

TOSVERT VF-FS1

Parameter List
for CPU version 120/121

VF-FS1 Parameter List for CPU version 120/121

Setting Date	
Customer	
End user	
Application	
Application No/Serial No	
Inverter's Type-Form	
Quantity	
Inverter's Serial No	
Motor's capacity	

If user's setting value is same as shipping value, entry column is blank.

You can confirm software version by the additional code on the nameplate and packing label

Additional code for V120/V121: (R6), (6) or (6B)

-Terminal stand use state

	Terminal Name	Use state
Main terminal block	PA/+	
	PC/-	
	R/L1	
	S/L2	
	T/L3	
	U/T1	
	V/T2	
	W/T3	
	E/G	
Control terminal block	FLA	
	FLB	
	FLC	
	RY	
	RC	
	CC	
	VIA	
	VIB	
	PP	
	FM	
	F	
	R	
	RES	
	CC	
PLC		
P24		
Setting of slide switch	VIA	V / I
	FM	V / I
	SW4	SOURCE / PLC / SINK

1 User parameters

Title	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F₇</i>	Operation frequency of operation panel	Hz	0.1/0.01	<i>L₁-U₁</i> when the value of <i>F₇₀₃</i> is 1, this range is from <i>0.0</i> to the value of <i>F_H</i> with free-unit.	0.0		3.2

2 Basic parameters

- Four automatic functions or basic parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>RUF</i>	-	Wizard function	-	-	The wizard function refers to the special function of calling up ten frequently used parameters.	-		4.2.4 6.20.7
<i>RUH</i>	-	History function	-	-	Displays parameters in groups of five in the reverse order to that in which their settings were changed. * (Possible to edit)	-		4.2.5
<i>RU1</i>	0000	Automatic acceleration/ deceleration	-	-	0: Disabled (manual) 1: Automatic 2: Automatic (only at acceleration)	0		5.1.1
<i>RU4</i>	0040	Parameter setting macro function	-	-	0: Disabled 1: Coast stop 2: 3-wire operation 3: External input UP/DOWN setting 4: 4-20 mA current input operation	0		5.2
<i>EN0d</i>	0003	Command mode selection	-	-	0: Terminal board 1: Operation panel 2: RS485 communication	0		5.3 7.2
<i>FN0d</i>	0004	Frequency setting mode selection 1	-	-	1: VIA 2: VIB 3: Operation panel 4: RS485 communication 5: UP/DOWN from external contact	1		5.3 6.5.1 7.1

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F_{NSL}</i>	0005	Meter selection	-	-	0:Output frequency 1:Output current 2:Set frequency 3:DC voltage 4:Output voltage command value 5:Input power 6:Output power 7:Torque 8:Torque current 9:Motor cumulative load factor 10:Inverter cumulative load factor 11:-(do not select) 12:Frequency setting value (after PID) 13:VIA Input value 14:VIB Input value 15:Fixed output 1 (Output current: 100%) 16:Fixed output 2 (Output current: 50%) 17:Fixed output 3 (Supposition output at <i>F_{NSL}</i> =17) 18:RS485 communication data 19:For adjustments (<i>F_{NSL}</i> set value is displayed)	0		5.4
<i>F_A</i>	0006	Meter adjustment	-	-	-	-		
<i>L_{YP}</i>	0007	Default setting	-	-	0: - 1: 50Hz default setting 2: 60Hz default setting 3: Default setting (Initialization) 4: Trip record clear 5: Cumulative operation time clear 6: Initialization of type information 7: Save user-setting parameters 8: Call user-defined parameters 9: Cumulative fan operation time record clear	0		4.2.7 4.2.8 5.5
<i>F_r</i>	0008	Forward/reverse run selection (Operation panel operation)	-	-	0: Forward run 1: Reverse run 2: Forward run (F/R switching possible) 3: Reverse run (F/R switching possible)	0		5.6

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference																															
<i>ACC</i>	0009	Acceleration time 1	s	0.1/0.1	0.0-3200	*1		5.1.2																															
<i>DEC</i>	0010	Deceleration time 1	s	0.1/0.1	0.0-3200	*1																																	
<i>FH</i>	0011	Maximum frequency	Hz	0.1/0.01	30.0-200.0	80.0		5.7																															
<i>UL</i>	0012	Upper limit frequency	Hz	0.1/0.01	0.5- <i>FH</i>	50.0 (WP) 60.0 (WN)		5.8																															
<i>LL</i>	0013	Lower limit frequency	Hz	0.1/0.01	0.0- <i>LL</i>	0.0																																	
<i>UL</i>	0014	Base frequency 1	Hz	0.1/0.01	25-200.0	50.0 (WP) 60.0 (WN)		5.9																															
<i>ULV</i>	0409	Base frequency voltage 1	V	1/0.1	50-330 (200V class) 50-660 (400V class)	*2		5.9 6.12.5																															
<i>PE</i>	0015	V/F control mode selection	-	-	0: V/F constant 1: Variable torque 2: Automatic torque boost control 3: Vector control 4: Advanced energy-saving 5: -(do not select) 6: PM motor control	1		5.10																															
<i>ub</i>	0016	Torque boost 1	%	0.1/0.1	0.0-30.0	*1		5.11																															
<i>THR</i>	0600	Motor electronic-thermal protection level 1	% (A)	1/1	10-100	100		5.12 6.17.1																															
<i>OLN</i>	0017	Electronic-thermal protection characteristic selection *3	-	-	<table border="1"> <thead> <tr> <th>Setting</th> <th>Motor type</th> <th>Overload protection</th> <th>OL stall</th> </tr> </thead> <tbody> <tr> <td>0</td> <td rowspan="3">Standard motor</td> <td>on</td> <td>off</td> </tr> <tr> <td>1</td> <td>on</td> <td>on</td> </tr> <tr> <td>2</td> <td>off</td> <td>off</td> </tr> <tr> <td>3</td> <td rowspan="4">VF motor</td> <td>off</td> <td>on</td> </tr> <tr> <td>4</td> <td>on</td> <td>off</td> </tr> <tr> <td>5</td> <td>on</td> <td>on</td> </tr> <tr> <td>6</td> <td>off</td> <td>off</td> </tr> <tr> <td>7</td> <td></td> <td>off</td> <td>on</td> </tr> </tbody> </table>	Setting	Motor type	Overload protection	OL stall	0	Standard motor	on	off	1	on	on	2	off	off	3	VF motor	off	on	4	on	off	5	on	on	6	off	off	7		off	on	0		5.12
Setting	Motor type	Overload protection	OL stall																																				
0	Standard motor	on	off																																				
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3	VF motor	off	on																																				
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5		on	on																																				
6		off	off																																				
7		off	on																																				

*1 : Default values vary depending on the capacity. See the table of the last page

*2 : Inverter with a model number ending with
 -WN : 230 (200V class), 460 (400V class)
 -WP : 230 (200V class), 400 (400V class)

*3 : on : valid, off : invalid

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>Sr 1</i>	0018	Preset-speed operation frequency 1	Hz	0.1/0.01	<i>LL-UL</i>	15.0		5.13
<i>Sr 2</i>	0019	Preset-speed operation frequency 2	Hz	0.1/0.01	<i>LL-UL</i>	20.0		
<i>Sr 3</i>	0020	Preset-speed operation frequency 3	Hz	0.1/0.01	<i>LL-UL</i>	25.0		
<i>Sr 4</i>	0021	Preset-speed operation frequency 4	Hz	0.1/0.01	<i>LL-UL</i>	30.0		
<i>Sr 5</i>	0022	Preset-speed operation frequency 5	Hz	0.1/0.01	<i>LL-UL</i>	35.0		
<i>Sr 6</i>	0023	Preset-speed operation frequency 6	Hz	0.1/0.01	<i>LL-UL</i>	40.0		
<i>Sr 7</i>	0024	Preset-speed operation frequency 7	Hz	0.1/0.01	<i>LL-UL</i>	45.0		
<i>F---</i>	-	Extended parameters	-	-	-	-	-	4.2.2
<i>Gr.U</i>	-	Automatic edit function	-	-	-	-	-	4.2.3

3 Extended parameters

• Input/output parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F 100</i>	0100	Low-speed signal output frequency	Hz	0.1/0.01	0.0- <i>F H</i>	0.0		6.1.1
<i>F 101</i>	0101	Speed reach setting frequency	Hz	0.1/0.01	0.0- <i>F H</i>	0.0		6.1.3
<i>F 102</i>	0102	Speed reach detection band	Hz	0.1/0.01	0.0- <i>F H</i>	2.5		6.1.2
<i>F 108</i>	0108	Always-active function selection 1	-	-	0-72(No function)	0		6.3.1
<i>F 109</i>	0109	Analog/contact input function selection (VIA terminal)	-	-	0: VIA - analog input 1: VIA - contact input (Sink) 2: VIA - contact input (Source)	0		6.2.1
<i>F 110</i>	0110	Always-active function selection 2	-	-	0-72 (ST)	1		6.3.1
<i>F 111</i>	0111	Input terminal selection 1 (F)	-	-	0-72 (F)	2		6.3.2
<i>F 112</i>	0112	Input terminal selection 2 (R)	-	-	0-72 (R)	3		
<i>F 113</i>	0113	Input terminal selection 3 (RES)	-	-	0-72 (RES)	10		
<i>F 118</i>	0118	Input terminal selection 8 (VIA)	-	-	0-72 (SS1)	6		
<i>F 130</i>	0130	Output terminal selection 1A (RY-RC)	-	-	0-255 (LOW)	4		6.3.3
<i>F 132</i>	0132	Output terminal selection3 (FL)	-	-	0-255 (FL)	10		
<i>F 137</i>	0137	Output terminal selection 1B (RY-RC)	-	-	0-255 (always ON)	255		6.3.4
<i>F 139</i>	0139	Output terminal logic selection (RY-RC)	-	-	0: <i>F 130</i> and <i>F 137</i> 1: <i>F 130</i> or <i>F 137</i>	0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F 146</i>	0146	Delay time for RY_RC relay	-	0.1/0.1	0.0-60.0	0.0		6.3.5
<i>F 147</i>	0147	Delay time for FL relay	-	0.1/0.1	0.0-60.0	0.0		
<i>F 160</i>	0160	Analog VIA detection level	%	1/1	0-100	0		6.3.6
<i>F 161</i>	0161	Analog VIA detection band	%	1/1	0-20	3		
<i>F 162</i>	0160	Analog VIB detection level	%	1/1	0-100	0		
<i>F 163</i>	0161	Analog VIB detection band	%	1/1	0-20	3		
<i>F 167</i>	0167	Frequency command agreement detection range	Hz	0.1/0.01	0.0- <i>FH</i>	2.5		6.3.5
<i>F 170</i>	0170	Base frequency 2	Hz	0.1/0.01	25.0-200.0	50.0 (WP) 60.0 (WN)		6.4.1
<i>F 171</i>	0170	Base frequency voltage 2	V	1/0.1	50-330 (200V class) 50-660 (400V class)	* 2		
<i>F 172</i>	0172	Torque boost 2	%	0.1/0.1	0.0-30.0	* 1		
<i>F 173</i>	0173	Motor electronic-thermal protection level 2	% (A)	1/1	10-100	100		5.12 6.4.1
<i>F 185</i>	0185	Stall prevention level 2	% (A)	1/1	10-110	110		6.4.1 6.17.2

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• Frequency parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F200</i>	0200	Frequency priority selection	-	-	0: <i>F_{NOd}</i> (Switchable to <i>F207</i> by terminal input) 1: <i>F_{NOd}</i> (Switchable to <i>F207</i> at less than 1.0Hz of designated frequency)	0		6.5.1 7.1
<i>F201</i>	0201	VIA input point 1 setting	%	1/1	0-100	0		6.5.2
<i>F202</i>	0202	VIA input point 1 frequency	Hz	0.1/0.01	0.0-200.0	0.0		
<i>F203</i>	0203	VIA input point 2 setting	%	1/1	0-100	100		
<i>F204</i>	0204	VIA input point 2 frequency	Hz	0.1/0.01	0.0-200.0	50.0 (WP) 60.0 (WN)		
<i>F207</i>	0207	Frequency setting mode selection 2	-	-	1: VIA 2: VIB 3: Operation panel 4: RS485 communication 5: UP/DOWN from external contact	2		6.3.7 6.5.1 7.1
<i>F210</i>	0210	VIB input point 1 setting	%	1/1	0-100	0		6.5.2
<i>F211</i>	0211	VIB input point 1 frequency	Hz	0.1/0.01	0.0-200.0	0.0		
<i>F212</i>	0212	VIB input point 2 setting	%	1/1	0-100	100		
<i>F213</i>	0213	VIB input point 2 frequency	Hz	0.1/0.01	0.0-200.0	50.0 (WP) 60.0 (WN)		
<i>F240</i>	0240	Starting frequency setting	Hz	0.1/0.01	0.5-10.0	0.5		6.6.1
<i>F241</i>	0241	Operation starting frequency	Hz	0.1/0.01	0.0- <i>F_H</i>	0.0		6.6.2
<i>F242</i>	0242	Operation starting frequency hysteresis	Hz	0.1/0.01	0.0- <i>F_H</i>	0.0		
<i>F250</i>	0250	DC braking starting frequency	Hz	0.1/0.01	0.0- <i>F_H</i>	0.0		6.7.1
<i>F251</i>	0251	DC braking current	% (A)	1/1	0-100	50		
<i>F252</i>	0252	DC braking time	s	0.1/0.1	0.0-20.0	1.0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference	
<i>F256</i>	0256	Auto-stop in case of lower-limit frequency continuous operation time	s	0.1/0.1	0: Disabled 0.1-600.0	0.0		6.8	
<i>F264</i>	0264	External contact input-UP response time	s	0.1/0.1	0.0-10.0	0.1		6.5.3	
<i>F265</i>	0265	External contact input-UP frequency steps	Hz	0.1/0.01	0.0- <i>FH</i>	0.1			
<i>F266</i>	0266	External contact input-DOWN response time	s	0.1/0.1	0.0-10.0	0.1			
<i>F267</i>	0267	External contact input-DOWN frequency steps	Hz	0.1/0.01	0.0- <i>FH</i>	0.1			
<i>F268</i>	0268	Initial UP/DOWN frequency	Hz	0.1/0.01	<i>LL - UL</i>	0.0			
<i>F269</i>	0269	Change of the initial UP/DOWN frequency	-	-	0: Not changed 1: Setting of <i>F266</i> changed when power is turned off	1			
<i>F270</i>	0270	Jump frequency 1	Hz	0.1/0.01	0.0- <i>FH</i>	0.0			6.9
<i>F271</i>	0271	Jumping width 1	Hz	0.1/0.01	0.0-30.0	0.0			
<i>F272</i>	0272	Jump frequency 2	Hz	0.1/0.01	0.0- <i>FH</i>	0.0			
<i>F273</i>	0273	Jumping width 2	Hz	0.1/0.01	0.0-30.0	0.0			
<i>F274</i>	0274	Jump frequency 3	Hz	0.1/0.01	0.0- <i>FH</i>	0.0			
<i>F275</i>	0275	Jumping width 3	Hz	0.1/0.01	0.0-30.0	0.0			
<i>F294</i>	0294	Forced fire-speed setting frequency	Hz	0.1/0.01	<i>LL - UL</i>	50.0		6.18	
<i>F295</i>	0295	Bumpless operation selection	-	-	0:Disabled 1:Enabled	1		6.10	

• Operation mode parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F300</i>	0300	PWM carrier frequency	kHz	0.1/0.1	6.0 - 16.0	* 1		6.11
<i>F301</i>	0301	Auto-restart control selection	-	-	0: Disabled 1: At auto-restart after momentary stop 2: When turning ST-CC or off 3: At auto-restart or when turning ST-CC on or off 4: At start-up	0		6.12.1
<i>F302</i>	0302	Instantaneous Power failure coast stop selection	-	-	0: Disabled 1: -(Do not select) 2: Coast stop	0		6.12.2
<i>F303</i>	0303	Retry selection (number of times)	Times	1/1	0: Disabled 1-10	0		6.12.3
<i>F305</i>	0305	Over voltage limit operation (Slowdown stop mode selection)	-	-	0: Enabled 1: Disabled 2: Enabled (Quick deceleration) 3: Enabled (Dynamic quick deceleration)	2		6.12.4
<i>F307</i>	0307	Supply voltage correction (limitation of output voltage)	-	-	0: Supply voltage uncorrected, output voltage limited 1: Supply voltage corrected, output voltage limited 2: Supply voltage uncorrected, output voltage unlimited 3: Supply voltage corrected, output voltage unlimited	3		6.12.5
<i>F311</i>	0311	Reverse-run prohibition	-	-	0: Forward/reverse run permitted 1: Reverse run prohibited 2: Forward run prohibited	0		6.12.6
<i>F312</i>	0312	Random mode	-	-	0: Disabled 1: Automatic setting	0		6.11

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Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F316</i>	0316	Carrier frequency control mode selection	-	-	0:Carrier frequency not reduced automatically 1:Carrier frequency reduced automatically 2:Carrier frequency not reduced automatically Support for 400V models 3:Carrier frequency reduced automatically support for 400V models	1		6.11
<i>F320</i>	0320	Droop gain	%	1/1	0-100	0		6.13
<i>F323</i>	0323	Droop insensitive torque band	%	1/1	0-100	10		
<i>F359</i>	0359	PID control waiting time	s	1/1	0-2400	0		6.14
<i>F360</i>	0360	PID control	-	-	0: Disabled 1: Enabled (Feedback: VIA) 2: Enabled (Feedback: VIB)	0		
<i>F362</i>	0362	Proportional gain	-	0.01/0.01	0.01-100.0	0.30		
<i>F363</i>	0363	Integral gain	-	0.01/0.01	0.01-100.0	0.20		
<i>F366</i>	0366	Differential gain	-	0.01/0.01	0.00-2.55	0.00		
<i>F380</i>	0380	PID forward/reverse characteristic selection	-	1/1	0:Forward (Standard) 1:Reverse	0		
<i>F390</i>	0390	Lower Limit frequency for stall prevention	Hz	0.1/0.01	0.0- <i>UL</i>	0.0		-
<i>F391</i>	0391	Hysteresis for LL stop operation	Hz	0.1/0.01	0.0- <i>FH</i>	0.2		6.8.1
<i>F392</i>	0392	Restart deviation for LL stop operation	Hz	0.1/0.01	0.0- <i>FH</i>	0.0		
<i>F393</i>	0393	Restart feedback for LL stop operation	Hz	0.1/0.01	0.0- <i>FH</i>	0.0		
<i>F399</i>	0399	Factory setting parameter1 *1	-	1/1	0-255	0		-

*1: factory setting parameter is only for the maker. Customers are not allowed to change it.

• Torque boost parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F400</i>	0400	Auto-tuning	-	-	0: Auto-tuning disabled 1: Application individual settings of <i>F402</i> (after execution:0) 2: Auto-tuning enabled (after execution:0)	0		5.10 6.15.1
<i>F401</i>	0401	Slip frequency gain	%	1/1	0-150	50		
<i>F402</i>	0402	Automatic torque boost value	%	0.1/0.1	0.0-30.0	* 1		
<i>F415</i>	0415	Motor rated current	A	0.1/0.1	0.1-200.0	* 1		
<i>F416</i>	0416	Motor no-load current	%	1/1	10-100	* 1		
<i>F417</i>	0417	Motor rated speed	min ⁻¹	1/1	100-15000	* 1		
<i>F418</i>	0418	Speed control response coefficient	-	1/1	1-150	40		
<i>F419</i>	0419	Speed control stability coefficient	-	1/1	1-100	20		

• Input/output parameters2

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F470</i>	0470	VIA input bias	-	-	0-255	128		6.5.4
<i>F471</i>	0471	VIA input gain	-	-	0-255	148		
<i>F472</i>	0472	VIB input bias	-	-	0-255	128		
<i>F473</i>	0473	VIB input gain	-	-	0-255	148		

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• Torque boost parameters2

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
F480	0480	Exciting current coefficient	%	1/1	100-130	100		5.10 6.15.2
F481	0481	Power supply compensation filter	-	1/1	0-9999	0		6.17.16
F482	0482	Inhibitor filter	-	1/1	0-9999	442		
F483	0483	Inhibitor gain	-	0.1/0.1	0.0-300.0	100.0		
F484	0484	Power supply adjustment gain	%	0.1/0.1	0.0:Disable 0.1-2.0	0.0		
F485	0485	Stall prevention control coefficient 1	-	1/1	10-250	100		5.10 6.15.2
F492	0492	Stall prevention control coefficient 2	-	1/1	50-150	100		
F494	0494	Motor adjustment coefficient	-	1/1	0-200	* 1		
F495	0495	Maximum voltage adjustment coefficient	%	1/1	90-120	104		
F496	0496	Waveform switching adjustment coefficient	kHz	0.1/0.1	0.1-14.0	14.0		

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• Acceleration/deceleration time parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F500</i>	0500	Acceleration time 2	s	0.1/0.1	0.0-3200	* 1		6.16
<i>F501</i>	0501	Deceleration time 2	s	0.1/0.1	0.0-3200	* 1		
<i>F502</i>	0502	Acceleration/ deceleration 1 pattern	-	-	0: Linear 1: S-pattern 1 2: S-pattern 2	0		
<i>F503</i>	0503	Acceleration/ deceleration 2 pattern	-	-		0		
<i>F504</i>	0504	Selecting an acceleration/ deceleration pattern	-	-	1: Acceleration/deceleration 1 2: Acceleration/deceleration 2	1		
<i>F505</i>	0505	Acceleration/ deceleration 1 and 2 switching frequency	Hz	0.1/0.01	0.0- <u>UL</u>	0.0		
<i>F506</i>	0506	S-pattern lower-limit adjustment amount	%	1/1	0-50	10		
<i>F507</i>	0507	S-pattern upper-limit adjustment amount	%	1/1	0-50	10		

*1 : Default values vary depending on the capacity. See the table of last page.

• Protection parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
F601	0601	Stall prevention level 1	% (A)	1/1	10-110	110		6.17.2
F602	0602	Inverter trip retention selection	-	-	0: Canceled with the power off 1: Still retained with the power off	0		6.17.3
F603	0603	Emergency stop selection	-	-	0: Coast stop 1: Slowdown stop 2: Emergency DC braking	0		6.17.4
F604	0604	Emergency DC braking time	s	0.1/0.1	0.0-20.0	1.0		
F605	0605	Output phase failure detection mode selection	-	-	0: Disabled 1: At start-up (only one time after power is turned on) 2: At start-up (each time) 3: During operation 4: At start-up + during operation 5: Detection of cutoff on output side	0		6.17.5
F607	0607	Motor 150%-overload time limit	s	1/1	10-2400	300		6.17.1
F608	0608	Input phase failure detection mode selection	-	-	0: Disabled 1: Enabled	1		6.17.6
F609	0609	Small current detection current hysteresis	%	1/1	1-20	10		6.17.7
F610	0610	Small current trip/alarm selection	-	-	0: Alarm only 1: Tripping	0		
F611	0611	Small current detection current	% (A)	1/1	0-100	0		
F612	0612	Small current detection time	s	1/1	0-255	0		
F613	0613	Detection of output short-circuit during start-up	-	-	0: Each time (standard pulse) 1: Only one time after power is turned on (standard pulse) 2: Each time (short-time pulse) 3: Only one time after power is turned on (short-time pulse)	0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F615</i>	0615	Over-torque trip/alarm selection	-	-	0: Alarm only 1: Tripping	0		6.17.9
<i>F616</i>	0616	Over-torque detection level	%	1/1	0-250	130		
<i>F618</i>	0618	Over-torque detection time	s	0.1/0.1	0.0-10.0	0.5		
<i>F619</i>	0619	Over-torque detection level hysteresis	%	1/1	0-100	10		
<i>F621</i>	0621	Cumulative operation time alarm setting	100 Time	0.1/0.1 (=10hours)	0.0-999.9	610.0		6.17.10
<i>F626</i>	0626	Over-voltage limit operation level	%	1/1	100-150	140		6.12.4
<i>F627</i>	0627	Under-voltage trip/alarm selection	-	-	0: Alarm only (detection level below 60%) 1: Tripping (detection level below 60%) 2: Alarm only (detection level below 50%, input reactor necessary)	0		6.17.12
<i>F632</i>	0632	Thermal memory selection	-	-	0:Deselect 1:Enabled	0		6.17.1
<i>F633</i>	0633	Trip at VIA low level input mode	%	1/1	0: Disabled, 1-100	0		6.17.13
<i>F634</i>	0634	Annual average ambient temperature (For parts replacement alarms)	-	-	1: -10 to +10 °C 2: 11-20 °C 3: 21-30 °C 4: 31-40 °C 5: 41-50 °C 6: 51-60 °C	3		6.17.14
<i>F644</i>	0644	Action in the event of VI/II analogue input wire breakage	-	1/1	0:Coast stop (Trip mode <i>E - 18</i>) 1:Coast stop (Alarm mode <i>ALOS</i>) 2:Fallback speed (Alarm mode <i>ALOS</i>) 3:Speed maintain (Alarm mode <i>ALOS</i>) 4:Slowdown stop (Alarm mode <i>ALOS</i>)	0		6.17.13

*1 : Default values vary depending on the capacity. See the table of last page.

• Output parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F645</i>	0645	PTC thermal selection	-	-	1:Disabled 2:Enabled (trip mode) 3:Enabled (alarm mode)	0		6.17.15
<i>F646</i>	0646	PTC detection resistor value	Ω	1/1	100-9999	3000		
<i>F649</i>	0649	Fallback speed	-	-	0- <i>FH</i>	0.0		6.17.13
<i>F650</i>	0650	Forced fire-speed control selection	-	-	0:Disabled 1:Enabled	0		6.18
<i>F691</i>	0691	Inclination characteristic of analog output	-	-	0: Negative inclination (downward slope) 1: Positive inclination (upward slope)	1		6.19.1
<i>F692</i>	0692	Bias of analog output	%	1/1	0—100	0		

• Operation panel parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F700</i>	0700	Prohibition of parameter change	-	-	0: Permitted 1: Prohibited	0		6.20.1
<i>F701</i>	0701	Current/voltage display mode	-	-	0:% 1:A (ampere) /V (volt)	0		6.20.2
<i>F702</i>	0702	Frequency free unit magnification	Times	0.01/0.01	0.00: Free unit display disabled (display of frequency) 0.01-200.0	0.00		6.20.3
<i>F703</i>	0703	Frequency free unit conversion selection	-	1/1	0:All frequencies display free unit conversion 1:PID frequencies free unit conversion and <i>F_L</i> range change (0.0- <i>FH</i>)	0		
<i>F705</i>	0705	Inclination characteristic of free unit display	-	-	0: Negative inclination (downward slope) 1: Positive inclination (upward slope)	1		6.20.3
<i>F706</i>	0706	Bias of free unit display	Hz	0.01/0.01	0.00- <i>FH</i>	0.00		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>F 707</i>	0707	Free step 1 (pressing a panel key once)	Hz	0.01/0.01	0.00: Disabled 0.01- <i>FH</i>	0.00		6.20.4
<i>F 708</i>	0708	Free step 2 (panel display)	-	1/1	0: Disabled 1-255	0		
<i>F 710</i>	0710	Standard monitor display selection	-	-	0:Operation frequency (Hz/free unit/step) 1:Frequency command (Hz/free unit/step) 2:Output current (%/A) 3:Inverter rated current (A) 4:Inverter load factor (%) 5:Output power (kW) 6:Frequency command after PID control (Hz/free unit/step) 7:Optional item specified from an external control unit 8:Output speed 9:Communication counter 10:Normal state communication counter	0		6.20.5
<i>F 721</i>	0721	Selection of operation panel stop pattern	-	-	0: Slowdown stop 1: Coast stop	0		6.20.6
<i>F 730</i>	0730	Prohibition of frequency setting on the operation panel (<i>FL</i>)	-	-	0: Permitted 1: Prohibited	0		6.20.1
<i>F 732</i>	0732	Prohibition of panel local/remote operation (LOC/REM key)	-	-	0:Permitted 1:Prohibited 2:Permitted (Cancelled with the power off)	0		
<i>F 733</i>	0733	Prohibition of Panel operation (RUN/STOP keys)	-	-	0: Permitted 1: Prohibited	0		
<i>F 734</i>	0734	Prohibition of panel emergency stop operation	-	-	0: Permitted 1: Prohibited	0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
F735	0735	Prohibition of panel reset operation	-	-	0: Permitted 1: Prohibited	0		
F738	0738	Head of parameter display selection	-	-	0:AUF 1:AUH	0		6.20.7
F748	0748	Integral output power retention selection	-	-	0:Disabled 1:Enabled	1		6.20.8
F749	0749	Display unit selection for Integral output power	-	-	0:1=1kWh 1:0.1=1kWh 2:0.01=1kWh 3:0.001=1kWh	*1		

*1 : Default values vary depending on the capacity. See the table of last page.

• Communication parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
F800	0800	Communication rate	-	-	0: 9600bps 1: 19200bps	1		6.21
F801	0801	Parity	-	-	0: NON (No parity) 1: EVEN (Even parity) 2: ODD (Odd parity)	1		
F802	0802	Inverter number	-	1/1	0-247	0		
F803	0803	Communication error trip time	s	1/1	0:Disabled 1-100	0		
F805	0805	Communication waiting time	s	0.01/0.01	0.00: Regular communication 0.01-2.00	0.00		
F806	0806	Setting of master and slave for communication between inverters	-	-	0: Slave (0 Hz command issued in case the master inverter fails) 1: Slave (Operation continued in case the master inverter fails) 2: Slave (Emergency stop tripping in case the master inverter fails) 3: Master (transmission of frequency commands) 4: Master (transmission of output frequency signals)	0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting	Reference
<i>FB11</i>	0811	Communication command point 1 setting	%	1/1	0-100	0		6.5.2 6.21
<i>FB12</i>	0812	Communication command point 1 frequency	Hz	0.1/0.01	0.0-200.0	0.0		
<i>FB13</i>	0813	Communication command point 2 setting	%	1/1	0-100	100		
<i>FB14</i>	0814	Communication command point 2 frequency	Hz	0.1/0.01	0.0-200.0	50.0 (WP) 60.0 (WN)		
<i>FB29</i>	0829	Selection of communication protocol	-	-	0: Toshiba inverter protocol 1: Modbus RTU protocol 2: Metasys N2 protocol 3: APOGEE FLN protocol 4: BAC-net protocol	0		6.21
<i>FB51</i>	0851	Operation at communication error by disconnection	-	-	0: Inverter stop, communication, command frequency mode open (by <i>Err5</i> , <i>Err8</i>) 1: None (continued operation) 2: Deceleration stop 3: Coast stop 4: Communication error (<i>Err5</i> trip) or Network error (<i>Err8</i> trip)	4		6.21
<i>FB56</i>	0856	Number of motor poles for communication	-	-	1: 2 poles 2: 4 poles 3: 6 poles 4: 8 poles 5: 10 poles 6: 12 poles 7: 14 poles 8: 16 poles	2		
<i>FB70</i>	0870	Block write data 1	-	-	0: No selection 1: Command 1	0		
<i>FB71</i>	0871	Block write data 2	-	-	2: Command 2 3: Frequency command 4: Output data on the terminal board 5: Analog output for communications 6: Motor speed command	0		

Title	Communication No.	Function	Unit	Minimum setting unit Panel /Communication	Adjustment range	Default setting	User setting	Reference
<i>F875</i>	0875	Block read data 1	-	-	0: No selection 1: Status information 2: Output frequency 3: Output current 4: Output voltage 5: Alarm information 6: PID feedback value 7: Input terminal board monitor 8: Output terminal board monitor 9: VIA terminal board monitor 10: VIB terminal board monitor 11: Output motor speed monitor	0		6.21
<i>F876</i>	0876	Block read data 2	-	-		0		
<i>F877</i>	0877	Block read data 3	-	-		0		
<i>F878</i>	0878	Block read data 4	-	-		0		
<i>F879</i>	0879	Block read data 5	-	-		0		
<i>F880</i>	0880	Free notes	-	1/1		0-65535	0	
<i>F890</i>	0890	Parameter for option 1	-	1/1	0-65535*1	0		6.22
<i>F891</i>	0891	Parameter for option 2	-	1/1	0-65535*1	0		
<i>F892</i>	0892	Parameter for option 3	-	1/1	0-65535*1	0		
<i>F893</i>	0893	Parameter for option 4	-	1/1	0-65535*1	0		
<i>F894</i>	0894	Parameter for option 5	-	1/1	0-65535*1	0		
<i>F895</i>	0895	Parameter for option 6	-	1/1	0-65535*1	0		
<i>F896</i>	0896	Parameter for option 7	-	1/1	0-65535*1	0		
<i>F897</i>	0897	Parameter for option 8	-	1/1	0-65535	0		
<i>F898</i>	0898	Parameter for option 9	-	1/1	0-65535	0		
<i>F899</i>	0899	Parameter for option 10	-	1/1	0-65535	0		

• PM motor parameters

Title	Communication No.	Function	Unit	Minimum setting unit Panel /Communication	Adjustment range	Default setting	User setting	Reference
<i>F910</i>	0910	Step-out detection current level	% (A)	1/1	10-150	100		6.23
<i>F911</i>	0911	Step-out detection time	s	0.1/0.1	0.0: No detection 0.1-25.0	0.0		
<i>F912</i>	0912	High-speed torque adjustment coefficient	-	0.01/0.01	0.00-650.0	0.00		

*1 : This default value is changed by setting value of *F829*

-Default settings by inverter rating

Inverter type	Acceleration Deceleration time	Torque boost value 1/2	PWM carrier frequency	Automatic torque boost value	Motor rated current	Motor no-load current	Motor rated speed		Motor adjustment coefficient	Display unit selection for integral output power
	<i>ACC.DEC</i> <i>F500</i> <i>F501</i>	<i>ub1</i> <i>F172</i> (%)	<i>F300</i> (kHz)	<i>F402</i> (%)	<i>F415</i> (A)	<i>F416</i> (%)	<i>F417</i> (min ⁻¹) <i>WN/UY2</i> <i>WP/UY1</i>		<i>F494</i>	<i>F749</i>
VFFS1-2004PM	10	6.0	12.0	6.2	2.0	65	1680	1400	90	0
VFFS1-2007PM	10	6.0	12.0	5.8	3.4	60	1690	1408	80	0
VFFS1-2015PM	10	6.0	12.0	4.3	6.2	55	1690	1408	70	0
VFFS1-2022PM	10	5.0	12.0	4.1	8.9	52	1680	1400	70	0
VFFS1-2037PM	10	5.0	12.0	3.4	14.8	48	1690	1408	70	1
VFFS1-2055PM	10	4.0	12.0	3.0	21.0	46	1730	1441	70	1
VFFS1-2075PM	10	3.0	12.0	2.5	28.2	43	1730	1441	70	1
VFFS1-2110PM	10	2.0	12.0	2.3	40.6	41	1730	1441	60	1
VFFS1-2150PM	10	2.0	12.0	2.0	54.6	38	1730	1441	50	1
VFFS1-2185PM	30	2.0	8.0	2.0	68.0	36	1750	1458	50	1
VFFS1-2220PM	30	2.0	8.0	1.8	80.0	34	1750	1458	50	1
VFFS1-2300PM	30	2.0	8.0	1.8	108.0	32	1745	1454	50	1
VFFS1-4004PL	10	6.0	12.0	6.2	1.0	65	1680	1400	90	0
VFFS1-4007PL	10	6.0	12.0	5.8	1.7	60	1690	1408	80	0
VFFS1-4015PL	10	6.0	12.0	4.3	3.1	55	1690	1408	70	0
VFFS1-4022PL	10	5.0	12.0	4.1	4.5	52	1680	1400	70	0
VFFS1-4037PL	10	5.0	12.0	3.4	7.4	48	1690	1408	70	1
VFFS1-4055PL	10	4.0	12.0	2.6	10.5	46	1730	1441	70	1
VFFS1-4075PL	10	3.0	12.0	2.3	14.1	43	1730	1441	70	1
VFFS1-4110PL	10	2.0	12.0	2.2	20.3	41	1730	1441	60	1
VFFS1-4150PL	10	2.0	12.0	1.9	27.3	38	1730	1441	50	1
VFFS1-4185PL	30	2.0	8.0	1.9	34.0	36	1750	1458	50	1
VFFS1-4220PL	30	2.0	8.0	1.8	40.0	34	1750	1458	50	1
VFFS1-4300PL	30	2.0	8.0	1.8	54.0	32	1745	1454	50	1
VFFS1-4370PL	30	2.0	8.0	1.8	67.0	27	1750	1458	50	2
VFFS1-4450PL	30	2.0	8.0	1.7	80.0	26	1750	1458	50	2
VFFS1-4550PL	30	2.0	8.0	1.6	98.0	24	1755	1462	40	2
VFFS1-4750PL	30	2.0	8.0	1.5	129.0	28	1775	1479	40	2