

GK900[®] HIGH PERFORMANCE AC DRIVES



Think Without Boundary

Company Profile >>>

500000+ 81

Annual Sales Quantity

Jiangsu Gtake Electric Co., Ltd. (referred to as "Gtake Electric"), since its establishment in 2009, based on the sophisticated power electronic and motor control technology, has been committed to the R&D, production and sales of industrial automation control & transmission products. GTAKE Electric is devoted to providing optimal services, dedicated and competitive solutions to medium & high-end equipment manufacturers, ceaselessly making its contributions to industrial systems in digitization, intelligentization, energy saving and emission reduction. Currently, GTAKE Electric main business involves four sectors: EV motor controllers, industrial AC drives and servo drives, testing equipment for automotive powertrain and high-precision bi-directional power supply systems.

Exporting Countries

National Patents

107

GTAKE Electric has passed IATF16949: 2016 and ISO9001: 2015 Quality Management System, and won honorable titles such as *High and New Tech Enterprises, Jiangsu Specialized & Sophisticated SMEs, Jiangsu Provincial Enterprise Technology Centers, Jiangsu Provincial Private Technology Enterprises, Jiangsu Innovative and Entrepreneurial Talent Enterprise and such other qualifications.*

As of 2022, up to 500,000 GTAKE EV motor controllers have been operating on various applications such as heavy trucks, engineering machinery, passenger buses, logistics vehicles, electric forklifts, and high-speed electric motorcycles, etc., providing customers with mature & professional "N+N" solutions. In the field of industrial automation, GTAKE products cover wide applications, including crane & hoist, lift, papermaking, printing & packaging, water supply, machine tool, wire processing, battery manufacturing, etc. GTAKE products have been exported to more than 80 countries and regions across the world. In the field of automotive powertrain testing and power battery testing, GTAKE provides customers with in-depth customized system solutions, which are favored by a large number of OEMs and battery pack manufacturers.



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Till May 2023, GTAKE has more than 650 employees, half of whom are R&D and technical engineers, working at Shenzhen and Nanjing R&D centers. We have won 107 national patents, 8 provincial high-tech product titles, and have established more than 50 offices and service centers all over China.

021 COMPANY PROFILE



- 0 LED and LCD control panel available and support PC commissioning tool
- Support three encoder signal inputs and closed-loop control for spindles
- Abundant option board selections, including communication boards, encoder boards, and IO boards
- Automatically identify the encoder types and support real-time position display
- **(**5) Support incremental, UVW, resolver and other types of encoders
- 🔞 Built-in STO (Safe Torque Off) function

- Support RS485, CAN, Profinet, EtherCAT, Modbus-Tcp, Mechatrolink-III, Profibus-DP, CANopen and so on.
- 3C3 conformal coating
- Flexible fan control function
- Straight-through independent air duct design, enabling PCB to be well protected, effectively improving the lifespan and reliability of the drive
- 1 A variety of EMC solutions



 +24V
 +24V

 PLC
 Digital i Commo

 COM
 +24V gr

TERMINAL SYMBOL TERMINAL NAME

SPECIFICATIONS

DEFAULT IO BOARD-ANALOG INPUT/OUTPUT

input	10.3V ±3%
ce voltage	Maximum output current 10mA The resistance of external potentiometer should be larger than $1 k \Omega$
	0~20mA: input impedance: 500Ω, maximum input current:25mA
input 1	0~10V: input impedance:22kΩ, maximum input voltage :12.5V
	Switch S1 on control board for jumping between 0~20mA and 0~10V, factory default: 0~10V
ground	Isolated from COM interiorly
d terminal PE	
	0~20mA: input impedance: 500Ω, maximum input current: 25mA
input 2	0~10V: input impedance: 22kΩ, maximum input voltage: 12.5V
, input z	Switch S3 on control board for jumping between 0~20mA and 0~10V, factory default: 0~10V
ground	Isolated from COM interiorly
d terminal PE	
	0~20mA: impedance: 200Ω~500Ω
output 1	0~10V: impedance ≥ 10kΩ
	Switch S2 on control board for jumping between 0~20mA and 0~10V, factory default: 0~10V
ground	Isolated from COM interiorly
d terminal PE	

DEFAULT IO BOARD-DIGITAL INPUT/OUTPUT

round	Isolated from GND interiorly
input 1 input 2 input 3 input 4	Input: 24VDC, 10mA Range of frequency: 0~200Hz Range of voltage: 10V~30V
	Pulse input: 0.1Hz~100kHz
input/pulse input	Range of voltage: 10-30V
l terminal PE	
	24V±10%
	Isolated from GND interiorly, Maximum load: 200mA
ollector output	Range of voltage: 0-24V
	Range of current: 0-50mA
ollector output/ utput	Same as DO1
	Pulse output: 0-50kHz
nce GND of HDO	
nce GND of DO1	Reference GND of DO1

DEFAULT IO BOARD-RELAY OUTPUT

output	RA-RB: NC
	RA-RC: NO
	Contact capacity: 250VAC/3A, 30VDC/3A

DEFAULT IO BOARD-COMMON TERMINAL

round	24V±10%
	Isolated from GND interiorly
input on terminal	For switching high & low levels, short-circuited with +24V via jumper S4 as default, i.e. low value of digital input activated
	External power input
round	Isolated from GND interiorly

Product Upgrade >>>



Flying start





Commissioning tool

Support real-time online parameter modification/ monitoring. Oscilloscope simulating function supports 4 channels to display physical quantity waveforms in real time. It supports trigger mode, automatically capturing fault waveforms, and supports channel computing functions, helping data analysis





Energy -saving control

ACIM: Automatically adjust the excitation current according to different loads. The current is smaller while the efficiency is higher at light load

PMSM: MTPA control, real-time calculation of the best current angle, realizing minimum output current under the same load

Encoder features

Support three-channel encoder signal inputs, applicable to full closed-loop control in CNC, up to 2MHz pulse input, and support pulse adaptive filtering, with stronger anti-interference capability

Multi-communication protocols

Support 485, CAN, Profinet, EtherCAT, Modbus -Tcp, Mechatrolink-III, Profibus-DP, CANopen, etc







Basic Information »

Model Explanation



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Specifications

POWER INPUT	
Rated input voltage	400V level: three phase 380V~440V
Frequency	50Hz/60Hz
Voltage range	Continuous voltage fluctuation ±10%, short-time fluctuation -15%~+10%, i.e. 400V : 323V~484V;
	Voltage out-of-balance rate <3%, distortion rate as per the requirements of IEC61800-2
Allowable frequency fluctuation	±5%
Rated input current	See selection table

POWER OUTPUT	
Applicable motor (kw)	See selection table
Output voltage (v)	3-phase: 0~ rated input voltage, error < ±3%
Output frequency (Hz)	0.00~ 600.00Hz; unit: 0.01Hz
	150% 1 min - heavy load
Overload capacity	180% 10 second
	200% 0.5 second

	CONTROL CHARACTERISTICS
V/f patterns	V/f control
	Sensor-less vector control 1
	Sensor-less vector control 2
	Closed-loop vector control (including position con
Range of speed regulation	1:100 (V/f control, sensor-less vector control 1)
	1:200 (sensor-less vector control 2)
	1:1000 (closed-loop vector control)

	CONTROL CHARACTERISTICS
Speed accuracy	±0.5% (V/f control)
	±0.2% (sensor-less vector control 1 & 2)
	±0.02% (closed-loop vector control)
Speed fluctuation	±0.3% (sensor-less vector control 1 & 2) ±0.1% (clo
	< 10ms (sensor-less vector control 1 & 2)
orque response	< 5ms (closed-loop vector control)
orque control accuracy	±7.5% (sensor-less vector control 2)
	±5% (closed-loop vector control)
Starting torque	0.5Hz:180% (V/f control, sensor-less vector cont
	0.25Hz: 180% (sensor-less vector control 2)
	0Hz: 200% (closed-loop vector control)
Positioning accuracy	±1 line pulse

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	BASIC FUNCTIONS
Start frequency	0.00~ 600.00Hz
Accel/Decel time	0~60000s
Switching frequency	0.8~16kHz
	Digital setting + control panel \land / \lor
	Digital setting + terminal UP/DOWN
Frequency setting	Communication
	Analog setting (AI1/AI2/AI3/AI4)
	Terminal pulse setting
	Started from start frequency
Motor start-up methods	DC injection braking start
methodo	Flying start
	Ramp to stop
Motor stop methods	Coast to stop
	Ramp to stop + DC brake
	Brake choppers for GK900-4T75 and below are i
	Prake chapper activated valtage
Dynamic braking	400\/ class: 650\/c750\/
capacity	4000 class. 0500~7500
	Lasting time: 0.0~100.0s
	DC injection braking start frequency: 0.00~600
DC brake capacity	DC injection braking current: 0.0~100.0%
	DC injection braking time: 0.00~30.00s





Specifications

BASIC FUNCTIONS		
Input terminals	5 digital inputs, one of which can be used for high-speed pulse input. Compati- ble with active open collectors NPN, PNP and dry contact input. 2 analog inputs, voltage/current programmable.	
Output terminals	 1 high-speed pulse output terminal, 0~50kHz square signal; can output set frequency, output frequency and so forth 1 digital output terminal 2 relay output terminals 	
	1 analog output terminal, voltage/current programmable; can output set frequency, output frequency and so forth	

FEATURED FUNCTIONS

Parameter copy, parameter backup, common DC bus, switchover between two motors' parameters, flexible parameter display & hiding, various master & auxiliary frequency reference and switchover, reliable speed search start, a variety of Accel/Decel curves programmable, mechanical brake control, 16-step speed control programmable (2-step supports flexible frequency reference), count function, three fault records, over excitation brake, over voltage stall protection programmable, restart upon power loss, skip frequency, frequency binding, four kinds of Accel/Decel time, motor thermal protection, flexible fan control, process PID control, simple PLC, multi-functional key programmable, droop control, asynchronous and synchronous motor tune, field-weakening control, high-precision torque control, V/f separated control, torque control at sensor-less vector control, torque control at closed-loop vector control, two encoder signal inputs (support incremental, UVW hybrid and resolver, etc.), flexible deceleration ratio control, zero-speed clamping, angular positioning, simple feed forward control, pulse train position control

ENVINUI
Indoors, no direct sunlight, fre water vapor, water drop and sal
0~2000m. De-rate 1% for every 1
-10°C~40°C. The rated output cu when the ambient temperature
5%~95%, no condensation
Less than 5.9m/s2 (0.6g)
-40°C~+70°C

	OTHE
Efficiency at rated Amps	7.5kW and below: ≥93% 11~ 45kW: ≥ 95% 55kW and above: ≥98%
Installation	Book-type
IP grade	IP20/IP00
Cooling method	Forced air cooling

NMENT

ee from dust, corrosive gases, flammable gases, oil mist, lt, etc.

100m when the altitude is above 1000 meters

urrent should be derated 1% for every 1°C e is 40°C~50°C

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SELECTION TABLE



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		POWER RATING	OUTPUT CURRENT	INPUT CURRENT	APPLICABLE MOTOR	HDC	AIR FLOW	DDAKE	DC
CABINET NO.	MODEL	(kW)	(A)	(A)	(kW)	(W)	(m³/h)	CHOPPER RI	REACTOR
			H	eavy-duty Application	on	/	/		
	GK900-4T0.75GB	0.75	2.5	3.5	0.75	23	29	Inbuilt	
\$01	GK900-4T1.5GB	1.5	3.8	5.0	1.5	49	29		
301	GK900-4T2.2GB	2.2	5.5	6.0	2.2	72	29		
	GK900-4T3.7GB	3.7	9.0	10.5	3.7	116	29		
	GK900-4T5.5GB	5.5	13	14.6	5.5	170	55		
S02	GK900-4T7.5GB	7.5	18	20.5	7.5	261	77		/
	GK900-4T11GB	11	24	29	11	337	102		
	GK900-4T15GB	15	32	35	15	417	140		
S03	GK900-4T18.5GB	18.5	37	44	18.5	500	140		
	GK900-4T22GB	22	45	50	22	632	140		
504	GK900-4T30G(B)*	30	60	65	30	737	240		
304	GK900-4T37G(B)*	37	75	80	37	979	240		
\$05	GK900-4T45G(B)* *	45	91	83	45	1363	253	Inbuilt optional	
303	GK900-4T55G(B)*	55	112	102	55	1789	253		
	GK900-4T75G(B)*	75	150	143	75	2050	506		
S06	GK900-4T90G	90	176	160	90	2056	506		
	GK900-4T110G	110	210	192	110	2838	506		
\$07	GK900-4T132G	132	253	232	132	3359	1060		
301	GK900-4T160G	160	304	285	160	3787	1060		
	GK900-4T185G	185	350	326	185	4124	1060		
S08	GK900-4T200G	200	380	354	200	4701	1060		Inbuilt
	GK900-4T220G	220	430	403	220	5133	1060	Fxternally	
\$09	GK900-4T250G	250	470	441	250	5625	1590	mounted	
303	GK900-4T280G	280	520	489	280	6598	1590		
	GK900-4T315G	315	590	571	315	7215	1590		
\$10	GK900-4T355G	355	650	624	355	8384	1590		
010	GK900-4T400G	400	725	699	400	8473	1590		
	GK900-4T450G	450	820	790	450	8876	1590		

*means brake chopper is optionally inbuilt. Take 30kW as an example, the model without brake chopper is GK900-4T30, while with brake chopper is GK900-4T30B.

	MODEL	POWER RATING	OUTPUT CURRENT	INPUT CURRENT	APPLICABLE MOTOR	HDC	AIR FLOW		
CABINET NO.		(kW)	(A)	(A)	(kW)	(W)	(m³/h)	BRAKE CHOPPER	DC REACTOR
			Lig	ght-duty Applicatio	n	/	/		
	GK900-4T1.5LB	1.5	3.8	5.0	1.5	23	29	Inbuilt	
\$01	GK900-4T2.2LB	2.2	5.5	6.0	2.2	49	29		
501	GK900-4T3.7LB	3.7	8.0	9.3	3.7	72	29		
	GK900-4T5.5LB	5.5	11	12.3	5.5	116	29		
	GK900-4T7.5LB	7.5	17	19.3	7.5	170	55		
S02	GK900-4T11LB	11	23	27.8	11	261	77		/
	GK900-4T15LB	15	30	32.8	15	337	102		
	GK900-4T18.5LB	18.5	37	44	18.5	417	140		
S03	GK900-4T22LB	22	45	50	22	500	140		
	GK900-4T30LB	30	58	62.8	30	632	140		
\$04	GK900-4T37L(B)	37	75	80	37	737	240		
501	GK900-4T45L(B)	45	88	93	45	979	240	Inbuilt optional	
\$05	GK900-4T55L(B)	55	112	102	55	1363	253		
505	GK900-4T75L(B)	75	139	133	75	1789	253		
	GK900-4T90L(B)	90	176	160	90	2050	506		
S06	GK900-4T110L	110	210	192	110	2056	506		-
	GK900-4T132L	132	250	232	132	2838	506		
S07	GK900-4T160L	160	304	285	160	3359	1060		
501	GK900-4T185L	185	350	326	185	3787	1060		Inbuilt
	GK900-4T200L	200	380	354	200	4124	1060		
S08	GK900-4T220L	220	426	403	220	4701	1060		
	GK900-4T250L	250	465	441	250	5133	1060	Externally	
\$09	GK900-4T280L	280	520	489	280	5625	1590	mounted	
505	GK900-4T315L	315	585	566	315	6598	1590		
	GK900-4T355L	355	650	624	355	7215	1590		
S10	GK900-4T400L	400	725	699	400	8384	1590		
010	GK900-4T450L	450	820	790	450	8473	1590		
	GK900-4T500L	500	860	828	500	8876	1590		

*means brake chopper is optionally inbuilt. Take 30kW as an example, the model without brake chopper is GK900-4T30, while with brake chopper is GK900-4T30B.

GK900 Drive Dimensions





S05-S08

abinet No.	w	н	D	W1	W2	H1	H2	H3	Mounting holes
S01	84	226	153	50		216	204		4.5
S02	93	285	183	55	/	272	285	/	5.5
S03	135	356	217	111	/	350	/	/	5.5
S04	158	430	232	118	/	415	/	/	6.5
S05	230	545	300	175	/	525	490	/	10
S06	250	635	350	185	/	612	580	/	10
S07	285	715	390	220	/	692	660	/	10
S08	300	885	460	230	/	862	830	/	10
S09	330	1245	533	240	96	1122	1175	109	13
S10	330	1365	533	240	96	1242	1295	109	13

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13 I SELECTION TABLE

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OPTIONAL BOARDS 1 4444 1 1 1 1 1 1 1 D DEPEND OF THE OWNER OWNER OF THE OWNER OF THE OWNER OWNER

OPTION BOARDS

Туре	Model	Description
Default IO board	EPC-TM31	Supports 5 digital inputs (one of which supports high -speed input), 2 analog inputs, 2 digital outputs (one of which supports high -speed output), 1 analog output, and 1 relay output.
Extension IO board	EPC-TM32	Supports 5 digital inputs, 2 analog inputs, 2 STO inputs, 1 leakage current detection input, 3 digital outputs, 1 analog output, and 1 relay output.

Туре	Model	
	EPC-CM31A	CAN communication board-dual RJ45
	EPC-CM31B	485 communication board-3 PIN termi
	EPC-CM32	CAN communication board-dual RJ45
Communication	EPC-CM32A	CAN communication board-3 PIN term
Source	EPC-CM33	MIII communication board-dual RJ45 i
	EPC-CM34	EtherCAT communication board-dual F
	EPC-CM35	Profinet communication board-dual R.
	EPC-CM36	CANopen communication board-dual f

	EPC-PG31	Non-isolated dual closed-loop PG board reference, 1 A/B/Z differential division fi UVW encoder, with a maximum input 21
	EPC-PG32	Single-channel isolated PG board, supp open collector division frequency output D-sub connectors are adopted.
	EPC-PG32A	Single-channel isolated PG board, supp open collector division frequency output D-sub connectors are adopted.
Encoder option boards	EPC-PG32B	Single-channel isolated PG board, supp open collector division frequency output D-sub connectors are adopted.
	EPC-PG33	Rotary decoding PG board, supports 1 r collector division frequency output or 1 sampling, with a maximum input 300kH
	EPC-PG34	SINCOS decoding board, supports 1 SIN division frequency output, and 1 motor 1
	EPC-PG35	Absolute encoder board, supports protoc connectors are adopted.

Description

interface-compatible with GK610 pin definition

nal block		
interface		
inal block		
nterface		
RJ45 interface		
145 interface		
RJ45 interface		

rd, supports 2 differential A/B/Z signal inputs, and 1 differential PA/PB pulse frequency output, 1 motor temperature sampling, and can directly support 2MHz. Dual-port D-sub connectors are adopted.

ports 1 differential A/B/Z input, 1 differential PA/PB pulse reference, 1 A/B/Z ut, 1 motor temperature sampling, with a maximum input 500kHz. Dual-port

oorts 1 12V digital A/B/Z input, 1 12V digital PA/PB pulse reference, 1 A/B/Z t, 1 motor temperature sampling, with a maximum input 500kHz. Dual-port

ports 1 differential A/B/Z input, 1 24V digital PA/PB pulse reference, 1 A/B/Z ut, 1 motor temperature sampling, with a maximum input 500kHz. Dual-port

rotary decoding, 1 differential PA/PB pulse reference, 1 A/B/Z open 1 A/B/Z differential division frequency output, 1 motor temperature Hz.Dual-port D-sub connectors are adopted.

NCOS decoding, 1 differential PA/PB pulse reference, 1 A/B/Z differential temperature sampling. Dual-port D-sub connectors are adopted.

col formats such as SSI, ENDAT, BISS and so on. Dual-port D-sub

Туре	Model	Description
	EPC-PG36	Single-channel isolated PG board, supports 1 differential A/B/Z signal input, 1 differential PA/PB pulse reference, 1 A/B/Z differential division frequency output, with a maximum input 500kHz, 18-pin terminal blocks are adopted, replacing PG39 Dual-port D-sub connectors.
	EPC-PG37	Single-channel isolated PG board, supports 1 differential A/B/Z input and 1 differential PA/PB pulse reference, 1 A/B/Z open collector division frequency output, 1 motor temperature sampling, with a maximum input 500kHZ, 18-pin terminal blocks are adopted, replacing PG32 Dual-port D-sub connectors.
Encoder option	EPC-PG37A	Single-channel isolated PG board, supports 1 12V digital A/B/Z input and 1 12V digital PA/PB pulse reference, 1 A/B/Z open collector division frequency output, 1 motor temperature sampling, with a maximum input 500kHZ, 18-pin terminal blocks are adopted, replacing PG32A Dual-port D-sub connectors.
boards	EPC-PG37B	Single-channel isolated PG board, supports 1 differential A/B/Z input, 1 24V digital PA/PB pulse reference, 1 A/B/Z open collector division frequency output, 1 motor temperature sampling, with a maximum input 500kHz, 18-pin terminal blocks are adopted, replacing PG32B Dual-port D-sub connectors.
	EPC-PG38	Rotary decoding and SINCOS decoding board, supports 1 rotary decoding, 1 SINCOS decoding, 1 A/B/Z open collector division frequency output, and 1 motor temperature sampling. Dual-port D-sub connectors are adopted.
	EPC-PG39	Single-channel isolated PG board, supports 1 differential A/B/Z input, 1 differential PA/PB pulse reference, 1 A/B/Z differential frequency division output, 1 motor temperature sampling, with a maximum input 500kHz. Dual-port D-sub connectors are adopted, replacing PG31 in single closed-loop applications.

EXTERNAL CONTROL PANEL





for ACIM of heavy-duty series



series

KBU-BX9 **...** External LCD control panel for PMSM series

EXTERNAL CONTROL PANEL CABLE







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Crane & Hoist Industry | CNC Machines | Pulp and Paper Making | Electro - hydraulic Servos Woodwork Machinery | Rubber & Plastic Machinery Printing & Packaging | Fan & Pump | Cable Industry | Special Welding | Textile Machinery Metal Pipe Machinery | Steel Rope Machinery







201 INDUSTRY APPLICATIONS



Quality Assurance >>

GTAKE attaches great importance to the quality control in design, production, testing and packaging, and strictly follows the requirements of IATF16949: 2016 and IS09001: 2015 quality management system.

To ensure the reliability, stability and consistency, all GTAKE products are inspected and tested strictly before delivery. We have been committed to continuously improving the product quality and providing customers with optimal products and service.











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