2022 06 10

1 Parameter

1.1 Basic parameters of motor

1.1.1 position sensor:

1) 120° Hall (Regular Hall),

2) General encoder,

3) encoder 4096,

4) encoder 8192,

5) 60° Hall,

Modify the sensor, the key save is valid.Hxx and above support optional.Old version is not optional.

1.1.2 temperature sensor:

option	Hxx edition	legacy version
not have	√	√
PTC	√	√
NTC	√	√
KTY84-130	√	The program fixed the KTY84-130 / KTY83-122
invented	√	√
KTY83-122	√	×
KTY83-121	√	×

1.1.3 phase shift:

Key characteristics of the motor Angle position, the general motor factory will indicate the Angle position.Most of the market hub motors are urban 30°, 210° and 90°, but some motors are special.Note that the motor factory standard method and the remote drive mark are different. If this Angle is not clear, this value can be found through the self-learning method.Generally, two phase shift error is not more than 2° proves that the operation method is no problem, and the phase shift is no problem.

1.1.3.1 Start self-learning via 11.3 UPC:

Click the upper computer self-learning button, the controller will hear 2 short and long voice inside, indicating that self-learning has been started.In addition, click the upper machine to cancel the self-learning button, prompt sound disappear, that is, cancel the self-learning.

1.1.3.2 Start the phase-learning method by pinching the brake without the computer:

This method is adapted to the all controllers installed with the brake line function, the software version 783 above the ND series, CN series, BN series controllers.A01 above version requires the knob before the boot, do not loose, do the following operations.

1: Keep the brake connected, the controller is turned off, and the motor is still.

2: Turn to the end, turn on, at this time the controller alarm, the motor will not turn.

3: Enter the self-learning, Mose password 8 bits: 11000000.

1= "Long pinch brake 0.5 seconds ~2 seconds", 0= "short pinch brake 0.5 seconds below"

After hearing 2 short sound and 1 sound long sound, it is to enter the self-learning state. If you do not hear the consideration operation error,

reenter the Mose password to try.

1.1.3.3 **Self-learning process:**

After entering the self-learning state, the wheel is overhead, turn to the end, at this time the motor should turn up, if not turn, the Hall line may have been exchanged, or the motor wire has been exchanged.At this point, you only need to exchange the blue and green line, and you can turn up.

After turning, the speed will be close to the motor set speed, and then the phase shift will be automatically adjusted to adapt to the motor, reversing with the electric opportunity and adapting to the motor. After the automatic completion, the motor stops.Release the throttle.Complete self-study.

Learn a good electricity opportunity to stay quiet state.

1.1.3.4 **Mose password change motor direction:**

Since the completion of learning, if the normal start motor is reversed, then the motor direction can be modified through the upper machine, or the motor direction can also be changed through the Mose password: Mose password 8 bit: 11110000. If the motor is found to reverse the motor after learning, the motor direction can be corrected through this instruction.

1.1.3.5 **Mose password change speed limit:**

Change the Mose password through the upper computer can set 6 bits to open speed, 000000, no limit, limit speed for other passwords: each time the Mose password must be operated to remove the speed limit.

Setting the 7-bit Mose password is the speed limit switch, which is also the next 6 digits, the operation of the speed limit conversion once: if it is a speed limit state, it becomes a non-speed limit state, and vice versa.This conversion is saved inside the controller, and is switched to this state.

1.1.4 Polar logarithm:

3,4,5,6,7,7,8,10,12,14,16~30, encoder: 3-8 counterpolar display actual turn Speed, above 10 pairs.Modify the extreme logarithm, the key saving is valid.

1.1.5 **Motor direction:**

Speciated motor direction 0: motor right, 1: motor left.Reset save is not valid.

1.1.6 **Rated speed:**

The motor at the rated voltage speed, referred to as the rated speed, the electric motorcycle industry is often called the fixed speed.This set speed determines the maximum motor speed.General general controller, in the rated voltage state, can drive the motor maximum speed to near the constant speed.The controller recognizes the rated speed at the current voltage during self-learning.

1.1.7 **Rated voltage:**

The maximum number of batteries of Nanjing remote controller with different voltages is as follows:

	lead-acid cell	Three yuan lithium battery	Lithium iron phosphate battery
48V	4 String	13-14 Strings	16 Strings
60V	5 String	17 Strings	20 Strings
72V	6 String	21 Strings	24 Strings
75V	6 String	22 Strings	25 Strings
84V	7 String	24 Strings	28 Strings
96V	The string of 8	28 Strings	32 Strings
108V	Nine string	32 Strings	35-36 Strings

Factory set 72 series =72V, 75 series =75V, 84 series =84V, 96 series =96V, 108 series =108V

Pay attention to the rated voltage affects the power display, and the setting can not be higher than the factory voltage. After setting the parameters, it should be saved again, and be effective after reset.

1.1.8 **Rated power: the rated power of the motor, please set it according to the actual situation of the motor.**

1.1.9 **Maximum speed: limits the maximum motor speed.**

1) In the electric vehicle market, the maximum speed is generally not limited, but through the latter current limiting parameters to limit the maximum speed.After the speed exceeds the fixed speed, automatically enters into the weak magnetic state.The more the speed exceeds the fixed speed, the greater the weak magnetic depth.

2) Weak magnetic depth: (maximum speed-fixed speed) / fixed speed * 100.%General hub motor weak magnetic depth up to 50.%

Some hub motors can have a weak magnetic depth of more than 100.%Therefore, we stipulate that the weak magnetic depth of the table stick motor does not exceed 50,%

The weak magnetic depth of the embedded motor does not exceed 150.%

1.1.10 **Maximum phase current:**

Maximum phase line current of the working motor.The maximum torque of the motor output at rest to the rated speed is determined.

Maximum phase current has maximum limits on the controller hardware, and the set value is not allowed to exceed the factory setting.Otherwise, it will lead to control the probability of the burning out is greatly increased.

Different types of motors will have different output torque at the same maximum phase current setting value.The torque version motor output is high torque, the balanced version output is slightly smaller, and the speed version motor output is minimum.The motor with low speed has high output torque, and the motor with high speed has low output torque.

1.1.11 **Maximum line current:**

Controller operating battery bus current maximum.The maximum power value of the motor output is determined.Controller maximum input power = battery voltage * Max. line current.

This current is limited to the customer's maximum line current.This value determines the maximum output power, and thus determines the highest speed.

1.1.12 **Back speed:**

Maximum speed of the back gear.

1.1.13 **Exchange phase line:**

Default 0, blue and green big line exchange, it is 1

It is effective after reduction.The Hxx version of self-learning automatically changes this parameter.

1.1.14 **Weak magnetic properties:**

Generally fast, high-speed jitter to change, generally do not use slow, easy to cross the flow

1.1.15 **Weak magnetic response:**

0~6, No representation is not weak or magnetic.Default weak magnetic response: 0

Expansion speed: Push the motor speed to a higher speed than the fixed speed, called expansion speed.

Expansion method 1: increase the working voltage, the higher the voltage, the higher the motor speed.Expansion method two: do not increase the working voltage, through the weak magnetic, increase the motor speed.

Without changing the battery voltage, the motor speed is increased by controlling the current limiting parameters.

1.2 Add deceleration characteristics

1.2.1 Acceleration sensitivity:

Speed fast, 8~224, the larger the number, the faster the throttle response.

Electric cars are usually the accelerator pedal, while the electric motorcycle is the throttle knob or the central control.

Electric cars to respond to the throttle is moderate, and the requirements of electric motorcycle are different, some customers require light, slow, stable, some customers are sensitive, on the trigger.

Acceleration sensitivity refers to the speed of the throttle reaction.This parameter is anywhere between 16 and 224.The larger the number, the more sensitive the throttle acceleration is.

16 Has been very slow, electric vehicles are generally set in around 32 suitable, rarely more than 64.

For electric motorcycle, in addition to setting at 32, many users prefer to respond quickly, so the set at 64,128. Track races are even set at the 224.

1.2.2 Reduced speed sensitivity:

Slow down: 16~224, the larger the number back to the shorter the lag.

1.2.3 Motor position:

Non-set, showing motor angle

1.2.4 Back to the throttle:

Default 0

1.2.5 Throttle response:

For different user preferences, there are three configurations: linear, sports, economy.

1.2.6 Economic acceleration parameters:

Default 8

1.3 Throttle threshold

Market transfer is uneven, different transfer or accelerator pedal voltage value will be different

	Idle voltage	Full voltage
Electric motorcycle converter	0.8V-0.9V	4.1-4.3V
Central control transfer	0.8V-0.9V	4.5-4.95V
The 12V accelerator pedal	0.0V-0.2V	4.6-4.8V

1.3.1 Low threshold:

We set the low throttle threshold based on the idle voltage.Considering the converter voltage fluctuation, setting the low throttle threshold is generally higher than the idle voltage, 0.2-0.3V, to ensure that the motor works in the idle state when stopping.

For example, the low throttle threshold of the motorcycle wheel is set to 1.1V, and the low throttle threshold of the 12V accelerator pedal is set to 0.5V.

1.3.2 high threshold:

We set the high throttle threshold based on the full voltage.In order for the controller to output full power at the full bar state, we need to keep the set value below the full voltage.But note here that it should not be set too low.In order to automatically detect whether the electronic throttle is damaged, we set a value of 0.6V higher than the high throttle threshold as the alarm limit. Once exceeded, if the rotor is damaged, the controller immediately stops the power output to avoid the car safety accidents.

So when we set a high throttle threshold, such as the electric motorcycle turning to the full 4.1-4.3V, we will set a 3.9V as the high throttle threshold.For the high throttle threshold of the 12V accelerator pedal, we will set it at 4.3V.

742 And above versions add the throttle self-learning function, and the controller will automatically identify the maximum voltage of the throttle signal of the knob / pedal, and generate the high throttle high threshold according to this voltage.

1.4 product model

1.4.1 date:

1.4.2 time:

1.4.3 Model number: Controller model number

2 current-limiting

2.1 Current-limiting protection coefficient of the motor:

500RPM, 1000RPM, ….Conversion of 8500RPM, 9000RPM.
These speeds are the number of log poles calibrated in the parameter.The corresponding parameter is also the parameter at this rotational speed.For the actual polar logarithm of more than or equal to 16, a conversion is required.
Usually the polar logarithm of the hub motors is 16,20,24,28,30 opposite poles.Usually the middle motor is 3,4,5,7,8,14 opposite pole.

In the case of the parameter inside the polar-log =4, the motor-rotation speed = the rotation speed * 4 on the upper machine / the actual polar-log of the motor.For example, the hub motor pole is 16 in the log

like that

The actual speed of 16 pairs of pole hub motors corresponding to 500RPM is 125RPM.

The actual speed of 16 pairs corresponding to 1000RPM is 250RPM.

The actual speed of 16 pairs of pole hub motors corresponding to 4000RPM is 1000RPM.

The actual speed of 16 pairs of pole hub motors corresponding to 5000RPM is 1250RPM.

The actual speed of 16 pairs corresponding to 5500RPM is 1375RPM.

The actual speed of 16 pairs of pole hub motors corresponding to 6000RPM is 1500RPM.

The actual speed of 16 pole hub motors corresponding to 6500RPM is 1625RPM.

The actual speed of 16 pairs corresponding to 8000RPM is 2000RPM.

Weak magnetic limit: gradually increase the flow limit parameter

The setting of the flow limit value, starting from the safety value, gradually increase the speed, we must ensure that the weak magnetic can not be excessive.Once the idling rotating speed is found to be unstable or even the outgoing MOE or OVER protection, it indicates that the rotating speed is too high, the weak magnetic force is excessive, and the parameters should be changed back.

The current limit value we set should be considered according to the actual requirements.For motors with a fixed speed of 1000RPM, the testThe consideration of the weak magnetic depth is 50.% The maximum rotational speed is also considered at 1500RPM, and the motor is expected not to work above 1625RPM.% Therefore, the flow limit value is set at 6000RPM of 30,6500RPM or above.%

This ensures that the motor is weak magnetic 50 when idling.%And will not be weak magnetic too deep cause motor jitter or even burn control.

%Many motors, with a weak magnetic depth that can reach 100,1,000 R P M motors, are capable of working at a 2,000 R P M high speed.For such motors, in order to exert higher performance, the flow limit coefficient can continue to expand. The flow limiting parameter within 8000RPM can be set at the normal value above 70, and 8500 is set at 30,9000RPM below 5.

2.2 **Speed control level:**

Speed control level: the default 4 levels: BOOST gear, high speed gear, medium speed gear, low speed gear.

1) **BOOST file: the Bst is displayed on the mobile phone APP / computer.In the BOOST function on effective, BOOST time by**
4.3 Parameter control, and the BOOST works under the limit conditions of the factory customer maximum line current, maximum phase current and current limiting coefficient.

2) **High speed gear: D appears on the mobile phone APP / computer.High speed gear operates under the maximum line current, maximum phase current, current limiting coefficient and maximum speed.**

3) **Medium speed range: the DM is displayed on the mobile phone APP / computer.The medium speed range is limited by the medium speed line current ratio, the medium speed phase current ratio and the medium speed speed.**

4) **Low speed gear: DL displays on the mobile phone APP / computer.Low speed gear is low speed line current ratio, low speed phase current ratio and limited by low speed.**

2.2.1 **Low-speed gear parameters**

Low speed line current ratio
Low speed phase current ratio
Low speed

2.2.2 Medium speed parameter

Medium speed line current ratio

Medium-speed phase current ratio

Medium speed

3 Energy feedback

For the throttle back brake function, during the ride, the throttle back enters the electronic brake state.

For the electronic brake function, in the braking, the vehicle gives the brake signal to the controller, the controller detects the brake signal and then enters the electronic brake state.

Note that when using the electronic brake function, you must select the electronic brake or the accelerator brake to enable this function.And set the return current.%Note that the maximum backflow is generally 25~50 larger than stopping backflow.%

3.1 Brake current limit:

3.1.1 Stop reflux:

Brake current for the electronic brakes.

3.1.2 Maximum return:

Peak brake current for the electronic brakes.

3.1.3 Back throttle brake point:

Default 0, under the throttle brake, above this speed, the turn back half is a uniform speed does not accelerate or slow down state.For example, 4000 means that the higher the 0-4000 rpm speed, the more close to half of the throttle value, and the middle throttle value above 4000 rpm is all at a constant speed without acceleration or deceleration.The knob accelerates above the middle, below the middle, slow down, the more the knob returns, the harder the brake.

The old version controller does not have negative current coefficient.

3.2 Negative current coefficient:

Control the proportional coefficient of the reverse charging current at 500rpm, 1000rpm,..., 9000rpm.The maximum coefficient value is 0, and the minimum value is-100. The closer to the-100 negative current, the more.

The old version controller does not have negative current coefficient.

4 Function

4.1 Functional input feet

4.1.1 BOOST: Select the BOOST function button input foot, select invalid will not enable this function

4.1.2 Cruise: Select cruise function button input foot, select invalid will not enable this function

4.1.3 P file: Select the P file function button input foot, select normal closed will not enable this function

4.1.4 Forward: Select the forward gear function line input foot, select invalid will not enable this function

4.1.5 Back: Select the back file function line input foot, select invalid will not enable this function

4.1.6 High speed: Select the high speed function line / button input foot, the invalid selection will not enable this function

4.1.7 Low speed: Select the low speed function line input foot, which is not enabled

4.1.8 Charging: Select the charging protection function line input foot, select invalid will not enable this function

4.1.9 Anti-theft: Select the anti-theft function function line input foot, select invalid will not enable this function

4.1.10 Bucket: Select the bucket function line input foot, the invalid selection will not enable this function

4.1.11 Speed limit: Select the speed limit function line input foot, which is not enabled

4.1.12 Voltage switching: select the rated voltage switching function line input foot, which will not be enabled

4.1.13 One-click repair: Select the one-key repair function line input foot, select invalid will not enable this function

Note that except for the P file may choose to close, other feet generally do not choose to close, otherwise affect the use of function.The optional pin definition description is here

option	6 / 12, pipe controller The NS-series controllers	The old controller The Universal Hall Interface Board	remarks
normal close	normal close	normal close	
PIN2	The 2 feet of the 30P socket	-	
PIN3	The 3-Foot of the 30P socket	The 7 feet of the 30P socket	
PIN5	The 5 feet for the 30P socket	The 5 feet for the 30P socket	The CAN version is not available
PIN8	Eight feet of the 30P socket	Eight feet of the 30P socket	
PIN9	The 9 feet of the 30P socket	-	
PIN14	The 14 feet of the 30P socket	The 17 feet for the 30P socket	
PIN15	15-Foot for the 30P socket	The 4 feet of the 30P socket	The CAN version is not available
PIN17	The 17 feet for the 30P socket	The 30 feet for the 30P socket	The encoder version is not available
PIN18	The 18-Foot for the 30P socket	-	
PIN24	24 Foot of 30P socket	25 Foot of 30P socket	
of no avail	of no avail	of no avail	

4.2 **Special features**

4.2.1 High and low speed:

4.2.1.1 **High speed only: only high speed gear is required**

4.2.1.2 **Add or subtract: button add or subtract**

4.2.1.3 **Point moving high and low speed: point moving 2 speed: high speed + low speed**

4.2.1.4 **High point speed: point 2 speed: high speed + medium speed**

4.2.1.5 **Tap three speed low: click 3 speed, default low gear**

4.2.1.6 **Click three speed: click 3 speed, default medium speed**

4.2.1.7 **Tap three speed high: click 3 speed, default high speed**

4.2.1.8 **Tap four speed low: tap 4 speed, default low speed**

4.2.1.9 **Tap four speed 2: tap 4 speed, default 2 speed gear**

4.2.1.10 **Tap four speed 3: tap 4 speed, default 3 speed gear**

4.2.1.11 **Tap four speed high: tap 4 speed, default high speed**

4.2.1.12 **Dial three speed: dial 3 speed**

4.2.1.13 **Serial port gear: serial port control gear, the default low-speed moped serial port instrument.XM ,**

4.2.1.14 **CAN gear: CAN control gear, default low speed gear**

4.2.1.15 **of no avail**

4.2.2 Long press back:

When valid, you must long press the back button to switch to the back button.Default is invalid, switch back according to the back line.

4.2.3 Block:

Default forward, default neutral, invalid

4.2.4 stop a vehicle by applying the brake:

Brake function: you can drive when not pinching the brake, and disconnect the accelerator when pinching the brake.
Floating driving: pinch the high brake line to 12V or battery voltage.Or lower the brake foot on to the battery ground.Note that the brake line signal is not isolated.When not pinching the brake, all 2 lines should be empty.
Floating air power off: pinch brake high brake and low brake 2 lines are floating empty.Do not brake pinch the high brake line connected to 12V or battery voltage, or the low brake foot connected to the battery brake ground, note that the brake line signal is not isolated.
P + floating driving: in addition to the floating driving function, pinch the brake and remove the P gear state.P + floating power: in addition to the floating power function, remove the P gear while pinching the brake.of no avail:

Default floating traffic.

4.2.5 PC13 :

Old model controller parameters.

4.2.6 **Moss password:**

1）**Change the Mose password through the upper computer can set 6 bits to open speed, 000000, no limit, limit speed for other passwords: each time the Mose password must be operated to remove the speed limit.**

2）**Setting the 7-bit Mose password is the speed limit switch, which is also the next 6 digits, the operation of the speed limit conversion once: if it is a speed limit state, it becomes a non-speed limit state, and vice versa.This conversion is saved inside the controller, and it is switched to this state.**

4.2.7 **In the slope:**

Hanging and retaining slope: when forward or backward, release the accelerator will hold the slope, neutral is not in the slope, steep slope slow

function is invalid.P gear slope: standing slope in P gear state, set whether steep slope descent function is enabled according to steep slope descent parameters in other states.

Invalid: the slope and slope descent functions are invalid.

4.2.8 **follow:**

Follow: the motor enables a certain idle speed is invalid: shielding follow and electronic brake
Electronic brake: start the electronic brake when pinching the brake.Back to the throttle brake: start the electronic brake when back to the throttle

4.2.9 **Slope slow down:**

None: Do not enable steep slope slow descent.

1~7: The smaller the number, the slower the slow response, the larger the number, the faster the slow response.

4.3 BOOST

4.3.1 BOOST duration:

The duration after BOOST startup defaults to 45 seconds and maximum to 131 seconds;

4.3.2 BOOST margin:

After the end of BOOST, the interval required to start BOOST again, default 90 seconds, maximum 131 seconds;

5 appearance

5.1 Instrumentation

5.1.1 Speed pulse:

This value, 1 – 31, affects the pulse velocity output and first-line pass velocity shown.The larger the number, the higher the table display speed.

5.1.2 Speed pulse base number:

Calibration base of the velocity pulse meter.Changing this value only affects the speed display of the speed pulse meter.Hub default 40459, middle set default 26043

5.1.3 Speed meter method:

Pulse / analog / isolation pulse

5.1.4 Analog speedometer:

The phase line instrument voltage indicates the speed of the instrument using the coefficient, adjusting this coefficient can change the speed displayed.

5.1.5 CAN：

Instruction number, Hxx version default 60, previous version according to protocol

5.1.6 CAN detection delay:

Default 150ms Individual customer requires 1900ms

5.2 First-line pass parameters

5.2.1 step:

Most of the first lines are 0.5 or 0.9. Default 0.5, optional 0.9,1.2,1.9

5.2.2 Interval duration:

Most of the first-line pass support 55ms, default 55ms, optional 24 ms, 144 ms, 216ms;

5.2.3 PULSE :

Default 0, custom time non-0

5.2.4 SQH:

Default 0: Customstom non-0

5.2.5 Special frame:

The following 0-255 defines special frame types.

	Special frame	explain
1	0~1	Non-first-line 0: Speed pulse, (display adjustment: the larger the speed pulse base, the slower the display speed 500~65530, V39, and previous versions are 5000~65530) 1: R E A D Y lamp: (R E A D Y status is high output, otherwise the output is low) 2: Fan control: (temperature below 40° high output, above 40° low output) 3~15: Reserve it at the same time Step length, interval length, PULSE=0, SQH=0, DATA0-DATA1, and SEC0-SEC7 are invalid

<table>
<tr><td>2</td><td>16~31</td><td>General Link 2
DATA6, D A T A, 9 / DATA10, for different instruments, refer to the communication protocol:
DATA6: byte option =3 when output 0, otherwise output current value.
DATA9 option: 0-voltage-1~255V, 4-power, 8-voltage-0.5V, 12-It is determined according to the byte option, as follows:
Byte option 0: nominal voltage rule 0
Byte option 1: Nominal voltage rule 1
Byte-option 2: Nominal
voltage rule 2-byte option
3:0
The DATA10 options:
0-Power, 1-Current percentage, 2 voltage 1~255V,
3-Depending on the byte
option: the following byte
option 0: Nominal voltage rule
0
Byte option 1: Nominal voltage rule 1
Byte-option 2: Nominal
voltage rule 2-byte option
3:0
Special frame =16 + DATA9 option + DATA10 option, general first-line pass =21
<table><tr><td>parameter</td><td colspan="6">List 6 groups of parameters, the parameters of different one-line communication instruments are different.
The same, commonly used is the first set of parameters</td></tr><tr><td>parameter group</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>PULSE</td><td>0</td><td>0</td><td>0</td><td>0</td><td>10</td><td>0</td></tr><tr><td>SQH</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>DATA0</td><td>(8)
0x08</td><td>(89)
0x59</td><td>(24)
0x18</td><td>(3)
0x03</td><td>(16)
0x10</td><td>(81)
0x51</td></tr><tr><td>DATA1</td><td>(97)
0x61</td><td>(66)
0x42</td><td>(2)
0x02</td><td>(1)
0x01</td><td>(18)
0x12</td><td>(0)
0x00</td></tr></table>Steplength is recommended 0.9ms, interval length is recommended 144ms, some need 216ms to be normal, SEC0~SEC7 default full 0</td></tr>
<tr><td>3</td><td>32~40</td><td>No one-line communication, built-in Bluetooth
Special frames: 32-TBIT, 33-XZ_CONTROL, 34-XMZSBXX, 35-XM3SPEED, 36-M2S, 37-CN
Step length, interval length, PULSE=0, SQH=0, DATA0-DATA1, and SEC0-SEC7 are invalid</td></tr>
<tr><td>4</td><td>48~223</td><td>Encryption first-line pass, internal SEC
Different instruments, DATA6 / DATA9 / DATA10 needs to send out different content, refer to the communication association Discuss selection to the content first:</td></tr>
</table>

Base number = 48 64 80 96 112 128 144 160 176 192 208

cardinality	DATA0		
48	0X08		
64	0X07		
80	0X30		
96	0X27		
112	0X10		
128	0X2B		
144	0X5		
160	0X5		
176	0X25		
192	0X0A		
208	0X1F		

DATA6: byte option =3 when output 0, otherwise output current value.
DATA9 option: 0-voltage-1~255V, 4-power, 8-voltage-0.5V, 12-It is determined according to the byte option, as follows:

Byte option 0: nominal voltage rule 0
Byte option 1: Nominal voltage rule 1
Byte-option 2: Nominal
voltage rule 2-byte option
3:0

DATA10 option: 0-power, 1-current percentage, 2 voltage 1~255V, 3-according to the byte option
Set, as follows:

Byte option 0: nominal voltage rule 0
Byte option 1: Nominal voltage rule 1
Byte-option 2: Nominal
voltage rule 2-byte option
3:0

Special frame = Cardinality + DATA9 option + DATA10 option
Step length is recommended 0.9ms, interval length is recommended 144ms, some need 216ms to be normal, PULSE=0,SQH=0. DATA0-DATA1, SEC0-SEC7 is invalid

5	224~239	**Encryption first-line pass, external SEC** DATA6: byte option =3 when output 0, otherwise output current value. DATA9 option: 0-voltage-1~255V, 4-power, 8-voltage-0.5V, 12-It is determined according to the byte option, as follows: Byte option 0: nominal voltage rule 0 Byte option 1: Nominal voltage rule 1 Byte-option 2: Nominal voltage rule 2-byte option 3:0 DATA10 option: 0-power, 1-current percentage, 2 voltage 1~255V, 3-according to the byte option Set, as follows: Byte option 0: nominal voltage rule 0 Byte option 1: Nominal voltage rule 1 Byte-option 2: Nominal voltage rule 2-byte option 3:0 Special Frame =224 + DATA9 option + DATA10 option **By professionals, all parameters can be modified:** **Step length is recommended 0.9ms, interval length is recommended 144ms, some need 216ms to be normal,** **PULSE, SQH, DATA0-DATA1, and SEC0-SEC7 can all be modified.**
6	240~255	**Special frame:**

242:30 First-line pass, P gear in DATA4
243: First-line communication: 0x52,0x51
244: F2 first-line communication
245: Synchronous output of the alarm lamp,
246: When using the 485 interface must be special frame =246 convenient computer 485 connection
247:15 Bytes in one line
248:13 Bytes first line
249- NOSQH,
250- YJ first-pass, SEC0=255 allows 24 feet to select pulse / first-pass
251- PD0 detection, first-line communication,
252- PA15 detection is first-line communication
253: DY first-line communication,
254:485 without Bluetooth

All of the parameters can be modified.

parameter	parameter group,							
Parameter group code	31	26						
step	0.9	0.9						
Interval frame ms	144	216						
Special frame	248	247						
PULSE	0	0						
SQH	0	0						
DATA0	(84) 0x54	0						
DATA1	(83) 0x53	0						
SEC0	0	0						
SEC1	0	0						
SEC2	0	0						
SEC3	0	0						
SEC4	0	0						
SEC5	0	0						
SEC6	0	0						
SEC7	0	0						
P gear position	3	1						
Side support position	2	1						
Turn the position	0	8						
Anti-theft position	8	0						
Current coefficient	64	64						
Byte option	3	3						

Byte option	0	1	2	3
DATA6	0	current	current	current
DATA9	0-Voltage	quantity of electricity	quantity of electricity	0
DATA10	quantity of electricity	Percentage of current	voltage	0

SPA output signal description:

1	Special frame <16	Output analog voltage
2	Special frame> =16, OBD valid	Use it as the OBD alarm light indicator
3	Special frame> =16, invalid OBD, N The mark overspeed prompt is valid	Output high pressure at overspeed
4	Special frame> =16, invalid OBD, N The overspeed prompt is invalid	When alarm pulse when an alarm pulse. P, gear output voltage without alarm

5.2.6 **DATA0 :**

HEAD defaults to 8 and customize with other values

5.2.7 **DATA1 :**

HEAD2, default 97, =0 with S E C 0 to S E C 7

5.2.8 **SEC0~SEC7:**

Default: 0, custom = non-0

5.2.9 **The P-gear position is located:**

0-3: The P file is in the BIT position of byte 2

8: The P file does not display.

11: P file in BIT position 3 of byte 4 (V40 added)

13: P file in byte 2=0x0a / 0x08 (V40 added)

14: P file in byte 2=0X0E (V40 added)

15: P file switch at byte 2=1 / 8 (V40 added)

5.2.10 **Side support position**

0-3: Stand in the BIT position of byte 2

7: The BIT7 is supported on Byte 3

8: Side support does not display.

5.2.11 **Turn the position**

Transfer control display bit (0~3, default 3), if not set to 8

5.2.12 **Anti-theft position**

The anti-theft indication display level inside the first-line pass (0~3, default 8), if not set to 8

5.2.13 **Current coefficient**

Default 64,640=0.1A,320=0.2A 128=0.5A, 64 = 1 A, 32=2A,

5.2.14 **Byte option**

0,1,2,3: Contact the remote drive adjustment parameters

5.3 Tire speed ratio

Note that to set correctly, the speed mileage will be calculated correctly.

5.3.1 **Tire width**

Take 120 / 70 / R12 as an example, tire width =120

5.3.2 **Tire flatness**

Take 120 / 70 / R12 as an example, the tire flattening rate =70

5.3.3 **hub R**

Take 120 / 70 / R12 as an example, the hub R =12

5.3.4 **Transmission speed ratio**

When the hall version hub motor pole log =20, calculate the transmission speed ratio =20 / 5=5

5.3.5 actual service life

Total mileage of the controller driven.

6 protect

6.1 Voltage protection

6.1.1 Overvoltage protection, recovery,

Internal setting is set according to the rated voltage

6.1.2 Underpressure protection and recovery

When the battery voltage is close to the undervoltage protection point, the controller reduces the power output, so that the battery will not discharge too much and damage.General battery undervoltage is set as follows:

rated voltage	48V	60V	72V	84V	96V	108V
Underpressure protection point	42V	52.5V	63V	73.5V	84V	94.5V

6.1.3 Underpressure method

2V: more than 2V higher than the undervoltage point, and drop power when reaching the undervoltage point + 2V.

4V: more than 4V higher than the undervoltage point, and drop power when reaching the undervoltage point + 4V.

8V: the power is more than 8V higher than the undervoltage point, and the power reduction begins when the undervoltage point + 8V.

12V: more than 12V higher than the underpressure point, and the power reduction starts when reaching the underpressure point + 12V.

16V: more than 16V higher than the undervoltage point, and the power reduction starts when reaching the undervoltage point + 16V.Turtle speed power 5: battery capacity is less than or equal to 20, power reduction, less than or equal to 5 using turtle speed home.%%%

Turtle speed power 6: battery capacity is less than or equal to 30 power reduction, less than or equal to 6 using turtle speed home.%%%

Turtle speed power 7: battery capacity is less than or equal to 40 power reduction, less than or equal to 7 using turtle speed home.%%%

Turtle speed power 8: battery capacity is less than or equal to 50, power reduction, less than or equal to 8 using turtle speed home.%%%

Turtle speed power 9: battery capacity is less than equal to 60 power, less than equal to 9 using turtle speed home.%%%

Turtle speed power 10: the battery capacity is less than or equal to 70 power reduction, less than or equal to 10 using turtle speed home.%%%SOP value: Limit the power according to the maximum allowable line current SOP value received by the BMS / CAN bus.

other:

6.2 Temperature protection

6.2.1 Motor temperature protection and recovery:

Internal setting

6.2.2 Controller temperature protection and recovery:

Internal setting

6.3 Functional protection

6.3.1 Rotary missing alarm:

Effective / invalid

6.3.2 Throttle plug and pull protection:

1 means that the throttle plug and pull will cause the customer to prevent the car caused by live plug and pull, and 0 means not protection.

6.3.3 Back to the P idle time:

Default is 10 seconds

6.3.4 Block bucket delay:

Default 1 second

6.3.5 **Block turn time:**

Unit is 0.1 seconds, setting 50 is 5 seconds.

6.3.6 **Parking time:**

Default of 0.1 seconds, a maximum of 132 seconds;

6.4 Battery protection

6.4.1 **0 Power quantity factor:**

Calibrate the parameters of the 0 charge display.

The controller itself can estimate the battery power, and a relatively accurate electric power display can be obtained by adjusting the 0 power coefficient and full power coefficient.

When the battery is full, adjust the full power coefficient so that the display capacity is just 100.%

When the battery power is dead, adjust the 0 power coefficient, so that the display capacity and power are basically consistent.For example, the rest

When 10 power, adjust the 0 power coefficient so that the power display is just 10.%%

6.4.2 **Full power coefficient:**

Calibrate the parameters for the full charge display.

6.4.3 **Speed limit starting power quantity:**

The starting power quantity of the power quantity speed limit algorithm

6.4.4 **Speed limit power:**

The limit of the speed limit algorithm

6.4.5 **Speed limit and speed limit coefficient:**

According to the limit coefficient of the power speed limit algorithm

6.4.6 **Turtle speed flow limiting coefficient:**

Turtle speed current limiting coefficient default is 53, turtle speed current = user factory maximum current * turtle speed current coefficient / 2048;

6.5 Battery characteristics

6.5.1 **Battery signal source**

Battery power information can be obtained through the first-line pass, serial port or CAN bus.You can also choose internal calculation: choose lithium battery according to the lithium battery algorithm, choose lead acid according to the lead acid algorithm.

6.5.2 **Current electricity**

Displays the current battery charge.

6.5.3 **internal resistance of cell**

(continue to have)

7 PID control

7.1 AN：

AN value of motor body characteristics, parameter range 0~16.

Standard table stick motor AN=0. Standard IPM motor AN=16.

This parameter must be set in accordance with the motor characteristics.Hub motor, meter paste center motor, AN less

than 8. The embedded middle motor AN value is not less than 8. Encoder medium motor and automotive permanent magnet synchronous motor all adopt AN=16.

All hub motors on the market belong to watch-stick motors, and the AN value is generally set to 0, no more than 4. The AN value is not set correctly, which will lead to low starting efficiency,

The MOE / OVER protection even appears.

7.2 LM:

Vehicle motor acceleration matching parameter, this value is used to adjust the operation fluency of the motor on the vehicle.Car default setting is 22, electric motorcycle default 18. Some small-power tricycles below 10 are more appropriate.

However, there are some motor types and the vehicle matching is very poor, starting at the low speed section, the medium speed section will feel obvious resonance jitter.Adjusting the LM value improves.

Start from 22 first, if the low speed section accelerated jitter, then reduce the LM, start from 16,14,12,11,8,5 began to test the effect, the middle numbers will also work, generally consider rather larger, try not to be too small.Too small will not control the current, causing MOE / OVER protection, and even burn control.So when the jitter disappears, the LM value is the best parameter, and it is not turned down again.

Some motors and vehicles are very smooth at LM=22, but they will bring jitter after changing small, so pay attention to not adjusting this parameter if there is no problem with LM=22.

Or found the jitter resonance after the L M value from 22 16,14,...It doesn't work very much, but it's nothing to do with this parameter. Always change it back to the maximum value, such as 22, instead of keeping a number in the controller.

7.3 PID parameters: StartKI, MidKI, MaxKI / StartKP, MidKP, MaxKP.

Default parameters are StartKI=4, MidKI=8, MaxKI=12 / StartKP=40, MidKP=80, MaxKP=120.

The higher the motor power, the higher the voltage, the smaller the PID.The PID parameters can not be filled in casually, otherwise it will lead to abnormal work or even burn control.The following are the commonly used PID setting parameter values.A total of 9 sets, choose one of the parameters to match the motor vehicle, modified under the guidance of professionals.

	StartKI	MidKI	MaxKI	StartKP	MidKP	MaxKP	
1	1	1	1	10	10	10	Surf board default
2	2	2	3	20	20	30	Ultra-high power motor
3	3	3	4	30	30	40	
4	4	4	6	40	40	60	High power default
5	4	5	8	40	50	80	
6	6	6	9	60	60	90	Medium power motor
7	6	7	10	60	70	100	
8	8	8	12	80	80	120	Small and medium power default
9	8	9	13	80	90	130	
10	8	10	15	80	100	150	

11	8	11	16	80	110	160	
12	10	12	18	100	120	180	
13	10	13	19	100	130	190	
14	10	14	21	100	140	210	
15	10	15	22	100	150	220	
16	16	16	24	160	160	240	low-power machine

Note that the improper setting of PID parameters will cause the system to work abnormally, and even appear MOE / OVER / PHASE failure, the difference is too big to cause fire control, we should pay special attention to it.

Note that some low-power motor PID parameters exceed the debugging range of the controller, please contact the remote drive to solve this situation.

7.4 Velocity SKI, SKP

SKI minimum 1, maximum 18, car heavy KI=18, car light KI=2, default KI=9, SKP5~20, default 10

7.5 MOE：

MOE effectively on protection by default, off lost protection

7.6 Curve sampling:

In ms as the unit interval sampling, Hxx and above version acceleration curve 2560 points, the following version of the acceleration curve has a total of 510 points, such as set 100ms sampling, then the acceleration curve 510 points, the total time is 256 seconds / 51 seconds.

7.7 Special code

8 statistics:

The Hxx version is valid

8.1 Average speed: Current average speed

8.2 Working time: Total working time

8.3 Average energy consumption: Current average energy consumption

8.4 Error record (reserved)

9 Factory 2:

9.1 Front and rear teeth ratio:

Default ratio is 64, the set point of 64 is 1 to 1,128 is 2:1,32 is 0.5:1.

9.2 Positive and inverse transition speed ratio:

A parameter required for the forward-reverse gear speed shift system.

9.3 Voltage selection factor:

Calculation coefficient for the controller operating voltage.

For example, 72V system, voltage selection pin after low, become 60V system, its coefficient =60 / 72 * 128=107

9.4 torque coefficient

Range 256~16384, default 8192

9.5 Weak magnetic current coefficient

Range 48~80, default 64

9.6 Back-up acceleration factor:

Back maximum acceleration coefficient default 32, maximum 224

9.7 Warning delay:

The recovery delay time of the burglar alarm when alarm setting, the default 500ms chooses a multiple of 10, its single digit special purpose.1~9 It indicates that the braking does not respond within 100RPM~900RPM speed.

9.8 Relay delay:

Set the delay closing time of the relay after charging the system: ms, and the default 1ms is 1000ms when required.Note that the new H44 controller is all changed to functional bits:

BIT position	function declaration
BIT0	0: Disable edge support function, 1: Enable edge support function, default 1
BIT1	0: Disable seat cushion function, 1: enable seat cushion function, default 1
BIT2	0: Disable P file function, 1: Enable P file function, default 1
BIT3	0: Disable automatic return P, 1: Enable automatic return P, default 0
BIT4	0: Disable cruise function, 1: Enable cruise function, default 1
BIT5	0: Disable EABS feature, 1: Enable EABS feature, default 1
BIT6	0: Disable power implementation function, 1: Enable power implementation function, default 1
BIT7	0: No forced anti-theft, 1: forced entry anti-theft, default 0
BIT8	0: Disable overspeed alarm function, 1: enable overspeed alarm function, default 0
BIT9	0: Brake is effective when parking is disabled, 1: brake is invalid when parking, default 0
BIT10	Default 1
BIT11	Default 1
BIT12	Default 1
BIT13	Default 0
BIT14	0: Disable the back function, 1: Enable the back function, the default is 1
BIT15	0: No relay delay, 1:1 second delay, default 0

9.9 Slow start:

Default 512

9.10 Follow the speed:

Default 0, some customers need to exit to follow within 100 rpm, set 100

9.11 reversed time:

Time to start on reversal, 12-48, default 36.

9.12 Slow down speed:

Critical value of steep slope slow speed, default 320, can set 256~1024

9.13 Slow down coefficient:

Default 2, can set 1-7, the larger the number, the slower the slow drop speed.The smaller the number, the faster the slow drop speed.

9.14 String sharing:

Manufacturer setting value, users are not allowed to change.

	gorge line	explain
1	Don't share	RXD specializes in user serial port debugging and upgrade use.The SPD feet are used to output speed pulse and first-line pass signals.
2	Pull up to share	Old version controller, YJCAN interface board
3	Drive sharing	The 12-Tube and NS series.
4	RS485	nonshared control unit.485 Interface

9.15 Self-learning throttle:

Default 24, maximum 36, note that the motor is required in the no-load state during self-learning.Normal motor when the start of self-learning 24 throttle is enough, a small number of motors can not turn up, increase the throttle to 36 to start the motor.If the self-learning motor does not rotate, it is likely that the Hall line is wrong or the phase line is not connected in sequence.Check the Hall wiring, or adjust the blue and green lines and try it again.

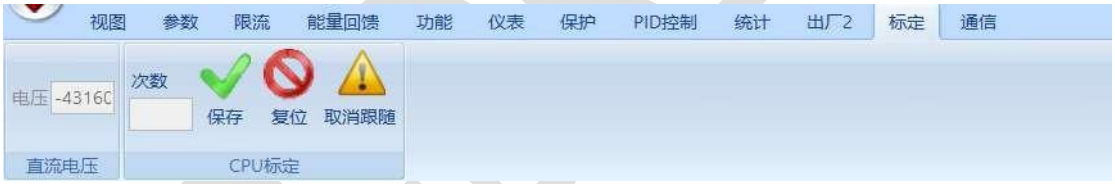
9.16 self-taught learning,VQL:

Default 18432 wide =25856, normally default.

9.17 self-taught learning,VQH:

Default 24320 wide =31744, normally default.

10 demarcate



10.1 voltage:

Displays the input voltage of the controller

10.2 Calibration times:

Displays the number of times the controller parameter changes

11 communication

11.1 Communication serial port

Port: Check the COM slogan selection in the device manager according to the user's computer situation.

Baud rate: fixed 19,200.

11.2 software upgrading:

Only upgrade the code without changing the parameters.

11.3 root:

Upgrade the code and reset the program.Note that the HXX version is empty but empty without customer data, and you also need to use the HEB file to download the data into the controller.

11.4 operate

Self-learning: Start
self-learning and
cancel self-learning

Save: save data to the controller, and use new data for the next reset start.

11.5 identification of product

Controller Internal Product Number: Controller unique number, used for product registration and password retrieval.

12 Data copy:

Controller data and CAN bus data for Hxx and
above:

12.1 To obtain the controller data:

1） Batch download parameter button on the right: open the batch download parameter window. 

, Click "to get the controller data".

2) Display the CAN protocol format parameters inside the controller in the dialog box.

3) Click on the Cancel button and return to the main menu.

4) Click the main icon in the upper left corner and select Save as a heb file to save your own controller parameter file.

12.2 Download the heb data:

1) Connect the controller, open the upper computer computer, click the main icon in the upper left corner, and select to open a "heb" file (such as GX72400_13_A.The heb), automatically pop up the dialog box.

2) Click "Data download to the controller", you can see that the matching number of progress bar is gradually full, the controller will prompt the alarm sound, click "the controller will write and reset", and the controller data works according to the new data.

3) Click to cancel and exit the dialog box.

12.3 The CAN protocol data:

12.3.1 CAN control

12.3.1.1 data format:

1） **CAN Data Field Information Byte Location Map:**

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte1	7	6	5	4	3	2	1	0
Byte2	15	14	13	12	11	10	9	8
Byte3	23	22	21	20	19	18	17	16
Byte4	31	30	29	28	27	26	25	24
Byte5	39	38	37	36	35	34	33	32
Byte6	47	46	45	44	43	42	41	40
Byte7	55	54	53	52	51	50	49	48
Byte8	63	62	61	60	59	58	57	56

Example of send order:

BYTE: 1,2,3,4,5,6,7,8

BIT:7 6 5 4 3 2 1 0, 15 14 13 12 11 10 9 8, ..., 63 62 61 60 59 58 57 56.

Data format: INTEL / MOTOROLA is optional, selected according to the protocol requirements.

2）**INTEL format: small-end mode.**

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte1	。	。	。	。	。	。	。	LSB
Byte2	MSB	。	。	。	。	。	。	。
Byte3	-	-	-	-	-	-	-	-
Byte4	-	-	-	-	-	-	-	-
Byte5	。	。	。	。	。	。	。	LSB
Byte6	-	-	-	-	MSB	。	。	。
Byte7	-	-	-	-	-	-	-	-
Byte8	-	-	-	-	-	-	-	-

Physical Transformation Example:
Speed =4000RPM, physical signal value = precision * signal logic value + offset, precision =0.25, offset =0; 16 decimal system is 0x3E80 (16000d), message BYTE1=80H, BYTE2=3EH

3）**MOTOROLA format: Large-end mode:**

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte1	MSB	。	。	。	。	。	。	。
Byte2	。	。	。	。	。	。	。	LSB
Byte3	-	-	-	-	-	-	-	-
Byte4	-	-	-	-	-	-	-	-
Byte5	-	-	-	-	MSB	。	。	。
Byte6	。	。	。	。	。	。	。	LSB
Byte7	-	-	-	-	-	-	-	-
Byte8	-	-	-	-	-	-	-	-

Physical Transformation Example:
Speed =4000RPM, physical signal value = precision * signal logic value + offset, precision =0.25, offset =0; 16 decimal system is 0x3E80 (16000d), message BYTE1=3EH, BYTE2=80H

12.3.1.2 Receive frame type:

Optional standard frame, extended frames

12.3.1.3 Send frame type:

Optional standard frame, extended frames

12.3.1.4 SOP_ID, SOP unit, SOP high byte position, SOP low byte position:

BMS maximum permissible discharge current value, indicated in 2 bytes.SOP_ID: the ID number of the SOP instruction.
SOP units: generally set to 0.1A, but also set to 0.25A, or 1A.SOP high-byte position (0~7 corresponding to BYTE1-BYTE8)
SOP low-byte position (0~7 for BYTE1-BYTE8)
S O P value = (S O P high byte position value * 256 + S O P low byte position value) * S O P unit (A).

12.3.1.5 SOC_ID, the SOC location.

Current power percentage value of BMS, full power =100, no power =0. SOC_ID: the ID number of the SOC instruction.
SOC position: 0~7 corresponding to BYTE1-BYTE8.

12.3.1.6 Charging ID, charging byte position, charging BIT position.

Charging ID: the ID number of the charging instruction.Put 1 when charging, and 0 when not charging.

12.3.1.7 ID, byte position, BIT position

Side support ID: the ID number of the side support command.

Side support is not allowed driving 1, side support can be driving 0.

Under the dual-electric system, this ID is the charging and anti-driving ID of the second battery, with the same content as 12.3.1.6

12.3.1.8 Three-speed ID, three-speed byte position, three-speed BIT position

Three-speed ID: the ID number of the three-speed command.

There are 2 bits in three speeds, 0 means 1 gear speed, 1 means 2 gear speed, 2 means three gear speed, and 3 means 4 gear / boost speed.The three-speed low is at the specified BIT position and the high is at the BIT + 1 position.

12.3.1.9 Block ID, block byte position, block BIT position

Stopping ID: the ID number of the block command.

The total gear is 2 bits, 0 means N gear, 1 is forward, and 2 is backward.The gear low position is at the specified BIT position, and the high position is at the BIT + 1 position.

12.3.1.10 Control ID, control type, control byte position.

Control ID: the ID number of the control instruction.Control Type:

project	==1	==0
BIT0	Driverless display	Other items are shown
BIT1	serial number	error logging
BIT2	Low speed / high speed separate display	Normal three-speed display
BIT3	Show the number of circles	Show total mileage
BIT6~BIT4 Special control	0: Unmanned driving: 9 3: Unmanned driving vehicle 59 6: Dual-battery system 7: Dual-battery system	1: SOC calculation based on the remaining BMS battery capacity 2 : 4 : 5 :
BIT7	Displays the current mileage	Displays the remaining mileage

On-demand instructions: 12,13,14,15, respectively, correspond to send ID2, send ID3, send ID4, and send ID5

Under the dual-electric system, this control ID is the SOPID of the second battery, with the same content as 12.3.1.4, and the SOC ID of the second BMS is the same as this ID.

12.3.1.11 OBD_ID

OBD ID number, the standard frame is 7DF,

12.3.2 CAN Send an ID

The controller sets up 6 ID numbers to send the data.

Send ID0 timing ~ Send ID5 timing is a timing count in 10ms, 0 for 10ms, 1 for 20ms, 2 for 30ms..., 199 for 2000ms.

Send ID2 timing ~ Send ID5 timing must be> =4 or 50ms.Less than 4 is sent as needed according to the instructions received from the CAN.

12.3.3 CAN Rule Description:

The CAN message includes 21 data, 17 states and 14 alarm messages.Each content includes the following definitions:

12.3.3.1 length:

The number of BIT required for this data.For example, speed, current, voltage is generally 16 bits, gear is 2 bits, alarm state is generally 1 bit.

12.3.3.2 position

The position of this data LSB in the CAN frame, see the previous "CAN data field information byte position diagram".

12.3.3.3 gain

The coefficient of * is required for this data.Default gain =1

1) Customer code, serial number, hardware version, software version: Gain =1
2) Current voltage unit: 0.1V, gain =1
3) Current current unit: 0.1A, gain =1
4) Current phase current unit: 0.1A, gain =1
5) Throttle opening, Gain =1
6) Throttle voltage unit: 0.01V, gain =1
7) Current torque unit =0.1Nm, gain =1
8) Current speed, Gain =1
9) Current speed unit =1RPM, gain =1
10) Total mileage is 16 bits high, unit =0.1Km, gain =1
11) Total mileage is 16 bits lower, unit =0.1Km, gain =1
12) Current mileage unit =0.1Km, gain =1
13) Controller temperature, in °, gain =1, offset =40
14) Motor temperature in unit °, gain =1, offset =40
15) %Battery power, unit, gain =1
16) Status, alarm: Gain =1

12.3.3.4 ID

Serial number of this data sending ID (0~5, corresponding to CAN sending ID0~CAN sending ID5)

12.3.3.5 Valid sign

Effective: This data is reported to the CAN bus at the specified BIT and BYTE location.Invalid: This data is not reported to the CAN bus.

12.3.3.6 bias in affine function

Temperature bias: 40, other default bias: =0:

1) Controller temperature, in °, gain =1, offset =40
2) Motor temperature in unit °, gain =1, offset =40

12.3.4 CAN data

In total of 21 data, users can either report or not report:

project	content	The default value
1	customer code	Composition of 2 letters
2	Serial number 0	16 Numbers

3	Serial number 1	16 Numbers
4	Serial Number / error code	16-Bits: Display according to the control word
5	Hardware version	Eight
6	Software version 0	Eight
7	Software version 1	Eight
8	voltage	16 The
9	current	16 The
10	phase current	16 The
11	Throttle opening / control data	8 / 16 bit, driverless project shows control data
12	Accelerator voltage / control command	The 16-bit, driverless items display control commands
13	torsion	16 The
14	The current speed	16 The
15	Current speed	16 The
16	Total mileage / lap number is 16 bits high	16-Bits: Display according to the control word
17	Total mileage / lap number is 16 bits lower	16-Bits: Display according to the control word
18	Current mileage / remaining mileage	16-Bits: Display according to the control word
19	Controller temperature	Eight
20	Motor temperature	Eight
21	Current electricity	Eight

12.3.5 CAN state:

There are 17 states that users can report or not:

project	content	The default value
1	Block status	Two
2	Three gear speed state	3 bit: Display low / high speed status according to control words
3	Brake state	One
4	Cruise state	One
5	The bucket state	One
6	Side support state	One
7	Speed limit state	One
8	Repair the state	One
9	Back-up state / motor direction	One-bit, driverless project shows the motor direction
10	Power boost state / direction of rotation	One-bit, the driverless project shows the direction of rotation

11	Implement status / main relay	One-bit, driverless project shows the main relay status
12	Parking-P, gear status	One
13	charged state	One
14	READY state	One
15	ECO state	One
16	ABS state	One
17	BOOST state	One

12.3.6 CAN report an emergency

In total of 14 alarms, users can either report or not report:

project	content	The default value
1	Motor Hall fault	One
2	Turn the fault	One
3	Brake state	One
4	MOS hitch	One
5	Phase line short circuit failure	One
6	Phase line missing fault	One
7	Controller over temperature alarm	One
8	The motor overtemperature alarm	One
9	Overflow alarm	One
10	Overpressure alarm	One
11	Warrant alarm	One
12	Shut to police	One
13	Anti-theft alarm	One
14	Controller alarm	One