



深圳麦氏电气有限公司  
SHENZHEN MIC ELECTRIC CO., LTD

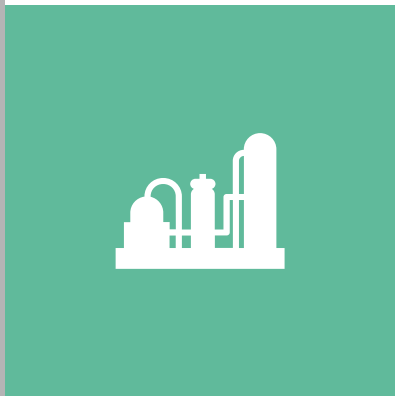
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# PRODUCT CATALOGUE



## ■ About MIC

SHENZHEN MIC ELECTRIC CO., LTD is a national high-tech enterprise, which specializes in R&D, manufacture, sale and service of electrical drive, industrial automation products. MIC headquarters is located in Guangming District Shenzhen city, has modern office and professional factory. MIC has been a public company of NEEQ in China in 2016, with stock code 839477.

MIC masters the leading synchronization, asynchronization current vector control technology, torque control technology and solar pump driving technology, including the main products such as general purpose inverter, various kinds of inverters of special industries and solar pump inverter. The products cover 220V, 380V, 460V, 525V, 660V voltage level with 0.4kW --1.6MW power range, which are widely used in electric power, metallurgy, petroleum and chemical, mining,

textile and chemical fiber, printing and packaging, paper-making, machine tool, plastic, hoisting, solar agricultural irrigation and other industries.

With "Market-oriented, Customer-centric" business philosophy, MIC provides high cost performance products and service to customers, make the customers more competitive. The sales and service network is nationwide in domestic market. And our products have also been exported to more than 60 countries all over the world.

MIC adheres to the enterprise core value of "Quality, Innovation, Integrity, Win-Win", dedicated to be the world famous supplier of products and services in the electric drive, industrial automation control fields, and would like to achieve customer, staff and enterprise values growing together.

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## ZX300 sensorless vector control inverter

ZX300 incorporates perfectly the optimized asynchronous driving and years of experience; it is born for asynchronous driving motors! AE300 is built on TI's powerful DSP-based motor control chip, with the adoption of the sensorless current vector control (SVC) and open-loop torque control (TC). ZX300 can be widely used for the asynchronous motor driving where better speed control and low-frequency torque are required.

S2 1AC 220V 0.4~11kW

T2 3AC 220V 0.4~200kW

T4 3AC 380V 0.75~1400kW

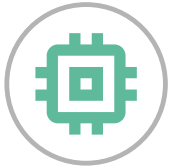
T6 3AC 660V 15~1600kW

## Product feature

01

### Excellent design and superb manufacturing process

With large design margin for key components and PCB;  
Adopting industry-leading automatic spraying and strict automatic testing standards, making sure more stable and reliable products;  
With optimized control algorithms and comprehensive protection functions, making more outstanding performance of the complete product.



02

### Powerful hardware speed tracking

With powerful hardware speed tracking, easily responding to the applications with large inertia requiring quick start.



03

### Accurate parameter identification

With an optimized motor parameter autotuning model, providing more precise identification.



04

### Enhanced oscillation suppression

With enhanced oscillation suppression, equal to all applications of motor current oscillation with facility.



05

### Fast current limiting

With fast current limiting function, easily responding to the conditions with sudden load, greatly reducing the probability of inverter's frequent over-current fault.



06

### Dual PID switching

With dual PID switching function, adapting to varied complicated conditions with flexibility.



07

Original energy-saving mode

With an original energy-saving mode, when at a light load, reducing the output voltage automatically, making more efficient energy saving.



08

Optimized V/F separation

With optimized V/F separation function, easily meeting various demands of the power inverter industry.



09

Flux-weakening control

Flux-weakening control, the max. frequency could be up to 3000Hz, easy for the applications requiring high speed.



10

Powerful PC monitoring software

With various background monitoring functions, facilitating on-site data collection and commissioning;

Capable of batch parameters upload and download, and autogeneration of commissioning documents.



Application

ZX300 is widely applicable to fan, water pump, air compressor, machine tool, winding, centrifuge, conveyor belt, mixer, ball mill, medium frequency power supply, woodworking machinery, petrochemical industry, plastic machinery, industrial washing, simple hoisting equipment, etc., which require better speed control and low-frequency torque for asynchronous motor driving.



Model description

ZX300-5R5G / 7R5P-T4

Sensorless vector control inverter series

Power rating  
5R5: 5.5kW  
7R5: 7.5kW

G/P  
G: Constant torque type  
P: Variable torque type

Input voltage  
S2: 1AC 220V  
T2: 3AC 220V  
T4: 3AC 380V  
T6: 3AC 660V

Selection guide

Model	Motor		Rated Input Current (A)	Rated Output Current (A)
	kW	HP		
1AC 220~240V±15%				
ZX300-0R4G-S2	0.4	0.5	5.4	2.3
ZX300-0R7G-S2	0.75	1.0	8.2	4.0
ZX300-1R5G-S2	1.5	2.0	14.0	7.0
ZX300-2R2G-S2	2.2	3.0	23.0	9.6
ZX300-004G-S2	4.0	5.0	25.0	15.0
ZX300-5R5G-S2	5.5	7.5	38.0	23.0
ZX300-7R5G-S2	7.5	10.0	50.0	32.0



3AC 220~240V±15%				
ZX300-0R4G-T2	0.4	0.5	3.4	2.3
ZX300-0R7G-T2	0.75	1.0	5.0	4.0
ZX300-1R5G-T2	1.5	2.0	7.7	7.0
ZX300-2R2G-T2	2.2	3.0	10.5	9.0
ZX300-004G-T2	4.0	5	18	17
ZX300-5R5G-T2	5.5	7.5	26	25
ZX300-7R5G-T2	7.5	10	35	32
ZX300-011G-T2	11	15	46.5	45
ZX300-015G-T2	15	20	62.5	60
ZX300-018G-T2	18.5	25	76	75
ZX300-022G-T2	22	30	92	91
ZX300-030G-T2	30	40	113	112
ZX300-037G-T2	37	50	157	150
ZX300-045G-T2	45	60	180	176
ZX300-055G-T2	55	75	214	210
ZX300-075G-T2	75	100	307	304
ZX300-090G-T2	90	125	350	340

3AC 380~415V±15%				
ZX300-0R7G/1R5P-T4	0.75/1.5	1/2	3.4/5.0	2.1/3.8
ZX300-1R5G/2R2P-T4	1.5/2.2	2/3	5.0/6.8	3.8/6
ZX300-2R2G/004P-T4	2.2/4.0	3/5	6.8/10	6/9
ZX300-004G/5R5P-T4	4.0/5.5	5/7.5	10/15	9/13
ZX300-5R5G/7R5P-T4	5.5/7.5	7.5/10	15/20	13/17
ZX300-7R5G/011P-T4	7.5/11	10/15	20/26	17/25
ZX300-011G/015P-T4	11/15	15/20	26/35	25/32
ZX300-015G/018P-T4	15/18.5	20/25	35/38	32/37
ZX300-018G/022P-T4	18.5/22	25/30	38/46	37/45
ZX300-022G/030P-T4	22/30	30/40	46/62	45/60
ZX300-030G/037P-T4	30/37	40/50	62/76	60/75
ZX300-037G/045P-T4	37/45	50/60	76/90	75/90
ZX300-045G/055P-T4	45/55	60/75	92/113	90/110

ZX300-055G/075P-T4	55/75	75/100	112/157	110/150
ZX300-075G/090P-T4	75/90	100/125	157/180	150/176
ZX300-090G/110P-T4	90/110	125/150	180/214	176/210
ZX300-110G/132P-T4	110/132	150/175	214/256	210/253
ZX300-132G/160P-T4	132/160	175/210	256/307	253/304
ZX300-160G/185P-T4	160/185	210/250	307/350	304/340
ZX300-185G/200P-T4	185/200	250/260	350/385	340/377
ZX300-200G/220P-T4	200/220	260/300	385/430	377/423
ZX300-220G/250P-T4	220/250	300/330	430/468	423/465
ZX300-250G/280P-T4	250/280	330/370	468/525	465/520
ZX300-280G/315P-T4	280/315	370/420	525/590	520/585
ZX300-315G/350P-T4	315/350	420/470	590/665	585/640
ZX300-350G/400P-T4	350/400	470/530	665/785	640/720
ZX300-400G/450P-T4	400/450	530/600	785/840	720/820
ZX300-450G/500P-T4	450/500	600/660	840/880	820/900
ZX300-500G/560P-T4	500/560	660/750	880/980	900/1000
ZX300-560G/630P-T4	560/630	750/840	980/1130	1000/1100
ZX300-630G/710P-T4	630/710	840/950	1130/1290	1100/1250
ZX300-710G-T4	710	950	1290	1250
ZX300-800G-T4	800	1070	1450	1400
ZX300-900G-T4	900	1200	1630	1580
ZX300-1000G-T4	1000	1330	1800	1750
ZX300-1200G-T4	1200	1600	2160	2100
ZX300-1400G-T4	1400	2120	2420	2350

3AC 660~690V±15%				
ZX300-015G-T6	15	20	21	19
ZX300-018G-T6	18	25	28	22
ZX300-022G-T6	22	30	35	28
ZX300-030G-T6	37	40	40	35
ZX300-037G-T6	37	50	47	45
ZX300-045G-T6	45	60	55	52
ZX300-055G-T6	55	75	65	63

ZX300-075G-T6	75	100	90	86
ZX300-090G-T6	90	105	100	98
ZX300-110G-T6	110	130	130	121
ZX300-132G-T6	132	175	170	150
ZX300-160G-T6	160	210	200	175
ZX300-185G-T6	185	250	210	195
ZX300-200G-T6	200	260	235	215
ZX300-220G-T6	220	300	257	245
ZX300-250G-T6	250	330	265	260
ZX300-280G-T6	280	370	305	300
ZX300-315G-T6	315	420	350	330
ZX300-350G-T6	350	470	382	374
ZX300-400G-T6	400	530	435	410
ZX300-450G-T6	450	600	490	465
ZX300-500G-T6	500	660	595	550
ZX300-560G-T6	560	745	610	590
ZX300-630G-T6	630	840	710	680
ZX300-710G-T6	710	950	800	770
ZX300-800G-T6	800	1050	900	865
ZX300-900G-T6	900	1150	1000	970
ZX300-1000G-T6	1000	1330	1120	1080
ZX300-1200G-T6	1200	1600	1290	1280
ZX300-1400G-T6	1400	1860	1510	1460
ZX300-1600G-T6	1600	2130	1780	1720

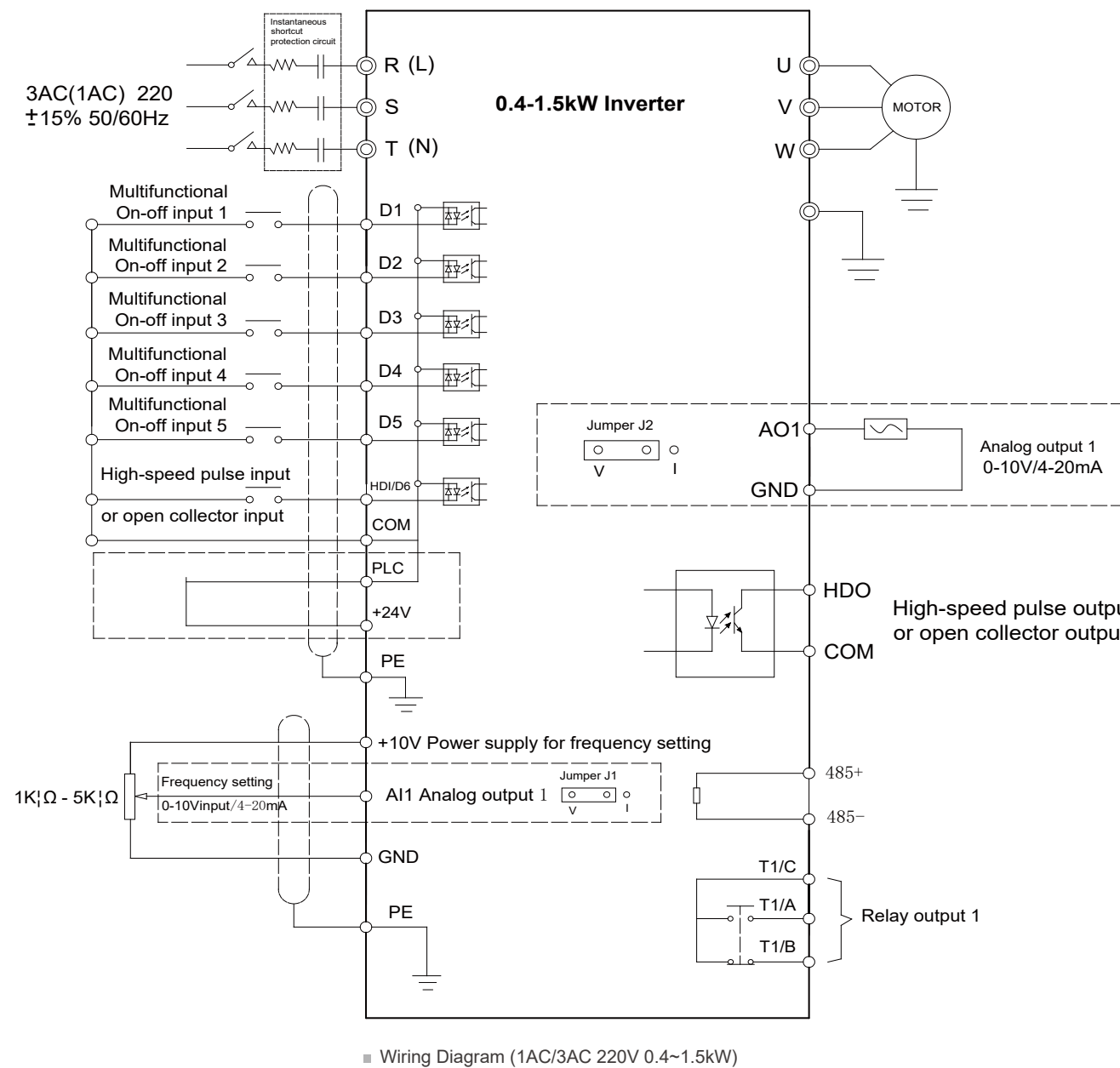
Technical specifications

Item	Technical Index	Specification
Input	Input voltage	1AC/3AC 220V±15%, 3AC 380V±15%, 3AC 660V±15%
	Input frequency	47~63Hz
Output	Output voltage	0~rated input voltage
	Output frequency	V/f control: 0~3000Hz Sensorless vector control: 0~300Hz
Control Features	Control mode	V/f control Sensorless vector control Torque control
	Operation command mode	Keypad control Terminal control Serial communication control
	Frequency setting mode	Digital setting, analog setting, pulse frequency setting, serial communication setting, multi-step speed setting & simple PLC, PID setting, etc. These frequency settings can be combined & switched in various modes.
	Overload capacity	G model: 150% 60s, 180% 10s, 200% 3s P model: 120% 60s, 150% 10s, 180% 3s
	Starting torque	0.5Hz/150% (SVC); 1Hz/150% (V/f)
	Speed adjustment range	1:100 (SVC); 1:50(V/f)
	Speed control precision	±0.5% (SVC)
	Carrier frequency	1.0--16.0kHz, automatically adjusted according to temperature and load characteristics
	Frequency accuracy	Digital setting: 0.01Hz Analog setting: maximum frequency * 0.05%
	Torque boost	Automatically torque boost; manually torque boost: 0.1%~30.0%
	V/f curve	Three types: linear, multiple point and square type (1.2 power, 1.4 power, 1.6 power, 1.8 power, square)
	Acceleration/deceleration mode	Straight line/S curve; four kinds of acceleration/deceleration time, range: 0.1s~3600.0s
	DC braking	DC braking when starting and stopping DC braking frequency: 0.0Hz~maximum frequency, braking time: 0.0s~100.0s
	Jog operation	Jog operation frequency: 0.0Hz~maximum frequency Jog acceleration/deceleration time: 0.1s~3600.0s
	Simple PLC & multi-step speed operation	It can realize a maximum of 16 segments speed running via the built-in PLC or control terminal.
	Built-in PID	Built-in PID control to easily realize the close loop control of the process parameters (such as pressure, temperature, flow, etc.)
	Automatic voltage regulation	Keep output voltage constant automatically when input voltage fluctuating

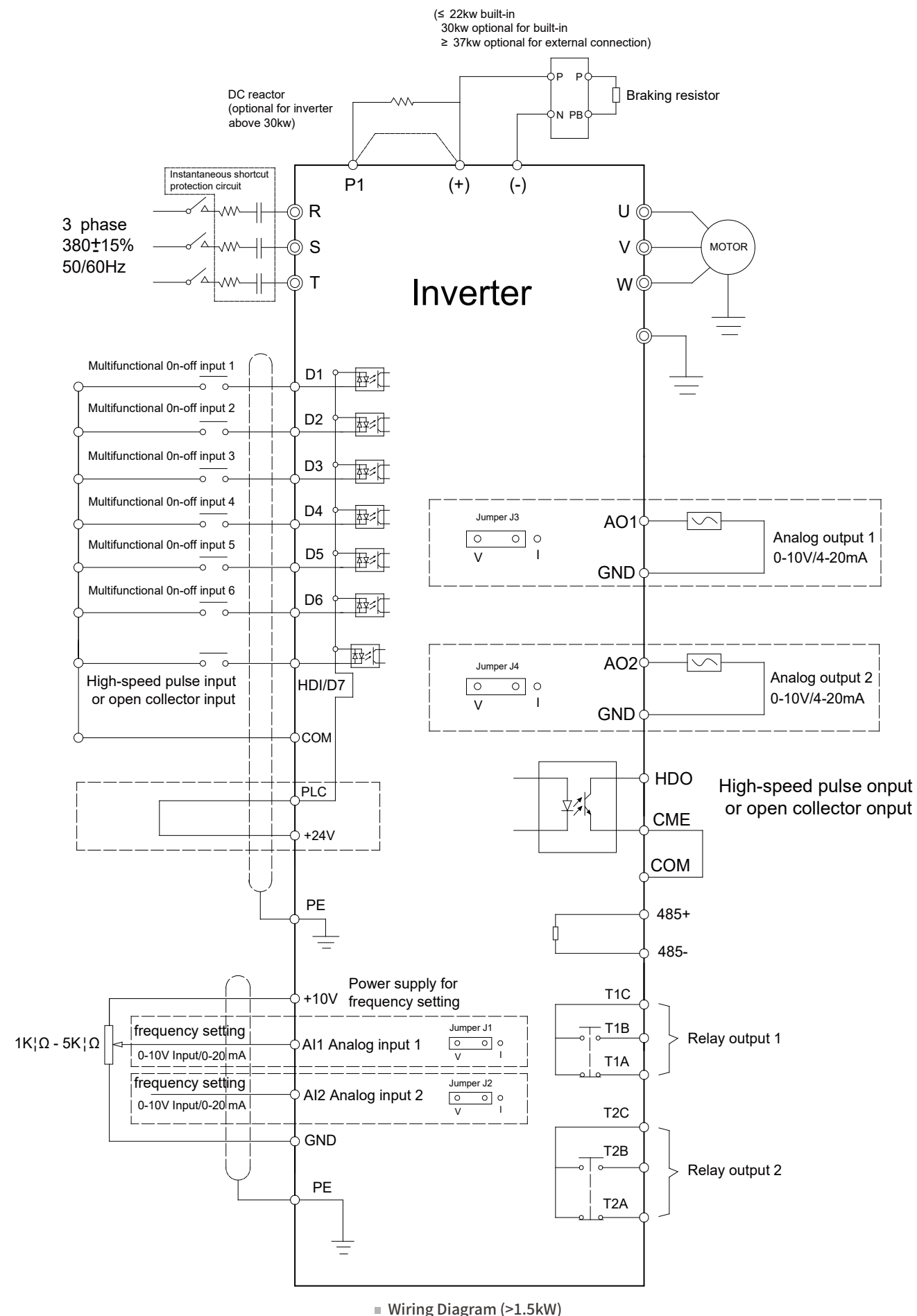


Control Function	Common DC bus	Common DC bus for several inverters, energy balanced automatically
	Torque control	Torque control without PG
	Torque limit	"Router" characteristics, limit the torque automatically and prevent frequent over-current tripping during the running process
	Wobble frequency control	Multiple triangular-wave frequency control, special for textile
	Timing/length/counting control	Timing/length/counting control function
	Over-voltage & over-current stall control	Limit current & voltage automatically during the running process, prevent frequent over-current & over-voltage tripping
Input/output terminals	Fault protection function	Up to 30 fault protections including over-current, over-voltage, under-voltage, overheating, default phase, overload, shortcut, etc., can record the detailed running status during failure & has fault automatic reset function
	Input terminals	Programmable DI: 7 on-off inputs, 1 high-speed pulse input 2 programmable AI: AI1: 0~10V or 0/4~20mA A12: 0~10V or 0/4~20mA
	Output terminals	1 programmable open collector output: 1 analog output (open collector output or high-speed pulse output) 2 relay output 2 analog output: 0/4~20mA or 0~10V
	Communication terminals	Offer RS485 communication interface, support MODBUS-RTU communication protocol
Human machine interface	LED display	Display frequency setting, output frequency, output voltage, output current, etc.
	Multifunction key	QUICK/JOG key, can be used as multifunction key
Environment	Ambient temperature	-10℃ ~40℃ , derated 4% when the temperature rise by every 1℃ (40℃ ~50℃ ).
	Humidity	90%RH or less (non-condensing)
	Altitude	≤1000M: output rated power, >1000M: output derated
	Storage temperature	-20℃ ~60℃

Wiring diagram







# ZX600A/ZX600B

## close-loop vector control inverter













ZX600A, an all-round drive, integrates a variety of control modes: sensorless current vector control, close-loop current vector control, V/F control, and torque control. With a modular design, ZX600A is more flexible in application, more powerful in function, and more stable in performance. With close-loop vector control, ZX600A can maximize the control performance of any motor (asynchronous motor or synchronous motor).

ZX600B, built-in position loop and servo positioning function, could be widely used in motor driving applications with a higher requirement on position control.

T2	3AC	220V	1.5~90kW
T4	3AC	380V	1.5~800kW
T6	3AC	660V	15~1000kW



# Product feature

01	<b>Comprehensive parameter identification</b>  With comprehensive parameter identification, simultaneously compatible with dynamic and static identifications for both synchronous motors and asynchronous motors.		06	<b>High start torque, and super low-frequency load-carrying capability</b>  0.5Hz, 150% start torque (sensorless vector control asynchronous motors) 0Hz, 200% startup torque (close-loop vector control asynchronous motors)	
02	<b>Multi-motor switching</b>  Built-in multiple motor parameters, supporting multi-motor switching.		07	<b>Non-stop when instantaneous power off</b>  With the capability of non-stop when instantaneous power off, ensuring the system continuously operate without tripping in case of instantaneous power off.	
03	<b>Modular design, compatible with various expansion cards</b>  ZX600A/ZX600B has superior expansion capability. Users can choose PG card, I/O expansion card, MODBUS communication card, injection molding card, pulse expansion card, according to their actual needs.		08	<b>AVR automatic voltage regulation</b>  When the input voltage is fluctuant, the inverter can automatically keep the constant output voltage.	
04	<b>Fast dynamic response</b>  Sensorless vector control, dynamic response time <20ms; Close-loop vector control, dynamic response time <5ms.		09	<b>Powerful positioning function (KE600B)</b>  With powerful positioning function and built-in position loop, achieving spindle positioning control.	
05	<b>High-precision torque control</b>  When close-loop vector control, the torque control accuracy achieving ± 5%, easily responding to tension winding control.		10	<b>Excellent close-loop vector control for synchronous motors</b>  With excellent close-loop vector control for synchronous motors, capable of high torque output at zero speed, the speed ratio up to 1:1000.	





### Application

ZX600A is widely applicable to papermaking, lifting machinery, elevators, port machines, CNC machine tool, precision injection molding, metallurgy, mining, electric power, petroleum and chemical industry, which highly require speed control for synchronous motor driving or asynchronous motor driving.

ZX600B, built-in position loop and servo positioning function, could be widely used in motor driving applications with a higher requirement on position control.



# ZX300F

## open-loop permanent magnet synchronous drive

With the world-leading sensorless current vector control technology (SVC) for synchronous motor, ZX300F can accurately identify the motor parameters, dynamically estimate the rotor speed and pole position, and can easily drive all types of permanent magnet synchronous motors (SPM & IPM). ZX300F can be widely used for the synchronous motor driving applications where better speed control and low-frequency torque are required.

S2	1AC	220V	0.4~5.5kW
T2	3AC	220V	1.5~90kW
T4	3AC	380V	1.5~800kW
T6	3AC	660V	15~1000kW

## Product feature

### 01 Leading synchronous motor sensorless vector control (SVC)

With the world-leading sensorless vector control technology (SVC) for synchronous motor, capable of easily driving all types of permanent magnet synchronous motors (SPM & IPM) with no need encoder feedback.



### 02 Enhanced overexcitation regulation

With enhanced overexcitation regulation, providing fast stop with no need of braking resistor.



### 03 Non-stop when instantaneous power off

With the capability of non-stop when instantaneous power off, ensuring the system continuously operate without tripping in case of instantaneous power off.



### 04 Ultra-high speed flux-weakening control

With ultra-high speed flux-weakening control, the max. frequency could be up to 500Hz (SVC), easy for the applications requiring high speed.



### 05 Excellent design and superb manufacturing process

With large design margin for key components and PCB;  
Adopting industry-leading automatic spraying and strict automatic testing standards, making sure more stable and reliable products;  
With optimized control algorithms and comprehensive protection functions, making more outstanding performance of the complete product.



## Application



ZX300F is widely applicable to fan, pump, air compressor, air conditioner, oil field, woodworking machine, packaging machine, food machine, printing machine, material conveying, textile machine and electric tools, which require synchronous motor driving applications without encoder feedback but having better speed control and low-frequency torque.



# ZX330A

open-structure  
sensorless vector  
control inverter



ZX330A adopts ZX300A's technology platform. With a brand-new open structure, smaller size, better heat dissipation, lower cost, more flexible application, it is the best choice or OEM module-chassis customers.

T2 3AC 220V 15~90kW

T4 3AC 380V 15~200kW

T6 3AC 660V 15~200kW

## Product feature



01

### Fully open structure, more flexible application

With a brand-new open structure (without case), smaller size, better heat dissipation, lower cost, and more flexible application, it is the best choice for OEM module-chassis customers.



02

### Accurate parameter identification

With an optimized motor parameter autotuning model, providing more accurate identification.



03

### Enhanced oscillation suppression

With enhanced oscillation suppression, equal to all applications of motor current oscillation with facility.



04

### Fast current limiting

With fast current limiting function, easily responding to the conditions with sudden load, greatly reducing the probability of inverter's frequent over-current fault.



05

### Powerful hardware speed tracking

With powerful hardware speed tracking, easily responding to the applications with large inertia requiring quick start.



06

### Flux-weakening control

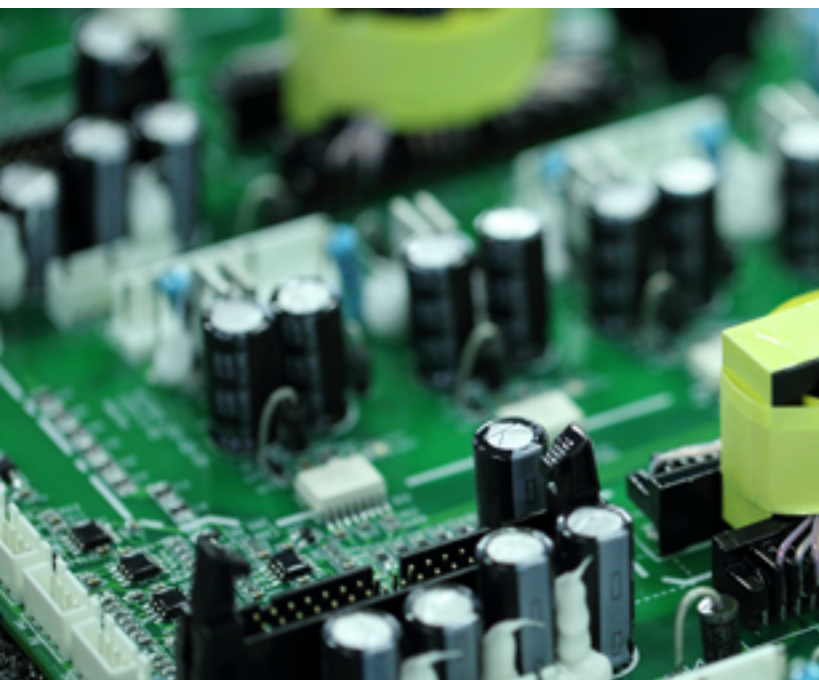
Flux-weakening control, the max. frequency could be up to 3000Hz, easy for the applications requiring high speed.



## Application

ZX330A is widely applicable to OEM or ODM applications such as woodworking machine, packaging machine, food machine, printing machine, textile machine, lifting machine, cable machine and other machinery supporting industries.





## Product feature



01

### With built-in electric supply/energy-saving switching, creating safe and reliable system

With the switching function, the system can switch to the electric supply circuit in case of failure in the energy-saving circuit, thus to ensure the continuity of production.



04

### Ultra-high speed flux-weakening control

With ultra-high speed flux-weakening control, the max. frequency could be up to 3000Hz, easy for the applications requiring high speed.



02

### Powerful hardware speed tracking

With powerful hardware speed tracking, easily responding to the applications with large inertia requiring quick start.



05

### Non-stop when instantaneous power off

With the capability of non-stop when instantaneous power off, ensuring the system continuously operate without tripping in case of instantaneous power off.



03

### Original energy-saving mode

With an original energy-saving mode, when at a light load, reducing the output voltage automatically, making more efficient energy saving.



06

### AVR automatic voltage regulation

When the input voltage is fluctuant, the inverter can automatically keep the constant output voltage.

# ZX610

## energy-saving integrated cabinet

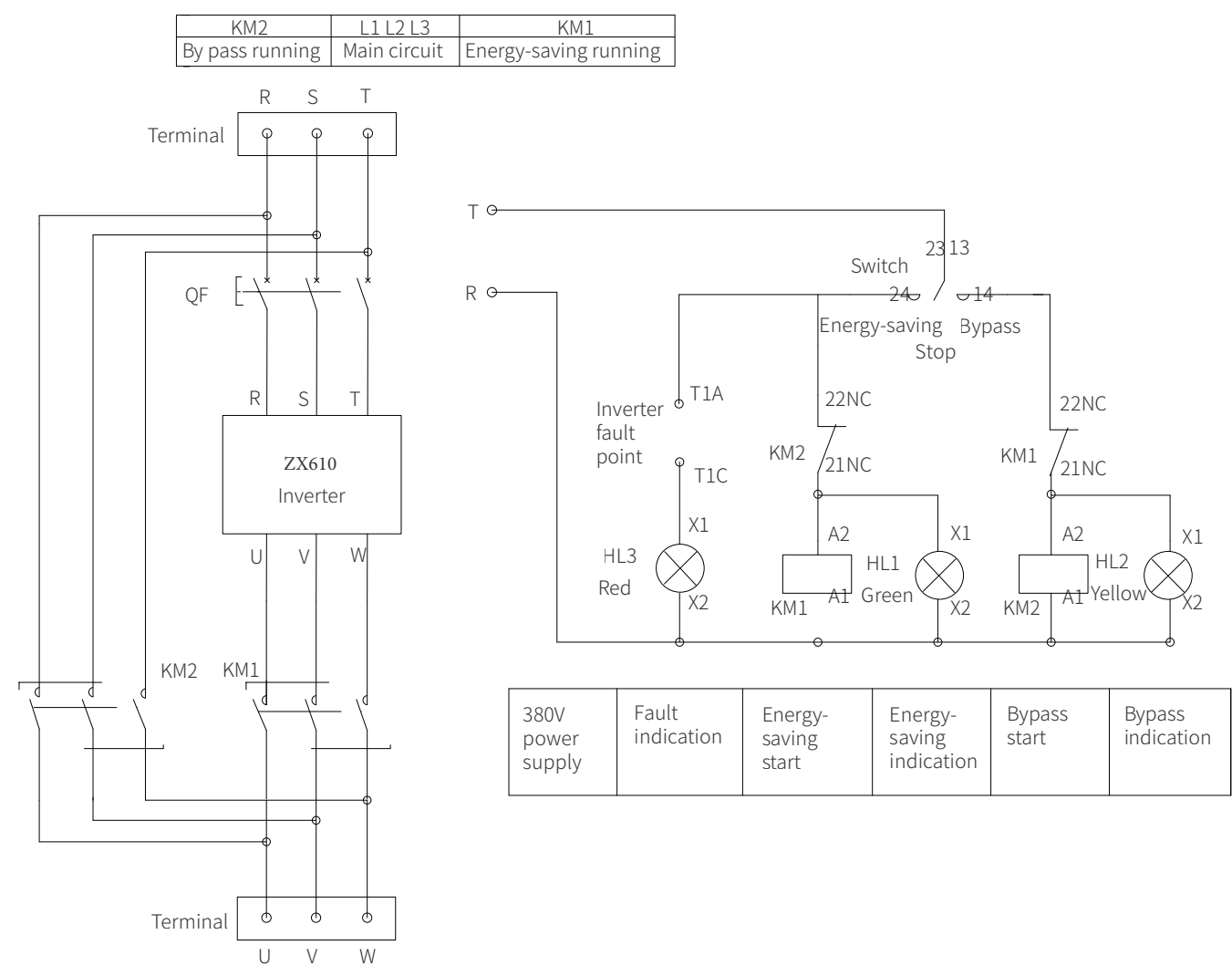
ZX610 electric supply/energy-saving integrated cabinet has the built-in electric supply bypass. When the energy-saving circuit fails, it can automatically switch to the electric supply circuit, so as to ensure the continuity of production.

T2 3AC 220V 7.5~90kW

T4 3AC 380V 7.5~200kW



System wiring diagram



Application

ZX610 is widely applicable to escalators, central air conditioner, plastic machine, extrusion machine, compressors, hoist, fan and pump, which require an energy saving transformation with electric supply/energy-saving switching.

## Optional parts

### MDC braking unit



01

MDC braking unit is used for converting the excess electric energy of the DC circuit of the inverter into the thermal energy of the braking resistor. The brake unit cannot be used alone; it must be used in conjunction with the braking resistor.

MICNO standard inverters of 30kW and below have a standard built-in braking unit; for 30kW inverter, the built-in braking unit is optional; for 37kW and above inverters, an external braking unit is required.

#### Model

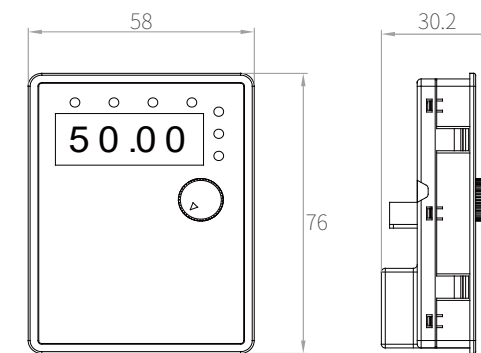
MDC-100-4

MDC-200-4

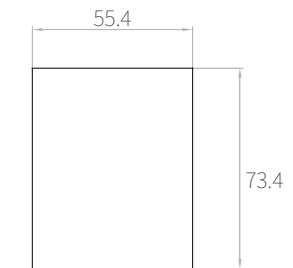
### Keypad

#### 01 LED keypad (standard part)

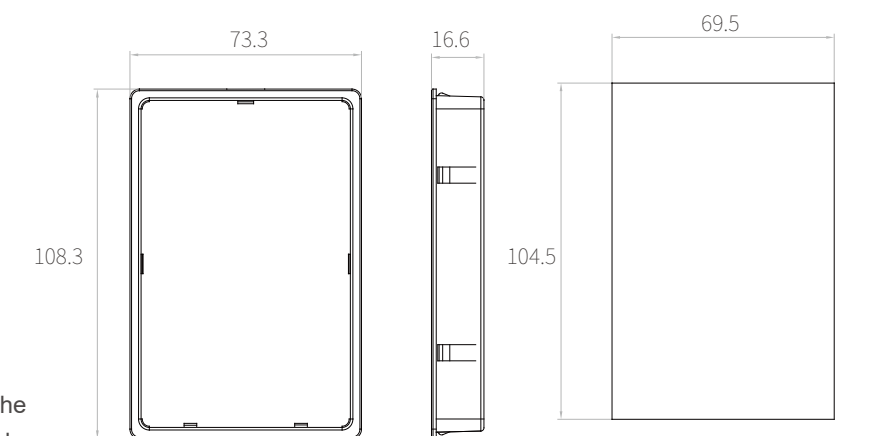
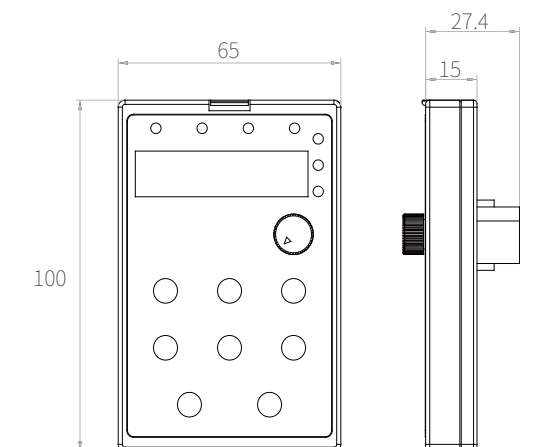
**Illustration** This keypad can be connected with the inverter externally by ordinary network cable, also can be mounted on the front side of panel directly. The suggested thickness of panel is 1.2mm.



■ Mini keypad dimension



■ Installation size on the panel while using this keypad



■ Standard keypad bracket dimension

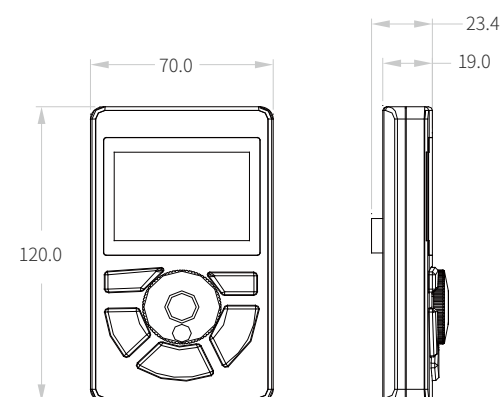
■ Hole dimension of standard keypad bracket

#### Illustration

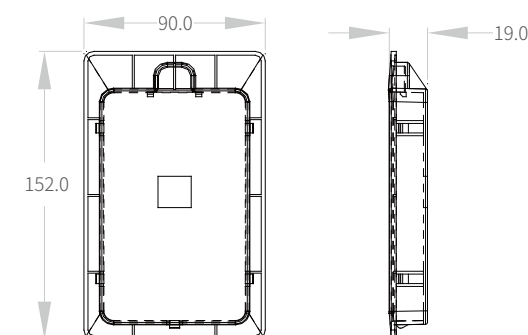
This keypad can be connected with the inverter externally by ordinary network cable, and it needs an additional bracket to fix it.

## 02 LCD keyboard

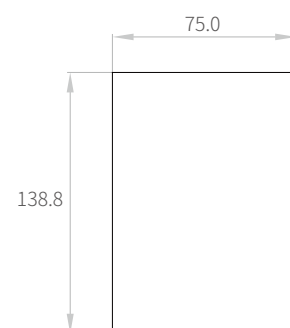
LCD keyboard supports Chinese/English display, can be used for viewing parameter definitions (without the need of manual), modifying parameters, checking fault and status information, starting and stopping the inverter, copying parameters, etc.



■ LCD keypad dimension



■ LCD keypad bracket dimension

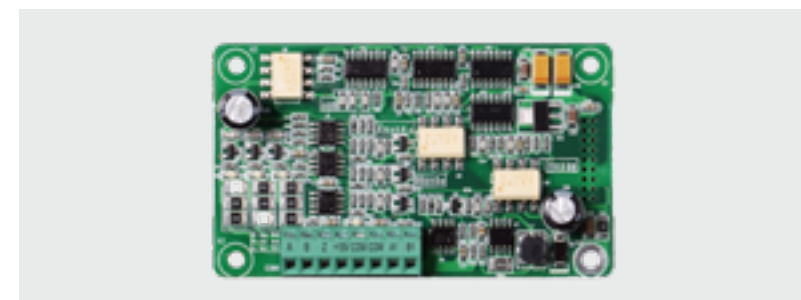


■ Hole dimension of LCD keypad bracket

## ZX600A / ZX600B expansion cards

### 01 OC PG card

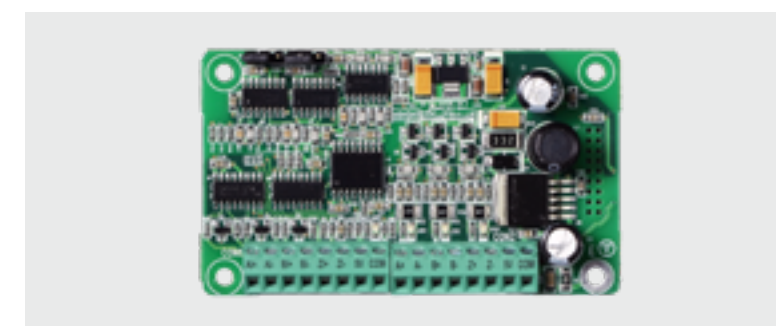
Used for collecting OC encoder's input signals when close-loop vector control, supporting frequency dividing output, and providing 15V power supply.



### Differential PG card

Used for collecting differential encoder's input signals when close-loop vector control, supporting frequency dividing output, and providing 5V power supply.

### 02



### 03 Rotary transformer PG card

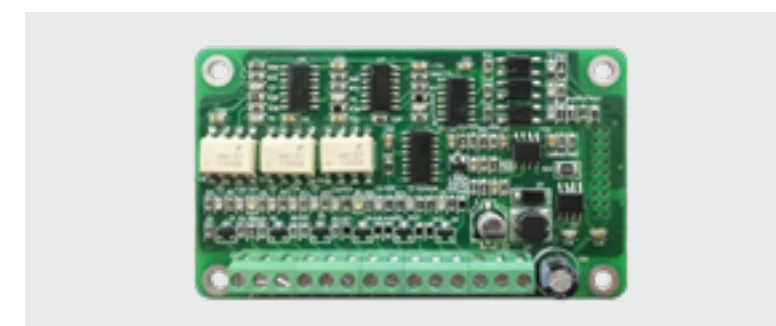
Used for collecting rotary transformer's input signals when close-loop vector control.



### Sine-cosine PG card

Used for collecting sine-cosine encoder's input signals when close-loop vector control, providing 5V power supply.

### 04



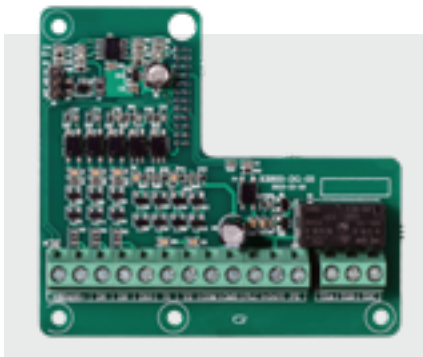


I/O expansion card

I/O expansion cards are used for expanding input and output terminals, which can provide:

- digital input: 3 inputs
- digital output: 1 output, could be as high-speed pulse output
- open-circuit collector output: 1 output
- relay output: 1 output (normally open/normally closed)
- communication interface: 1 interface, standard RS485 interface

05



06

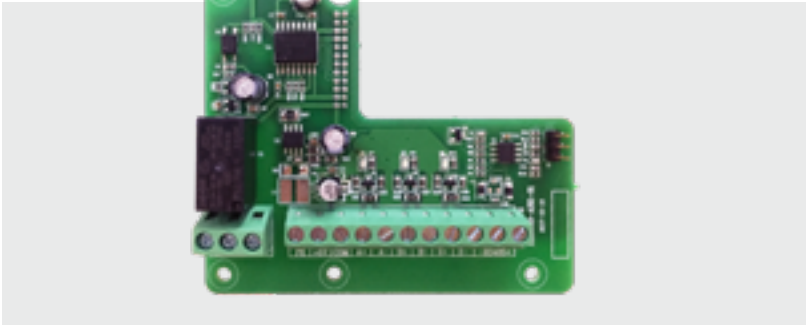
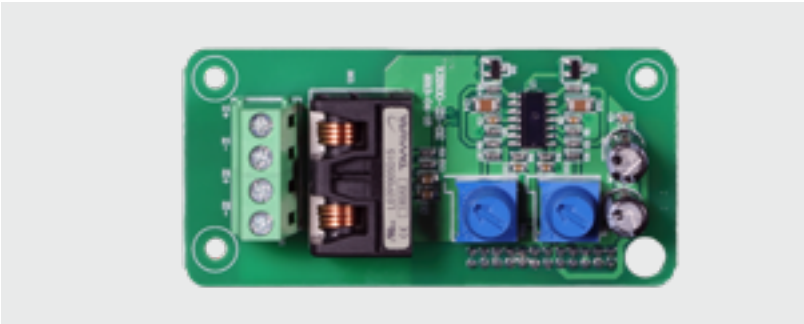
Communication card

Used for expanding the communication terminal, could provide 1 international standard RS485 interface.

Injection molding machine card

Used for collecting flow and pressure signals from the injection molding machine.

07



08

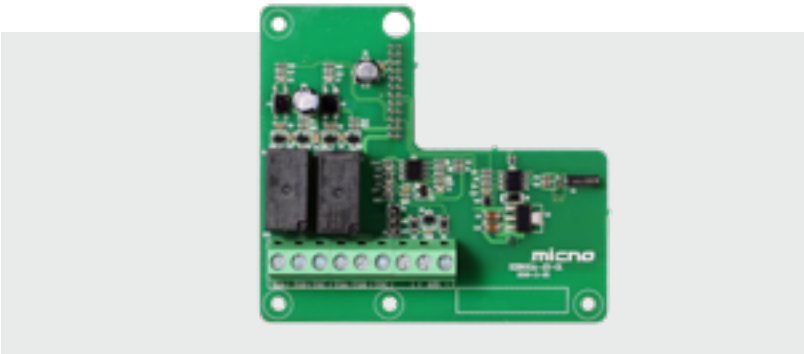
Pulse positioning card

Used for collecting pulse control signals from the master controller during the positioning control.

Clock encryption card

Used for timing, time display and multi-time encryption, with a built-in 3V rechargeable battery.

09



- Headquarters
- Exported to more than 60 countries