# Acon Drive Aztec Series Frequency Inverter Catalogue

Vector Control Frequency Inverter
Single & Three Phase
0.75KW ~ 450KW


## Acon Solutions Manufacturing, SA de CV

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Acon Solutions Manufacturing

# Company Profile





**ACON has been making effort in drive and control field!**
**ACON has been adhering competitive price for customers!**
**ACON has been taking care of developing together with partners!**

Welcome to visit ACON Group Corporation!
We have 1 factory, 1 headquarter, 2 warehouse and more than 820 staff. As a professional manufacturer of industrial automation products, we are always dedicated to soft starter, frequency inverters, servo motor and drive, EMI filters, harmonic wave AC chokes, sine wave filters and brake units and resistors. In the year of 2008, ACON does have established "Acon Solutions" to cultivate mexican market.

We have following mature series product:
ACON-GJ/GS series soft starter, (220V/380/480V/690V ±15%; 5.5KW~ 630KW).
WARRIOR series VF control inverter, (220V/380V/480V ±15%; 0.75KW~630KW).
CHIEF series sensorless vector control inverter, (220V/380V/480V/575V/690V ±15%; 0.75KW~630KW).
AZTEC series vector control inverter with PG (including elevator and lift drive). (220V/380V/480V/690V ±15%; 0.75KW~450KW)
ASA to ASD series servo motor drive system.(220V/380V ±15%;0.2~22KW)
And relative accessories, such as input filter, output filter, input choke , output choke, DC choke and sine wave filter, brake unit and resistor and aluminum resistor.

Our company's feature is good products with competitive price!
We are sincerely looking for worldwide partners to cooperate with us to build a win-win market environment.



# Quality Guarantee

ACON company has heavily invested constructing products laboratory in 2011, including EMC laboratory, inverter laboratory, explosion-proof inverter laboratory and safety laboratory and environmental laboratory. Present laboratory overall level has reached the domestic industry leading level, can satisfy many test requirements of frequency inverter, such as EFT, ESD, conduction, and special performance, etc.


Motor **laboratory**


EMC laboratory


Environmental laboratory


Shielding room

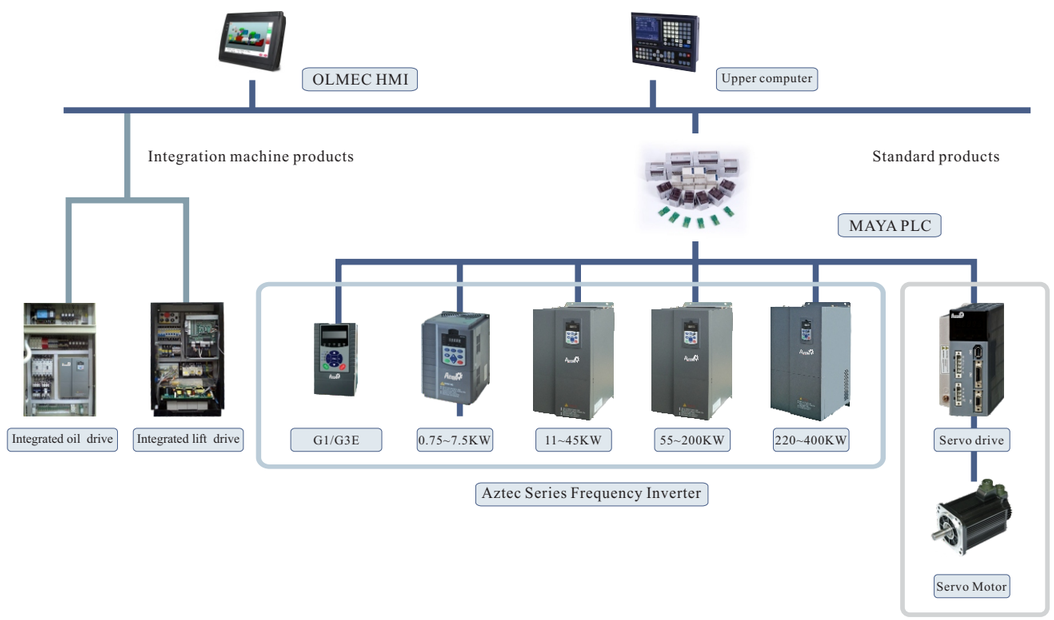

Isolation frequency conversion laboratory


Frequency laboratory


Hydraulic press machine


Production field

# General Solution of ACON




# Aztec Series vector control frequency inverter introduction:

- **Strong current vector control performance.**
- **Can drive asynchronous motors and synchronous motors**.
- **Abundant optional expansion card**.
- **Built-in** RS485 **communication interface**.
- **Support user-programmable control card**.
- **Support Voltage: 220V, 380V, 480V, 690V,** 1140V.
- Perfect background monitoring function: fast oscilloscope function, parameters updating in real time, alarm record, etc.
- **Six kinds of control models include sensor less vector control, vector control with** PG, V/F control without PG, V/F **control with**
- **Support** two **sets of motor parameters; more than thirty kinds** of **protection functions; full range of protection for the inverter**
- Adopted modular design, on the premise of meeting customers common demands, to flexible meet customized needs and industry requirements by extending the design.





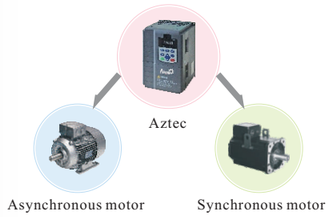
# Aztec series frequency inverter

Aztec series inverter is based on the accurately understanding of ACON **for customers'** requirements, inheriting the consistent pursuit of ACON **for high-quality, high reliability.** Aztec **series inverter will bring you a new using**

## 1 Perfect Performance

### Support various motors' vector control

- Support vector control for three-phase AC asynchronous motor and three-phase AC synchronous motor.
- **Support vector control for permanent magnet**

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**Differential encoder**

**Open collector encoder**

UVW **encoder**

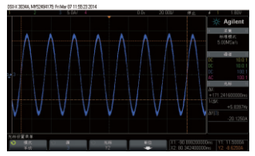
**Resolver encoder**

### The new speed SVC performance

- Sensorless speed vector control, can run at 0hz and can output 150% rated torque at 0.5Hz.
- Sensorless vector control reduced sensitivity of the motor's parameters setting to improve the site adaptability.
- **Can be used for winding control, for multi-motor**

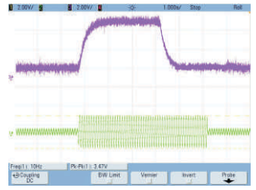
### High starting torque characteristics

- Aztec inverter can provide 150% starting torque at 0.5Hz (open loop vector control without PG). And can provide 180% torque at zero speed In 0Hz (with PG close loop vector control).



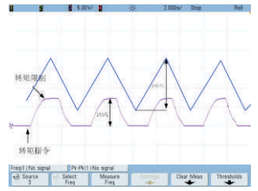
### Rapid respond time

- **Under sensorless vector control, torque response**



### Torque limit to protect the machinery

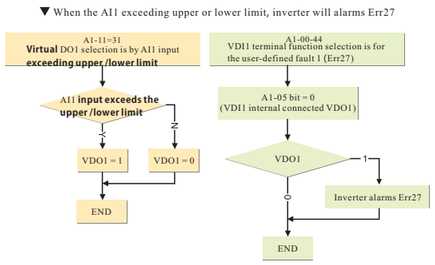
- Aztec series inverter can provide torque limit, when torque command exceeds the maximum affordable torque of the machinery, the torque can be limited to less than the preset maximum torque, and on the premise of playing a maximum efficiency of machinery to protect equipment safety.



# 2 Powerful Function

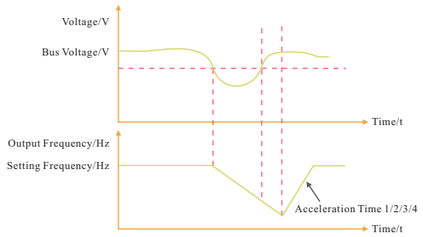
## Virtual IO functions

- 5 groups virtual DIDO can be set, state of the virtual DI terminals can be directly given by parameters or bind with the corresponding virtual DO function.




## Instantaneous power off but not stop

- This feature means during instantaneous power off, inverter will not stop. In the case of an instantaneous power failure or a sudden decrease in voltage, the inverter reduces the output speed, by using the load feedback energy to compensate voltage reducing and to maintain the inverter continues running in a short time.

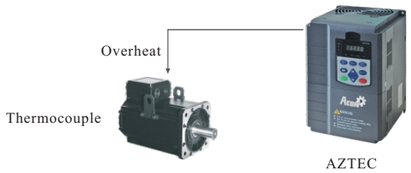



## Flexible and practical analog input / output

- Each analog input (AI1 ~ AI3), can be separately set five-point curves, more flexible function.
- AI1 ~ AI3 can be factory calibration or user calibrate linearity curve in the site, after calibration, accuracy can be 20mV.
- AO can be factory calibration or user calibrate linearity curve zero drift and gain in the site. after calibration , accuracy can be 20mV.
- AI1 ~ AI3 can be used as DI.
- AI3 is isolated inputs port, it can be used as ± 10V input.

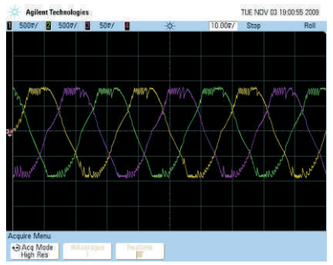
## Motor overheat protection

- Using input and output expansion card, PG expansion card accepts motor temperature sensor input. When the motor's temperature exceeds the warning value, the inverter outputs pulse signal to warn over-heat. When the temperature exceeds the motor overheating protection, inverter will alarm fault to protect motor properly.



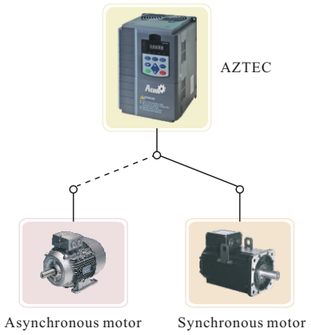

## Fast current limit function

- Fast current limit function prevents the inverter frequently over current alarm. When the current exceeds the protection points, fast current limit function can quickly limit current below protection point to protect the safety of equipment, and to avoid over-current alarm caused by suddenly adding load or interference.




## Multi-motor switching

- Can save two groups of motor parameters, two motors' switching control can be achieved and enable to switch between synchronous motor and asynchronous motor.

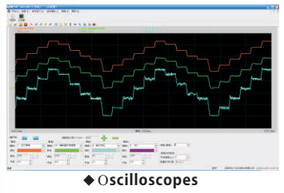



# 3 Convenient Application

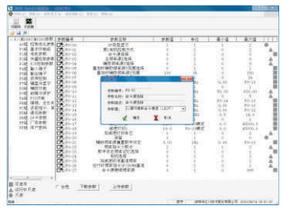
## Strong software

- The software can upload and download inverter parameters, has real-time function of oscilloscope.

◆ Back ground interface of function code



◆ Oscilloscopes



◆ Modify the background inverter parameters

## Restore user parameters

- The debugging or wrong operation leads to parameter confusion, user can select to restore the factory setting; also can restore the saved parameters to avoid causing confusion.

Restore factory settings

Restore user parameters

## Support various fieldbus

- Support for multiple bus communication modes, and convenience for connecting various peripheral settings.

Support Type: RS485
PROFIBUS-DP

# 4 Reliability Design

## Above 7.5KW inverter optional DC reactor

- Effectively improve the power factor of input.
- Improve the efficiency and thermal stability of the inverter.
- **Effectively eliminate influence of the higher harmonics of the input side of the inverter, reducing**

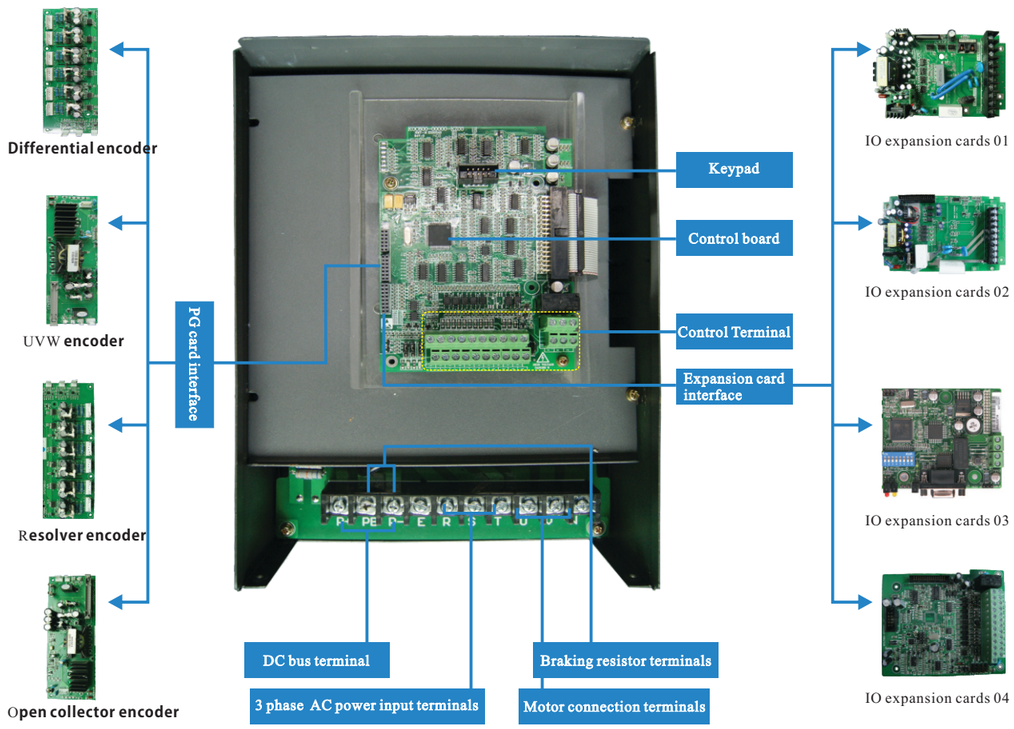
## Environment-resisting design

- With three-proof paint treatment process (dust-proof, moisture proof , mold-proof ) .
- Wide voltage range design.
- A full range of independent air duct design.
- Conform to the RoHS standard

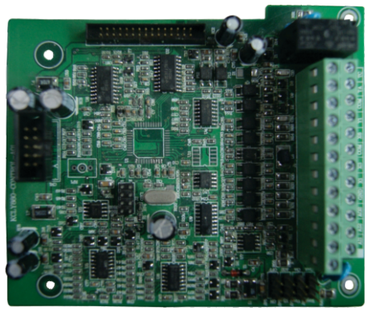
## Easy to replace Fan

- Replacement of fan is simple, so use is convenient to clean, maintain and replace.

## 5 Rich Expansion Capability




## 6 User Programmable Control Card



- The communication of PLC and inverter's main CPU is very fast, which can finish updating data within 2ms.
- User's software can operate on the internal variables and all ports resources of inverters.
- Program method can be selected, and that is compatible with a variety of PLC.

### User resources of supplying to the external

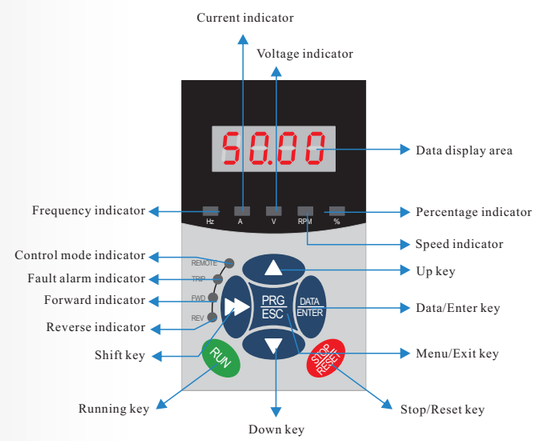
- User resources of supplying to the external include：1*AII,1*AO,5*DI,2*RELAY,1*RS485。

| Description | Number | Explain |
|---|---|---|
| Analog input | 1 | Isolated input, ± 10V / ± 20mA analog input . |
| Analog output | 1 | 0 ~ 10V / 0 ~ 20mA output. |
| Digital input | 5 | Ordinary digital input <100Hz. |
| Relay output | 2 | Normally open. |
| Communication (RS485) | 1 | Provide with Modbus in master / slave station. |

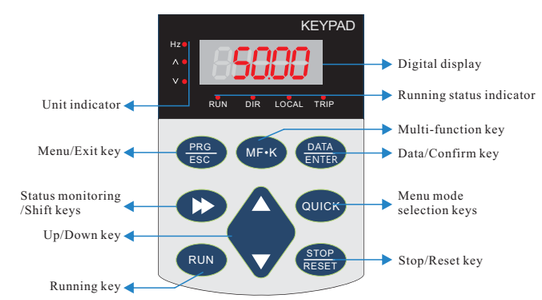
### With extra functions of standard PLC plus standard drive

- PLC operates the drive internal variables and port resources.
- Drive offer a dedicated parameter values for PLC internal program.
- The drive supports special fault code of PLC.
- 2ms data exchanging cycle.
- Drive provides special surveillance for monitoring PLC internal variables.

## 7 Easy for Operation




AZTEC G1E/G3E series operating keypad diagram




AZTEC G3 series operating keypad diagram

## 8 Model and Technical Data

AZTEC - G 3 - 015

ACON Aztec series frequency inverter

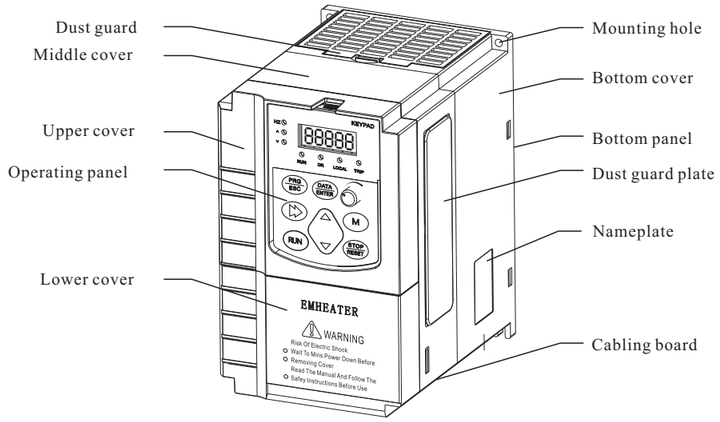
| Code | Adaptation Motor |
|---|---|
| 5d5 | 5.5KW/7.5HP |
| 015 | 15KW/20HP |

| Code | Type |
|---|---|
| G | General use |
| P | Fan & Pump |
| H | Heavy Load |

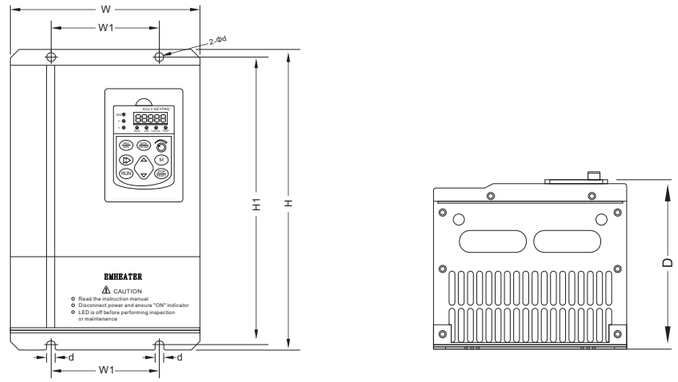
| Code | Voltage |
|---|---|
| 1 | 1 phase 220V |
| 2 | 3 phase 220V |
| 3 | 3 phase 380V |
| 4 | 3 phase 480V |
| 6 | 3 phase 690V |

| Model | Power Capacity (kVA) | Input Current (A) | Output Current (A) | Adaptation Motor | |
|---|---|---|---|---|---|
| | | | | (kW) | (HP) |
| Single phase 220V, 50/60Hz | | | | | |
| AZTEC-G1-d75 | 1.5 | 8.2 | 4.0 | 0.75 | 1 |
| AZTEC-G1-1d5 | 3.0 | 14.0 | 7.0 | 1.5 | 2 |
| AZTEC-G1-2d2 | 4.0 | 23.0 | 9.6 | 2.2 | 3 |
| Three phase 380V, 50/60Hz | | | | | |
| AZTEC-G3-d75 | 1.5 | 3.4 | 2.1 | 0.75 | 1 |
| AZTEC-G3-1d5 | 3.0 | 5.0 | 3.8 | 1.5 | 2 |
| AZTEC-G3-2d2 | 4.0 | 5.8 | 5.1 | 2.2 | 3 |
| AZTEC-G3-004 | 5.9 | 10.5 | 9.0 | 3.7 | 5 |
| AZTEC-G3-5d5 | 8.9 | 14.6 | 13.0 | 5.5 | 7.5 |
| AZTEC-G3-7d5 | 11.0 | 20.5 | 17.0 | 7.5 | 10 |
| AZTEC-G3-011 | 17.0 | 26.0 | 25.0 | 11.0 | 15 |
| AZTEC-G3-015 | 21.0 | 35.0 | 32.0 | 15.0 | 20 |
| AZTEC-G3-018 | 24.0 | 38.5 | 37.0 | 18.5 | 25 |
| AZTEC-G3-022 | 30.0 | 46.5 | 45.0 | 22 | 30 |
| AZTEC-G3-030 | 40.0 | 62.0 | 60.0 | 30 | 40 |
| AZTEC-G3-037 | 57.0 | 76.0 | 75.0 | 37 | 50 |
| AZTEC-G3-045 | 69.0 | 92.0 | 91.0 | 45 | 60 |
| AZTEC-G3-055 | 85.0 | 113.0 | 112.0 | 55 | 75 |
| AZTEC-G3-075 | 114.0 | 157.0 | 150.0 | 75 | 100 |
| AZTEC-G3-090 | 134.0 | 180.0 | 176.0 | 90 | 125 |
| AZTEC-G3-110 | 160.0 | 214.0 | 210.0 | 110 | 150 |
| AZTEC-G3-132 | 192.0 | 256.0 | 253.0 | 132 | 200 |
| AZTEC-G3-160 | 231.0 | 307.0 | 304.0 | 160 | 250 |
| AZTEC-G3-200 | 250.0 | 385.0 | 377.0 | 200 | 300 |
| AZTEC-G3-220 | 280.0 | 430.0 | 426.0 | 220 | 300 |
| AZTEC-G3-250 | 355.0 | 468.0 | 465.0 | 250 | 400 |
| AZTEC-G3-280 | 396.0 | 525.0 | 520.0 | 280 | 370 |
| AZTEC-G3-315 | 445.0 | 590.0 | 585.0 | 315.0 | 500 |
| AZTEC-G3-355 | 500.0 | 665.0 | 650.0 | 355.0 | 420 |
| AZTEC-G3-400 | 565.0 | 785.0 | 725.0 | 400.0 | 530 |
| Three phase 690V, 50/60Hz | | | | | |
| AZTEC-G6-055 | 84.0 | 70.0 | 65.0 | 55 | 70 |
| AZTEC-G6-055 | 107.0 | 90.0 | 86.0 | 75 | 100 |
| AZTEC-G6-090 | 125.0 | 105.0 | 100.0 | 90 | 125 |
| AZTEC-G6-110 | 155.0 | 130.0 | 120.0 | 110 | 150 |
| AZTEC-G6-132 | 192.0 | 170.0 | 150.0 | 132 | 175 |
| AZTEC-G6-160 | 231.0 | 200.0 | 175.0 | 160 | 210 |
| AZTEC-G6-200 | 250.0 | 235.0 | 215.0 | 200 | 260 |
| AZTEC-G6-220 | 280.0 | 247.0 | 245.0 | 220 | 300 |
| AZTEC-G6-250 | 355.0 | 265.0 | 260.0 | 250 | 350 |
| AZTEC-G6-280 | 396.0 | 305.0 | 299.0 | 280 | 370 |
| AZTEC-G6-315 | 445.0 | 350.0 | 330.0 | 315 | 420 |
| AZTEC-G6-355 | 500.0 | 382.0 | 374.0 | 355 | 470 |
| AZTEC-G6-400 | 565.0 | 435.0 | 410.0 | 400 | 530 |
| AZTEC-G6-450 | 630.0 | 490.0 | 465.0 | 450 | 600 |
| AZTEC-G6-500 | 700.0 | 595.0 | 550.0 | 500 | 660 |

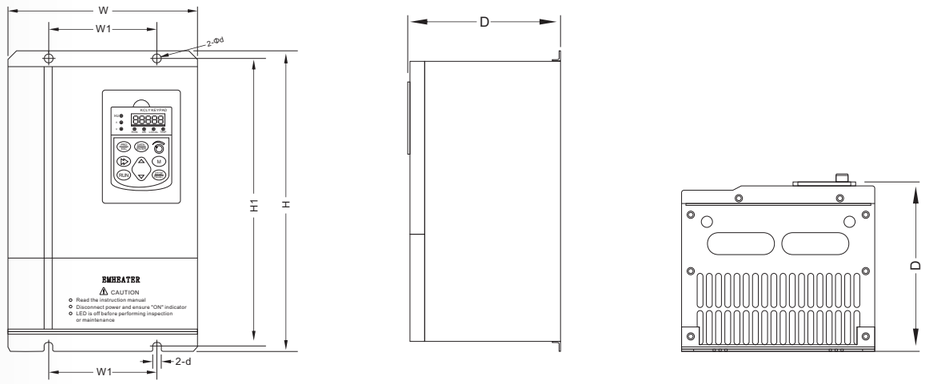
## 9 Physical Appearance




Frequency inverter appearance diagram




0.4KW~15KW frequency inverter installation dimensions diagram




18.5KW~400KW frequency inverter installation dimensions diagram

## 10 Installation Dimensions

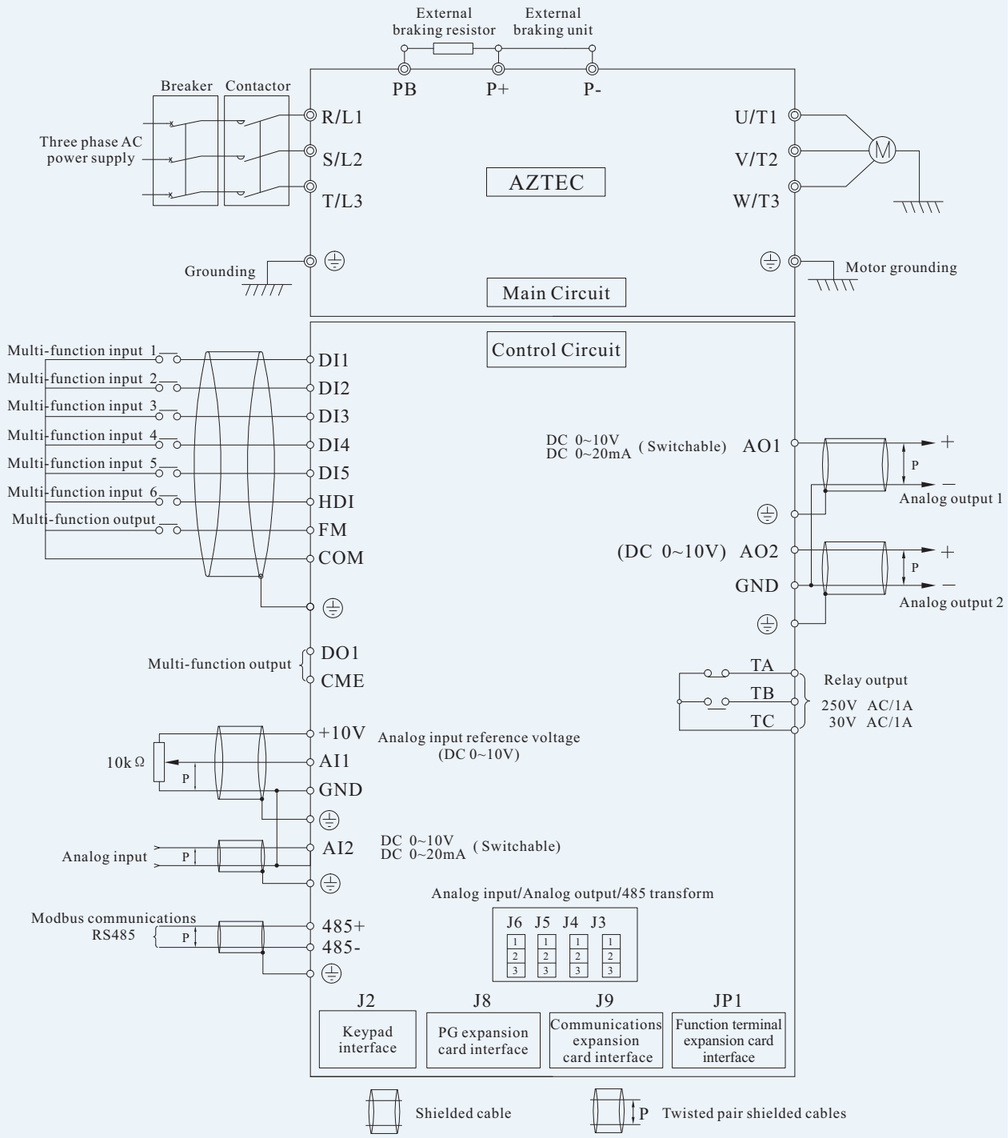
| Model | Installation Dimensions（mm） | | | | | Mount Screw (mm) |
|---|---|---|---|---|---|---|
| | W | W1 | H | H1 | D | |
| AZTEC-G1-d75 | 82.6 | 65.5 | 166 | 154 | 118.5 | Ø5.2 |
| AZTEC-G1-1d5 | | | | | | |
| AZTEC-G1-2d2 | | | | | | |
| AZTEC-G3-d75 | 118 | 106 | 185 | 175.5 | 157 | Ø4.5 |
| AZTEC-G3-1d5 | | | | | | |
| AZTEC-G3-2d2 | | | | | | |
| AZTEC-G3-004 | 160 | 148 | 247 | 235 | 177 | Ø5.5 |
| AZTEC-G3-5d5 | | | | | | |
| AZTEC-G3-7d5 | | | | | | |
| AZTEC-G3-011 | 220 | 126 | 349 | 334 | 194 | Ø7.0 |
| AZTEC-G3-015 | | | | | | |
| AZTEC-G3-018 | 290 | 230 | 455 | 440 | 218 | Ø7.0 |
| AZTEC-G3-022 | | | | | | |
| AZTEC-G3-030 | | | | | | |
| AZTEC-G3-037 | 320 | 230 | 555 | 540 | 240 | Ø10.0 |
| AZTEC-G3-045 | | | | | | |
| AZTEC-G3-055 | 410 | 320 | 635 | 610 | 239 | Ø12.0 |
| AZTEC-G3-075 | | | | | | |
| AZTEC-G3-090 | 460 | 320 | 654 | 630 | 340 | Ø12.0 |
| AZTEC-G3-110 | | | | | | |
| AZTEC-G3-132 | 560 | 420 | 847 | 820 | 348 | Ø14.0 |
| AZTEC-G3-160 | | | | | | |
| AZTEC-KOC600 - 110KW | | | | | | |
| AZTEC-KOC600 - 130KW | | | | | | |
| AZTEC-KOC600 - 160KW | | | | | | |
| AZTEC-G3-200 | | | | | | |
| AZTEC-G3-220 | 700 | 520 | 956 | 920 | 368 | Ø14.0 |
| AZTEC-G3-250 | | | | | | |
| AZTEC-G3-280 | | | | | | |
| AZTEC-G3-315 | 800 | 620 | 1232 | 1200 | 378 | Ø18.0 |
| AZTEC-G3-355 | | | | | | |
| AZTEC-G3-400 | | | | | | |



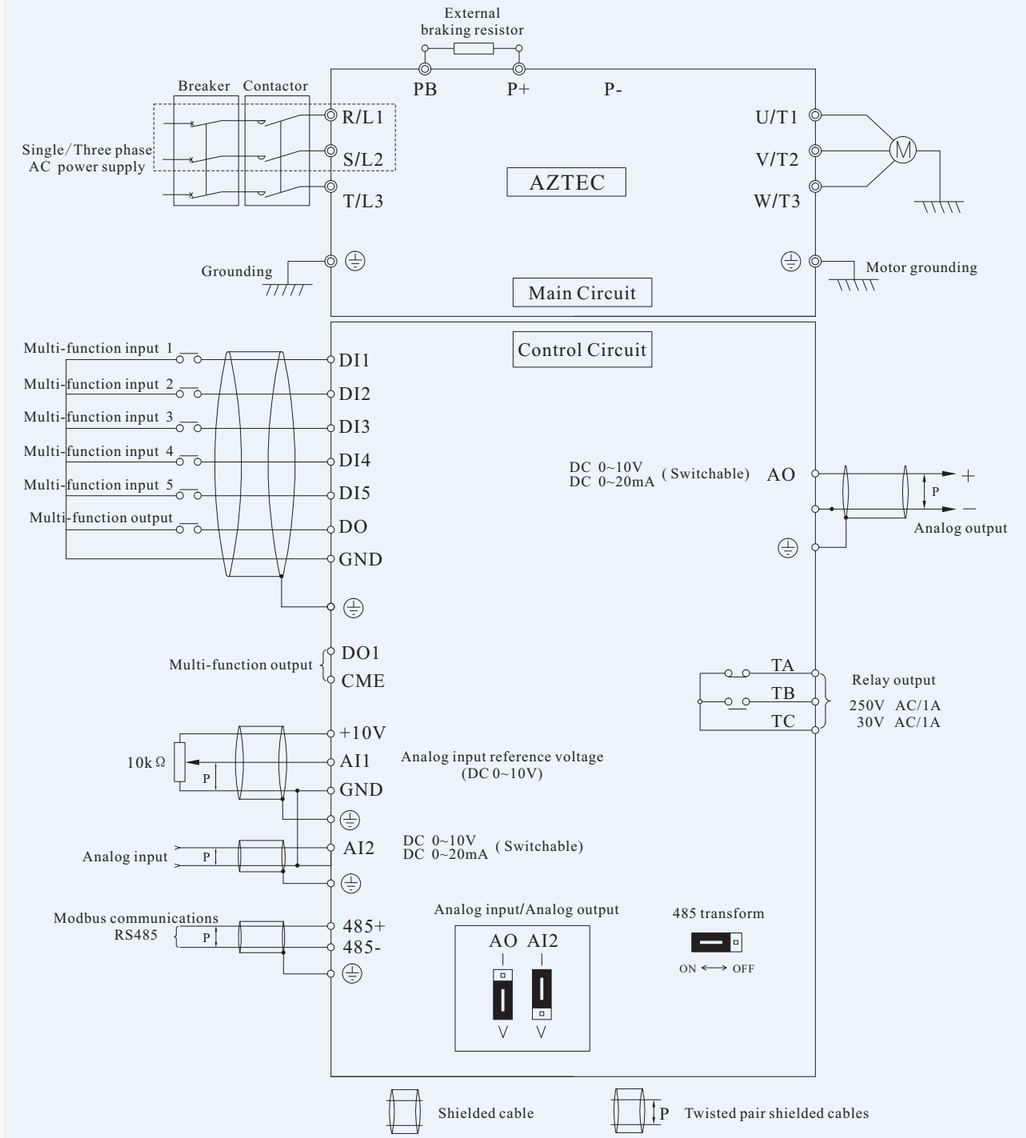
## 11 Technical Specifications

| Project | | Specifications |
|---|---|---|
| Basic functions | Maximum frequency | V/F control：0~300Hz; Vector control：0~300Hz |
| | Carrier frequency | 0.5KHz ~ 16 KHz; can automatically adjust the carrier frequency according to the load characteristics. |
| | Input frequency resolution | Digital setting: 0.01Hz<br>Analog setting: maximum frequency x0.025%. |
| | Control mode | Open-loop vector control (SVC)<br>The closed-loop vector control (VC)<br>V/F control |
| | Starting torque | 0.5Hz/150%（SVC）；0Hz/180%（VC） |
| | Speed adjustable range | 1:200（SVC） 1:1000（VC） 1:50（V/F） |
| | Speed accuracy | ±0.5%（SVC） ±0.02%（VC） |
| | Accuracy of torque control | ±5%（VC） |
| | Over-load capability | 60s with 150% rated current, 3s with 180% rated current. |
| | Torque boost | Automatic torque boost; manual torque boost from 0.1% to 30.0%. |
| | V/F curve | Three ways: linear; multi-point type; Nth type V / F curve (1.2th, 1.4th, 1.6th, 1.8th, 2th) |
| | V/F separation | Two ways: full separation and half separation. |
| | Acc. and Dec. curves | Linear or S-curve accelerating and decelerating mode; four kinds of accelerating and decelerating time; accelerating and decelerating time range 0.0 ~ 6500.0s. |
| | DC braking | DC braking frequency: 0.00Hz ~ maximum frequency, braking time: 0.0s ~ 6500.0s, braking trigger current:0.0%~100.0%. |
| | JOG Control | Jog frequency range: 0.00Hz ~ 50.00Hz; Jog acceleration and deceleration time 0.0s ~ 6500.0s. |
| | Simple PLC,multi-speed operation | Realize maximum 16 segments speed by the built-in PCL or controlled terminal. |
| | Built-in PID | Can easily realize closed loop control system. |
| | Automatic voltage regulation/AVR | Can automatically keep the output voltage constant When the grid voltage fluctuate. |
| | Over voltage and over current stall control | Automatically restrict current and voltage during running, preventing frequently alarm of over current and over voltage. |
| | Fast limit current function | Minimizing the over current fault and to maintain inverter running. |
| | Torque limiting and controlling | "Excavator" characteristic, automatically limits torque during running, preventing trip result from frequently over current; vector control mode can control torque. |
| Personalization functions | Self-test peripheral equipment's safety | Can achieve safety testing for peripheral devices when power on(such as grounding, short circuit, etc.). |
| | Common DC bus functions | Multiple drive share a common DC bus |
| | QUICK Key | Five menu mode selection: basic menu, the advanced menu, monitoring menu, calibrating menu, user-defined menu. |
| | MF.K Key | Programmable keys: Command channel switch/forward &reverse running/jog running function selection. |
| | Textile wobble frequency control | A variety of triangular wave frequency control. |
| | Timing Control | Timing control function: Set time range 0h ~ 65536h. |
| Operation | Running command channel | Three channels: panel, terminal, communication port .It can be switched by kinds of ways. |
| | Frequency Source | A total of 10 kinds of frequency sources: digital, analog voltage, analog current, pulse, serial port. It can be switched by kinds of ways. |
| | Auxiliary frequency source | A total of 10 kinds of auxiliary frequency source. Flexible to achieve the auxiliary frequency tuning and compound. |
| | Input terminal | Five digital input terminals, in which one can be used as a high-speed pulse input with the maximum input frequency up to 100KHz,(Expandable to 10)can be compatible with active PNP or NPN input.<br>Two analog input terminals: one only can be used as voltage input and another one can be used for voltage or current input. (One voltage input terminal can be extended). |
| | Output terminal | One high-speed pulse output terminals (you can select as open collector type), 0 KHz ~ 100KHz square-wave signal output; can realize logistics output such as setting frequency, output frequency.<br>One digital output terminal (Can expand to 2).<br>One relay output terminal (Can expand to 2) .<br>One analog output terminal (Can expand to 2), can respectively choose 0mA ~ 20mA or 0V ~ 10V, and can realize output of physical quantities like setting frequency, output frequency. |
| | Virtual IO | 5 virtual DI, 5 virtual DO. |
| Display and keypad operation | LED display | Display parameters. |
| | Parameters Copy | Optional LCD panel can quickly copy parameters. |
| | Key lock and function selection | Achieve locking of some or all of the keys and define the function range of partial keys to prevent misoperation. |
| | Protection | Detecting motor's short circuit after power on, protection of input and output phase loss, over current protection, overvoltage protection, less voltage protection, thermal protection, overload protection etc. |
| | Optional components | Multi-function input and output expanding card, brake components, communication cards, PG card, user-programmable cards etc. |
| Environment | Using place | Indoor, without direct sunlight, dust, flammable and causticity gas, flammability gas, oil fog, vapor, and drip or salt etc. |
| | Altitude | <1000m |
| | Temperature | -10℃~+40℃（Please lower KW using when the temperature in 40℃~50℃） |
| | Humidity | < 95%RH without dew |
| | Vibration | <5.9m/s$^2$（0.6g） |
| | Storage temperature | -20℃~ +60℃ |

## 12 Typical Wiring Diagram




AZTEC Three phase 380V~690V inverter diagram




AZTEC Single/Three phase 220V/380V inverter diagram

# 13 Industry Selection Table

| Application Industries | Application Equipment | Model | Feature |
|---|---|---|---|
| Standard products series | AZTEC-S series: Vector control inverter for servo<br>AZTEC-T series: Torque control frequency inverter<br>AZTEC-G1E/G3E: Economy vector control inverter for general Use<br>Voltage range: 220V/380V/480V/690V. | | AZTEC-L series : Vector control inverter for lift<br>AZTEC-G series: Vector control frequency inverter for general use<br>AZTEC-P series : Vector control frequency inverter for fan or pump<br>Power range: 0.4~630KW。 |
| Stone, brick and wood | Brick molding machine | AZTEC-G series | Energy saving, big torque quickly move up and down. |
| | Stone sawing machine | AZTEC-G series | Torque current control uniform cutting and big torque with low speed. |
| | Rotary cutter/Skiving machine | AZTEC-G series | Start and stop quickly, built-in crafts control. |
| | Wood planing machine | AZTEC-G series | Steady speed with high accuracy and big torque, high yield of production ratio. |
| Plastics processing / Extrusion processing | Injection molding machine (Asynchronous motor) | AZTEC-G series | Standard inverter cabinet with injection molding signal card. |
| | Injection molding machine (Asynchronous motor) | AZTEC-G series | Energy saving cabinet built in inverter and bypass. |
| | Injection molding machine (Asynchronous motor) | AZTEC-G series | Built in charging function to support mode of contract saving energy. |
| | Injection molding machine (Synchronous servo) | AZTEC-S series | High efficient and energy-saving double closed loops of pressure and flow. |
| | Extruder | AZTEC-G series | Extrusion force is big, Avoid tripping, uniform extruding flow. |
| | Die-casting machine | AZTEC-G series | Quickly and strong force output, Multiple pumps have good synchronization performance. |
| | Blowing machine | AZTEC-G series | High energy-saving rate, with conversion of inverter and grid power. |
| **Textile industry** | Circular knitting machines | AZTEC-G series | high starting torque, adapt to wide voltage fluctuation. |
| | Spinning frame(protective) | AZTEC-G series | Airtight structure can avoid air duct blocked, Wobble function. |
| | Spinning frame(technical) | AZTEC-G series | built in working records and techniques' curve. |
| | Draw Texturing Machine | AZTEC-G series | Built-in closed loop, realized high precision synchronous. |
| | Doffer | AZTEC-G series | Fixed-length function. |
| | Reeling machine | AZTEC-G series | Realized permanent magnet synchronous motor open loop control. |
| **Machine tool** | Carves-milling machine / Drilling machine | AZTEC-G series | 3000Hz |
| | Open-loop spindle | AZTEC-G series | Big cutting forces, steady speed and high precision. |
| | Closed-loop spindle | AZTEC-T series | Can realize multi-point positioning. |
| | Grinder | AZTEC-G series | Can stable operation at high speed. |
| | High speed communication drive | AZTEC-G series | Terminal RS485 support 500k communication rate. |
| **Metal processing** | Double variable frequency wire-drawing machine | AZTEC-G series | Two drives be used cooperatively, one drive for drawing and another for winding up. |
| | Straight wire-drawing machine | AZTEC-G/T series | Tensile control is smoothly and processing, both solution are workable, with or without oscillating bar. |
| | Tiny wire-drawing machine | AZTEC-G series | Drawing 0.001 mm filaments is available. |
| | Power line frame | AZTEC-G series | Synchronous working. |
| | Motor alternative torque winding up | AZTEC-T series | Widely use, Pioneering open-loop tension control. |
| | Steel bar cutting machine | AZTEC-T series | Fixed-length cutting with high accuracy. |
| | Cold-rolling mill | AZTEC-T series | Good synchronous performance, adjusting speed conveniently and response of torque is fast. |
| Fan/Water Pump/ Air-condition / Air compressor | Fan | AZTEC-P series | Support built-in Speed tracking card. |
| | Water supply(drive one motor) | AZTEC-P series | Built -in Pressure closed loop and dormancy awakening, protection function of over pressure. |
| | Water supply(drive many motors) | AZTEC-P series | Built -in extension water supply card, realized one drive for multiple pumps with clock function. |
| | Central air-conditioner /Refrigerator | AZTEC-G series | Realized thermostatic control, high Energy-saving rate. |
| | Matching with new air compressor | AZTEC-G series | Small volume and high efficiency, frequency inverter and air compressor be used cooperatively. |
| | Air compressor reforming | AZTEC-G series | Energy-saving and high efficiency specialized all-in-one inverter support, extensible air compressor controller. |
| | Automotive air conditioning | AZTEC-G series | For logic control of built-in air compressor. |



| Application Industries | Application Equipment | Model | Feature |
|---|---|---|---|
| Printing and Packaging Machine | Splitting machine/ Laminating machine | AZTEC-T series | Itself roll diameter calculation replaces PLC, multipoint synchronous transmission. |
| | Coiler for trimmings / Rewinding machine | AZTEC-G series | Have wire breakage alarm, automatic shutdown, rocker, floating roller once in place. |
| | Plastic blow molding machine | AZTEC-G series | Super performance of fast acceleration and deceleration, ensure product consistency. |
| | Creasing machine / Coating machine | AZTEC-T series | 30g ultra-thin paper is workable, closed loop torque control. |
| | Leather machine | AZTEC-T series | Open loop torque control, speed control and torque control switching smoothly. |
| | Nets weaving machine | AZTEC-T series | Open loop torque control to knit nets thin wire. |
| | Paper machinery | AZTEC-T series | Bus control the actuator, multipoint drive. |
| | Corrugated paper cutter | AZTEC-T series | Super fast frequency response command, fast cutting speed , big torque power, and high accuracy. |
| | Anilox printing machine | AZTEC-G series | Reciprocating acceleration and deceleration used short time, precise positioning. |
| | Material receiving machine | AZTEC-G series | High Stability torque control mode makes stable rewinding. |
| Lifting equipment | Mine winch | AZTEC-G series | Stable and reliable operation, with mechanical brake to realize halfway stop and start. |
| | Running hook | AZTEC-T series | Low, medium and high multi-speed lifting and falling, do not slip the hook, can share common DC bus. |
| | Gantry | AZTEC-G series | Compatible with YASKAWA independent protocol. |
| | Ship machines / Cranes | AZTEC-G series | Wide operating voltage, low-voltage power shake can work continuously, strong environmental adaptability. |
| | Belt transport | AZTEC-G series | Multi-speed synchronous transmission performance is good; low-speed with large torque has heavy load capacity. |
| | Building Lifts | AZTEC-G series | Large lifting torque, energy-saving. |
| | Port lifting | AZTEC-L series | Port dedicated lifting capability, provide integrated power control cabinet. |
| Oil field | Pumping unit | AZTEC-G/T series | Built-in power-saving mode, the voltage and current limit functions. |
| | Oil transfer pump/Sand pump | AZTEC-G series | Zero-frequency hysteresis function can automatically start and stop according to working conditions. |
| | Pump integrated digital control cabinet | AZTEC-G series | Constant temperature outdoor cabinet with USB data storage and lines transfer capabilities. |
| Industrial power source and external power supply equipments | Standalone EPS | AZTEC-G series | Short-circuit protection is reliable, automatic reset operation, 50Hz output can directly connect with motor. |
| | System EPS | AZTEC-G series | Mature system solutions, 3ms synchronous tracking mains supply. |
| | FM Voltage Controlled Power Source | AZTEC-G series | 220V/380V series, independently adjustable output voltage and frequency. |
| Other applications | Industrial washing machine | AZTEC-G series | Many brands supporting, large power washing, high speed dehydration stable. |
| | Centrifuge | AZTEC-G series | Large torque, fast acceleration and deceleration, applicable in harsh environments. |
| | Musical Fountain | AZTEC-G series | Large starting torque, current limit function, do not trip. |
| | Ceramic machinery | AZTEC-G series | Stable and reliable operation, anti-corrosion treatment. |
| | Mechanical vibrator | AZTEC-G series | Fast acceleration and deceleration performance, excellent feature for motor forward and reverse control. |
| | Pipe machine | AZTEC-G series | Multi-speed running, "bulldozer" feature. |
| | Electric door | AZTEC-G series | Built-in electric door positioning reaches self check program, the position-limit signal failure still automatically shut down. |
| | Belt scale | AZTEC-G series | Built-in weight flow calculator, which can dispense speed sensor and flow meter. |
| | Hammers/Tamping machine | AZTEC-G series | high efficiency energy-saving, large torque output, convenient change speed. |
| | Ball mill/Grinding machine | AZTEC-G series | Multi-segments speed running, can timing and large starting torque. |
| | Blender | AZTEC-G series | "bulldozer" feature to avoid trip , power module reliable control and protection . |
| | Treadmill | AZTEC-G series | Run speed steady with high precision, without anesthesia feet: strong load capacity. |
| | Torque drive | AZTEC-T series | torque control after the speed reaches the target output torque setting. |
| | Escalator | AZTEC-G series | Two-way infrared sensor activated, automatic switching variable speed saving energy mode. |

# 14 Optional Parts

| Description |
|---|
| Differential PG card:<br>1 External, 5V power supply.<br>2 Support A, B, Z three differ2 ential inputs, wherein A, B, input signals up to 500kH.<br>3 Differential frequency output (1:1 divider output differential signal).<br>4 Encoder interface is terminal. |
| UVW differential PG card:<br>1. External 5V power supply.<br>2. Supports A, B, Z, U, V, W six differential input signals, wherein A, B input signals up to 500kHz.<br>3. DB15 interface.<br>4. No differential frequency output. |
| Resolver transformer card:<br>1. 10kHz, 7V Rms excitation output.<br>2. Resolution: 12bit<br>3. DB9 interface.<br>4. No differential frequency output. |
| Open Collector PG card:<br>1 .External 15V power supply.<br>2 Supports A, B, Z three-way open collector input, wherein A, B two input signals up to 100 kHz.<br>3 Differential frequency output (1:1 divider output differential signal). |
| Differential PG card:<br>1 External, 5V power supply.<br>2 Support A, B, Z three differ2 ential inputs, wherein A, B, input signals up to 500kH.<br>3 Differential frequency output (1:1 divider output differential signal).<br>4 Encoder interface is DB9 |
| IO expansion card and communication functions:<br>1. 1 channel isolation of analog input AI3, support ± 10V input.<br>2. DI x 5, DO x 1, RELAY x 1, AO x 1.<br>3. 4KW and above power optional. |
| PROFIBUS-DP communication card:<br>1. 4KW and above power optional. |
| User-programmable control card:<br>1. 1 channel isolation of analog input AI3 interface, input ± 10V, ± 20mA.<br>2. Control board matched with standard RS485 communication interface.<br>3. Common IO Interface:. DI x 5, RELAY x 2, AO x 1.<br>4. 4KW and above power optional. |
| Isolation 485 adapter card. |
| External LCD display and keypad, enabling copy parameter . |



# 15 Brake Components Prototyping

## Brake Components Selection Guide

The following table is to know the data, the user can select resistor's different resistance and power based on the actual situation, (the resistance must not be less than the recommended value in the table, and the resistor's power can enlarge.) Braking resistor selection according to the actual application of electrical power to determine, it has a relationship with the system inertia, acceleration time, energy and other potential loads, customers need to choose according to the actual situation. The greater the inertia of the system, the shorter the time required deceleration, the more frequently need to brake, the greater power of the braking resistor and the required resistance is smaller.

Resistance selection:

Braking, regenerative energy of the motor is almost completely consumed in the braking resistors. According to the formula: U * U / R-Pb.

- U of Formula --- braking voltage of stable braking system (different systems are different, for 380VAC system generally taking 700VDC).
- Pb --- Power of braking.

## Calculation of braking resistor's power

Theoretically, power of braking resistor is consistent with braking power; taking into account the drop to 70%. According to the formula: 0.7 * Pr = Pb * D.

- Pr --- Power of resistor
- D --- braking frequency (representing regeneration proportions during the entire work process)

Elevator: 20% ~ 30%
Uncoiling and take roll: 20% ~ 30%
Centrifuge: 50% ~ 60%
Occasionally braking load: 5%
Generally:10%

AZTEC inverter braking components selection table (with G type, for

| Model | Braking resistor power | Braking resistors resistance value | Braking unit | Note |
|---|---|---|---|---|
| AZTEC-G1-d75 | 80W | ≥150Ω | Optional built-in | Add the letter "B" at the end of model. |
| AZTEC-G1-1d5 | 100W | ≥100Ω | | |
| AZTEC-G1-2d2 | 100W | ≥70Ω | | |
| AZTEC-G3-d75 | 150W | ≥300Ω | | |
| AZTEC-G3-1d5 | 150W | ≥220Ω | | |
| AZTEC-G3-2d2 | 250W | ≥200Ω | | |
| AZTEC-G3-004 | 300W | ≥130Ω | | |
| AZTEC-G3-5d5 | 400W | ≥95Ω | | |
| AZTEC-G3-7d5 | 500W | ≥65Ω | | |
| AZTEC-G3-011 | 800W | ≥43Ω | | |
| AZTEC-G3-015 | 1000W | ≥32Ω | | |
| AZTEC-G3-018 | 1300W | ≥25Ω | | |
| AZTEC-G3-022 | 1500W | ≥22Ω | | |
| AZTEC-G3-030 | 2500W | ≥16Ω | | |
| AZTEC-G3-037 | 3.7kW | ≥16Ω | | |
| AZTEC-G3-045 | 4.5kW | ≥12Ω | | |
| AZTEC-G3-055 | 5.5kW | ≥12Ω | | |
| AZTEC-G3-075 | 7.5kW | ≥8.0Ω | | |
| AZTEC-G3-090 | 9.0kW | ≥8.0Ω | External optional | |
| AZTEC-G3-110 | 5.5kW×2 | ≥12Ω×2 | | |
| AZTEC-G3-132 | 6.5kW×2 | ≥8Ω×2 | | |
| AZTEC-G3-160 | 16kW | ≥2.5Ω | | |
| AZTEC-G3-200 | 20kW | ≥2.5Ω | | |
| AZTEC-G3-220 | 22kW | ≥2.5Ω | | |
| AZTEC-G3-250 | 12.5kW×2 | ≥2.5Ω×2 | | |
| AZTEC-G3-280 | 14kW×2 | ≥2.5Ω×2 | | |
| AZTEC-G3-315 | 16kW×2 | ≥2.5Ω×2 | | |
| AZTEC-G3-355 | 17kW×2 | ≥2.5Ω×2 | | |
| AZTEC-G3-400 | 20kW×2 | ≥2.5Ω×2 | | |

Note: "x2" represents two brake units with their own braking resistor in parallel connection.