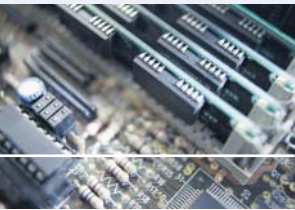


Customized Inverter for Fan and Pump  
**STARVERT iP5A**



Automation Equipment





# Performance features

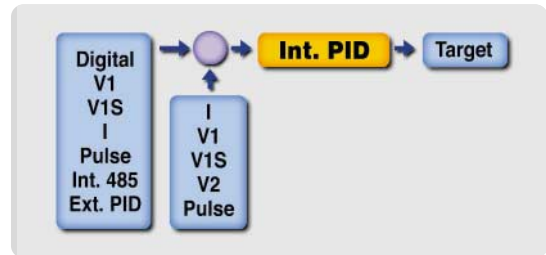
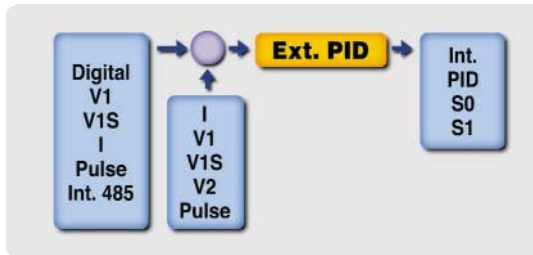


## PID control

In the centrifugal fan and pump field, PID control is provided as a standard function in order to maintain a constant process control of pressure, flow and oil level. This function includes Pre-PID, Sleep and Wake up and output inverse sub-functions.

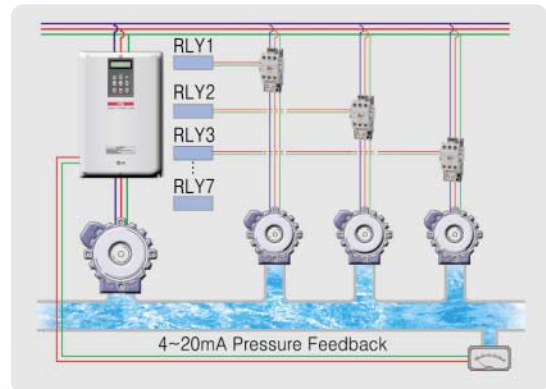
## Dual PID

In case of an external PID control or cascade PID control, the built-in Dual PID function of iP5A allows various systems.



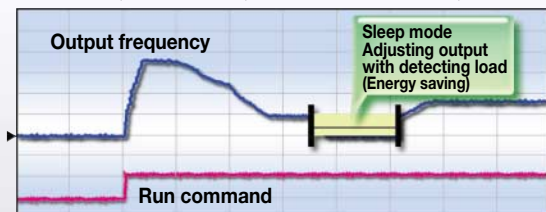
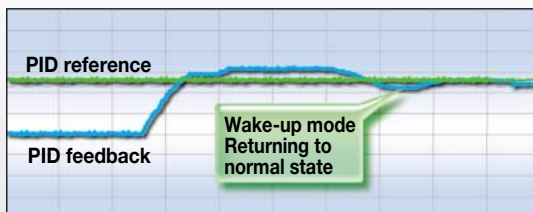
## Multi Motor Control

Through this Multi Motor Control function, a number of motors can be controlled simultaneously without having any extra controllers. MMC function surely provides energy savings and cost down effect.



## Sleep and Wake-up function

Sleep and Wake-up function can stop inverter's operation in extremely low weighted load situation. And if the load is restored to a normal situation, inverter will restart. This mechanism ultimately brings energy saving result of entire system.



## Pre Heating function

When inverter is used in damp places such as green-house, this function can prevent motor's damage and inverter's failure from damp.



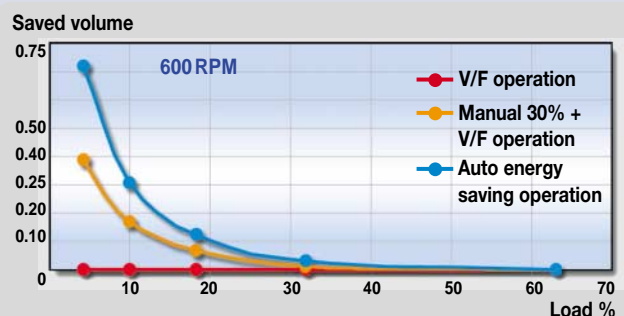
## Flying Start function

In case of more than 2 fans operated in one system or heavy fan spinning by inertia, iP5A detects motor's speed and start to operate by considering it.



## Energy Saving and High Efficiency

LS iP5A, uniquely designed for fan and pump, guarantees a certain degree of energy saving by realizing the system effectiveness optimization.





## CUSTOMIZED INVERTER FOR FAN AND PUMP



### Automatic Energy Saving

Load change may incur energy losses but the optimized flux control of iP5A results in more outstanding energy saving compared to previous models.



### Instant Display of Electricity Consumption

Because of useful display function which can display instant electricity consumption, users can recognize it without any equipment.



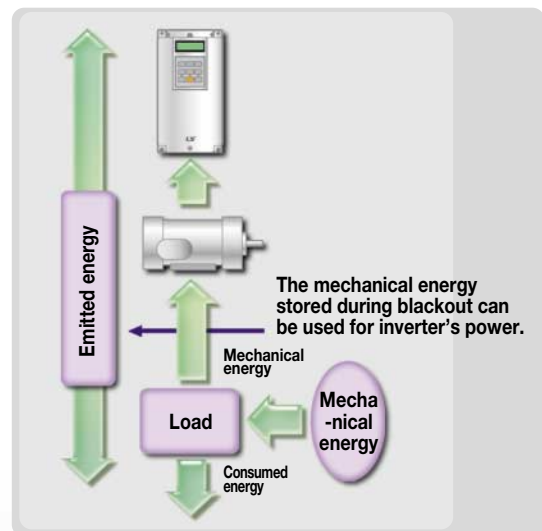
### Constant and Stable Performance

Regardless of outside alteration such as input voltage variation by load change or weather effect, iP5A can handle motor and load with best performance.



### Improved Management from Instant Power-off and Power Dip Generation

During the power Dip or instant power-off, which is generated by lightning, ground fault and power-failure, loads still keep the mechanical energy and this energy flows back to inverter by regeneration. The power-failure guarantee time is extended by using this electrical character of inverter.



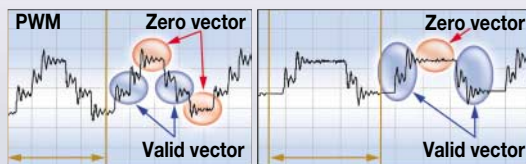
### Safety Stop

When unexpected power-failure blocks power supply, inverter stops motor by using the inertia energy of load that prevents unexpected second accident (Parameter setting is required).



### Current Leakage Reduction Algorithm

Damp condition is subject to cause system failure due to the current leakage. And iP5A invents LS own PWM algorithm to blow out this danger.



### Flux Braking Algorithm

This can make the deceleration time shorter than the regular one, so it make effect to system efficiency.



### Automatic Carrier Frequency change

Considering ambient temperature, iP5A can amend the carrier frequency automatically.



### NPN/PNP Input

iP5A has both NPN and PNP input, and you can select one of them easily.

### Abundant I/O suggestion

iP5A is able to serve abundant I/O

Digital Input/Output	8 points/ 4 points
Analog Input (Voltage + Current)/Output	(1+1) points/4 points
Pulse input	1 point
NTC/PTC input	1 point

### Various Units of Display

Various units of display are supported in iP5A, so users can recognize operation status easily.

DRV_REF 500.0mBa	DRV_REF 500.0kPa
15 FBK 82.1mBa	15 FBK 82.1kPa

### Built-in 485 and Optional Communication

Built-in 485 of iP5A enables to set up communication system by itself without any additional device. And optional communication suggestion of iP5A can satisfy users who want to construct their own system.

### Other Features

- Versatile control I/O configuration
- Output inverse, etc.
- -15% - +10% input voltage margin
- 0.01 - 120Hz frequency output
- 0.7 - 15kHz carrier frequency up to 22kW
- Cooling fan on/off control
- Energy saving mode with various display incl. kWh



# Specifications

STARVERT iP5A

## ●● 200~230V Class (5.5~30kW / 7.5~40HP)

Model Number(SV□□□iP5A-2)		055	075	110	150	185	220	300
Motor rating <sup>(1)</sup>	HP	7.5	10	15	20	25	30	40
	kW	5.5	7.5	11	15	18.5	22	30
Output ratings	Capacity <sup>(2)</sup> kVA	9.1	12.2	17.5	22.9	28.2	33.5	43.8
	FLA A	24	32	46	60	74	88	115
Frequency		0.01~120 Hz						
Voltage		200~230 V <sup>(3)</sup>						
input ratings	Voltage	3 ∅ 200 ~ 230 V(-15% ~ +10%)						
	Frequency	50/60 Hz (± 5%)						
Weight	kg(lbs.)	4.9(10.8)	6(13.2)	6(13.2)	13(28.7)	13.5(29.8)	20(44.1)	20(44.1)

## ●● 380~480V Class (5.5~90kW / 7.5~125HP)

Model Number(SV□□□iP5A-4)		055	075	110	150	185	220	300	370	450	550	750	900
Motor rating <sup>(1)</sup>	HP	7.5	10	15	20	25	30	40	50	60	75	100	125
	kW	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
Output ratings	Capacity <sup>(2)</sup> kVA	9.6	12.7	19.1	23.9	31.1	35.9	48.6	59.8	72.5	87.6	121.1	145.8
	FLA A	12	16	24	30	39	45	61	75	91	110	152	183
Frequency		0.01~120 Hz											
Voltage		380~480 V <sup>(3)</sup>											
input ratings	Voltage	3 ∅ 380 ~ 480 V(-15% ~ +10%)											
	Frequency	50/60 Hz (± 5%)											
Weight	kg(lbs.)	4.9(10.8)	6(13.2)	6(13.2)	12.5(27.6)	13(28.7)	20(44.1)	20(44.1)	27(59.5)	27(59.5)	29(63.9)	42(92.6)	43(94.8)

(1) Indicates the maximum applicable capacity when using a 4-Pole LS motor.

(2) Rated capacity (v 3XVXI) is based on 220V for 200V calss and 460V for 400V calss.

(3) Maximum output voltage will not exceed the input voltage. An output voltage less than the input voltage may be programmed if necessary.

SPECIFICATIONS	Braking Torque		Refer to Ch.8 of user's manual for details. <sup>(4)</sup>	
	Cooling method		Forced cooling	
Protection degree		IP20, UL Enclosed Type 1(provided with conduit box) for all ratings, UL Open Type from 15 to 90kW (Optional conduit plate)		
Short circuit Rating		5KA, Suitable for use on a circuit capable of delivering not more than 5000 RMS Symmetrical amperes, 240 (or 480) volts maximum		
CONTROL	Control Method		V/F, Sensorless Vector, Slip Compensation, Easy Start Selectable	
	Frequency Setting Resolution		Digital Reference : 0.01 Hz (Below 100Hz), 0.1Hz (Over 100Hz) Analog Reference : 0.01Hz / 60Hz	
	Frequency Accuracy		Digital : 0.01% of Max. Output Frequency Analog : 0.1% of Max. Output Frequency	
	V/F Ratio		Linear, Squared Pattern, User V/F	
	Overload Capacity		110% per 1 min, 120% per 1 min <sup>(5)</sup>	
	Torque Boost		Manual Torque Boost (0~15% settable), Auto Torque Boost	
	Operation Mtrthod		keypad / Terminal / Communication Operation	
	Frequency Setting		Analog : 0~12V / -12V~12V / 4~20mA or 0~20mA / Pulse / Ext-PID Digital Keypad	
	OPERATION	Input Signal	Start Signal	Forward, Reverse
			Multi Step	Up to 18 Speeds can set including Jog (Use Programmable Digital Input Terminal)
Multi Step			0.1~6,000 sec, Max 4 types can be set via Multi-Function Terminal	
Accel / Decel Time			Accel / Decel Pattern : Linear, U-Curve, S-Curve Selectable	
Emergency Stop			Interrupts the Output of Inverter	
Jog			Jog Operation	
Fault Reset			Trip Status is Reset when Protection Function is Active	
INPUT SIGNAL	Input Signal	Operating Status	Frequency Detection, Overload Alarm, Stalling, Over Voltage, Low Voltage, Inverter Overheating / running / Stopping / Constant running, Inverter By-Pass, Speed Searching	
		Fault Output Indicator	Contact Output (3A, 3C, 3B)-AC 250V 1A, DC 30V 1A	
		Operation Function	Choose 2 from Output Frequency, Output Current, Output Voltage, DC Link Voltage (Output Voltage : 0~10V) DC Braking, Frequency Limit, Frequency Jump, 2nd Function, Slip Compensation, Reverse Rotation Prevention, Inverter By-Pass, Auto-Tuning, PID Control, Flying Start, Safety Stop, Flux Brak, Low leakage, Pre-PID, Dual-PID, MMC, Easy Start, Pre-heater	
PROTECTION	Input Signal	Inverter Trip	Over Voltage, Low Voltage, Over Current, Ground fault, Inverter Overheat, Motor Overheat, Output Phase Open, Overload Protection, External Fault 1, 2, Communication Error, Loss of Speed Command, Hardware Fault, Option Fault etc	
		Inverter Alarm	Stall Prevention, Overload Alarm, Thermal Sensor Fault	
		Momentary Power Loss	Below 1 sec : Continuous operation, Above 1 sec : Auto restart active when Safety Stop is set to "Yes" with a fan connected.	
DISPLAY	Keypad	Operation Information	Output Frequency, Output Current, Output Voltage, Frequency Set Value, Operating Speed, DC Voltage, Integrating Wattmeter, Fan ON time, Run-time, Last Trip Time	
		Trip Information	Trip Indication when the Protection Function activates. Max 5 Faults are saved. Last Trip Time.	
ENVIRONMENT	Ambient Temperature		-10°C ~ 40°C (14°F ~ 104°F) (Use loads less than 80% at 50°C)	
	Storage Temperature		-20°C ~ 65°C (14°F ~ 149°F)	
	Ambient Humidity		Less Than 90% RH Max. (Non-Condensing)	
	Altitude - Vibration		Below 1,000m (3,300ft), Below 5.9m/sec <sup>2</sup> (0.6g)	
	Application Site		Pollution degree 2, No Corrosive Gas, Combustible Gas, Oil Mist, or Dust	

(4) Refer to Ch.8 of user's manual for details.

(5) Overload rating 120%, 1 min is based on ambient 25°C.

(6) Dual rating (VT:110%, CT:150%) will be supported from Feb, 2006.