# **XCURSION** User Manual





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#### Important safety information

Before you operate your device, please read and understand all of the information provided for your safety. As with operating any vehicle, only drive with full alertness to ensure safety. Please observe the warnings below to avoid any damage or injury resulting from improper use of your device. You are responsible for taking proper safety measures and we will not be held liable for personal injury and/ or product damage resulting from improper use of the device.

• Please consult your doctor routinely to ensure there are no health or physical conditions that may limit or impair your ability to safely operate your device.

• Consult your doctor if you are taking prescription or over-the-counter medications to see if any side effects may limit or impair your ability to safely operate your device.

• Do not operate your device while you are under the influence of alcohol, as this may impair your ability to operate it safely.

• Do not use the device other than for its original purpose. Avoid any use, such as weight training, sports, athletics, hauling, moving or towing anything, that may lead to safety hazards and undue stress on the device.

• Your device is designed for one person only. Do not carry passengers.

• We strongly recommend that you do not smoke cigarettes while seated on your device. You must adhere to the following safety guidelines if you decide to smoke cigarettes while seated on your device: Do not leave lit cigarettes unattended. Keep ashtrays at a safe distance from the device. Always make sure cigarettes are completely extinguished before disposal.

• Replace worn or damaged upholstery immediately to reduce the risk of flammability.

• Keep all electrical connections clean, dry and away from sources of dampness at all times to prevent damage to the electrical system and/or personal injury.

• Check electrical components frequently for signs of corrosion and if found contact the company you purchased from to replace these as soon as possible.

• Do not modify your device. For any accessories, please contact an approved company for installation.

• The addition of accessories to your device may change certain specifications such as overall weight, size, and /or the centre of gravity. Please take note of how some of the changes may damage any objects around you.

• Exercise extreme caution when using oxygen in close proximity to electrical circuits and combustible materials. Contact your oxygen provider for information on using oxygen safely.

• Do not change the settings of the controller. Please contact an approved company if you notice any change in your ability to control your device.

• Do not place the device in "free-wheel" mode while it is turned on. Always turn off the device before engaging or disengaging "free-wheel" mode.

• If you anticipate being seated in a stationary position for an extended period of time, turn off the power to the device. This will prevent unexpected or unintended movement.

• Do not connect any device to the devices electrical system or use the batteries to power anything other than your device.

• To prevent the device from rolling uncontrollably on its own, never place the scooter in "free-wheel" mode on any incline or decline.

• Possible strangulation hazard! Be aware that clothing, lanyards, necklaces, other jewellery, purses, and other accessories worn or carried by you while you are seated on or operating your device may get caught around the armrests or throttle control lever.

• Avoid using any accessories that may interfere with the operation of the controls to avoid unintended or uncontrolled movement of the device.

• Keep yourself, clothing, and all other objects away from the wheels while driving. Do not allow any objects to drag behind the device when driving. Loose-fitting clothing or other objects can get caught in the wheels.

• Do not remove any fuses from the battery or device. If the fuse appears damaged, contact the company you purchased from.

• Do not use the armrests (if fitted) for any weight bearing purposes as this may cause the device to tip.

• Carefully read all important warnings and instruction labels on the device before operation.



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**WARNING** Highlights potential hazards for the user and/or product.

**SUGGESTION/TIP** General suggestions and advice for operating this product.

CHECK OUT THIS PRODUCT



For more information, scan the QR code

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# 1. Introduction

Thank you and congratulations on purchasing your new Motion Healthcare Xcursion Class 3 Mobility Scooter.

Your new device is designed to provide transportation indoors and outdoors for a person whose ability to walk is impaired, but who in terms of eyesight, dexterity and cognitive ability are able to safely operate the device.

We pride ourselves on providing safe, comfortable and high quality products and our goal is to ensure your complete satisfaction, we sincerely hope we achieve that and you enjoy your Motion Healthcare device.

Please read and observe all warnings and instructions provided in this user manual before you operate the various functions of your device and please retain this user manual for future reference.

If you have any questions, please contact the company you purchased from.

#### 2. Getting to know your scooter





# 4. Mounting & Dismounting Safely

To safely mount and dismount your device always make sure it is first turned off, if you fail to do so you may accidentally touch the throttle control and cause your device to move unexpectedly. Make sure motor locks are engaged to keep the device from moving while you mount/dismount.

Move your device as close as you can to the seat you are transferring from and transfer as far back onto the seat surface as you can, this will reduce the risk that you will miss the seat or fall. The full correct transfer method varies based on your personal circumstances so work with your health care professional to learn how to position your body and how to support yourself during a transfer.

We also advise you have someone help you until you are sure you can safely transfer on your own.

# 5. Driving Safely

When driving your device always be aware of the following:

• Always obey all of the local pedestrian and traffic rules. It may be difficult for others to see you when you are seated on your device. Wait until your path is clear of traffic, and then proceed with extreme caution. Use of safety equipment such as reflectors/reflective clothing, lights, and safety flags is advisory.

• Every device is different. Take the time to learn the feel of this device before driving.

• Get to know the areas where you plan to use device. Look for hazards and learn how to avoid them.

• Never use your device to negotiate stairs or escalators.

• To prevent tipping reduce your speed when turning and do not make any sharp turns. Always maintain a stable centre of gravity while turning and avoid shifting your weight in the opposite direction of a turn.

• While driving up inclines or low kerbs, drive your device straight on with the wheels perpendicular to the incline and/or low kerb; both front wheels should contact the incline/low kerb at the same time. To reduce the possibility of a fall, do not drive at an angle; do not get one wheel or side of the device on the incline/low kerb first. Always exercise extreme caution when negotiating an incline or kerb.

• Do not travel up or down potentially hazardous surfaces and/or inclines, including but not limited to areas covered with snow, ice, cut grass, or wet leaves.

• When climbing an incline, try to keep the device moving. If stopping is necessary, start up again slowly and then accelerate with caution.

• When descending an incline, use the slowest speed possible. If the descent is faster than you desire, release the throttle control to stop the device. Then press the throttle control gently to control the speed of your descent.

• The maximum recommended incline angles (see specifications) are tested in a controlled environment. Your device's ability to climb up inclines is affected by your weight, speed and the angle you approach the incline among other factors.

• Only drive backwards on a flat surface. When driving backwards, operate your device at a lower and even speed. Stop often and check to make sure your path is clear of obstacles. To prevent tipping, do not travel down an incline or ramp backwards.

• Avoid any change of position or movement that may change your centre of gravity while the device is moving.

• Be aware a dropped kerb or small bump at the bottom of a slope can stop the front wheels and cause the device to tip forward.

# 6. Safe Transportation

When transporting your device always be aware of the following:

• Do not use your device as a seat in any motor vehicle.

• Always secure the device and its batteries when it is being transported. Do not transport the device or batteries with any flammable or combustible items.

• Never transport the device in the front seat of a vehicle as it may move and distract the driver.

• Never sit on your device while it is in a moving vehicle.

• Do not tow your device with a car. Towing may exceed the maximum speed threshold, resulting in damage to critical components of the device.

# 7. Battery Charging & Care

New batteries must be charged fully (approximately 24 hours) prior to first use to fully activate the batteries, if this does not happen battery life can be reduced.

Battery life can be affected by temperature, user weight, the condition the battery is kept in, as well as the charging regime used.

As a general rule you should charge your batteries as often as possible to ensure the longest possible life and minimise the required charging time. Plan to recharge them when you do not anticipate using your device. When not using your device make sure that the batteries are charged fully at least every 4–6 weeks. If left uncharged it will permanently damage the batteries.

Always ensure your batteries are stored in a dry, well-ventilated environment and not left in cold conditions (3° and under) for extended periods of time as this will result in the battery being unable to receive a charge and will result in permanent damage.

#### Warnings

- Corrosive chemicals are contained in batteries.
- Explosive conditions exist.
- Do not use batteries with different amp-hours (ah) capacities.

• Keep tools and other metal objects away from battery terminals. Contact with tools can result in electric shock.

• Flammable material contained in batteries. Do not expose to heat sources such as open flame or sparks. Do not transport batteries with flammable or combustible items.

• To dispose of or recycle your batteries please contact the approved company you purchased from

• Do not use a different charger type than the one supplied.

• Do not attempt to recharge the batteries and operate the device at the same time.

• Do not attempt to recharge the batteries by attaching cables directly to the battery terminals or clamps.

• Always check your battery level before starting a journey to avoid being stranded.

• Do not attempt to remove batteries from their cases. This should only be carried out by an Approved Partner.

# How to Charge Your Batteries

- Turn the key to the 'Off' position.
- Plug the battery charger into the plug socket in the wall.

• Plug the charger into the battery charge socket located on the tiller, the LED light will turn Blue when powered on.

• The LED light on the battery charger will turn Orange to indicate that the batteries are being charged.

• The LED light on the battery charger will turn Green when the batteries are fully charged.

Charging Troubleshooting		
Power LED (blue) is not on	Check plug socket is connected. If no indicator remains, return to Approved Partner	
Charging LED (orange) is not on	Check connections & check if battery is fully charged. If no indicator remains, return to Approved Partner	
Charging LED (orange) turning to (green) immediately	Check if battery is fully charged. If not charged, return to Approved Partner	

**TIP** Fully charge batteries at least once a month, or more if you use the scooter regularly. Charge up after each long trip (exceeding ~1.8 miles/3 km).

# 8. Controls

# Turning On & Off

To turn your device on, press the metal button on the right side of the tiller, the button will illuminate red. Then place the key card against the panel, the light will illuminate blue to indicate the scooter is now on.

To turn off your device, press the metal button.

# Adjusting the Speed

When adjusting the speed of your device always ensure you are stationary.

Use the speed knob located in the lower centre of the tiller controls to adjust the speed. To change between low & high speed modes, press the L/H button on the tiller display.

# **Driving Forwards & Backwards**

To change between forwards & backwards modes, press the forward/backward switch on the lower right side of the tiller.

To drive forwards, press the forwards button, then slowly pull the right-hand throttle lever towards the tiller handle. The more you pull the lever the faster you will move.

To drive backwards, press the backwards button, then slowly pull the right-hand throttle lever towards the tiller handle. The more you pull the lever the faster you will move.

#### **Emergency Handbrake**

When releasing the throttle lever, the electromagnetic brake engages. If needed, use the handbrake located on the left side of the tiller controls.

#### Sounding the Horn

To sound the horn, press the  $[\mathbf{b}]$  button located on the tiller.

#### **Lights & Indicators**

To turn on/off the headlight, press the  $[\gg]$  button located on the tiller.

To indicate left, press the  $[ \leftarrow ]$  button located on the tiller.

To indicate right, press the  $[\Box>]$  button located on the tiller.

To turn on/off the hazard lights, press the  $[\Delta]$  button located on the tiller.

#### **Time Setting**

The current time is displayed on the tiller.

To set the time, turn on the scooter, press the [Mode] & [Set] buttons, the [ﷺ] display will then flash.

Press the  $[\triangleleft]$  button to set the hour (in 24-hour format).

Press the  $[\Box >]$  button to set the minute.

#### **Temperature Setting**

The current temperature is displayed on the tiller.

To switch units, turn on the scooter, press the [Mode] button twice, the [🗮] display will then flash. Press the [Set] button to change the unit. To confirm, press [Mode] or wait 5 seconds.

#### Odometer

Press and hold the [<=] and then turn on the scooter with the key card and the [ODO] mileage is displayed, then after 5 seconds the scooter automatically turns on.

# Enter Setting Mode

1. Hold the [Mode] button for 2 seconds to enter setting mode. The [🛞] will flash and display the parameter value.

2. Press the  $[ \triangleleft ] \& [ ]$  to choose the parameter value.

3. Press the [Set] button to set parameter setting. The [ $\Re$ ] will flash and display the setting value, then press the [ $\langle \Box \rangle$ ] & [ $\Box \rangle$ ] to choose the setting value.

4. Press the [Set] button to revert to the 'parameter value' screen or exit the parameter setting after 5 seconds of no operation.

Parameter value	Description	Default value	
Pl	Forward and Reverse have opposite signs	F	b
P2	Headlight power saving mode	on	oF
Р3	DRL on > KEY ON/OFF of > Headlight turn on	on	oF
P4	Left/Right side-light on > KEY ON/OFF of > Headlight turn on The left and right side lights move with the direction	on	oF
Р5	Setting Wig-Wag - 1 Unipolar - 2	2	1
P6	Whether the direction lights & warning lights turn on the horn	on	on
P7	ERROR CODE Whether to turn on the horn when ERROR CODE appears		on
P8	Whether the reversing sound turns on the horn	on	oF
Р9	Battery type	Pb	Li ' Pb
PA	Setting tyre size	16	10, 11, 12, 13, 14, 16
Pb	Controller type	PG	PG ' DY

# 11. Seatbelt Fitting & Adjustment

This model has a seat belt fitted as standard. To adjust slide the plastic belt adjuster towards (longer) or away (shorter) from the seat belt lock.

#### 12. Tiller Adjustment

For safety, only adjust the tiller when the device is stationary and switched off.

Adjust by pressing the tiller adjustment handle downward and adjusting the angle of the tiller. Once in the desired position, let go of the adjustment handle and the tiller will be adjusted.



#### 13. Tiller Hook

The device is fitted with a hook for holding items, such as shopping bags. For safety, note that this hook has a maximum capacity of 1.5kg.

# 14. Seat Adjustment

For safety, only adjust the seat when the device is stationary and switched off.



**WARNING** Once on the scooter, sit firmly on the seat, do not stand on the footrest as this could cause the scooter to tip over.

# Armrest Angle Adjustment

The flip-up armrest height can be adjusted by turning the adjustment dial on the underside of the armrest.



**WARNING** Do not have heavy items on the armrests as this could cause damage.



# Seat Forwards & Backwards Adjustment

Push the front lever on the side of the seat upwards to move the seat forward and backward.

#### **Seat Rotation Adjustment**

Push the swivel lever downwards to rotate the seat.



#### Seat Back Adjustment

Adjust the seat back lever for seating back angle. The maximum backrest angle is 105°.



#### Seat Removal

To remove the seat, push the swivel lever, swivel the seat, then pull the seat upwards.



**SUGGESTION** When removing the seat, use two people to lift to reduce chance of injury.



**WARNING** For any mechanical adjustment on the tiller or seat, be aware of trapping hands or fingers.

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#### 15. Free-wheel Mode

This device is fitted with an electromagnetic (EM) brake, located at the rear, that is designed to engage when the device is not in use or when the power is off. When the device is turned off, the EM brake can be disengaged to allow the device to be pushed manually (free-wheel mode).

When powering on the device, always ensure that the EM brake is engaged.

To engage the electromagnetic brake, push the lever to the engaged position (drive mode).

To disengage the electromagnetic brake, push the lever to the disengaged position (free-wheel mode).



# 16. Daily Checks

Check the following items before using your device. If you find anything abnormal or that you are unsure of, contact the company you purchased from for further advice or inspection before using your device.

# **Tiller Stability**

- Ensure it not excessively loose.
- Ensure it can be smoothly turned left and right fully.

#### Controls

- With your device turned off ensure the controls have the full range of movement.
- Ensure when the controls are pulled your device moves as it should.

#### Speed Adjustment

- With your device turned off ensure the knob/buttons have the full range of movement.
- Ensure when the controls are adjusted your devices speed changes as it should.

#### **Battery Gauge**

• Ensure when your device is turned on that the battery gauge indicates the battery level and there are no flashing lights.

#### Horn

• Ensure when the horn button is pushed that the horn sounds as it should.

#### Motor, Transaxle and Electromagnetic Brake

- Ensure there are no unusual noises coming from your device.
- Ensure there are no unusual smells coming from your device.

#### Wheels

• If the device is fitted with pneumatic tyres, ensure they are inflated to the correct pressure - check the required psi on the tyre itself (35-40 psi).

- Ensure there are no cracks or deformities on the tyres of your device.
- Ensure the wheels rotate without wobbling.
- Ensure there are no foreign objects in the tyre treads.
- Ensure there is no excessive or uneven wear to the tyre tread.

#### **Battery Case**

• Ensure the battery case has no cracks or deformities.

#### Seat

- Ensure there is no unusual movement when the seat is locked into position.
- Ensure the seat moves as it should.

#### Free-wheel Lever

• Ensure the free-wheel lever turns on and off the electromagnetic brake(s) as it should.

# 17. Cleaning, Maintenance & Disposal

#### Cleaning

To clean your device, use a soft brush to remove any dirt or dust and use a damp cloth and soft detergent to wipe all surfaces clean. Allow your device to dry naturally.

- Ensure your device is turned off when being cleaned.
- Ensure you avoid any electrical connections when cleaning.
- Do not use a hose pipe, jet wash or splash water directly onto your device.
- Do not use abrasive or scouring materials or liquids when cleaning .

#### Maintenance

Ensure the daily checks are made on your device. Apart from cleaning and regular checks it is recommended that all maintenance is completed by an approved company. It is recommended that your device is serviced every at least every 12 months.

#### Disposal

It is recommended that your device is disposed of through an approved company. Because of the lead-acid battery in your device it is classed as hazardous goods and must be disposed of in the correct manner. For more information contact the company you purchased from.

Maintenance Job	Daily	Weekly	Monthly	Bi-annually
Electrical System				
Battery meter - inspect the battery meter to determine if batteries are needed to be re-charged.	$\checkmark$			
Controller / display panel - make sure they are not frayed or have any exposed wiring.			$\checkmark$	
Check all plug & wiring connections for firm condition.			$\checkmark$	
Have the batteries been fully charged before the daily operation?	$\checkmark$			
Are all holder and screws firmly fixed and safe?	$\checkmark$			
Are all electric lighting system (if applicable) in working order?	$\checkmark$			
Tyres & Wheels				
Have pneumatic tyres checked for air pressure?	$\checkmark$	$\checkmark$		
Front & rear wheels must be able to spin smoothly without any interference.		$\checkmark$		
Front & rear wheels must be able to spin smoothly without wobbling.			$\checkmark$	
Visually inspect the tyre tread. If less than 1mm (1/32"), have tyres replaced by an Approved Partner.			$\checkmark$	
Others				
Motor brushes. We recommend that your Approved Partner inspect the brushes every six months if your device is not operating smoothly. If the inspection determines excessive wear, they must be replaced otherwise motor damage will result.				~

# 18. Electromagnetic Compatibility

This portion of the content will provide you with basic information about the problems with EMI (electromagnetic interference), protective measures can be used to either lessen the possibility of exposure or to minimize the degree of exposure; this section also shows some conditions that unexpected or erratic movements may cause. It is very important that you read this information regarding the possible effects of electromagnetic interference on your device.

Your device may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two-way radios, and mobile phones. The interference (from radio wave sources) can cause your device to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the devices control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Your device can resist EMI up to a certain intensity level. The higher the immunity level the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI. Your device as sold, with no further modification, has an immunity level of 20 V/m without any accessories.

There are a number of sources of relatively intense EM in the everyday environment. Some of these sources are obvious and easy to avoid, others are not and exposure is unavoidable. However, we believe that by following the warning listed below, your risk to EMI will be minimized. The sources of radiated EMI can be broadly classified into three types:

1. Hand-held portable transceivers (transmitter-receivers with the antenna mounted directly on the transmitting unit). Examples include: citizens band (CB) or hand held radios, (security, fire, and police transceivers), mobile telephones and other personal communication devices. Some mobile telephones transmit a signal while they are ON, even though they are not being used.

2. Medium-range mobile transceivers, such as those used in police cars, fire engines, ambulances and taxis usually have the antenna mounted on the outside of the vehicle.

3. Long-range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, televisions, CD players, and small appliances such as electric shavers and hair dryers, are not likely to cause EMI problems to your powered scooter.

Electromagnetic Interference (EMI) EM energy rapidly becomes more intense the closer you are to a transmitting antenna (source). The EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the device control system while using these. This can affect your devices movement and braking, Therefore the warnings listed below are recommended to prevent possible interference with the control system of your device. 1. Do not operate hand-held transceivers-receivers, such as citizens band (CB) radios, or turn ON personal communication devices, such as mobile phones, while your device is turned on.

2. Be aware of nearby transmitters, such as radio or TV stations, and try to avoid getting close to them.

3. If unintended movement or brake release occurs, turn the device off as soon as it is safe.

4. Be aware that adding accessories or components, or modifying the device, may make it more susceptible to EMI.

5. Report all incidents of unintended movement or brake release to the manufacturer, and note whether there were sources of EMI nearby.

# 19. Troubleshooting

In the event of an error with your scooter, please refer to the error codes displayed on your control panel to diagnose the issue. The code will describe your fault. On the next page, the table will demonstrate all the issues the device can report and guide you to a possible resolution.



Error Code	Description
1	Battery requires charging or a bad connection to the battery. Check the connections to the battery.
2	Bad connection to the motor. Check all connections between the motor and the controller.
3	Motor has a short circuit to a battery connection. Contact an Approved Partner.
4	Free-wheel lever is engaged or manual brake disengagement mechanism is operated. Check the position of the lever.
5	Not used.
6	S-Drive is being inhibited from driving. Inhibit 2 is active. May be due to battery charger is connected.
7	Throttle fault is indicated. Make sure the throttle is not engaged before switching on the scooter.
8	Controller fault is indicated. Make sure that all connections are secured.
9	Parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the controller connections are secured.
10	Excessive voltage has been applied to the controller. Usually caused by a poor battery connection. Check the battery connections.

If the above troubleshooting does not help to resolve the issue, please contact an Approved Partner. Please have your serial number ready to provide to the Approved Partner. You can find it on the tiller cover.

# 20. Warranty

All Motion Healthcare products are sold to our partners with a warranty, they in turn will sell the product to you with a warranty, these are two separate agreements.

To find out specific details of the warranty you receive or to make any claim please contact the company you purchased from.



Motion Healthcare Ltd Units 6 & 7 Concord Farm School Road Rayne, CM77 6SP



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# Emergo Europe

Westervoortsedijk 60 6827 AT, Arnhem Netherlands



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# 21. Specifications

Length	166.5 cm
Width	78 cm
Height	129.5 cm
Front Wheel Size	36 cm
Rear Wheel Size	41 cm
Total Weight	148 kg
Heaviest Part	N/A
Battery Weight	54 kg
Battery Capacity	2x 12v 80ah SLA
Battery Watt Hours	1920 Wh
Range (Up to)	30 miles
Speed	8 mph
Maximum User Weight	28.3 stone
Seat Width	50.8 cm
Motor Size	1300w
Maximum Slope	10°
Ground Clearance	12 cm
Turning Circle	200 cm

## 22. Battery Instructions & Maintenance

- Ensure that short circuits is not formed between the positive and negative terminals. Short circuits may lead to leaks, fires, or explosions.
- Do not use these batteries together with different type of the batteries such as Ni-MH or Ni-Cd and so on. It could lead to leaks, overheating, or explosions of the batteries, and human injury.
- If the battery catches on fire, please use dry powder fire extinguisher or carbon dioxide fire extinguisher. Do not use water to fire fighting.
- Do not expose batteries to heat or flames. This can cause leakage, fire, or explosion of the batteries.
- Do not dismantle, modify, or damage batteries. This can cause leakage, fire, or explosion of batteries.
- Replace batteries within the period recommended in battery user manual or indicated on the equipment. Overuse may cause internal short circuits or battery case damage which can lead to leakage, fire, or explosion of the batteries.
- When installing batteries, ensure that positive and negative polarity is correct. Connection with incorrect polarity can lead to excess current, fire, and damage to chargers.
- Batteries contain dilute sulphuric acid. Any acid leaked from damaged batteries should be immediately rinsed from clothing or skin. If acid comes in contact with eyes, rinse with a large quantity of water and seek medical attention immediately. Acid can burn skin and can cause blindness.
- Batteries showing signs of terminal corrosion, leakage, distortion of battery case, or any other abnormalities should not be used. Continued use could result in leakage, fire, or explosion of the batteries.
- Do not use or store batteries near transformers or other heat sources, inside of the car left outside, in direct sunlight, or in other high temperature environments. Doing so can lead to increased battery temperature, which can cause leakage, fire, or explosion.
- When installing batteries in metal enclosures, fill the space between the battery and enclosure with acid resistant, heat resistant insulating materials, to avoid contact between the battery and the enclosure. Batteries with acid leakage can create smoke and flames.
- When handling batteries wear rubber gloves and rubber shoes. Failure to do so can lead to electric shock, burns, or fire.
- Do not place batteries where they might be exposed to water as an electric leak may cause electric shock, or fire.
- Do not position batteries at more than 90° from the upright position as this can lead to leakage, fire, or explosion.
- Do not clean batteries with dry cloths or feather dusters as this can produce static electricity and cause explosions. Use damp cloths only.
- Attach all required insulator caps to battery terminals and link as specified. Failure to do so may result in electric shock, burns, short circuit, battery damage, fire, or explosion.

- When used in medical equipment, it should be equipped with not only this battery systems but another different backup system. Failure to do so could lead to injury in the event of this battery system failure.
- Do not directly connect batteries to power outlets or automobile cigarette lighter socket. This can lead to burns or overheating.
- Use batteries in the following temperature range. Discharge (equipment in use): -15°C-45°C; Charge: -15°C-45°C; Storage: -15°C-40°C.
- Do not apply thinner, gasoline, benzine, lubricants, fats, or any other organic solvents or detergents. This may lead to the crack of the battery case, leakage, and fire.
- Batteries should be checked regularly. Batteries not conforming to specifications listed in the user's manual should be adjusted following user's manual. Continued use without adjustment could lead to damage or burns.
- Used batteries can be recycled. Do not dispose of directly without consulting sales company or our agents.
- When cleaning and inspecting batteries, first discharge static electricity from your body. Static electricity can cause sparks which can lead to explosions.
- Batteries' maximum discharge current should not exceed the specifications in the user's manual.
- Excessive discharge current can cause leakage, overheating, and explosion.
- Immediately after purchase, if any rust, cracks, deformities, overheating, or any other abnormality is discovered, discontinue use and contact the sales company. Continued use could result in leakage, overheating, or explosion.
- When using multiple batteries at the same time, the batteries themselves should be properly connected before they are connected to the charger or load. Firmly connect the positive terminal of the battery to the positive terminal of the charger or load. Incorrect polarity can lead to explosions or fires harming the batteries or equipment, and can cause injury to humans.
- Do not bump, drop, or strike batteries. Batteries should not be used in environments subject to strong vibration as these can damage the batteries.
- Do not use batteries in dusty environments as this can lead to short circuits (if batteries must be used in dusty environments they should be periodically inspected).
- Do not use batteries from different manufacturers in the same string. Small
  differences between the batteries can affect operational stability, and can
  significantly reduce battery life and lead to deformation and overheating. In case
  suitable batteries specification for the equipment is not known, consult with the
  manufacturer prior to use.
- In case of long periods of non-use, disconnect batteries from equipment. Batteries are heavy; care should be taken when handling to avoid back injury.
- Batteries are heavy; care should be taken when handling to avoid back injury.
- Battery powered equipment should be separated by the distances specified in manuals or on labels in order to prevent failure. In certain cases the minimum distances are specified by laws.

- Battery powered equipment should be inspected as specified in the user manual; except when inspections are regulated by law. For details please consult the manufacturer.
- Battery powered equipment requires special power distribution cabling set up that should be performed by professionals. In certain countries the work must be done by nationally certified electrical engineers.
- Certain countries have laws covering battery powered equipment that must comply with.
- Do not use batteries except for specified application. Inappropriate use could lead to leakage, fire, or explosion.
- To avoid making leak circuit by the acid leaked from batteries, take preventive measure on the circuit or place an insulating layer or insulating tray between the batteries and the frame.









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