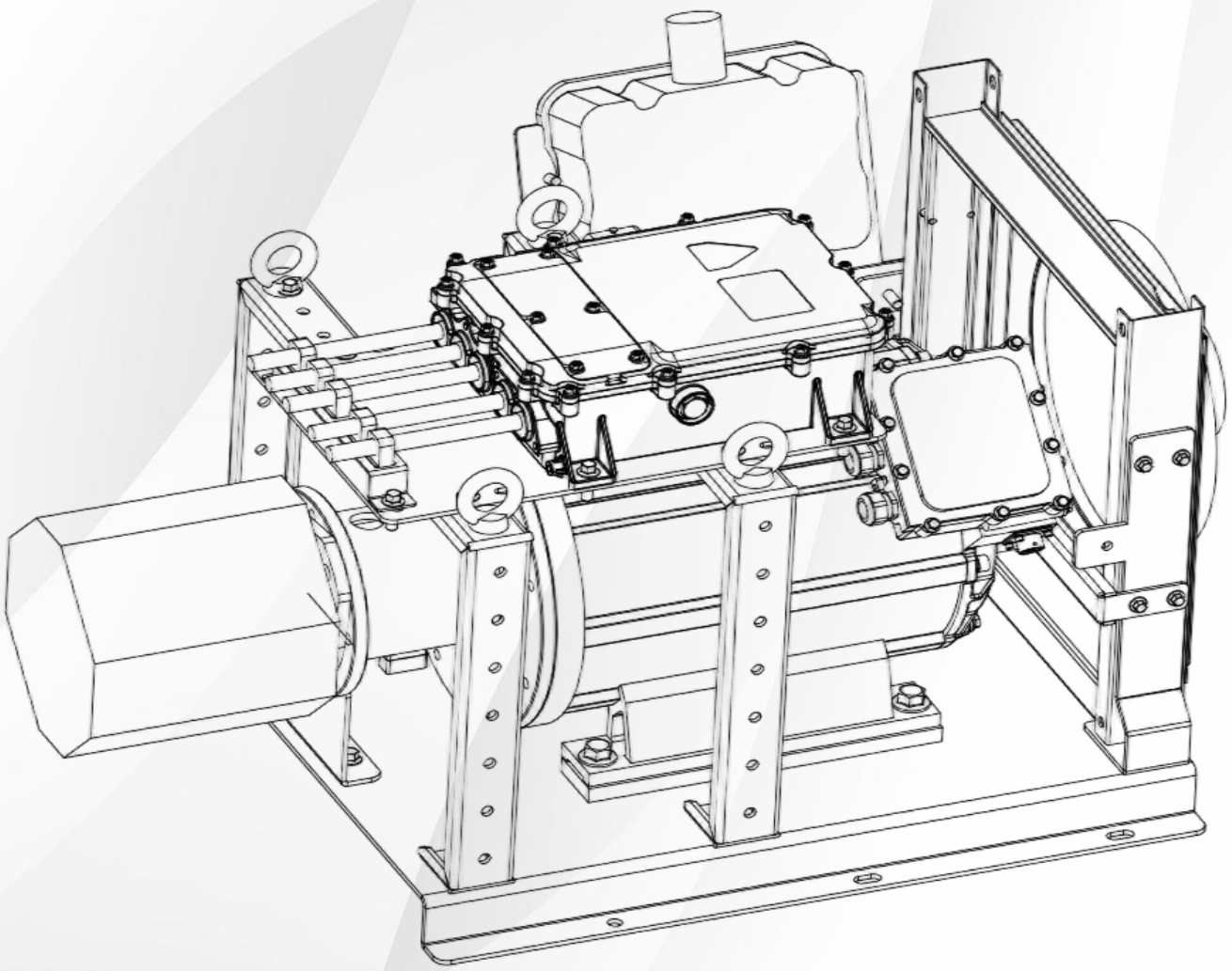
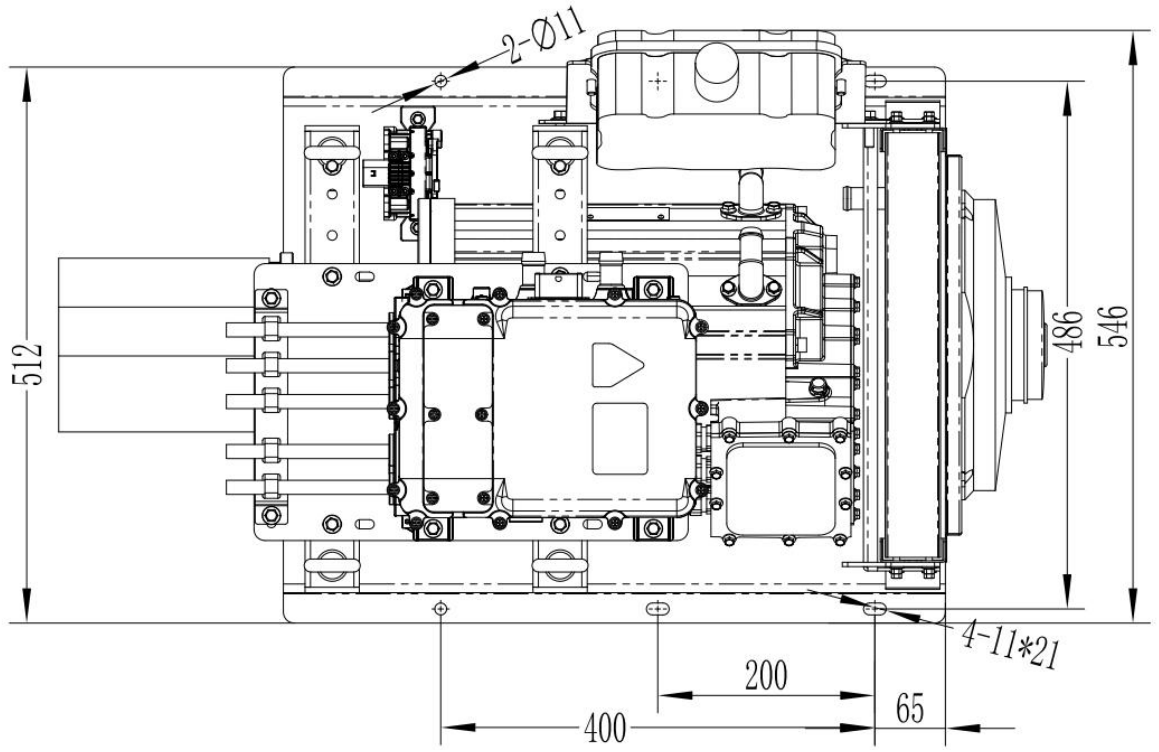
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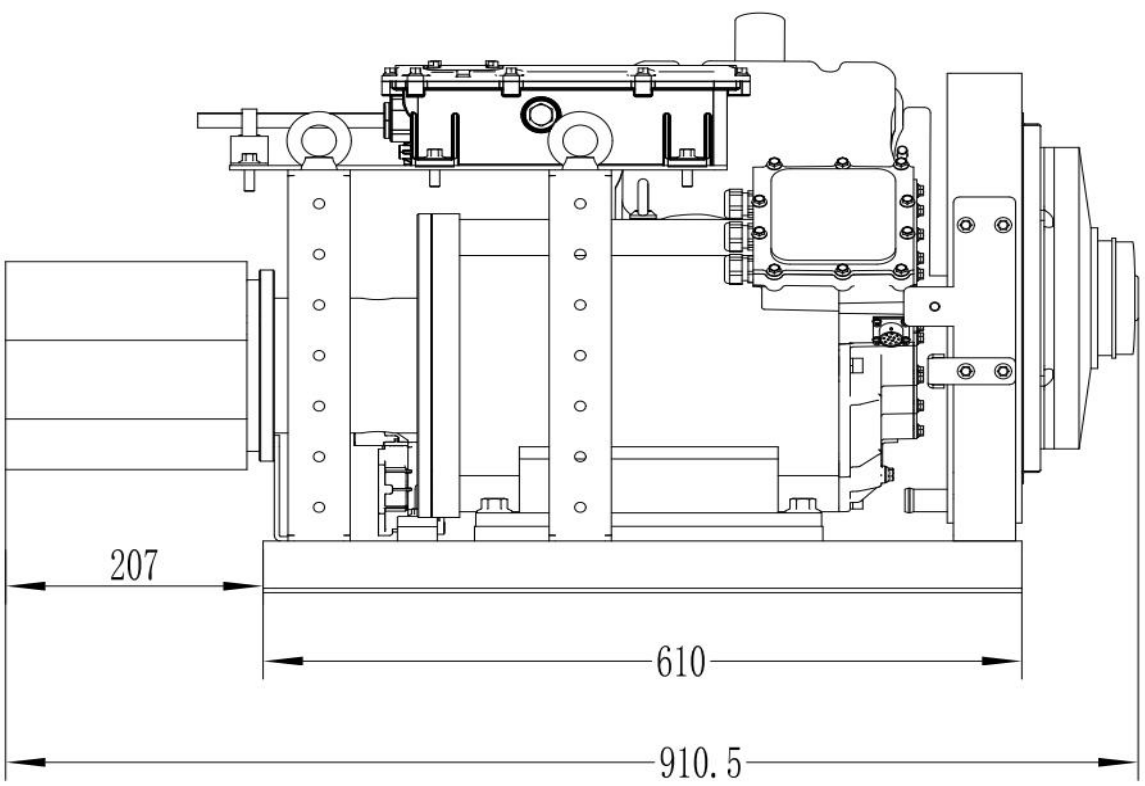


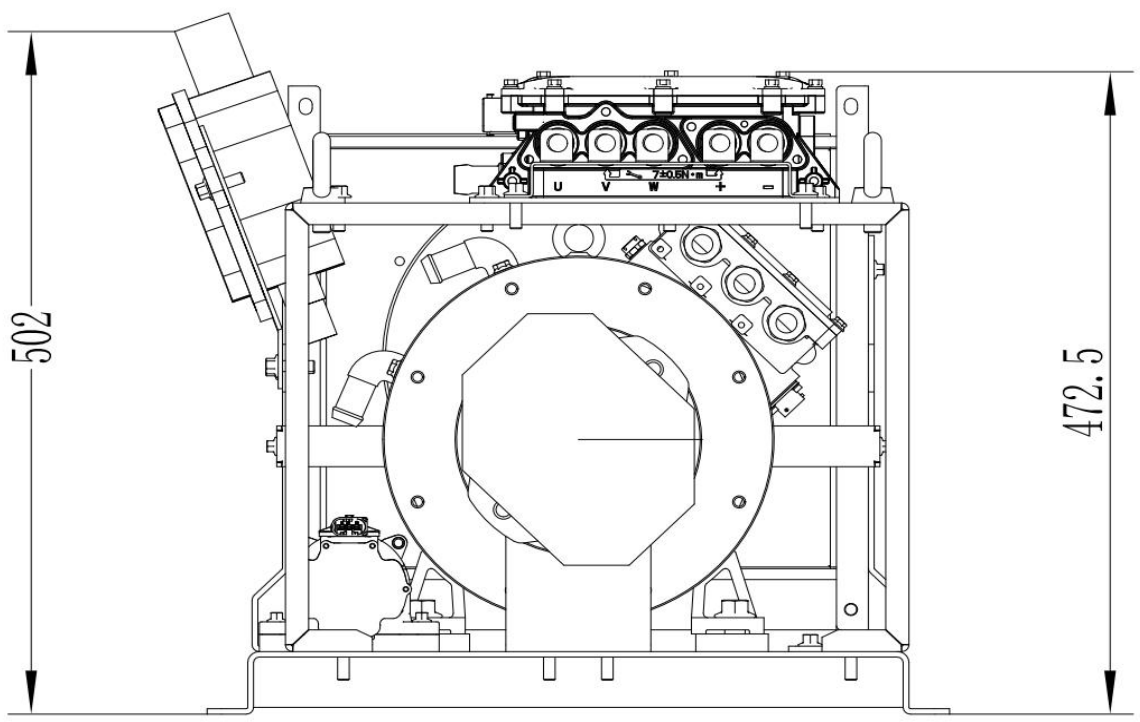
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Outline Drawing with Dimensions
尺寸外观图



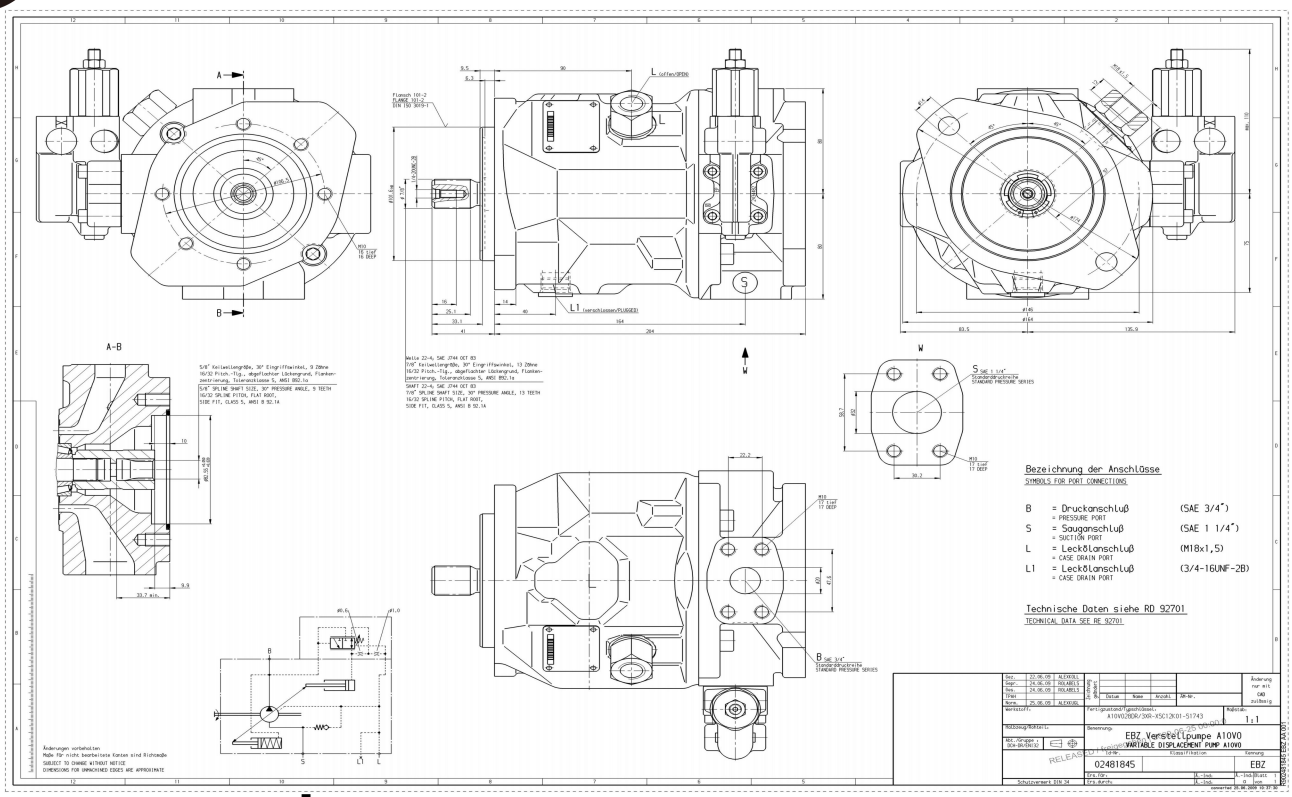




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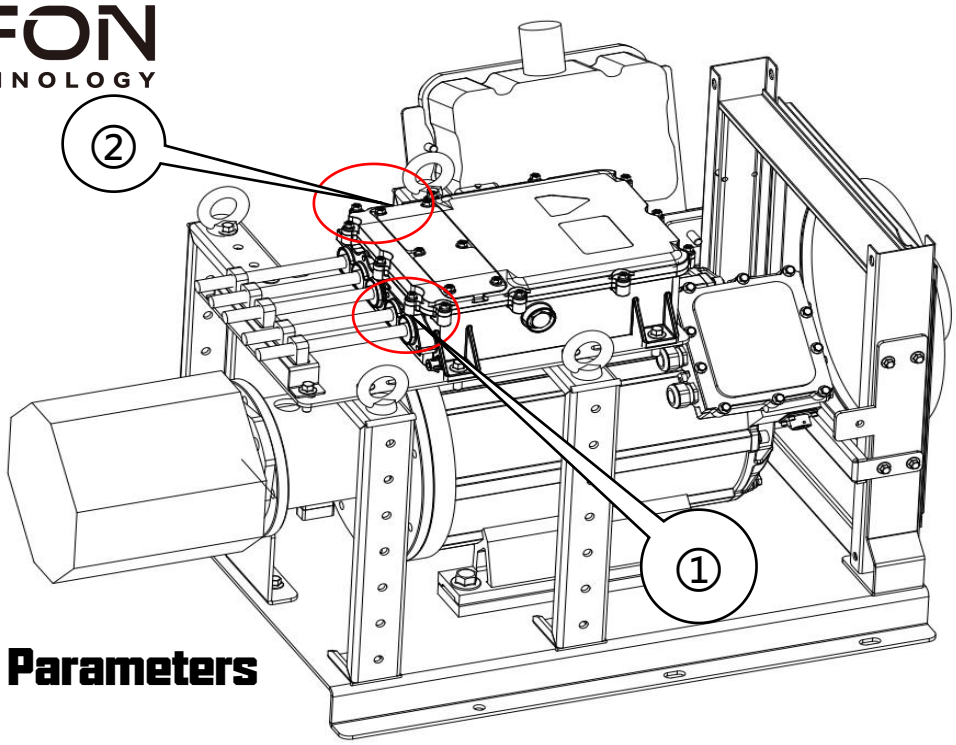
Motor Parameters
电机参数技术要求

No. 序号	Name 名称	内容
①	Reliability Test Claus 可靠性实验条款	Complies with GB/T 18488.2-2015, Electric vehicle motors and their controllers — Part 2: Test methods. 符合 GB/T 18488.2- 2015 电动汽车用电机及其控制器 第 2 部分：试验方法
②	Rotation direction of shaft 轴向	Viewed from the shaft extension end, the counter-clockwise direction is defined as the positive rotation direction. 从轴伸端看逆时针方向为正方向
③	Rated Operating Voltage 额定工作电压	540VDC
④	Operating Voltage Range 工作电压范围	450~750VDC
⑤	Rated Power 额定功率	30kW
⑥	Peak Power 峰值功率	36kW
⑦	Rated Speed 额定转速	1500rpm
⑧	Peak Speed 峰值转速	3000rpm
⑨	Rated Torque 额定扭矩	191N.m
⑩	Peak Torque 峰值扭矩	400N.m
⑪	Duty Cycle 工作制	S1
⑫	Insulation Class 绝缘等级	H
⑬	IP Protection Rating 防护等级	IP67
⑭	Rated / Peak Current 额定/峰值电流	62A/74A
⑮	Overall Weight 整机重量	≤75kg
⑯	Operating Temperature 工作温度	-40℃/85℃
⑰	Storage Temperature 储存温度	-40℃/85℃

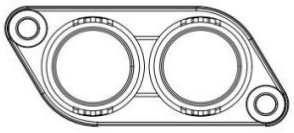
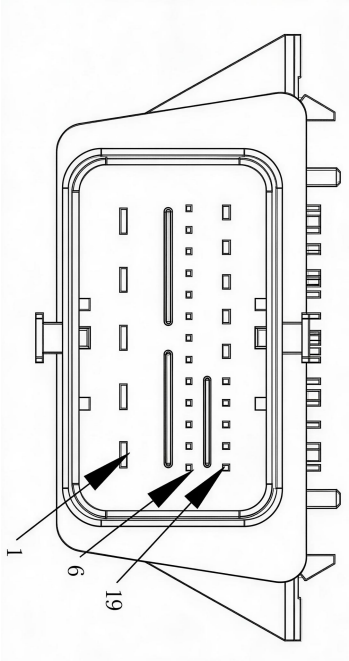


Oil pump parameters
油泵参数

No. 序号	Name 名称	Part 部位	Content 内容	备注
①	Performance 性能	Nominal Displacement 公称排量	28 cm³/r	2143rpm=60L/min
		Recommended Continuous Operating Speed 推荐连续工作转速	≤2600 r/min	
		Maximum Permissible Speed 允许最大转速	3500 r/min	
		Rated Pressure 额定压力	28MPa	Preset Pressure: 190 bar 预设190bar
		Maximum Pressure 最高压力	35MPa	
		Control Type 控制方式	DR (Pressure Compensator) 控制方式：DR（压力补偿器）	
②	SAE花键参数	Spline Size 花键规格	7/8"	
		Tooth Count 齿数	13	
		Diametral Pitch 径节	16/32 DP	
		Pressure Angle 压力角	30°	
		Root Type 齿根形式	Flat Root 平齿根	
		Fit Type 配合间隙	5	



Controller Parameters
控制器参数

No. 序号	Name 名称	Part 部位	Content 内容	图例
①	Power Supply Connector and Harness 供电口插头及线束	Connector P/N 插头型号	RIPT-2-25P-A RIPT-2-35P-A	
②	Power Supply Connector and Harness 信号端插头	Connector P/N 插头型号	47745-0100	
	Communication Method 通讯方式	/	CAN 2.0	
	CAN Terminal Resistor CAN 终端电阻	/	120Ω	
	Low-Voltage Control Power Supply 低压控制电源	/	DC9-32V	
	Pin Assignment 针脚定义 Low Voltage 28-pin Terminal 低压 28pin 端子	1-3	NA Blind Plug NA 盲堵	
		4	KL30- Battery Power Negative KL30-电池电源负	
		5	KL30+ Battery Power Positive KL30+电池电源正	
		6	CANBL Vehicle CAN Low CANBL 整车 CAN 低	
		7	CANBH Vehicle CAN High CANBH 整车 CAN 高	
		8-9	NA Blind Plug NA 盲堵	
		10	EXC_P Resolver Excitation Positive EXC_P 旋变信号激励正	

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Controller Parameters
控制器参数

No. 序号	Name 名称	Part 部位	Content 内容	图例
②	Pin Assignment 针脚定义 Low Voltage 28-pin Terminal 低压 28pin 端子	11	EXC_N Resolver Excitation Negative EXC_N 旋变信号激励负	
		12	12 COS_N Resolver Cosine Feedback Negative EXC_N 旋变信号激励负 12 COS_N 旋变回收余弦信号负	
		13	COS_P Resolver Cosine Feedback Positive COS_P 旋变回收余弦信号正	
		14	SIN_N Resolver Sine Feedback Negative SIN_N 旋变回收正弦信号负	
		15	SIN_P Resolver Sine Feedback Positive SIN_P 旋变回收正弦信号正	
		16-17	NA Blind Plug NA 盲堵	
		18	KL15 Hard-wire Wake-up Signal KL15 硬线唤醒信号	
		19	MT+ Motor Temperature Resistor Positive MT+电机温度电阻+	
		20	MT- Motor Temperature Resistor Negative MT-电机温度电阻-	
		21-28	NA Blind Plug NA 盲堵	
③	接线端说明	+	Connect to positive pole of power battery 连接动力电池正极	
		-	Connect to negative pole of power battery 连接动力电池负极	
		U	Connect to motor U-phase 连接电机 U 相	
		V	Connect to motor V-phase 连接电机 V 相	
		W	Connect to motor W-phase 连接电机 W 相	
		Signal Terminal 信号接线端子	Connect to external vehicle and motor 连接外部整车及电机	
		Water Channel (Bidirectional) 水道 (双向)	Special coolant flow rate > 15L/min 专用冷却液流量>15L/min	

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Terminal Description
接线端说明

Specifications for power cables and motor three-phase cables shown above: 25~50mm²; The terminals are metal waterproof connectors for input and output. The corresponding voltage and current ratings are as follows:
上图电源线和电机三相线规格：25~50mm²；端子是金属防水接头式的输入与输出，对应的电压、电流等级如下：

(1) Power Cables (+, -)
电源线（+、-）
The terminals connect to the positive and negative poles of the power battery and serve as the high-voltage input terminals of the motor controller. The standard input voltage range is 200V to 750V, and the rated input voltage class is 336/540V.
该端子连接动力电池正负极，作为电机控制器的高压输入端，标准输入电压范围在 200V 到 750V，额定输入电压等级为 336/540V。
Considering the safety of the system and components for high-voltage input, a corresponding pre-charge circuit shall be designed at the front end of the input to avoid instantaneous surge of high voltage and ensure safety.
高压输入考虑到系统和器件的安全性，输入前端需要设计相应的预充电路，避免高压电的瞬间涌入，保证安全。
(2) Motor Three-phase Cables (U, V, W)
电机三相线（U、V、W）
These terminals are for three-phase AC voltage output, with rated output voltage of 220/380V.
该端子连接三相交流电压的输出，额定输出电压 220/380V。
(3) Water-cooled Housing
水冷箱体
The coolant flow rate shall be ≥15L/min. The inlet temperature of the motor controller shall be less than 65°C. Special coolant (Ethylene Glycol : Water = 50% : 50%) must be used.
冷却液流量要求大于等于 15L/min，电机控制器入水口温度要求小于 65 度，必须使用专用冷却液（乙二醇：水 =50%：50%）。
The water channel volume is 44ml. The relationship between water channel coolant flow rate and pressure loss is shown in the figure below.
水道容积 44ml，水道冷却液流量与压力损失关系如下图所示。

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Assembly Notes
装配注意事项

(1) The controller meets IP67 dustproof and waterproof standard. However, to prevent external leakage, the controller shall be installed in a clean and dry environment as far as possible.
控制器满足 IP67 的防尘与防水标准，但为避免外部泄露，控制器应尽量安装在清洁与干燥的环境中；
(2) During installation, install it in upright position and avoid locations prone to water splashing near tires.
在安装时，应该尽量保持正装且避开轮胎附近等容易溅水的位置；
(3) Vehicle loss of control may occur under certain conditions. Therefore, lift the vehicle to keep tires off the ground during installation.
在某些情况下可能会导致车辆失控，所以在进行安装时，应将车辆架起使轮胎离开地面；
(4) Disconnect the battery circuit and use insulated tools before installing the EV controller to prevent short circuit.
在安装电动车控制器之前务必断开电池电路，带上绝缘工具，防止发生短路；
(5) Coolant filling can only be performed after the housing cover and wiring harness are fully assembled to prevent liquid from entering the controller interior.
加注冷却液前，必须在箱盖、线束装配到位之后进行，避免液体进入控制器内部。
(6) Use automotive antifreeze produced by qualified manufacturers to enhance heat dissipation and prevent corrosion. Self-blending is strictly prohibited.
为了加强散热防止腐蚀，必须使用正规公司生产的汽车用防冻液，严禁私自勾兑。
Damage to the controller caused by inferior antifreeze, tap water or purified water added to the cooling system shall not be covered under warranty.
如果因为使用劣质防冻液或向冷却系统中添加自来水或纯净水，造成控制器损坏，将不能享受保修；
(7) Perform grounding operation in accordance with the grounding marking.
正确参照接地标识进行接地操作。

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Maintenance
维修保养事项

(1) No user-serviceable parts are contained inside the motor controller. Unauthorized disassembly may damage the controller.
电机控制器内部没有用户可以自行维修的部分，自拆维修可能会造成控制器损坏。
Opening the controller housing will void the warranty. The outer housing of the controller shall be cleaned regularly.
打开控制器外壳将不能获得保修服务，但控制器外壳应该定期进行清理。
(2) The motor controller is equipped with auto discharge function. The internal capacitors will discharge automatically within 30 seconds after power-off.
电机控制器自带断电放电功能，即在控制器断电后 30 秒钟内，为控制器中的电容器自动放电。
Verify that the voltage is below 36V with a multimeter or similar tools. Do not install, disassemble or repair the controller immediately after high-voltage power cut.
请使用万用表等工具确认电压在 36V 以下，严禁在高压断电后立即进行控制器安装拆卸或者维修。
(3) Periodic maintenance is required during operation of the motor controller, including but not limited to: inspecting the cooling system, ensuring secure wiring connections, reliable controller mounting, and cleaning the controller housing and connectors.
电机控制器在使用过程中，需要定期维护保养，包括但不限于：检查冷却系统，确保接线牢固，确保控制器固定牢靠，清理控制器箱体外壳以及接插件。
(4) Coolant filling for water-cooled controller can only be performed after the housing cover and wiring harness are fully assembled to prevent liquid from entering the controller interior.
水冷控制器加注冷却液前，必须在箱盖、线束装配到位之后进行，避免液体进入控制器内部。
Use automotive antifreeze produced by qualified manufacturers to enhance heat dissipation and prevent corrosion. Self-blending is strictly prohibited. Damage to the controller caused by inferior antifreeze, tap water or purified water added to the cooling system shall not be covered under warranty.
为了加强散热防止腐蚀，必须使用正规公司生产的汽车用防冻液，严禁私自勾兑。如果因为使用劣质防冻液或向冷却系统中添加自来水或纯净水，造成控制器损坏，将不能享受保修。
(5) During installation, mount the controller in upright position and avoid locations prone to water splashing near tires. If inverted mounting or installation in splash-prone locations is required, our prior written approval must be obtained.
电机控制器在安装时，应该尽量保持正装且避开轮胎附近等容易溅水的位置，如果需要控制器倒装或者安装位置容易溅水，必须联系我们并取得我们同意。

CAN Signal Protocol
CAN信号协议

	signal, #byte, range [0...7]	signal, #bit, range [0...7]	signal length [bit]	signal name	signal function	value table	VCU	DCDC	BMS	Charger	physical range	binary range	scaling / resolution	offset	unit	default/initial value	Data type	comment
_____ _CAN_version_35 **This communication protocol adopts Intel format. The baud rate is 250 kbps. The default CAN node address of the motor drive is F1. If multiple motor drives are present on the same network, each CAN address must be set to a unique value.** **The configurable address range is F1, F2, F3, F4, F5, F6, F7, F8, F9, FA, FB, FC, FD, FE, FF.**																		
VCU_transmit																		
VCU to MCU_1 ID=0x802F1E3 cycle time=100ms DLC=8	0	0	2	Control_mode	工作模式	0 = reserve 1 = torque mode 2 = speed mode' 3 = reserve'	T	R			0...3	0...3	1	0		0	unsigned	一般只用速度模式
	0	2	1	Run_stop	控制指令	0 = stop 1 = run	T	R			0...1	0...1	1	0		0	unsigned	
	0	3	1	Fast_discharge	快速放电指令	0 = stop 1 = run	T	R			0...1	0...1	1	0		0	unsigned	
	3	24	16	Motor_speed	电机速度请求		T	R			-30000~30000	0...65535	1	-30000		0	unsigned	
	7	56	4	Dcac_Life	生命信号		T	R			0...15	0...255	1	0		0	unsigned	
DCAC_transmit																		
MCU_State_1 电机状态1 ID = 0xC00E3F1 cycle time=100ms DLC=8	0	0	16	Output_current	输出电流		R	T			0~50	0...65535	0.1	-500	A	0	unsigned	
	2	16	16	Input_voltage	输入电压		R	T			0~1000	0...65535	0.1	0	V	0	unsigned	
	4	32	8	McuTemp	MCU温度		R	T			-40~250	0...255	1	-40	℃	0	unsigned	
	5	40	8	MotorTemp	电机温度		R	T			-40~250	0...255	1	-40	℃	0	unsigned	
	6	48	1	Ready	准备就绪	0 = NoReady 1 = Ready	R	T			0~1	0...1	1	0		0	unsigned	
	6	49	2	Motor_Mode	电机模式	0 = reserve 1 = torque mode 2 = speed mode' 3 = reserve'	R	T			0~2	0...3	1	0		0	unsigned	
		52	1	Bus_current_value_valid	母线电流有效性		R	T			0~1	0...1	1	0		0	unsigned	为1的时候，表示Byte0-Byte5对应的量数据有效，为0的时候，对应的数据无效
		53	1	Bus_voltage_value_valid	母线电压有效性		R	T			0~1	0...1	1	0		0	unsigned	
		54	1	McuTemp_value_valid	逆变器温度有效性		R	T			0~1	0...1	1	0		0	unsigned	
		55	1	MotorTemp_value_valid	电机温度有效性		R	T			0~1	0...1	1	0		0	unsigned	
	7	56	4	Dcac_Life	生命信号		T	R			0...15	0...255	1	0		0	unsigned	
MCU_State_2 电机状态2 ID =0xC01E3F1 cycle time=100ms DLC=8	0	0	16	Motor_torque	电机扭矩		R	T			-3000~3000	0...65535	0.1	-3000	Nm	0	unsigned	
	7	56	4	Dcac_Life	生命信号		T	R			0...15	0...255	1	0		0	unsigned	

MCU_State_3 电机状态2 ID=0xC02E3F1 cycle time=100ms DLC=8	0	0	16	Motor_speed	电机速度		R	T			-30000~30000	0...65535	0.1	-30000	rpm	0	unsigned	
	2	17	7	Err_Code	Err_Code	Code Description 0 No fault 1 Over-current fault 2 Drive VCE over-current 3 Drive under-voltage fault 4 Low-voltage under-voltage fault 5 Cycle-by-cycle current limiting fault 6 Output phase loss fault 7 Drive over-temperature 8 Current sensing fault 9 Excessive speed deviation 10 Locked rotor fault 11 Inverter overload 12 Motor overload 13 EEPROM fault 14 DC bus over-voltage fault 15 Invalid VCU command 16 Fan fault	R	T			0...16	0...255	1	0		0	unsigned	
	3	24	1	OverRpmFlag	超速故障		R	T			0~1	0...1	1	0		0	unsigned	
		25	1	LowVolFlag	欠压故障		R	T			0~1	0...1	1	0		0	unsigned	
		26	1	OverVolFlag	过压故障		R	T			0~1	0...1	1	0		0	unsigned	
		27	1	overloadFlag	过载故障		R	T			0~1	0...1	1	0		0	unsigned	
		28	1	RdcFaultFlag	旋变故障		R	T			0~1	0...1	1	0		0	unsigned	
		29	1	MotCanErrFlag	CAN通讯故障		R	T			0~1	0...1	1	0		0	unsigned	
		30	1	InternalFlag	内部故障		R	T			0~1	0...1	1	0		0	unsigned	
		31	1	TorControlFlag	扭矩监控故障		R	T			0~1	0...1	1	0		0	unsigned	
	4	32	1	IGBT1Flag	IGBT1故障		R	T			0~1	0...1	1	0		0	unsigned	
		33	1	IGBT2Flag	IGBT2故障		R	T			0~1	0...1	1	0		0	unsigned	
		34	1	IGBT3Flag	IGBT3故障		R	T			0~1	0...1	1	0		0	unsigned	
		35	1	HardDriveFaultFlag1	硬件过流故障1		R	T			0~1	0...1	1	0		0	unsigned	
		36	1	HardDriveFaultFlag2	硬件过流故障2		R	T			0~1	0...1	1	0		0	unsigned	
		37	1	HallErrFlagA	A相电流传感器故障		R	T			0~1	0...1	1	0		0	unsigned	
		38	1	HallErrFlagB	B相电流传感器故障		R	T			0~1	0...1	1	0		0	unsigned	
		39	1	FastDischargeFlag	主动放电故障		R	T			0~1	0...1	1	0		0	unsigned	
	5	40	1	IgbtTempOpenFlag	IGBT温度传感器开路		R	T			0~1	0...1	1	0		0	unsigned	
		41	1	McuTempOpenFlag	控制器温度传感器开路		R	T			0~1	0...1	1	0		0	unsigned	
		42	1	MotTempOpenFlag	电机温度传感器开路		R	T			0~1	0...1	1	0		0	unsigned	
		43	1	IgbtTempShortFlag	IGBT温度传感器短路		R	T			0~1	0...1	1	0		0	unsigned	
		44	1	McuTempShortFlag	控制器温度传感器短路		R	T			0~1	0...1	1	0		0	unsigned	
		45	1	MotTempShortFlag	电机温度传感器短路		R	T			0~1	0...1	1	0		0	unsigned	
		46	1	MotRotorFlag	电机转子位置检查异常		R	T			0~1	0...1	1	0		0	unsigned	
		47	1	No	预留		R	T			0~1	0...1	1	0		0	unsigned	
	6	48	1	OverIgbtTempFlag	IGBT温度过温		R	T			0~1	0...1	1	0		0	unsigned	
		49	1	OverMcuTempFlag	控制器温度过温		R	T			0~1	0...1	1	0		0	unsigned	
	7	56	4	Dcac_Life	生命信号		T	R			0...15	0...255	1	0		0	unsigned	

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