

CYC MOTOR LTD

X1 PRO GEN 2 USER MANUAL

ASI Controller Version

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General Safety

Kindly read through the entire user manual. This manual contains important information to reduce user risk as well as instructions for this product's proper use. Do not discard the manual but keep it for reference.

Note that the user's personal safety remains the user's responsibility and that the user must contact CYC Motor Ltd or their official product dealer directly for any further guidelines or assistance.

Never interfere with the movable parts when the drive unit is connected to a power supply. This could result in serious injury if the system is accidentally engaged.

This product is a powerful motor system that is dangerous for children and must be handled by an adult at all times. Small components and accessories may also present a choking hazard. Keep the motor system and accessories out of reach from children.

All components and accessories may only be replaced with identical components directly supplied by CYC Motor Ltd or an official product dealer. CYC Motor Ltd cannot be held liable for any damage as a result of using unapproved parts.

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 using and registering this drive unit.

Operating Notice

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

Before the Ride

Ensure that the drive unit chain has the proper tension. Incorrect tension could cause jamming of the system and result in injury while riding. Inspect the chain tension regularly.

Ensure that the chains are properly lubricated. Cleaning and lubricating your chain with regular bicycle chain cleaner, is advised regularly.

When connecting a power supply, make sure the power supply is completely connected. Faulty connection could result in a short circuit and damage the controller or batteries.

Inspect all electrical wires and plugs for damage regularly.

Secure all wires properly. Ensure that no loose wires are 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 and that the throttle can return to its original position without restriction. This is to prevent any uncontrolled response of the system.



Installation & Use

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

The drive system can be activated and deactivated 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 or other gear related failure.

When changing gear, only use your own pedaling power. After the gear is changed, you may accelerate again with the throttle.

Take off with the appropriate gear; choose a gear you can power at take off using your own pedaling power, 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.

Disclaimer

If you require any more information or have any questions about the user manual disclaimer, please feel free to contact us via email at support@cycmotor.com or call +852 3690 8938.

All the information contained in this user manual is published in good faith and for general informational purposes only. CYC Motor Ltd does not make any warranties about the completeness of this information and encourages further inquiries as stated above if needed. CYC Motor will not be held liable for any losses and/or damages in connection with the use of this product. The use of this product is at the user's own risk.

Notice: Please contact CYC Motor if unsure about the assembly instructions or for any further assistance as CYC Motor will not be held liable for any losses and/ or damages caused by the assembly.



General

Rated Voltage	36V - 72V DCV (nominal) (10s-20s Batteries)
Max. rpm (at Crank)	> 300 rpm
Rated Power	3000W(52V)-5000W(72V)
Max Torque (at Crank)	150 N.m (BAC855) & 250 N.m. (BAC2000)
Overall efficiency	> 90%
Bottom bracket interface	Square taper
Color	Anodized Black
Weight (Motor & controller only)	3.8 kg
Total weight with crankset & BB	5.6 kg
Bracket Materials	7075-T6
Crank Arm	7075-T6 165mm or 170mm
Q Factor	190mm or 208mm (Fat Bike)
Compatibility	Bike frames with standard BSA thread with width of 68 - 83mm / 100mm / 120mm, or press fit frames with 41mm diameter & width of >92mm / 107 - 109mm
Bike Chainring included	(11/53T option) 32T Bike Chainring (11/63T option) 38T Bike Chainring (12/72T option) 42T Bike Chainring

Gearbox

First-stage	1:6 hardened steel planetary
Second-stage	219H Chain
Overall reduction	1:28.9 (11/53T)
ratio from motor to crank	1:34.4 (11/63T) 1:36 (12/72T)

Accessories

Brake sensor	Magnetic sensor for hydrolic brakes
Wiring	Waterproof wire (Julet connector)
Display	500c or 750c (APT display)
Throttle	Thumb Throttle, Half-twist throttle, or Full Throttle
Torque sensor	Integrated in the bottom bracket



Package Inclusions

Common Parts

Motor body

Controller

Chaining

500c/ 750c Display

Thumb/ Half-Twist/ Full Throttle

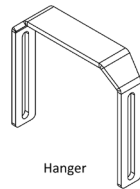
1 to 4 Wiring Harness/ 1 to 2 Wiring Harness

Brake sensor (Optional)

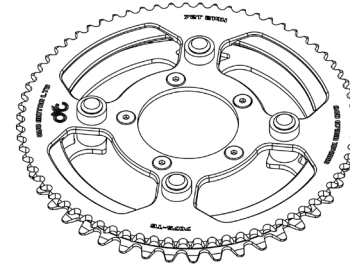
219H Chain

Bike Hanger

Speed Sensor



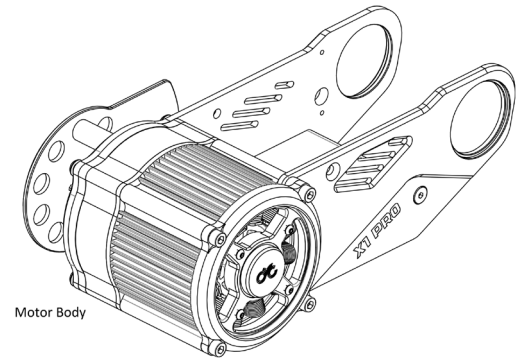
Hanger



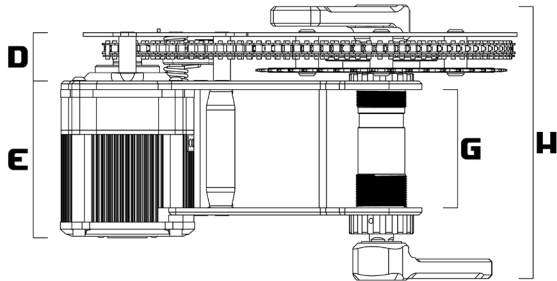
Chain Ring



Display



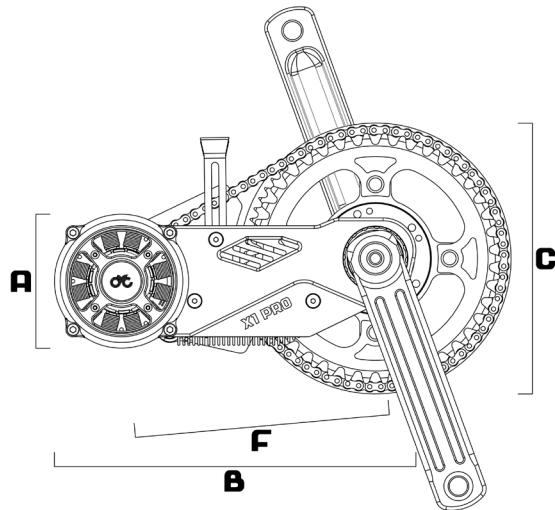
Motor Body



68-83mm BSA Torque Sensing Version

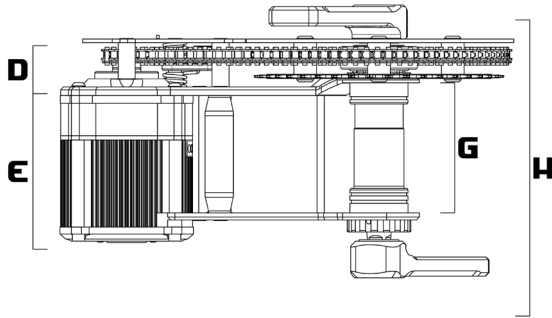
Dimensions

- A: 94mm
- B: 253mm
- C: 140mm / 165mm / 190mm
- D: 35.4mm
- E: 110mm
- F: 178.6mm
- G: 83mm
- H: 190mm



68-83mm BSA Torque Sensing Version Extra Parts

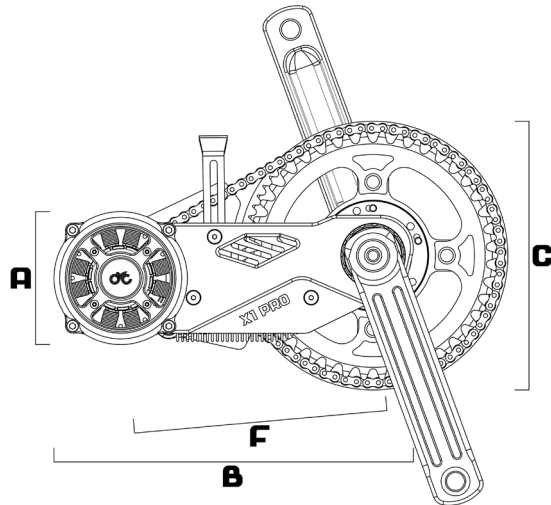
- 83mm BSA Torque Sensing Crank Set
- 1x 3mm, 5mm, & 7mm Spacers



BB92 & BB109 PressFit Torque Sensing Version

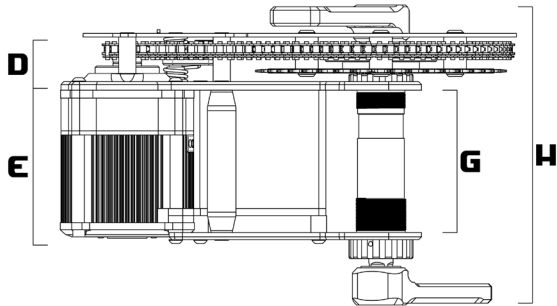
Dimensions

- A: 94mm
- B: 253mm
- C: 140mm / 165mm / 190mm
- D: 35.4mm
- E: 110mm
- F: 178.6mm
- G: 92mm/ 109mm
- H: 190mm



92mm & 109mm PressFit Torque Sensing Version Extra Parts

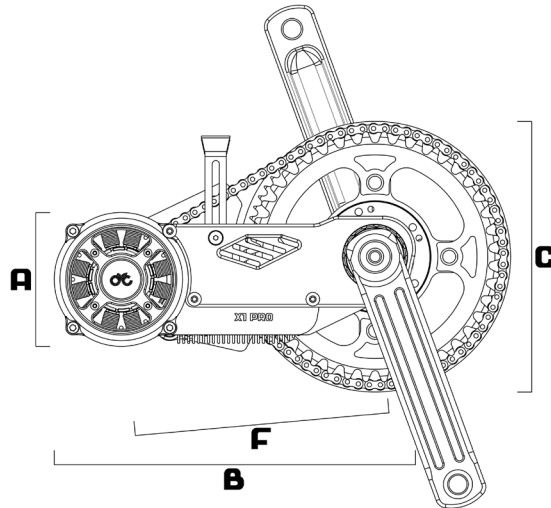
- 92mm & 109mm PressFit Torque Sensing Version Crank Set
- 2x 2mm Spacers



100mm & 120mm BSA Torque Sensing Version

Dimensions

- A: 94mm
- B: 253mm
- C: 140mm / 165mm / 190mm
- D: 35.4mm
- E: 110mm
- F: 178.6mm
- G: 100mm/ 120mm
- H: 210mm



100mm & 120mm BSA Torque Sensing Version Extra Parts

- 100mm & 120mm BSA Torque Sensing Version Crank Set
- 1x 3mm, 5mm, & 7mm Spacers



Motor

Motor type	In-runner
Stator O.D.	80mm
Stator I.D.	46.4mm
Thickness	40mm
Stator lamination	0.2mm
Magnet	N45SH (>180°C)
Wiring	0.7mm
Efficiency	≥ 93%
Maximum RPM	≥ 12000rpm
Rated Torque	≥ 5N.m
Transparent cover	Tempered glass
Epoxy sealed	Black Epoxy Potted

Controller

Type	ASI BAC855 / ASI BAC2000
Rated Voltage	36-72V DCV
Max. input current	65A for BAC855 & 120A for BAC2000
Bluetooth	BLE
Mobile App	CYC MOTOR (BAC) app for iOS / Android
Mounting position	For BAC855: Integrated between bottom bracket / mounted separately For BAC2000: mounted separately



Hex Keys

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



Wrench



Wire Cutter



Press Fit Bottom Bracket Removal Tools (For BB92 option)



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



Mounting Options for Controller

The BAC855 controller can be mounted right below the bottom bracket or mounted under the seat.

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

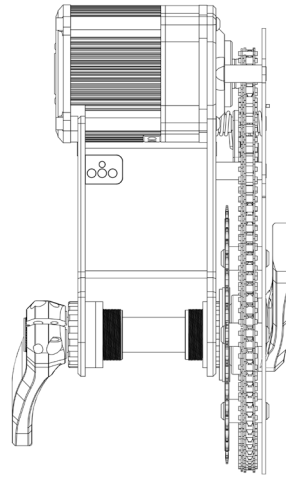
The BAC2000, however, needs to be mounted separately & does not come pre-assembled.

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 bottom brackets with necessary spacing between the X1 PRO brackets.

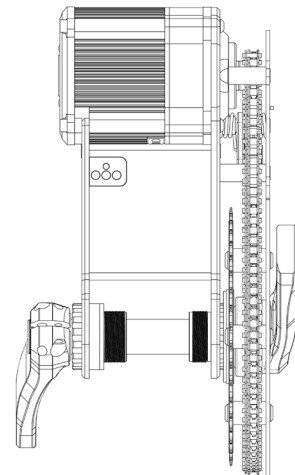
The preferred mounting set-ups are shown on the right for 68mm and 73mm bottom brackets.

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



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

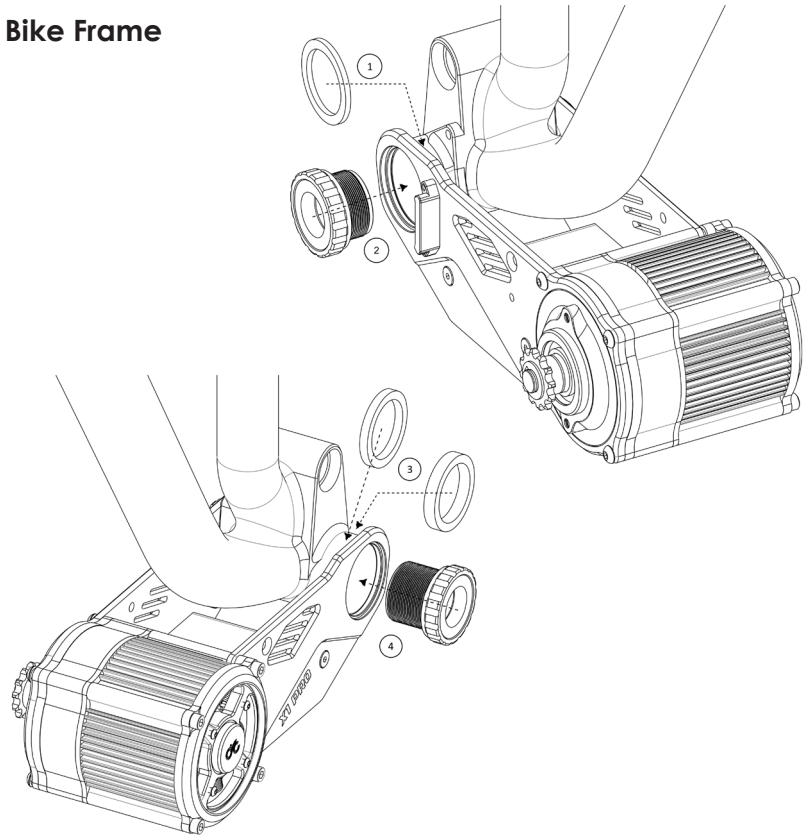
68mm bottom bracket requires a 7mm and a 5mm spacer on the left and a 3mm spacer on the right as shown





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. And Insert the spindle from the RIGHT side of the rear mounting bracket hole through to the LEFT side of the rear mounting bracket hole.



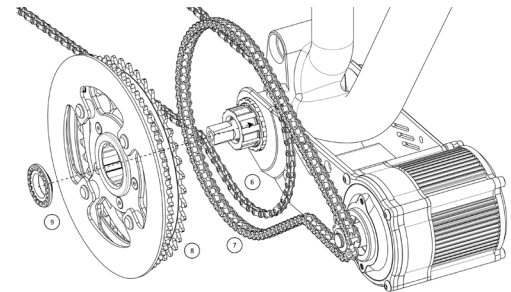
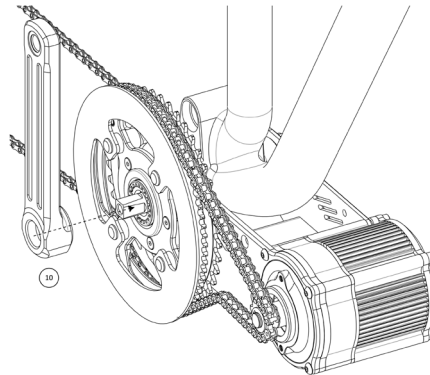
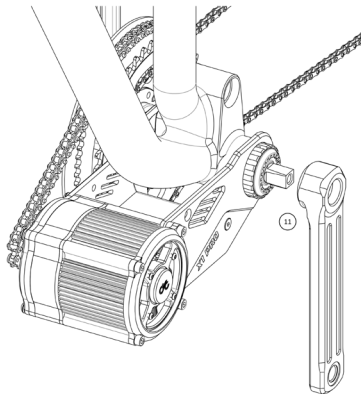
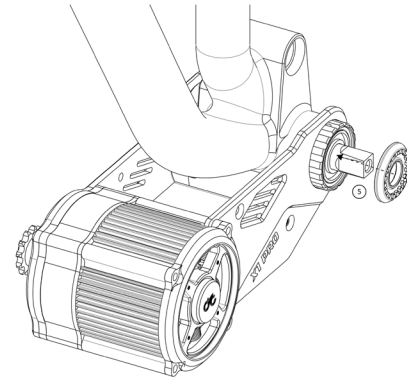
03 INSTALLATION

Mounting the BSA 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.

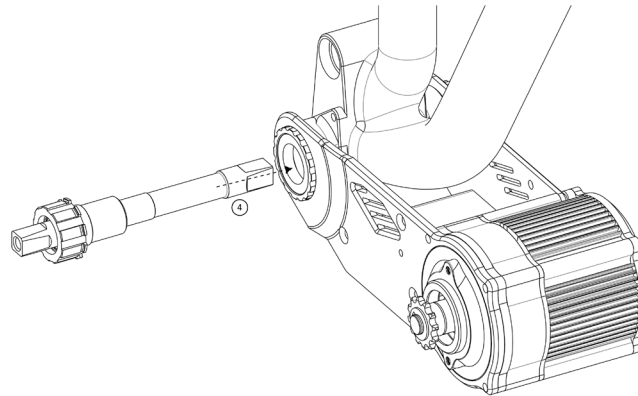
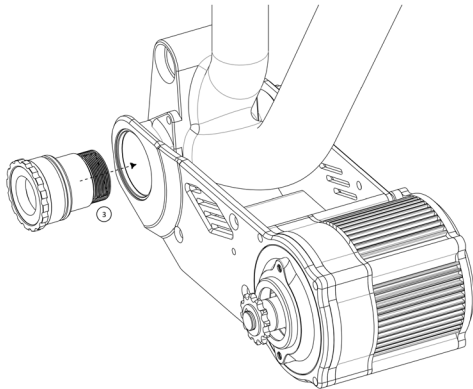
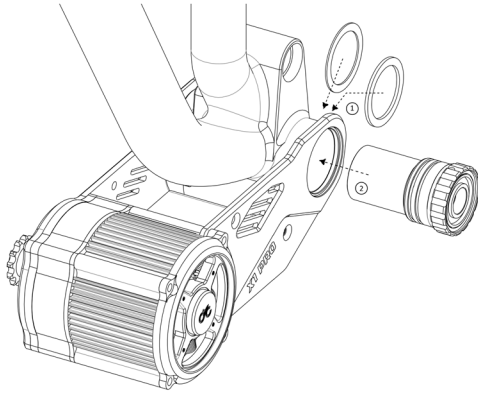
The same principles apply for the 100mm & 120mm BSA versions.





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.



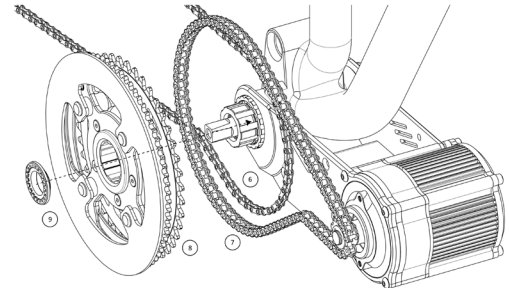
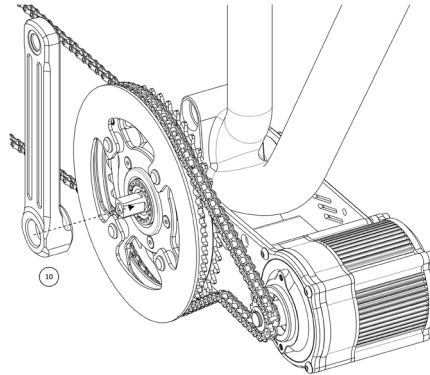
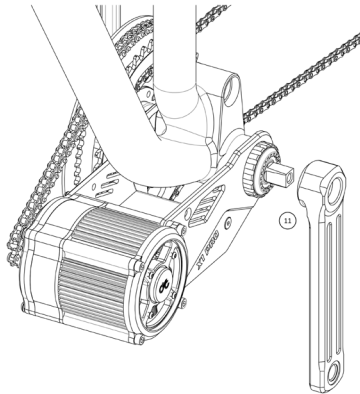
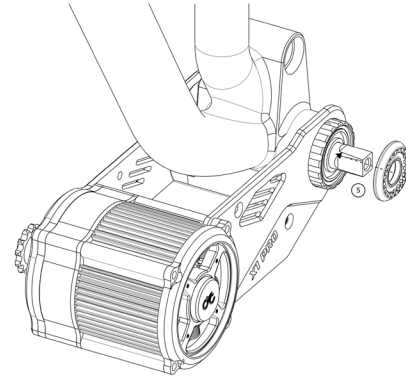
03 INSTALLATION

Mounting the 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.

The same principles apply for the BB109 version.





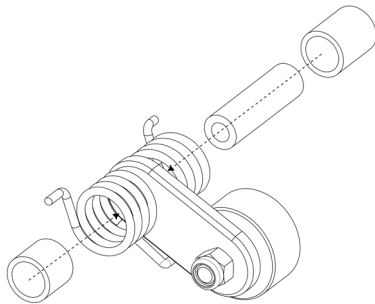
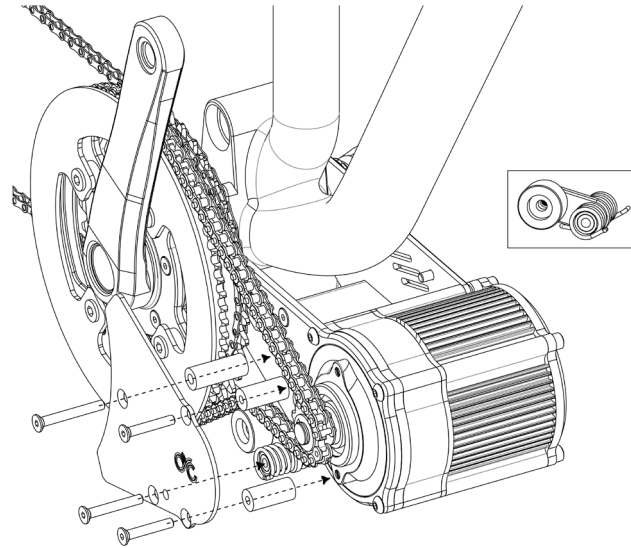
Install the Tensioner on to the X1 PRO

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 come apart during installation, reassemble it according to the diagram below.

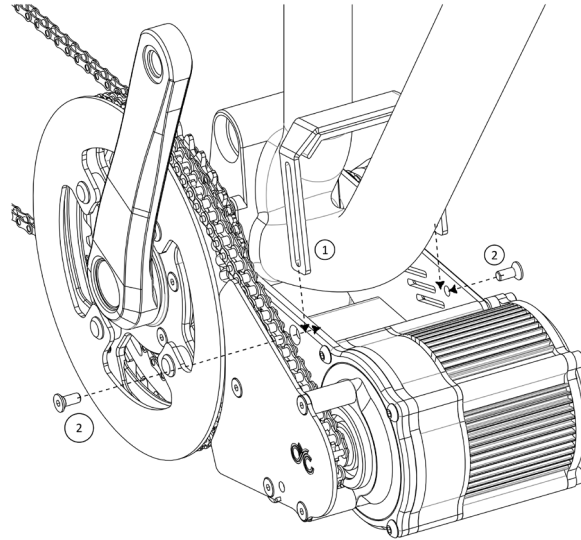




Mounting the X1 PRO to your bike with the Hanger

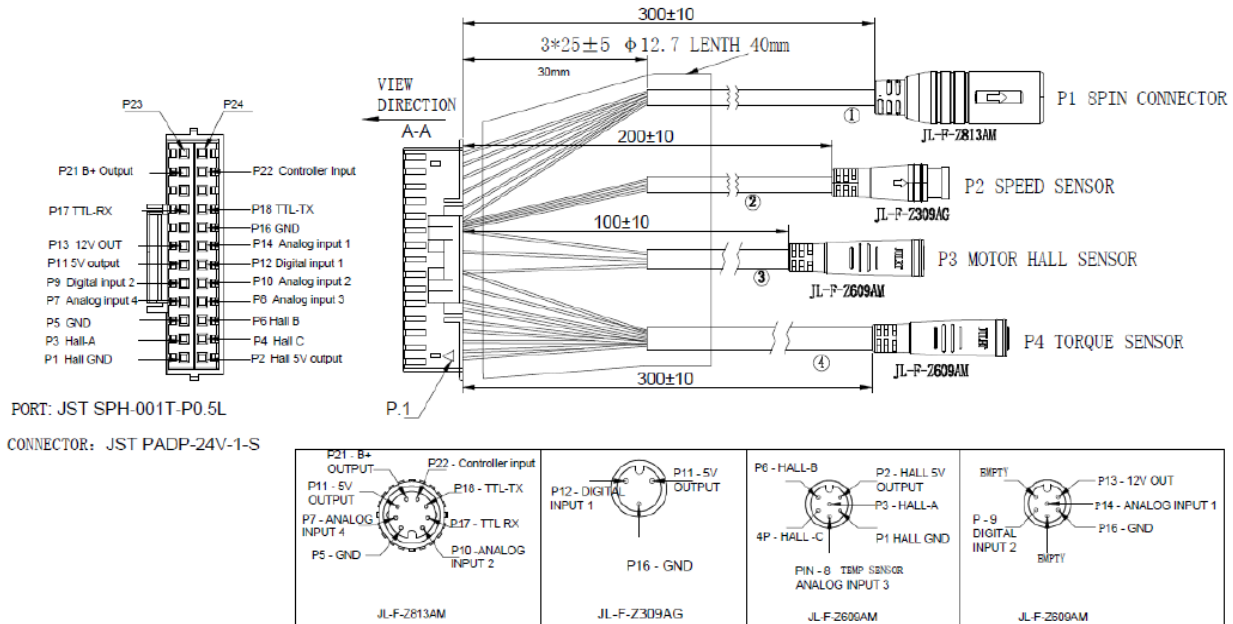
The X1 PRO comes with a hanger (either 83mm or 100mm), it is used to securely fasten the X1 PRO to your bike at the down tube. The installation procedures are shown on the diagram.

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.





BAC 855 Wiring Diagram



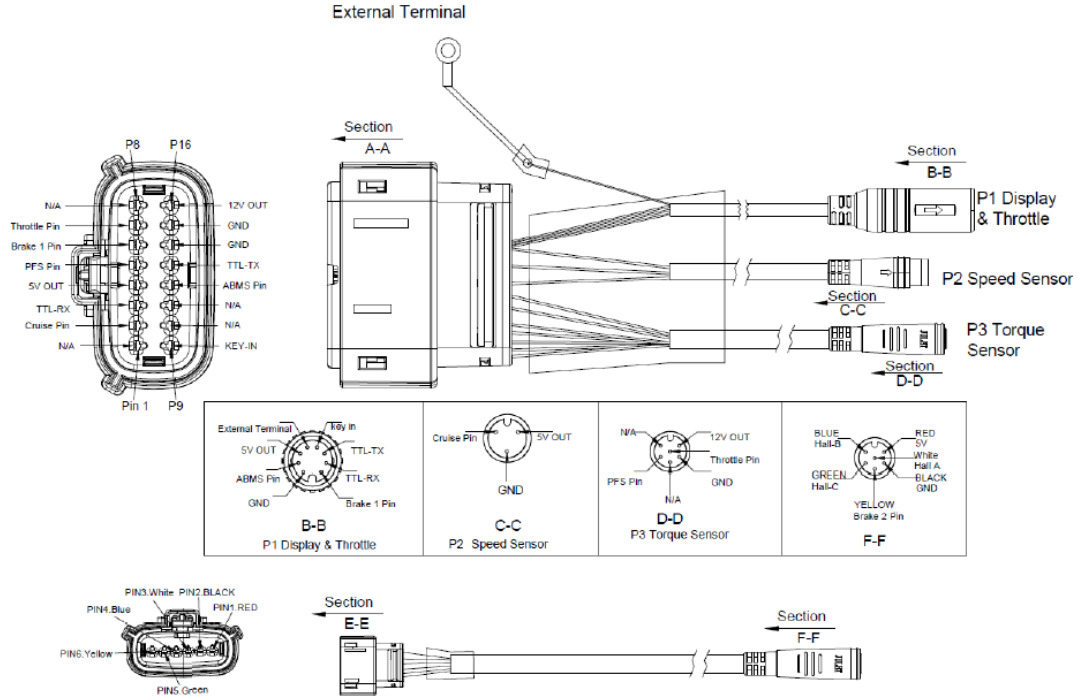


BAC 855 Pin Layout

24 PIN WHITE CONNECTOR			
PIN #	FUNCTION	FUNCTION (CLASSIC)	SPECIFICATIONS & RATINGS
1	Hall GND	Hall GND	20mA max
2	Hall 5V output	Hall 5V output	20mA max
3	Hall-A	Hall-A	0V OFF, 5V ON
4	Hall-C	Hall-C	0V OFF, 5V ON
5	GND	GND	400mA max (shared between all grounds)
6	Hall-B	Hall-B	0V OFF, 5V ON
7	Analog input 4	ABMS	0-10V (pulled down)
8	Analog input 3	Brake 2	0-5V (pulled up)
9	Digital input 2	PFS	Pulled up, active low
10	Analog input 2	Brake 1	0-5V (pulled up)
11	5V output	5V out	50mA max
12	Digital input 1	Cruise	Pulled up, active low
13	12V out	12V out	90mA max
14	Analog input 1	Throttle	0-5V (pulled down)
15	Low side switch	HDQ	100mA max
16	GND	GND	400mA max (shared between all grounds)
17	TTL-RX	TTL-RX	5V TTL
18	TTL-TX	TTL-TX	5V TTL
19	CAN-L (optional 485-A, TTL2-Rx)	CAN-L (optional 485-A, TTL2-Rx)	120 Ohm termination resistor (when configured for CAN)
20	CAN-H (optional 485-B, TTL2-RTx, LIN)	CAN-H (optional 485-B, TTL2-RTx, LIN)	120 Ohm termination resistor (when configured for CAN)
21	B+ output	Key-out	Always live connected to Controller B+
22	Controller enable input	Key-in	Required B+, may draw up to 100mA
23	6V switchable output	6V Light	500mA Max.
24	Power GND	Light GND	500mA Max. (only for light)



Wiring Diagram for BAC2000





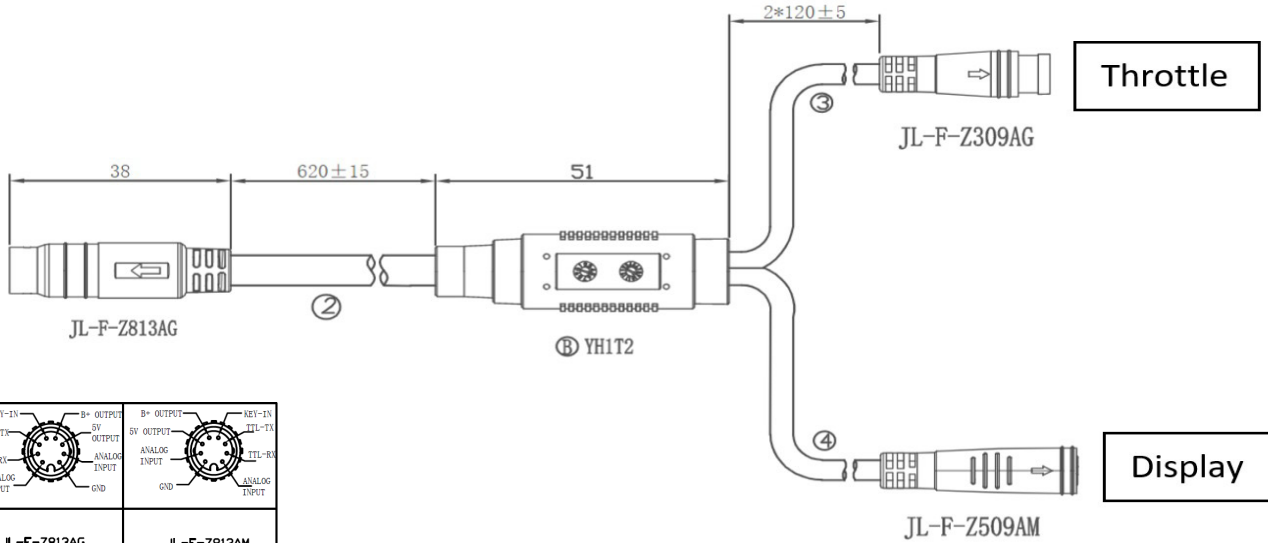
BAC2000 Pin Layout

16 PIN MOLEX MX150 CONNECTOR			
PIN #	FUNCTION	FUNCTION (CLASSIC)	SPECIFICATIONS & RATINGS
1	Low side switch	HDQ	100mA max
2	Digital input 1	Cruise	Pulled up, active low
3	TTL-Tx	TTL-Tx	5V TTL
4	5V output	5V output	50mA max (combined with Pin 8)
5	Digital input 2	PFS	Pulled up, active low
6	Analog input 2	Brake 1	0-5V (configurable pull-up/down)
7	Analog input 1	Throttle	0-5V (pulled down)
8	5V output	5V output	50mA max (combined with pin 4)
9	Logic power input	Key-in	Requires B+, may draw up to 100mA
10	CAN-L (optional 485-A, TTL2-Rx)	CAN-L (optional 485-A, TTL2-Rx)	Configurable 120 Ohm termination resistor
11	CAN-H (optional 485-B, TTL2-Tx, LIN)	CAN-H (optional 485-B, TTL2-Tx, LIN)	Configurable 120 Ohm termination resistor
12	Analog input 4	ABMS	0-10V (pulled down)
13	TTL-Rx	TTL-Rx	5V TTL
14	GND	GND	400mA max
15	GND	GND	400mA max
16	12V output	12V out	90 mA max

6 PIN MOLEX MX150 CONNECTOR (Hall Sensor)			
PIN #	FUNTION	FUNCTION (CLASSIC)	SPECIFICATION & RATINGS
1	Hall 5V output	Hall 5V output	20mA max
2	Hall GND	Hall GND	20mA max
3	Hall-A	Hall-A	0V OFF, 5V ON
4	Hall-B	Hall-B	0V OFF, 5V ON
5	Hall-C	Hall-C	0V OFF, 5V ON
6	Analog input 3	Brake 2 / Motor Temperature	0-5V (Configurable pull-up/down)



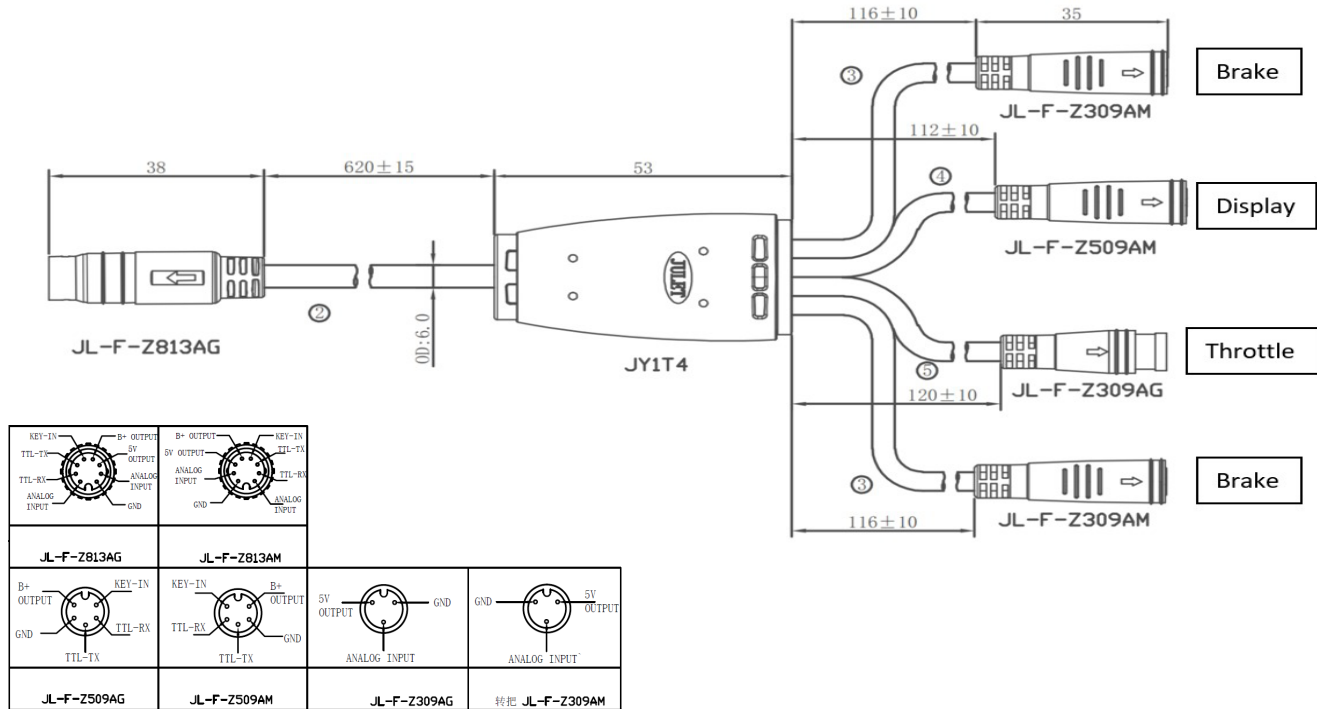
1-2 Wiring Harness



<p>KEY-IN TTL-TX TTL-RX ANALOG INPUT GND</p> <p>B+ OUTPUT 5V OUTPUT ANALOG INPUT GND</p>	<p>KEY-IN TTL-TX TTL-RX ANALOG INPUT GND</p> <p>5V OUTPUT ANALOG INPUT GND</p>		
JL-F-Z813AG	JL-F-Z813AM		
<p>B+ OUTPUT GND TTL-TX</p>	<p>KEY-IN TTL-RX TTL-TX GND</p>	<p>5V OUTPUT GND ANALOG INPUT</p>	<p>GND 5V OUTPUT ANALOG INPUT</p>
JL-F-Z509AG	JL-F-Z509AM	JL-F-Z309AG	转把 JL-F-Z309AM



1-4 Wiring Harness





You are advised to regularly maintain, clean and check the status of the bike and motor system as dirt will accumulate throughout the rides and additional strain will be taken by the drivetrain due to the powerful motor system. We recommend that users should inspect the bike and motor condition before and after each ride.

Disconnect all power supplies from the drive unit before starting 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 to cool down before doing any maintenance.

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

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

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

Do not attempt to replace the X1 PRO parts with the parts that have been found at a local bicycle store as the materials used in the drive unit are specifically designed for their purposes.

All bolts, nuts and screws are required to be tightened to the correct torque, if there is anything loose, stay off the bike. Torque specifications for each bolt and nut is provided below.

Torque Requirements for Bolts

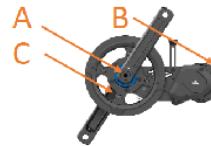


Figure 1 Right Side View

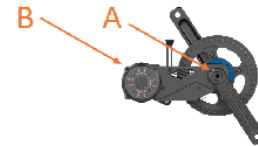


Figure 2 Left Side View

Component Name	Listing	Torque Requirement
Crank arm bolts	A	25 – 30 N.m.
Motor mounting bolts	B	7 N.m.
Chainring bolts	C	5 N.m.



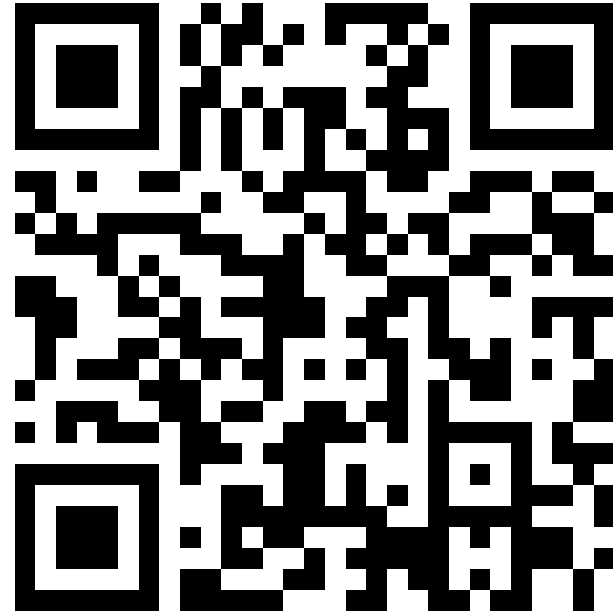
The CYC Motor (BAC) App & Display

Kindly download the display & mobile app user manuals from the link below or scan the QR code. All materials listed below are freely available for download on the CYC website.

Included in this link:

- Brochure
- User Manual
- Mobile App Guide
- APT 500c Display User Manual
- APT 750c Display User Manual
- Speed Sensor Installation Guide
- Brake Sensor Installation Guide
- 1:1 printouts for reference

<https://www.cycmotor.com/x1-pro-gen-2#comp-kkxfisjz>





BEFORE YOUR RIDE

STEP 1

Ensure that all wires are properly connected & that your system can switch on by long pressing the display's power button. Check that the display shows your battery voltage & level. Should your display briefly show Error 30H upon start-up, this is normal as the system takes a moment to connect.

Should your battery voltage & level not display, refer to step 3.

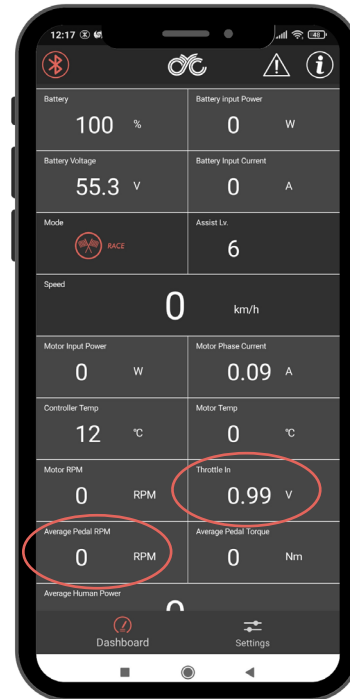
STEP 2

Ensure that your pedal assist & throttle are working correctly. To test this, connect to the app & change to Assist Level 0 on your display. You can test the PAS by looking at the app's dashboard & turning the crank set. If your Average Pedal RPM reading changes, then your PAS is working. To test the throttle, open your throttle & check that your Throttle In voltage changes.

Ensure that you test the PAS & throttle in Assist Level 0 as to prevent your bike from thrusting forward.

STEP 3

Set up the correct information on your display. You will need to enter your wheel diameter, battery voltage (if incorrect), & your preferred number of assist levels. Kindly see your display's user manual for instructions.





WARRANTY

We offer a 1-year warranty for all components. Man-made failures are excluded from our warranty.

For any replacement parts, visit the CYCMotor Ltd official online store at www.cycmotor.com/shop or contact an official product dealer.

Contact Information

support@cycmotor.com

For customer support, including

- shipping,
- quotes,
- warranty, &
- sales

technical_support@cycmotor.com

For technical support, including

- build assistance,
- recommendations,
- troubleshooting, &
- product related queries

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