奥托科技
CHANGSHA ATA AUTOMATION CO., LTD.

ATA QBMV Series

Medium-Voltage Variable Frequency Drive

PRODUCT MANUAL

Dedicated to Motor Drive and Control

Corporate Culture

Vision

To be a leader in motor drive and control

Mission

Inherit the military gene, create first-class products, and make national contributions

Values

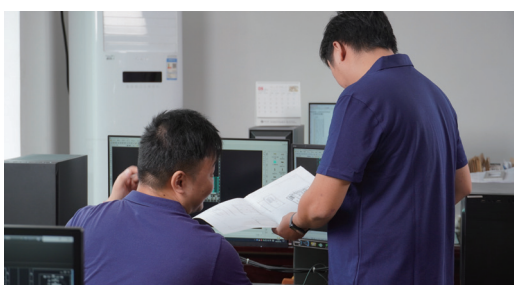
Integrity, unity, creativity, risk taking

CONTENTS

Company Profile

Changsha ATA Automation Co., Ltd. is a national “Little Giant” enterprise specialized in the R&D, production, and sales of soft starters, variable frequency drives (VFDs), and intelligent motor control solutions. We have consistently focused on the development of motor drive and control products and the provision of complete solutions, establishing in-depth cooperation with over 1,000 large-scale enterprises.

A highly experienced R&D team has independently established the Changsha Medium/High Voltage High-Power Variable Frequency Soft-Start Technology Innovation Center and the Hunan Provincial Enterprise Technology Center, fostering deep exchanges with global researchers and experts to ensure product reliability.



With over 80 patents, more than 20 software copyrights, and participation in numerous national standard formulations, we have achieved key technological breakthroughs—including series voltage equalization, medium-low voltage isolation, large-margin long-life multi-level redundancy, flying start, three-phase digital phase-locked loop algorithms, high-power seamless switching, and reliable thyristor/IGBT drive and magnetic triggering.
Our medium-voltage soft starters (⩾ 28,000 kW) and variable-frequency soft starters (⩾ 16,000 kVA) have been successfully deployed in major projects, positioning us as an industry leader and trusted partner.

The company's flagship products include low-voltage soft starters, medium-voltage soft starters, low-voltage variable frequency drives, medium-voltage variable frequency drives, medium-voltage variable frequency soft starters, and motor intelligent drive controllers. These products are widely used across diverse industrial sectors such as metallurgy, petroleum, chemicals, machinery, shipbuilding, oil fields, mining, papermaking, cement, fire protection, power generation, coal mining, and wastewater treatment.

We have been successfully applied in major domestic and international enterprises and national key projects, including PetroChina, Sinopec, CNOOC, Ansteel Group, Shougang Group, and Messer Group. The company has earned consistent praise from customers for its superior product quality and reliable after-sales service. The products are exported to countries including Saudi Arabia,Oman, Indonesia,Malaysia,Vietnam, Russia, Democratic Republic of the Congo, Zambia, Georgia and Brazil etc, enjoying a strong international reputation.

Certifications

Since 1998 – Driving & Protecting Industrial Power Systems

- ISO 9001 Quality Management System Certification
- ISO 14001 Environmental Management System Certification
- ISO 45001 Occupational Health and Safety Management System Certification
- Intellectual Property Management System Certification
- CCC Certification
- CE Certification
- EAC Certification

Product Description

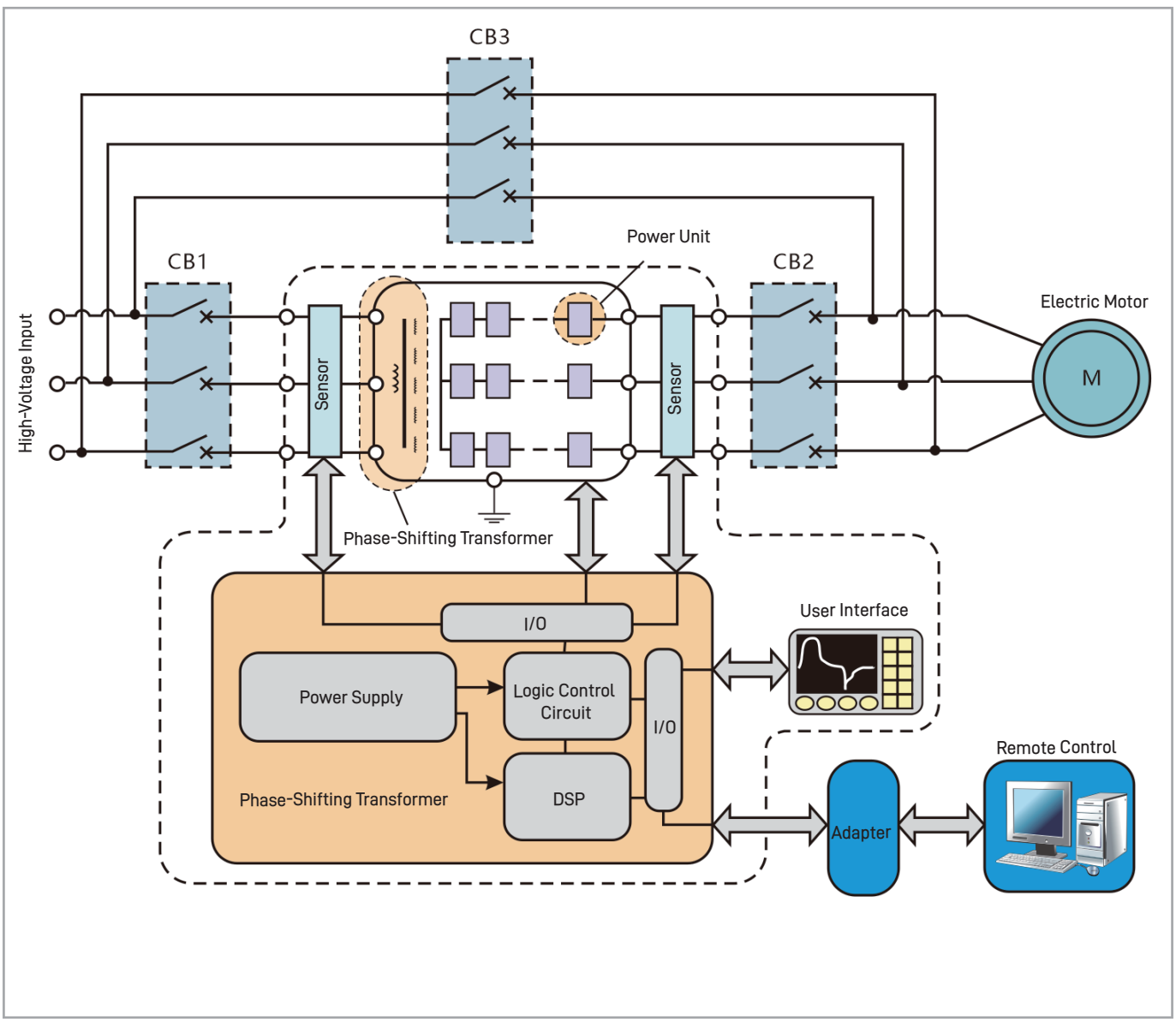
The ATA QBMV medium-voltage VFD is an IGBT-based medium-voltage VFD that integrates world-leading power electronics technology. It adopts SPWM (Sinusoidal PWM) control technology to realize variable frequency speed control of medium-voltage motors. It aims to improve the performance of medium-voltage motors during variable-speed operation, enhance the control level of medium-voltage equipment as well as the power factor and operating efficiency of the equipment, meet process control requirements, reduce motor energy consumption, and achieve energy conservation and environmental protection.

ATA QBMV SeriesMedium-Voltage VFDs

- Multi-core control platform enhances
- Wider voltage operating range
- No pollution to the power grid
- Safe, stable and reliable

System Block Diagram

The ATA QBMV medium-voltage VFD is a voltage-source, high-to-high structure AC VFD. It adopts a unit-series connection method and uses the phase-shifting superposition principle to generate a perfect sine wave. It directly outputs a voltage of 0~6/10kV, without the need for any output boosting device, and can directly drive standard motors.

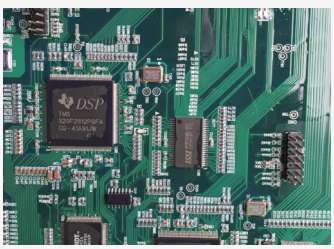


Note Optional Accessory

ATA QBMV Medium-Voltage VFD System Block Diagram

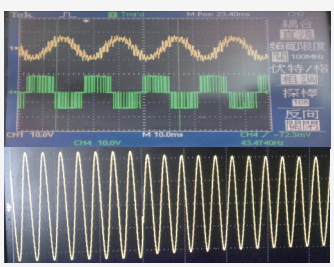
Product Features

01



ATA QBMV Medium Voltage VFD adopts a multi-core control platform, significantly boosting overall system performance.
·DSP+FPGA+ARM microcontroller architecture separates logic control and algorithm control
· BGA-packaged core CPU reduces size & power consumption, enhances stability
·150MHz DSP (150MIPS) enables high-precision, high-speed operation & powerful data processing

02



ATA QBMV Medium Voltage VFD uses SPWM control + phase-shifting transformer multi-winding secondary design to suppress harmonics, delivering near-perfect sine wave output.
• No additional harmonic filters or power compensation devices required
• Eliminates harmonic-induced pulsating torque, prevents load resonance, extends service life
• Protects main motor & cable insulation from dv/dt stress damage
• Motors are immune to common-mode voltage interference
• Unlimited motor cable length within allowable voltage drop range
• Zero pollution to the power grid

03

ATA QBMV Medium Voltage VFD inherits the proven reliability of the ATAQB series, featuring a dedicated high-performance bypass protection system for medium voltage applications.
• Redundant design for ultra-high reliability
• Integrated dry-type isolation transformer input for easy installation & enhanced stability
• Dual redundant power supply for main control system ensures system safety
• Optional bypass function improves system availability
• Fiber-optic control signal transmission for strong anti-interference capability
•Multi-level protection & graded fault pre-alarm mechanisms guarantee safe, stable operation

04

ATA QBMV Medium Voltage VFD features a user-centric design for intuitive operation and seamless connectivity.
• Supports multiple mainstream communication protocols (Modbus, Profibus, DeviceNet, InterBus, etc.)
• Equipped with large color touchscreen (with keypad backup), optimized menu & built-in help files for easy operation
• Integrated fault diagnosis function enables real-time/historical fault & event viewing for quick troubleshooting

05 **Exclusive Dual-Core Controller Design**

Features exclusive dual-core controller design for enhanced system reliability; main control chips exchange data via dual-port RAM, delivering faster operation speed and stronger immunity to interference.

06 **Easy Commissioning**

Supports low-voltage, no-high-voltage commissioning via a dedicated unit debug power interface; only control power is required for startup, logic checks, and waveform viewing to greatly simplify the process.

07 **Wider Voltage Operating Range**

Delivers full-load output for grid voltage fluctuations within +10% of rated value; maintains derated operation without tripping even when grid voltage momentarily drops to 65% of rated.

08 **Reliable Redundant Control Power Supply**

Features redundant dual control power supplies: on-site AC220V and custom transformer output, with zero switching delay for seamless hot backup.

09 **Industrial Environment-Optimized Design**

Equipped with 8-layer control PCBs and 4-layer power module PCBs for reliable operation in harsh environments; all boards receive 3-layer conformal coating for effective moisture and dust protection.

10 **Vector Control Technology**

Measures and controls AC motor stator current vectors via field orientation principle, independently regulating excitation and torque currents for high starting torque, fast response, and strong load capability. Automatically compensates for stator resistance voltage drop and slip frequency to prevent low-frequency oscillation, adapting to varying loads.

11 **Momentary Power Loss Ride-Through Function**

Maintains powered operation for power failures within 300ms; tracks motor speed and residual voltage, sustaining DC bus voltage above the shutdown threshold for failures up to 5s, ensuring smooth restart and recovery after power restoration.

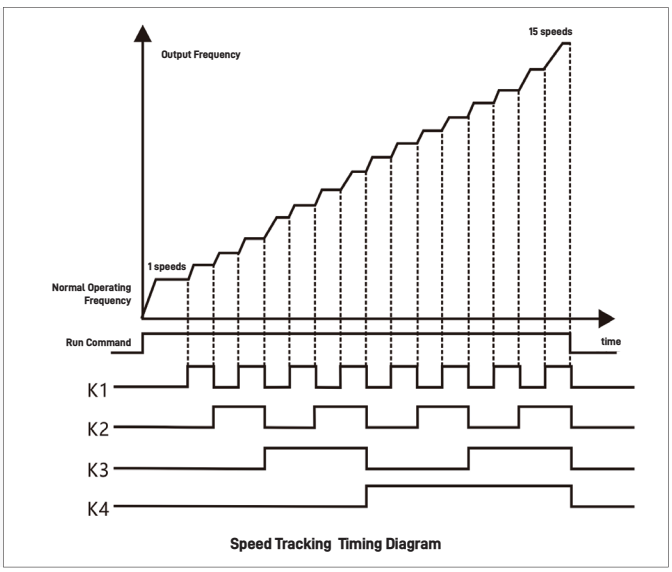
12 **Seamless, Shock-Free Switching**

Enables inverter-to-grid switching by bringing the motor to grid frequency, matching grid parameters, connecting the grid, and disconnecting the inverter. For grid-to-inverter switching, detects grid parameters and directly outputs the corresponding voltage vector to the motor post-switch.

Functional Description

A： Multi-Speed Operation

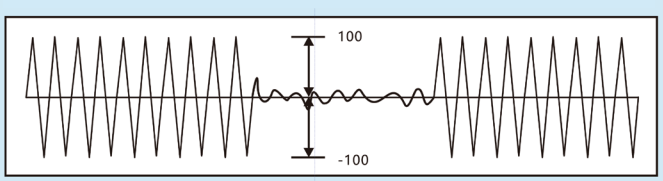
The drive can operate along a user-defined multi-segment speed profile, supporting up to 16 speed segments. The acceleration/deceleration slope between any two adjacent segments is independently configurable to meet specific process requirements.



Speed Tracking Timing Diagram

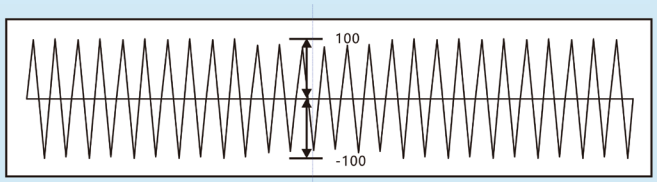
B： Momentary Power Loss Ride-Through Function

U-Phase Current (%)

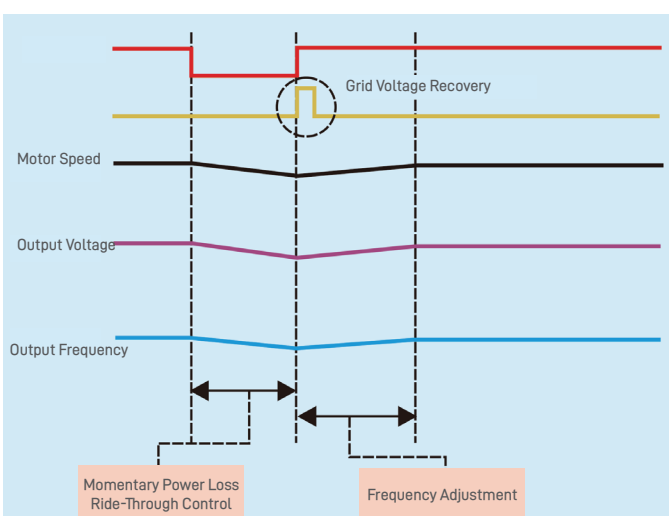


In the event of a momentary power interruption, the drive will not shut down.
For interruptions within 300 ms, the VFD can continue to power the motor and maintain operation without stopping.

AC Output Voltage (%)



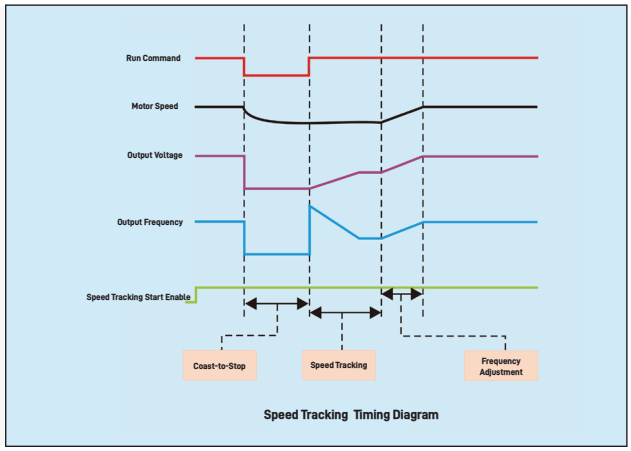
In the event of a momentary voltage dip or power interruption (within 5 seconds), the drive is designed to continue operation without shutdown.
Upon restoration of the power supply voltage, the system will immediately re-accelerate and return to its previous operating state.



Timing Diagram for Momentary Power Loss Ride-Through

C: Speed Tracking Function

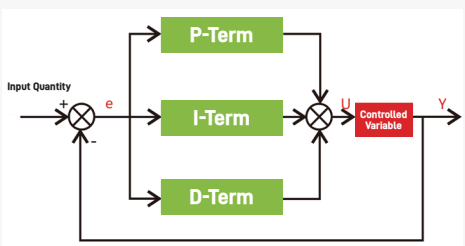
Also known as the "Flying Start" function. Regardless of whether the load is in motion or stationary, the drive accurately calculates the current state of the load before output and automatically generates a power frequency that matches the load's present speed, enabling smooth and shock-free startup and operation.

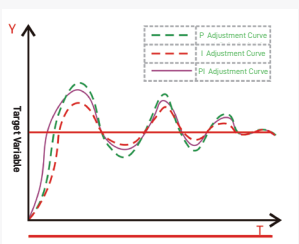


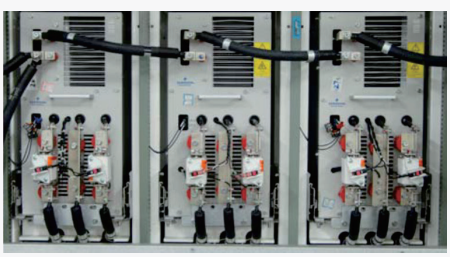
Speed Tracking Timing Diagram

D: Built-in PID Controller

A PID controller is reserved in the drive. The PID parameters are configurable. PID control operates by performing proportional, integral, and derivative calculations on the deviation between the feedback signal of the controlled variable and the target signal, thereby adjusting the output frequency of the drive to form a closed-loop feedback system that stabilizes the controlled variable at the target value. It is suitable for process control applications such as flow control, pressure control, and temperature control.

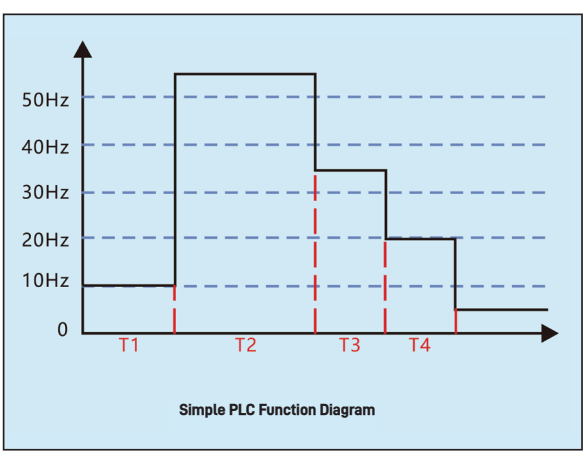






E: Simple PLC Function

The drive's output can switch operating frequency bands based on received commands. The acceleration/deceleration rates during transitions between each frequency band are configurable. The simple PLC primarily enables the combination of segmented speeds with timing functions. In certain application scenarios where process requirements necessitate different speeds at different time intervals, the simple PLC addresses these needs, supporting the configuration of up to 16 speed segments.



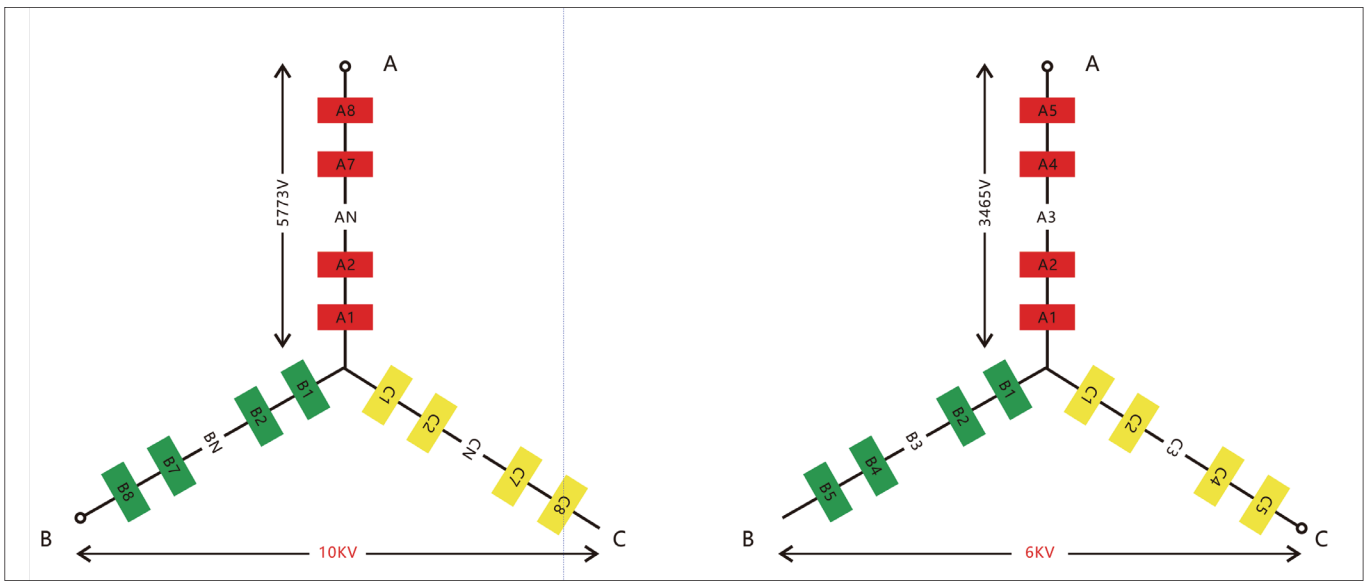
Simple PLC Function Diagram

F: Automatic Parameter Tuning

This feature is designed to enhance production efficiency and simplify on-site commissioning. When the detected parameters—such as system input AC voltage, module AC input voltage, power cell DC bus voltage, system output line current, and system output line voltage—do not meet the specified accuracy requirements, the actual values measured by test instruments can be entered via the local HMI interface or through background commissioning software. The drive will then automatically calibrate its sensing circuits to restore detection accuracy to within specification limits.

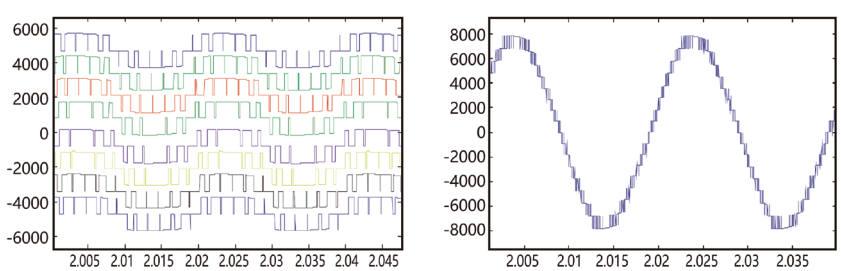
Circuit Topology

ATA QBMV Medium-Voltage Variable Frequency Drive adopts a multi-cell cascaded topology. Each power cell is fed by a dedicated secondary winding of a phase-shifting transformer. These cells are connected in series, with two cascaded stages connected head-to-tail to ultimately form a Y-connected (wye) configuration, synthesizing a combined output of 6 kV / 10 kV.

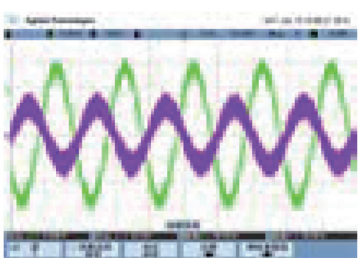


For the 6kV voltage class, each phase consists of 5 cascaded power cells.

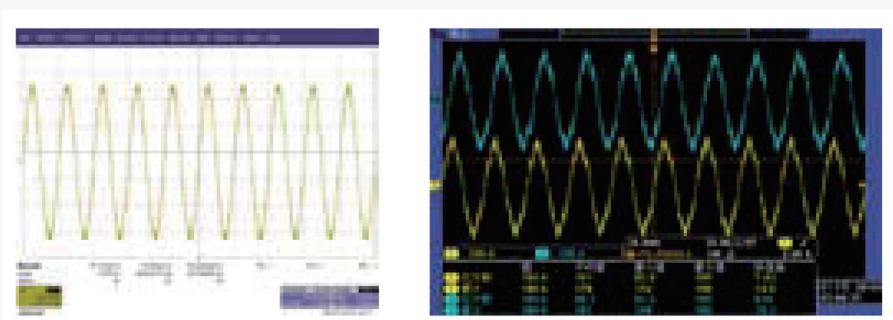
For the 10kV voltage class, each phase consists of 8 cascaded power cells.



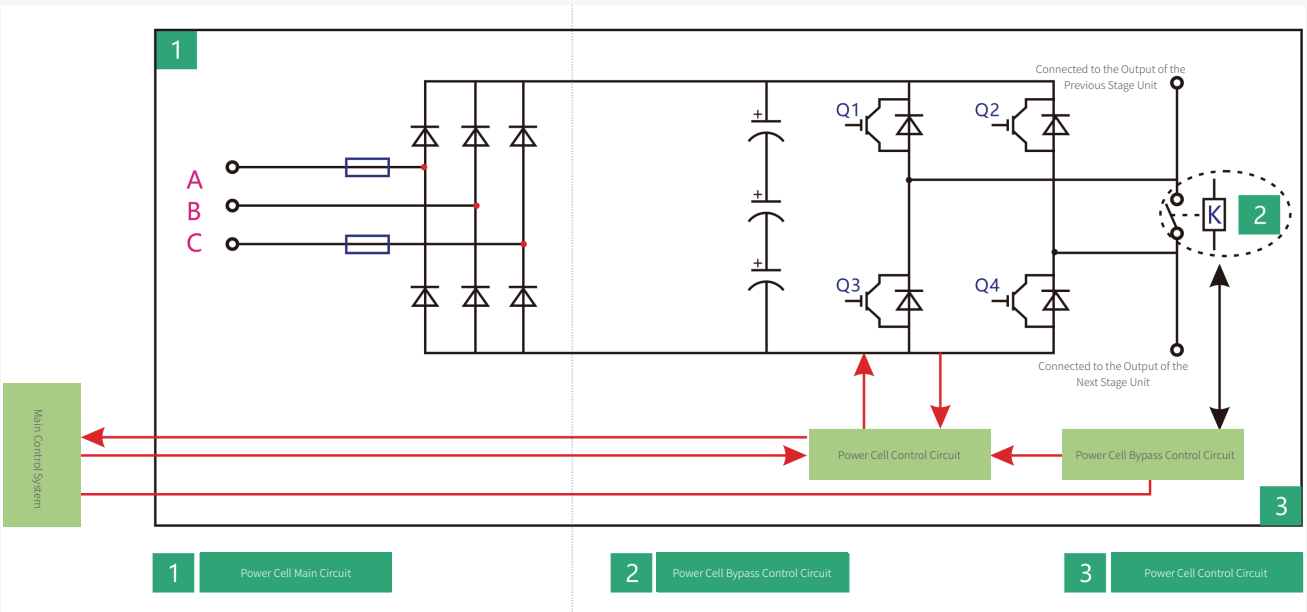
Output Voltage (Synthesized) Waveform



Output Voltage (Measured) Waveform



Input Voltage/Current Waveforms



Mechanical Power Cell Bypass Function (Optional)

Normal Operation

During normal operation, the unit terminals are connected, and relay K is in the open state as shown in the diagram.

Fault Condition

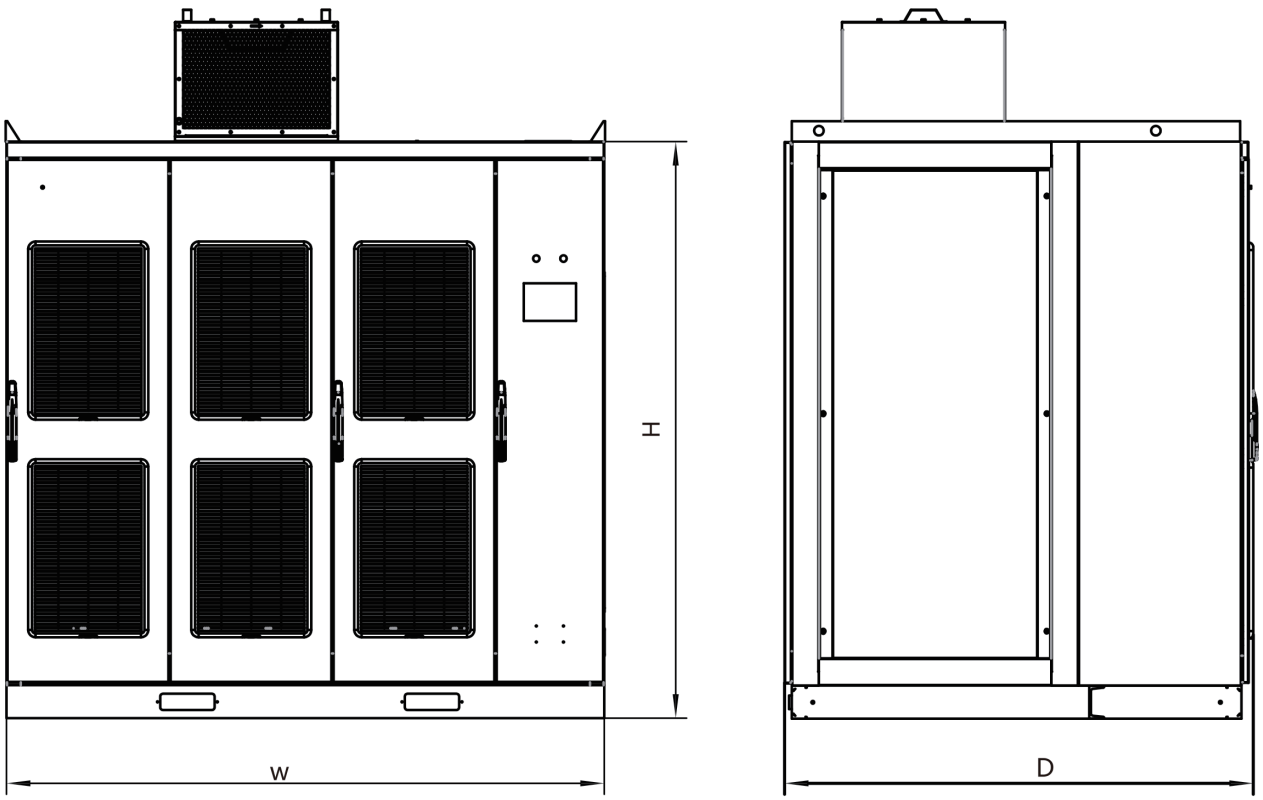
When a unit fails, the main control system automatically detects the fault based on real-time data acquisition and triggers the bypass relay K for the faulty unit. Relay K closes, disconnecting the unit from the circuit, and the energy flow is redirected through a short-circuit loop directly to the next unit. It should be noted that after a unit is bypassed, the system must operate in a derated mode.

The unit bypass action occurs within milliseconds, ensuring minimal system disturbance and uninterrupted operation.

Standard Feature

The system comes standard with electronic power unit bypass functionality and incorporates neutral-point shift technology to maintain balanced output line voltages, maximizing voltage utilization efficiency.

Model Description and Dimensions



VFD External Dimension Diagram

Model Explanation

ATA QBMV - X XXXX- XX/XX X - X

Medium- Voltage Variable Frequency Drives

Product Series Designation

G：General Purpose (Two-Quadrant High-Voltage VFD)
E：Energy Regenerative (Four-Quadrant High-Voltage VFD)

Capacity Ratings

Input Voltage

Output Voltage

03：3kV
06：6kV
10：10kV

B：Standard Type

Mechanical Power Cell Bypass
N：Without Power Cell Bypass Function
Y：With Power Cell Bypass Function

Specifications, Models & Dimensions Summary

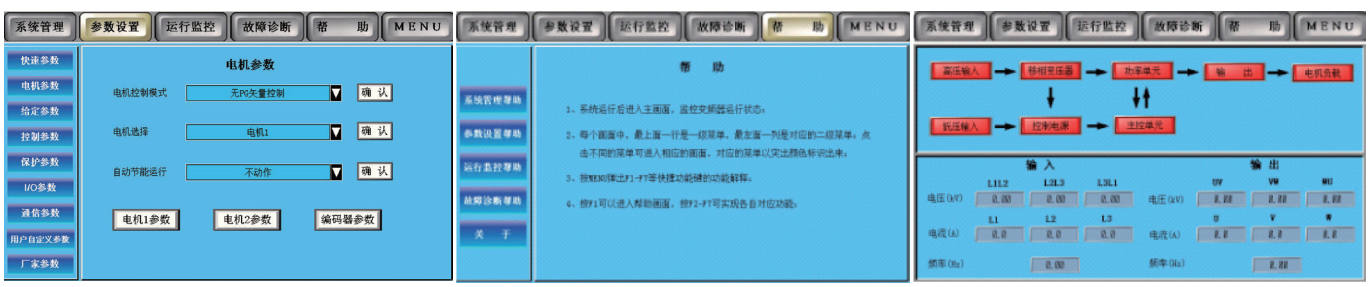
Note:

1.Dimensions and weights are for reference only. Refer to the actual product.
2.Dimensions are for the inverter body only, excluding I/O and bypass cabinets.
3.Contact us for detailed cabinet dimension drawings.
4.This manual is updated regularly due to product upgrades. Always use the latest manual for purchasing.
5.For more information, consult Otto Technology technical staff or visit our website.

General-Purpose Variable Frequency Drive-Without Cabinet Top Fan (6kV)					
Model	Rated Capacity (kVA)	Rated Output Current (RMS, A))	Matched Motor Power (kW)	Gross Weight (Unpacked) (kg)	Dimensions (W × D × H, mm)
ATA QBMV-G0280-06/06B	280	26.4A	220	1990~2500	1750×1500×1900
ATA QBMV-G0315-06/06B	315	30A	250		
ATA QBMV-G0350-06/06B	350	33.6A	280		
ATA QBMV-G0400-06/06B	400	37.8A	315		
ATA QBMV-G0450-06/06B	450	42.6A	355		
ATA QBMV-G0500-06/06B	500	48A	400		
ATA QBMV-G0560-06/06B	560	54A	450		
ATA QBMV-G0630-06/06B	630	60A	500		
ATA QBMV-G0700-06/06B	700	67.2A	560		
ATA QBMV-G0790-06/06B	790	75.6A	630		
ATA QBMV-G0890-06/06B	890	85.2A	710	2400	1900×1500×1900
ATA QBMV-G1000-06/06B	1000	96A	800		
ATA QBMV-G1125-06/06B	1125	108A	900	3400~3600	2000×1700×2120
ATA QBMV-G1250-06/06B	1250	120A	1000		
ATA QBMV-G1400-06/06B	1400	134A	1120		
ATA QBMV-G1560-06/06B	1560	150A	1250	4750~5650	(2400+600) ×1700×2200
ATA QBMV-G1750-06/06B	1750	168A	1400		
ATA QBMV-G2000-06/06B	2000	192A	1600		
ATA QBMV-G2250-06/06B	2250	216A	1800		
ATA QBMV-G2500-06/06B	2500	240A	2000	6900~7300	3500×1700×2420
ATA QBMV-G2800-06/06B	2800	270A	2240		
ATA QBMV-G3125-06/06B	3125	300A	2500		
ATA QBMV-G3500-06/06B	3500	336A	2800		
ATA QBMV-G3550-06/06B	3550	340A	3000	11750~11800	5850×1700×2420
ATA QBMV-G3850-06/06B	3850	370A	3250		
ATA QBMV-G4200-06/06B	4200	400A	3500		
ATA QBMV-G4470-06/06B	4470	430A	3800		
ATA QBMV-G4800-06/06B	4800	460A	4000		
ATA QBMV-G5110-06/06B	5110	492A	4350	12950~13600	6450×1700×2620
ATA QBMV-G5400-06/06B	5400	520A	4600		
ATA QBMV-G5700-06/06B	5700	550A	4800		
ATA QBMV-G6030-06/06B	6030	580A	5100		
ATA QBMV-G6340-06/06B	6340	610A	5400		

General-Purpose Variable Frequency Drive-Without Cabinet Top Fan (10kV)					
Model	Rated Capacity (kVA)	Rated Output Current (RMS, A))	Matched Motor Power (kW)	Gross Weight (Unpacked) (kg)	Dimensions (W × D × H, mm)
ATA QBMV-G0280-10/10B	280	15.9A	220	2030~3100	1750×1500×1900
ATA QBMV-G0315-10/10B	315	18A	250		
ATA QBMV-G0350-10/10B	350	20.2A	280		
ATA QBMV-G0400-10/10B	400	22.7A	315		
ATA QBMV-G0450-10/10B	450	25.6A	355		
ATA QBMV-G0500-10/10B	500	28.9A	400		
ATA QBMV-G0560-10/10B	560	32.5A	450		
ATA QBMV-G0630-10/10B	630	36A	500		
ATA QBMV-G0700-10/10B	700	40.4A	560		
ATA QBMV-G0790-10/10B	790	45.5A	630		
ATA QBMV-G0890-10/10B	890	51.3A	710		
ATA QBMV-G1000-10/10B	1000	57.7A	800		
ATA QBMV-G1125-10/10B	1125	65A	900		
ATA QBMV-G1250-10/10B	1250	72.2A	1000		
ATA QBMV-G1400-10/10B	1400	80.8A	1120	3300~3400	1900×1500×1900
ATA QBMV-G1560-10/10B	1560	90.2A	1250		
ATA QBMV-G1750-10/10B	1750	101A	1400		
ATA QBMV-G2000-10/10B	2000	115.5A	1600	4500~4800	2500×1700×2120
ATA QBMV-G2250-10/10B	2250	129.9A	1800		
ATA QBMV-G2500-10/10B	2500	144.3A	2000		
ATA QBMV-G2800-10/10B	2800	162A	2240	6600~8000	(2900+600) ×1700×2200
ATA QBMV-G3125-10/10B	3125	180A	2500		
ATA QBMV-G3500-10/10B	3500	202A	2800		
ATA QBMV-G3530-10/10B	3530	203.8A	3000		
ATA QBMV-G3850-10/10B	3850	220A	3250		
ATA QBMV-G4180-10/10B	4180	241A	3550	10900~12500	4400×1700×2420
ATA QBMV-G4235-10/10B	4235	244.5A	3600		
ATA QBMV-G4470-10/10B	4470	258A	3800		
ATA QBMV-G4800-10/10B	4800	271.7A	4000		
ATA QBMV-G4940-10/10B	4940	285A	4200		
ATA QBMV-G5290-10/10B	5290	305A	4500		
ATA QBMV-G5900-10/10B	5900	340A	5000	14000~16500	6200×1700×2620
ATA QBMV-G6400-10/10B	6400	370A	5400		
ATA QBMV-G6950-10/10B	6950	401A	5900	17600~20350	8100×1700×2620
ATA QBMV-G7470-10/10B	7470	431A	6350		
ATA QBMV-G8000-10/10B	8000	462A	6800		
ATA QBMV-G8500-10/10B	8500	490A	7200	21500~22800	8300×1700×2820
ATA QBMV-G9000-10/10B	9000	520A	7650		
ATA QBMV-G9500-10/10B	9500	550A	8000		
ATA QBMV-G10000-10/10B	10000	580A	8500		
ATA QBMV-G10500-10/10B	10500	610A	9000		

User-Friendly Interface



The operation interface utilizes a high-definition color LCD touchscreen with an aesthetically pleasing layout and well-structured menu hierarchy. The display language is Simplified Chinese, presenting event alarms, fault descriptions, operating parameters, function code names, and function parameter ranges. It also features a parameter copy function.

01 Shows a live system diagram with real-time input/output voltage and current values.

02 Displays system topology and detailed module status, including input voltage and DC bus voltage.

03 Indicates the installation and operational state of optional accessories, such as input, output, and bypass circuit breakers.

04 Provides on-screen Help and automated fault diagnosis capabilities.

Comprehensive Technical Specifications

Item		V/F Control	Sensorless Vector Control	Closed-loop VC Control
Output Power	Suitable Motor	Standard Three-Phase Induction Motor		
	Output Voltage (V)	Three-phase 0–10 kV under rated input conditions, error < 3% (with AVR enabled)	0–10 kV for closed-loop speed control	/
	Output Voltage Harmonic	Meets GB/T 14549-93 & IEEE 519-1992 standards, < 7% at rated output voltage		
	Max. Output Frequency (Hz)	120 Hz		
	System Efficiency	> 97% Rated input/output, ambient temperature 25 ° C, after thermal stabilization		
	Overload Capability	105% continuous, 130% for 1 min, 150% for 3 s (at 40 ° C, altitude ⩽ 1000 m)		
Input Power	Input Voltage	Rated three-phase 6 kV / 10 kV, allowed variation +5% to –5% Rated power available for voltage variation within ±10% Derating 0–25% for voltage between –10% and –35% Protection trip when voltage exceeds +15% to -35%		
	Input Voltage Quality	Voltage unbalance < 3%, THDu < 10%		
	Input Current THD (THDI)	< 8% at rated output power		
	Input Power Factor	> 0.95 under rated conditions		
Operation & Control Characteristics	Rated Frequency	50 Hz, fluctuation range ±5%		
	Base Frequency	10.0 Hz – 50.0 Hz		
	Starting Frequency	0.01 Hz – 100 Hz, adjustable		
	Accel/Decel Time	Time from 0 to max./rated frequency 0.1 s – 6000 s, separately adjustable		
	Frequency Resolution	Analog setting: 1/20 of max. frequency Digital setting: 0.01 Hz (<100 Hz), 0.1 Hz (⩾ 100 Hz)		
	Output Frequency Accuracy	Analog setting: ⩽ 0.3% of max. frequency (at 25 ± 10 ° C) Digital setting: ⩽ 0.02% of max. frequency (10 ° C – +50 ° C)		
	Speed Accuracy	/	±0.5%	±0.5%
	Speed Fluctuation	/	0.50%	0.30%
	Speed Range	1:10	1:50	1:100
	Automatic Voltage Regulation (AVR)	Maintains constant output voltage with grid variation. Output voltage fluctuation ⩽ ±3% within ±10% grid change.		
	MTBF	24,000 hours (bypass allowed on single power unit fault, MTTR ⩽ 3 h for power module maintenance) Condition：25 ° C, altitude 1000 m, other conditions rated		
System Characteristics	Protection Rating	IP30 (IP31 available on request); fan assembly IP20		
	Cooling Method	Forced air cooling		
	Noise Level	⩽ 80 dB (tested per DL/T 994-2006)		
Installation Environment	Installation Environment	Indoors, free from corrosive/conductive gases, dust, direct sunlight		
	Ambient Temp./ Humidity	–10 ° C – +40 ° C / 20–90% RH non-condensing		
	Vibration	⩽ 5 m/s^2 (⩽ 0.6 g)		
	Storage Temperature	–20 ° C – 65 ° C (for transport/temporary storage)		
	Altitude	⩽ 1000 m (customizable for higher altitudes)		

Remote Communication

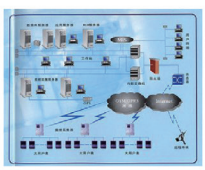
ATA QBMV Medium-Voltage Variable Frequency Drive is compatible with a wide range of mainstream communication protocols, enabling flexible network configuration for remote debugging, parameter setting, monitoring, maintenance, and resource management. It provides seamless software integration for your system, offering an ideal soft-connection solution.

Remote Condition Monitoring

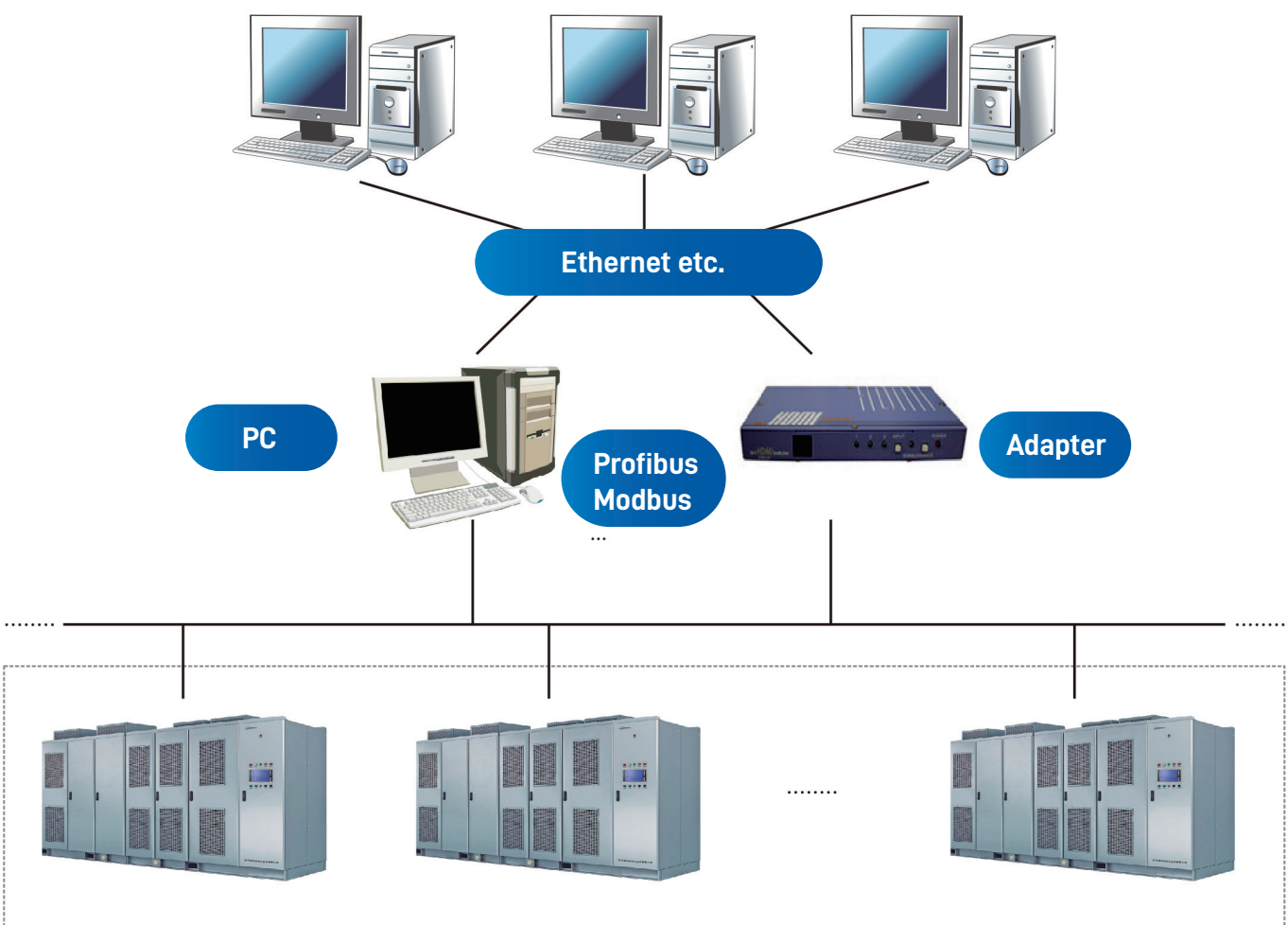
Operations Management

Maintenance Management

Remote Intelligence

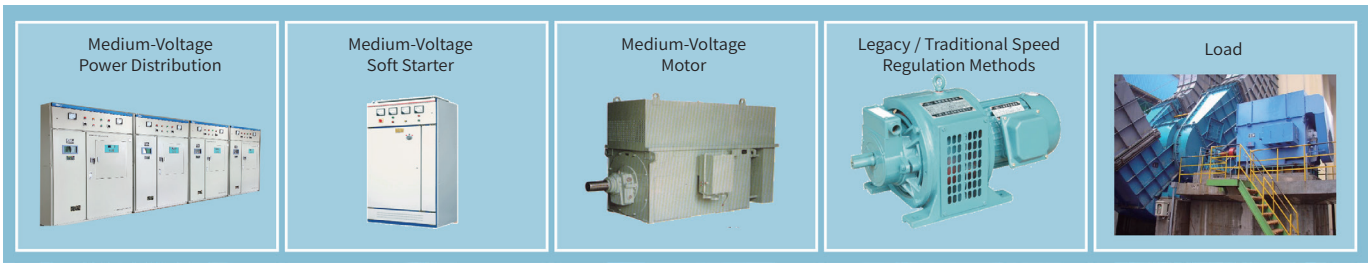


Asset Management

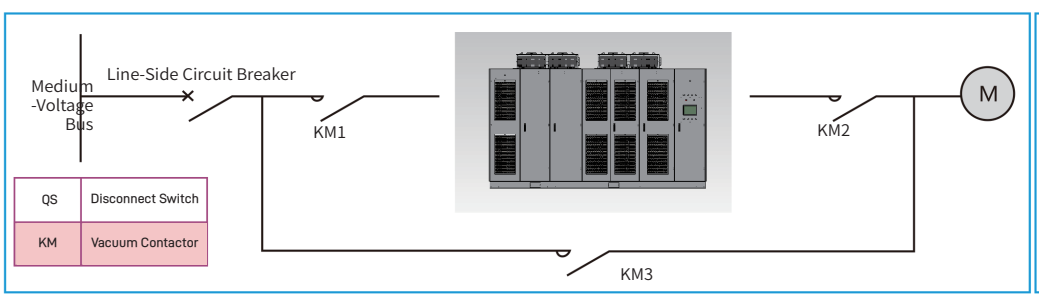


Solution

▼ In the conventional setup, the motor employs a high-voltage soft starter for buffered start-up, coupled with inefficient speed regulation methods (e.g., hydraulic couplings, dampers) on the output side.

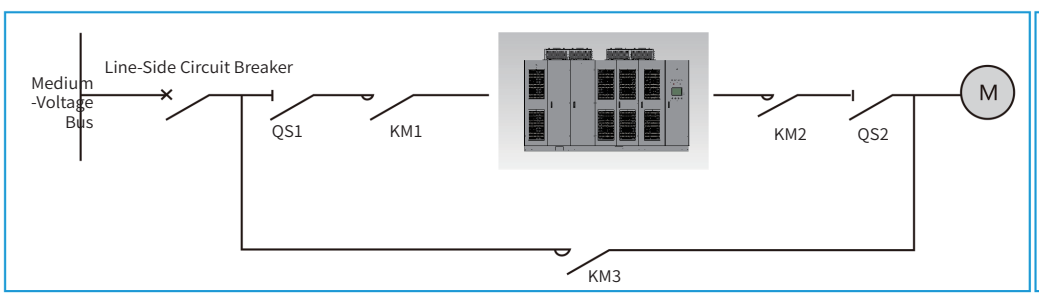


▼ The VFD solution eliminates both the soft starter and the inefficient speed regulation mechanisms, replacing them entirely with a single, high-efficiency frequency converter.



Primary Power Circuit:

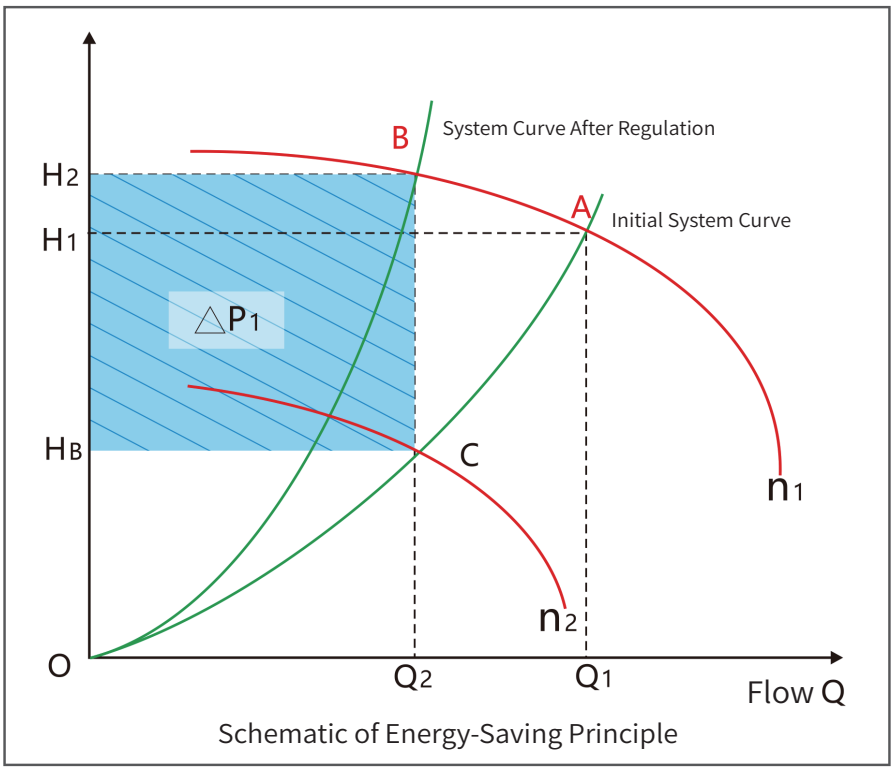
Three-Contactor Automatic Bypass Scheme (Non-Isolating). KM2 and KM3 are electrically interlocked.



Primary Power Circuit:

Automatic Bypass Scheme with Three Contactors & Two Disconnectors (Isolating Capability Provided). KM2 and KM3 are electrically interlocked.

Energy Saving Effect



Schematic of Energy-Saving Principle

AO & BO = pipeline network characteristic curves;
n2 & n1 = pump characteristic curves.

(1) Using valve regulation: operating point shifts from A to B;
(2) Using speed regulation control: operating point shifts from A to C;
(3) Energy consumption difference = shaded area in the diagram.

Fluid mechanics principle: $P \propto H \times Q$.
When motor speed drops from n_1 to n_2:

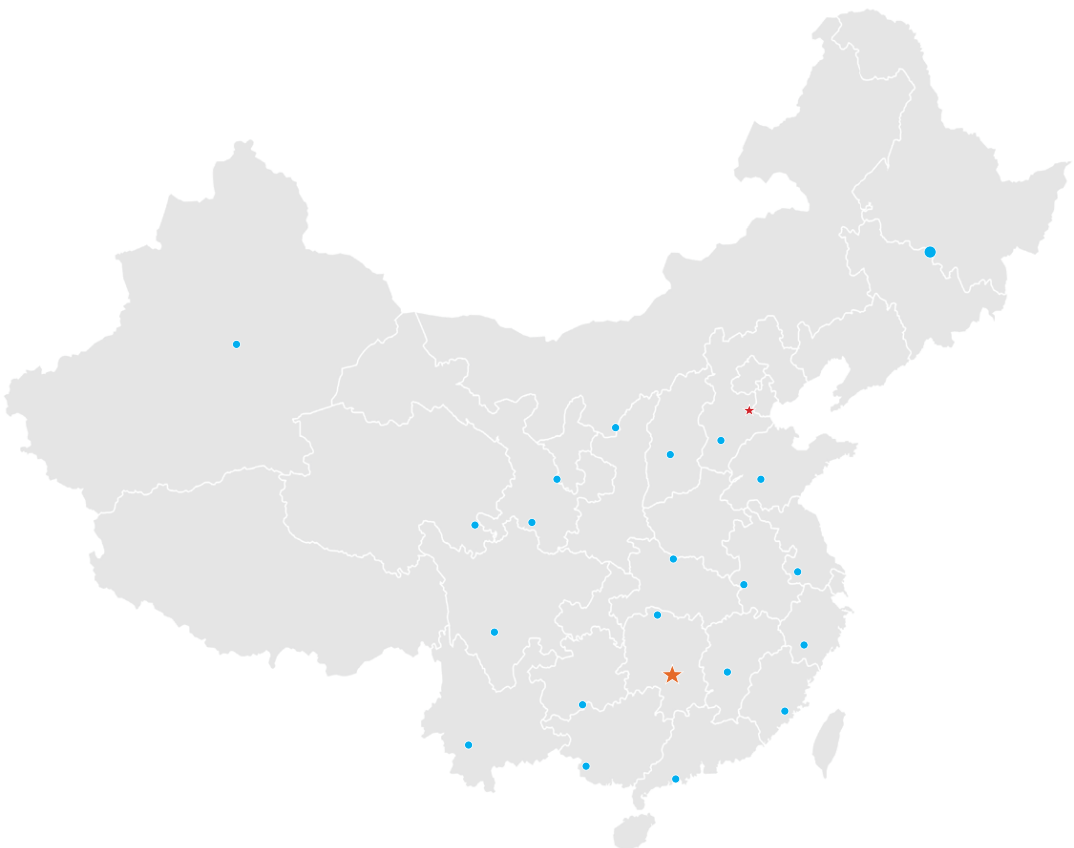
$$\frac{Q_2}{Q_1}=\frac{n_2}{n_1};\ \frac{H_2}{H_1}=\left(\frac{n_2}{n_1}\right)^2;\ \frac{P_2}{P_1}=\left(\frac{n_2}{n_1}\right)^3$$

Steel plant medium-voltage fan VFD retrofit: Rated specs: 10kV, 1600kW, PF=0.84, 119A; actual operating current: ~108A (original damper regulation).

Post-VFD retrofit: ~57A operating current, PF up to 0.97.		
Pre-retrofit shaft power	$P_1=\sqrt{3}\times U\times I_1\times\cos\varnothing_1$	Based on the above analysis, the estimated shaft power under line-frequency operation is approximately: $P_1=\sqrt{3}\times 10\times 108\times 0.84=1571.3kW$
Post-retrofit shaft power	$P_2=\sqrt{3}\times U\times I_2\times\cos\varnothing_2$	$P_2=\sqrt{3}\times 10\times 57\times 0.97=957.6kW$
Energy-saving rate	$\delta=(P_1-P_2)/P_1\times 100\%$	$\delta=(1571.3-957.6)/1571.3\times 100\%=39\%$
Based on the on-site operating parameters and motor rated parameters, the annual cost savings is calculated as follows (with the equipment operating 300 days/year on average, 24 hours/day, and electricity price at 0.5 CNY/kWh): Annual Cost Savings=300×24×(1571.3 − 957.6)×0.5=2.209 million CNY		

Service Support

We provide comprehensive post-sales services including technical consultation, training programs, on-site support, rapid response mechanisms, 24/7 monitoring, scheduled maintenance, and documentation management.



● Subsidiaries / Offices

★ Headquarters / Inventory Center / Spare Parts Center

Service Hotline

+852 6589 9216

Tech. Support Hotline

+86 0731-88996605
+86 0731-88996887

Ordering Instructions

Committed to providing the highest quality services and efficient ordering solutions.

· For high-temperature fan applications in the cement industry, attention must be paid to sudden current surges caused by material slump. Sufficient margin shall be reserved for the VFD during selection, and the VFD must be equipped with instantaneous current limiting and speed tracking functions.

· For belt conveyor applications, power balance must be achieved between master and slave drives to prevent belt slippage, and torque synchronization is required between master and slave units. Therefore, the VFD must feature high torque control accuracy, which shall be a key consideration during solution proposal and configuration.

· For hoist (potential load) applications, attention must be paid to VFD bus voltage rise caused by pump-up voltage, and corresponding treatment shall be implemented for regenerative energy; otherwise, overvoltage faults will occur. Meanwhile, the timing logic between the VFD control system and the hoist control system must be strictly analyzed and set, otherwise startup/shutdown jitter or load slippage (hook drift) will occur.

· In water treatment multi-pump applications, the common header system is not suitable for VFD retrofitting. The unit system is suitable for VFD retrofitting, and the primary circuit typically adopts 1-drive-2 or 2-drive-3 configurations as the most common solutions.

· For wound-rotor motors, the rotor shall be short-circuited before retrofitting, and the motor shall be converted to a squirrel-cage type before VFD operation; otherwise, motor performance degradation may occur.

· For applications originally using fluid coupling for speed regulation, the fluid coupling speed regulation link must be removed during VFD operation; otherwise, the actual energy saving rate will decrease.

· For applications with motor differential protection, the differential protection must be disabled during VFD operation; otherwise, the motor will fail to start.

· For multi-pole motors, current verification must be performed after VFD selection; otherwise, undersized VFD selection may occur, leading to frequent overcurrent faults.

· During solution configuration, whether to adopt a bypass shall be determined based on the user's on-site working conditions. The bypass has no practical significance in applications where line-frequency operation is not allowed.

· During solution configuration, the impact of ambient temperature on VFD derating shall be fully considered, and capacity correction shall be performed during VFD selection, or a reasonable heat dissipation solution (e.g., adding cooling ducts or air conditioners) shall be provided.

♦ The company reserves the right to modify product design and specifications without prior notice.

♦ In case of any discrepancy between the images in this product selection manual and the actual product, the actual product shall prevail.

♦ The final interpretation right of this product selection manual belongs to Changsha ATA Automation Co., Ltd.

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