



2022 eBike Systems

A close-up photograph of a blue Yamaha eBike motor. The central focus is a circular, silver-colored motor cover with a textured surface. A silver rectangular plate is mounted on the cover, featuring the 'YAMAHA' logo in black and the model designation 'PW-X3' in a smaller font to its right. The motor is mounted on a blue frame, and various mechanical components like screws and a pedal crank are visible in the background.

YAMAHA PW-X3



eBike systems

Being one with the machine

With almost 30 years of experience in the development of advanced eBike systems, Yamaha is acknowledged as being one of the industry's most dynamic and innovative brands. Our philosophy has always been to harness the power of advanced technology so that we can create class-leading systems that deliver the ultimate rider-machine unity.

Yamaha is committed to offering the consumer the most complete line-up of products that are designed to enrich the eBike riding experience in a wide variety of situations – and for 2022 the company introduces a number of innovations that reinforce this commitment.

Designed for e-MTB applications, the new Yamaha PW-X3 drive unit and Interface X have been developed to offer a Pure Ride experience like no other.

Lighter, smaller and more powerful than ever before, the new PW-X3 drive unit delivers seamless and immediate power, enabling e-MTB riders to conquer the toughest gradient with total confidence. With its special combination of high torque output, instant response and an ultra-compact and lightweight construction, the PW-X3 delivers a whole new feeling of rider-machine unity.

Together with Yamaha's minimalist and intuitive Interface X communication unit, the new PW-X3 opens up a whole new world of possibilities for European manufacturers who are currently developing the next generation of e-MTB models – and the new quickly-detachable External Crossover Battery 400 is the ideal choice for urban commuters who value practicality and simplicity.

Mountain Biking



PW-X3

85 Nm

Sports and Trail



PWseries ST

70 Nm

Trekking and Adventure



PWseries TE

60 Nm

Comfortable Commuting



PWseries CE

50 Nm

Daily City Ride

< Paved Road

Rough Terrain >

Core Rider >

< Casual Rider

Extensive Experience

Extensive experience in the eBike business verifies the Yamaha eBike System as a first class product.

The World's first Power Assist Bicycle was sold in 1993 Over 5 million units shipped worldwide.



Approved by technicians

Over the years, Yamaha has earned a reputation for high standard quality, offering eBike Systems with excellent reliability.

Maintenance free: the unit needs no regular replacement of internal components. Ride far without the worries of not having your trusted technician nearby.

Features excellent resistance to external factors and overheating. Just ride longer and enjoy a wide variety of landscapes.

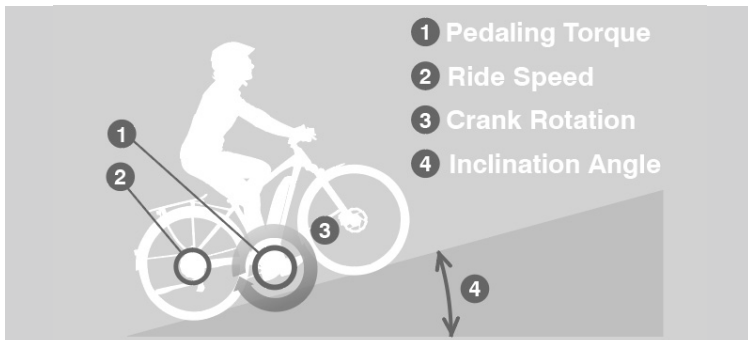


Intuitive operation and natural riding

Drawing from Yamaha's long history of engagement with motorsports, the assist setting know-how applied to Yamaha's eBike Systems provides a powerful yet natural and intuitive riding experience.

Sensing technology that supports your riding experience

Based on its sensing technology, the system automatically detects riding conditions and delivers the appropriate assist power and acceleration.

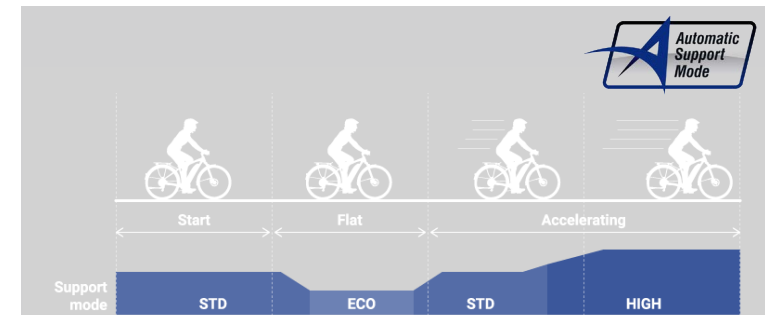


Automatic Support Mode

The expression of Yamaha's tuning know-how in each riding scenario

Each of the sensors monitors the riding conditions, and algorithms automatically select the appropriate level of pedal assistance. The result is a fine-tuned, user-friendly ride.

The algorithms are created individually for each of the drive units on the line-up, creating the experience expected for each riding situation. If you wish to shift between assist modes manually, you can turn the Automatic Support Mode off. Feature available in all drive unit models.



Example of "Automatic Support Mode" application. Support mode changes automatically.



Drive Units

Pure Ride





PW-X3 **NEW**

Yamaha takes its Pure Ride concept to the next level with the all-new PW-X3. Lighter, smaller with higher torque output than ever before, this next generation drive unit delivers instant response for outstanding off-road performance.

The all-new PW-X3 is designed to deliver the purest ride and the most thrilling performance. With its lower weight, more compact size and higher torque output, the PW-X3 has the potential to open up many exciting new opportunities for e-MTB designers.





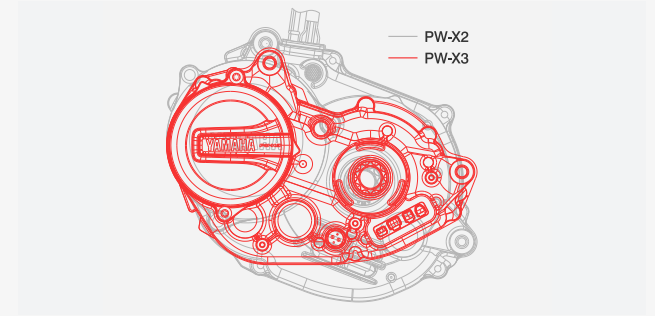
Increased torque

Producing maximum torque of 85 Nm, the PW-X3 is capable of tackling very demanding ascends. The distinctive Yamaha drive unit design enables instant support with sufficient torque immediately after pressure is applied to the pedal, not after certain crank turn.



Lighter than ever

Weighting just 2.75kg, the new PW-X3 is approximately 10% lighter than the previous model, giving an outstanding power to weight ratio for stronger performance and sharper handling.



More compact design

The new PW-X3 is approximately 20% smaller than the PW-X2 model, and its ultra-compact dimensions offer eBike manufacturers greater freedom to develop bikes for ideal frame geometry and suspension kinematics, as well as increased ground clearance.



Natural and agile response to pedalling

Right from the beginning, every PW-X series drive unit has featured the 128mm ISIS interface bottom bracket axle that gives the best Q-factor in any eBike system. Yamaha's Motor new PW-X3 continues with this idealized layout, making it especially attractive to riders.



Automatic Support Mode for E-MTB Ride

The PW-X3's exclusively tuned Automatic Support Mode delivers optimal assist different riding settings by choosing from Eco, Standard, and High-Performance Modes as conditions demand. The system reduces assist on level roads but boosts power on steep inclines to offer fine-grained assist feel that makes it seem like it's reading the rider's mind.



PW-X3 **NEW**



PW-X3

**Natural and
dependable ride**



PWseries CE

It just feels so natural!

Yamaha Motor focused the PWseries CE development efforts in the achievement of natural enjoyable ride.

Measures taken include: weight and noise reduction, implementation of the Automatic Support Mode and walk assist.

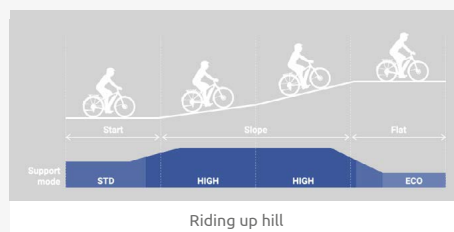
The unit delivers 50Nm of torque and allows the rider to experience all the advantages of an eBike. The PWseries CE was developed to tackle any aspect of city riding, offering ideal support in the flat town center and the hilly and windy village outskirts alike.

The PWseries CE is also compatible with "Coaster Brake".



Lightweight

The PWseries CE lightweight, starting at 2.9kg, adds to the unit's natural assist setting to provide an enjoyable ride. The rider should feel a light, swift handling while on the move and noticeable lightweight while pushing the bike around.



Automatic Support Mode

The quest for an ever more natural eBike ride goes beyond hardware improvements. The PWseries CE uses Yamaha Motor's extensive software setting know-how in its Automatic Support Mode. The system copes swiftly with constant changes in riding conditions – think of those upwind rides, and constant stops and starts for traffic lights – by automatically selecting the most appropriate support mode. The Automatic Support Mode also provides strong and smooth support for every start. It can be deactivated at the will of the rider.



Most quiet drive unit

Yamaha Motor strived to offer its most quiet drive unit to date, reducing noise significantly. With the PWseries CE, early morning rides in the park closest to you instantly become a relaxing nature-immersive experience.



Walk assist

Handling an eBike should not be a burden when you are off it. The renewed Walk Assist function in the PWseries CE comes in handy when pushing the bike, even up steep slopes or when the bike is carrying heavy loads.

**The Pursuit
of Comfort**



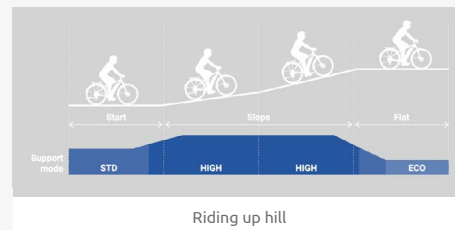
PWseries TE

The PWseries TE drive unit focuses on providing comfort and a stable ride in urban areas, coping effortlessly with riding conditions including steep climbs and rides against strong winds. Thanks to the Quad Sensor Technology, the system automatically detects riding conditions such as hill starts, and delivers the appropriate assist power and smooth acceleration



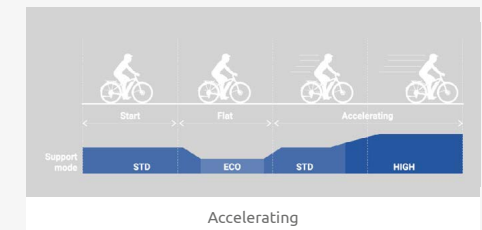
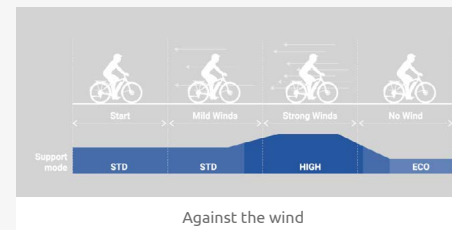
Comfort and a stable ride in the city

A drive unit with a focus on providing comfort and a stable ride in the city.



Automatic Support Mode for the ultimate comfort ride

The Automatic Support Mode exclusively tuned for the PWseries TE provides intelligent and natural power assistance with a lightweight feel, delivering a comfortable and enjoyable riding experience.



Multi activity



PWseries ST

The PWseries ST takes the functionality of the PWseries SE to a new level while keeping it simple enough to be used by anyone.

The tuning of the PWseries ST makes this drive unit the perfect all-rounder. Whether you're a newcomer to the sport or a veteran rider, and whether you ride on- or off-road, the PWseries ST delivers fun, pleasant ride for all riders.

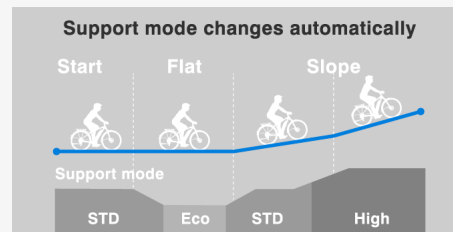
The unit also offers a broader assist range that can accommodate high-cadence pedaling.



Quad Sensor System

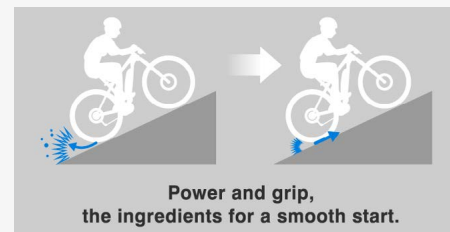
The PWseries ST features Yamaha's Quad Sensor System so that it can deliver assist optimized for all conditions. The unit also offers a broader assist range that can accommodate high-cadence pedaling.

The tuning of the PWseries ST makes this drive unit the perfect all-rounder. Whether you're a newcomer to the sport or a veteran rider, and whether you're on- or off-road, the PWseries ST delivers fun, pleasant assistance for all riders.



Automatic Support Mode for all-round Sports and Trail

It's no simple feat to shift gears, adjust seat height, and change ride modes at roughly the same time. The new Automatic Support Mode for the PWseries ST selects the right amount of assist based on riding conditions. Whether you're starting from a stop, accelerating, braking, riding on a level surface, or climbing a hill, you can leave ride mode changes to the system and focus on shifting and braking.



Natural and Powerful Assist Feeling

A powerful ride is the best thing about eMTBs, but a lack of control would leave you prone to wheelies during climbs and spinning tires on poor surfaces. The Yamaha tuning for the PWseries ST allows the drive unit software to handle power control. By combining power with stable control, this technology makes it easier for the rider to start with peace of mind even from half way up the steepest of hills.



The app used in this smartphone screen refers to the Komoot app.

Displays

Core / Sports

Casual / Comfort ride

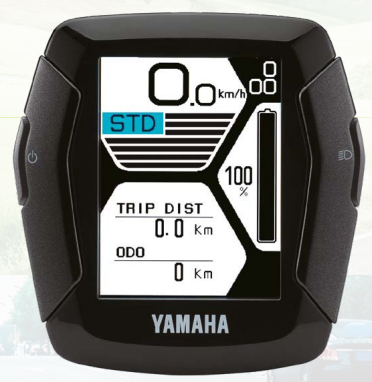
Interface X



Display A



Display C



Interface X **NEW**

Featuring a minimalist, simple and ergonomic design, the new Interface X is an LED communication unit that allows users to enjoy every second of the ride.

Interface X mounts to the bike's stem, giving a cleaner look to the cockpit and handlebar area. Its remote switch features ergonomic mode selection buttons whose intuitive design enables the rider to concentrate on the track ahead – and colour coded assist mode indicator as well as a battery capacity indicator provide easy to read information.

Interface X features Bluetooth® Low Energy for smartphone connectivity though compatible apps like the e-Sync Connection. Additionally, ANT+™ connectivity feature makes Interface X compatible with cycle computers from brands like SIGMA, Garmin and Echowell.



Minimalistic LED communication unit

- Let riders concentrate on the ride
- Freedom to choose display (e.g. cycle computer, smartphone) via wireless communication
- Simple operation



Ergonomic remote switch

- Ergonomic design of most frequently operated buttons
- Nice coexistence with other components (with brakes, gear shifters, dropper seat levers)



Compact design

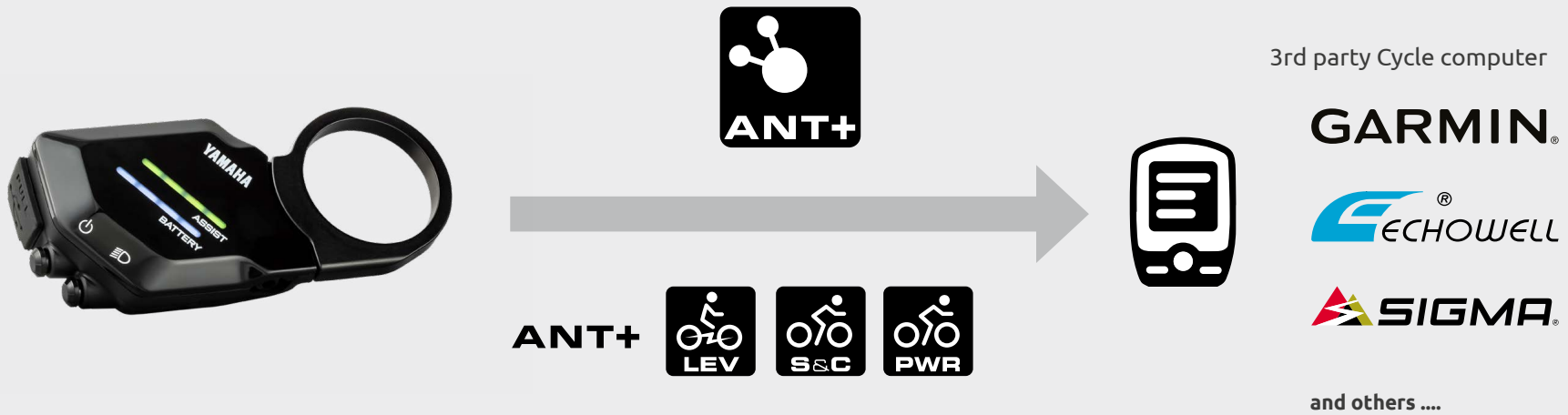
- Excellent blind operation let riders focus on the ride
- Clean Cockpit: Innovative mount system leaves a clean handlebar, leaving it free for lights, cycle computers, smartphone mounts, etc.



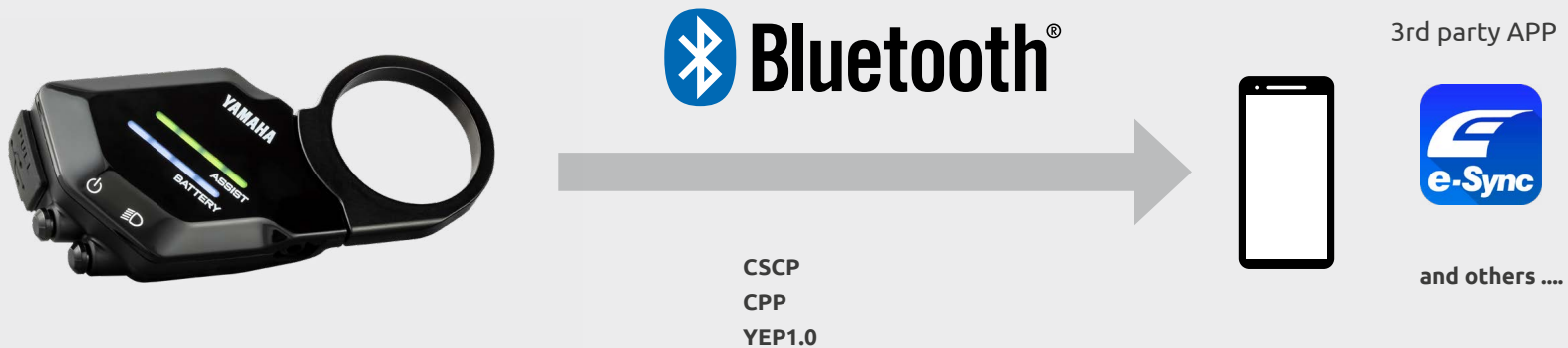
Connection with Cycle computer via ANT+

This product is ANT+™ certified.

Visit www.thisisant.com/directory for compatible products and apps.



Connection with Smart phone via Bluetooth® Low Energy Technology





Display C

The large 2.8 inch color dot matrix display

Provides clear read-outs and control of the connectivity functions. Several display screens are available for different modes. A newly-designed ergonomic remote switch improves ease of operation. By connecting your smartphone with the display you can enjoy extended features via the app. Display C takes enjoyment of your riding lifestyle to a new level.

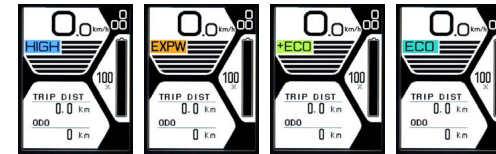
Support to Multiple Languages



Selectable Background Color



Clear information



Apps for enhanced functionality

To further enhance your riding lifestyle, the Display C can show additional information by communicating with specific applications. After downloading the app to your smartphone, and going through a simple set-up process, you can enjoy features including ride management, fitness tracking and map-based navigation.



Komoot
Turn by Turn Navigation
Different Routing
Offline Navigation



e-SYNC connection
Show detailed e-bike information on the app.



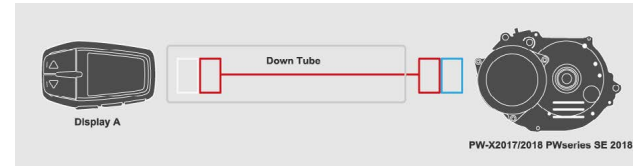
Display A

Designed for a wide range of uses

The Display A was designed for a wide range of uses, from city to trail riding. It features a simplified and easily operable large liquid crystal display, with speed and battery capacity functions. High importance has been placed on visibility while riding in severe environmental conditions. Support mode can be changed at the press of a button as you ride.

Retro Fit Kit

The Display A Retro Fit Kit enables the Display A to be fitted to all PW-X2017/2018 PWseries SE 2018 models.





Battery Pack & Battery Charger



BATTERY & CHARGER

The Battery Packs are designed to cater to a variety of bicycle types

Yamaha eBike Systems offers a full range of “Multi-Location” batteries with a compact, stylish shape that can be easily incorporated into the frame, offering a high degree of design freedom when mounting it inside the frame of a bike. In addition, the down tube and rear carrier mount type batteries are other long-selling options in our product line-up.

External Crossover Battery 400

New for 2022, the External Crossover Battery 400 comes to complement the external type battery line-up with a 410 watt-hour rating variation. Offering easy access, this design is particularly attractive to urban riders and commuters – as well as rental bike operators who need to be able to constantly remove and recharge batteries.

External batteries can also be more convenient where there is no power supply available near the garage or bike park. Featuring a carry handle, the External Crossover Battery 400 is easy to remove using a key, and can be taken to the nearest charging point.

External Type



External Crossover Battery 400 **NEW**

- Watt-hour rating 410 Wh
- Voltage 36,5 V
- Charging time approx. 3.5 hrs
- Weight 2.8 kg



External Crossover Battery 500

- Watt-hour rating 500 Wh
- Voltage 36 V
- Charging time approx. 4.0 hrs
- Weight 2.9 kg



Down Tube Battery

- Watt-hour rating 400 Wh / 500 Wh
- Voltage 36 V
- Charging time approx. 3.5 hrs (400 Wh) / 4.0 hrs (500 Wh)
- Weight 2.9 kg (400 Wh) / 3.0 kg (500 Wh)



Rear Carrier Battery

- Watt-hour rating 400 Wh / 500 Wh
- Voltage 36 V
- Charging time approx. 4.0 hrs (400 Wh) / 4.0 hrs (500 Wh)
- Weight 2.9 kg (400 Wh) / 3.0 kg (500 Wh)

Concealed in the frame



Multi Location Battery 600

- Watt-hour rating 600 Wh
- Voltage 36 V
- Charging time approx. 5.0 hrs
- Weight 3.8 kg



Multi Location Battery 400 / 500

- Watt-hour rating 410 Wh / 500 Wh
- Voltage 36.5 V / 36 V
- Charging time approx. 3.5 hrs (410 Wh) / 4.0 hrs (500 Wh)
- Weight 3.0 kg

Battery Charger

- Input voltage 220-240 V
- Frequency 50 / 60 Hz
- Size 184 x 86 x 50 mm (791 cc)



This battery charger can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the battery charger in a safe way and understand the hazards involved. Children shall not play with the battery charger. Cleaning and user maintenance shall not be made by children without supervision.

If the power cable is damaged, stop using the battery charger and have it inspected at an authorized dealer.

Specifications



PW-X3 NEW



PW-X2 for Speed Pedelec



PWseries ST



PWseries TE



PWseries CE

| Drive Units | | | | | |
|-------------------|---------|---------|---------|---------|----------------------------------|
| Rated voltage | 36 V | 36 V | 36 V | 36 V | 36 V |
| Rated output | 250 W | 500 W | 250 W | 250 W | 250 W |
| Max. assist speed | 25 km/h | 45 km/h | 25 km/h | 25 km/h | 25 km/h |
| Max. drive torque | 85 Nm | 80 Nm | 70 Nm | 60 Nm | 50 Nm |
| Weight | 2.75 kg | 3.1 kg | 3.4 kg | 3.4 kg | 3.0 kg 2.9 kg (Coaster brake) |



Interface X NEW



Display C



Display A

| Displays | | | |
|----------------------------|---|--|--|
| Drive unit compatibility | Displays are interchangeable for all 2022 model year 25km/h drive units. | | |
| Display type | Multicolor LED | 2.8inch TFT full color | 1.7inch LCD |
| Power supply | 1,200mA (with PW-X3) 1,000mA (with other units) | 1,000mA | N/A |
| Connectivity | Bluetooth® Low Energy Technology ANT+™ | Bluetooth® Low Energy Technology | N/A |
| Functionality (Always on) | Battery capacity indicator Assist mode indicator | Speedometer Battery capacity indicator Battery capacity (%) Assist mode indicator Assist power meter Clock | Speedometer Battery capacity indicator Assist mode indicator |
| Functionality (Selectable) | Additional features available through smartphone apps or connected devices. ANT+™ profiles: LEV : Light Electric Vehicle S&C : Bike Speed & Cadence PWR : Bicycle Power | Average bicycle speed Maximum bicycle speed Trip meter Odometer Range (Remaining assist distance) Cadence Calorie Consumption Additional features available through smartphone apps or connected devices. | Trip meter Odometer Range (Remaining assist distance) |



**External Crossover
Battery 400 NEW**



**External Crossover
Battery 500**



Down Tube Battery 400



Down Tube Battery 500



Rear Carrier Battery 400

| Batteries | | | | | |
|---------------------------|--------|---------|--------|---------|--------|
| Voltage | 36.5 V | 36 V | 36 V | 36 V | 36 V |
| Capacity | 11 Ah | 13.4 Ah | 11 Ah | 13.6 Ah | 11 Ah |
| Watt-hour rating | 410 Wh | 500 Wh | 400 Wh | 500 Wh | 400 Wh |
| Weight | 2.8 kg | 2.9 kg | 2.9 kg | 3.0 kg | 2.9 kg |
| Approximate charging time | 3.5 h | 4.0 h | 3.5 h | 4.0 h | 3.5 h |



Rear Carrier Battery 500



Multi Location Battery 400



Multi Location Battery 500



Multi Location Battery 600

| Batteries | | | | | |
|---------------------------|---------|--------|---------|---------|--|
| Voltage | 36 V | 36.5 V | 36 V | 36 V | |
| Capacity | 13.6 Ah | 11 Ah | 13.4 Ah | 16.5 Ah | |
| Watt-hour rating | 500 Wh | 410 Wh | 500 Wh | 600 Wh | |
| Weight | 3.0 kg | 3.0 kg | 3.0 kg | 3.8 kg | |
| Approximate charging time | 4.0 h | 3.5 h | 4.0 h | 5.0 h | |



PASC10

PASC9

| Battery Chargers | | |
|-------------------------|---|--|
| Output current | 4 A | 4 A |
| Voltage | 220-240 V | 220-240 V |
| Frequency | 50/60Hz | 50/60Hz |
| Approximate size | 184 x 86 x 50 mm | 184 x 86 x 50 mm |
| Compatible battery type | Down Tube Battery 400/500 Rear Carrier Battery 400/500 Multi Location Battery 600 | External Crossover Battery 400/500 Multi Location Battery 400/500 |

Safety Information

This battery charger can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the battery charger in a safe way and understand the hazards involved. Children shall not play with the battery charger. Cleaning and user maintenance shall not be made by children without supervision.



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