

Shihlin Electric Factory Automation Products



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High-performance Vector-type SF-G Series Inverter

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SF-G SERIES

Electric Specification

◆ 220V Series Three-phase

Model SF-020-□□□K/□□□K-G	5.5	7.5/5.5	11/7.5	15/11	18.5/15
Applicable motor capacity	HP	7.5	10/7.5	15/10	20/15
	KW	5.5	7.5/5.5	11/7.5	15/11
Output	Rated output capacity kVA	9.5	12.5/9.5	18.3/12.5	24.7/18.3
	Rated output current A	25	33/25	49/33	65/49
	Over-current capability	120% 60 seconds / 150% 60 seconds reverse time characteristics			
	Maximum output voltage	Three-phase 200 ~ 240V			
Power supply	Rated power voltage	Three-phase 200 ~ 240V 50Hz / 60Hz			
	Power voltage permissible fluctuation	Three-phase 180~264V 50Hz / 60Hz			
	Power frequency permissible fluctuation	±5%			
	Power source capacity kVA	12	17/12	20/17	28/20
Cooling method		Forced air cooling			
Inverter weight kg		5.6	5.6	7.0	8.3
					9.0

SF-G SERIES

Electric Specification

◆ 440V Series Three-phase

Model SF-040-□□□K/□□□K-G	5.5	7.5/5.5	11/7.5	15/11	18.5/15	22/18.5	30/22	37/30	
Applicable motor capacity	HP	7.5	10/7.5	15/10	20/15	25/20	30/25	40/30	
	KW	5.5	7.5/5.5	11/7.5	15/11	18.5/15	22/18.5	30/22	
Output	Rated output capacity kVA	10	14/10	18/14	25/18	29/25	34/29	46/34	
	Rated output current A	13	18/13	24/18	32/24	38/32	45/38	60/45	
	Over-current capability	120% 60 seconds / 150% 60 seconds reverse time characteristics							
	Maximum output voltage	Three-phase 380 ~ 480 V							
Power supply	Rated power voltage	Three-phase 380 ~ 480V 50Hz / 60Hz							
	Power voltage permissible fluctuation	Three-phase 342 ~ 528V 50Hz / 60Hz							
	Power frequency permissible fluctuation	±5%							
	Power source capacity kVA	12	17/12	20/17	28/20	34/28	34/28	28/20	
Cooling method		Forced air cooling							
Inverter weight kg		5.6	5.6	5.6	5.6	8.3	8.3	25	25

Model SF-020-□□□K/□□□K-G	22/18.5	30/22	37/30	45/37	55/45				
Applicable motor capacity	HP	30/25	40/30	50/40	60/50				
	KW	22/18.5	30/22	37/30	45/37				
Output	Rated output capacity kVA	34.3/28.6	45.7/34.3	55/45.7	65/55				
	Rated output current A	90/75	120/90	145/120	170/145				
	Over-current capability	120% 60 seconds / 150% 60 seconds reverse time characteristics							
	Maximum output voltage	Three-phase 200 ~ 240V							
Power supply	Rated power voltage	Three-phase 200 ~ 240V 50Hz / 60Hz							
	Power voltage permissible fluctuation	Three-phase 180~264V 50Hz / 60Hz							
	Power frequency permissible fluctuation	±5%							
	Power source capacity kVA	41/34	52/41	65/52	79/65				
Cooling method		Forced air cooling							
Inverter weight kg		20	21	37	37	67			

Model SF-040-□□□K/□□□K-G	45/37	55/45	75/55	90/75	110/90	132/110	160/132		
Applicable motor capacity	HP	60/50	75/60	100/75	120/100	150/120	175/150		
	KW	45/37	55/45	75/55	90/75	110/90	132/110		
Output	Rated output capacity kVA	69/56	84/69	114/84	137/114	168/137	198/168		
	Rated output current A	91/73	110/91	150/110	180/150	220/180	260/220		
	Over-current capability	120% 60 seconds / 150% 60 seconds reverse time characteristics							
	Maximum output voltage	Three-phase 380 ~ 480 V							
Power supply	Rated power voltage	Three-phase 380 ~ 480V 50Hz / 60Hz							
	Power voltage permissible fluctuation	Three-phase 342 ~ 528V 50Hz / 60Hz							
	Power frequency permissible fluctuation	±5%							
	Power source capacity kVA	79/65	100/79	110/100	137/110	165/137	198/165		
Cooling method		Forced air cooling							
Inverter weight kg		25	37	37	37	67	67	67	

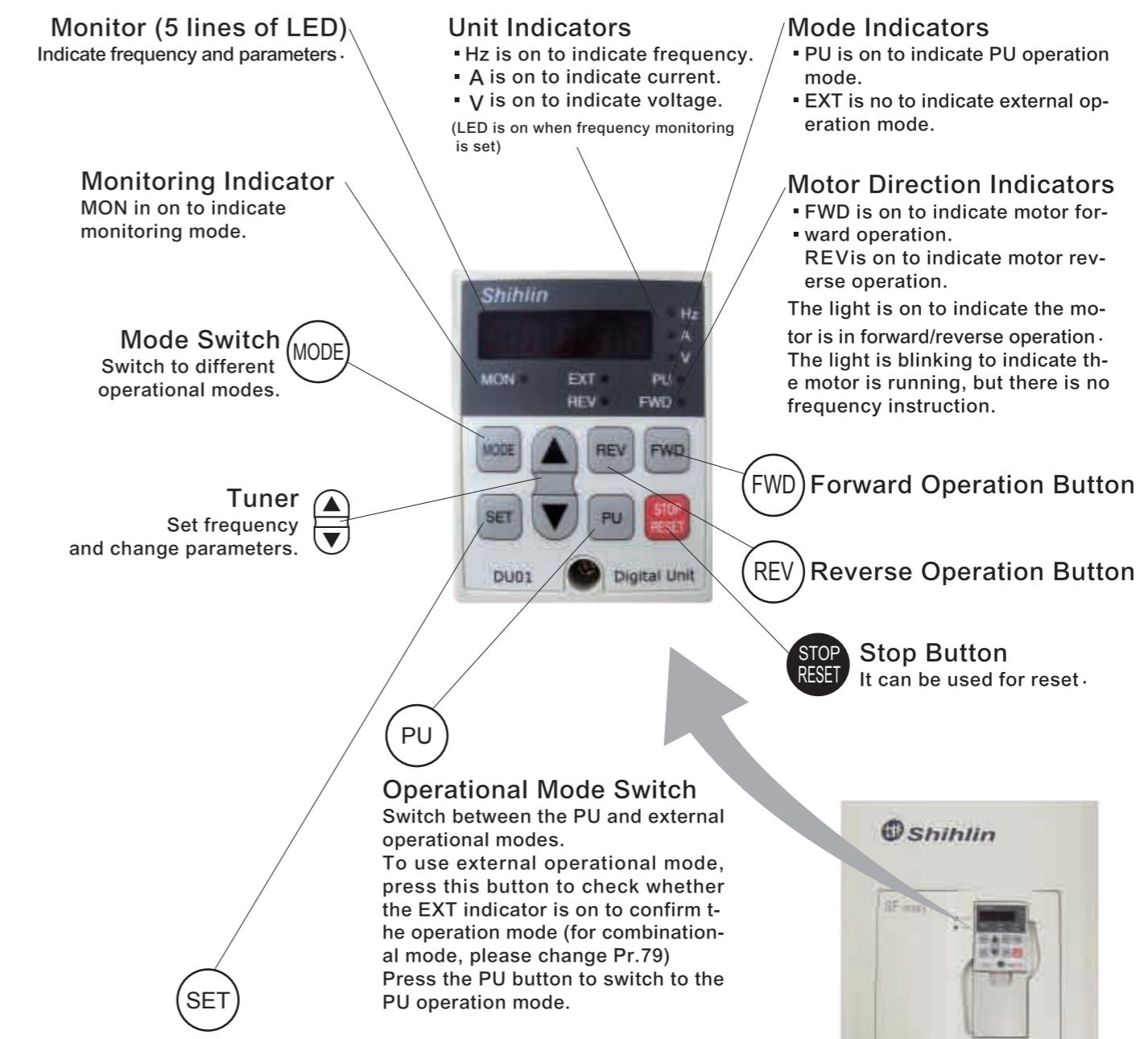
General Specification

Control method		SVPWM control, V/F control, close-loop V/F control (VF+PG), general flux vector control, sensorless vector control (SVC), close-loop vector control (FOC+PG)	
Output frequency range		0.2~400Hz (The starting frequency setting range is 0~60Hz)	
Voltage / frequency output characteristics	Digital setting	If the frequency set value is below 100Hz, the resolution will be 0.01Hz; If the frequency set value is above 100Hz, the resolution will be 0.1Hz	
	Analog setting	When setting DC 0~5V signals, the resolution will be 1/500 ; When setting DC 0~10V or 4~20mA signals, the resolution will be 1/1000	
Output frequency accuracy	Digital setting	Maximum target frequency $\pm 0.01\%$	
	Analog setting	Maximum target frequency $\pm 0.5\%$	
Voltage / frequency output characteristics		Base voltage (P.19), base frequency (P.3) can be arbitrarily set : Constant torque model and variable torque model can be selected (P.14)	
Start torque		150% 1Hz : When the sensorless vector control is started	
Torque boost		The torque boost setting range is 0~30% (P.0), auto boost, slip compensation	
Acceleration / deceleration curve characteristics		The acceleration/deceleration time (P.7 and P.8) and resolution 0.1/0.01s, switched by P.21 Select from a range between 0~3600s / 0~360s. Different "acceleration/deceleration curve" model can be selected (P.29)	
DC braking		The DC braking action frequency is 0~120Hz (P.10); the DC braking time is 0~10s (P.11) The DC braking voltage is 0~30% (P.12).Linear braking and idling braking selection (P.71)	
Stalling protection		The stalling protection level can be set to 0~200% (P.22)	
Target frequency setting		Operation panel setting; DC 0~5V signal, DC 0~10V signal, DC 4~20 mA signal, multiple speed stage level setting, communication setting	
PID control		Please refer to P.170~P.183 in Chapter 5	
Multi-function control terminals		Motor starting (STF, STR), the second function (RT), 16-speed operation (RH, RM, RL, REX), external thermal relay (OH), reset (RES),etc.(Can be set by the user(P.80~P.84, P.86, P.126~P.128))	
Output terminal	Multi-function output terminals	SU, SE RUN, SE FU/10X, SE	P.40 P.129 P.130
	Multi-function output relay	A,B,C	P.85
Operation panel	Analog output	AM,5	Multi-function DC (0~10V) output: output frequency, current (P.54)
	Pulse output	FM,SD	Output the pulse of 0~2300Hz
Environment	Operation monitoring	Output frequency monitoring, output current monitoring, and output voltage monitoring, abnormality record (Maximum 12 sets)	
	LED indication lamp(8)	Forward rotation indication lamp, reverse rotation indication lamp, frequency monitoring indication lamp, voltage monitoring indication lamp, current monitoring indication lamp, mode switching indication lamp, PU terminals control indication lamp, and external terminals control indication lamp	
Communication function		RS-485 communication, can select Shihlin/Modbus protocol communication protocol	
Protection mechanism / alarm function		Output short circuit protection, Over-current protection, P-N over-voltage protection, under-voltage protection, motor over-heat protection (P.9), IGBT module over-heat protection, communication abnormality protection, etc	
Ambient temperature		-10~+40 °C(non-freezing)	
Ambient humidity		90%Rh以下(non-condensing)	
Storage temperature		-20°C~+65°C	
Surrounding environment		Indoor, no corrosive gas, no flammable gas, no flammable powder	
Altitude and vibration		Altitude below 1000 meters, Vibration below 5.9m/s ² (0.6G)	
Grade of protection		IP20	
The degree of environmental pollution		2	
Class of protection		Class I	
International certification			

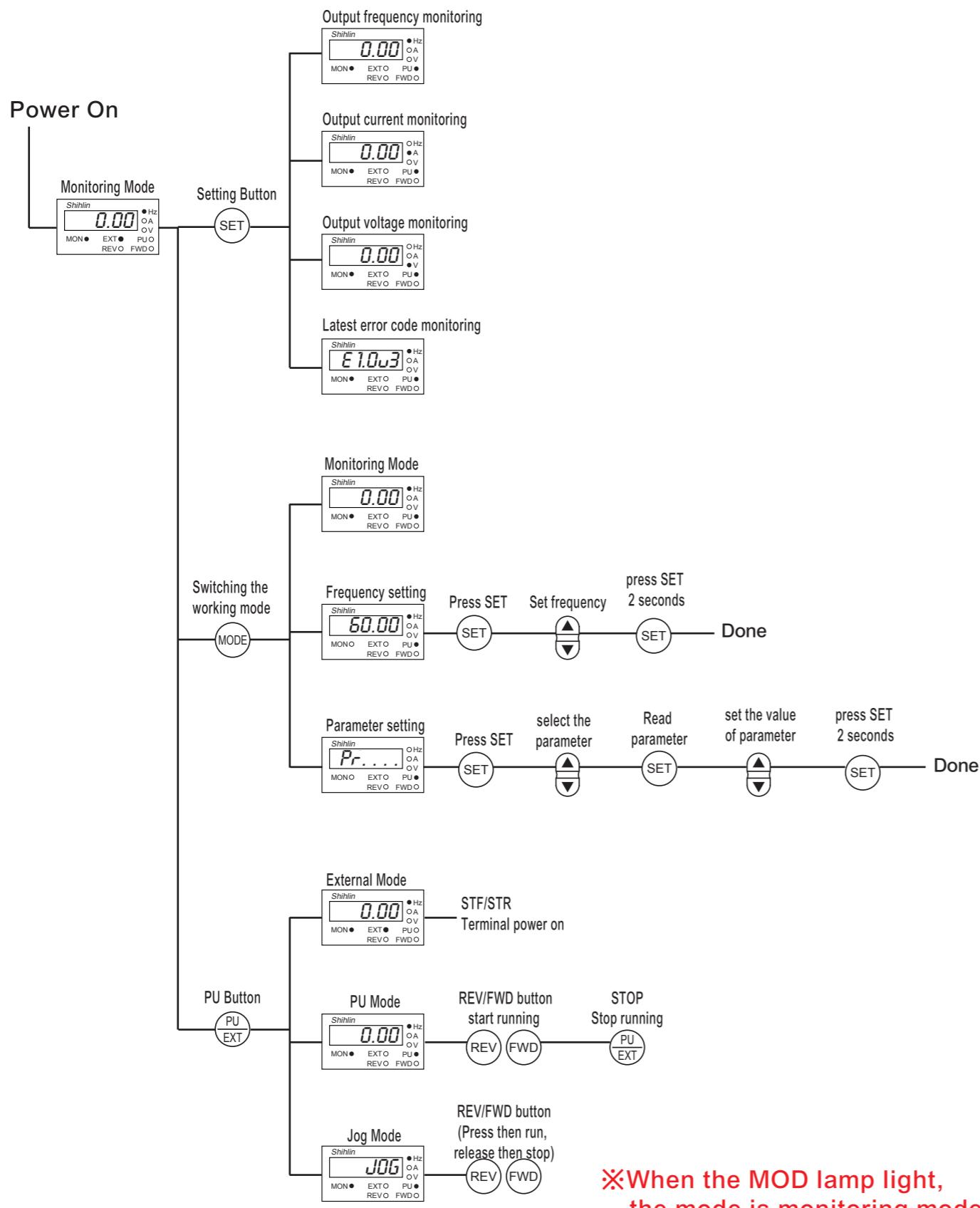
Red font for the drive parameters , for details, see SF-G specification

Operation Panel

◆ Buttons of the operation panel (DU01)



Operation flow chart



Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 0	Torque boost	0~30%	0. 1%	Model-based(Note 1)		P47
P. 1	Maximum frequency	0~120Hz	0. 01Hz	120Hz(55kW 以下) 60Hz(75kW 以上)		P48
P. 2	Minimum frequency	0~120Hz	0. 01Hz	0Hz		P48
P. 3	Base frequency	0~400Hz	0. 01Hz	50Hz/60Hz(註 2)		P48
P. 4	Speed 1 (high speed)	0~400Hz	0. 01Hz	60Hz		P49
P. 5	Speed 2 (medium speed)	0~400Hz	0. 01Hz	30Hz		P49
P. 6	Speed 3 (low speed)	0~400Hz	0. 01Hz	10Hz		P49
P. 7	Acceleration time	0~360s/ 0~3600s	0. 01s/0. 1s	20s		P51
P. 8	Deceleration time	0~360s/ 0~3600s	0. 01s/0. 1s	10s (7. 5kW 以下) 30s (11kW 以上)		P51
P. 9	Electronic thermal relay capacity	0~500A	0. 01A	Motor rated current (Note 1)		P52
P. 10	DC brake action frequency	0~120Hz	0. 01Hz	3Hz		P53
P. 11	DC brake action time	0~60s	0. 1s	0. 5s		P53
P. 12	DC brake voltage	0~30%	0. 1%	4% (7. 5kW 以下) 2% (11kW~55kW) 1% (75kW 以上)		P53
P. 13	Starting frequency	0~60Hz	0. 01Hz	0. 5Hz		P54
P. 14	Load pattern selection	0~13	1	0		P54
P. 15	JOG frequency	0~400Hz	0. 01Hz	5Hz		P57
P. 16	JOG acceleration/deceleration time	0~360s/ 0~3600s	0. 01s/0. 1s	0. 5s		P57
P. 17	Reserved					
P. 18	High speed maximum frequency	120~400Hz	0. 01Hz	120Hz		P48
P. 19	Base voltage	0~1000V, 99999	0. 1V	99999		P48
P. 20	Acceleration/deceleration reference frequency	1~400Hz	0. 01Hz	50Hz/60Hz (Note 2)		P51
P. 21	Acceleration/deceleration time unit selection	0 ~ 1	1	0		P51
P. 22	Stall protection level	0~400%	0. 1%	120%/150% (Note 3)		P57
P. 23	Offset coefficient for level reduction	0~150%, 99999	0. 1%	99999		P57
P. 24	Speed 4	0~400Hz, 99999	0. 01Hz	99999		P49
P. 25	Speed 5	0~400Hz, 99999	0. 01Hz	99999		P49
P. 26	Speed 6	0~400Hz, 99999	0. 01Hz	99999		P49
P. 27	Speed 7	0~400Hz, 99999	0. 01Hz	99999		P49
P. 28	Output frequency filter constant	0~31	1	0		P59
P. 29	Acceleration/deceleration curve selection	0, 1, 2	1	0		P59
P. 30	Regenerative brake function selection	0, 1	1	0		P61
P. 31	Soft-PWM selection	0, 1	1	0		P61
P. 32	Serial communication Baud rate selection	0, 1, 2	1	1		P62
P. 33	Communication protocol selection	0, 1	1	1		P62
P. 34	Reserved					
P. 35	Reserved					
P. 36	Inverter communication station number	0~254	1	0		P62
P. 37	Operation speed display	0~5000r/min	0. 1r/min	0		P79

SF-G SERIES

SF-G SERIES

Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 38	The maximum operation frequency (the target frequency is set by the input signal of terminal 2-5)	1~400Hz	0. 01Hz	50Hz/60Hz (Note 2)		P80
P. 39	The maximum operation frequency (the target frequency is set by the input signal of terminal 4-5)	1~400Hz	0. 01Hz	50Hz/60Hz (Note 2)		P84
P. 40	Multi-function output terminal SU function selection	0~15	1	1		P84
P. 41	Up-to-frequency sensitivity	0~100%	0. 1%	10%		P86
P. 42	Output frequency detection for forward rotation	0~400Hz	0. 01Hz	6Hz		P87
P. 43	Output frequency detection for forward rotation	0~400Hz,99999	0. 01Hz	99999		P87
P. 44	The second acceleration time	0~360s/ 0~3600s,99999	0. 01s/0. 1s	99999		P51
P. 45	The second deceleration time	0~360s/ 0~3600s,99999	0. 01s/0. 1s	99999		P51
P. 46	The second torque boost	0~30%,99999	0. 1%	99999		P47
P. 47	The second base frequency	0~400Hz,99999	0. 01Hz	99999		P48
P. 48	Data length	0, 1	1	0		P62
P. 49	Stop bit length	0, 1	1	0		P62
P. 50	Parity check selection	0, 1, 2	1	0		P62
P. 51	CR & LF selection	1, 2	1	1		P62
P. 52	Number of communication retries	0~10	1	1		P62
P. 53	Communication check time interval	0~999. 8s,99999	0. 1s	99999		P62
P. 54	FM/AM terminal function selection	0~4	1	0		P88
P. 55	Frequency display reference	0~400Hz	0. 01Hz	50Hz/60Hz (Note 2)		P88
P. 56	Current monitoring reference	0~500A	0. 01A	Rated output current		P88
P. 57	Restarting idling time	0~30s,99999	0. 1s	99999		P90
P. 58	Restarting voltage increase time	0~60s	0. 1s	5s (7.5kW 以下)	P90	
				10s (11kW~55kW)		
				20s (75kW 以上)		
P. 59	Reserved					
P. 60	Input signal filter constant	0~31	1	31		P91
P. 61	Remote function	0~3	1	0		P91
P. 62	Zero current detection level	0~200%,99999	0. 1%	5%		P94
P. 63	Zero current detection time	0. 05~1s,99999	0. 01s	0. 5s		P94
P. 64	FM/AM output terminal selection	0, 1	1	0		P88
P. 65	Retry function selection	0~4	1	0		P94
P. 66	Stall prevention operation reduction starting frequency	0~400Hz	0. 01Hz	50Hz/60Hz (註 2)		P57
P. 67	Number of retries at alarm occurrence	0~10	1	0		P94
P. 68	Retry waiting time	0~360s	0. 1s	1s		P94
P. 69	Retry accumulation time at alarm	0	0	0		P94
P. 70	Special regenerative brake duty	0~30%	0. 1%	0		P61
P. 71	Idling braking and linear braking selection	0, 1	1	1		P96
P. 72	Carrier frequency	7. 5kW 以下:0. 7~10kHz 11~22kW:0. 7~9kHz 30~90kW:0. 7~6kHz 110~160kW:0. 7~6kHz	0. 1kHz	7. 5kW 以下 : 5 kHz	P96	
				11~22kW : 5 kHz		
				30~90kW : 4 kHz		
				110~160kW : 2 kHz		
P. 73	Voltage signal selection	0, 1	1	0		P80
P. 74	FU/10X output terminal selection	0~10	1	0		P97

Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 75	Stop or reset function selection	0~1	1	1		P98
P. 76	Reserved					
P. 77	Parameter write disable selection	0, 1, 2	1	0		P98
P. 78	Forward/reverse rotation prevention selection	0, 1, 2	1	0		P99
P. 79	Operation mode selection	0~8	1	0		P99
P. 80	Multi-function terminal RL function selection	0~39	1	2		P100
P. 81	Multi-function terminal RM function selection	0~39	1	3		P100
P. 82	Multi-function terminal RH function selection	0~39	1	4		P100
P. 83	Multi-function terminal STF function selection	0~39	1	0		P100
P. 84	Multi-function terminal STR function selection	0~39	1	1		P100
P. 85	Function selection for multi-function relay	0~15	1	5		P84
P. 86	Multi-function terminal RES function selection	0~39	1	30		P100
P. 87	Reserved					
P. 88	Reserved					
P. 89	Slip coefficient compensation	0~10	1	0		P105
P. 90	Reserved					
P. 91	Frequency jump 1A	0~400Hz,99999	0. 01Hz	99999		P105
P. 92	Frequency jump 1B	0~400Hz,99999	0. 01Hz	99999		P105
P. 93	Frequency jump 2A	0~400Hz,99999	0. 01Hz	99999		P105
P. 94	Frequency jump 2B	0~400Hz,99999	0. 01Hz	99999		P105
P. 95	Frequency jump 3A	0~400Hz,99999	0. 01Hz	99999		P105
P. 96	Frequency jump 3B	0~400Hz,99999	0. 01Hz	99999		P105
P. 97	Reserved					
P. 98	Middle frequency 1	0~400Hz	0. 01Hz	3Hz		P54
P. 99	Output voltage 1 of middle frequency	0~100%	0. 1	10%		P54
P. 100	Minute/second selection	0, 1	1	1		P106
P. 101	Runtime of Section 1 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 102	Runtime of Section 2 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 103	Runtime of Section 3 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 104	Runtime of Section 4 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 105	Runtime of Section 5 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 106	Runtime of Section 6 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 107	Runtime of Section 7 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 108	Runtime of Section 8 in programmed operation mode	0~6000s	0.1s	0s		P106
P. 109	Operation panel monitoring selection	0, 1, 2	1	1		P108
P. 111	Acceleration/deceleration time of Section 1 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 112	Acceleration/deceleration time of Section 2 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 113	Acceleration/deceleration time of Section 3 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 114	Acceleration/deceleration time of Section 4 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 115	Acceleration/deceleration time of Section 5 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 116	Acceleration/deceleration time of Section 6 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 117	Acceleration/deceleration time of Section 7 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 118	Acceleration/deceleration time of Section 8 in programmed operation mode	0~600s/0~6000s	0. 01s/0. 1s	0s		P106
P. 119	Reserved					
P. 120	Output signal delay time	0~3600s	0. 1s	0s		P84
P. 121	Run direction in each section	0~255	1	0		P106

Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 122	Cycle selection	0~8	1	0		P106
P. 123	Acceleration/deceleration time setting selection	0, 1	1	0		P106
P. 125	Reserved					
P. 126	Multi-function terminal AU function selection	0~39	1	5		P100
P. 127	Multi-function terminal RT function selection	0~39	1	8		P100
P. 128	Multi-function terminal MRS function selection	0~39	1	7		P100
P. 129	Multi-function terminal RUN function selection	0~15	1	0		P84
P. 130	Multi-function terminal FU/10X function selection	0~15	1	2		P84
P. 131	Speed 1 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 132	Speed 2 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 133	Speed 3 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 134	Speed 4 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 135	Speed 5 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 136	Speed 6 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 137	Speed 7 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 138	Speed 8 of programmed operation mode	0~400Hz	0.01Hz	0Hz		P106
P. 139	Voltage signal bias	0~100%	0.1%	0%		P80
P. 140	Voltage signal gain	0.1~200%	0.1%	100%		P80
P. 141	Voltage signal bias direction and rotational direction setup	0~11	1	0		P80
P. 142	Speed 8	0~400Hz	0.01Hz	0Hz		P49
P. 143	Speed 9	0~400Hz, 99999	0.01Hz	99999		P49
P. 144	Speed 10	0~400Hz, 99999	0.01Hz	99999		P49
P. 145	Speed 11	0~400Hz, 99999	0.01Hz	99999		P49
P. 146	Speed 12	0~400Hz, 99999	0.01Hz	99999		P49
P. 147	Speed 13	0~400Hz, 99999	0.01Hz	99999		P49
P. 148	Speed 14	0~400Hz, 99999	0.01Hz	99999		P49
P. 149	Speed 15	0~400Hz, 99999	0.01Hz	99999		P49
P. 150	Restart mode selection	0~221	1	0		P90
P. 151	Zero-speed control function selection	0, 1	1	0		P109
P. 152	Voltage instruction at zero-speed control	0~30%	0.1%	4% (7.5kW以下) 2% (11kW~55kW) 1% (75kW以上)		P109
P. 153	Communication error handling	0, 1	1	0		P62
P. 154	Modbus communication data format	0~5	1	4		P62
P. 155	Over-torque detection level	0~200%	0.1%	0%		P109
P. 156	Over-torque detection time	0.1~60s	0.1s	1s		P109
P. 157	External terminals filter adjusting function	0~200	1	4		P110
P. 158	External terminal power enabling	0, 1	1	0		P111
P. 159	Energy-saving control	0, 1	1	0		P111
P. 160	Stall prevention operation level when restarting the machine	0~150%	0.1%	100%		P90
P. 161	Multi-function display	0~10	1	0		P112
P. 162	Middle frequency 2	0~400Hz, 99999	0.01Hz	99999		P54
P. 163	Output voltage 2 of middle frequency	0~100%	0.1	0		P54
P. 164	Middle frequency 3	0~400Hz, 99999	0.01Hz	99999		P54
P. 165	Output voltage 3 of middle frequency	0~100%	0.1	0		P54
P. 166	Middle frequency 4	0~400Hz, 99999	0.01Hz	99999		P54

New function of SF-G was marked as yellow color

Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 167	Output voltage 4 of middle frequency	0~100%	0.1	0		P54
P. 168	Middle frequency 5	0~400Hz, 99999	0.01Hz	99999		P54
P. 169	Output voltage 5 of middle frequency	0~100%	0.1	0		P54
P. 170	PID function selection	0, 1, 2	1	0		P113
P. 171	PID feedback control method selection	0, 1	1	0		P113
P. 172	Proportion gain	1~100	1	20		P113
P. 173	Integral time	0~100s	0.1s	1s		P113
P. 174	Deviation time	0~1000ms	1ms	0		P113
P. 175	Abnormal deviation value	0~100%	0.1%	0		P113
P. 176	Abnormality duration	0~600s	0.1s	30s		P113
P. 177	Abnormality handling mode	0, 1, 2	1	0		P113
P. 178	Sleep detection deviation value	0~100%	0.1%	0		P113
P. 179	Sleep detect duration	0~255s	0.1s	1s		P113
P. 180	Revival level	0~100%	0.1%	90%		P113
P. 181	Outage level	0~120Hz	0.01Hz	40Hz		P113
P. 182	Integral upper limit frequency	0~120Hz	0.01Hz	50Hz/60Hz (Note 2)		P113
P. 183	Deceleration step length with stable pressure	0~10Hz	0.01Hz	0.5Hz		P113
P. 184	4-5 terminal disconnection handling	0~3	1	0		P116
P. 186	SF-G model selection function	0~1	1	0		P117
P. 187	FM calibration parameter	0~9998	1	166		P88
P. 188	Inverter procedure edition	---	---	---		P117
P. 189	Factory setting function	0~1	1	0		P117
P. 190	AM output bias	0~1400	1	0 (Note 4)		P88
P. 191	AM output gain	0~1400	1	1335 (Note 4)		P88
P. 192	2-5 terminal minimum input voltage	0~10	0.01	0		P118
P. 193	2-5 terminal maximum input voltage	0~10	0.01	0		P118
P. 194	2-5 terminal's maximum input voltage corresponded frequency	0~60Hz	0.01Hz	0Hz		P118
P. 195	2-5 terminal's maximum input voltage corresponded frequency	0~400Hz	0.01Hz	50Hz/60Hz (Note 2)		P118
P. 196	4-5 terminal's maximum input voltage corresponded frequency	0~60Hz	0.01Hz	0Hz		P119
P. 197	4-5 terminal's maximum input voltage corresponded frequency	0~400Hz	0.01Hz	50Hz/60Hz (Note 2)		P119
P. 198	4-5 terminal minimum input current	0~20	0.01	0		P119
P. 199	4-5 terminal minimum input current	0~20	0.01	0		P119
P. 200	Constant pressure system function selection	0~14	1	0		P121
P. 209	Maximum frequency duration	0.1~10min	0.1min	5min		P121
P. 210	Maximum frequency duration	0.1~10min	0.1min	5min		P121
P. 213	Acceleration time for starting the commercial power supply frequency	0.01~20s/0.1~200s	0.01s/0.1s	5s		P121
P. 214	Deceleration time for starting the commercial power supply frequency	0.01~20s/0.1~200s	0.01s/0.1s	5s		P121
P. 215	Maximum frequency	20~60Hz	0.01Hz	50Hz		P121
P. 216	Maximum frequency	0~20Hz	0.01Hz	20Hz		P121
P. 217	Motor switchover permitted deviation	0~20%	0.1%	0		P121
P. 223	Analog feedback bias pressure	0~100%	0.1	0%		P121
P. 224	Analog feedback gain pressure	0~100%	0.1	100%		P121
P. 225	Panel command	0~100%	0.1	20%		P121
P. 229	Backlash compensation function selection	0~1	1	0		P124
P. 230	The backlash acceleration interrupting frequency	0~400Hz	0.01Hz	1Hz		P124

New function of SF-G was marked as yellow color

SF-G SERIES

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Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 231	Backlash acceleration interrupting time	0~360 s	0.1s	0.5s		P124
P. 232	Backlash deceleration interrupting frequency	0~400Hz	0.01Hz	1Hz		P124
P. 233	Backlash deceleration interrupting time	0~360 s	0.1s	0.5s		P124
P. 234	Triangular wave function selection	0~2	1	0		P125
P. 235	Maximum amplitude	0~25%	0.1%	10%		P125
P. 236	Amplitude compensation for deceleration	0~50%	0.1%	10%		P125
P. 237	Amplitude compensation for acceleration	0~50%	0.1%	10%		P125
P. 238	Amplitude acceleration time	0~360s/0~3600s	0.01s/ 0.1s	10s		P125
P. 239	Amplitude deceleration time	0~360s/0~3600s	0.01s/ 0.1s	10s		P125
P. 240	Auxiliary frequency function selection	0~4	1	0		P126
P. 242	DC injection brake function before starting selection	0~1	1	0		P126
P. 243	DC injection brake time before starting	0~60s	0.1s	0.5s		P126
P. 244	DC brake voltage before starting	0~30%	0.1%	4% (7.5kW以下)		P126
				2% (11kW~55kW)		
				1% (75kW以上)		
P. 245	Cooling fan operation selection	0~3	0	0		P127
P. 246	Modulation coefficient	0.90~1.20	0.01	1		P128
P. 247	MC switchover interlock time	0.1~100s	0.1s	1s		P128
P. 248	Start waiting time	0.1~100s	0.1s	0.5s		P128
P. 249	Automatic switchover frequency from inverter to commercial power supply frequency	0~60Hz, 99999	0.01	99999		P128
P. 250	Automatic switchover frequency range from commercial power supply to inverter	0~10Hz, 99999	0.01	99999		P128
P. 251	Injection molding machine mode selection	0~4	1	0		P131
P. 252	Flow channel weighted coefficient	0~100%	0.1%	100%		P131
P. 253	Pressure channel weighted coefficient	0~100%	0.1%	100%		P131
P. 254	Corner frequency	0~100Hz	0.01Hz	0		P131
P. 285	Low frequency vibration inhibition factor	0~3	1	1		P132
P. 286	High frequency vibration inhibition factor	0~15	1	0		P132
P. 287	Short circuit protection (SCP) function selection	0~1	1	1		P133
P. 288	Alarm code display option	0~12	1	0		P133
P. 289	Abnormal code	---	---	0		P133
P. 290	Status message display option for the occurring alarm	0~7	1	0		P133
P. 291	Status message for the occurring alarm	---	---	0		P133
P. 292	Accumulative motor operation time (minutes)	0~1439min	1min	0		P134
P. 293	Accumulative motor operation time (days)	0~9999day	1day	0		P134
P. 294	Decryption parameter	0~65535	1	0		P134
P. 295	Password setup	2~65535	1	0		P134
P. 300	Motor control mode selection	0~4	1	0		P135
P. 301	Motor parameter auto-tuning function selection	0~3	1	0		P135
P. 302	Motor rated frequency	0~160	0.01	0		P137
P. 303	Motor level	0~8	1	4		P137
P. 304	Motor rated voltage	0~440V	1 V	220/440V		P137
P. 305	Motor rated frequency	0~400Hz	0.01Hz	50Hz/60Hz(Note 2)		P137
P. 306	Motor rated current	0~500A	0.01 A	Horserpower-based		P137
P. 307	Motor rated rotation speed	0~65535 r/min	1 r/min	1410/1710 r/min(Note 2)		P137
P. 308	Motor excitation current	0~500A	0.01 A	Horserpower-based		P137
P. 309	Stator resistor	0~65535mΩ	1	Horserpower-based		P137

New function of SF-G was marked as yellow color

Parameter Table

Parameter Number	Name	Setting Range	Minimum Setting Unit	Default Value	User Setting Value	Reference Page
P. 310	Rotor resistor	0~65535mΩ	1	Horserpower-based		P137
P. 311	Leakage inductance	0~6553.5mH	0.1	Horserpower-based		P137
P. 312	Mutual inductance	0~6553.5mH	0.1	Horserpower-based		P137
P. 320	Speed control proportion coefficient	0~2000%	1%	100%		P138
P. 321	Speed control integral coefficient	0~20s	0.01s	0.3s		P138
P. 350	Number of pulses per revolution of the encoder	0~20000	1	1024		P139
P. 351	Encoder input mode setup	0~4	1	0		P139
P. 352	PG signal abnormality (zero speed) detection time	0~100s	0.1s	1s		P139
P. 353	Motor over-speed detection frequency	0~30Hz	0.01Hz	4Hz		P139
P. 354	PG over-speed detection time	0~100s	0.1s	1s		P139
P. 994	Parameter copy readout	Refer to Chapter 5	---	---		P140
P. 995	Parameter copy write-in	Refer to Chapter 5	---	---		P140
P. 996	Abnormal record deletion	Refer to Chapter 5	---	---		P141
P. 997	Inverter reset	Refer to Chapter 5	---	---		P141
P. 998	Restoring the parameters to the default values	Refer to Chapter 5	---	---		P141
P. 999	Restoring some parameters to the default values	Refer to Chapter 5	---	---		P141

New function of SF-G was marked as yellow color

Note : 1. The torque boost, motor rated current and stator resistance values are shown in the table as follows.

Inverter type	P.0	P.9
SF-020-5.5 K	3	24
SF-020-7.5 K/5.5K-G	3	33/24
SF-020-11 K/7.5K-G	2/3	49/33
SF-020-15 K/11K-G	2	65/49
SF-020-18.5 K/15K-G	2	75/65
SF-020-22K/18.5K-G	2	90/75
SF-020-30 K/22K-G	2	120/90
SF-020-37 K/30K-G	2	145/120
SF-020-45 /37K-G	2	170/145
SF-020-55 K/45K-G	2	212/170
SF-040-5.5 K	3	13
SF-040-7.5 K/5.5K-G	3	18/13
SF-040-11 K/7.5K-G	2/3	24/18

Inverter type	P.0	P.9
SF-040-15 K/11K-G	2	32/24
SF-040-18.5 /15K-G	2	38/32
SF-040-22K/18.5K-G	2	45/38
SF-040-30 K/22K-G	2	60/45
SF-040-37 K/30K-G	2	73/60
SF-040-45 K/37K-G	2	91/73
SF-040-55 K/45K-G	2	110/91
SF-040-75 K/55K-G	1/2	150/110
SF-040-90 K/75K-G	1	180/150
SF-040-110 K/90K-G	1	220/180
SF-040-132 K/110K-G	1	260/220
SF-040-160 K/132K-G	1	310/260

2. The default value is determined by the set value of P.189. When P.189 = 0, the default value is 60Hz, which is applicable to 60Hz systems. When P.189 = 1, the default value is 50Hz, which is applicable to 50Hz systems.

3. According to the value of P.186, please refer to the parameter instruction for P.22.

4. Parameters P.190 and P.191 are the calibrating values. Therefore the default value for each machine may differ slightly.

SF-G SERIES

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Alarm Code List

Code	Screen Display	Cause	Troubleshooting
ERROR	Error	1.Under-voltage for power supply 2.The reset function "RES" is on 3.Bad connection between the operation panel and main machine 4.Internal circuit malfunction 5.Wrong CPU operation	1.Provide a normal power supply 2.Shut off "RES" 3.Ensure firm connection between the operation panel and the main machine 4.Replace the inverter 5.Restart the inverter
OC0 Over-current when stop	OC0		Please restart the inverter. If the alarm repeated, please send the inverter back to the factory
OC1 Over-current during acceleration	OC1	The output current is two times larger than the rated current of the inverter	1.In case the time for acceleration or deceleration is too short, extend it as necessary 2.Avoid abrupt increase of load 3.Check Terminals U, V and W for short circuit
OC2 Over-current at constant speed	OC2		
OC3 Over-current during deceleration	OC3		
OV0 Over-voltage when stop	Ov0		Check whether the power supply is normal or abnormal
OV1 Over-voltage during acceleration	Ov1	Over-voltage between Terminals P and N	1.In case the time for acceleration or deceleration is too short, extend it as necessary 2.Check the brake resistor between Terminals P and PR for loose connection 3.Check whether the values of P.30 and P.70 are correct or not
OV2 Over-voltage at constant speed	Ov2		
OV3 Over-voltage during deceleration	Ov3		
THT Overheated IGBT module	THT	IGBT module thermal accumulation relay operation	Avoid prolonged inverter operation when overloaded
THN Overheated motor	THN	Electronic thermal relay operation	1.Check whether the set value of P.9 is correct or not (according to the externally connected motor) 2.Reduce load
FAN Cooling fan alarm	FAN	Cooling fan failure	1.The cooling fan is damaged. Please replace it with a new fan 2.Please clean the fan if it is blocked by foreign substances 3.Check if fans wiring is broken/loose, or replace it with a new fan
OHT External thermal relay operation	OHT	External thermal relay operation	1.Check whether the capacity of the external thermal relay and of the motor coordinates well 2.Reduce the load
OPT Abnormal peripheral devices	OPF	1.Abnormal communication; Exceeding the number of communication retries 2.Interrupted communication; Exceeding the permitted communication time interval	Correctly set the communication parameters
EEP Abnormal memory	EEP	ROM malfunction	Send the inverter back to the factory if this type of alarm happens frequently

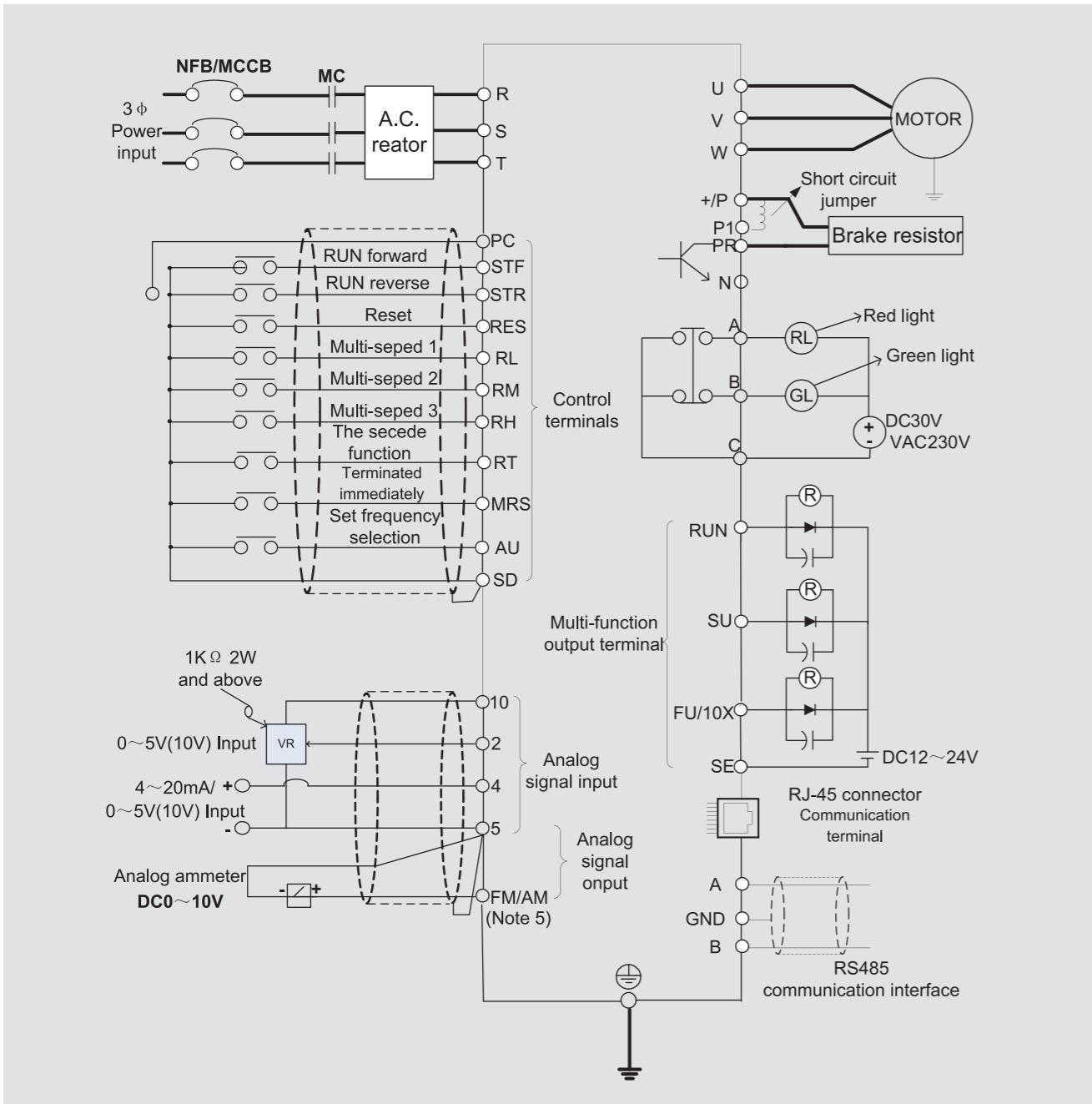
Alarm Code List

Code	Screen Display	Cause	Troubleshooting
PID Abnormal PID	PID	1.Insufficient inverter and motor capacity 2.PID target value or feedback value set unreasonably 3.Peripheral devices malfunction	1.Enlarge the inverter and motor capacity 2.Check the feedback gain setup. Reset the target value according to the feedback 3.Check the system's peripheral feedback devices (e.g., sensors, potentiometer) and whether the wiring is correct
CPU Abnormal CPU	CPU	Serious peripheral electromagnetic interference	Reduce peripheral interference
OLS Stall prevention and protection	OLS	Over-loaded motor	1.Reduce motor load 2.Increase P.22 value
SCP Short circuit over-current	SCP	Output-end short circuit	Check whether the inverter output has short circuit (e.g., the motor wiring)
NTC Overheated module	NTC	The temperature of the IGBT module is too high	1.Reduce the environment temperature and improve the air condition 2.Check whether the fan of the inverter is damaged
OL2 Abnormal over-torque	OL2	1.Over-loaded motor 2.P.155, P.156 set unreasonably	1.Reduce motor load 2.Adjust the set value of P.155, P.156 properly
BE Abnormal brake-resistor (Abnormal relay)	BE	Abnormal brake-resistor (Abnormal relay)	Return it to the factory for repair
IPF Abnormal power supply input	IPF	Abnormal power supply input	Check whether power supply input is normal
CPr Abnormal CPU	CPr	Abnormal PU procedures	1.Check the wiring 2.Check the parameter setup 3.Reduce peripheral interference
AEr Abnormal 4-5 terminal	AEr	Abnormal disconnection of 4-5 terminal's analog output	Please refer to the description for P.184
PG1 Abnormal encoder model	PG1	Abnormal encoder model	Check the set value of P.351
PG2 Abnormal PG card feedback signals	PG2	Abnormal PG card feedback signals	Please refer to the feedback control parameter description for P.350~P.354
PG3 Too large speed deviation under closed-loop control	PG3	Too large speed deviation under closed-loop control	Please refer to the feedback control parameter description for P.350~P.354

Note :

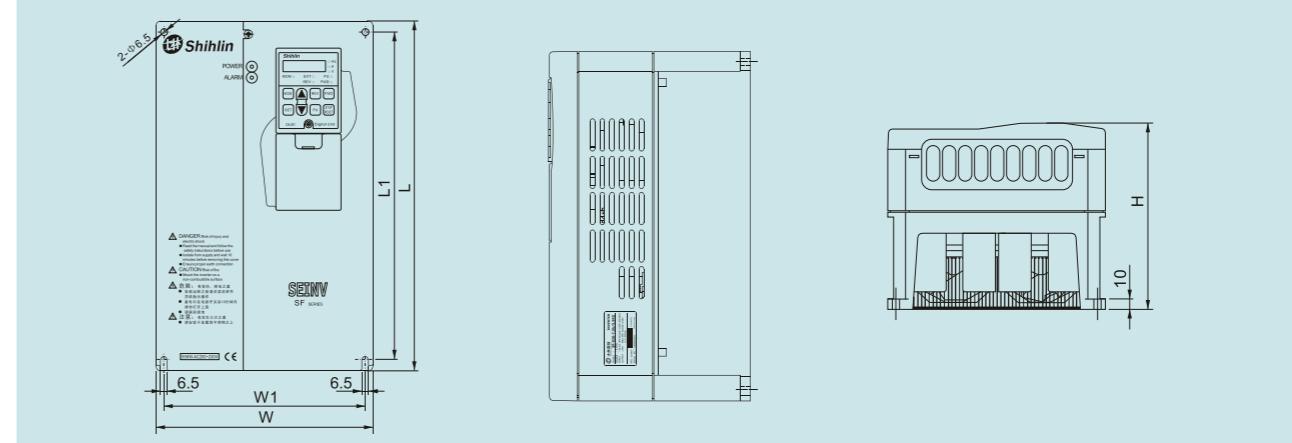
- For the types below 40HP, "BE" alarm is a brake-resistor alarm, and relay alarm for types above 40HP.
- When the above alarms occur, the inverter will stop. Please handle these alarms according to the methods mentioned above.
- Refer to abnormal alarm codes.

Terminal Wire Arrangement

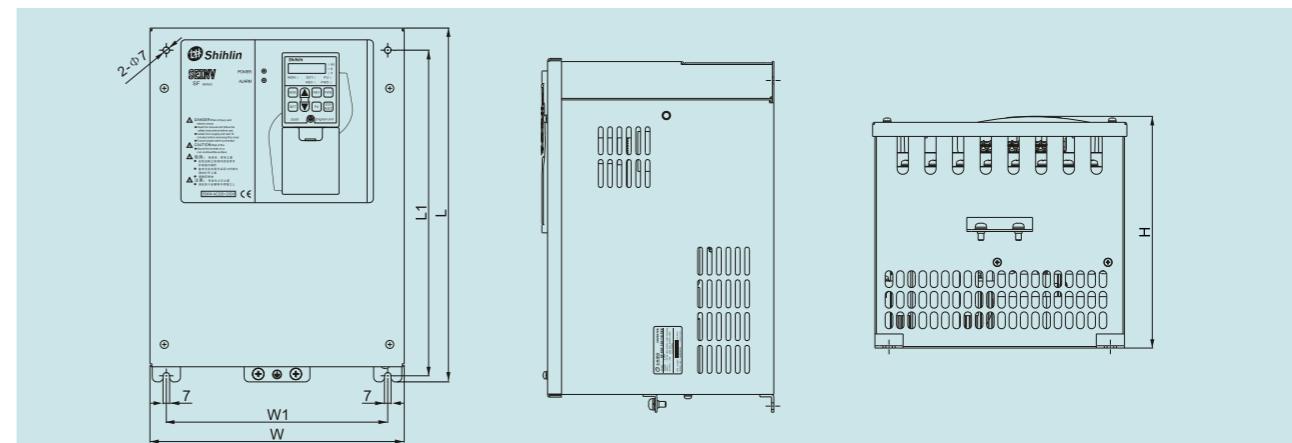
**Note:**

- In the above diagram, heavy-gauge wires are main circuit wires; the rest are control circuit wires.
- Please refer to P.80~P.84, P.86 and P.126~P.128 (OH) of Chapter 5 for the applications of external thermal overload relay.
- Make sure not to short PC and SD.
- The AC resistor between P and P1 is optional. Short P and P1 when AC resistor is not used.
- When selecting FM function for the FM/AM output terminal, the reference ground is SD. For more details, please refer to P.64.
- The brake resistor connection approach between P and PR is for frames A and B only. For connecting the brake unit of frame C, D, E, F to between P and N, please refer to terminal arrangement in 3.4.5.

Appearance and Dimensions

Frame A/B

Model	Frame	L (mm)	L1 (mm)	W (mm)	W1 (mm)	H (mm)
SF020-5.5K	A	323	303	200	186	186
SF020-7.5K/5.5K-G						
SF040-5.5K						
SF040-7.5K/5.5K-G						
SF040-11K/7.5K-G						
SF040-15K/11K-G						
SF020-11K/7.5K-G						
SF020-15K/11K-G						
SF020-18.5K/15K-G						
SF040-18.5K/15K-G						
SF040-22K/18.5K-G						
B						
SF020-11K/7.5K-G	B	350	330	230	214	195
SF020-15K/11K-G						
SF020-18.5K/15K-G						
SF040-18.5K/15K-G						
SF040-22K/18.5K-G						
C						
SF020-22K/18.5K-G	C	379	348	271	236	248
SF020-30K/22K-G						

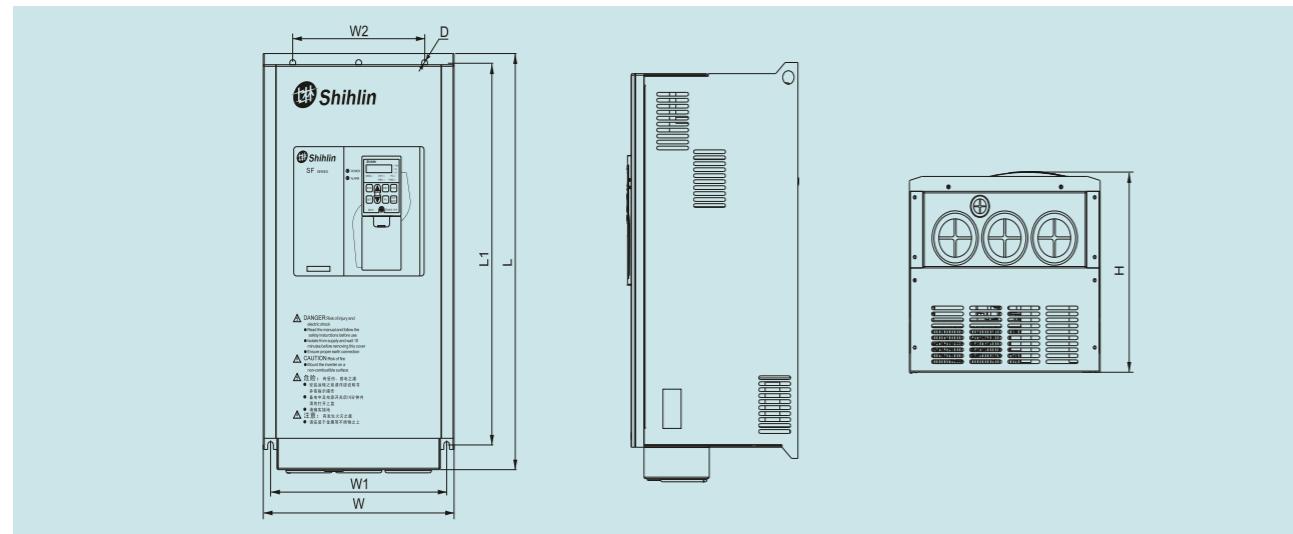
Frame C

SF-G SERIES

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Appearance and Dimensions

Frame D/E/F



Model	Frame	L (mm)	L1 (mm)	W (mm)	W1 (mm)	W2 (mm)	H (mm)	D (mm)
SF040-30K/22K-G	D	561	510	300	277	220	270	9
SF040-37K/30K-G								
SF040-45K/37K-G	E	595	566	370	336	336	286	13
SF020-37K/30K-G								
SF020-45K/37K-G	F	850	821	425	381	381	286	13
SF040-55K/45K-G								
SF040-75K/55K-G								
SF040-90K/75K-G								
SF020-55K/45K-G								
SF040-110K/90K-G								
SF040-132K/110K-G								
SF040-160K/132K-G								

Optional Equipment

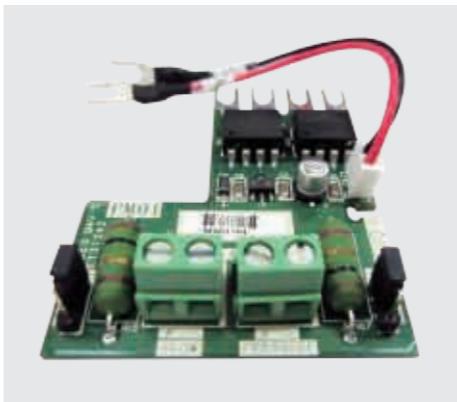
◆ PG01

PG01 expansion card



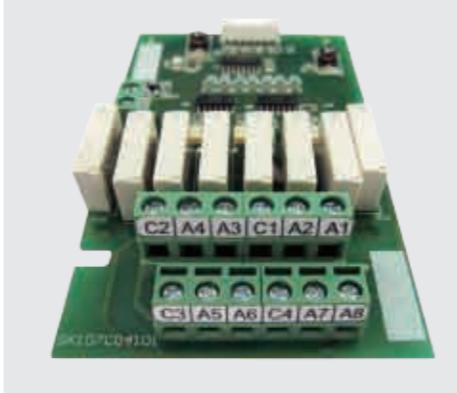
◆ PM01

Injection modeling machine specific expansion card



◆ WS01

Fan and water pump multi-channel control card



Terminal Name	Description		
VP	Encoder power source (Use JP1 to switch to 12V or 5V) Output voltage : +12V±5% 200mA +5V±2% 200mA		
DCM	The common ground for the power source and the signal (Be aware that DCM on the left is the ground for the frequency divider's signal output terminal)。		
A1,A1 B1,B1 C1,C1	Encoder signal input terminal。		
A0,B0	Frequency divider's signal output terminal.		
NO	Model	Item Name	Ordering Code
1	PG01	PG01 expansion card	LNKSFPG01

Terminal Type	Terminal Number	Terminal Function	
Analog signal input	FLOW+	Flow signal +	
	FLOW-	Flow signal -	
	J1	Flow input signal selection. When the short-circuit board is inserted into the 0~10V side on the top, the flow signal will be the 0~10V voltage signal input terminal. When the short-circuit board is inserted into the 0~1A side on the bottom, the flow signal will be the 0~1A current signal input terminal.	
	PRESSURE+	Pressure signal +	
	PRESSURE-	Pressure signal -	
	J2	Pressure input signal selection. When the short-circuit board is inserted into the 0~10V side on the top, the pressure signal will be the 0~10V voltage signal input terminal. When the short-circuit board is inserted into the 0~1A side on the bottom, the pressure signal will be the 0~1A current signal input terminal.	
NO	Model	Item Name	Ordering Code
1	PM01	PM01 Injection modeling machine specific expansion card	LNKSFPM01

Terminal Number	Terminal Name	Content	
A1~A8	Relay contact output terminal	It is used to drive the external electromagnetic switch or the relay. A1~A8 corresponds to RY1~RY8.	
C1~C4	Relay contact output common terminal	For the relay contact output common terminal, C1 is the shared terminal for A1 and A2. C2 is the shared terminal for A3 and A4. C3 is the shared terminal for A5 and A6. C4 is the shared terminal for A7 and A8.	
SOI ~ SEI	Expansion terminal	This terminal is connected to SU and SE of the inverter (set P.40=12) to control the signal of RY8.	

Note: 1. For more details, please refer to the instruction on the fan and water pump multi-channel control card.
2. When connecting to two or more motors, make the corresponded common terminal short circuit.

Description on the ordering code:

NO	Model	Item Name	Ordering Code
1	WS01	Fan and water pump multi-channel control card	LNKSFW01

SF-G SERIES



Optional Equipment

◆ DU01

DU01 operation panel set



NO	Model	Item Name	Ordering Code
1	DU01	DU01 operation panel	LNKDU01

◆ SH-PU01

PU01 operation panel



NO	Model	Item Name	Ordering Code
1	SH-PU01	PU01 operation panel set	LNKSHPU01

◆ SS-CBL01/03/05T

Data transmission line
(coordinated with the operation panel)



◆ AC/DC Reactor



SF-G SERIES



Model Name Indication for Shihlin Inverter

SF-020-7.5K/5.5K-G

Model

Over-current capability: 120% / 60s
Applicable motor :
020-5.5~55K
040-5.5~160K

Rated power voltage :
020→220V 3-PHASE
040→440V 3-PHASE

Over-current capability: 150% / 60s
Applicable motor :
020-5.5~45K
040-5.5~132K



SH-020-0.75-KBC

Model

Applicable motor :
020-0.75~22K
040-0.75~22K

Rated power voltage :
020→220V 3-PHASE
040→440V 3-PHASE

mark :
KBC→General purpose
KB→Without keypad
KBCP→Constant pressure for water pump



SE2-021-0.75K-DL

Model

Applicable motor :
021-0.4~2.2K
023-0.4~7.5K
043-0.4~11K

Rated power voltage :
021→220V 1-PHASE
023→220V 3-PHASE
043→440V 3-PHASE

mark :
D→with keypad



SS-021-0.4-KD

Model

Applicable motor :
021-0.4~2.2K
023-0.4~3.7K
043-0.4~3.7K

Rated power voltage :
021→220V 1-PHASE
023→220V 3-PHASE
043→440V 3-PHASE

mark :
KD→with RJ45
KB→built-in RS-485/422
KP→constant pressure for water pump

