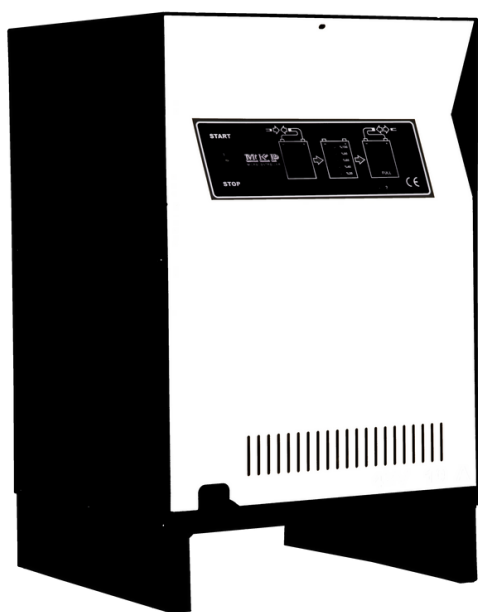


MKP Mekpa Microplus User Manual



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FOREWORD

Reliable use of the Charger requires the instructions given in the current Original user manual. The information is shown in a concise and suggestive manner. Chapters are described by numbers.

Symbols



There are safety instructions that must be observed to avoid putting people in danger.



There are safety instructions that must be followed to avoid material damage.

Articles and Sections

For the operation, installation or fault detection of the device, the **Fundamental Safety** part must be read and the basic principles and warnings written in this section must be taken into account.

In other parts, the structure of the machine, its operation, assembly, detailed information, tables, diagrams and warranty conditions and warranty certificate are existed and available.

The lengths for the device are given in millimeters and the case structures are shown with a technically simple picture to give the ideas.

KR3 and KR4 are device card types. Information about these is given in the **Equipment** part.

Copyright














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MEKPA Machinery Electric Contracting Trade Limited Company

Sanayi Mah. Kozali Sok. Carsi Yapi A-22 Kocaeli/Izmit

FUNDAMENTAL SAFETY

The basic and priority safety elements in MKP Microplus Battery Charger are listed as the main items, these are the information that must be read before operating or installing the device.

No one other than authorized personnel should use the device.	
The place where it will be installed for the first time should have its own ventilation.	
Installation should not be done on plastic and wooden surfaces.	
There should be no substances (paint, chemicals, petroleum derivatives, etc.) that can cause fire around.	
There must be a fire protection relay on the line to which the device is connected.	
The plug of the rectifier must be plugged into a grounded socket.	
The socket used must have its own fuse. These fuses should be C type.	
The fuse of the socket must be selected according to the power of the rectifier.	
The ventilation channels of the rectifier should always be open (it should be open and not covered).	
While connecting and removing the rectifier with the battery, the control switch must be in the 0 position.	
Input cable and socket must be connected correctly Output cables and socket (black -) (red +) of the rectifier must be connected to the battery pack in the correct direction.	
Devices should be operated in places away from humidity (under the rain, wet ground, etc.) and excessive dust.	
Any part of the device should not be interfered with while it is running.	

NOTE ; Rectifiers are electrical devices and batteries emit hydrogen gas during charging. This must be taken into account during installation, assembly and use.

STRUCTURE AND SPECIFICATIONS

MKP Microplus Traction Charger is a device designed and manufactured for lead batteries, adhering to DIN 41774, DIN 41773 norms and principles.

The rectifier unit is designed to charge leaded traction batteries. Operating currents are between 10 A and 250 A. It can charge batteries between 6 V and 96 V.

The operating system of the unit is controlled using a Microprocessor (Microchip) and its charge can be controlled.

The unit includes a special power transformer, rectifier with aluminum cooler, contactor, automatic fuse, fuse, shunt, electronic card, energy (input) cable and battery (output) cables.

Specifications

It works with the WA charging principle (DIN 41774) or the WO-WA charging principle (DIN41773).

Charging time can vary between 8 and 14 hours.

The automatic start is delayed by 3 to 10 seconds.

The battery charge level can be monitored via the LEDs on the screen.

The Electronic Board can operate between 12 V and 96 V.

ASSEMBLY AND INSTALLATION

01

Authorized person

- The installation of your charger should be done by authorized persons.
- The compatibility of the installed device with the battery should be checked.

02

Installation Safety and Environmental Conditions

- The device should not be mounted on plastic and wooden surfaces.
- There should be no materials or substances that can cause fire (paint, chemicals and petroleum products, etc.) around.
- The surroundings of the device (ventilation channels on the rectifier) must be open. There must be at least 300 mm of space on the sides and top of the device.

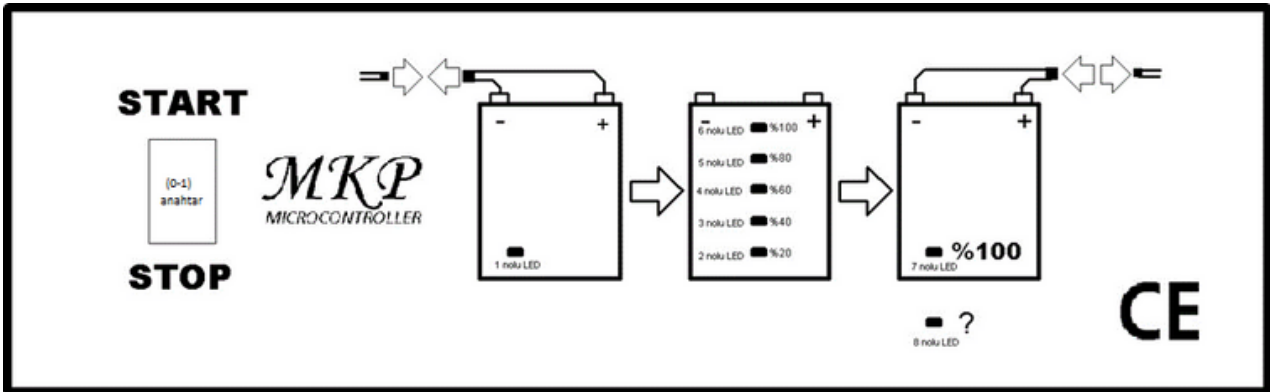
03

Installation

- The line to which your device is connected must have a residual current relay and a fire protection relay.
- If the input cables of the device (220/380 Volt) are to be connected to the plug, a plug suitable for the current of the rectifier should be used, and at the same time, the socket to which this plug will be inserted should have its own fuse and these fuses should be selected according to the c or g type and the device current. (The device input currents are in the input currents table [page 10].)
- The device must be connected to a grounded socket.
- The output wires of the device (black wire "minus" and red wire "positive") must be correctly connected to the battery.
- The device works with three phases and a ground, it does not need a neutral line.

CHARGE TRACKING

Microplus charger screen



- LED number 1 indicates the mains and battery connection (if the LED is flashing, it indicates that the mains is connected, if it is on, it indicates that the battery is also connected).
- LED number 2 indicates that the battery has reached 20% full.
- LED number 3 indicates that the battery has reached 40% full.
- LED number 4 indicates that the battery has reached 60% charge.
- LED number 5 indicates that the battery has reached 80% charge.
- LED number 6 indicates that the battery has reached 100% charge.
- LED number 7 will reach 100% filling of the battery and finish the active charge.
- LED number 8 indicates fault states.

WORKING PROCCESS

1. Set the on/off switch of the device to the (0) position.
2. Connect the input plug of the device to the socket and ensure that it receives energy from the mains.
3. Set the on/off switch (1) to position.
4. The number 1 led of the device will light up as a flasher.
5. Connect the battery to the device in the correct direction (red "positive", black "minus").
6. After the battery is connected (5 to 10 seconds), all leds will flash 3 times on the device with the Wa system and 4 times on the Wo-Wa system device, and the number 1 led will start the filling process.
7. Certain (numbered 2, 3, 4, 5 and 6) leds will flash sequentially to show the battery charge rate and charge tracking.
8. When the battery reaches the maximum charge, the number 7 (green) led will turn on, indicating that the active charge will fill your battery and the charge has ended.
9. If the battery is left connected to the device after the battery charge is finished, the device applies a balancing and maintenance charge consisting of 2 stages.
10. When the battery charger is constantly connected to the battery, the device allows you to keep the battery at 100% with its 2-stage charging and advanced charging structure.

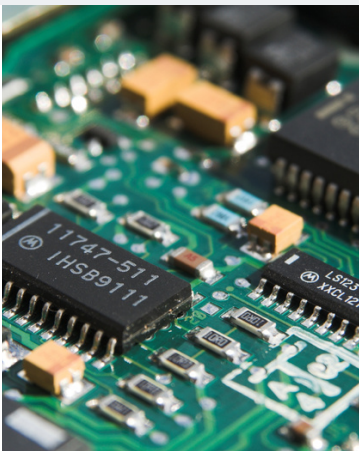
EQUIPMENTS

Informations about the equipments

Protection Elements

For protection in the device;

- on/off switch
- Auto fuse for entry
- Electronic card insurance
- ANL type private fuse
- There is grounding

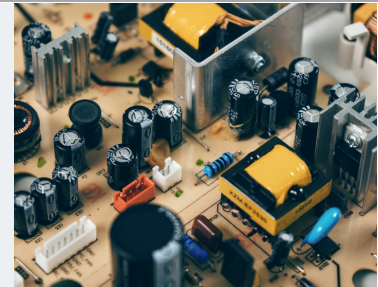


Electronic Card and Control

The electronic board of the device is produced as 12 to 96 V compatible. It controls the rectifier with an advanced charging curve with its microprocessor built card, on the other hand, it shows the battery charging and charging monitoring. KR3 are old system boards, KR4 are new system boards. Since the input voltage is selectable (220V/380V) in the KR4, it can be used in any device. In KR3 cards, when there is 380 V input, it is mandatory to use an external transformer inside the device.

Transformer and Rectifier

The device transformer creates a special ferroresonant effect, ensuring that your battery is charged in the healthiest and best slope, as well as converting alternating current to direct current for the battery with the rectifier component.



Quality Standards

All parts of MKP Microplus chargers are specially designed in full compliance with the universal norms DIN41774 and DIN41773 and are produced according to ISO9001, ISO14001, ISO45001 and CE standards.

All equipment and parts in MKP Microplus chargers were designed by MEKPA and tried to support domestic production.

TROUBLESHOOTING

Situations when led number 8 is on

01

When the Charger Starts Working

When the battery is connected to the charger for the first time, if the fault led is on after all the leds have flashed, the battery voltage may be very low or high (If the charger lights a red fault led every one second; if the battery voltage is high, if the red fault led is on every three seconds; it detects the battery voltage is low) Battery voltage should be checked.

02

With Charger Working (While Charging)

If the fault led lights up and stays constant during charging, the battery is not filled enough at the end of the charging time and the red led lights up and cuts. Check the battery and mains voltage.



Make sure that the mains plug and battery plug are properly connected.



When any heavy mechanical impact occurs on the outer body of the device. Do not operate the device



In case the device needs to be opened for any reason, call the manufacturer.

TABLE OF INPUT CURRENTS FOR EU COUNTRIES

VOLT	AMPERE	INPUT VOLTAGE	INPUT CURRENT
24V	15A	220V	3A
24V	20A	220V	3A
24V	25A	220V	4A
24V	30A	220V	5A
24V	40A	220V	5A
24V	50A	220V	7A
24V	60A	220V	9A
24V	70A	220V	10A
24V	80A	220V	12A
24V	90A	220V	13A
24V	100A	220V	14A
24V	110A	220V	16A
24V	120A	380V	10A
24V	130A	380V	11A
24V	140A	380V	12A
24V	150A	380V	13A
24V	160A	380V	13A
24V	170A	380V	15A
24V	180A	380V	15A
24V	190A	380V	16A
24V	200A	380V	17A

36V	30A	220V	7A
36V	40A	220V	9A
36V	50A	220V	11A
36V	60A	220V	13A
36V	70A	220V	13A
36V	80A	380V	7A
36V	90A	380V	7A
36V	100A	380V	8A
36V	110A	380V	8A
36V	120A	380V	9A
36V	130A	380V	10A
36V	140A	380V	10A
36V	150A	380V	11A
36V	160A	380V	12A
36V	170A	380V	12A
36V	180A	380V	13A
36V	190A	380V	14A
36V	200A	380V	14A

48V	30A	220V	9A
48V	40A	220V	12A
48V	50A	220V	14 A
48V	60A	380V	10A
48V	70A	380V	12A
48V	80A	380V	13 A

VOLT	AMPERE	INPUT VOLTAGE	INPUT CURRENT
48V	90A	380V	15A
48V	100A	380V	17A
48V	110A	380V	18A
48V	120A	380V	19A
48V	130A	380V	21A
48V	140A	380V	23A
48V	150A	380V	25A
48V	160A	380V 2/3 PHASE	26A/15A
48V	170A	380V 3 PHASE	16A
48V	180A	380V 3 PHASE	17A
48V	190A	380V 3 PHASE	18A
48V	200A	380V 3 PHASE	19A

72V	60A	380V	15A
72V	70A	380V	18A
72V	80A	380V	19A
72V	90A	380V	22A
72V	100A	380V	24A
72V	110A	380V	28A
72V	120A	380V 2/3 PHASE	30A/17A
72V	130A	380V 3 PHASE	18 A
72V	140A	380V 3 PHASE	20A
72V	150A	380V 3 PHASE	21A
72V	160A	380V 3 PHASE	23A
72V	170A	380V 3 PHASE	24A
72V	180A	380V 3 PHASE	26A
72V	190A	380V 3 PHASE	27A
72V	200A	380V 3 PHASE	29A

80V	30A	220V	14A
80V	40A	380V	11A
80V	50A	380V	14A
80V	60A	380V	17A
80V	70A	380V	19A
80V	80A	380V	22A
80V	90A	380V	25A
80V	100A	380V 2/3 PHASE	27A/16A
80V	110A	380V 3 PHASE	18A
80V	120A	380V 3 PHASE	19A
80V	130A	380V 3 PHASE	21A
80V	140A	380V 3 PHASE	22A
80V	150A	380V 3 PHASE	24A
80V	170A	380V 3 PHASE	27A
80V	180A	380V 3 PHASE	29A
80V	190A	380V 3 PHASE	30A
80V	200 A	380V 3 PHASE	32A

TABLE OF INPUT CURRENTS FOR USA

VOLT	AMPERE	INPUT VOLTAGE	INPUT CURRENT
24V	15A	110V	5A
24V	20A	110V	6A
24V	25A	110V	6A
24V	30A	110V	9A
24V	40A	110V	12A
24V	50A	110V	14A
24V	60A	110V	17A
24V	70A	110V	19A
24V	80A	208V 3 PHASE	8A
24V	90A	208V 3 PHASE	9A
24V	100A	208V 3 PHASE	10A
24V	110A	208V 3 PHASE	11A
24V	120A	208V 3 PHASE	11A
24V	130A	208V 3 PHASE	12A
24V	140A	208V 3 PHASE	13A
24V	150A	208V 3 PHASE	13A
24V	160A	208V 3 PHASE	14A
24V	170A	208V 3 PHASE	15A
24V	180A	208V 3 PHASE	16A
24V	190A	208V 3 PHASE	17A
24V	200A	208V 3 PHASE	18A

36V	30A	110V	13A
36V	40A	110V	17A
36V	50A	208V 3 PHASE	7A
36V	60A	208V 3 PHASE	8A
36V	70A	208V 3 PHASE	10A
36V	80A	208V 3 PHASE	11A
36V	90A	208V 3 PHASE	12A
36V	100A	208V 3 PHASE	13A
36V	110A	208V 3 PHASE	15A
36V	120A	208V 3 PHASE	17A
36V	130A	208V 3 PHASE	18A
36V	140A	208V 3 PHASE	19A
36V	150A	208V 3 PHASE	20A
36V	160A	208V 3 PHASE	21A
36V	170A	208V 3 PHASE	23A
36V	180A	208V 3 PHASE	24A

48V	30A	110V	17A
48V	40A	110V	23A
48V	50A	208V 3 PHASE	9A
48V	60A	208V 3 PHASE	11A
48V	70A	208V 3 PHASE	13A
48V	80A	208V 3 PHASE	14A
48V	90A	208V 3 PHASE	16A
48V	100A	208V 3 PHASE	18A

VOLT	AMPERE	INPUT VOLTAGE	INPUT CURRENT
48V	110A	208V 3 PHASE	20A
48V	120A	208V 3 PHASE	21A
48V	130A	208V 3 PHASE	23A
48V	140A	208V 3 PHASE	25A
48V	150A	208V 3 PHASE	26A
48V	160A	208V 3 PHASE	28A
48V	170A	208V 3 PHASE	30A
48V	180A	208V 3 PHASE	32A

72V	60A	208V 3 PHASE	16A
72V	70A	208V 3 PHASE	19A
72V	80A	208V 3 PHASE	21A
72V	90A	208V 3 PHASE	24A
72V	100A	208V 3 PHASE	26A
72V	110A	208V 3 PHASE	29A
72V	120A	480V 3 PHASE	14A
72V	130A	480V 3 PHASE	15A
72V	140A	480V 3 PHASE	16A
72V	150A	480V 3 PHASE	17A
72V	160A	480V 3 PHASE	19A
72V	170A	480V 3 PHASE	20A
72V	180A	480V 3 PHASE	21A
72V	190A	480V 3 PHASE	22A
72V	200A	480V 3 PHASE	23A

80V	30A	208V 3 PHASE	15A
80V	40A	208V 3 PHASE	20A
80V	50A	208V 3 PHASE	25A
80V	60A	480V 2 PHASE	13A
80V	70A	480V 2 PHASE	16A
80V	80A	480V 2 PHASE	18A
80V	90A	480V 3 PHASE	12A
80V	100A	480V 3 PHASE	13A
80V	110A	480V 3 PHASE	15A
80V	120A	480V 3 PHASE	16A
80V	130A	480V 3 PHASE	17A
80V	140A	480V 3 PHASE	18A
80V	150A	480V 3 PHASE	19A
80V	160A	480V 3 PHASE	21A
80V	180A	480V 3 PHASE	23A
80V	190A	480V 3 PHASE	24A
80V	200 A	480V 3 PHASE	26A

AMPERE/HOURS (AH) MEASURING

Output Current	8.5 - 12 h	10 - 12 h	12 - 14 h
20	100	130	150
25	130	160	190
30	160	200	230
40	220	260	300
50	270	330	380
60	330	400	460
70	380	470	540
80	420	500	570
100	550	670	770
120	660	800	920
140	700	860	980
160	800	950	1160
180	900	1050	1300

CASING INFORMATIONS

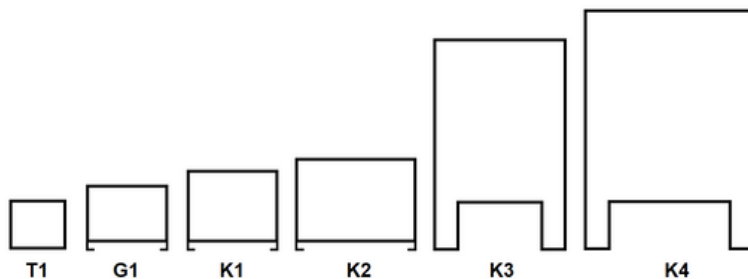
In the table device case informations can be seen, the lengths in millimeters are specified and the case structures are shown with a technically simple picture to give an idea.

Microplus MKP K3 and K4 frames have leg spacing and lengths suitable for wide pallet truck shears. The legs are 80 mm wide, 40 mm long, and with their reinforced structures, they are resistant to problems such as heavy warping or breaking.

The leg lengths are short in other machine frames (30 mm for G1, 35 mm for K1 and 50 mm for K2) in order to create a portable structure.

At the same time, you can mount the machine on the ground for safety through the holes located under the feet of the cases.

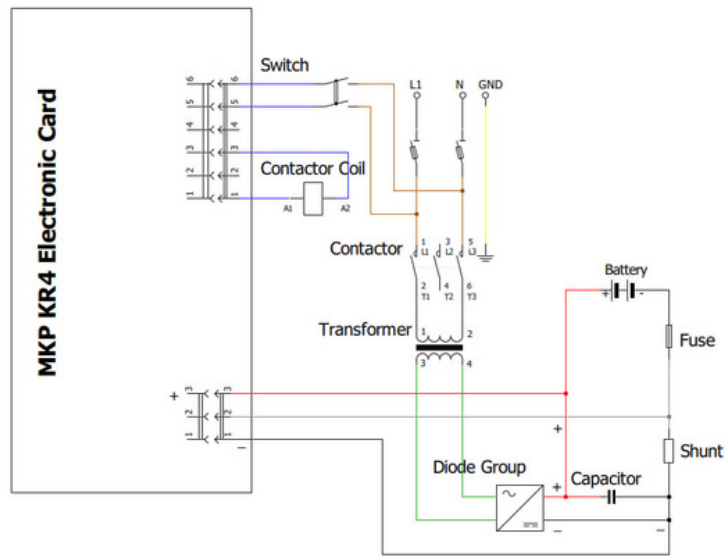
Mains and battery cables for each device are minimum 2000 mm (2 m) length..



	length	width	depth
T 1	155	185	305
G 1	215	265	375
K 1	265	350	320
K 2	310	400	375
K 3	710	440	440
K 4	800	565	485

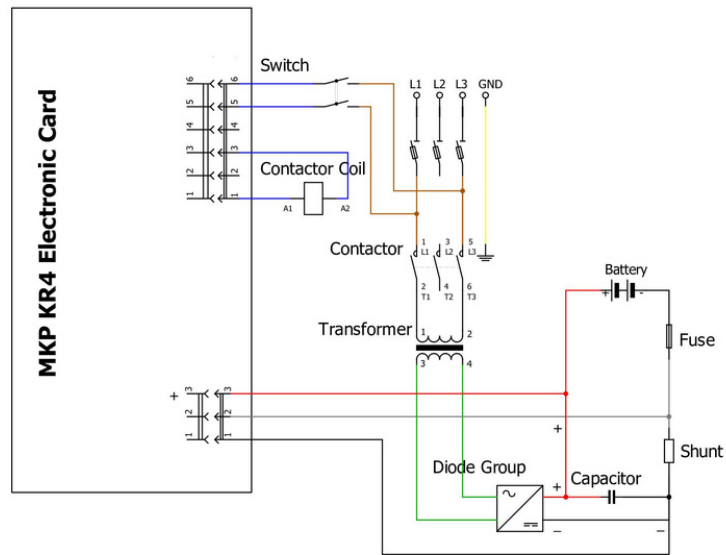
CIRCUIT DIAGRAMS

Monophase (Single Phase) Wa
Battery Charger Circuit Diagram
(KR4)



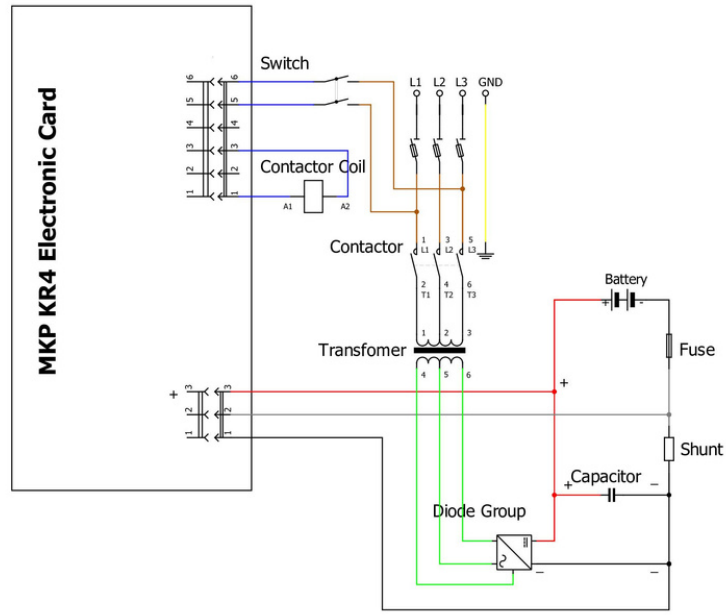
Transformer pin 1 -> 0V
Transformer pin 2 -> 230V

Diphase (Two Phase) Wa
Battery Charger Circuit Diagram
(KR4)



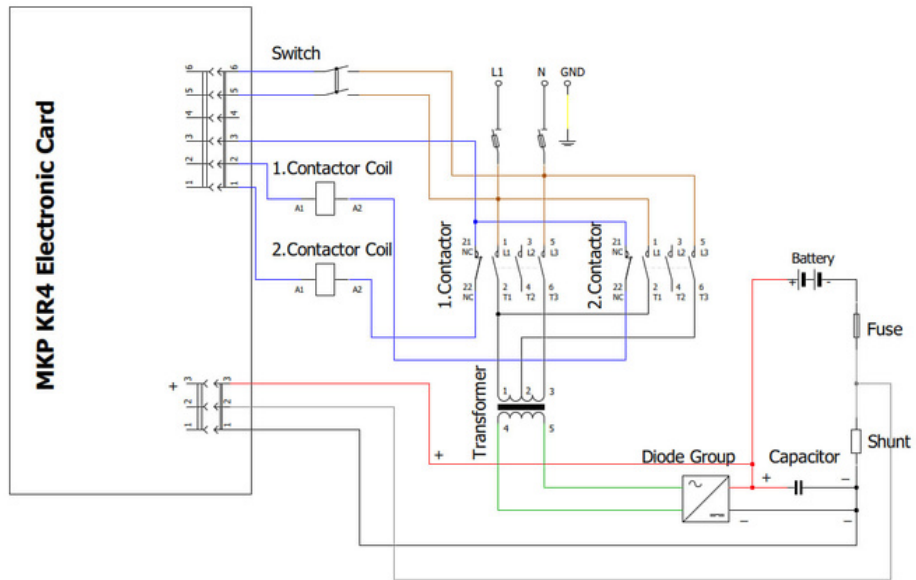
Transformer pin 1 -> 0V
Transformer pin 2 -> 400V

Triphase (Three Phase) Wa Battery Charger Circuit Diagram (KR4)



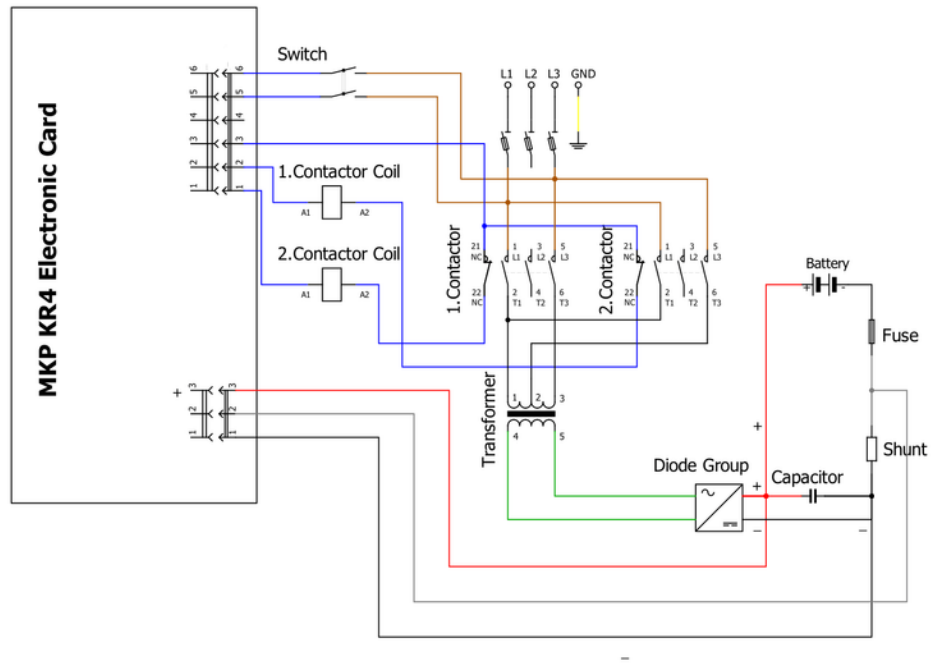
Transformer pin 1 -> 400V - L1
Transformer pin 2 -> 400V - L2
Transformer pin 3 -> 400V - L3

Monophase (Single Phase) Wo-Wa Battery Charger Circuit Diagram (KR4)



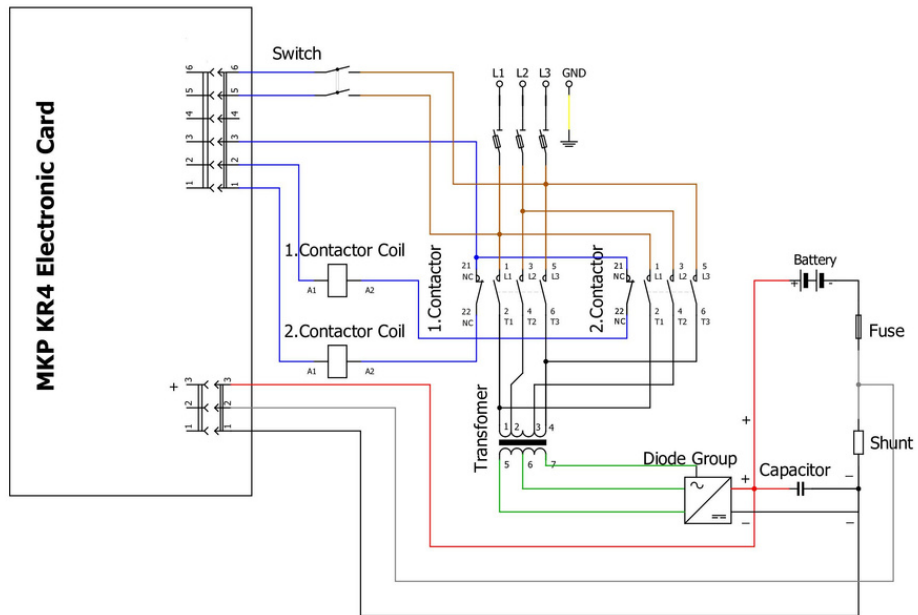
Transformer pin 1 -> 0V
Transformer pin 2 -> 220V
Transformer pin 3 -> 230V

Diphase (Two Phase) Wo-Wa Battery Charger Circuit Diagram (KR4)



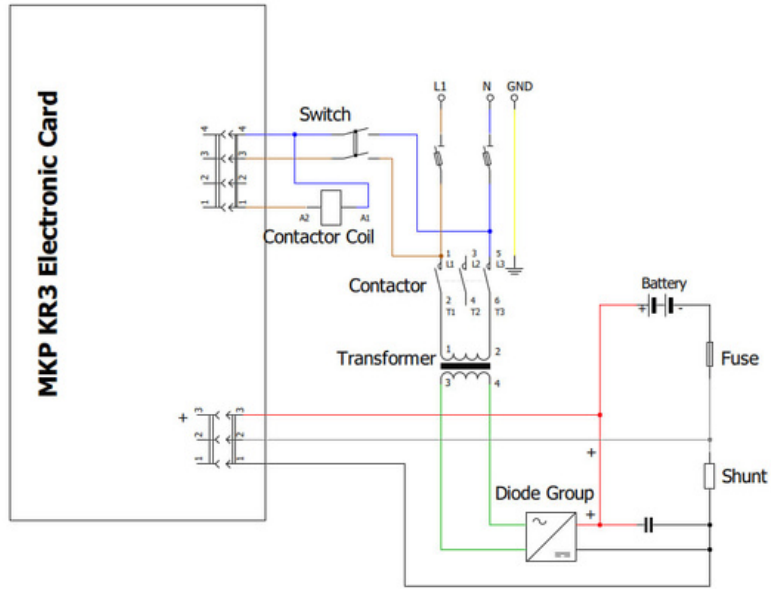
Transformer pin 1 -> 0V
Transformer pin 2 -> 380V
Transformer pin 3 -> 400V

Triphase (Tree Phase) Wo-Wa Battery Charger Circuit Diagram (KR4)



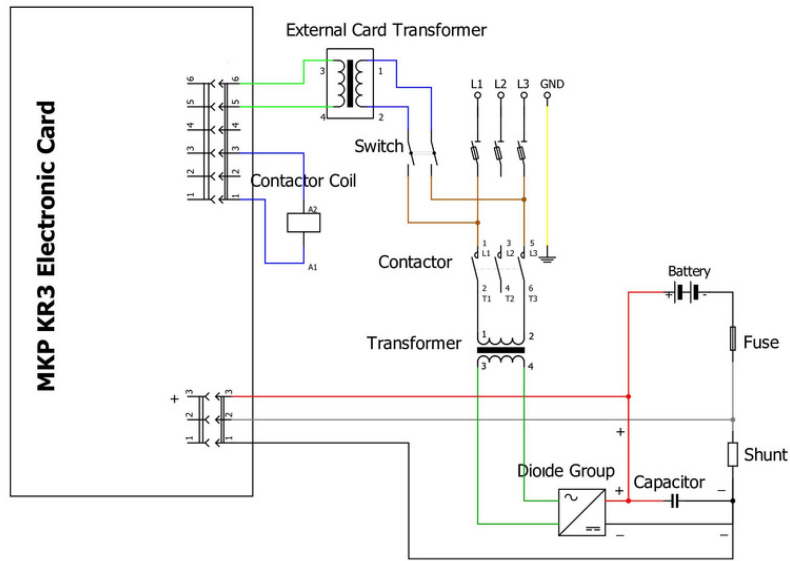
Transformer pin 1 -> 400V - L1
Transformer pin 2 -> 400V - L2
Transformer pin 3 -> 380V - L2
Transformer pin 4 -> 400V - L3

Monophase (Single Phase) Wa Battery Charger Circuit Diagram (KR3)



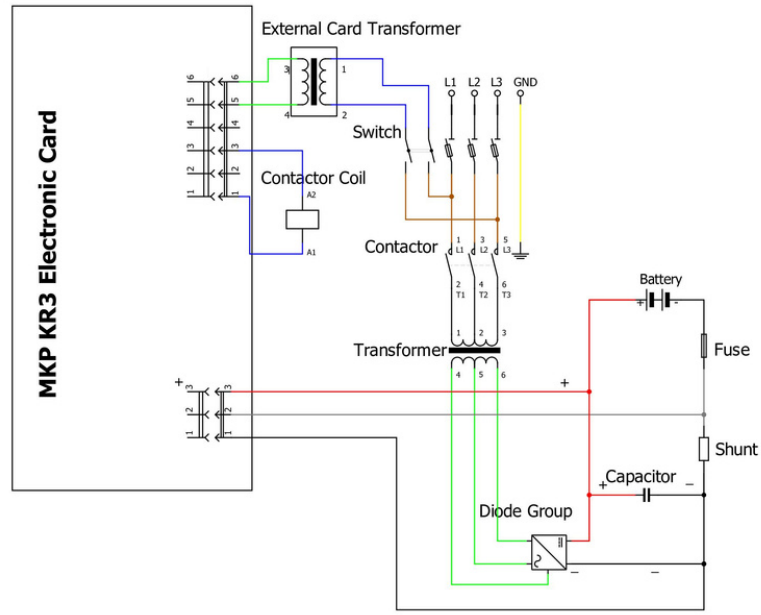
Transformer pin 1 -> 0V
Transformer pin 2 -> 230V

Diphase (Two Phase) Wa Battery Charger Circuit Diagram (KR3)



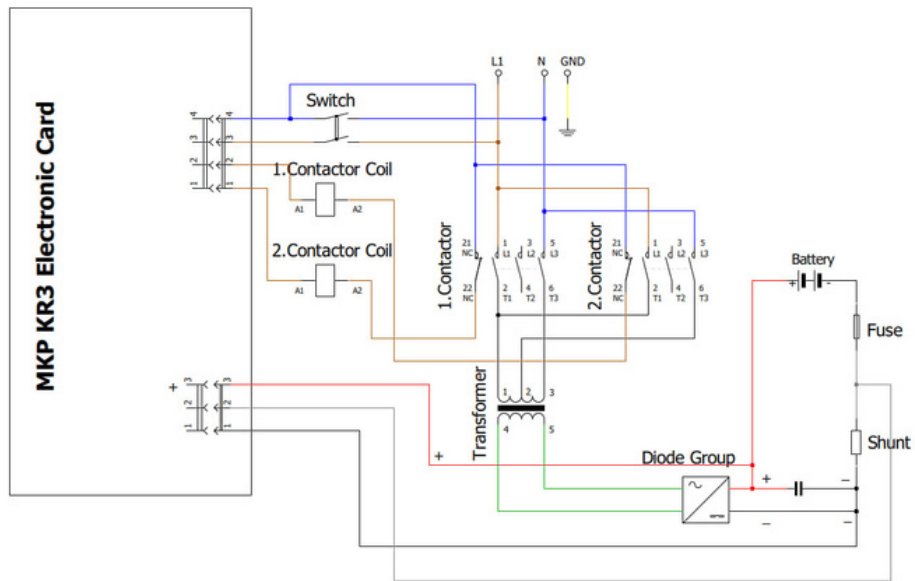
Transformer pin 1 -> 0V
Transformer pin 2 -> 400V

Triphase (Three Phase) Wa Battery Charger Circuit Diagram (KR3)



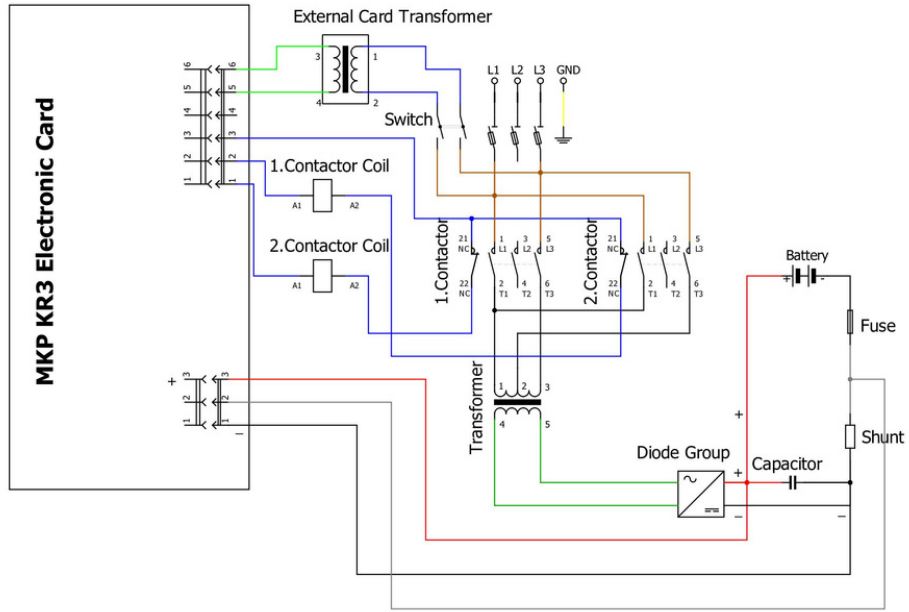
Transformer pin 1 -> 400V - L1
Transformer pin 2 -> 400V - L2
Transformer pin 3 -> 400V - L3

Monophase (Single Phase) Wo-Wa Battery Charger Circuit Diagram (KR3)



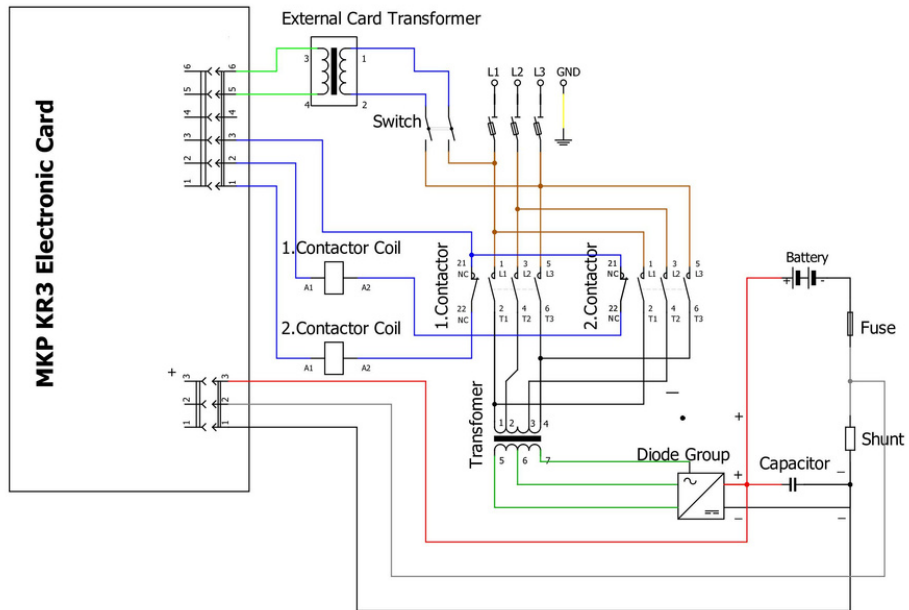
Transformer pin 1 -> 0V
Transformer pin 2 -> 220V
Transformer pin 3 -> 230V

Diphase (Two Phase) Wo-Wa Battery Charger Circuit Diagram (KR3)



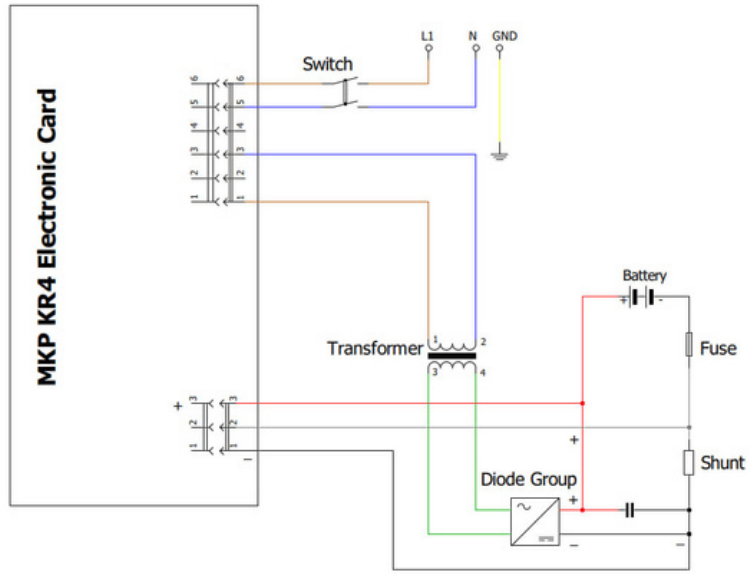
Transformer pin 1 -> 0V
Transformer pin 2 -> 380V
Transformer pin 3 -> 400V

Triphase (Three Phase) Wo-Wa Battery Charger Circuit Diagram (KR3)



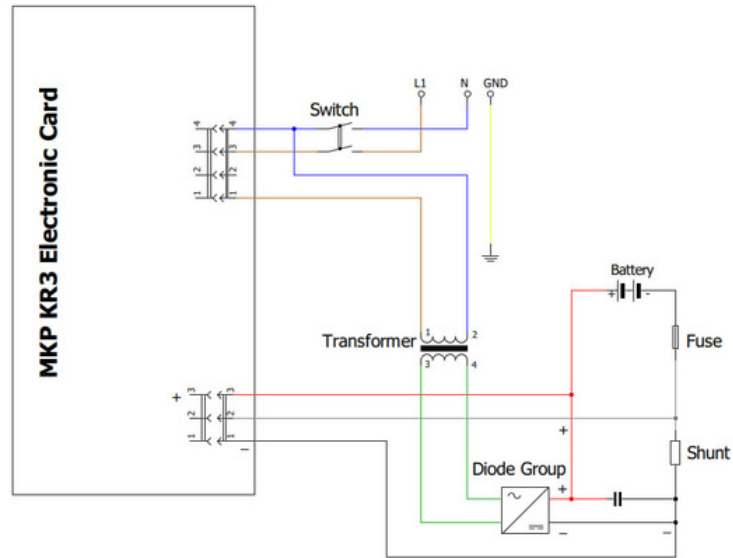
Transformer pin 1 -> 400V - L1
Transformer pin 2 -> 400V - L2
Transformer pin 3 -> 380V - L2
Transformer pin 4 -> 400V - L3

Single Phase (Single Phase) Low
Power Wa Battery Charger
Circuit Diagram (KR4)



Transformer pin 1 -> 0V
Transformer pin 2 -> 230V

Single Phase (Single Phase) Low
Power Wa Battery Charger Circuit
Diagram (KR3)



Transformer pin 1 -> 0V
Transformer pin 2 -> 230V

WARRANTY CONDITIONS

The warranty period of our products is two (2) years starting from the invoice date.

The maximum repair time of the products is twenty (20) working days.

In the following cases, our products are out of warranty.

- Damages and malfunctions caused by usage errors,
- Contrary to the items in the user manual of the product
- damage and malfunctions caused by its use,
- Damages and malfunctions caused by voltage,
- Damages and malfunctions caused by the reverse connection of the device to the battery.
- Mechanical impacts on the outer body of the device.

Device type :	Mekpa Official
Model :	Stamp - Signature
Invoice date :	
Bill number :	

CONTACT

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