

Industry focus and solutions



MORE FLEXIBLE \ ACCURATE
更灵活, 更精准



威科达运动控制器

MOTION CONTROLLER

深圳市威科达科技有限公司
SHENZHEN VECTOR TECHNOLOGY CO.,LTD.



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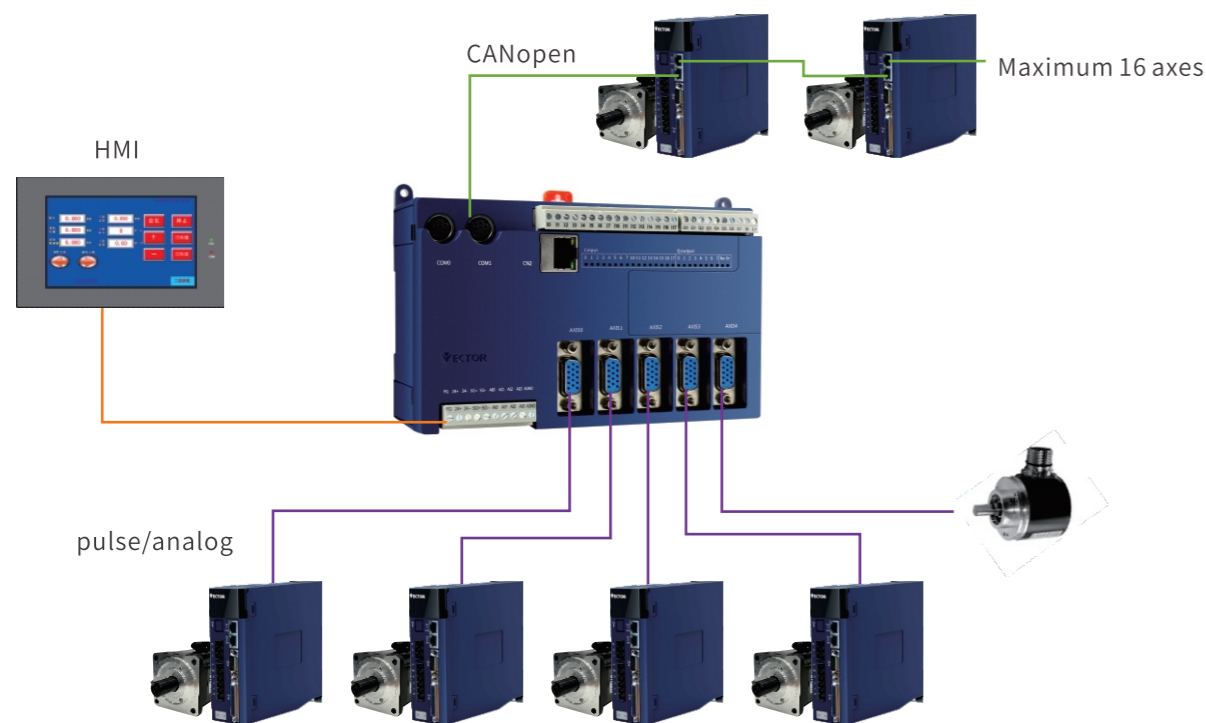
公司简介
COMPANY PROFILE

Established in 2004

Vector focuses on industrial automation products with independent intellectual property rights, positioning itself to serve mid-to-high-end equipment manufacturers and provide total solutions for customers in niche

markets. We are committed to becoming the world's leading provider of industrial automation control products and solutions. Our self-developed products include servo drives, motion controllers, human-machine

VA运动控制器 VA MOTION CONTROLLER

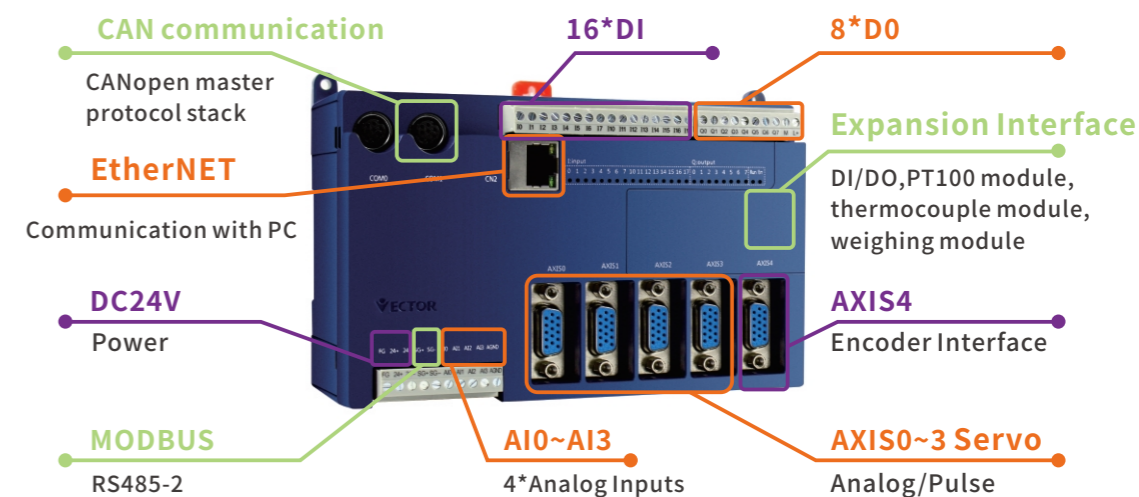


产品介绍 >>>
PRODUCT INTRODUCTION

The VA series motion controller uses the MULTIPROG programming tool and supports 5 programming languages of the IEC61131-3 international standard, making it easy for application programmers to get started. This motion controller supports three kinds of interfaces: pulse, analog and CANopen for motion control. VA series motion controller has 5 servo axis hardware interfaces, which can adopt analog closed-loop control or pulse semi-closed-loop control. VA motion

controller provides a one-stop solution, supports local IO expansion, Ethernet, serial; supports real-time multi-task control, and has advanced and easy-to-use simulation tools, and integrates rich motion control function blocks (Including dedicated modules for the industry), parameter adjustment is convenient, and includes the smoothing of the speed curve when the function block is switched. The speed curve of the cam function is a 5th degree polynomial S curve; the motion control cycle of 6 servo axes (Including virtual axis) is small 500 us. This product is actually the leader in non-bus motion controller products.

硬件端口介绍 >>>
INTRODUCTION TO HARDWARE PORT

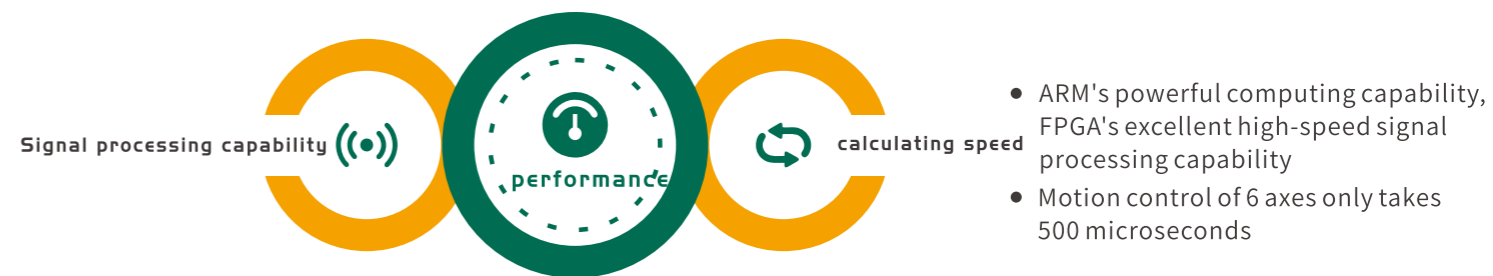


软件功能介绍 >>>
INTRODUCTION OF SOFTWARE FUNCTION

多种控制方式
VARIOUS CONTROL MODES

Analog Mode	Pulse Mode	CANopen mode
4*Servo+12*Virtual Axis	5*Servo+11*Virtual Axis	16*Axis

性能
PERFORMANCE

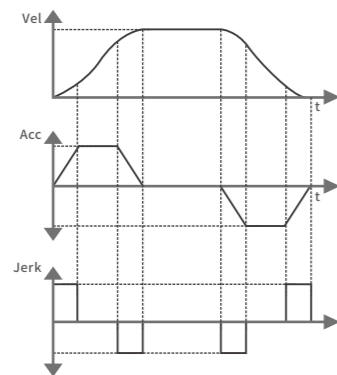
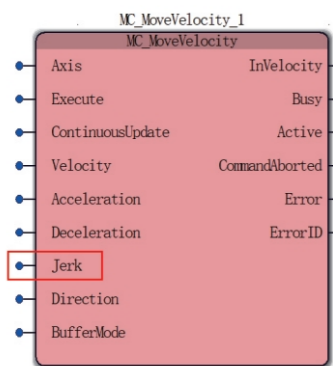


强大的运动控制功能 POWERFUL MOTION CONTROL FUNCTION

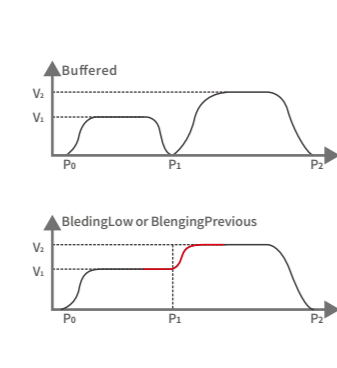
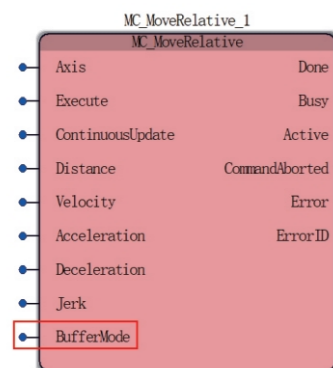
A₀₁ Motion control function block conforms to PLCOPEN2.0, Also supports CNC function blocks

Axis information and power	Multi-axis motion control FB	Superimposed motion FB
MC_AXIS_REF	MC_CamIn	MC_MoveSuperimposed
MC_Power	MC_CamOut	MC_HaltSuperimposed
-	MC_CombineAxes	MC_Phasing
-	MC_GearIn	NS_MC_Jog
Single axis motion control FB	MC_GearOut	Auxiliary FB
MC_Home	NS_MC_RotaryCutIn	MC_SetOverride
MC_MoveAbsolute	NS_MC_SpecialCamIn	MC_SetPosition
MC_MoveAdditive	NS_MC_SpecialCombineAxes	MC_TouchProbe
MC_MoveRelative	NS_MC_CamReadPoint	MC_AbortTrigger
MC_MoveVelocity	NS_MC_CamReadTappetStatus	CNC FB
MC_Stop	NS_MC_CamReadTappetValue	NC_CartesianCoordinate
MC_Halt	NS_MC_CamSet	NC_GroupEnable
MC_SpecialMoveAbsolute	NS_MC_CamWritePoint	NC_MoveCircular
NS_MC_StopByPos	NS_MC_CamWriteTappetValue	NC_MoveLinear

A₀₂ Support Jerk function, set the rate of change of acceleration/deceleration; Support BufferMode function, softer motion curve



★ $Acc(Dec)=dv/dt$
★ $Jerk=dAcc(Dec)/dt$



- ★ Support BufferMode function, including mode 0 and mode 1
- ★ When the next motion control function module interrupts the previous motion

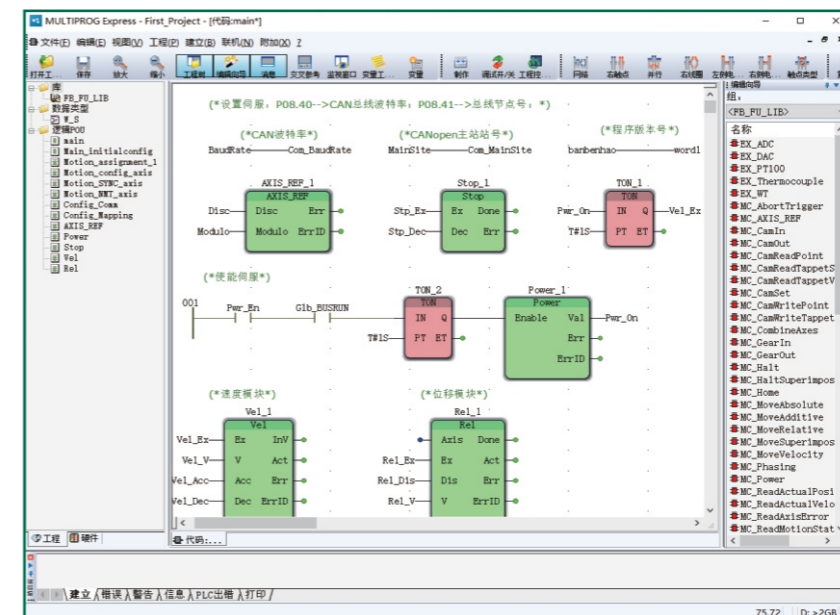
A₀₃ Provide special function blocks for some industries, optimize solutions, and make the application more convenient and efficient

Vector focuses on providing overall solutions for customers. We have customized special modules for customers for the industry, such as: special modules for post-press equipment, special modules for leading edge paper feeding, cutting modules, and Absolute motion module for heavy inertia load and so on. The use of dedicated modules makes the application of motion controllers easier and more efficient.

MC_SpecialMoveAbsolute
NS_MC_SpecialCamIn
NS_MC_SpecialCombineAxes
MC_Phasing
NS_MC_RotaryCutIn

编程语言 PROGRAMING LANGUAGE

MULTIPROG is a general-purpose PLC IDE developed for medium-sized control applications. The programming system provides a wealth of operating commands and an excellent interface for computer-to-computer interaction, supports drag-and-drop and



A₀₁ Clear programming structure, standard programming language

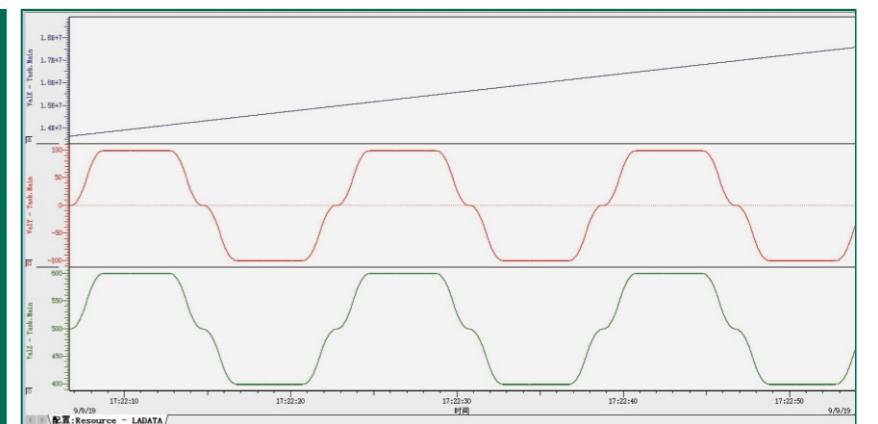
A₀₂ Support cross-compilation between FBD, LD and IL, and support mixed programming

A₀₃ Supports IEC61131-3 programming languages: FBD, LD, IL, ST and SFC

易用系统分析 EASY-TO-USE SYSTEM ANALYSIS

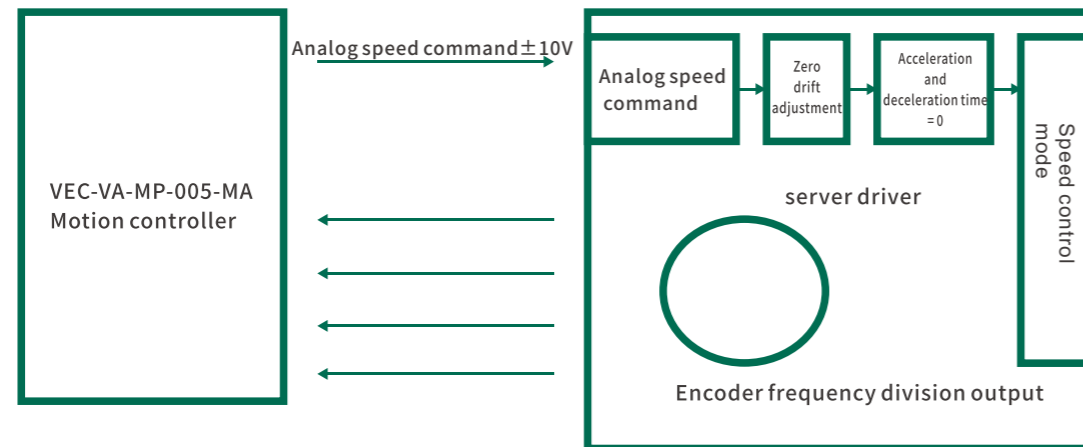
System Analysis

The IDE has a logic analyzer function, which can monitor various internal motion control variables and print them into a curve, which is convenient for analyzing system problems. The logic analyzer can monitor the trend changes of multiple variables (such as speed, displacement, real-time error, bit on-off, etc.), and can set the sampling time for easy debugging.

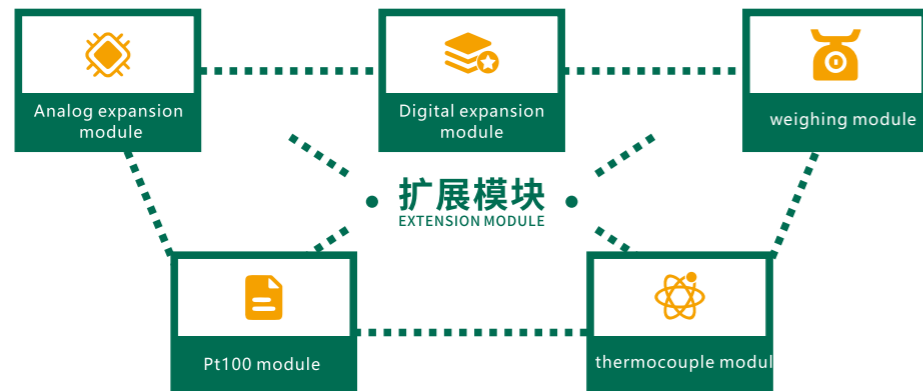


模拟量闭环特色模式 CLOSED LOOP CHARACTERISTIC MODEL OF ANALOG QUANTITY

The precision and effect of analog closed-loop control are equivalent to servo internal control. With position loop compensation function, the effect is better. System information is concentrated on the controller side, which is convenient for analyzing system problems.



丰富的扩展模块 RICH EXTENSION MODULES



产品型号 PRODUCT MODEL

• VEC-VA-MP-005-MA	5-axis motion controller	• VEC-VA-EX-16O	16-point DO expansion module
• VEC-VA-MP-003-MA	3-axis motion controller	• VEC-VA-EX-4XA-B	8-point AD/DA expansion module
• VEC-VA-MP-016-C	16-axis CANopen bus type motion controller	• VEC-VA-EX-4PT-B	PT100 extension modules
• VEC-VA-EX-16I	16-point DI expansion module	• VEC-VA-EX-4TC-B	Thermocouple extension modules
• VEC-VA-EX-8IO	16-point DI/DO expansion module	• VEC-VA-EX-2WT-B	Weighing extension modules

应用行业介绍 INDUSTRY INTRODUCTION

- Post-press equipment: full rotary rotary die-cutting/printing, intermittent rotary die-cutting/printing, pull-back flat-press foil stamping/die-cutting, pull-head flat-press foil stamping/die-cutting
- Equipment for Corrugated paper processing : Various forms of leading edge feeding systems, high speed laminators
- Hot melt knives for laminators
- Laminating machine with double servo lap system
- Drencher to point
- Laminating machine with double hitch
- Spring machines
- Steel bar bending machine
- Wallpaper cutting machine
- Retrofitting of paper cutting machines
- Wheel cutting of corrugated paper
- Wheel cut dual drive cutting
- Holmaking drills
- box press machine
- Steel plate cutting machine
- Bag cutter
- ...

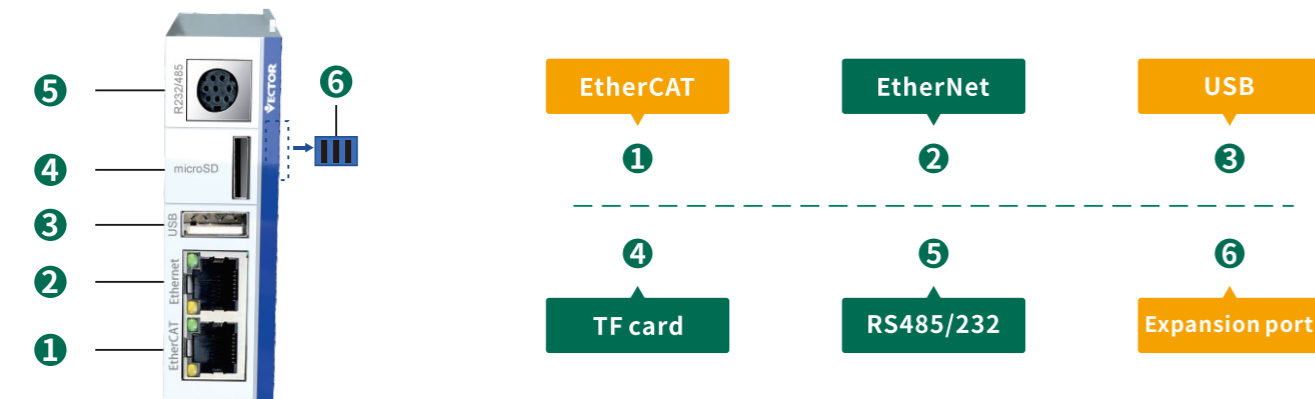


产品介绍

VE series motion controller uses the CODESYS programming tool, supports 6 programming languages of IEC61131-3 international standard, and it is easy to use by application engineers. Based on EtherCAT bus, the number of motion control axes is up to 64; a one-stop

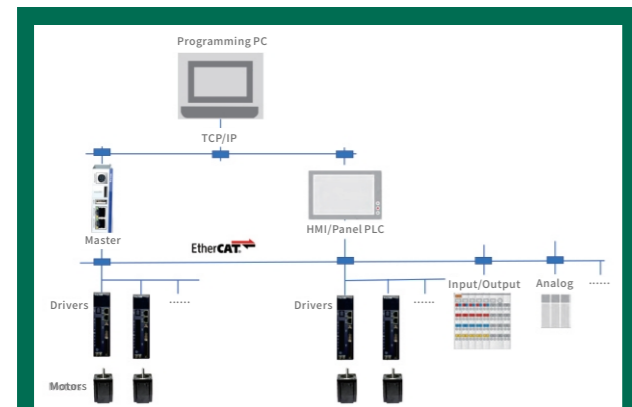
solution, supports local IO expansion, and also supports therCAT-based distributed IO, universal Ethernet, serial; supports real-time multi-task control, And with advanced and easy-to-use simulation tools; at the same time, it integrates abundant motion control function blocks and a powerful CPU. It maximizes the beauty of motion control.

硬件端口介绍



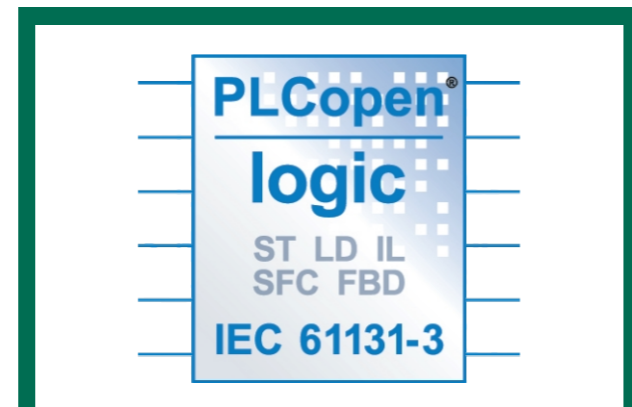
软件功能介绍

高速总线系统 HIGH SPEED BUS SYSTEM



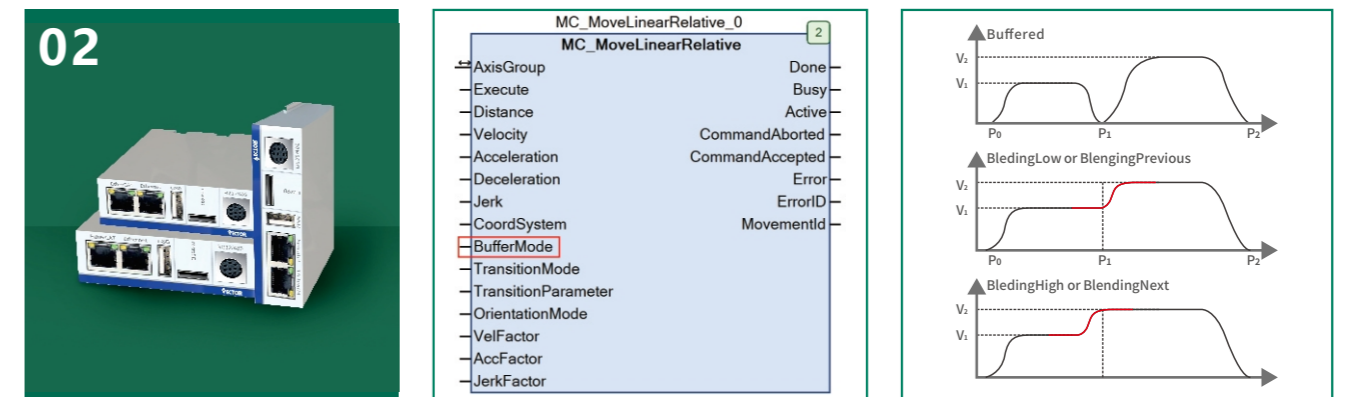
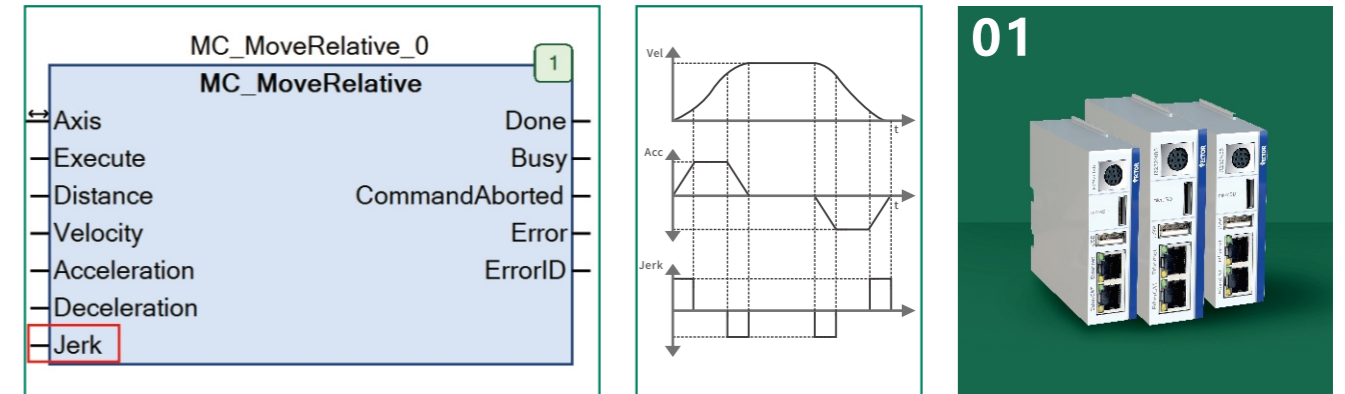
64 servo axes can be connected, the real axis and the virtual axis can be controlled at the same time, the bus communicates at a rate of 100Mbps, the distance between the two servo slave stations can reach 100M, and the full digital IO configuration of the entire expansion system of the bus can reach 30,000 points

强大的运动控制 POWERFUL MOTION CONTROL



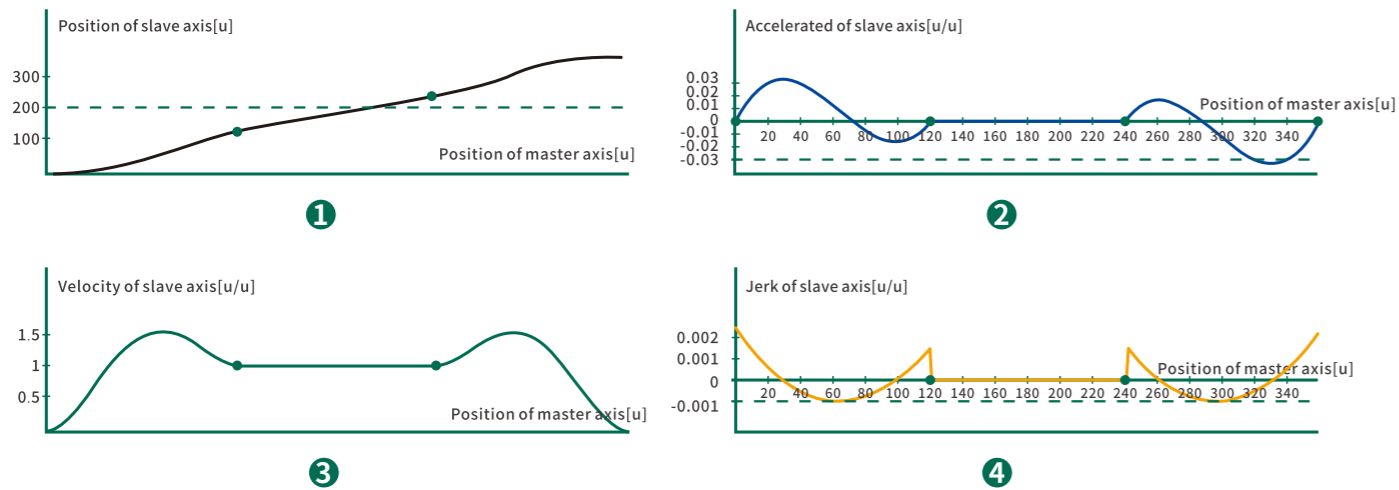
Motion control function block conforms to PLCOPEN2.0

Support Jerk function, set the rate of change of acceleration/deceleration; Support BufferMode function, softer motion curve



Motion control function block conforms to PLCOPEN2.0, And expanded more motion control functions to cope with different applications

► The cam editor of IDE can graphically plan the cam curve



► CNC功能 CNC FUNCTION

- Interpolation Function
- Visual element
- Path planning
- Virtual Axis, Logic Axis

ipo

SMC_Interpolator

-bExecute	bDone
-poqDataIn	bBusy
-bSlow_Stop	bError
-bEmergency_Stop	wErrorID
-bWaitAtNextStop	piSetPosition
-dOverride	iStatus
-iVelMode	bWorking
-dwlpoTime	iActObjectSourceNo
-dLastWayPos	dVel
-bAbort	vecActTangent
-bSingleStep	iLastSwitch
-bAckM	dwSwitches
-bQuick_Stop	dWayPos
-dQuickDeceleration	wM

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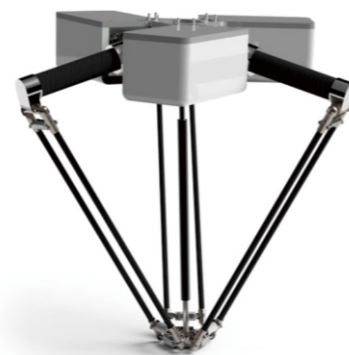
# comment
N0 G01 X32.9 Y8.9 F50 E30 E:30
N10 G02 X34.9 Y84.6 R100 H12 L10
N20 G01 X6.6 Y25.7 H:1 O:8
N30 G03 X54.6 Y49.7 R100
                    
```

- Graphical DIN66025 editor (supports G code)
- Rich visualization elements for online display and planning of 3D paths
- Comprehensive interpolation function block from linear to spline interpolation
- Support virtual axis and logical axis
- Strong path planning capabilities, including CNC tool radius compensation

► 工业机器人功能 FUNCTIONS OF INDUSTRIAL ROBOTS

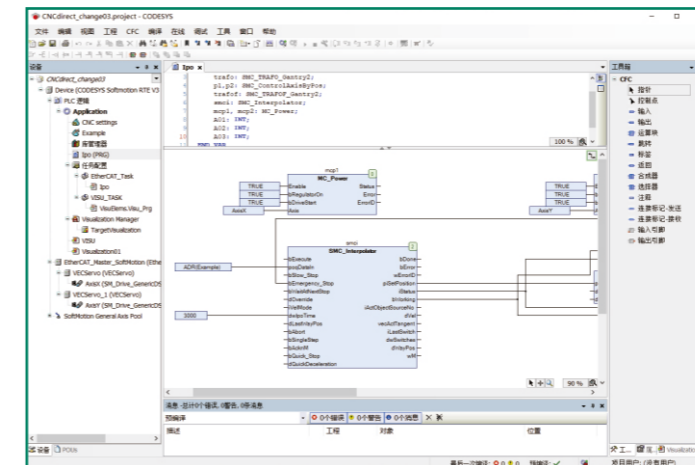
- Industrial robot function

 - delta robot
 - scara robot
 - Palletizer robot
 - 6-Axis robot
 - Gantry Robot



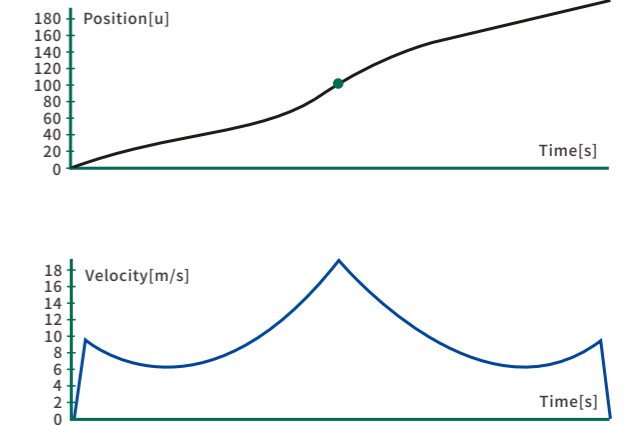
► 编程语言 PROGRAMING LANGUAGE

Supports IEC61131-3 programming languages: FBD, LD, IL, ST and SFC
Clear programming structure, standard programming language



► 易用系统分析 EASY-TO-USE SYSTEM ANALYSIS

The IDE has a logic analyzer function, which can monitor various internal motion control variables and print them into a curve, which is convenient for analyzing system problems.



丰富的扩展模块 RICH EXTENSION MODULES

EtherCAT bus coupler, digital input output expansion module, analog input output expansion module, thermocouple expansion module, encoder (with probe function, can send AB phase differential pulse) expansion module, hybrid expansion module.

产品型号 PRODUCT MODEL

- Mainframe VEC-VE-MU
- Coupler (with power supply) VEC-VE-CPR-P
- Coupler (without power supply) VEC-VE-CPR-N
- 8-point NPN-type DI (with its own 2-way DI high-speed counter) VEC-VE-EX-8DI-NPN
- 8-point PNP-type DI (with its own 2-way DI high-speed counter) VEC-VE-EX-8DI-PNP
- 8-point NPN type DO VEC-VE-EX-8DO-NPN
- 8-point PNP type DO VEC-VE-EX-8DO-PNP
- 16-point NPN-type DI (with its own 2-way DI high-speed counter) VEC-VE-EX-16DI-NPN
- 16-point NPN type DO VEC-VE-EX-16DO-NPN
- 16-point PNP-type DI (with its own 2-way DI high-speed counter) VEC-VE-EX-16DI-PNP
- 16-point PNP type DO VEC-VE-EX-16DO-PNP
- 4-way voltage and current input module VEC-VE-EX-4AD
- 4-way voltage and current output module VEC-VE-EX-4DA
- 4-channel thermocouple VEC-VE-EX-4PT
- 1 encoder (absolute value incremental compatible, also pulse generation compatible) 2-way NPN type DI-Touchprobe VEC-VE-EX-EDR-2N
- 1 encoder (absolute value incremental compatible, also pulse generation compatible) 2 PNP type DI Touchprobes VEC-VE-EX-EDR-2P
- Hybrid integrated extension [EtherCAT inlet/outlet, 32DI (with 2 high speed counters) 32DO, 4AI, 2AO, 2 encoders (absolute incremental compatible, also pulse generation compatible) with probe function, NPN and PNP jumper selectable] VEC-VE-EX-ECAT-SUB