

ADJUSTABLE FREQUENCY CONTROLS

SENSORLESS VECTOR CONTROL











- Sensor/Sensorless Vector Control
- Dual current rated for constant and variable torque
- Auto tuning to any 3 phase induction motor
- 150% torque minimum at 1Hz open loop
- Full torque at zero speed closed loop

Options include

- PID
- Encoder feedback
- Serial communication with over 30 PLC & Bus protocol including software
- Relay output
- Dynamic braking
- Analog input/output
- Digital input/output

Standard Specifications

ltem								200	-220V/200-	230V 3 Pha	se				
Model na	ame (type)		J300-		055LFU	075LFU	110LFU	150LFU	220LFU	300LFU	370LFU	450LFU	550LFL		
Enclosur		I				ng cooling fan			IP00						
	le motor rating	Const	ant torque		5.5/7.5	7.5/10	11/15	15/20	22/30	30/40	37/50	45/60	55/75		
(4P, max	(. HP)*1		ble torque*2		7.5/10	11/15	15/20	22/30	30/40	37/50	45/60	55/75	75/100		
		Const	ant torquo	200V	8.3	11	16	22	33	42	50	63	76		
Continue	ous output (kVA		ant torque	230V	10	13	18	25	38	48	58	73	88		
Continuo	Jus output (kvA		ole torque	200V	9	12	18	25	37	47	56	71	86		
		Varia	ne torque	230V	11	14	21	29	43	54	65	82	99		
Rated AC input power supply				3-phase (3 wire) 575V ±10%, 60Hz ±5%											
Rated ou	utput voltage*3				3-phase 575V (corresponding to input voltage)										
Rated or	utput current (A	Const	ant torque		24	32	46	64	95	121	145	182	220		
			ole torque (l	JS version)	27	36	52	72	107	136	163	205	248		
Carrier frequency (kHz)	Const	ant torque		16	16	16	16	12	10	10	6	6			
ourrier in		Variat	ole torque (l	JS version)	16	16	16	16	12	10	10	6	6		
Control s	system				Sensorless f	lux vector PWN	Λ								
Output fr	requency range	* 4			0.1~400Hz										
Frequenc	cy accuracy				With referen	ce to maximum	n frequency, ±0.	01% in digital s	setting and ±0.1	% in analog se	tting (25 ± 10°0	2)			
Frequenc	cy resolution				Digital settin	g: 0.01 Hz/60 H	Iz, analog settir	g: maximum fr	equency/1000						
Voltage/f	frequency chara	cteristic			V/F optionall	v variable, V/F	control (constar	- nt torque, reduc	ed torque), ser	sorless vector	control				
	d current rating					5		•	1 7						
	0				150%, 1 minute (VC, SLV), 115%, 30 sec (VP1 to VP3) 0.01 to 3,000 sec. (optionally settable in straight line or curve, and each acceleration and deceleration independently settable),										
Accelerating/decelerating time				second acceleration/deceleration rate settable											
Starting	torque*⁵				150% or more (at 1 Hz)										
Dynamic braking (short duration)*6					citor feedback (t istallation of bra		F incorporate D	ynamic braking	circuit, and oth	ner types (from	110LF				
torque	orque DC braking					n frequency at s nd brake force a		tion, or in resp	onse to externa	l input signal (n	ninimum freque	ency,			
			Digital oper	rator	Setting by			<u>,</u> ,							
-	Frequency setting	External signal de la construction de la construcción de la construcci			Variable resistor of 500Ω to $2k\Omega$, 2W, 0 to 5V, 0 to 10V DC <nominal>(input impedance 30 kΩ), 4 to 20mA <nominal>(input impedance 250Ω)</nominal></nominal>										
guố	Eorward/rovo			rator	Run/stop (forward or reverse run selected by command)										
Sić	run and stop				Forward run/stop (1a contact)[reverse run specifiable at terminal assignment (1a/1b selectable)]										
Input signal	Intelligent in	Intelligent input terminal			RV (reverse run command), FRS (free run stop command), CF1 to 3 (multistage speed setting), USP (unattended start protection setting), JG (jogging command), CH1 (2-stage acceleration/deceleration command), DB (external dynamic brake command), RS (reset input), STN (initial setting), CS (commercial source changeover), SFT (soft lock), AT (current input selection), SET (2nd setting selection), EXT (external trip), UP (remote control, acceleration), DOWN (remote control, deceleration)										
Output	Intelligent ou	tput term	inal		FA1 (frequency arrival signal), RUN (running signal), OTQ (overtorque signal)										
signal	Frequency m	onitor					, 1 mA full scale alog current mo		torque monitor	selectable by r	emote operator				
Alarm ou	utput contact				digital frequency signal, analog current monitor or analog torque monitor selectable by remote operator ON at inverter alarm (1C contact output)										
Other fur	nctions				AVR function, process inching, data batch setting, V/F characteristic changeover, curved acceleration/ deceleration, upper and lower limiters, 8-stage speed, fine adjustment of start frequency, carrier frequency change (2 to 16 kHz), frequency jump, electronic thermal level adjustment, fuzzy acceleration/deceleration, auto tuning, gain and bias setting, retry function, trip history monitor (up to 3 trips storable in memory), etc.										
Protectiv	ve function				Overcurrent, overvoltage, undervoltage, electronic thermal level adjustment, abnormal temperature, ground fault current at start*7, overload limit, overvoltage supply, braking resistor overload, etc.										
	Ambier	t tempe-	Constan	t torque	-10 to 50°C ((14 to 122°F)/20	0 to 90% RH (n	on-condensing)						
C	rature/l	umidity	Variable	torque	-10 to 40°C ((14 to 104°F)/20	0 to 90% RH (n	on-condensing)						
General specifica	tions Vibratio	n			5.9m/s ² (0.6G) 10~55Hz 2m/s ² (0.2G) 10~55Hz										
		tion site							and dust unallo	wable)					
	Coating				Altitude 1,000m or lower, indoor (excessive corrosive gas and dust unallowable) Munsell 9.1Y7.4/0.6 semi-gloss, cooling fins in base color of aluminum										
Option			A variety of application PC boards (PID control communication, digital I/F relay output, high resolution, etc.), remote operator, copy unit, cable for each operator, braking resistor, power factor improvement reactor, noise filter for inverter, fixture for positioning fins outside of cubicle, etc.												
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Notes

*1 Applicable motors indicate Hitachi standard three-phase motors. When using other motors, the rated corrent of the motor (at 50 Hz) must not exceed the rated output current of inverter.

*2 Applicable motor rating at variable torque is valid with the condition that output current does not exceed the ratings at variable torque.

*3 A maximum output voltage drops in response to a fall in line voltage.
*4 For motor operation beyond 50/60 Hz, consult with the motor manufacturer.
*5 At the rated voltage when using a Hitachi standard 3-phase, 4-pole motor. (When selecting high starting torque flux vector control).

*6 Braking torque at capacitor feedback represents average deceleration torque when a motor alone has decelerated in the shortest time period (has stopped from operation at 50/60 Hz). It does not stand for continuous deceleration torque. Also, the average deceleration torque varies with motor loss. The torque value is reduced during operation beyond 50/60 Hz. Remember that no braking resistor is incorporated in the inverter. when a large regeneration torque is needed, therefore , the optional braking resistor should be used.

*7 An internal ground fault protection circuit is applied to prevent damage to the inverter and is not intended for safeguarding personnel. It is therefore recommended to install an external ground fault detection device on the input circuit.

Standard Specifications

Item											380-	415V/4	00-460	V 3 Pha	ise				
Model nam	ne (type)		J300-		055HFU	075HFU	110HFU	150HFU	220HFU	300HFU	370HFU	450HFU	550HFU	750HFU	900HFI1	1100HFU	1320HFU	1600HFU	2200HFI
Enclosure		I	3000		-		cooling fa		2201110	0001110	0701110	1001110	0001110	IP00	7001110	11001110	10201110	10001110	22001110
	motor rating	Const	ant torque		5.5/7.5	7.5/10	11/15	15/20	22/30	30/40	37/50	45/60	55/75	75/100	90/120	110/150	132/200	160/250	220/30
(4P, max. I	motor rating HP)*1		ble torque*2		7.5/10	11/15	15/20	22/30	30/40	37/50	45/60	55/75	75/100	90/120	110/150	132/200	160/250	220/300	260/35
			· · · ·	380V	8.6	10.5	15	21	32	38	49	59	72	89	103	137	158	207	250
		Const	ant torque	400V	9.0	11	16	22	33	40	52	62	76	94	108	144	166	218	263
Continuou	s output (kVA)			460V	10.4	12.7	18	25	38	46	60	72	88	108	124	166	191	251	303
oontinuou	s output (itm)			380V	9.6	11.8	17	24	36	43	55	66	82	103	118	158	199	250	286
		Varial	ole torque	400V	10.1	12.5	18	25	37	45	58	70	86	108	118	166	209	263	301
		460V	11.6									347							
Rated AC input power supply					<u> </u>	3-phase (3 wire) 380 to 415/400 to 460V ±10%, 50/60Hz ±5% 3-phase 380 to 460V (corresponding to input voltage)													
Rated outp	out voltage*3		Constant		<u> </u>		· · ·	· ·	<u> </u>	0,		00	110	105	157	200	240	015	200
Rated outp	out current (A)		Constant		13	16 18	23 26	32 36	48 54	58 65	75 84	90 101	110	135 156	156	208	240	315	380
			Variable	· ·	14.6 16	18	16	36 16	54 12	10	84 10	6	124 6	3	180 3	240 3	302 2	380 2	435 2
Carrier free	quency (kHz)*4		Constant Variable		16	16	16	16	12	10	10	6	6	2	2	2	2	2	2
Control sy	stam		Valiable	luique															
	quency range*	;			Sensorless flux vector PWM														
Frequency	. , ,					0.1~400Hz With reference to maximum frequency, ±0.01% in digital setting and ±0.1% in analog setting (25 ± 10°C)													
. ,	resolution								pa settina:	0		0	i i i i u i i	log oottil	.9 (20 2				
. ,	quency charac	teristic				5			(constant			,	nsorless \	ector cor	ntrol				
5	urrent rating					,			30 sec (VI			1							
Accoloratin	ng/decelerating	time			0.01 to	3,000 se	c. (optior	ally setta	ble in stra	ight line	or curve,	and each	accelerati	on and de	eceleratio	n indeper	ndently se	ttable),	
	5 5	ume			-	0.01 to 3,000 sec. (optionally settable in straight line or curve, and each acceleration and deceleration independently settable), second acceleration/deceleration rate settable													
Starting to	rque*6		1		150% or more (at 1 Hz)														
braking torque		Dynamic braking short duration)*7 Uther models			Approx. 60 to 50% (Types 055/075HF incorporate resistor for regenerative braking) Approx. 20 to 10% at capacitor feedback (types 055/075HF incorporate regenerative braking circuit, and other types (from 110HF)														
	(short duratio			dels					dback (typ on of rege				regenerati	ve brakin	g circuit,	and other	r types (fr	om 110H	F
	DC braking				Operate operati	es at belo ng freque	w minimı ncy, time	um freque and brak	ncy at sta e force all	rt or dece adjustab	eleration, le)	or in resp	onse to e	xternal in	iput signa	l (minimu	um freque	ncy,	
	Frequency	Digital operator				Setting by A V													
	Frequency setting		External sig	gnal	Variable resistor of 500Ω to 2kΩ, 2W, 0 to 5V, 0 to 10V DC <nominal>(input impedance 30 kΩ), 4 to 20mA <nominal>(input impedance 250Ω)</nominal></nominal>														
gn	Forward/revers	d/reverse Digital op		rator	Run/stop (forward or reverse run selected by command)														
-Si	run and stop		External sig	gnal	Forward run/stop (1a contact)[reverse run specifiable at terminal assignment (1a/1b selectable)]														
Input signal	Intelligent input terminal			RV (reverse run command), FRS (free run stop command), CF1 to 3 (multistage speed setting), USP (unattended start protection setting), JG (jogging command), CH1 (2-stage acceleration/deceleration command), DB (external dynamic brake command), RS (reset input), STN (initial setting), CS (commercial source changeover), SFT (soft lock), AT (current input selection), SET (2nd setting selection), EXT (external trip), UP (remote control, acceleration), DOWN (remote control, deceleration)															
Output	Intelligent outp	out term	inal		FA1 (frequency arrival signal), RUN (running signal), OTQ (overtorque signal)														
Output signal	Frequency mo	nitor			Analog meter (0 to 10V DC, 1 mA full scale) digital frequency signal, analog current monitor or analog torque monitor selectable by remote operator														
Alarm out	out contact										5 1			,					
Other func	tions				ON at inverter alarm (1C contact output) AVR function, process inching, data batch setting, V/F characteristic changeover, curved acceleration/ deceleration, upper and lower limiters, 8-stage speed, fine adjustment of start frequency, carrier frequency change (2 to 16 kHz), frequency jump, electronic thermal level adjustment, fuzzy acceleration/deceleration, auto tuning, gain and bias setting , retry function, trip history monitor (up to 3 trips storable in memory), etc.														
Protective	function								age, elect load limit,										
	Ambient	tempe-	Constan	t torque	-10 to !	50°C (14	to 122°F)/	'20 to 909	6 RH (nor	-conden	sing)								
	rature/hu	•	Variable	· ·					6 RH (nor		0,								
General specification				440		² (0.6G) 10					<u>,</u>	(0.2G) 10 [.]	-55Hz						
specificatio						. ,		indoor (-	vencelua	orrochus		. ,							
	Installati								xcessive o		0		(eldswo						
	Coating	color						0	oling fins										
Option					A variety of application PC boards (PID control communication, digital I/F relay output, high resolution, etc.), remote operator, copy unit, cable for each operator, braking resistor, power factor improvement reactor, noise filter for inverter, fixture for positioning fins outside of cubicle, etc.														
Approx m	ass (kg/lbs)				-	7.5/16.5	13/29	13/29	21/46	36/79	36/79	46/102	46/102	70/15/	70/154	80/176	130/286	130/284	130/284
-pp: 0A. 111	uss (ngribs)				1.0/10.0	7.0/10.3	13/27	13/27	21/40	50/77	50/17	10/102	10/102	10/104	10/104	00/170	100/200	100/200	1.30/20

Notes

- *1 Applicable motors indicate Hitachi standard three-phase motors. When using other motors, the rated corrent of the motor (at 50 Hz) must not exceed the rated output current of inverter.
- *2 Applicable motor rating at variable torque is valid with the condition that output current does not exceed the ratings at variable torque.

- *3 A maximum output voltage drops in response to a fall in line voltage.
 *4 Harmonically compensated line and load reactors are recommended for reliable system operation.
 *5 For motor operation beyond 50/60 Hz, consult with the motor manufacturer.
 *6 At the rated voltage when using a Hitachi standard 3-phase, 4-pole motor. (When selecting high starting torque flux vector control).
- *7 Braking torque at capacitor feedback represents average deceleration torque when a motor alone has decelerated in the shortest time period (has stopped from operation at 50/60 Hz). It does not stand for continuous deceleration torque. Also, the average deceleration torque varies with motor loss. The torque value is reduced during operation beyond 50/60 Hz. Remember that no braking resistor is incorporated in the inverter. when a large regeneration torque is needed, therefore , the optional braking resistor should be used.
- *8 An internal ground fault protection circuit is applied to prevent damage to the inverter and is not intended for safeguarding personnel. It is therefore recommended to install an external ground fault detection device on the input circuit.

Standard Specifications

ltem							5	75 Volt	3 Phase					
Model nar	me (type)	J300-	075MFU	110MFU	150MFU	220MFU	300MFU	370MFU	450MFU	550MFU	750MFU	900MFU	1100MFU	1500MFU
Enclosure				uding cooli		22010	IP00	0,0000	10010110		1.001010	7001110	1	
	e motor rating	Constant torque	10	15	20	30	40	50	60	75	100	125	150	200
(4P, max.		Variable torque*2	15	15	25	30	50	60	75	100	125	150	200	250
		Constant torque	13	16	23	32	48	58	75	90	110	135	156	208
Continuou	Continuous output (kVA) Variable torque		14.6	18	26	36	54	65	84	101	124	156	180	240
Rated AC	input power supply	Variable torque	-	-	iV ±10%, 6		01	00	01	101	121	100	100	210
	put voltage*3			,		input volta	ae)							
		Constant torque	13	16	23	32	48	58	75	90	110	135	156	208
Rated out	put current (A)	Variable torque	14.6	18	26	36	54	65	84	101	124	156	180	240
Carrier fre	equency (kHz)*4	Variable torque	16	16	16	16	12	10	10	6	6	100	100	210
Control sy			10 10 10 12 10 10 0 0 Sensorless flux vector PWM											
	equency range*5		0.1~400H											
· ·	. , ,				avimum fro		01% in diai	tal sotting a	nd 10.1%	in analog se	tting (25	10°C)		
			-			. ,	g: maximur	Ŭ		in analog se	tung (25 ±	10 C)		
. ,	resolution		5	5		5	5			loco voetor	aantral			
	equency characteristic		· ·	,					ue), sensoi	less vector	CONTRION			
Overload	current rating		-		,		(VP1 to VP	,		location and	docolorati	n indonono	lanth, aattak	
Accelerati	ng/decelerating time					n rate settal		r curve, an	a each acce	eleration and	a decelel allo	on independ	ientiy settat	ne),
Starting to	orque*6		150% or	more (at 1	Hz)									
	Regenerative braking	European version (055/075HF)	Approx. 6	Approx. 60 to 50% (Types 055/075MFU incorporate resistor for regenerative braking)										
Average braking	(short duration)*7	Other models	Approx. 20 to 10% at capacitor feedback (types 055/075MFU incorporate regenerative braking circuit, and other types (from 110MFL onward) employ separate installation of regenerative braking unit.)											
torque	DC braking		Operates at below minimum frequency at start or deceleration, or in response to external input signal (minimum frequency, operating frequency, time and brake force all adjustable)						Ι,					
	_	Digital operator		y 🛕 👻				-,						
_	Frequency setting	External signal	Variable i	esistor of !				V DC <nom< td=""><td>inal>(input</td><td>impedance</td><td>30 kΩ),</td><td></td><td></td><td></td></nom<>	inal>(input	impedance	30 kΩ),			
Jna	Forward/reverse	Digital operator	4 to 20mA <nominal>(input impedance 250Ω) Run/stop (forward or reverse run selected by command)</nominal>											
Sić	run and stop	External signal	Forward run/stop (1a contact)[reverse run specifiable at terminal assignment (1a/1b selectable)]											
Input signal	Intelligent input term	ntelligent input terminal		RV (reverse run command), FRS (free run stop command), CF1 to 3 (multistage speed setting), USP (unattended start protection setting), JG (jogging command), CH1 (2-stage acceleration/deceleration command), DB (external dynamic brake command), RS (reset input), STN (initial setting), CS (commercial source changeover), SFT (soft lock), AT (current input selection), SET (2nd setting selection), EXT (external trip), UP (remote control, acceleration), DOWN (remote control, deceleration)										
Output	Intelligent output ter	minal	FA1 (freq	uency arriv	al signal), F	RUN (runnin	g signal), O	TQ (overto	rque signal)				
signal	Frequency monitor		Analog meter (0 to 10V DC, 1 mA full scale) digital frequency signal, analog current monitor or analog torque monitor selectable by remote operator											
Alarm out	put contact		ON at inverter alarm (1C contact output)											
Other fund	ctions		AVR function, process inching, data batch setting, V/F characteristic changeover, curved acceleration/ deceleration, upper and lower limiters, 8-stage speed, fine adjustment of start frequency, carrier frequency change (2 to 16 kHz), frequency jump, electronic thermal level adjustment, fuzzy acceleration/deceleration, auto tuning, gain and bias setting, retry function, trip history monitor (up to 3 trips storable in memory), etc.											
Protective	function									abnormal te sistor overlo				
	Ambient tempe	- Constant torque	-10 to 50	°C (14 to 1	22°F)/20 to	90% RH (n	on-condens	ing)						
General	rature/humidity	Variable torque	-10 to 40	°C (14 to 1	04°F)/20 to	90% RH (n	on-condens	ing)						
specificati	ions Vibration		5.9m/s ² (0).6G) 10~5	5Hz 2m/s²(0.2G) 10~5	5Hz							
	Installation site		Altitude 1	,000m or I	ower, indoo	r (excessive	e corrosive g	gas and due	st unallowa	ble)				
	Coating color		Munsell	9.1Y7.4/0.6	semi-gloss	, cooling fir	is in base c	olor of alun	ninum					
Option			A variety of application PC boards (PID control communication, digital I/F relay output, high resolution, etc.), remote operator, copy unit, cable for each operator, braking resistor, power factor improvement reactor, noise filter for inverter, fixture for positioning fins outside of cubicle, etc.											
Option			noise filte	er for invert	er, fixture fo	or positionir	ng fins outsi	ide of cubic	le, etc.					

Notes

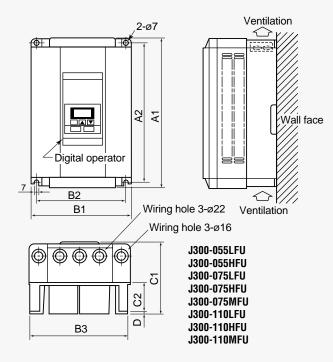
*1 Applicable motors indicate Hitachi standard three-phase motors. When using other motors, the rated corrent of the motor (at 50 Hz) must not exceed the rated output current of inverter.

*2 Applicable motor rating at variable torque is valid with the condition that output current does not exceed the ratings at variable torque.

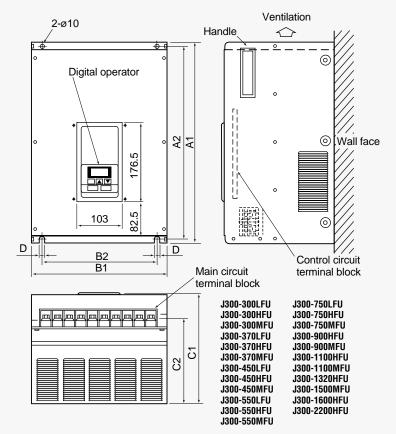
*3 A maximum output voltage drops in response to a fall in line voltage.
*4 Harmonically compensated line and load reactors are recommended for reliable system operation.
*5 For motor operation beyond 50/60 Hz, consult with the motor manufacturer.
*6 At the rated voltage when using a Hitachi standard 3-phase, 4-pole motor. (When selecting high starting torque flux vector control).

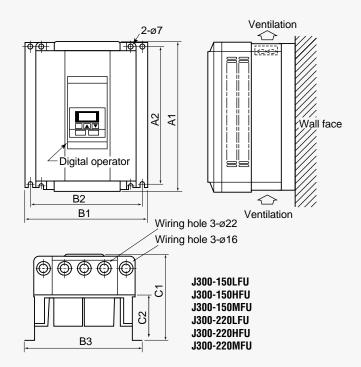
- *7 Braking torque at capacitor feedback represents average deceleration torque when a motor alone has decelerated in the shortest time period (has stopped from operation at 50/60 Hz). It does not stand for continuous deceleration torque. Also, the average deceleration torque varies with motor loss. The torque value is reduced during operation beyond 50/60 Hz. Remember that no braking resistor is incorporated in the inverter. when a large regeneration torque is needed, therefore , the optional braking resistor should be used.
- *8 An internal ground fault protection circuit is applied to prevent damage to the inverter and is not intended for safeguarding personnel. It is therefore recommended to install an external ground fault detection device on the input circuit.

Dimensions



Model	A1	A2	B1	B2	B3	C1	C2	D
055LFU	340	317	220	195	213	195	56.5	4.5
055HFU	340	317	220	195	213	195	56.5	4.5
075LFU	340	317	220	195	213	195	56.5	4.5
075HFU	340	317	220	195	213	195	56.5	4.5
075MFU	340	317	220	195	213	195	56.5	4.5
110LFU	340	317	245	228	245	215	80	3
110HFU	340	317	245	228	245	215	80	3
110MFU	340	317	245	228	245	215	80	3





Model	A1	A2	B1	B2	B3	C1	C2	D
150LFU	440	415	250	220	243	220	81	7
150HFU	440	415	250	220	243	220	81	7
150MFU	440	415	250	220	243	220	81	7
220LFU	440	415	290	260	290	245	105	3
220HFU	440	415	290	260	290	245	105	3
220MFU	440	415	290	260	290	245	105	3

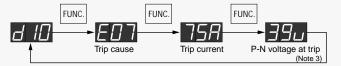
Model	A1	A2	B1	B2	C1	C2	D
300LF	450	430	300	255	250	192	10
300HF	450	430	300	255	250	192	10
300MFU	450	430	300	255	250	192	10
370LF	620	600	390	300	330	278	10
370HF	620	600	390	300	330	278	10
370MFU	620	600	390	300	330	278	10
450LF	620	600	390	300	330	278	10
450HF	620	600	390	300	330	278	10
450MFU	620	600	390	300	330	278	10
550LF	700	670	480	380	330	275	12
550HF	700	670	480	380	330	275	12
550MFU	700	670	480	380	330	275	12
750HF	700	670	480	380	330	275	12
750MFU	700	670	480	380	330	275	12
900HF	700	670	480	380	330	275	12
900MFU	700	670	480	380	330	275	12
1100HF	780	756	550	380	270	-	12
1100MFU	780	756	560	380	330	_	-
1320HFU	780	756	550	380	270	_	-
1500MFU	780	756	550	380	270	_	-
1600HF	995	965	680	580	360	_	15
2200HF	995	965	680	580	360	_	15

Protective functions

Overcurrent protection Detects a current by AC CT between the power module and output terminals (UVW). If the motor is locked or abrophy decelerated, a large current would for the inverter, thereby cassing toubles. The AC CT the solutes a current in the power module. (See E31, E32, E33, and E34 below) At constant speed E12 OC. Decel At acceleration E12 OC. Accel At acceleration At acceleration At acceleration Overfload protection (Note 1) The electronic thermal incorporated in the inverter supervises the inverter output. At acceleration At acceleration At acceleration At acceleration Raking resistor If the day variang on the resperative brains quint) operation and the inverter output. E11 Over. C Overrolad protection If the day variang on the resperative brains quint) operation and the inverter output is turred off. E11 Over. C Devervoltage If, when the resperative brains quint) operation and the inverter output is turred off. E11 Over. V EEPROM error Tures off the output I EPROM in the inverter as gone abnormal. How account of external nose, excessive temperature rise, etc. E11 OT Undervoltage Turns off the output I CPO workage of mode. How constite the output I CPO workage high. How constend workage high. How constend workage high. How constend workage high. How constend workage high. How	Name	Description		Digital Operator	Remote operator/copy unit indication
Overcurrent protection (Note 1) UV with it the motor's locked or achurgh indeximately a large during though in the power module. (See E31, E32, E33, and E34 below.) At deceleration E[]] Oc. Decel At acceleration []]] (At acceleration []]]] (At acceleration []]]] <th>Name</th> <th>Description</th> <th>I</th> <th>indication</th> <th>ERR1 ****</th>	Name	Description	I	indication	ERR1 ****
protection It we to here inverter, thereby causing provides. The AC CT thus detects a current of the current is also detected in the power module. (See E31, E32, E33, and E34 below.) In detected and in the CL CL CL CA Code in the current is also detected in the power module. (See E31, E32, E33, and E34 below.) In detected and in the CL CL CL CA Code in the current is also detected in the power module. (See E31, E32, E33, and E34 below.) In detected and in the CL CL CL CA Code in the current is also detected in the power module. (See E31, E32, E33, and E34 below.) In detected and in the CL CL CL CL CA Code in the current is also detected in the power module, (See E31, E32, E33, and E34 below.) In detected and in the CL			At constant speed		OC. Drive
In the power module. (See E31, E32, E33, and E34 below) At stop EIII Over. c Overload protection (Note 1) The electronic thermal incorporated in the inverter supervises the inverter output current and, if the motor has overload clust of the inverter output. EIIII Over. L Braking resistor overload protection by stopping RPC (regenerative braking unit) operation and the inverter output. EIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Overcurrent		At deceleration		OC. Decel
Over of a protection The electronic thermal incorporated in the inverter supervises the inverter output current and, if the motor has overloaded, cuts of the inverter output. EID Over. L Raking resistor If the dury raing for the regenerative backing unit) operations and the inverter output is turned off. EID Over. L Overvoltage If, when the regenerative backing unit) operation and the inverter output. EID Overvoltage EEPROM error Common by the inverter receiving voltage is high, the convert or voltage EID Overvoltage Undervoltage If the output if EEPROM in the motor or the receiving voltage is high, the convert or voltage EID Over. V Protection Bit is informed to the output if the receiving voltage is high, the convert or voltage EID Over. V CT error Turns off the output if CF in the inverter has become abnormal. EID CT CT CPU error Turns off the output if CF in the inverter is become abnormal. EID CT CPU It any external device or equipment has become abnormal. EID CT CPU EXTERNAL USP error If any external device or equipment has become abnormal. EID CV CT EXTERNAL EID </td <td>(Note 1)</td> <td></td> <td>At acceleration</td> <td></td> <td>OC. Accel</td>	(Note 1)		At acceleration		OC. Accel
(Note 1) if the motor has overloaded, cuts off the inverter output. ICLD UMER L Definition of the dury maing for the respersative braking unit) operation and the inverter output is turned off. ICLD OLE BRD Overvoltage protection if, when the regenerative braking unit) operation and the inverter output is turned off. ICLD OVER V EEPROM error Turns off the output if EEPROM in the inverter has gone abnormal on account of external noise. ICLD ICLD ICLD Undervoltage protection With overheat and the torque would reduce. Turns off the output if the receiving voltage drops, the control circuit would not function properly, the motor motor of external noise. ICLD ICT CT error Turns off the output if CT in the inverter has become abnormal. ICLD ICT CPU error Turns off the output if CT in the inverter has become abnormal. IELD ICT CPU error Turns off the output if CT in the inverter has become abnormal. IELD ICT CPU error Turns off the output if CT in the inverter is running (provided USP IELD UNP Strenal trip furnction is selected). ICT ICT GND USP error first off the output in power has been turned on while the inverter is running (provided USP ICT GND. Fit			At stop	EDH	Over. c
overload protection by stopping BRD (regenerative braking unit) operation and the inverter output is thigh, the corrector values protection IEUDI OLL BRD Overvoltage protection If when the regnerative energy for the memor or the receiving values is high, the corrector values assisten higher than specified, the protective circuit is acuated and turns off the inverter output. IEUDI Over.V EEPROM error Turns off the output if EEPROM in the inverter has gone abnormal on account of external noise, excessive temperature rese, etc. IEUDI EEPROM Undervoltage protection If the inverter receiving values drops, the control circuit would not function properly, the motor wido verheat and the torque would redue. Turns off the output if the inverter has become abnormal. IEUDI CT CT error Turns off the inverter if the inverter has become abnormal. IEUDI CT CPU error Turns off the inverter is the inverter is running (provided USP function is selected). IEUDI GND. FIL USP error If any external device or equipment has become abnormal, the inverter is running (provided USP function is selected). IEUDI GND. FIL Overvoltage freedving protection If any external device or equipment has become abnormal, the inverter is running (provided USP function is selected). IEUDI GND. FIL Overvoltage receiving protection The	Overload protection (Note 1)		output current and,	E05	Over. L
protection has risen higher than specified, the protective circuit is acuated and turns off the inverter output. Image: Circuit C	Braking resistor overload protection			ED6	OL. BRD
EEPROM excessive temperature rise, etc. ELDE EEPROM Undervoltage protection If the inverter receiving voltage drops, the control circuit would not function properly, the motor would overheat and the torque would reduce. Turns off the output if the receiving voltage has dropped to 150-160V (few voltage) or 300-420V (high voltage). EIDE Under.V CT error Turns off the output if CT in the inverter has become abnormal. EIDE CT CPU error Turns off the output (provided external tip function is selected). EIDE EXTERNAL USP error Error indication when power has been turned on while the inverter is running (provided USP function is selected). EIDE USP Ground fault protection Detects grounding between the inverter output section and motor when turning on power, function is selected). EIDE OVER Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects al vela dove F11 motor receiving voltage setting. If a voltage beyond 280V or 560V has been input, it exceeds the rated value of employed parts whereby the color output protected an evalue be F11 motor receiving voltage is higher than specified 5 seconds after turning on. Detected an evalue for moster and uncerter value of amployed parts whereby the color output protected an evalue for moster and uncerter value of amployed parts where by the output if power failure has lasted beyond 15 msec. If the power failure time is long, the eror signal will be crest. If restart is sele	Overvoltage protection			EDT	Over. V
Didection would overheat and the torque would reduce. Turns off the output if the receiving voltage has droped to 150-160V (low voltage) or 300-420V (high voltage). Image: Constraint of the output if C in the inverter has become abnormal. Image: Constraint of Constraint on Constraint of Constraint on Constraint on Constraint on Co	EEPROM error		of external noise,	EDB	EEPROM
CPU error Turns off the inverter if the incorporated CPU has operated erratically or gone abnormal. Image: CPU External trip If any external device or equipment has become abnormal, the inverter fetches that signal and turns off the output (provided external trip function is selected). Image: CPU ExtERNAL USP error Error indication when power has been turned on while the inverter is running (provided USP Image: CPU Image: CPU Ground fault protection Detects grounding between the inverter output section and motor when turning on power, thereby protecting the inverter. Image: CPU Image: CPU Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280V or 580V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. Image: CPU OV. SRC Instantaneous power Turns off the output if power failure has lasted beyond 15 msec. If the power failure time is long, the error signal will be reset. If restart is selected, the machine will restart when a run command remains. Image: CPU Ovin 1 Image: CPU OV. SRC Option connecting section (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 Image: CPU Option 1 Option 2 Image: CPU Option 1 Option 2 <td>Undervoltage protection</td> <td>would overheat and the torque would reduce. Turns off the output if the rece</td> <td></td> <td>E09</td> <td>Under. V</td>	Undervoltage protection	would overheat and the torque would reduce. Turns off the output if the rece		E09	Under. V
External trip If any external device or equipment has become abnormal, the inverter fetches that signal and turns of the output (provided external trip function is selected). End EXTERNAL USP error Error indication when power has been turned on while the inverter is running (provided USP function is selected). EII3 USP Ground fault protection Detects grounding between the inverter output section and motor when turning on power, thereby protecting the inverter. EII5 OV. SRC Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280 vol 560 V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. EII5 OV. SRC Instantaneous power Turns off the output if power failure has lasted beyond 15 msc. If the power failure time is long, the inverter (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 EII7 OV. SRC Option a circuit board error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 EII9 OP1 Option 2 EII9 OP1 Option 1 EII9 OP1 Option 2 EII9 OP1 Option 2 EII9 OP1 Op	CT error	Turns off the ouput if CT in the inverter has become abnormal.		E 10	СТ
External trip turns off the output (provided external trip function is selected). E I C ExtERNAL USP error Error indication when power has been turned on while the inverter is running (provided USP E I C USP Ground fault protection Detects grounding between the inverter output section and motor when turning on power, thereby protecting the inverter. E I C USP Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280V or 560V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. OV. SRC Instantaneous power failure Turns off the output if power failure has lasted beyond 15 msec. If the power failure time is long, the error signal will be reset. If restart is selected, the machine will restart when a run command remains. E I E Inst. P-F Option connecting section error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 E I P NG. OP1 Option 1 E I P OP1 Option 2 OP1 Option 2 OP1 Option 2 E P OP2 OP1 Option 2 OP2 OP1 Option 2 DP1 Op2 OP1 Option 2 E P <	CPU error	Turns off the inverter if the incorporated CPU has operated erratically or go	ne abnormal.	E 1 1	CPU
OSP error function is selected). Cut E [1] USP Ground fault protection Detects grounding between the inverter output section and motor when turning on power, thereby protecting the inverter. E [1] GND. Fit. Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280V or 560V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. E [15] OV. SRC Instantaneous power failure Turns off the output if power failure has lasted beyond 15 msec. If the power failure time is long, the error signal will be reset. If restart is selected, the machine will restart when a run command remains. E [16] Inst. P-F Option connecting section error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 E [17] NG. OP1 Option 2 E119 OP1 Option 2 E [19] OP1 Option 2 E [21] OP2 Option 1 E [19] OP1 Waiting on account of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. E [23] UV.WAIT Phase loss protection Turns off the output if a phase loss has been detected on the inverter receivin	External trip		hes that signal and	E 12	EXTERNAL
protection thereby protecting the inverter. E 1/9 GND. Fit. Overvoltage receiving protection Turns off the output upon detecting the received voltage is higher than specified 5 seconds after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280V or 560V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. E 15 OV. SRC Instantaneous power failure Turns off the output if power failure has lasted beyond 15 msec. If the power failure time is long, the error signal will be reset. If restart is selected, the machine will restart when a run command remains. E 1/5 OV. SRC Option connecting section error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 1/9 OP1 Option 2 E 2/9 UV. WAIT Waiting on account of undervoltage Waiting with the output if a phase loss has been detected on the inverter power receiving side (R,S,T) or (L1,L2,L3). E 2/9 PH. Fail Phase loss protection Tu	USP error		g (provided USP	E 13	USP
Overvoltage receiving protection after turning on. Detects a level above F11 motor receiving voltage setting. If a voltage beyond 280V or 560V has been input, it exceeds the rated value of employed parts whereby they could not be protected and might break. Image: Constant	Ground fault protection		ning on power,	E 14	GND. Flt.
failure error signal will be reset. If restart is selected, the machine will restart when a run command remains. Image: Description connecting section (connector, etc.) has malfunctioned. Option 1 Image: Description connecting section (connector, etc.) has malfunctioned. Optional circuit board error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 1 Image: Description 2 Image: NG. OP1 Optional circuit board error (Note 2) Error message delivered from optional circuit board itself. Option 1 Image: Description 2 Op1 Waiting on account of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. Image: Description 2 Image: Description 2 Image: Description 2 Phase loss protection Turns off the output if a phase loss has been detected on the inverter power receiving side (R,S,T) or (L1,L2,L3). Image: Description 2 Image: Description 2 Power module protection Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter module or temperature of the main semiconductors has become the inverter to the inverter in the power module or temperature of the main semiconductors has become At acceleration Image: Description 2 PM. Decel At acceleration Image: Description 2 PM. Accel PM. Accel	Overvoltage receiving protection	after turning on. Detects a level above F11 motor receiving voltage setting. beyond 280V or 560V has been input, it exceeds the rated value of employ	If a voltage	E 15	OV. SRC
Option a circuit board error (Note 2) For when option connecting section (connector, etc.) has malfunctioned. Option 2 E I I NG. OP2 Optional circuit board error (Note 2) Error message delivered from optional circuit board itself. Option 1 E I I OP1 Waiting on account of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. E I I OP2 Phase loss protection Turns off the output if a phase loss has been detected on the inverter power receiving side (R,S,T) or (L1,L2,L3). E I I OP1 Power module protection Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At constant speed E I I PM. Decel At acceleration E I I PM. Accel PM. Accel	Instantaneous power failure			E 16	Inst. P-F
section error (Note 2) Poil when option connecting section (connecting secting secting secting secting section (connecting section (connecti	Option connecting		Option 1	E 17	NG. OP1
Error message delivered from optional circuit board itself. Option 2 Image: Constant speed Waiting on account of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. Image: Constant speed Image:	section error (Note 2)	For when option connecting section (connector, etc.) has malfunctioned.	Option 2	E 18	NG. OP2
board error (Note 2) Error message delivered from optional circuit board itself. Option 2 EPD OP2 Waiting on account of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. EPD UV. WAIT Phase loss protection Turns off the output if a phase loss has been detected on the inverter power receiving side (R,S,T) or (L1,L2,L3). EPD PH. Fail Power module protection Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At constant speed EPD PM. Decel At acceleration EPD PM. Accel PM. Accel	Optional circuit		Option 1	E 19	OP1
of undervoltage Waiting with the output turned off because the inverter receiving voltage has dropped. E UV. WAIT Phase loss protection Turns off the output if a phase loss has been detected on the inverter power receiving side (R,S,T) or (L1,L2,L3). E PH. Fail Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At constant speed E PM. Decel At acceleration E PM. Accel PM. Accel	board error (Note 2)	Error message delivered from optional circuit board itself.	Option 2	E20	OP2
Power module protection Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At constant speed E]] PM. Drive At acceleration E]] PM. Decel At acceleration E]] PM. Accel	Waiting on account of undervoltage	Waiting with the output turned off because the inverter receiving voltage ha	s dropped.	E23	UV. WAIT
Actuated by the detector incorporated in the power module. If the inverter output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At acceleration	Phase loss protection	Turns off the output if a phase loss has been detected on the inverter power receiving sid	le (R,S,T) or (L1,L2,L3).	EZY	PH. Fail
Power module protection output is short-circuited or the motor is locked, a large current would flow to the inverter, thereby causing troubles. Turns off the output if the current in the power module or temperature of the main semiconductors has become At deceleration E_32 PM. Decel At acceleration E_33 PM. Accel		Actuated by the detector incorporated in the power module. If the inverter	At constant speed	EBI	PM. Drive
in the power module or temperature of the main semiconductors has become At acceleration [] At acceleration PM. Accel	Power module	output is short-circuited or the motor is locked, a large current would flow to	At deceleration	E32	PM. Decel
higher than specified. At stop EIJU	protection	in the power module or temperature of the main semiconductors has become	At acceleration	E33	PM. Accel
		higher than specified.	At stop	EBH	PM. ERR

Notes 1. Press the reset key 10 seconds after the alarm has occurred. 2. Valid when the application circuit board (option) is installed.

Alarm monitor method (____ appears in case of no trip)



Note 3: The example for P-N voltage on the left indicates 390-399 V.

Alarm history monitor method (___ appears in case of no trip)

