

# AxN-DC Servo Common DC Bus Drive

AxN-DC系列共直流母线驱动器





## Company Profile 企业简介

宁波菲仕技术股份有限公司（简称：菲仕技术）成立于 2001 年，由民营控股、先进制造产业投资基金和宁波通商集团等战略投资人参股，公司致力于以“高效节能、精准控制”电驱动技术为核心的创新及产业化，为运动控制和能量转换领域提供系统产品和综合解决方案，经过多年品牌沉淀，菲仕已成为一家集研发、生产、销售为一体，拥有国内外多家控股子公司的集团化创新型高科技企业。

Ningbo Physis Technology Co., Ltd. (hereinafter referred to as Physis) was founded in 2001. Physis always devotes to innovation and industrialization of electrical drive technology, provides servo products and solutions for the field of motion control & energy conversion. After years of brand development and accumulation, Physis becomes a collectivized & innovative high-tech enterprise, which collects together R&D, manufacturing and sales, and has a numbers of domestic and overseas subsidiaries.



6 大生产基地  
Manufacturing bases



2 大研发中心  
R&D center



17 个海内外分支机构  
Subsidiaries



40+ 远销国家和地区  
Sold in countries and regions

## Global presence 全球布局

### 立足全国 放眼全球

总部“永动谷”落户中国宁波北仑，在国内产业链完善的宁波、株洲、天津、赣州建立大型生产基地。建立国内外分子公司 17 家，合作伙伴百余家，形成覆盖全国、面向全球市场的营销服务网络，逐步落地国际化战略。

Physis has established large-scale production bases in Ningbo, Zhuzhou, Tianjin, and Guangzhou, which have a complete domestic industrial chain.

It has established 17 domestic and foreign subsidiaries and more than 100 partners, formed a marketing service network covering the whole country and facing the global market, and gradually implemented the internationalization strategy.

# Product Introduction

## 产品介绍

### AxN-DC 系列共直流母线多轴驱动器 AxN-DC Series Common DC Bus Drive

统一的整流单元及多组逆变单元构成共直流母线驱动系统  
适用于机床、包印、全电动注塑机等多轴应用场合

A unified rectifier unit and multiple inverter units form the common DC bus driving system  
Suitable for machine tool, package and printing, EIMM and other multi-axis applications

### 功能特点

#### Features

整流单元: 0~500Vac 80kW, 支持整流模块并联  
逆变单元: 0~800Vdc 峰值功率 22~400kW  
总线接口: EtherCAT、CANopen、EthPMC  
编码器支持: Endat、Hiperface、Sincos、Hall、Resolver、Nikon、Tamagawa  
散热方式: 风冷、水冷、油冷  
安装方式: 柜内安装、穿墙安装、底板安装

Rectifier Unit: 0~500Vac 80kW, support parallel connection of rectifier modules  
Inverter Unit: 0~800Vdc Peak Power 22~400kW  
Bus Interface: EtherCAT, CANopen, EthPMC  
Encoder Support: Endat, Hiperface, Sincos, Hall, Resolver, Nikon, Tamagawa  
Cooling Methods: Fan-cooling, water-cooling, and oil-cooling  
Installation Method: cabinet installation, wall-through installation, baseplate installation



### 符合标准






#### Standards Compliant

| 地区<br>Region | 认证名称<br>Certification | 指令名称<br>Directive                                 | 符合标准<br>Standard   |
|--------------|-----------------------|---|--------------------|
| 欧洲<br>Europe | CE                    | 2014/30/EU (EMC 指令)<br>2014/30/EU (EMC directive) | EN 61800-3: 2004   |
|              |                       | 2014/35/EU (低电压指令)<br>2014/35/EU (LVD directive)  | EN 61800-5-1: 2007 |
| 美国<br>USA    | UL                    | -   | UL 61800-5-1: 2007 |

具有 STO 功能, 符合 EN61800-5-2: 2016 标准  
STO function, compliant to EN61800-5-2:2016 standard

# Product List

## 产品一览

|                        | 外观<br>Product Appearance  | 型号<br>Model | 输入电压<br>Input Voltage | 风冷型额定功率<br>Rate Power of Fan Cooling Type | 尺寸<br>(长*高*宽)<br>Size(L*H*W) |
|------------------------|---|-------------|-----------------------|---|------------------------------|
| 整流单元<br>Rectifier Unit |    | AxN-PS 80   | 0-500Vac              | 80KW                                      | 259×450×196                  |
| 逆变单元<br>Inverter Unit  |   | AxN-DC44    | 0-800Vdc              | 11KW                                      | 259×450×98                   |
|                        |   | AxN-DC70    | 0-800Vdc              | 17.5KW                                    |                              |
|                        |  | AxN-DC100   | 0-800Vdc              | 25KW                                      | 259×450×196                  |
|                        |   | AxN-DC140   | 0-800Vdc              | 35KW                                      |                              |
|                        |  | AxN-DC200   | 0-800Vdc              | 50KW                                      | 259×450×294                  |
|                        |   | AxN-DC300   | 0-800Vdc              | 75KW                                      |                              |
|                        |   | AxN-DC400   | 0-800Vdc              | 100KW                                     |                              |
|                        |  | AxN-DC800   | 0-800Vdc              | 200KW                                     | 259×450×490                  |

# Product Advantages

## 产品优势

### 内置 PLC (IEC6113103 标准语言)

#### Built-in PLC (IEC6113103 standard language)

可编程：可用 5 种 PLC 编程语言进行二次开发，符合 IEC61131-3 标准。  
一体化：PLC 集成在控制卡上，省去外部的 PLC 控制器，节省空间和成本。  
速度快：驱动器由内部 PLC 直接控制，执行速度更快。

Programmable: Five kinds of PLC programming languages can be used for secondary development, compliant to IEC61131-3 standard.  
Integration: PLC is integrated in control card, eliminating the need for an external PLC controller, saving space and cost.  
Faster Speed: Drive is directly controlled by the internal PLC and executes faster.

### 自主开发的 EthPMC 内部总线

#### Self-developed EthPMC Internal Bus

基于以太网技术：具有硬实时性，拓扑灵活等特点。  
支持交互通信：在每个同步周期内主站与从站，从站间实现直接的数据通信。  
通信调整稳定：循环周期 125 $\mu$ s，传输延时低于 2 $\mu$ s，同步时钟抖动小于 100ns。

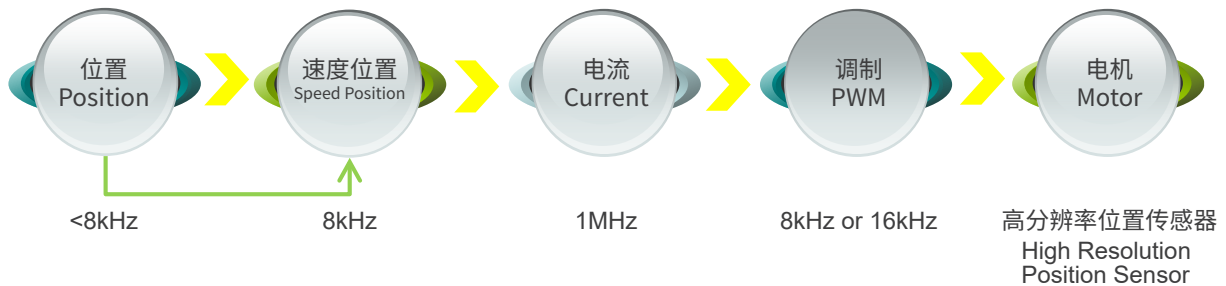
Based on Ethernet Technology: Hard real-time, flexible topology.  
Support Interactive Communication: Realize direct data communication between master station, slave station, slave station and slave station in each synchronization cycle.  
Stable Communication Regulation : Cycle time is 125 $\mu$ s, transmission delay is less than 2 $\mu$ s, and synchronous clock jitter is less than 100ns.

### 高精度控制环

#### High-precision Control Loop

电流环采样循环时间：1 $\mu$ s  
速度环采样循环时间：125 $\mu$ s  
位置环采样循环时间：125 $\mu$ s (采用新的高性能电压控制算法，可达到最高 10 倍弱磁)

Current Loop Sampling Cycle Time: 1 $\mu$ s  
Speed Loop Sampling Cycle Time: 125 $\mu$ s  
Position Loop Sampling Cycle Time: 125 $\mu$ s (adopts new high-performance voltage control algorithm, up to 10 times deep field weakening)



# Application 应用领域

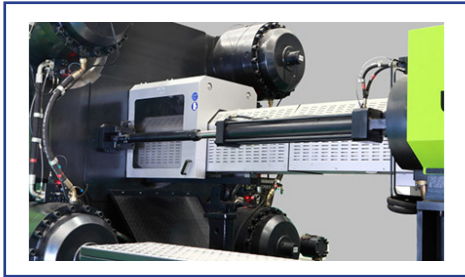


## 数控机床

伺服压机  
激光切割机  
伺服转塔冲床  
柔性加工单元  
多轴联动加工中心

## CNC Machine Tool

Servo press  
Laser cutting machine  
Servo turret punch  
Flexible processing unit  
Multi-axis linkage machining center



## 注塑机

全电动注塑机  
电液混合注塑机

## Injection Molding Machine

EIMM  
Electro-hydraulic hybrid



## 多线切割机

磁钢切割  
单晶硅切割  
蓝宝石切割

## Multi-wire Cutting Machine

Magnetic steel cutting  
Monocrystalline silicon cutting  
Sapphire cutting



## 印刷机械

柔版印刷  
凹版印刷  
无溶剂复合机

## Printing Machine

Flexography  
Gravure printing  
Solvent-free complex machine



## 包装机械

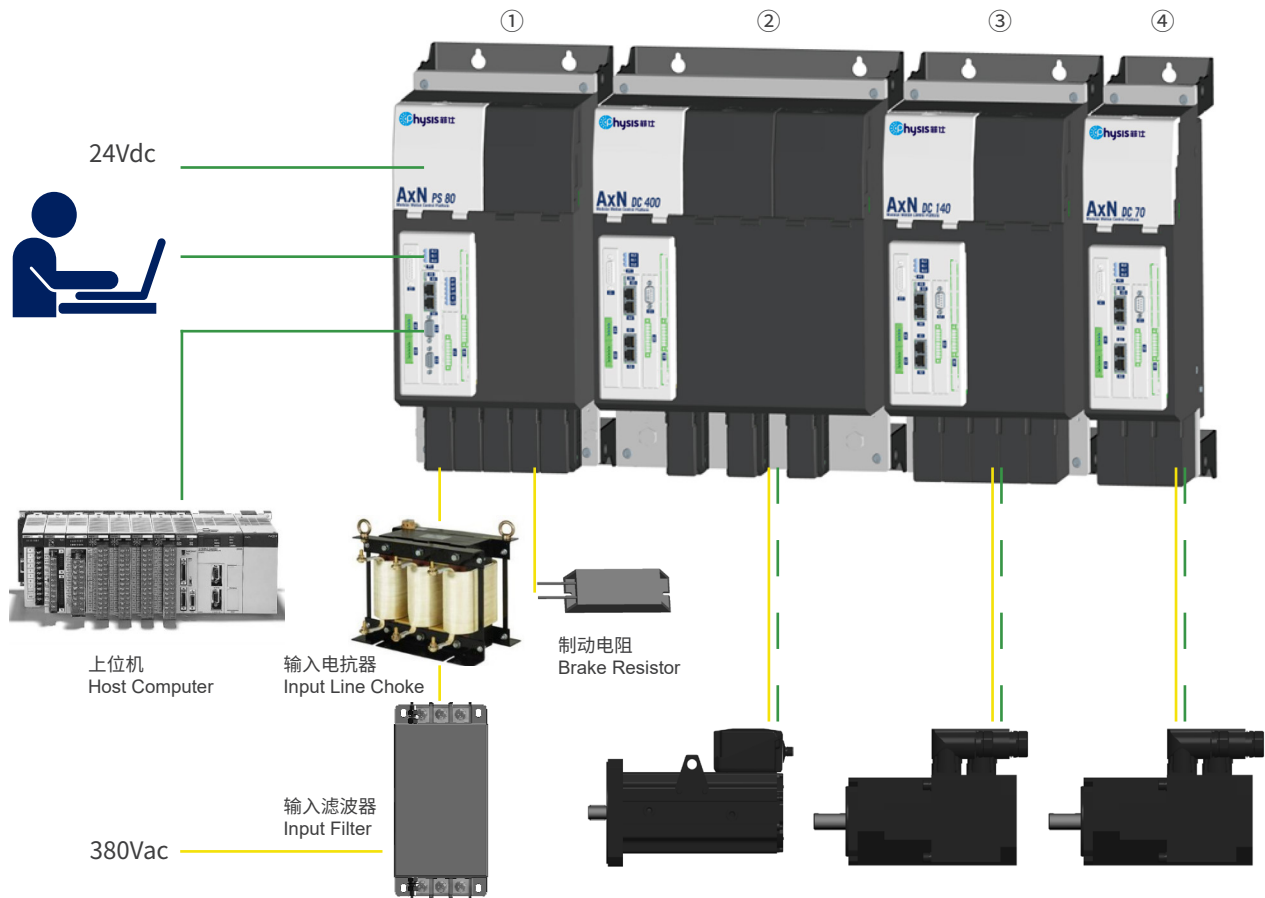
瓦楞纸包装线

## Packaging Machine

Corrugated paper packaging line

# Application Advantages

## 应用优势



- ① 整流单元: AxN-PS80 Rectifier Unit: AxN-PS80
- ② 逆变单元: AxN-DC400 Inverter Unit: AxN-DC400
- ③ 逆变单元: AxN-DC140 Inverter Unit: AxN-DC140
- ④ 逆变单元: AxN-DC70 Inverter Unit: AxN-DC70

### 节能

#### Energy Saving

多轴系统能量互用, 提高效率

Multi-axis system energy interoperability, improve efficiency

### 节省空间

#### Save Space

体积更小, 更紧凑, 采用分布式直流母线连接方式

Smaller size, more compact, distributed DC bus connection

### 节省器件

#### Save Devices

仅需一组电阻、滤波器、输入电缆

Only need one set of resistors, filters, input cables

Contact Information

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