GK800 Series High Performance AC Motor Drives (0.4KW-800KW)

Main Technical Data

1. Input voltage: 1-phase: 200-240V +/-10% (continuous fluctuation), -15%-10% (momentary fluctuation); 3-phase: 208 - 240V +/-10% (continuous fluctuation), -15%-10% (momentary fluctuation): 3-phase: 380-480V+/-10% (continuous fluctuation), -15%-10% (momentary fluctuation)
2. Input frequency: 50Hz/60Hz +/-5%
3. Output voltage: 0~rated input voltage, bias <+/-3%
4. Output frequency: 0.00-600.00Hz
5. Overload capability: 150% for 60s, 180% for 10s, 200% for 0.5s, once per 10 minutes
6. Control method: V/f, SVC(two modes: without PG1, or without PG2), VC
7. Speed regulation range: 1:100 (V/f control, or vector control without PG1), 1:200 (vector control without PG2), 1:1000 (VC control)
8. Speed accuracy: +/-0.5% (V/f), +/-0.2%(SVC), +/-0.02%(VC)
9. Speed fluctuation: +/-0.3% (SVC1, SVC2), +/-0.1%(VC)
10. Torque response: <5ms
11. Starting torque: 0.5Hz: 180% (V/f control, or without PG 1). 0.25Hz: 180% (without PG2). 0Hz: 200% (VC)
12. Starting frequency: 0.00-600.00Hz
13. Ramp-up time, Ramp-down time: 0.00-60000s
14. Carrier frequency/switching frequency: 0.7kHz-16kHz
15. Frequency command source: Digital+ Keypad ∧/∨; Digital +Terminal UP/DOWN; Communication; Analog (AI1/AI2/EAI), HDI
16. Motor started method: Started from starting frequency; DC brake then started; Speed searching/follow-up started
17. Stop method: Ramp to stop; Coast to stop; Ramp stop + DC brake
18. Dynamic brake capability: Brake action voltage: 650V-750V, service time: 0.0~100.0s
19. DC brake capability: DC brake starting frequency: 0.00~600.00Hz, DC brake current: 0.0-100.0%, DC brake time: 0.0~30.0s
20. Input terminals: DI -7, AI – 3
21. Output terminals: HDO-1(high-speed pulse output), DO-1, RO-2, AO-2
22. Communication: Profibus-DP, CANopen, CAN, Modbus
23. Efficiency: 7.5kW and below: ≥93%, 11~45kW: ≥95%, 55kW and above: ≥98%

Technical Features of GK800 series

Power input	Rated input voltage	3-phase AC208V/AC220V/AC230V/AC240V/AC380V/AC400V/AC415V/AC440V/AC460V/AC480V 1-phase AC208V/AC220V/AC230V/AC240V
	Rated input current	See Section 2.3 in user manual
	Frequency	50Hz/60Hz, acceptable fluctuation range +/-5%
	Allowed voltage range	Continuous voltage fluctuation +/-10%, short fluctuation -15%~+10%, i.e. 323V~528V; Voltage out-of-balance rate <3%, distortion rate as per the requirements of IEC61800-2

Power output	Standard applicable motor (kW)	See Section 2.3 in user manual
	Rated current (A)	See Section 2.3 in user manual
	Output voltage (V)	3-phase: 0~ rated input voltage, error < +/-3%
	Output frequency (Hz)	0.00~ 600.00Hz; unit: 0.01Hz
	Overload capacity	150% - 1min; 180% - 10s; 200% - 0.5s once per 10 minutes
Operational control characteristics	Control mode	V/f control Sensor-less vector control without PG 1 Sensor-less vector control without PG 2 Close-loop vector control with PG (including position control)
	Range of speed regulation	1:100 (V/f control, sensor-less vector control without PG 1) 1:200 (sensor-less vector control without PG 2) 1:1000 (close-loop vector control with PG)
	Speed control accuracy	+/-0.5% (V/f control) +/-0.2% (sensor-less vector control without PG 1 & 2) +/-0.02% (close-loop vector control with PG)
	Speed fluctuation	+/-0.3% (sensor-less vector control without PG 1 & 2) +/-0.1% (close-loop vector control with PG)
	Torque response	< 10ms (sensor-less vector control without PG 1 & 2) < 5ms (close-loop vector control with PG)
	Torque control accuracy	+/-7.5% (sensor-less vector control without PG 2) +/-5% (close-loop vector control with PG)
	Starting torque	0.5Hz: 180% (V/f control, sensor-less vector control without PG 1) 0.25Hz: 180% (sensor-less vector control without PG 2) 0Hz: 200% (close-loop vector control with PG)
	Positioning accuracy	+/-1 line pulse
Basic functions	Start frequency	0.00~ 600.00Hz
	Acceleration/ deceleration time	0.00~60000s
	Carrier frequency	0.7kHz~16kHz
	Frequency command source	Digital setting + operating panel ∧/∨ Digital setting + terminal UP/DOWN setting Communication setting Analog setting (AI1/AI2/AI3) Terminal pulse setting
	Motor started method	Started from starting frequency DC brake then started Speed searching then started smoothly
	Motor Stopped method	Ramp to stop Coast to stop Ramp to stop + DC brake
Basic functions	Dynamic brake capacity	Brake unit action voltage: 650V~750V; service time: 0.0~100.0s; brake unit for GK800-4T45 and below is built in
	DC brake capacity	DC brake start frequency: 0.00~600.00Hz DC brake current: 0.0~100.0% DC brake time: 0.0~30.00s
	Input terminals	Seven digital input terminals, one of which can be used for high-speed pulse input. Compatible with active open collectors NPN, PNP and dry contact input Three analog input terminals, one of which can be only used as voltage input, while the other two are optional for voltage/current.
	Output terminals	One high-speed pulse output terminal, 0~50kHz square wave signal output; can output values, such as setting frequency and output frequency, etc. Two relay output terminals
		Two analog output terminal, voltage/current output optional;

		can output values, such as setting frequency and output frequency, etc.
Encoder signal terminal	Compatible with 5V/12V encoder Compatible with different types of encoder signal input, such as open collector, push pull and differential, etc.	
Characteristics	Parameter copy, parameter backup, common DC bus, free switching between parameters of two motors, flexible function code displayed & hidden, various main & auxiliary settings and switchover, reliable speed search started, various acceleration & deceleration curves options, automatic correction of analog value, brake control function, 16-step speed programmable(2-step speed supports flexible frequency setting), swing frequency control operation, fixed-length control, counting function, three fault recorded, over excitation brake function, over-voltage stall prevention, under-voltage stall prevention, restart upon power off selectable, hopping frequency function, frequency binding function, free switch between four-segment acceleration/deceleration time, motor thermal protection, flexible fan action control, process PID control, simple PLC control, flexible multi-functional key setting, droop control, parameter identification of asynchronous and synchronous motors, weak magnetic control, high-precision torque restraint, V/f separated control, torque control without PG, torque control with PG, two encoder signal inputs (supporting incremental, UVW hybrid and rotating transformer, and other speed feedback modes), flexible deceleration ratio control, zero servo, main axis orientation, simple feed forward control, pulse train position control	
Protection functions	Refer to Chapter VII - Fault Diagnosis and Abnormality Handling	
Environment	Place of operation	Indoors, no direct sunlight, free from dust, corrosive gases, flammable gases, oil mist, water vapor, water drip or salt content etc.
	Altitude	0~2000m Derating is required where altitude is higher than 1,000m; each increase of 100m in height corresponds to a decrease in rated output current by 1%
	Ambient temperature	-10℃~50℃
	Humidity	5~95%, condensation not allowed
	Vibration	Less than 5.9m/s2 (0.6g)
	Storage temperature	-40℃~+70℃
Others	Efficiency	Rated power 7.5kW and below: ≥93% 11~ 45kW: ≥ 95% 55kW and above: ≥98%
	Installation mode	Wall-mounted
	Protection level	IP20
	Cooling	Forced air cooling

Applications

CNC lathe, wire drawing machine, wind/un-winder, elevator and escalator, crane, machine tool, conveyor, compressor, drilling machine, carding machine, roving machine, compressor, crusher, pump, fan, etc.

GTAKE AC Motor Drives Compared with Common Brands (VFD)

Performance	Common Brands	GTAKE ✓
applicable motors	✗	synchronous motors
	asynchronous motors	asynchronous motors
starting torque	2.0Hz, 150%(V/f control)	0.5Hz, 180%(V/f control)
	0Hz, 180%(VC)	0Hz,200%(VC)
speed adjustable range	1:100(SVC), 1:1000(VC)	1:200(SVC), 1:1000(VC)
ambient temperature (no derating required)	-10~40℃	-10~50℃
rated input voltage	208V～380V	208V～480V
communication	Modbus RTU/ASCII	Modbus RTU/ASCII
	✗	Profibus-DP, CANopen
position control	✗	✓
field weakening control	✗	✓
autotune	✗	online
	offline	offline
short-time ramp-up	trip	no trip
customized products	unprocurable	procurable ✓