



60 MOSFET Controller

HK-YCK060400A(RSVR)

PRODUCT SPECIFICATION

**江苏华控智能科技有限公司**  
JIANGSU HUA KONG INTELLIGENT TECHNOLOGY CO., LTD

## HUAKONG INTELLIGENT Controller Specification

|            |                          |              |                      |      |    |
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### 一、 Scope

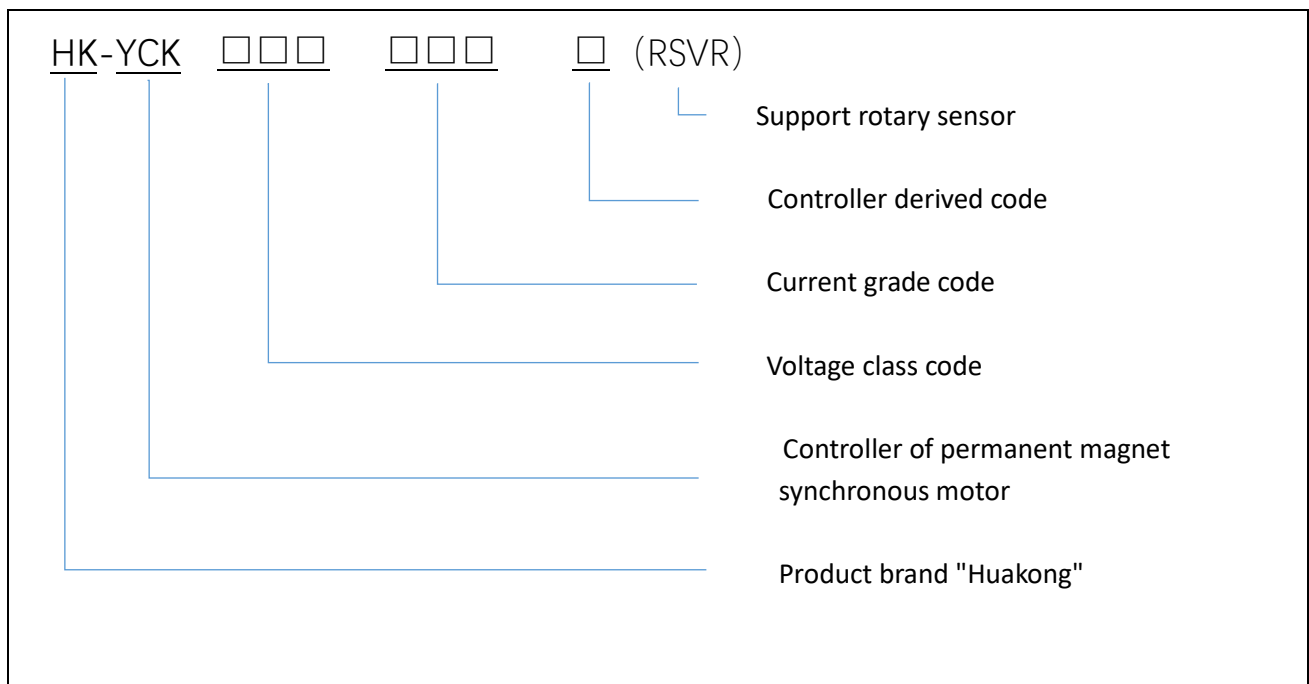
Suitable for 60 mosfet controller.

### 二、 Reference Standards

- 2.1 QC/T 792—2007 Electric motorcycle and electric moped Motor and Controller technical conditions
- 2.2 QB/T 2946—2008 Electric vehicle Motor and Controller

### 三、 Controller Naming Standard

This naming rule refer to: GB\_T+18488.1-2015 drive motor system for electric vehicles



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## 四、 Controller Specification

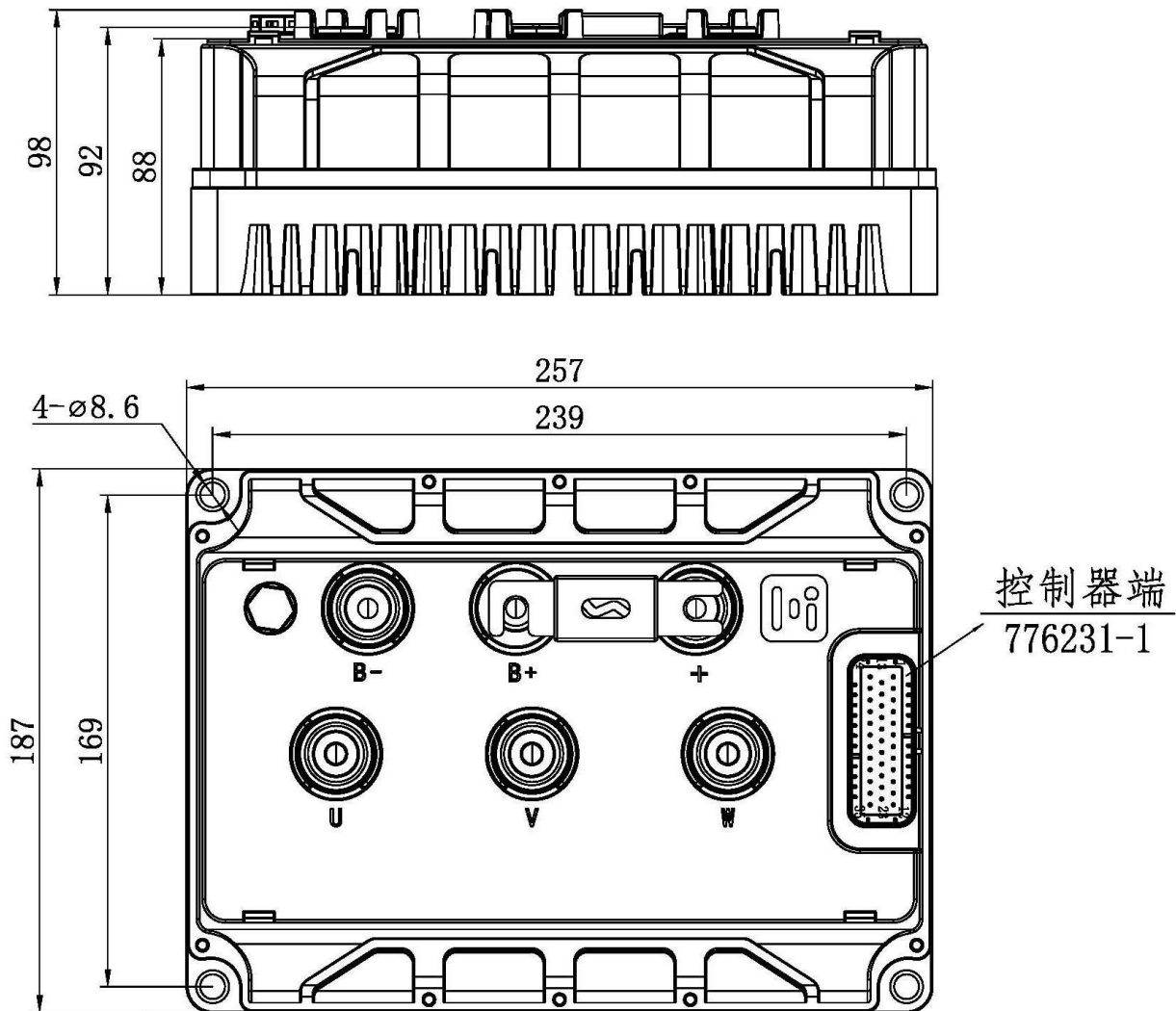
## 4.1 Basic Specification

| #  | ITEM                      | DETAILS         |
|----|---------------------------|-----------------|
| 1  | Working Voltage           | DC 24~144V      |
| 2  | Rated Voltage             | 60V             |
| 3  | Maximum Current           | 300A            |
| 4  | Low-voltage protection    | Regulable       |
| 5  | Overvoltage protection    | Regulable       |
| 6  | Maximum efficiency        | $\geq 97\%$     |
| 7  | Ingress Protection Rating | H               |
| 8  | Working Temperature       | -25℃-105℃       |
| 9  | Ingress Protection Rating | IP67            |
| 10 | Feedback Sensor           | Rotary encoder  |
| 11 | Cooling Method            | Natural Cooling |
| 12 | Temperature Sensor        | KTY84-150       |
| 13 | Cable Length              | /               |
| 14 | Function Cable Length     | /               |
| 15 | Dimension                 | 257L*187W*98H   |
| 16 | Weight                    | 3.8kg           |

|            |                          |              |                      |      |    |
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## 4.2 Dimensions and appearance

4.2.1 Please see drawing for all of dimensions.

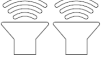
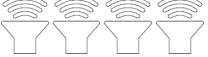
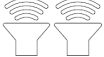
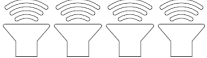
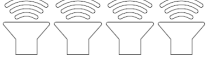
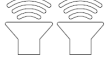
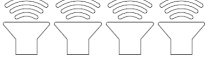
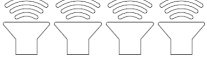


### 4.2.2 Appearance

The surface is clean, there are no obvious scratches and mechanical damage, no deformation, no other appearance defects.

|            |                          |              |                      |      |    |
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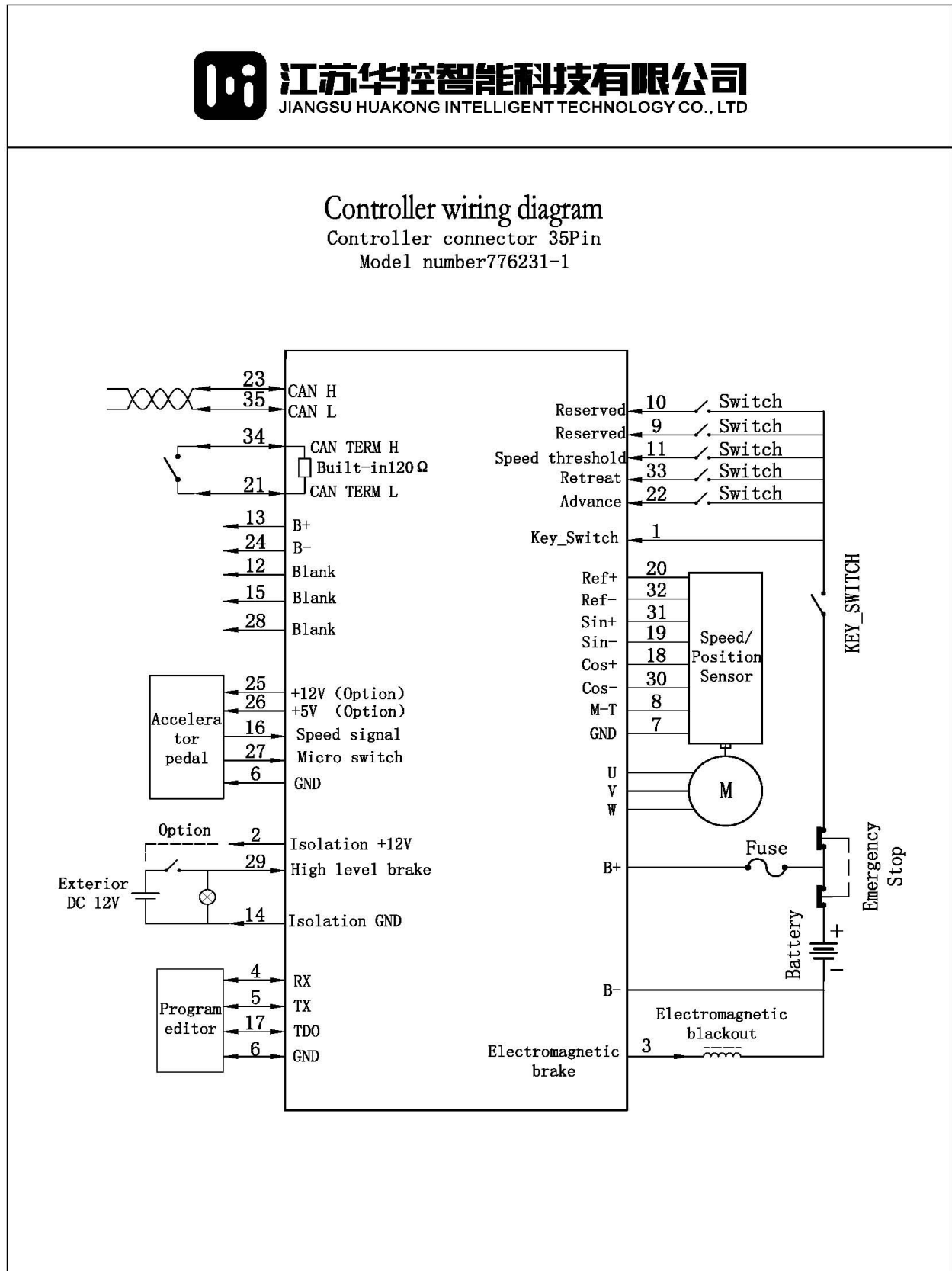
## 五、 The controller detects the fault code table

| The controller detects the fault code table |                                                                                                                                                                         |                                          |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| NO                                          | type of alarm                                                                                                                                                           | fault type                               |
| 1                                           |       | Operation sequence error                 |
| 2                                           |       | Accelerator fault                        |
| 3                                           |       | System overvoltage                       |
| 4                                           |   | The system voltage is too low. Procedure |
| 5                                           |   | Current sensor fault                     |
| 6                                           |   | The motor is missing a phase             |
| 7                                           |   | Excessive motor temperature              |
| 8                                           |   | Controller temperature is too high.      |
| 9                                           |   | The capacitor precharge fails            |
| 10                                          |   | Motor blocking protection                |
| 11                                          |   | Controller overcurrent protection        |
| 12                                          |   | Relay fault                              |

|            |                          |              |                      |      |    |
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## 六、Function and performance

6.1 Please see drawing for function definition details.



|            |                          |              |                      |      |    |
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## 6.2 Performance test requirement

| # | Item                            | Verification Conditions                                                                                                                                                                                                                          | Notes |
|---|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1 | High temperature test           | The controller should still be able to work normally after 2 hours continuous no-load operation when the ambient temperature is in the range of $60\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ .                                     |       |
| 2 | Constant heat and humidity test | The controller shall be capable for 48 hours testing of withstanding a constant moist heat $40\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and relative humidity of 90% ~ 95% which shall not affect normal operation after the test. |       |
| 3 | Low temperature start test      | The controller can still start without load when the ambient temperature is in the range of $-25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and the cold state lasts for 2 hours.                                                                    |       |
| 4 | Load vibration test             | The controller is fixed on the test bench and the vibration test is performed according to the specified conditions. No parts loosening or damage may occur during the test.                                                                     |       |
| 5 | Low temperature storage test    | Stored at $-25^{\circ}\text{C}$ for 72 hours, it should still work after returning to normal temperature.                                                                                                                                        |       |
| 6 | Short-term overload test        | The motor shall be inspected in accordance with the QC/T792-2007 short-term overload test condition and the conformity assessment method.                                                                                                        |       |

|            |                          |              |                      |      |    |
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| # | Item            | Verification Conditions                                                                                                                                                                                                            | Notes |
|---|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 7 | Impact test     | The controller should still work normally after do the impact test 7 times with the matched controller and the load is 100 Kg when the battery is fully charged.                                                                   |       |
| 8 | Waterproof test | The controller shall be inspected in accordance with the GB/T4942.1-2001 IP67 grade product specified anti-drip test conditions (the controller is in a non-energized state during the test) and the conformity assessment method. |       |
| 9 | Wire flame test | After two 10-seconds burning tests on the sample, the flame extinguished within 60 seconds and no burning material could be dropped.                                                                                               |       |

## 七、 Precautions

- 7.1 Connect the wires of the controller correctly, and install the controller in a ventilated and waterproof place and prevent loosening.
- 7.2 All plug terminals must ensure good contact and must not be loose. Otherwise, unpredictable faults and consequences will occur.
- 7.3 Must ensure that the voltage in the controller within the reasonable usage voltage range, in order to ensure the reliability of the controller.
- 7.4 It must be ensured that the controller power matches the motor power correctly.
- 7.5 It is forbidden to change the controller external structure or violent impact the controller.
- 7.6 Pay attention to the bushing of the motor phase wire or the speed wire to wrap well so as not to short-circuit with the power ground wire or other signal wire, resulting in controller damage.

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**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

The device must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement Caution: To maintain compliance with the FCC's RF exposure guidelines, place the product at least 20cm from nearby persons.