BONENG

AM变频驱动器

AM Drive

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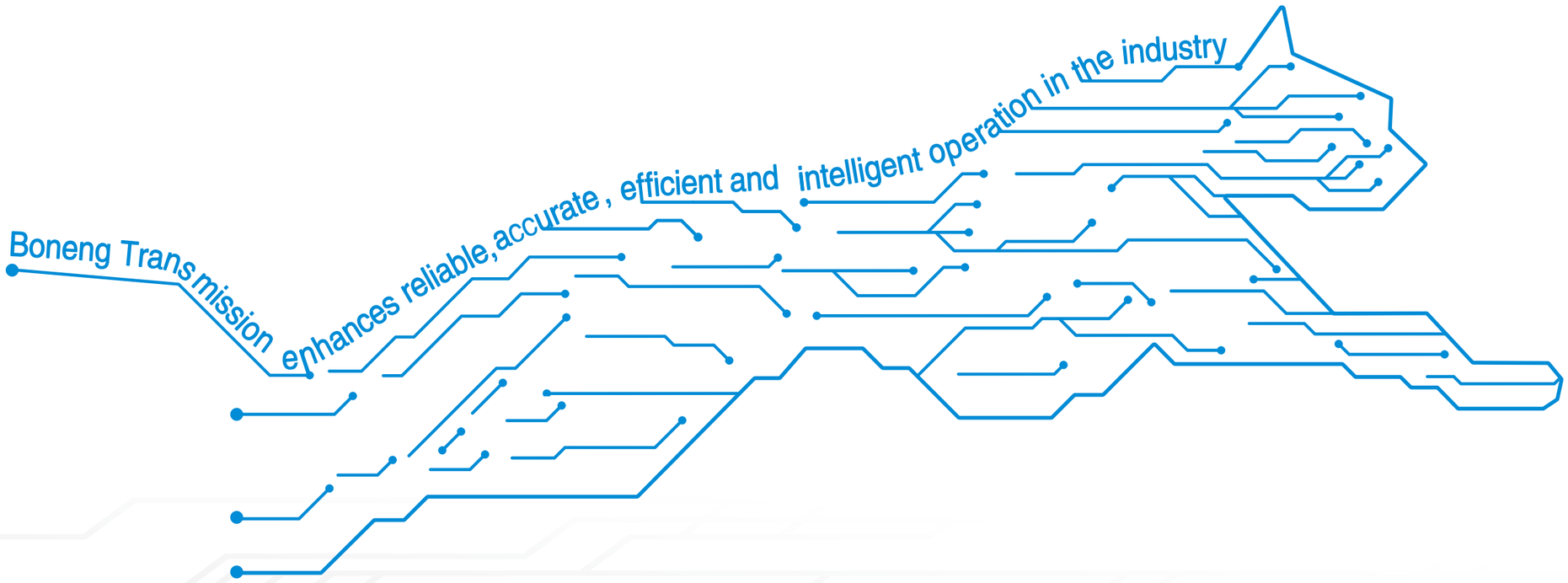
Boneng Transmission



控制器/驱动器/马达/齿轮马达/齿轮箱

Controller/ Drive/ Motor/ Gearmotor/ Gearbox

AM变频驱动器 AM Drive

- 功率密度最优设计，相同功率等级下体积更小
- 面板支持调速旋钮，可轻松实现本地调速
- 通过Boneng Drivesoft软件实现参数拷贝及监控调试
- 支持随压随速，随载随速，PID控制器，参数互联，自由功能块等特色功能

- Optimal power density design, smaller volume at the same power level
- The panel supports knobs, making it easy to achieve local speed control
- It's easy to debug and parameter copy through Boneng Drivesoft software
- Supports speed with voltage and load, PID controller, parameter interconnection, and free function blocks

产品广泛应用于起重运输、电力能源、水泥建材、金属冶炼加工、化工环保等各个领域。

博能传动公司总部和各大区域的技术专家以及各区域办事处的应用工程师、售后服务技师竭诚为您提供全面的技术咨询和完善的服务。

Products are widely used in lifting transportation, power energy, cement building materials, metal smelting and processing, chemical environmental protection and other fields.

Boneng Transmission company headquarters and major regional technical experts and regional offices of the application engineers, after-sales service technicians dedicated to provide you with comprehensive technical advice and perfect service.

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1 概述

BONENG AM系列驱动器的设计目标是为交流异步电机提供经济、紧凑的速度控制方案。

按照尺寸的不同(外形尺寸M1-M2)功率范围覆盖0.75KW~5.5KW,广泛适用于变频驱动的应用场合。

BONENG AM系列驱动器可通过多种方式对自身与所接电机进行控制和监控。支持Modbus通信进行控制,也可通过监控设备和输入/输出端子直接控制。BONENG AM系列驱动器采用了高性能的IGBT,电机电压脉宽调制技术以及可旋转的供电频率调制技术,使得电机运行极为灵活可靠。 此外,多方面的保护功能可以为驱动器和电机提供更高一级的保护。

内置操作面板由数码管、指示灯与按键组成,可显示设定频率、输出频率、各种监视数据以及故障代码,用于对变频器的调试、运行监控以及输入参数设置。

1 Summarize

BONENG AM series drives provide an economical and compact solution for AC induction motor speed control.

The power range of the two sizes (M1 and M2) is from 0.75KW to 5.5KW , which is widely suitable for inverter applications.

The driver can monitor itself and the connected motor in a variety of ways. The drive supports Modbus communication control, monitoring equipment control, and input/output terminals direct control. BONENG AM series drives adopt high performance IGBT, motor voltage pulse width modulation technology and rotatable power supply frequency modulation technology, making motor operation extremely flexible and reliable. In addition, multifaceted protection functions provide a higher level of protection for drives and motors.

The built-in operation panel is composed of digital tube, indicator light and keys, which can display setting frequency, output frequency, various monitoring data and fault codes for debugging, monitoring operation and setting input parameter of the frequency converter.

整机外形图

Product appearance

2 应用 2 Application

驱动器系列 Drive series	功率段 Power segment	主要接口和功能 Main interfaces and functions		
AM 系列 AM series	0.75kw~5.5kw	DI		5ch
		DO		1ch
		RY		1ch
		AI		1ch
		AO		1ch
		内置电位器	Bulit-in potenti-ometer	1ch
		Modbus通讯	Modbus communication	支持 Support
		上位机调试接口(RJ45)	Debugging Interface of host computer (RJ45)	支持 Support
		线性/抛物线/可编程的V/F控制	Linear/Parabol-ic/Programma-ble V/F Control	支持 Support
		无速度传感器的矢量控制	Vector control without speed sensor	支持 Support

水平移动 Move horizonally			
·带式输送机 ·辊式输送机 ·链式输送机 ·行车水平行走	·Belt conveyor machine ·Rolletr conveyor machine ·Chain conveyor machine ·Traveling crane	功能优点 ● 支持最多8段速 ● 支持转矩提升，提高低速转矩 ● 支持电动电位器，通过DI端子实现速度增减 The advantages of function ● 8 different speed settings ● Support to lift torque means that can improve motor' s torque when low speed ● Support electric potentiometer,through the DI terminal to achieve the speed increase or decrease	
加工处理 Processing			
·包装和印刷机械 ·木工机械 ·陶瓷机械 ·纺织机械 ·建筑机械 ·机床	·Packing and printing machine ·woodworking machine ·Ceramic machine ·Textile machine ·Construction machine ·Machine tool	功能优点 ● 支持无传感器矢量控制SVC ● 支持外接制动电阻，实现快速制动 ● 0.5HZ可输出额定转矩 The advantages of function ● Support vector control SVC without SVC ● Support external braking resistor to achieve fast braking ● Transport rated torque about 0.5HZ	
风机泵 The fan pump			
·风机 ·离心泵 ·压缩机	·Fan ·Centrifugal pump ·Compressor	功能优点 ● 支持1.5次平方多种VF曲线，节能减排 ● 支持转速跟踪，实现快速启动 ● 支持通过内置面板直接启停和速度控制 The advantages of function ● support various V/F control curve, such as 5-order, 2-order control curve, which help to cave energy for different application ● Support speed tracking,achieve fast starting ● Achieving directly starting or stopping and control speed through built-in panel	

3 特色 3 Features

3.1 用户友好 3.1 User-friendly

操作面板	Operation panel	快速实现参数设置和调试	Achieving parameter setting and debugging quickly
参数拷贝	Parameters Coping	调试一台驱动器，通过PC软件拷贝到其他驱动器	Debugging one drive and coping parameters to another drive through PC software
参数分组	Parameters grouping	功能码合理分组，参数简单直观，方便理解	Reasonablly function grouping, simple and intuitive parameters, which are easily to be understand-ed
支持Boneng Drivesoft软件	Supporting Boneng Drivesoft	参数显示及修改，虚拟示波器，已修改参数等功能方便调试	It's easy to debug through various functions, such as parameters display and modify, virtual oscilloscope, parameters modification list
内置电位器	Built-in Potentiometer	无需外置，旋转内部电位器实现无极调速	Without external potentiome-ter.,achieving stepless speed regulation throu gh rotating the internal potentiometer

3.2 品质可靠 3.2 Realiable quality

最佳散热设计	Excellent heat dissipation design	使用寿命更长	Prolonged service life
高质量电子元器件/电容器	High quality electronic components/capacitors	寿命成本低	low service life cost
所有变频器出厂前进行满负荷测试	Tested at full load before all frequency converters are delivered	可靠性高	High reliability
完善的驱动器保护功能	Perfect drive protection function	精益运行	Lean operation
标准配置带涂层线路板	Protective coating of PCB is standard configuration	使用寿命延长	Prolonged service life

3.3 性能卓越

3.3 Excellent capability

过程比例积分(PID)控制器	Process Proportional Integral (PID) controller	无需外部控制器	No external controller required
随压随速	Following presure and speed	允许低电压运行减少故障停机时间	Allow running with low voltage to reduce fault downtime.
自动识别电机模型	Automaticly identifing motor models	发挥电机的全部潜能	Unleash the full potential of the motor
随载随速	Following load and speed	轻载高速重载限速提升工作效率	Limit speed in heavy load condition and raise speed in light load condition to improve efficiency.
跟踪启动（跟踪自由旋转的电机）	Tracking start (tracking freely rotating motor)	避免启动冲击	Avoid starting impact
支持参数互联	Parameter interconnection	参数可互联到P组，可实现启停来源，速度来源等选择来自P组参数，极其灵活	P-Group Interconnect function helps to choose parameter's source flexibly ,such as start and stop command's source , speed reference's source.
支持自由功能块	Freely functional blocks	支持逻辑，算术运算，延时，数据选择，适用特殊工况参数设置	Functions included logic and arithmetic operation, delay, data selection, suitable for special working conditions parameter setting.
合理的抱闸功能	Reasonable brake function	抱闸逻辑时序合理，实现开闸和关闸平稳，不溜钩	Reasonable timing sequence of holding brake logic can achieve the smooth opening and closing of the brake, without slipping the hook.

3.4 结构紧凑

- 功率密度优化设计，体积小巧，结构紧凑，3.0kW机型宽度仅70mm,5.5kW机型宽度仅90mm
- 支持在最小空间内无缝并排安装，能大大缩小控制柜尺寸
- 支持螺钉安装与导轨安装

3.4Compact construction

- AM drive power density is optimized. Compact in size and structure, the 3.0kW model has a width of only 70mm, while the 5.5kW model has a width of only 90mm.
- Support seamless side-by-side installation in the minimum space, which can greatly reduce the size of the control cabinet
- Support screw or rail installation

4 选型订货数据

4 Selection and ordering datas

型号表示方法

Model indication method

AM – B 3 B30 – N – MB

迷你型驱动器 **MINI-DRIVE**

电压等级 **Voltage level**
B= 400V AC
B= 400V AC

输入相数 **Number of input phase**
3= 三相输入 3Φ
3=3=three-phase input 3PH

功率代号 **Power code**

内置滤波器代号 **Bulit-in filter code**
N=不带内置滤波器
N=Without bulit-in filter

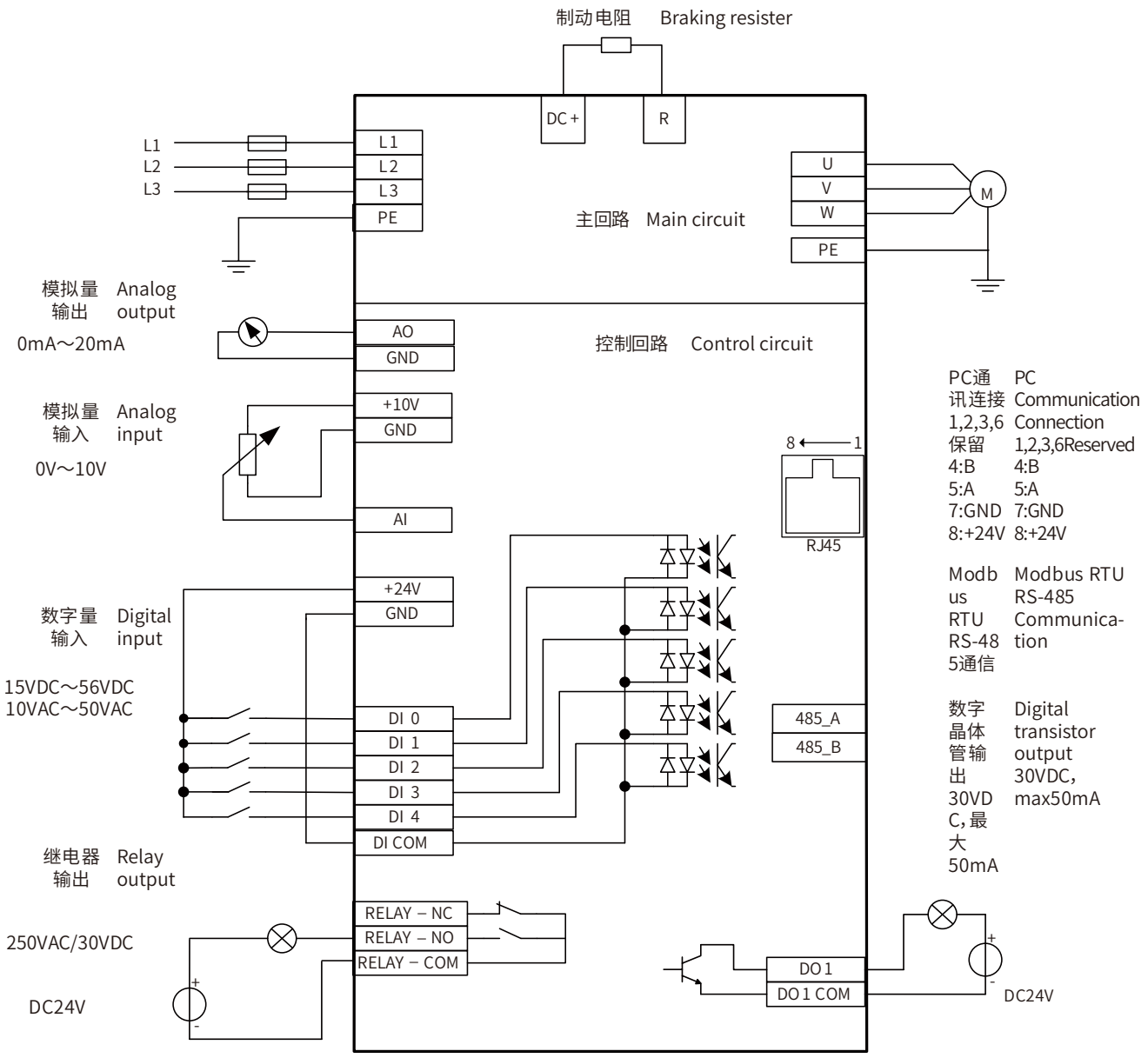
通讯协议 **Communication Protocol**
MB=Modbus RTU
MB=Modbus RTU

订货数据

Order data

380～480V 3AC输入				380～480V 3ACinput	
LD模式 LD model		HD模式 HDmodel		外形 Overall 尺寸 dimensions	型号 Model
额定功率 (kW) Rated power (kW)	额定电流 (A) Rated current (A)	额定功率 (kW) Rated power (kW)	额定电流 (A) Rated current (A)		不带内置滤波器 Without bulit-in filter
0.75	2.2	0.55	1.7	M1	AM-B3A75-N-MB
1.5	4.1	1.1	3.1		AM-B3B15-N-MB
3.0	7.7	2.2	5.9		AM-B3B30-N-MB
5.5	13.2	4.0	10.2	M2	AM-B3B55-N-MB

5 电气连接 5 Electrical Connections

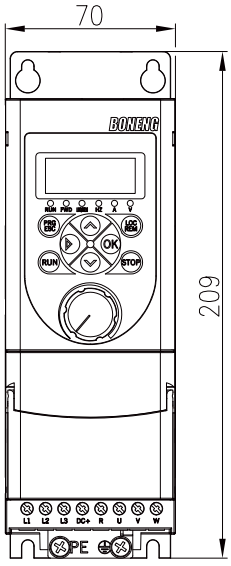


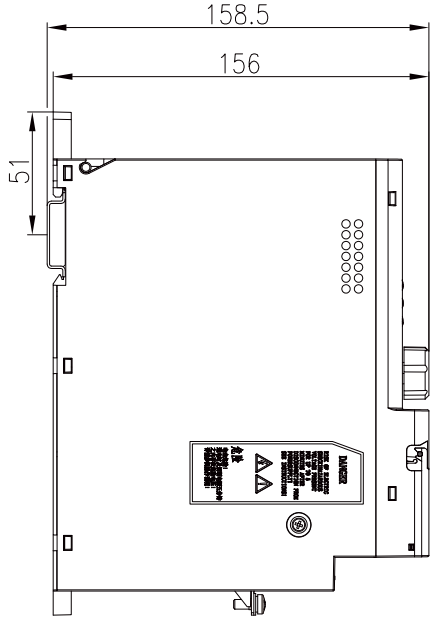
6 外形及安装尺寸

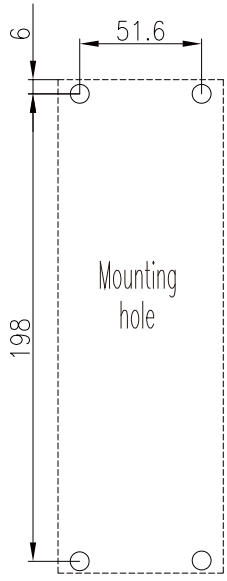
M1（0.75kw~3.0KW）

6 Appearance and installation dimensions

M1（0.75kw~3.0KW）







M1（0.75kw~3.0KW）外形尺寸图，单位为mm

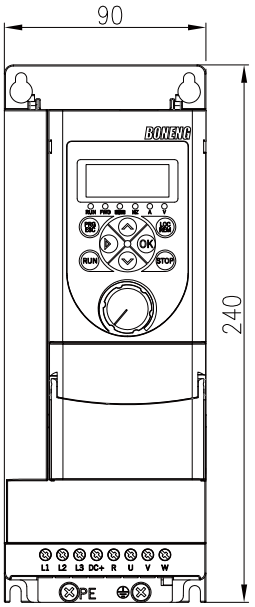
固定需要4个M4组合螺钉，4个M4螺母，拧紧力矩：2.5Nm
顶部和底部所需通风空间：100mm，侧面无需通风空间

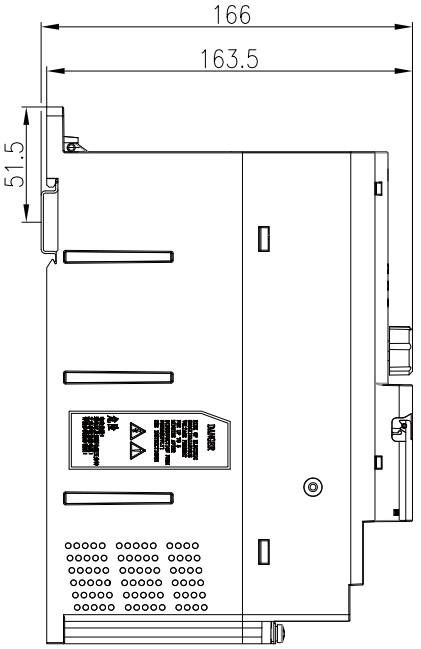
M1(0.75KW~3.0KW)' s dimensions, the unit is mm

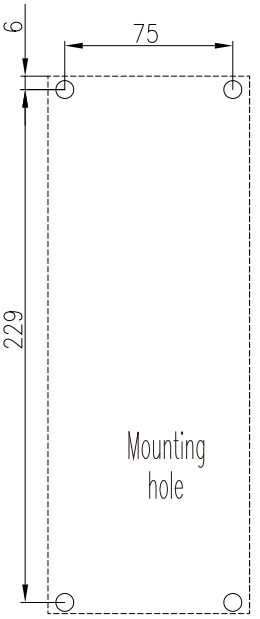
Fixation need 4 M4 combination screws, 4 nuts, and 2.5Nm tightening torque.
Exceot for the side, reserve about 100mm of ventialation space at the top and bottom

M2 (5.5kW)

M2 (5.5kW)







M2 (5.5kW) 外形尺寸图，单位为mm

固定需要4个M4组合螺钉，4个M4螺母，拧紧力矩：2.5Nm
顶部和底部所需通风空间：100mm，侧面无需通风空间

M2(5.5KW)' s dimensions, the unit is mm

Fixation need 4 M4 combination screws, 4 nuts, and 2.5Nm tightening torque. Except for the side, reserve about 100mm of ventialation space at the top and bottom

7 技术参数

如果不做特殊说明，那么BONENG AM系列驱动器将符合以下的技术参数

7 Technical parameters

Unless otherwise special instructions, the BONENG AM series drive will comply with the following technical parameters

		接口技术规格	Technical specification of interface	
输出电源 Output power	外接24V电源	External 24V power supply	•24VDC±10%,最大200mA	±24 VDC plus or minus 10%,200mA max
	外接10V电源	External 10V power supply	•+10V-GND,最大20mA	•+10V-GND, 20mA max
数字量输入 Digital input	5通道共COM输入	5-channel input with same common	•DI0～DI4，光耦隔离，支持双向输入 •输入电压15VDC～56VDC，10VAC～50VAC •兼容36VAC、48VAC	•DIO~D14, Optocoupler isolation, support bi-direction input •Input voltage 15VDC~56VDC, 10VAC~50VAC •Compatible with 36VAC, 48VAC
模拟量输入 Analog input	1通道输入	1 channel input	•电压型：DC 0～10V •精度1%	•Voltage type: DC 0~10V •Accuracy of 1%
数字量输出 Digital output	1通道继电器输出	1 channel relay output	•最大开关电压250VAC/30VDC •最大开关电流0.5A/30VDC；5A/230VAC •最大连续电流2Arms	•Maximum switching voltage 250VAC/30VDC •Maximum switching current 0.5A /30VDC: 5A/230VAC •Maximum continuous current 2Arms
	1通道数字晶体管输出	1 channel digital transistor output	•光耦隔离，双极性开路集电极输出 •30VDC，最大50mA	•Optocoupler isolation, bipolar open collector output •330 VDC, 50mA max
模拟量输出 Analog output	1通道输出	1 Channel output	•电流型：0～20mA •精度1%	•Current type: 0~20mA •Accuracy of 1%
通讯端口 Communi-cation port	RS485通讯端口	RS485 communi-cation port	•Modbus RTU •最高速率：115200bps	•Modbus RTU •Maximum speed: 115200bps
	PC通讯接口	PC communica-tion interface	•RJ45 网口 •支持PC上位机调试及软件更新	•RJ45 port •Support debugging by host computer from PC and software update

		功率参数（通用参数）	Power parameter (general parameter)
输入电压	Input voltage	380～480V 3AC ±10%	380～480V 3AC ±10%
电源要求	Power requirements	电源短路电压Uk 无特殊要求	Power supply short circuit voltage UK, no special requirements
输入频率	Input frequency	47 ～ 63Hz	47 ～ 63Hz
输出频率	Output frequency	0 ～ 300Hz	0 ～ 300Hz
载波频率	Carrier frequency	4kHz 对于其他更高的载波频率参见降容数据表	4kHz For other higher carrier frequency parameters see Capacity Reduction Data Sheet
功率因数	Power factor	0.95	0.95
驱动器效率	Drive efficiency	95～97%	95～97%
过载能力	Overload capacity	•重载(HD) 1.5倍额定输出电流1min，2倍额定输出电流3sec，周期10min	•Heavy load (HD) 1.5 times rated output current for 1min, 2 times rated output current for 3sec, cycle 10min
		•轻载(LD) 1.2倍额定输出电流1min，1.5倍额定输出电流3sec，周期10min	•Light load (LD) 1.2 times rated output current for 1min, 1.5 times rated output current for 3sec, cycle 10min
电磁兼容	Electromagnetic compatibility	可选符合EN 55011标准的A级和B级滤波器	Class A and Class B filters to EN 55011 are optional
可选的制动方式	Optional braking mode	•DC制动	•DC braking
		•内置制动斩波器	•Built-in brake carrier
防护等级	Protection grade	IP20	IP20
工作温度	Working temperature	•重载（ HD ） -10～+50°C不降容，＞50～60°C，参见降容曲线	•Heavy load (HD) -10~+50C no volume reduction, > 50~60C, see the volume reduction capacity
		•轻载（ LD ） -10～+40°C不降容，＞40～60°C，参见降容曲线	•Light load (LD) -10~+40C no volume reduction, > 40~60°C, see volume reduction capacity
存储温度	Storaging temperature	-40～+70°C	-40～+70°C
相对湿度	Relative humidity	＜95% RH，无结露	<95% RH, No condensation
冷却方式	Cooling method	内部风冷 功率部分采用内置风扇强制风冷	Internal air cooling method Power circuit adopts built-in fan forced air cooling
安装海拔高度	Installlation altitude	海拔1000m内不降容，＞1000m参见降容曲线	There is no volume reduction within 1000m, and over 1000m can be seen in the volume reduction capacity
保护功能	Protection function	•欠电压	•Undervoltage
		•过电压	•Overvoltage
		•过载	•Overload
		•短路	•Short circuit
		•电机失速保护	•Motor stall protection
		•电机过载	•Motor overload
		•变频器过温	•Inverter over temperature

进线电压380…480V 3AC Incoming line voltage 380…480V 3AC									
机种参数 Model parametrers			AM-B3A75-N-MB		AM-B3B15-N-MB		AM-B3B30-N-MB		AM-B3B55-N-MB
额定输入电流 Rated input current	基于(LD)A	LD base load input current	2.9		5.5		10.1		17.2
	基于(HD)A	HD base load input current	2.6		4.7		8.8		15.3
额定输出电流 Rated output current	基于(LD)A	LD base load output current	2.2		4.1		7.7		13.2
	基于(HD)A	HD base load output current	1.7		3.1		5.9		10.2
额定输出功率 Rated output power	基于(LD)kW	LD base load output power	0.75		1.5		3		5.5
	基于(HD)kW	HD base load output power	0.55		1.1		2.2		4
额定的载波频率(kHz)	Rated carrier frequency		4						
效率η	Efficiencyη		＞0.95						
功率损失(kW)	Power lost (kW)		0.04	0.04	0.04	0.07	0.1	0.12	0.15	0.15
冷却风量要求m3/s	Cooling air volume requirement m3/s		0.017						
噪声水平dB(A)	Noise emission db(A)		＜50						
制动电阻连接电缆的最大长度(m)	Maximum length of brake resistor connection cable(m)		15						
进线电源连接 Incoming power connection	L1、L2、L3		螺钉端子 Screw terminal						
	电缆截面积mm2	Cable cross-sectional areamm2	1～2.5					2.5～4	
电机连接 The connection of motor cable	U、V、W		螺钉端子 Screw terminal						
	电缆截面积mm2	Cable cross-sectional areamm2	1～2.5					2.5～4	
直流母线连接(制动电阻的连接) DC-link bus connection (Braking resistor connection)	DC+、R		螺钉端子 Screw terminal						
	电缆截面积mm2	Cable cross-sectional areamm2	1～2.5					2.5～4	
PE连接	PE connection		外壳上的M4螺钉 M4 screws on housing						
最大电机电缆长度 Maximum motor cable length	屏蔽电缆m	Shielded cable m	50						
	非屏蔽电缆m	Unshielded cable m	100						
安装尺寸 Installation dimensions	宽(W)mm	width (W) mm	70					90	
	高(H)mm	hight (H) mm	209					240	
	深(D)mm	deepth (D) mm	156					163.5	
外形尺寸	Appearance dimensions		M1					M2	
大约重量(kg)	Approximate weight(kg)		2					7	

机械参数		Mechanical parameters	
振动	vibration		
•运输	•transportation	等级2M3 符合IEC 60068-2-6	Grade 2M3, complies with IEC 60068-2-6
•运行	•Operation	等级3M4 符合IEC 60068-2-6	Class 3M4, complies with IEC 60068 -2-6
		10Hz～58Hz：恒定振幅0.075mm	10Hz~58Hz: constant amplitude 0.075mm
		58Hz～200Hz：恒加速度=9.81m/s2(1g)	58Hz~200Hz: constant acceleration = 9.81m /s2(1g)
冲击	Impaction		
•运输	•Transportation	等级2M2 符合IEC 60068-2-27	Grade 2M2,complies with IEC 60068-2-27
•运行	•Operation	等级3M4 符合IEC 60068-2-27	Grade 3M4,complies with IEC 60068-2-27
		49m/s2 (5g) /30ms	49m/s2 (5g) /30ms
环境条件		Environmental conditions	
冲击防护	Impact protection	当正确使用时符合 IEC 61800-5-1	comply with IEC 61800-5-1 when used correctly
运行过程中功率部件允许的环境和冷却介质温度		Ambient and cooling medium temperatures allowed for power components during operation	
•重载 (HD)	•Heave load (HD)	-10～+50°C不降容，>50～60°C，参见降容曲线	-10~+50C no volume reduction, >50~60C, see the volume reduction capacity
•轻载 (LD)	•Light load (LD)	-10～+40°C不降容，>40～60°C，参见降容曲线	-10~+40C no volume reduction, >40~60C, see the volume reduction capacity
运行过程中控制部件允许的环境和冷却介质温度	Ambient and cooling medium temperatures allowed for control components during operation	0～+50°C	
气候环境条件		Climatic and environmental conditions	
•保存	•Storage	符合IEC60721-3-1的1K3，温度 -25～+55°C	According to IEC60721-3-1 1K3, temperature 25~+55C
•运输	•Transportation	符合IEC60721-3-2的2K4，温度 -40～+70°C，最大空气湿度40°C下95%	2K4 in line with IEC60721- -3-2, temperature -40 ~+70C, maximum air humidity under 40C 95%
•运行	•Operation	符合IEC60721-3-3 的3K5，不允许有结露、水溅和结冰(IEC 60204，Part 1)	3K5 in accordance with IEC60721-3-3, no condensation, splashing and icing allowed (IEC 60204, Part 1)
环境标准/有害化学物质		Environmental standards/Adverse chemicals	
•保存	•Storage	符合IEC60721-3-1 的 1C2 标准	Meet the 1C2 standard of IE60721-3-1
•运输	•Transportation	符合IEC60721-3-2 的 2C2 标准	Meet the 2C2 standard of IE60721-3-2
•运行	•Operation	符合IEC60721-3-3 的 3C2 标准	Meet the 3C2 standard of IE60721-3-3
标准		Standard	
符合的标准	Conforming standard	CE	CE
CE认证	CE certification	符合低压规范 73/23/EEC和机械规范98/37/EC	Comply with low voltage specification 73/23/EEC and mechanical specification 98/37/EC
EMC规范	EMC standard		
•带有内置A级滤波器	•Added additional A-class filter,instead of built-in filter	类别C2，符合EN 61800-3或者等级A符合 EN 55011	Class C2, in accordance with EN 61800-3 or Class A, in accordance with EN 55011
•加装了附加的 A 级 滤 波器，无内置	•Additional A and B filters are installed	类别C2，符合EN 61800-3或者等级A符合 EN 55011	Class C2, in accordance with EN 61800-3 or Class A, in accordance with EN 55011
• 加装了附加的A和B级滤波器	•Additional A and B filters are installed	类别C2，符合EN 61800-3或者等级B符合 EN 55011	Class C2, in accordance with EN 61800-3 or Class B, in accordance with EN 55011

8 特性曲线

8 Characteristic curve

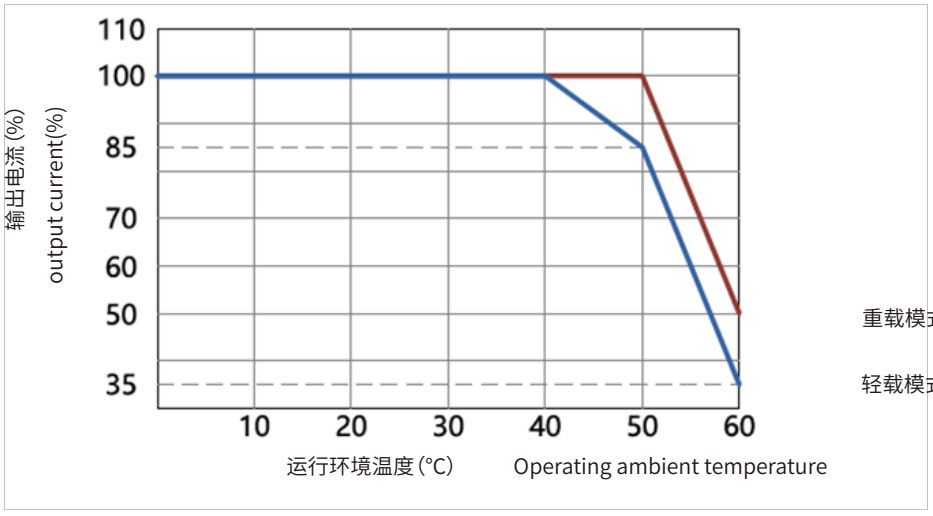
降容数据•脉冲频率

Capacity Reduction · Pulse Frequency

驱动器功率 (kW) Drive power (kW)	不同载波下驱动器输出电流 Drive output current under different carrier (A)				
	2kHz	4kHz	6kHz	8kHz	10kHz
0.75	2.2	2.2	1.9	1.5	1.3
1.5	4.1	4.1	3.5	2.9	2.5
3.0	7.7	7.7	6.5	5.4	4.6
5.5	13.2	13.2	11.2	9.2	7.9

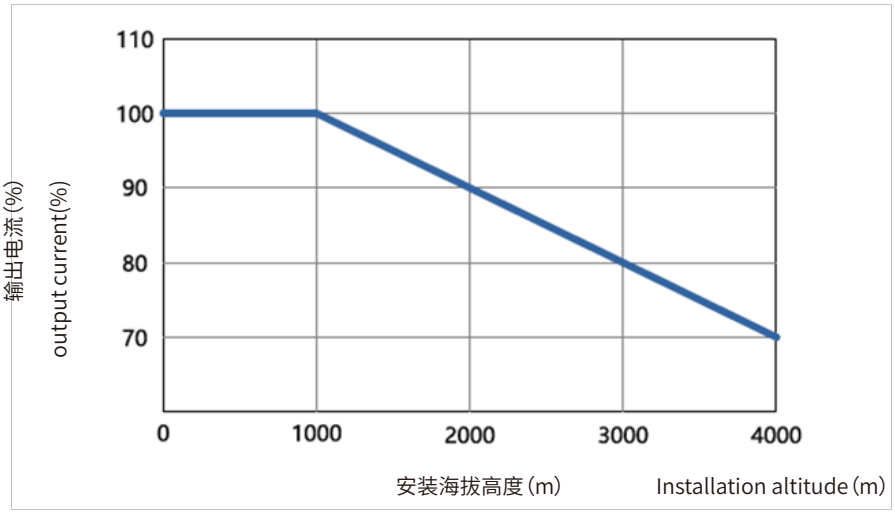
降容数据•环境温度

Capacity Reduction · ambient temperature



降容数据•海拔高度

Capacity Reduction · altitude



9 可选件

当系统的故障率高时，需要加装进线电抗器改善驱动器的输入侧功率因数，以保护驱动器免受过大的谐波电流的干扰；防止过载并将进线谐波限制在允许的值内，以确保驱动器达到期望的使用寿命。
进线滤波器的作用是抑制驱动器通过输入电源线所传输到公共电网中的电磁干扰,同时也衰减从电源线进入驱动器的干扰；在安装时请尽量靠近驱动器的输入端子侧进行安装，请使用驱动器专用的进线滤波器。
当驱动器和电机之间的距离超过50米时，由于长电缆对地的寄生电容效应导致漏电流过大，驱动器容易频繁发生过流保护，为了避免电机绝缘损坏，须加输出电抗器补偿，输出电抗器可以减小电机绕组上的电压负载，以及采用长的电机电缆时，容性充放电电流加在功率部分的附加负载。
制动电阻用于使大转动惯量的负载迅速制动。在电机和负载制动时，动能转换成的再生电能会返回到驱动器中，直流母线电压因此抬高，驱动器将这些再生的能量几乎全部消耗在制动电阻上。400V 50/60HZ AM系列驱动器可选的制动电阻推荐规格如下：

9 Options accessories

When the failure rate of the system is higher, it is necessary to install a line reactor to improve the input power factor of the drive to protect the drive from excessive harmonic current interference; Prevents overloads and limits incoming harmonics to allowable values to ensure the drive achieves the desired service life.
The function of the incoming filter is to suppress the electromagnetic interference transmitted by the drive through the input power line to the public grid, and also attenuate the interference from the power line into the drive. Please install as close as possible to the input terminal side of the drive, please use the drive special incoming filter.
When the distance between the drive and motor exceeds 50 m, the leakage current is too large due to the parasitic capacitance effect of the long cable to the frequent over-current protection.In order to avoid damage to the motor insulation,an output reactor must be daaed to compensate.The reactor can reduce the voltage load on the motor windings, and when a long motor cable is used, the capacitive charging and discharging current adds to the additional load of the power section.
Braking resistors are used to brake loads with large moment of inertia quickly. When the motor and the load are braking, the kinetic energy converted into regenerated electricity will return to the drive, thus direct current bus voltage is raised, the driver will use up almost all of this regenerated energy on the brake resistance; 400V 50 / 60Hz A1 series driver The recommended specifications of the selected braking resistor are as follows:

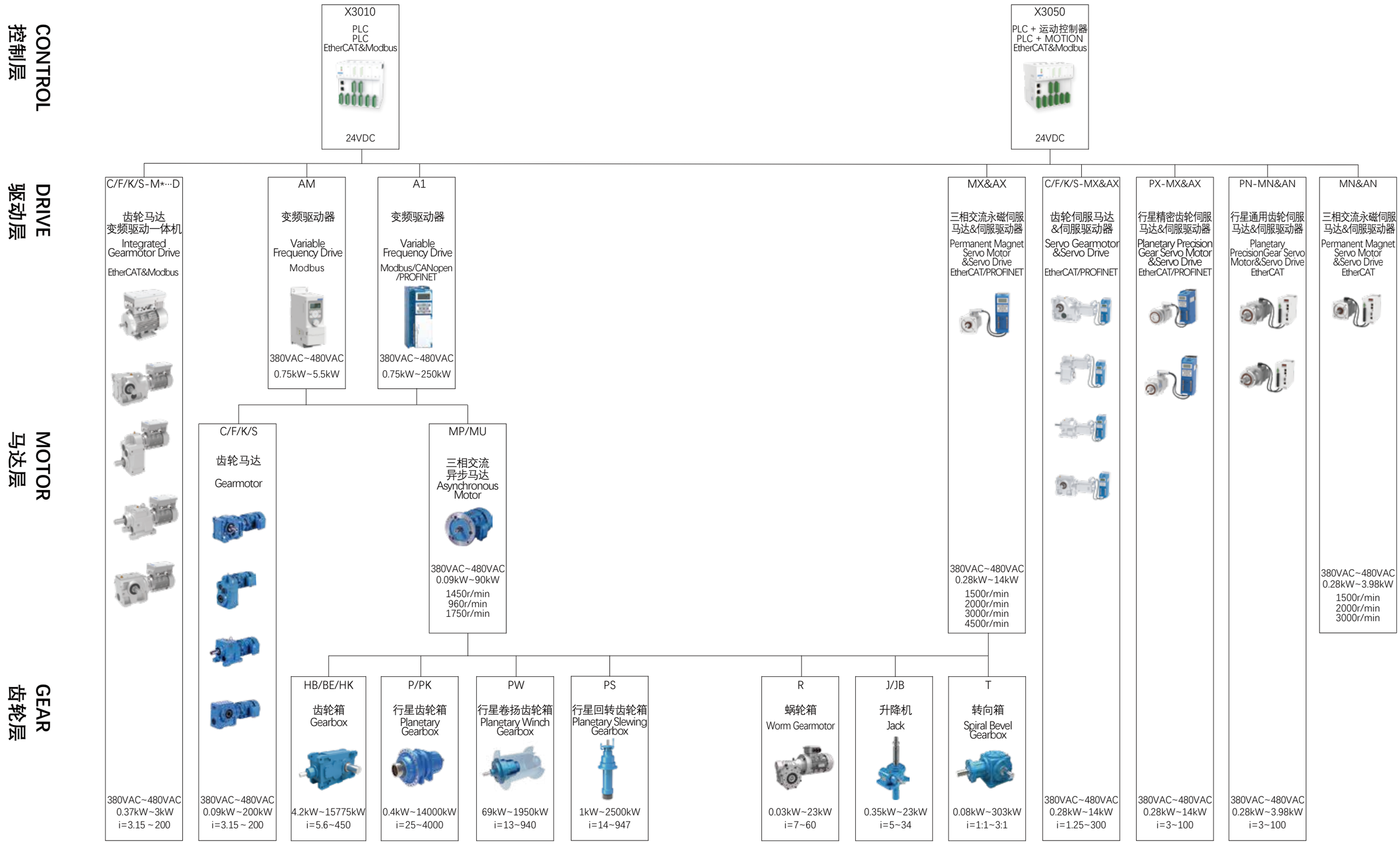
驱动器 Drive		允许的最小制动阻值 (Ω) Allowable minimum braking resistance (Ω)	10% ED (100s 周期)的非频繁制动应用场合 10% ED (100s cycle) infrequent braking applications			
框架 frame	无内置滤波器型号 Model without built-in filter		推荐值 Recommended value		博能型号 BONENG Model	
			功率 (kW) Power (kW)	阻值 (Ω) Resistance	订货号 Order number	等效制动电阻 Equivalent braking resistance
M1	AM-B3A75-N-MB	374	0.1	750	A1-H02-A10-k-D75	100W 750Ω
	AM-B3B15-N-MB	374	0.2	390	A1-H02-A20-k-D39	200W 390Ω
	AM-B3B30-N-MB	140	0.5	180	A1-H02-A50-k-D18	500W 180Ω
M2	AM-B3B55-N-MB	75	0.8	100	A1-H02-A80-k-D10	800W 100Ω

驱动器 Drive		允许的最小制动阻值 (Ω) Allowable minimum braking resistance (Ω)	15% ED 频繁制动应用场合 15% ED frequent braking applications (例如：行车平移应用) (Example: driving pan application)			
框架 frame	无内置滤波器型号 Model without built-in filter		推荐值 Recommended value		博能型号 BONENG Model	
			功率 (kW) Power (kW)	阻值 (Ω) Resistance	订货号 Order number	等效制动电阻 Equivalent braking resistance
M1	AM-B3A75-N-MB	374	0.2	750	A1-H02-A20-k-D75	200W 750Ω
	AM-B3B15-N-MB	374	0.4	390	A1-H02-A40-k-D39	400W 390Ω
	AM-B3B30-N-MB	140	0.9	180	A1-H02-B10-k-D18	1000W 180Ω
M2	AM-B3B55-N-MB	75	1.6	100	A1-H02-B20-k-D10	2000W 100Ω

驱动器 Drive		允许的最小制动阻值 (Ω) Allowable minimum braking resistance (Ω)	25% ED 频繁制动应用场合 25% ED frequent braking applications (例如：行车提升应用) (Example: driving pan application)			
框架 frame	无内置滤波器型号 Model without built-in filter		推荐值 Recommended value		博能型号 BONENG Model	
			功率 (kW) Power (kW)	阻值 (Ω) Resistance	订货号 Order number	等效制动电阻 Equivalent braking resistance
M1	AM-B3A75-N-MB	374	0.37	750	A1-H02-A40-k-D75	400W 750Ω
	AM-B3B15-N-MB	374	0.75	390	A1-H02-A80-k-D39	800W 390Ω
	AM-B3B30-N-MB	140	1.5	180	A1-H02-B15-k-D18	1500W 180Ω
M2	AM-B3B55-N-MB	75	2.7	102	A1-H02-B30-k-D10	3000W 102Ω

随着技术迭代进步，博能产品样本将会同步更新，请见谅。
Along with the technology advancedet.,the product of the manual of Boneng will be changed,please forgive.

博能产品集成图 Boneng Product Integration Diagram



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