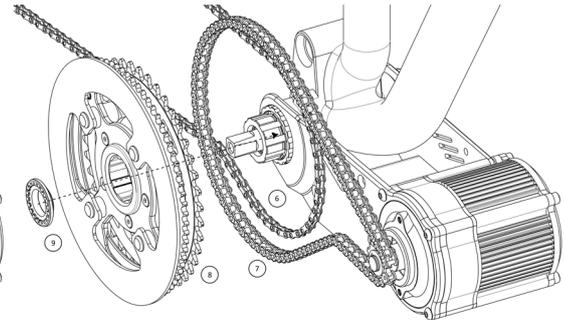
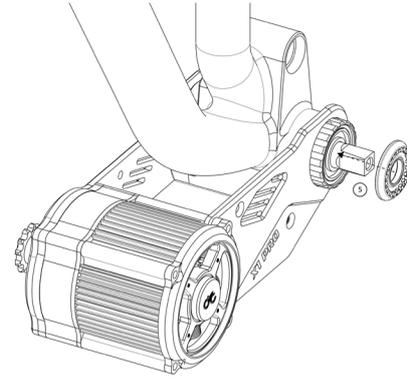
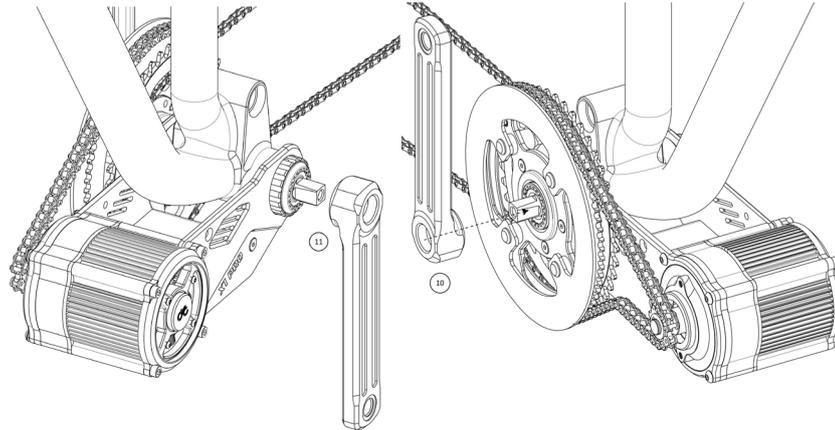


03 INSTALLATION

07 Mounting the X1 PRO for PressFit Versions



5. Screw on the left cap.
6. Hang your bike chain on the spindle.
7. Put on the golden chain, it lies on the outside of the bike's chain.
8. Put on the crank. Your bike chain should go on the inner chainring and the golden chain should go on the outer chainring. (If you find it difficult to install the golden chain, please unscrew the 5 countersunk screws on the chainring, put on the golden chain and then screw on the screws again.)
9. Screw on the right cap.
10. Put on the right crank arm and screw on with crank bolt.
11. Put on the left crank arm and screw on with crank bolt.



03 INSTALLATION

08 Install the Tensioner on to the X1 PRO



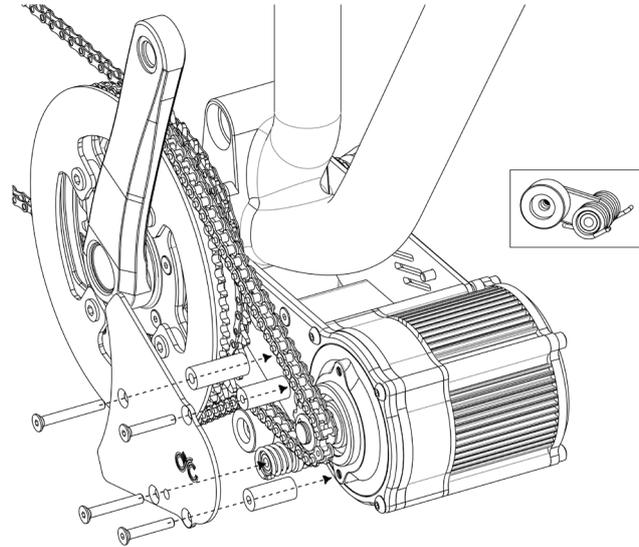
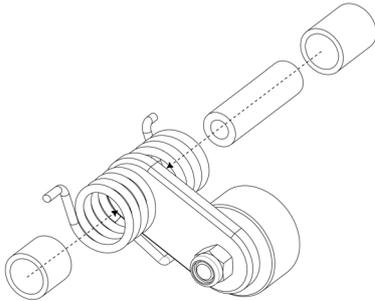
Install the Tensioner on to the X1 PRO

The spacers next to the sprocket should measure 25.5mm, use a M5*30mm countersunk screw for the spacer.

The spacer for the full carbon cover should measure 31.35mm, use a M5*40mm countersunk screw for the spacer.

Assemble the tensioner as shown on the right. Make sure that the arm of the spring faces downwards.

Should the tensioner ever comes apart during installation, reassemble it according to the diagram below.

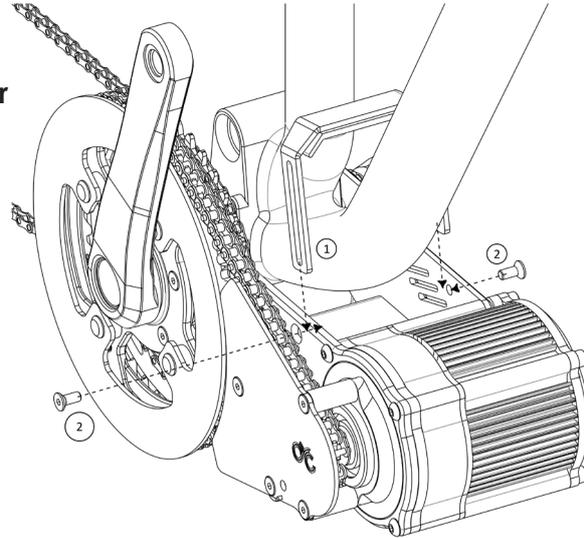




Mounting the X1 PRO to your bike with the Hanger

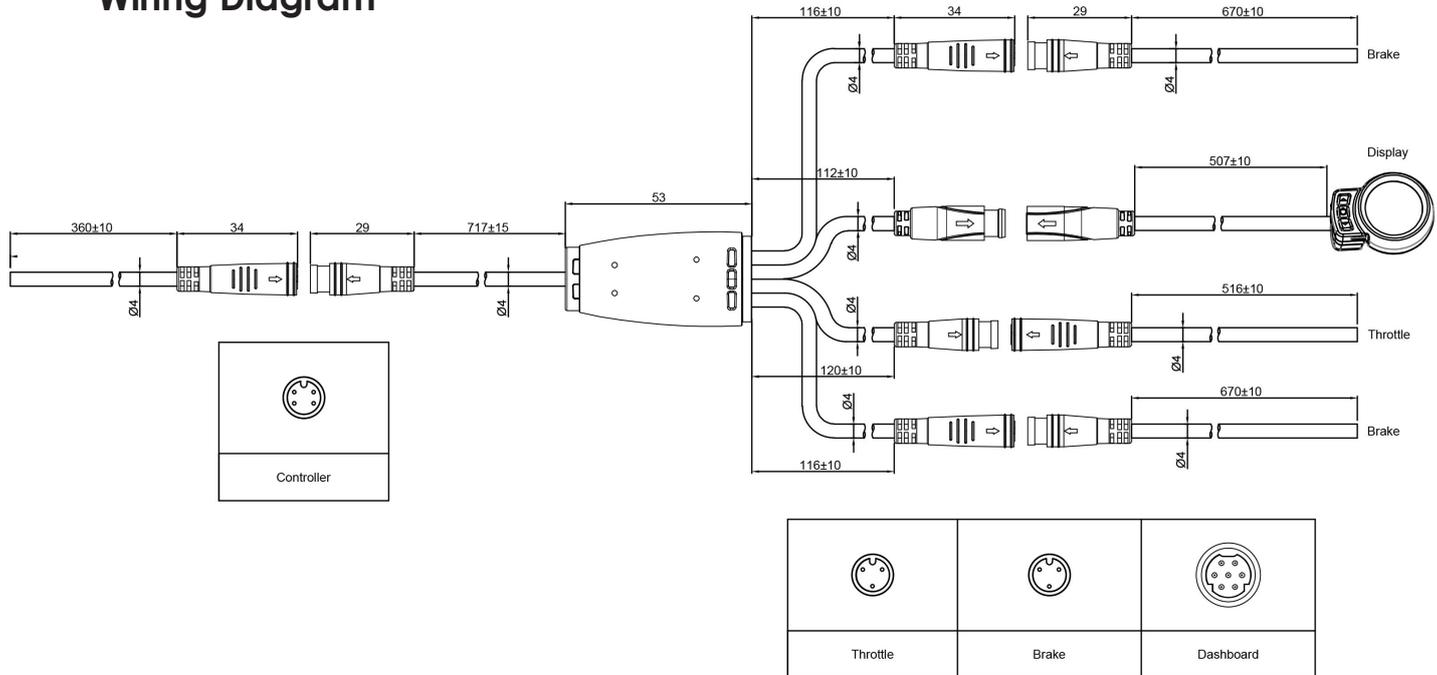
The X1 PRO comes with a hanger (either 83mm or 100mm), it is used to securely fasten the X1 PRO to your bike at the down tube. The installation procedures are shown on the diagram.

1. Take out the rubber mouting tape and stick it on the inner surface of the hanger, then insert the hanger from the top of the downtube to the the X1 PRO. Make sure that the hanger securely clamps to the downtube.
2. Use a M5*14 countersunk screw and a M5 lock nut to fasten the hanger to each of the side plates.





Wiring Diagram





You are advised to regularly maintain, clean and check on the status of the bike as dirt may accumulate throughout the rides. We recommend that users should inspect the bike condition before and after the ride.

Store the bike in a cool and dry place, sheltered from direct sunlight.

Disconnect electronic supplies from the drive unit before beginning any work (e.g. inspection, repair of the bike, maintenance work etc.) on the bike, transportation or storage.

Unintentional activation of the drive unit could lead to serious damage or injury.

Never reach into the chains, gears or any moving parts while the bike is still in operation.

The drive unit can get quite hot after use, be sure to give it some time for cooling before maintenance.

Do not attempt to disassemble or modify the drive unit. The drive unit may only be repaired and maintained by qualified expertise and only with original spare parts. This will ensure that the safety of the drive unit is maintained.

However, the active moving parts (e.g. chain, gear, speed reducer etc) should be regularly lubricated to restore performance. In case of any abnormal activities, stop using the drive unit immediately and contact your X1 PRO dealer.

Do not attempt to replace the X1 PRO parts with the parts you found at your local store as the materials used in the drive unit are specifically selected for their purposes.

All bolts, nuts and screws require correct tightening, if there are anything loose, stay off the bike.



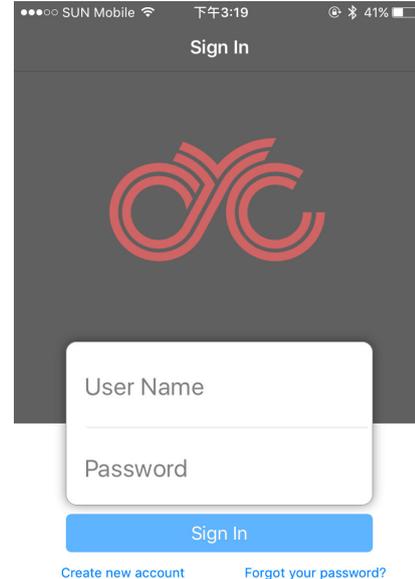
The CYC Motor App

The CYC Motor App is an app designed to control the controller via smart phones, users can connect their smart phone to the controller using bluetooth and change the settings according to their preference. The smart phone can also become a dashboard when riding the bike. Users can find the mobile app by searching "CYC Motor" in the App Store or Google Play Store.

First Things First

First of all, please spend a few minutes and register yourself for a CYC Motor Account. Then you can log in to your account via the app to unleash your potential!

Once you are logged in to your account, you can go to **Settings > Bluetooth > On** and connect your phone to your drive unit. After that, go back to settings menu and tap on **Download from controller**, change your settings, then **Upload to controller**. Details of the app are written below.



05 MOBILE APP

The Dashboard

The dashboard is the main user interface of the app, it is a real time display of your bike status; the speed of your bike and four other parameters of your own choice. You may also choose your electronic gear and have a number of presets of your choice.

1. **User Interface:** User can change the profile image, user profile, find nearby friends, CYC Motor news, online forum, online store and logout.
2. **Electronic Gear:** displays your current gear setting. Users may choose your gear preference by pressing up and down.
3. **Preset:** displays your current preset mode. There are three preset modes: beginner, legal and extreme. Users can change their preset settings in the settings menu. Parameters that can be changed includes throttle settings, power limit, speed limit, PAS config etc.
4. **Dashboard** displays a maximum of FIVE parameters of your choice, your preferences can be changed in the general settings menu.
5. **Trip Planner:** Trip planner allows users to mark out a route that you desire.
6. **Data Logger:** it allows users to set and record the bike's performance during the ride. Users may review the records after your journey.
7. **Virtual Racing:**
8. **Settings:**

02 Dashboard





Setting the Preset Modes

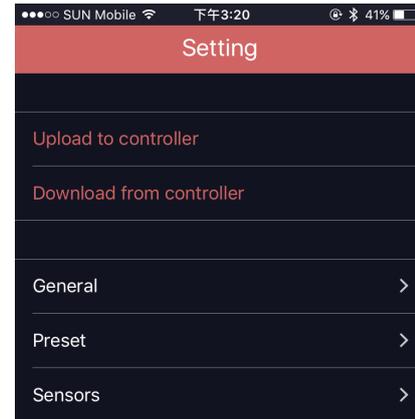
Users may go to **Settings > Preset** to change the preset settings.

Preset Name: Users may select the mode that you desire to change and rename.

Throttle:

- **Input Throttle Mode:** Allows user to select your desired function when turning the throttle.
- **Disbld (WOT/Zero):** Disables user's throttle
- **Current (A):** User throttle controls the current, from 0A to max current that is set.
- **Speed (kph):** User throttle controls the speed of the bike, from 0 kph to max speed that is set.
- **Power (W):** User throttle controls the power to the motor controller, from 0 watt to max power.
- **Ramp Down Rate:** The time it takes for the throttle to ramp down,
- **Ramp Up Rate:** The time it takes for the throttle to ramp up. A lower value results in a longer time for a gentler application of the throttle.
- **Fast Ramp Up Rate:** This is an additional ramp up rate used only if the controller does not detect any current flow from the battery. The controller output quickly and reach the point where the throttle would have reached then drops back down to the Ramp Up Rate limit.

- **Fast Ramp Up Threshold:** The threshold current that the fast ramp up rate must reach for it to switch back to Ramp Up Rate.
- **Throttle Auto Cruise:** Enables you to have a cruise mode if you hold the throttle and in the same position over a period of time. The time options indicate how long you need to hold the throttle before the Throttle Auto Cruise activates
- **Cruise Hold Range:** This sets the voltage sensitivity for the Throttle Auto Cruise to activate. It is designed so that even if you have a twitchy thumb, you can still activate Throttle Auto Cruise by setting a higher voltage range.





Power Limit:

- **Current Limit:** Sets the controller's current limit
- **Power Limit:** Sets the controller's power limit

Speed Limit:

- **Max Speed Limit:** Sets the bike's speed limit
- **Min Start Speed:** Sets the minimum speed that needs to be achieved before the controller responds with any output.
- **Max Motor RPM:** Sets the motors maximum RPM.
- **PAS Config:**
- **Start RPM:** The RPM the user is pedaling for the controller to start powering the motor in the PAS modes.
- **Stop RPM:** The RPM of the pedal to indicate that the user has stopped pedaling.
- **PAS Assist Mode:** When turned ON, the motor will power up automatically whenever you are pedaling.
- **Assist Start Power:** The power provided by the controller when the motor is turned on by PAS assist mode.

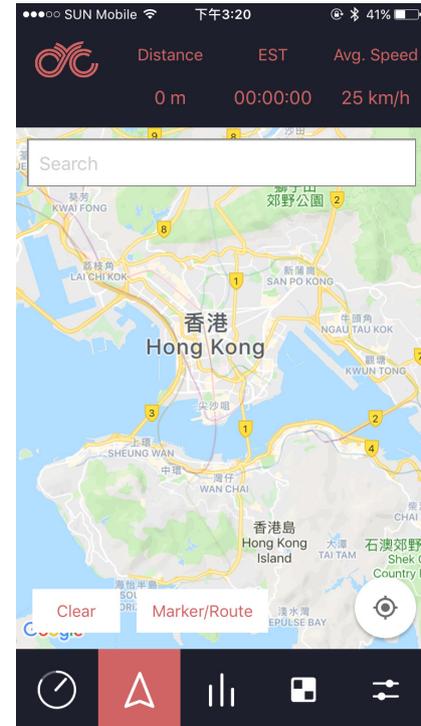
Setting the Electronic Gear

- **Gear Setting:** Allows you to change the settings for their respective gear number.
- **RPM Limit:** The percentage of the maximum RPM of this gear setting.
- **Power Limit:** The percentage of the maximum power of this gear setting.
- **Current Limit:** The percentage of the maximum current of this gear setting.
- **Speed Limit:** The percentage of the maximum bike speed of this gear setting.
- **Assist Start Power:** The pedaling power that must be reached before PAS mode starts
- **Assist Power Factor:**
- **Automatic Gear Setting:** The gear settings when switched to A gearing.
- **RPM Limit:** The percentage of the maximum RPM of this gear setting.
- **Power Limit:** The percentage of the maximum power of this gear setting.
- **Current Limit:** The percentage of the maximum current of this gear setting.
- **Speed Limit:** The percentage of the maximum bike speed of this gear setting.
- **Assist Start Power:** The pedaling power that must be reached before PAS mode starts



Trip Planner Interface

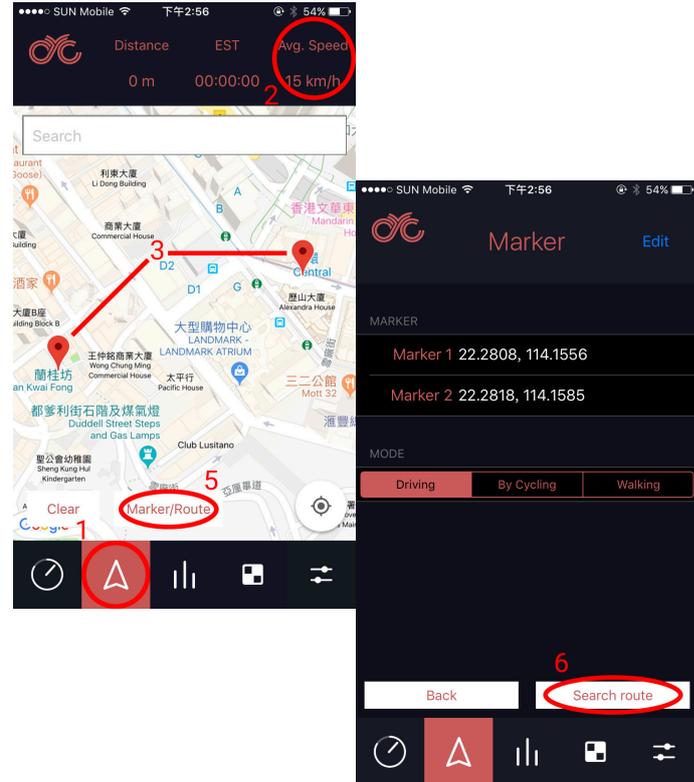
- **Distance:** The total distance of the route.
- **EST:** Your estimated time of the journey based on your **Avg. Speed**.
- **Avg. Speed:** The average speed of your bike.
- **Clear:** Clears out all the markers on the map.
- **Marker/Route:** Takes you to the Marker Interface.
- **My_location Icon:** Automatically locates your current location on the map via GPS.





Setting the Trip Planner

1. Go to the **Trip Planner** interface
2. Enter the **Avg. Speed** on top right of the screen, this sets your bike speed. (The system records your bike statistics automatically for your reference, it can be found at **Settings > General > Lifetime Statistics > Avg. Speed.**)
3. Locate and hold down on the map for your starting point and your end point, you may tap on the **my_location** icon at the bottom right of the map to locate your current location (you still need to hold down on the screen for your starting location). You may also use the search bar at the top of the map to find your desired location.
4. Locate on the map your in-between check points (if any).
5. Tap on **Marker/Route** and enter the marker interface.
 - **Marker:** Lists the marked locations expressed in latitude and longitude respectively.
 - **Mode:** Finds the kind of route you prefer to follow.
6. Choose your desired route searching Mode and hit search route.





Data Logger Interface

Data Logger allows the controller to record the bikes performance every second, you may choose to save the record at the end of the recording.

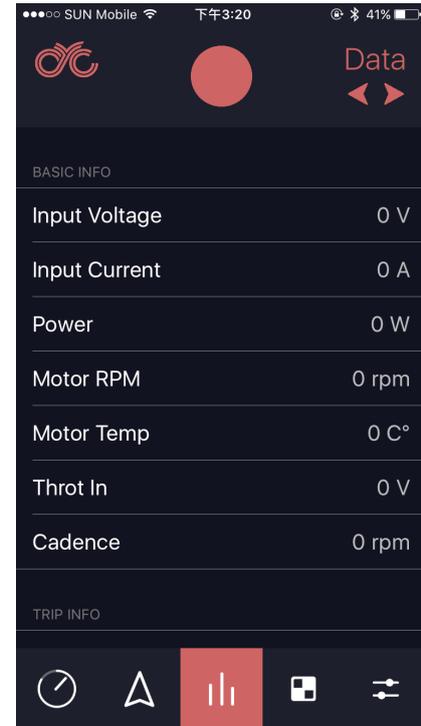
Record Button: Start and stop the recording of your bike's performance.

Data: Displays the bikes performance (e.g. basic info, trip info etc) and updates every second.

Chart: Displays up to two data parameters in a graph loaded from your data record.

Stat: Displays your data parameters loaded from your data record.

Record: Displays all your saved records, you may choose to load, rename or delete your record.





Setting the Data Logger

Other Settings

General: General settings

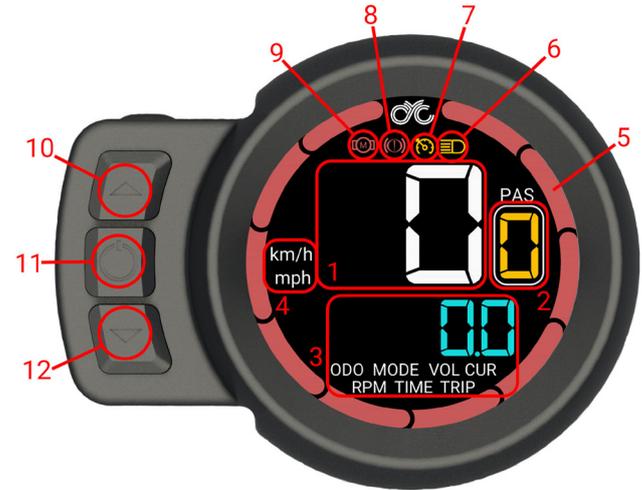
- **Data Display Rate:** Time interval before the next display update. 1Hz = 1 time per second.
- **Data Logging Rate:** Time interval before the next logging update.
- **Display Unit:**
- **Main Display Status Bar:** The parameter to be displayed at the middle of the Dashboard
- **Top Left Display:** The parameter to be displayed at the top left of the Dashboard
- **Top Right Display:** The parameter to be displayed at the top right of the Dashboard
- **Bottom Left Display:** The parameter to be displayed at the bottom left of the Dashboard
- **Bottom Right Display:** The parameter to be displayed at the bottom right of the Dashboard
- **Motor Direction:** The direction of rotation of the motor.

06 DISPLAY



After installation, you can turn on the display by **hold-ing down the power button** until the display turns on.

1. Speed Meter: Shows the speed of your rear wheel in km/h or mph.
2. Gear: Shows the current gear you are engaged in.
3. Modes: shows the current mode you are in:
 - ODO: Total distance travelled since kick-off.
 - MODE: Shows the current preset level you are in.
 - RPM: Shows the current motor RPM.
 - TIME: Shows the time since display is turned on.
 - CUR: Shows the current output from controller.
 - VOL: Shows the battery voltage.
 - TRIP: Shows the total distance travelled since the display is turned on.
4. Speed Unit: The unit of speed to be displayed, the unit is in either km/h or mph.
5. Voltage Level: Shows the current voltage level, the default setting is for 13s 48V battery.
6. Head Light: Coming Soon
7. Cruise Mode: When cruise mode is turned on, it activates when the throttle is pressed and hold for a set time interval. It is default to OFF.
8. Break Indicator: Turns on when electronic break is activated.
9. Motor Error: Activates if motor malfunctions.
10. Up button
11. Power button: Press to change mode; press and hold to turn on and off the device.



To change the preset mode, **press and hold the up button for 3 seconds** on the display until the number of the mode changes.

To change gear, **press the up or down button**.

To change mode, **press the power button** on the display.

07 QUICK START



After initial installation, you can turn on the display by holding down the power button until the display turns on and your X1PRO is ready for a ride!

From factory settings, the controller has **3** Presets, to change the current preset mode, **press and hold the up button for 3 seconds** on the display **until the number of the mode changes**, the numbers correspond to the following presets.

Mode 1, EU Legal: This preset is set to limit the motor to satisfy with the EU laws.

Gear	Max Speed (km/h)	Motor RPM	Max Power (W)
0	0	0	0
1	16	2600	250
2	21	3200	250
3	25	3800	250

Mode 2, US Legal: This preset is set to limit the motor to satisfy with the US laws.

Gear	Max Speed (km/h)	Motor RPM	Max Power (W)
0	0	0	0
1	17	2600	750
2	22	3200	750
3	26	3900	750
4	29	4500	750
5	32	4800	750

Mode 3, Ludicrous: This preset unlocks the full potential of the motor and is designed for more experienced users.

Gear	Max Speed (km/h)	Motor RPM	Max Power (W)
0	-	0	0
1	-	2800	1050
2	-	3850	1750
3	-	4550	2450
4	-	5950	2975
5	-	7000	3500

There isn't a limit for max speed in ludicrous mode.

Press the up or down button on the display to change the gear to your preferred setting.

The control of the X1PRO controller is fully flexible, by using our CYC Motor App, you can change the output settings according to your preference. To change the preset settings, please refer to **Section 6 Mobile App** for details.

08 TERMS AND CONDITIONS



We offer a 1-year warranty to our motor, gear box and controller. Man-made failure and other parts are excluded from our warranty.

For any replacement parts, please visit your X1 PRO dealer or the CYC Motor online store, www.cycmotor.com

