List of parameters

Basic parameters

Operation frequency parameter

Title	Function	Adjustment range	Default setting
FC	Operation frequency of operation panel	LL-UL (Hz)	0.0

Other Basic parameters

Title	Function	Adjustment range	Default setting
AUH	History function	Displays parameters in groups of five in the reverse order to that in which their settings were changed. (Possible to edit)	-
AUF	Guidance function	0.1: - 2: Preset speed guidance 3: Analog signal operation guidance 4: Motor 1&2 switching operation guidance 5: Motor constant setting guidance	0
AU1	Automatic acceleration/ deceleration	0: Disabled (manual setting) 1: Automatic 2: Automatic (only at acceleration)	0
AU2	Torque boost setting macro function	0: Disabled 1: Automatic torque boost + auto-tuning 2: Vector control + auto-tuning 3: Energy saving + auto-tuning	0
CMOd	Command mode selection	0: Terminal board 1: Panel keypad (including extension panel) 2: RS485 communication	1
FMOd	Frequency setting mode selection	0: Terminal board VI 1: Setting dial 1(Press the center to save) 2: Setting dial 2 (save even if power is off) 3: RS485 communication 4: - 5: UP/DOWN from external logic input	2
FMSL	Meter selection	0: Output frequency 1: Output current 2: Frequency reference 3: Input voltage (DC detection) 4: Output voltage (command value) 12: Frequency setting value (after compensation) 13: VI input value 15: Fixed output 1 (output current 100% eguinalent) 16: Fixed output 2 (output current 50% eguinalent) 17: Fixed output 3 (Other than the output current) 18: RS485 communication data 19: For adjustments (FM set value is displayed.) 5 to11,14,20 to 22: -	0
FM	Meter adjustment gain	-	-
Fr	Forward/reverse run selection (Panel keypad)	0: Forward run 1: Reverse run 2: Forward run (F/R switching on extension panel) 3: Reverse run (F/R switching on extension panel)	0

Title	Function	Adjustment range	Default setting
ACC	Acceleration time 1	0.0-3000(s)	10.0
dEC	Deceleration time 1	0.0-3000(s)	10.0
FH	Maximum frequency	30.0-400.0(Hz)	*1
UL	Upper limit frequency	0.5-FH(Hz)	*1
LL	Lower limit frequency	0.0-UL (Hz)	0.0
uL	Base frequency 1	20.0-400.0(Hz)	*1
uLv	Base frequency voltage 1	50-330(V)	*1
Pt	V/F control mode selection	0: V/F constant 1: Variable torque 2: Automatic torque boost control 3: Vector control 4: Energy-saving	0
ub	Torque boost value 1	0.0-30.0(%)	*2
tHr	Motor electronic-thermal protection level 1	10-100(%/A)	100
OLn	Electronic-thermal protection characteristic selection	Setting / Overload protection / OL stall: 0 Standard motor: valid / invalid 1 Standard motor: valid / valid 2 Standard motor: invalid / invalid 3 Standard motor: invalid / valid 4 VF motor: valid / invalid 5 VF motor: valid / valid 6 VF motor: invalid / invalid 7 VF motor: invalid / valid	0
Sr1 ~Sr7	Preset-speed frequency 1 ~ 7	LL - UL (Hz)	0.0
tYP	Default setting	0: - 1: 50Hz default setting 2: 60Hz default setting 3: Default setting 1 (Initialization) 4: Trip record clear 5: Cumulative operation time clear 6: Initialization of type information 7: Save user setting parameters 8: Load user setting parameters 9: Cumulative fan operation time record clears 10 to 12: - 13: Default setting 2 (Complete initialization)	0
SEt	Checking the region setting	0: Start setup menu 1: Japan (read only) 2: North America (read only) 3: Asia (read only) 4: Europe (read only)	*1
PSEL	Registered parameter display selection	0: Standard setting mode at power on 1: Easy setting mode at power on 2: Easy setting mode only	0
F1-- ~F8--	Extended parameter starting at 100 ~ 800	-	-
Gr.U	Automatic edit function	-	-

*1: Depends upon the setup parameter setting.
*2: Depends upon the capacity.

Extended parameters Ⅰ

For details on extended parameters, please visit our website (http://www.inverter.co.jp).

Input terminal functions assignment

Set parameters to change the input terminal functions.

Title	Function	Adjustment range	Default setting
F108	Always active function selection 1	0-123	0
F109	Analog/logic input Selection (VI terminal)	0:0-10V 1:4-20mA 2:Logic input 3:0-5V	0
F110	Always active function selection 2	0-123	6
F111	Input terminal selection 1A (F)	0-201	2
F112	Input terminal selection 2A (R)	0-201	4
F113	Input terminal selection 3A (S1)	0-201	10
F114	Input terminal selection 4A (S2)	0-201	12
F115	Input terminal selection 5 (VI)	8-55	14
F151	Input terminal selection 1B (F)	0-201	0
F152	Input terminal selection 2B (R)	0-201	0
F153	Input terminal selection 3B (S1)	0-201	0
F154	Input terminal selection 4B (S2)	0-201	0
F155	Input terminal selection 1C (F)	0-201	0
F156	Input terminal selection 2C (R)	0-201	0

Output terminal functions assignment

Set parameters to change the output terminal functions.

Title	Function	Adjustment range	Default setting
F130	Output terminal selection 1A (OUT)	0-255	4
F132	Output terminal selection 2 (FL)	0-255	10
F137	Output terminal selection 1B (OUT)	0-255	255
F139	Output terminal logic selection (OUT)	0:F130 and F137 0:F130 or F137	0
F180	Low-speed signal output frequency	0.0-FH(Hz)	0.0
F181	Speed reach setting frequency	0.0-FH(Hz)	0.0
F182	Speed reach detection band	0.0-FH(Hz)	2.5

Input terminal function

Function No. Positive logic	Function No. Negative logic	Function
0,1		No function assigned
2	3	Forward run command
4	5	Reverse run command
6	7	Stand by
8	9	Reset command
10	11	Preset-speed command 1
12	13	Preset-speed command 2
14	15	Preset-speed command 3
16	17	Preset-speed command 4
18	19	Jog run mode
20	21	Emergency stop by external signal
22	23	DC braking command
24	25	2nd Acceleration/deceleration
28	29	2nd V/F setting switching
32	33	2nd stall prevention level
36	37	PID control prohibition
48	49	Switching from communications to local
50	51	Operation hold (hold of 3-wire operation)
52	53	PID integral/derivative clear
54	55	PID characteristics switching
88	89	Frequency UP signal input from external contacts
90	91	Frequency DOWN signal input from external contacts
92	93	Clear frequency UP/DOWN signal input from external contacts
96	97	Coast stop command
106	107	Switch to frequency command terminal board
108	109	Command mode terminal board
110	111	Parameter editing permitted
122	123	Forced deceleration command
200	201	Parameter editing prohibit

Output terminal function

Function No. Positive logic	Function No. Negative logic	Function
0	1	Frequency lower limit
2	3	Frequency upper limit
4	5	Low-speed detection signal
6	7	Output frequency arrival signal (acceleration/deceleration completed)
8	9	Designated frequency arrival signal
10	11	Fault signal (trip output)
14	15	Overcurrent detection pre-alarm
16	17	Overload detection pre-alarm
20	21	Overheat detection pre-alarm
22	23	Overvoltage detection pre-alarm
24	25	Main circuit undervoltage detection
26	27	Small current detection
28	29	Over-torque detection
40	41	Run/stop
56	57	Cumulative operation time alarm
60	61	Forward/reverse run
78	79	RS485 communications error
92	93	Designated data output
128	129	Parts replacement alarm
146	147	Fault signal (output also at a retry)
254/255		Always OFF / ON

PWM carrier frequency

Set parameters to suppress the acoustic noise of motor or electro-magnetic noise.

Title	Function	Adjustment range	Default setting
F300	PWM carrier frequency	2-16(kHz)	12
F312	Random mode	0: Disabled, 1: Automatic setting	0
F316	Carrier frequency control mode selection	0: Carrier frequency without reduction 1: Carrier frequency with automatic reduction	1

Panel display

Set parameters to change the monitoring content and unit displayed on the panel.

Title	Function	Adjustment range	Default setting
F701	Current/voltage unit selection	0:%, 1:A/V	0
F702	Free unit display scale	0.00: Disabled (display of frequency) 0.01-200.0	0.00
F707	Free step (1-step rotation of setting dial)	0.00: Disabled 0.01-FH	0.00
F710	Initial panel display selection	0, 1, 2, 18, 52	0
F720	Initial remote keypad display selection	0, 1, 2, 18, 52	0

Sink/source switching

Set parameter to select the logic of control circuit.

Title	Function	Adjustment range	Default setting
F127	Sink/source switching	0: Sink, 100: Source, 1-99, 101-255: invalid	*1

Frequency command (terminal board)

Set parameters to set the characteristic of frequency reference from input terminals.

Title	Function	Adjustment range	Default setting
F201	VI Input point 1 setting	0-100(%)	0
F202	VI Input point 1 frequency	0.0-400.0(Hz)	0.0
F203	VI Input point 2 setting	0-100(%)	100
F204	VI Input point 2 frequency	0.0-400.0(Hz)	*1
F209	Analog input filter	4-1000(ms)	64
F470	VI input bias	0-255	128
F471	VI input gain	0-255	128

Protection 1

Set parameters to set some protective functions.

Title	Function	Adjustment range	Default setting
F301	Auto-restart control selection	0, 1, 2, 3, 4	0
F302	Regenerative power ride-through control (Deceleration stop)	0, 1, 2	0
F303	Retry selection (number of times)	0: Disabled, 1-10 (Times)	0
F305	Overvoltage limit operation (Slowdown stop mode selection)	0, 1, 2, 3	2
F307	Supply voltage corrensation (output voltage limit)	0, 1, 2, 3	*1
F601	Stall prevention level 1	10-199 (%/A), 200 (disabled)	150
F602	Inverter trip retention selection	0: Cleared with power off 1: Retained with power off	0
F603	Emergency stop selection	0, 1, 2	0
F605	Output phase failure detection selection	0, 1, 2	0
F607	Motor 150%- overload detection time	10-2400(s)	300
F608	Input phase failure detection selection	0: Disabled, 1: Enabled	1

Torque up (motor setting)

Set parameters for vector control and automatic torque boost control.

Title	Function	Adjustment range	Default setting
F400	Auto-tuning	0, 1, 2	0
F401	Slip frequency gain	0-150(%)	50
F402	Automatic torque boost value	0.0-30.0(%)	*2
F405	Motor rated capacity	0.01-5.50(kW)	*2
F415	Motor rated current	0.1-30.0(A)	*2
F416	Motor no-load current	10-90(%)	*2
F417	Motor rated speed	100-32000(min-1)	*1
F459	Load inertia moment ratio	0.1-100.0(Times)	1.0

Extended parameters Ⅱ

For details on extended parameters, please visit our website (http://www.inverter.co.jp).

PID control

Title	Function	Adjustment range	Default setting
F359	PID control waiting time	0-2400(s)	0
F360	PID control	0: Disabled, 1: Enabled	0
F362	Proportional gain	0.01-100.0	0.30
F363	Integral gain	0.01-100.0	0.20
F366	Differential gain	0.00-2.55	0.00
F380	PID forward/reverse characteristics selection	0: Forward, 1: Reverse	0

Preset-speed operation

Title	Function	Adjustment range	Default setting
F287 ~F294	Preset-speed frequency 8~15	LL-UL (Hz)	0.0

No.2 Acceleration/deceleration time

Title	Function	Adjustment range	Default setting
F500	Acceleration time 2	0.0-3000(s)	10.0
F501	Deceleration time 2	0.0-3000(s)	10.0
F502	Acceleration/deceleration 1 pattern	0: Linear 1: S-pattern 1, 2: S-pattern 2	0
F503	Acceleration/deceleration 2 pattern		0
F505	Acceleration/deceleration 1 and 2 switching frequency	0.0 (disabled) 0.1-UL (Hz)	0.0

No.2 motor

Title	Function	Adjustment range	Default setting
F170	Base frequency 2	20.0-400.0(Hz)	*1
F171	Base frequency voltage 2	50-330(V)	*1
F172	Torque boost value 2	0.0-30.0(%)	*2
F173	Motor electronic-thermal protection level 2	10-100(% / A)	100
F185	Stall prevention level 2	10-199(% / A), 200 (disabled)	150

Jump frequency

Title	Function	Adjustment range	Default setting
F270	Jump frequency	0.0-FH(Hz)	0.0
F271	Jumping width	0.0-30.0(Hz)	0.0

DC braking

Title	Function	Adjustment range	Default setting
F250	DC braking starting frequency	0.0-FH(Hz)	0.0
F251	DC braking current	0-100(% / A)	50
F252	DC braking time	0.0-25.5(S)	1.0

Forward/reverse

Title	Function	Adjustment range	Default setting
F105	Priority selection (Both F and R are ON)	0: Reverse, 1: Slowdown Stop	1
F311	Reverse-run prohibition	0, 1, 2	0

Starting frequency

Title	Function	Adjustment range	Default setting
F240	Starting frequency setting	0.1-10.0(Hz)	0.5
F241	Operation starting frequency	0.0-FH(Hz)	0.0
F242	Operation starting frequency hysteresis	0.0-FH(Hz)	0.0

Frequency up/down feature

Title	Function	Adjustment range	Default setting
F264	External logic input - UP response time	0.0-10.0(s)	0.1
F265	External logic input - UP frequency steps	0.0-FH(Hz)	0.1
F266	External logic input - DOWN response time	0.0-10.0(s)	0.1
F267	External logic input - DOWN frequency steps	0.0-FH(Hz)	0.1
F268	Initial value of UP/DOWN frequency	LL-UL(Hz)	0.0
F269	Change of the initial value of UP/DOWN frequency	0, 1	1

Analog/pulse train output

Title	Function	Adjustment range	Default setting
F669	Logic output/pulse train output selection (OUT)	0: Logic output, 1: Pulse train output	0
F676	Pulse train output function selection (OUT)	0-18: same as FM5L, 19-22:-	0
F677	Maximum numbers of pulse train	0.50-1.60(kpps)	0.80
F681	Analog output signal selection	0: Meter, 1: Current (0 to 20 mA) output, 2: Voltage (0 to 10 V) output	0
F691	Inclination characteristic of analog output	0: Negative (downward slope) 1: Positive (upward slope)	1
F692	Analog output bias	-1.0—+100.0(%)	0

Communication

Title	Function	Adjustment range	Default setting
F800	Baud rate	3: 9600bps, 4: 19200bps, 5: 38400bps	4
F801	Parity	0: NON (No parity), 1: EVEN (Even parity) 2: ODD (Odd parity)	1
F802	Inverter number	0-247	0
F803	Communication time-out time	0.0: Disabled, 0.1-100.0(s)	0.0
F804	Communication time-out action	0, 1, 2	0
F808	Communication time-out detection condition	0, 1, 2	1
F829	Selection of communication protocol	0: Toshiba 1: Modbus RTU	0
F870 ~F871	Block write data 1~2	0, 1, 3, 4, 5	0
F875 ~F879	Block read data 1~5	0, 1, 2, 3, 4, 5, 6, 7, 8, 9	0

Protection 2

Title	Function	Adjustment range	Default setting
F256	Time limit for lower-limit frequency operation	0.0: Disabled, 0.1-600.0(s)	0.0
F391	Hysteresis for lower-limit frequency operation	0.0-UL (Hz)	0.2
F609	Small current detection hysteresis	1-20(%)	10
F610	Small current trip/alarm selection	0: Alarm only, 1: Tripping	0
F611	Small current detection current	0-150(% / A)	0
F612	Small current detection time	0-255(s)	0
F613	Detection of output short-circuit at start-up	0, 1, 2, 3	0
F615	Over-torque trip/alarm selection	0: Alarm only, 1: Tripping	0
F616	Over-torque detection level	0 (disabled) , 1-200(%)	150
F618	Over-torque detection time	0.0-10.0(s)	0.5
F619	Over-torque detection hysteresis	0-100(%)	10
F627	Undervoltage trip/alarm selection	0, 1, 2	0
F632	Electronic thermal memory	0: Disabled, 1: Enabled	0
F633	VI analog input break detection level	0: Disabled, 1-100(%)	0

Parameter protection

Title	Function	Adjustment range	Default setting
F700	Parameter write protection selection	0: Permitted, 1: Panel and extension panel inhibited 2: 1 + RS485 communication inhibited	0
F730	Panel frequency setting prohibition(FC)	0: Permitted, 1: Prohibited	0
F732	Local/remote key prohibition of extension panel	0: Permitted, 1: Prohibited	1
F733	Panel operation prohibition (RUN/STOP keys)	0: Permitted, 1: Prohibited	0
F734	Panel emergency stop operation prohibition	0: Permitted, 1: Prohibited	0
F735	Panel reset operation prohibition	0: Permitted, 1: Prohibited	0
F736	CMOd / FMOd change prohibition during operation	0: Permitted, 1: Prohibited	1
F738	Password setting (F700)	0: No password set, 1-9998, 9999: Password set	0
F739	Password rerification	0: No password set, 1-9998, 9999: Password set	0

Maintenance

Title	Function	Adjustment range	Default setting
F620	Cooling fan ON/OFF control	0: ON/OFF control, 1: Always ON	0
F621	Cumulative operation time alarm setting	0.0-999.9(100 hours)	610.0
F634	Annual average ambient temperature (parts replacement alarms)	1, 2, 3, 4, 5, 6	3
F880	Free notes	0-65535	0

Status monitor

Title	Function	Adjustment range
F711 ~F716	Status monitor 1~6	0: Operation frequency, 1: Output current, 2: Frequency setting value, 3: Input voltage (DC detection), 4: Output voltage (command value) , 5: Input power, 6: Output power, 7: Torque, 8: Torque current, 12: Frequency setting value (after compensation), 23: PID feedback value, 27: Drive load factor, 52: Frequency setting value / operation frequency

Easy mode

Title	Function	Adjustment range
F751 ~F774	Easy setting mode parameter 1~24	0-999 (Set by communications number)

*1 : Depends upon the setup parameter setting.
*2 : Depends upon the capacity.