# 5 Ethernet/IP Communication Profile

# 5.1 Synchronous Parameter Access in Delta-specific Mode (Tables for Control Word and Status Word)

Bytes	Order	Address	Attribute	bit	Value	bit	User Rights	Speed Mode	Position Mode	Home Mode	Torque Mode	Notes
					0			fcmd=0	None	Stop Home	Tcmd=0	
					Pulse 0							
				0	1	CMD_ACT	4	fcmd=Fset(Fpid)			Tcmd=Test	Requires SERVO_ON=1
					Dulas 4				POScmd=	Execute		Requires
					Pulse 1				POSset	Home once		SERVO_ON=1
					0			FWD run	Change when			
				1	0	EXT_CMD1	4	command	drive stops			
					1		-	REV run	Immediate			
								command	change			
					0				Absolute			
				2		EXT_CMD2	4		movement			
					1				Relative			
								drive runs till	movement	Continue to	Food	
					0				drive runs till target position	Continue to return to home	Feed (Continue to run	
					U			target speed reaches	reaches		to target torque)	
0	LSB							drive stops by	Lock (drive	drive stops at	Lock (torque	
Ũ	200			3		HALT	3	declaration	stops at current	current	stops at current	
					1			setting	position by	position by	speed)	
								5	declaration	declaration	. ,	
									setting)	setting		
								drive runs till				
					0			target speed				
		C000h	DW	4		LOCk	4	reaches				
		6000h	RW	-		LOOK	-	frequency stops				
					1			at current				
								frequency				
					0			JOG OFF	JOG OFF	JOG OFF	JOG OFF	
				5	1	JOG	4					
					Pulse 1			JOG RUN	JOG RUN	JOG RUN	JOG RUN	
	r.			6	0	QSTOP	2	None	None	None	None	
					1			Quick Stop	Quick Stop	Quick Stop	Quick Stop	
				7	0	SERVO_ON	1	Servo OFF	Servo OFF	Servo OFF	Servo OFF	
					1			Servo ON	Servo ON	Servo ON	Servo ON	
					0000			Main speed 1 <sup>st</sup> -15 <sup>th</sup> speed	Main position 1 <sup>st_</sup> 15 <sup>th</sup> position		Main torque	
				11–8	0001-	GEAR	4	and frequency	selection			
					1111			selection	5010011011			
								1st Acceleration	1st Acceleration			
					00			time	time			
						1		2nd Acceleration	2nd			
1	MSB				01			time	Acceleration			
				13–12		ACC/DEC	4		time			
					10			3rd Acceleration	3rd Acceleration			
					10			time	time			
					11			4th Acceleration	4th Acceleration			
					11			time	time			
				14	0	EN_SW	4	Multi-step	Multi-step		Multi-step	
					,		•	command and	command and		command and	

Table 1: 60xx Output Message (Host Controller $\rightarrow$ Drive) (Pr.09-30=1)

#### VFD-C2000 Ethernet/IP Communication Card CMC-EIP01

								acceleration/	acceleration/		acceleration/	
								deceleration time	deceleration		deceleration time	
								switching are not	time switching		switching are not	
								allowed	are not allowed		allowed	
								Multi-step	Multi-step		Multi-step	
								command and	command and		command and	
								acceleration/	acceleration/		acceleration/	
					1			deceleration time	deceleration		deceleration time	
								switching are	time switching		switching are	
								allowed	are allowed		allowed	
										Clear error		
				15	Pulse 1	RST	4	Clear error code	Clear error code	code	Clear error code	
2	LSB	00041	RW				Mode					
3	MSB	6001h	RW				Cmd					
4	LSB							Speed command	Profile velocity		Profile velocity	
	MSB	6002h	RW			Velocity	Velocity	(without	(without		(without	
5						Cmd	Cmd	numbers)	numbers)		numbers)	
6	LSB											
7	MSB	6003h	RW									
8	LSB											
9	MSB	6004h	RW				Pos		Position			
10	LSB					Pos Cmd	Cmd		command			
11	MSB	6005h	RW						(with numbers)			
12	LSB										Torque	
	MSB	6006h	RW			Torg Cmd	Torq				command	
13							Cmd				(with numbers)	
14	LSB								Ĺ			
15	MSB	6007h	RW					Reserved	Reserved	Reserved	Reserved	
16	LSB									_		
17	MSB	6008h	RW					Reserved	Reserved	Reserved	Reserved	
18	LSB							_	_	_		
19	MSB	6009h	RW					Reserved	Reserved	Reserved	Reserved	
					•		•	•	•	•	•	

## Table 2: 61xx Input Message (Drive→Host Controller) (Pr.09-30=1)

Bytes	Order	Address	Attribute	bit	Value	bit	Speed Mode	Position Mode	Home Mode	Torque Mode	Notes
				0	0	ARRIVE	Frequency command not reached	Position command not reached	Zero command unfinished	Torque command not reached	
					1		Frequency command arrival	Position command reached	Zero command completed	Torque command reached	
				1	0	DIR	FWD	FWD	FWD	FWD	
				I	1	DIR	REV	REV	REV	REV	
					0		No warning	No warning	No warning	No warning	
0	LSB			2	1	WARN	Warning occurred	Warning occurred	Warning occurred	Warning occurred	
					0		No error	No error	No error	No error	
		6100h	R	3	1	ERROR	Error occurred	Error occurred	Error occurred	Error occurred	
				_	0		None	None	None	None	
				5	1	JOG	On JOG	On JOG	On JOG	On JOG	
					0		None	None	None	None	
				6	1	QSTOP	On Quick Stop	On Quick Stop	On Quick Stop	On Quick Stop	
				7	0	SERVO_ON	PWM OFF	PWM OFF	PWM OFF	PWM OFF	
					1	_	PWM ON	PWM ON	PWM ON	PWM ON	
					0		Ready OFF	Ready OFF	Ready OFF	Ready OFF	
1	MSB			8	1	Ready	Ready ON	Ready ON	Ready ON	Ready ON	
				15–9							
2	LSB	6101h	R			Mode Cmd					
3	MSB	010111									
4	LSB	6102h	R			Velocity	Actual	Actual	Actual	Actual	
5	MSB	010EII				cmd	output	output	output	output	

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						frequency	frequency	frequency	frequency	
6	LSB	6103h	R							
7	MSB	01030	ĸ							
8	LSB	6104h	R			Actual	Actual	Actual	Actual	
9	MSB	010411	n		Pos Cmd	position	position	position	position	
10	LSB	6105h	R		Pos Cilia	(absolute)	(absolute)	(absolute)	(absolute)	
11	MSB	010511	ĸ			(absolute)	(absolute)	(absolute)	(absolute)	
12	LSB	6106h	R		Torg Cmd	Actual	Actual	Actual	Actual	
13	MSB	010011	n			torque	torque	torque	torque	
14	LSB	6107h	R			Reserved	Reserved	Reserved	Reserved	
15	MSB	010711	ĸ			Reserved	Reserved	Reserved	Reserved	
16	LSB	6108h	R			Reserved	Reserved	Reserved	Reserved	
17	MSB	010011	К			Reserved	Reserved	Reserved	Reserved	
18	LSB	6109h	R			Reserved	Reserved	Reserved	Reserved	
19	MSB	010911	К			Reserved	Reserved	Reserved	Reserved	

# Table 3: 20xx Output Message (Host Controller→Drive) (Pr.09-30=0)

0         LSB         Description         Operation command unchanged 0: Site of 19. Run         Description Romal command unchanged 0: Site of 20. Run         Description Romal command unchanged 0: Site of 20. Run         Description Romal command command results         Description Romal command results         Description Romand results         Description Romand results <thdescription Romand results</thdescription 					1		<b>\</b>	, , , , , , , , , , , , , , , , , , , ,	
0         LSB         Operation         Operation <td>Bytes</td> <td>Order</td> <td>Command</td> <td>Address</td> <td>Attribute</td> <td></td> <td>Value</td> <td>Definition</td> <td>Description</td>	Bytes	Order	Command	Address	Attribute		Value	Definition	Description
0         LSB         Density         Density <thdensity< th=""> <thdensity< t<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>00: No function</td><td>Operation command unchanged</td><td>1. Bits in this column are used for</td></thdensity<></thdensity<>							00: No function	Operation command unchanged	1. Bits in this column are used for
0         LSB         Density         Density <thdensity< th=""> <thdensity< t<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>01: Stop</td><td>Stop operation command</td><td>operating actions. The commands are</td></thdensity<></thdensity<>							01: Stop	Stop operation command	operating actions. The commands are
0         LS8         Description							· · ·		
0         LSB         Operation         2000n         W         b1-10         11: JOG+Run         JOG command         Webstame the command cloud. Webstame multi-store present in command cloud. See parameter stelection operation command cloude a command on the stelection command cloude a command on the command cloude a command on th							10: Run	Normal command operation	-
0         LSB         00. No function         Direction command comm						b1–10	11: JOG+Run	JOG command	only needs to issue the command once. VFD always runs the command issued by Master unless new commands are issued. 2. Bits in this column work only when VFD sets parameter selection operation
0         LSB         00. No function         Direction command PUO Breding actions. The command set used for one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia one-shot and nu only when VFD energing actions. The Index Materia issued.           0         0.114 Accol.Decol. time         1 <sup>4</sup> accoleration/deceleration im selection         1 <sup>4</sup> accoleration/deceleration im selection         1 <sup>4</sup> accoleration/deceleration im selection         1 <sup>4</sup> accoleration of eccleration on immation of action acceleration of deceleration immation selection         1 <sup>4</sup> accoleration of eccleration immation of action acceleration of deceleration immation selection         1 <sup>4</sup> accoleration of eccleration immation acceleration of deceleration immation selection         1 <sup>4</sup> accoleration immation acceleration of deceleration immation acceleration immation of action acceleration of deceleration immation acceleration of deceleration acceleration of acceleration immation acceleration						b3-b2	Not used		
0         LSB         0         FWD         FWD         FWD         FWD         Generating actions. The command operating actions. The command operating actions. The commands one-action and non only when VFD encides commands. Therefore, Maler results commands. Therefore, Maler results command success command su								Direction command unchanged	1. Bits in this column are used for
0         LSB         0         REV         REV direction command receives command. Therefore, Mader only reacts to issue the command issue by Master unless new command ore subcritication of the command issue by Master unless new command ore subcritication of the command issue by Master unless new command ore subcritication of the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless new command ore subcritication or the command issue by Master unless nepater 1011: 17: nepater speed 1011									-
0     LSB     LSB     Description     Change current direction     Change current direction command once. VFD adways runs the command size the command size of the column work only when VFD as parameter resolution operation command size constraints. Therefore, Matter unless the command size of the column work only when VFD as parameter resolution operation command size constraints. Therefore, Matter unless the command size of the column work only when VFD as parameter resolution operation command size constraints. Therefore, Matter unless are command size of the column work only when VFD as parameter resolution operation command size constraints. Therefore, Matter unless are command size of the column work only when VFD as parameter VFD advays runs the command size of the column are used for switching of the column work only operates. There are advantage to a societariation of deceleration time as election. The advantage constraints. Therefore, Matter unless accommand concentry operation. The advantage accommand societariation deceleration time as election.     Diff advantage advantage of the column are used for switching of the column. Societariation deceleration time as election.     Bits in this column are used for event the matter of the column.       1     MSB     Diff advantage speed     Oil: 11: the speed     Oil: 11: The speed     Matter speed and frequency through communication. Parameter VFD aparameter								FWD direction command	
1         MSB         Speed Series         200h         W         b5-b4         11:Change direction         Change current direction command         Ch							10: REV	REV direction command	one-shot and run only when VFD
Dependent         2000h         W         Dit R Accel/Decel. time         selection         Bits in this column are used for switching function diveceleration time and use on-shot method to switch by bits in this column.         Bits in this column are used for switching function diveceleration time and use on-shot method to switch by bits in this column.           1         MSB         Command         2000h         W	0	LSB				b5–b4	11:Change direction	command	only needs to issue the command once. VFD always runs the command issued by Master unless new commands are issued. 2. Bits in this column work only when VFD sets parameter selection operation
Operation Command         2000h         W         Image: command com							00: 1st Assal /Desal time	1 <sup>st</sup> acceleration/deceleration time	
Dependion         2000h         W         Dependion         Description         Descripion         Description         Description <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>00: TSLACCEL/DECEL LIME</td> <td>selection</td> <td>5</td>							00: TSLACCEL/DECEL LIME	selection	5
Deparation Operation Command         2000h         W         Discription (2: 2nd Accel/Decisi time) (3: 3 dd Accel/Decisi time) (3: 3 dd Accel/Decisi time) (3: 4 dd Accel/Decisi time) (4: 4 dd Accel/Decis								2 <sup>nd</sup> acceleration/deceleration	acceleration or deceleration time through
Dependent Command         2000h         W         Description (0:3rd Accel/Decel. time (0:3rd Ac							01: 2nd Accel./Decel. time		communication when VFD operates.
Image: Command in the second command command in the second command in the second command command in						b7-b6			Parameter VFD can provide four kinds of
Operation Command         2000h         W         Image: selection         Selection         Image: selection <thimage: selection<="" th=""> <thimage: selection<<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>10: 3rd Accel./Decel. time</td><td></td><td>settings for acceleration or deceleration</td></thimage:></thimage:>							10: 3rd Accel./Decel. time		settings for acceleration or deceleration
Operation Command         2000h         W         11: 4th Accel/Decel. time         4 <sup>th</sup> acceleration/deceleration time selection         by bits in this column.           1         K         Command         2000h         W         11: 4th Accel/Decel. time selection         4 <sup>th</sup> acceleration/deceleration time selection         by bits in this column.           1         K         K         0000: Main speed 0010: 2nd step speed 0110: 6th step speed 0110: 6th step speed 0110: 6th step speed 0110: 6th step speed 0110: 1th step speed 1000: 1th step speed 1110: 14th step speed 1110:								selection	5
Command         2000h         W         11: 4th Accel Lubeet. time         selection         by bits in this column.           Command         Command         2000h         W         11: 4th Accel Lubeet. time         selection         by bits in this column.           1         MSB         Command         2000h         W         100: 2th sep speed         001: 1st step speed         1. Bits in this column are used for switching VEDs operation frequency through communication. Parameter VED can provide 15 kinds of settings for operating speed and set one shot method to switching selection         1. Bits in this column are used for switching selection           111: 111: 15th step speed         1001: 2th step speed         1011: 111: 115th step speed         1011: 111: 1115th step speed         1011: 111: 111 step speed         1011: 111: 111 step speed         1101: 111: 111 step speed         1101: 111: 111 step speed         1111: 111: 115th step speed         1111: 111: 115th step speed         1111: 111: 111 step speed         1111: 111: 111 step speed         1111: 111: 111: 111 step speed         1111: 111: 111: 111 step speed         1111: 1111: 1111 step speed         1111: 1111: 1111 step speed         11111: 1111:			Oneration					4th acceleration/deceleration time	
1     MSB     See doi:     000: Main speed       1     MSB     See doi:     000: Main speed       3     MSB     Speed       2     LSB       3     MSB     Speed       2011     2011: This step speed       0011: This step speed       1001: This step speed       1011: This step speed       1111: This step speed       1111: This step speed       1111: This step speed				2000h	w		11: 4th Accel./Decel. time		by bits in this column.
1         MSB         Speed         001: 1st step speed         001: 3rd step speed           1         MSB         b11-b8         0110: 2nd step speed         0100: 4ll step speed           11: MSB         b11-b8         0111: 7ll step speed         Multi-step speed and frequency switching selection           1         MSB         b11-b8         0110: 2ll step speed         Multi-step speed and frequency switching selection           1         MSB         b11-b8         0111: 7ll step speed         method to switch by tbit in this column are used for switching selection           1         MSB         b11-b8         0110: 10h step speed         method to switch by tbit in this column are used for enforcedly switching selection           1         MSB         b12         1: Enable b11-b6         Enable multi-step speed and frequency switching function, check address 2017h.           01: Operation command by Pr. setting         00: No function         switching for operation command source through communication. If VPD operation command source through communication if source setting is not controlled by communication or deceleration time switching setting setting           2         LSB         setting         11: Switch between PU and Pr. setting         Switching for operation command source through communication. The default unit for this solumn are used for leaving setting setting commands to VPD through communication. The default unit for this solumn are used for leaving setting commands t			Command				0000: Main speed		
1         MSB         Speed         001: 2nd step speed         001: 3nd step speed           1         MSB         b11-b8         001: 3nd step speed         001: 3nd step speed           100: 8th step speed         010: 8th step speed         010: 8th step speed         010: 8th step speed           100: 9th step speed         010: 10th step speed         010: 10th step speed         010: 10th step speed           100: 11: 11: 11: 11: 11: 11: 11: 11: 11:									
1         MSB         Speed         2011: 3d slep speed         0011: 3d slep speed         1. Bits in this column are used for switching VFD's operation frequency through communication. Parameter VFD operation speed and speed and frequency switching selection         1. Bits in this column are used for switching VFD's operation frequency through communication. Parameter VFD operation speed and speed and frequency switching selection           1         MSB         MSB         5peed         0011: 3d slep speed         Multi-step speed and the communication. Parameter VFD operation frequency switching function through communication.         2. You have to set 2000h b12=1 or you cannot use this multi-step speed and frequency switching function through communication.         3. If you want to know the current running speed of this multi-step speed and frequency switching function through communication.         3. If you want to know the current running speed of this multi-step speed and frequency switching function, check address 2017h.           2         LSB         00: No function         01: Operation command controlled by PU         Switching for operation command source through communication. PVFD operation command source through communication. PVFD operation to enforcedly switch to communication. PVFD operation to enforcedly switch to communication. PVFD operation command source setting           3         MSB         Speed         2001h         W         b15-b0         VFD set Point Command         VFD multi-unit setup command frequency and acceleration on restore to parameter setting is hto arother to be read.							· · ·	4	
1     MSB     MSB     Speed     201h     W     b15-b0     VFD set Point Command     Final Provide State Set Point Command     Bits in this column are used for issuing set this or operation command source       3     MSB     Speed     201h     W     b15-b0     VFD set Point Command     VFD multi-unit setup command     Bits in this column are used for issuing set this in this column.       3     MSB     Speed     201h     W     b15-b0     VFD set Point Command     VFD multi-unit setup command     1. Bits in this column are used for issuing set this multi-step set protect on point is this column.									
1         MSB         Speed         0010: 4th step speed         Multi-step speed and frequency switching speed and frequency switching speed and frequency switching speed and frequency switching speed and the speed         Switching speed and frequency switching for operating speed and frequency switching for operating speed and the spee							0011: 3rd step speed		1. Bits in this column are used for
1         MSB         MSB         Speed         0110: 6th step speed         Multi-step speed and frequency switching selection         can provide 15 kinds of settings for operating speed and use one-shot method to switch by bits in this column.         2. You have to set 2000 h12-1 or you cannot use this multi-step speed and frequency switching function through communication.         2. You have to set 2000 h12-21 or you cannot use this multi-step speed and frequency switching function through communication.           1         MSB         b11-b8         Enable multi-step speed and frequency switching function through communication.         3. If you want to know the current running speed and frequency switching function through communication.           1         MSB         b12         1: Enable b11-b6         Enable multi-step speed and frequency switching function through communication.           1111: 15th step speed         1111: 15th step speed         Enable multi-step speed and frequency and acceleration or deceleration time switching         address 2017h.           1111: 15th step speed         1111: 15th step speed         Switching for operation command source through communication.         Bits in this column are used for enforcedly switching operation command source through communication.           12         LLSB         111: Switch between PU and Pr. setting         Switching for operation command source through communication.         I. Bits in this column are used for issuing setting commands to VFD through communication.           3         MSB         Speed							0100: 4th step speed		
1         MSB         Speed         2011- 06 th step speed         Multi-step speed and frequency switching speed and frequency switching speed and use one-shot multi-step speed and use one-shot multi-step speed and use one-shot multi-step speed and the speed and trequency switching function through 1010: 12th step speed           1         MSB         MSB         Image: speed sped sp							0101: 5th step speed		
1         MSB         NSB         Speed Set Point Commandad         b11-b8         b11-b1         b11-b1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></td<>									-
1     MSB     Speed     2011-b8     1000: 8th step speed     switching selection     method to switch by bits in this column.       1     MSB     MSB     Speed     1000: 8th step speed     switching selection     method to switch by bits in this column.       1     MSB     MSB     Speed     1010: 10th step speed     switching selection     method to switch by bits in this column.       1     MSB     MSB     Speed     1111: 11th step speed     switching selection or declaration time switching function, check address 2017h.       1     MSB     Speed     1111: 11th step speed     Enable multi-step speed and frequency and acceleration or declaration time switching function, check address 2017h.       00: No function     01: Operation command controlled by PU     Switching for operation command source through communication. If VFD operation source setting       2     LSB     LSB     11: Switch between PU and Pr. setting       3     MSB     Speed     2001h     W       3     MSB     Speed     2001h     W									
1     MSB     NSB     Speed     Speed     Speed     Speed     Switching selection     memod is switch by bits in this column are used for enforcedly switching function. If VFD operation command source       1     MSB     Speed     2011h     W     b15     Speed     Switching for operation command source     Switching for operation command source       3     MSB     Speed     201h     W     b15     VFD Set Point Command     VFD multi-unit setup command     1. Bits in this column are used for issuing setting						b11_b8	· · ·		
1       MSB       MSB       Speed       1010: 10th step speed       cannot use this multi-step speed and frequency switching function through communication.       3. If you want to know the current running speed of this multi-step speed and frequency switching function, check address 2017h.         1       MSB       b12       1: Enable b11-b6       Enable multi-step speed and frequency switching function, check address 2017h.         00: No function       0: No function       0: Operation command controlled by function, run of setting       Bits in this column are used for enforcedly switch to communication. If VFD operation source this multi-step speed and frequency switching function, check address 2017h.         2       LSB       b15       I: Switch between PU and Pr. setting       Switching for operation command source to parameter setting.         3       MSB       Speed Set Point Command       2001h       W       b15-b0       VFD set Point Command       VFD multi-unit setup command for unit setup command for unit of this setting is 12.0 run to are decauted for unit of this setting is 2012h and the units are Desc, address 2122h-212Ah can be read.						511 50	1000: 8th step speed	switching selection	method to switch by bits in this column.
1       MSB       MSB       Speed       1010: 10th step speed       cannot use this multi-step speed and frequency switching function through communication.       3. If you want to know the current running speed of this multi-step speed and frequency switching function, check address 2017h.         1       MSB       b12       1: Enable b11-b6       Enable multi-step speed and frequency switching function, check address 2017h.         00: No function       0: No function       0: Operation command controlled by function, run of setting       Bits in this column are used for enforcedly switch to communication. If VFD operation source this multi-step speed and frequency switching function, check address 2017h.         2       LSB       b15       I: Switch between PU and Pr. setting       Switching for operation command source to parameter setting.         3       MSB       Speed Set Point Command       2001h       W       b15-b0       VFD set Point Command       VFD multi-unit setup command for unit setup command for unit of this setting is 12.0 run to are decauted for unit of this setting is 2012h and the units are Desc, address 2122h-212Ah can be read.							1001: 9th step speed		2. You have to set 2000h b12=1 or you
1       MSB       1011: 11th step speed       1011: 11th step speed       frequency switching function through communication.         1       MSB       100: 12th step speed       1100: 12th step speed       speed         1110: 14th step speed       1111: 15th step speed       Enable multi-step speed and frequency switching function, check address 2017h.         b12       1: Enable b11-b6       Enable multi-step speed and frequency and acceleration or deceleration im switching function.       Bits in this column are used for enforcedly switching peration command source through communication. If VFD poration in VFD peration source setting is not controlled by PC setting       Switching for operation command source setting is not controlled by Communication. If VFD poration to restore to parameter setting.         2       LSB       LSB       Speed       Speed       1. Bits in this column are used for issuing setting communication or restore to parameter setting.         3       MSB       Speed       201h       W       b15-b0       VFD set Point Command       VFD multi-unit setup command set VFD must are Desc, address 2123h-2124h can be read.									-
1       MSB       MSB       Into: 12th step speed 1101: 13th step speed 1110: 14th step speed 1110: 12th step speed 1110: 14th step speed step speed 1110: 14th st							1 · · ·	-	
1       MSB       MSB       Speed       1100-1213 step speed       3. If you want to know the current running speed of this multi-step speed and frequency switching function, check address 2017h.         1       MSB       b12       1: Enable b11-b6       Enable multi-step speed and frequency and acceleration or deceleration time switching function       address 2017h.         00: No function       00: No function       Unition       Switching for operation command source through communication. If VFD operation command by Pr. setting       Bits in this column are used for enforcedly switch to communication, you can use the bits in this column to enforcedly switch to communication, you can use the bits in this column to enforced to parameter setting         2       LSB       LSB       VFD set Point Command       VFD multi-unit setup command       1. Bits in this column are used for issuing setting communication. The default unit for this setting is 12 or otherwise (can be known from 2110b h12). If the units are Desc, address 2123h-2124h can be read.								-	
1       MSB       MSB       Speed of this multi-step speed and frequency switching function, check address 2017h.       speed of this multi-step speed and frequency switching function, check address 2017h.         b12       1: Enable b11-b6       Enable multi-step speed and frequency and acceleration or deceleration or deceleration ime switching function       Bits in this column are used for enforcedly switching operation command source through pPU         b14-b13       00: No function       01: Operation command by Pr. setting       Switching for operation command source through communication. If VFD operation source are the bits in this column are used for enforcedly switch to communication, or an use the bits in this column are used for issuing source         2       LSB       LSB       Speed       2001h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command from 2110h bit12.) If the units are Desc, address 213h-2124h can be read.       1. Bits in this column are used for issuing setting commands to VFD through communication. The default unit for this setting setting commands to VFD through communication. The default unit for this setting setting commands to VFD through communication. The default unit for this setting is the or otherwise (can be known from 2110h bit12.) If the units are Desc, address 213h-2124h can be read.							1100: 12th step speed		
1110: Har step speed       Frequency switching function, check address 2017h.         b12       1: Enable b11-b6       Enable multi-step speed and frequency and acceleration or deceleration time switching function       Bits in this column are used for enforcedly switching operation command source through communication. If VFD operation command by Pr. setting       Bits in this column are used for enforcedly switching operation command source through communication. If VFD operation command source through communication, you can use the bits in this column to enforcedly switch to communication or restore to parameter setting.         2       LSB       11: Switch between PU and Pr. setting       NFD multi-unit setup command       1. Bits in this column are used for issuing setting commands to VFD through communication. The default unit for this setting is Hz or otherwise (can be known from 211Dh bit12-bit2)         3       MSB       Speed Set Point Command       VFD Set Point Command       VFD multi-unit setup command       11. Bits in this column are used for issuing setting is Hz or otherwise (can be known from 211Dh bit12-bit2)							1101: 13th step speed		
1       LSB       Speed       201h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command       1. Bits in this column are used for issuing setting communication. The default unit for this setting is 12.0 or this set Desc, address 2123h-2124h can be read.	1	MSB					1110: 14th step speed		
1       LSB       Speed       Speed       201h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command       1. Bits in this column are used for issuing setting is Hz or otherwise known from 21D bit2. If the known from 21D bit3. If the known from 21D bit						1		]	
2         LSB         Speed								Enable multi stop speed and	address 2017h.
2       LSB         3       MSB       Speed Set Point Command       201h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command VFD set Point       1. Bits in this column are used for issuing setting setting commands to VFD through communication. The default unit for this setting setting commands						b12	1: Enable b11–b6	frequency and acceleration or deceleration time switching	
2       LSB         3       MSB       Speed Set Point Command       201h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command VFD set Point       1. Bits in this column are used for issuing setting set point to represent the set point command       1. Bits in this column are used for issuing setting set point command         3       MSB       Speed Set Point Command       2001h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command command       1. Bits in this column are used for issuing setting setting commands to VFD through communication. The default unit for this setting setting 2101h bit/2). If the units are Desc, address 2123h-2124h can be read.					1		00: No function		Bits in this column are used for enforcedly
2       LSB         3       MSB       Speed Set Point Command       201h       W       b15-b0       VFD Set Point Command       VFD set Point Command       VFD multi-unit setup command or address 2123h-2124h can be read.       1. Bits in this column to exist and be known for multication. If VFD operation source setting is not controlled by communication, you can use the bits in through communication. If VFD operation source					1	1		1	-
10: Operation command by Pr. setting       Switching for operation command source setting is not controlled by communication, you can use the bits in this column to enforcedly switch to communication, resulting       source setting is not controlled by communication, you can use the bits in this column to enforcedly switch to communication. The default unit for this setting.         2       LSB       b15       Image: setting set					1				
Image: Communication of the setting     Source     Communication, you can use the bits in this column to enforcedly switch to communication or restore to parameter setting.       2     LSB       3     MSB       Set Point Command       201h     W       b15-b0       VFD set Point Command       VFD multi-unit setup command       for 21Dh bit12). If the units are Desc, address 2123h-2124h can be read.						1		Cuttables for an 1	
2       LSB         3       MSB       Speed Set Point Command       201h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command       1. Bits in this column are used for issuing setting communication. The default unit for this setting commands to VFD through communication. The default unit for this setting 2101h bit 12. If the units are Desc, address 2123h-2124h can be read.						b14-b13			
2       LSB         3       MSB    Speed Set Point Command 2001h W b15-b0 VFD Set Point Command VFD multi-unit setup command VFD multi-unit setup command for 210h bit12. If the units are Desc, address 2123h-2124h can be read.					1		setting	source	
2       LSB         3       MSB    Speed Set Point Command 2001h W b15-b0 VFD Set Point Command VFD multi-unit setup command VFD multi-unit setup command for 210h bit12. If the units are Desc, address 2123h-2124h can be read.					1		11: Switch botwoon DLL and Dr		this column to enforcedly switch to
2     LSB     Speed     Sp									communication or restore to parameter
2       LSB         2       LSB         3       MSB         Set Point Command       2001h         W       b15-b0         VFD Set Point Command         VFD multi-unit setup command         Set Point Command							setung		setting.
2       LSB         3       MSB         Speed Set Point Command       2001h       W       b15-b0       VFD Set Point Command       VFD multi-unit setup command VFD multi-unit setup command       1. Bits in this column are used for issuing setting commands to VFD through communication. The default unit for this setting is Hz or otherwise (can be known from 211Dh bit12). If the units are Desc, address 2123h-2124h can be read.					1	b15			
3 MSB Speed Set Point Command VFD set Point Command VFD set Point Command VFD multi-unit setup command set VFD through communication. The default unit for this setting is Hz or otherwise (can be from the from the set of	2	LSB		1	1				1 Bits in this column are used for issuing
3 MSB Speed Set Point Command 2001h W b15-b0 VFD Set Point Command VFD multi-unit setup command from 211Dh bit12). If the units are Desc, address 2123h-2124h can be read.	-	200			1	1		1	0
3 MSB Set Point Command VFD multi-unit setup command setting is Hz or otherwise (can be known from 211Dh bit12). If the units are Desc, address 2123h–2124h can be read.				1	1	1		1	
3 MSB Set Point Command VED set Point Command VED set Point Command VED multi-unit setup command from 210Dh bit12). If the units are Desc, address 2123h–2124h can be read.			Speed			1	1	1	
3 MSB Command address 2123h–2124h can be read.				2001h	w	b15-b0	VFD Set Point Command	VFD multi-unit setup command	
address 2123h–2124h can be read.	3	MSB							,
			Coiuiu			1	1	1	address 2123h-2124h can be read.
2. Bits in this column work only when VFD					1	1		1	2. Bits in this column work only when VFD
									frequency source parameter is set as the

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								way of communication.
					b0	1:EF (external fault) ON	External Fault (EF) enabled	<ol> <li>This bit is used for triggering an external fault to VFD to stop the running status. The method for stopping can be set by VFD parameter.</li> <li>This bit operates by on-shot method and this fault can only be restored by Fault Reset command.</li> </ol>
4	LSB	VFD Fault/Control	2002h	w	b1	1: Reset	Fault Reset command	This bit is used for resetting the status from Fault to Ready.
		Command	2002n	vv	b2	1: b.b. ON	External B.B. (Base Block) enabled	This bit is used for triggering an external B.B. to VFD to pause the running status. When bit=0 (BB is dismissed), VFD immediately returns to its former status.
					b3	1: HAND-ON/LOC-ON command	HAND/LOCAL frequency operation source enabled	Whether switching HAND/AUTO or LOC/REM would lead to running STOP
					b4	1: AUTO-ON/REM-ON command	AUTO/REMOTE frequency operation source enabled	depends on motor drive's parameter settings.
5	MSB				b15-b5	Not used		
6 7	LSB MSB		2003h	W	b15-b0	Reserved	Reserved	Reserved
8	LSB MSB		2004h	w	b15-b0	Reserved	Reserved	Reserved
9 10	LSB							
10	MSB		2005h	W	b15 <b>-</b> b0	Reserved	Reserved	Reserved
12	LSB		2006h	w	b15-b0	Reserved	Reserved	Reserved
13	MSB		200011	vv	00-010	Reserveu	Reserveu	Reserved
14 15	LSB MSB		2007h	w	b15 <b>-</b> b0	Reserved	Reserved	Reserved
16	LSB							
17	MSB		2008h	W	b15 <b>-</b> b0	Reserved	Reserved	Reserved
18	LSB		2009h	w	b15-b0	Reserved	Reserved	Reserved
19	MSB							

# Table 4: 21xx Input Message (Drive → Host Controller) (Pr.09-30=0)

Bytes	Order	Command	Address	Attribute		Value	Definition	Description
0	LSB	Fault	2100h	R	b7-b0	Error Code	Fault codes	Bits in this column are used for checking if VFD occurs any fault, and using the fault codes to substitute 32XXh to obtain the description strings for the fault.
1	MSB	Status	210011	ĸ	b15–b8	Warn Code	Warning codes	Bits in this column are used for checking if VFD occurs any warnings, and using the warning codes to substitute 33XXh to obtain the description strings for the fault.
					b1–b10	00: RUN LED light off, STOP LED light up (Drive Stop) 01: RUN LED blink, STOP LED light up (Drive Decelerate during the drive stopping) 10: RUN LED light up, STOP LED blink (Drive standby) 11: RUN LED light up, STOP LED light off (Drive Run)	Run and stop status	Bits in this column are used for checking VFD's running status in order to control its LED display.
					b2	1: JOG active	JOG running status	
2	2 LSB				b4–b3	00: REV LED light off, FWD LED light up (Forward) 01: REV LED blink, FWD LED light up (Reverse to Forward) 10: REV LED light up, FWD LED blink (Forward to Reverse) 11: REV LED light up, FWD LED light off (Reverse)	Operation direction status	Bits in this column are used for checking VFD's running direction status in order to control its LED display.
		Operation Status	2101h	R	b5	1: Factory parameters opened	Factory parameter ON/OFF status (not used)	
					b6	Reserved	/	
					b7	1: Operation command controlled by external terminal		Bits in this column are used for checking whether VFD's current operation command source is external terminal or not. If bit=1, external terminal has the highest processing priority. Master communication can obtain control rights only when it switches operation command source by 2000h b14–13.
					b8	1: Main Freq. controlled by communication		Bits in this column are used for checking the current
					b9	1: Main Freq. controlled by external terminal (AI)		VFD frequency command source.
					b10	1: Operation command controlled by Communication		Bits in this column are used for checking whether the current VFD operation command source are communication or not.
3	MSB				b11	1: Parameters been locked	Parameter Lock ON/OFF status	Bits in this column are used for checking whether VFD's parameters are locked or not. If bit=1, the values for reading parameters are always 0.
					b12	0: AC drive stop, 1: AC drive run	VFD actual running output status (RUNNING=1)	
					b13	Jog command	JOG running	

							command	
							status	
							(CMDJOG=1)	
					b14		(	
					b15			
4	LSB							Bits in this column are used for displaying VFD's
5	MSB		2102h	R	b15-b0	Frequency Command		current running frequency command values (2dot value) with its unit Hz.
6	LSB							Bits in this column are used for displaying VFD's
7	MSB		2103h	R	b15-b0	Output Frequency		current output frequency values (two-dot value) with its unit Hz.
8	LSB							Bits in this column are used for displaying VFD's
9	MSB		2104h	R	b15-b0	Output Current		current output current values (one-dot value) with its unit A.
10	LSB							Bits in this column are used for displaying VFD's
11	MSB		2105h	R	b15-b0	DC BUS Voltage		current DC BUS voltage values (one-dot value) with its unit V.
12	LSB							Bits in this column are used for displaying VFD's
13	MSB		2106h	R	b15-b0	Output Voltage		current output voltage values (one-dot value) with its unit V.
14 15	LSB MSB	VFD Variable	2107h	R	b15-b0	Multi-step speed		Bits in this column are used for displaying VFD's current multi-step speed and frequency values.
16	LSB	Monitor						
17	MSB	womor	2108h	R	b15-b0			
18	LSB		2109h	R	b15-b0	Value of the counter		
19	MSB		2109h	ĸ	015-00	value of the counter		
20	LSB		210Ah	R	b15-b0	Power factor angle (0–180.0		
21	MSB		210/11	IN .	010-00	degree)		
22	LSB		210Bh	R	b15-b0	Torque (xxxx.x N-M)		
23	MSB							
24	LSB		210Ch	R	b15-b0	Motor speed (rpm)		
25 26	MSB LSB							
20	MSB		210Dh	R	b15-b0	PG feedback pulse count		
27	LSB							
20	MSB		210Eh	R	b15 <del>-</del> b0	PG reference pulse count		
30	LSB			_			1	
31	MSB		210Fh	R	b15-b0	Output Power (xx.xxkW)	1	

### Table 5: Disconnection Treatment (CMC-EIP01→Drive)

Address	Attribute	Value		Definition	Description	
2505h	R	P9-63	Card Fault	This section is only allowed to be written by the card.	This address can correspond to VFD's communication parameter.	