# Product specification

## Lithium Battery Active Equalizer

# MK-B5A16V2C


CNCPROM

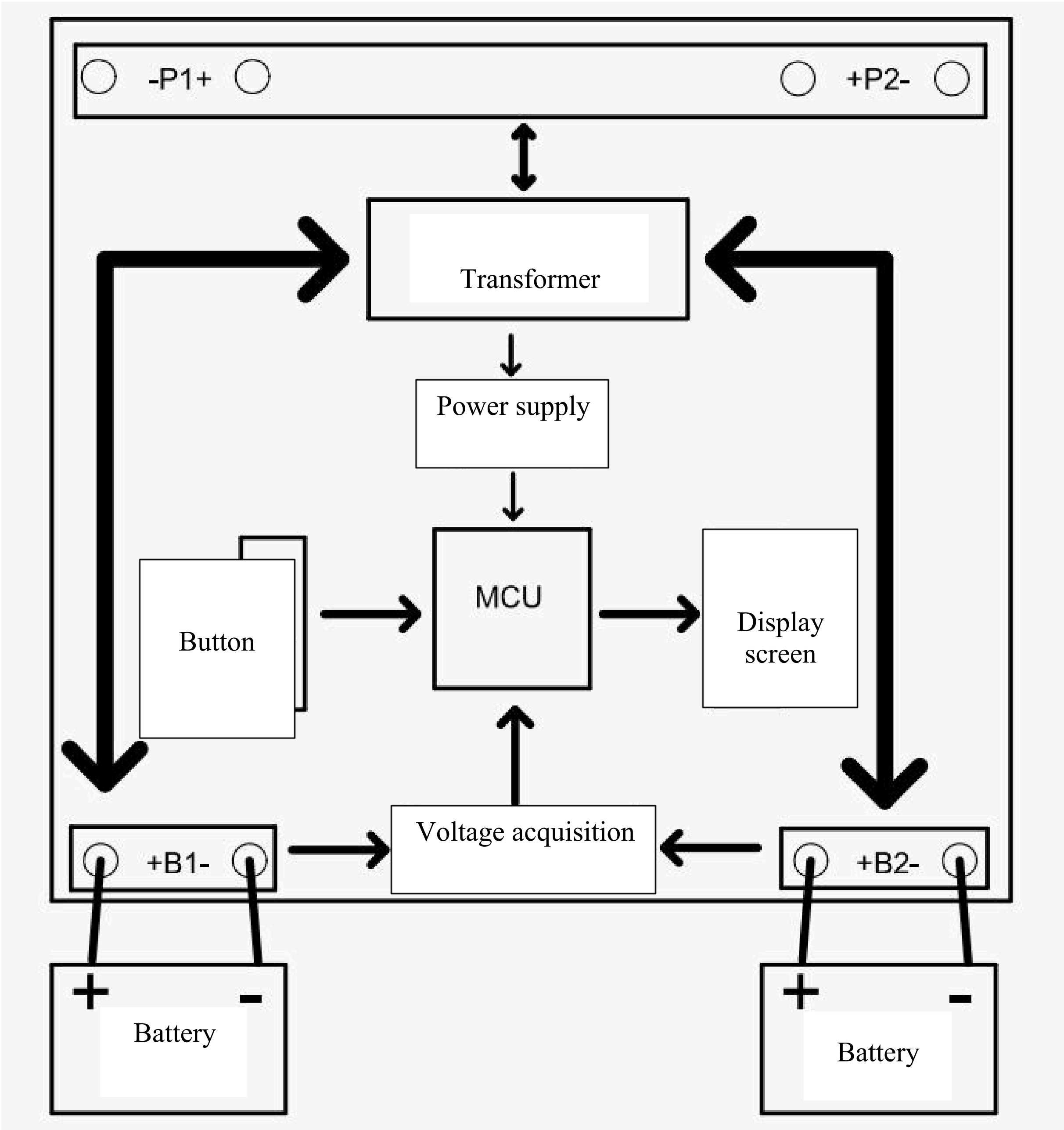
## 1. (Product Overview)

The MK-B5A16V2C Battery Active Equalizer is a tailored equalization management system designed specifically for high-capacity 12V battery packs. It achieves active energy transfer equalization through high-frequency transformers as the medium.

This equalizer is suitable for voltage balancing between 5V-17V battery packs, equipped with both voltage acquisition and equalization functions. During operation, the equalization current of the equalizer is proportional to the voltage difference of the battery pack. The voltage acquisition range is 5V-17V with an accuracy of ±0.1V. It can be applied to voltage balancing of various battery packs, such as 2-4 series ternary lithium battery packs, 4 series lithium iron phosphate battery packs, or 12V lead-acid battery packs.

The equalizer comes with a supporting display screen, through which users can check battery voltage and power. It has 5 built-in modes corresponding to different types of battery packs.

## 1.2. (Structural block diagram)




MK-B5A16V2C structure block diagram

## 2. (Product adaptation guide)

| (Serial number) | (Product specification ) | (Battery type) | (Number of adaptive battery strings) |
|---|---|---|---|
| 1 | MK-B5A16V2C | (Ternary lithium battery) | 2～4 |
| | | (Lithium iron battery) | 4 |
| | | (lead-acid battery) | 1 |

# 3.(Function introduction and usage instructions)

The active equalizer adopts active equalization technology. The principle of equalization is to transfer the energy from the battery pack with higher voltage to the one with lower voltage, and the energy transfer is achieved through the active equalizer as a medium. If users only need to use the equalization function, no settings are required. They just need to correctly connect the equalizer to the battery according to the wiring diagram, and then the equalization and voltage collection can be carried out.

The equalizer can calculate the current battery power based on the collected voltage. If users need to use this function, they need to correctly set the mode of the equalizer. The current mode of the equalizer will be displayed in the lower right corner of the screen. Press and hold the SET button at the bottom of the screen for 5 seconds, and the mode in the lower right corner of the screen will flash. At this time, short-press SET to switch modes upward, and short-press DOWN to switch modes downward. There are five modes from B01 to B05 for cyclic switching, corresponding to five types of batteries respectively.

| Mode | Battery Type | SOC-0% Voltage (V) | Rated Voltage (V) | SOC-100% Voltage (V) |
|---|---|---|---|---|
| B01 | 2-cell Li-ion Battery (Ternary) | 5.7 | 7.4 | 8.4 |
| B02 | 3-cell Li-ion Battery (Ternary) | 8.5 | 11.1 | 12.6 |
| B03 | 12V Lead-Acid Battery | 10.5 | 12 | 14.8 |
| B04 | 4-cell $LiFePO_4$ Battery | 10.2 | 12.8 | 14.4 |
| B05 | 4-cell Li-ion Battery (Ternary) | 11.4 | 14.8 | 16.8 |

It should be noted that the balancing current of the equalizer is independent of the set mode. The balancing

current is proportional to the battery voltage difference, and the relationship between current and voltage roughly conforms to the formula $I=\Delta U \div 0.4$

I Represents the balancing current, with the unit of ampere (A);

## 4. (Main parameter)

| (Serial number) | (Project) | (argument) | (Unit ) |
|---|---|---|---|
| 1 | (Supply voltage) | 5~17 | V |
| 2 | (Operating power consumption) | ≤ 1200 | mW |
| 3 | (Operating temperature) | -30-70 | ℃ |
| 4 | (Maximum balancing current) | 5 | A |
| 5 | (Shutdown threshold voltage) | 3V±0.2V | V |
| 6 | (Active equalizer size) | 83.68*74.36*29.2 | mm |
| 7 | (Finished weight) | 190 | g |

# 5. (Interface definition)

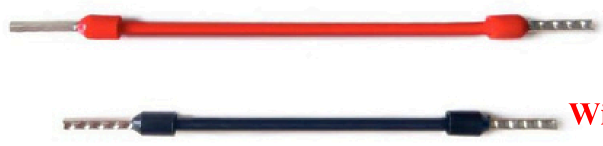
## 5.1. (Product Appearance)

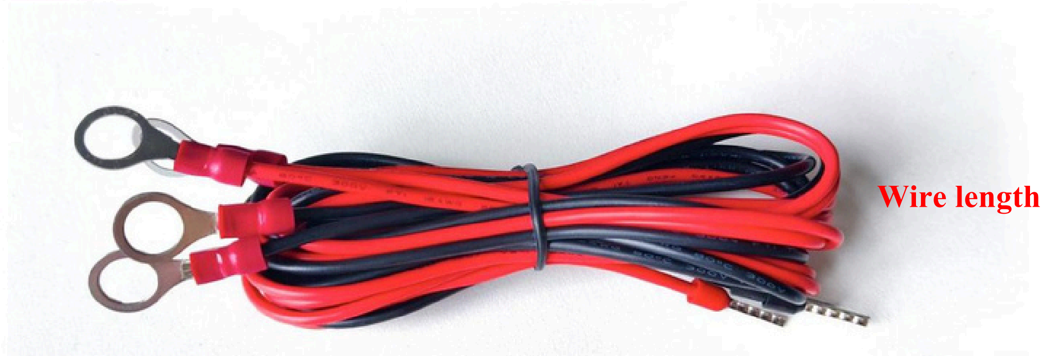

## 5.2. (Product connector definition) (Interface definition)

| (coupler) | (Type of connector) | (Interface name) | (Pin number) | MK-B5A16V2C | |
|---|---|---|---|---|---|
| | | | | (Na me ) | (definition) |
| P1 | KF301-5.0-2P | (Balance with Acquisition interface) | 1 | B1+ | Positive pole of Battery Pack 1 |
| | | | 2 | B1- | Negative pole of Battery Pack 1 |
| | | | 3 | B2+ | Positive pole of Battery Pack 2 |
| | | | 4 | B2- | Negative pole of Battery Pack 2 |
| P2 | KF301-5.0-2P | (Cascaded Interface) | 1 | P1- | Negative pole of Module 1 |
| | | | 2 | P1+ | Positive pole of Module 1 |
| | | | 3 | P2+ | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Positive pole of Module 2 |
| | | | 4 | P2- | Negative pole of Module 2 |

## 5.3. (Cable diagram)



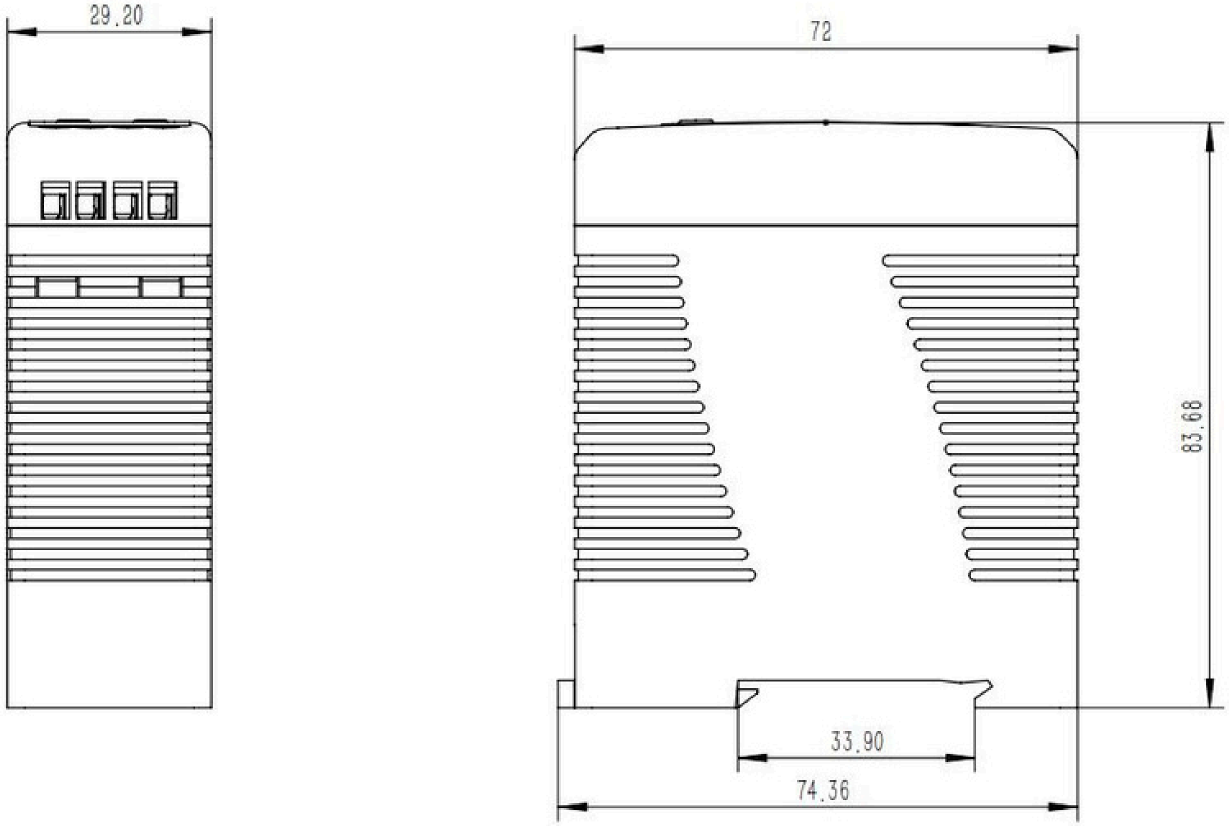





MK-B5A16V2C Cable Diagram

## 5.4. (Product size)

The size of MK-B5A16V2C series active equalizer is 83.68mm×74.36mm×29.2mm as shown in the following figure：

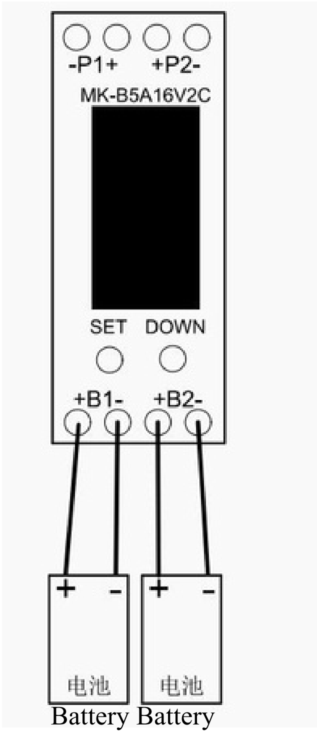



Dimensions of MK-B5A16V2C

# 6. (Installation method)

## 6.1. (Install a single equalizer)

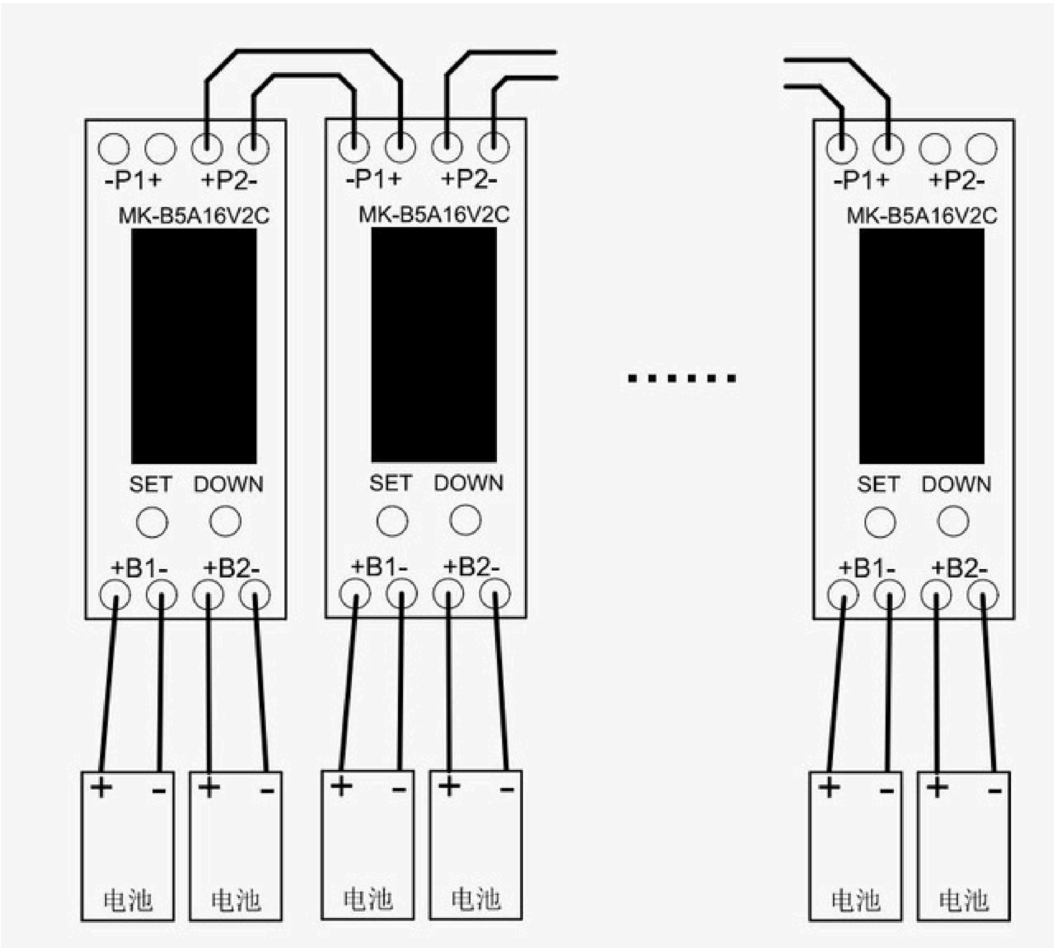
A single MK-B5A16V2C equalizer is suitable for use between two groups of 5-17V battery packs.




MK B5A16V2C Wiring Diagram

## 6.2. (Multiple equalizers are installed in cascading mode)

The MK-B5A16V2C equalizer supports cascaded use, allowing it to be applied to multiple battery packs. The wiring
method for cascaded installation is shown in the figure below.

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Equalizer Cascaded Wiring Diagram