CHARGING STATION

TOR 60

(EFC DC-150CHÿ2 -AC-32MSB)

ecofactor.eu
info@ecofactor.eu
+38 (097) 798 88 00
Odesa, 113 Otamana Golovatogo str.

1 Purpose of the product

1.1 The EFC DC-150CHÿ2-AC-32MSB charging station is designed for on-board conductive charging of electric vehicles (ETZ) with alternating current (AC) in charging mode 3 (stationary placement with permanent connection to the power supply network, charger on board the ETZ) and off-board conductive charging with direct current (DC) in mode 4 (stationary placement with permanent connection to the mains, charger on board the vehicle) in accordance with EN 61851-1:2019, with standard characteristics of 3-phase AC supply voltage 380 V in in accordance with EN 60038:2012, as well as for providing electrical energy to auxiliary functions of ETZ, when connected to the power supply network with type 2 cable assemblies (3 phases up to 32 A alternating current, according to EN 62196-2:2016), AA configuration cable assemblies (according to EN 62196-3:2014, IEC TS 62196-3-1:2020, ISO 15118 and JEVS G105 - CHAdeMO).

1.2 Management of ETZ charging functions in supported mode 3 is provided by means of a control signal according to EN 61851-1:2019 (CP – Control Pilot).

1.3 Management of ETZ charging functions in supported mode 4 AA configuration, provided by control signals and CAN digital interface in accordance with EN 61851-23:2014 (System A), EN 61851-24:2014 and JEVS G104 (as amended according to technical specification CHAdeMO v .2.0).

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1.4 Management of ETZ charging functions in the supported mode 4 FF configuration, provided by control signals (CP) and digital communication according to ISO/IEC 15118-1:2019, ISO/IEC 15118-2:2014, ISO/IEC 15118-3 :2015 (supporting backward compatibility with DIN SPEC 70121:2014) based on Homeplug Green PHY (HPGP) Power Line Communication (PLC) protocol according to EN 61851-1:2019, EN 61851-23:2014 (System C, Combined Charging System / CCS type 2) and EN 61851-24:2014.

1.5 Safety testing of ETZ charging modes according to EN 61851-1:2019 for charging mode 3 (supported for cable assembly type 2).

1.6 Safety development of ETZ charging modes according to EN 61851-23:2014 and JEVS G104 (with changes according to CHAdeMO 2.0 technical specification) for charging mode 4 (supported for cable assembly of configuration AA, FF).

1.7 Remote monitoring of the state and control of the operational modes of the military equipment is provided by the support of the OCPP protocol.

1.8 ZS provides an undistorted form of sinusoidal output voltage for charge mode 3 and operation in the entire range of output loads (from idle to maximum load).

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2 Technical characteristics

2.1 The main technical characteristics of DC-150CHÿ2-AC-32MSB are given in table 2.1: ZS EFC

Table 2.1

1	2	3
general	Operating temperature, OC	-20 … +50
	Storage temperature, OC	-20 … +70
	Cooling	Aerial forced, regulated
	Reduction of output power at temperature, OC	>50
	Degree of protection of the shell according to MEK 60529	IP54, IK10
	Maximum relative humidity of the environment at 25 OC, %	95 (without condensation)
	Maximum operating height above ground level sea, m	1000
	Overall dimensions WxDxH, mm	500x650x1929
	Terms of use	Outside and inside the premises
	Average working time per refusal, hours	>100 000 (25 OC)
	The total weight of the vehicle with cable assemblies, kg	220 + (Cable Assembly CCS)

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	Consumed active power of the AC in standby mode, W	<51
	Measurement error of input voltage and current, %	[1]
	Maximum standby time at working values of input voltage and temperature, no more, p	90
	Efficiency, %	>94
	Insulation, MOhm: - input - output: reinforced - PE input – PE output, DC charging mode: Basic - input - low-current interfaces: Reinforced - output - low current interfaces: Strengthened	>100
	Noise load, dB	<55
Input network parameters	The range of input voltages, V	400±10%
	Nominal input current (Inom, full power AC+DC), A	127
	Network frequency, Hz	50±10%
	Total leakage current, mA	<18
	Connection type	L1, L2, L3 + N + PE
	Protection functions:	
	ÿ Continuity monitoring of the protective earth (PE) circuit	According to IN 61851-1, IN 61851-23
	ÿ Protection against extremely high input voltage	Category II

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	ÿ Phase interruption control	So
	ÿ Control of leakage currents	Type B AC/DC (30mA/6mA) acc IN 62752:2016
	ÿ Protection against exceeding current consumption of ETZ, A (for port type 2, mode 3)	Other + 25%
	ÿ Protection against overheating of ZS, OC	>70
DC output parameters	Output voltage range, V dc	50…500
	Rated output current, A dc: CHAdeMO /CCS	125/150
	DC output voltage ripple (frequency band 20 MHz), mV(p-p)	500
	DC output current ripple, Arms	<1
	The total current of harmonics in the charging mode DC, %	<5 Capacity
	DC voltage and current stabilization accuracy, %	<1
	Protection functions:	
	ÿ Control of circuit continuity protective earth (PE). The time between detection of a break in the circuit of protective grounding and disconnection of the circuit breaker, p	0,1
	ÿ Control of DC leakage currents	constantly acting and
	ÿ Protection against overcurrent consumption of ETZ, A	125

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	(for mode 4, AA configuration - CHAdeMO)	
	ÿ Protection against exceeding the consumption current of ETZ, A (for mode 4, configuration FF - CCS)	150
Output connectors	Cable assembly (inboard charging)	IN 62196-2:2017 mode 3, type 2
	Cable assembly (off-board charging)	IN 62196-3:2017 Configuration AA/ JEVS G105 (CHADEMO), FF configuration (CCS)
	Control of charge modes (on-board charging)	IN 61851-1:2019
	Control of charge modes (off-board charging)	EN 61851-23:2014, EN 61851-24:2014, ISO/IEC 15118-1,2,3 JEVS G104
	Rated output power (inboard charging), kVA	22
	Rated output power (off-board charging), kVA	60
Options	Remote control protocol	OCPP 1.6 JSON,

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	Access card reader	ISO14443A/B
	Connecting to external networks	Ethernet 100Base T WLAN 3G/GPRS
Conformity requirements	Electrical safety	IN 61851-1:2019 IN 61851-23:2014 IN 61439-1:2011 IEC/TS 61439-7:20 14 IN 55011:2016 IN 60950-1:2006 IN 60947-3:2009 IN 60990:2016
	Electromagnetic compatibility	IN 61000-3-2:2014 IN 61000-4-2:2008 IN 61000-4-3:2010 IN 61000-4-4:2012 IN 61000-4-5:2014 IN 61000-4-6:2013 IN 61000-4-8:2009 IN 61000-4-11:2014 EN 61000-6-2:20 05 EN 61000-6-1:200 7

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	EN 61000-6-4:201 1
	EN 61000-6-3:20 07
	IEC 61851-21-1:2017
	IEC 61851-21-2:2018

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3 Scope of delivery:

Charging station EFC DC-150CHÿ2-AC-32MSB	1 PC.
Mounting hooks	4 things.
Plugs for mounting hook holes	4 things.
EFC operating instructions DC-150CHÿ2-AC-32MSB	1 approx.
Product passport EFC DC-150CHÿ2-AC-32MSB CCD	1 approx.
Declaration of Conformity	1 approx.
Packaging	1 PC.

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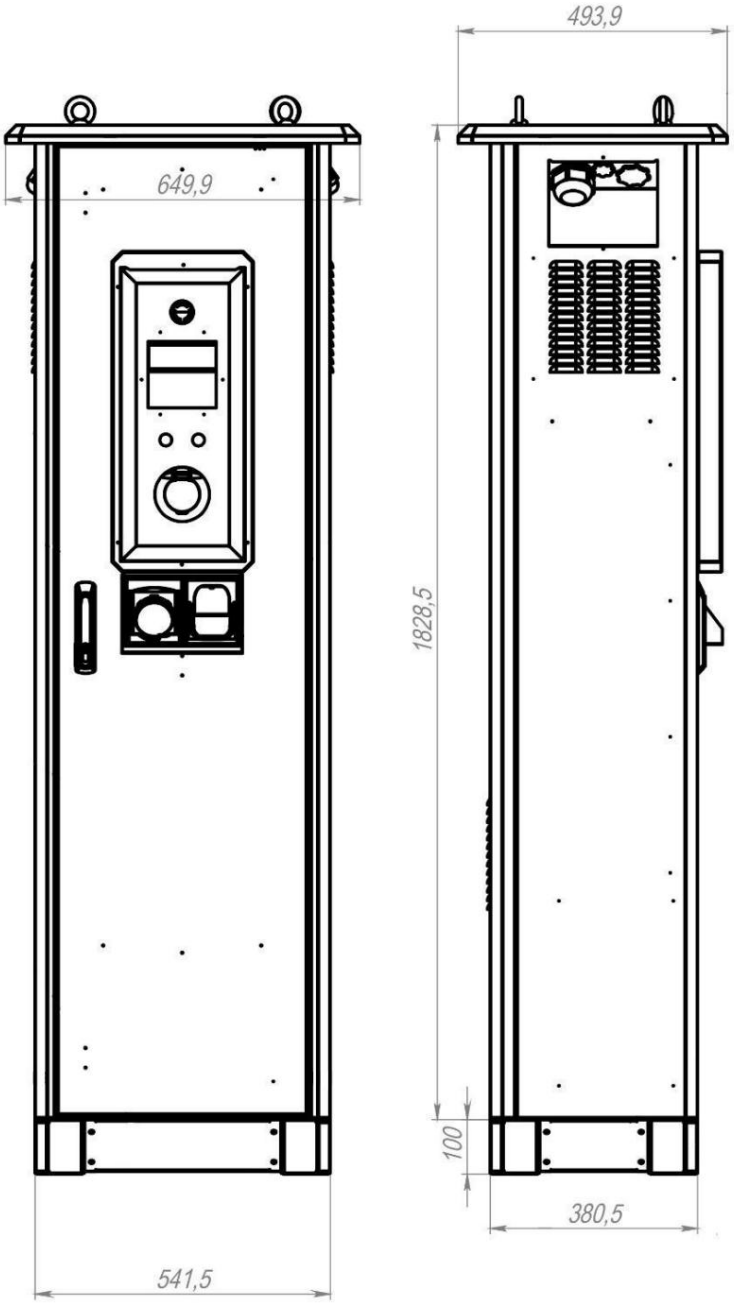

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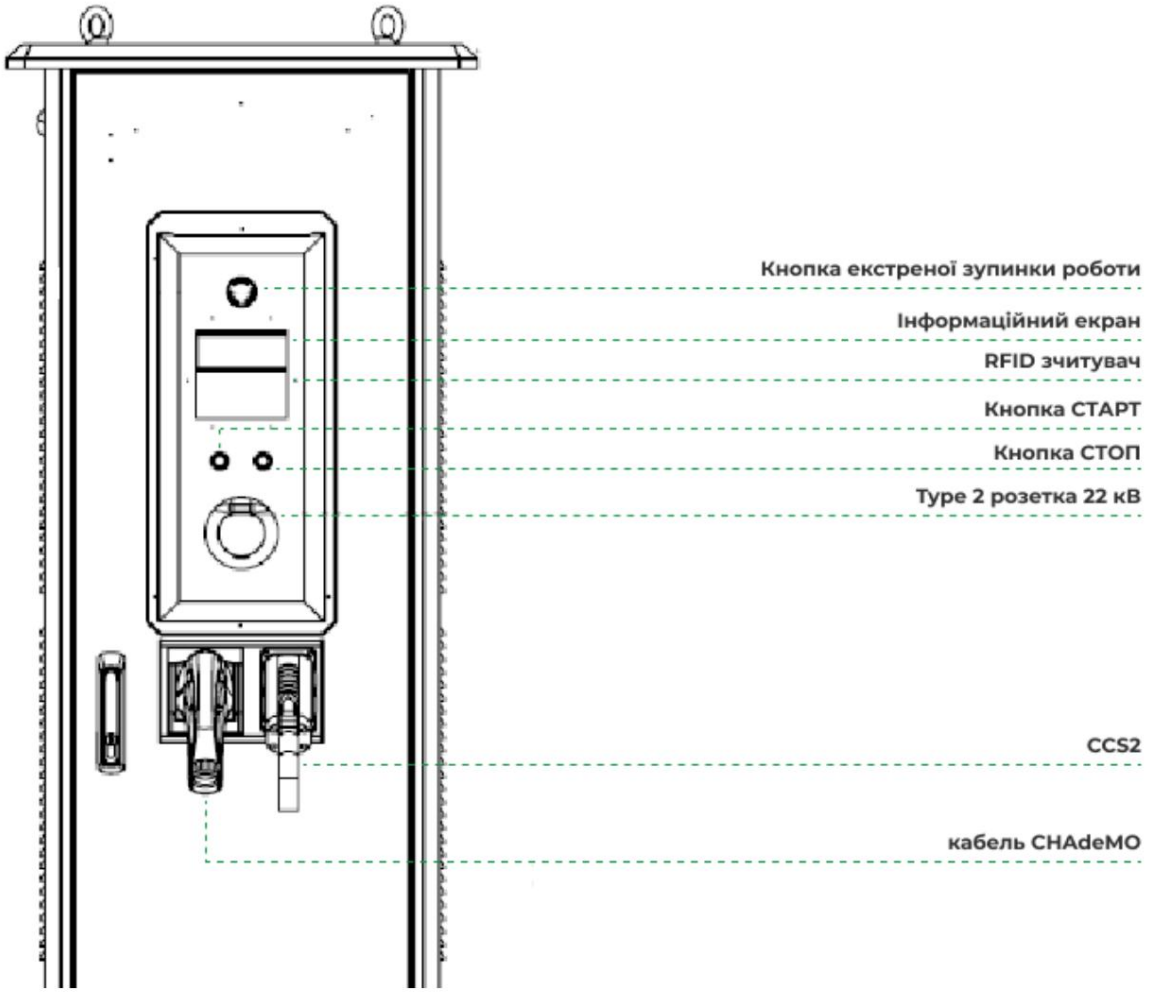
Fig. 3.1. Installation dimensions of EFC DC-150CHÿ2-AC-32MSB



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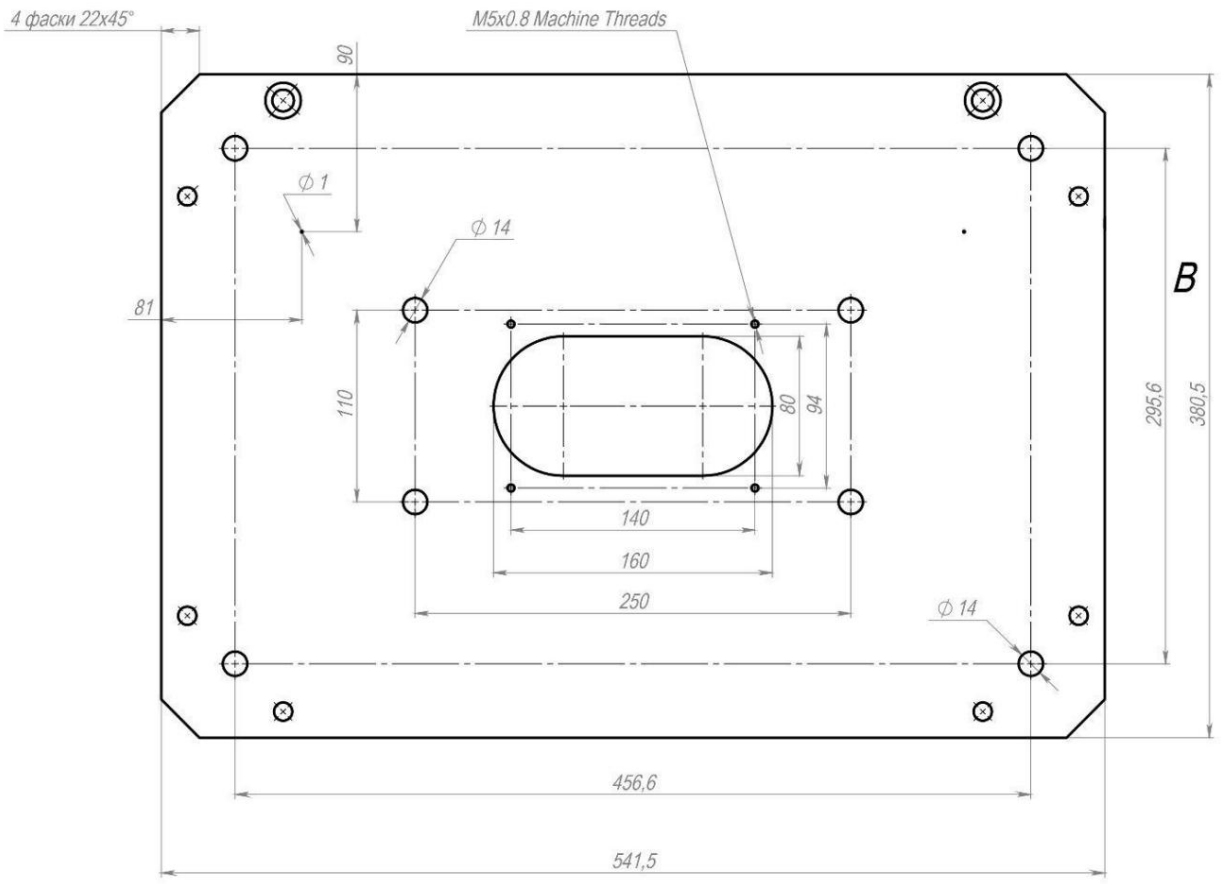

Fig. 3.2. Installation dimensions of the cable entry of the EFC DC-150CHÿ2-AC-32MSB

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Safety requirements

3.1 Before turning on the air conditioner, carefully read and study the air conditioner's passport and the operating instructions.

3.2 It is prohibited to operate the equipment in rooms with an explosive environment or near flammable substances.

3.3 Connection and maintenance of electrical equipment must be carried out by personnel who have the third or higher group of admission according to the safety rules for the operation of electrical installations. Do not carry out repairs and maintenance of the vehicle yourself if you do not have the appropriate skills, knowledge and special tools.

3.4 The fast charging station should be checked by a qualified installer before initial use. Under no circumstances does compliance with the requirements set forth in this document relieve the user of responsibility for compliance with all applicable safety regulations or standards.

3.5 In the case of storage and transportation of fuel at a temperature below 0 °C or when the temperature of the surrounding environment is significantly different from the temperature of storage and transportation, which may cause condensation inside the fuel, it is necessary for the fuel to settle at the temperature of the environment in which it will be operated at least 5 hours before switching on

feeding.

3.6 The safety requirements for the installation and operation of the equipment meet the requirements of EN 61851-1:2019, EN 61851-23:2014, IEC/TS 61439-7:2014.

3.7 Persons who have undergone training in the safety rules for working with electrical installations and have permission to work with

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electrical installations up to 1000 V.

3.8 The object, where it is planned to operate the fire protection system, must be equipped with a protective grounding bus and meet the fire safety requirements.

3.9 Before starting the work, check the reliability of the connection of the protective grounding bus with the point of connection of the grounding system.

3.10 Connection and disconnection of power wires should be carried out only after complete disconnection of the power supply from the AC power supply network.

3.11 The slope of the surface for the base on which the charging station is installed must have a slope of no more than 2 mm/m

3.12 The open distance from the side surfaces of the charging station to the nearest enclosing surfaces should be at least 600 mm to ensure the circulation of cooling air and free access of service personnel to service the station nodes.

3.13 Connectors of cable assemblies between charging sessions must be in standard holders integrated into the body of the charging station. It is strictly forbidden to leave them on the road to prevent dirt and water from getting inside the connector of the cable assembly!

3.14 Use a 5-wire cable with a wire cross-section of at least:

With aluminum core ÿ 70 mm ^{2}

With copper core ÿ 50 mm ^{2}

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In the process of installation, adjustment, search and troubleshooting of the control system

FORBIDDEN:

ÿ leave foreign objects inside the vehicle;

ÿ any equipment is allowed to be installed in the fire station only if there is written permission from the manufacturer with clear instructions for its placement;

ÿ replace live parts, assemblies and blocks;

ÿ leave the connected unit unattended with the protective cover removed and the door open;

ÿ exploit ZS with damaged wiring insulation and mechanical damage to the station's protective housing, which reduce the IP protection class declared in the technical specifications;

ÿ operate the equipment without protective grounding;

ÿ touch exposed cables and electrical connectors that may be under a dangerous potential;

ÿ to carry out assembly and repair work on the ZS, related to the dismantling of the protective casing, in case of possible direct ingress of liquids inside the ZS, without available weather protection of the place for the relevant work;

ÿ do not remove the protective elements that provide compliance of the equipment with the declared IP class;

3.15 The electrical resistance between the protective grounding clamp of the ZS and accessible metal parts of the case should be ÿ0.1 Ohm.

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4 Manufacturer's guarantees

4.1 "Ecofactor Charge" LLC, hereinafter "the manufacturer", guarantees the functionality of the equipment and compliance with the requirements of EN 61851-1:2019, IEC 61851-21-1:2017, EN 61851-21-1:2017, IEC 62196-2:2011, EN 62196-2:2012, EN 60950-1:2015 part 1 (EN 60950-1:2006, A11:2009, A1:2010, A12:2011 , AC:2011, A2:2013), EN 55011:2016, EN 61000-6-1:2007, EN 61000-6-3:2007, EN 61439-1:2011, ISO/IEC 15118-1:2019, IEC 61439-7:2014, EN 60947-3:2009, ISO/IEC 15118-3:2015 in accordance with the declared characteristics. The equipment was put into operation by qualified personnel with appropriate professional training and worked in accordance with the requirements of the passport and operating instructions. The warranty period for ZS is one year from the date of sale. In the absence of a sales mark, the warranty period is calculated from the date of issue.

4.2 The manufacturing enterprise confirms that this ZS has passed inspection and testing, that there are no defects in the ZS caused by manufacturing defects and used materials. This warranty is in lieu of any other warranties, expressed or implied. The responsibility of the manufacturer under this contract is limited to free repair or exchange, at its discretion, of any defective elements of the vehicle on FOB terms (in accordance with INCOTERMS 2010), Ekofactor Charge LLC plant.

4.3 In no case shall the manufacturer bear responsibility as a result of any violation by the customer of the terms of the guarantee.

4.4 The manufacturer is not responsible for direct or indirect damages, such as loss of profit or income, equipment downtime, data loss, software corruption, etc.

4.5 The warranty does not cover damage to the equipment or its parts caused by:

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ÿ mechanical damage to the military equipment as a result of mechanical actions and fall;

ÿ any external influence on the structure of the military equipment and unauthorized repairs;

ÿ violations of the requirements of the operating instructions;

ÿ improper use;

ÿ ingress of insects, liquid, dust or other foreign objects into the internal combustion engine;

ÿ non-compliance with maintenance and installation requirements or careless operation of military equipment;

ÿ failure as a result of force majeure (accidents, fire, flood, malfunction of the electrical network, lightning strike, etc.).

4.6 The manufacturer reserves the right to make a final decision on the presence of a defect and its cause.

4.7 The desire of the owner to purchase another ZS is not a reason for exchange or refund in the event of the expiration of the terms for returning the equipment established by the current legislation on "Protection of Consumer Rights".

4.8 The terms of the guarantee do not provide for instruction, consultations, training of the buyer, delivery, installation and dismantling of the control unit, the visit of a specialist to diagnose the electrical network and determine the nature of the control unit malfunction. Such works can be performed for a separate payment in the form of one-off works or according to the requirements of the service contract.

4.9 The owner has the right to replace the ZS during the warranty period, in the event that the service center concludes that it is impossible or

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+38 (097) 798 88 00
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the impracticality of restoring the serviceability of the military equipment by means of repairs.

4.10 The manufacturing company reserves the right to make changes and improvements to its products without the obligation to make these changes in the previously produced ZS. Warranty repair is not carried out if the warranty seal (sticker) is broken.

4.11 Warranty repairs are carried out in the presence of the seal of the manufacturer, the date of sale and the signature of the seller.

THERE ARE NO MECHANICAL DAMAGE.

COMPLETENESS OF ZS CHECKED.

I HAVE READ AND AGREE WITH THE WARRANTY TERMS.

_____

signature of the buyer

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ECOFACTOR

Charging station

EFC DC-150CHÿ2-AC-32MSB

Valid upon completion

WARRANTY CARD

Factory no		**The number of the installed seal**	

Manufactured and approved according to EN 61851-1:2019, EN 61851-23:2014, EN 61851-24:2014, IEC 61851-21-2:2018, EN 6[illegible] 2006, 55011:2016, EN 61000-6-1:2007, EN 61000-6-3:2007, EN 61439-1:2011, ISO/IEC 15118-1:2019, ISO/IEC 15118-2:2014, IEC 61439-7:2014, EN 60947-3:2009, ISO/IEC 15118-3:2015 and recognized as suitable for operation.

Date of manufacture	
Manufacturer representative	(seal and signature)

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ECOFACTOR

CERTIFICATE OF ACCEPTANCE

Date sales _____

name of the organization, seal and signature of the seller:

REPAIR INFORMATION

Date of repair	Repair information (short description of the malfunction)	Mark of the service center	Note

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