

Toshiba AS3 Modbus Register Map

Command Registers

Title	VFD Register	Modbus Register	Bit	Function	0	1	Notes	Unit	Range	Initial Value	
Command Word 1 (RS485 Port 2)	FA04	64005	0	Preset speed switching 1	0000 = Preset speed off 0001 to 1111 specifies preset speed 1 to preset speed 15		0001 = Preset speed 1 0010 = Preset speed 2 0011 = Preset speed 3 0100 = Preset speed 4				
			1	Preset speed switching 2							
			2	Preset speed switching 3							
			3	Preset speed switching 4							
			4	V/f switching	V/f 1	V/f 2					
			5	PID control OFF	PID control = ON	PID control = OFF	PID control depends on F359				
			6	Acc/Dec switching	Acc/Dec 1	Acc/Dec 2					
Command Word 1 (Embedded Ethernet)	FA36	64055	7	DC braking	Off	DC braking	Set CMOD = 4: RS485 Port 2 Set CMOD = 2: Embedded Ethernet	0 to 65535	0		
			8	Jog run	Off	Jog run					
			9	Fwd/Rev	Fwd	Rev					
			10	Run/Stop	Stop	Run					
			11	Coast stop	Ready to run	Coast stop					
			12	Emergency off	Off	Emergency off					
			13	Reset	Off	Reset					
			14	Frequency command priority	Off	Priority Active				Overrides FMOD	
15	Run command priority	Off	Priority Active	Overrides CMOD							
Frequency Command: (RS485 Port 2)	FA05	64006					Set FMOD = 22: RS485 Port 2 Set FMOD = 20: Embedded Ethernet 6000 = 60.00 Hz	0.01 Hz	0 to Maximum Frequency	0	
Frequency Command: (Embedded Ethernet)	FA37	64056					Set FMOD = 22: RS485 Port 2 Set FMOD = 20: Embedded Ethernet F856 = # of Motor Poles	1 rpm	0 to 32700 rpm	0	
Motor Speed Command: (RS485 Port 2)	FA19	64026									
Motor Speed Command: (Embedded Ethernet)	FA41	64066									
Command Word 2 (RS485 Port 2)	FA22	64035	0	Speed / Torque control switching	Speed control	Torque control	Clear registers FE76 and FE77	0 to 65535	0		
			1	Integral power clear	Off	Clear					
			2	Not used	-	-					
			3	Brake	Normal	Forced closed					
			4	Preliminary excitation	Normal	Action					
			5	Not used	-	-					
			6	Brake answer back	Brake close	Brake open					
			7	Forced deceleration stop	Normal	Action					
			8	Acc/Dec switching 1	00 = Acc/Dec 1 01 = Acc/Dec 2 10 = Acc/Dec 3 11 = Acc/Dec 4					Acc/Dec 1: ACC, dEC Acc/Dec 2: F500, F501 Acc/Dec 3: F510, F511 Acc/Dec 4: F514, F515	
			9	Acc/Dec switching 2							
Command Word 2 (Embedded Ethernet)	FA38	64057	10	V/f switching 1	00 = V/f 1 01 = V/f 2 10 = V/f 3 11 = V/f 4		V/f 1: Pt, vL, vLv, vb, tHrA V/f 2: Pt = 0, F170, F171, F172, F182 V/f 3: Pt = 0, F174, F175, F176, F183 V/f 4: Pt = 0, F178, F179, F180, F184	0 to 65535	0		
			11	V/f switching 2							
			12	Torque limit switching 1	00 = Torque limit 1 01 = Torque limit 2 10 = Torque limit 3 11 = Torque limit 4		Torque limit 1: F441, F443, F601 Torque limit 2: F444, F445, F185 Torque limit 3: F446, F447, F601 Torque limit 4: F448, F449, F185				
			13	Torque limit switching 2							
			14	Speed control gain switching	Gain 1	Gain 2	Gain 1: F460, F461, F462 Gain 2: F463, F464, F465				
			15	Not used	-	-					
Torque Command (RS485 Port 2)	FA32	64051					Set Pt = 9 or 11 Set F420 = 22: RS485 Port 2 Set F420 = 20: Embedded Ethernet 5000 = 50.00%	0.01%	-250.00 to 250.00	0	
Torque Command (Embedded Ethernet)	FA40	64065									
Terminal Output Data	FA50	64081	0	92/93 Designated data bit 0	Off	On	Examples: 01 / F133 = 92: R1 closes 11 / F133 = 92 / F134 = 94: R1 & R2 closes	0 to 65535	0		
			1	94/95 Designated data bit 1	Off	On					
			2	Not used	-	-					
FM Analog Output Data	FA51	64082					Set FM5L = 31: Communication data output	0.10%	0 to 100.0	0	
AM Analog Output Data	FA52	64083					Set F670 = 31: Communication data output				

Toshiba AS3 Modbus Register Map

Monitor Registers

Title	Real-time Data		Tripped Data		Units	Bit	Function	0	1	Notes	
	VFD Register	Modbus Register	VFD Register	Modbus Register							
Output Frequency	FD00	64769	FE00	65025	0.01 Hz					6000 = 60.00 Hz	
Inverter status 1	FD01	64770	FE01	65026		0	Failure FL	No trip	Tripped	Active during a retry process	
						1	Failure	No trip	Tripped		
						2	Alarm	Off	Alarm		
						3	Undervoltage (MOFF)	Off	Undervoltage		
						4	V/f status	V/f 1	V/f 2		
						5	PID control OFF	PID control = ON	PID control = OFF		
						6	Acc/Dec switching	Acc/Dec 1	Acc/Dec 2		
						7	DC braking	Off	DC braking		
						8	Jog run	Off	Jog run		
						9	Fwd/Rev	Fwd	Rev		
						10	Run/Stop	Stop	Run		
						11	Coast stop	Ready to run	Coast stop		Monitors the ST function and the STO terminlas
						12	Emergency off	Off	Emergency off		
						13	Ready for run 1	Not ready	Ready		No alarms, ST = ON, STO = ON, Run command = ON
						14	Ready for run 2	Not ready	Ready		No alarms
15	HAND/AUTO	AUTO	HAND	Only valid when F750 = 2							
Commanded Frequency	FD02	64771	FE02	65027	0.01 Hz						
Output Current	FD03	64772	FE03	65028	0.01%						
Input Voltage (DC detection)	FD04	64773	FE04	65029	0.01%						
Output Voltage	FD05	64774	FE05	65030	0.01%						
Input Terminal Status	FD06	64775	FE06	65031		0	F Terminal (F111)	Off	On		
						1	R Terminal (F112)				
						2	RES Terminal (F113)				
						3	S1 Terminal (F114)				
						4	S2 Terminal (F115)				
						5	S3 Terminal (F116)				
						6	S4 Terminal (F117)				
						7	S5 Terminal (F118)				
						8	DI11 Terminal (F119)				
						9	DI12 Terminal (F120)				
						10	DI13 Terminal (F121)				
						11	DI14 Terminal (F122)				
						12	DI15 Terminal (F123)				
						13	DI16 Terminal (F124)				
						14	Not used				-
15											
Output Terminal Status	FD07	64776	FE07	65032		0	FP Terminal (F130)	Off	On		
						1	Not used	-	-		
						2	FL Terminal (F132)	Off	On		
						3	R1 Terminal (F133)				
						4	R2 Terminal (F134)				
						5	DQ11 Terminal (F159)				
						6	DQ12 Terminal (F160)				
						7	R4 Terminal (F161)				
						8	R5 Terminal (F162)				
						9	R6 Terminal (F163)				
						10	R4 (B) Terminal (A201)				
						11	R5 (B) Terminal (A202)				
						12	R6 (B) Terminal (A203)				
13 to 15	Not used	-	-								

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Title	Real-time Data		Tripped Data		Units	Bit	Function	0	1	Notes
	VFD Register	Modbus Register	VFD Register	Modbus Register						
CPU Version (Application)			FE08	65033						
Past Trip 1 (newest)			FE10	65041						
Past Trip 2			FE11	65042						
Past Trip 3			FE12	65043						
Past Trip 4			FE13	65044						
Past Trip 5	FD10	64785								
Past Trip 6	FD11	64786								
Past Trip 7	FD12	64787								
Past Trip 8 (oldest)	FD13	64788								
Cumulative run time			FE14	65045	1 hour					
Motor primary frequency	FD15	64790	FE15	65046	0.01 Hz					
Speed feedback frequency (real time)	FD16	64791	FE16	65047	0.01 Hz					
Speed feedback frequency (1-second filter)	FD17	64792	FE17	65048	0.01 Hz					
Output Torque	FD18	64793	FE18	65049	0.01%					
Torque command	FD19	64794	FE19	65050	0.01%					
Torque Current	FD20	64801	FE20	65057	0.01%					
Excitation Current	FD21	64802	FE21	65058	0.01%					
PID Feedback Value	FD22	64803	FE22	65059	0.01 Hz					
Motor Overload	FD23	64804	FE23	65060	0.01%					
ASD Overload	FD24	64805	FE24	65061	0.01%					
DBR Overload	FD25	64806	FE25	65062	1%					
Motor Load	FD26	64807	FE26	65063	1%					
ASD Load	FD27	64808	FE27	65064	1%					
DBR Load	FD28	64809	FE28	65065	1%					
Input Power	FD29	64810	FE29	65066	0.01 kW					
Output Power	FD30	64817	FE30	65073	0.01 kW					
Number of starts	FD32	64819			1 = 1000 starts					
Number of fwd starts	FD33	64820			1 = 1000 starts					
Number of rev starts	FD34	64821			1 = 1000 starts					
RR Input			FE35	65078	0.01%					
RX Input			FE36	65079	0.01%					
II Input			FE37	65080	0.01%					
AI4 Input			FE38	65081	0.01%					
AI5 Input			FE39	65082	0.01%					
AM output value			FE40	65089	0.01%					
FM output value			FE41	65090	0.01%					
Cumulative cooling fan run time	FD41	64834			1 = 10 hours					
Inverter status 2	FD42	64835	FE42	65091		0	Speed / torque control status	Speed control	Torque control	
						1	Integral power clear	Counting	Clearing	
						2	Not used	-	-	
						3	Not used	-	-	
						4	Preliminary excitation	Normal	Active	
						5	Not used	-	-	
						6	Not used	-	-	
						7	Forced deceleration stop	Normal	Active	
						8	Acc/Dec switching 1	00 = Acc/Dec 1 01 = Acc/Dec 2		Acc/Dec 1: ACC, dEC Acc/Dec 2: F500, F501
						9	Acc/Dec switching 2	10 = Acc/Dec 3 11 = Acc/Dec 4		Acc/Dec 3: F510, F511 Acc/Dec 4: F514, F515
						10	V/f switching 1	00 = V/f 1 01 = V/f 2		V/f 1: Pt, vL, vLv, vb, tHrA
11	V/f switching 2	10 = V/f 3 11 = V/f 4		V/f 2: Pt = 0, F170, F171, F172, F182 V/f 3: Pt = 0, F174, F175, F176, F183 V/f 4: Pt = 0, F178, F179, F180, F184						

Toshiba AS3 Modbus Register Map

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Title	Real-time Data		Tripped Data		Units	Bit	Function	0	1	Notes	
	VFD Register	Modbus Register	VFD Register	Modbus Register							
Inverter status 2	FD42	64835	FE42	65091		12	Torque limit switching 1	00 = Torque limit 1 01 = Torque limit 2 10 = Torque limit 3 11 = Torque limit 4	Gain 1	Gain 2	Torque limit 1: F441, F443, F601 Torque limit 2: F444, F445, F185 Torque limit 3: F446, F447, F601 Torque limit 4: F448, F449, F185 Gain 1: F460, F461, F462 Gain 2: F463, F464, F465
						13	Torque limit switching 2				
						14	Speed control gain switching				
						15	Not used	-	-		
FP pulse train output value	FD43	64836			pps						
Run command status	FD45	64838	FE45	65094						0 = Terminal 1 = Operation panel 2 = Embedded Ethernet 3 = RS485 port 1 4 = RS485 port 2 5 = Communication option	
Frequency command status	FD46	64839	FE46	65095						1 = Terminal RR 2 = Terminal RX 3 = Terminal II 4 = Terminal AI4 (option) 5 = Terminal AI5 (option) 10 = Touch wheel 1 (power off or press OK to save) 11 = Touch wheel 2 (press OK to save) 12 = Preset speed 0 (Sr0) 15 = Terminal Up/Down frequency 16 = Pulse train 17 = High resolution pulse train (option) 20 = Embedded Ethernet 21 = RS485 port 1 22 = RS485 port 2 23 = Communication option 255 = Preset speed (except for Sr0)	
Inverter status 4	FD47	64840	FE47	65096		0 to 11	Not used	-	-		
						12	Safe Torque Off (STO)	Off	On		
						13 to 15	Not used	-	-		
PID result frequency	FD48	64841	FE48	65097	0.01 Hz						
Inverter status 3	FD49	64842	FE49	65098		0	R1 Terminal output hold	Off	On	Off	On
						1	FP Terminal output hold	Off	On		
						2 to 9	Not used	-	-		
						10	Running status (during constant run)	Off	On		
						11	Inverter healthy signal				
						12	Acceleration/deceleration completion				
						13	Specified frequency attainment				
14	Running status (during acceleration)										
15	Running status (during deceleration)										
										Heatbeat bit. ON for 1 second then OFF for 1 second Determined by F102 Determined by F101, F102	
Light-Load High-Speed Torque 1	FD50	64849			0.01%						
Light-Load High-Speed Torque 2	FD51	64850			0.01%						
S4/S5 pulse train input value			FE56	65111							
PID set value	FD58	64857	FE58	65113							
My Monitor 1			FE60	65121							
My Monitor 2			FE61	65122							
My Monitor 3			FE62	65123							
My Monitor 4			FE63	65124							
Rated Current			FE70	65137	0.1 A						
Rated Voltage			FE71	65138	0.1 V						
Input cumulative power			FE76	65143	Set by F749						
Output cumulative power			FE77	65144	Set by F749						

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Title	Real-time Data		Tripped Data		Units	Bit	Function	0	1	Notes
	VFD Register	Modbus Register	VFD Register	Modbus Register						
Power circuit board temperature	FD78	64889	FE78	65145	1 degree C					
Part Replacement Alarm Information			FE79	65146						
Cumulative Power On Time			FE80	65153	1 = 10 hours					
Internal temperature 1	FD83	64900	FE83	65156	1 degree C					
Dancer control PID result frequency	FD87	64904			0.01 Hz					
Motor speed (estimated value)	FD90	64913	FE90	65169	rpm					
Motor speed command	FD94	64917	FE94	65173	rpn					
External PID3 set value	FD96	64919			0.01%					
External PID3 feedback value	FD97	64920			0.01%					
External PID3 result value	FD98	64921			0.01%					
External PID4 set value			FE96	65175	0.01%					
External PID4 feedback value			FE97	65176	0.01%					
External PID4 result value			FE98	65177	0.01%					
Current trip	FC90	64657								
Alarm	FC91	64658				0	Overcurrent pre-alarm	Normal	Active	"C" flashes
						1	Inverter overload pre-alarm			"L" flashes
						2	Motor overload pre-alarm			
						3	Overheat pre-alarm			"H" flashes
						4	Overvoltage pre-alarm			"P" flashes
						5	Not used	-	-	
						6	Internal overheat pre-alarm	Normal	Active	"L" flashes
						7	Low-current alarm			
						8	Over-torque alarm			
						9	Braking resistor overload alarm			
						10	Cumulative run time alarm			
						11	Communication option alarm			"t" flashes
						12	RS485 communication alarm			
						13	Power circuit undervoltage alarm		"MOFF" flashes	
						14	Deceleration stop at power failure	-	During stop	"StOP" flashes
			15	Sleep mode	-	"LStP" flashes				
Alarm 2	FC92	64659				0 to 1	Not used	-	-	
						2	Life time alarm	Normal	Active	Bit 0 to Bit 2 of FE79
						3	Over torque alarm			
						4	Over load stall alarm			
						5	Control circuit option alarm		"COFF" flashes	
						6 to 7	Not used	-	-	
						8	PTC alarm	Normal	Active	
			9	II input disconnection alarm	Determined by F644, "A-18" flashes					
			10 to 15	Not used	-	-				