

SiAECOSYS

Powertrain Solution & EV Development

EV Your Life!



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SIA Services

Who is **SiAECOSYS**

TAIZHOU SIA SCIENCE AND TECHNOLOGY CO., Ltd. (short for **SiAECOSYS** or **SIA**), locate in Taizhou city, Zhejiang, China, work on powertrain solution & EV development business.

 www.siaecosys.com

•Powertrain Solution

As a sub-brand of QSMOTOR, SIA work on electric motor & motor kits as electric powertrain for electric 2/3 wheeler, focus on international market.

•EV Development

Original design manufacturer in electric driving industry, offer ODM business.
From design, prototype to mass production, offer one stop solutions!



2003
Taizhou Quanshun Vehicle
Accessories Co., Ltd.

2006
Taizhou Quanshun
Motor Co., Ltd.

2013
Taizhou SIA Trading Co., Ltd.

2018
"SiAECOSYS"
League

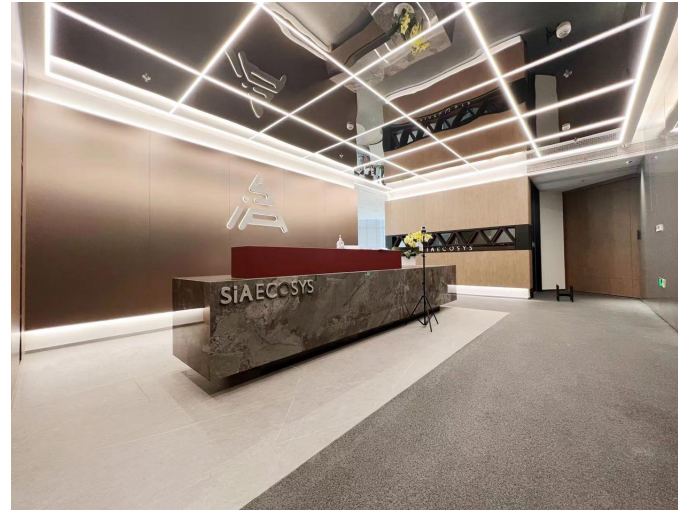
2020
Taizhou SIA Science
and Technology Co.,Ltd.
Zhejiang SiAECOSYS
Technology Co.,Ltd.

2021
Vehicle R&D
Center

2022
Headquarters
Hangzhou Branch
-SEVS

2023
Global Service
& Marketing Center
Overseas Warehouse
EV Assembly
Manufacture





Headquarters (Taizhou City, China)



Hangzhou Branch-SEVS (Hangzhou City, China)



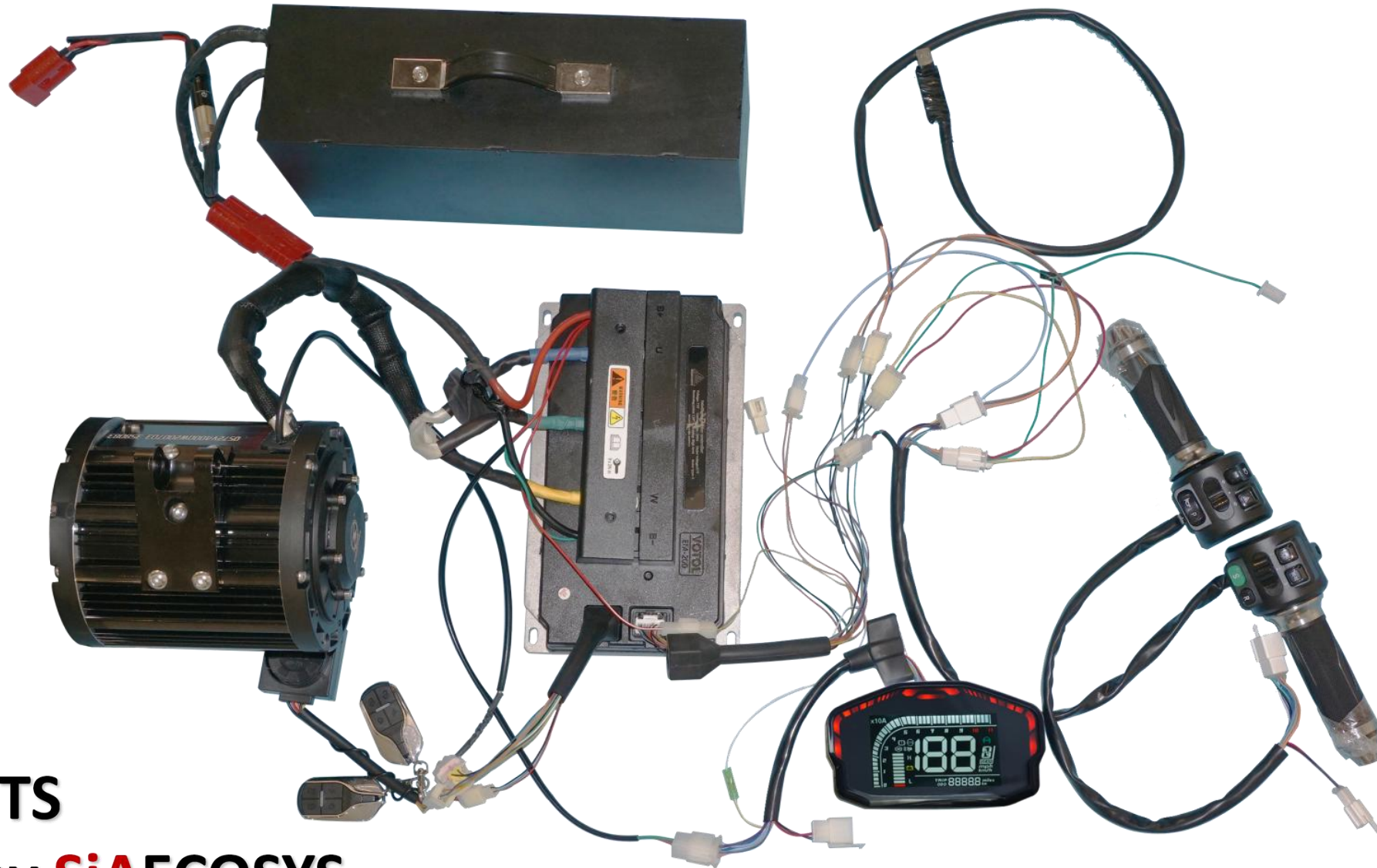
2000m² ODM R&D center Locate in Yangtze Delta Region Institute of TSINGHUA University, Zhejiang



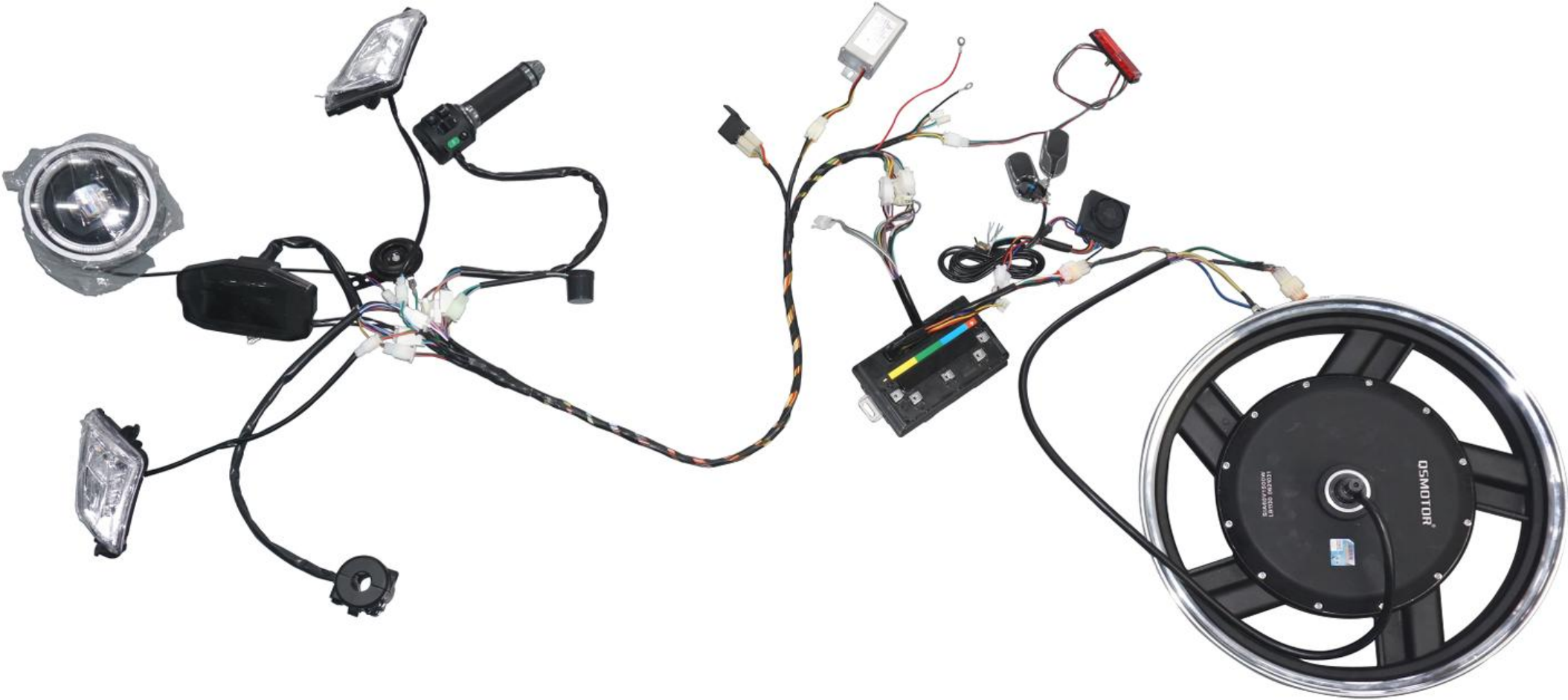
1200m² warehouse In QSMOTOR, with hot sale products in store



60,000m² Modern EV Assembly Manufacture for ODM E2W



MOTOR KITS
Powered by **SiAECOSYS**





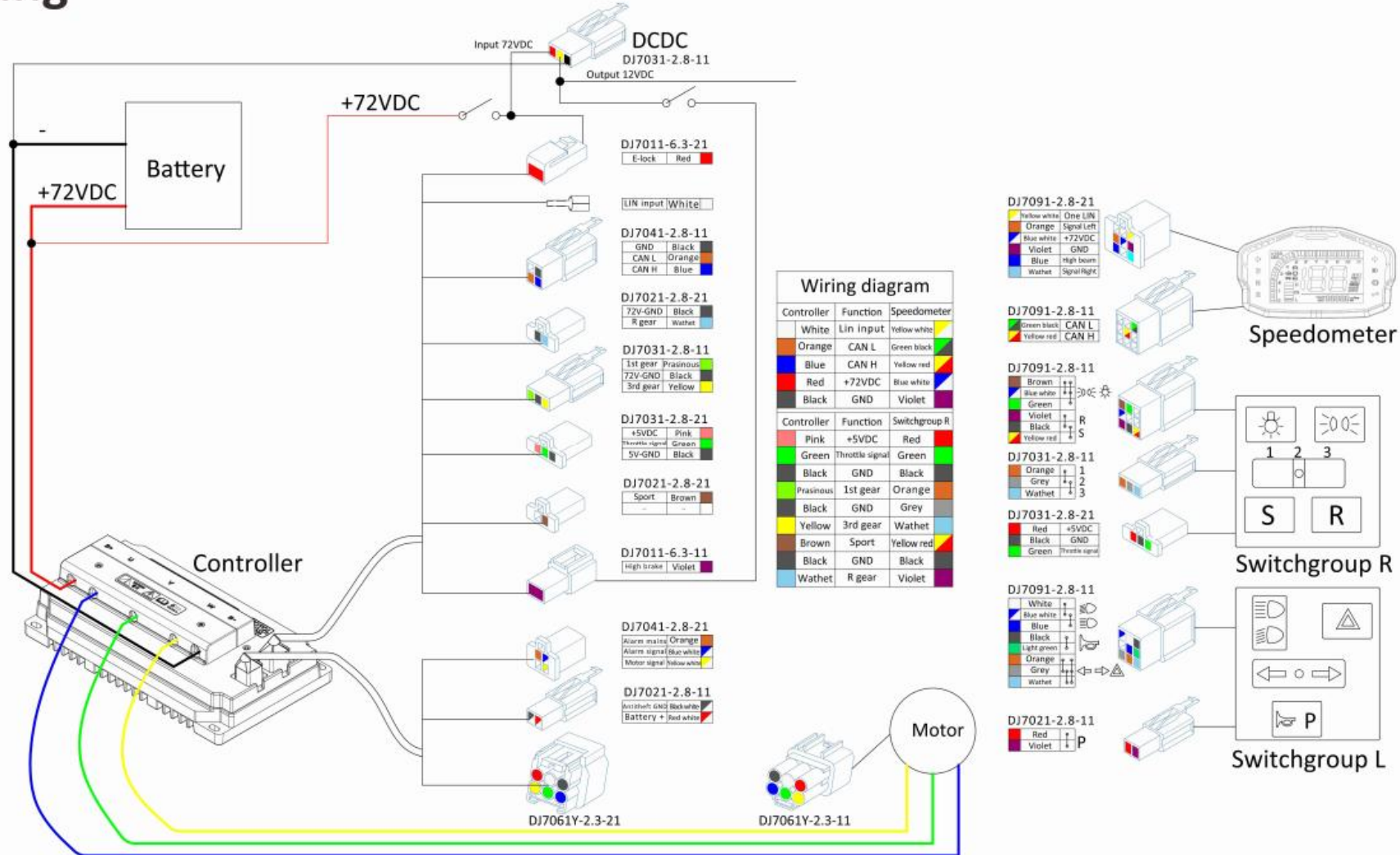
Optional Motors: AC, PMSM 3-11kW

Basic solutions: Motor+Gearbox+Controller+DC-DC Converter+Spedometer+Throttle+Wiring Harness+Mechanical Parts

Optional Extended configuration: IoT, Bluetooth module, TFT speedometer

Other Accessories: Fast Charger, Intelligent Charging Station, IoV, Lithium Battery, Rent management system

Wiring



SiAECOSYS is committed to becoming a professional intelligent electric vehicle solution provider, help customers quickly build an intelligent vehicle system

PEOPLE

GPS

Real-time vehicle condition

Alarm fortification



VEHICLE

Intelligent alarm

Smart tail box

Breakdown self check

ECU

CAN

OBD 485

LIN...

SHARE

Vehicle

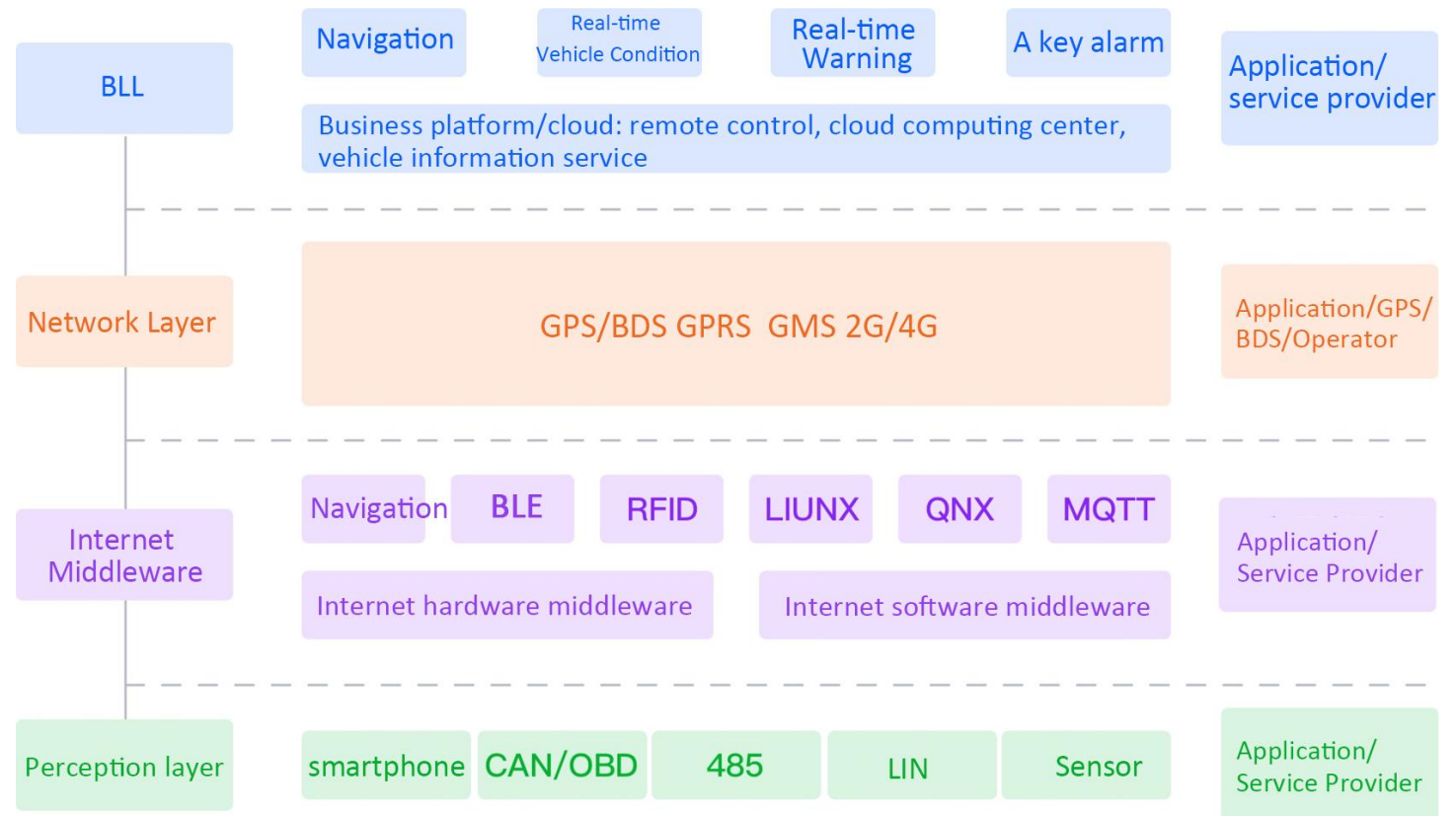
regulation

AI planning

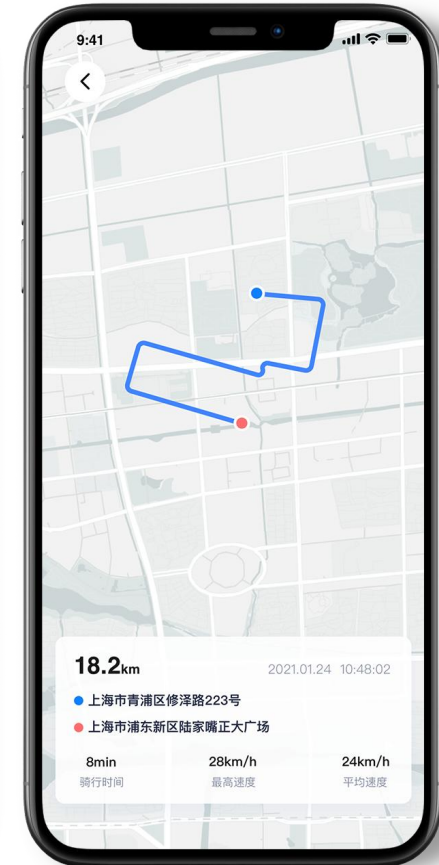
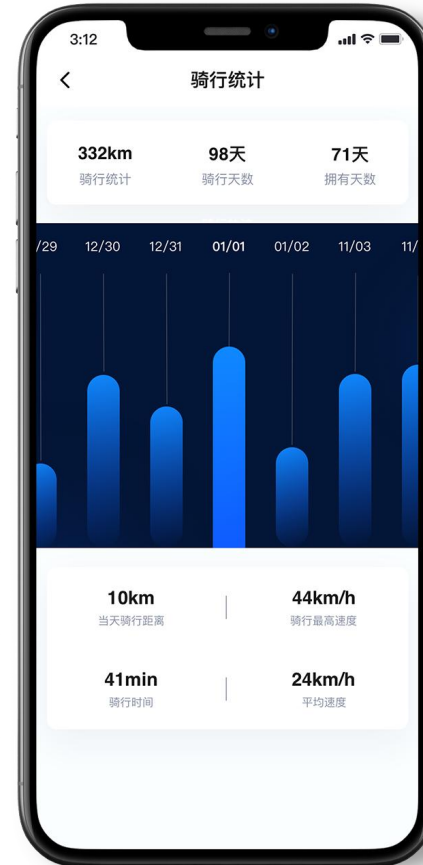
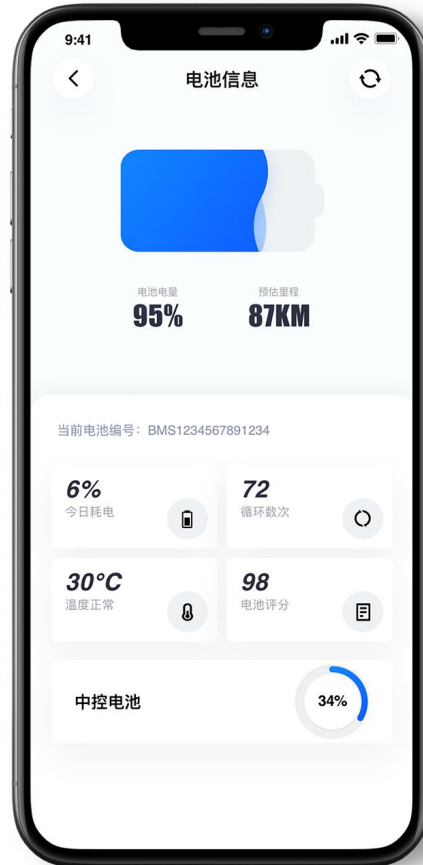
Networking Architecture Platform Solutions

SiAECOSYS can provide the SDK on the device side to quickly connect the device to the cloud and achieve high efficiency.

It also supports global device access, heterogeneous network device access, multi-environment device access, and multi-protocol device access.



Product Display



Vehicle Data Visualization



SiAECOSYS IoT

- **4G Tracker**

Work as 4G tracker without any communications (CAN), will be available soon.
Function: lock/unlock scooter remotely, location display.

- **VCU**

Work as complete VCU, and battery swap solution for Electric scooter, under development.



Motor-Wheel Hub

Wheel Hub Motor and PMSM Motor

Rated Power: 1KW~20KW

Speed: 30KW/H~180KM/H

Voltage: 48V~120V

Torque : 24N.M~400N.M



PMSM Motor & Kits

1000w-9000w



E-Scooter/Motorcycle Motor

10inch-17inch

500w-14kw

Spoke Hub Motor

500w-8000w



E-Car Hub Motor

1000w-12000w

E-Single Shaft Motor

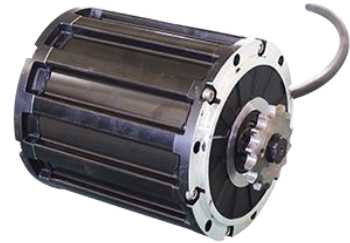
20inch&10inch-17inch

500-8000w





1000W 90 V1 IPM Motor
belt/sprocket adapter



2000W 120 V1 IPM Motor
belt/sprocket adapter/spline



3000W 138 V3 IPM Motor (spline)



4000W 138 Water Cooled IPM Motor



8000W 180 IPM Motor
under development



EM50SP
72V 3900RPM 26.6N.m



EM100SP
72V 4600RPM 49N.m



EM150/2 EM150SP
48V 2700RPM 57N.m
72V 6200RPM 54N.m



138 4kw Mid-Drive Moto
72V 7000RPM 63N.m



EM350SP
72V 7000RPM 100N.m

PMSM Mid-Drive Assembly Motor Kits



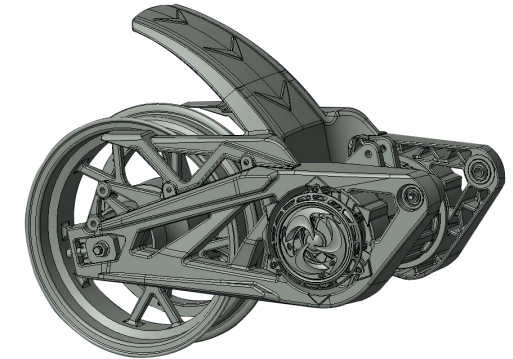
10inch 90 1KW IPM Motor Kits

48V 38km/h
60V 45km/h
72V 50km/h



12X3.5inch 138 3KW PMSM Motor Kits

48V 70km/h
72v 95-100km/h



12X3.5inch 138 4KW PMSM Motor Kits

48V 70km/h
72v 95-100km/h



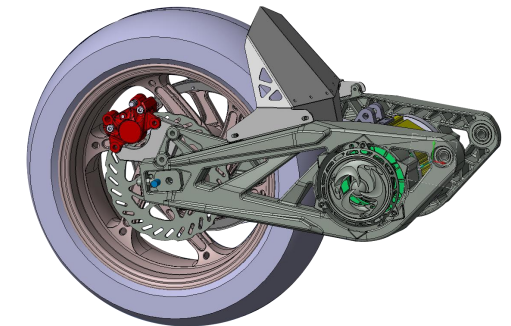
12X3.5inch 120 2KW PMSM Motor Kits

48V 58km/h
72V 72km/h



14X6.0inch 138 3KW PMSM Motor Kits

available soon
72v 95-100km/h



14X6.0inch 138 4KW PMSM Motor Kits

available soon
72v 95-100km/h

Electric Wheel Hub Motor



10X2.15inch 212 Hub Motor
500w-2000w



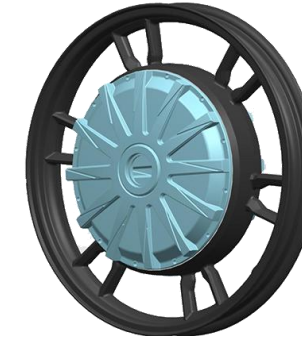
12X2.5inch 260 Hub Motor
800w-3000w
12X3.5inch 260 Hub Motor
800w-12000w



14X2.5inch 260 Hub Motor
800W-4000W
under developing



17X1.6inch 260 Hub Motor
800w-2000w



17X1.85inch 260 Hub Motor
2000w-6000w (private mold)



17X2.5inch 260 Hub Motor
2000W (private mold)



16X3.5inch 260 Hub Motor
2000w-8000w



17X3.5inch 260 Hub Motor
800w-6000w



205 Bike Spoke Hub Motor
1000w-3000w
drop-outs 150-155mm



273 E-car Hub Motor
8000w-12000w



20inch 205 Bike Hub Motor
500w-1500w₂



120 1-1.5kw PMSM motor



140 1.8-3kw PMSM Motor



145 3-5kw PMSM Motor



180 7.5-18kw



Rear axle (customizable)



Gear box

Controller

Voltage:48V~120V

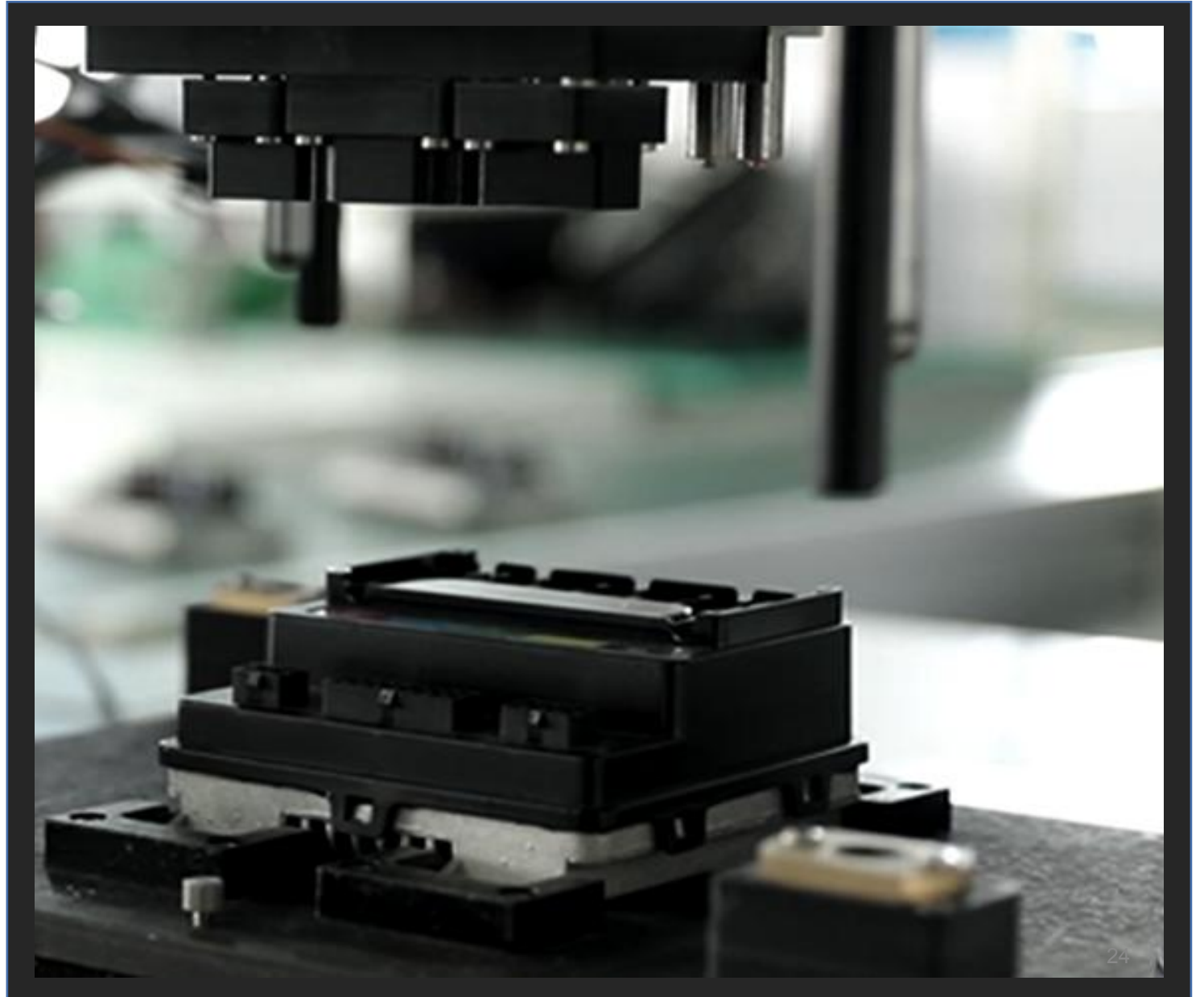
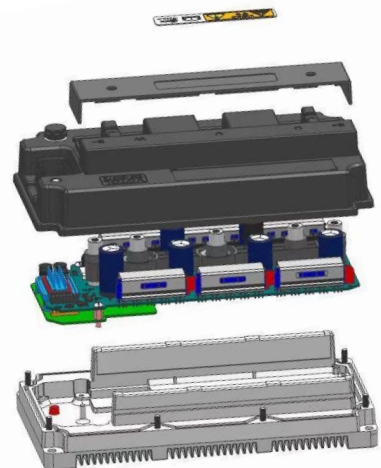
Bus Current:35A~300A, Peak : 40A~450A

Phase Current:100A~600A, Peak:120A~850A

Reverse Charge Function

E-brake Assistance Function

Flux Weakening Function



Votol Controller



EM30SP



EM50SP



EM100SP



EM150/2



EM200/2



EM260SP

Fardriver Controlle



SIAYQ72100



SIAYQ72120



ND72360



ND72530



ND72680



ND96850

Sabvoton



SVMC72150



SIA7230



APT AE96600



Yuyangking



Kelly KLS7230S



CT-22 LCD(adjustable)



DKD LCD with CAN



H6 TFT



750C TFT



X8-E(programable)



LCD VA with CAN(private mold)

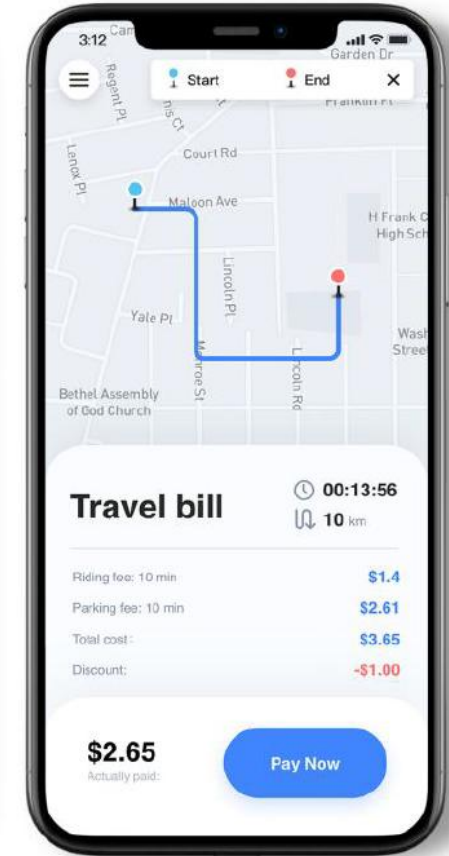
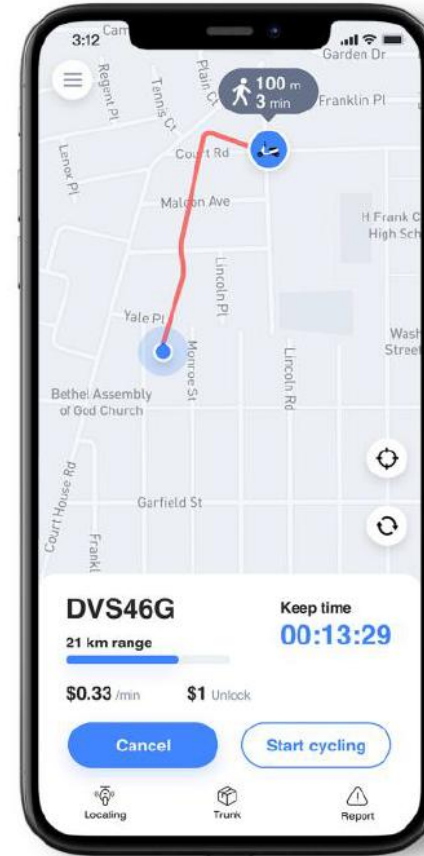
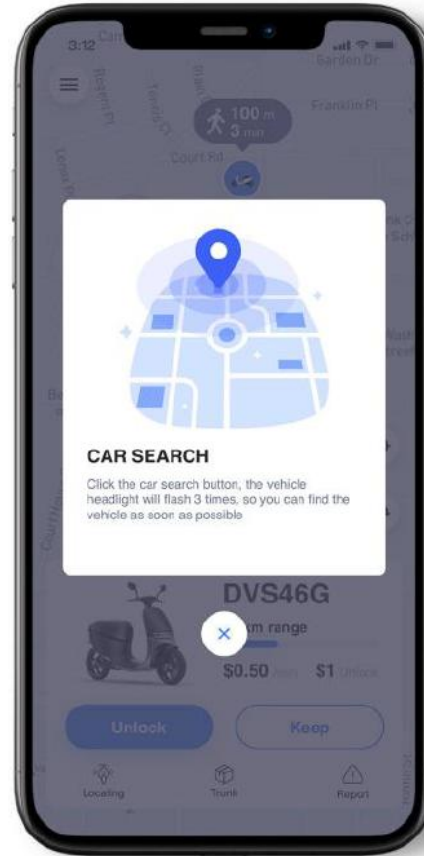
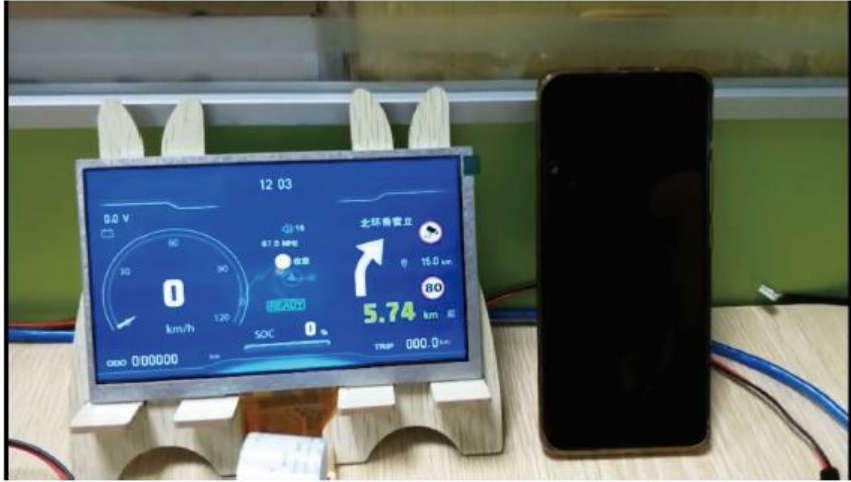


TFT with CAN(private mold)

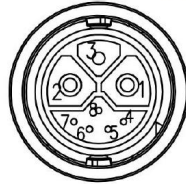
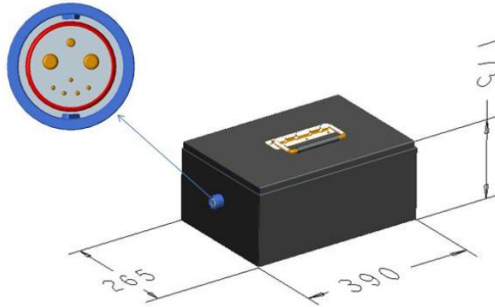
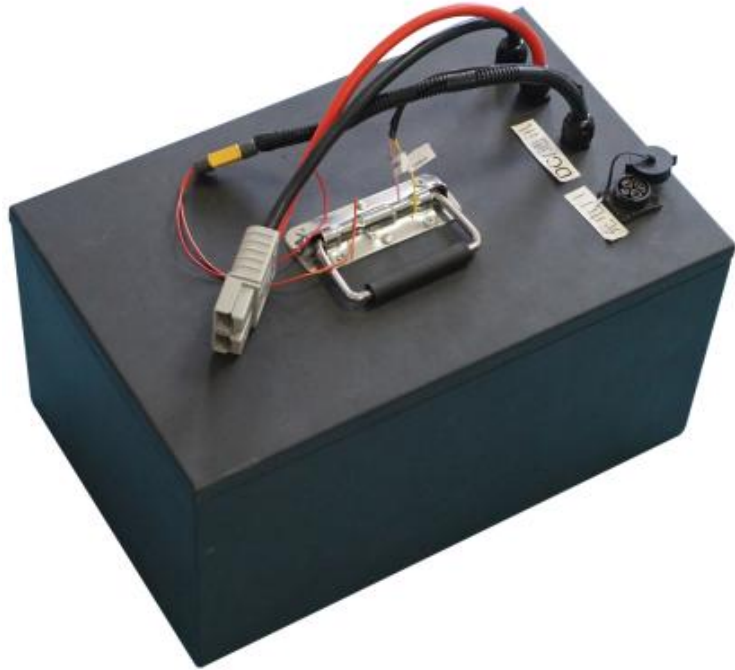


TFT with CAN

Speedometer



Smart TFT speedometer with Bluetooth & APP will be available soon.



Port 接口	Definition 定义	Remark 备注
1	Discharge Positive+	
2	Charge/Discharge Negative-	
3	Charge+	
4	GND	
5	CAN_H	
6	CAN_L	
7	Key_ON	
8	Charge Wake-UP	



72V40Ah NCM Lithium Battery with Software BMS (CAN BUS), 72V 40Ah/50Ah/60Ah available.

This product is applicable to 72V electric motorcycle, with voltage, current, temperature protection function and voltage, temperature, current, SOC warning function. It can communicate with the charging machine and instrument of motorcycle through CAN2.0

New battery LG21700 NCM 72V 40Ah available(with UN38.3), parallel connection under development.

Charger and DC-DC

Rated Power:0.6KW~6.6KW

Rated Output Voltage:48V~360V

Input Voltage Range:96V~265VAC

Rated Current:5A~70A

Typical Efficiency[EFF]:→92%

Operating Ambient Temperature:-40°C~+85°C

Communicating

Function:CAN2.0/CAN2.0B/RS485

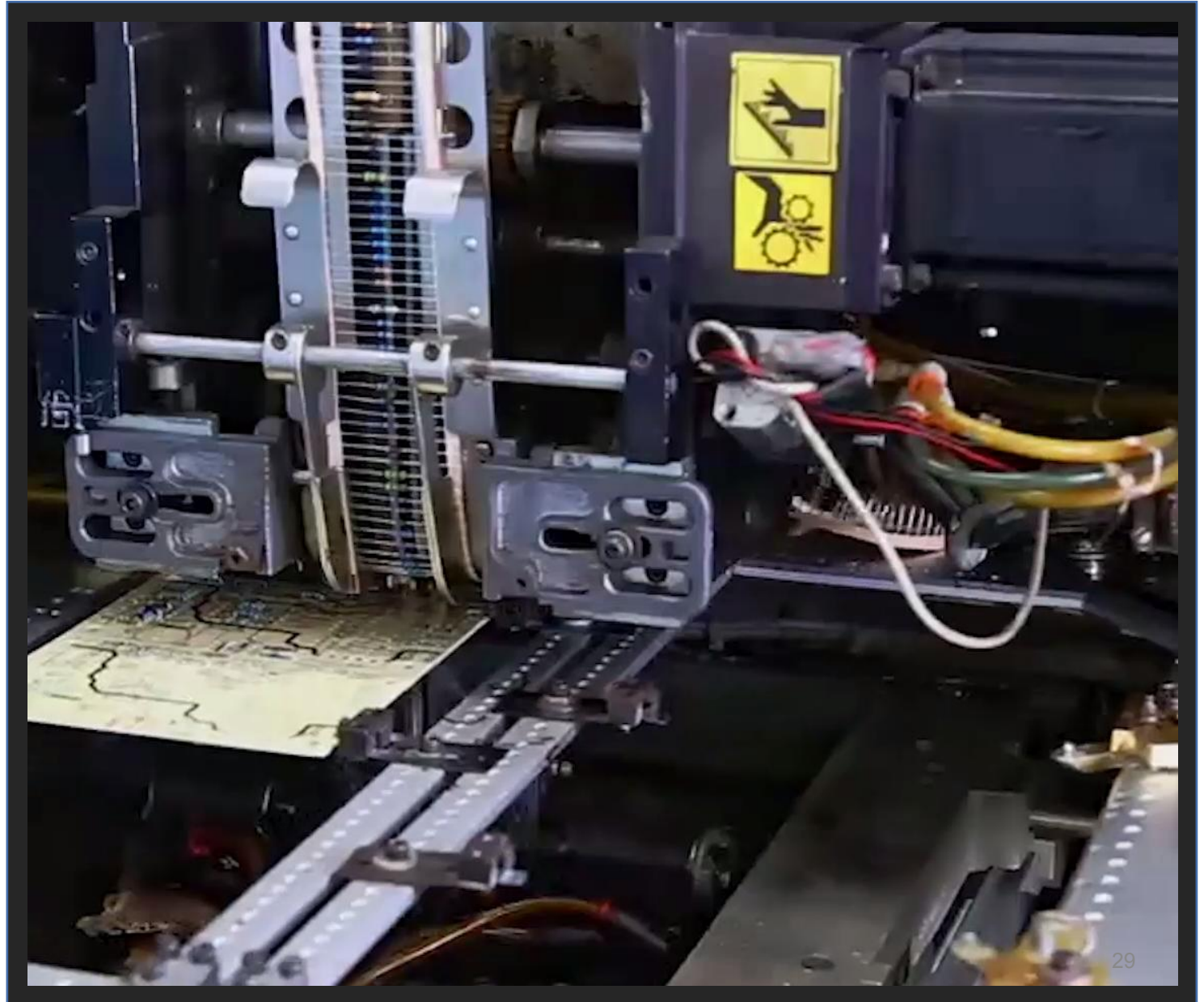
Level Of IP:IP65~IP67

Rated Output Power:100W~1500W

Rated Of Input Voltage:48V~320V

Level Of IP:IP65~IP67

Insulate Or Non-insulate





600W without CAN
48V 9A
72V 7.5A



1000W with CAN
48V 12A
72V 12A



1200W with CAN(IP67)
48V 15A
72V 15A



1800W with CAN
48V 20-25A
72V 20-25A



1000W with CAN
72V 45A
96V 33A



6600W with CAN





Z6



Thumb



Three speed



Throttle



Half throttle



Foot throttle

Wheel Rim



10*2.5inch



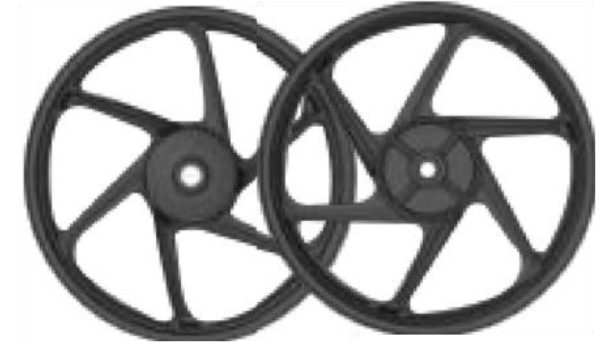
12*2.75inch&12*3.5inch



13*3.5inch



14*1.85inch



18*1.85inch



13*3.5inch



14*2.15inch&14*3.5inch



17*2.5inch



17*2.5inch



17*2.5inch



20*1.75inch
(bicycle)



48/60/72V-12V 10A



Isolated converter(for EMC)



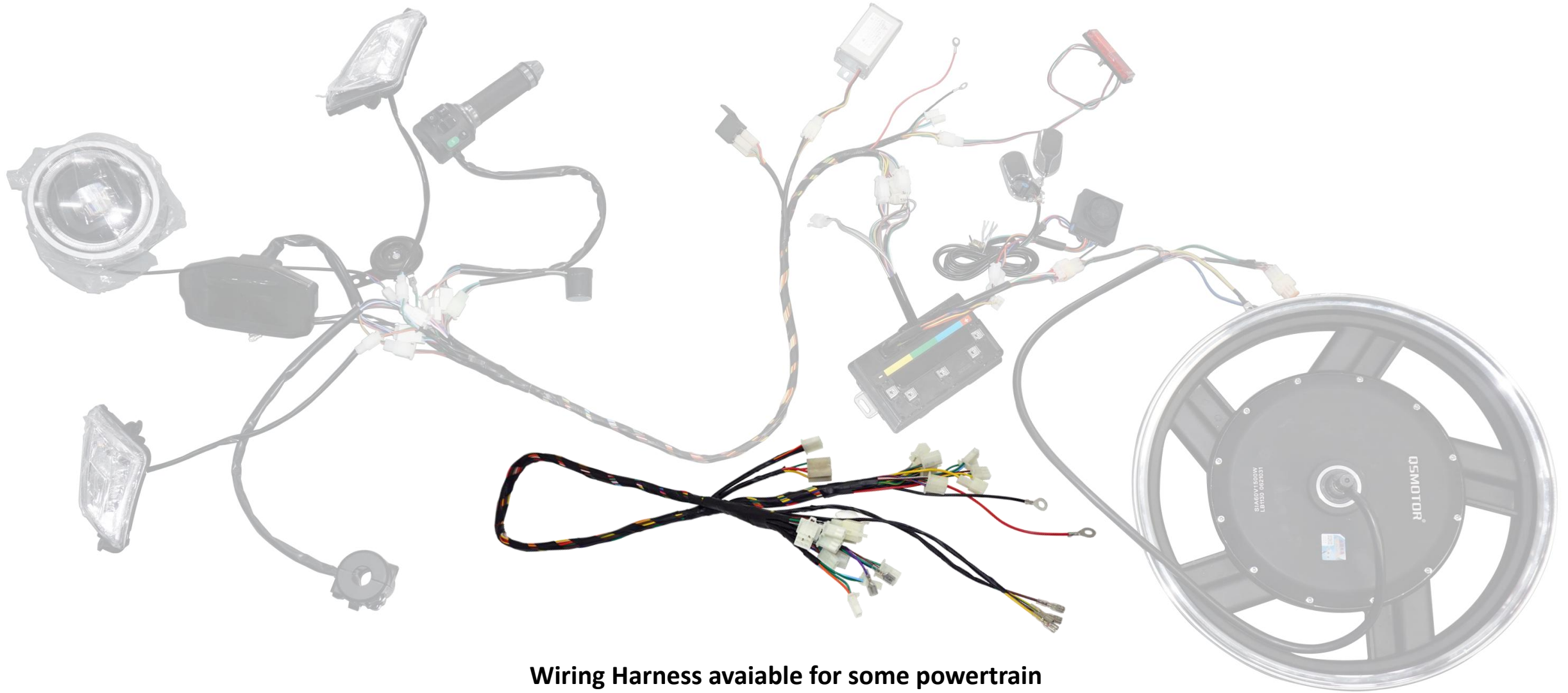
48/60/72V 15A



96-13V insulate



144-13.5V insulate



Wiring Harness available for some powertrain



It is an active safety device added to the original braking system of motorcycle. The device can automatically prevent wheel lock due to excessive braking pressure. Keeping you away from sideslip, wrestling and other dangerous conditions. Shortening braking distance of driving in the rain and snow.

Range

Power: 500W-8000W

Speed: 45kph-120kph

Voltage: 48-96V

Drop-out: 135mm-200mm



Electric high power bicycle

E-bike weight, approx 47kg+80kg

Tire model: 2.50-19

Speed: 72V 80km/h

Climbing slope: 25°@127kg

Battery: 72V40h lithium battery

Application

Electric Motorscooter with side drive motor

E.g.

E-bike weight: 100kg+2*80kg

Speed: 72V 100kph

Gear ratio: 1:6.15

Climbing slope: 20° @40kph @180kg@120s

Battery: 72V30h

Tire: 110/70-12



Application

Electric dirt bike

E.g.

E-bike weight: 60kg+2*80kg

Speed: 100km/h

Gear ratio: Pending

Climbing slope: 30° @140kg

Battery: 72V40h NCM lithium battery

Tire: 17inch

PS. Kit with CAN BUS .



Application

Electric dirt bike

E.g.

E-bike weight: 100kg+80kg

Speed: 100-110km/h

Gear ratio: Pending

Climbing slope: 30° @140kg

Battery: 72V40h NCM lithium battery

Tire: 17inch

PS. Kit with CAN BUS .



Application

Electric High Power Bike

E.g.

E-Bike weight: 47kg+80kg

Speed: 70-80km/h

Climbing slope: 25° @127kg

Battery: 72V 40Ah lithium battery

Tire: 17inch



Application

Electric Motorscooter

E.g.

E-bike weight: 100kg+2*80kg

Speed: 70km/h

Climbing slope: 12° @180kg

Battery: 48V NCM lithium battery

Tire: 120/70-12

PS. Kit with CAN BUS .



Application

Electric Motorbike

E.g.

E-bike weight: 69kg+2*80kg

Speed: 45-50km/h

Climbing slope: 12° @180kg

Battery: 48V lithium battery

Tire: 17inch

PS. Kit with CAN BUS .



Application

Electric Motorcycle

E.g.

E-Motorcycle weight: 180kg+2*80kg

Speed: 120-130km/h

Climbing slope: 24° @260kg

Battery: 96V 90Ah lithium battery

Tire: 140/70-17

PS. Kit with CAN BUS .



Application

Electric Light Car

E.g.

E-car weight, approx 300kg+350kg

Tire: 205/65R15

Speed: continuous 38km/h @48V by 4wd,

Climbing slope: 10° @650kg by 4wd

Battery: 48V lithium



Application

Electric Light Car

E.g.

E-car weight, approx 815kg+285kg

Tire: 185/65 R14

Speed: continuous 120km/h @96V by 4wd,

Climbing slope: 30° @895kg by 4wd

Battery: 96V200Ah or 110V200Ah

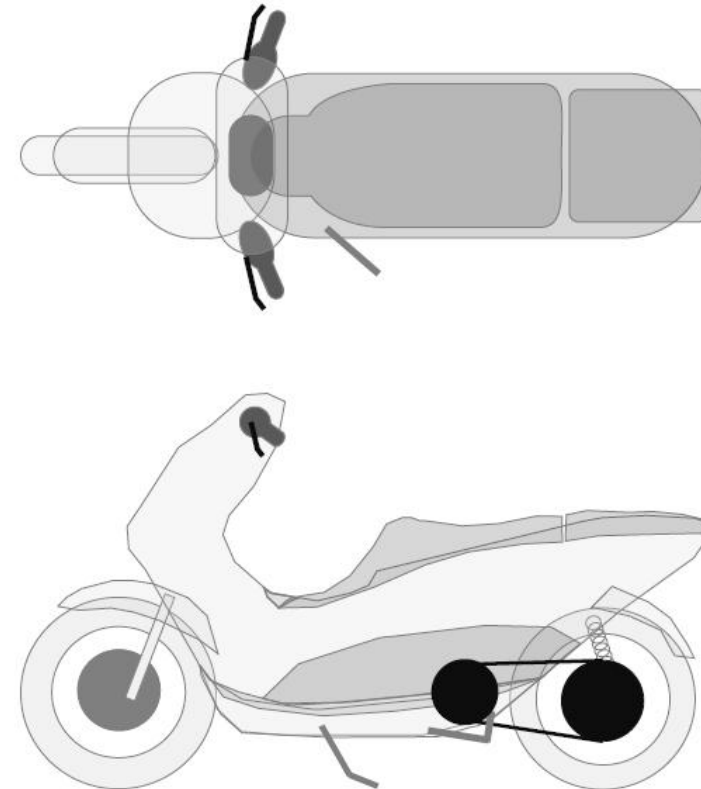
lithium(with more speed)



New Electric 2 Wheeler(E2W) Development

Have done some high power E2W projects successfully, SiAECOSYS has abundant experience in EV development for mass production. From design, prototype to trial & mass production, offer one stop solutions!

By testing powertrain samples, customer might build own prototype and start sales, SIA could also start from there, push forward the implementation of projects by making mold and further testing, lead to volume production (assembly optional). Help customer to make it happen!



Build new electric 2/3/4 wheeler prototypes



Requirement Clarify

Pls. provide your requirements of e-vehicle: Speed, Climbing angle, weight with loading, voltage, mileage, tire size, charging time and so on. SiAECOSYS will analyze data accordingly.

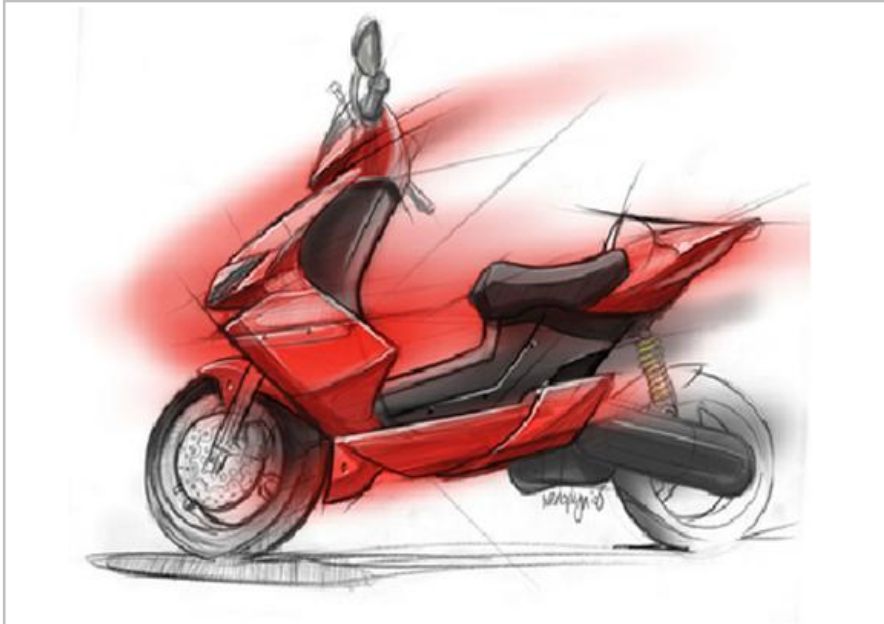
e-Street motorcycle 17" wheels				Performance		
S/N	Model name	Max speed	Range	Climbing	Acceleration	Charging time
2	e-Street 100/100	100km/hr	100km@50km/hr	10°@45km/hr	0 - 60km/hr - 6sec	2 - 4 hr
Reference image:						
					Vehicle weight (Kg)	110
					Rider weight (Kg)	70
					Front wheel (inch)	17
					Rear wheel (inch)	17
					Sales budget	50 per month

Requirement Clarify

The motor plan should be defined after the requirement analysis is completed



Development Process



Design sketch

According to your requirement to make scooter design. We can provide you the sketch from different angles. Also, we will discuss the sketch to with you.

10 DAYS

30 DAYS



Plastocene model

Do sample via plastocene according to confirmed sketch. Invite you come to us to review the plastocene together, that if any idea we can change the plastocene on the spot.



Design 3D

Design 3D according to confirmed Plastocene model

Ps: In this processing, some items we can use off-the-shelf items, some parts like wheel rim/speedometer maybe could not meet our requirement that has to make new development.

60 DAYS

30 DAYS



Project Data Review

We can keep discussing the 3D data via video conferencing or face-to-face in time.



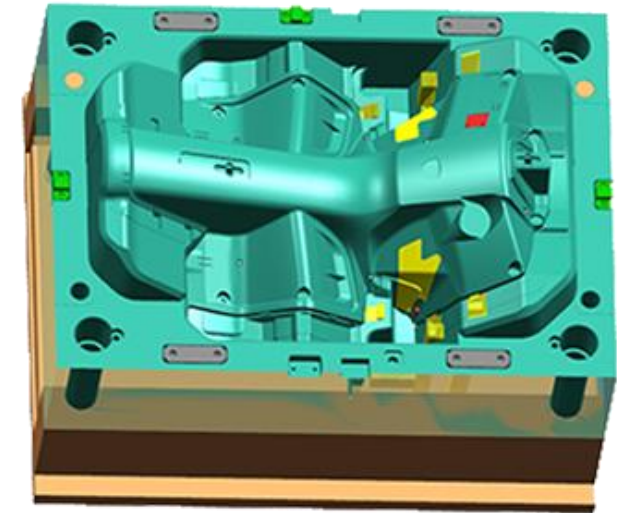
Rapid Prototyping Motorcycle Sample

Produce e-vehicle sample through 3D printing and CNC
The main purpose for the rapid prototype sample is to check the appearance and comfortability.

If any issues we can update 3D according your feedback,
If possible will make rapid prototype again to double confirm.

20 DAYS

80 DAYS



Make molds (plastic cover, lights, frame)

Make molds (plastic cover, lights, frame) according to 3D.
After mold, maybe some parts still need to adjust to be better,
so some available to modify mold.

Vehicle Test



Road Test

We have professional driver team to do road testing about 15000km.

In this processing, any issue we have engineer to debug and adjust.



Chassis dynamometer Test

Professional driver test the performance of e-vehicle

Trail sample production

SiAECOSYS could produce small quantity e-vehicles on first order. After road testing and adjust all issues, we can produce 20-30pcs small quantity motorcycles to verify on market. If any feedback ,we can discuss if need to adjust or not. Confirm our final state and mass production.



Power Train solutions

To customized a suitable motor & kits, could you pls. inform below points:

- 1.E-bike, E-scooter, E-tricycle or E-car?
- 2.Weight of vehicle with battery, loading weight (weight with load only)?
- 3.Tire model/diameter?
- 4.Rated voltage and wattage of motor, Speed, and climb angle or torque @ what speed?
- 5.Battery nominal voltage, peak voltage and capacity, vehicle range?
- 6.Need CAN-BUS protocol or not?
- 7.Order forecast quantity/year?

Within your details information, we could make assessment and calculation accordingly for your project.

- E.g.
1. E-motorbike (2 wheeler)
 2. 100kg + 2*80kg
 3. 120/70-12
 4. 72V 3000W 70km/h 15° @260kg
 5. 72V 30Ah lithium battery, 84V peak, 70km
 6. CAN-BUS
 7. 1000pcs/year

Calculations & Model Selection

Analysis

Total weight about 100+80*2kg(with driver & battery), max. speed 70km/h, wheel radius with tyre 0.2364m(120/70-12), If suppose the EV cross section area is 0.7, the windage resistance factor is 0.65, then input all the data in the sheet (blue color).

Then we'll get the calculated output which shown in red color. From the output data, we can see:

1. On the ground, The EV need 785.85RPM while the torque is 36.56N.m
- And in this point, the motor out power is 3008.8W.
2. When climbing @12KPH (134.72RPM), it need the max. torque 168.43N.m when climbing 15 degree slope(25.88%) @260kg.

According to the calculation, we will check suitable test report/map/performance of power train, and advise the best configuration accordingly. Btw., we might need more information for controller functions settings.

Electric Motorbike - MM 20190113

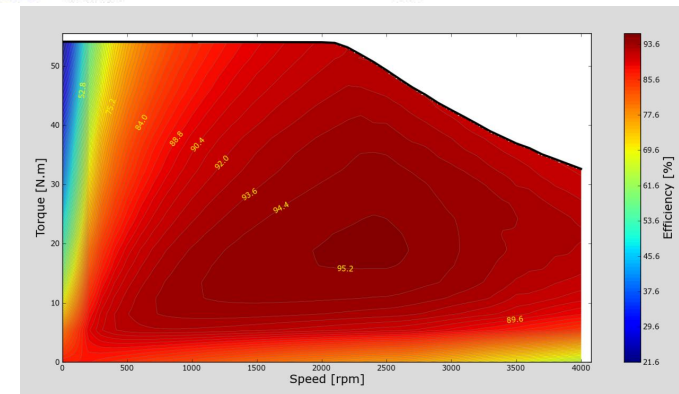
单个电机驱动

		260	EV Weight+Driver, kg	
		15	Inclination Angle (a), degree	
		0.7	EV cross section area (A)	
	0.6-0.7	0.65	Windage Resistance Factor (Cw)	
Climbing Velocity, V'	12	70	Max Velocity (V), KPH	
120/70-12		0.2364	r, Tyre radius @	
25.88%		sin a		
1.205kg/m3		ρ @ 20°C		
660.14			Climbing resistance	
49.27			Rolling resistance when Climbing	
51.01			Rolling resistance on the ground	
103.65			Windage resistance @ max speed	
3.05			Windage resistance @ 10km/h	
712.46			Total Resistance when climbing	
168.43			Required torque when climbing	168.426404
154.66			Total Resistance on the ground	
36.56			Required torque on the ground	36.561545
2.54			a when starting , Fw=0	
8.87			t (s), S=100m	
10.92			Vt=100KPH, 0- 100KPH	78
785.85			required RPM at max speed	873.166699
13.10			wheel speed (RPS) at max speed	
134.72			required RPM' when climbing	
2.25			wheel speed (RPS)' when climbing	
2376.08			Motor Power when climbing	2376.08332
3008.80			Motor Power on the ground	3008.79656

Blue color is input

Red color is calculated output

Voltage V	Speed km/h	EFF	Calculated battery current A	Range km	Capacity Ah
78.0	70.0	84.0%	45.9	80.0	58.3
78.0	45.0	84.0%	15.4	80.0	30.4
78.0	30.0	84.0%	7.6	80.0	22.4

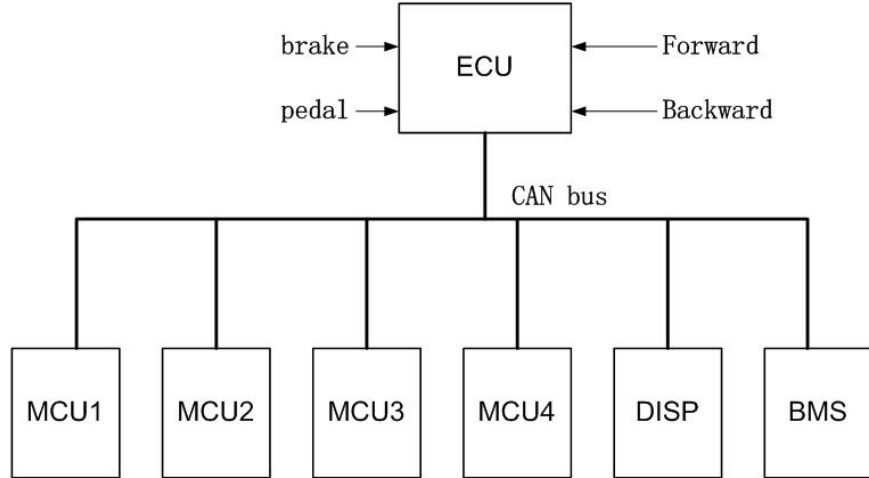


Power Train solutions

CAN BUS

SiAECOSYS develop its own CAN BUS protocol for 2 wheeler, include controller, speedometer, battery BMS and charger.

Customized CAN-BUS protocol is available, the BMS might need to re-developed, match with charger, speedometer and controller, which cost USD 20,000 to 50,000 depends on detailed request, take approx 8 months.



MCU:Motor control unit

DISP:Display

BMS:Battery Management System

■. Regarding CAN Protocol - 1

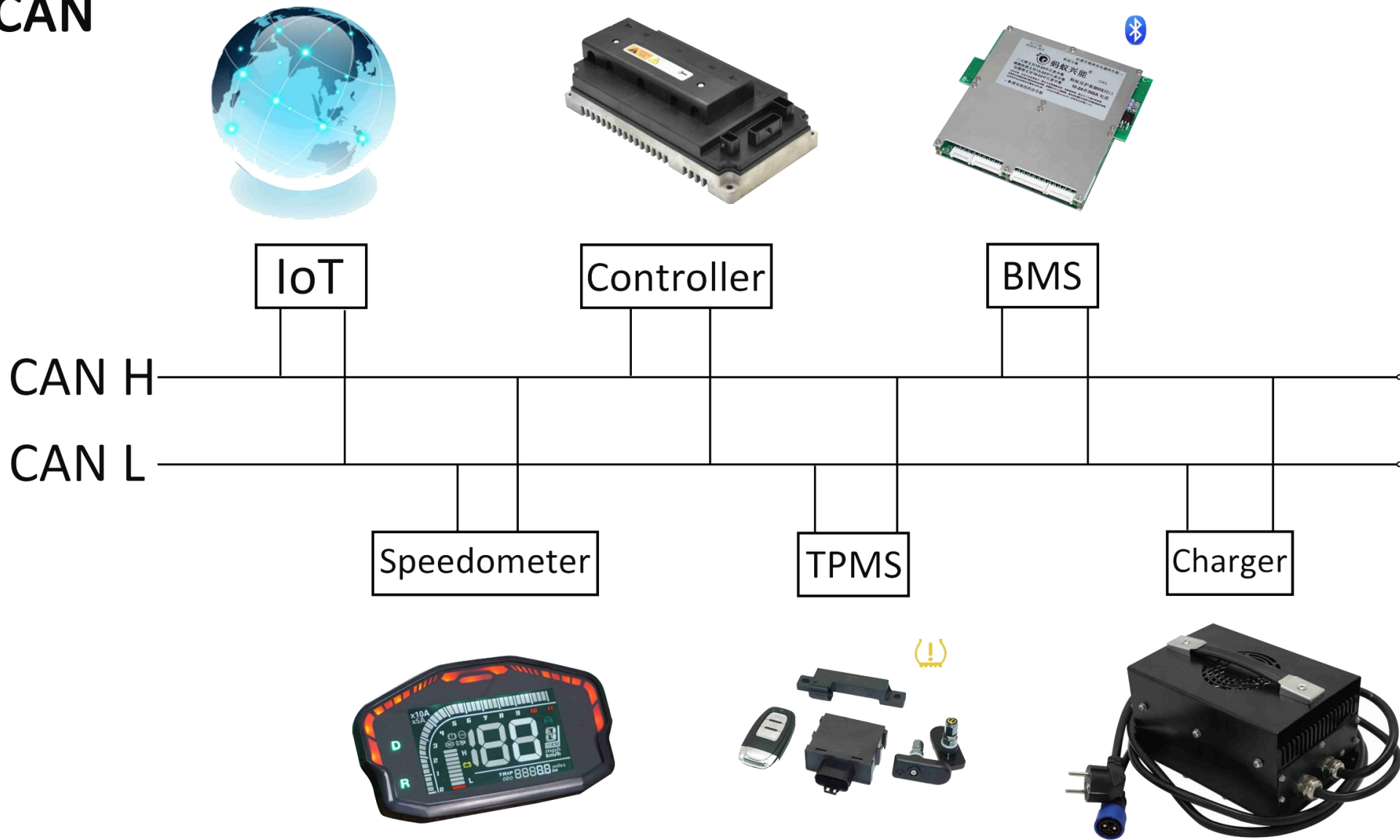
1. Controller ↔ Cluster : vehicle speed(km/h), rear tire Φ 458.8mm
2. BMS ↔ Cluster : SOC display
 1. Cluster must display SOC % from 0% to 100%
 2. Cluster must display warning lamp when SOC is below 30%, additionally
3. BMS ↔ Charger : we will send CAN protocol by April 20th.

from	to	ID	byte0	byte1	byte2	byte3
controller	cluster	0x10261022	speed(km/h), unsigned char(1byte)0~255			
BMS	controller	0x10261051				

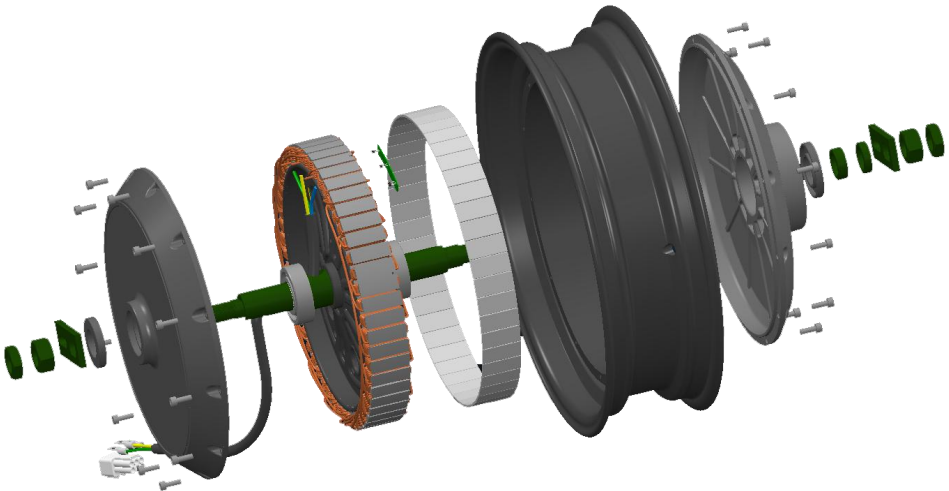
byte4	byte5	byte6	byte7	Remarks
				the diameter of rear tire : 458.8mm
SOC, unsigned char(1byte)0~255	BatteryTemp char(1byte)-127°C~128°C			<ul style="list-style-type: none"> ◆ Battery SOC ○ from SOC 20% to 100% --> throttle MAX torque ○ from 0% to 20%, continually Attenuating ◆ Battery Temperature ○ from temp 0°C to -15°C --> throttle MAX torque form 100% to 80%

250kbps use

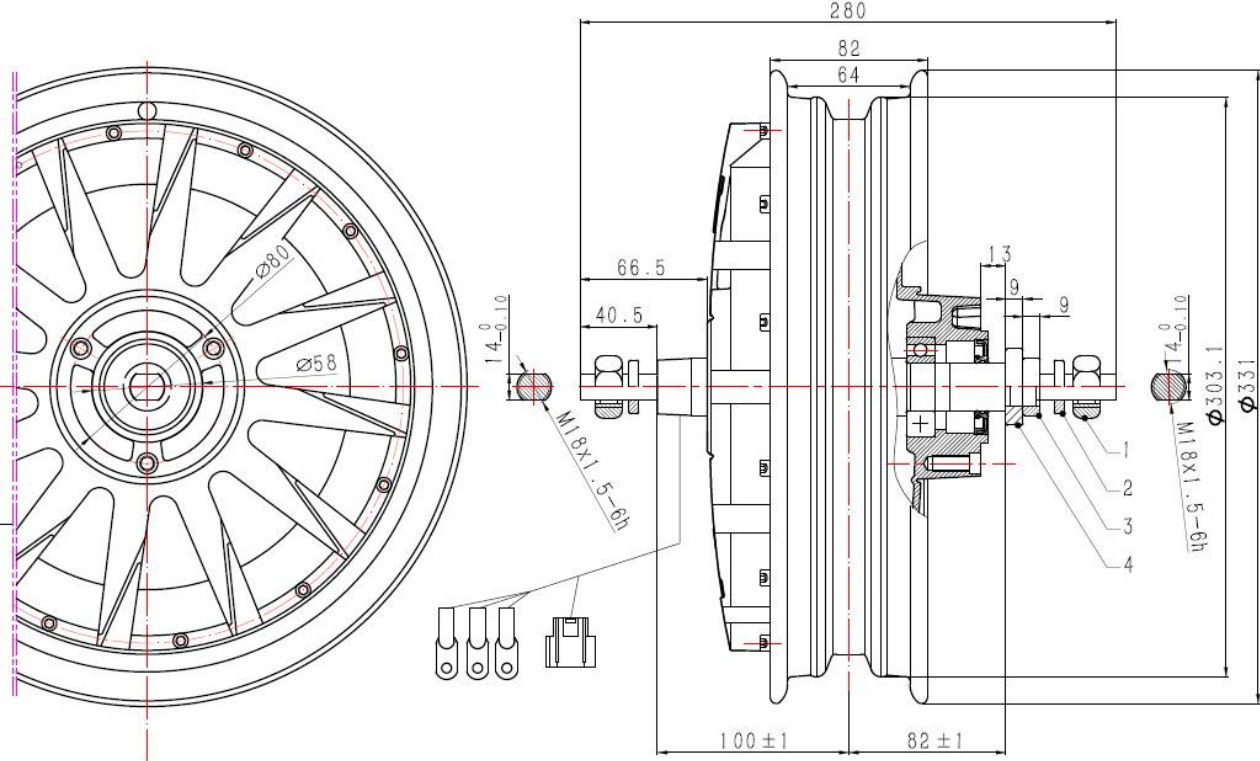
CAN



2D & 3D drawing available



3D drawing



2D drawing

Customization

Customization is available for mass production, there is MOQ request.

For Motor

new windings, new design of wheel motor, exclusive side cover, customized phase wire length and connectors, cardboard package

For Wheel

exclusive design of front and rear wheel

For Controller

CAN BUS protocol, new appearance

For Charger

CAN BUS protocol, input & output connectors

For Speedometer

CAN BUS protocol, complete new model, new UI of TFT display

For Throttle

New silkprint of buttons

...

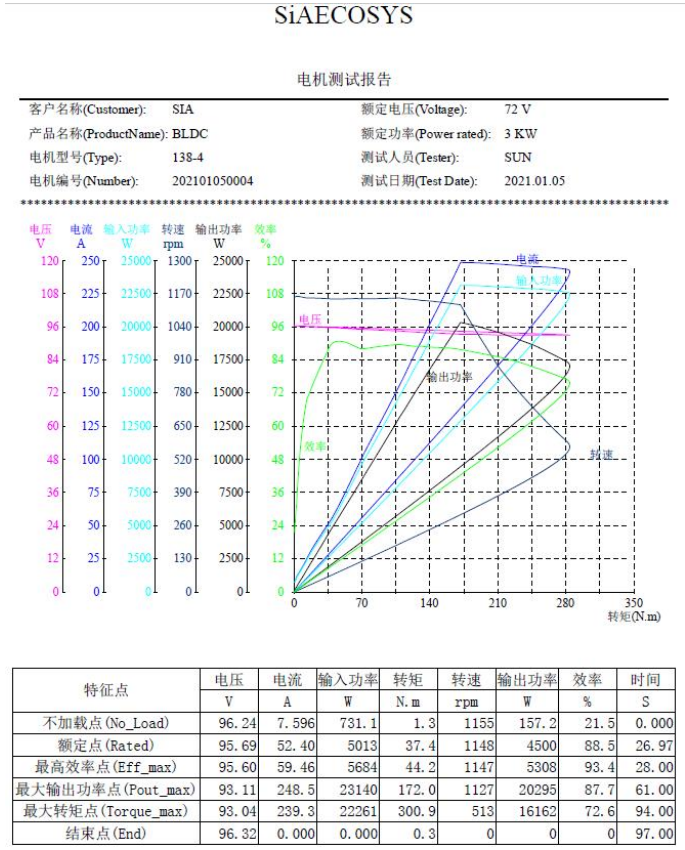


Power Train Test

SiAECOSYS could make power train samples performance test once sample done, able to do temp rise test, R85 test, aging test, chassis testshare, share dyno report with customers.



Dynometer test - Wheel Hub Motor



序号	电压	电流	输入功率	转矩	转速	输出功率	效率	时间
	V	A	W	N.m	rpm	W	%	S
1	96.24	7.596	731.1	1.3	1155	157.2	21.5	0.000
2	96.24	7.548	726.4	1.4	1155	169.3	23.3	4.000
3	96.22	10.27	988.6	2.7	1158	327.4	33.1	7.000
4	96.20	11.12	1069	2.7	1160	327.9	30.7	10.00
5	96.16	14.48	1392	5.8	1159	703.8	50.5	13.00
6	96.11	18.22	1751	8.8	1157	1066	60.9	16.00
7	96.04	24.32	2336	13.4	1154	1619	69.3	19.00
8	95.97	30.06	2885	17.4	1152	2099	72.8	22.00
9	95.86	38.99	3737	24.6	1151	2965	79.3	25.00
10	95.69	52.40	5013	37.4	1148	4500	88.5	26.97
11	95.60	59.46	5684	44.2	1147	5308	93.4	28.00
12	95.16	91.44	8702	63.7	1151	7676	88.2	31.00
13	95.04	99.48	9454	69.3	1148	8330	88.1	34.00
14	94.95	106.7	10133	74.0	1148	8894	87.8	37.00
15	94.79	118.4	11223	82.9	1149	9973	88.9	40.00
16	94.34	156.2	14736	109.2	1153	13183	89.5	43.00
17	94.20	168.0	15822	117.7	1146	14122	89.3	46.00
18	94.04	179.4	16871	124.4	1148	14952	88.6	49.00
19	93.90	189.1	17758	132.0	1142	15784	88.9	52.00
20	93.75	201.2	18866	139.2	1144	16674	88.4	55.00
21	93.38	228.9	21372	159.7	1132	18928	88.6	58.00
22	93.11	248.5	23140	172.0	1127	20295	87.7	61.00
23	93.09	248.4	23123	186.0	1032	20097	86.9	64.00
24	93.08	247.6	23048	199.5	949	19822	86.0	67.00
25	93.06	247.2	23006	212.3	878	19516	84.8	70.00
26	93.02	246.8	22962	224.6	819	19259	83.9	73.00
27	93.03	245.8	22870	236.1	766	18935	82.8	76.00
28	93.01	245.5	22833	247.6	717	18587	81.4	79.00
29	93.01	245.1	22799	258.7	673	18229	80.0	82.00
30	93.01	244.5	22746	269.5	632	17834	78.4	85.00
31	92.99	243.1	22606	280.4	592	17381	76.9	88.00
32	92.99	242.5	22546	291.3	556	16958	75.2	91.00
33	93.04	239.3	22261	300.9	513	16162	72.6	94.00
34	96.32	0.000	0.000	0.3	0	0	0	97.00



QS 8000W 273 V4 Hub Motor with APT96600

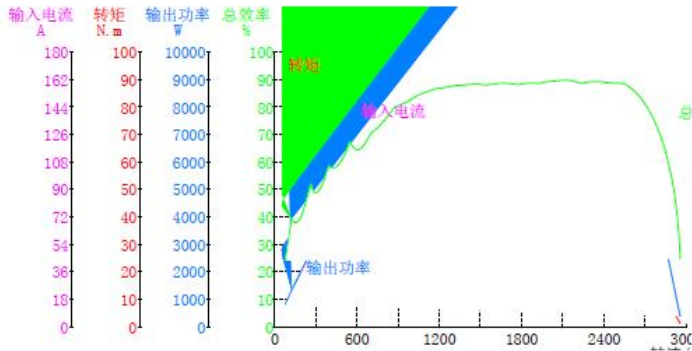
Dynamometer

Dynamometer test - IPM & PMSM Motor

电机测试报告

客户名称(Customer): 全顺
 产品名称(Product Name): 永磁同步电动机
 电机型号(Type): QS-138-三代减速
 电机编号(Number): 202011130003

额定电压(Voltage): 72V
 额定功率(Power rated): 3KW
 测试人员(Tester):
 测试日期(Test Date): 2020.11.13



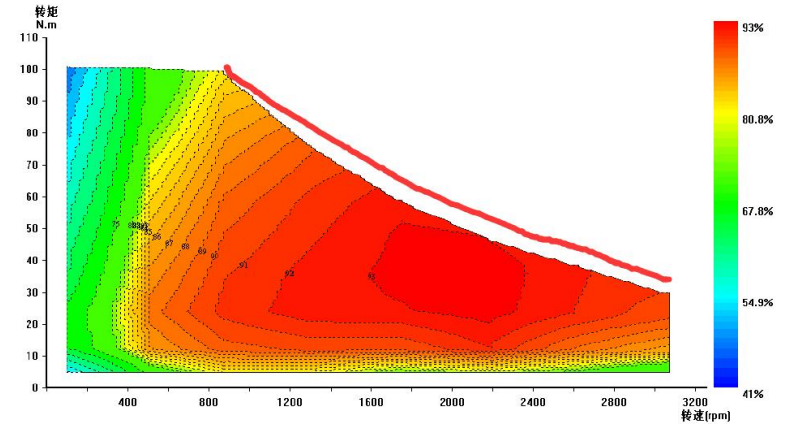
特征点	输入电压	输入电流	输入功率	电机电压	电机电流	电机功率	电机功率因数	电机频率	转矩	转速	输出功率	控制效率	电机效率	总效率	时间
	V	A	W	V	A	W		Hz	Nm	rpm	W	%	%	%	S
不加载点(No_Load)	71.93	30.87	1534	56.53	102.6	1376	0.137	583.08	1.22	2955.0	377.5	89.7	27.4	24.6	0.000
最高效率点(Eff_max)	70.21	156.0	10704	53.32	137.8	10489	0.824	437.35	43.04	2134.7	9620	98.0	91.7	89.9	9.016
最大输出功率点(Pout_max)	70.21	156.0	10704	53.32	137.8	10489	0.824	437.35	43.04	2134.7	9620	98.0	91.7	89.9	9.016
最大转矩点(Torque_max)	71.41	48.26	3349	20.01	278.9	2778	0.287	49.70	98.26	126.5	1301	83.0	46.8	38.9	29.02
结束点(End)	71.41	48.26	3349	20.01	278.9	2778	0.287	49.70	95.14	80.6	802.9	83.0	28.9	24.0	29.52

电机测试报告

客户名称(Customer): 全顺
 产品名称(Product Name): 永磁同步电动机
 电机型号(Type): QS-138-三代减速
 电机编号(Number): 202011130003

额定电压(Voltage): 72V
 额定功率(Power rated): 3KW
 测试人员(Tester):
 测试日期(Test Date): 2020.11.13

序号	输入电压	输入电流	输入功率	电机电压	电机电流	电机功率	电机功率因数	电机频率	转矩	转速	输出功率	控制效率	电机效率	总效率	时间
	V	A	W	V	A	W		Hz	Nm	rpm	W	%	%	%	S
1	71.93	30.87	1534	56.53	102.6	1376	0.137	583.08	1.22	2955.0	377.5	89.7	27.4	24.6	0.000
2	71.93	30.87	1534	56.53	102.6	1376	0.137	583.08	3.90	2918.5	1192	89.7	88.6	77.7	1.516
3	70.20	157.1	10809	54.48	145.9	10172	0.768	531.81	34.90	2393.4	9476	97.8	89.6	87.7	4.516
4	70.20	157.1	10809	54.48	145.9	10172	0.768	531.81	35.58	2342.5	9515	97.8	90.3	88.4	5.016
5	70.20	157.1	10809	54.48	145.9	10172	0.768	531.81	36.70	2401.5	9574	97.8	90.6	88.6	5.516
6	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	37.38	2440.7	9552	98.1	90.2	88.5	6.016
7	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	38.40	2389.7	9608	98.1	90.8	89.0	6.516
8	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	39.26	2338.6	9613	98.1	90.8	89.1	7.016
9	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	40.08	2287.6	9600	98.3	90.9	89.3	7.516
10	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	40.62	2236.4	9511	98.3	90.1	88.5	8.016
11	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	41.96	2185.2	9600	98.3	90.9	89.3	8.516
12	70.21	156.0	10704	53.32	137.8	10489	0.824	437.35	43.04	2134.7	9620	98.0	91.7	89.9	9.016
13	70.21	156.0	10704	53.32	137.8	10489	0.824	437.35	43.92	2083.7	9582	98.0	91.4	89.5	9.516
14	70.21	156.0	10704	53.32	137.8	10489	0.824	437.35	44.88	2032.7	9552	98.0	91.1	89.2	10.02
15	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	46.00	1981.7	9544	97.4	91.5	89.2	10.52
16	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	46.86	1930.7	9472	97.4	90.8	88.5	11.02
17	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	48.22	1880.2	9492	97.4	91.0	88.7	11.52
18	70.21	158.8	10691	49.81	155.8	10383	0.773	374.37	49.48	1829.3	9477	97.1	91.3	88.8	12.02



19	70.21	158.6	10691	49.81	155.8	10383	0.773	374.37	50.46	1778.5	9396	97.1	90.5	87.9	12.52
20	70.21	158.6	10691	49.81	155.8	10383	0.773	374.37	52.20	1727.6	9443	97.1	90.9	88.3	13.02
21	70.21	158.6	10691	49.81	155.8	10383	0.773	374.37	53.98	1677.4	9480	97.1	91.3	88.7	13.52
22	70.21	156.2	10670	48.18	163.8	10343	0.757	343.38	55.32	1625.9	9417	96.9	91.0	88.3	14.02
23	70.21	156.2	10670	48.18	163.8	10343	0.757	343.38	56.94	1575.0	9390	96.9	90.8	88.0	14.70
24	70.21	156.2	10670	48.18	163.8	10343	0.757	343.38	58.38	1524.3	9340	96.9	90.4	87.6	15.02
25	70.23	150.7	10553	46.47	170.4	10228	0.746	313.35	60.44	1473.3	9323	96.9	91.2	88.3	15.52
26	70.23	150.7	10553	46.47	170.4	10228	0.746	313.35	62.32	1422.7	9284	96.9	90.8	88.0	16.02
27	70.23	150.7	10553	46.47	170.4	10228	0.746	313.35	64.46	1372.0	9280	96.9	90.5	87.7	16.52
28	70.23	149.9	10520	44.44	185.5	10153	0.711	280.92	66.72	1322.5	9238	96.5	91.0	87.8	17.02
29	70.23	149.9	10520	44.44	185.5	10153	0.711	280.92	69.00	1270.5	9178	96.5	90.4	87.2	17.52
30	70.23	149.9	10520	44.44	185.5	10153	0.711	280.92	71.54	1219.7	9136	96.5	90.0	86.8	18.02
31	70.23	149.6	10482	42.37	204.3	10067	0.672	250.76	74.06	1169.8	9071	95.9	90.1	86.5	18.52
32	70.23	149.6	10482	42.37	204.3	10067	0.672	250.76	76.66	1118.3	8976	95.9	89.2	85.5	19.02
33	70.23	149.6	10482	42.37	204.3	10067	0.672	250.76	79.46	1068.2	8887	95.9	88.3	84.7	19.52
34	70.24	149.2	10461	40.36	226.3	9964	0.630	222.13	81.86	1016.3	8710	95.2	87.4	83.3	20.02
35	70.24	149.2	10461	40.36	226.3	9964	0.630	222.13	84.24	965.5	8516	95.2	85.5	81.4	20.52
36	70.24	149.2	10461	40.36	226.3	9964	0.630	222.13	87.94	915.8	8430	95.2	84.6	80.6	21.02
37	70.23	149.2	10455	38.60	250.2	9874	0.591	196.16	90.62	876.9	8338	94.4	84.4	79.8	21.52
38	70.23	149.2	10455	38.60	250.2	9874	0.591	196.16	92.98	811.3	7898	94.4	80.0	75.5	22.02
39	70.23	149.2	10455	38.60	250.2	9874	0.591	196.16	94.96	759.1	7547	94.4	76.4	72.2	22.52
40	70.33	141.4	9915	36.25	271.0	9263	0.544	169.89	94.42	706.2	6981	93.4	73.4	70.4	23.02
41	70.33	141.4	9915	36.25	271.0	9263	0.544	169.89	95.10	654.5	6517	93.4	70.4	65.7	23.52
42	70.33	141.4	9915	36.25	271.0	9263	0.544	169.89	95.50	607.0	6099	93.4	65.5	61.2	24.02
43	70.61	117.6	8263	32.91	272.9	7640	0.491	138.42	96.14	551.6	5552	92.5	72.7	67.2	24.52
44	70.61	117.6	8263	32.91	272.9	7640	0.491	138.42	95.78	519.8	5213	92.5	68.2	63.1	25.02
45	70.61	117.6	8263	32.91	272.9	7640	0.491	138.42	95.62	493.0	4933	92.5	59.4	54.9	25.52
46	70.82	98.56	6918	29.96	274.0	6308	0.444	110.52	96.38	399.8	4030	91.2	63.9	58.3	26.02
47	70.82	98.56	6918	29.96	274.0	6308	0.444	110.52	96.44	353.1	3565	91.2	56.5	51.5	26.52
48	70.82	98.56	6918	29.96	274.0	6308	0.444	110.52	96.78	303.2	3072	91.2	48.7	44.4	27.02
49	71.11	73.80	5182	25.64	275.0	4603	0.377	78.17	96.84	264.4	2481	88.8	58.2	51.7	27.52
50	71.11	73.80	5182	25.64	275.0	4603	0.377	78.17	96.86	208.3	2112	88.8	45.9	40.8	28.02
51	71.11	73.80	5182	25.64	275.0	4603	0.377	78.17	97.72	179.7	1839	88.6	39.9	35.5	28.52
52	71.41	48.26	3349	20.01	278.9	2778	0.287	49.70	98.26	136.5	1301	83.0	46.8	38.9	29.02



QS 3000W 138 V3 IPM Mid drive motor with EM150-2

Dynamometer

E-bike Test Equipment: Chassis Measuring Equipment

Max Speed Test

Acceleration Test (0~100m.00~100km/h)

Road Condition Test

Loading Testing

Wind Function



Power train test on 2 wheelers & Road test

For prototype projects, SiAECOSYS could make road test include climbing test on mountains.



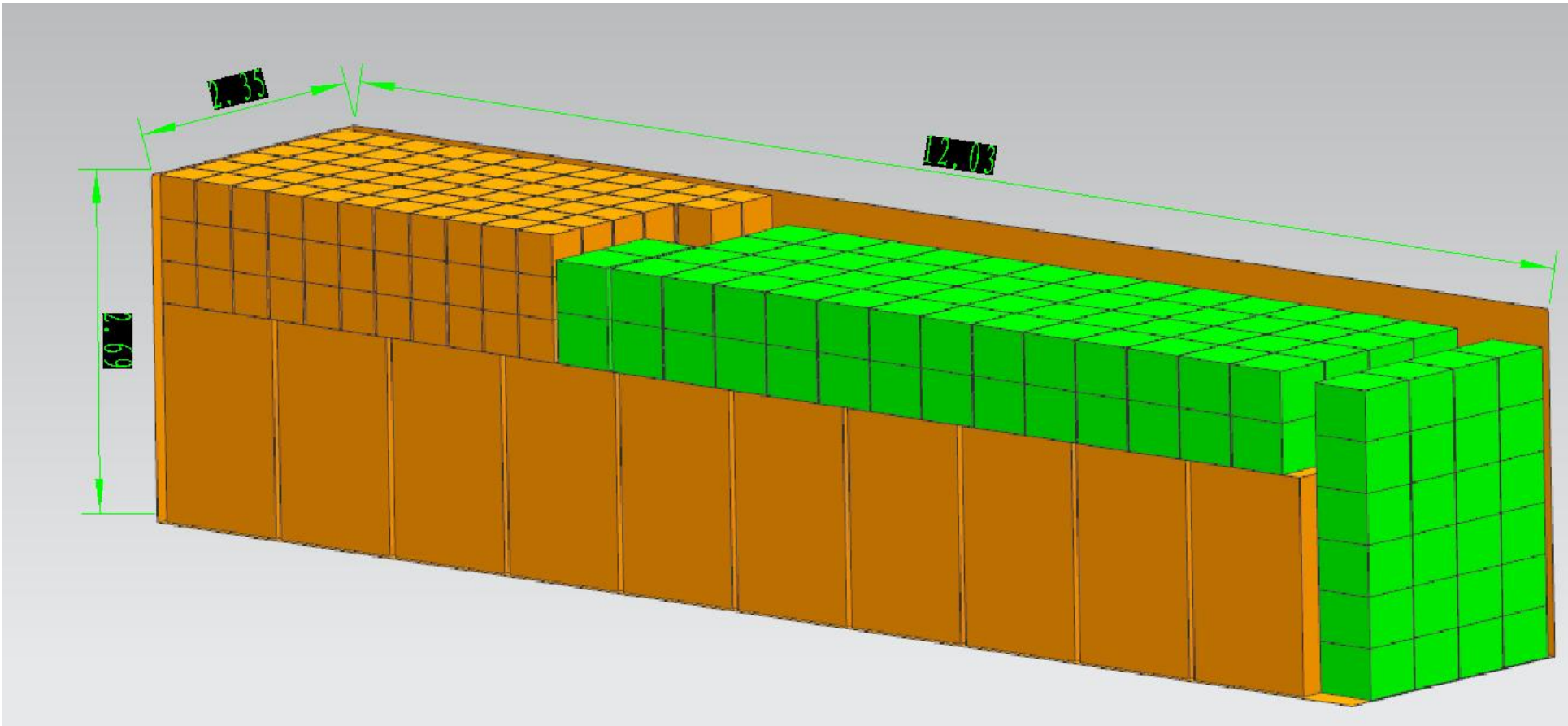
Quality Control (Inspection of goods)

SiAECOSYS check every sample & mass production in spot check before delivery, to insure the good quality.



Container loading calculations

For mass production, there might be various parts with different pack dimension (carton & pallet), SIA could make calculations base on package datas, to make full use of container for loading.



Container loading



Oversea Local production (technical support)

Hub motor Component:
two end caps, one stator,
one rotor



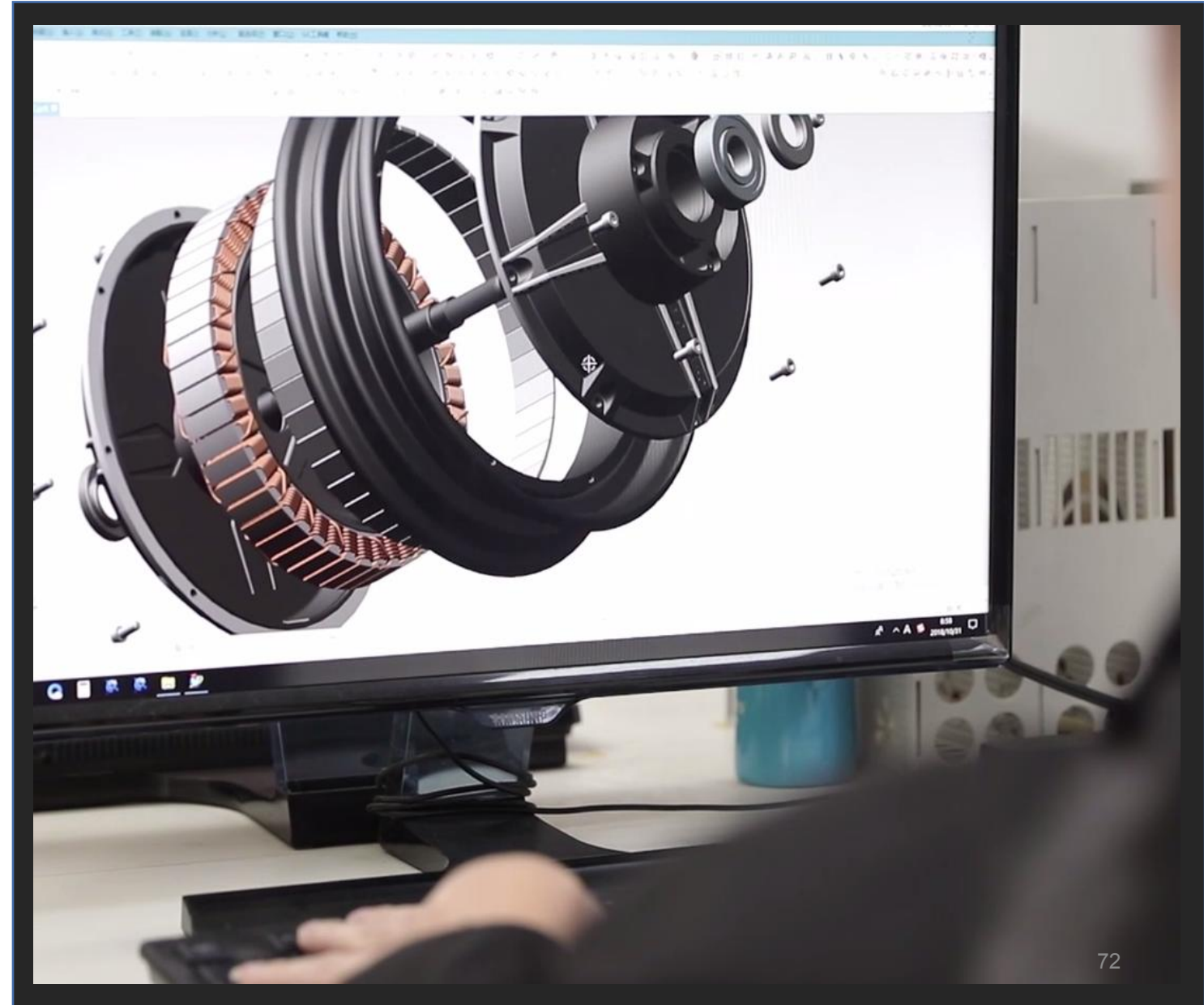
Equipments:

automatic glue machine,
air gun,
servo press machine,
motor test machine,
car disc brake machine,
motor splitter

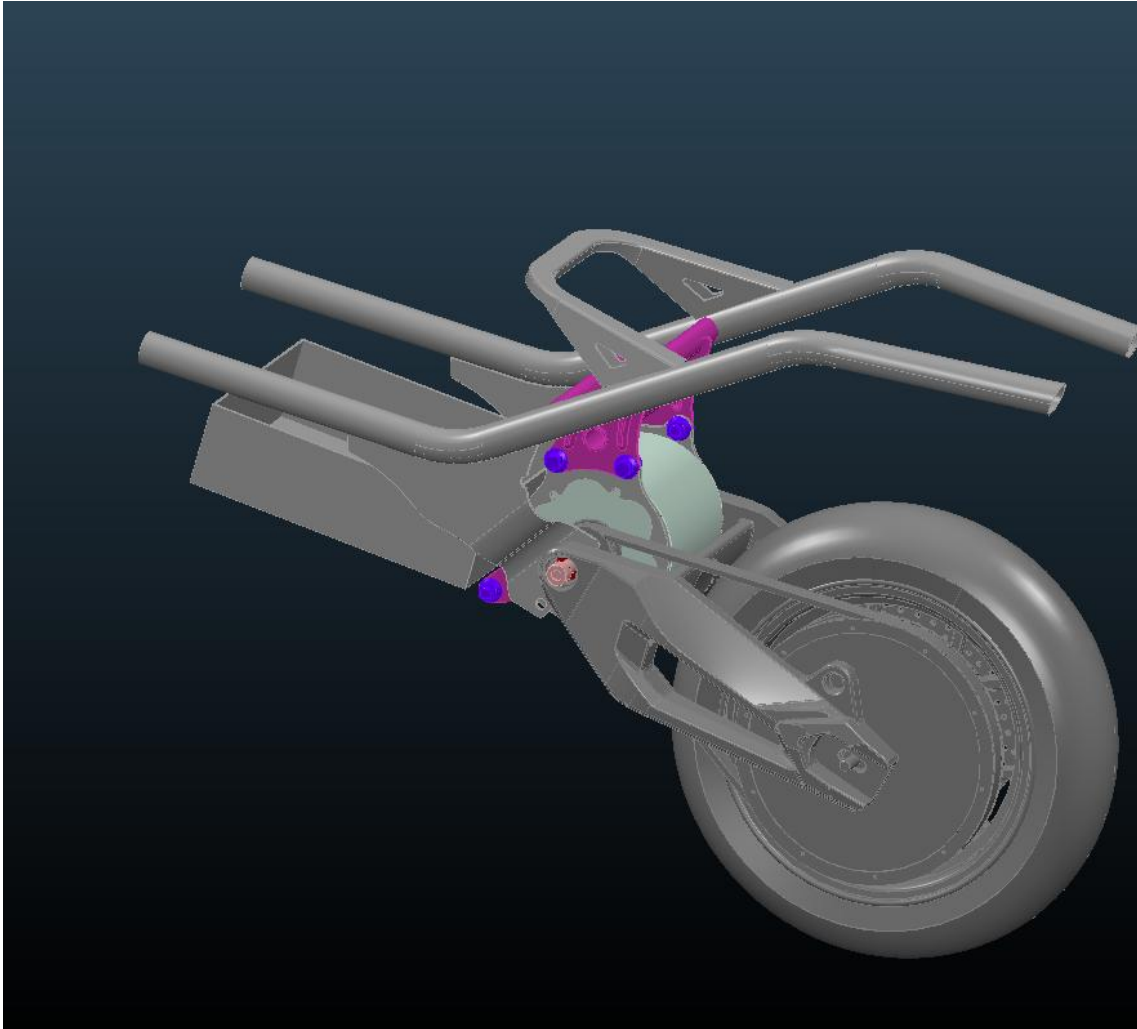


3D Design

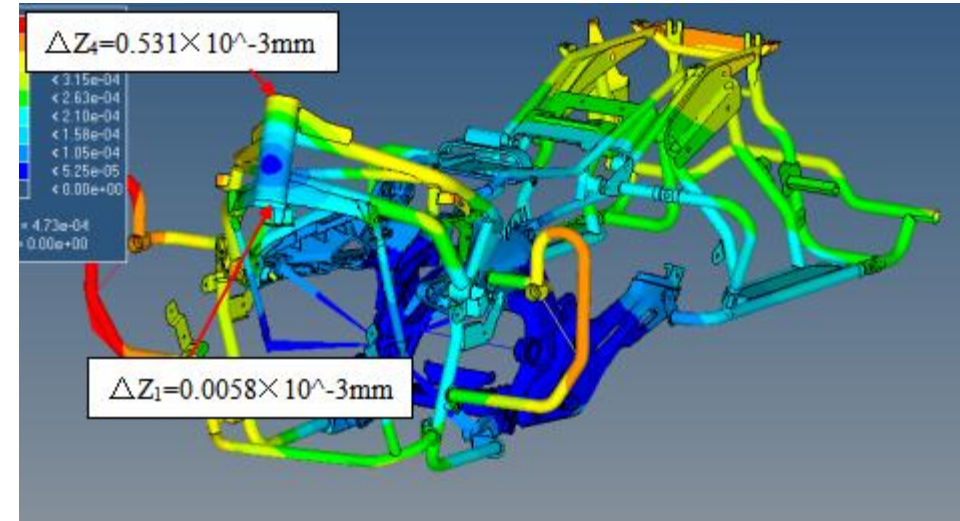
SiAECOSYS has professional engineers for 3D design, we have rich experience on mechanical structure design and e-driving chain design. SiAECOSYS can build samples to test and develop according to 3D design before mass production. Currently, SiAECOSYS has changed more than 20 kinds of gasoline motorcycle to E-motorcycle successfully.



3D design



CAE of Mechanical Part



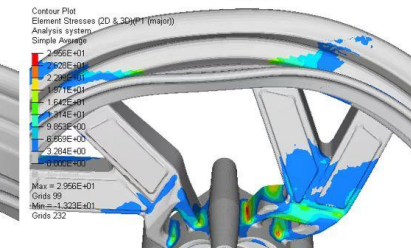
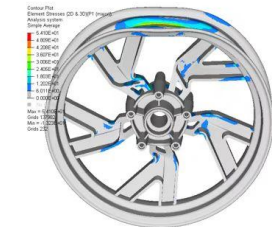
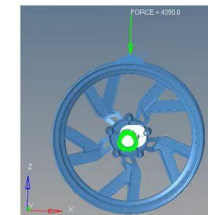
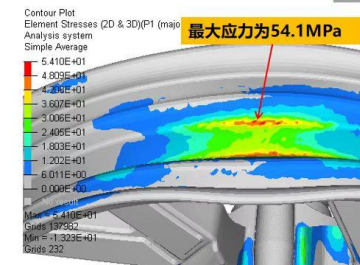
2. 前轮轮圈强度分析

2.1. 径向冲击工况

模型边界条件

- 约束轮轴轴自由度123456;
- 在轮圈圆周上辐条位置施加载荷 $F1=4390\text{N}$ 。

计算结果:



Mass Production for E-Vehicles

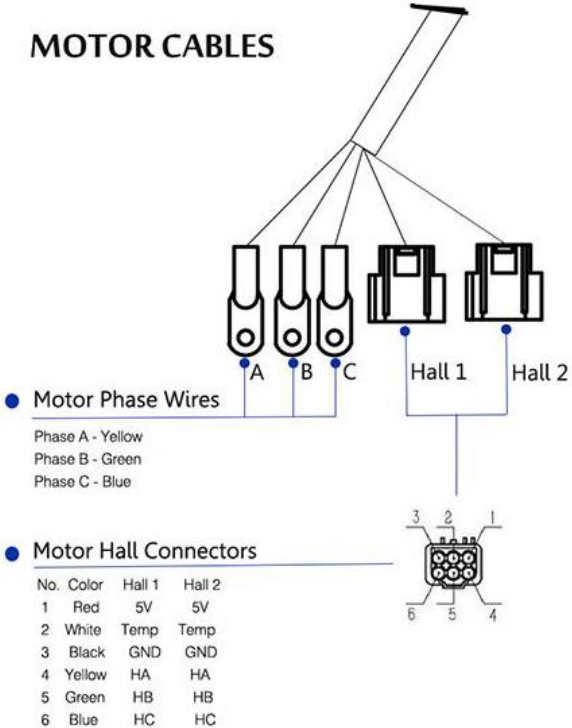
SiAECOSYS develops the whole e-driving chain, and cooperates with high reputation assembling manufacturers, such as Geely Motorcycle, which could make sure quality 100% for E-Vehicles.



After sale support

After sale is 2nd sale. Manuals & wiring made by SIA, e.g. motor manual and controller manuals.

MOTOR CABLES



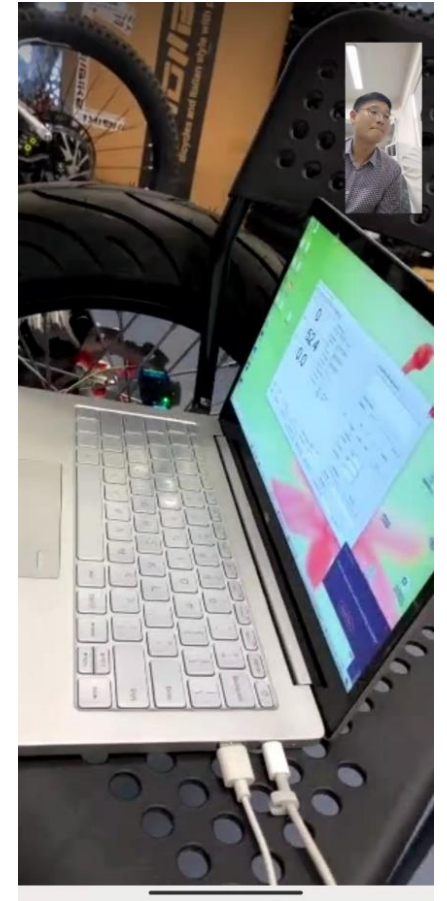
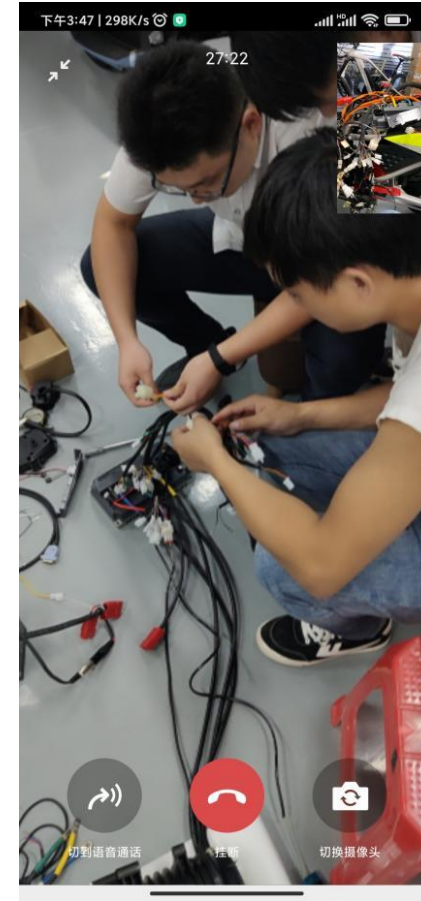
For QS Motor Different Version:
 V1 with one Hall,
 V2, V3, V4 with two Halls.(one hall for spare)

Note: power less then 1kw without temp sensor.

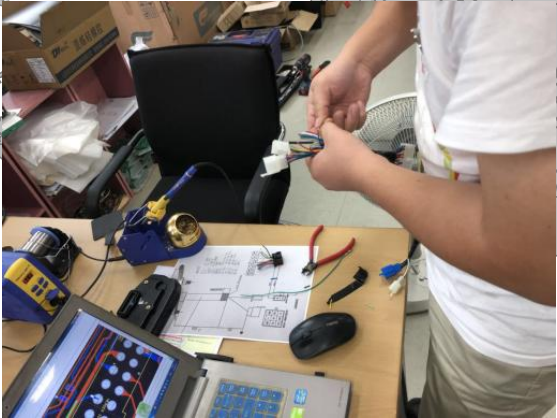


VOTOL EM Controller Program Manual

Remote Tech Support



Overseas Technical Support



Exhibition(Demositc)



13th Taizhou Electric Vehicle Parts Exhibition



123th Canton Fair



CIMAMotor 2018



124th Canton Fair



CIMAMotor 2022



Steven Shi(GM) in round-table conference



INTERMOT 2016



Saigon Autotech & Accessories 2017



EICMA 2017



Indian EvExpo 2018



EV Trend Korea 2019

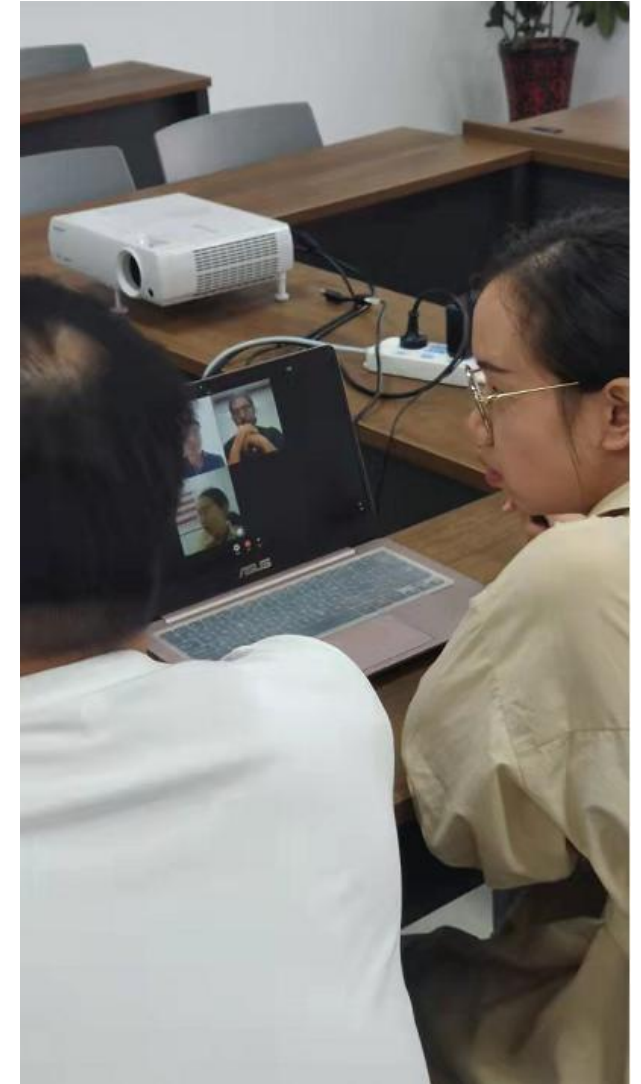
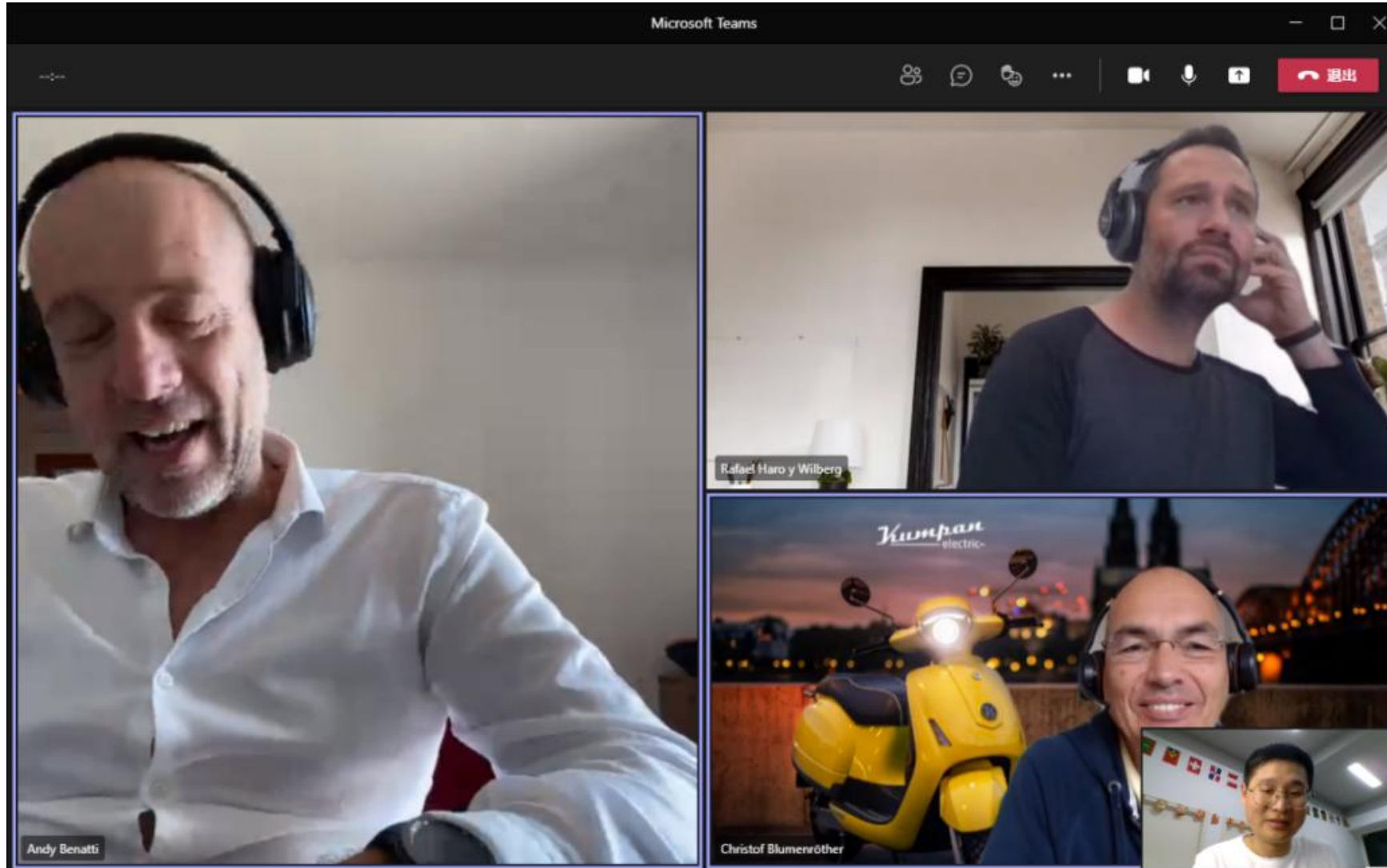
Client

America								
Europe								
Asia								
Other								





On-line Meetings



More Products, pls. check our website.



Official web: www.siaecosys.com



Official web: www.cnqsmotor.com/en/

<https://www.aliexpress.com/store/5079180?spm=a2g1y.12024536.1000001.12.2f086d1fukyWH1>



<https://qsmotorfactory.aliexpress.com/store/1389549?spm=a2g0o.detail.1000061.1.14a415f5ZS9DGR>

<https://qs-motordrive.aliexpress.com/store/4393030?spm=a2g0o.detail.1000061.1.18f2715esBJvb5>

<https://tzxiya.en.alibaba.com/?spm=a2700.icbuShop.88.13.7bd67e01JBNEHc>



<https://qsdrive.en.alibaba.com/?spm=a2700.7756200.1998619056.7.739371d2WJWiOf>

<https://qsmotor.en.alibaba.com/>

<https://tzquanshun.en.alibaba.com/>



<https://www.amazon.com/s?marketplaceID=ATVPDKIKX0DER&me=A1DU8ODBU0RHWH&merchant=A1DU8ODBU0RHWH&redirect=true>



https://endless-sphere.com/forums/search.php?search_id=egosearch



<https://www.facebook.com/siaecosys>



+86-0576-88551619



Package(standard export packing)

- 1). Polyfoam box + carton box (for sample)
- 2). polyfoam box + carton box + wooden box (for special sample)
- 3). polyfoam box + carton box + pallet (for mass order)
- 4). Or according to customer's requirements.

Shipping

- 1). Samples can be shipped by Express(like DHL, FedEx, UPS, EMS, TNT etc.), sometimes by sea and by air also optional.
- 2). Mass order can be shipped by sea and by air.
- 3). Or you can pick the good from our factory.



9.1 Producing Time

For normal motors, it will takes 12-13 business days (6 business per week).

For customized motor & single shaft motor, it takes 17-18 business days.

For some accessories, the producing time normally no more than 10days, and sometimes can be send out within 2days if we have it in stock.

For special customized products, pls. expand to the time to we talked.

9.2 Payment

Wire Transfer/TT, Money Gram,Western Union, Paypal
100% in advance(for sample)

Generally, we prefer T/T, Money Gram,Western Union
100% in advance (for sample).



Motor Warranty: 15months(since the date of producing)
Other parts Warranty: 12months(since the date of producing)

- 1). We only do after-sales service for the customers who buy products from us directly, not from other agencies.
 - 2). Warranty period for motor and other parts: 15 months (since the production time)
 - 3). If any after-sales issue, pls. contact us with detailed pictures or videos, we will reply you with reasonable solutions once we confirm the issue.
E.g: if there is quality issue for our products when you received and confirmed by both parties, we will send you free accessories or whole motor on your next order. If the products damaged during shipping, pls.contact us and Express within 24h, then we will send you new one for free.
 - 4). Destructive test/abusing usage due to test purpose, we could not do after-sale issue for free.
- Your feedback is very important for us, not only positive feedback but also negative; we try our best to satisfy you as much as possible. Meanwhile, if you are satisfied with our products, your five star feedback online would be highly appreciated.

SiAECOSYS Team





THANK YOU!

3.3KW OBC
+1.0KW DC