



SUNSTAR

S03+ KIT

Manuale d'uso

User manual

Bedienungsanleitung

Manuel d'utilisation



www.sunstaribike.com



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- Braking-Sunstar S.p.A. reserves to modify the content of this manual without notice.
- The updated version will always be available on www.sunstaribike.com.
- On the website you will also find information on the other S03+ products and the spare parts catalogue.

CONGRATULATIONS FOR YOUR PURCHASE

We congratulate with you for choosing the S03+ KIT by SUNSTAR. We are confident that your bicycle, upgraded with S03+ KIT will meet your expectations for features, design and quality. Our S03+ KIKT is produced with the most modern production processes and materials. In order to fully appreciate your bicycle, with S03+ KIT, we ask you to carefully read this manual in addition to the bicycle user manual. For any further questions please contact your Dealer or visit the website www.sunstaribike.com from which you can also download the latest version of the installation and maintenance manual.

1. SAFETY CHARACTERISTICS

Carefully read, follow and understand the instructions given in this manual. It is an essential part of the product, and you should keep it in a safe place for future reference.

MECHANIC QUALIFICATION - Please be advised that the installation of the S03+ KIT require specialized knowledge, tools and experience. General mechanical attitude may not be sufficient to properly install the S03+ KIT. If you have any doubt whatsoever regarding your service and maintenance ability, please contact your official BRAKING-SUNSTAR dealer.

INTENDED USE - This product is designed and manufactured in order to be used on most number of bicycles. In any case could be possible that special frames, different from standards, could not mount correctly the S03+ KIT.

LIFESPAN - WEAR - INSPECTION REQUIREMENT - The lifespan of the S03+ components depends on many factors, such as rider size and riding conditions. Impacts, falls, improper use or harsh use in general may compromise the structural integrity of the components and significantly reduce their lifespan. Some components are also subjected to wear over time. Let your dealer regularly inspect the complete bicycle in order to check any cracks, deformation, signs of fatigue or wear. If the inspection reveals any deformation, cracks, impact marks or stress marks, no matter how slight, immediately replace the component.



WARNING

If you weight more than 80 kg (80kg rider+ 20 kg bicycle), you have to follow a regular inspection schedule (verify inspection schedule on the "MAINTENANCE" chapter).

IMPORTANT NOTICE: PERFORMANCE, SAFETY AND WARRANTY

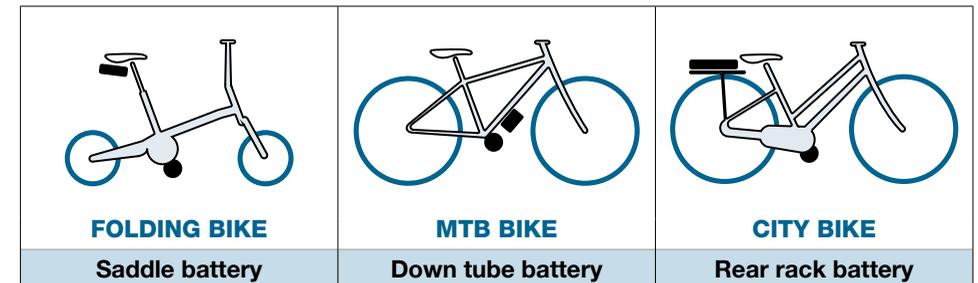
The S03+ components are designed as a single integrated system. To avoid compromises in terms of SAFETY, PERFORMANCE, DURABILITY, FUNCTION, and to prevent voiding the WARRANTY, use only parts and components supplied or specified by BRAKING-SUNSTAR S.p.A. without interfacing them with or substituting them with parts or components manufactured by other companies.

NOTE: Tools supplied by other manufacturers for components similar to S03+ components may not be compatible. Always check with BRAKING-SUNSTAR S.p.A. or the tool manufacturer to insure compatibility before using tools supplied by one manufacturer on components supplied by another.

The final user of the S03+ KIT accept that there are risks inherent in bicycle riding, including but not limited to the risks that a component of the bicycle can fail, resulting in an accident, personal injury or death. By purchasing and using of this BRAKING-SUNSTAR S.p.A. product, the user expressly, voluntarily and knowingly accepts and assumes these risks, included but not limited to the risk of passive or active negligence of BRAKING-SUNSTAR S.p.A. or hidden, latent or obvious defects in the product, and agrees to hold BRAKING-SUNSTAR S.p.A. harmless to the fullest extent permitted by law against any resulting damages. If you have any questions, please contact BRAKING-SUNSTAR S.p.A. for additional information.

2. S03+ KIT DESCRIPTION

The S03+ KIT by SUNSTAR has transformed Your bicycle into an EPAC (Electric Power Assisted Cycle).



3. S03+ KIT COMPONENTS

MOTOR UNIT

The torque assistance is provided via a brushless DC motor co-axial to the central movement. The power of the motor is 250W, according to EPAC rules.

There are sensors integrated in the engine to measure: torque, crank rotation, rear wheel speed and temperature for the system protection.



BATTERY

The system must adopt a lithium-ion battery developed specifically for the S03+ KIT.

The batteries are different each other for installation position and rated capacity.

Rated Capacity [Ah]	Nominal Energy [Wh]	Charging time [h]
2.5	63	1,5
9	233	4,5
11	285	5,5
16	408	8



CONTROL PANEL

The S03+ KIT control panel (HI) has two different LED scales indication, one reporting the charging status of the battery, the second one for service mode settings. Furthermore there are three buttons: ON, OFF and MODE.

BATTERY CHARGER

The chargers are coupled to the battery choice.

- Input voltage range: 110-240V
- Output voltage range: 29 ÷ 29.4V
- Maximum charging current range: 1.75A ÷ 2A (depends on the type of battery).



4. INSERTING OR REMOVING THE BATTERY

SADDLE BATTERY 2,5 Ah

Inserting the battery to saddle hanger:

- 1) Place the battery carefully on the hanger inserting carefully the metal bracket inside the battery handle.
- 2) Push the battery until it's possible to hear the coupling sound (eventually help the joint by turning the key clockwise).
- 3) Remove the key from the lock.

Removing the battery to saddle hanger:

- 1) Turn off the system.
- 2) Insert the key into the lock and turn clockwise.
- 3) Remove the battery by pulling the battery by the handle.

DOWNTUBE BATTERY 9 Ah / 11 Ah

Inserting the battery to downtube hanger

- 1) Place the battery carefully into the hanger, taking care to properly fit the power connector on the bottom side.
- 2) Push the battery at the top side until the coupling occurs and you hear a clear coupling sound.

Removing the battery to downtube hanger

- 1) Turn off the system.
- 2) Turn the key in the lock anticlockwise and simultaneously pull the top of the battery.
- 3) Remove the battery also from the bottom base.

REAR RACK BATTERY 9 Ah / 11 Ah / 16 Ah

Inserting the battery to rear rack hanger

- 1) Place the battery carefully on the hanger positioned on the rack by passing the black metal bracket inside the housing provided under the battery.
- 2) Push carefully forward until the battery is hooked to the support (may turn the key to facilitate the attachment)

Removing the battery from the rear rack hanger:

- 1) Turn off the system.
- 2) Turn the key in the lock anticlockwise.
- 3) Pull the battery out of the battery seat along the metal bracket of the rack in backward direction.

5. HANDLING AND CHARGING THE BATTERY

WARNING

- Always be very careful when handling batteries in order to avoid any collision.
- To recharge batteries always use only original chargers supplied for S03+ KIT.
- In case you need to buy and/or replace the charger use only those provided by BRAKING-SUNSTAR S.p.A.
- Never short-circuit the battery by connecting together the contacts. This causes irreparable damage to the battery.
- The user can not perform battery maintenance.
- Never attempt to open the battery. Opening the battery would cause serious risks to the user and furthermore you will lose any kind of warranty.
- Do not use damaged batteries.
- Do not use the charger to charge other batteries.
- While charging with the charger connected to the network, you must ensure that the battery and charger are never wet to prevent electrical accidents or short circuit.
- Do not use the charger, when the cable, the body or the plug is damaged.
- Do not allow children to use the charger.



The battery needs to be recharged in a ventilated place avoiding exposure to sources of heat! Use power lines built as required by law.

The refills at temperatures too high or too low are harmful for the batteries and cause significant reduction in battery life. We suggest to recharge the battery at room temperature (around 20°C). Before recharging leave the battery at room temperature so that can be stabilized, in this way it keeps the maximum efficiency and is preserved from damage.

It's possible to recharge the battery both installed on the bike or separately. Lithium batteries used have no memory effect. This means you do not need to wait until the battery is fully discharged before recharging, you can charge the battery after every trip. It is recommended, however, if possible, and compatibly with the distance that you intend to perform, to recharge the battery, only when, the indicator of the state of charge, is lower than 50% of capacity.

If the battery will be stored for a longer period (ex. for a winter break), we recommend that you fully charge it before the period of inactivity.



WARNING: The batteries when not in use, **must** be charged at least every **three months**. The batteries not recharged every three months could suffer damage. Batteries not recharged every three months will lose the warranty.

Store the battery not used in a cool place at a temperature between 10°C and 25°C. Never store the battery where the temperature exceeds 40°C or is less than -10°C.

The battery should never be subjected to temperature fluctuations and extremes during storage and must be protected against damp to prevent corrosion of contacts.

The battery in use or at rest must always be protected from heat and impact. Never use damaged batteries. The use of damaged batteries is potentially dangerous for the people safety.

The battery works properly in a temperature range between 5°C and 40°C. The battery life is reduced with a use outside of these values.

To keep the battery in good condition you should remove it from the bike if you park for a long time in the sun or rain.



Do not throw used batteries into waste!
Used batteries should be disposed professionally!
The S03+ batteries can be returned free of charge to BRAKING-SUNSTAR S.p.A. dealers.

SADDLE BATTERY 2,5 Ah

Battery charger 2.5 Ah

- The supplied battery charger is suitable for the voltage 110-240V.
- Output: 29V ÷ 1.75A

Charging process

- Plug the charger into an electrical socket. Green LED lights turn on showing the electrical connection.
- Connect the battery charger to the battery with the square plug. The battery can be recharged both if removed or installed on the bicycle, in the latter case the system must be switched off.

See Table to verify the situations of the LED:

CHARGER LED LIGHTS	STATUS
<ul style="list-style-type: none">  green  green blinking 	Charging process
<ul style="list-style-type: none">  green  green 	Complete charge. Now you can disconnect battery from charger.
<ul style="list-style-type: none">  none  none 	Power supply missing
<ul style="list-style-type: none">  green  none 	Power supply available but battery not connected.
<ul style="list-style-type: none">  green  orange 	Temperature error. Possible that battery temperature is too high or too low. The charging process will not start and the unit will enter in stand-by mode. As soon as conditions return to normal, charging will resume automatically (it is recommended to start charging when the temperature became normal).
<ul style="list-style-type: none">  green  orange blinking 	The charger or the battery have a problem. Stop charging immediately and contact your dealer.

- When charging, the battery can heat up; this does not indicate a system malfunction
- The time required for a full battery charge, change according to the model of the battery and charging status. When the battery is completely discharged, it could takes 2 or 3 hours for a full charge
- Do not allow the battery to charge end, remains for a long time connected to the charger and power supply.

CENTRAL DOWNTUBE AND REAR RACK BATTERY 9 Ah / 11 Ah

9 Ah / 11 Ah Battery charger

- The supplied battery charger is suitable for the voltage 110-240V.
- Output: 29V ÷ 2A

Charging process

Connect the battery charger to the battery with the square plug. The battery can be recharged both if removed or installed on the bicycle, in the latter case the system must be switched off.

See Table to verify the situations of the LED.

- Plug the charger into an electrical socket. The green LED lights turn on showing the electrical connection.
- Connect the battery charger to the battery with the round plug. The battery can be recharged both if removed or installed on the bicycle, in the latter case the system must be switched off.
- When the battery is connected to the power LED turns RED, charging is in progress.
- When fully charged, the LED on the charger will turn to GREEN. The battery is fully charged and the charging process is completed.
- Unplug the charger from the power supply.
- The time required for a full battery charge, change according to the model of the battery and charging status. When the battery is completely discharged, it could takes 4÷5 h for a full charge.
- Do not allow the battery to charge end, remains for a long time connected to the charger and power supply.

REAR RACK BATTERY 16 Ah

16 Ah Battery charger

- The supplied battery charger is suitable for the voltage 110-240V.
- Output: 29V ÷ 2A

Charging process

- Plug the charger into an electrical socket. The green LED lights turn on showing the electrical connection
- Connect the battery charger to the battery with the round magnetic plug. The battery can be recharged both if removed or installed on the bicycle, in the latter case the system must be switched off.
- When the battery is connected to the power, LED turns RED, charging is in progress. If, after a few seconds it does not become red but remains green, you must press the button on the battery backside and hold it for more than 3 seconds.

WARNING: After 7 days of inactivity, the battery goes automatically into stand-by mode. To turn it on, hold the backside button at least for 3 seconds.

- When fully charged, the LED on the charger will turn to GREEN. The battery is fully charged and the charging process is completed.
- Unplug the charger from the power supply.
- The time required for a full battery charge, change according to the model of the battery and charging status. When the battery is completely discharged, it could takes 8÷9 h for a full charge.
- Do not allow the battery to charge end, remains for a long time connected to the charger and power supply

Range

- The battery mileage depends on various factors such as, for example:
 - support of the assist unit set on the control panel (E -N -T)
 - Type and difficulty of the path
 - Weight of the rider and the bike
 - Speed
 - Ambient temperature and wind on the way
 - Tires model and tyre pressure
- Braking-Sunstar recommended to choose the mode of support according to their needs reminding that less effort corresponds to an higher consumption and so a reduced battery mileage. The S03+ KIT supports the rider in proportion to its capacity and reach automatically the best efficacy.

BATTERY STATUS	NUMBER OF LED
100% - 60%	3 led
60% - 30%	2 led
30% - 10%	1 led
10% - 0%	1 led blinking
0%	1 led slow blinking

WARNING: under certain conditions with a charge less than 10%, the system may not work properly / continuously.

6. SYSTEM MANAGEMENT

- 1** M Button: Select assisting mode
- 2** LED E, N, T: Selected assisting mode.
- 3** LED for charge status
- 4** ON button
- 5** OFF button



Start the system

- **Only for 9Ah battery** - Verify that the battery button is on ON position.
- **Only for 16Ah batteries:** if the battery is stocked more than 7days, it goes into Energy safety mode; in order to reactivate the battery it's needed to press rear reset button for more than 3 seconds.
- Press ON button on the control panel. The system start and motor control unit check the entire system functionality.



WARNING

When the system is running self-control process you should not pedaling. If you accidentally ride during the self-check, system may not work properly. In this case, turn the system off and turn on again. At the end of self-control, the user can start pedaling.

- Each time the system wakeup, it start in N position, to change the status use the M button.
- After use turn off the system by pressing the OFF button (Only for central battery: turn off even the battery by placing the button on the battery in the OFF position).

NOTE: The system after 5 minutes of inactivity will turn off automatically.

First use

- We suggest to make the first experience with your bike equipped with the S03+ KIT away from roads with heavy traffic.

Type of assistance provided by the engine

- The S03+ KIT offers 3 different levels of assistance.
- To choose the level of desired service, press the MODE button to set the type of support required by the engine.
- There are three possible ways of use:

ASSISTING MODE	ASSISTING LEVEL	POWER RATIO %	SUGGESTED SITUATION
E	ENERGY SAVER	75 %	For long journeys in plane
N	NORMAL	100%	In every condition
T	TURBO	150%	For maximum engine service



WARNING

It is possible that using uphill you bike, the S03+ motor and the battery will heat up due to the greater power output; this is not a malfunction of the system. Do not touch the motor unit during and after usage.

In case of excessive overheating, the motor, automatically activates the protections that suspend the power output. The suspension of the power output can take place even when the outside temperature is lower than -5°C.

Using bike with inactive motor

- The bicycle can also be used with the system inactive without compromising in any way the functionality.

7. MAINTENANCE AND CARE

After the first 200 km of use, all screw connections should be checked by your authorized dealer BRAKING-SUNSTAR S.p.A. Check regularly (every two or three months) the electrical contacts and connectors. If these prove oxidised, clean them with a brush. When the battery is removed from the hanger, make sure that the connection zone is protected from moisture, dirt and humidity, because these factors could jeopardize the proper functioning of the power supply.



WARNING

The motor unit does not need any maintenance. Do not open for any reason the engine. Any tampering will cause the loss of warranty.

8. PERIODIC INSPECTION PLAN

CHECK LIST		1	2	3	4	5	6	7	8
Rider weight < 80 kg		2 months o 200 km							
80 kg < Rider weight < 120 kg		1 months o 100 km							
1	Check if the assist unit is loosened or damaged.								
2	Check if the assist function operates normally or produces abnormal noise.								
3	Check if parts are deformed or there are evident cracks.								
4	Check if grease leaks from the assist unit.								
5	Check if the electric wirings are connected without slack or damage.								
6	Check if any cord is disconnected and each cord is mounted to the frame properly.								
7	Check if the battery lock key functions normally.								
8	Check if the battery is mounted securely.								
9	Check if each indication lamp lights up or if any lamp indicates abnormality.								
10	Check if the battery is running short quickly.								

9. SETTINGS



WARNING

It's very important to accurately adjust the rear derailleur (where present) to maintain a precise gear shifting and to avoid possible falls of the chain.

Regardless of the type of gear-shifter used, it is recommended that when you change gear, you reduce the force applied to the pedals. In this way the gear-shift becomes easier and reduces wear of movement.

10. CLEANING



WARNING

To clean the propulsion system, never use a high pressure water that could damage the electrical parts of the system!

To clean the bike it is suggested to use a sponge or a damp cloth without using plenty of water especially with high pressure.

After every wash, check the connectors. Verify that water intake and that this is not remaining inside. Leave to dry the connections before new ride.

11. TRANSPORTATION OF ELECTRIC BICYCLE

WARINNG

Keep in mind that the transport system (rear carrier or roof rack) must be suitable to support the weight and dimensions of the bicycle equipped with assist unit. A carrier unsuitable could cause damage to the bike, to transport and put people's safety under risk.

During transport, the battery must be removed from the hanger on the bike. After removing the battery, contacts must be protected to prevent dirt and / or water entry.

12. SPARE PARTS AND ACCESSORY

WARNING

Please be aware that for security reasons the maintenance and repair of the system should be done using only genuine parts BRAKING-SUNSTAR S.p.A.

The use of non-original parts will void the warranty. Do not try to use spare parts from unknown sources, especially inherent of the batteries parts. The use of non-original spare parts may jeopardize the safety of people.



WARNING

IT IS STRICTLY FORBIDDEN TO OPEN THE BATTERIES! THIS OPERATION ENDANGER LIFE OR PEOPLE!

Maintenance should be done by trained and authorized personnel by BRAKING-SUNSTAR SpA.

The original spare parts for your S03+ KIT can be purchased at Braking-Sunstar S.p.A. through your dealer.

SPARE KEYS FOR BATTERY LOCK

To purchase a spare key for the battery lock, please contact your dealer. For security reasons, in order to purchase a spare key, you must provide the serial number printed directly on the key.

We therefore recommend you to mark the key number in this manual or in a safe place.



SUNSTAR KEY CODE NUMBER



If you bring your bike equipped with S03+ KIT into repair shop, remember to bring with you, to the Braking-Sunstar S.p.A dealer , the key to unlock and remove the battery.

13. TROUBLESHOOTING

BATTERY

1. The control panel does not report the state of full charge after the process of battery charging

- Check that the power is adequate to the charger.
- Check that the battery charger and the battery are properly connected.
- Make sure you have followed the instructions for the charging process.
- Allow the battery to cool for a couple of hours and then recharge it again (possibly repeat the process!).
- If you are unable to solve the problem, contact your dealer.

2. Limited range

- Make sure the temperature is not lower than 5°C. With the cold cells lithium battery have a degradation that can reach 40% of total capacity. Once restored the proper temperature the battery go back to the normal range.

3. The battery has reduced its performance after usage

- The battery reduces its energy storage capacity as a result of many recharging cycles. See the information inside guarantees section.

MOTOR SYSTEM

1. You can not turn the system on, the control panel is off

- Check that the battery is properly inserted and the lock close the battery perfectly.
- Check that the battery cables, control panel and speed sensor are connected correctly.
- If you are unable to solve the problem, contact your dealer.

2. The system powers up but does not provide any support

- Check that the battery is inserted correctly into the hanger.
- Check that the battery cables, control panel and speed sensor are connected correctly.
- Check the state of charge of the battery, if less than 10%, recharge it.
- Verify that the outdoor temperature is not lower than -5°C.
- Ensure that motor overheating due to heavy operating kept motor into thermal protection.
- Turn off and turn on the system.
- If you are unable to solve the problem, contact your dealer.

3. Errors codes shown from the control panel by led flashing

ERROR INDICATION	Alternus blinking	LED FLASHING						ERROR CODE
		Mode			Battery level			
		E	N	T	E		F	
Battery							●	E1
Electrical power						●		E2
Switch						●	●	E3
Voltage 1					●		●	E4
						●		
Voltage 2							●	E5
					●	●		
Sensor					●		●	E6
Temperature					●	●		E7
Internal 1					●	●	●	E8
Internal 2						●	●	E9
					●			
General		●			●	●	●	E10

If any LED flash in the mode indicated in this table, contact your dealer Braking-Sunstar S.p.A. and report the error code related. If necessary, bring your bicycle with S03+ KIT fitted to your dealer shop for a complete check.

14. REGISTER YOUR PRODUCT

We recommend to register immediately on the www.sunstaribike.com portal your S03+ KIT after purchasing or writing an e-mail to info.it@sunstaribike.com.

This will allow you to immediately get all the latest information on your products, receive the most important communications and immediately get a free extension on the warranty of your battery.

To complete your registration you only need to introduce your data and the 3 S/N listed on your products:

MOTOR CODE

BATTERY CODE

KEY CODE

15. WARRANTY INFORMATION AND GUARANTEE

The Braking-Sunstar S.p.A. components for S03+ KIT are covered by 24 months warranty, instead the batteries are covered by 12 months warranty, with possible warranty extension, as long as below conditions are confirmed:

- The warranty covers only the S03+ KIT supplied by Braking-Sunstar S.p.A., not all the other components of the bicycle.
- The warranty covers the repair or replacement of the S03+ KIT, if during the warranty period it loses its functionality or this is reduced except in the cases listed below for which the warranty is expressly excluded.
- This warranty does not affect any other legal rights, especially the laws on guarantees.
- The warranty covers defects in materials and workmanship. The warranty is valid only upon presentation of purchasing documents including the original receipt or invoice with the date information and dealer name.
- Braking-Sunstar S.p.A. reserve the right to reject the warranty claim if there are no required documents.
- If warranty right are respected, Braking-Sunstar S.p.A. may repair or replace the defective parts of the system based on the results of the analysis.
- The warranty repairs are carried out by Braking-Sunstar S.p.A. or by an authorized and properly trained dealer.
- Under warranty, you must send at your own expense and risk, the component to Braking-Sunstar SpA and, after repair, withdraw or request shipment at your own expense and risk.
- Braking-Sunstar S.p.A. reserves the right to take charge of the shipping costs if the verification confirm the defect due to manufacturing errors.
- Any activities and costs of repairs carried out in a place not authorized by Braking-Sunstar S.p.A., will not be accepted or refunded. Any repairs carried out in a not authorized by Braking-Sunstar S.p.A. dealer, cause the withdrawal of warranty.
- Warranty repairs are not eligible for an extension of the same or a new warranty period.
- The warranty period starts from the date of purchase. The warranty issues must be notified immediately and no later than the period of coverage.

The warranty does not cover damage caused by:

- Damage not caused by problems in production system
- Misuse of the system
- Improper maintenance
- Incorrect assembly on the bike
- Tampering
- Improper behaviour, theft or robbery and other individual cases.
- Testing, maintenance, repair and replacement of within normal use
- Improper use, with exposure and contact with liquids / chemicals of any kind and / or extreme temperatures
- Moisture or water in the battery or in the battery holder for failure to comply with the provisions outlined in this manual

The warranty does not apply in these specific situations:

- If the model number, serial number of product is modified, removed or defaced. The same regarding signet and serial number label on the battery body, so if they are damaged or visibly tampered.
- S03+ KIT has been used with batteries other than the iBike if option for the product.
- Damage of the battery due to excessive reduction of the level of charge or for failure to comply with the correct use of the battery (see information for you about the battery)
- Damage and / or tampering with the firmware installed on the product.

The warranty does not cover normal deterioration due to the use, including battery capacity reduction.

If the system is subjected to heavy use, with a total weight over 100kg for user and bike, the warranty does not cover the transmission components subject to higher wear and the rapid degradation of battery Lithium-ion cell.

Each battery has a natural aging process that generates the loss of capacity.

Braking-Sunstar S.p.A. warrant the battery within the warranty period of two years or, alternatively, up to a maximum number of charging cycles (dependent on which of these two possibilities occurs first) for the type of battery purchased:

BATTERY MODEL	RESIDUAL RATED CAPACITY	WARRANTY MONTHS	WARRANTY RECHARGING CILGES	WARRANTY MONTHS AFTER ONLINE REGISTRATION	WARRANTY CICLES AFTER ONLINE REGISTRATION
2.5 Ah	50%*	12	250	24	500
9 Ah	70%*	12	350	24	700
11 Ah	70%*	12	500	24	1000
16 Ah	70%*	12	500	24	1000

*excluding batteries subjected to heavy use

The warranty only covers repairs or replacement of the items damaged or incorrect, but not: the right to recover damages on the property, the downtime, the costs of equipment rental, the travel expenses, the gain failure or other related rights.

The responsibility of Braking-Sunstar S.p.A. regarding the warranty is limited only to the value of purchased S03+ KIT.

16. TECHNICAL DATA
MOTOR UNIT

DESCRIPTION	UNIT	DETAILS
Product code		KB2P16, KB2P20, KB2P26, KB2P27, KB2P29
Unit Assembly Condition Bottom Bracket width: Bottm Bracket diameter:	mm	68 ÷70 33,8 ÷34,2
Power Ratio		1:0,75 ÷ 1:1,5
Rated continuous Output - Nominal	W	250
Output torque, max.	Nm	44
Range of Sensing Pedal Force (Length of crank, 165 mm conversion)	Kg	5 ÷ 34,9
Maximum crank Rotation	RPM	112.6
Decelerating Ratio		36.4 : 1.0
Maximum Current Value	A	20
Rated voltage	V	24
Maximum Assisted Speed	Km/h	25
Type of torque sensor		Noncontact type Magnetism Sensor
Battery Charge Detection		4 level, Voltage-detection type
Assist Mode Switch		3 patters (Normal, Turbo, Eco)
Operating temperature	°C	-5 ÷ 40
Storage temperature	°C	-10 ÷ 50
Degree of protection		Rainproof
Weight, approx.	Kg	3,2
CE		Compliance with EN15194 (by SUNSTAR normal bicycle frame)

CONTROL PANEL

DESCRIPTION	UNIT	DETAILS
Product code		KB0023
Operating temperature	°C	-5 ÷ 40
Storage temperature	°C	-10 ÷ 50
Degree of protection		Rainproof - only upper side
Weight, approx.	kg	0,09

SADDLE BATTERY 2,5 Ah

DESCRIPTION	UNIT	DETAILS
Product code		KB0011
Model Name (Brand)		LIBT2500X3.6X7 (SUNSTAR ENGINEERING)
Average Rated voltage	V	25.9
Minimum capacity	mAh	2400
Energy	Wh	63
Chemical System		Lithium Transition Metal Oxides / Carbon
Number of cells		7
Type of cells		SONY US26650VT
Operating temperature	°C	-20 ÷ 60
Storage temperature	°C	-10 ÷ 40
Allowable charging temperature range	°C	0 ÷ 45
Charging time (empty to full)	h	2
Degree of protection		Rainproof
Weight, approx.	kg	0,9
Operating distance (Economy - Normal - Turbo)	km	20 - 16 - 8

DOWNTUBE / REAR RACK BATTERY 9 Ah

DESCRIPTION	UNIT	DETAILS
Product code		KB0035, KB0040
Model Name (Brand)		SH030704, YJ210704
Average Rated voltage	V	25.9
Rated capacity	mAh	8800
Energy	Wh	233
Charge current max	A	2
Discharge current max.		18
Chemical System		rechargeable lithium-ion battery
Number of cells in parallel		7
Number of cells in series		4
Type of cells		Panasonic CGR
Operating temperature	°C	-20 ÷ 60
Storage temperature	°C	-10 ÷ 40
Allowable charging temperature range	°C	0 ÷ 45
Charging time (empty to full)	h	4,5
Degree of protection		Rainproof
Weight, approx.	kg	1,9
Operating distance (Economy - Normal - Turbo)	km	54 - 43 - 21

DOWNTUBE / REAR RACK BATTERY 11 Ah

DESCRIPTION	UNIT	DETAILS
Product code		KB0014, KB0051
Model Name (Brand)		SH030705, YJ210705
Average Rated voltage	V	24
Rated capacity	mAh	11000
Energy	Wh	285
Charge current max	A	2
Discharge current max.		18
Chemical System		rechargeable lithium-ion battery
Number of cells in parallel		7
Number of cells in series		5
Type of cells		Sony us 18650-v3
Operating temperature	°C	-20 ÷ 60
Storage temperature	°C	-10 ÷ 40
Allowable charging temperature range	°C	0 ÷ 45
Charging time (empty to full)	h	5,5
Degree of protection		Rainproof
Weight, approx.	kg	2,1
Operating distance (Economy - Normal - Turbo)	km	60 - 45 - 23

REAR RACK BATTERY 16 Ah

DESCRIPTION	UNIT	DETAILS
Product code		KB0015
Model Name (Brand)		7S7P BM18650Z3 Block (SONY)
Average Rated voltage	V	25.9
Rated capacity	mAh	15750
Energy	Wh	408
Charge current max	A	8 ± 0,05
Discharge current max.		35 ± 0,05
Chemical System		LiNiMnCoO2
Number of cells in parallel		7
Number of cells in series		7
Type of cells		US18650Z3
Operating temperature	°C	0 ÷ 60
Storage temperature	°C	-10 ÷ 40
Allowable charging temperature range	°C	0 ÷ 45
Charging time (empty to full)	h	8
Degree of protection		IP54 (dust and Splashing water protected)
Weight, approx.	kg	3,06
Operating distance (Economy - Normal - Turbo)	km	95 - 76 - 38

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