



# Integral controller

ZG·ZP

# Product lineup

## Humanized design and perfect integration of PLC and HMI

### ZG series XD series PLC & TG series HMI

#### ZGM

7 inches 16.77 million colors display, XDM series PLC 16 inputs 14 outputs, 4-axis 100KHz pulse output Linear/circular interpolation, high-speed counting, RS232 RS485, USB-A, USB-B port, standard clock



#### ZG3

4.3 inches to 7 inches 16.77 million colors display, XD3 series PLC 16 inputs 14 outputs, 10 inputs 10 outputs, 2-axis 100KHz pulse output High speed counting, RS232, RS485, USB-A, USB-B port, standard clock



#### ZG1

4.3 inches 16.77 million colors display, XD1 series PLC 10 inputs 10 outputs, I/O sequential control, RS232, RS485 USB-A, USB-B port, standard clock



### ZP series XD series PLC & OP series operate panel

#### ZP3

3.7 inches yellow green LCD display, XD3 series PLC, 10 inputs 8 outputs, 2-axis 100KHz pulse output, high speed counting

#### ZP2

3.7 inches yellow green LCD display, XD2 series PLC, 10 inputs 8 outputs, 2-axis 100KHz pulse output, high speed counting

#### ZP1

3.7 inches yellow green LCD display, XD1 series PLC, 10 inputs 8 outputs

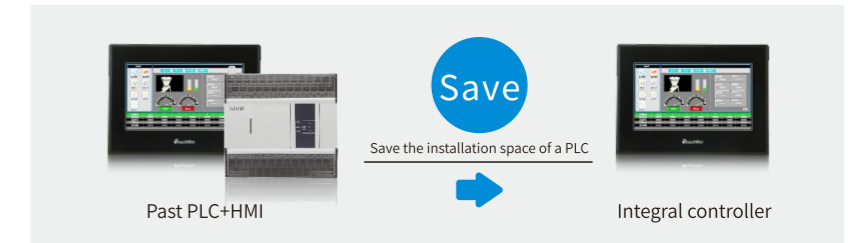


# Features

## More compact structure design saves more installation space

For the realization of the same function

- Past One PLC and one HMI
- Now One integral controller



## The functions of PLC and HMI are combined in one, bring new experience

- integrates logic control, analog input and output and HMI functions in one unit
- Support high-speed counting, high-speed pulse and external interrupt (except ZG1)
- Support plane interpolation and follow-up motion control (only ZGM series support)
- Support most functions of HMI
- HMI screen editing is simple and intuitive with rich functions



## Vivid picture expressiveness ZG series

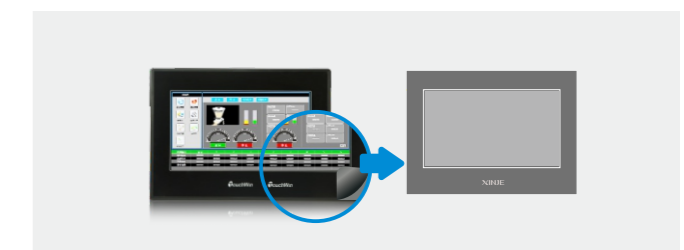
- 3D gallery brings new visual enjoyment
- New animation editing method, more vivid performance
- Process control data acquisition function, and the trend chart display is more vivid
- Various forms of character and language



## Panel design close to user needs



- The text integrated controller has 26 function keys, the functions can be set freely, and the keys are sensitive and accurate



- The mask of all integrated controllers can be customized according to the needs of users, and can be replaced at will

# Features

## Extended alarm function for easy maintenance

- The alarm list, alarm window, call window and other flexible monitoring settings help the maintenance personnel find the abnormal causes in time, shorten the downtime and quickly restore the system.
- The historical event display allows the user to view historical alarm events.
- Cooperate with the historical event export in the function key to realize the export of historical alarm events.

### Buzzer alarm

Cooperate with the alarm list and alarm window, when an alarm occurs, you can select the silent mode, ring once and ring continuously according to the important level of the alarm to make the alarm more accurate and timely.



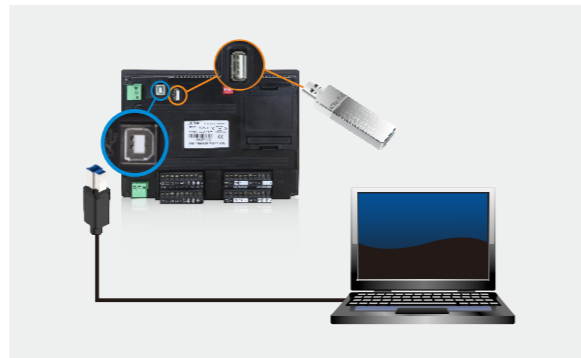
## Rich interfaces and more perfect functions

### Based on USB-B port, the program download is fast and time-saving

USB-B interface complies with USB2.0 standard, using the commercially available USB cable, it can carry out high-speed data transmission and greatly shorten the download time.

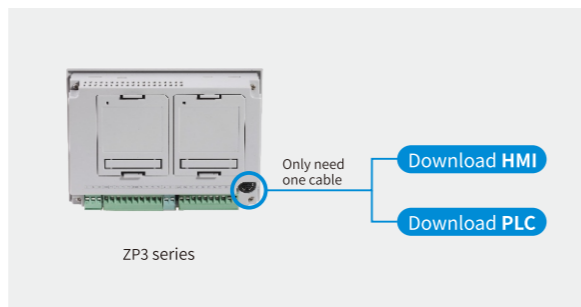
### Fast import export the data, based on USB-A port

The back of ZG series controller is equipped with a USB-A interface for HMI data backup, which is especially suitable for on-site data collection and storage, data import and export and two-way transmission. Through the storage format of CSV file, the maintenance and verification of engineering data are more efficient, flexible formula data are produced, the unified management of variety information is realized, and the control business is simplified.



### Multifunctional programming port

The HMI and PLC of ZP series integrated controller use the same programming cable. Users do not need to replace repeatedly, only one cable is needed.



### Dual communication ports for quick connection of various equipment

Download port: for HMI and PLC program uploading and downloading (ZG series needs to upload/download HMI program through USB-B port).

Communication port: support PLC to communicate with external equipment in RS232 or RS485 mode.



## High speed processing capability

### ZP2,ZP3 series

The chip of XD series PLC is adopted, which is compatible with all high-speed processing functions of XD series PLC

### ZG3 series

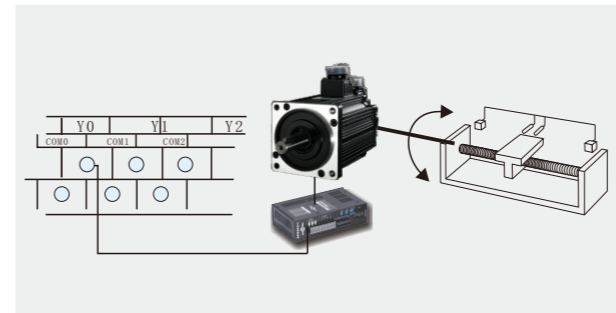
The chip of XD3 series PLC is adopted, which is compatible with all high-speed processing functions of XD3 series PLC

### ZGM-30

XDM series PLC chip is adopted, it has richer motion control functions  
Support 4 axes 100kHz pulse output, multi-channel 2-axis interpolation, 4-channel single/AB phase high speed counting, follow-up command up to 4 channels

## Positioning control

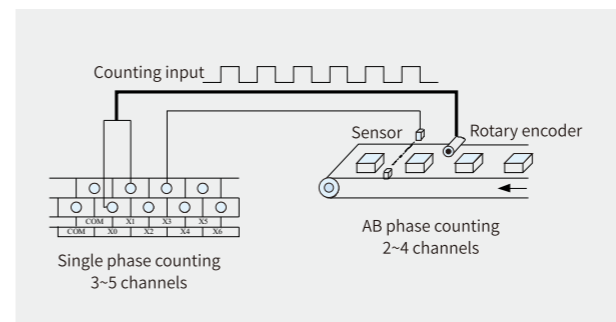
- When using pulse output, an integrated controller with transistor output is required, such as ZP2-18RT
- ZP2, ZP3 and ZG3 series all have 2 channels pulse output
- ZGM series have 4 channels pulse output



\*Note: when using the high-speed pulse output function, PLC can output 100kHz pulse at most. If it is necessary to increase the pulse output frequency on the basis of 100kHz, about 500Ω resistance can be connected between output and 24V power supply. At this time, the output frequency can reach 200kHz at most.

## High speed counting input

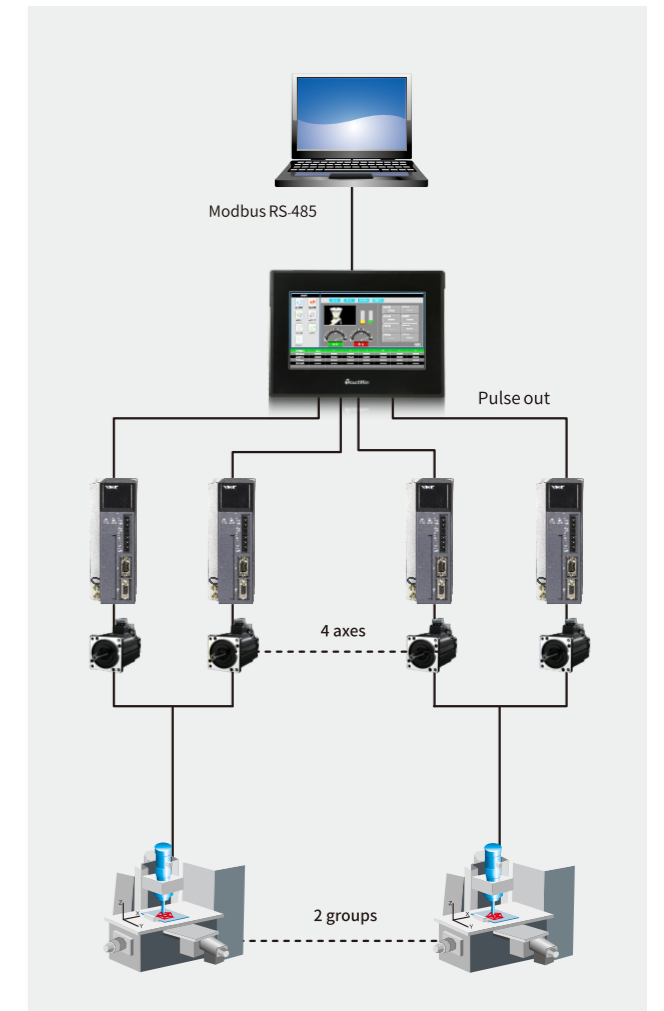
By selecting different counters, single-phase counting (the maximum frequency can reach 80kHz), pulse + direction mode counting (the maximum frequency can reach 80kHz) and AB phase mode counting (double frequency and quadruple frequency are optional, and the maximum frequency can reach 50kHz).



\*Note: refer to ZG/ZP series manual for the detailed configuration of high-speed counting of each model.

## Motion control

Support multi-channel 2-axis interpolation (exclusive function of ZGM)

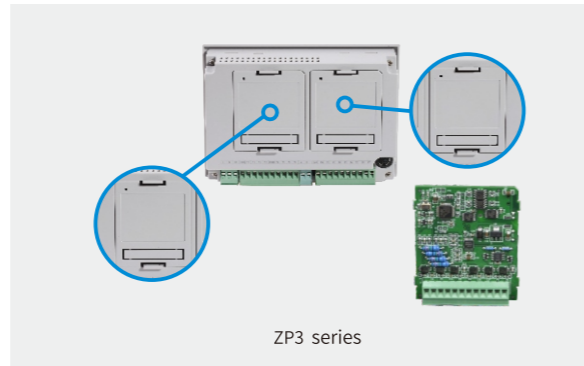


# Features

## Rich analog acquisition function

ZG, ZP series integral controllers can realize analog input and output, temperature control and other functions by connecting BD board. ZP series can expand two BD boards, other models can only expand one BD board.

Z series BD board can match ZG, ZP series integral controller (ZP1 cannot support BD board)



## Z series expansion BD board

Model	Description
Z-8X-BD	8 channels digital input (NPN)
Z-8YT-BD	8 channels transistor output
Z-4X4YT-BD	4 channels digital input (NPN), 4 channels transistor output
Z-4AD2DA-A-BD	4 channels current input 0~20mA, 4~20mA optional
	2 channels current output 0~20mA, 4~20mA optional
	12-bit high precision analog input (0~4095)
	10-bit high precision analog output (0~1023)
	Conversion speed 1ms/channel
Z-3AD3PT-BD	Comprehensive accuracy: ±0.8% of the full scale
	3 channels voltage input 0~10V, 0~5V optional
	3 channels PT100 (2-wire) temperature sensor input
	Temperature range -100~500°C, accuracy 0.1°C
Z-4TC-BD	12-bit high precision analog input (0~4095)
	Conversion speed 1ms/channel
	4 channels thermocouple temperature sensor input, support multiple thermocouple types
Z-4PT3-BD	Temperature range -200~1340°C (take type K as an example, others please refer to the manual), accuracy 0.1°C
	4 channels PT100 (3-wire) temperature sensor input
Z-1WT-BD	Temperature range -100~500°C, accuracy 0.1°C
Z-1WT-BD	1 channel weighing sensor input, 20-bit high precision, analog input range DC0~10mV (sensor 2mV/V)
Z-2WT-BD	2 channel weighing sensor input, 20-bit high precision, analog input range DC0~10mV (sensor 2mV/V)
Z-NES-BD	1 RS232 and 1 RS485 communication port, the two ports cannot be used at the same time

# Specification and model

## ZG series

Integrated XD series PLC and TG series HMI in one unit, equipped with RS232, RS485, USB-B, USB-A port for downloading, communicating and data backup. 4~7 inches display, 16.77 million colors LCD, touch screen.

- ① I/O 20~30 points
- ② 2~4 axes 100KHz high speed pulse output (ZG1 cannot support)
- ③ 3~4 channels high speed counting input (ZG1 cannot support)
- ④ RS232, RS485, USB-B, USB-A
- ⑤ RS232, RS485, USB-B, USB-A
- ⑥ 128MB screen capacity
- ⑦ Command processing speed 0.05us
- ⑧ ZGM supports linear, arc interpolation and other motion control functions



## Performance specification

Item	Model	ZG1 series	ZG3 series				ZGM series
		ZG1-20T-4	ZG3-20R-4	ZG3-20T-4	ZG3-30R-7	ZG3-30T-7	ZG3-30RT-7
Function	HMI	Same to TG series					
	PLC	Same to XD1 series	Same to XD3 series				Same to XDM series
Interface	Download/COM1	RS232 (upload/download PLC program, PLC port1)					
	COM2	AB terminals, RS485 (PLC port2)					
	USB-A	Support import export HMI data through flash disk					
	USB-B	For HMI program download and debug, can realize high speed download, transmission rate up to 480Mbps					
Screen features	Type	16.77 million true colors LCD					
	Screen size	4.3 "	4.3 "	7 "		7 "	
	Service life	Above 50000 hours, ambient temperature 25°C, 24-hour operation					
	Display area	480*272	480*272	800*480		800*480	
	Contrast	Adjustable					
	Language	Chinese, English, Japanese, German, etc.					
	Character size	Any font and size					
	Touch mode	4-wire resistive mode touch					
PLC specification	Memory	Screen: 128MB					
	rogram execution mode	Cyclic scanning mode					
	Programming method	Instruction, ladder chart, C language					
	Processing speed	0.05us					
	User program capacity	256KB	256KB				512KB
	Digital input	10 points	10 points		16 points		16 points
	Digital output	10 points	10 points		14 points		14 points
	Output type	Transistor	Relay	Transistor	Relay	Transistor	Mixed transistor and relay
	Soft component capacity	Same toXD1	Same to XD3	Same to XD3	Same to Xd3	Same to XD3	Same to XDM
	High speed pulse channel	/	/	2 channels	/	2 channels	2 channels
	Motion control function	/	Not support				Support
	High speed counting input	/	3 channels				4 channels
	External interrupt	/	Single phase max 80KHz, AB phase max 50KHz				10 channels
	Frequency measurement	/	10 channels				10 channels
	Password protection	/	3 channels				4 channels
Self diagnosis function	6-bit ASCII code						
Expansion BD board	Power on self-test, monitoring timer, syntax check						
Clock	One						
	Standard configuration						

※1: User program capacity refers to the max program capacity in secret download mode.

# Specification and models

## ZP series

Integrated XD series PLC and OP series operate panel in one unit, equipped with RS232, RS485 port for downloading and communicating. 3.7 inches monochrome display, 26 buttons can set the function freely.

- ① I/O 18 points
- ② 2-axis 100KHz high speed pulse output
- ③ 3 channels high speed counting input
- ④ RS232,RS485
- ⑤ 64KB screen capacity
- ⑥ 26 functional buttons
- ⑦ Command processing speed 0.05us



### Command processing speed 0.05us

Item	Model	ZP1 series		ZP2 series		ZP3 series		
		ZP1-18R	ZP1-18T	ZP2-18R	ZP2-18RT	ZP3-18R	ZP3-18T	ZP3-18RT
Function	HMI	Same to OP331 series						
	PLC	Same to XD1 series		Same to XD2 series		Same to XD3 series		
Interface	Download/COM1	RS232 (upload/download PLC program, download OP program)						
	COM2	AB terminals, RS485 (PLC port2)						
	USB-A	/						
	USB-B	/						
Screen features	Type	Yellow green LCD						
	Screen size	3.7 inches						
	Service life	Above 20000 hours, ambient temperature 25°C, 24-hour operation						
	Display area	192*64						
	Contrast	Potentiometer adjustable						
	Language	Chinese, English						
	Character font	Dot matrix font, vector font						
	Touch mode	Cannot touch						
	Memory	Screen: 64KB Data: 4KB						
	Character size	Chinese : 16*16,32*32; English: 8*16,16*32						
PLC specification	Button	26 buttons						
	Program execution mode	Cyclic scanning mode						
	Programming method	Command, ladder chart, C language						
	Processing speed	0.02~0.05us						
	User program capacity	256KB						
	Digital input	10 points						
	Digital output	8 points						
	Output type	Relay	Transistor	Relay	Transistor and relay mixed	Relay	Transistor	Transistor and relay mixed
	Soft component capacity	Same to XD1		Same to XD2		Same to XD3		
	High speed pulse channel	/	/	2 channels		2 channels		
	High speed counting input	/	3 channels, single phase up to 80KHz, AB phase up to 50KHz					
	External interrupt	8 channels		8 channels		8 channels		
	Frequency measurement	/	3 channels		3 channels			
	Password protection	6-bit ASCII code						
	Self diagnosis function	Power on self-test, monitoring timer, syntax check						
Expansion BD board	/	1		2				
Clock	Standard configuration							

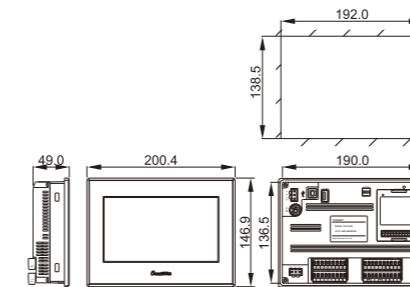
※1: User program capacity refers to the max program capacity in secret download mode.

### General specification (ZG/ZP)

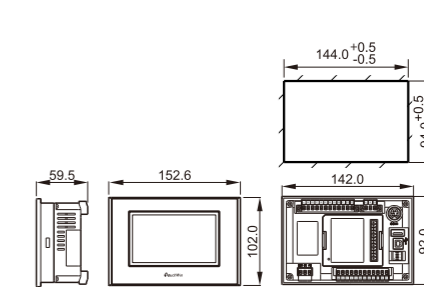
Series	Item	Specification	
		ZP series	ZG series
Electrical features	Input voltage	DC24 (voltage range DC21.6~26.4V)	
	Allowable instantaneous power failure	Less than 20ms	10ms
	Insulation impedance	About 10MΩ, DC500V (signal and ground)	
Environment	Operation temperature	0~50°C	
	Storage temperature	-10~60°C	
	Ambient humidity	20~85% (no condensation)	
	Vibration resistance	10~25Hz (X, Y, Z direction each 30 minutes 2G)	
	Anti-interference	Voltage noise: 1000Vp-p	
	Ambient air	No corrosive gas	

## Appearance dimension drawing (Unit: mm)

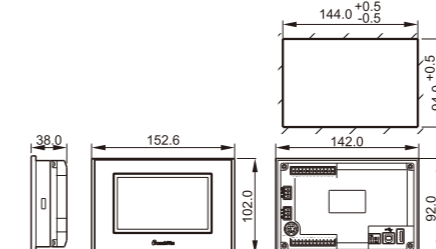
ZG3-30R/T/RT-7, ZGM-30T4-7



ZG3-20R/T-4



ZG1-20T-4



ZP1/ZP2/ZP3-18R/T/RT

