Using Tips & FAQ for Sabvoton Controller

萨博沃顿控制器使用条例及常见问题集

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Sabvoton Controller Using Tips 萨博沃顿控制器使用条例

Products including: controller * 1, wiring harness * 1, USB cable * 1, bluetooth * 1(optional). 产品说明：产品包括该型号控制器一台，功能线束一套，调试线一根，蓝牙（可选项）

1- Installation Notes 安装接线注意事项

1) B+ from controller connect with battery positive, B- from controller connect with battery negative, U,V,W from controller should connect according to the manual. The positive and negative poles must be correct! 控制器盖上的 B+接电池正极，B-接电池负极，U，V, W 接相线（请见说明书）。正负极绝对不能接反。

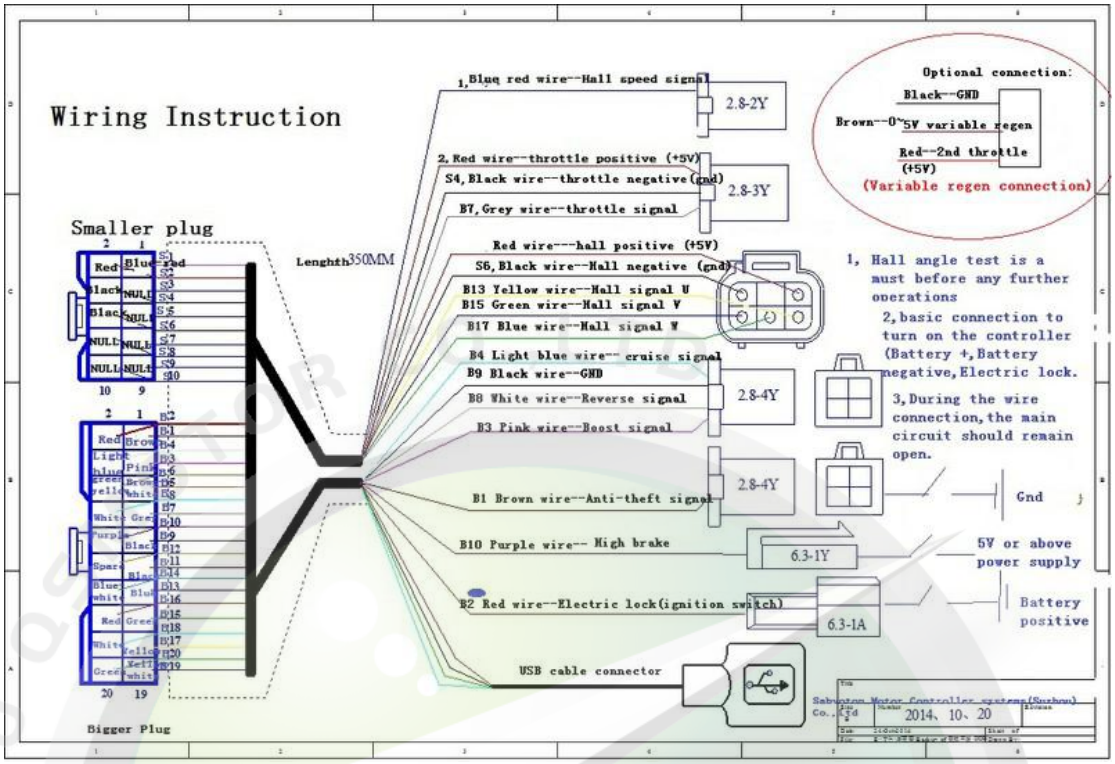
2) Pls. adjust the controller parameters according to motor configuration and confirm phase wire/hall wire setting before install the controller in your vehicle. 安装控制器之前根据电机型号调整控制器内电机参数及相线霍尔配置，确认参数无误后再安装控制器。

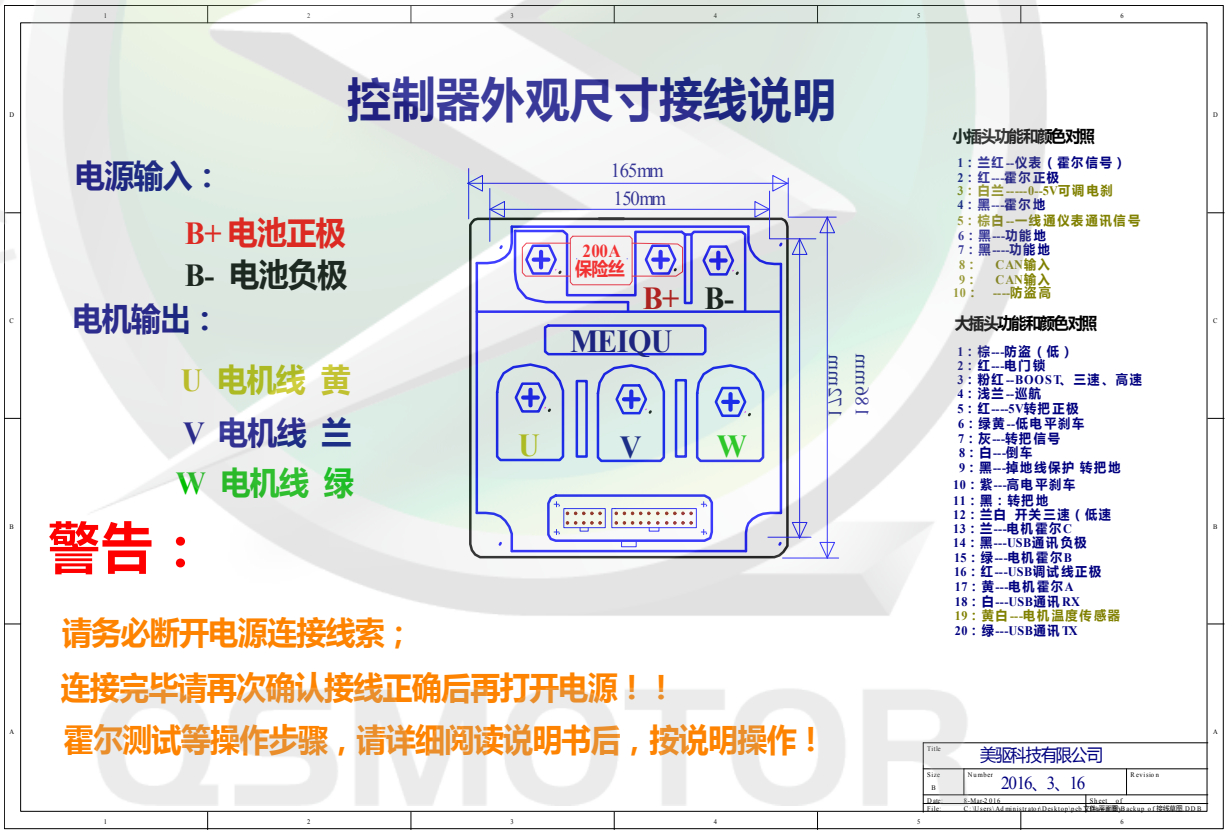
3) The E-lock and brake H wires of harness wires should connect with positive wires, and other function wires(like low brake, reverse, cruise, three speed etc.) should connect with negative wires. **Pls. note: the wrong connect way will lead a damage for controller, in that case you have to bearing all maintenance costs by yourself!** 功能线束，电门锁线 E-lock，高刹 brake H 接正极有效，其他功能（低刹，倒车，巡航，变速）为接 负极 B-（0V）有效。**注意：接错线导致控制器损坏的自行承担控制器维修费用！**

4) Twist throttle lightly after installed controller in the vehicle, avoid to using EBS function. 安装完成后上电测试时需轻拧转把，避免使用电子刹车（EBS）功能。

5) When you want to disassembly controller, closed the battery air switch first, then open e-lock to discharge, then disassembly the controller after closed e-lock. Pls. note: don’t short the positive and negative poles to discharge before disassembly controller. 拆控制器时先关闭车上空气开关，再打开弱电锁进行放电，然后关闭弱电锁后再拆控制器。拆控制器时请不要正负极短路放电。

SSC series controller drawing SSC系列外观说明图


Wiring Instruction
Smaller plug
Bigger Plug
Lenghth350MM
1, Blue red wire--Hall speed signal
2, Red wire--throttle positive (+5V)
S4, Black wire--throttle negative (gnd)
B7, Grey wire--throttle signal
Red wire--hall positive (+5V)
S6, Black wire--Hall negative (gnd)
B13 Yellow wire--Hall signal U
B15 Green wire--Hall signal V
B17 Blue wire--Hall signal W
B4 Light blue wire--cruise signal
B9 Black wire--GND
B8 White wire--Reverse signal
B3 Pink wire--Boost signal
B1 Brown wire--Anti-theft signal
B10 Purple wire-- High brake
B2 Red wire--Electric lock(ignition switch)
USB cable connector
2.8-2Y
2.8-3Y
2.8-4Y
2.8-4Y
6.3-1Y
6.3-1A
Optional connection:
Black--GND
Brown--0~5V variable regen
Red--2nd throttle (+5V)
(Variable regen connection)
1, Hall angle test is a must before any further operations
2, basic connection to turn on the controller (Battery +, Battery negative, Electric lock.
3, During the wire connection, the main circuit should remain open.
Gnd
5V or above power supply
Battery positive
2014、10、20

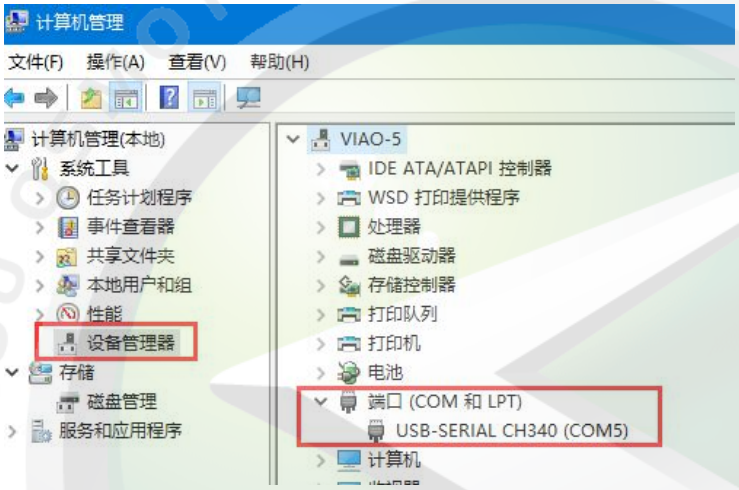

控制器外观尺寸接线说明
电源输入：
B+ 电池正极
B- 电池负极
电机输出：
U 电机线 黄
V 电机线 兰
W 电机线 绿
警告：
请务必断开电源连接线索；
连接完毕请再次确认接线正确后再打开电源！！
霍尔测试等操作步骤，请详细阅读说明书后，按说明操作！
165mm
150mm
135mm
180mm
200A 保险丝
B+
B-
MEIQU
U
V
W
小插头功能和颜色对照
1：兰红--仪表（霍尔信号）
2：红---霍尔正极
3：白兰-----0--5V可调电刹
4：黑---霍尔地
5：棕白--一线通仪表通讯信号
6：黑---功能地
7：黑----功能地
8： CAN输入
9： CAN输入
10： ----防盗高
大插头功能和颜色对照
1：棕---防盗（低）
2：红---电门锁
3：粉红--BOOST、三速、高速
4：浅兰--巡航
5：红----5V转把正极
6：绿黄--低电平刹车
7：灰---转把信号
8：白---倒车
9：黑--掉地线保护 转把地
10：紫---高电平刹车
11：黑：转把地
12：兰白 开关三速（低速
13：兰---电机霍尔C
14：黑---USB通讯负极
15：绿---电机霍尔B
16：红---USB调试线正极
17：黄---电机霍尔A
18：白---USB通讯RX
19：黄白---电机温度传感器
20：绿---USB通讯TX
美驱科技有限公司
2016、3、16

2 - USB cable using notes 数据线使用注意事项

1) Firstly download the drive before debugging, and the document of drive is "usb drive 32/64bit", install it. XP system is 32 bit, win7/win8/win10 are all suitable for below items. 先安装数据线驱动程序：usb drive 32/64bit, XP 系统为 32 位系统, win7/win8/win10 均可以适用以下内容。

2) Connect the USB port(the bigger one) with computer, and connect the another port with controller. Pay attention to the port, it can not be reversed.
安装完成后将 USB 调试线大的一端插入电脑，小的一端插入控制器。

3) Read the USB COM from "device manager" in your computer. 在电脑中的设备管理器里面读取到 USB COM5。



4) Install software: open "SabVoton Motor Controller software (temp programmable) V2.0" - click "setup.exe. 安装软件：压缩包"SabVoton Motor Controller software (temp programmable) V2.0"中的"setup.exe"程序.

5) After installed, click "start" menu - "all programs" - " MQCON", open it. 安装完成后在"开始"菜单的"所有程序"里面可以找到已安装的程序 MQCON，打开。

6) Select the appropriate column, choose COM port according to the data you read in your computer. 选择在设备管理器里面对应的 com？， 电脑中读取到的是 com5 所以选择 com5

7) After connected with controller, RX and TX ligts will flash alternately, that' s means the communication succeed between controller and computer. 连接上控制器以后，此时 RX 灯和 TX 灯就会交替闪烁，通信建立。

8) Do not ride your vehicle when the USB cable connected with controller..严禁把数据线插到控制器上，带线骑行。

3 - Bluetooth notes 蓝牙调试注意事项

1) Install "Bluetooth APP 2015-10-19 " APP in your Android system phone, open it. 先将蓝

牙调试软件解压缩后在手机上安装 APP“Bluetooth APP 2015-10-19 ”，开启蓝牙。

2) For first using, there will be a surface to ask you input password. You can type “1234”.初次连接蓝牙时会跳出要求匹配密码的界面，输入密码 1234。

3) Make sure all connection is fine(battery, motor, throttle, electric lock/ignition, and battery is work status). 确保所有连接 OK（电池，电机，转把，电门锁以及电源处于开的状态）。

4) Bluetooth only suitable for Android system currently. 暂且只适用于安卓系统。

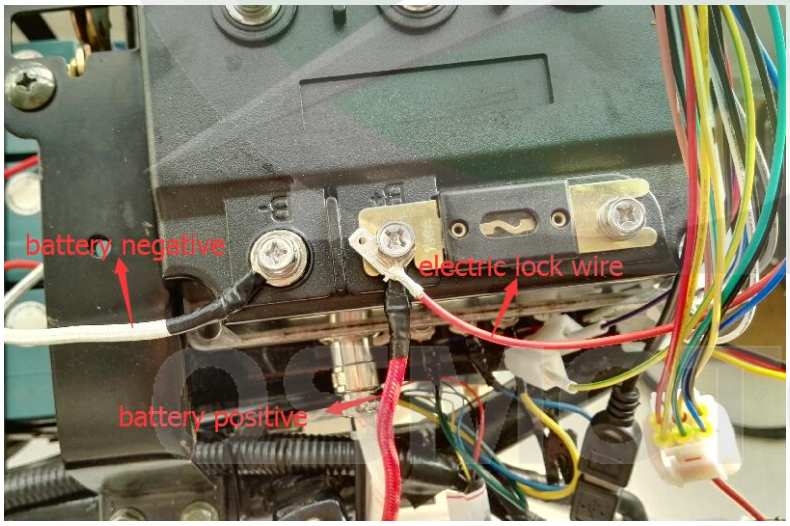
4 - Easy damage condition for controller 控制器易损注意事项

1) Wrong connect with positive and negative poles 正负极短路
2) Flooding water. 进水。
3) Metal port of USB cable connect with high voltage 数据线金属端接触到高电压。
4) The torque of electric drew driver less than 10N, otherwise, it will caused binding post, fall off or bolt broken in binding post.电动螺丝刀的扭矩应小于 10N，容易导致接线柱脱落无法维修或螺钉断在接线柱内。

5 - Regard only program controller parameter(not match with motor)

关于只调节控制器参数使用

The B- of controller connect with battery negative pole, e-lock wire of controller connect with battery positive(other wires no need to connect). Open the software after connected, if the system status will show errow except “0: power up no finished”, it means you can go on to program the parameters in controller. Here is picture for connect way. 控制器负极连接电池负极，控制器电门锁连接电池正极（其他都不需要连）。这时软件如果显示除上电未完成的其他错误，则软件中的参数可以进行调节。下图所示为连接方式：



6 - Regard program controller to match with motor关于调节控制器与电机匹配的参数使用

The controller should match with e-lock, motor hall, motor phase, throttle, battery. Then you can start to adjust the parameters after all those wires connect. 控制器连接电门锁，电机霍尔，电机相线，转把，电池。所有连通后调节控制器参数。

FAQ for Sabvoton Controller 萨博沃顿控制器常见问题问答 FAQ

Regard connection & function FAQ 关于连接及功能常见问题

1 - Connection for high brake and low brake 高刹和低刹的连接方式

High brake wire connect with 12v brake wire of hand brake/foot brake; low brake wire connect with ground wire. High brake and low brake cannot using in the same time. 高刹连接 12v 刹车线；低刹连接地线。两者不能同时使用。

2 - Three speed & limit speed function 三档变速的选择及限速功能

Three speed function: two model —— button three speed & switch three speed 三档变速分为按钮三档和开关三档

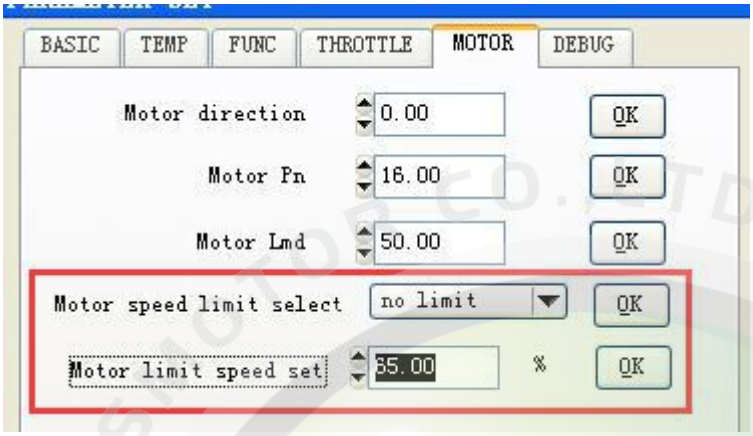
Button three speed: achieve by button, when you press the button, the speed will be changed. Press timely, the speed will change accordingly. 按钮三档：按钮式，每按一下按钮就会变速，按照 1-2-3-2-1 循环变化

Switch three speed: achieve by switch, there are three speed options show in the switch. 开关三档：开关式，有高.中.低三个速度选项开关

Limit speed function: two model —— external limit & inner limit 限速功能有外部限速和内部限速两种

External limit: there is a limit speed wire comes out from controller, connect this wire and ground wire with a switch, open the switch, then running in a limited speed; closed the switch, then the vehicle running in normal speed. 外部限速：控制器提供一根线连接到外部开关，开启开关限速，关闭开关恢复速度

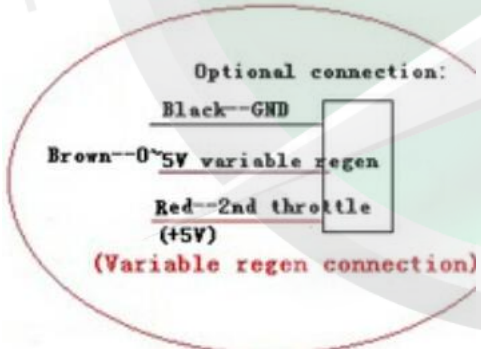
Inner limit: There is no limit speed wire comes out from controller. No need to connect wires while only choose "inner limit" in motor speed limit select and write the percent of motor limit speed set. When inner limit are vaild, the vehicle will running in limited speed as max. speed. 内部限速：控制器没有引线出来，由软件内部设置参数达到限速目的，内部限速后会一直以这个速度运行。



Three speed, external speed and boost cannot using the same time. 三速和外部限速/Boost 不能同时存在

3 - Regard 0-5v e-brake function(also named analog variable recharge) 关于 0-5V 电子刹车功能（也称为模拟变量反充电）

0-5v e-brake function is customized function(ground wire, +5v throttle wire, 0-5v brake wire), it have to connect with brake throttle for using. Here is drawing for this connector. 0-5V 刹车是定制功能（地线，+5v 转把线，0-5v 刹车线），必须配有刹车转把使用。改功能口图纸如下。

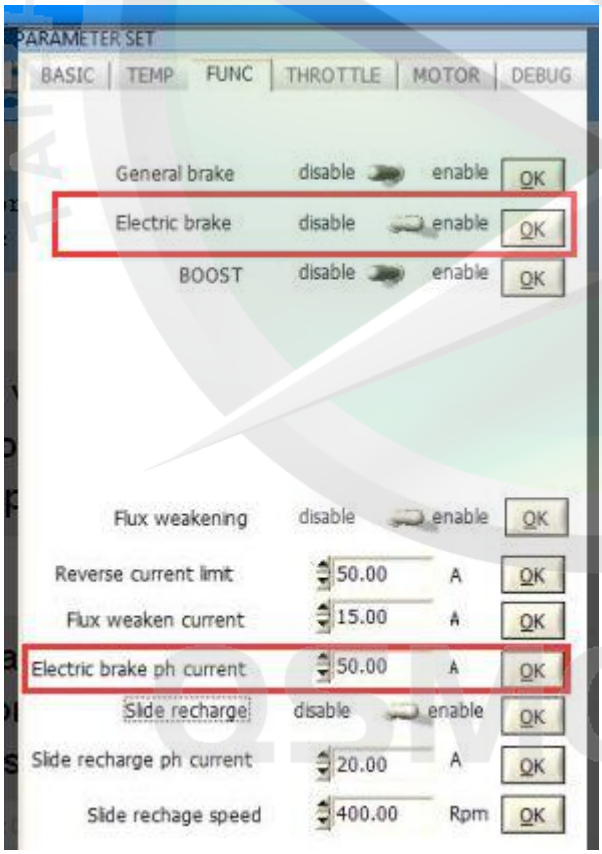


4 - Different between normal e-brake and 0-5v e-brake 关于电子刹车和 0-5v 电子刹车的区别

Normal e-brake is general funciton, which add in brake wires. 电子刹车是常规功能，附加在刹车线上的
0-5v e-brake is customized function, which have to connect with brake level and throttle. 0-5V 刹车是定制功能，必须配有刹车和转把一起使用。

5 - E-brake and recharge function using 电子刹车和反充电功能的使用

How to use e-brake function: 电子刹车使用分两个部分，
First, enable electric brake, and set electric brake ph current about 50A.
第一：调试软件设置电子刹车打开，同时设定一定大小的刹车电流（建议 50A）.
Second, connect the brake wire.
第二：接好刹车线，在进入刹车状态下才会有电子刹车



Slide recharge function: enable slide recharge, set "slide recharge ph current" and "slide recharge speed", after reach this rpm(same as "slide recharge speed" you set), when you lose throttle, the motor will have brake effect. 滑行反充电功能使用， 滑行充电是需要在电脑端设置反充电电流和转速，在达到该转速以后，松开手把的同时，电机会有制动效果。

6 - The default hall angle is 66, which match with QS V1 and V2 type motor.控制器默认的电角度偏移量是 66，配全顺普通电机.

If you want to match with QS Motor V3 type(16 pole pairs), the hall angle should change to 245.
全顺瓦片电机，电角度偏移量是 245 左右

7 - How to test hall angle with new motors?(the hall angle test unwork)如何检测匹配电机的电角度偏移量呢？（客户霍尔角度测试不工作）

When you communicate your controller and computer succeed, make sure the motor is no loading, battery are connected for work. Then look at picture 1, set test current 15A(5~30A) click OK, change control mode to "hall test" click OK, then enable hall angle test. Then the motor will move very very slow, that's normal. Meanwhile, the parameter"Hall Status" in picture will run up and down in 1~6 range. After several minutes, the hall angel test status will show automatically, such as **2:test OK**, **3:test fault** etc. If test ok, the hall angle data will change automatically, then click ok for hall angle degree and parameter store. If all is fine, then remove the USB cable, closed the battery then open again, twist the throttle to check if it's normal or not for the motor running, then tested in the road.

For **3:test fault**, pls. check the connection between motor and controller if there have looseness. Check the motor status, meanwhile adjust the hall test current for testing.

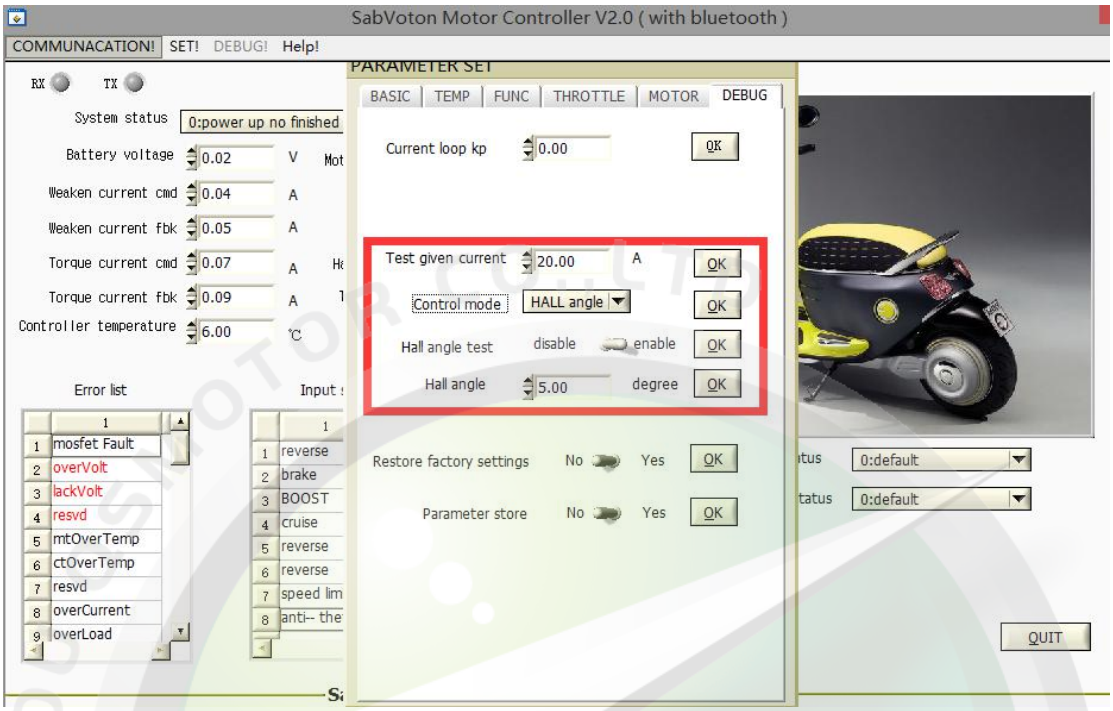
For **4:test fault**, pls. adjust the hall test current for testing or changed phase sequence to test again.

在通信建立的条件下，此时就可以让控制器对电机进行匹配（做霍尔测试）；需要保持电机空载，能够空转。电池供电，否则必定会测试失败。如下图，设定测试电流 15A（5~30A）， 点击 ok; 更改正常运行状态为 hall 测试状态， 点击 ok; Hall 测试使能 拨动到 enable 电机 ok。此时电机开始极缓慢的转动，这是正常现象。同时在主界面 hall 状态 数值会在 1~6 之间随机变化。hall 测试状态会进入到进行中，请耐心等待测试完成，测试完成以后 hall 测试状态会自动切换到测试 ok。此时 hall 偏移角会变化，（默认为 66）以全顺电机为例（常规电机测试出来未 66±10， 瓦片电机测试出来为 245±10）。测试 ok 以后，hall 偏移角会做出变化，请将参数保存（步骤：点击改变参数后面的 ok。再将调试一栏最下面的保存参数拨动到 yes，电机 ok，然后断开 usb （必须） 关闭电源再打开，然后再转动手把看电机转动是否异常，落地测试是否异常。

当遇到测试失败 3 时，请检查电机和控制器之间的线路是否有异常。电机是否存在异常。同时调整测试电

流大小重新进行测试。

测试失败 4 时，请调整测试电流大小或者调换相序，再次进行测试。

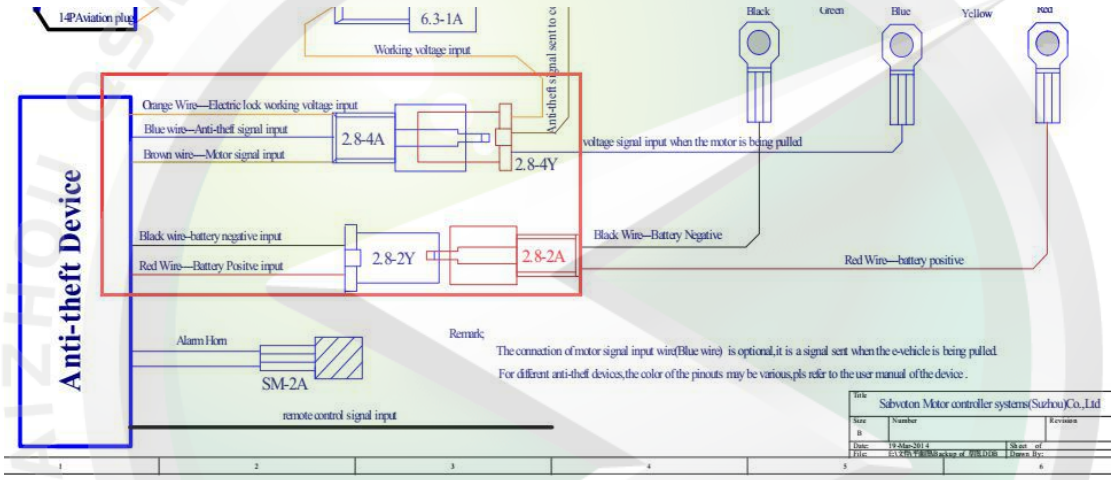


8 - How to achieve anti-theft function 防盗功能怎么实现？

Generally, there is no anti-theft function for samples.

If customers have requirements for mass order, there will comes out two connectors from controller, pls. refer to below drawing. One connector connect with anti-theft lock, and the other one connect with e-lock. When there is no power from battery, the e-lock will stop to work, but the anti-theft lock still on work.

So when the e-lock power on, the vehicle shocked or pushed by people, it lead the motor will be locked, anti-theft lock unwork, which means there is no alarm comes out from burglar alarm; when the e-lock didn’ t power on, the vehicle shocked or pushed by people, it lead the motor will be locked, anti-theft lock on work, which means there is alarm comes out from burglar alarm.

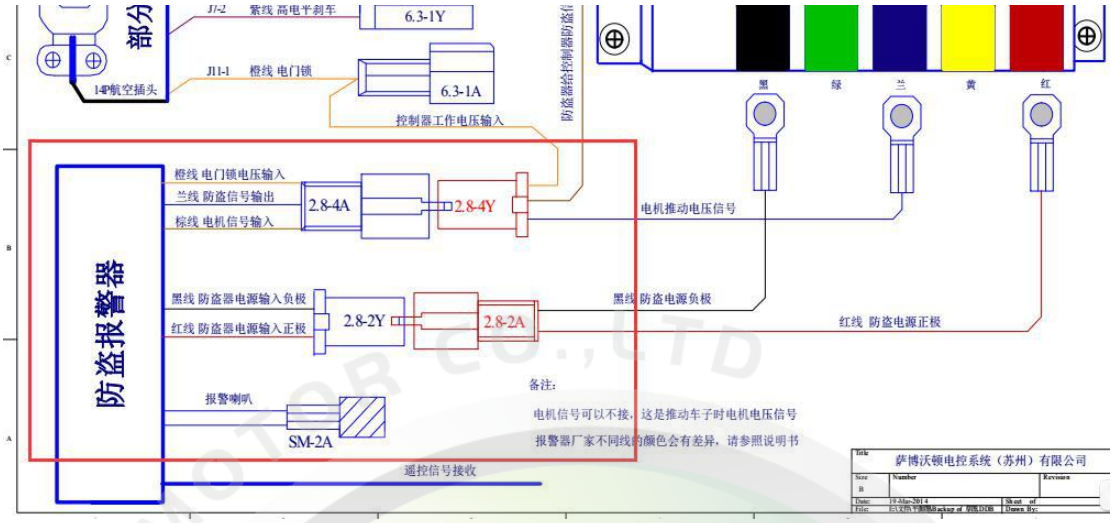


通常情况下（如样品）我们是不做防盗功能的。

如果大货有要求的话，控制器会引出两根电门锁接口，一根接钥匙锁，一根接防盗锁，断电的时候电门锁断了，防盗锁没有断电。

所以，当钥匙门通电时，车身震动或者推动导致电机上锁，防盗器不工作，既防盗器不发出警报。

当钥匙门不通电时，车身震动或者推动导致电机上锁，防盗器工作，即防盗器发出警报。



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9 - Controller using ok previous, when connect with controller and computer, the bigger port of USB is melt, computer shown " USB port surge warning"原先使用控制器 OK，后来连接控制器和电脑的时候，USB 线大的那一端融化了，电脑显示的是"USB 端口电涌警告"。

Estimated there has some issues with shorting, high temp, drive power, because USB has small voltage and current(less than 5V 1A), high-power and large current could cause fever badly and cause melt. Check the debugging line conection first, then exchange USB wire. At last, only connect the electric lock wire and negative of controller, if the red light still bright, it means controller is broken.

估计是短路，高温，驱动电源有问题了, USB 本身电压电流是极小的,5v 1A 都没有的电流，大功率大电流才会导致发热厉害导致融化。

首先检查下，看是不是客户调试线误接到了其他东西，这个地方是不可能有大电流来融化的，就算是调试线短路或者控制器出问题都不会导致这样的问题。

其次用其他替换 USB 线使用查看。

最后控制器只接电门琐和负极红灯还是不亮的话，那就是控制器坏了。

10 - Bluetooth monitor function 蓝牙监测功能

At present, Bluetooth could monitor the current status, but the effect is not ideal.

Reason: 1. Bluetooth connect is not stabilization

2. Only could monitor present controller state and motor speed, and couldn’ t collect data function.

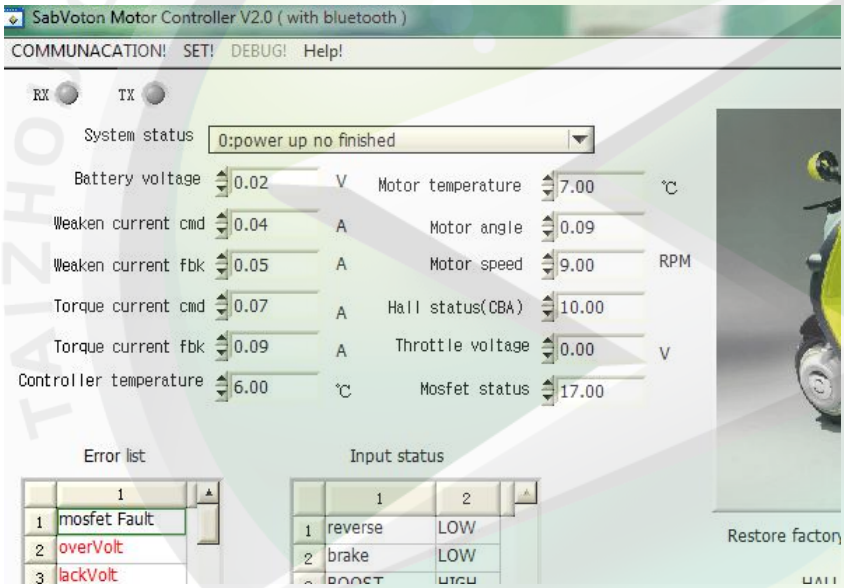
目前蓝牙可以检测，但是效果不太理想。

原因：1.蓝牙连接不太稳定 2.只能监测到当前控制器的状态和电机的转速，并没有数据收集功能

11 - Weather controller has monitor function? How to export the data of monitor function 控制器是否有检测功能？如何导出检测功能的数据？

Yes, the interface of monitor function is shown as below picture, monitor include current, voltage, speed and controller temp. At present , the monitor data couldn’ t be export as a file.

是的，检测功能界面如下图所示，检测包括电流，电压，转速，控制器温度等等。目前不能导出监测的数据。

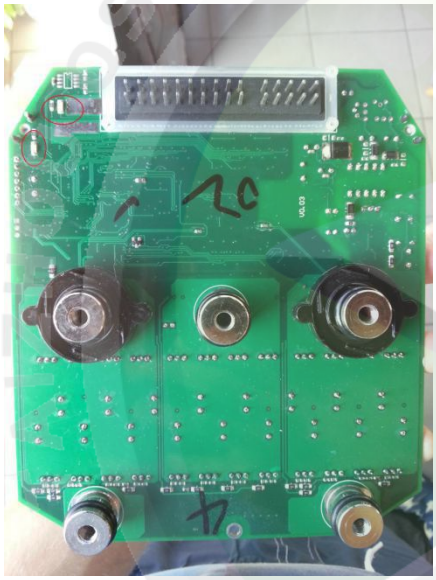


12 - QSMOTOR matched with Sabvoton controller and cannot run.全顺电机配萨博沃顿控制器转动不起来

First, confirm the phase sequence correctly, then confirm the hall work normal. Whether V2 or V3, U V W is yellow blue green. 首先要确保相序的正确性，后保证霍尔的正常工作。无论是省电还是瓦片，UVW 黄蓝绿

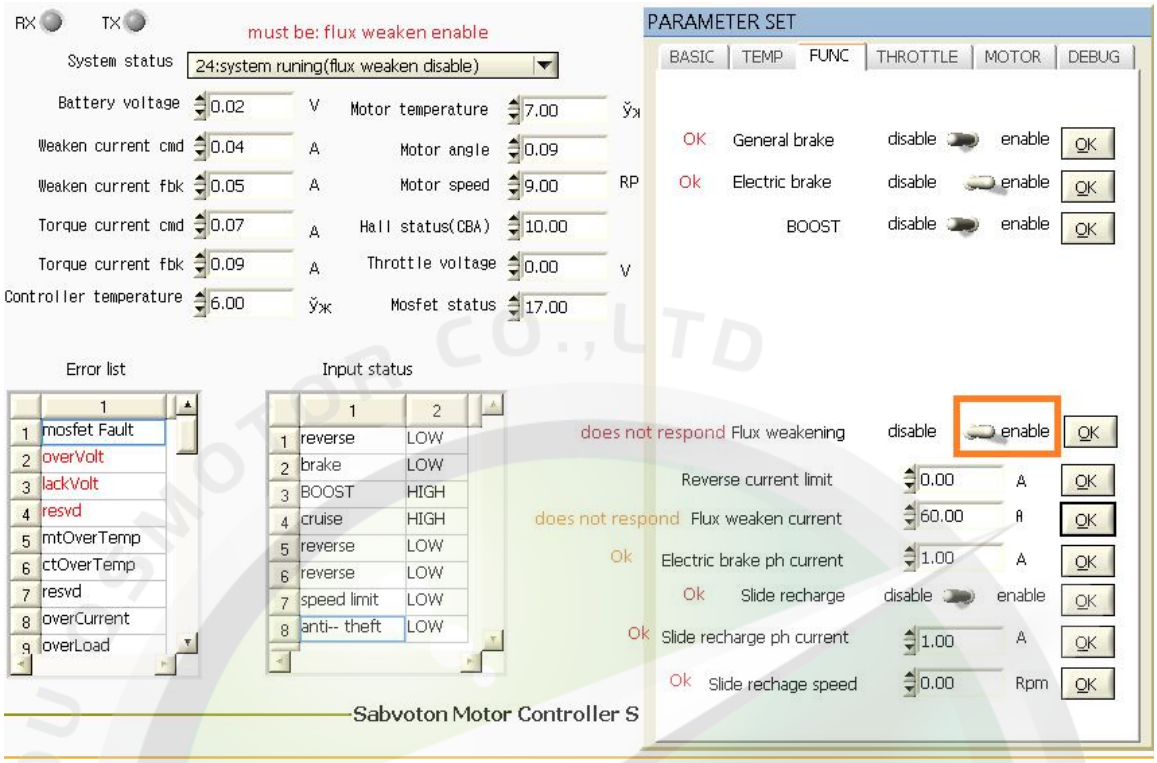
13 - The appearance of new type controller only show single indicator light (power on indicator light) 新款控制器外观只显示一个指示灯（通电指示灯）。

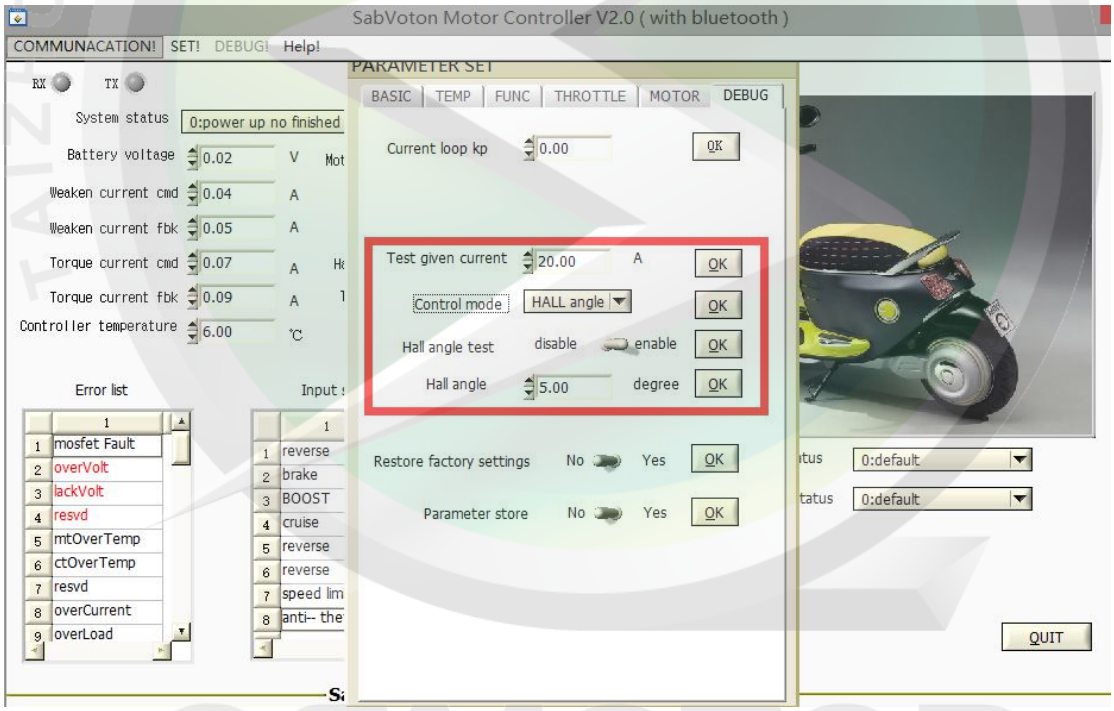
Take apart the controller, there has 2 indicator lights. Look at the top left corner, superior one is fault indicator light, subjacent one is controller power on indicator light. P.s.: When install the Controller, mos should be insulation with aluminum base, before factory, there mix a imide film in the middle, don’ t get it out.
控制器拆开后有 2 个指示灯。看左上角，在上的为故障指示灯，在下的是控制器通电指示灯。
P.S.: 控制器拆开后装回去，mos 是要跟铝座绝缘的，出厂的时候中间是夹了一层亚胺膜的。不要把这个弄掉。

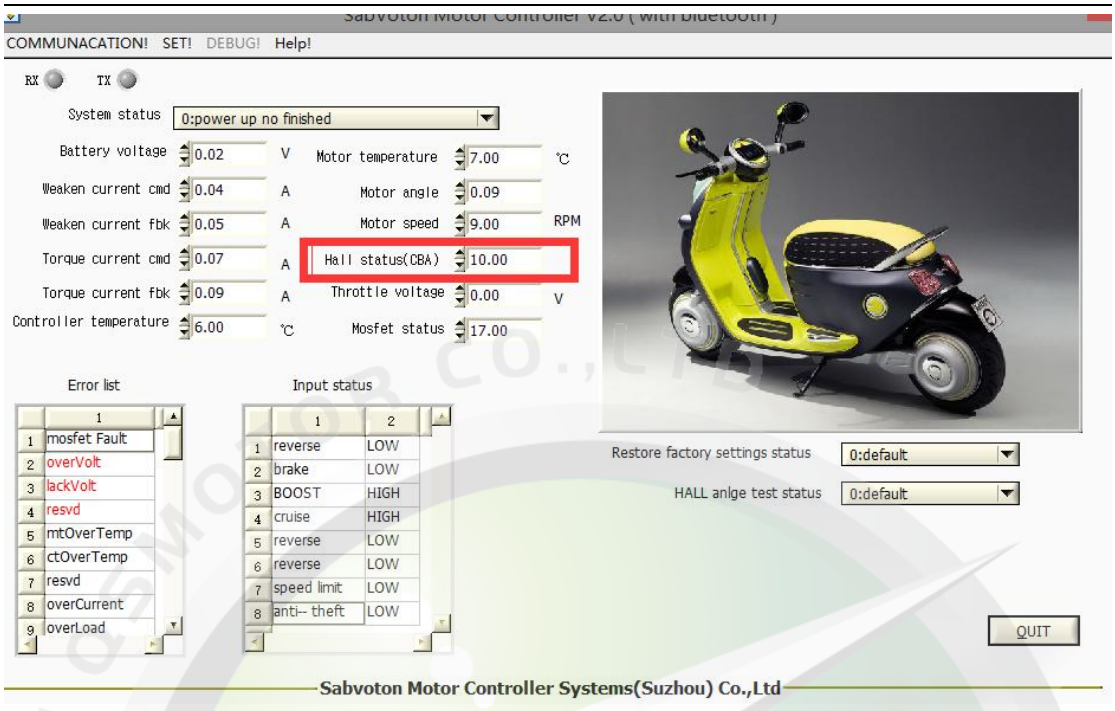


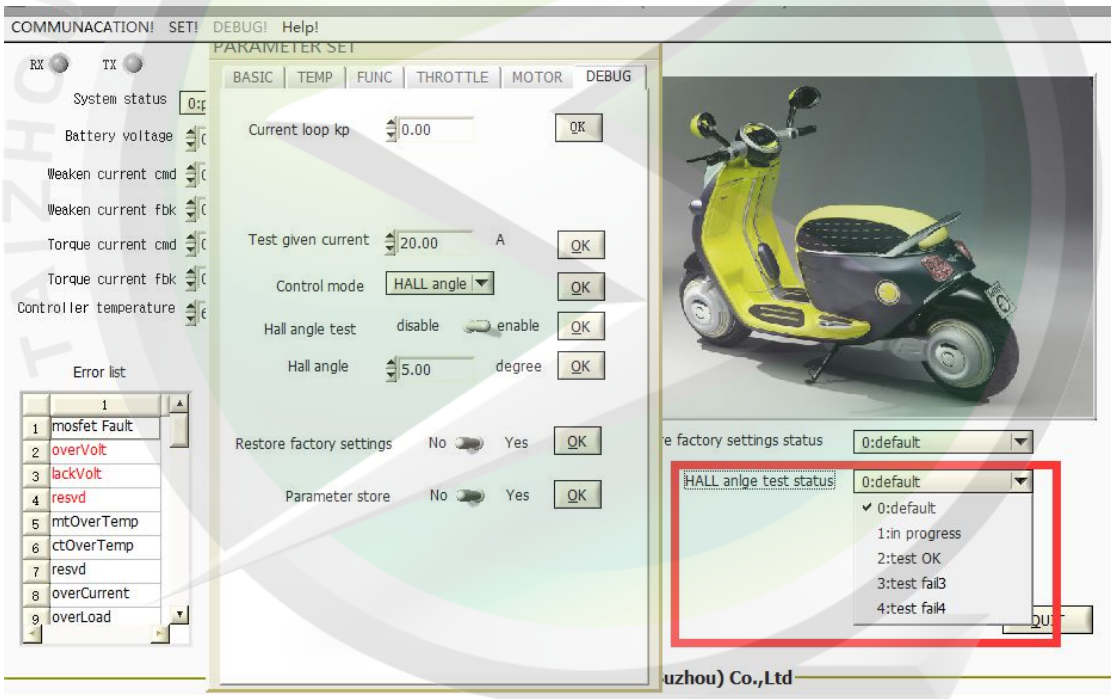
14 - Flux weakening function is not working 弱磁功能用不了

If use three speed and limit speed function, flux weakening function couldn’ t be used.
Because the flux weakening function is based on achieve the max speed.
如果使用了三速，限速功能的话，弱磁功能就用不了。
因为弱磁是基于最大速度实现的功能。


RX
TX
must be: flux weaken enable
System status
24:system runing(flux weaken disable)
Battery voltage
0.02
V
Motor temperature
7.00
Weaken current cmd
0.04
A
Motor angle
0.09
Weaken current fbk
0.05
A
Motor speed
9.00
RP
Torque current cmd
0.07
A
Hall status(CBA)
10.00
Torque current fbk
0.09
A
Throttle voltage
0.00
V
Controller temperature
6.00
Mosfet status
17.00
Error list
mosfet Fault
overVolt
lackVolt
resvd
mtOverTemp
ctOverTemp
resvd
overCurrent
overLoad
Input status
reverse
LOW
brake
LOW
BOOST
HIGH
cruise
HIGH
reverse
LOW
reverse
LOW
speed limit
LOW
anti-- theft
LOW
Sabvoton Motor Controller S
PARAMETER SET
BASIC
TEMP
FUNC
THROTTLE
MOTOR
DEBUG
OK
General brake
disable
enable
OK
Ok
Electric brake
disable
enable
OK
BOOST
disable
enable
OK
does not respond
Flux weakening
disable
enable
OK
Reverse current limit
0.00
A
OK
does not respond
Flux weaken current
60.00
A
OK
Ok
Electric brake ph current
1.00
A
OK
Ok
Slide recharge
disable
enable
OK
Ok
Slide recharge ph current
1.00
A
OK
Ok
Slide rechage speed
0.00
Rpm
OK


SabVoton Motor Controller V2.0 (with bluetooth)
COMMUNACATION!
SET!
DEBUG!
Help!
PARAMETER SET
BASIC
TEMP
FUNC
THROTTLE
MOTOR
DEBUG
RX
TX
System status
0:power up no finished
Battery voltage
0.02
V
Weaken current cmd
0.04
A
Weaken current fbk
0.05
A
Torque current cmd
0.07
A
Torque current fbk
0.09
A
Controller temperature
6.00
℃
Current loop kp
0.00
OK
Test given current
20.00
A
OK
Control mode
HALL angle
OK
Hall angle test
disable
enable
OK
Hall angle
5.00
degree
OK
Restore factory settings
No
Yes
OK
Parameter store
No
Yes
OK
Error list
mosfet Fault
overVolt
lackVolt
resvd
mtOverTemp
ctOverTemp
resvd
overCurrent
overLoad
0:default
0:default
QUIT


COMMUNACATION! SET! DEBUG! Help!
RX TX
System status 0:power up no finished
Battery voltage 0.02 V
Weaken current cmd 0.04 A
Weaken current fbk 0.05 A
Torque current cmd 0.07 A
Torque current fbk 0.09 A
Controller temperature 6.00 ℃
Motor temperature 7.00 ℃
Motor angle 0.09
Motor speed 9.00 RPM
Hall status(CBA) 10.00
Throttle voltage 0.00 V
Mosfet status 17.00
Error list
mosfet Fault
overVolt
lackVolt
resvd
mtOverTemp
ctOverTemp
resvd
overCurrent
overLoad
Input status
reverse LOW
brake LOW
BOOST HIGH
cruise HIGH
reverse LOW
reverse LOW
speed limit LOW
anti-- theft LOW
Restore factory settings status 0:default
HALL anlge test status 0:default
QUIT
Sabvoton Motor Controller Systems(Suzhou) Co.,Ltd


COMMUNACATION! SET! DEBUG! Help!
PARAMETER SET
BASIC TEMP FUNC THROTTLE MOTOR DEBUG
Current loop kp 0.00 OK
Test given current 20.00 A OK
Control mode HALL angle OK
Hall angle test disable enable OK
Hall angle 5.00 degree OK
Restore factory settings No Yes OK
Parameter store No Yes OK
Error list
mosfet Fault
overVolt
lackVolt
resvd
mtOverTemp
ctOverTemp
resvd
overCurrent
overLoad
HALL anlge test status 0:default
0:default
1:in progress
2:test OK
3:test fail3
4:test fail4

15 - If there is no electric lock/ignition in vehicle, how to wiring it? 关于电门锁，如果没有电门锁线，客户如何自己接线？

It need connect a wire out of the battery negative, and connect controller reserve wire with yellow/blue wire of throttle, color is no limit. 需要电池负连出一根线，还有控制器的倒退线和转把上的黄蓝线接一下，颜色不限制。

16 - When connect with controller and computer, only TX blink all the time. 当控制器和电脑连接时，只有 TX 一直在闪

At normal situation, TX and RX should blink alternate, TX bright means USB connect with computer successfully, RX not bright means USB didn’ t connect with controller.
Please check as below step:
1. Check the USB and controller connect.
2. Check the controller is power on.(For SVMC controller bought after 2016.1.27, it no need to power on).
正常的情况下 TX 和 RX 灯应该交替闪烁.TX 灯亮说明 USB 线成功连接上电脑：RX 不亮说明 USB 线未成功连接控制器。
请按照以下步骤检查：
1.检查 USB 和控制器的连接。
2.检查控制器在上电状态。（如果控制器是在 2016.1.27 号之后购买的，不需要上电）。

17 - If activate EBS function, can charging function be used at same time? 如果激活电子刹车功能，充电功能是否能同时使用？

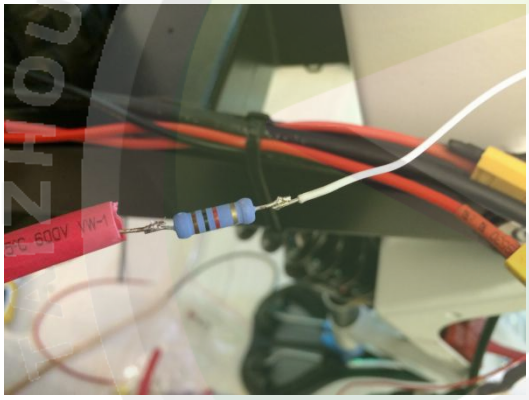
Yes, it can be used in the same time. 可以同时使用。

18 - The max ERPM of Sabvoton controller? 萨博沃顿最大的 ERPM 是多少？

The max. ERPM is 30000 for Sabvoton controller.
The definition of ERPM is : ERPM= Motor poles * speed
ERPM 定义: eRPM = 电机极对数 * 转速

19 - Sabvoton controller could add KTY83-122 or KTY84-130 thermistor, if motor didn’ t have thermistor or is difference with controller, it will shown wrong temp in the controller software, motor couldn’ t work normal, how to deal with such issue. 萨博沃顿控制器可以增加 KTY83-122 或者 KTY84-130 热敏电阻 ,如果电机没有热敏电阻或者和控制器是不同的热敏电阻型号，控制器软件上就会显示错误的温度，电机不能正常使用，如何去解决这个问题呢？

Please add a 1KΩ resistance between thermistor and controller. As below picture shows. 请在热敏电阻和控制器底线之间增加一根 1 千欧的电阻，如下图所示：



Normal issue about fault light 关于故障灯常见问题

1 - Red light blink 2 times 红灯闪 2 下

Reason: wrong connection

Detection: 1. Only connect with electric lock and negative, check the red light weather bright, weather the green light blink.

2. Then connect the other wire gradually, check the detalied issue.

原因：由于控制器接线错误

检测：1. 只接电门锁和负极，看红灯是否亮，绿灯是否闪烁。

2. 然后再逐渐把其他接线接上去，看问题是出在哪里。

2 - Red light blink 25 times 红灯闪 25 下

Detection: Check the range of battery voltage(Lack voltage and under voltage), then adjust the value lack voltage and under voltage in the program.
检测：检查电池电压范围（过压和低压），然后在控制器程序中调节过压和低压值。

3 - Red light blink 8 times 红灯闪 8 下

This fault could divide into restorability and not restorability. If the switch current always shown Instantaneous over-current, it means controller broken.If it shown after motor turn, switch current didn’t have such fault, it could be restorability, at this time. We turn down the max phase current, turn up the protect phase current, when motor worked, max working phase current more than protect phase current, controller is protected.
Factory reset
Under the communication connect state (RX and TX blink in turn). SET-DEBUG-restore factory settings to yes.
Click “ ok”, you could see the state.
这个故障，分为可恢复和不可恢复。
如果开关电一直显示瞬间过流，控制器坏了。
如果是转起来以后出现的，开关电如果没有这个故障，那么就是可恢复的，这个时候把最大相电流调低，保护相电流调高，电机工作时，最大工作相电流超过了保护相电流，控制器保护了。
恢复出厂设置
a. 通讯连接的状态下（RX 和 TX 交替闪烁），SET→DEBUG→restore factory settings to yes
b. 点“ok”在这里可以看到状态

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QS Wheel factory address: No. 138, Haifeng Road, Luqiao District, Taizhou City, Zhejiang Province, P.R China.
Email: steven@tzquanshun.com
Direct Tel: +86 0576 8855 1619
Phone Number: +86 135 6681 1753
Skype: shidi2884