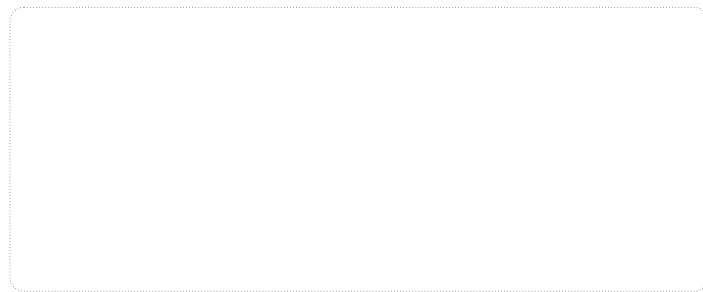


IVC3 Series Programmable Controller

Your trusted industry automation solution provider



Service line: 86-755-23535967 E-mail: overseas@invt.com.cn Website: www.invt.com

SHENZHEN INVT ELECTRIC CO.,LTD. INVT Guangming Technology Building, Songbai Road, Matian, Guangming District, Shenzhen, China

- | | | | | |
|-------------------------------|--|---------------------------------------|----------------------------|-----------------------------------|
| Industrial Automation: | • Frequency Inverter | • Servo & Motion Control | • Motor & Electric Spindle | • PLC |
| | • HMI | • Intelligent Elevator Control System | • Traction Drive | |
| Electric Power: | • SVG | • Solar Inverter | • UPS | • Online Energy Management System |
| | • New Energy Vehicle Electric Control System | | | |

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Product Introduction

IVC3 series PLCs are the third generation of high-performance micro-PLCs, which integrated with the latest information technology, motion control technology and fieldbus control technology. This series of products have all passed CE and RoHS certification. Its excellent motion control function and flexible communication networking mode make it the best option for product upgrade.

Features

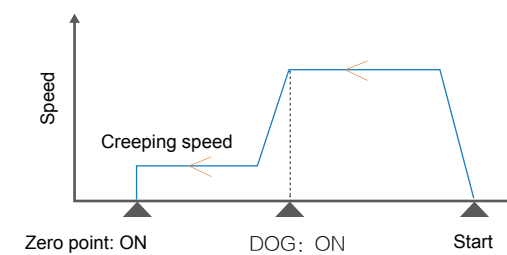
1. Simplified software: User-friendly graphic interface, simplifying your application
2. High performance and large capacity, well meeting the increasingly complicated process requirements
3. Applicable to small-sized automation equipment (The input and output points are within 512)
4. Dual-CPU design with high-speed and control algorithms separately processed
5. Configured with an embedded operating system, executing multiple tasks in parallel
6. Providing the motion control function; supporting two-axis linear and arc interpolation
7. Standard Ethernet interfaces, CANopen protocol and two RS485 interfaces
8. Support USB communication, which facilitates commissioning
9. Time for executing a basic logical instruction is less than 0.065 μ s
10. 8 high-speed inputs of 200 kHz or 4 AB phase inputs, supporting quadruple frequency control function.
11. 8 high-speed outputs of 200 kHz, supporting positive and negative pulses
12. Abundant extension modules

Superior motion control function

Enhanced positioning control

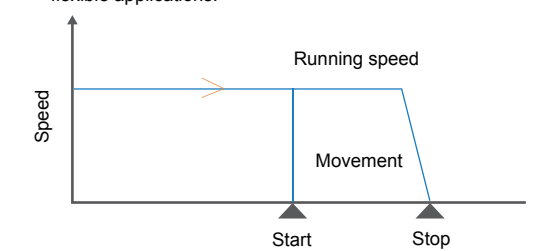
DSZR

Return to the original point from any position.



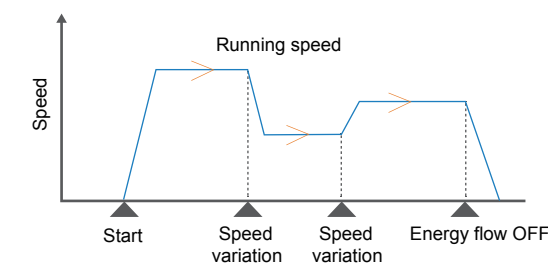
STOPDV

- High speed output can be stopped via interruption, which is immune to the scanning time.
- All the interruption sources can be triggered to support flexible applications.



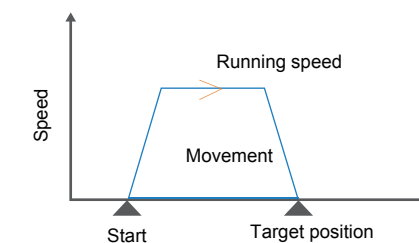
PLSV

The speed is variable anytime during running, eg, smooth acceleration/deceleration during running.



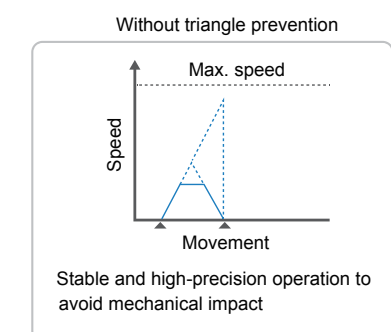
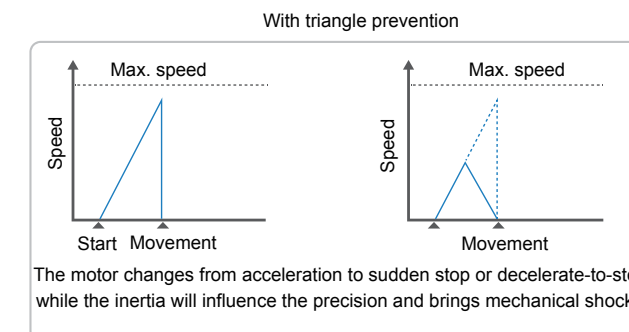
DRVI/DRVA

Moving relative to current position or the original point, with acc/dec.



Straight acc/dec, support triangle prevention

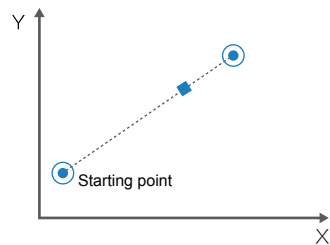
If the movement is relatively small while the max. speed is improper, immediate stop or decelerate-to-stop may occur before max. speed is reached. Adopt high-precision automatic triangle prevention function to avoid mechanical shock.



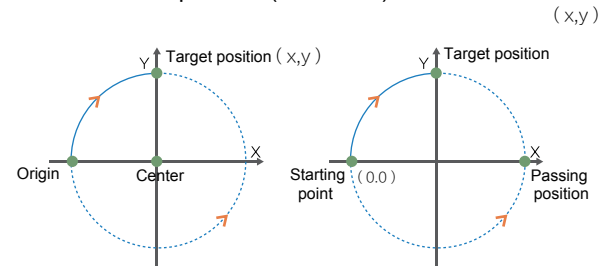
Precise trajectory control (for V2.0 and later version)

- Support linear and circular interpolation, which is a big breakthrough for small PLC;
- Interpolation precision can be accurate to single pulse, and max. speed can reach 200kHz.

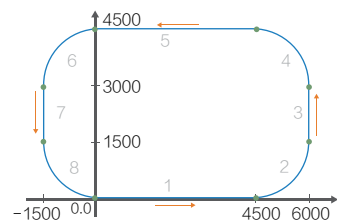
Linear interpolation (LIN)



Circular interpolation (CW/CCW)



Combination of LIN and CW/CCW commands



Max. interpolation speed can be up to 200 kHz

	IVC3-1616MAT
Interpolation	Combination of Y0/Y1 and Y2/Y3

Advanced following control (for V2.0 and later version)

Following function can be set by one command, removing the need for complicated function programs.

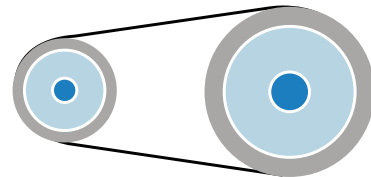
ECAM

Use the cam curve to simulate mechanical cam, and complete the relative motion control between cam shaft and spindle in the same way as the mechanical cam.

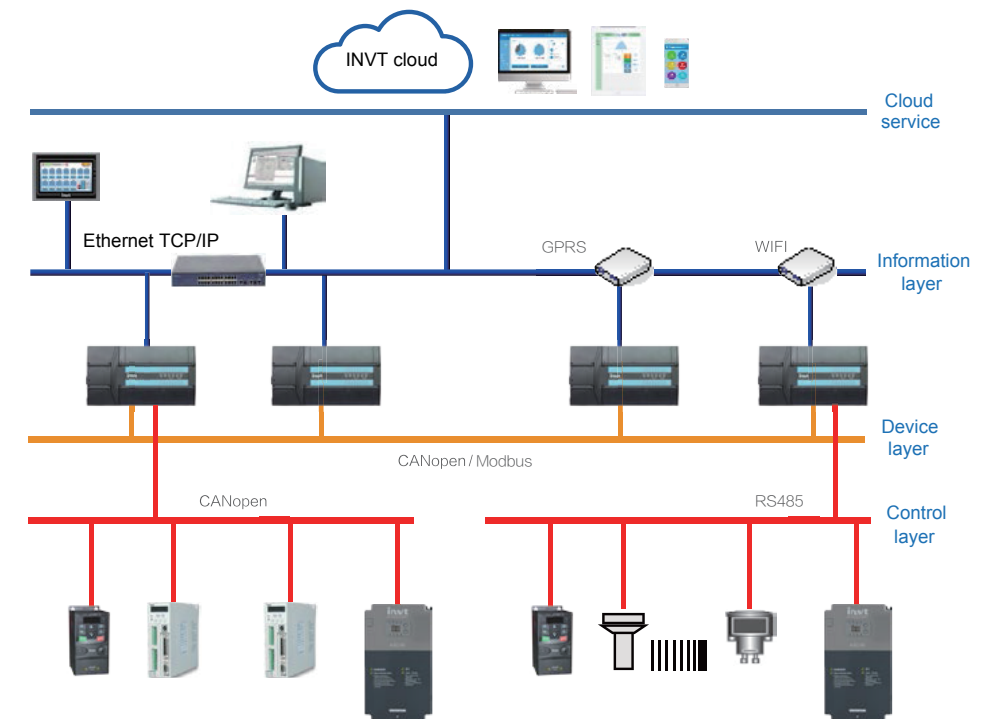


GEARBOX

Control the slave shaft to move with the spindle based on a certain ECAM ratio.



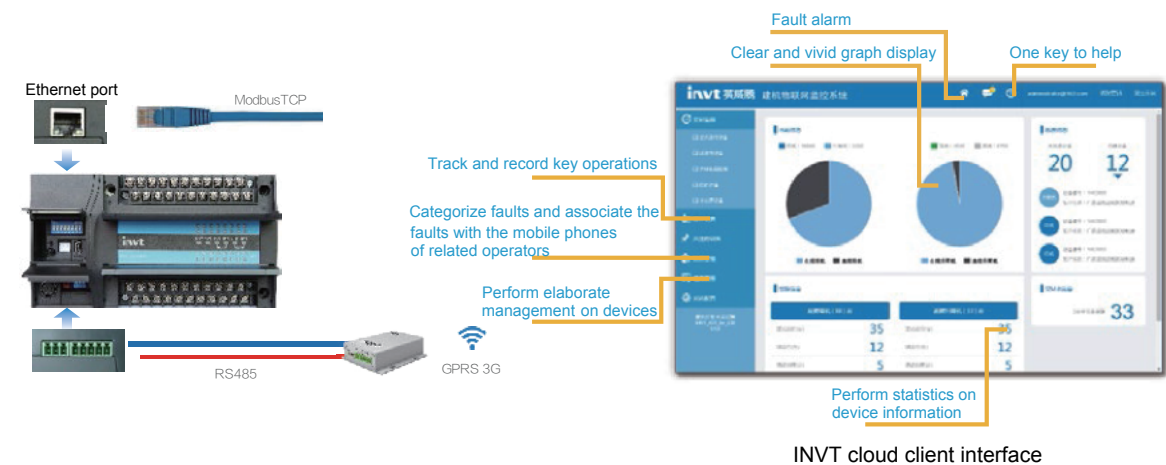
Flexible communication networking mode



Communication network covers IoT, control communication and device communication network to realize inter-connection among information layer, control layer and device layer.

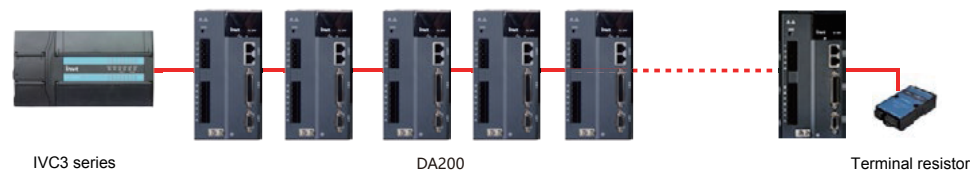
Support INVT cloud service

Support Ethernet port or serial port to connect to INVT cloud service platform; read device data remotely; adjust device production process and monitor device running state in real time.



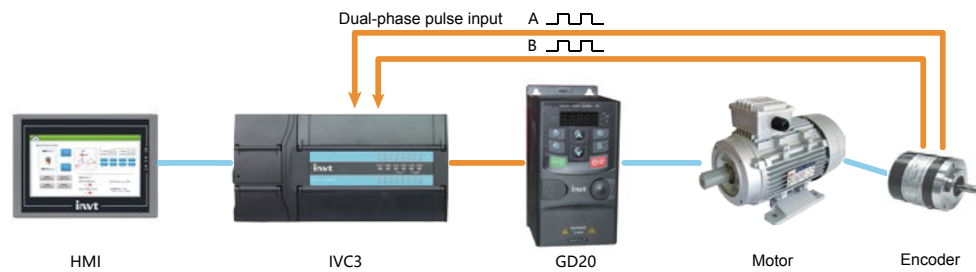
Support CANopen bus protocol

The PLC, as a master, can be connected to 32 slave devices via CANopen communication bus.



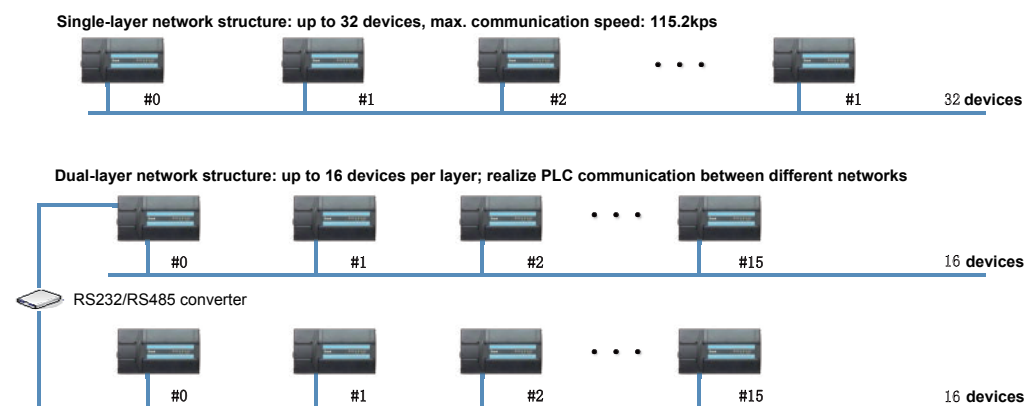
Support multiple high speed pulse inputs/outputs

Support eight 200kHz high speed count inputs; support quadruple frequency count function;
Support eight-axis 200kHz high speed pulse output.



Unique N:N networking mode

Realize networking among multiple PLCs; mutual visit to designated M and D elements information can be realized among PLCs; fit for inter-lock between related devices in the control system; adopt N:N protocol without the need for extra programming.



Technical specification

Name		Description
I/O	Max. I/O points of logic	512
	Max. no. of special extension modules	8
	High speed pulse output	Eight 200kHz (transistor output); support eight-axis positioning; two-axis circular arc interpolation
	Single-phase count channel	Eight 200kHz
	Dual-phase count channel	Four 200kHz
	Digital filter function	For X0~X7, each channel can set separate digital filter; range of input filter constant: 0~60000μs
Storage	Program capacity	64K steps
	Permanent storage after power off	Support
	Retain soft elements after power off	All the soft elements except for R
	Hardware support	Backup battery with a life of three years
Soft element	Timer	100ms precision : T0~T209
		10ms precision : T210~T479
		1ms precision : T480~T511
	Counter	16-bit up counter : C0~C199
		32-bit down counter : C200~C235
		32-bit high speed counter : C236~C255, C301~C306
	Data register	D0~D7999, R0~R32767
	Local data register	V0~V63
	Indexing/addressing register	Z0~Z15
	Special data register	SD0~SD1023
Auxiliary relay	M0~M10239	
Local auxiliary relay	LM0~LM63	
Special auxiliary relay	SM0~SM1023	
State relay	S0~S4095	
Common	Basic command running time	0.065 μs
	Real time clock	Support (hold for at least three years after power off)
Communication	CAN	CANopen DS301 protocol (master) supports 32 stations at most; support 64 TxPDOs; support 64 RxPDOs CANopen DS301 protocol (slave) supports four TxPDOs; support four RxPDOs Terminal resistor: Built-in, support dialing Station number setup: set by DIP switch or programs
	Ethernet	Support Modbus TCP function: program upload/download, monitoring;
	Serial communication port	PORT0: RS232, baud rate: max. 115200bps PORT1: RS485, baud rate: max. 115200bps, terminal resistor: built-in, support dialing PORT2: RS485, baud rate: max. 115200bps, terminal resistor: built-in, support dialing
	USB communication	Standard: USB2.0 full speed, Mini-USB interface; function: program upload/download, monitoring, solid state software upgrade
	Communication protocol	CANopen/ModbusTCP/Modbus/Free port/N:N/Programming port protocol
Encryption	Set password type	Upload password, download password, monitoring password, sub-program password
	Disable upload	Support
	Disable formatting	Support
Application command	Basic instruction	Support
	Compound instruction	Support
	Clock instruction	Support
	Date and clock comparison instruction	Support
	Floating number arithmetic instruction	Support
	Positioning instruction	Support
	High speed IO instruction	Support
	Modbus and inverter instructions	Support
	Read and write EEPROM instruction	Not supported
	Control arithmetic instruction	Support
	Character string instruction	Support
Bulk data processing instruction	Support	
Data sheet instruction	Support	
Interruption resource	Internal timing interruption	3
	External interruption	16
	High speed count interruption	8
	Serial port interruption	12
	PTO output completion interruption	8
	Interpolation completion interruption	1
	Passing position interruption	8
Power loss interruption	1	

Guide for model selection

Model selection table

Main module	Description	Dimension (W×H×D)
IVC3-1616MAT	16-point 24V DC input, 16-point transistor output, 220V AC power	167×90×90mm
IVC3-3232MAT (under planning)	32-point 24V DC input, 32-point transistor output, 220V AC power	/

IO extension module	Description	Dimension (W×H×D)
IVC-EH-0808ENR	8-point 24V DC input, 8-point relay output	65×90×90mm
IVC-EH-0808ENT	8-point 24V DC input, 8-point transistor output	65×90×90mm
IVC-EH-1600ENN	16-point 24V DC input	65×90×90mm
IVC-EH-0016ENR	16-point relay output	65×90×90mm
IVC-EH-0016ENT	16-point transistor output	65×90×90mm

Special function extension module	Description	Dimension (W×H×D)
IVC-EH-4AD	Module with four analog inputs	65×90×90mm
IVC-EH-4DA	Module with four analog outputs	65×90×90mm
IVC-EH-4TC	Temperature module with four channels for thermal coupler	65×90×90mm
IVC-EH-4PT	Temperature module with four channels for thermal resistor	65×90×90mm

Models of optional extras

Product specification	Description	Cable length
IVC-SL1	PLC-VS series HMI communication cable	3m
IVC-SL2	PLC download cable (USB)	2m
IVC-SL3	PLC-VT/VK/VA series HMI communication cable	3m
IVC-SL4	HMI download cable (USB)	1.5m
IVC-SL5	PLC-VT/VK/VS series HMI communication cable	7m
IVC-SL8	Download cable (serial port) PLC-VS series HMI communication cable	7m

Overseas sales service network



- INVT Sales & Service in 9 countries: Russia, India, Thailand, UAE, Italy, UK, Germany, Australia, Mexico
- Sales and Service Partners in 57 countries