1   Parameter Communication Addresses

1.1   Parameter Data

The parameters involve basic function parameters and monitoring parameters, which are stored in the corresponding parameter group. Basic function parameters are stored in groups F, A, B, C, and H, as listed in the following table.

Parameter data	Group F (read/ write)	F0, F1, F2, F3, F4, F5, F6, F7, F8, F9, FA, FB, FC, FD, FE, and FF
	Group A (read/ write)	A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AB, AC, AD, AE, and AF
	Group B (read/ write)	B0, B1, B2, B3, B4, B5, B6, B7, B8, B9, BA, BB, BC, BD, BE, and BF
	Group C (read/ write)	C0, C1, C2, C3, C4, C5, C6, C7, C8, C9, CA, CB, CC, CD, CE, and CF
	Group H (read/ write)	H1 and H2

The following table lists the addresses for monitoring parameters, which involve the operation command, running status, running parameters, and alarm information.

Monitoring parameters	Status data (read-only)	U0, U2, and 3000H [Note 1]
	Control parameters (write-only)	U3, 1000H, and 2000H to 2004H [Note 1]
	Fault information (read-only)	H0, H3, H4, H5, H6, H7, and H8
	Connector information (read-only)	L0, L1, L2, L3, L4, L5, L6, L7, L8, L9, LA, LB, LC, and LD

Note 1: 1000 H, 2000H to 2004H, and 3000H are Modbus-specific communication addresses.

1.2   Parameter Communication Addresses

There are multiple function parameters in each of the parameter groups F0 to FF and A0 to AF. For example, F0-16 indicates parameter number 16 in group F0. The higher 16 bits of the communication address for a function parameter are the function parameter group ID, and the lower 16 bits are the hexadecimal format of the serial number of the parameter in the function parameter group. For example, the communication address of F0-16 is 0xF010.

Writing basic function parameters and saving them upon power failure indicate frequent operations on the EEPROM, which reduces its service life. Therefore, you can modify some basic function parameters in the RAM through communication without storing them.

For parameters in group F, you can change F in higher bits of the parameter address into 0 to obtain the corresponding RAM address. For example, the communication RAM address of F3-12 is 0x030C.

For parameters in group A, you can change A in higher bits of the parameter address into 4 to obtain the corresponding RAM address. For example, the communication RAM address of A0-05 0x4005.

For parameters in group B, you can change B in higher bits of the parameter address into 5 to obtain the corresponding RAM address. For example, the communication RAM address of B0-05 is 0x5005.

For parameters in group C, you can change C in higher bits of the parameter address into 6 to obtain the corresponding RAM address. For example, the communication RAM address of C0-05 0x6005.

Parameter Groups	Access Address	Parameter Address in RAM
F0 to FE	0xF000 to 0xFEFF	0x0000 to 0x0EFF
A0 to AF	0xA000 to 0xACFF	0x4000 to 0x4CFF
B0 to BF	0xB000 to 0xBFFF	0x5000 to 0x5FFF
C0 to CF	0xC000 to 0xCFFF	0x6000 to 0x6FFF
H0 to H6	0x8000 to 0x88FF	-
U0 to U3	0x7000 to 0x73FF	-
L0 to LD	0x9000 to 0x9DFF	-

Note the following:

● Parameters in group FF cannot be read or modified
● Parameters in groups U0 and U2 are read-only; parameters in group U3 can be read and modified.
● 1000H, 2000H to 2004H, and 3000H are Modbus-specific communication addresses.

1.3   Modbus-specific Parameter Communication Addresses

Table 1–1 Modbus-specific parameter communication addresses

Parameter Address	Parameter Description	Parameter Address	Parameter Description
1000H	Communication reference (decimal) −10000 to +10000	1010H	PID reference
1001H	Running frequency	1011H	PID feedback

Parameter Address	Parameter Description	Parameter Address	Parameter Description
1002H	Bus voltage	1012H	PLC process
1003H	Output voltage	1013H	Pulse input frequency (unit: 0.01 kHz)
1004H	Output current	1014H	Feedback speed (unit: 0.1 Hz)
1005H	Output power	1015H	Remaining running duration
1006H	Output torque	1016H	AI1 voltage before correction
1007H	Running speed	1017H	AI2 voltage before correction
1008H	DI input flag	1018H	AI3 voltage before correction
1009H	DO output flag	1019H	Linear speed
100AH	AI1 voltage	101AH	Current power-on duration
100BH	AI2 voltage	101BH	Current running duration
100CH	AI3 voltage	101CH	Pulse input frequency (unit: 1 Hz)
100DH	Count input	101DH	Communication reference
100EH	Length input	101EH	Actual feedback speed
100FH	Load speed	101FH	Main frequency X
-		1020H	Auxiliary frequency Y

Table 1–2 Description of Modbus-specific parameter addresses

Parameter Address		Parameter Description
Frequency reference 1 set through communication	1000H	Communication reference (decimal) −10000 to +10000 The communication reference is a relative value (percentage). 10000 corresponds to 100.00%, and −10000 corresponds to −100.00%. The communication references apply when the frequency, torque upper limit, V/f separation voltage, PID reference, and PID feedback of the MD520 AC drive are set through communication. As for frequency data, the communication reference is a percentage of the maximum frequency (F0-10). As for torque data, the communication reference is a percentage of the torque upper limit (F2-10 for motor 1 and A2-48 for motor 2).
Frequency reference 2 set through communication	7310H	The unit of the written data is Hz. The number of decimal places is consistent with that defined by F0-22. For example, if the decimal value 1000 is written, the frequency reference is 10.00 Hz when F0-22 is set to 2.
Control command input to AC drive 1 (write-only)	7311H	0: Stop according to the stop mode defined by F6-10 1: Run in forward direction 2: Run in reverse direction 3: Jog in forward direction 4: Jog in reverse direction 5: Coast to stop 6: Stop according to the stop mode defined by F6-10 7: Reset upon fault
Control command input to AC drive 2 (write-only)	2000H	1: Run in forward direction 2: Run in reverse direction 3: Jog in forward direction 4: Jog in reverse direction 5: Coast to stop 6: Decelerate to stop 7: Reset upon fault

Parameter Address		Parameter Description
Read AC drive state 1	3000H -16-	1: Running in forward direction 2: Running in reverse direction 3: Stopped 4: Auto-tuning 5: Faulty
Read AC drive state 2	7044H	Bit0: Running state Bit1: Forward/Reverse direction Bit2: Whether a fault occurs Bit3: Whether the output frequency reaches the frequency reference Bit4: Communication normal flag Bit5 to Bit7: Reserved Bit8 to Bit15: Fault code
Parameter lock password verification	1F00H	If the actual password value is returned, password verification is passed. (If password protection is disabled, that is, the password is 0, 0000H is returned.)
Parameter initialization	1F01H	1: Restore factory settings 4: Restore user parameters from backup 501: Back up current user parameters
DO control	2001H	Bit0: DO1 output control Bit1: DO2 output control Bit2: Relay 1 output control Bit3: Relay 2 output control Bit4: FMR output control Bit5: VDO1 Bit6: VDO2 Bit7: VDO3 Bit8: VDO4 Bit9: VDO5
AO1 control (write-only)	2002H	0 to 7FFF, indicating 0% to 100%
AO2 control (write-only)	2003H	0 to 7FFF, indicating 0% to 100%
Pulse output control (write-only)	2004H	0 to 7FFF, indicating 0% to 100%

Parameter Address		Parameter Description
AC drive fault description	8000H -17-	2: Overcurrent 5: Overvoltage 8: Pre-charge power fault 9: Undervoltage 10: AC drive overload 11: Motor overload 12: Input phase loss 13: Output phase loss 14: Overheat 15: External fault 17: Pre-charge circuit exception 18: Current sampling exception 19: Motor auto-tuning exception 20: Encoder/PG card exception 21: EEPROM fault 22: Encoder card not activated (To be continued)
Continued	Continued	Continued 23: Output short-to-ground 26: Accumulative running duration reach 27: User-defined fault 28: User-defined alarm 29: Accumulative power-on duration reach 30: Output load loss 31: PID feedback loss during running 32: Parameter exception 40: Pulse-by-pulse current limit fault 42: Excessive speed deviation 43: Motor overspeed 45: Motor overtemperature 47: STO fault (To be continued)

Parameter Address		Parameter Description
Continued	Continued -18-	Continued 51: Pole position auto-tuning error 55: Master-slave control fault 56: Self-check fault 1 57: Self-check fault 2 58: Self-check fault 3 59: Self-check fault 4 61: Braking overload 62: Braking transistor fault 63: External alarm 82: Pre-charge contactor fault 85: Timing fault 93: Motor control exception 1 94: Motor control exception 2 159: Auto reset fault 160: Modbus timeout 161: CANopen fault 162: CANlink fault 164: Expansion card fault 174: Input exception protection