YAMAHA

Read this manual carefully before operating the system.
This manual should stay with this system if it is sold.

OWNER'S MANUAL

Display Unit

* This owner's manual is original instruction.
* Product and specifications are subject to change without notice.

Introduction

These original instructions have been prepared for your Display Unit.

TIP

This manual is not intended as a comprehensive use, service, repair or maintenance manual. Please see your dealer for all service, repairs or maintenance. Your dealer may also be able to refer you to classes, clinics or books on bicycle use, service, repair or maintenance.

Display Unit
OWNER'S MANUAL

1st edition, April 2021

Contents

General warning

FAILURE TO FOLLOW THE WARNINGS CONTAINED IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.
Particularly important information is distinguished in this manual by the following notations:

⚠	**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**
⚠ WARNING	**A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.**
NOTICE	**A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property.**
TIP	A TIP provides key information to make procedures easier or clearer.

1. Electric bike components

A. Introduction

Bluetooth®

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by YAMAHA MOTOR CO., LTD. is under license.

* Applies to Display C and Interface X.

ANT+™

Featuring certified wireless ANT+™ connectivity.
Visit www.thisisant.com/directory for compatible products.

* Applies to Interface X.

B. Consumer information

Drive Unit data recording

This model stores certain Drive Unit data to assist in the diagnosis of malfunctions and for research, statistical analysis and development purposes.
Although the sensors and recorded data will vary by model, the main data points are:

- Drive Unit status and Drive Unit performance data

This data will be uploaded only when a special Yamaha diagnostic tool is attached to the Drive Unit, such as when maintenance checks or service procedures are performed.
Yamaha will not disclose this data to a third party except in the following cases. In addition, Yamaha may provide Drive Unit data to a contractor in order to outsource services related to the handling of the Drive Unit data. Even in this case, Yamaha will require the contractor to properly handle the Drive Unit data we provided and Yamaha will appropriately manage the data.

- With the consent of the owner
- Where obligated by law
- For use by Yamaha in litigation
- For general Yamaha-conducted research purposes when the data is not related to an individual Drive Unit or owner

C. E-Bike Systems

The e-Bike Systems are designed to give you the optimal amount of power assist.

It assists you within a standard range based on factors such as your pedaling strength, bicycle speed, and current gear.
The e-Bike Systems do not assist in the following situations:

- When the Display Unit's power is off.
- When you are moving 20 mph (32 km/h) or faster.
- When you are not pedaling and the pushing assist switch is released.
- When there is no residual battery capacity.
- When the automatic power off function* works.
  * Power turns off automatically when you do not operate the e-Bike Systems for 5 minutes.
- When the assist mode is set to Off mode.

Multiple power assist modes are available.

Choose from Extra Power mode*, High-Performance mode, Standard mode, Eco mode, +Eco mode, Off mode and Automatic Support mode to suit your riding conditions.
See "Displaying and switching the assist mode" for information on switching between assist modes.

* Applies to the Drive Unit (PW-X2, PW-X3).

Conditions that could decrease remaining assist distance

The remaining assist distance will decrease when riding in the following conditions:

- Frequent starts and stops
- Numerous steep inclines
- Poor road surface conditions
- When riding together with children
- Riding into a strong head wind
- Low air temperature
- Worn-out Battery Pack
- When using the headlight (applies only to models equipped with lights powered by the Battery Pack)
- Frequent acceleration
- Heavier rider and luggage weight
- Higher assist mode
- Higher riding speed

Remaining assist distance will also decrease if the bicycle is not maintained properly.
Examples of inadequate maintenance that could decrease remaining assist distance:

- Low tire pressure
- Chain not turning smoothly
- Brake engaged constantly

D. ⚠ Safety information

Never use this Battery Charger to charge other electrical appliances.

Do not use any other charger or charging method to recharge the special batteries. Using any other charger could result in fire, explosion, or damage the batteries.

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.

Although the Battery Charger is waterproof, never allow it to become immersed in water or other fluids. In addition, never use the Battery Charger if the terminals are wet.

Never handle the power plug, charging plug or touch the charger contacts with wet hands. This could result in electric shock.

Do not touch charger contacts with metallic objects. Do not allow foreign material to cause short circuit of the contacts. This could result in electric shock, fire, or damage the Battery Charger.

Periodically remove dust from the power plug. Dampness or other issues could reduce the effectiveness of the insulation, resulting in fire.

Never disassemble or modify the Battery Charger. This could result in fire or electric shock.

Do not use with a power strip or extension cord. Using a power strip or similar methods may exceed rated current and can result in fire.

Do not use with the cable tied or rolled up, and do not store with the cable wrapped around the charger main body. Cable damage can result in fire or electric shock.

Firmly insert the power plug and the charging plug into the socket. Failure to insert the power plug and the charging plug completely can result in fire caused by electric shock or overheating.

Do not use the Battery Charger near flammable material or gas. This could result in fire or explosion.

Never cover the Battery Charger or place other objects on top of it while charging. This could result in internal overheating leading to fire.

Do not drop the Battery Charger or expose it to strong impacts. Otherwise, it could cause a fire or electric shock.

Store the Battery Pack and Battery Charger out of reach of children.

Do not touch the Battery Pack or Battery Charger while it is charging. As the Battery Pack or Battery Charger reaches 104–158 °F (40–70 °C) during charging, touching it could result in burns.

Do not use if the battery pack case is damaged, cracked, or if you smell any unusual odors. Leaking battery fluid can cause serious injury.

Do not short the contacts of the Battery Pack. Doing so could cause the Battery Pack to become hot or catch fire, resulting in serious injury or property damage.

Do not disassemble or modify the Battery Pack. Doing so could cause the Battery Pack to become hot or catch fire, resulting in serious injury or property damage.

If the power cable is damaged, stop using the Battery Charger and have it inspected at a bicycle dealer.

Do not turn the pedals or move the bicycle while the Battery Charger is connected. Doing so could cause the power cable to become tangled in the pedals, resulting in damage to the Battery Charger, power cable, and/or plug.

Handle the power cable with care. Connecting the Battery Charger from indoors while the bicycle is outdoors could result in the power cable becoming pinched and damaged in a doorway or window.

Do not run over the power cable or plug with the wheels of the bicycle. Doing so could result in damage to the power cable or plug.

Do not drop the Battery Pack or subject it to impact. Doing so could cause the Battery Pack to become hot or catch fire, resulting in serious injury or property damage.

Do not dispose of the Battery Pack in a fire or expose it to a heat source. Doing so could cause fire, or explosion, resulting in serious injury or property damage.

Do not modify or disassemble the e-Bike Systems. Do not install anything other than genuine parts and accessories. Doing so could result in product damage, malfunction, or increase your risk of injury.

When stopped, be sure to apply the front and rear brakes and keep both feet on the ground. Placing one's foot on the pedal when stopped may unintentionally engage the power assist function, which could result in loss of control and serious injury.

Do not ride the bicycle if there is any irregularity with the Battery Pack or e-Bike Systems. Doing so could lead to loss of control and serious injury.

Be sure to check the residual battery capacity before riding at night. The headlight powered by the Battery Pack will turn off soon after the residual battery capacity has decreased to where power assisted riding is no longer possible. Riding without an operating headlight can increase your risk of injury.

Do not start off by running with one foot on a pedal and one foot on the ground and then mounting the bicycle after it has reached a certain speed. Doing so could result in loss of control or serious injury. Be sure to start riding only after you are seated properly on the bicycle seat.

Do not press the pushing assist switch if the rear tire is off the ground. Otherwise, the tire will turn at high speed in the air and you could be injured.

Do not use the wireless communication functions in areas such as hospitals or medical institutions where use of electronic equipment or wireless equipment is prohibited. Otherwise, this could affect the medical equip ment, etc. and cause an accident.

When using the wireless communication functions, keep the display at a safe distance from heart pacemakers in use. Otherwise, the radio waves could affect the heart pacemaker function.

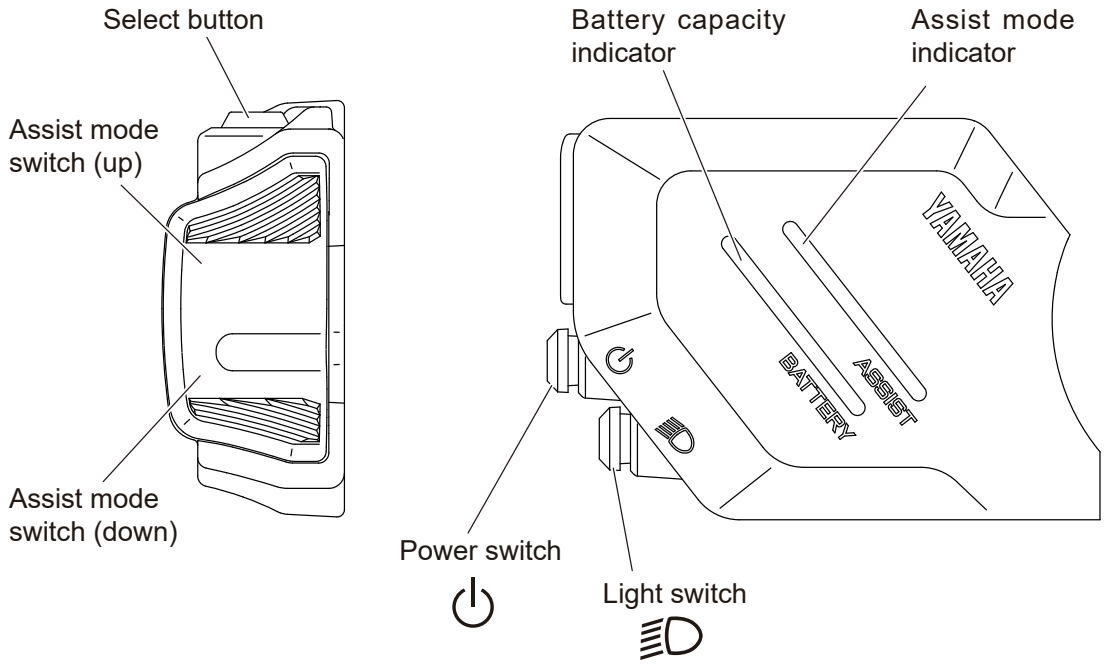
Do not use the wireless communication functions near automatic control equipment such as automatic doors, fire alarms, etc. Otherwise, the radio waves could affect the equipment and cause an accident through possible malfunction or unintentional operation.

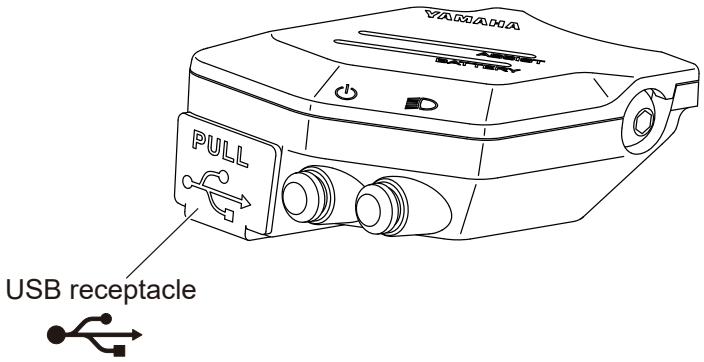
Before equipping the bicycle with a Multi Location Battery 500, make sure that there is no foreign matter or water in the connector on the bicycle. Otherwise, it could lead to heat generation, smoke and/or a fire owing to short-circuiting of the terminals.

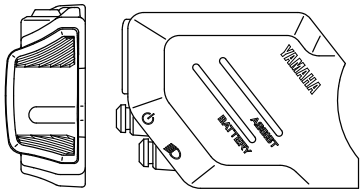
For bicycles equipped with a Multi Location Battery 500, do not remove the Battery Pack from the bicycle when cleaning the bicycle. Otherwise, water could enter the connector and cause heat generation, smoke and/or a fire.

E. Instrument and control functions

Display Unit (Interface X)







Display Unit (Interface X)

The Display Unit offers the following operations and information displays.

NOTICE

This device complies with part 15 of the FCC Rules and contains licence-exempt transmitter/receiver that comply with Innovation, Science and Economic Development Canada's licence-exempt RSSs. Operations is subject to the following two conditions (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la partie 15 des règles de la FCC et comporte un émetteur/récepteur exempt de licence qui est conforme aux normes RSS d'exemption de licence de l'organisme Innovation, Science et Développement économique Canada. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC ID : 2ADBKX2Y
IC : 740A-X2Y
CAN ICES-3 (B)/NMB-3 (B)

Brand name : YAMAHA
Model no. : X2Y
Manufacturer name : YAMAHA MOTOR CO., LTD.

MADE IN CHINA

NOTICE

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**

FCC Caution:

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices.)

FCC Radiation Exposure Statement:

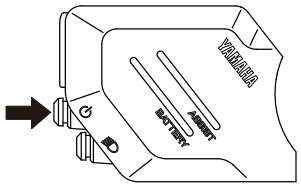
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 0.5 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The antennas used for this transmitter must be installed to provide a separation distance of at least 0.5 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 0.5 cm between the radiator and your body.

Déclaration d'exposition à la radiation:

Cet équipement respecte les limites d'exposition aux rayonnements IC RSS-102 définies pour un environnement non contrôlé. Cet équipement doit être installé et mis en marche à une distance minimale de 0.5 cm qui sépare l'élément rayonnant de votre corps.



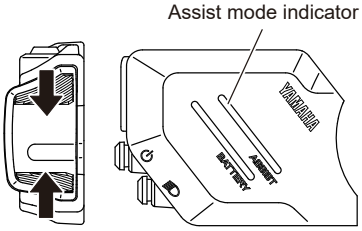
○ Power “On/Off” ⏻

When you press the power switch, the power will be turned on and the battery capacity indicator and assist mode indicator will glow.

When you press the power switch for 1 seconds or longer, the power will be turned off.

TIP

- When you turn on the power, the assist mode is automatically set to Off mode.
- Keep your feet off the pedals when turning on the Display Unit. Also, do not start riding immediately after turning on the Display Unit. Doing so could weaken the assist power. (Weak assist power in either of these cases is not a malfunction.) If you did either of the above by accident, remove your feet from the pedals, turn on the power again, and wait a moment (approximately two seconds) before starting to ride.



○ Displaying and switching the assist mode

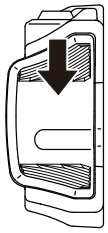
You can select the assist mode by using the assist mode switches (up & down).

The selected assist mode is displayed by the assist mode indicator.

- When you press the assist mode switch (up), the mode changes from “OFF” to “+ECO”, or from “+ECO” to “ECO”, or “ECO” to “STD”, or “STD” to “HIGH”, or “HIGH” to “EXPW”.
- When you press the assist mode switch (down), the mode changes from “EXPW” to “HIGH”, or from “HIGH” to “STD”, or “STD” to “ECO”, or “ECO” to “+ECO”, or “+ECO” to “OFF”.

TIP

- Bicycles equipped with the PWseries CE, PWseries TE or PWseries ST Drive Unit have no Extra Power mode.
- Further pressing of the assist mode switch will not cycle the assist mode selections.

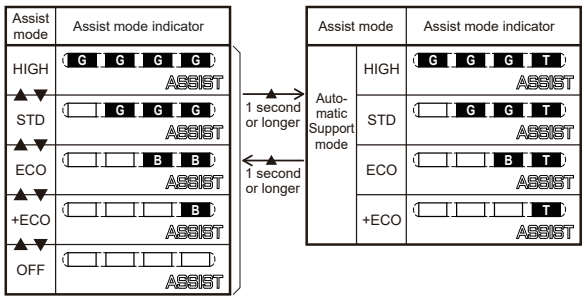


The Automatic Support mode, which enables automatic change to the optimal assist mode according to the riding conditions, can also be used.

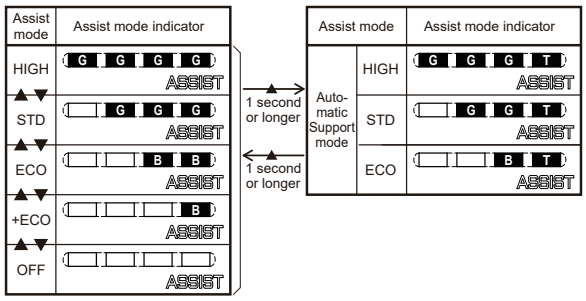
- To use the Automatic Support mode, press the assist mode switch (up) for 1 second or longer. The rightmost lamp of the assist mode indicator will glow in turquoise, and the mode will be changed to the Automatic Support mode.
- To cancel the Automatic Support mode, press the assist mode switch (up) for 1 second or longer. The rightmost lamp of the Assist mode indicator will change from turquoise to the normal color, and the Automatic Support mode will be canceled.

TIP

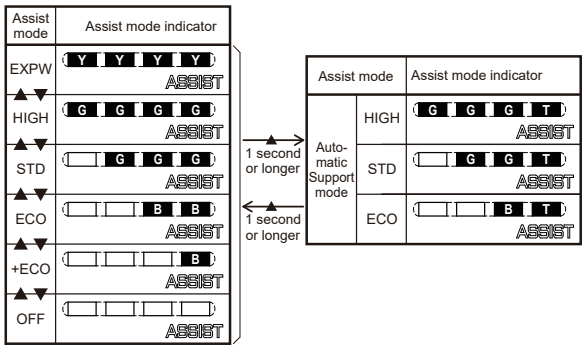
Even if you press the assist mode switches (up & down) while in Automatic Support mode, the assist mode cannot be changed.



PWseries TE Drive Unit
PWseries CE Drive Unit

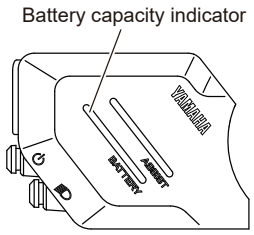


PWseries ST Drive Unit



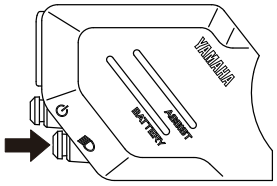
PW-X2 Drive Unit
PW-X3 Drive Unit

[▲] ····· Assist mode switch (up)
[▼] ····· Assist mode switch (down)
Y ····· Yellow
G ····· Green
B ····· Blue
T ····· Turquoise
▭ ····· No light



○ Battery capacity indicator

The battery capacity indicator displays an estimate of how much capacity is left in the battery.

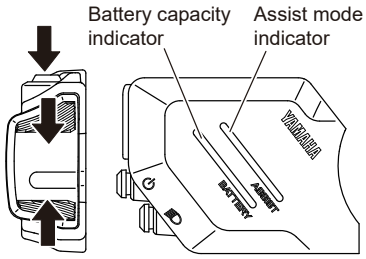


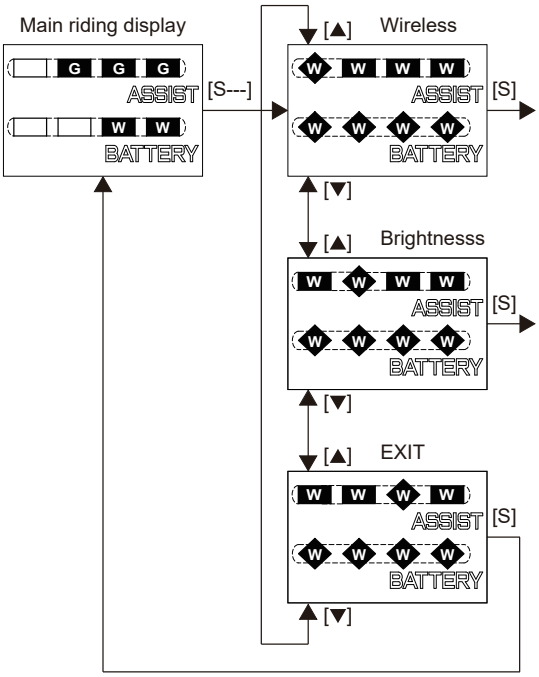
○ Headlight “On/Off” (Applies only to models equipped with a headlight powered by the Battery Pack.

Each time you press the light switch, the headlight switches between “On” and “Off”.

TIP

- Indicator operates simultaneously with the light switch.
- As the light switch is turned “On” or “Off”, the indicator will light accordingly. For the procedure of selecting the brightness condition, see “Settings”.





[S---] ··· Press the select button for 2 seconds or longer
[S] ····· Press the select button
[▲] ···· Assist mode switch (up)
[▼] ···· Assist mode switch (down)
□ ···· No light
G ···· Green
W ···· White
W ···· Flashing white

○ Settings

The display enables the following.

- Wireless communication
  Switches the profiles and turns off the wireless function.
- Brightness
  Set the brightness of the indicator.

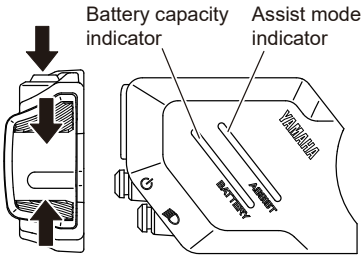
1. Press the select button for 2 seconds or longer.
   When all segments of the battery capacity indicator flash, release the finger.
2. Select an item by using the assist mode switches (up & down).
   Check the item using the assist mode indicator. For more information, see the illustration on the left.
   Press the select button at the displayed item that you want to select, and the selected item will then be displayed.
   Selecting “EXIT” returns to the main riding display.

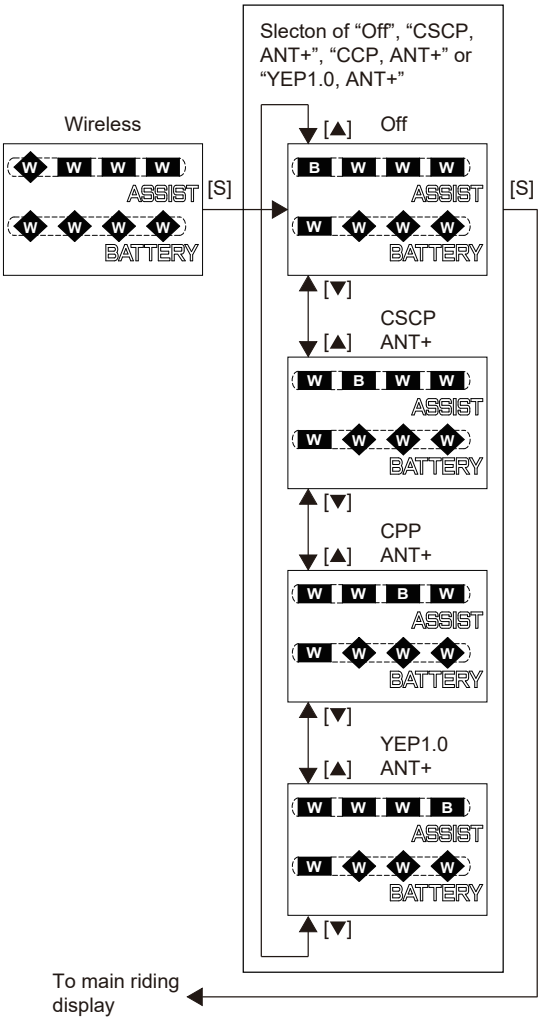
⚠ WARNING

For all setting procedures, be sure to stop the bicycle and perform the required settings in a safe location. Otherwise, lack of attention to surrounding traffic or other hazards could cause an accident.

TIP

- The settings cannot be adjusted while riding.
- If you do the following during setting, the item that you are setting will be canceled and the display will return to the main riding display.
  - Turning the crank (pedal) in the traveling direction
  - Turning the rear wheel at 1.2 mph (2 km/h) and more
  - Pushing the pushing assist switch





[S] ····· Press the select button
[▲] ···· Assist mode switch (up)
[▼] ···· Assist mode switch (down)
W ···· White
W ···· Flashing white
B ···· Blue

● Wireless communication

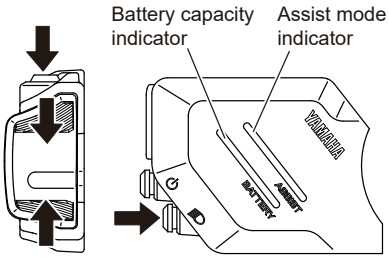
You can set the profile to use the wireless function of Bluetooth low energy technology and ANT+ at the same time, or you can select not to use the wireless function.
When “Off” is selected, the wireless function will be inactive.
When “CSCP” is selected, the Cycling Speed and Cadence Profile will be available together with “ANT+*”.
When “CPP” is selected, the Cycling Power Profile will be available together with “ANT+*”.
When “YEP1.0” is selected, the e-Bike profile preset by YAMAHA MOTOR CO., LTD. will be available together with “ANT+*”.

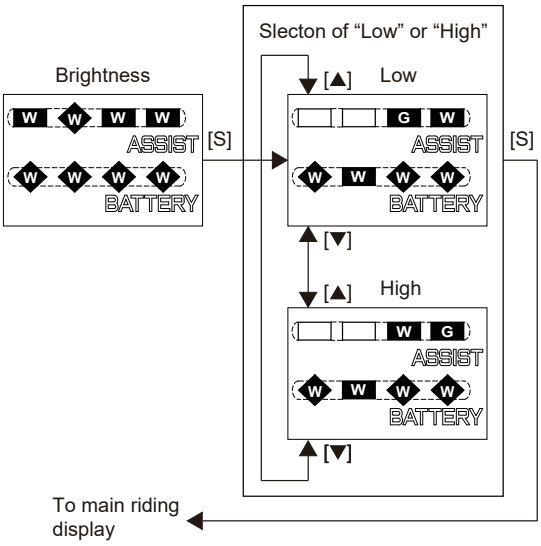
* When ANT+ is active, Speed and cadence, Power, and LEV are possible to use in parallel.

TIP

- Set the profile according to the wireless communication equipment that communicates via Bluetooth low energy technology.
- For the output power level of each profile, see “Specifications”.
- Even if the power is turned off, the setting will be kept. When the power is turned on the next time, the last used setting will be selected.

1. Select “Off”, “CSCP, ANT+”, “CPP, ANT+” or “YEP1.0, ANT+” by using theassist mode switches (up & down).
2. When you press the select button at the de sired item display, the setting will be kept and the main riding display will be shown.





[S] ····· Press the select button
[▲] ···· Assist mode switch (up)
[▼] ···· Assist mode switch (down)
W ···· White
W ···· Flashing white
□ ···· No light
G ···· Green

● Brightness

You can set the indicator brightness when the headlight is “On” and “Off”.

[Setting the indicator brightness when the headlight is “On”]

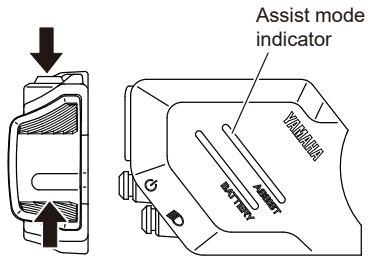
1. Turn the headlight “On” by using the light switch.
2. Select the indicator brightness by using the asisst mode switches (up & down).
3. When you press the select button, the setting will then be kept and the display will return to the main riding display.

[Setting the indicator brightness when the headlight is “Off”]

1. Turn the headlight “Off” by using the light switch.
2. Select the indicator brightness by using the assist mode switches (up & down).
3. When you press the select button, the setting will then be kept and the display will return to the main riding display.

TIP

- While adjusting the brightness of the indicator, the indicator brightness will become the selected one.
- Even if the power is turned off, the setting will be kept. When the power is turned on the next time, the last used setting will be selected.



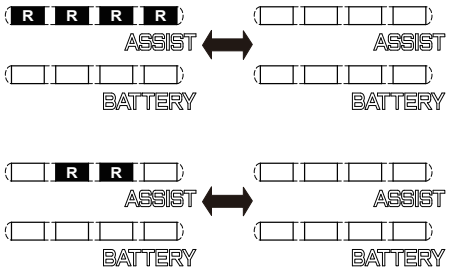
* ···· Depends on the assist mode at that time.
Pu ···· Purple

○ Pushing assist

When you are on or off the bicycle and start moving it, you can use pushing assist without pedaling the bicycle.
Pushing assist will not work in the following situations:

- When you release the pushing assist switch.
- If you press another switch at the same time.
- When you start to pedal.
- If your bicycle speed exceeds 3.6 mph (6 km/h).
- If you select Off mode.
- If the wheels are not turning (when braking or coming into contact with an obstacle, etc.).

1. When you press the select button, the rightmost lamp of the assist mode indicator will light up in purple for 2 seconds. When left for 2 seconds without doing anything or if you press any other switch than the select button or assist mode switch (down), it will return to the original state.
2. By holding the assist mode switch (down) pressed while the rightmost lamp of the assist mode indicator lights up in purple, the pushing assist function is usable.



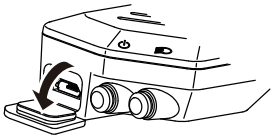
R ···· Red
□ ···· No light

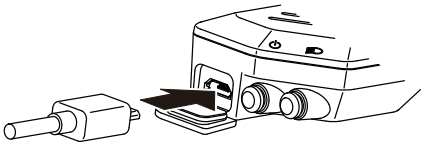
○ Diagnosis mode

The e-Bike Systems are equipped with a diagnosis mode. If a malfunction or fault occurs in the e-Bike Systems, the assist mode indicator will flash in red.
See “Troubleshooting” regarding symptoms and remedies for abnormal displays and abnormal flashing.

⚠ WARNING

If the problem cannot be solved, have your bicycle inspected by a dealer as soon as possible.





○ Power supply to external devices

Power can be supplied to most external devices (e.g. various smart phones etc.) by connecting a commercial USB 2.0 OTG cable.

[To supply power]
1. Open the USB receptacle cap of the display.
2. Connect the USB cable to the display and external device.
3. Turn on the power of the vehicle.

[To stop the power supply]
1. Turn off the power of the vehicle.
2. Disconnect the USB cable and put on the cap of the USB receptacle.

NOTICE

- **Do not apply unreasonable force on the USB plug or pull the USB cable.**
- **Check that the USB plug is facing the right way and not totally out-of-position with the USB receptacle or slanted, and make sure it is fully inserted all the way in.**
- **Do not connect the USB receptacle and the USB plug in a wet state.**
- **Use a USB 2.0 OTG cable that conforms to the standards.**
- **Do not insert foreign objects into the USB receptacle unit.**

Otherwise the Display Unit and external device may malfunction.

TIP

- Power is supplied automatically when an external device is connected with the USB cable.
- No power is supplied if the remaining capacity of the Battery Pack is low.
- The power supply of the vehicle will go off and power supplied by the USB connection will also stop if the vehicle is not operated for 5 minutes.
- It is normal to become somewhat warm during power supply.

○ Communication with Bluetooth low energy technology

The wireless equipment corresponding to the CSCP, CPP or YEP1.0 profiles can provide the communication via Bluetooth low energy technology.

1. Set the profiles of the Display Unit by referring to “Settings”.
   Also confirm that they are in accordance with the connection settings of your wireless communication equipment.
2. Select “Yamaha X2Y #######*” from the user menu of your wireless communication equipment.
   For more information, see the instruction manual of the wireless communication equipment.

   * “#######” is a combination of irregular alphanumeric characters.

TIP

- Keep the distance between the display and wireless communication equipment within 1 m. The maximum communication distance of this equipment is 1 m.
  If the wireless communication equipment is kept in a bag, etc., the actual communication distance might be shorter.
- Do not use the equipment in places with magnetic fields, static electricity, or electromagnetic interference.
  If the equipment is used near transmitters, broadcasting stations or the following type of equipment, wireless communication may not be possible.
  - Microwave ovens
  - Digital cordless phones
  - Wireless communication devices
  - Near other wireless equipment using the 2.4 GHz band.
- Do not cover the display with objects such as aluminum sheets that block the radio waves. Otherwise, wireless communication may not be possible.
- For the output power level of each profile, see the “Specifications”.

○ Communication with ANT+

The wireless equipment corresponding to the Speed and Cadence, Power, and LEV profiles can provide the communication via ANT+.

1. Set the ANT+ of the Display Unit by referring to “Settings”.
2. Execute pairing with your ANT+ display without other ANT+ device nearby.

TIP

- Keep the distance between the display and wireless communication equipment within 1 m. The maximum communication distance of this equipment is 1 m.
  If the wireless communication equipment is kept in a bag, etc., the actual communication distance might be shorter.
- Do not use the equipment in places with magnetic fields, static electricity, or electromagnetic interference.
  If the equipment is used near transmitters, broadcasting stations or the following type of equipment, wireless communication may not be possible.
  - Microwave ovens
  - Digital cordless phones
  - Wireless communication devices
  - Near other wireless equipment using the 2.4 GHz band.
- Do not cover the display with objects such as aluminum sheets that block the radio waves. Otherwise, wireless communication may not be possible.

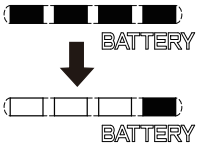
F. Checking the residual battery capacity

You can check the estimate of how much capacity is left in the battery and to what extent it is charged. The check can be performed using either the Display Unit's residual battery capacity indicator or the battery's residual battery capacity indicator lamps.

TIP

- Even if the battery's capacity reaches 0 (zero), you can still ride the bicycle as a regular bicycle.
- If you are using an old Battery Pack, the residual battery capacity indicator may suddenly display very little power when you start moving. This is not a malfunction. Once riding stabilizes and the load is reduced, the proper value is displayed.

Residual battery capacity indicator display and estimate of residual battery capacity for Display Unit

Display of the residual battery capacity for the Display Unit	Display of the residual battery capacity	Applicable situation
	100–11 %	When you turn on the power of the Display Unit and ride continually after the battery is fully charged, the segments for the residual battery capacity indicator go out one by one each time the residual battery capacity is reduced by 25 %.
 <0.5 second intervals>	10–1 %	There is very little residual battery capacity left. Please charge the battery soon.
 <0.2 second intervals>	0 %	There is no more residual battery capacity. Turn off the power for the Display Unit and charge the Battery Pack soon. * Assist is stopped, but you can still ride the bicycle as a regular bicycle.

G. Pre-operation check

⚠ WARNING

Be sure to perform the inspection before riding the bicycle.
If there is anything you do not understand or find difficult, please consult a bicycle dealer.

NOTICE

- **If you confirm there is a fault, have your bicycle inspected at a dealer as soon as possible.**
- **The power assist mechanism consists of precision parts. Do not disassemble it.**

Along with performing the regular inspection before riding the bicycle, also perform the following inspections.

No.	Inspection item	Inspection contents
1	Residual battery capacity	Is enough capacity left in the battery?
2	Installation status of the Battery Pack	Is it properly installed?
3	Operation of the e-Bike Systems	Do the e-Bike Systems operate when you begin moving?

H. Cleaning, maintenance and storage

NOTICE

Do not use high-pressure washers or steam jet cleaners since they can cause water seepage, resulting in property damage or malfunction of the Drive Unit or Display Unit or Battery Pack. Should water get inside one of these units, have a bicycle dealer inspect your bicycle.

Storage

Store the system in a place that is:
- Flat and stable
- Well ventilated and free from moisture
- Sheltered from the elements and from direct sunlight

Long storage period (1 month or longer) and using it again after a long storage period

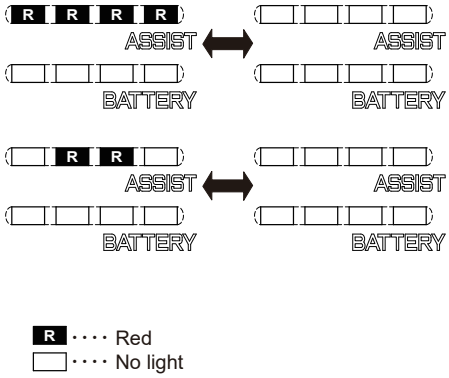
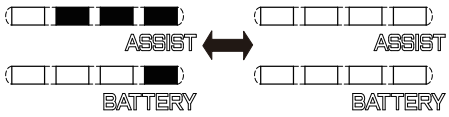
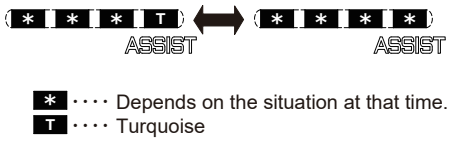
- When using it again after a long storage period, be sure to charge the Battery Pack before using it. Also, if you are using it again after storing it for 6 months or longer, have your bicycle inspect ed and maintained at a dealer.

I. Disposal

The Display Unit and packaging should be sorted for environmental-friendly recycling.
Do not dispose of the bicycle or its components as household waste.

J. Troubleshooting

E-Bike Systems

Symptom	Check	Action
The battery capacity indicator goes off, and all lamps of the assist mode indicator flash in red or 2 indicator segments of the assist mode indicator flash. 		**The problem occurs in the e-Bike Systems. Turn off the power and then turn it on again.** **If the problem cannot be solved, have your bicycle inspected by a dealer as soon as possible.**
		The problem occurs in the Battery Pack. Turn off the power and then turn it on again. If the problem cannot be solved, have your Battery Pack inspected by a dealer as soon as possible.
Assist mode indicator and battery capacity indicator will flash. Flashing lamp depends on the situation at that time. 		**The speed sensor cannot detect a correct signal. Turn off the power to the Display Unit and then turn it on again.** **Select the assist mode and then ride for a short distance.** **Also, make sure the magnet is mounted correctly on the spokes of the wheels.**
		This is not a malfunction. It is in a state that the operation of the power assist system is normal. This state may occur depending on the pedaling strength and riding speed, but it returns to normal condition if it is confirmed that the system is normal.
The rightmost lamp of the assist mode indicator flashes in turquoise. The other lamps light up as normal to display the current state. 		**There could be a problem inside the Drive Unit. Turn off the power to the Display Unit and then turn it on again.** **If the problem cannot be solved, have your bicycle inspected by a dealer as soon as possible.**

Pushing assist function

Symptom	Check	Action
The pushing assist function turns off.	Is the tire locked for a few seconds?	**Release your finger from the assist mode switch (down) for a moment, and after making sure that the tires turn, and then start over the pushing assist function from the beginning.**
	Did you pedal while the pushing assist function was running?	**Take your feet off the pedals and remove your finger from the assist mode switch (down) for a moment, and then start over the pushing assist function from the beginning.**
	Does the rightmost lamp of the assist mode indicator light up in purple?	**Remove your finger from the assist mode switch (down) for a moment, and then start over the pushing assist function from the beginning.**

Power supply of external devices via USB connection

Symptom	Check	Action
Power is not supplied.	Is the Display Unit's power on?	**Press the power switch on the Display Unit to turn the power on.**
	Is the USB version correct?	**Use an external device that complies with USB 2.0.**
	Is the USB cable type correct?	**Use an OTG cable. Also connect the host side to the display.**
	Is the USB cable firmly connected?	**Re-connect the USB cable.**
	Is the USB receptacle or USB plug terminal dirty or wet?	**Disconnect the USB cable from the Display Unit and external device. Remove the dirt and water on the USB receptacle and USB plug terminal and re-connect the cable.**

Wireless communication

Symptom	Check	Action
Wireless communication cannot be used.	Are both the wireless communication settings of the Display Unit and your wireless communication equipment turned on?	**Set the communication profiles by referring to "Settings", and then set the correct communication profiles of the wireless equipment or application software.**
	Are the communication profiles of the wireless equipment or application software that communicates wirelessly with the communication profiles of the display correct?	
The display values of the external wireless communication equipment are wrong.	Did you change the settings of the communication profiles?	**Reset pairing for a moment, set the communication profiles of the display, and then establish pairing again.** **For resetting of pairing and the procedure of establishing pairing, refer to the instruction manual supplied with the wireless communication equipment.**

K. Specifications

Display Unit (Interface X)	Power supply portion	USB receptacle type	USB2.0 Micro-B	
		Output current	Max. 1200 mA	
		Rated voltage	5 V	
	Wireless communication portion	Communication range	Line-of-sight distance approx. 1 m (3 ft) without interference	
		Frequency band	2.4 GHz band (2.400–2.4835 GHz)	
		Modulation method	GFSK	
		Communication system	Bluetooth version 5.0 (Bluetooth low energy technology)	ANT+
		Output power	–9.27 dBm (e.i.r.p.)	———
		Supported profiles	CSCP*1 CPP*2 YEP1.0*3	S&C*4 PWR*5 LEV*6

*1 CSCP (Cycling Speed and Cadence Profile)
Corresponds to the wheel revolution data and crank revolution data.
*2 CPP (Cycling Power Profile)
Corresponds to the wheel revolution data, crank revolution data, instantaneous power, and accumulated energy.
*3 YEP1.0
The e-Bike profile preset by YAMAHA MOTOR CO., LTD.
*4 S&C (Speed and Cadence)
Corresponds to the wheel revolution data and crank revolution data.
*5 PWR (Power)
Corresponds to the crank revolution data, accumulated power, and instantaneous power.
*6 LEV (Light Electric Vehicle)
Commands from the display are not supported.
Send the following data to the display.
(Travel mode, Temperature (Batter, Motor), Speed, Odometer, Remaining range, Fuel consumption, Battery %, Wheel circumference, Error code)

- Communication is not necessarily guaranteed with all wireless communication devices that have the same profiles as this system.
  Even when a device complies with the specification for Bluetooth low energy technology, there may be cases where the characteristics, specifications, or communicative environment of the device with this technology make it impossible to connect, or may result in different control methods, display or operation.
- YAMAHA MOTOR CO., LTD. can not be held liable in any way for damages or other loss resulting from information leaks during the wireless communication functions.

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