e DASH 350W

e DASH 500W

OWNER'S MANUAL

DASH 350W E-BIKE
DASH 500W E-BIKE

SERFAS®

www.serfas.com

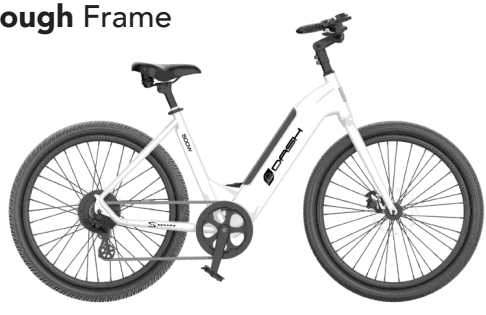
SERFAS DASH 350W / DASH 500W
OWNER'S MANUAL

Thank you for purchasing a Serfas Dash 350W/500W e-bike! Before riding, please take a moment to review these instructions.

Need service or support? Visit our website for quick answers, manuals, and/or give us a call and we'll find you a solution.

Dash 350W/500W
Step-Over Frame

Dash 350W/500W
Step-Through Frame



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Latest version can be found: www.serfas.com

CONTENTS

DISPLAY / CONTROL SPECIFICATIONS

- 36 Volt Power Supply (350W)
- 48 Volt Power Supply (500W)
- Current Rated: 10mA
- Maximum Operating Current: 30mA
- Power Off Leakage Current < 1uA
- Operating Current to Controller: 50mA
- Operating Temperature: -18° to 65°C
- Storage Temperature: -30° to 80°C

Figure 1

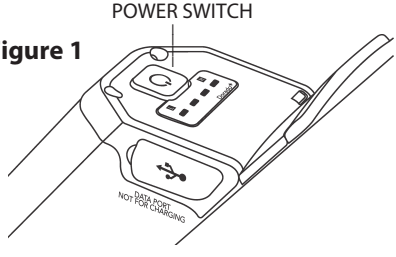


Figure 3

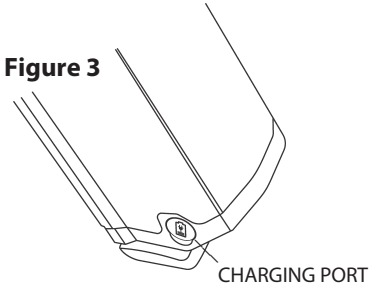
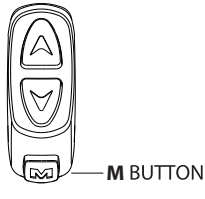
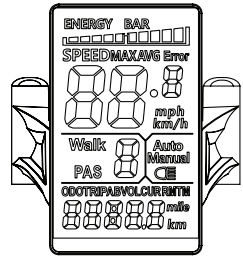


Figure 2





GETTING STARTED

The Dash 350W/500W is operated using the control pad on the handlebars. The control pad is located near the left-hand brake lever.

First, push the power button on the battery to turn on (Fig.1) The current charge level will be temporarily displayed on the LEDs (4=full, 1=near empty), then one green LED to show the battery is turned on. Next, press and hold the [M] button on the handlebar controls to turn on the display (Fig. 2) Display should light up. Now, your e-bike is ready to ride. To turn off, press and hold [M] for 3 seconds. The battery will automatically turn off.

The Dash 350W/500W bike offers pedal assist. When using pedal assist, an electric motor supplements the rider's own effort. To use the pedal assist, simply start pedaling, then push the [▲] arrow to increase assist or [▼] arrow to decrease pedal assist (Fig.2). 0 is the lowest 5 is the maximum. Pedal assist will engage at speeds up to 28 MPH (Dash 500) or 20 MPH (Dash 350).

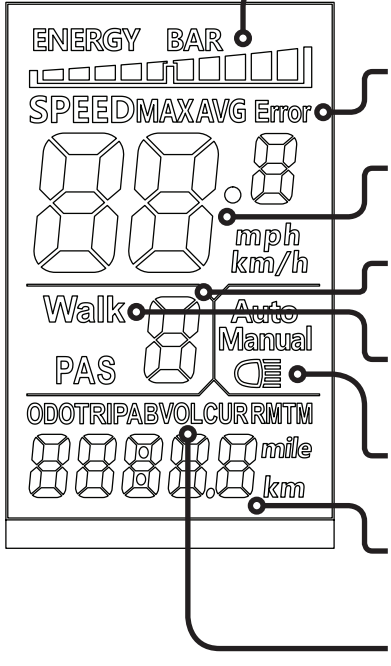
The Dash 350W/500W e-bike is equipped with a throttle, which is mounted near the rider's left thumb, to propel the bike without pedaling. To use the throttle, start pedaling (one pedal revolution) then push down on the throttle while pedaling. Once the bike is moving on throttle power, you can stop pedaling entirely and use your thumb to control the speed of the bike. The throttle can propel you at speeds up to 20 MPH.

THE MOTOR STOPS WHEN YOU:
1) Stop pedaling 2) Squeeze the brake levers 3) Release the throttle. Simply begin pedaling again to re-engage the motor.

WHAT'S ON THE DISPLAY

While you are riding, you can use the display to monitor your speed, the amount of pedal assist, battery life remaining, and other data.

As shown below, your Dash 350W/500W uses an LCD display screen that looks like this:



BATTERY LEVEL INDICATOR
(Current / Max / Average)

ERROR CODE INDICATOR
(In the Event of a Problem)

SPEED INDICATOR
(Current / Max / Average)

5 LEVELS OF ASSIST
(0: No Assist. 5: Max Assist)

WALK MODE
(On / Off)

BACKLIGHT INDICATOR
(On / Off)

DISTANCE INDICATOR
(Current Trip / System Mileage)

VOLTAGE OUTPUT INDICATOR
(Real-Time)

USING THE CONTROLS

START UP: To turn on your bike, push the power switch on the battery (Fig.1), then press and hold the [M] button for 3 seconds (Fig.2).

To turn off, press and hold the [M] button for 3 seconds (Fig.2), then press and hold the power button on the battery for 2 seconds. The display and battery have an energy-saving feature, if there is no activity for 10 minutes, they will turn off automatically to preserve battery life.

Push the [▲] or [▼] arrows to change the level of pedal assist (Fig.2).

Hold [▲] and [M] for 3 seconds to switch between showing real-time speed, average speed, and max speed (Fig.2).

Push [M] to toggle between the display of the Odometer, Trip Distance, Voltage, and Elapsed Time.

BACKLIGHT: Press and hold [▲] for 3 seconds to enable the backlight on the display. Press and hold [▲] again for 4 seconds to turn it off (Fig.2).

WALK MODE: To enable walk mode, first come to a complete stop and stand next to the bike. Press and hold [▼] 3 seconds. The bike will slowly move forward at 3.5 MPH / 6 KPH as long as you hold the [▼] button. This feature is useful for pushing the bike up a hill or walkng through a crowd, where you cannot safely ride.

"**Super walk mode**" is an even faster version of walk mode. To use it, hold down the arrow to engage standard walk mode, then press the throttle. This is useful on very steep climbs or when towing a trailer. Use caution with both walk modes.

CUSTOMIZING THE DISPLAY

You can use the settings features of the display to customize the Dash 350W/500W for your use. To enter the “Settings” mode, hold the ▲ and ▼ buttons at the same time for 2 seconds.

You can customize 3 out of the 6 different functions on the display. Push the M button to move from function to function, and use the ▲ and ▼ arrows to adjust each to your preference. When you are finished, press and hold the M button to save your changes.
Note: The system will save your changes automatically after 8 seconds.

FUNCTION 01P - BACKLIGHT BRIGHTNESS

You can control how bright you’d like the display backlight to be. 1 being the dimmest and 3 being the brightest.

FUNCTION 02P - UNIT OF MEASURE

You can toggle between miles or kilometers, based on your location and preference.

FUNCTION 06P - ODOMETER RESET

The odometer tracks distance ridden over the lifetime of your bicycle. Press and hold M for 5 seconds to reset the trip distance from a single trip.

BATTERY AND CHARGING

The Dash 350W/500W uses a Lithium-Ion battery which can be charged on or off the bike. We recommend charging the battery off the bike indoors, in moderate temperature conditions. To charge the battery, plug the charger into the charging port and then connect the charger to a wall outlet (Fig.3). The LED indicator light will be red when charging and will turn green when charging is complete. When finished, unplug the charger from the battery and from the wall outlet.

Take care of the battery to ensure a long service life.

- Charge and store the battery indoors if possible. The battery can be removed from the bicycle for this purpose.
- Avoid extreme hot and cold temperatures.
- **DO NOT** submerge your bike or any of the components in water. This action will void the warranty.

To optimize the performance of the battery over time, try and use it (discharging and charging) at least monthly. But if you won't be riding your Dash 350W/500W for an extended period of time, it's best to store the battery fully charged. **EVERY 2 MONTHS: Put battery on the charger to maintain optimum level.**

After many charging and discharge cycles, runtime and range will be reduced. Replacement batteries are available from Serfas to extend the life of your e-bike. The lifespan of the battery is about 500 charge / discharge cycles for properly maintained batteries.

When you install the baterry on the Dash 350W/500W, it locks into place automatically. To unlock for removal, use the supplied key.

DO NOT ride the bicycle if the battery rattles or moves - it should be firmly attached.

The Dash 350W/500W battery contains a USB port for transmitting diagnostic data only, not for charging. It will not charge or power devices via USB.

MAINTENANCE AND SERVICE

- When cleaning your bike, use a damp cloth and gentle dish soap. **NOTE: DO NOT use a pressure washer or sprayer.**
- Periodically apply a light lubricant to moving parts, including the links of the chain, derailleur pivots, and shifter cable inner wire where it enters the cable housing.
- If you ride in wet / humid environments, clean and dry electric connections and apply an anti-corrosive.

All bicycles will need a periodic tune-up or adjustments by a professional. An annual “check-up” is beneficial. Your bike’s service schedule will depend on the frequency of its use. In-between expert services at a bike shop we suggest:

- Keep tires inflated to their recommend pressure (30-50 PSI / 2.0-3.5 BAR / 200-350 KPA) and check weekly.
- Clean the drivetrain and lubricate the chain (monthly).

STORING YOUR BIKE

From time to time, you may wish to store your bike for an extended period without riding. Proper storage can help prolong the life of your e-bike components and battery.

To ready your bike for storage, first fully charge the battery. Then remove the battery from the bike and store it separately. Removing the battery from the bike puts it into a low-voltage state designed for long term storage.

Keep both the bike ad the battery in a cool, dry place. Avoid both very hot and very cold temperatures. Generally if the environment is comfortable for humans, then it's a good place to store your bike.

Store your bike away from sources of heat, UV light, and ozone - all of which can prematurely age rubber tires and tubes.

All bicycle tubes slowly lose air over time and need to be regularly topped off to maintain proper pressure. This does not mean that your bicycle has a flat tire. Avoid allowing the tires to deflate completely during storage.

SAFETY

You should wear an approved e-bike bicycle helmet every time you ride, regardless of legal requirement to do so. Additionally, some jurisdictions require helmet use when riding Class II and Class III e-bikes like the Dash 350W and Dash 500W.

Your Dash 350W/500W comes with reflectors and we encourage you to use them. Reflectors are not a substitute for lights, which are not included with your e-bike. You should purchase, install, and use front and rear facing lights when riding in low light or dark conditions.

Some jurisdictions restrict where e-bikes can and cannot be ridden. These limits may include specific speeds and motor wattages.

Your Dash 350W is a Class II e-bike, 350 Watts with pedal assist up to 20 MPH and throttle up to 20 MPH. You should only ride it where legal and safe.

Your Dash 500W is a Class III e-bike, 500 Watts with pedal assist up to 28 MPH and throttle up to 20 MPH.

Some jurisdictions do not allow throttle controlled e-bikes. Your Dash 350W/500W will still run without the throttle plugged in and removed from the bicycle.

ERROR CODES AND TROUBLESHOOTING

In the event of a problem with the electrical components of your bike, the display will show an error code. Compare the code with this list below and **HOW TO RESOLVE:**

CODE	ERROR	HOW TO RESOLVE
21	Current Error	Check the cable that connects the rear hub motor to the rest of the system. Make sure it is free from grit or contaminants and is firmly connected.
22	Throttle Error	When you press and release the throttle, it should return to the original position. Remove any obstructions. Check the throttle and throttle cable for damage, such as a cut or frayed cable.
23	Motor Phase Error	Check the cable that connects the rear hub motor to the rest of the system and make sure it is free from grit or contaminants and is firmly connected. This error might appear if you don't reconnect the cable after removing the rear wheel (for example, after changing a flat tire, or transporting your bike in the trunk of a car). At least one of the motor phase wires has been damaged or is temporarily disconnected.
24	Motor Hall Sensor Error	The hall sensor inside the rear hub might be disconnected or damaged. Service or replace the rear hub.

25	Brake Error	The Dash 350W/500W uses special brake levers that stop the motor when you apply the brakes - built in “magnetic reed swtiches” disengage the motor’s power when the lever is squeezed. If the lever is damaged (for example, following a crash), it might need to be replaced.
26	Overheat Error	The controller or motor has overheated from extended periods of extremely heavy use (for example, climbing a steep hill with maximum pedal assist applied.) Turn off the bike, allow the components to cool off, then try again.
28	Low Voltage	The voltage supplied by the battery is too low to operate the bike. Charge the battery and try again. If the issue persists, check the voltage output on the battery terminals using a volt meter.
29	Over Voltage	The battery is supplying too much voltage to the controller. Make sure you are using the correct battery for your bike. For example, the 36V Dash 350W battery will not work with the 48V Dash 500W, triggering the error.
30	Communication Error	Poor connection between the controller and the display, check all cable connections.

38	Battery Voltage Error	The battery is not supplying the required voltage to power the display and motor. Use the display to view the real-time voltage being output from the battery. It can also be checked using a volt meter. If the battery is old and has been charged / discharged many times, it may need to be replaced. This error could also appear if you install the wrong battery on your Dash 350W/500W.
E1E	Communication Error	Bad connection between display and controller, disconnect and re-connect display; ensure connection does not have grit or contamination.

ADDITIONAL TROUBLESHOOTING

Having trouble with your Dash 350W/500W? Most problems are easy to correct.

1. Start by making sure you have a charged battery.

2. If the motor of your bike will not engage, or only engages intermittently, double check the cable connection where the rear wheel motor plugs into the rest of the system. This connector must be firmly and fully plugged in to function correctly. If necessary, loosen the clips holding the cable to the frame to create additonal slack in the cable, then re-tighten the clips after you have the motor cable firmly plugged in.

3. The throttle on the Dash 350W/500W will only engage after the motor is turned on via pedal assist. This is a safety feature designed to prevent you from accidentally engaging the throttle while parking or walking the bike. If you are having difficulty with the throttle, remember to make one revolution of the pedals first, then engage the throttle. You can stop pedaling after the throttle function turns on.

4. If you bent the derailleur hanger on your Dash 500W/350W in a fall, don't worry. It's actually designed to fail, sparing the more expensive frame, and is inexpensively replaceable for this reason. If you need another, they are available on www.serfas.com or at partner bike shops.

5. If your bike powers up normally and shows no error messages, but will not run when you turn the pedal assist on, check to ensure the cadence sensor under the left crankarm is plugged in.

BATTERY TROUBLESHOOTING

Your Dash 350W/500W e-bike battery uses several sophisticated monitoring systems to prevent damage from overcharging, overheat ing, deep battery discharge, charging with the wrong voltage, and other errors.

Please use the specific charger supplied with your e-bike. Other chargers may not supply the correct voltage required for charging. Those that do may not be programmed to initiate the charge cycle. To resolve this:

1. Remove battery from the bike.
2. Plug the charging tip into the battery.
3. Plug the charger into wall power.
4. Tap the power button on the battery once to turn it on.
5. Charge the battery overnight.
6. When charging is complete, put the battery back on the bike and check for proper operation. Having trouble with your Dash 350W/500W? Most problems are easy to correct.

If a situation occurs that could damage the battery, the battery can go into a protective “sleep mode” - the battery cells inside are OK, but the battery won’t turn on and won’t take a charge. To “wake up” the battery, please follow this procedure:

1. Put the battery on the bike.
2. Plug the chaging tip into the battery.
3. Plug the charger into wall power.
4. Tap the power button on the battery once to turn it on.

continued on next page...

5. Press and hold **M** on the controls to turn on the display.
6. Allow the battery to charge overnight.
7. Once charged, remove from wall power and check for proper operation.

Under specific circumstances you might see one single LED flashing constantly on the battery. One blinking LED is a warning of excessive strain on the battery for its charge level. To correct this issue:

1. Reduce the strain on the battery and charge the battery. If it will not take a charge, please take the previous steps to resolve the issue.

FREQUENTLY ASKED QUESTIONS

- **Do components from the Dash 350W and Dash 500W interchange?**

  Some components interchange across the line of Dash e-bikes, like saddles, seatposts, handlebars, and grips. The ebike specific components, however, like batteries, controllers, displays, and motor do not interchange. Dash 350W is a 36V system vs 48V of the Dash 500W and these parts are not compatible.

- **My Dash e-bike is too fast, or exceeds my local speed limit, or only Class I e-bikes are allowed on my favorite bike path.**

  Dash e-bikes can have the speed limit changed using the settings in the control panel and can be set as low as 14 MPH if desired to comply with local laws. Dash e-bikes can also have the throtlle unplugged and removed (but will continute to run on pedal assist) if desired in locations where throttle bikes are not permitted.

- **On the Dash line of e-bikes, I can't use the throttle from a dead stop, only once I'm pedaling. Why?**

  This is a safety feature to prevent you from accidentally engaging the throttle while parking or standing with the bike, if you forget to turn it off and then hit the throttle accidentally. You can engage the throttle at any time while you are pedaling. If you are at a dead stop, you can push the throttle, start pedaling (about one pedal revolution), then stop pedaling, and the bike will stay in throttle mode.

- **How many times can I recharge my e-bike battery?**

  Lithium-Ion e-bike batteries use a similar technology to your laptop or smartphone. They can absorb about 500 charging cycles before performance degrades. Afterwards, they can continue to be recharged, however, their capacity will decrease.

- **Can I put a suspension fork on the Dash e-bike?**

  Yes, it is possible to put a suspension fork on the Dash line of e-bikes. You would need a replacement fork with these specs: 1 1/8” to 1.5” tapered steerer tube, 51mm IS mount for disc brakes (or a 74mm mount with an add-on adapter to 51mm), 27.5” / 650B wheel size, and the quick release / open type dropout style. Selecting and installng a suspension fork is probably a job for a bike shop.

- **Do I have to wear a helmet when riding an e-bike?**

  We suggest you do. This depends on your age, and your state. Please check your local laws.

- **What rear rack fits the Serfas Dash e-bikes?**

  We recommend to check with your local bike shop.

- **How should I care for my e-bike battery?**

  Please refer to the *Battery and Charging* section on page 6 of your Dash 350W/500W owner’s manual.

- **How can I calculate the capacity of an e-bike battery?**

  E-bike battery capacity is measured in Watt-Hours, or Wh. This is the size of the “fuel tank” on the e-bike. Like a car, some motors guzzle fuel, others sip. To calculate capacity, multiply the voltage (V) used on the bike by the Ampere-Hour (Ah) rating.

  For the Serfas Dash 500W, for example, multiply 48V by 11.6Ah = 556.8Wh. More Watt-Hours equals more range for your e-bike.

- **Why does the remaining battery amount shown on the LEDs on the battery not match the “Energy Bar” on the display?**

  The green LEDs on the battery itself shown the remaining charge left in the battery, but this doesn’t account for how you are using the bike. The Energy Bar function on the display is designed to account for the charge on the battery plus other factors, like speed, throttle usage, and riding conditions like hills or wind. You’ll see it fall more quickly under heavy usage, and more slowly when you are not taxing the motor.

- **What are the weight limits for the Dash 350W/500W?**

  Max. Rider Weight: 250 lbs / 113.3 kg
  Max. Cargo Weight: 50 lbs / 22.6 kg

WARRANTY POLICY

The specific warranty covering your Serfas bicycle is governed by the law of the state or country in which it was purchased, and applies only to bicycles purchaed from Authorized Serfas Retailers.

FRAMES AND FORKS:
Serfas frames made from steel or aluminum (Dash e-bikes) are warranted by Serfas Bikes, 2333 W. Utopia Rd., Phoenix, AZ 85027 against manufacturing defects in materials and/or workmanship for the lifetime of the original owner.

COMPONENTS:
All other components, frame fixtures, and finishes (paint and decals) are warranted against manufacturing defects in materials and/or workmanship for a period of one year from the date of original retail purchase. Forks (other than those made by Serfas - for example, a Rockshox suspension fork) are not covered by this limited warranty, but are separately covered by the stated warranty of their manufacturer. Stripped threads due to user error are not covered by this warranty.

Register at: www.serfas.com/warranty-form

www.serfas.com