



Designed for Fan and Pump Applications



# Addendum

This is an update to the Instruction Manual publication number INR-S147-1225-E. New or revised information is highlighted for easy identification.

## Standard specifications

### 1) 208V series (1 to 125HP)

	Item			/ /						Specifi	cations									
Туре			001	002	003	005	007	010	015	020	025	030	040	050	060	075	100	125		
(FRN			1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125		
for th	nree phase	input <sup>*1</sup> [HP] <mark>d motor for</mark>		_													_			
singl	e phase inp	out <sup>*1</sup> [HP] <sup>(a)</sup>	<mark>1/2</mark>	<mark>1</mark>	<mark>1.5</mark>	<mark>2</mark>	<mark>3</mark>	<mark>5</mark>	<mark>5</mark>	<mark>7.5</mark>	<mark>10</mark>	<mark>10</mark>	<mark>15</mark>	<mark>20</mark>	<mark>25</mark>	<mark>25</mark>	<mark>30</mark>	<mark>40</mark>		
tor iput	Rated capacity <sup>*2a</sup> [kVA]		1.6	2.7	3.8	6.0	9.0	11	16	21	27	31	41	51	60	76	98	123		
Output ratings for three phase input	Rated volta			e-phase AVR fu		to 240V	1	1		1	1		Three-phase, 200V to 230V (With AVR function )							
utput ı ree ph	Rated curr	[A]	4.6	7.5	10.6	16.7	25	31	47	60	75	88	114	143	169	211	273	343		
ē₽	Overload o Rated freq		120% of rated current for 1min 50, 60Hz																	
	Main pow	•	,	S0, 60H2         Three-phase, 200 to 240V, 50/60Hz         Three-phase, 200 to 220V / 50Hz, 200 to 230V / 60Hz																
	Auxiliary o	,		•		-							200 to Single-		)Hz, 200	to 230V /	60Hz			
for	power inp	ut	Single	Single-phase, 200 to 240V, 50/60Hz         Single-phase, 200 to 220V / 50Hz, 200 to 230V / 60Hz           Name         Single-phase, 200 to 230V / 60Hz																
Input ratings for three phase input	Auxiliary f power inp	ut <sup>*5</sup>	None												pnase, 220V / 50	)Hz, 200	to 230V /	60Hz		
ut rat e pha		ency variations					Ĩ.	alance:		,		ncy: +5								
Inpu	Rated current *6	with DCR	3.1	5.8	8.7	14.5	20.6	27.5	41.3	55.1	68.8	82.6	109	134	160	199	270	333		
t	[A]	without DCR	5.1	9.1	12.9	21.5	30.8	40.8	59.4	76.6	94.0	110	144	179	215	—	—	-		
	supply cap	ower acity <sup>*7</sup> [kVA]	1.2	2.1 <sup>a)</sup>	3.2	5.3	7.5	10	15	20	25	30	40	49	58	72	98	120		
ngs for e input <sup>(a)</sup>	Rated capa	acity <sup>*2a</sup> [kVA]	<mark>0.8</mark>	<mark>1.6</mark>	<mark>2.3</mark>	<mark>3.3</mark>	<mark>3.9</mark>	<mark>6.1</mark>	<mark>7.5<sup>b)</sup></mark>	<mark>8.6</mark>	<mark>11</mark>	13 <sup>b)</sup>	<mark>16</mark>	<mark>21</mark>	<mark>27</mark>	<mark>27</mark>	<mark>34</mark>	<mark>41</mark>		
Output ratings for single phase input <sup>(</sup>	Rated curr	ent <sup>*4</sup> [A]	<mark>2.4</mark>	<mark>4.6</mark>	<mark>6.6</mark>	<mark>9.3</mark>	<mark>11</mark>	<mark>17</mark>	21 <sup>b)</sup>	<mark>24</mark>	<mark>31</mark>	37 <sup>b)</sup>	<mark>46.2</mark>	<mark>59.4</mark>	<mark>75</mark>	<mark>76<sup>b)</sup></mark>	<mark>95</mark>	<mark>114</mark>		
	Main pow	er supply	Single	e-phase	<mark>e,200 to</mark>	240V, 5	50/60H	z					Single-			to 220\//				
( <mark>a</mark> )	Auxiliary of power inp		Single	Single phase 200 to 240V 50/60Hz Si								Single-	)0 to 220V / 50Hz, 200 to 230V / 60Hz ngle-phase, )0 to 220V / 50Hz, 200 to 230V / 60Hz							
Input ratings for ingle phase input <sup>6</sup>	Auxiliary f	an ut <sup>*5</sup>	None         Single-phase, 200 to 220V / 50Hz, 200 to 230V / 60H											60Hz						
ut rati phas		ency variations						+5 to -5												
Inpl single	Rated current *6	with DCR without DCR	3.4	6.3	9.2	16.7	24.5	31.6	40.9	53.6	65.6	77.6	109	138	165	<mark>169</mark>	215	272		
	[A] Required p		5.1	9.1	12.9	21.5	30.8	40.8	59.4	76.6	94.0	110	144	179	215					
	supply cap	acity <sup>*7</sup> [kVA]	<mark>0.8</mark>	<mark>1.4</mark>	<mark>2.0</mark>	<mark>3.5</mark>	<mark>5.1</mark>	<mark>6.6</mark>	<mark>8.6</mark>	<mark>12</mark>	<mark>14</mark>	<mark>17</mark>	<mark>23</mark>	<mark>29</mark>	<mark>35</mark>	<mark>36</mark>	<mark>45</mark>	<mark>57</mark>		
Braking	Torque <sup>*8</sup> DC injection	[%] on	Startin	ng frequ	uency: (	).0 to 60	20 0.0Hz, I	Braking	time: 0	.0 to 30	).0s, Bra	aking le	vel: 0 to		10 to 1	5				
<ul> <li>braking</li> <li>DC reactor (DCR)</li> </ul>			Optio	n												Stand	ard			
EMC Filter		Optio																		
KEY	'PAD		Multif	unction	al Keyp	ad (TP-	G1W)											UL508C		
•••		ty standards	UL50	8C, C22	2.2 No. <sup>-</sup>	14, EN5	50178:1	997										C22.2 No.14		
	Enclosure(IEC60529) Cooling method			IP20 / UL open type IP00 / UL open type																
Coo					ooling															
Mass [lbs(kg)]			7.1 (3.2)	7.3 (3.3)	7.3 (3.3)	7.5 (3.4)	13 (5.8)	13 (6.0)	15 (6.9)	21 (9.7)	21 (9.7)	25 (11.5)	51 (23)	73 (33)	75 (34)	90 (41)	90 (41)	265 (120)		

#### 2) 460V series (1 to 75HP)

<b>_</b>	Item			• /					Sp	ecificatio	ons						
Туре																	
(FRN			001	002	003	005	007	010	015	020	025	030	040	050	060	075	
for three phase input <sup>*1</sup> [HP]			1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	
Nominal applied motor for single phase input <sup>1</sup> [HP] <sup>(a)</sup>			<mark>1/4</mark>	<mark>1</mark>	<mark>1</mark>	<mark>2</mark>	<mark>3</mark>	<mark>3</mark>	<mark>7.5</mark>	<mark>7.5</mark>	<mark>10</mark>	<mark>10</mark>	<mark>15</mark>	<mark>20</mark>	<mark>20</mark>	<mark>30</mark>	
for put	Rated capacity <sup>*2b</sup> [kVA]		1.9	2.9	4.3	7.1	9.9	13	18	23	29	35	47	57	67	83	
tings se in	Rated voltage <sup>*3</sup> [V]		Three-phase, 380V to 480V (With AVR function )														
Output ratings for three phase input	Rated curr	ent <sup>*4</sup> [A]	2.5	3.7	5.5	9.0	12.5	16.5	23	30	37	44	59	72	85	105	
Dutp	Overload o		120% of rated current for 1min														
t O	Rated freq			50, 60Hz													
	Main pow	er supply	Three-phase 380 to 480V 50/60Hz												nase, 40V / 50Hz,	380 to 480	0V / 60Hz
ut ut	Auxiliary of power inp		Single	e-phase,	380 to	480V, 50	0/60Hz							Single-pl			
Input ratings for three phase input	Auxiliary f	an ut <sup>*5</sup>	None													Single-pha 380 to 440 380 to 480	0V / 50Hz
ut ra > ph		ency variations	Voltag	je: +10 t	o -15%	(Voltage	e unbala	nce: 2%	6 or less	s <sup>*9</sup> ), Fre	quency						=
Inp. hre€	Rated current *6	with DCR	1.3	2.5	3.8	6.2	8.9	11.8	17.7	23.7	29.6	35.5	46.8	57.0	68.4	85.7	
t	[A]	without DCR	2.5	4.8	6.9	10.8	14.5	19.1	27.7	36.0	43.6	50.9	64.0	78.5	93.7	118	
	Required p supply cap	oower acity <sup>*7</sup> [kVA]	1.1	2.0	3.1	5.0	7.1	9.5 <sup>a)</sup>	15	19	24	29	38	46	55	69	
Output ratings for single phase input <sup>(a)</sup>	Rated capacity <sup>*2b</sup> [kVA]		<mark>0.9</mark>	<mark>1.6</mark>	<mark>2.1</mark>	<mark>2.9</mark>	<mark>4.6</mark>	<mark>6.2</mark>	<mark>9.5</mark>	<mark>10</mark>	<mark>12</mark>	<mark>15</mark>	<mark>18</mark>	<mark>23</mark>	<mark>27</mark>	<mark>34</mark>	
Output I <mark>single ph</mark>	Rated current <sup>*4</sup> [A]		<mark>1.2</mark>	<mark>2.1</mark>	<mark>2.7</mark>	<mark>3.7</mark>	<mark>5.8</mark>	<mark>7.9</mark>	<mark>12</mark>	<mark>13</mark>	<mark>16</mark>	<mark>19</mark>	<mark>23</mark>	<mark>30</mark>	<mark>35</mark>	<mark>43</mark>	
	<mark>Main pow</mark>	er supply	Single-phase, 380 to 480V, 50/60Hz         Single-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
	Auxiliary of power inp		Single	Single-phase, 380 to 480V, 50/60Hz         Single-phase, 380 to 480V, 50/60Hz												)V / 60Hz	
nput ratings for gle phase input <sup>(a)</sup>	Auxiliary f power inp	an	<mark>None</mark>													Single-pha 380 to 440 380 to 480	ase, )V / 50Hz
out ra e phe	Voltage/frequ	ency variations		<mark>je: +10 t</mark>													1
lnp single	Rated current <sup>6</sup>	with DCR	<mark>1.5</mark>			6.2	<mark>9.5</mark>	<mark>12.9</mark>		<mark>23.5</mark>	<mark>28.8</mark>	<mark>34.9</mark>	<mark>43.9</mark>	<mark>57.6</mark>		<mark>85.2</mark>	
	[A]	without DCR	<mark>2.5</mark>	<mark>4.8</mark>	<mark>6.9</mark>	<mark>10.8</mark>	<mark>14.5</mark>	<mark>19.1</mark>	<mark>27.7</mark>	<mark>36.0</mark>	<mark>43.6</mark>	<mark>50.9</mark>	<mark>64.0</mark>	<mark>78.5</mark>	<mark>93.7</mark>	<mark>115</mark>	
	Required p supply cap	ower acity <sup>7</sup> [kVA]	<mark>0.7</mark>	<mark>1.4</mark>	<mark>1.9</mark>	<mark>2.9</mark>	<mark>4.4</mark>	<mark>6.0</mark>	<mark>9.3</mark>	<mark>11</mark>	<mark>14</mark>	<mark>17</mark>	<mark>21</mark>	<mark>27</mark>	<mark>32</mark>	<mark>40</mark>	
bu	Torque *8	[%]					2	0							10 to 15	5	
Braking	DC injecti braking		Startin	ng freque	ency: 0.	0 to 60.0	OHz, Bra	aking tin	ne: 0.0 t	o 30.0s	, Brakin	g level:	0 to 60%	0			
DC reactor (DCR)			Optior														
	Filter	Option															
KEY		v otop danda	Multifunctional Keypad (TP-G1W)														
	icable safet	UL508C, C22.2 No.14, EN50178:1997															
	osure(IEC6 ing method	IP20 / UL open type     IP00 / UL open type       Natural cooling     Fan cooling															
			6.8	7.1	7.3	7.5	7.5	13	13	15	22	22	25	51	53	73	
Mass	s [	bs(kg)]	(3.1)	(3.2)	(3.3)	(3.4)	(3.4)	(6.0)	(6.0)	(6.9)	(9.9)	(9.9)	(11.5)	(23)	(24)	(33)	

#### 3) 460V series (100 to 900HP)

<b>v</b> / 1		163 (100															
Item									Sp	ecificatio	ons						
Type (FRN□□F1S-4U)			100	125	150	200	250	300	350	400	450	500	600	700	800	900	
Nomin for thr	nal applied motor ee phase input <sup>*1</sup> [HP]		100	125	150	200	250	300	350	400	450	500	600	700	800	900	
Nomin	al applied m		<mark>30</mark>	<mark>40</mark>	<mark>50</mark>	<mark>60</mark>	<mark>75</mark>	<mark>100</mark>	<mark>100</mark>	<mark>125</mark>	<mark>125</mark>	<mark>150</mark>	<mark>200</mark>	<mark>200</mark>	<mark>250</mark>	<mark>250</mark>	
s for nput	Rated cap	acity <sup>*2b</sup> [kVA]	110	133	161	191	240	286	330	380	414	517	589	669	764	828	
ting: se i	Rated voltage *3 [V]		Three-phase, 380V to 480V (With AVR function )														
Output ratings for three phase input	Rated curr	rent <sup>*4</sup> [A]	139	168	203	240	302	360	415	477	520	650	740	840	960	1040	
Out	Overload capability		120% of rated current for 1min														
	Rated free		50, 60Hz														
	Main powe Auxiliary c		Three-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
or put	power inpu Auxiliary fa	ut an	Single-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
Input ratings for three phase input	power inpu	ut * <sup>5</sup>	Single-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
ratir ohas	• •	ency variations	Voltage: +10 to -15% (Voltage unbalance: 2% or less <sup>9</sup> ), Frequency: +5 to -5%														
iput ee f	Rated current *6	with DCR	113	140	169	222	275	330	382	440	495	545	652	756	869	981	
th r	[A]	without DCR	ļ	I	I	—	I	—	-	—	—	—		-	-	—	
	Required p supply cap	bower bacity <sup>*7</sup> [kVA]	91	112	135	177	220	263	305	351	395	435	520	603	693	782	
<mark>ngs for</mark> e input <sup>(a)</sup>	Rated capacity <sup>*2b</sup> [kVA]		<mark>40</mark>	<mark>50</mark>	<mark>60</mark>	<mark>73</mark>	<mark>78</mark>	<mark>107</mark>	<mark>129</mark>	<mark>136</mark>	<mark>160</mark>	<mark>195</mark>	<mark>228</mark>	<mark>263</mark>	<mark>309</mark>	<mark>327</mark>	
Output ratings for single phase input <sup>(a)</sup>	Rated current <sup>*4</sup> [A]		<mark>51</mark>	<mark>63</mark>	<mark>76</mark>	<mark>92</mark>	<mark>98</mark>	<mark>135</mark>	<mark>162</mark>	<mark>171</mark>	<mark>202</mark>	<mark>246</mark>	<mark>287</mark>	<mark>331</mark>	<mark>388</mark>	<mark>411</mark>	
	Main powe	er supply	Single-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
	Auxiliary c power inpu		Single	<mark>-phase</mark> ,	380 to	<mark>440V / </mark> {	50Hz, 3	<mark>80 to 48</mark>	<mark>0V / 60</mark> 1	Hz							
tor iput <sup>(a)</sup>	Auxiliary fa power inpu	ut * <sup>5</sup>	Single-phase, 380 to 440V / 50Hz, 380 to 480V / 60Hz														
<mark>tings</mark> tse ir	Voltage/frequ	uency variations	Voltag	e: +10 t	<mark>o -10%</mark> ,	Freque	ncy: +5	to -5%									
<mark>Input ratings for</mark> single phase input <sup>(a)</sup>	Rated current <sup>*6</sup>	with DCR	<mark>102</mark>	<mark>125</mark>	<mark>151</mark>	<mark>180</mark>	<mark>231</mark>	<mark>271</mark>	<mark>311</mark>	<mark>363</mark>	<mark>392</mark>	<mark>482</mark>	<mark>560</mark>	<mark>636</mark>	<mark>714</mark>	<mark>782</mark>	
<mark>.</mark>	[A]	without DCR										<mark></mark>					
	Required p supply cap	acity <sup>*7</sup> [kVA]	<mark>47</mark>	<mark>58</mark>	<mark>70</mark>	<mark>83</mark>	<mark>107</mark>	<mark>125</mark>	<mark>144</mark>	<mark>167</mark>	<mark>181</mark>	<mark>222</mark>	<mark>258</mark>	<mark>293</mark>	<mark>329</mark>	<mark>360</mark>	
ing	ප Torque <sup>*8</sup> [%]			15													
Braking	DC injection Braking		• •		0 to 60.	0Hz, Br	aking tir	ne: 0.0 t	to 30.0s	, Brakin	g level:	0 to 60%	%				
DC reactor (DCR) EMC Filter				ard (Ext	ernal)												
KEYP		Optior Multifu		l Kevna	d (TP-G	i1W)											
	able safety :				4, EN50		97		UL508	3C, C22	.2 No.14	4					
Enclos	sure(IEC605		UL ope														
Coolin	g method		Fan co		_									_			
Mass	[lb	75 (34)	93 (42)	99 (45)	139 (63)	212 (96)	212 (96)	216 (98)	357 (162)	357 (162)	529 (240)	529 (240)	783 (355)	794 (360)	794 (360)		

#### Notes:

\*1 Standard 4-pole motor

\*2a Rated capacity is calculated by assuming the output rated voltage as 208V for three-phase & single-phase input. \*2b Rated capacity is calculated by assuming the output rated voltage as 460V for three-phase & single-phase input. \*3 Output voltage cannot exceed the power supply voltage.

- \*4 An excessively low setting of the carrier frequency may result in the higher motor temperature or tripping of the inverter by its overcurrent limiter setting. Lower the continuous load or maximum load instead. (When setting the carrier frequency (F26) to 1kHz, reduce the load to 80% of its rating.)
- \*5 Use [R1,T1] terminals for driving AC cooling fans of an inverter powered by the DC link bus, such as by a high power factor PWM converter. (In ordinary operation, the terminals are not used.)
- \*6 Calculated under Fuji-specified conditions.
- \*7 Obtained when a DC reactor (DCR) is used.
- \*8 Average braking torque (Varies with the efficiency of the motor.)

Max. voltage [V] – Min. voltage [V]  $\times$  67 (IEC61800 – 3(5.2.3)) \*9 Voltage unbalance =

Three - phase average voltage [V]

If this value is 2 to 3%, use an AC reactor (ACR).

(a) When utilized on a single phase application the drive's output voltage may be lower than the nominal rated voltage

The following functions have been added to FRENIC-Eco inverters that contain a ROM version number of 2000 or higher.

Note The inverter's ROM version can be found through the keypad utilizing the "Maintenance Information" menu (menu # 5).

#### Additional Function Codes

Acceleration/deceleration time 2

Code	Name	Data Setting Range	Increment	Unit	Change when running	Data Copy	Default Setting
E10	Acceleration Time 2	0.00 to 2600	Variable	6	v	v	20.0
E11	Deceleration Time 2	0.00 to 3600	vanabie	S	T	ſ	20.0

Selection between ACC/DEC time 1(F07/F08) and ACC/DEC time 2(E10/E11) requires the use of one of the drive's programmable digital input terminals [X1], [X2], [X3], [X4], [X5], [FWD], or [REV]. Set the associated digital input terminal parameter E01, E02, E03, E04, E05, E98, or E99 equal to "4 (1004): *RT1*" (a setting of 1004 assigns negative logic to the input terminal). If no *RT1* command is assigned one of the programmable digital input terminals then ACC/DEC time 1(F07/F08) takes effect by default.

Input terminal command RT1	Acceleration/deceleration time
OFF	Acceleration/deceleration time 1(F07/F08)
ON	Acceleration/deceleration time 2(E10/E11)



When the terminal command STOP is off, the motor decelerates to a stop in accordance with the deceleration time for forced stop (H56). After the motor stops, the inverter enters the alarm state with the alarm Er6 displayed.

**Rotational Direction Limitation** 

Code	Name	Data Setting Range	Increment	Unit	Change when running	Data Copy	Default Setting
H08	Rotational Direction Limitation	0: Disable 1: Enable (REV inhibited) 2: Enable (FWD inhibited)	-	-	N	Y	0

H08 inhibits the motor form running in an unexpected rotational direction due to miss-operation of run commands, miss-polarization of frequency commands, or other installation/wiring/user errors.