

# Clarke®



**6V/12V 2A INTELLIGENT BATTERY CHARGER**

**MODEL NO: IBC2**

PART NO: 6266325

## OPERATION & MAINTENANCE INSTRUCTIONS

UK  
PA | CE



ORIGINAL INSTRUCTIONS

DL0523

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## INTRODUCTION

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Thank you for purchasing this CLARKE Battery Charger.

Please read this manual thoroughly, before attempting to operate this product and carefully follow all instructions given.

It is vitally important that ALL precautions are taken, as specified, which will not only provide protection for yourself and that of others around you, but will also ensure that the battery charger will give you long and satisfactory service.

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## GUARANTEE

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This CLARKE product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

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## ENVIRONMENTAL RECYCLING POLICY

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Through purchase of this product, the customer is taking on the obligation to deal with the WEEE in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE.

In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

## SPECIFICATIONS

Model Number	IBC2
Input Voltage / Current	230 V, 50Hz
Battery Charging Voltages:	6V & 12V
Power	35W Max
Charging Current	6V: 1.998A, 12V: 2.7A
Charging Steps	6 steps
Charging Battery Size	4Ah up to 60Ah
IP Rating	IP65
Operating Temperature Range	-20°C to 40°C
Dimensions (H x W x D)	50mm x 225mm x 90mm
Power Cable Length	1.5m
Charging Clamp Cable Length	1.18m + 40cm
Weight	500g

## SAFETY SYMBOLS

	Before Use, Read The Instructions Fully		For Indoor Use Only
	Class II Appliance		Wear Eye Protection
	Wear a Protective Mask		Wear Protective Gloves

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# SAFETY PRECAUTIONS

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**WARNING: ALWAYS SWITCH OFF THE CHARGER WHEN CONNECTING OR DISCONNECTING LEADS TO AVOID SPARKING AS HIGHLY INFLAMMABLE HYDROGEN GAS CAN BE RELEASED IN THE PROCESS OF BATTERY CHARGING**

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## PLEASE READ BEFORE USING THIS UNIT

1. Batteries can generate explosive gases during normal operation. **ALWAYS** use in well ventilated area.
2. **DO NOT** smoke, strike a match or cause a spark in the vicinity of the battery or engine. Avoid explosive gas, flames and sparks.
3. Remove all personal jewellery, such as rings, bracelets, necklaces and watches while working with a vehicle battery. These items may produce a short circuit and could cause severe burns.
4. Be extra cautious to reduce the risk of dropping a metal tool onto the battery. It may spark or short circuit the battery or other electrical hardware which may cause an explosion or fire.
5. Wear complete eye protection, hand and clothing protection. **AVOID** touching eyes while working near a battery.
6. Study all battery manufacturers specific precautions, such as removing or not removing cell caps while charging and recommended rates of charge.
7. Clean battery terminals before connection with the charger. Be careful to keep corrosion from coming in to contact with eyes.
8. When it is necessary to remove the battery from the vehicle to charge, always remove grounded terminal from the battery first. Make sure all accessories in the vehicle are switched off in order to prevent an arc.
9. This charger is **NOT** intended to supply power to an extra low voltage electrical system or to charge dry cell batteries. Charging dry cell batteries may cause the battery to burst and cause injury to person or property.
10. **NEVER** charge a frozen, damaged, leaking or non rechargeable battery.
11. If battery electrolyte contacts skin or clothing, wash immediately with soap and water. If electrolyte enters your eye, immediately flood eye with running clean cold water for at least 15 minutes and seek medical attention immediately.
12. **DO NOT** place the charger in the engine compartment, near moving parts or near the battery. Place as far away from them as the cable permits.

13. **NEVER** place the charger directly above the battery being charged, gases or fluids from the battery will corrode and/or damage the charger.
14. **DO NOT** cover the charger while charging.
15. **DO NOT** expose to rain or wet conditions.
16. Connect and disconnect the DC output connections only after disconnecting the charger from the mains power supply.
17. Use of an attachment not recommended or sold by the manufacturer may result in a risk of fire, electric shock or injury to persons.
18. **DO NOT** overcharge batteries by selecting the wrong charge mode.
19. To reduce the risk of damage to the electric plug and cord, pull by the plug rather than the cord when disconnecting charger from mains power supply.
20. To reduce risk of electric shock, unplug charger from mains power supply before attempting any maintenance or cleaning.
21. Operate with caution if the charger has received a direct hit of force or been dropped. Have it checked and repaired if damaged.
22. **NEVER** attempt any repairs yourself. If you have a problem with your charger contact your local CLARKE dealer or contact [service@clarkeinternational.com](mailto:service@clarkeinternational.com)
23. When charging is complete, ensure that the vehicle battery leads are secured to the proper terminals which should be clean, and lightly smeared with petroleum jelly to prevent corrosion. Finally, re-check the electrolyte level.

# ELECTRICAL CONNECTIONS



**WARNING! READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.**

Before switching the product on, make sure that the voltage of your electricity supply is the same as that indicated on the rating plate. This product is designed to operate on 230VAC 50Hz. Connecting it to any other power source may cause damage.

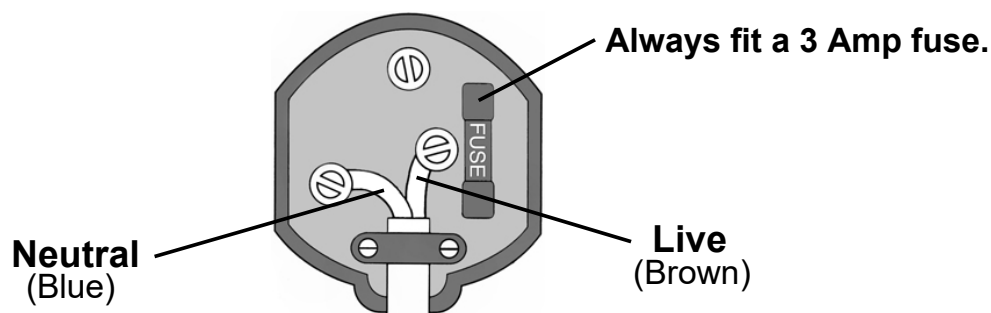
This product may be fitted with a non-rewireable plug. If it is necessary to change the fuse in the plug, the fuse cover must be refitted. If the fuse cover becomes lost or damaged, the plug must not be used until a suitable replacement is obtained.

If the plug has to be changed because it is not suitable for your socket, or due to damage, it should be cut off and a replacement fitted, following the wiring instructions shown below. The old plug must be disposed of safely, as insertion into a mains socket could cause an electrical hazard.

If the colours of the wires in the power cable of this product do not correspond with the markings on the terminals of your plug, proceed as follows.

- The **Blue** wire must be connected to the terminal marked **N** or coloured **Black**.
- The **Brown** wire must be connected to the terminal marked **L** or coloured **Red**.

**Plug must be BS1363/A approved.**



**Ensure that the outer sheath of the cable is firmly held by the clamp**

**We strongly recommend that this machine is connected to the mains supply via a Residual Current Device (RCD)**

If in any doubt, consult a qualified electrician. **DO NOT** attempt any repairs yourself.



**This symbol indicates that this is a Class II product, and does not require an earth connection.**

# OVERVIEW



1	Power Cable	6	Charging Clamp Positive (Red)
2	Battery Charger Unit	7	Charging Clamp Negative (Black)
3	LED Display	8	Charging Ring Terminal Positive (Red)
4	Mode Button	9	Charging Ring Terminal Negative (Black)
5	Charging Cable	10	Ring Terminal 15A Fuse

**NOTE:** The charger comes with crocodile clamps for clamping onto the battery terminals and vehicle bodywork, and ring terminal connectors for direct connection to the battery terminals. These can be changed depending on the type of vehicle battery and terminals under charge.

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## PREPARATION

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1. It may be necessary to remove the battery from a vehicle to charge it.
  - Always remove the grounded terminal from the battery first.
  - Ensure all accessories in the vehicle are switched off to prevent sparking.
2. Clean the battery terminals. Be careful to keep any corrosive matter from coming in contact with eyes. If corrosive matter enters your eye, immediately flood eye with running clean cold water for at least 15 minutes and seek medical attention immediately.
3. If the battery can be topped up, add distilled water to each cell until the battery acid reaches the level specified by the battery manufacturer. This helps remove unwanted gas from the cell. **DO NOT** overfill. For a battery without cell caps, follow the manufacturer's instructions.
4. Study all the battery manufacturer's specified precautions: for example, removing or not removing cell caps while being charged and recommended rates of charge.
5. Refer to the vehicle manual and battery rating plate to find the voltage of the battery and make sure that the output is set to the correct voltage.
6. If the charger has adjustable charge rate, charge the battery initially at the lowest rate.

## CHARGER LOCATION

1. Place the charger as far away from the battery as possible.
2. **DO NOT** position the charger above the battery during the charging procedure. Gases from the battery may corrode and damage the charger.
3. **DO NOT** let battery acid drip on the charger when reading a hydrometer for specific gravity or when you fill the battery.
4. **DO NOT** use the charger in an enclosed space with reduced airflow.



## CORRECT USE

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**WARNING: CHARGES LITHIUM LIFEPO4 ONLY. DO NOT USE FOR OTHER LITHIUM BATTERY TYPES - NOT SUITABLE**

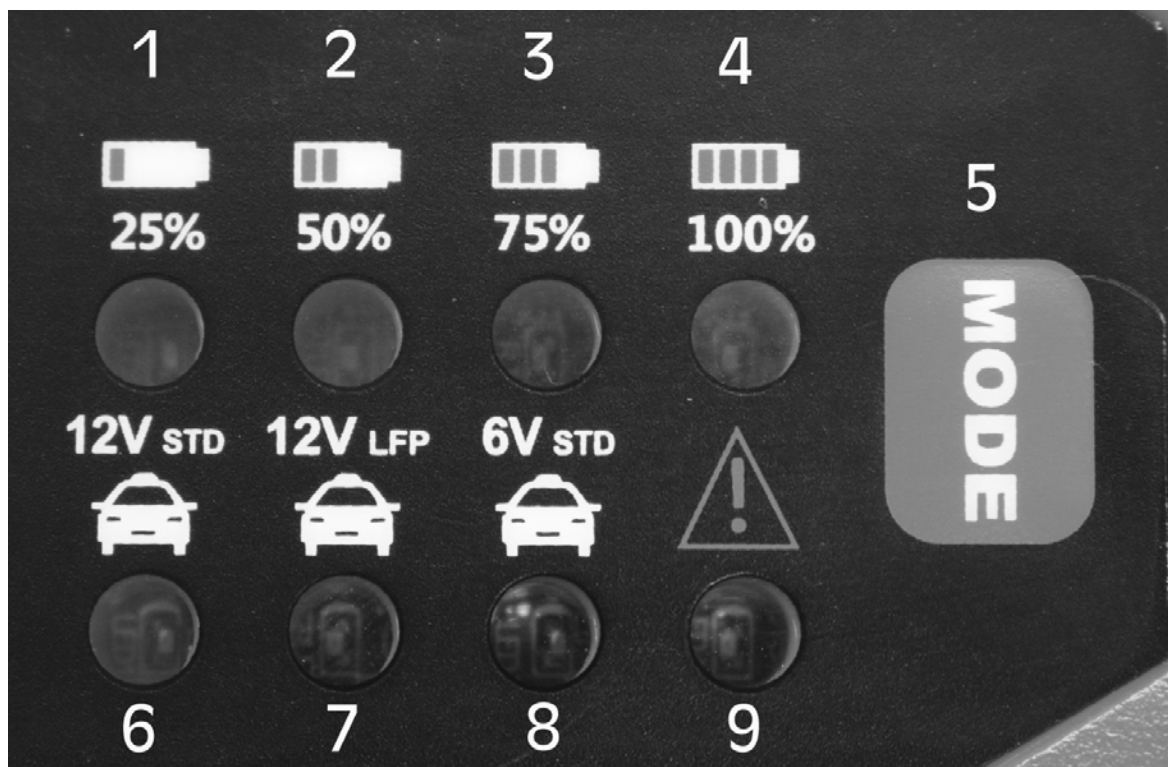
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The charger is designed for charging non maintenance free or maintenance free 6V (Lead Acid, AGM and GEL) & 12V (Wet, Ca/Ca, LiFePO4 and EFB) lead acid batteries and Lead Gel and AGM batteries which are used in motor vehicles. The charger is designed for mobile use only and not for installation in caravans, mobile homes or similar vehicles. The charger cannot be used as a buffer power supply, e.g. while changing a battery. **DO NOT** expose the charger to rain or snow.

The charger is to be used only for its prescribed purpose. Any other use is deemed to be a case of misuse. The user/operator will be liable for any damage or injuries caused as a result of this.

**NOTE:** Please note that the charger has **NOT** been designed for use in commercial, trade or industrial applications. The warranty will be voided if the charger is used in commercial, trade or industrial businesses or for equivalent purposes.

## BATTERY CHARGER DISPLAY INDICATORS



1	Battery Charging Status: 25%	6	Charging of a 12V STD (Lead Acid Battery, AGM Battery and GEL Battery)
2	Battery Charging Status: 50%	7	Charging of a 12V LiFePO4 Battery
3	Battery Charging Status: 75%	8	Charging of a 6V Battery (Lead Acid Battery, AGM Battery and GEL Battery) in Charge Maintenance Mode with 1A Charging Current
4	Battery Charging Status: 100%	9	Error LED: Clamps are wrongly connected (Reverse Polarity) or there is a short circuit
5	Mode Button		

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## OPERATION

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Before you connect the charger to the power supply, make sure that the data in the specifications are identical to the supply voltage.



**WARNING: DO NOT CHARGE ANY FROZEN BATTERIES.**

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Please refer to the instructions in the owners manual of the vehicle or the battery manufacturers user information before charging any battery.

### NOTES ON AUTOMATIC CHARGING

The charger is a microprocessor controlled automatic charger, i.e. it is suitable in particular for charging maintenance free batteries and for long term charging and maintenance charging of batteries which are not in constant use, e.g. for classic cars, recreational vehicles and lawn tractors. The integrated microprocessor enables charging in several steps. The final charging step, maintenance charging, maintains the battery capacity at 95-100% and therefore keeps the battery fully charged at all times. The charging operation does not need to be monitored. However, do not leave the battery unattended if you charge it over an extended period of time, so that you can disconnect it from the mains power supply in the event of a fault in the charger.

### CHARGING THE BATTERY

1. Release or remove the battery stoppers (if fitted) from the battery.
2. Check the acid level in the battery. If necessary, top up the battery with distilled water (if possible).



**WARNING: BATTERY ACID IS AGGRESSIVE. RINSE OFF ANY ACID SPLASHES THOROUGHLY WITH LOTS OF WATER AND SEEK MEDICAL ADVICE IF NECESSARY.**

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3. First connect the red charging cable to the positive pole of the battery.
  4. Then connect the black charging cable to the bodywork of the vehicle away from the battery and fuel pipe.

**NOTE:** Under normal circumstances the negative battery pole is connected to the bodywork and you proceed as described above. In exceptional cases it is possible that the positive battery pole is connected to the bodywork (positive earthing). In this case, connect the black charger

cable to the negative pole on the battery, then connect the red charger cable to the bodywork at a point away from the battery and fuel pipe.

5. After the battery has been connected to the charger, connect the charger to a main power supply. All the LED's will flash for a short time. Then the LED for 12V STD will light continuously as soon as the charging status of the battery is indicated.

**NOTE:** You can now change the charging settings for the type of battery (12V STD, 12V LFP or 6V STD) by pressing the MODE button.

6. the LED's for the Battery Charging Status 25% - 100% will flash in succession until the battery is fully charged (provided it is not defective). When the battery is fully charged, all 4 of the Battery Charging Status LED's will be lit continuously.

7. If only the LED for the 12V STD flashes, this means that although the charger is connected to the mains power supply, it is not connected to the battery.

**NOTE:** If the charger shows 'Battery Fully Charged' after just a few minutes, this indicates that the battery capacity is low. The battery needs replacing.

**NOTE:** Charging may create dangerous explosive gas and therefore you should avoid spark formation and naked flames whilst the battery is charging. There is a risk of explosion. It is essential that you ventilate the room well.

## CALCULATING THE CHARGING TIME

The charging time depends on the charge status of the battery. If the battery is fully discharged, the approximate charging time up to approximately 80% charged can be calculated using the following formula:

Charging time in hours = Battery capacity in Ah divided by Amp. (charging current)

The charging current should be 1/10 to 1/6 of the battery capacity.

BATTERY SIZE	APPROXIMATE TIME TO CHARGE TO 80%
4 Ah	2 Hours
10 Ah	5 Hours
30 Ah	15 Hours
60 Ah	30 Hours

## TROUBLESHOOTING ERROR LED

The error LED will flash in the following cases:

1. If the voltage of the battery is less than 3.5V or more than 15V. The battery is either unsuitable for charging or is defective. It is also possible that other battery errors or faults can mean that the battery cannot be charged.
2. If the terminal clamps are connected to the battery terminals with the wrong polarity. The protection against swapped poles ensures that the battery and charger do not get damaged. Remove the charger from the battery and start the charging process from the beginning again.
3. If there is a short circuit between the two terminal clamps (the metal parts of the clamps come into contact with each other). The protection against short circuit ensures that the battery and charger do not get damaged.



## FINISHING CHARGING THE BATTERY

1. Disconnect the charger from the mains power supply.
2. Disconnect the black charging cable from the bodywork.
3. Disconnect the red charging cable from the positive pole of the battery.

**NOTE: IMPORTANT,** In case of positive earthing, first disconnect the red charging cable from the bodywork and then the black charging cable from the battery.

4. Screw or push the battery stoppers back into position (if there are any).

**NOTE:** If the mains plug is pulled out but the charger cables are still connected to the battery, the charger will draw off a small amount of electricity from the battery. We therefore recommend that you always completely remove the charger from the battery when not in use.

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## CARE & MAINTANENCE

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This battery charger requires minimal maintenance. As with any appliance or tool, a few common sense rules will prolong its working life.

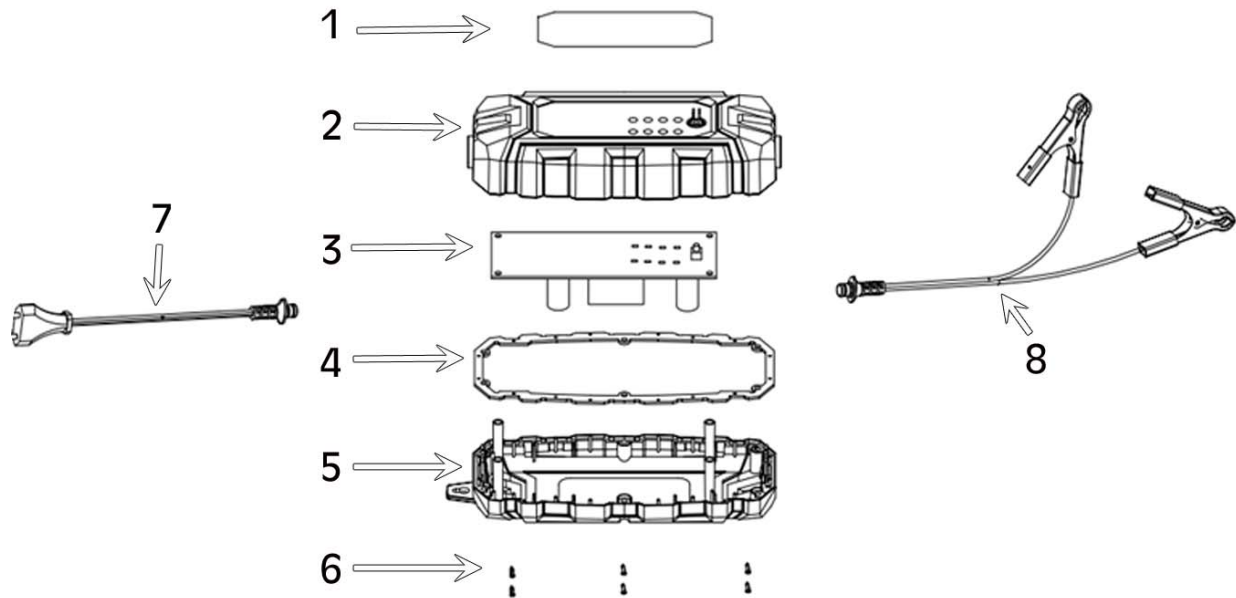


**WARNING: ALWAYS BE SURE THE CHARGER IS UNPLUGGED BEFORE PERFORMING ANY MAINTENANCE OR CLEANING. ANY REPAIRS MUST BE DONE BY A QUALIFIED SERVICE TECHNICIAN.**

1. Wind up the leads when not in use. Examine the leads at regular intervals for damage and have them replaced if necessary.

- Clean the case and leads if necessary with a moist cloth and clean any corrosion from the clamps with a solution of water and baking soda.

## PARTS DIAGRAM



## PARTS LIST

No	DESCRIPTION	No	DESCRIPTION
1	Front Label	5	Lower Cover
2	Top Cover	6	Screws (x6)
3	PCB	7	Power Cable
4	Seal Ring	8	Charging Cable

# DECLARATION OF CONFORMITY



Hennell Street, Epping, Essex, CM16 4LG

## DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- The Electromagnetic Compatibility Regulations 2016
- The Electrical Equipment (Safety) Regulations 2016
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The following standards have been applied to the product(s):

- EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021, EN IEC 60335-2-29:2021+A1:2021, EN 60335-1:2012+AC:2014+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021, EN 6233:2008+AC:2008, IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-6:2015, EN 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-8:2017

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2023

Product Description: Intelligent Battery Charger 2A 6/12V  
Model Number(s): IBC2  
Serial/Batch Number: Refer to product/package label  
Date of Issue: 04/05/2023

Signed:

J.A Clarke  
Director

IBC2 UKCA Clarke DOC 059423

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Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

## DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- 2014/30/EU Electromagnetic Compatibility Directive
- 2014/35/EU Low Voltage Directive
- 2011/65/EU Restriction of Hazardous Substances (RoHS) Directive

The following standards have been applied to the product(s):

- EN IEC 55014-1:2021, EN IEC 55014-2:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021, EN IEC 60335-2-29:2021+A1:2021, EN 60335-1:2012+AC:2014+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021, EN 6233:2008+AC:2008, IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-6:2015, EN 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-8:2017

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2023

Product Description: Intelligent Battery Charger 2A 6/12V  
Model Number(s): IBC2  
Serial/Batch Number: Refer to product/package label  
Date of Issue: 04/05/2023

Signed:

J.A Clarke  
Director

IBC2 CE Clarke DOC 059423

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# A SELECTION FROM THE VAST RANGE OF

# Clarke®

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