



INTELLIGENT BATTERY CHARGER

FOR B-MOUNT LITHIUM-ION BATTERIES ONLY

Model:

CBS8XW - WALL MOUNT

OPERATING MANUAL



Read all instructions and cautionary markings in this manual and on the charger before using this product. Adhere to these instructions to prevent misuse of the products and possible injury or damage to property.

Keep these instructions. This manual contains important safety and operating instructions for the charger.

Explanation of symbols used in this manual



This symbol indicates the presence of an electrical shock hazard. It is intended to avert users not to open the product as there are no user serviceable parts inside. Any form of servicing should be done by qualified service personnel only.



This symbol is intended to alert the user to important operating, servicing and maintenance instructions within this product manual.



This symbol is intended to alert the user to the presence of uninsulated and potentially dangerous voltage within the product's enclosure that may be of sufficient strength to constitute a risk of electric shock to persons.

The contents in this operating manual are subject to change without notice.

General Safety Instructions



This equipment must be earthed.



Do not remove cover or dismantle the apparatus. There are no user-serviceable parts inside. Always refer servicing to qualified personnel.

BLUESHAPE CHARGERS ARE INTENDED FOR OPERATION WITH LINE VOLTAGES BETWEEN 100V AND 264V AC AND LINE FREQUENCIES BETWEEN 43Hz AND 60 Hz



To prevent fire or shock hazard do not expose the unit to rain or moisture.



The equipment is being supplied with a compatible AC mains power cord. In the case when the UK Plug is fitted, this plug is equipped with a 13A replaceable fuse. Damage to the power cord can lead to electric shock.



The user is being alerted of the importance of going through the literature accompanying this product and familiarising himself with the important safety and operating instructions.



When using electric appliances, basic precautions should always be followed including the following:

- Only use attachments recommended or sold by manufacturer.
- To reduce the risk of injury, close supervision is necessary when an appliance is used near children.
- Do not use the charger outdoors or expose it to wet or damp conditions. Water entering the charger will increase the risk of electric shock.
- Do not misuse the cord or charger. Never use the cord to carry the charger. Do not pull the charger cord to disconnect the plug from a receptacle. Damage to the cord or charger could occur and create an electric shock hazard. Replace damaged cords immediately.
- Do not operate the charger with a damaged cord or plug, which could cause shorting and electric shock.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- For a portable appliance, to reduce the risk of electrical shock, do not submerge charger in water or other liquid. Do not place or store appliance where it can fall or be pulled into a tub or sink.

Usage and Handling Safety Instructions



Charge only lithium-ion rechargeable batteries as specifically designated on your charger's label. Other types of batteries may burst, causing personal injury or damage.

BLUESHAPE lithium-ion battery chargers have been designed to provide a superior performance by managing relatively high currents during their operation in order to reduce charging time. As may be expected, the chargers become warm during operation.



The charger is also equipped with over-temperature protection. Please consult your BLUESHAPE dealer if you notice that either a charger or a battery has become excessively hot during the charging operation.

Keep ventilation openings unobstructed to allow adequate airflow through the device.

Never insert any metallic or any objects inside the equipment through the ventilation openings or otherwise.

- Do not handle charger, including the charger plug and charger terminals with wet or damp hands.
- Use of an attachment not recommended or sold by the battery-charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
- Make sure that the cord is located so that it will not be stepped on, tripped over, come in contact with sharp edges or moving parts, or otherwise be subjected to damage or stress. This will reduce the risk of accidental falls, which could cause injury and damage to the cord, which could then result in electric shock.
- Do not operate the charger if it has received a sharp blow, been dropped, or has otherwise been damaged in any way. Take it to an authorized service technician for an electrical check to determine if the charger is in good working order.
- Do not disassemble the charger. Take it to an authorized service technician when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- Unplug the charger from the electrical outlet before attempting any maintenance or cleaning to reduce the risk of electric shock.
- Disconnect charger from the power supply when not in use. This will reduce the risk of electric shock or damage to the charger if metal items should fall into the opening. It will also help prevent damage to the charger during a power surge.
- Do not touch the uninsulated portion of output connector or uninsulated battery terminal.

- Recharge battery packs only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- Keep the cord and charger away from heat to prevent damage to housing or internal parts.
- Do not allow gasoline, oils, petroleum-based products, etc. to come in contact with plastic parts. These materials contain chemicals that can damage, weaken, or destroy plastic.

CBS8XW Package Contents

This device package contains the following:

- CBS8XW wall-mount charger
- Wall Hanging Bracket
- AC Power Cord [according to region]

Device-End Connector: IEC 60320 C13

EU Plug: IEC 884/CEE7-VII3

UK Plug: BS1363A w/13A FUSE

US Plug: NEMA 5-15-P

- CORDAGE: H05VV-F, 3 x 1.0mm, UNSHIELDED
CEE COLOR CODE, TEMP. RATING 60°C
RATING: 250V 10A
JACKET COLOR: BLACK

- Operating Manual

Overview

Charger Variants

This charger comes in three different model variants:

- CVS8XW: For v-lock lithium-ion batteries only
- CG8XW: For 3-stud lithium-ion batteries only
- CB8XW: For b-mount lithium-ion batteries only

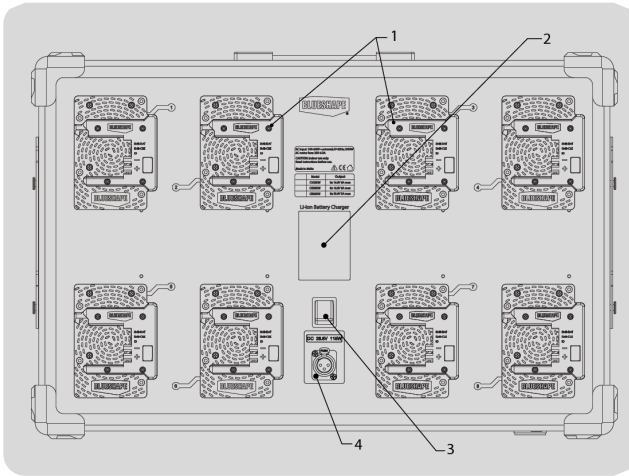
To clarify your model, check the front panel markings as illustrated below.

CVS8XW

	Model	Output
	CVS8XW	8x 16.8V 6A max
	CGS8XW	8x 16.8V 6A max
•	CBS8XW	8x 33.6V 3A max

Graphic Description

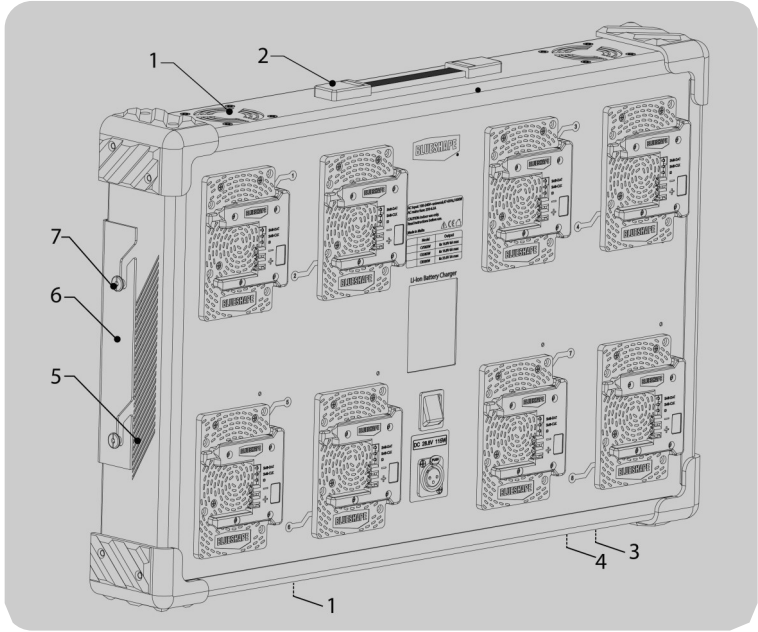
CBS8XW - Front View



The Charger front facing panel consists of the following:

1. B-Mount Battery charging bays
2. 3.5" Touch Display
3. Mains switch
4. Aux output connector (28.8V 115W) 3-pin XLR

CVS8XW - Side View



The Charger frame consists of the following:

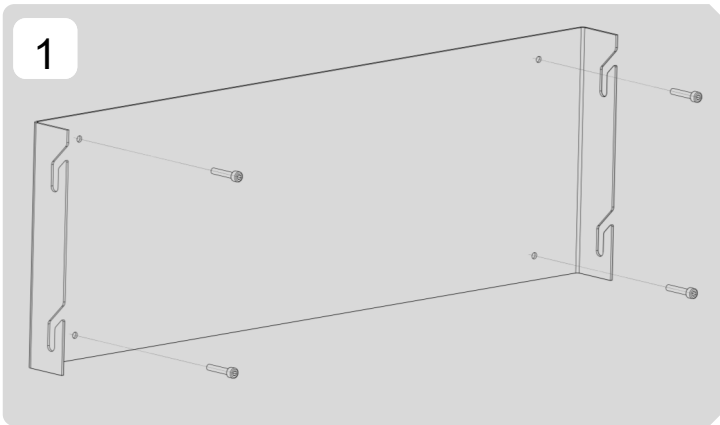
1. Ventilation Outlets
2. Carrying Handle
3. Data connector
4. AC mains input, 100-264V
5. Ventilation Inlets
6. Wall Hanging Bracket (refer to page 9)
7. Supporting lateral studs

Installation

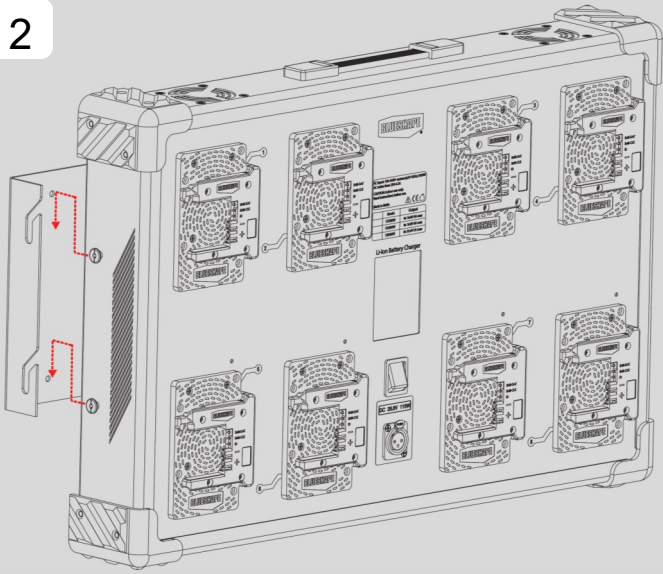
This charger is designed to ideally be installed on a wall.

Find a suitable location allowing for easy access, ensuring that the ventilation inlets/outlets are free from any obstruction.

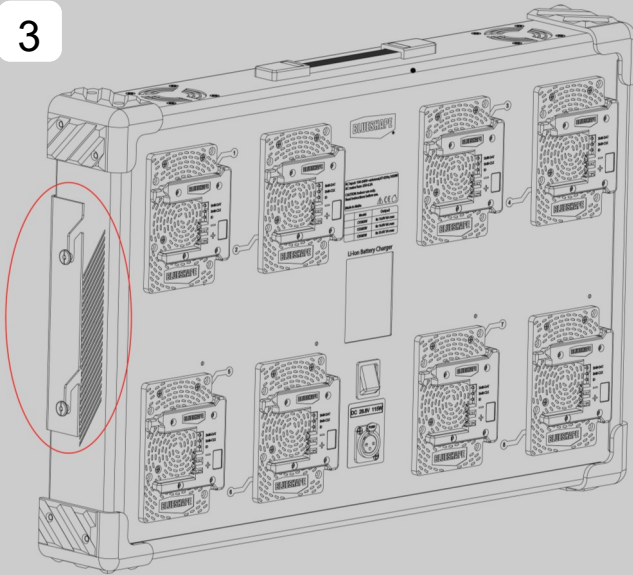
1. Fix the mounting bracket against the wall, using suitable screws and/or fittings. The screws should have sufficient holding power. Tighten all 4 screws and ensure that the bracket is fixed firmly in place.
2. Lift the charger and align the 4 lateral studs with the corresponding slots on the mounting bracket.
3. Slide the studs carefully in the slots and lower the charger to seat in its definitive position. Ensure that all 4 studs are correctly and firmly inserted in their relative slots.



2



3



Introduction

The BLUESHAPE series of intelligent lithium-ion battery chargers have been specifically designed for fast and reliable charging of BLUESHAPE batteries. The charging speed depends on the type of batteries on charge since the charger communicates and acquires information from the batteries during operation. The charger is capable of delivering up to a maximum of 3Amps in constant current (CC) mode on all eight channels simultaneously. This makes it ideal for fast turnaround, especially when using higher capacity batteries. However, when charging smaller batteries, the charger never exceeds currents higher than 0.33C* to avoid overheating and stress to the lithium-ion cells.

Nevertheless, these chargers can also charge 3rd party, non-communicative batteries but at a fixed rate of 2A when fan is on and 1.5A when the fan is off. A precaution is included by design in order not to overcharge 3rd party batteries or render them unsafe.

This charger has been designed for users having large fleets of batteries, and with a higher daily rotation; the wall mounting feature and the flat form factor makes it discrete and minimally intrusive in any installation.

This charger features a 3.5" touch display for intuitive and direct access to charger control and information.

*0.33C is equivalent to a third of the battery Ah capacity

Features of CBS8XW

- Elegant and robust design. Ideal for indoor use.
- Sophisticated electronics for accurately detecting the charging requirements and applying the correct charging rate accordingly.
- Simultaneous charging of 8 batteries at a maximum of 3A each when fan is switched on.
- 3.5" touch display with adjustable backlight
- Pre-charge function for protecting heavily discharged cells against high currents until their voltages rise to a safe level .
- Maximum compactness and space utilisation.
- Switchable fan for selection of 'FAST' or 'SILENT' charging modes.

- Precise constant current (CC) and constant voltage (CV) charging algorithms to match the battery programmed charging voltage.
- Powerful auxiliary output at 28.8V / 115W through 3-pole XLR
- Data connector for computer connectivity for debugging and servicing.



*When a battery is installed the output voltage of the auxiliary output is dependent on the battery voltage. It will range from 28.8V up to 34V with no battery, Aux fixed at 28.8V.

BLUESHAPE Battery Charging and Performance Features

The electronic circuitry provides a very accurate lithium-ion charge algorithm. Initially, the chargers will only apply a pre-charge current of a few mA to batteries that are heavily discharged. Once the cells inside the batteries reach a safe level, the full (maximum) charging current is delivered at a maximum rate of 3A (but less than 0.33C) until the batteries reach almost 90% state of charge (SOC).

This charging rate is only applied when the fan is set to ON. If the fan is switched to OFF for silent operation, the charging current is reduced to not exceed 2A (but less than 0.33C).

After the constant current (CC) phase is completed, a constant voltage (CV) phase initiates with the current tapering slowly to 2% of capacity until full cut-off.

Example: if capacity is 10Ah, cut-off is at 0.2A

CBS8XW Charging Performance with Fan ON

Approximate charging time per channel (minutes)			
Battery Model	Battery Capacity	CC rate (0.33C)	State of Charge (SOC)%
			100% (mins)
BB145	5Ah - 145Wh	1.65A	220
BB145HS	5Ah - 145Wh	1.65A	220
BB290	10Ah - 290Wh	3A	260
BB435	15Ah - 435Wh	3A	340

CBS8XW Charging Performance with Fan OFF

Approximate charging time per channel (minutes)			
Battery Model	Battery Capacity	CC rate (0.33C)	State of Charge (SOC)%
			100% (mins)
BB145	5Ah - 145Wh	1.65A	220
BB145HS	5Ah - 145Wh	1.65A	220
BB290	10Ah - 290Wh	2A	330
BB435	15Ah - 435Wh	2A	480

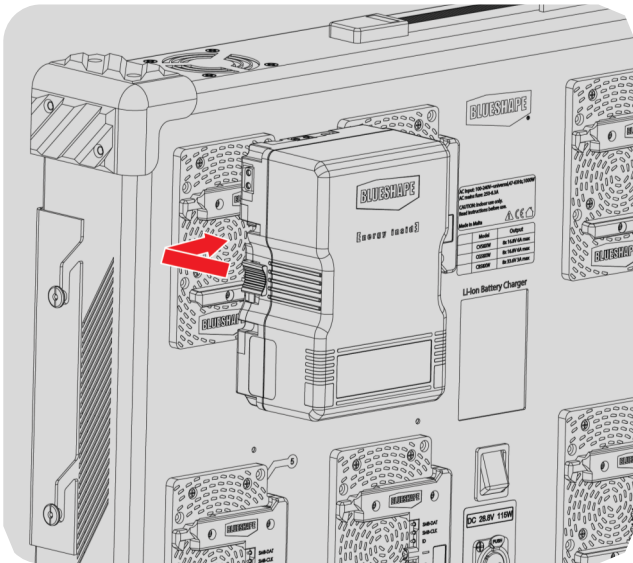
Operating Instructions

This device **simultaneously** charges eight batteries with charging currents of up to 3A, depending on the battery capacity.

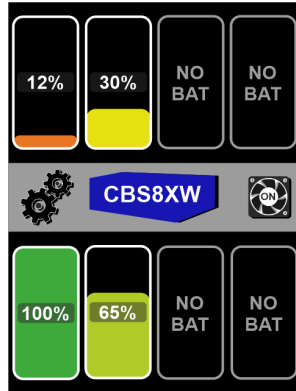
- The Li-ion batteries can be either BLUESHAPE (preferred) or any other 3rd party compatible batteries of any capacity.

The charger will automatically select the charging rate to apply.

- Plug the AC power cord provided into the charger AC input and switch on. Display will temporarily show splash screen and main page.
- The batteries are to be inserted in any of the eight battery bays as illustrated below.



- The charging page will show the status of the eight bays independently.



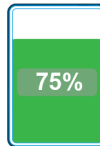
- When no battery is connected or detected in a battery bay 'NO BAT' is shown in the battery status.



- When a battery is detected, a throbber indicates battery communication initialisation.



- Charging capacity status is indicated accordingly graphically and through percentage. A blue pulsing border indicates charging in progress.



- Failure state may be indicated accordingly in case of charge failure to safeguard the charger and battery.



- During charging mode, the fan state can be toggled by tapping on the fan icon in the main screen. This may be done if silent operation of the CBS8XW is required. For charging performance as determined by fan state, refer to the technical specification table in this manual.



- Detailed status information on the individual batteries can be accessed by tapping the respective battery symbol. Note, some details on third party battery packs may not be displayed.

Tap to go to main page

BB290 Serial no. #01234-49	
State of charge	12%
Time to full	90 min
Actual current	3000 mA
Battery voltage	28120 mV
V-Cell 1	3549 mV
V-Cell 2	3542 mV
V-Cell 3	3533 mV
V-Cell 4	3541 mV
V-Cell 5	3536 mV
CH #1: Charging in CC Mode ...	

Tap to open the diagnostic page

Tap to expand message box

- Message box shows additional detail on the bay charging mode. Any error state detail is also shown in this message box.

BB290 Serial no. #01234-49	
State of charge	12%
Time to full	90 min
Actual current	3000 mA
Battery voltage	28120 mV
V-Cell 1	3549 mV
V-Cell 2	3542 mV
V-Cell 3	3533 mV
CH #1: Charging in CC Mode In Constant Current mode the battery is charged with the maximum allowed charging current until it reaches approx 80-90% of charge	

Tap to collapse message box

-
- Diagnostic page shows additional battery pack information which may be helpful with battery pack troubleshooting.

BB290 Serial no. #01234-49	
Battery Diagnostic	
Mfg date	29-08-2023
Original capacity	10000 mAh
Actual capacity	9980 mAh
State of health	100 %
Cycle count	10 cycles

-
- Tapping on the cog icon on the main screen will show general charger status and information. Display backlight brightness can be adjusted via the slider at the bottom of the screen.

CBS8XW	
Serial Number	21
Mfg date	01-09-2023
Fw version	1.10-1.00-1.00
Power	AC ON
Fan State	ON
Aux port state	Ready
Aux voltage	28800mV
Aux current	0 mA
Aux power	0 W

Drag slider to adjust backlight brightness

Using the Charger as an Auxiliary Power Supply

In the case when a device is plugged into the auxiliary XLR port, the charging process may continue but can be slowed down, depending on the power taken by the AUX port that has the priority.

The AUX port is only available whenever AC is connected.

Working with AC Input

When AC is present and no batteries are installed, the power available on the AUX port depends on the fan state:

- with fan set ON - 28.8V regulated at max 3A
- with fan set OFF - 28.8V regulated at max 2A

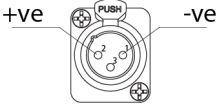
Note: Drawing power from the auxiliary whilst charging a battery will increase charging time as the available current is shared between the battery on charge and the load on the AUX port.

See the technical specifications table in this manual to understand the different current handling under different conditions.

Working without AC Input

Due to the nature of the B-Mount standard the batteries cannot release power when installed on a charger without AC connected. Thus AUX will not work when AC is off.

Technical specifications

Type	Li-ion constant current and voltage control system	
CC-MODE: Output with B-Mount Communications	Max 3000mA \pm 5% with fan ON Max 2000mA \pm 5% with fan OFF	
CC-MODE: Output with No Communications	Max 2000mA \pm 5% with fan ON Max 1500mA \pm 5% with fan OFF	
CC-MODE: Vmax with B-Mount Communications	Max 33600 \pm 50mV (\pm 0.15%) regulated based on battery programmed charging voltage	
CC-MODE: Vmax with No Communications	33400 \pm 50mV (0.15%)	
CV-MODE: Vmax with B-Mount Communications	Max 33600 \pm 50mV (0.15%) regulated based on battery programmed charging voltage	
CV-MODE: Vmax with No Communications	33400 \pm 50mV (0.15%)	
CV-MODE: Cut-off current	2% of full capacity	
Auxiliary power (XLR 3 pin)	With no battery: Fan state ON: regulated 28.8V @ 5A max \pm 5% Fan state OFF: regulated 28.8V @ 4A max \pm 5%	
XLR Polarity (3 pin)		Pin 1: -ve Pin 2: +ve Pin 3: nc
Short circuit protection	Available	
Overcharge protection	Available	
Overtemperature protection	Available	
Special features	Charging current and voltage regulated according to battery capacity for BLUESHAPE or compatible batteries only	
Power supply	AC mains 100V - 264V ~ universal, 47 - 63 Hz, 1000W	
Fuse	1 x 250V-2.5A + 1 spare	
Power consumption	900W Max	
Power factor	>0.94 at full load	
Operating temperature range	0°C - 45°C	
Storage temperature range	-20°C - 65°C (-4°F - 149°F)	
Dimensions	620 x 410 x 110mm (24.4" x 16.14" x 4.33")	
Weight	10.6Kg (23.37lbs)	

Notes Concerning Charger Usage with BLUESHAPE Battery Packs

It is recommended that the users always have at least another spare battery readily available.

It is preferable to charge batteries immediately before use.

Some self-discharge would result if the batteries are charged several weeks in advance of their use. However, this slight loss can be recharged at any time without any degradation of battery performance (no memory effect).

It is recommended to store batteries in a cool and dry place. Charging should be done at temperatures above 0°C and below 45°C.

Slight heating of the battery is expected to occur during charge.

If for some reason, the pack temperature reaches 60°C, then the charge activity is suspended.

The pack resumes normal charging once the temperature drops back to below 50°C. This is a safety feature incorporated in all BLUESHAPE battery packs.

The contents of this operating manual are subject to change without notice.

Disposal Instructions

When the equipment has reached the end of its life please dispose of the components in accordance with your local waste directive in your country.

Electronic equipment should be recycled wherever possible and not disposed of with regular waste.

Warranty

BLUESHAPE chargers are warranted to be free from defects in materials, workmanship and functionality for a period of 18 months commencing from the date of purchase.

This warranty shall not apply to any products or parts of, that have been subjected to misuse, negligence, accidental or abnormal conditions of operation.

The buyer should always contact the place of purchase for any return of defective product. It is important that the buyer provides us with as much information as possible about the failure being claimed.

In the event of product failure for which warranty applies, we will repair or replace the product free of charge. In these cases, all expenses including transport charges will be borne by us.

In the case where the failure has been caused by one of the causes explained above, repairs should be billed at a nominal cost. Prior to the carrying out of any repairs, we will inform the customer of the estimated costs of these repairs.

These warranty conditions are the only ones applicable to our products and overrule any other expressed or implied warranties. We shall not be held liable for any damages resulting from warranty statements other than those contained in this declaration.

This warranty is not transferable and is only applicable to the original buyer. In all warranty claims, the buyer must reproduce the original purchase invoice.



BLUESHAPE®

is a registered trademark of:

NEW CELL TOP Srl

Via Liguria 4-6,

42124 Reggio Emilia, ITALY

TEL.: +39 0522 518556

WEB: www.blueshape.net

EMAIL: info@blueshape.net