



MISVC Software User Guide

Golden Motor Technology Co.,Ltd.

HPC Series Controllers Software User Guide

The MISVC software is the professional software package of K6, K9 series controllers, used to debug controller parameters to meet different needs of users.

1. Software Installation

Debugging software is a name for the "MISVC.rar" compression package which doesn't need to be installed. First, extract the compression package to any directory, and directly run "MISVC-11-12-26.exe" file which is in "MISVC" folder.

2. USB Cable Connection

1). Connection between USB Cable and PC

Plug one end of the USB Cable into any USB port on the PC, if it is the first connection between them, the PC will automatically discover the new hardware and install the driver, no need to install any drivers manually (applies to Windows XP, Windows Vista and Windows 7 operating systems), until the PC prompts "the newly installed hardware is ready to use".

2). Connection between USB Cable and Controller

The connection between USB cable and controller has two modes, one is on-line debugging mode, another is off-line debugging mode.

(1) On-line Debugging Mode

Online debugging mode applies to the situation that the controller has been installed in the vehicle and the peripheral wiring has been connected well.

Connection Method: connect one end of the 3-pin plug of the USB cable to the 3-pin plug of the controller USB harness.

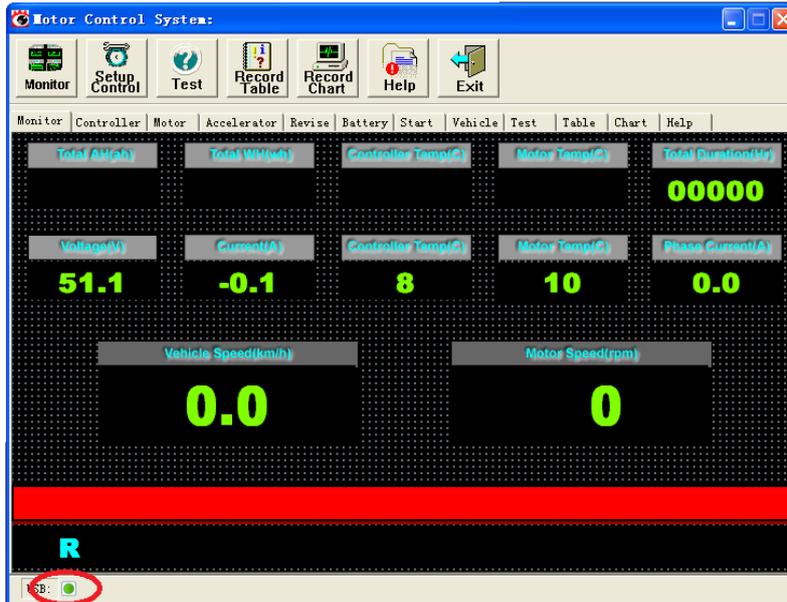
(2) Off-line Debugging Mode

Off-line debugging mode applies to the situation that the controller is not connected to any peripheral wiring.

Connection Method: Connect the 23-pin plug of the USB cable to controller directly.

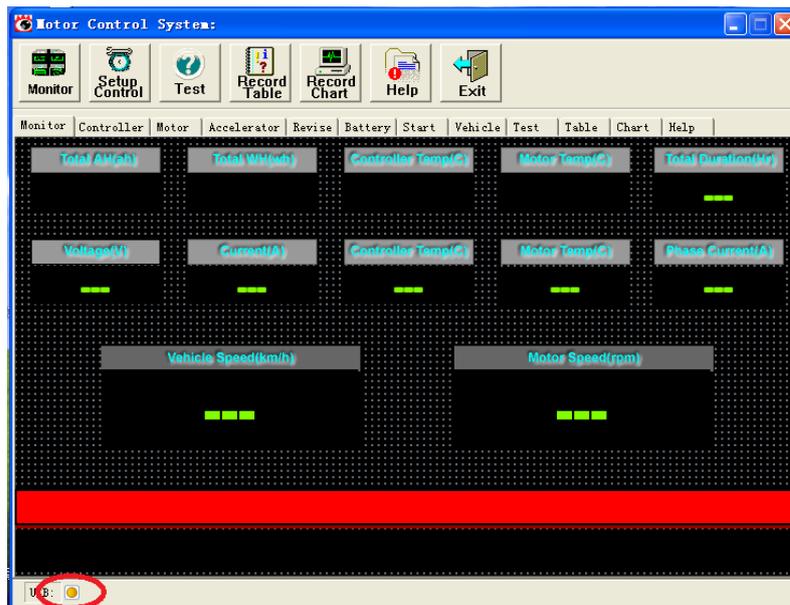
3. Methods of Modifying Controller Parameters

1). After connecting the controller and PC with USB cable, run "MISVC-11-12-26.exe" debugging software, the vehicle key switch should be opened at on-line debugging mode.



Pic.1

If the dot next to the word "USB" at the lower left corner of host interface is green, and the columns display data, as shown in pic.1, indicating a successful connection between the controller and the PC, users can modify the parameters now.

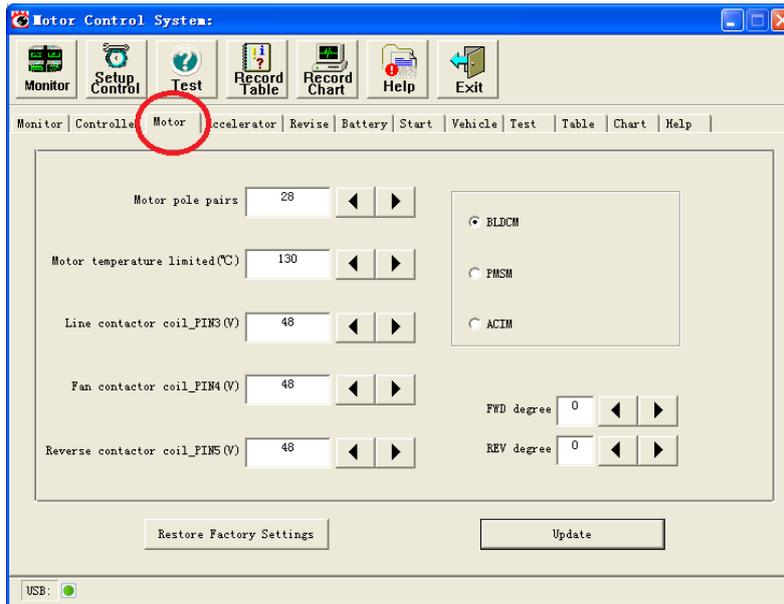


Pic.2

If the dot next to the word "USB" at the lower left corner of the host interface is yellow, and all columns display green bars, as shown in pic. 2, indicating no connection between the controller and the PC, then please check the communication line.

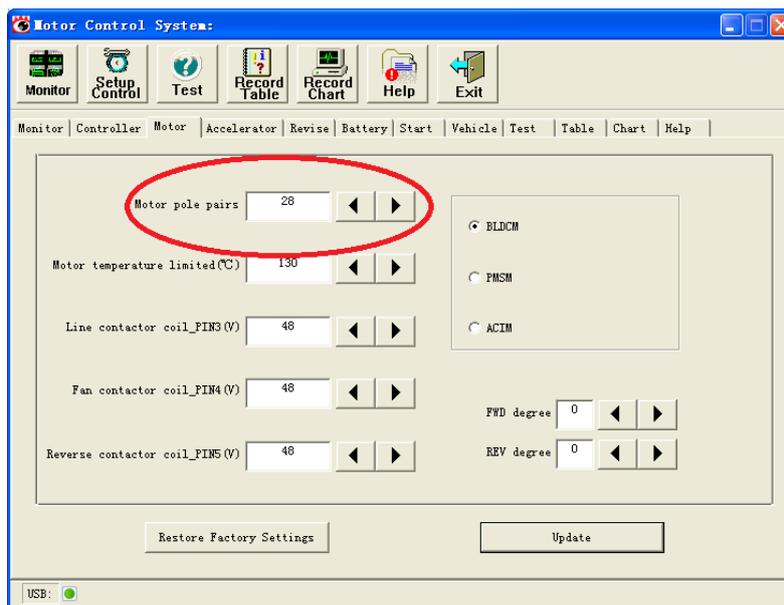
2). Parameters Modification

Take modifying motor pole pairs as an example



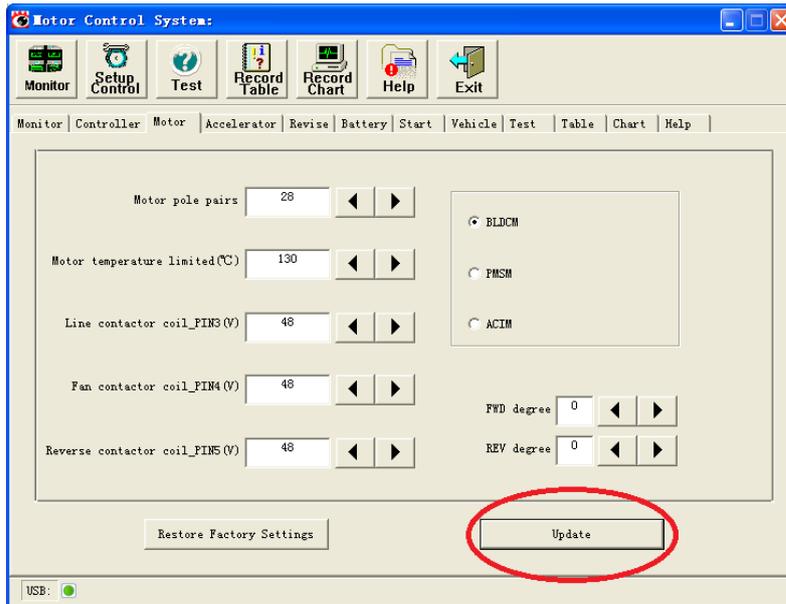
Pic.3

Step 1: click "Motor", as shown in pic. 3.



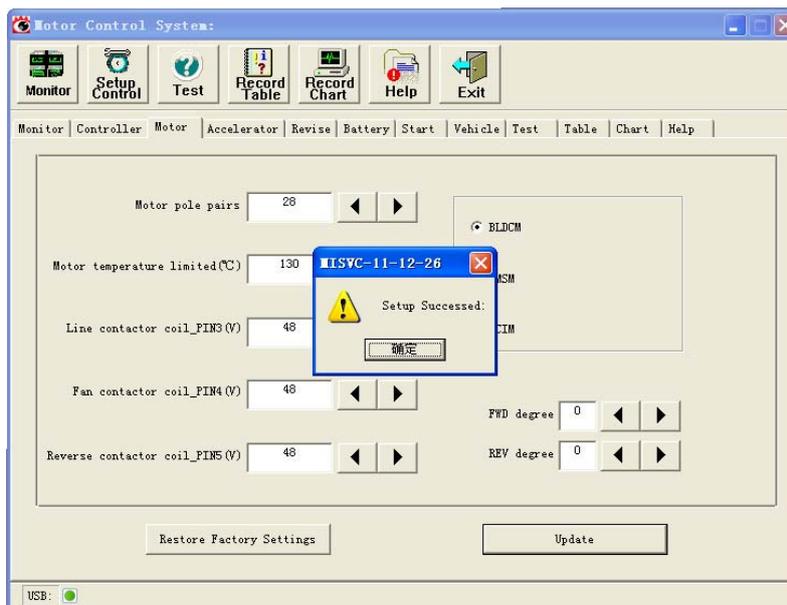
Pic.4

Step 2: change the value in "Motor pole pairs" column to the current motor pole pairs, as pic.4.

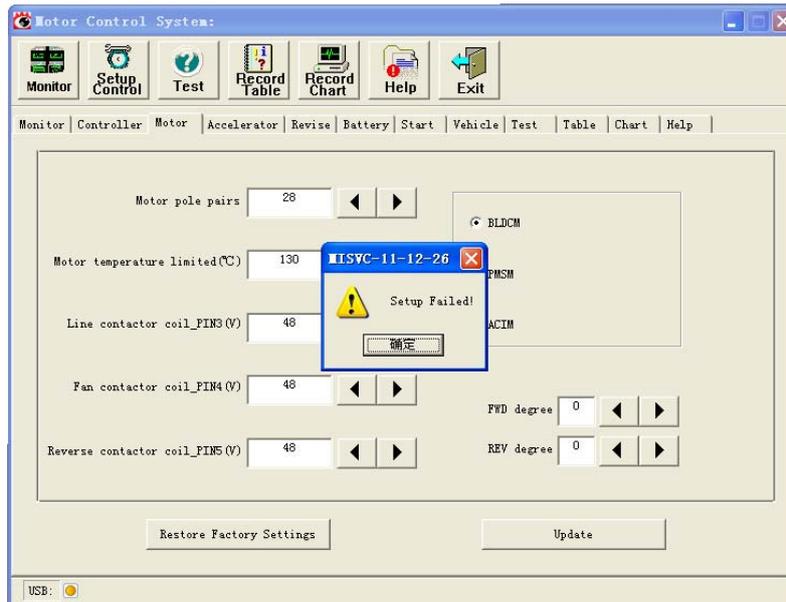


Pic.5

Step 3: Click " Update" after changing parameters, as pic. 5.



Pic.6



Pic.7

Step 4:

If pop-up "Setup Succeeded" , as pic.6, then indicate parameter modification succeed, click the "OK" button in the dialog box, and restart the controller.

If pop-up "Setup Failed", as pic.7, then indicate parameter modification failed, click the "OK" button in the dialog box, and repeat step 2.

Note:

- (1) **The parameters of the controller are set to the optimum values after a large number of experimental test, generally, users do not need to change them. If users need to change them at special circumstances, should be completed under our guidance.**
- (2) **Click "Restore Factory Settings" can restore the original data at any time.**
- (3) **After modifying, must restart the controller (first power off the controller, then power on), then new parameters can take effect.**

4. Software Interface and Controller System Parameters

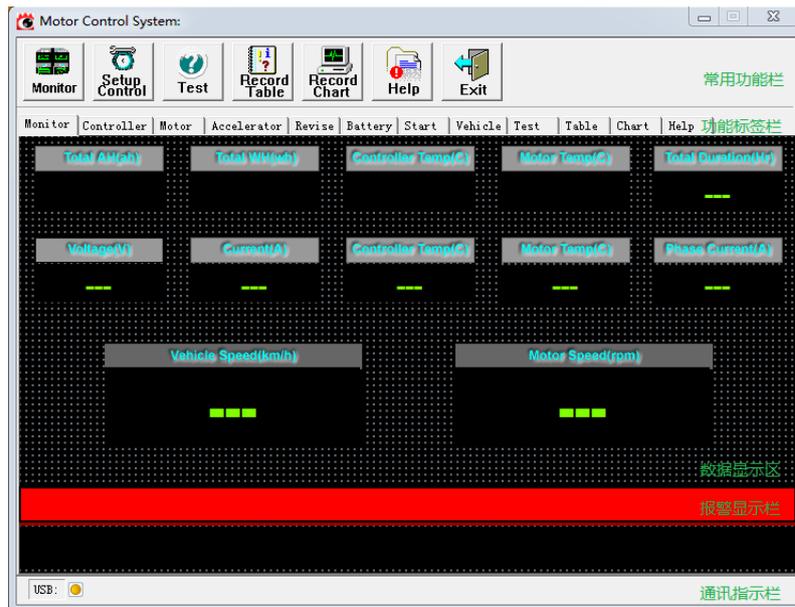
1). Software Interface

The software interface is divided into three columns: Common Functions, Functional Tab and Communication Indication. The data display area and alarm display field will be different in accordance with different interfaces.

Common Functions Bar includes seven common functions and the Functional Tab Bar includes all the features.

(1) <Monitor>Interface

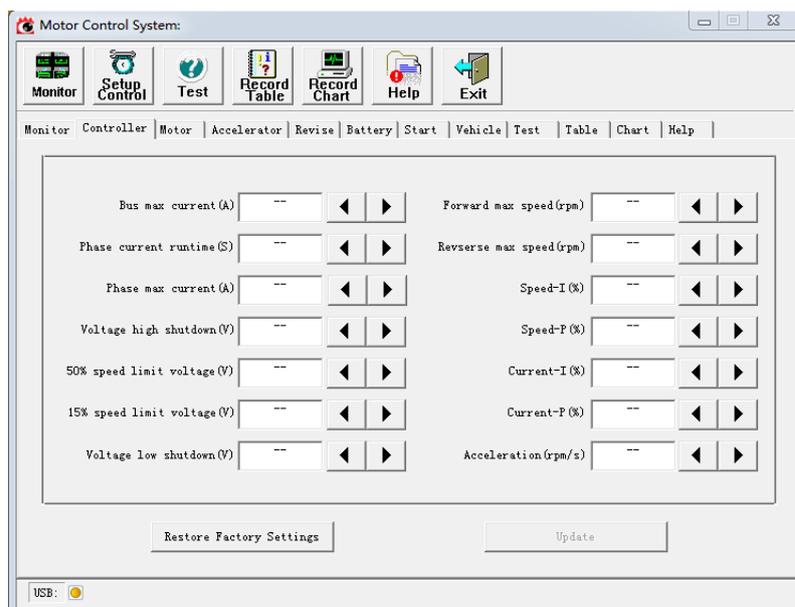
Monitoring Interface for System Operation



Voltage(V)	Battery volt value, unit is V
Current(A)	Battery current value, unit is Amperes (A)
Controller Temp(°C)	Controller internal temperature, in degrees Celsius
Motor Temp(°C)	Motor internal temperature, in degrees Celsius
Phase Current(A)	The controller output single-phase current, that is motor current, in amperes
Total Duration(Hr)	Controller cumulative working time, unit is hour, cumulative duration is 1 minute

(2) <Controller> Interface

Controller Setting



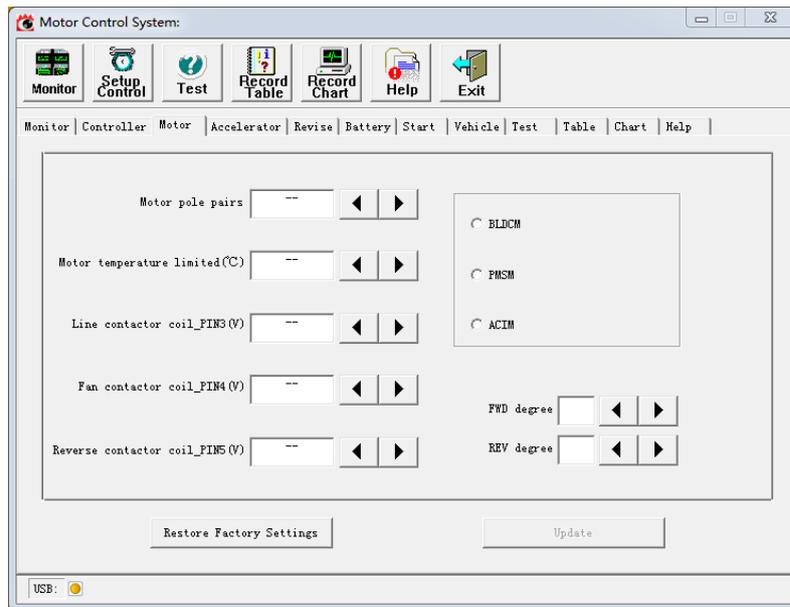
Bus max current (A)	The max bus (battery) current, will run at 50% when continuous runtime is more than Phase current runtime (S).
Phase current runtime (S)	The runtime of max current, the max is 180 seconds.

Phase current (A)	The max phase (motor) current, will run at 50% when continuous runtime is more than Phase current runtime (S).
Voltage high shutdown (V)	The controller will shut down when battery voltage is higher than the set value, set it according to the highest charging voltage +1 V.
50% speed limit voltage (V)	Controller speed will be reduced to 50% if battery voltage is less than the set value for 1 min, to prevent the battery high-current discharge at low-voltage, set it according to 60 to 80% of the nominal value of the battery voltage (according to the battery capacity discharge rate).
15% speed limit voltage (V)	Controller speed will be reduced to 15% when battery voltage is less than the set value for 1 min, to prevent the battery moderate-current discharge at ultra low voltage, set it according to 50 to 70% of the nominal value of the battery voltage (according to the battery capacity discharge rate), must less than the value of "50% speed limit voltage (V)".
Voltage low shutdown (V)	The controller will shut down when battery voltage is lower than the set value, set it according to 50~70% of the nominal value of the battery voltage (according to the battery capacity discharge rate), must less than the value of "50% speed limit voltage (V)".
Forward max speed (rpm)	Motor forward speed limit
Reverse max speed (rpm)	Motor reverse speed limit
Speed –I (%)	Controller speed control loop I parameter controls, range is 1 to 99, the greater the value, the faster the reaction, the smaller on the contrary, (should reduce this value if speed fluctuations large, on the contrary increase it). When used in cruise speed control, first adjust the parameter of P then the I.
Speed –P (%)	Controller speed control loop P parameter controls, range is 1 to 99, the greater the value, the faster the reaction, the smaller on the contrary, (should reduce this value if speed fluctuations large, on the contrary increase it). When used in cruise speed control, first adjust the parameter of P then the I.
Current –I (%)	Controller current control loop I parameter controls, range is 1 to 99, the greater the value, the faster the reaction, the smaller on the contrary, (should reduce this value if acceleration is too large, on the contrary increase it). When used in pedal speed control, first adjust the parameter of P then the I.
Current –P (%)	Controller current control loop P parameter control, range is 1 to 99, the greater the value, the faster the reaction, the

	smaller on the contrary, (should reduce this value if acceleration is too large, on the contrary increase it). When used in pedal speed control, first adjust the parameter of P then the I
Acceleration (rpm/s)	Acceleration limit, users do not need to set it.

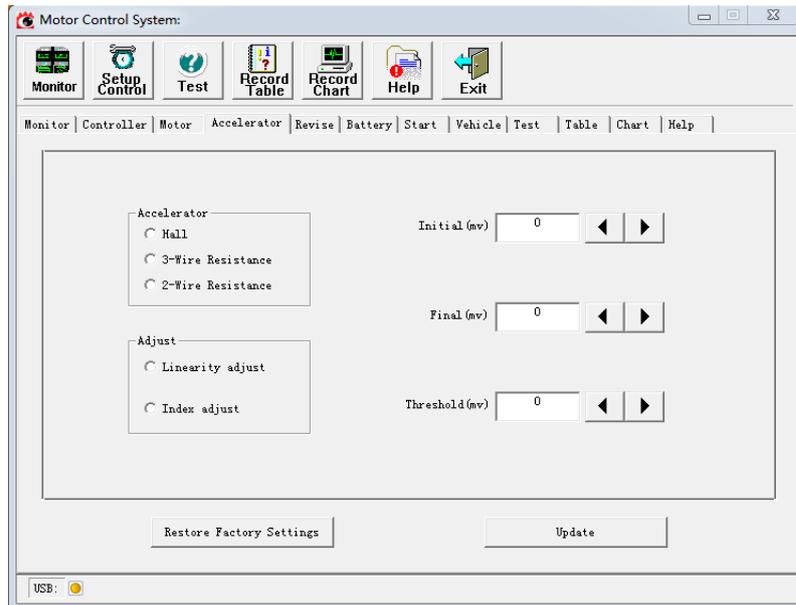
(3) <Motor> Interface

Motor and DC Contactor Setting



Motor pole pairs	Motor pole pair numbers (pole pairs = number of poles / 2), only affect display value of rotate speed, not the control of the controller on the motor
Motor temperature limited	Motor temperature limit, if exceeding the temp limit, controller output current will reduce 50% to protect the motor.
Line contactor coil_PIN3	Control the voltage of bus DC contactor coil to be consistent with the nominal value.
Fan contactor coil_PIN4	Control the voltage of fan/water cooling DC contactor coil to be consistent with the nominal value.
Reverse contactor coil_PIN5	Controller reverse switch acts to control DC contactor coil voltage to be consistent with the nominal value, users do not need to set it.
BLDCM	Motor type is Brushless DC Motor
PMSM	Motor type is Permanent Magnet Synchronous Motor, users do not need to set it.
ACIM	Motor type is AC Induction Motor, users do not need to set it.
FWD degree	Forward Lead Angle, users do not need to set it.
REV degree	Reverse Lead Angle, users do not need to set it.

(4) <Accelerator>Interface
Accelerator Setting



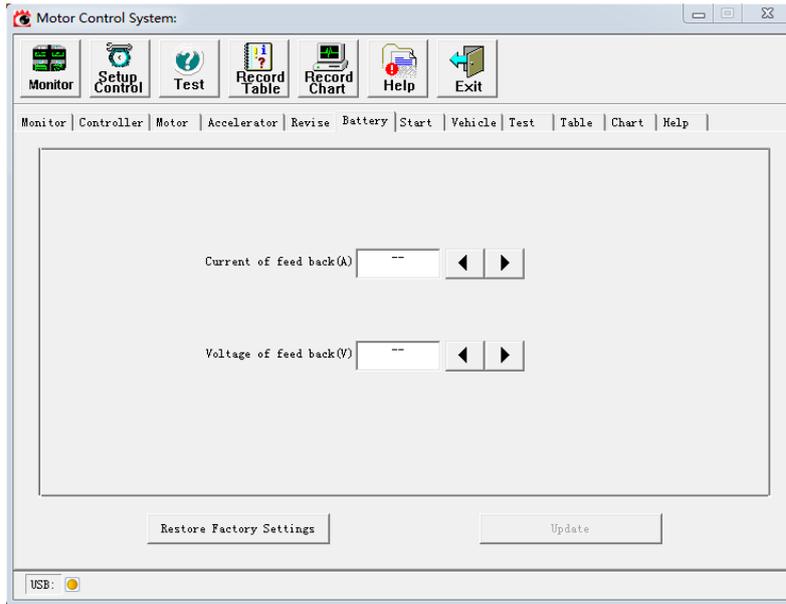
Accelerator	
Hall	Hall type accelerator, please refer to "HPC Series Controller User Guide" for wiring method.
3-Wire Resistance	Resistance type accelerator, 3-wire, please refer to "HPC Series Controller User Guide" for wiring method.
2-Wire Resistance	Resistance type accelerator, 2-wire, please refer to "HPC Series Controller User Guide" for wiring method.
Adjust	
Linearity adjust	Linearity, no adjustment on accelerator
Index adjust	Make index adjustment on accelerator
Initial(mv)	The minimum value used in the variation range of accelerator
Final(mv)	The maximum value used in the variation range of accelerator
Threshold(mv)	The accelerator exceeds the max variation range. To prevent accelerator act automatically in case ground connection is bad or disconnected.

(5) <Revise> Interface

Dedicated for manufacturer's test, users do not need to adjust it.

(6) <Battery> Interface

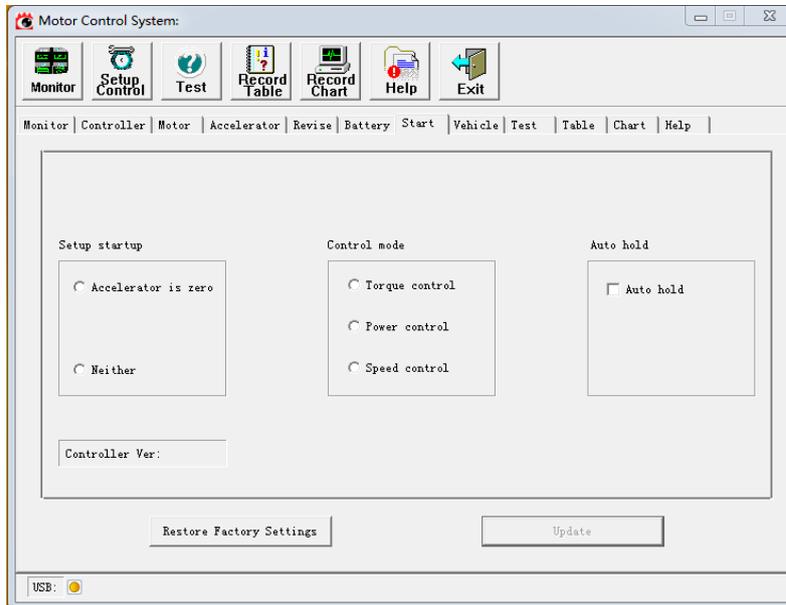
Battery Parameters Setting



Current of feed back (A)	Setting of energy feedback current (brake current), set it according to the comfort degree of passengers in vehicle.
Voltage of feed back (V)	Setting of energy feedback voltage(brake voltage), set it according to battery charging voltage.

(7) <Start> Interface

Controller Start Controls

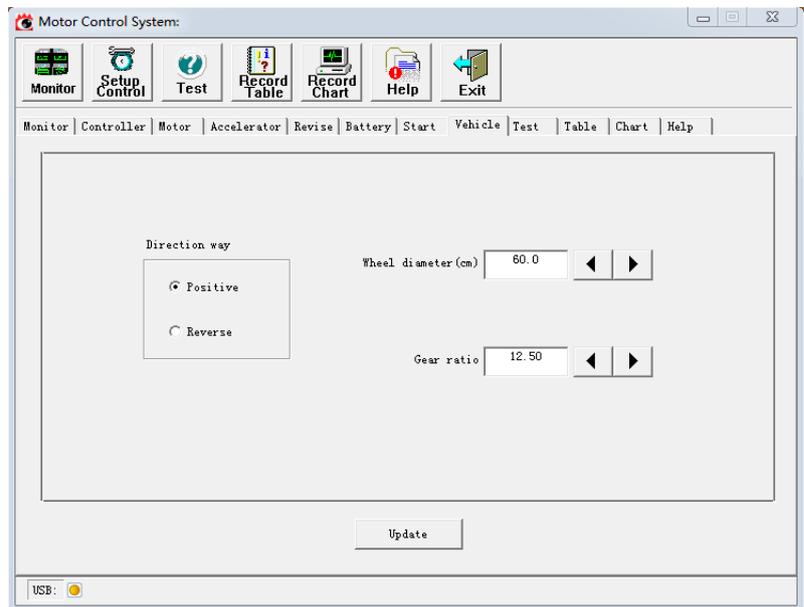


Setup startup	Controller startup mode
Accelerator is zero	Startup when accelerator is zero
Neither	Startup when power on, without consideration of accelerator position.
Control mode	
Torque control	The accelerator controls motor torque directly.
Power control	The accelerator controls motor power directly.
Speed control	The accelerator controls motor speed directly.

Auto hold	Start the program of Auto hold, users do not need to adjust it.
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(8) <Vehicle> Interface

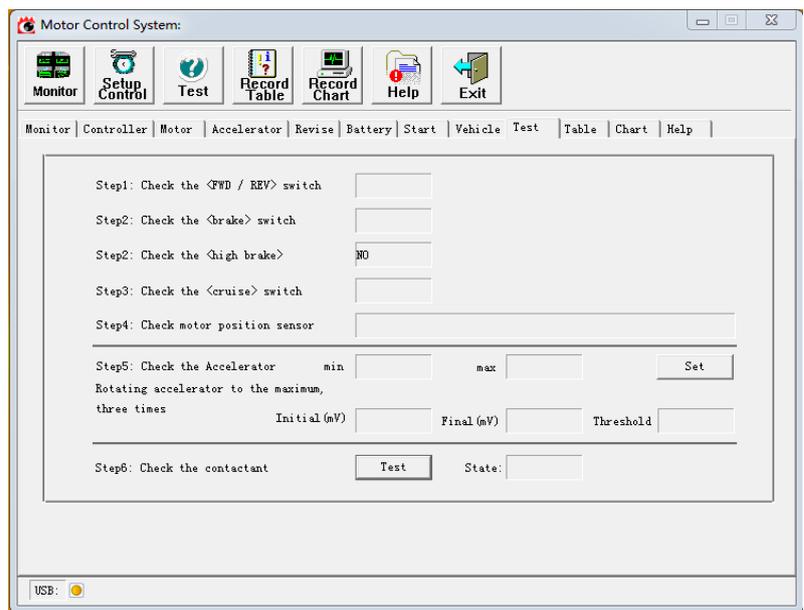
Parameters Setting about Vehicle



Direction way	
Positive	Motor forward is the advancing direction
Reverse	Motor reverse is the advancing direction
Wheel diameter (cm)	
Gear ratio	

(9) <Test> Interface

Mainly used to check if the controller peripheral parts and harness work properly, a great convenience for user's fault query.



Step1:Check the <FWD/REV> switch	Check the <FWD/REV> switch and wires. Press the switch corresponding to the display.
Step2:Check the <brake> switch	Check the <brake> switch and wires. Press the switch corresponding to the display.
Step3:Check the <high brake> switch	Check the <high brake> switch and wires. Press the switch corresponding to the display.
Step4:Check motor position sensor	Check motor position sensor and wires. Turn the motor corresponding to the display.
Step5:Check the Accelerator Rotating accelerator to maximum ,three times	Check the Accelerator and wires. Rotate accelerator to maximum, three times, corresponding to the displayed value, click <set> button to adjust the range of accelerator.
Step6:Check the contactor	Check the main contactor and wires. Click <Test> button, the contactor should act correspondently.

Note: Users do not need to adjust or set other interfaces.