Variable Frequency Drive / Inverter

Starvert iG5

0.37 - 4.0kW (0.5 - 5.4HP) 1 and
3 phase 200 - 230Volts, 3 phase 380 - 460Volts

Automation Equipment

LG Industrial Systems

www.lgis.com

Contents

*Compact iG5,
is the best for a small and cost
effective configuration.*

Standard features

- kW / Voltage Ratings:
  - 0.5 ~ 2HP, 200-230VAC, 1phase
  - 0.5 ~ 5HP, 200-230VAC, 3phase
  - 0.5 ~ 5HP, 380-460VAC, 3phase
- Enclosure: IP00 ~ IP20
- Inverter Type: PWM with IGBT
- Control Method: Volts / Hertz with Space Vector Technology
- Built-in RS-485
- Built-in ModBus-RTU
- Built-in PID control
- Removable keypad (Able to read & write parameter)
- 150% torque at 0.5Hz
- Trip-free operation algorithm
- 8 preset speeds
- 3 jump(skip) frequencies
- 3 Multifuctional inputs
- 1 Multifuctional output
- Analog output (0~12V)
- PNP and NPN dual directional signals
- Speed search
- 3 wire operation
- 1 to 10 kHz carrier frequency
- Built-in Braking transistor
- Manual/Auto torque boost

Options

- Cable for Remote Keypad Operations(2,3 and 5 meters)
- DIN rail base for easy installation

Application

■ Converting	■ Commercial washing machine
■ Fan	■ Grinder
■ Pump	■ Textile machine
■ Food processing machine	■ Material handling machine
■ Electric shutter	■ Centrifuge
■ Dryer	■ Elevator door
■ Running machine	■ Tooling machine
■ Overheat	

Conformity to global standards

- UL and cUL listed for North America
- CE marked for Europe
- Quality process controlled by ISO9001, ISO14000

CE (UL) c(UL) **ISO9001**

Reduced size

Enhancing its performance the iG5 shows much smaller size
compares to the previous model, the iG series.
Maximum 50% of total volume has been reduced in iG5 in order to
mount it easily on smaller control panel and DIN rail with less weight.
It allows more cost effective panel construction and system design.

Built-in communication interface and PC monitoring software

The iG5 has built-in the most popular communication interfaces such as Modbus-RTU and RS232/485.
The iG5 has the small inverter features and standard medium drive features together.
The "Driveview™" software offers Window® based computer monitoring tool through RS485 interface with
graphic capture, keypad emulator, parameter edit and text monitor. It is applicable for all LG inverters.
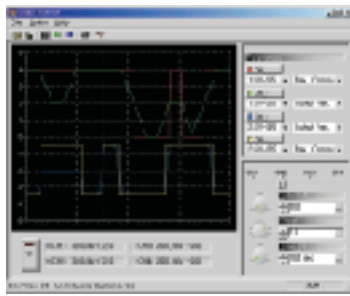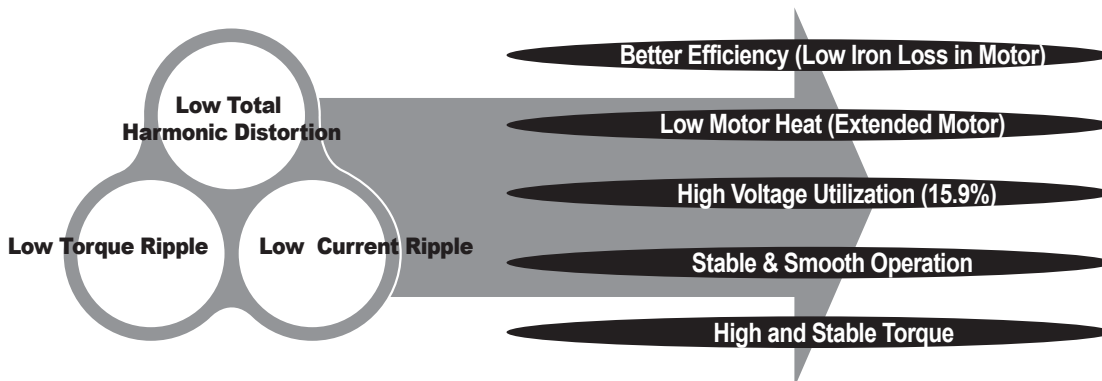
RS - 485

ModBus-RTU™

Built-in PID control

It is valuable in process control. The built-in PID controller controls flow, temperature, pressure, etc.
through the proportional, integral and differential calculus between the feedback value and reference
value in closed loop.

Space vector PWM technology

The Space vector technology is being adopted in all LG drives. It features outstanding performance in its
control characteristics. It has low total harmonic distortion, low current ripple, low torque ripple, low motor
temperature rise, and better voltage utilization. It is a basic control platform of the iG5 drive. The advantages of
Space vector PWM technology are being proved in many applications.

Low Total Harmonic Distortion

Low Torque Ripple

Low Current Ripple

Better Efficiency (Low Iron Loss in Motor)

Low Motor Heat (Extended Motor)

High Voltage Utilization (15.9%)

Stable & Smooth Operation

High and Stable Torque

Optimum acceleration and deceleration

To achieve a maximum torque during the acceleration and deceleration, "trip free" function is activated.
The 32-bit DSP CPU monitors the current transition during the acceleration and deceleration to program an optimum curve that is under the trip-triggering level.
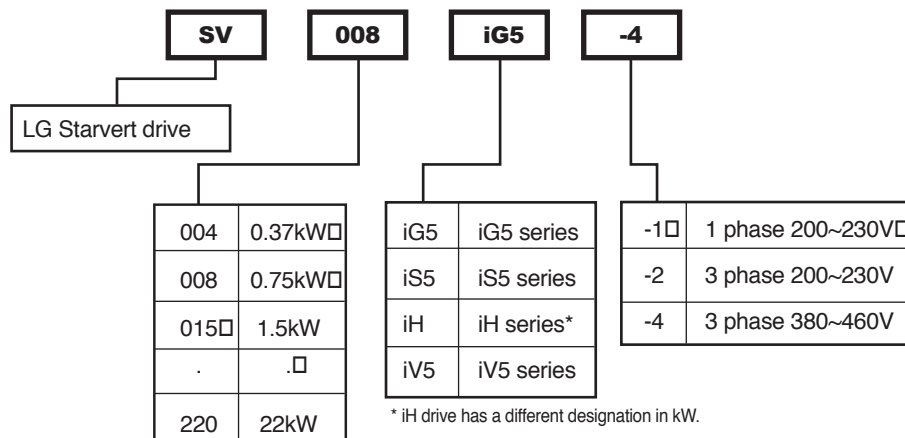

Traditional curve   **Optimum curve**
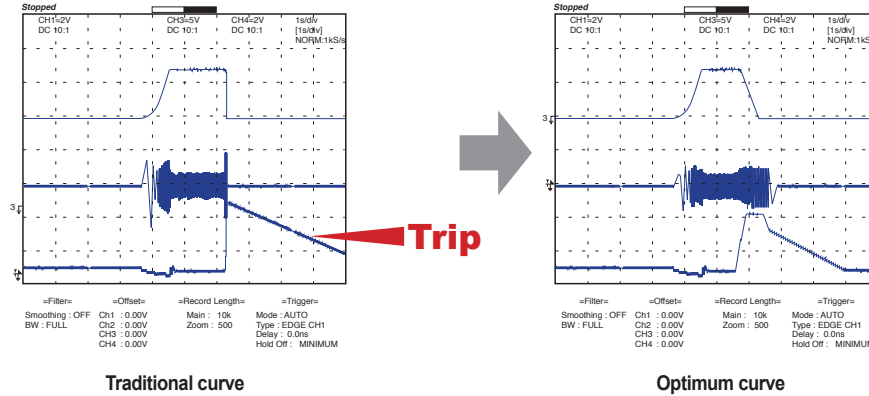
PNP and NPN switchable duals signals

The iG5 has both PNP and NPN signals in order to controlled by PLC or outside controller.
Regardless the type of PLC or type of control signal, iG5 can work with positive 24Vdc and negative 24Vdc.

Inverter rating selection guide

Application motor		200~230V 1 phase	200~230V 3 phase	380~460V 3 phase
kW	HP			
0.37	0.5	SV004iG5-1	SV004iG5-2	SV004iG5-4
0.75	1	SV008iG5-1	SV008iG5-2	SV008iG5-4
1.5	2	SV015iG5-1	SV015iG5-2	SV015iG5-4
2.2	3		SV022iG5-2	SV022iG5-4
3.7	5		SV037iG5-2	SV037iG5-4
4.0	5.4		SV040iG5-2	SV040iG5-4

Inverter type nomenclature

SV	008	iG5	-4

LG Starvert drive

004	0.37kW
008	0.75kW
015	1.5kW
.	.
220	22kW

iG5	iG5 series
iS5	iS5 series
iH	iH series*
iV5	iV5 series

-1	1 phase 200~230V
-2	3 phase 200~230V
-4	3 phase 380~460V

* iH drive has a different designation in kW.

Specifications 200 ~230V Class(0.5~ 5.4 HP)

Drive Type (SV_ _ _iG5-_)		004-1	008-1	015-1	004-2	008-2	015-2	022-2	037-2	040-2
Motor Rating*[1]	[HP]	0.5	1	2	0.5	1	2	3	5	5.4
	[kW]	0.37	0.75	1.5	0.37	0.75	1.5	2.2	3.7	4
Output ratings	Capacity[kVA]*[2]	1.1	1.9	3	1.1	1.9	3	4.5	6.1	6.5
	FLA[A]	3	5	8	3	5	8	12	16	17
	Frequency				0 ~ 400 Hz					
	Voltage				200 ~ 230V*[3]					
Input ratings	Voltage		1 phase 200 ~ 230 V(±10%)			3 phase 200 ~ 230 V(±10%)				
	Frequency		50 ~ 60 Hz (±5%)			50 ~ 60 Hz (±5%)				
Weight[kg]		1.2	1.8	2.1	1.2	1.2	1.8	2.1	2.2	2.2
Braking torque	Braking circuit				On board					
	Average braking torque			20% (with optional external braking resistor : 100%, 150%)						
	Max. continuous braking time				15 seconds					
	Max. duty				0 ~ 30 % ED					
Cooling method			Forced air cooling		Natural			Forced air cooling		
Enclosure					IP00					

Specifications 380 ~460V Class(0.5~ 5.4 HP)

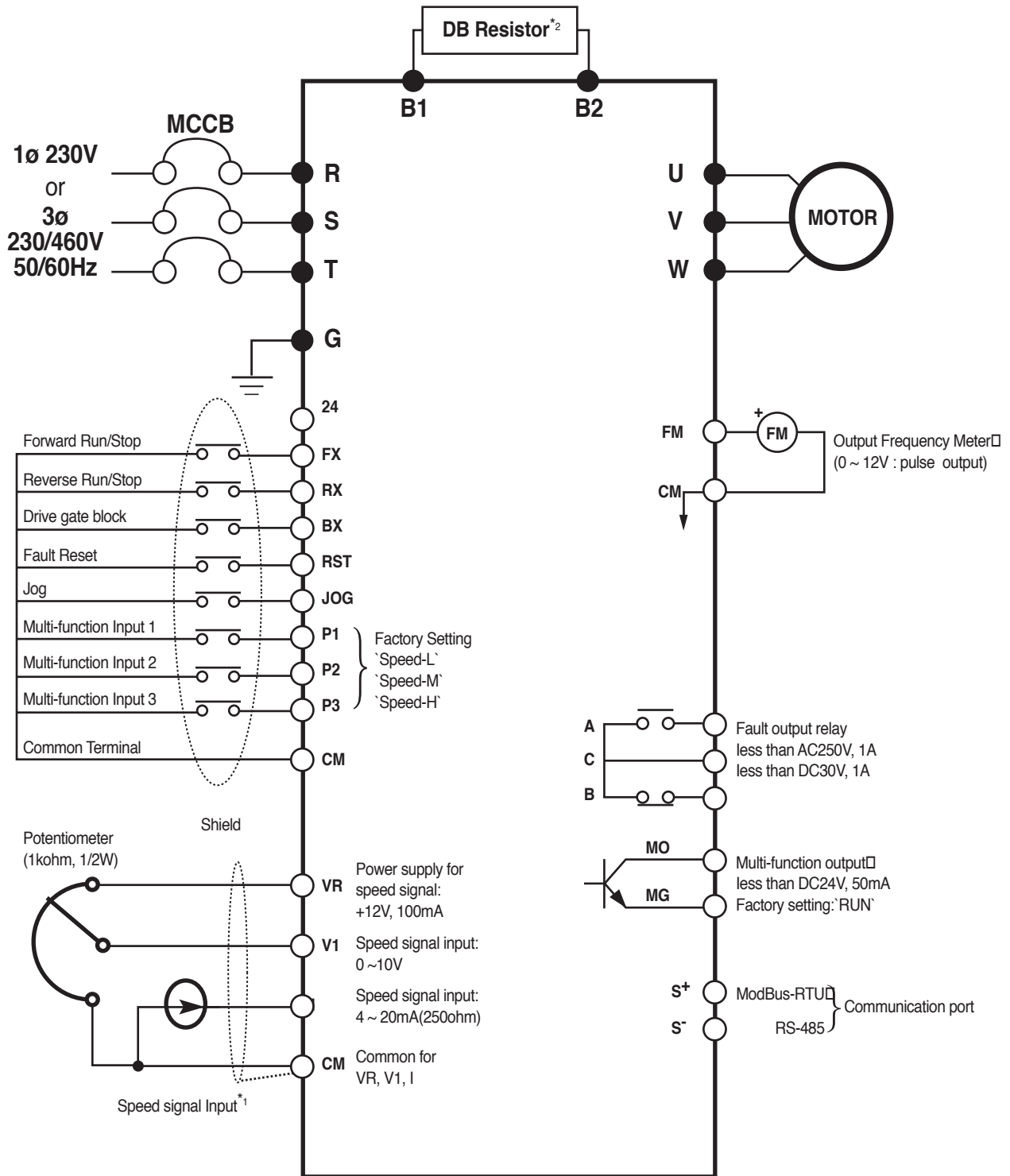| Drive Type (SV_ _ _iG5-_)		004-4	008-4	015-4	022-4	037-4	040-4
Motor Rating*[1]	[HP]	0.5	1	2	3	5	5.4
	[kW]	0.37	0.75	1.5	2.2	3.7	4
Output ratings	Capacity[kVA]*[2]	1.1	1.9	3	4.5	6.1	6.5
	FLA[A]	1.1	2.5	4	6	8	9
	Frequency			0 ~ 400 Hz			
	Voltage			380 ~ 460V*[3]			
Input ratings	Voltage			3 phase 380 ~ 460 V(±10%)			
	Frequency			50 ~ 60 Hz (±5%)			
Weight[kg]	Weight [kg]	1.7	1.7	1.8	2.1	2.2	2.2
Braking torque	Braking circuit			On board			
	Average braking torque		20% (with optional external braking resistor : 100%, 150%)				
	Max. continuous braking time			15 seconds			
	Max. duty			0 ~ 30 % ED			
Cooling method				Forced air cooling			
Enclosure				IP00			

*1) Indicates the maximum applicable capacity when using 4 pole LG standard motor.
*2) Rated capacity (√3*V*I) is based on 220V for 200V class and 440V for 400V class.
*3) Maximum output voltage will not be greater than the input voltage. Output voltage less than the input voltage can be set.

Control	Control method	V/F control
	Frequency setting resolution	Digital reference : 0.01 Hz (below 100 Hz), 0.1 Hz (over 100 Hz) Analog reference : 0.03 Hz / 50 Hz
	Frequency accuracy	Digital : 0.01% of max. output frequency Analog : 0.1% of max. output frequency
	V/F ratio	Linear, Square pattern, User V/F
	Overload capacity	150 % of rated current for 1 min., 200% of rated current for 0.5 sec. (characteristic is inversely proportional to time)
	Torque boost	Manual torque boost (0 ~ 15 %), Auto torque boost
Operation	Input signal	Operation method	Keypad / terminal / communication operation
		Frequency setting	Analog : 0 ~ 10V / 4 ~ 20 mA Digital : keypad
		Start signal	Forward, Reverse
		Multi-step	Up to 8 speeds can be set (use multi-function terminal)
		Multi-step accel/decel time	0 ~ 6,000 sec, up to 8 types can be set and selected for each setting (use the multi- function terminal), Accel/Decel pattern : linear pattern, U pattern, S pattern, Optimum, Minimum
		Emergency stop	Interrupts the output of the drive
		Jog	Jog operation
		Fault reset	Resets fault when protective function is active
	Output signal	Operation status	Frequency level detection, Overload alarm, stalling, overvoltage, undervoltage, drive overheating, running, stop, constant speed, speed searching
		Fault output	Contact output (30A,30C,30B) - AC250V 1A, DC30V 1A
		Indicator	Choose 1 from output frequency, output current, output voltage, DC voltage (Output pulse: 500Hz, Output voltage: 0 ~ 10V)
Operation function		DC braking, frequency limit, frequency jump, second function, slip compensation, reverse rotation prevention, auto restart, PID control
Protective function	Drive trip	Overvoltage, undervoltage, overcurrent, drive overheating, motor over heating, input/output phase loss, input/output mis-wiring, overload protection, communication error, loss of speed command, hardware fault.
	Inverter alarm	Stall prevention, overload alarm
	Momentary power loss	Less than 15 msec : continuous operation, more than 15 msec : auto restart possible
Display Keypad	Operation information	Output frequency, output current, output voltage, frequency value setting, operating speed, DC voltage
	Trip information	Indicates the fault when the protection function activates, memorizes up to 5 faults
Environment	Ambient temperature	-10 ℃ ~ 40 ℃
	Storage temperature	-20 ℃ ~ 65 ℃
	Ambient humidity	90 % RH max.(Non condensing)
	Altitude . Vibration	Below 1,000 m · below 5.9m/sec[2](=0.6g)
	Application site	No corrosive gas, combustible gas, oil mist, or dust

Wiring

DB Resistor[*2]

B1   B2

MCCB

1ø 230V
or
3ø
230/460V
50/60Hz

R
S
T
G

24

Forward Run/Stop — FX
Reverse Run/Stop — RX
Drive gate block — BX
Fault Reset — RST
Jog — JOG
Multi-function Input 1 — P1
Multi-function Input 2 — P2
Multi-function Input 3 — P3

Factory Setting
`Speed-L`
`Speed-M`
`Speed-H`

Common Terminal — CM

Shield

Potentiometer
(1kohm, 1/2W)

VR Power supply for
speed signal:
+12V, 100mA

V1 Speed signal input:
0 ~10V

Speed signal input:
4 ~ 20mA(250ohm)

CM Common for
VR, V1, I

Speed signal Input[*1]

U
V
W

MOTOR

FM (FM) Output Frequency Meter
(0 ~ 12V : pulse output)

CM

A
C Fault output relay
less than AC250V, 1A
B less than DC30V, 1A

MO Multi-function output
MG less than DC24V, 50mA
Factory setting:`RUN`

S+ ModBus-RTU Communication port
S- RS-485

Note) "●" display main circuit terminals, "○" display control circuit terminals.
1. Analog speed command can be set by Voltage, Current and both of them.
2. DB resistor is optional.

Power terminal configuration

Symbol	Function
R S T	AC Line input (1 phase 200~230 Vac for "-1" units 3 phase, 200~230 Vac for "-2" units and 380~460 Vac for "-4" units)
U V W	3 phase output terminals to motor
B1 B2	External additional dynamic braking resistor connection terminals.
G	Chassis ground (The gound terminal("G") may be located on heat sink instead of terminal strip depend on the model name)

Control terminal configuration

| Type		Symbol	Name	Descripton
Input signal	Starting Contact Function Slection	P1, P2, P3	Multi function input 1,2,3	Used for multi function input. Factory default is set to step frequency 1, 2, 3.
		FX	Forward run command	Forward run when closed and stop when opened.
		RX	Reverse run command	Reverse run when closed and stop when opened.
		JOG	Jog frequency reference	Runs at jog frequency when the jog signal is on. The direction is set by the FX (or RX) signal.
		BX	Drive gate block	When the BX signal is ON, the output of the drive is cut off. When the motor uses an mechanical brake to stop, BX is used to cut off the output signal. When the BX signal, which does not cut off by latching, is OFF and the FX signal (or the RX signal) is ON, the motor keeps running, so be cautious.
		RST	Fault reset	Used to release the protective status when the protective circuit is active.
		CM	Sequence common	Used for the common terminal for contact input terminals.
	Analog Frequency Setting	VR	Frequency setting power(+12V)	Used as power for the analog frequency setting. Maximum output is +12V, 100mA.
		V1	Frequency reference (Voltage)	Used for frequency reference and uses 0-10V for input. Input resistance is 20 kΩ
		I	Frequency reference(Current)	Used for frequency reference and uses DC 4-20mA for input. Input resistance is 250Ω
		CM	Frequency setting common terminal	Common terminal for the analog frequency reference signal and the FM (for monitoring).
Output signal	Pulse	FM·CM	Analog/digital output (For external monitoring)	Outputs one of the followings: output frequency, output current, output voltage, DC link voltage. Factory default is set to output frequency. Maximum output voltage and output current is 0-12V, 1mA. Output frequency is set to 500Hz.
	Contact	30A, 30C, 30B	Fault contact output	Activates when the protective function is operating. AC250V 1A or less, DC30V 1A or less Fault : 30A-30C short (30B-30C open) Nomal : 30A-30C short (30B-30C open)
		MO·MG	Multi-function output (Open collector output)	Used for multi-function output
RS232		S+, S-	Communication port	Communication ports for RS-485

Keypad

| Class	Display	Name	Description
KEY	FUNC	Program key	Press to change the parameter setting.
	▲ UP	Up key	Press to move through codes or to increase the parameter values.
	▼ DOWN	Down key	Press to move through codes or to decrease the parameter values.
	RUN	Run key	Use to operate the drive
	STOP/RESET	STOP/RESET key	Press to stop during operation. Press to reset when a fault has occurred.
LED	REV	Reverse run	During reverse run.
	FWD	Forward run	During forward run.
	SET	Setting	When the user is setting the parameters using the FUNC key
	RUN	Operating	When in constant speed and blinks when accelerating or decelerating.

Parameter group

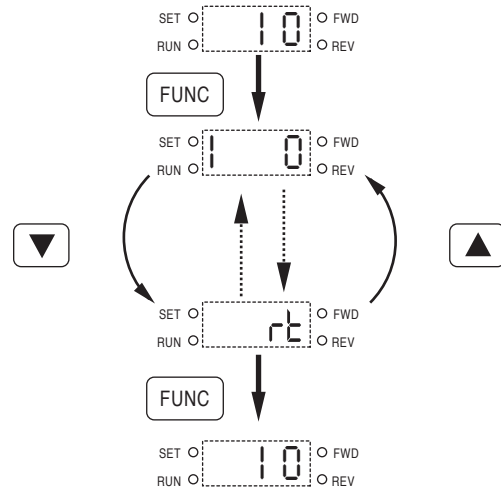| Group name	Description
Drive Group	Basic parameters of Command frequency, Accel/Decel time etc.
Function 1 Group	Basic parameters of Max. Frequency, Torque boost etc.
Function 2 Group	Application parameters of Frequency jump, Frequency limit etc.
Input / Output Group	Multifunction terminal setting and Sequence operation parameters

Parameter navigation

1. Drive Group
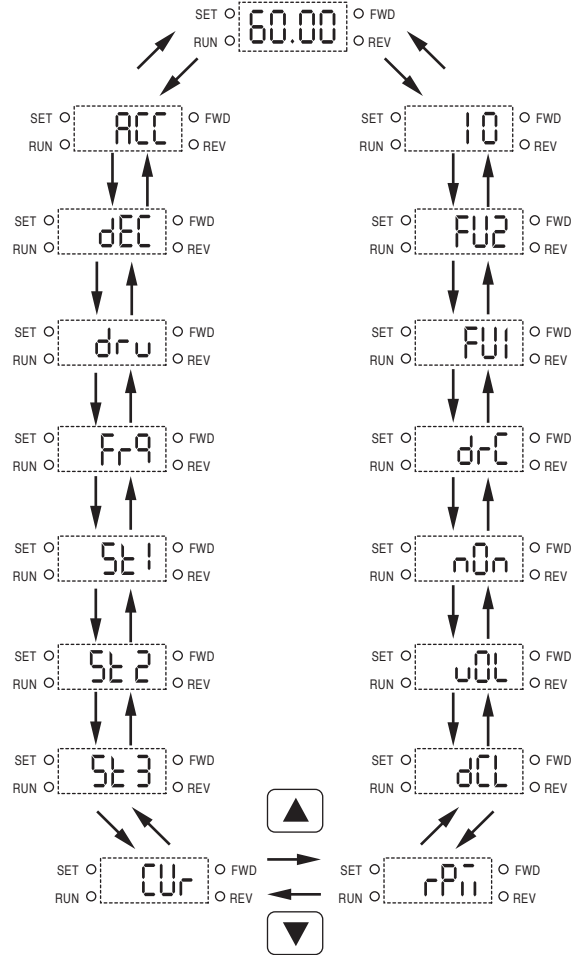
2. Function Group
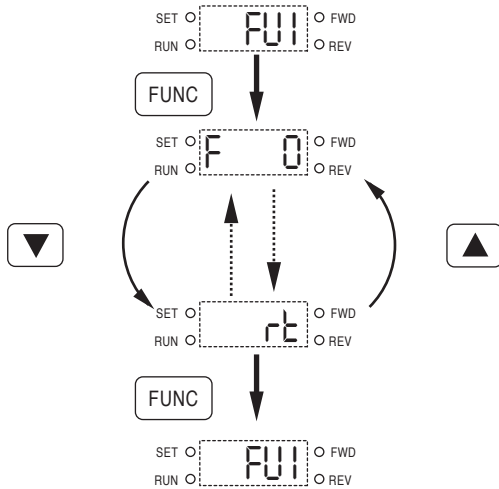
3. I/O Group

Program parameter descriptions

1. Drive Group [DRV]

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
DRV-00	Output Frequency during running, Reference Frequency during stop	0.00	0 to Max. Freq. (FU1-20)	0.01	60.00 [Hz]*	Yes
DRV-01	Acceleration Time	ACC	0 to 6000 [sec]	0.1	10.0 [sec]	Yes
DRV-02	Deceleration Time	dEC	0 to 6000 [sec]	0.1	10.0 [sec]	Yes
DRV-03	Drive Mode (Run/Stop method)	drv	0 (keypad) 1 (Keypad-2) 2 (Fx/Rx-2) 3 (ModBus-RTU)	-	1	No
DRV-04	Frequency Mode (Freq. setting method)	Fr9	0 [Keypad-1] 1 (Keypad-2) 2 (V1) 3 (I) 4 (V1+I) 5 (ModBus-RTU)	-	0	No
DRV-05	Step Frequency 1	St1	Starting freq (FU1-22) to Max. freq (FU1-20)	0.01	10.00 [Hz]	Yes
DRV-06	Step Frequency 2	St2		0.01	20.00 [Hz]	
DRV-07	Step Frequency 3	St3		0.01	30.00 [Hz]	
DRV-08	Output Current	CUr	* [A]	-	- [A]	-
DRV-09	Motor Speed	rPm	* [rpm]	-	- [rpm]	-
DRV-10	DC link Voltage	dCL	* [V]	-	- [V]	-
DRV-11	User Display selection	vOL.POr.tOr	Selected in FU2-73 (User disp)	-	-	-
DRV-12	Fault Display	nOn	-	-	nOn	-
DRV-13	Motor Direction set	drC	F (Forward) r (Reverse)		F	Yes
DRV-20	FU1 Group selection	FU1				
DRV-21	FU2 Group selection	FU2				
DRV-22	I/O Group selection	IO				

2. Function Group1[FU1]

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
FU1-00	Jump to desired code #	F0	1 to 99	1	3	Yes
FU1-03	Run Prevention	F3	0 (None) 1 (Forward Prev) 2 (Reverse Prev)		0	No
FU1-05	Acceleration Pattern	F5	0 (Linear) 1 (S-curve) 2 (U-curve) 3 (Minimum) 4 (Optimum)		0	No
FU1-06	Deceleration Pattern	F6	0 (Linear) 1 (S-curve) 2 (U-curve) 3 (Minimum) 4 (Optimum)		0	No
FU1-07	Stop Mode	F7	0 (Decel) 1 (DC-brake) 2 (Free-run)		0	No
FU1-08	DC Injection Braking Frequency	F8	FU1-22 to 50 [Hz]	0.01	5.00 [Hz]	No
FU1-09	DC Injection Braking On-delay Time	F9	0 to 60 [sec]	0.01	0.5 [sec]	No
FU1-10	DC Injection Braking Voltage	F10	0 to 200 [%]	1	50 [%]	No
FU1-11	Starting DC Injection Braking Time	F11	0 to 60 [sec]	0.1	1.0 [sec]	No
FU1-12	Starting DC Injection Braking Voltage	F12	0 to 200 [%]	1	50 [%]	No
FU1-13	Starting DC Injection Braking Time	F13	0 to 60 [sec]	0.1	0.0 [sec]	No
FU1-20	Maximum Frequency	F20	40 to 400 [Hz]	0.01	60.00 [Hz]*	No
FU1-21	Base Frequency	F21	30 to FU1-20	0.01	60.00 [Hz]*	No
FU1-22	Starting Frequency	F22	0.1 to 10 [Hz]	0.01	0.50 [Hz]	No
FU1-23	Frequency Limit selection	F23	0 (No) 1 (Yes)	-		No
FU1-24	Low Limit Frequency	F24	FU1-22 to FU1-25	0.01	0.50 [Hz]	No
FU1-25	High Limit Frequency	F25	FU1-24 to FU1-20	0.01	60.00 [Hz]*	No
FU1-26	Manual/Auto Torque Boost selection	F26	0 (Manual) 1 (Auto)	-	0	No
FU1-27	Torque Boost in Forward Direction	F27	0 to 15 [%]	0.1	5.0 [%]	No
FU1-28	Torque Boost in Reverse Direction	F28	0 to 15 [%]	0.1	5.0 [%]	No
FU1-29	Volts/Hz Pattern	F29	0 (Linear) 1 (Square) 2 (User V/F)	-	0	No
FU1-30	User V/F - Frequency 1	F30	0 to FU1-32	0.01	15.00 [Hz]*	No
FU1-31	User V/F - Voltage 1	F31	0 to 100 [%]	1	25 [%]	No
FU1-32	User V/F - Frequency 2	F32	FU1-30 to FU1-20	0.01	30.00 [Hz]*	No
FU1-33	User V/F - Voltage 2	F33	0 to 100 [%]	1	50 [%]	No
FU1-34	User V/F - Frequency 3	F34	FU1-32 to FU1-20	0.01	45.00 [Hz]*	No
FU1-35	User V/F - Voltage 3	F35	0 to 100 [%]	1	75 [%]	No
FU1-36	User V/F - Frequency 4	F36	FU1-34 to FU1-20	0.01	60.00 [Hz]*	No
FU1-37	User V/F - Voltage 4	F37	0 to 100 [%]	1	100 [%]	No
FU1-38	Output Voltage Adjustment	F38	40 to 110 [%]	0.1	100[%]	No
FU1-39	Energy Save Level F39	F39	0 to 30 [%]	1	0 [%]	Yes
FU1-50	Electronic Thermal selection	F50	0 (No) 1 (Yes)	-	0	Yes
FU1-51	Electronic Thermal Level for 1 minute	F51	FU1-52 to 150 [%]	1	150 [%]	Yes
FU1-52	Electronic Thermal Level for continuous	F52	50 to FU1-51	1	150 [%]	Yes
FU1-53	Electronic Thermal Characteristic selection (Motor type)	F53	0 (Self-cool) 1 (Forced-cool)	-	0	Yes

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
FU1-54	Overload Warning Level	F54	30 to 150 [%]	1	150 [%]	Yes
FU1-55	Overload Warning Hold Time	F55	0 to 30 [sec]	0.1	10.0 [sec]	Yes
FU1-56	Overload Trip selection	F56	0 (No) 1 (Yes)	-	1	Yes
FU1-57	Overload Trip level	F57	30 to 200 [%]	1	180 [%]	Yes
FU1-58	Overload Trip Delay Time	F58	0 to 60 [sec]	1	60.0 [sec]	
FU1-59	Stall Prevention Mode selection	F59	000 - 111 (bit set) Bit 0: during Accel. Bit 1: during Steady speed Bit 2: during Decel.	bit	000	No
FU1-60	Stall Prevention Level	F60	30 to 150 [%]	1	150 [%]	No
FU1-99	Return Code	rt		-	-	-

3. Function Group2 [FU2]

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
FU2-00	Jump to desired code #	H0	1 to 99	1	30	Yes
FU2-01	Previous Fault History 1	H1	-	-	0	Yes
FU2-02	Previous Fault History 2	H2			nOn	Yes
FU2-03	Previous Fault History 3	H3			nOn	
FU2-04	Previous Fault History 4	H4			nOn	Yes
FU2-05	Previous Fault History 5	H5			nOn	
FU2-06	Erase Fault History	H6	0 (No) 1 (Yes)	-	0	Yes
FU2-07	Dwell Frequency	H7	0 to FU1-20	0.01	5.00 [Hz]	No
FU2-08	Dwell Time	H8	0 to 10 [sec]	0.1	0.0 [sec]	No
FU2-10	Frequency Jump selection	H10	0 (No) 1 (Yes)	-	0	No
FU2-11	Jump Frequency 1 Low	H11	FU1-22 to FU2-12	0.01	0.00 [Hz]	No
FU2-12	Jump Frequency 1 High	H12	FU1-11 to FU2-20	0.01	0.00 [Hz]	No
FU2-13	Jump Frequency 2 Low	H13	FU1-22 to FU2-14	0.01	0.00 [Hz]	No
FU2-14	Jump Frequency 2 High	H14	FU2-13 to FU1-20	0.01	0.00 [Hz]	No
FU2-15	Jump Frequency 3 Low	H15	FU1-22 to FU2-16	0.01	0.00 [Hz]	No
FU2-16	Jump Frequency 3 High	H16	FU2-15 to FU1-20	0.01	0.00 [Hz]	No
FU2-19	Input/Output Phase Loss Protection	H19	00 - 11 (bit set) Bit 0: Output phase loss protection Bit 1: Intput phase loss protection	-	00	Yes
FU2-20	Power ON Start selection	H20	0 (No) 1 (Yes)	-	0	Yes
FU2-21	Restart after Fault Reset	H21	0 (No) 1 (Yes)	-	0	Yes
FU2-22	Speed Search selection	H22	0000 - 1111 (bit set) Bit 0: during Accel. Bit 1: after fault reset Bit 2: after instant power failure restart Bit 3: when FU2-20 is set to 1 (Yes).	-	0000	No
FU2-23	Current Limit Level during Speed Search	H23	80 to 200 [%]	1	100 [%]	Yes
FU2-24	P Gain during Speed Search	H24	0 to 9999	1	100	Yes
FU2-25	I Gain during speed search	H25	0 to 9999	1	1000	Yes
FU2-26	Number of Auto Restart Attempt	H26	0 to 10	1	0	Yes
FU2-27	Delay Time before Auto Restart	H27	0 to 60 [sec]	0.1	1.0 [sec]	Yes
FU2-30	Rated Motor selection	H30	0.4 (0.37kW) 0.8 (0.75kW) 1.5 (1.5kW) 2.2 (2.2kW)	-		No
FU2-31	Number of Motor Poles	H31	2 to 12	1	4	No
FU2-32	Rated Motor Slip	H32	0 to 10 [Hz]	0.01		No
FU2-33	Rated Motor Current in RMS	H33	0.1 to 99.9 [A]	1		No
FU2-34	No Load Motor Current in RMS	H34	0.1 to 99.9 [A]	1		No
FU2-36	Motor Efficiency	H36	50 to 100 [%]	1		No
FU2-37	Load Inertia	H37	0 to 2	1	0	No
FU2-39	Carrier Frequency	H39	1 to 10 [kHz]	1	3 kHz	Yes
FU2-40	Control Mode selection	H40	0 (V/F) 1 (Slip Compen) 2 (PID)	-	0	No
FU2-50	PID Feedback Signal selection	H50	0 (I) 1 (V1)	-	0	No
FU2-51	P Gain for PID Control	H51	0 to 9999	1	3000	Yes
FU2-52	I Gain for PID Control	H52	0 to 9999	1	300	Yes
FU2-53	D Gain for PID Control	H53	0 to 9999	1	0	Yes
FU2-54	Limit Frequency for PID Control	H54	0 to FU1-20	0.01	60.00 [Hz]*	Yes
FU2-70	Reference Frequency for Accel and Decel	H70	0 (Max Freq) 1 (Delta Freq)	-	0	No
FU2-71	Accel/Decel Time Scale	H71	0 (0.01 sec) 1 (0.1 sec) 2 (1 sec)	-	1	Yes
FU2-72	Power On Display	H72	0 (Cmd. Freq) 1 (Acc. Time) 2 (Dec. Time) 3 (Drv mode) 4 (Freq mode) 5 (Step Freq 1) 6 (Step Freq 2) 7 (Step Freq 3) 8 (Current) 9 (Speed) 10(DC link Vtg) 11 (User disp) 12 (Fault Display) 13 (Motor direction)	1	0	Yes

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
FU2-73	User Display selection	H73	0 (Voltage) 1 (Watt) 2 (Torque)	-	0	Yes
FU2-74	Gain for Motor Speed Display	H74	1 to 1000 [%]	1	100 [%]	Yes
FU2-75	DB(Dynamic Braking)Resistor Mode selection	H75	0 [None] 1 [None] 2 (Ext.DB-R)	-	0	Yes
FU2-76	Duty of Dynamic Braking Resistor	H76	0 to 30 [%]	1	10 [%]	Yes
FU2-79	Software Version	H79		-	□□ E	-
FU2-81	2nd Acceleration Time	H81	0 to 6000 [sec]	0.1	5.0 [sec]	Yes
FU2-82	2nd Deceleration Time	H82	0 to 6000 [sec]	0.1	10.0 [sec]	Yes
FU2-83	2nd Base Frequency	H83	30 to FU1-20	0.01	60.00 [Hz]*	No
FU2-84	2nd V/F Pattern	H84	0 (Linear) 1 (Square) 2 (User V/F)	-	0	No
FU2-85	2nd Forward Torque Boost	H85	0 to 15 [%]	0.1	5.0 [%]	No
FU2-86	2nd Reverse Torque Boost	H86	0 to 15 [%]	0.1	5.0 [%]	No
FU2-87	2nd Stall Prevention Level	H87	30 to 150 [%]	1	150 [%]	No
FU2-88	2nd Electronic Thermal Level for 1 minute	H88	FU2-89 to 150 [%]	1	150 [%]	Yes
FU2-89	2nd Electronic Thermal Level for continuous	H89	50 to FU2-88(maximum 150%)	1	100 [%]	Yes
FU2-90	2nd Rated Motor Current	H90	0.1 to 99.9 [A]	0.1	1.8 [A]	No
FU2-91	Read Parameters into Keypad from Inverter	H91	0 (No) 1 (Yes)	-	0	No
FU2-92	Write Parameters to Inverter from Keypad	H92	0 (No) 1 (Yes)	-	0	No
FU2-93	Initialize Parameter	H93	0 (No) 1 (All Groups) 2 (DRV) 3 (FU1) 4 (FU2) 5 (I/O)	-	0	No
FU2-94	Parameter Write Protection	H94	0 to 255	1	0	Yes
FU2-99	Return Code	rt		-	1	Yes

4.Input / Output Group [I/0]

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
I/O-00	Jump to desired code #	I 0	1 to 99	1	1	Yes
I/O-01	Filtering Time Constant for V1 Signal Input	I 1	0 to 9999 [ms]	1	1,000 [ms]	Yes
I/O-02	V1 Input Minimum Voltage	I 2	0 to I/O-04	0.01	0.00 [V]	Yes
I/O-03	Frequency corresponding to V1 Input Minimum Voltage	I 3	0 to FU1-20	0.01	0.00 [Hz]	Yes
I/O-04	V1 Input Maximum Voltage	I 4	I/O-02 to 10 [V]	0.01	10.00 [V]	Yes
I/O-05	Frequency corresponding to V1 Input Maximum Voltage	I 5	0 to FU1-20	0.01	60.00 [Hz]*	Yes
I/O-06	Filtering Time Constant for I Signal Input	I 6	0 to 9999 [ms]	1	1,000 [ms]	Yes
I/O-07	I Input Minimum Current	I 7	0 to I/O-09	0.01	4.00 [mA]	Yes
I/O-08	Frequency corresponding to I Input Minimum Current	I 8	0 to FU1-20	0.01	0.00 [Hz]	Yes
I/O-09	I Input Maximum Current	I 9	I/O-07 to 20 [mA]	0.01	20.00 [mA]	Yes
I/O-10	Frequency corresponding to I Input Maximum Current	I 10	0 to FU1-20	0.01	60.00 [Hz]*	Yes
I/O-11	Criteria for Analog Input Signal Loss	I 11	0 (None) 1 (Half of x1) 2 (Below x1)	-	0	Yes
I/O-12	Multi-function Input Terminal 'P1' define 8,9, 15, 20, 21, 22, 23, 24, 25, 26(-Reserved-)	I 12	0 (Speed-L) 1 (Speed-M) 2 (Speed-H) 3 (XCEL-L) 4 (XCEL-M) 5 (XCEL-H) 6 (Dc-brake) 7 (2nd Func) 10 (Up) 11 (Down) 12 (3-Wire) 13 (Ext trip-A) 14 (Ext trip-B) 16 (Open-loop) 17 (Main-drive) 18 (Analog hold) 19 (XCEL stop)	-	0	No
I/O-13	Multi-function Input Terminal 'P2' define	I 13	Same as above	-	1	No
I/O-14	Multi-function Input Terminal 'P3' define	I 14	Same as above	-	2	No
I/O-15	Terminal Input Status	I 15	00000000 - 11111111 (bit set)	-	-	-
I/O-16	Terminal Output Status	I 16	0 - 1 (bit set)	-	-	-
I/O-17	Filtering Time Constant for Multi-function Input Terminals	I 17	2 to 50	1	15	Yes
I/O-20	Jog Frequency setting	I 20	FU1-22 to FU1-20	0.01	10.00 [Hz]	Yes
I/O-21	Step Frequency 4	I 21	FU1-22 to FU1-20	0.01	40.00 [Hz]	Yes
I/O-22	Step Frequency 5	I 22	FU1-22 to FU1-20	0.01	50.00 [Hz]	Yes
I/O-23	Step Frequency 6	I 23	FU1-22 to FU1-20	0.01	40.00 [Hz]	Yes
I/O-24	Step Frequency 7	I 24	FU1-22 to FU1-20	0.1	30.00 [Hz]	Yes
I/O-25	Acceleration Time 1 for Step Frequency	I 25	0 to 6000 [sec]	0.1	20.0 [sec]	Yes
I/O-26	Deceleration Time 1 for Step Frequency	I 26	0 to 6000 [sec]	0.1	20.0 [sec]	Yes
I/O-27	Acceleration Time 2	I 27	0 to 6000 [sec]	0.1	30.0 [sec]	Yes
I/O-28	Deceleration Time 2	I 28	0 to 6000 [sec]	0.1	30.0 [sec]	Yes
I/O-29	Acceleration Time 3	I 29	0 to 6000 [sec]	0.1	40.0 [sec]	Yes
I/O-30	Deceleration Time 3	I 30	0 to 6000 [sec]	0.1	40.0 [sec]	Yes

Code	Description	Keypad Display	Setting Range	Units	Factory Default	Adjustable during run
I/O-31	Acceleration Time 4	I 31	0 to 6000 [sec]	0.1	50.0 [sec]	Yes
I/O-32	Deceleration Time 4	I 32	0 to 6000 [sec]	0.1	50.0 [sec]	Yes
I/O-33	Acceleration Time 5	I 33	0 to 6000 [sec]	0.1	40.0 [sec]	Yes
I/O-34	Deceleration Time 5	I 34	0 to 6000 [sec]	0.1	40.0 [sec]	Yes
I/O-35	Acceleration Time 6	I 35	0 to 6000 [sec]	0.1	30.0 [sec]	Yes
I/O-36	Deceleration Time 6	I 36	0 to 6000 [sec]	0.1	30.0 [sec]	Yes
I/O-37	Acceleration Time 7	I 37	0 to 6000 [sec]	0.1	20.0 [sec]	Yes
I/O-38	Deceleration Time 7	I 38	0 to 6000 [sec]	0.1	20.0 [sec]	Yes
I/O-40	FM (Frequency Meter) Output selection	I 40	0 (Frequency) 1 (Current) 2 (Voltage) 3 (DC link Vtg)	-	0	Yes
I/O-41	FM Output Adjustment	I 41	10 to 200 [%]	1	100 [%]	Yes
I/O-42	Frequency Detection Level	I 42	0 to FU1-20	0.01	30.00 [Hz]	Yes
I/O-43	Frquency Detection Bandwidth	I 43	0 to FU1-20	0.01	10.00 [Hz]	Yes
I/O-44	Multi-function Output define (MO)15, 16, 18, 19, 20(-Reserved-)	I 44	0 (FDT-1) 1 (FDT-2) 2 (FDT-3) 3 (FDT-4) 4 (FDT-5) 5 (IOL) 6 (IOL) 7 (Stall) 8 (OV) 9 (LV) 10 (OH) 11 (Lost Command) 12 (Run) 13 (Stop) 14 (Steady) 17 (Search)	-	12	Yes
I/O-45	Fault Output Relay setting (30A, 30B, 30C)	I 45	000 - 111 (bit set) Bit 0: LV Bit 1: All Trip Bit 2: Auto retry	-	010	Yes
I/O-46	Inverter Number	I 46	1 to 32	1	1	Yes
I/O-47	Baud Rate I47	I 47	0 (1200 bps) 1 (2400 bps) 2 (4800 bps) 3 (9600 bps) 4 (19200 bps)	-	3	Yes
I/O-48	Operating selection at Loss of Freq. Reference	I 48	0 (None) 1 (FreeRun) 2 (Stop)	-	0	Yes
I/O-49	Waiting Time after Loss of Freq. Reference	I 49	0.1 to 120 [sec]	0.1	1.0 [sec]	Yes
I/O-50	Communication Protocol selection	I 50	0 (LG- BUS) 1~6(ModbusASCII) 7~9 (Modbus-RTU)	-	7	Yes
I/O-99	Return Code	rt		-	1	Yes

Note: Parameters that are set by bit are ON (1) when the upper LED is lit. (F59, H19, H22, I15, I16, I45 are the parameters that are set by bit.)
Note: *marked default value changes depend on the main frequency setting in factory(50 / 60Hz)

Dimension : mm(inch)
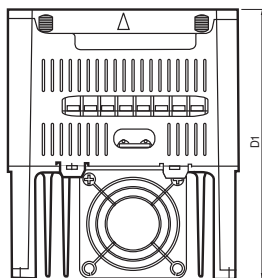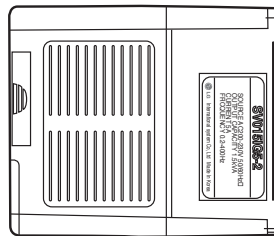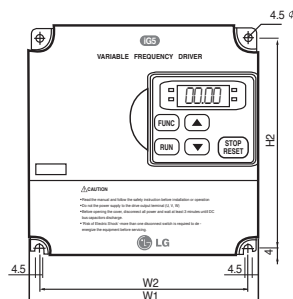
Inverter	HP	W1	W2	H1	H2	D1
SV004iG5-1	0.5	100(3.94)	88(3.46)	128(5.04)	117.5(4.63)	130.9(5.15)
SV004iG5-2	0.5	100(3.94)	88(3.46)	128(5.04)	117.5(4.63)	130.9(5.15)
SV008iG5-1	1	130(5.12)	118(4.65)	128(5.04)	117.5(4.63)	150.9(5.94)
SV008iG5-2	1	100(3.94)	88(3.46)	128(5.04)	117.5(4.63)	130.9(5.15)
SV015iG5-1	2	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV015iG5-2	2	130(5.12)	118(4.65)	128(5.04)	117.5(4.63)	150.9(5.94)
SV022iG5-2	3	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV037iG5-2	5	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV040iG5-2	5.4	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV004iG5-4	0.5	130(5.12)	118(4.65)	128(5.04)	117.5(4.63)	150.9(5.94)
SV008iG5-4	1	130(5.12)	118(4.65)	128(5.04)	117.5(4.63)	150.9(5.94)
SV015iG5-4	2	130(5.12)	118(4.65)	128(5.04)	117.5(4.63)	150.9(5.94)
SV022iG5-4	3	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV037iG5-4	5	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)
SV040iG5-4	5.4	150(5.90)	138(5.43)	128(5.04)	117.5(4.63)	155(6.10)

Dynamic Braking(DB) Resistors

1. Standard application

Drive	Resistor capacity [W]	Resistor value[Ω]	Average braking torque[%]	Enable duty[%]	Continuous braking time[sec]
SV004iG5-1	100	400	100	5	5
SV008iG5-1	100	200	100	5	5
SV015iG5-1	100	100	100	3	5
SV004iG5-2	100	400	100	5	5
SV008iG5-2	100	200	100	5	5
SV015iG5-2	100	100	100	3	5
SV022iG5-2	100	60	100	2	5
SV037iG5-2	100	40	100	2	5
SV040iG5-2	100	40	100	2	5
SV004iG5-4	100	1800	100	5	5
SV008iG5-4	100	900	100	5	5
SV015iG5-4	100	450	100	3	5
SV022iG5-4	100	300	100	2	5
SV037iG5-4	100	200	100	2	5
SV040iG5-4	100	200	100	2	5

2. When the braking magnitude is high

Drive	Resistor capacity [W]	Resistor value[Ω]	Average braking torque[%]	Enable duty[%]	Continuous braking time[sec]
SV004iG5-1	100	400	100	5	5
SV008iG5-1	100	200	100	5	5
SV015iG5-1	200	100	100	5	5
SV004iG5-2	100	400	100	5	5
SV008iG5-2	100	200	100	5	5
SV015iG5-2	200	100	100	5	5
SV022iG5-2	300	60	100	5	5
SV037iG5-2	500	40	100	5	5
SV040iG5-2	500	40	100	5	5
SV004iG5-4	100	1800	100	5	5
SV008iG5-4	100	900	100	5	5
SV015iG5-4	200	450	100	5	5
SV022iG5-4	300	300	100	5	5
SV037iG5-4	500	200	100	5	5
SV040iG5-4	500	200	100	5	5

Drive	Resistor capacity [W]	Resistor value[Ω]	Average braking torque[%]	Enable duty[%]	Continuous braking time[sec]
SV004iG5-1	150	300	150	5	5
SV008iG5-1	150	150	150	5	5
SV015iG5-1	300	60	150	5	5
SV004iG5-2	150	300	150	5	5
SV008iG5-2	150	150	150	5	5
SV015iG5-2	300	60	150	5	5
SV022iG5-2	400	50	150	5	5
SV037iG5-2	600	33	150	5	5
SV040iG5-2	600	33	150	5	5
SV004iG5-4	150	1200	150	5	5
SV008iG5-4	150	600	150	5	5
SV015iG5-4	300	300	150	5	5
SV022iG5-4	400	200	150	5	5
SV037iG5-4	600	130	150	5	5
SV040iG5-4	600	130	150	5	5

Options

Option	Description
DIN Rail base	Din rail mounting plate
Remote keypad mounting fixture and cable	2 meter, 3 meter and 5 meter cable and mounting fixture.

Peripheral devices

Drive Models	kW	MCCB, ELB	Magnetic Contactor	Wire, mm2(AWG) R,S,T	U,V,W	Ground	AC Input	AC Reactor	DC Reactor
SV004iG5-1	0.37	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	10A	2.13mH, 5.7A	7.00mH, 5.4A
SV008iG5-1	0.75	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	10A	2.13mH, 5.7A	7.00mH, 5.4A
SV015iG5-1	1.5	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	10A	2.13mH, 5.7A	7.00mH, 5.4A
SV004iG5-2	0.37	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	10A	2.13mH, 5.7A	7.00mH, 5.4A
SV008iG5-2	0.75	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	10A	2.13mH, 5.7A	7.00mH, 5.4A
SV015iG5-2	1.5	ABS33a, EBS33	SMC-10P	2(14)	2(14)	3.5(12)	15A	1.20mH, 10A	4.05mH, 9.2A
SV022iG5-2	2.2	ABS33a, EBS33	SMC-15P	2(14)	2(14)	3.5(12)	25A	0.88mH, 14A	2.92mH, 13A
SV037iG5-2	3.7	ABS33a, EBS33	SMC-20P	3.5(12)	3.5(12)	3.5(12)	40A	0.56mH, 20A	1.98mH, 19A
SV040iG5-2	4	ABS33a, EBS33	SMC-20P	3.5(12)	3.5(12)	3.5(12)	40A	0.56mH, 20A	1.98mH, 19A
SV004iG5-4	0.37	ABS33a, EBS33	SMC-10P	2(14)	2(14)	2(14)	6A	8.63mH, 2.8A	28.62mH, 2.7A
SV008iG5-4	0.75	ABS33a, EBS33	SMC-10P	2(14)	2(14)	2(14)	6A	8.63mH, 2.8A	28.62mH, 2.7A
SV015iG5-4	1.5	ABS33a, EBS33	SMC-10P	2(14)	2(14)	2(14)	10A	4.81mH, 4.8A	16.14mH, 4.6A
SV022iG5-4	2.2	ABS33a, EBS33	SMC-20P	2(14)	2(14)	2(14)	10A	3.23mH, 7.5A	11.66mH, 7.1A
SV037iG5-4	3.7	ABS33a, EBS33	SMC-20P	2(14)	2(14)	2(14)	20A	2.34mH, 10A	7.83mH, 10A
SV040iG5-4	4	ABS33a, EBS33	SMC-20P	2(14)	2(14)	2(14)	20A	2.34mH, 10A	7.83mH, 10A

RFI Filters

IG5 Series					Footprint Filter						
Drive Models	**Power**	**Code**	**Current**	**Tension Voltage**	**Leakage Current**	**Dimensions L W H**	**Mounting Y X**	**Weight**	**Mount**	**Output Chokes**
SINGLE PHASE				*(max.)*						
SV004iG5-1	0.4kW	FFG5-M010-1	10A	250VA	3.5A	173.5 X 103.5 X 40	159.5 X 80		M4	FS-1
SV008iG5-1	0.8kW	FFG5-M011-1	11A	250VA	3.5A	173.5 X 133.5 X 40	159.5 X 110		M4	FS-1
SV015iG5-1	1.5kW	FFG5-M020-1	20A	250VA	3.5A	173.5 X 153.5 X 40	159.5 X 130		M4	FS-2
THREE PHASE				*(max.)*						
SV004iG5-2	0.4kW	FFG5-T005-1	5A	250VA	0.3A 18A	173.5 X 103.5 X 40	159.5 X 80		M4	FS-1
SV008iG5-2	0.8kW									
SV015iG5-2	1.5kW	FFG5-T012-1	12A	250VA	0.3A 18A	173.5 X 133.5 X 40	159.5 X 110		M4	FS-2
SV022iG5-2	2.2kW	FFG5-T020-1	20A	250VA	0.3A 18A	173.5 X 153.5 X 40	159.5 X 130		M4	FS-2
SV037iG5-2	3.7kW									
SV040iG5-2	4.0kW									
SV004iG5-4	0.4kW	FFG5-T006-1	6A	380VAC	0.5A 27A	173.5 X 133.5 X 40	159.5 X 110		M4	FS-1
SV008iG5-4	0.8kW									
SV015iG5-4	1.5kW									
SV022iG5-4	2.2kW	FFG5-T011-1	11A	380VAC	0.5A 27A	173.5 X 133.5 X 40	159.5 X 130		M4	FS-2
SV037iG5-4	3.7kW									
SV040iG5-4	4.0kW									

IG5 Series					Standard Filter						
Drive Models	**Power**	**Code**	**Current**	**Tension Voltage**	**Leakage Current**	**Dimensions L W H**	**Mounting Y X**	**Weight**	**Mount**	**Output Chokes**
SINGLE PHASE				*(max.)*						
SV004iG5-1	0.4kW	FEG5-T010-(X)	10A	250VA	3.5A	150.5 X 55 X 45	140 X 45		---	FS-1
SV008iG5-1	0.8kW									
SV015iG5-1	1.5kW	FEG5-T015-(X)	15A	250VA	3.5A	150.5 X 55 X 45	140 X 45		---	FS-2
THREE PHASE				*(max.)*						
SV004iG5-2	0.4kW	FEG5-T006-(X)	6A	250VA	0.3A 18A	250 X 110 X 60	238 X 76		---	FS-2
SV008iG5-2	0.8kW									
SV015iG5-2	1.5kW	FEG5-T012-(X)	12A	250VA	0.3A 18A	250 X 110 X 60	238 X 76		---	FS-2
SV022iG5-2	2.2kW	FEG5-T020-(X)	20A	250VA	0.3A 18A	270 X 140 X 60	258 X 106		---	FS-2
SV037iG5-2	3.7kW									
SV040iG5-2	4.0kW									
SV004iG5-4	0.4kW	FEG5-T006-(X)	6A	380VAC	0.5A 27A	250 X 110 X 60	238 X 76		---	FS-2
SV008iG5-4	0.8kW									
SV015iG5-4	1.5kW									
SV022iG5-4	2.2kW	FEG5-T012-(X)	12A	380VAC	0.5A 27A	250 X 110 X 60	238 X 76		---	FS-2
SV037iG5-4	3.7kW									
SV040iG5-4	4.0kW									

(X) (1) Industrial environment EN 50081-1 (A class)
    (2) Domestic and industrial environment EN 50081-1 (B class)

FF Series (Footprint)
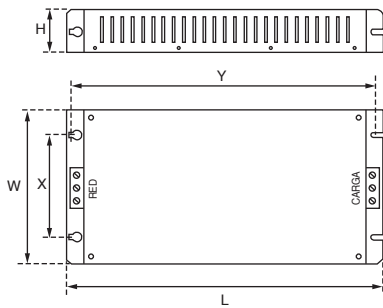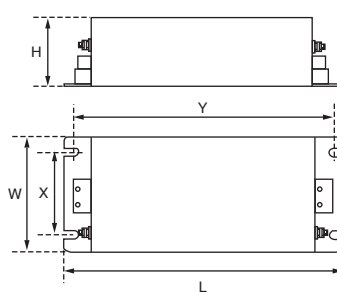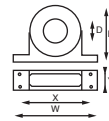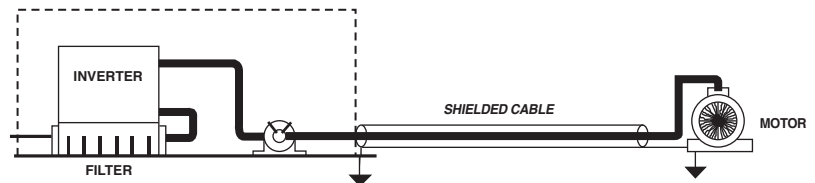
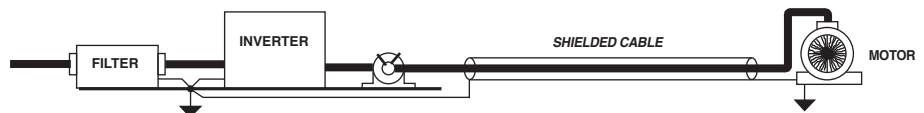## FE Series (Standard)

FS Series (output chokes)

Type	D	W	H	X	O
FS-1	21	85	46	70	5
FS-2	28.5	105	62	90	5
FS-3	48	150	110	125 x 30	5
FS-4	58	200	170	180 x 45	5

FF Series (Footprint)

FE Series (Standard)

Leader in Electrics & Automation

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

LG Industrial Systems

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Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

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