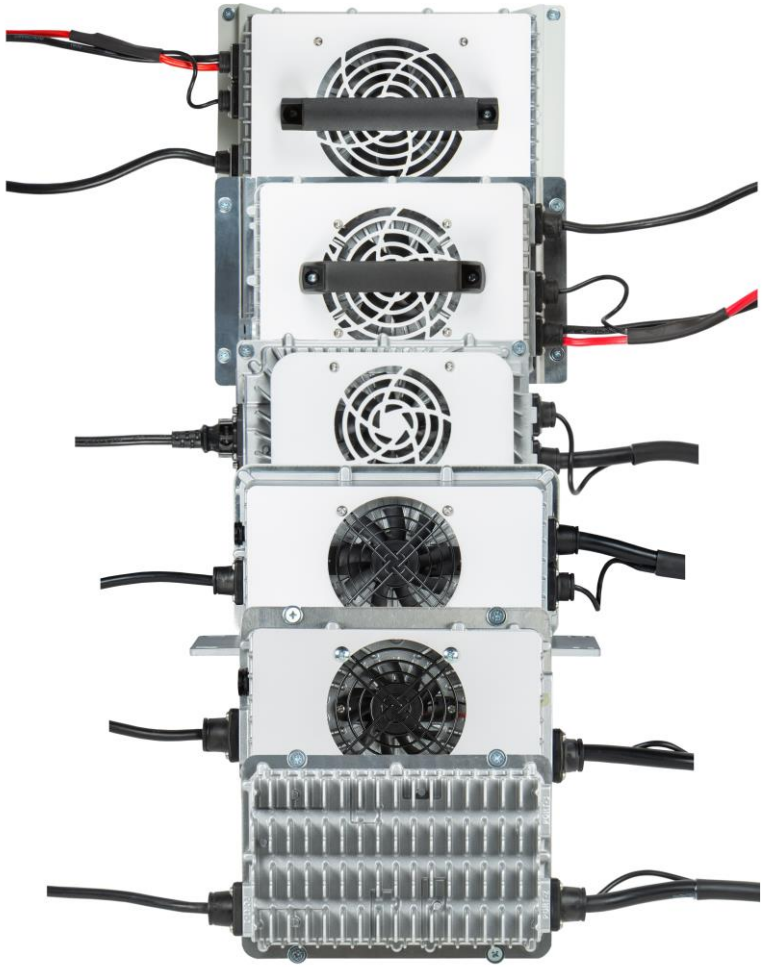
INSTALLATION, OPERATION & MAINTENANCE MANUAL

Caricabatterie *Serie NEOS*

SAFETY & RELIABILITY

EASY TO USE

SPECIAL FUNCTIONS



TCE Group Srl

Via Giuseppe di Vittorio 5/9 - 35046 Borgo Veneto (Padova) – ITALY
web: www.tcechargers.com

INTRODUCTION

This installation, use, maintenance, and configuration manual contains instructions and / or recommendations for users of the NEOS SERIES battery chargers and is an integral part of the battery charger even if the charger is sold to another owner, IN THAT LAST CASE THE WARRANTY IS LOSED.

The general index lists all the topics covered in the entire manual. The numbering of the pages is progressive, and each page shows the number of the same.
Before installing and using the charger, it is necessary to carefully read this manual in all its parts and fully understand the correct procedures for installation, use and maintenance.

This manual must be kept in good condition throughout the life of the charger, away from humid places and always accessible to users.

TCE Group S.r.l. declares that the information contained in this manual complies with the technical and safety specifications of the NEOS SERIES which the manual refers.

A certified copy of this manual is deposited in the technical file of the device, kept at TCE Group S.r.l.

TCE Group S.r.l. does not recognize any documentation that has not been produced, issued or distributed by itself or by its authorized representative.

This manual, like all the technical file, will be kept by the manufacturer for the period required by law (10 years).

During this period, a copy of the documentation accompanying the product may be requested at the time of sale.

The entire technical file remains available for this period exclusively for the supervisory authorities, who may request a copy.

After this period, it will be the obligation and care of whoever manages the product to make sure that both the product and the documentation comply with the regulations in force at the time of the inspection.

Also pay particular attention to the symbols on both the manual and the charger.

SYMBOLS ADOPTED IN THIS MANUAL

NOTE

NOTES CONTAIN IMPORTANT INFORMATION

WARNING

THE WARNING INDICATIONS INDICATE THOSE PROCEDURES WHICH TOTAL OR PARTIAL NON-COMPLIANCE MAY CAUSE DAMAGE TO THE DEVICE, ITS COMPONENTS AND MAY EXPOSE THE USER OR PEOPLE TO DANGERS.

DANGER

THE DANGER INDICATIONS INDICATE THOSE PROCEDURES WHICH TOTAL OR PARTIAL NON-COMPLIANCE CAN CAUSE SERIOUS DAMAGE TO THE EQUIPMENT AND / OR SERIOUS INJURY TO THE HEALTH OF PEOPLE.

ATTENTION

CAUTION INDICATIONS INDICATE THOSE PROCEDURES WHICH TOTAL OR PARTIAL NON-COMPLIANCE CAN CAUSE SERIOUS DAMAGE TO THE EQUIPMENT AND / OR SERIOUS INJURY TO THE HEALTH OF PEOPLE AND THINGS.

SYMBOLS ADOPTED ON THE BATTERY CHARGER

DANGER OF ELECTRIC SHOCK OR ELECTROCUTION

ELECTROCUTION CAN HAPPEN FOR:

1- DIRECT CONTACT
2- INDIRECT CONTACT
3- ELECTRIC ARC

GENERIC DANGER

GENERIC DANGER

1- DANGER FOR PEOPLE
2- DANGER FOR THE EQUIPMENT
3- DANGER FOR THE ENVIRONMENT

ATTENTION!

The SYMBOLS on the charger, which have a safety function, must not be removed, covered or damaged.

MANUFACTURER'S DATA

Builder:	TCE Group s.r.l.
Registered office:	Via G. di Vittorio 5/9 – 35046 Borgo Veneto PD - Italy
VAT number:	04458670280
tel. Office:	+39 0429 89 290
Opening hours:	AM 8:00-12 PM 14:00-18:00

AUTHORIZED TECHNICAL ASSISTANCE

Authorized technical assistance on NEOS SERIES battery chargers is performed only and exclusively by TCE Group S.r.l. or by a qualified technician appointed by TCE Group S.r.l.

TECHNICAL ASSISTANCE

TCE Group s.r.l.

Via G. di Vittorio 5/9 – 35046 Borgo Veneto PD - Italy

+39 0429 89 290

NOTES ON THE DECLARATION OF CONFORMITY

The **NEOS SERIES** chargers described in this manual are accompanied for sale by the declaration of conformity, drawn up in compliance with the regulations in force in the European territory.

NOTE

BEFORE USING THE DEVICE, CHECK THE PRESENCE OF THE DECLARATION OF CONFORMITY. IF THE DEVICE IS TRANSFERRED TO A THIRD PARTY, ALL THE DOCUMENTATION MUST BE DELIVERED TOGETHER WITH IT, AS AN INTEGRAL PART OF ITSELF.

WARRANTY

The warranty of the charger includes the replacement or repair of components recognized as defective by the manufacturer (factory defect), the costs of collection and shipping remain the responsibility of the buyer.

The warranty clauses, listed below and in full in the purchase contract, are valid only and exclusively if the device is used in compliance with the conditions of use and maintenance provided for in this manual.

Any repairs and / or modifications made to the charger carried out by the user or by personnel not expressly authorized by TCE Group S.r.l., causes the immediate forfeiture of the guarantee and at the same time raises TCE Group S.r.l. from any liability in case of damage to people, property and animals.

The Warranty, as per law, covers the products placed on the market by TCE Group S.r.l., for a period of 12 months, solely from manufacturing defects recognized by the manufacturer.

GENERAL WARRANTY CONDITIONS

1- The manufacturer guarantees the product, **with the exception of elements subject to normal wear such as power supply cable on the mains side, charging cable on the battery side, chasiss, cooling fans, capacitor, ecc.,** for a duration **of 1 (one) years** from the date of purchase which must be proven by a documentary evidence (invoice) showing the name of the seller and the buyer and the date on which the sale was made.
2- **Submission of the completed guarantee certificate within 8 days, from the purchase of the charger**.
3- To make the guarantee valid and effective, the installation must be carried out in a workmanlike manner and the appliance must be started up only by qualified personnel who, in the foreseen cases, must issue the user a declaration of conformity of the 'plant and product running smoothly.
4- Installations that do not comply with current standards invalidate the product warranty, as well as improper use and lack of maintenance as provided by the manufacturer.
5- The warranty is valid on the condition that the instructions and warnings contained in the use and maintenance manual accompanying the appliance are observed, in order to allow for more correct use.
6- The replacement of the entire appliance or the repair of one of its component parts does not extend the duration of the warranty which remains unchanged.
7- By warranty we mean the free replacement or repair of parts recognized as faulty at origin due to manufacturing defects, **the cost of collection and shipping of the product is always borne by the buyer, UNLESS DIFFERENT WRITTEN PROVISIONS OF THE MANUFACTURER**.
8- To take advantage of the guarantee, in the event of a defect, the buyer must keep the guarantee certificate and show it together with the document issued at the time of purchase, to the Manufacturer.

LIMITATION OF LIABILITY OF THE MANUFACTURER

WARNING!

TCE Group S.r.l. declines all responsibility for any damage that may derive, directly or indirectly, to people, things and animals due to failure to comply with the prescriptions indicated in this manual and specifically, concerning the warnings regarding the installation, use and maintenance of the battery charger.

CASES OF LIMITATION OF MANUFACTURER'S LIABILITY:

1- THE BATTERY CHARGER HAS NOT BEEN INSTALLED BY QUALIFIED PERSONNEL;
2- THE ELECTRICAL CONNECTIONS OF THE BATTERY CHARGER TO THE ELECTRICITY NETWORK AND TO THE BATTERY TO BE CHARGED, DO NOT RESPOND TO THE MANUFACTURER'S INSTRUCTIONS AND HOWEVER AND EVEN WORSE DO NOT RESPECT THE REGULATIONS IN FORCE AT THE TIME OF ITS INSTALLATION AND COMMISSIONING;
3- THE MANUFACTURER'S INSTALLATION INSTRUCTIONS HAVE NOT BEEN STRICTLY FOLLOWED;
4- THE BATTERY CHARGER HAS NOT BEEN MAINTAINED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS;
5- THE BATTERY TO BE CHARGED IS DEFECTIVE OR INCORRECTLY CONNECTED TO THE CHARGER;
6- THE BATTERY DOES NOT MATCH THE TYPE OF BATTERY THAT THE CHARGER CAN CHARGE;
7- THE BATTERY HAS BEEN DAMAGED DURING CHARGING OR ITS TRANSPORT;
8- THE BATTERY IS DEFECTIVE FROM THE ORIGIN;
9- THE BATTERY CHARGER HAS BEEN USED BY NON-QUALIFIED PERSONNEL AND APPROPRIATELY EDUCATED;
10- THE BATTERY CHARGER HAS ALSO BEEN PARTIALLY "MODIFIED" WITHOUT WRITTEN AUTHORIZATION OF THE MANUFACTURER;
11- NON ORIGINAL BATTERY CHARGER SPARE PARTS HAVE BEEN USED;
12- THE BATTERY CHARGER HAS NOT BEEN INSTALLED IN A WELL AIRED ENVIRONMENT AS PER THE INSTRUCTIONS MANUFACTURER AND AS AN INDICATION OF THE SAFETY RULES IN FORCE AT THE TIME OF ITS INSTALLATION AND COMMISSIONING;
13- THERE HAS BEEN IMPROPER USE OF THE BATTERY CHARGER;
14- THE BATTERY CHARGER IS DAMAGED DURING TRANSPORT;
15- THE BATTERY CHARGER IS DAMAGED DURING THE INSTALLATION OPERATIONS,HANDLING, ETC.
16- IN GENERAL IN ALL THOSE CASES THAT HAVE NOT BEEN COMPLIED WITH THE WARNINGS AND INDICATIONS OF THE MANUFACTURER AND / OR THE INSTALLATION AND SAFETY RULES IN FORCE AT THE TIME OF INSTALLATION AND THE COMMISSIONING OF THE BATTERY CHARGER.

SAFETY CONDITIONS AND WARNINGS

WARNINGS!

GENERAL INFORMATIONS

1- The charger can cause injury or death or damage to other equipment or property if the user and / or installer does not scrupulously observe all federal, state or local safety regulations and all instructions on installation, use and maintenance before using this appliance.

2- Only qualified and previously trained personnel will be able to take care of the installation, use or maintenance of the battery charger.

3- ***Any responsibility for improper use of the battery charger is fully borne by the user and relieves the manufacturer of all civil and criminal liability.***

4- The battery charger must be connected to the power supply via the Magnetothermic switch and / or protection fuses, suitably sized by referring to the plate data shown on the charger label, such as Supply Voltage and Nominal Current.

5- Frequently check the battery charge conductors, in order to exclude the presence of damage to the electrical insulation of the same, in case of wear, switch off the battery charger and have them replaced by qualified personnel.

6- Do not touch the battery terminals for any reason while the charger is operating, danger of electrocution.

7- Do not clean the charger with water or liquids, these could penetrate inside the unit and damage the electrical insulation, causing electric shock or fire.

8- **Install the battery charger in rooms that are not at risk of fire and well ventilated, respecting Federal, state or local regulations.**

9- Ordinary and extraordinary maintenance operations must be carried out only and exclusively by authorized and qualified personnel.

10- Disconnect the charger from the mains before carrying out any maintenance operations.

PREVENTION OF FIRE OR EXPLOSION

During the battery recharging process, they generate hydrogen gas, which at certain concentrations in the air, could generate an explosive atmosphere if ventilation is not sufficient.
The ventilation system must therefore be designed according to federal, state or local regulations, in order to provide an adequate amount of air exchange for the number of batteries to be charged, this is a fundamental requirement for the prevention of fires or explosions.
Avoid sparks, open flames, use of cigarettes, or any other source of combustion in the battery charging room.
Do not interrupt or remove the charging cables FROM THE BATTERIES when the charger is “LIVE”, first turn off the Battery charger and then after 10/20 seconds remove the charging cables from the batteries.
Avoid that metal objects such as work tools or the like may be placed on or near the battery, as these may accidentally generate short circuits or electric arcs between the free poles of the battery resulting in a fire or explosion.

PREVENTION OF BURNS OR BODY INJURY

In the event of a short circuit, the battery produces very high currents, these can cause severe burns or body injuries, make sure to always use the personal protective equipment prescribed by the standards federal, state, or local.
Some types of batteries contain highly corrosive acid which can cause burns or bodily injury if contacted, be sure to always use the personal protective equipment prescribed by federal, state or local regulations.

ELECTRIC SHOCK FIRST AID MEASURES

ATTENTION! ELECTRIC SHOCKS CAN BE DEADLY

If the user has suffered an electric shock and is unconscious, do not touch him if he is in contact with the charger or with the battery or charging cables or other electrical circuit components that are live.
Disconnect power from the wall switch, then START First Aid PROCEDURES and notify MEDICAL SERVICE IMMEDIATELY.

TRANSPORT AND STORAGE

ATTENTION!

Always observe the standards and regulations related to accident prevention when handling the CHARGER, whether federal, state or local.

1- Pay attention when handling the Battery Charger.
2- Inspect the packaging to detect any damage suffered during transport.
3- Note any damage suffered during transport on the receipt or on the transport document, or immediately notify the manufacturer by e-mail.
4- Unpack the charger carefully.
5- For handling, never grab the charger by the power cables and / or charging cables.

STORAGE

1- If the charger is not installed immediately after delivery, store it in a dry environment with humidity and temperature as indicated in points 2 and 3.
2- Storage humidity from 20% to 60%.
3- Storage temperature from 10 ° C to 60 ° C
4- Make sure that the battery chargers are not stacked on top of each other.

RETURN

1- In case of returning the Battery Charger, fill in a technical sheet where it must be reported In detail the reason for the return.
2- Pack the battery charger as in the original or in any case with safe packaging.
3- We do not accept RETURNS of Chargers with makeshift packaging.
4- Contact TCE Group S.r.l. for specific instructions on how to return the charger
5- Obtain the RETURN Authorization from TCE Group S.r.l.
6- No other procedure other than that specified in points 1,2,3,4,5 will be accepted by the Manufacturer, with consequent forfeiture of the Warranty.

DISPOSAL

1- Dispose of the charger and its accessories in accordance with applicable federal, state or local regulations.
2- TCE Group S.r.l. declines all responsibility in case of non-observance of the disposal precautions of the charger, which must be taken to the collection point indicated for the recycling of the electrical and electronic equipment, in accordance with applicable federal, state or law locals.

DESCRIPTION CHARGER NEOS SERIES

The NEOS series encloses a family of isolated high-frequency rectifiers characterized by an active PFC and a DC/DC output stage with full-bridge resonant technology.

It is made with an IP66 degree of protection to withstand work environments which are less suitable for ordinary battery chargers.

There is no possibility to interfere with the programming of the charger itself as it has no display and no other type of touch or normal key.

SAFETY DEVICES INSIDE THE BATTERY CHARGER

The **NEOS SERIES** chargers are equipped with various safety devices to ensure safe and reliable use over time.

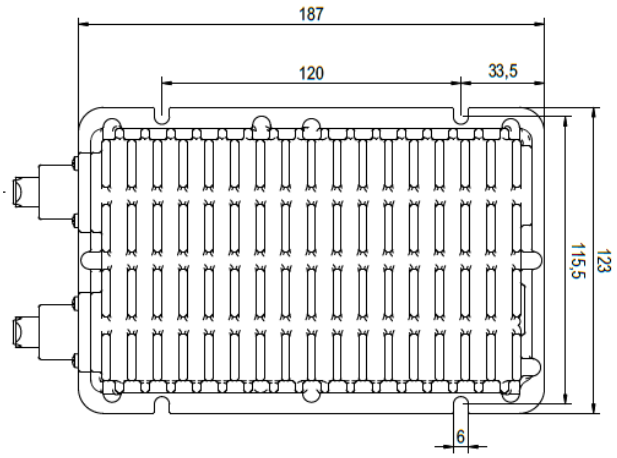
The safety devices are used to protect the charger, the battery and the surrounding environment.

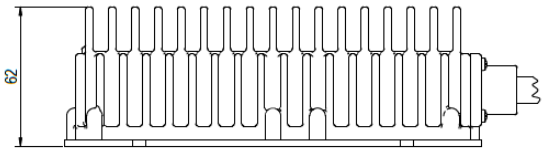
The control board guarantees the charging cycle, as it monitors the various stages of the charge, making sure that the controlled values (Times and Current) are always within the range that determines the optimal battery charge.

The fuse installed inside the device protects against short circuit and polarity inversion.

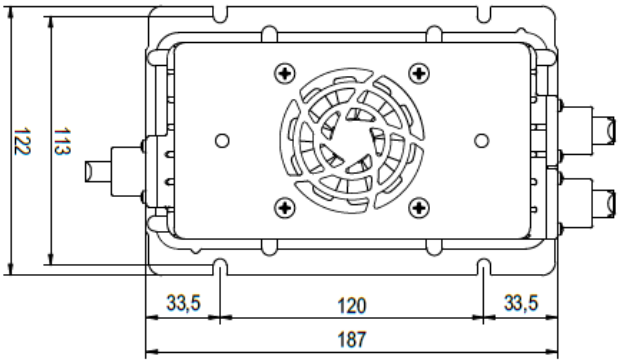
MECHANICAL DIMENSIONS

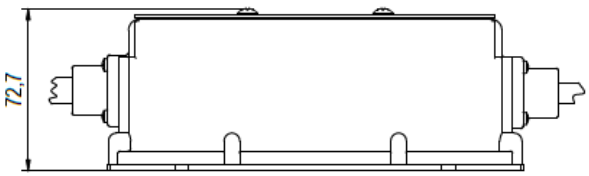
BOX MODULE 0



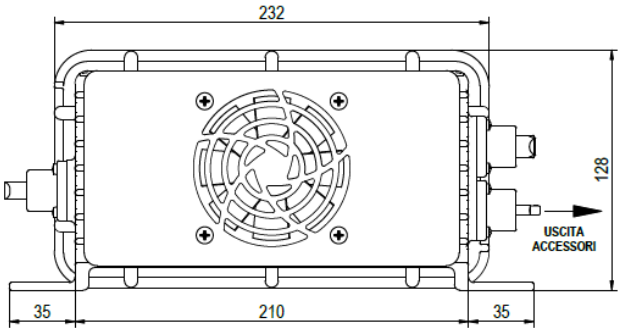


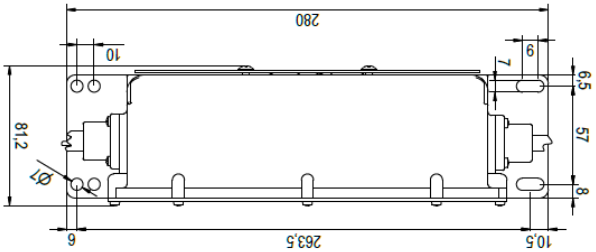
BOX MODULE 1





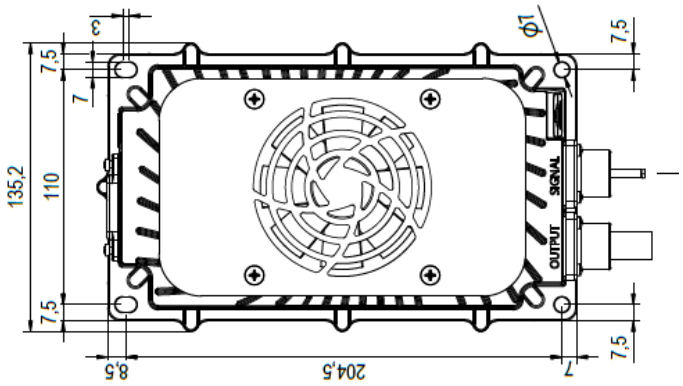
BOX MODULE 2

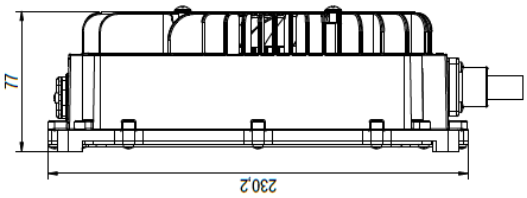




MECHANICAL DIMENSIONS

BOX MODULE 3C





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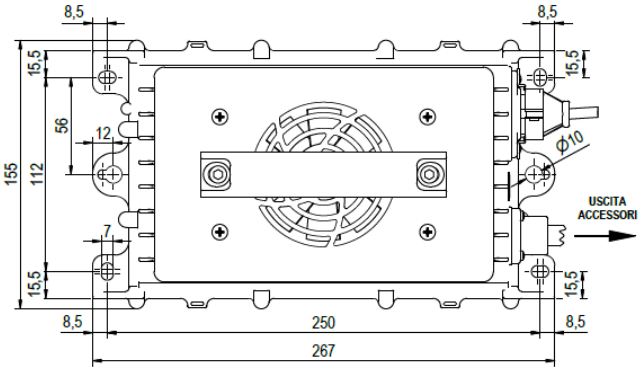
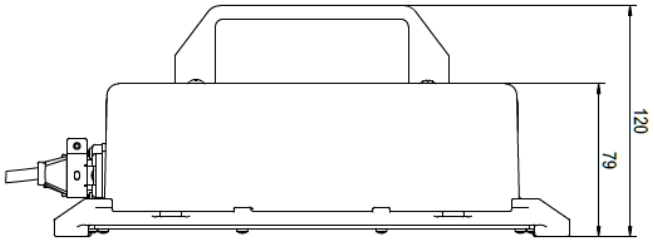
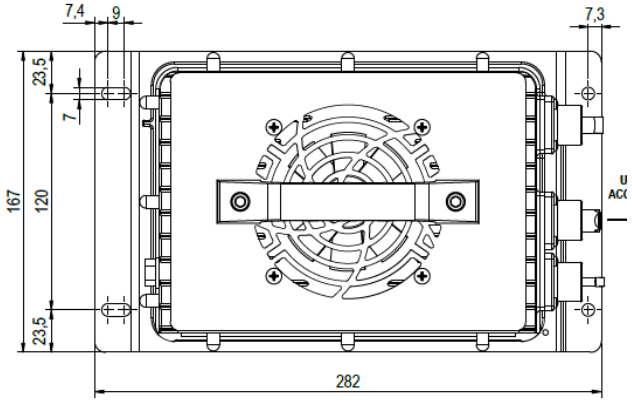
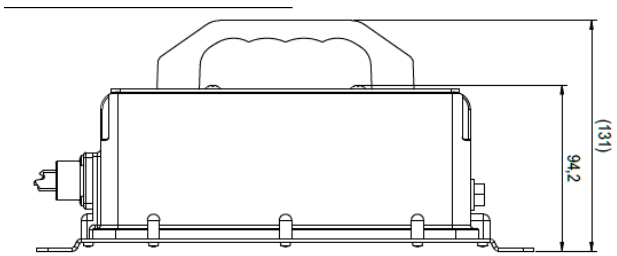




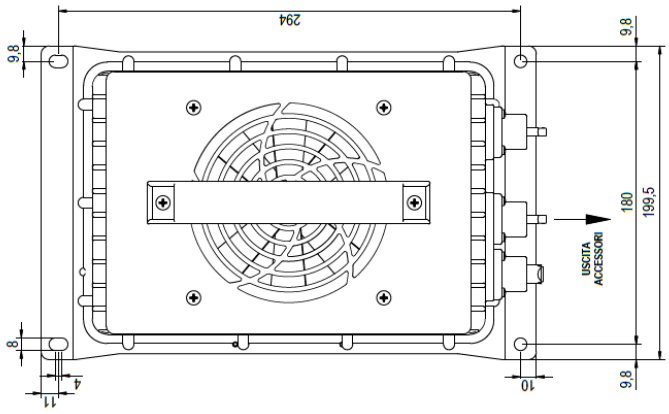
BOX MODULE 4C

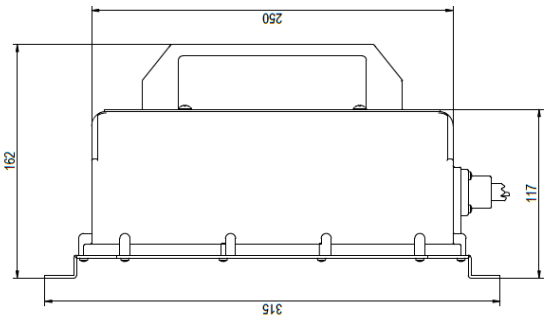




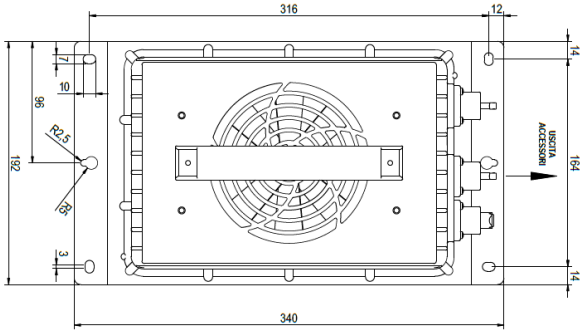
MECHANICAL DIMENSIONS

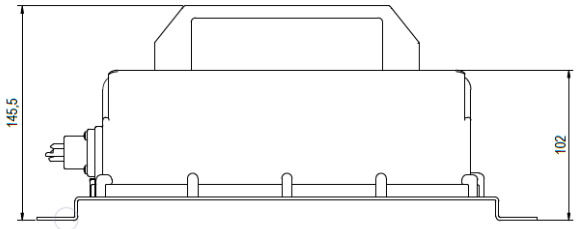
BOX MODULE 5





BOX MODULE 5C





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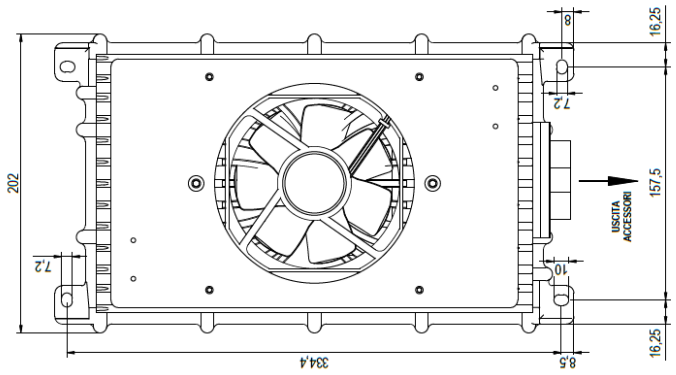
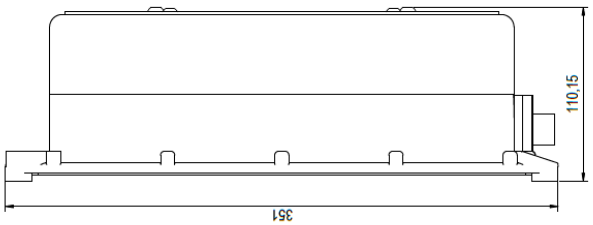
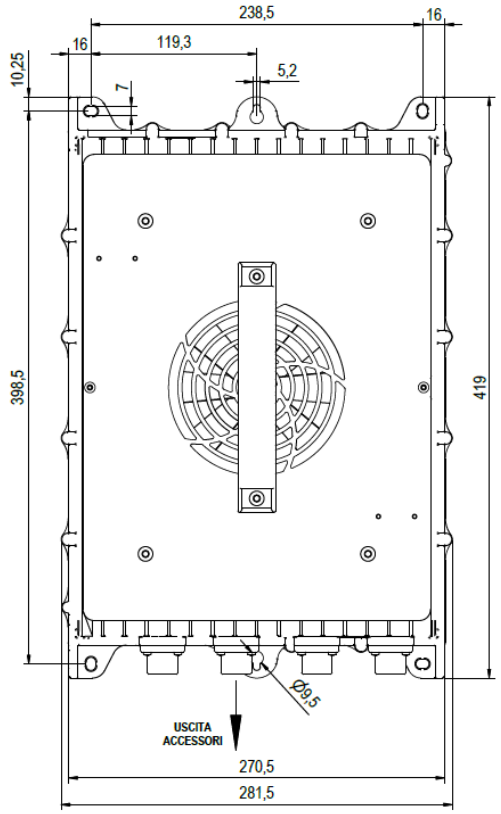
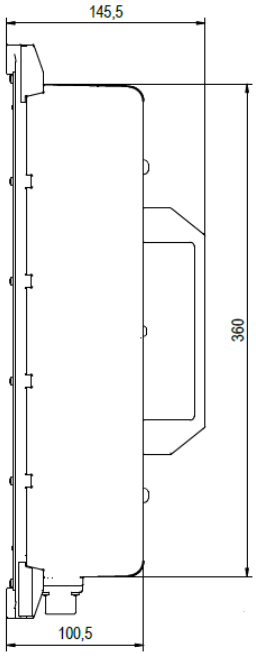




MECHANICAL DIMENSIONS

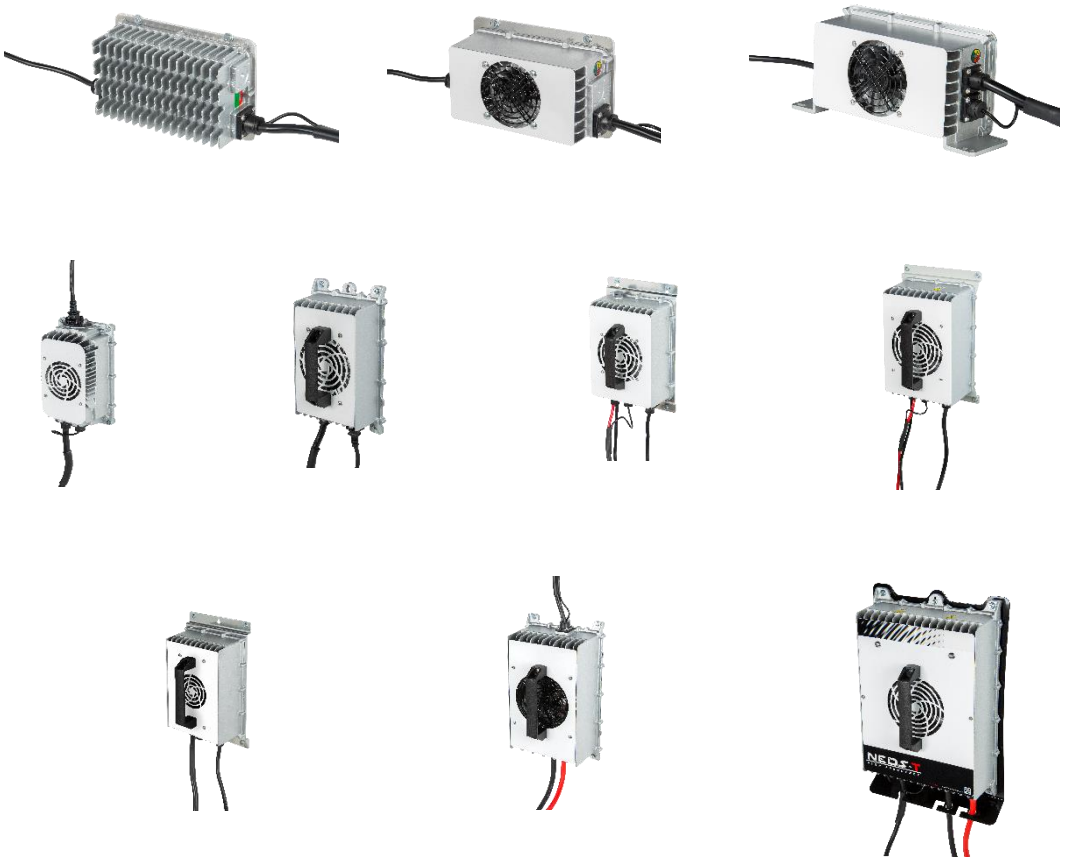
BOX MODULE 7





INSTALLATION

NEOS SERIES



ATTENTION!

The connection operation can only be carried out by qualified personnel, in compliance with the regulations in force whether they are federal, state or locals.

1- Place the charger in the appropriate charging room.

2- Connect the power cable located on the rear side of the battery charger to a thermal magnetic switch sized according to the indications given by the manufacturer on the battery charger label (Supply Voltage, Nominal Current, Nominal Power), use CEMBRE PKC or similar crimp probes, in order to ensure a good electrical contact between the strands of the conductors and the tips, where is not installed the CEE 7/4 plug (Schuko).

3- Connect the polarized connector (charged to the customer and in any case not supplied with the battery charger) to the two DC SIDE cables (battery charging cables), make sure it is compatible with the connector used on the battery.

4- The connection operation can only be carried out by qualified personnel, in compliance with applicable federal, state or local regulations, using the individual safety devices prescribed by them.

START-UP

ATTENTION!

The START-UP operation can only be carried out by qualified personnel, in compliance with current regulations whether they are federal, state or local.

NOTE: Make sure you have carried out ALL the indications in points 1,2,3 on page 43 (INSTALLATION) and proceed as follows.

ATTENTION!

PERFORM ALL OPERATIONS ACCORDING TO THE ORDER OF THE POINTS LISTED BELOW, FIRST CONNECT THE BATTERY TO THE CHARGE CABLE AND ONLY AFTER TURN ON THE MAGNETOTHERMAL SWITCH THAT POWERS THE BATTERY CHARGER FOLLOWING THE PRECISE ORDER OF THE INSTRUCTIONS.
PAY SPECIAL ATTENTION TO POINT 1.

START-UP PROCEDURE

1- Connect the battery to the Battery Charger with the appropriate connector (not supplied by TCE, but charged to the customer), make sure that the battery charger is in line with the voltage of the battery, that the charging current suits the capacity of the battery and that the charging curve is correct for the type of battery to be charged. We recommend to fit a fuse between battery charger and battery. The fuse must be installed along the connection to the positive terminal of the battery. The rating of the fuse must be proportionate to the nominal output current of the battery charger, the diameter of cable used and the environment in which it is to be installed.

2- Turn on the Magnetothermic switch that powers the Battery Charger

3- Make sure that the LED is flashing like in Table “A” Page 45

4- After having switched on the Magnetothermic switch (respecting points 1,2), make sure that the LEDs on the box are switched on as reported in point 3, with the help of figure 1 on page 45, in the section "NOTICES REGARDING THE COMMISSIONING PROCEDURE".

5- In the event of operating anomalies of any kind, turn off the Magnetothermic switch and call TECHNICAL ASSISTANCE.

WARNINGS RELATING TO THE START-UP PROCEDURE

NEOS SERIES

FIGURE 1

WARNING!

The Led Must be Switched on like table "A" page 45

FLASHES TABLE "A"			
NR1210	Red – Green alternate	ONR1210	Red – Green alternate
N1220	Red – Green alternate	ON1220	Red – Green alternate
N1225	Red – Green alternate	ON1225	Red – Green alternate
NR2410	Red – Green alternate	ONR2410	Yellow
N2420	Red – Green alternate	ON2420	Red – Green alternate
N2425	Red – Green alternate	ON2425	Red – Green alternate
NR2430	Yellow	ONR2430	Yellow
N2450	Red – Green alternate	ON2450	Red – Green alternate
N24100	Yellow – Green – Red – Green – Red alternate	/	
N3625	Red – Green alternate	ON3625	Red – Green alternate
NR3630	Yellow	ONR3630	Yellow
N3650	Red – Green alternate	ON3650	Red – Green alternate
NB36100T	Yellow – Green – Red – Green – Red alternate	/	
N4815	Red – Green alternate	ON4815	Red – Green alternate
N4825	Red – Green alternate	ON4825	Red – Green alternate
N4835	Red – Green alternate	ON4835	Red – Green alternate
N4850	Red – Green alternate	ON4850	Red – Green alternate
NB4880T	Yellow – Green – Red – Green – Red alternate	/	
N7218	Red – Green alternate	ON7218	Red – Green alternate
N7225	Red – Green alternate	ON7225	Red – Green alternate
N7235	Red – Green alternate	ON7235	Red – Green alternate
/		ON8022	Red – Green alternate

USE AND INSTRUCTIONS FOR USE NESO SERIES

NEOS SERIES

WARNING!

THE BATTERY CHARGER MUST ONLY BE USED BY QUALIFIED AND APROPRIATELY INSTRUCTED PERSONNEL.

ATTENZIONE!

PERFORM ALL OPERATIONS ACCORDING TO THE ORDER OF THE POINTS LISTED BELOW, FIRST CONNECT THE BATTERY TO THE CHARGE CABLE AND ONLY AFTER TURN ON THE MAGNETOTHERMAL SWITCH THAT POWERS THE BATTERY CHARGER FOLLOWING THE PRECISE ORDER OF THE INSTRUCTIONS.

NEOS SERIES USE PROCEDURE

1- **Turn off the charger.**
2- **Connect the battery to the charger.**
3- **Switch on the charger Corresponding flashes on Table "B" page 47**
4- **Wait a few seconds, if the battery voltage is below the charger threshold set by the IIUI curve, the charge will start automatically Led Flashing RED**
5- **Battery at 80% Led Flashing Yellow**
6- **When the battery is charged, the charging process stops automatically Green Led on.**
7- **At the end of each charging cycle, turn of the charger and resume from point 1 to point 6**
8- **In the event of an electrical blackout during the charging phase, the charging cycle will resume automatically.**

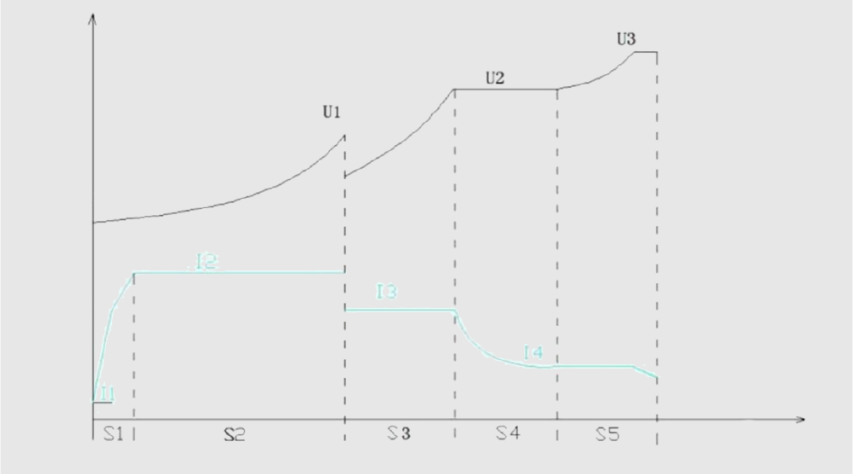
IN THE EVENT OF AN ELECTRICAL BLACKOUT DURING THE CHARGING PHASE, THE CHARGING CYCLE WILL RESUME AUTOMATICALLY

USE AND INSTRUCTIONS FOR USE NEOS *SERIES*

FLASHES TABLE "B"			
NR1210	Yellow – Green x 8	ONR1210	Yellow – Green x 8
N1220	Yellow x 4 – Red – Green	ON1220	Yellow x 4 – Red – Green
N1225	Yellow x 4 – Red – Green x 5	ON1225	Yellow x 4 – Red – Green x 5
NR2410	Yellow x 5 – Green x 8	ONR2410	Yellow – Green x 8
N2420	Yellow x 4 – Red – Green x 2	ON2420	Yellow x 4 – Red
N2425	Yellow x 4 – Red – Green x 5	ON2425	Yellow x 4 – Red – Green x 5
NR2430	Yellow – Red x 2 – Green	ONR2430	Yellow – Red x 2 – Green
N2450	Yellow x 4 – Red x 3 – Green x 8	ON2450	Yellow x 4 – Red x 3 – Green x 8
N24100	No one	/	
N3625		ON3625	No one
NR3630	Yellow – Red x 2 – Green	ONR3630	Yellow – Red x 2 – Green
N3650	Yellow x 4 – Red x 3 – Green x 8	ON3650	Yellow x 4 – Red x 3 – Green x 8
NB36100T	No one	/	
N4815	Yellow x 4 – Red	ON4815	Yellow x 4 – Red
N4825	Yellow x 4 – Red – Green x 5	ON4825	Yellow x 4 – Red – Green x 5
N4835	Yellow x 4 – Red x 3 – Green x 2	ON4835	Yellow x 4 – Red x 3 – Green x 2
N4850	Yellow x 4 – Red x 3 – Green x 8	ON4850	Yellow x 4 – Red x 3 – Green x 8
NB4880T	No one	/	
N7218	Yellow x 4 – Red – Green x 2	ON7218	Yellow x 4 – Red – Green x 2
N7225	Yellow x 4 – Red – Green x 5	ON7225	Yellow x 4 – Red – Green x 5
N7235	Yellow x 4 – Red x 3 – Green x 2	ON7235	Yellow x 4 – Red x 3 – Green x 2
/		ON8022	Yellow x 4 – Red – Green x 5

CHARGE CURVES

LEAD ACID CHARGING CURVE – HEAVY DUTY



S1: The current rises from I1=20% to I2=100% in "soft start" mode.

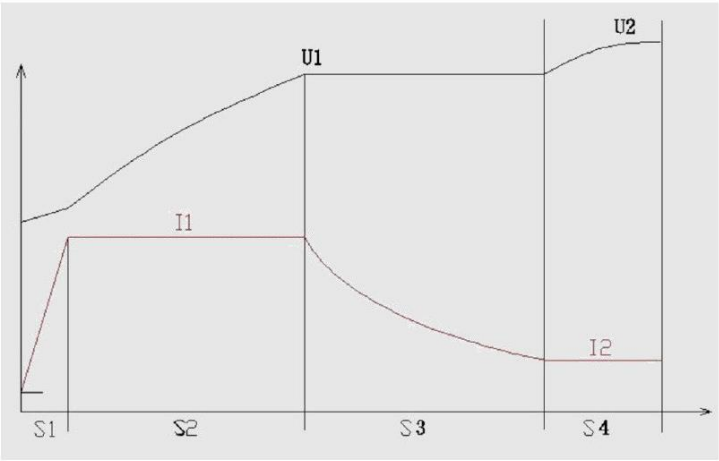
S2: The current remains constant at 10A until reaching the U1 = 2.45 V/cell threshold or reaches the maximum allowed time for this phase of 8 h.

S3: Upon reaching 2.45 V/cell the current remains constant I3=80% until U2=2.55 V/cell is reached or reaches the maximum allowed time for this phase of 2.5h.

S4: The voltage remains constant U2=2.55 V/cell, the current drops to I4=40% or reaches the maximum allowed time for this phase of 3h.

S5: The current I4=40% remains constant until the final voltage U3=2.68 V/cell is reached or the maximum allowed time for this phase of 4h is over.

LEAD ACID CHARGING CURVE – LIGHT DUTY



S1: The current rises upon reaching I1=100% in "soft start" mode.

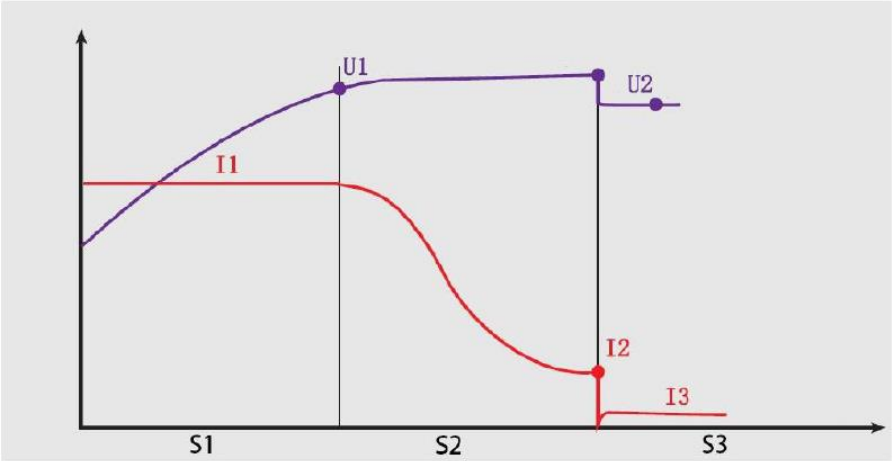
S2: The current remains constant at 10A until reaching the U1=2.4 V/cell threshold or reaches the maximum allowed time for this phase of 8h.

S3: Upon reaching 2.4 V/cell the current drops until it reaches I2=20% or reaches the maximum allowed time for this phase of 4,5h.

S4: The current remains constant I2=20%, the voltage remains inside a predetermined value. Maximum allowed time for this phase is 4h.

CHARGE CURVES

GEL CHARGE CURVES

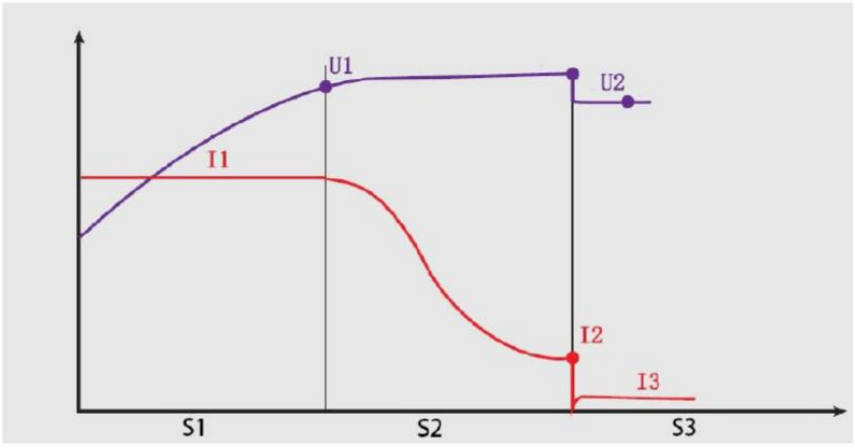


S1: The current rises upon reaching I1=100% in "soft start" mode and remains constant upon reaching U1=2.35 V/Cell or reaches the maximum allowed time for this phase of 8h.

S2: The voltage remains constant U1=2.35V/Cell, the current drops until it reaches I2=20% or reaches the maximum allowed time for this phase of 6h.

S3: The current is limited to I3=10% and the voltage remains constant at U2=2.25 V/cell. Maximum allowed time for this phase is 4h.

AGM1 CHARGE CURVES



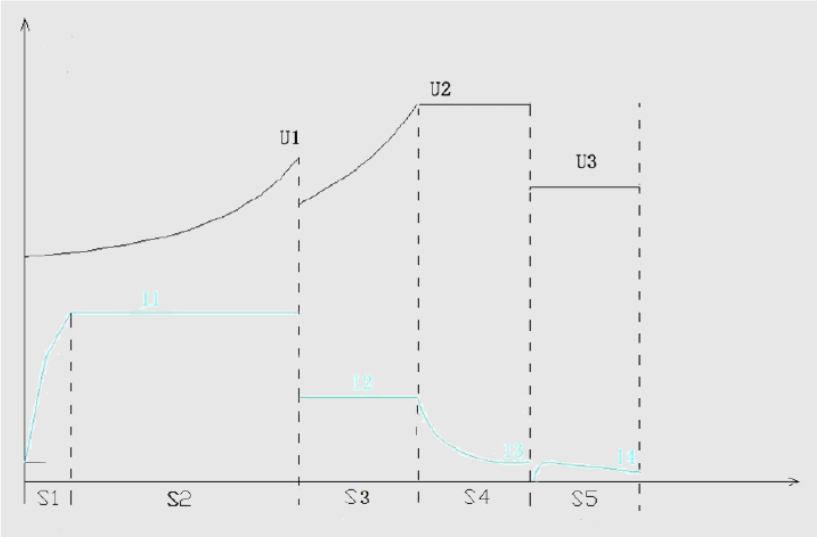
S1: The current rises upon reaching I1=10A in "soft start" mode and remains constant upon reaching U1=2.38 V/Cell or reaches the maximum allowed time for this phase of 8h.

S2: The voltage remains constant U1=2.38V/Cell, the current drops until it reaches I2=1.6A or reaches the maximum allowed time for this phase of 6h.

S3: The current is limited to I3=0.8A and the voltage remains constant at U2=2.25 V/cell. Maximum allowed time for this phase is 4h.

CHARGE CURVES

AGM 2 CHARGE CURVES



S1: The current rises upon reaching I1=10%A in "soft start" mode.

S2: The current remains constant at 100% until reaching the U1 = 2.4 V/cell threshold or reaches the maximum allowed time for this phase of 9h.

S3: Upon reaching 2.45 V/cell the current remains constant I2=60% until U2=2.45 V/cell is reached or reaches the maximum allowed time for this phase of 2h.

S4: The voltage remains constant U2=2.45 V/cell, the current drops to I3=15% or reaches the maximum allowed time for this phase of 2h.

S5: The current is limited to I3=8% and the voltage remains constant at U3=2.3 V/cell. Maximum allowed time for this phase is 4h.

TROUBLESHOOTING GUIDE

NEOS SERIES

ERROR CODE	DESCRIPTION	ACTION
Red – Green alternate flash	Battery not connected	Check DC connectors. Check polarity. Check battery voltage.
Red – Green – Red	Over voltage/ Over current	Check DC connectors.
Red – Green – Red – Green	Environment temperature too high or too low	Check environment temperature (reference values -30° + 65°) Check ventilation
Green – Red	Charger overheating	Check environment temperature (reference values -30° + 65°) Check ventilation
Red – Green	Output under voltage	Contact the factory
Red – Green – Red – Green - Red	Input AC anomaly	Check input voltage Check AC plug
Led Off	The battery chargers don't turn on	Check the correct installation of AC plug Check the efficiency of the fuses
Led Off	The battery charger do not restart	Make sure to have follow al the instructions indicated at page 46 USE AND INSTRUCTIONS FOR NEOS SERIES

MAINTENANCE

ATTENTION!

ONLY QUALIFIED AND PROPERLY INSTRUCTED PERSONNEL CAN PERFORM MAINTENANCE AND / OR PUT OUT OF SERVICE OF THE BATTERY CHARGER, IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND COMPLYING WITH THE REGULATIONS IN FORCE, WHETHER THEY ARE FEDERAL, STATE OR LOCAL.

PERIODIC MAINTENANCE

DANGER

DISCONNECT THE SYSTEM FROM THE ELECTRICITY NETWORK BEFORE CARRYING OUT ANY CLEANING OR MAINTENANCE OPERATION.

Periodically it is necessary to clean the charger from dust and / or dirt, which over time may have deposited on the external surface.
Use a dry cloth or possibly an air compressor to blow the dust, make sure that there is no moisture in the compressed air circuit.
You can also use a slightly damp, non-abrasive cloth that is free of alcohol or aggressive solvents.
Do not use abrasive sponges, chemical solvents or detergents.
During cleaning, avoid water touching internal electrical parts of the device.

EXTRAORDINARY MAINTENANCE

DANGER

DISCONNECT THE SYSTEM FROM THE ELECTRICITY NETWORK AND CALL THE MANUFACTURER'S TECHNICAL ASSISTANCE.

Extraordinary maintenance is required in the event of faults or breakages, inappropriate use of the battery charger or its malfunction and / or wear.
The situations that can arise from time to time are completely random and unpredictable, so it is not possible to describe them.
If necessary, consult the manufacturer's technical service to receive the appropriate instructions for the situation.

PUTTING OUT OF SERVICE

PUTTING THE BATTERY CHARGER OUT OF SERVICE

ATTENTION!

ONLY QUALIFIED AND APPROPRIATELY TRAINED PERSONNEL CAN PERFORM THE BATTERY CHARGER OUT OF SERVICE OPERATIONS, IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND COMPLYING WITH THE REGULATIONS IN FORCE, WHETHER THEY ARE FEDERAL, STATE OR LOCAL.

DANGER

DISCONNECT THE SYSTEM FROM THE ELECTRICITY NETWORK AND CALL THE MANUFACTURER'S TECHNICAL ASSISTANCE.

If the charger has been seriously damaged, such as to make it impossible to repair, it must be permanently taken out of service !!
When the battery charger is taken out of service, it can no longer be used and must follow the DISPOSAL procedure as indicated on page 33.

ATTENTION!

AFTER PUTTING THE CHARGER OUT OF SERVICE, IT WILL NO LONGER BE USED, IT MUST BE DISPOSED OF ACCORDING TO THE REGULATIONS IN FORCE, WHETHER THEY ARE FEDERAL, STATE OR LOCAL.

IF THE CORRECT DISPOSAL PROCEDURES ARE NOT FOLLOWED, THE MANUFACTURER DECLINES ANY CIVIL OR CRIMINAL LIABILITY ARISING FROM THE NON-COMPLIANCE OF THE REGULATIONS BY THE OWNER OF THE BATTERY CHARGER OR ANYONE FOR IT.

WARRANTY CERTIFICATE

TYPE OF CHARGER	SERIAL NUMBER S/N	DATE OF PURCHASE GG/MM/AAAA

SERIES : …… **S/N:**…… **DATE:** _ _ /_ _ /_ _ _ _

MANUFACTURER:

TCE Group S.r.l.

BUYER'S STAMP and SIGNATURE

- - - - - - - - - - - - - - - - - - -

The manufacturer guarantees the product, **with the exception of elements subject to normal wear such as power supply cable on the mains side, charging cable on the battery side, chasiss, , cooling fans, capacitor, etc.**, for a duration of **1 (one) years**. from the date of purchase which must be proven by a documentary evidence (invoice) that shows the name of the seller and the buyer and the date on which the sale was made.
The warranty of the charger includes the replacement or repair of components recognized as defective by the manufacturer (factory defect), the costs of collection and shipping remain the responsibility of the buyer.
Any repairs and / or modifications made to the charger carried out by the user or by personnel not expressly authorized by TCE Group S.r.l., determines the immediate forfeiture of the guarantee and at the same time raises TCE Group S.r.l. from any liability in case of damage to people, property and animals.
The Warranty, as per law, covers the products placed on the market by TCE Group S.r.l., solely from manufacturing defects recognized by the manufacturer, for a period of 12 months from the date of sale.
This WARRANTY CERTIFICATE must be completed in all its parts and must be forwarded to TCE Group Srl within 8 days. from the purchase, otherwise the Warranty expires.

TCE Group Srl

Via Giuseppe di Vittorio 5/9 - 35046 Borgo Veneto (Padova) – ITALY
Tel.: +39 0429 89 290 - web: www.tcechargers.com

Dichiarazione di conformità/Declaration of conformity

Il sottoscritto / The undersigned Valentino Mattiazzo
In qualità di legale rappresentante della ditta / As legal representative of the company *TCE Group S.r.l.*
con sede in Sede Legale / Registered office: Via G. Di Vittorio 5/9 - 35046 - Borgo Veneto (PD)
Partita IVA / VAT Nr.:04458670280

Dichiara che il prodotto
Caricabatterie con le seguenti specifiche
Declares that the product
Battery Charger with the following

Etichetta prodotto
Product label

È stato costruito rispettando le seguenti direttive e norme:
It was built in compliance with the following directives and standards

Direttiva 2014/35/UE LVD "Direttiva bassa tensione" (per gli aspetti di sicurezza)	Directive 2014/35/UE LVD "Low voltage directive" (for safety aspects)
Direttiva 2014/30/UE EMC "compatibilità elettromagnetica"	Directive 2014/30/UE EMC "Electro-Magnetic compatibility"
Direttiva 2011/65/UE RoHS "limitazione delle sostanze pericolose"	Directive 2011/65/UE RoHS "Restriction of Hazardous Substances"
Direttiva 2009/125/CE ErP "prodotti legati all'energia nota come Eco – Design "	Directive 2009/125/CE ErP "Energy-related-Products Known as Eco –Design"
Direttiva delegata (UE) 2015/863 della commissione del 31 marzo 2015 recante modifica dell'allegato II della direttiva 2011/65/UE	Delegated Directive (EU) 2015/863 to the commission of 31 March 2015 amending Annex II of Directive 2011/65 / UE
Direttiva 2012/19/UE RAEE	Directive 2012/19/UE RAEE
Direttiva 2001/95/CE DSGP "Direttiva Sicurezza generale dei prodotti"	Directive 2001/95/CE DSGP "Gener Product safety Directive"
Norma IEC 61882:2016 HAZOP metodo di analisi dei rischi	Standard IEC 61882:2016 HAZOP risk analysis method
Norma IEC 61511-1:2016 SIS "Sistemi di sicurezza strumentati" Parte 1: Quadri, definizioni, requisiti di sistema, hardware e di programmazione dell'applicazione	Standard IEC 61511-1:2016 SIS "Safety Instrumented System" Functional safety Part 1: Framework, definitions, system, hardware, and application programming requirements
UNI EN ISO 7010:2017 Segni grafici - Colori e segnali di sicurezza Segnali di sicurezza registrati	UNI EN ISO 7010:2017 Graphic signs Colors and safety signs – Registered safety signs

Ed è quindi conforme alle direttive e normative vigenti / And therefore it complies with the directives and regulations in force.
La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante / This declaration of conformità isissued under the sole responsibility of the manufacturer

Luogo e data / Place and date
Veneto, 28/10/2022

Firma / Signature