AC Drives

DYNAGEAR

Lakshmi Electrical Control Systems Limited

GK500 Mini AC Drive

The GK500 series adopting V/Hz control technology are the most economical drives at Gtake which are applicable to general purpose applications.

POWER RATINGS

1× 220 - 240V	0.4 - 2.2kW
3× 220 - 240V	0.4 - 2.2kW
3× 380 - 480V	0.75 - 3.7kW

COMPATIBILITY

Asynch motor control applicable

CONTROL TECHNOLOGY

V/Hz control

FEATURES

Reliable	User-friendly	Intelligent
Ambient temperature 50° C without derating	Parameter copy	Warning systems
Thickened conformal coating	Detachable control panel	Multiple frequency references
Optimized cooling system	One platform numerous versions	All-sided protection
Benefit		
Less need for cooling or oversizing	Save time for commissioning	Warning before stop
Resistant to harsh surroundings	Easy for remote control	Powerful in intelligent applications
Lower temperature rise	Save stocks	Long lifetime & less maintaince cost

APPLICATIONS

Conveyors, centrifuges, food processing machinery, packaging machinery, pumps, fans, etc.

Small in Size, Powerful in Performance

01 Mounting space saving

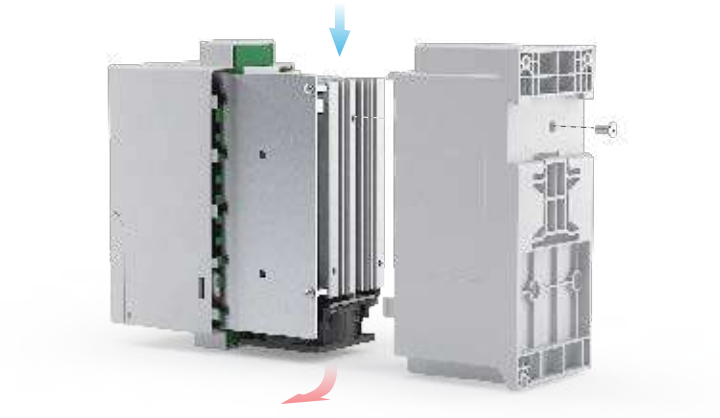
GK500 adopt book-type frames to save mounting space. Close parallel mounting is permitted without requirement of derating.

02 Hot pluggable display with potentiometer

GK500 control panel has inbuilt potentiometer and supports hot plug. It also supports parameter copy operated via GK600/GK800 control panel.

03 Optimized design on heat dissipation

Whole back facet covered, and fin-corrugated heat sink has the optimized contribution to heat dissipation. Minimized temperature rise brings about reliable operation and pledges the lifespan of drive components.



04 Minimum penetration of dust

GK500 drives are designed to keep the forced ventilation away from the electronics. Printed circuit boards are well protected inside the drives.

NOTE: GK500 support wall and DIN-Rail mounting.

05 Promoted V/Hz

GK500 adopting promoted V/Hz control technique make the start torque reach 180% of the rated at 0.5Hz.

180%

06 Strong adaptability to temperature

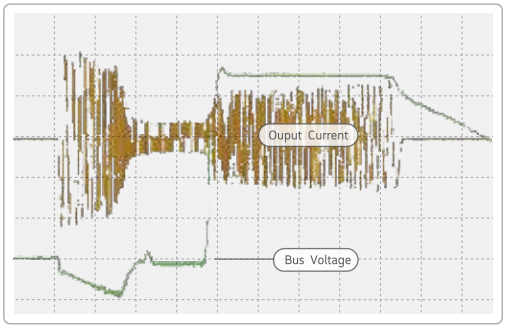
Derating is not required for GK500 at ambient temperature up to 50℃.

50°C

07 Multi-step speed

8-step speed is supported, two of which accept various frequency references.

8



08 Stall protections

Overvoltage and undervoltage stall protections are both procurable at GK500, which pledges the operation continuous without trip at ramp down of the large-inertia load, or sudden power loss.

... For more information

To know more functionalities and capabilities, please refer to GK500 user manual or contact Gtake.

SPECIFICATIONS

Mains supply (L1/L, L2, L3/N)

Supply voltage	200-240V /380-480V ±10% (lasting), -15%~+10% (short)
Supply frequency	50/60Hz ±5%
True Power Factor (λ)	0.92 nominal at rated load
Displacement Power Factor (cos ϕ) near unity	(>0.98)
Switching on input supply L1/L, L2,L3/N	Maximum 2 times/min.

Output data (U/T1, V/T2, W/T3)

Output voltage	0-100% of supply voltage
Output frequency	0-600Hz
Switching on output	Unlimited
Ramp times	0-600.00s/6000.0s/60000s

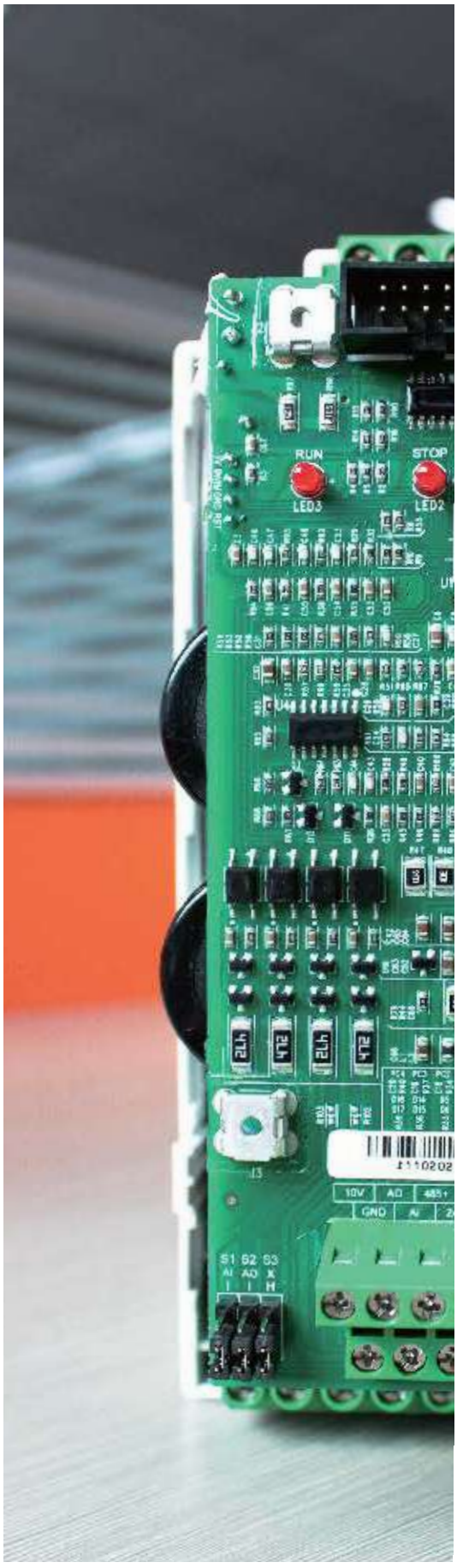
Note: 150% current can be provided for 1 minute, 180% for 10 seconds, 200% for 0.5 second. Higher overload rating is achieved by oversizing the drive.

Digital input

Programmable digital inputs	4
Logic	PNP or NPN
Input	24VDC, 5mA
Frequency range	0-200Hz
Voltage level	22V-26V

Analog input

Analog inputs	1
Modes	Voltage or current
Voltage level	0 to 10V
Current level	0/4 to 20mA (scaleable)



ModBus

Rate	4800/9600/19200/38400/57600
Formats	RTU, ASCII

Digital output

Programmable digital/pulse outputs	1
Voltage level	0-24V
Current level	0-50mA

Relay output

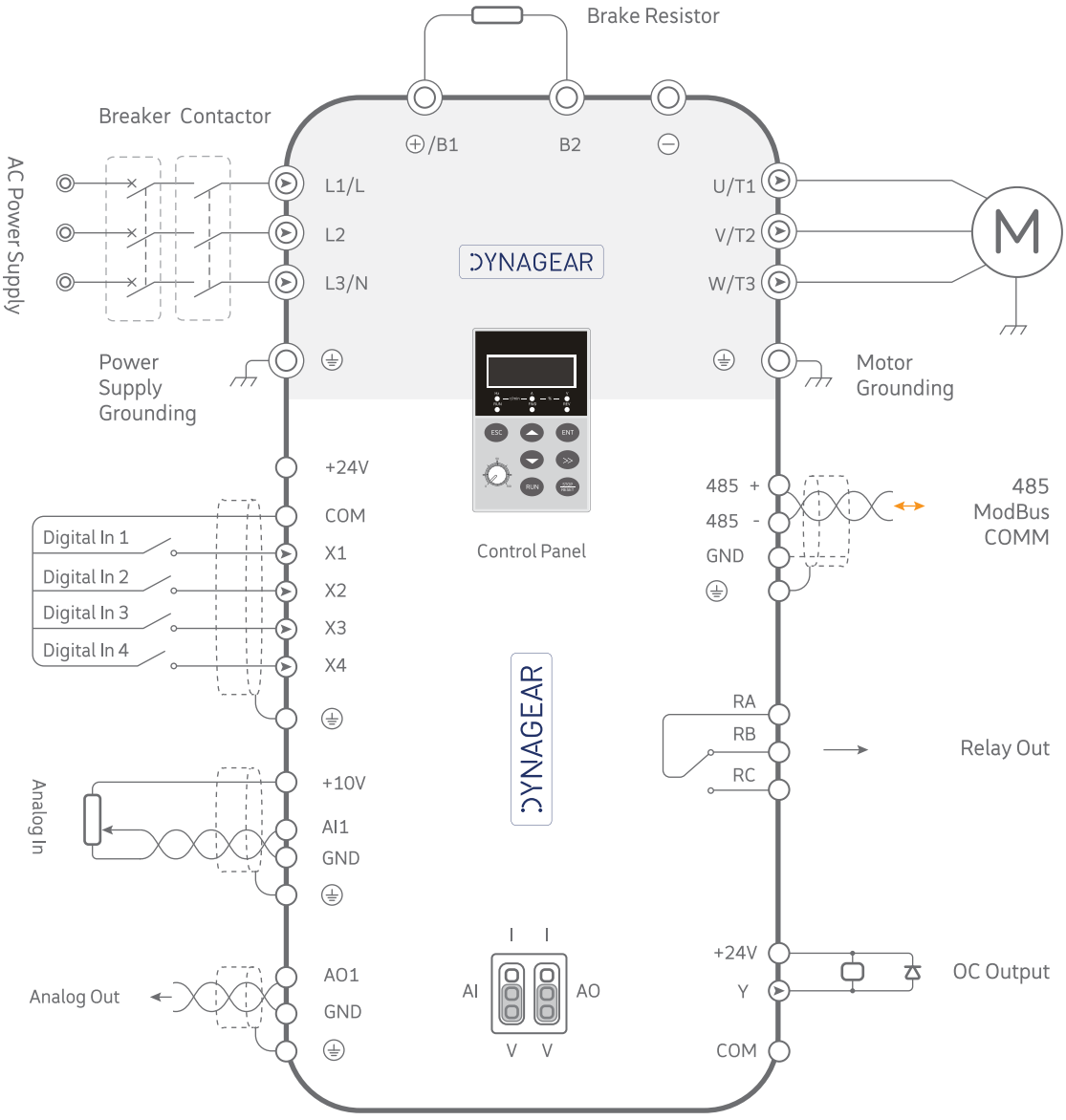
Programmable relay outputs	1

Remote control panel

Maximum cable length	5m

BASIC CONNECTION

Following is the default wiring diagram for GK500. Please consult Gtake if customized solution is required.

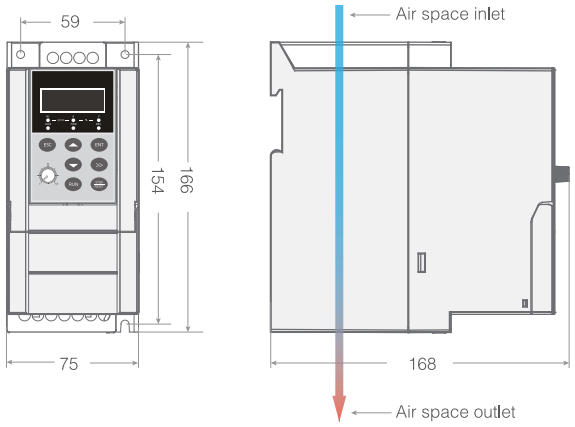


MODEL INFORMATION

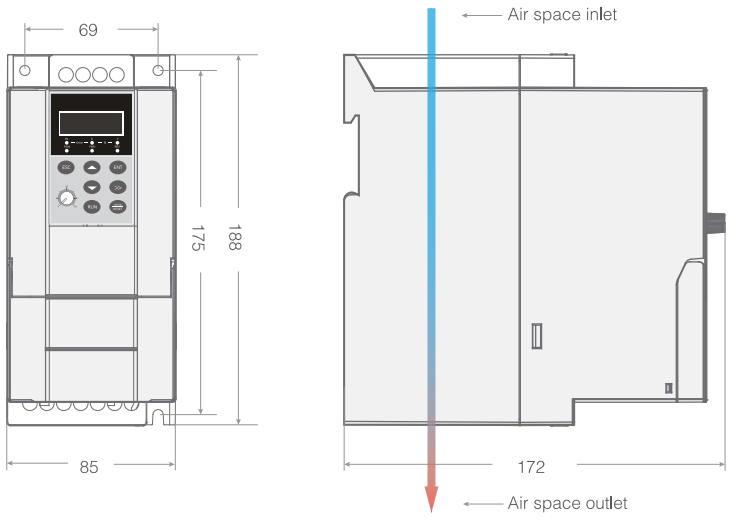
Model*1	Power Rating (kW)	Rated Output Current (Amps)	Rated Input Current (Amps)*2	Applicable Motor (kW)	Dimensions Frame NO.
GK500-2T0.4B	0.4	2.6	3.2/5.5	0.4	A
GK500-2T0.75B	0.75	4.5	6.3/9.2	0.75	
GK500-2T1.5B	1.5	7.5	9/14.5	1.5	B
GK500-2T2.2B	2.2	9.6	15/23	2.2	
GK500-4T0.75B	0.75	2.5	3.5	0.75	A
GK500-4T1.5B	1.5	3.8	6.2	1.5	
GK500-4T2.2B	2.2	5.5	9.2	2.2	B
GK500-4T3.7B	3.7	9.0	14.9	3.7	

NOTE *1: A(/B), A tells triphase input current, B tells single phase input current. *2: 200V drives are applicable to triphase 200V and single-phase 200V.

A



B



GK500 Mini AC Drive

The GK600 series are the drives that cover general purpose applications when they are requiring V/Hz and speed sensor-less vector control.

POWER RATINGS

1× 220 - 240V	0.4 - 2.2kW
3× 220 - 240V	0.4 - 110kW
3× 380 - 480V	0.75 - 1200kW
3× 525 - 690V	11-1200kW

COMPATIBILITY

Asynch motor control applicable

CONTROL TECHNOLOGY

V/Hz control

SVC1 SVC2

FEATURES

	Reliable	User-friendly	Intelligent
	Ambient temperature 45° C without derating Thickened conformal coating Optimized cooling system	Parameter copy Detachable control panel One platform numerous versions	Warning systems Multiple frequency references All-sided protection Online autotuning PC-based monitoring software Extensible features/parameter blocks
Benefit	Less need for cooling or oversizing Resistant to harsh surroundings Lower temperature rise	Save time for Commissioning Easy for remote control Save stocks	Warning before stop Powerful in intelligent applications Long lifetime & less maintaince cost Intelligent response to delicate variation Easy to operate Make the drives "just for you"

APPLICATIONS

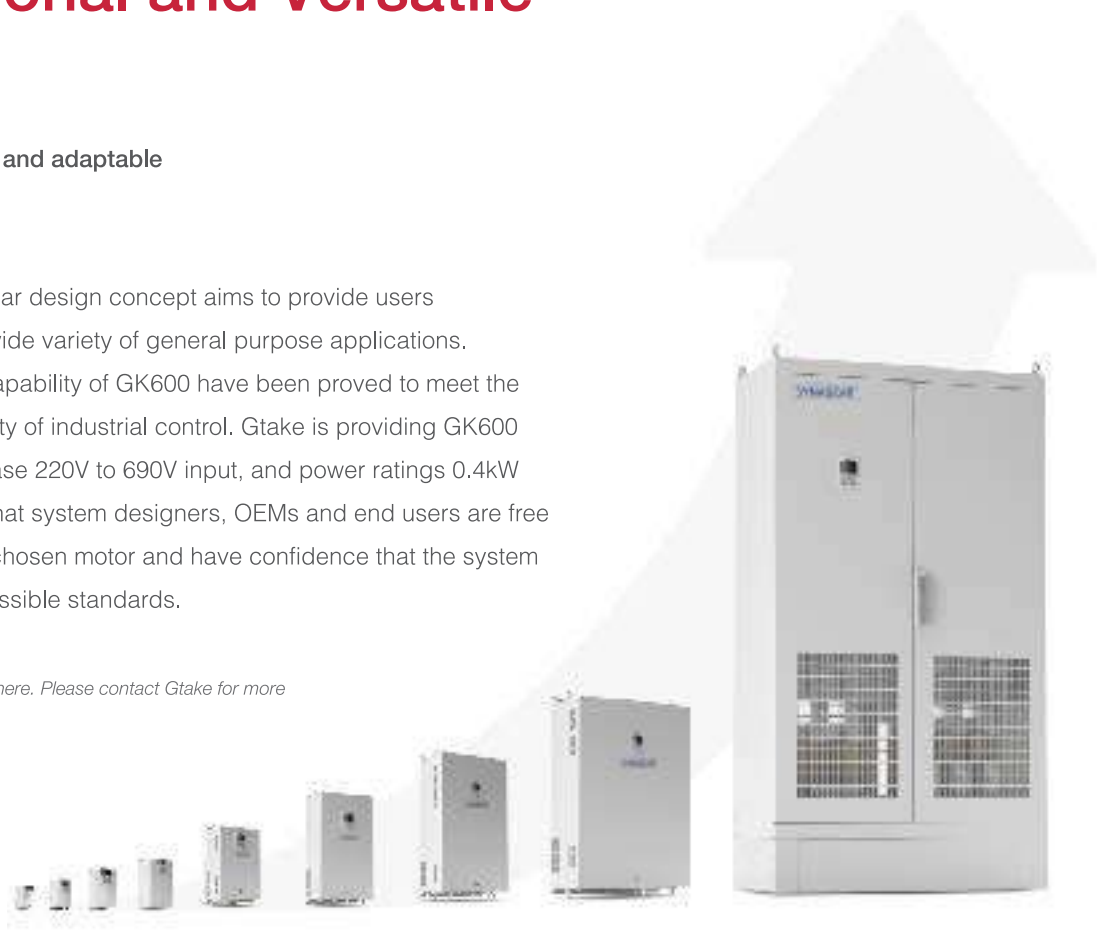
Textiles, plastics, ceramics, mining, conveyors, centrifuges, mills, saws, food processing machinery, packaging machinery, elevators and escalators, lifts, air compressors, central air conditioning, pharmaceuticals, pumps, fans, etc.

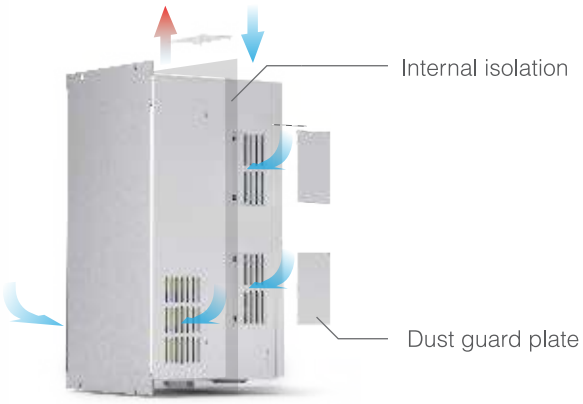
Multifunctional and Versatile

01 Modular, flexible and adaptable

GK600 on the basis of modular design concept aims to provide users multifunctional control for a wide variety of general purpose applications. Functionalities, and output capability of GK600 have been proved to meet the requirements of a vast majority of industrial control. Gtake is providing GK600 single-phase 220V, three-phase 220V to 690V input, and power ratings 0.4kW up to 1.2MW, which means that system designers, OEMs and end users are free to connect the drive to their chosen motor and have confidence that the system will operate to the highest possible standards.

NOTE: Only 0.4 kW-560kW are listed here. Please contact Gtake for more information of other power ratings.





02 Intelligent heat dissipation

GK600 drives adopt heat dissipation of completely isolated channel, which effectively prevents the air with heavy or conductive dust from entering into the compartment of electronic components. The windows at upper part can be kept open for assistant heat dissipation when the environment carries no heavy or conductive dust, and could be shrouded via the dust covers provided by Gtake for circuit board protection, though the boards are well conformal coated.

03 Hot pluggable and detachable control pannel

Quite conveninet for users to implement remote control via a cable connection, and the settings are easily transferred via the control pannel to another drive or from a PC to a drive with Gtake Drive Monitoring Software

04 Abundant hot-plugged options

One platform millions of version is the basic design concept of GK600. Numerous options are available and can be mounted and tested at factory or be hot-plugged in later for change-over or upgrade.

Fieldbus options

- EPC-CM1 CAN
- EPC-CM2 Profibus
- EPC-CM3 CanOpen

I/O options

- EPC-TM1 Analog and digital
- EPC-TM2 PT100 and relay
- EPC-VD1 Voltage
- EPC-VD2 Bus voltage detection and for optimized flying start
- EPC-IM1 Analog for injection
- EPC-IM2 Current analog
- EPC-RT1 Real-time clock

CAN

CANopen

PROFIBUS®

I/O Expansion

*NOTE: See the complete list of options on **page 67**.*

05 Three control modes

GK600 drives are embedded with three control modes, V/Hz control, SVC1 and SVC2, for the purpose of fulfilling a wide variety of industrial applications. SVC1 is the robust open-loop vector control mode accepting static auto-tune, while SVC2, the precise open-loop vector control, requests rotary auto-tune.

Control mode	V/Hz	SVC1	SVC2
Speed adjustable range	1:100	1:100	**1:200**
Speed accuracy	±0.5%	±0.2%	±0.2%
Speed ripple	/	±0.3%	±0.3%

06 Big start torque

Tailored with optimal algorithm, GK600 drives are able to output up to 180% of rated torque at 0.5Hz of V/Hz mode, SVC1 mode, and output 180% at 0.25Hz of SVC2 mode.

180%

07 Strong overload capability

The GK600 drives won't trip when they output 150% of the rated output current for 1 minute, 180% for 10 seconds, and 200% for 0.5 second, once per 10 minutes.

200%

08 High efficiency

At rated input voltage and rated load condition, the efficiency of GK600 drives are up to 98%.

98%

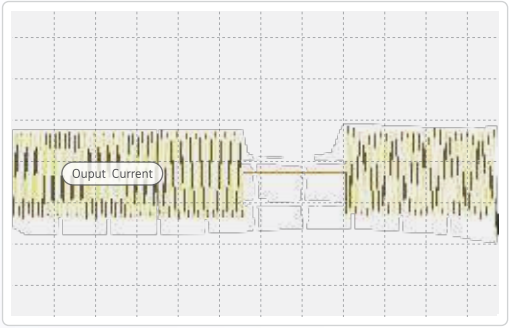
NOTE: At rated condition, the efficiency of the drives 7.5kW and below is higher than or equals 93%, 11kW till 45kW is higher than or equals 95%, while 55Kw and above, 98%.

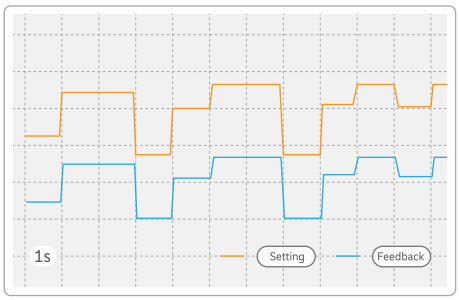
09 Precise autotune

GK600 drives are equipped with precise motor rotary or static autotune. The data of two motors are programmable and the operation to them is switchable.

10 Flying start supported

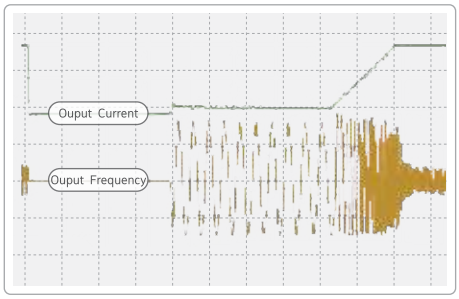
Two kinds of flying start selection are programmable for the smooth restart of a rotary motor. One of the selections is based on software evaluation only, while the other one should be mated with an option board for quite smooth restart without any jerk.





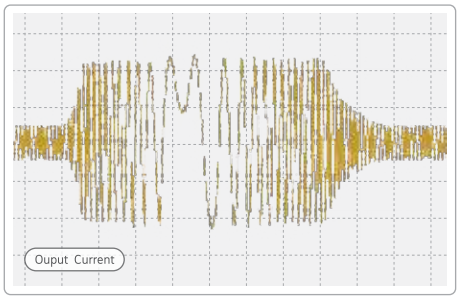
11 Quick dynamic response

Torque response time of GK600 drives is as short as 10ms at SVC1 or SVC2 mode.



12 Cycle-By-Cycle current limit

The GK600 drives are equipped with the function of cycle-by-cycle current limit. The drive knows how to adjust its output frequency and current suitably to avoid trip when there is a saltation at the load.



13 Short dead time between forward and reverse

Even at the setting of deceleration and acceleration time 0.1 second, a GK600 drive can smoothly complete the transition between forward and reverse, popular at applications requiring frequent and fast switchover between forward and reverse.

14 Preeminent field-weakening control

Equipped with field-weakening control, GK600 drives have the preeminent output torque and ramp character.

15 V/Hz separated control

Output voltage and output frequency can be controlled separately for the GK600 drives, widely used at variable frequency power sources, torque motors, etc.

GK600 drives support future upgrade which typically benefits for the applications when your automation system has a need of upgrade or has a new motional rquirement or new request for system adjustment. Gtake can provide the kit for online upgrade operated easily by customers theirselves, making "just for you" achieved.

SPECIFICATIONS

Mains supply (R/L1, S/L2, T/L3)

Supply voltage	200-240V / 380-480V / 525-690V ±10% (lasting), -15%~+10% (short)
Supply frequency	50/60Hz ±5%
True Power Factor (λ)	0.92 nominal at rated load
Displacement Power Factor (cos ϕ) near unity	(>0.98)
Switching on input supply R/L1, S/L2,T/L3	Maximum 2 times/min.

Output data (U/T1, V/T2, W/T3)

Output voltage	0-100% of supply voltage
Output frequency	0-600Hz(standard) 0-16kHz or more (customized)
Switching on output	Unlimited
Ramp times	0-600.00s/6000.0s/60000s

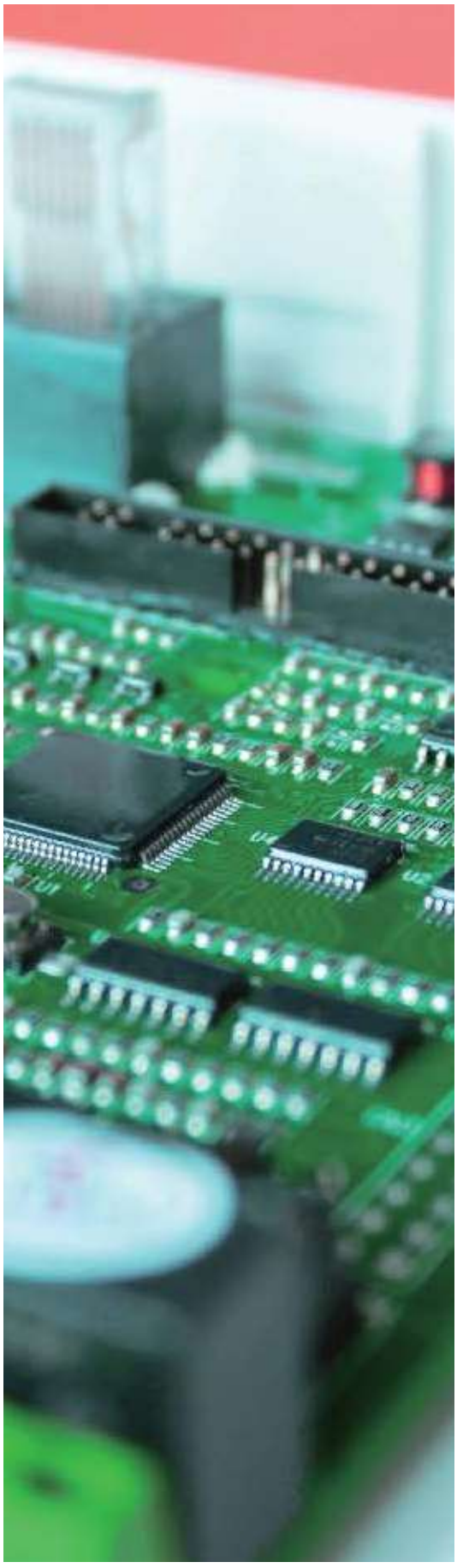
NOTE: 150% current can be provided for 1 minute, 180% for 10 seconds, 200% for 0.5 second. Higher overload rating is achieved by oversizing the drive.

Digital input

Programmable digital inputs	6 (local), 8 (extensible)
Logic	PNP or NPN
Input	24VDC, 5mA
Frequency range	0-200Hz
Voltage level	10V-30V

Analog input

Analog inputs	2 (local), 3 (extensible)
Modes	Voltage or current
Voltage level	0 to +10V, -10 to +10V (scaleable)
Current level	0/4 to 20mA (scaleable)



Pulse input

Progammable pulse inputs	1
Frequency range	0.1Hz-50kHz
Voltage level	10-30V

Digital output

Programmable digital/pulse outputs	2/1
Voltage level	0-24V
Current level	0-50mA
Pulse frequency	0-50kHz

ModBus

Rate	4800/9600/19200/38400/57600/115200bps
Formats	RTU, ASCII

Analog output

Progammable analog outputs	1 (local), 3 (extensible)
Voltage level	0-10V
Current level	0-20mA

Relay output

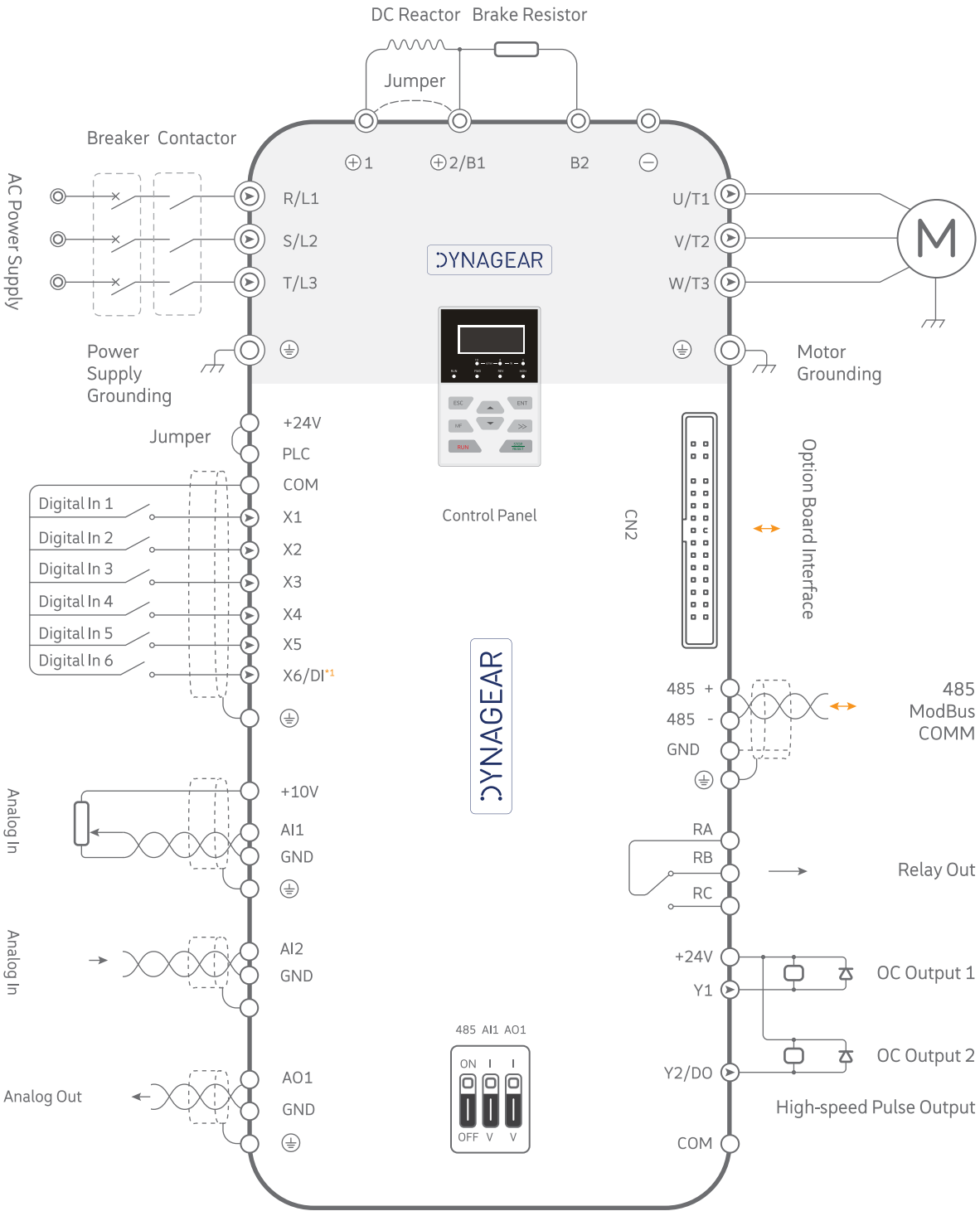
Programmable relay outputs	1 (local), 3 (extensible)

Remote control panel

Maximum cable length	15m

BASIC CONNECTION

Following is the default wiring diagram for GK600. Please consult Gtake if customized solution is required.



Paired Cable Shielded Cable

NOTE *1:compatible for Pulse In

MODEL INFORMATION

2T

Model*1		0.4B	0.75B	1.5B	2.2B	3.7B	5.5B	7.5B	11 (B)	15 (B)
Load*2		HD	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Rated Output Current	[A]	2.6	4.5	7.5	11	16.5	24	30	45	60
1AC Rated Input Current	[A]	5.5	9.2	14.5	23	-	-	-	-	-
3AC Rated Input Current	[A]	3.2	6.3	9	15	20.5	29	35	50	65
Applicable Motor	[kW]	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Frame NO.	[/]		A1		B1	B2		B3		C1

Model		18.5(B)	22(B)	30(B)	37(B)	45	55	75	90	110
Load*2		HD	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	18.5	22	30	37	45	55	75	90	90
Rated Output Current	[A]	73	91	112	144	176	210	288	350	430
Rated Input Current	[A]	80	95	118	150	160	192	266	326	403
Applicable Motor	[kW]	18.5	22	30	37	45	55	75	90	110
Frame NO.	[/]		C2		C3		D1	D2	E1	E2

NOTE

**1: **B - means brake chopper is inbuilt; **(B) - means brake chopper is optionally inbuilt; ** - means brake chopper externally mounted when needed. Take 18.5G/22L for example: the model without brake chopper is GK600-2T18.5, and the model with brake chopper is GK600-2T18.5B. Braking resistor needs to be mounted externally.*

**2: HD - Heavy duty.*

4T

Model		0.75G/1.5LB		1.5G/2.2LB		2.2G/3.7LB		3.7G/5.5LB	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	0.75	1.5	1.5	2.2	2.2	3.7	3.7	5.5
Rated Output Current	[A]	2.5	3.8	3.8	4.8	5.5	8.0	9.0	11
Rated Input Current	[A]	3.5	5.0	5.0	5.5	6.0	10	10.5	14
Applicable Motor	[kW]	0.75	1.5	1.5	2.2	2.2	3.7	3.7	5.5
Frame NO.	[/]		A1						B1

Model		5.5G/7.5LB		7.5G/11LB		11G/15LB		15G/18.5LB	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	5.5	7.5	7.5	11	11	15	15	18.5
Rated Output Current	[A]	13	16	17	21	24	30	30	36
Rated Input Current	[A]	14.6	20	20.5	25	29	35	35	40
Applicable Motor	[kW]	5.5	7.5	7.5	11	11	15	15	18.5
Frame NO.	[/]		B2						B3

Model		18.5G/22L(B)		22G/30L(B)		30G/37L(B)		37G/45L(B)	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	18.5	22	22	30	30	37	37	45
Rated Output Current	[A]	39	45	45	56	60	72	75	91
Rated Input Current	[A]	44	50	50	60	65	76	80	95
Applicable Motor	[kW]	18.5	22	22	30	30	37	37	45
Frame NO.	[/]			C1					C2

Model		45G/55L (B)		55G/75L (B)		75G/90L (B)		90G/110L	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	45	55	55	75	75	90	90	110
Rated Output Current	[A]	91	112	112	142	150	176	176	210
Rated Input Current*3	[A]	95	118	118	148	157	180	160	192
Applicable Motor	[kW]	45	55	55	75	75	90	90	110
Frame NO.	[/]	C2		C3				D1	

Model		110G/132L		132G/160L		160G/185L		185G/200L	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	110	132	132	160	160	185	185	200
Rated Output Current	[A]	210	250	253	304	310	350	350	380
Rated Input Current*3	[A]	192	230	232	280	285	326	326	354
Applicable Motor	[kW]	110	132	132	160	160	185	185	200
Frame NO.	[/]	D1		D2				E1	

Model		200G/220L		220G/250L		250G/280L		280G/315L	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	200	220		250		280		315
Rated Output Current	[A]	380	430		470		520		590
Input Current*3	[A]	354	403		441		489		571
Applicable Motor	[kW]	200	220		250		280		315
Frame NO.	[/]	E1						E2	

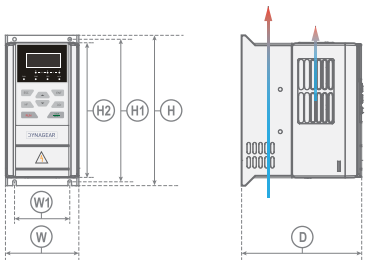
Model		315G/355L		355G/400L		400G/450L		450G/500L	
	Load	HD	LD	HD	LD	HD	LD	HD	LD
Power Rating	[kW]	315	355		400		450		500
Rated Output Current	[A]	590	650		725		820		860
Rated Input Current*3	[A]	571	624		699		790		835
Applicable Motor	[kW]	315	355		400		450		500
Frame NO.	[/]							E3	

Model		500G	560G	630G
	Load	HD	HD	HD
Power Rating	[kW]	500	560	630
Rated Output Current	[A]	860	950	1100
Rated Input Current*3	[A]	835	920	1050
Applicable Motor	[kW]	500	560	630
Frame NO.	[/]	E3		F1

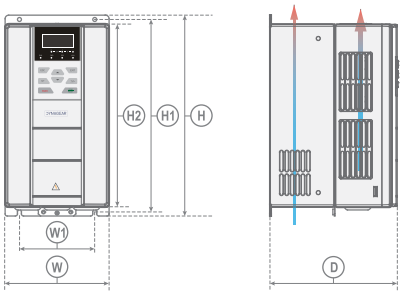
*NOTE *3: the green numbers say the rated input currents configured DC reactors. The drives GK600-4T90G/110L - GK600-4T500G are provided with external-mounted DC reactors in shipment as default. Be sure to connect the DC reactor. Failure to comply may result in drive abnormal run. GK600-4T560G and GK600-4T630G are cabinet type, whose DC reactor and output AC reactor are inbuilt as default.*

DIMENSIONS

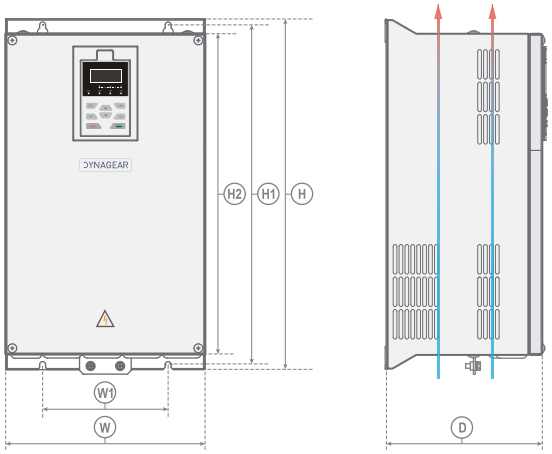
Frames		A1	B1	B2	B3	C1	C2	C3	D1	D2	E1	E2	E3	F1
W	[mm]	93	120	145	190	270	320	385	395	440	500	650	815	1100
W1	[mm]	70	80	105	120	170	220	260	260	300	360	400	600	-
H	[mm]	190	245	280	365	475	568	670	785	900	990	1040	1300	2000
H1	[mm]	180	233	268	353	460	544	640	750	865	950	1000	1252	-
H2	[mm]	172	220	255	335	435	515	600	705	820	900	950	1200	-
D	[mm]	152	169	179	187	220	239	261	291	356	368	406	428	550
Mounting hole dia.	[mm]	4.5	5.5	5.5	6	8	10	12	12	14	14	14	14	-
Weight	[kg]	1.4	2.9	3.9	6.2	15.5	24	37	50	66	88	123	165	515



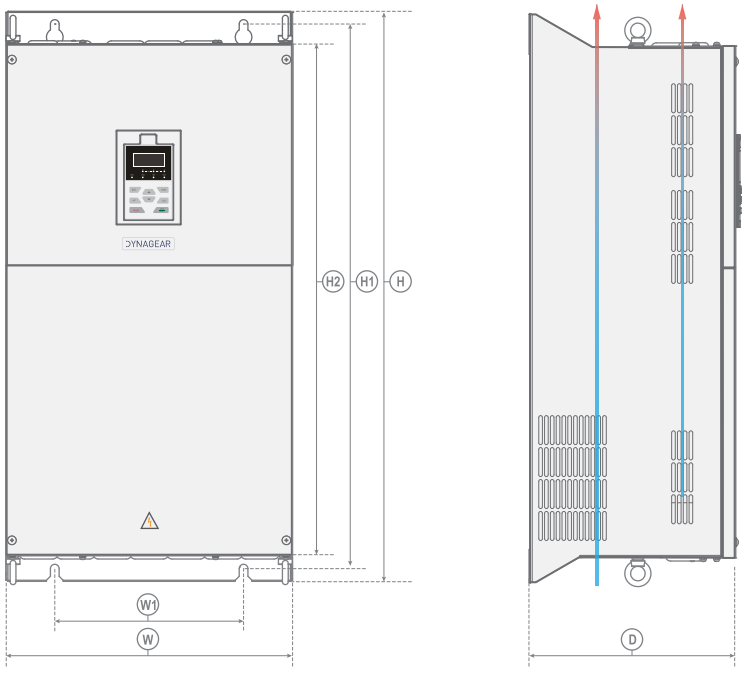
A { A1 }



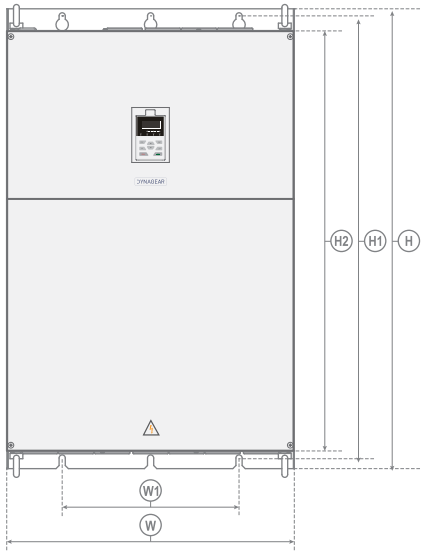
B { B1 B2 B3 }

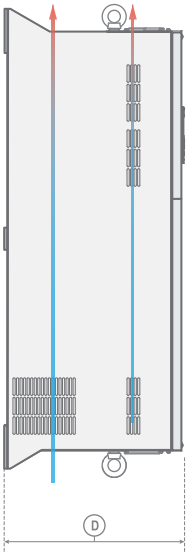


C { C1 C2 C3 }

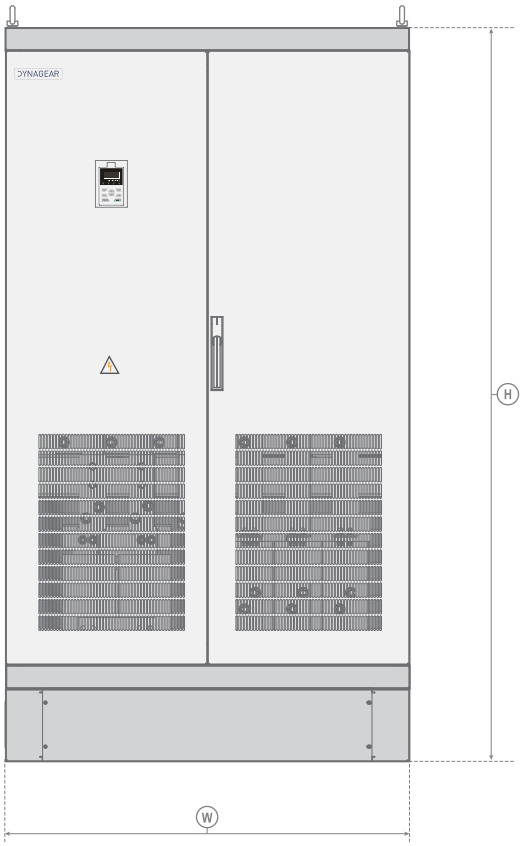


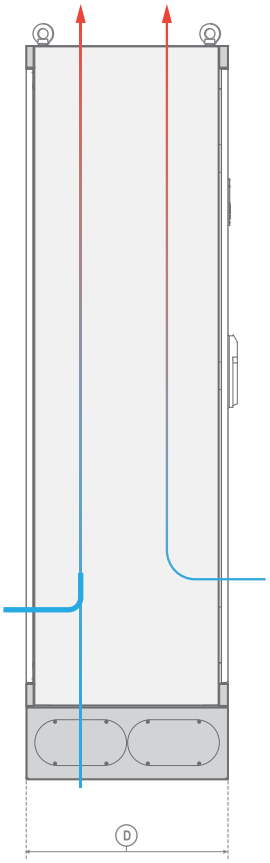
D { D1 D2 }





E { E1 E2 E3 }





F { F1 }

DYNAGEAR

GK800 High Performance AC Drive

The GK800 series are the drives that cover an entire range of applications, particular in demanding ones that require precise speed control, torque control,tension control, fast response, etc.

POWER RATINGS

1× 220 - 240V	1.5 - 2.2kW
3× 220 - 240V	1.5 - 110kW
3× 380 - 480V	1.5 - 1200kW
3× 525 - 690V	11-1200kW

COMPATIBILITY

Synch motor control applicable

Asynch motor control applicable

CONTROL TECHNOLOGY

V/Hz control

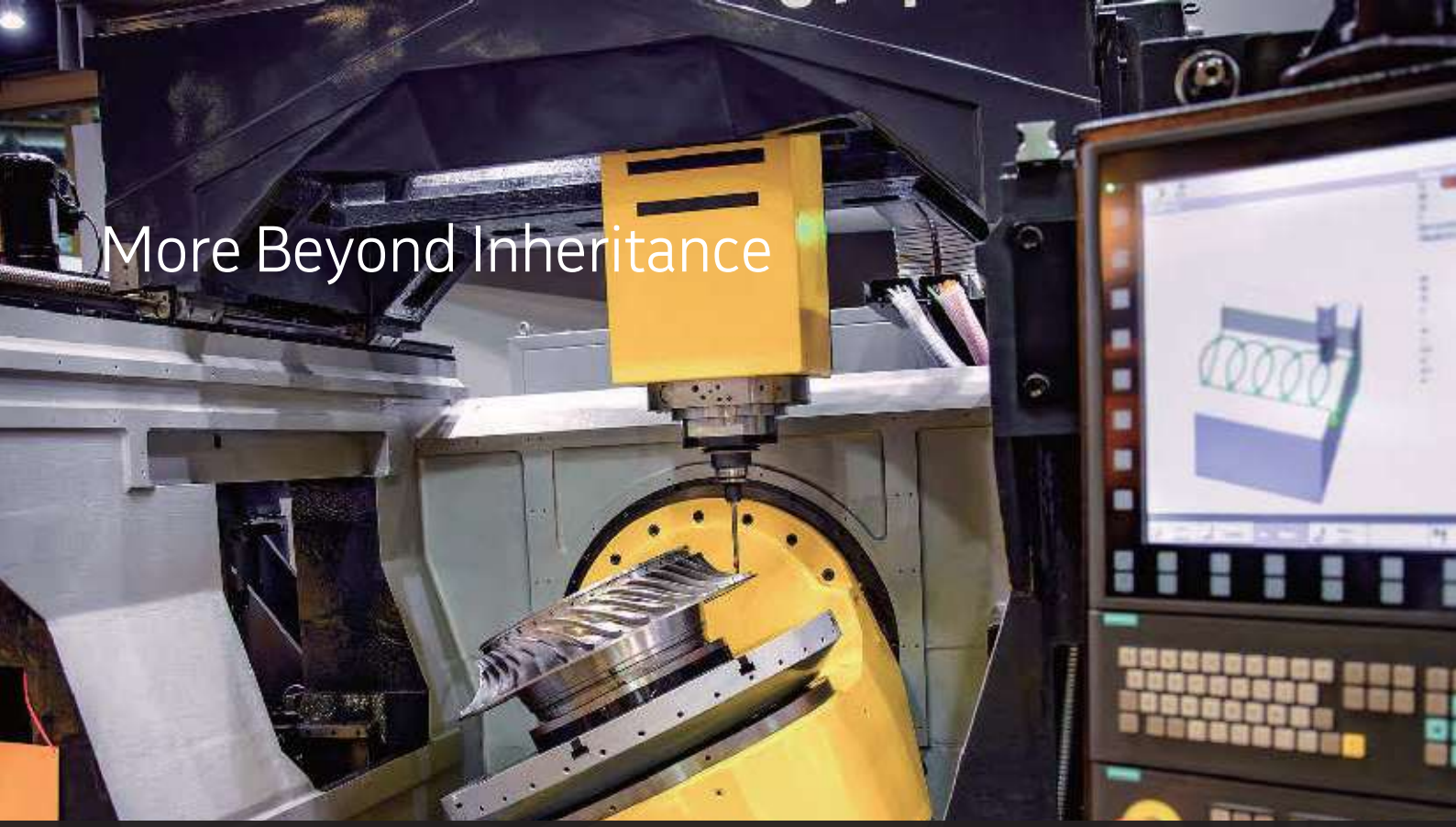
SVC1 SVC2 VC

FEATURES

	Reliable	User-friendly	Intelligent
	Ambient temperature 45° C without derating Thickened conformal coating Optimized cooling system	Parameter copy Detachable control panel One platform numerous versions	Warning systems Multiple frequency references All-sided protection Online autotuning PC-based monitoring software Extensible features/parameter blocks
Benefit	Less need for cooling or oversizing Resistant to harsh surroundings Lower temperature rise	Save time for Commissioning Easy for remote control Save stocks	Warning before stop Powerful in intelligent applications Long lifetime & less maintaince cost Intelligent response to delicate variation Easy to operate Make the drives "just for you"

APPLICATIONS

Hoists & Cranes, Elevators & Escalators, Machine tool, Drawbench, etc.



More Beyond Inheritance

01 Faster, stronger, more precise

Inheriting all the merits of GK600 drives, GK800 drives are extended more on performance, I/O interfaces and functionalities. Users could choose GK800 drives in demanding applications for bigger output torque, more precise speed and faster response.

NOTE: Only 0.4 kW-560kW are listed here. Please contact Gtake for more information of other power ratings.

Latest dedicated chip

02 One for all

GK800 drives can well control asynchronous motors and permanent magnet synchronous motors. A GK800 drive can be set to control two motors, switched by a programmable terminal or a parameter.

03 Hot pluggable and detachable control pannel

Quite conveninet for users to implement remote control via a cable connection, and the settings are easily transferred via the control pannel to another drive or from a PC to a drive with Gtake Drive Monitoring Software

04 Abundant hot-plugged options

One platform millions of version is the basic design concept of GK800. Numerous options are available and can be mounted and tested at factory or be hot-plugged in later for change-over or upgrade.

Fieldbus options

- EPC-CM1 CAN
- EPC-CM2 Profibus
- EPC-CM3 CanOpen

I/O options

- EPC-TM1 Analog and digital
- EPC-TM2 PT100 and relay
- EPC-VD1 Voltage
- EPC-VD2 Bus voltage detection and for optimized flying start
- EPC-IM1 Analog for injection
- EPC-IM2 Current analog
- EPC-RT1 Real-time clock

Encoder options

- EPC-PG1 ABZ open collect/push-pull encoder
- EPC-PG2 ABZ differential encoder, ABZ differential output
- EPC-PG3 UVW encoder
- EPC-PG4 Resolver, DB15 connection
- EPC-PG5 Sincos encoder
- EPC-PG6 Resolver, push-pull output
- EPC-PG8 ABZ differential encoder, ABZ open collection output
- EPC-PG9 Resolver

CAN

CANopen

PROFIBUS®

I/O Expansion

Encoders

NOTE: See the complete list of options on page 67.

NOTE: A maximum of two option boards can be mounted at a GK800 control board. Please contact Gtake for the compatibility and conflict when two option boards need to be mounted at one control board.

05 Four control modes

GK800 drives are equipped with four kinds of control modes, V/Hz, SVC1, SVC2, VC, fulfilling a wide variety of demanding industrial applications.

Control mode	V/Hz	SVC1	SVC2	VC
Speed adjustable range	1:100	1:100	**1:200**	**1:1000**
Speed accuracy	±0.5%	±0.2%	±0.2%	±0.02%
Speed ripple	/	±0.3%	±0.3%	±0.1%

06 Supreme start torque

The drives of GK800 series can output 200% of the rated output torque at 0Hz under VC control mode.

07 Torque control programmable

Speed control and torque control are programmable via parameter or can be switched via terminal digital input at GK800. Torque control accuracy reaches ±5%, while response time is less than 5ms.

08 Four kinds of position control

Under VC control mode, a GK800 drive can undertake the task of zero-speed clamping, angular positioning*1, fixed-length control*2, and positioning via pulse input. The precision of positioning at pulse input reaches ±1 pulse.

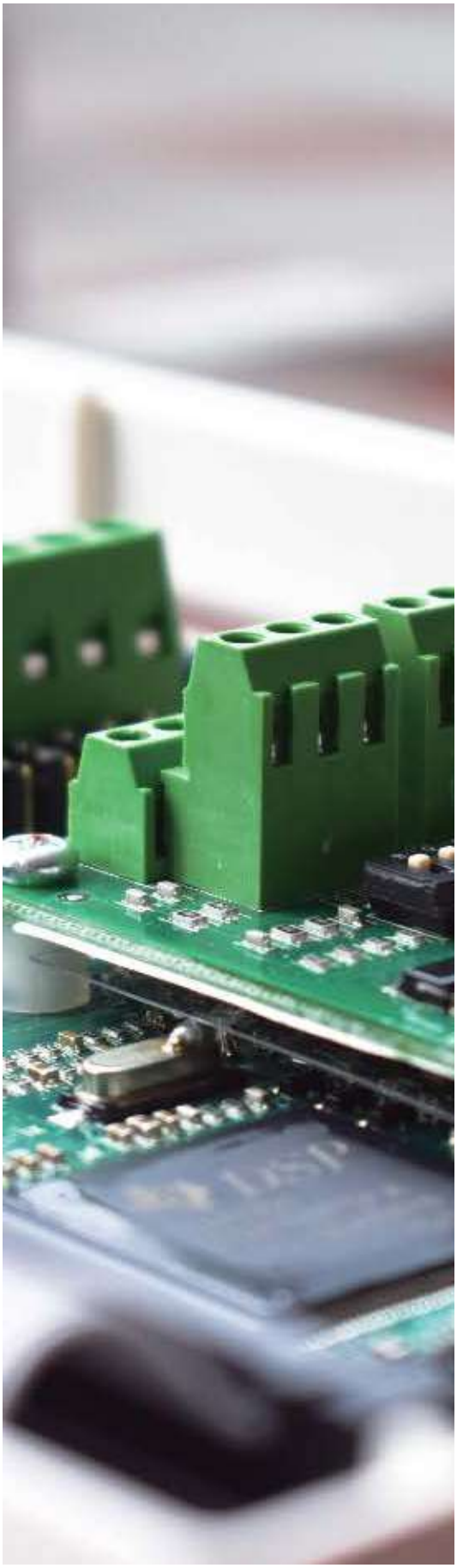
NOTE **1: 4angular positions realizable; *2: 8 fixed-length positions programmable.*

09 Flexible electronic gear

Through the function of electronic gear at GK800, closed-loop vector control still can be performed even the encoder is not mounted at the motor shaft, quite convenient for applications when the encoder is not easily to be mounted at the motor shaft.

NOTE **3: The shaft that the encoder is mounted at should have fixed speed ratio with motor shaft.*

SPECIFICATIONS



Mains supply (R/L1, S/L2, T/L3)

Supply voltage	200-240V / 380-480V / 525-690V ±10% (lasting), -15%~+10% (short)
Supply frequency	50/60Hz ±5%
True Power Factor (λ)	0.92 nominal at rated load
Displacement Power Factor (cos ϕ) near unity	(>0.98)
Switching on input supply R/L1, S/L2,T/L3	Maximum 2 times/min.

Output data (U/T1, V/T2, W/T3)

Output voltage	0-100% of supply voltage
Output frequency	0-600Hz(standard) 0-16kHz or more (customized)
Switching on output	Unlimited
Ramp times	0-600.00s/6000.0s/60000s

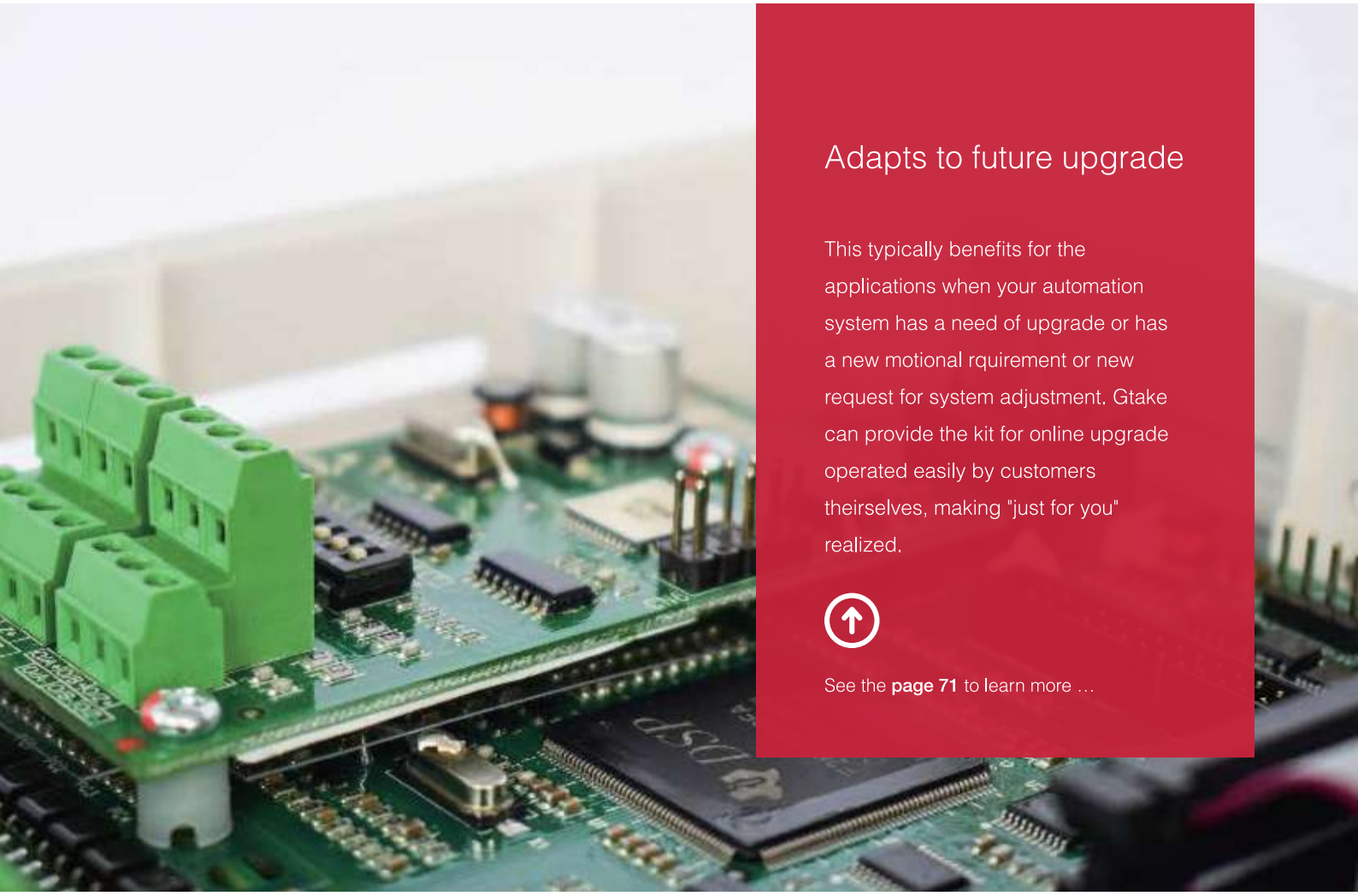
NOTE: 150% current can be provided for 1 minute, 180% for 10 seconds, 200% for 0.5 second. Higher overload rating is achieved by oversizing the drive.

Digital input

Programmable digital inputs	7 (local), 9 (extensible)
Logic	PNP or NPN
Input	24VDC, 5mA
Frequency range	0-200Hz
Voltage level	10V-30V

Analog input

Analog inputs	3 (local), 4 (extensible)
Modes	Voltage or current
Voltage level	0 to +10V, -10 to +10V (scaleable)
Current level	0/4 to 20mA (scaleable)



Adapts to future upgrade

This typically benefits for the applications when your automation system has a need of upgrade or has a new motional rquirement or new request for system adjustment. Gtake can provide the kit for online upgrade operated easily by customers theirselves, making "just for you" realized.

See the **page 71** to learn more …

Pulse input

Progammable pulse inputs	1
Frequency range	0.1Hz-50kHz
Voltage level	10-30V

Encoder input

Power supply to encoder	5V/12V(local)
Ports	A+, A-, B+, B-

ModBus

Rate	4800/9600/19200/38400/57600/115200bps
Formats	RTU, ASCII

Relay output

Programmable relay outputs	2 (local), 4 (extensible)

Digital output

Programmable digital/pulse outputs	2/1
Voltage level	0-24V
Current level	0-50mA
Pulse frequency	0-50kHz

Analog output

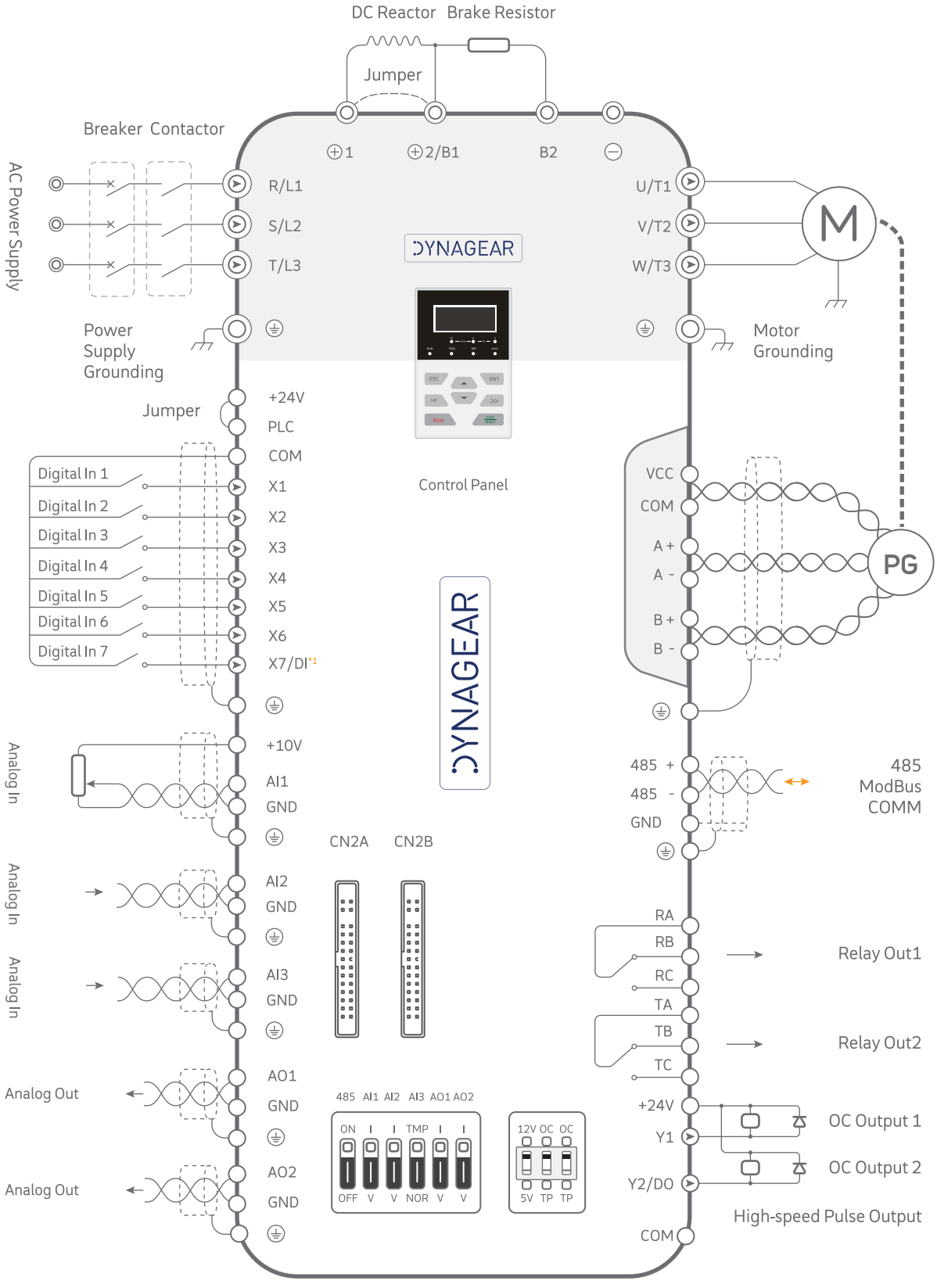
Progammable analog outputs	2 (local), 4 (extensible)
Voltage level	0-10V
Current level	0-20mA

Remote control panel

Maximum cable length	15m

BASIC CONNECTION

Following is the default wiring diagram for GK800. Please consult Gtake if customized solution is required.



MODEL INFORMATION

2T

Model*1		1.5B	2.2B	3.7B	5.5B	7.5B	11 (B)	15 (B)
	Load*2	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	1.5	2.2	3.7	5.5	7.5	11	15
Rated Output Current	[A]	7.5	11	16.5	24	30	45	60
1Phase-Rated Input Current	[A]	14.5	23	-	-	-	-	-
3Phase-Rated Input Current	[A]	9	15	20.5	29	35	50	65
Applicable Motor	[kW]	1.5	2.2	3.7	5.5	7.5	11	15
Frame NO.	[/]	B1	B1	B2	B3		C1	

Model		18.5(B)	22(B)	30(B)	37(B)	45	55	75	90	110
	Load*2	HD	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	18.5	22	30	37	45	55	75	90	90
Rated Output Current	[A]	73	91	112	144	176	210	288	350	430
Rated Input Current	[A]	80	95	118	150	160	192	266	326	403
Applicable Motor	[kW]	18.5	22	30	37	45	55	75	90	110
Frame NO.	[/]	C2		C3		D1		D2	E1	E2

NOTE

**1: **B - means brake chopper is inbuilt; **(B) - means brake chopper is optionally inbuilt; ** - means brake chopper externally mounted when needed. Take 18.5G/22L for example: the model without brake chopper is GK600-2T18.5, and the model with brake chopper is GK600-2T18.5B. Braking resistor needs to be mounted externally.*

**2: HD - Heavy duty.*

4T

Model		1.5B	2.2B	3.7B	5.5B	7.5B	11B	15B	18.5(B)
	Load	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	1.5	2.2	3.7	5.5	7.5	11	15	18.5
Rated Output Current	[A]	3.8	5.5	9.0	13	17	24	30	39
Rated Input Current	[A]	5.0	6.0	10.5	14.6	20.5	29	35	44
Applicable Motor	[kW]	1.5	2.2	3.7	5.5	7.5	11	15	18.5
Frame NO.	[/]	A1	B1		B2		B3		C1

Model		22(B)	30(B)	37(B)	45(B)	55	75	90	110
	Load	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	22	30	37	45	55	75	90	110
Rated Output Current	[A]	45	60	75	91	112	150	176	210
Rated Input Current	[A]	50	65	80	95	118	157	160	192
Applicable Motor	[kW]	22	30	37	45	55	75	90	110
Frame NO.	[/]	C1		C2		C3		D1	

Model		132	160	185	200	220	250	280	315
	Load	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	132	160	185	200	220	250	280	315
Rated Output Current	[A]	253	310	350	380	430	470	520	590
Rated Input Current	[A]	232	285	326	354	403	441	489	571
Applicable Motor	[kW]	132	160	185	200	220	250	280	315
Frame NO.	[/]	D2		E1		E2			E3

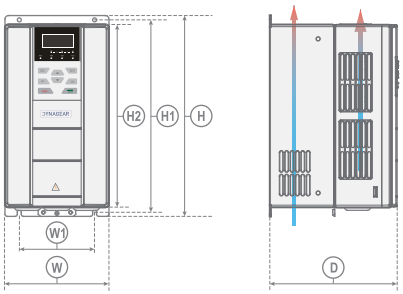
Model		355	400	450	500	560	630
	Load	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	355	400	450	500	560	630
Rated Output Current	[A]	650	725	820	860	950	1100
Rated Input Current	[A]	624	699	790	835	920	1050
Applicable Motor	[kW]	355	400	450	500	560	630
Frame NO.	[/]				E3		F1

*NOTE *3: the green numbers say the rated input currents configured DC reactors. The drives GK600-4T90 - GK600-4T500 are provided with external-mounted DC reactors in shipment as default. Be sure to connect the DC reactor. Failure to comply may result in drive abnormal run. GK800-4T560 and GK800-4T630G are cabinet type, whose DC reactor and output AC reactor are inbuilt as default.*

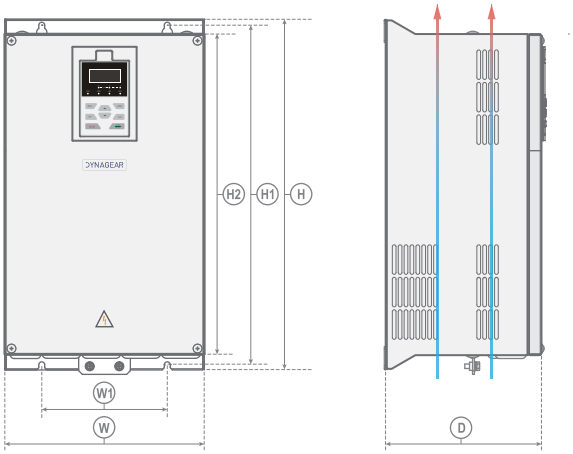
DIMENSIONS

Frames		B1	B2	B3	C1	C2	C3	D1	D2	E1	E2	E3	F1
W	[mm]	120	145	190	270	320	385	395	440	500	650	815	1100
W1	[mm]	80	105	120	170	220	260	260	300	360	400	600	-
H	[mm]	245	280	365	475	568	670	785	900	990	1040	1300	2000
H1	[mm]	233	268	353	460	544	640	750	865	950	1000	1252	-
H2	[mm]	220	255	335	435	515	600	705	820	900	950	1200	-
D	[mm]	169	179	187	220	239	261	291	356	368	406	428	550
Mounting hole dia.	[mm]	5.5	5.5	6	8	10	12	12	14	14	14	14	-
Weight	[kg]	2.9	3.9	6.2	15.5	24	37	50	66	88	123	165	515

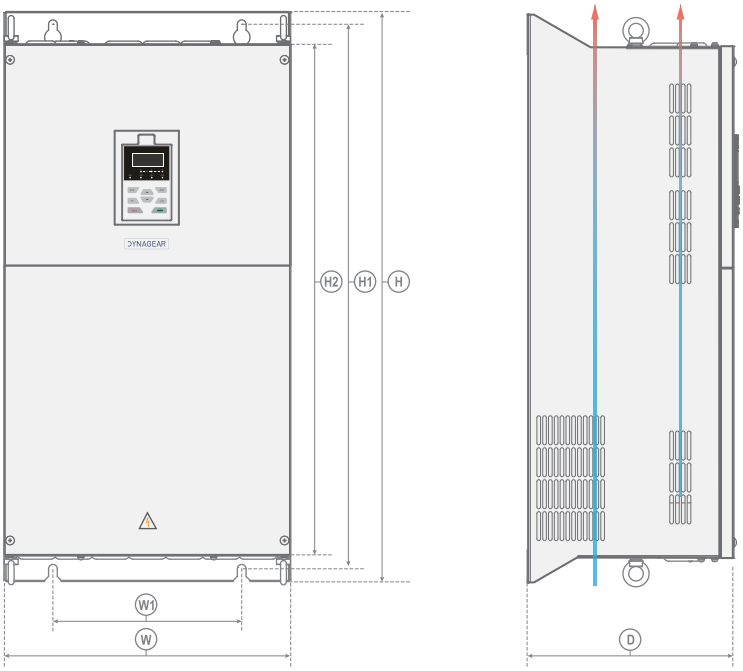
*NOTE: *Please see the GK800 user manual for other frames, available at http://www.gtake.com.cn.*



B { B1 B2 B3 }

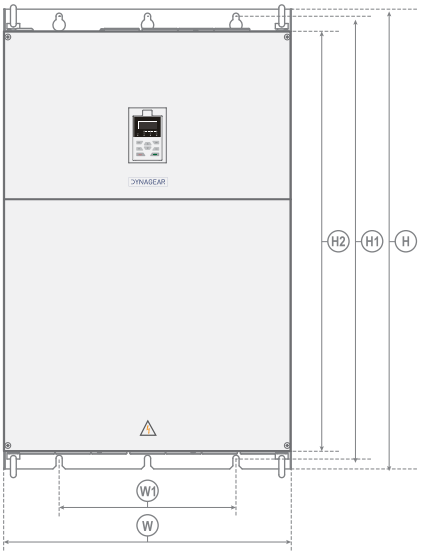


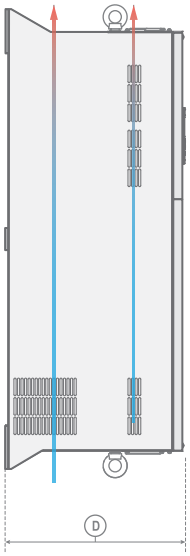
C { C1 C2 C3 }



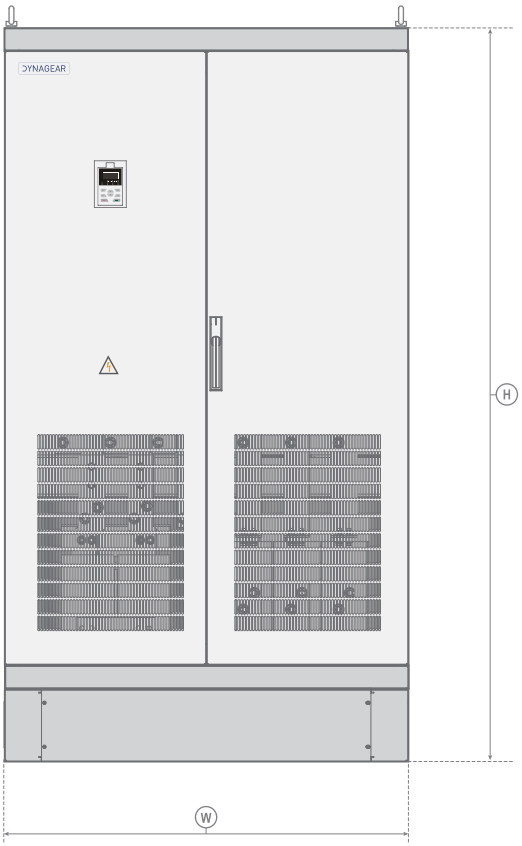
D { D1 D2 }

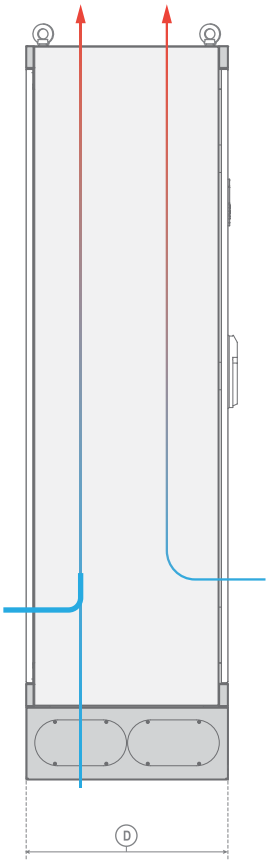
E { E1 E2 E3 }





F { F1 }





GK510

Dedicated AC Drive

For textile manufacturing machines

GK510 dedicated drives are tailored for textile industry. These mini drives are powerful in performance and compact in sizes. Their frame dimensions, dedicated function, and type of heat dissipation are all considerate for various textile machines.

COMPATIBILITY

Asynch motor control applicable

POWER RATINGS

1× 200 - 240V	0.75 - 2.2kW
3× 200 - 240V	0.75 - 2.2kW
3× 380 - 480V	0.75 - 2.2kW

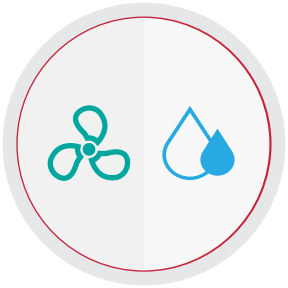
CONTROL TECHNOLOGY

V/Hz SVC1

FEATURES

01 Adaptive to textile industry environment

extile industry locations are always filled with cotton fiber and have high ambient temperature. GK510 dedicated drives are equipped with completely separated heat sink, as well as forced air cooling and water cooling are selectable.

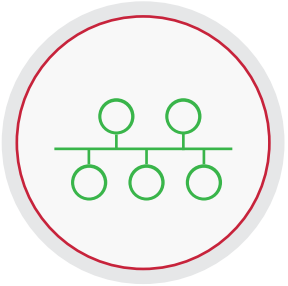


02 Remote control panel supported

GK510 drives support remote control panel operation including parameter copy, a benefit for textile industry and OEM users to reduce the cost of commissioning.

03 Common DC bus

Common DC bus connection is permissible for GK510, a big promotion in the efficiency of energy saving.

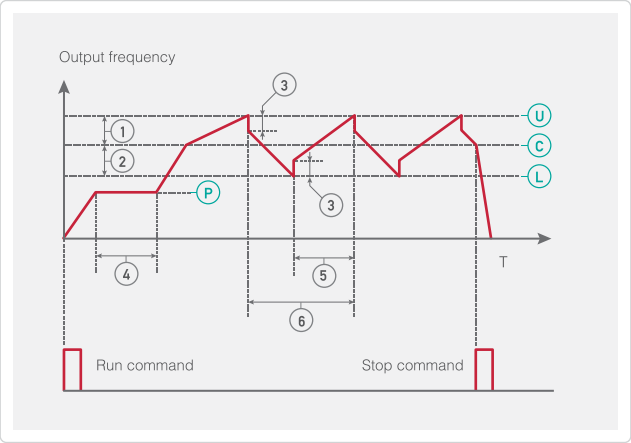


04 Multiple frequency references

GK510 drives support multiple frequency references, a lot of logic and/or hardware combination, meeting a variety of industrial requirement.

05 Stronger wobble frequency

Gtake has a deep investigation and research on textile industry. Optimized wobble frequency inside GK510 enables the drive to have a wider applicability to all kinds of traverse motion.



- (U) Upper limit of wobble frequency
- (C) Center frequency
- (L) Lower limit of wobble frequency
- (P) Pre-wobble frequency
- (1) Wobble frequency positive amplitude
- (2) Wobble frequency negative amplitude
- (3) Hop frequency
- (4) Pre-wobble frequency holding time
- (5) Triangular wave rise time
- (6) Wobble frequency cycle

All parameters and trigger conditions of wobble function can be set flexibly. Remarkable control capability pledges spindle smooth without bumps.

SPECIFICATIONS

Mains supply (R/L1, S/L2, T/L3)

Supply voltage	200-240V /380-480V ±10% (lasting), -15%~+10% (short)
Supply frequency	50/60Hz ±5%
True Power Factor (λ)	0.92 nominal at rated load
Displacement Power Factor (cos ϕ) near unity	(>0.98)
Switching on input supply R/L1, S/L2,T/L3	Maximum 2 times/min.

Output data (U/T1, V/T2, W/T3)

Output voltage	0-100% of supply voltage
Output frequency	0-600Hz
Switching on output	Unlimited
Ramp times	0-600.00s/6000.0s/60000s

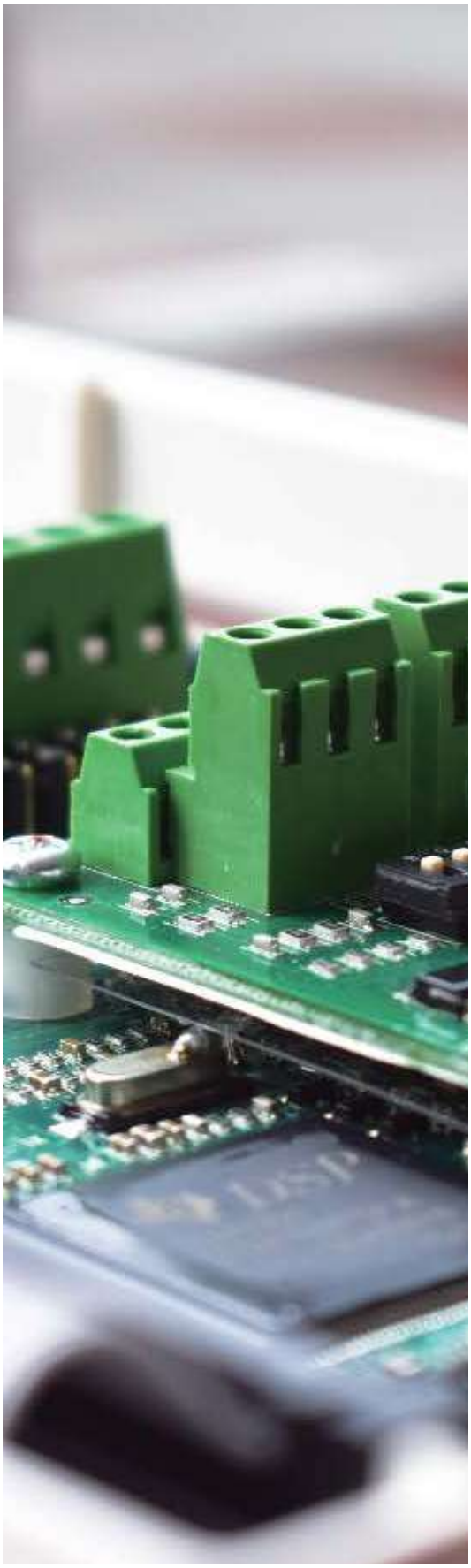
NOTE: 150% current can be provided for 1 minute, 180% for 10 seconds, 200% for 0.5 second. Higher overload rating is achieved by oversizing the drive.

Digital input

Programmable digital inputs	5
Logic	PNP or NPN
Input	24VDC, 5mA
Frequency range	0-200Hz
Voltage level	22V-26V

Analog input

Analog inputs	2
Modes	Voltage or current
Voltage level	0/-10 to 10V
Current level	0/4 to 20mA (scaleable)



ModBus

Rate	4800/9600/19200/38400/57600bps
Formats	RTU, ASCII

Digital output

Programmable digital/pulse outputs	2/1
Voltage level	0-24V
Current level	0-50mA

Relay output

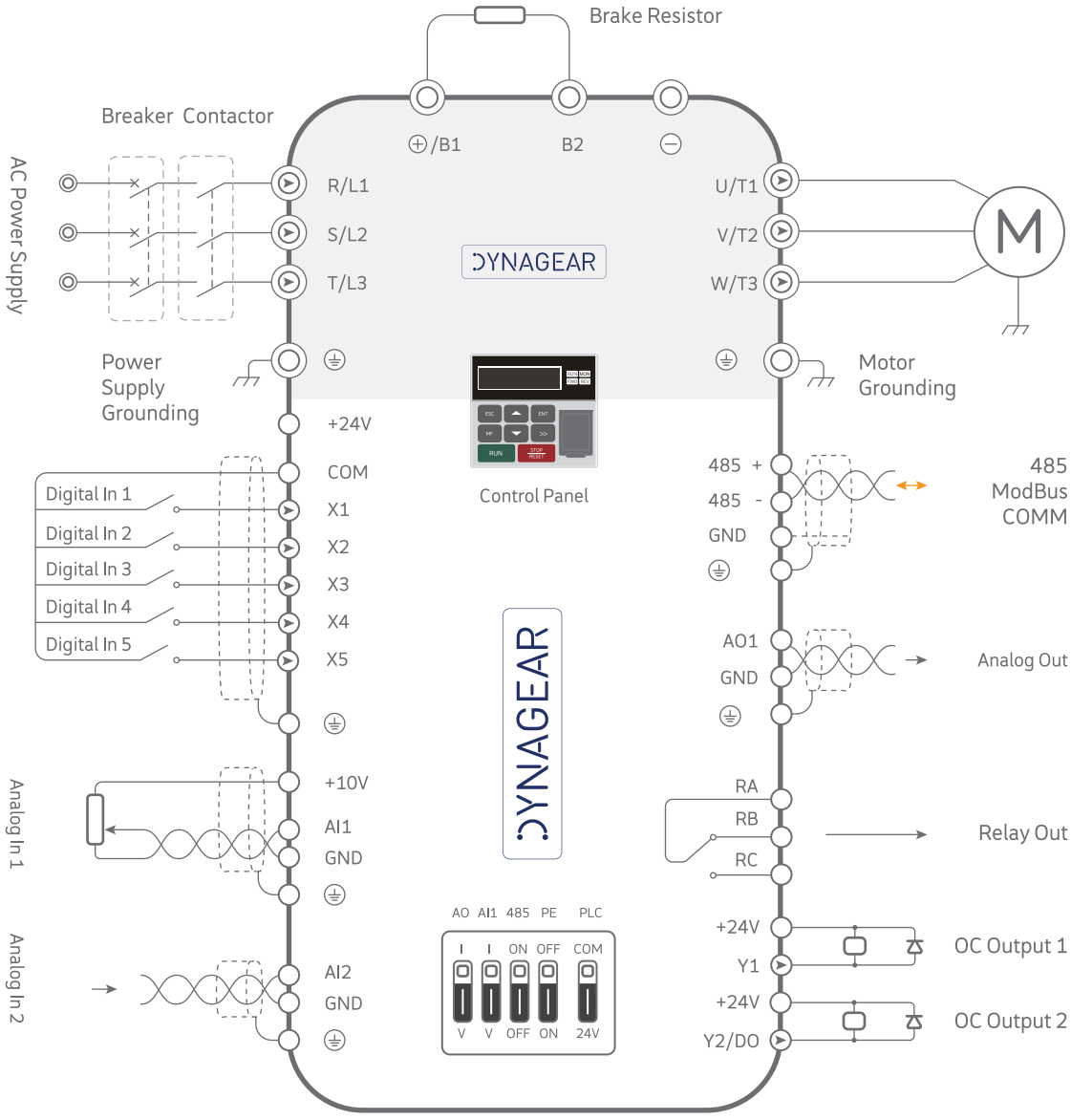
Programmable relay outputs	1

Remote control panel

Maximum cable length	5m

BASIC CONNECTION

Following is the default wiring diagram for GK510. Please consult Gtake if customized solution is required.



MODEL INFORMATION

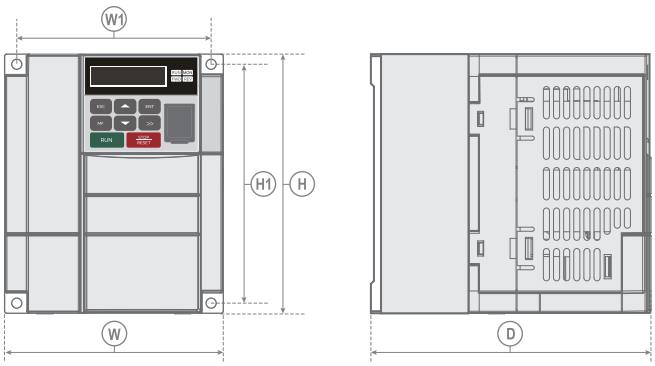
Model*1		0.75(N)B	1.5(N)B	2.2(N)B	0.75(N)B	1.5(N)B	2.2(N)B
	Phase	2T	2T	2T	4T	4T	4T
Power Rating	[kW]	0.75	1.5	2.2	0.75	1.5	2.2
Rated Output Current	[A]	4.5	7.5	11	2.5	3.8	5.5
3 Phase Rated Input Current	[A]	6.3	9	15	3.5	5.0	6.0
1 Phase Rated Input Current	[A]	9.2	14.5	23	-	-	-
Applicable Motor	[kW]	0.75	1.5	2.2	0.75	1.5	2.2
Frame NO.	[/]	0.75B / 1.5B / 2.2B	A1		0.75NB / 1.5NB / 2.2NB	A2	

*NOTE *1: **B - means brake chopper is inbuilt; **NB- means cooling type is natural cooling, while without N means cooling type is forced air cooling.*

DIMENSIONS

Frames		A1	A2
W	[mm]	108	120
W1	[mm]	96	96
H	[mm]	128	128
H1	[mm]	118	118
D	[mm]	138	90
Mounting hole dia.	[mm]	5	5
Weight	[kg]	0.9	0.4

{ A1 A2 }



NOTE: Please see the GK510 user manual for other frames, available at http://www.gtake.com.cn.

STEERING
THE POWER
OF THE SUN

SLR01/02

Dedicated AC Drive

For solar pump

SLR01/02 dedicated AC drive is a decent solution that takes use of solar power as a green and reliable energy source for pumping water.

COMPATIBILITY

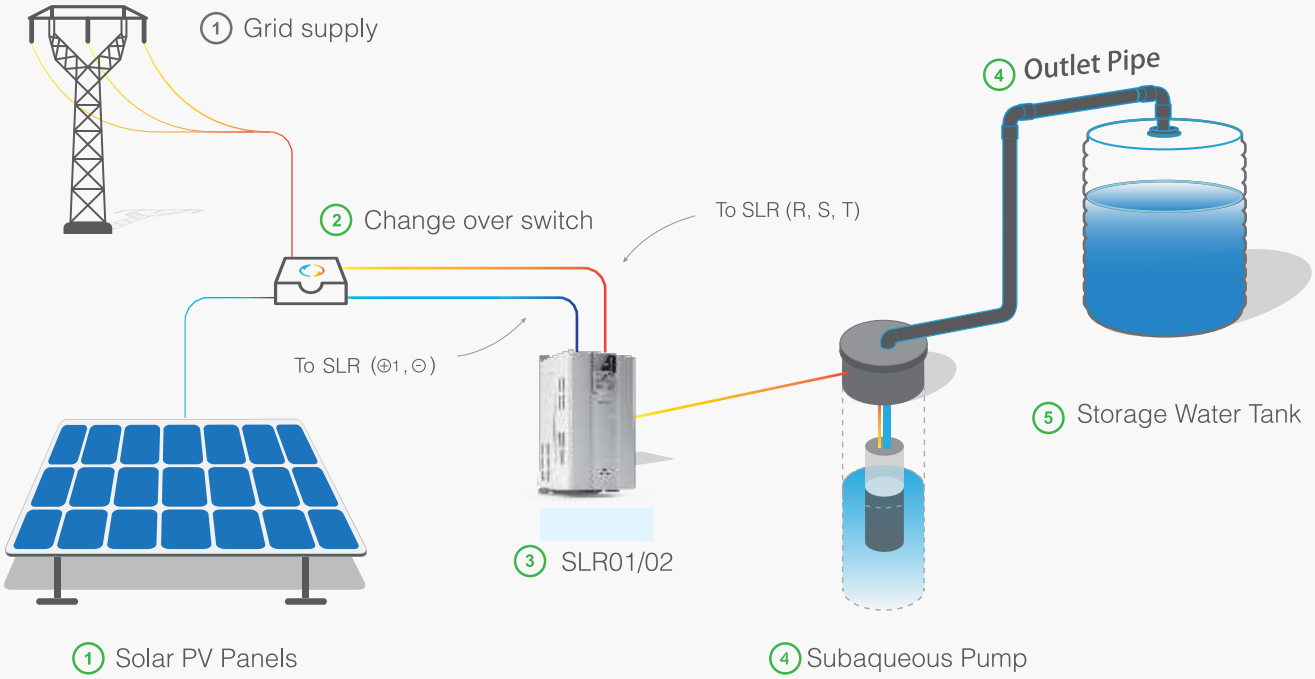
Synch motor control applicable

Asynch motor control applicable

POWER RATINGS

150 - 400VDC / 200 - 240VAC 1Phase	0.4 - 2.2kW
250 - 800VDC / 380 - 460VAC 3Phase	0.4 - 75kW

CONTROL TECHNOLOGY V/Hz SVC for synch motor



01 MPPT

The SLR solar pump drive is tailored to effectively use the energy from the sunshine. Its inbuilt maximum power point tracking functionality always feeds the maximum amount of power possible from the panels to the pump.

02 Classified user mode

SLR01/02 drives are equipped with three operation modes. **Plug-and-Play Mode is** for robust MPPT operation, while **Senior Mode** for the best performance of MPPT. **Professional Mode** is designed for the users who ask for comprehensive water supply functions.

03 Automatic run/sleep

When sunlight radiation meets the threshold requirement, a SLR01/02 solar pump drive starts automatically, and the pump connected to it begins to run. When the sunshine is weak, the pump will fall into sleep.

04 Dry run protection

Dry run protection is one of quite important functionalities for automatic operation of the water pumping system, realized by Gtake without requirement of signal feedback from any devices.

Flexible control mode

Pressure control mode under AC power supply from grid or diesel generator.

Users would like to use this functionality in some water supply systems, when the pressure is required to be a constant value and the drive is being connected to AC power supply from grid or diesel generator.

Constant speed mode under AC power supply

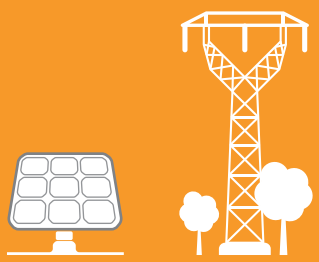
Users are most likely to use this functionality when sun radiation is not strong enough or unavailable, and the water supply system just simply requires the water to be pumped at the rated output.

Pressure limit mode under power supply from solar panels.

Users need to use this functionality in some water supply systems, when the pressure needs to be limited not to exceed a certain value.

Multistep pressure mode

This functionality is quite useful sometimes for farm irrigation when different area requires different pressures.

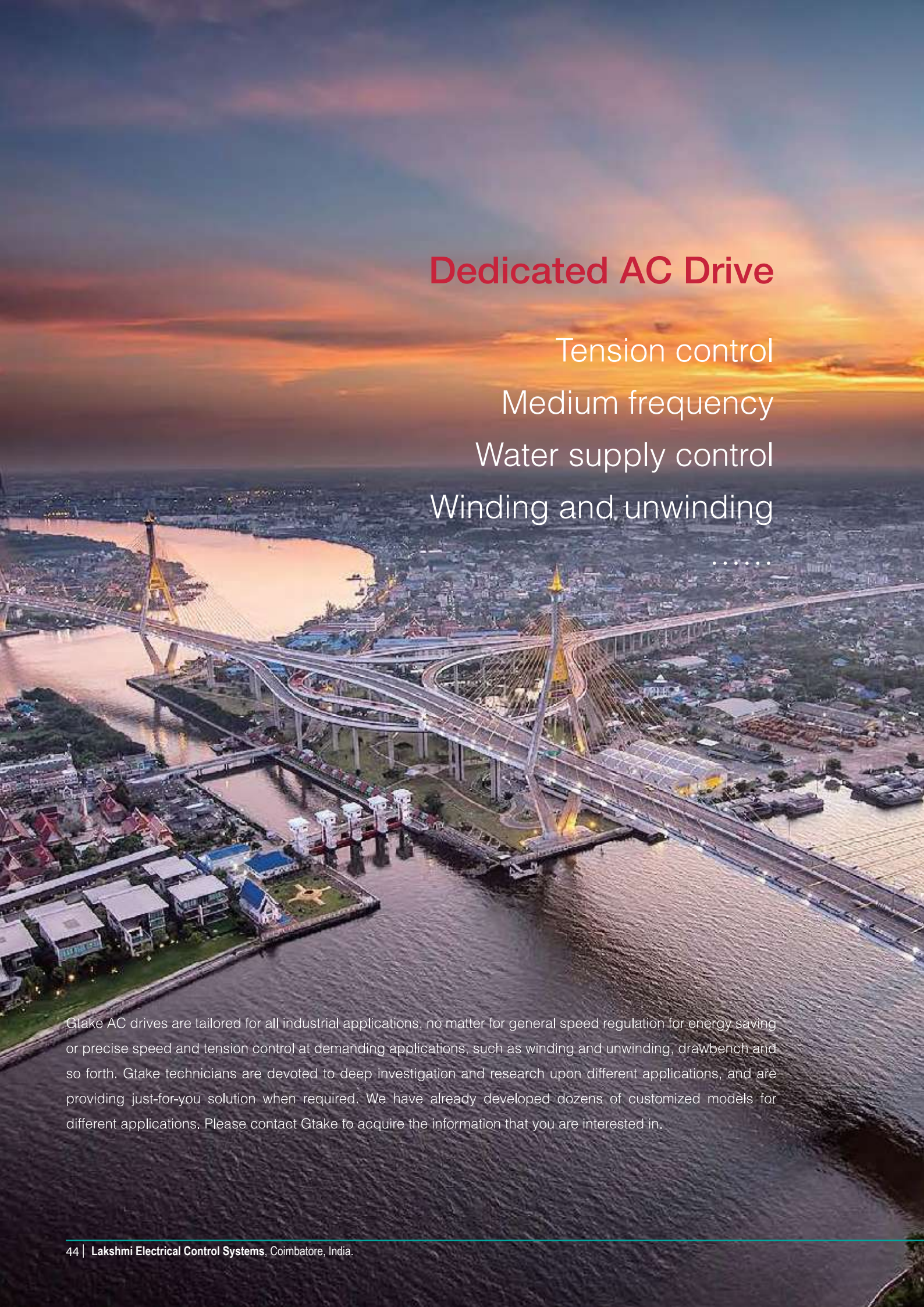


NOTE: Please contact Gtake or the SLR user manual (catalog) for more.

SLR01/02

for different motor and power supply

SLR series solar pump dedicated drives are applied to both asynchronous motor and PMSM. The mains input can be solar panel DC, AC single phase, or AC three phase. Users are free to choose a single-phase motor or three-phase motor according to the wish. Thanks to the inbuilt MPPT (Maximal Power Point Tracking) function, SLR drives have a fast response to the sunlight change and reach maximal power point promptly, making the system working at its highest efficiency always.



Dedicated AC Drive

Tension control

Medium frequency

Water supply control

Winding and unwinding

.....

Gtake AC drives are tailored for all industrial applications, no matter for general speed regulation for energy saving or precise speed and tension control at demanding applications, such as winding and unwinding, drawbench and so forth. Gtake technicians are devoted to deep investigation and research upon different applications, and are providing just-for-you solution when required. We have already developed dozens of customized models for different applications. Please contact Gtake to acquire the information that you are interested in.

OPTIONS

Model	GK500	GK600	GK800	GK1000	ES101*1	GK510	SLR	GK600E*2
KBU-DZ1	■					■		
KBU-DZ2		■	■	■	■		■	■
EPC-CM1		■	■	■	■		■	■
EPC-CM2		■	■	■	■		■	■
EPC-CM3		■	■	■	■		■	■
EPC-TM1		■	■	■	■		■	■
EPC-TM2		■	■	■	■		■	■
EPC-VD1		■	■	■	■		■	■
EPC-VD2		■	■	■	■		■	■
EPC-IM1		■	■	■	■		■	■
EPC-IM2		■	■	■	■		■	■
EPC-RT1		■	■	■	■		■	■
EPC-PG1			■	■	■		■	
EPC-PG2			■	■	■		■	
EPC-PG3			■	■	■		■	
EPC-PG4			■	■	■		■	
EPC-PG5			■	■	■		■	
EPC-PG6			■	■	■		■	
EPC-PG8			■	■	■		■	
EPC-PG9			■	■	■		■	
Gtake monitoring	■	■	■	■	■	■	■	■
FUT	■	■	■	■	■	■	■	■

NOTE **1: Option EPC-IM1 is the default configuration for ES101; *2: Option EPC-TM1 is the default configuration for GK600E.*

KBU-DZ1

KBU-DZ2

KBU-DZ1/DZ2 is a control panel bracket. When the control panel needs to be fixed remotely on the door of the cabinet, a fitted hole should be opened in the cabinet for mounting this bracket. The control panel can be inserted firmly in the bracket.

- KBU-DZ1: Applied to GK500
- KBU-DZ2: Applied to GK600/GK800/GK1000/GK510/ES101/SLR/GK600E

EPC-PG1

Applied to encoder signals of ABZ open collector or push-pull type.

- Frequency dividing output: A/B/Z open collector
- Power supply: 12/24 V
- Wiring method: terminal wiring

EPC-PG2

Applied to encoder of ABZ differential type.

- Frequency dividing output: A/B/Z differential
- Power supply: 5 V
- Wiring method: terminal wiring

EPC-PG3

Applied to encoder of UVW type

- Power supply: 12/24 V
- Wiring method: terminal wiring

EPC-PG4

Applied to resolver

- Power supply: 7 V
- Wiring method: DB15 connector

EPC-PG5

Applied to encoder of SIN/COS type

- Power supply: 5 V
- Wiring method: DB15 connector

EPC-PG6

Applied to resolver

- Frequency dividing output: 5V push-pull output
- Power supply: 7 V
- Wiring method: DB15 connector

- 2 analog inputs expanded, EAI1(can be motor temperature input) & EAI2.
- CAN communicaiton procurable.

EPC-PG8

Applied to encoder of ABZ differential type

- Frequency dividing output: A/B/Z differential
- Power supply: 5 V
- Wiring method: terminal wiring

EPC-PG9

Applied to resolver

- Frequency dividing output: A/B/Z open-collector/differential
- 2 expanded analog inputs

EPC-CM1

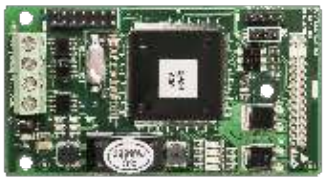
Communication board

- Supports expanded 232 communiciton.
- Supports expanded CAN communiciton(only for GK800).

EPC-CM2

Communication board

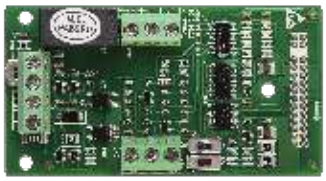
- Supports Profibus-DP communiciton.



EPC-CM3

Communication board

- Supports CAN communiciton.



EPC-TM1

I/O option board

- 1 analog input.
- 1 digital input.
- 1 relay output.
- 1 analog output.

EPC-TM2

I/O option board

- 2 PT100 temperature detection.
- 2 analog inputs.
- 2 digital inputs.
- 2 relay outputs.

EPC-VD1

Voltage detection board

- Supports input voltage, output voltage detection.

EPC-VD2

Voltage detection board

- Supports output voltage detection, realizing spinning speed tracking.
- Supports bus voltage detection.

EPC-IM1

Analog I/O option board

- 2 analog inputs, voltage or current optional. Current input range: 0 -1A; Voltage input range: 0-24V.

EPC-IM2

Analog I/O option board

- 2 current analog inputs. The range of current: 0-1A

EPC-RT1

I/O option board

- Real-time clock input.
- 1 analog output.
- 1 relay output.

FUT

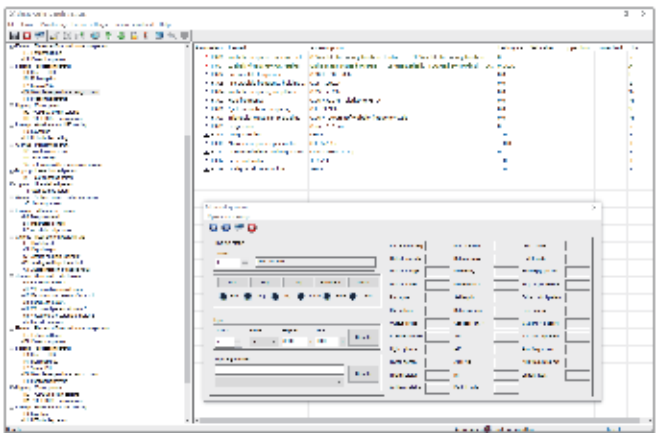
Firmware Update Tool

- Firmware update tool for PC.
- Supports all series.

GTK Monitoring

Host software for PC

- This software communication tool can run on personal computers for drive operation, parameter value setting, waveform monitoring, fault alarm, etc.
- Supports all series.



GK600E

Dedicated AC Drive

For elevator, escalator and hoist

GK600E are specific for passenger and freight elevators installed in residential buildings, shopping malls, and office buildings. The drives can be programmed to have a commendable leveling even they adopt open-loop control, reducing the cost of additional devices. Flexible S-curve program greatly improves comfortability for the elevator users. All elevator parameters gathered in one chapter in the user manual, and well furnished parameter default values make the commissioning easy and fast.

COMPATIBILITY

Asynch motor control applicable

POWER RATINGS

3× 380 - 480V 3.7 - 30kW

CONTROL TECHNOLOGY

V/Hz SVC1 SVC2

FEATURES

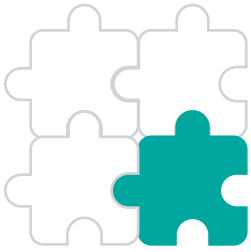
01 Safety and reliability

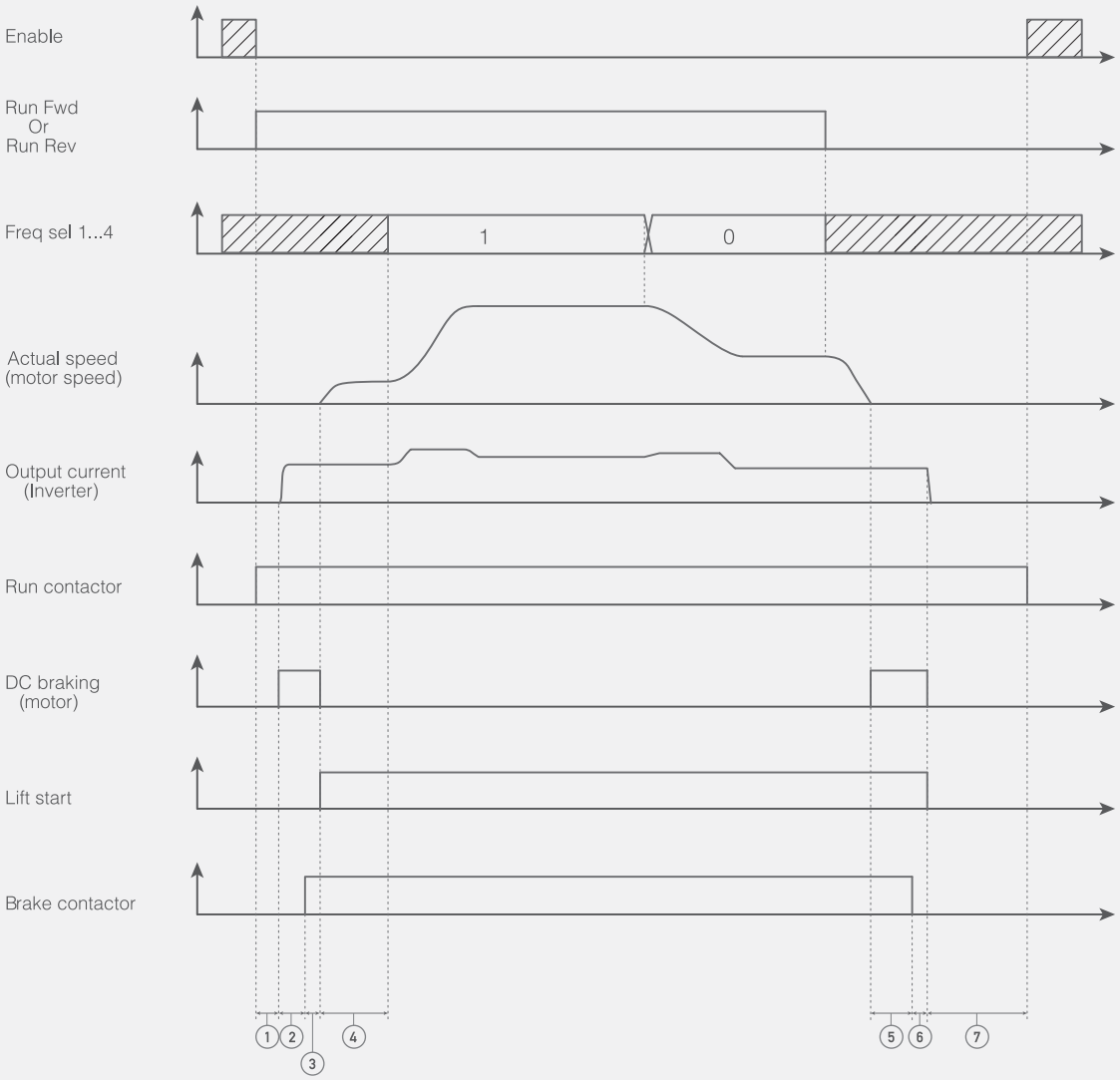
Safty at GK600E has the highest priority since we understand they are dedicated for passenger elevators. Through enable signal, the drive will enable the run of the motor only when the motor run contactor, all safty contactors are well closed. 220V AC UPS power supply, emergency speed, and inspection speed are supported or programmable at GK600E series, a full coverage on the safty requirement at the drive side.

UPS
appliable

02 Dedicated control sequence

Lift dedicated control sequence, big output torque at low frequency of V/Hz mode, and fast response time make the elevator motion stable and smooth.





1. Cont close delay
2. Magnet time
3. Brake open delay
4. Smooth start delay
5. Brake waiting time
6. Brake close delay
7. Cont open delay

03 Commendable leveling

Fast response time, programmable S-curve, slip compensation separated for elevator uplink or downlink make the car a commendable leveling for different motor brands.

04 Silky smoothness

Smoothness at the start and stop is quite important and the main reason for the users to select the drive or not. GK600E have a lot of approaches to program the smoothness at the start and stop, like smooth start frequency, DC injection brake, torque boost, V/Hz mode, brake sequency, and so forth.

05 Emergency and inspection speed programmable

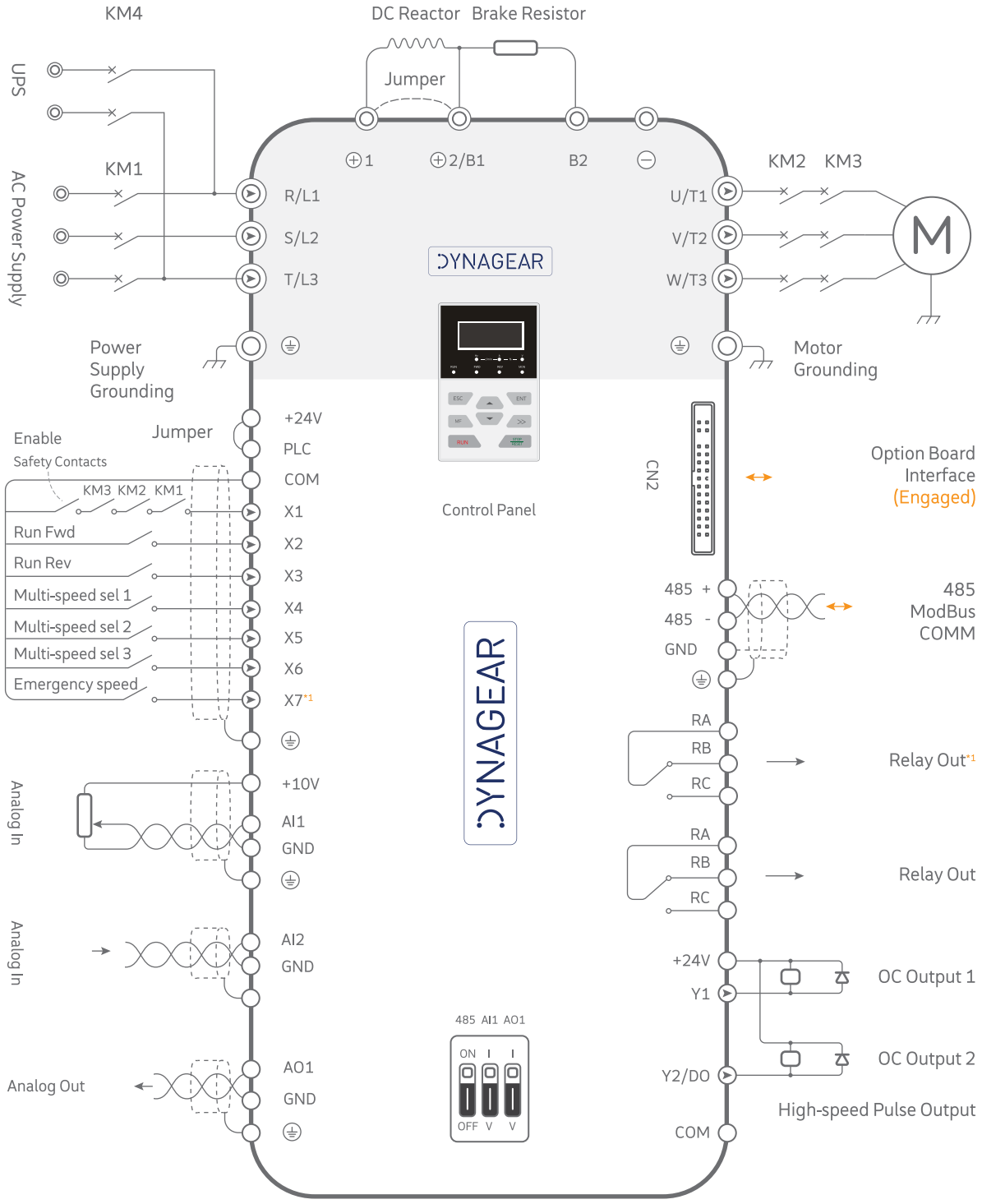
If the grid power supply is suddenly lost, the drive will get into emergency mode and run at the emergency speed via UPS power supply. Inspection speed can also be programmed via multi-speed selections.

06 Easy commissioning

To reduce the time during commissioning is our consistent pursuit, for which we spent a lot of time in investigation, research and having in-depth conversation with elevator commissioning engineers before launching these elevator dedicated drives. For the majority of elevator applications, well-trained commissioning engineers just need to read through **chapter 5** in GK600E user manual.

BASIC CONNECTION

Following is the default wiring diagram for GK600E. Please consult Gtake if customized solution is required.



NOTE: Procurable at the option board, the default configuration at GK600E.

Paired Cable Shielded Cable

4T

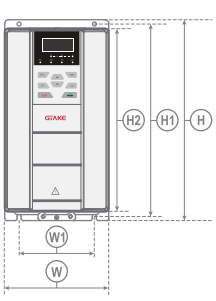
Model		3.7B	5.5B	7.5B	11B	15B	18.5B	22B	30B
	Load	HD	HD	HD	HD	HD	HD	HD	HD
Power Rating	[kW]	3.7	5.5	7.5	11	15	18.5	22	30
Rated Output Current	[A]	9.0	13	17	24	30	39	45	60
Phase Rated Input Current	[A]	10.5	14.6	20.5	29	35	44	50	65
Applicable Motor	[kW]	3.7	5.5	7.5	11	15	18.5	22	30
Frame NO.	[/]	B1	B2		B3				C1

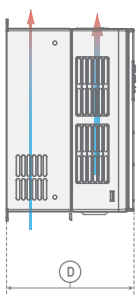
DIMENSIONS

Frames		B1	B2	B3	C1
W	[mm]	120	145	190	270
W1	[mm]	80	105	120	170
H	[mm]	245	280	365	475
H1	[mm]	233	268	353	460

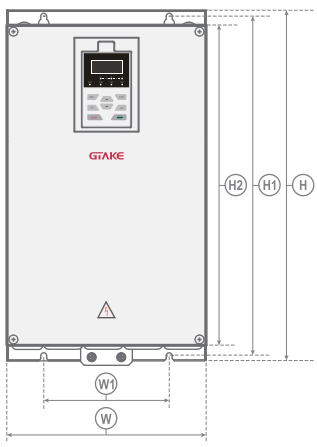
Frames		B1	B2	B3	C1
H2	[mm]	220	255	335	435
D	[mm]	169	179	187	220
Mounting hole dia.	[mm]	5.5	5.5	6	8
Weight	[kg]	2.9	3.9	6.2	15.5

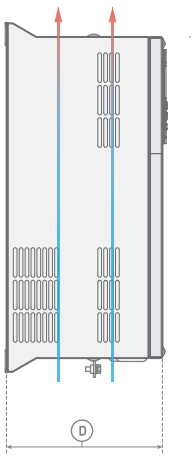
{ B1 B2 B3 }





{ C1 }





DYNAGEAR

Lakshmi Electrical Control Systems Limited (LECS) is one of the leading manufacturer of switchgear products from 1982.

LECS manufactures custom-engineered control panel for Textile Machinery, Machine Tools, APFC, Energy Saver – Lighting, Compressor and many other applications conforming to International Standards.

LECS manufactures Engg. Plastic components with total expertise and facilities to deliver complete design solutions and ready to fit products. The company has strong background in R & D, Engineering, Tooling and Automation.

DYNAGEAR

LAKSHMI ELECTRICAL CONTROL SYSTEMS LIMITED
GST: 33AAACL3737E1ZW
Arasur, Coimbatore - 641 407, Tamil Nadu, India.
Fax: + 91-422-6616555, **Phone:** +91 422-6616500
E-mail: info@lecsindia.com
www.lecsindia.com