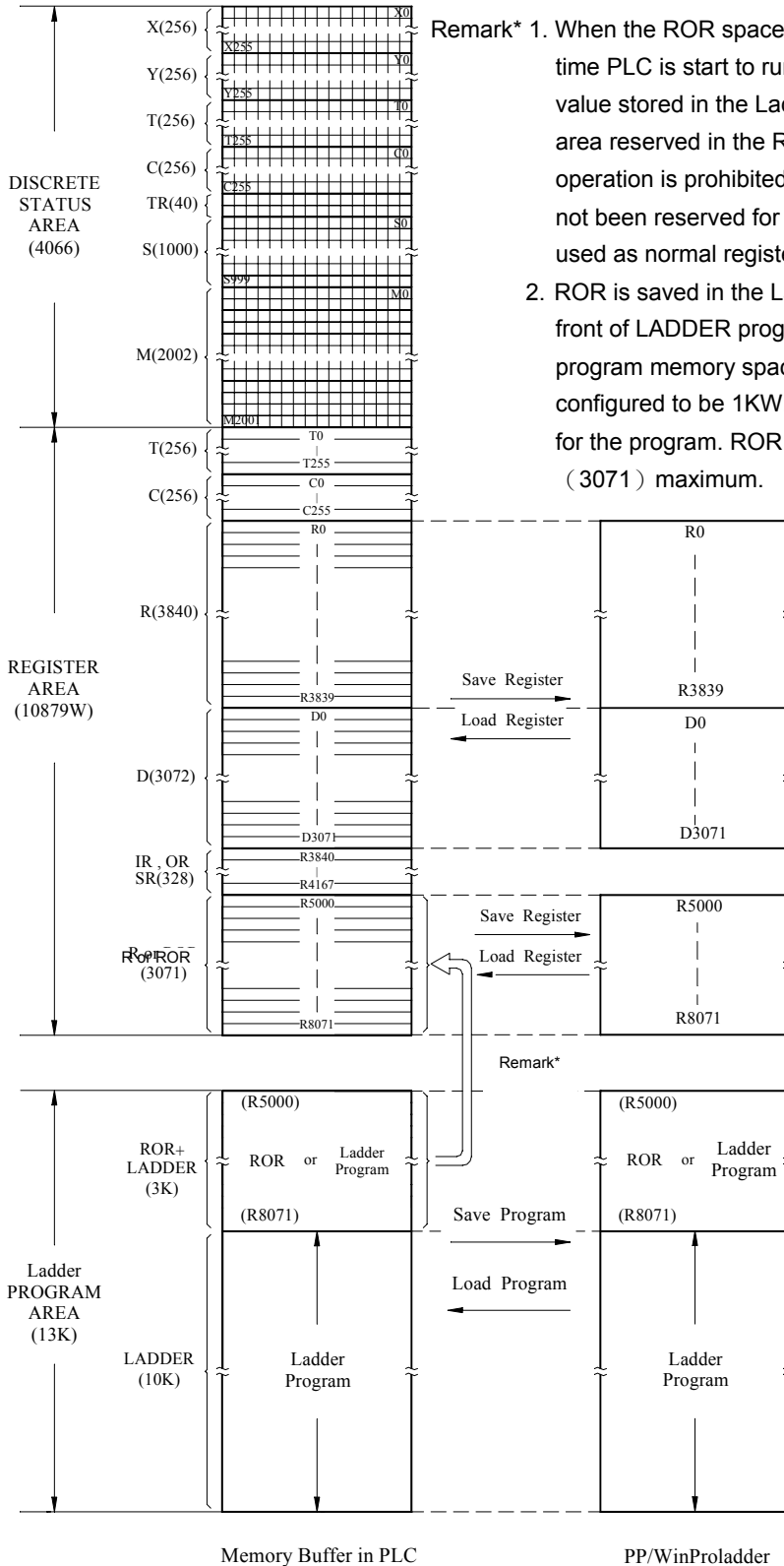


Chapter 3 FB-PLC Memory Allocation

3.1 FB-PLC Memory Allocation



3.2 Digital and Register Allocations

Type	Symbol	Item		Range		Remarks	
Digital 《 Bit status 》	X	Input contact		X0~X255 (256)		Map to external I/O terminals	
	Y	Output contact		Y0~Y255 (256)			
	TR	Temporary Relay		TR0~TR39 (40)		For branched points	
	M	Internal Relays	Non Retentive		M0~M799 (800) M1400~M1911 (512)		M0~M1399 can be configured as Non Retentive or Retentive, M1400~M1911 fixed to Non Retentive
			Retentive		M800~M1399 (600)		
		Special Relay		M1912~M2001 (90)			
	S	Step Relays	Non Retentive		S0~S499 (500)		
			Retentive		S500~S999 (500)		
	T	Timer contact status		T0~T255 (256)			
	C	Counter contact status		C0~C255 (256)			
Register 《 Word Data 》	TMR	Timer Registers (current value)		T0~T255 (256)			
	CTR	Current Register (CV)	16 BIT	Retentive		C0~C139 (140)	
				Non Retentive		C140~C199 (60)	
			32 BIT	Retentive		C200~C239 (40)	
				Non Retentive		C240~C255 (16)	
	DR or HR	Data Registers	Retentive		R0~R2999 (3000) D0~D3071 (3072)		R0~R3839 can configure as Retentive or Non Retentive, D0~D3071 fixed to Non Retentive
			Non Retentive		R3000~R3839 (840)		
	IR	Input Registers		R3840~R3903 (64)		Map to external A/D input point	
	OR	Output Registers		R3904~R3967 (64)		Map to external D/A input point	
	SR (special register)	Special Registers		R3968~R4095 (128) R4136~R4167 (29)		Except R4152~R4154	
		HST Registers		R4152~R4154 (3)		Only provided by MC models	
		HSC Registers	Hardware (4sets)		DR4096~DR4110 (4×4)		
			Software(4sets)		DR4112~DR4126 (4×4)		
		Calendar Registers	Minute	Second	R4129	R4128	
				Day	Hour	R4131	R4130
			Year	Month	R4133	R4132	
Hrs+Min	Week		R4135	R4134			
ROR	ROR Registers		R5000~R8071(3072)		ROR+LADDER program=13KW		
			R5000~R8071 if not configure as ROR registers, can be used as normal registers (write, read)				
XR	Index Registers		V·Z (2)		Please refer to section 6.1 and 6.2 for the indirect addressing		

Remark: All contents in non-retentive relays or registers will be clear to 0 when the PLC is cycled power OFF then ON or when the PLC changes from STOP→RUN. The retentive relays or registers will remain the same state before power off or STOP.

3.3 Special Relay Details

Relay No.	Functions	Description
1. Stop, Prohibited Control		
M1912	Emergency Stop control	<ul style="list-style-type: none"> • If ON PLC will be stopped (but not enter STOP mode) and all output OFF, this bit will be cleared automatically when the power is cycle off then on or the RUN command is executed • All outputs at terminal are turn off but the status of Y0~Y255 inside the PLC will not be affected • If M2001 is 0 or enabled, the disable/enable status of all contacts will be reset to enable each time the PLC is turned on or the PLC changes the state from STOP to RUN. • If M2001 is disabled and force On, the Disable/Enable status of all contacts still can be kept no matter PLC is power off or changes the state from STOP to RUN. While testing, may disable and force On M2001 if it is necessary to disable contacts and keep disabled while STOP or power off. But don't forget to enable the M2001 after testing.
M1913	External outputs disable control	
M2001	Disable/enable status retentive control	
2. CLEAR Control		
M1914	Non Retentive type Relays CLEAR	<ul style="list-style-type: none"> • Cleared When at 1 • Cleared When at 1 • Cleared When at 1 • Cleared When at 1 • If 0, the pulse activated functions within the master control loop will only execute once. <p>For normal application please set this bit to 1 especially for the applications that have pulse activated functions within the master control loop</p> <ul style="list-style-type: none"> • If 0, when the function input EN is 0 (not execute) the status of the coils attached to the function outputs will not be overwritten. • If 1, when the function input EN is 0 (not execute) the status of the coils attached to the function outputs will reflect the actual function output.
M1915	Retentive type Relays CLEAR	
M1916	Non Retentive type registers CLEAR	
M1917	Retentive registers CLEAR	
M1918	Master Control (MC) selection	
M1919	Function output control	
※M1918/M1919 can be set to 0 or 1 at will around the whole program to meet the control requirements.		
3. Pulse Signals		
<ul style="list-style-type: none"> ■ M1920 ■ M1921 ■ M1922 ■ M1923 ■ M1924 ■ M1925 ■ M1926 	<ul style="list-style-type: none"> 0.01S Clock pulse 0.1S Clock pulse 1S Clock pulse 60S Clock pulse Initial (first scan) pulse ② Scan clock pulses ③ Unused 	<p>T(M1920)=0.01S T(M1921)=0.1S T(M1922)=1S T(M1923)=60S</p> <p>T is the pulse period</p> <p>t is the scan time</p>

Relay No.	Functions	Description
■M1927	CTS input status of communication port1	<ul style="list-style-type: none"> •0 : CTS True (ON) •1 : CTS False (OFF) • When communication port 1 is used for connection to a printer or a modem, can use this signal and a timer to detect whether the printer or the modem is ready (ON).
4.Error Messages		
■M1928 ■M1929 ■M1930 ■M1931 ■M1932 ■M1933 ■M1934 ■M1939	Battery energy low Unused No expansion unit or exceed the limit on number of I/O points Immediate I/O not in the main unit range Unused Program control error Unused	<ul style="list-style-type: none"> •1: Indicating battery energy low •1: Indicating no expansion unit or exceed the limit on number of I/O points •1: Indicating that Immediate I/O not in the main unit range and the main unit cannot RUN • 1: Indicating that Return instructions (RTS or RTI) of sub-program or interruption program have been skipped over and cannot be found (system STACK error)
5.HSC0 · HSC1 Controls (for MC only)		
M1940 M1941 M1942 M1943 M1944 M1945 M1946 M1947 M1948 M1949 M1950 M1951	HSC0 software MASK HSC0 software CLEAR HSC0 software direction selection Unused Unused Unused HSC1 software MASK HSC1software CLEAR HSC1 software direction selection Unused Unused Unused	<ul style="list-style-type: none"> •1: MASKED •1: CLEARED •0: Count-up, 1: Count-down •1: MASKED •1: CLEARED •0: Count-up, 1: Count-down
6.RTC control (for MA/MC only)		
M1952 M1953 ■M1954 ■M1955	RTC setting ± 30 second Adjustment RTC installation checking Set value error	<ul style="list-style-type: none"> •Please refer to Chapter 13 of "Advanced Manual" for details
7.Communication PORT1~2 control		
M1956 M1957	Reserved The CV value control after the timer "Time Up" for timer	<ul style="list-style-type: none"> •0: The CV value will continue timing until the upper limit is met after "Time Up". • 1:The CV value will stop at the PV value without further increase after "Time Up" (users may change the M1957 status within the program to control the individual timer).

Relay No.	Functions	Description
M1958	Communication port2 High Speed Network Selection	<ul style="list-style-type: none"> •0: Set Port 2 (RS-485) to Normal Speed LINK. •1: Set Port 2 to High Speed CPU LINK. ※M1958 is only effective at slave station
M1959	Modem dialing mode selection	<ul style="list-style-type: none"> •0: Set dialing by TONE when Communication Port 1 is set to function with Modem. •1: Set dialing by PULSE when Communication Port 1 is set to function with Modem.
M1960	Communication port1 working status	<ul style="list-style-type: none"> •0: Communication Port 1 is transmitting. •1: Communication Port 1 is Ready for next communication command.
M1961	Communication port1 working status	<ul style="list-style-type: none"> •1: Indicating all transactions of FUN 97 (LINK Mode 0) have been completed and will stay ON for 1scan time.
M1962	Communication port2 working status	<ul style="list-style-type: none"> •0: Communication Port 2 is transmitting. •1: Communication Port 2 is Ready for next communication command.
M1963	Communication port2 working status	<ul style="list-style-type: none"> •1: Indicating all transactions of FUN 96 (LINK Mode 0,3) have been completed and will stay ON for 1scan time.
M1964	Modem dialing controls	<ul style="list-style-type: none"> • If Communication Port 1 is connected with Modem, when signal 0→1 will dial the phone number. When signal 1→0 will hang-up the phone.
M1965	Dialing success flag	<ul style="list-style-type: none"> •1: Indicating that dialing is successful (when Communication Port 1 is connected with Modem).
M1966	Dialing fail flag	<ul style="list-style-type: none"> •1: Indicating that dialing has failed (when Communication Port 1 is connected with Modem).
M1967	Communication Port 2 High Speed Network Link working mode Selection	<ul style="list-style-type: none"> •0: Continuous cycle. •1: One cycle only that stops when the last communication transaction is completed (only effective at the master station).
M1968	Step program status	<ul style="list-style-type: none"> •1: Indicating that there are more than 16 active steps in the step program at the same time.
M1969	Indirect addressing illegal write flag	<ul style="list-style-type: none"> •1: Indicating that a function with index addressing has been written to R3840~R4167 area (refer to Section 6.2 for details).
M1970	Port0 status	<ul style="list-style-type: none"> •1: port0 has been received and transmitted a message.
M1971	Port1 status	<ul style="list-style-type: none"> •1: port1 has been received and transmitted a message.
M1972	Port2 status	<ul style="list-style-type: none"> •1: port2 has been received and transmitted a message.
M1973	The CV value counting mode selection after the timer "Time-Up"	<ul style="list-style-type: none"> •0: Indicating that the CV value will continue counting up to the upper limit after "Time-Up". •1: Indicating that the CV value will not increase further after "Time-Up" (the CV value stops at the PV value) (Users may set the M1973 status to have multiple or dynamic selection of counter timing mode) .
M1974	Ramp function(FUN95) slope control	<ul style="list-style-type: none"> •0: Controlled by time. •1: Constant slope
M1975	Drum function (FUN112) limit restriction selection	<ul style="list-style-type: none"> •1: Set when for the circular applications where high limit < low limit
8.HSC2~7 Controls (For MC only if HSC2 & HSC3 are hardware high speed counters)		
M1976	HSC2 software MASK	<ul style="list-style-type: none"> •1: MASKED
M1977	HSC2 software CLEAR	<ul style="list-style-type: none"> •1: CLEARED
M1978	HSC2 software Direction Selection	<ul style="list-style-type: none"> •0: Count-up, 1: Count-down
M1979	HSC3 software MASK	<ul style="list-style-type: none"> •1: MASKED
M1980	HSC3 software CLEAR	<ul style="list-style-type: none"> •1: CLEARED

Relay No.	Functions	Description
M1981	HSC3 software Direction Selection	•0: Count-up, 1: Count-down
M1982	HSC4 software MASK	•1: MASKED
M1983	HSC4 software Direction Selection	•0: Count-up, 1: Count-down
M1984	HSC5 software MASK	•1: MASKED
M1985	HSC5 software Direction Selection	•0: Count-up, 1: Count-down
M1986	HSC6 software MASK	•1: MASKED
M1987	HSC6 software Direction Selection	•0: Count-up, 1: Count-down
M1988	HSC7 software MASK	•1: MASKED
M1989	HSC7 software Direction Selection	•0: Count-up, 1: Count-down
M1990		
	Unused	
M1991		
9.PS0~3 Controls (For MC only)		
M1992	HSPSO PS0 working status	•0: PS0 is sending the pulse •1: PS0 is Ready for new command
M1993	HSPSO PS1 working status	•0: PS1 is sending the pulse •1: PS1 is Ready for new command
M1994	HSPSO PS2 working status	•0: PS2 is sending the pulse •1: PS2 is Ready for new command
M1995	HSPSO PS3 working status	•0: PS3 is sending the pulse •1: PS3 is Ready for new command
M1996	HSPSO PS0 working status	•1: ON when the final step of FUN 140(HSPSO) is completed
M1997	HSPSO PS1 working status	•1: ON when the final step of FUN 140(HSPSO) is completed
M1998	HSPSO PS2 working status	•1: ON when the final step of FUN 140(HSPSO) is completed
M1999	HSPSO PS3 working status	•1: ON when the final step of FUN 140(HSPSO) is completed
M2000	HSPSO Synchronized Multi-Axis Selection	•1: Synchronized Multi-Axis

3.4 Special Registers Details

Register No.	Functions	Description
R3968 R3999	Raw temperature measurement value.	R3968 is for point 1, R3969 is for point 2, and R3999 is for point 32.
R4000	High Byte: Temperature value average selection.	High Byte: 0, no average on temperature 1, average by two readings 2, average by four readings 3, average by eight readings 4, average by sixteen readings
R4001	Low Byte: FUN 85(TPSNS) flag Scaling factor for positive temperature	Low Byte: Maintained by FUN85, do not modify it. Positive temperature value = $\text{raw value} \times R4001 \div 1024$ (unipolar) $\text{raw value} \times 2 \times R4001 \div 1024$ (bipolar)

Register No.	Functions	Description
R4002	Scaling factor for negative temperature	Negative temperature value = $\text{raw value} \times R4002 \div 1024$ (-5V~5V) $\text{raw value} \times 2 \times R4002 \div 1024$ (-10V~10V)
R4003	Thermocouple wire broken threshold value	Default value: 0~10, -10~10V = 901 0~5,0~10V = 451
R4004	Temperature scan time interval between channels (FUN85)	Unit in mS, default 330mS. That is, 24 points of temperature measurement will be completed in 2 seconds.
R4005	High Byte : Temperature control PWM period selection Low Byte: Temperature control PID calculation cycle selection	High Byte : 0, period = 2 sec 1, period = 4 sec 2, period = 8 sec >2, period = 1 sec Low Byte : 0, calculation cycle = 2 sec 1, calculation cycle = 4 sec 2, calculation cycle = 8 sec >2, calculation cycle = 1 sec
R4006	Threshold value for heating control output abnormal detecting	Used for FUN73 & FUN86
R4007	Threshold time for heating control output abnormal detecting	Used for FUN73 & FUN86
R4008	Threshold temperature for heating control output abnormal detecting	Used for FUN73 & FUN86
R4010 R4011	Installed temperature sensor flag	Each bit represent 1 sensor, if bit value = 1 means installed.
R4012 R4013	Temperature PID control flag	Each bit represent 1 temperature point, if bit value = 1 means enable control.
R4014	Temperature scan time interval between channels (FUN72 & FUN73)	Used for FUN72 & FUN73
R4015	Temperature value averaging selection.	=0, no average on temperature =1, average by two readings =2, average by four readings =3, average by eight readings =4, average by sixteen readings
R4016	Scaling factor of positive temperature for K type thermocouple FUN72 & FUN73	Positive temperature value = $\text{raw value} \times R4016 \div 1024$ (unipolar) $\text{raw value} \times 2 \times R4016 \div 1024$ (bipolar)
R4017	Scaling factor of negative temperature for K type thermocouple FUN72 & FUN73	Negative temperature value = $\text{raw value} \times R4017 \div 1024$ (-5V~5V) $\text{raw value} \times 2 \times R4017 \div 1024$ (-10V~10V)
R4018	Scaling factor of positive temperature for J type thermocouple FUN72 & FUN73	Positive temperature value = $\text{raw value} \times R4018 \div 1024$ (unipolar) $\text{raw value} \times 2 \times R4018 \div 1024$ (bipolar)
R4019	Scaling factor of negative temperature for J type thermocouple FUN72 & FUN73	Negative temperature value = $\text{raw value} \times R4019 \div 1024$ (-5V~5V) $\text{raw value} \times 2 \times R4019 \div 1024$ (-10V~10V)

Register No.	Functions	Description
R4020 R4023	Reserved	
R4024 R4025 R4026 R4027 R4028	Analog points detection control Total AI points Total AO points Total DI points Total DO points	<ul style="list-style-type: none"> • If R4024=55AAH, set AI = 8 points AO = 8 points • If R4024=AA55H, analog points can be set manually by writing the R4025 & R4026 • If R4024 is other than above two values then the analog points will detect by system. The scanning result will put in R4025 & R4026
R4029	Ladder checksum counter	
R4030 R4047	Reserved	
R4048	Output signal global off control	If R4048 = 6789H will turn off all output but the input still valid. This can be used for wiring checking.
R4049	CPU running status	= A55AH will force PLC to RUN = 0, Normal STOP = 1, Function in the program not support by this CPU = 2, PLC ID not matched with Program ID = 3, Program error = 4, Abnormal STOP = 5, Watch dog fail = 6, I/O point accessed by program is not available or improper usage of RTS, RTI instruction.
R4050 R4052	Reserved	
R4053	Port2 response delay time	Unit in mS, default 4 mS
R4054	Master station number of the high-speed network CPU link.	If the master station number is 1 can ignore this register. To set the master station number other than 1 should: Low byte : station number High byte: 55H
R4055	PLC station number	<ul style="list-style-type: none"> • If high byte is not equal 55H, R4055 will show the station number of this PLC • If want to set PLC station number then R4055 should set to: Low byte : station number High byte: 55H
R4056	High Byte: High speed pulse output frequency ACC./DEC. control Low Byte: High speed pulse output frequency dynamic control	High Byte: =1, Auto ACC./DEC. while HSPSO frequency is dynamically changed =0, No automatic ACC./DEC. Low Byte: =5AH, can dynamically change HSPSO frequency
R4057	Power off counter	

Register No.	Functions	Description								
R4058	PLC station number with errors	(Port2 High Speed CPU LINK)								
R4059	Port2 High Speed CPU LINK error code	(Port2 High Speed CPU LINK) <table style="margin-left: 40px; border-collapse: collapse;"> <tr> <td style="border: none;"></td> <td style="border: none; text-align: center;">High Byte</td> <td style="border: none; text-align: center;">Low Byte</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">R4059</td> <td style="border: 1px solid black; padding: 2px;">error code</td> <td style="border: 1px solid black; padding: 2px;">error count</td> <td style="border: none; text-align: right;">H</td> </tr> </table> Error code: 0AH, Slave station no response 0BH, Data abnormal (CRC Error) 20H, Parity Error 40H, Framing Error 80H, Over-Run Error		High Byte	Low Byte		R4059	error code	error count	H
	High Byte	Low Byte								
R4059	error code	error count	H							
R4060	HSPSO error code	The error code are: 1: Parameter 0 error 2: Parameter 1 error 3: Parameter 2 error 4: Parameter 3 error 5: Parameter 4 error 7: Parameter 6 error 8: Parameter 7 error 9: Parameter 8 error 10: Parameter 9 error 30: Speed setting reference number error 31: Speed value error 32: Traveling distance reference number error 33: Traveling distance value error 34: Illegal positioning program 35: Step length error 36: Step number exceed 255 37: Highest frequency value error 38: Idle frequency value error 39: Movement compensation value too large 40: Movement value exceed range 41: DRVC instruction not allow ABS addressing								
R4061	HSPSO PS1 error code	Ditto								
R4062	HSPSO PS2 error code	Ditto								
R4063	HSPSO PS3 error code	Ditto								
R4064	The latest step number of completed instruction of PS0 motion program									
R4065	The latest step number of completed instruction of PS1 motion program									
R4066	The latest step number of completed instruction of PS2 motion program									
R4067	The latest step number of completed instruction of PS3 motion program									
R4068	Used by the system									
R4071										
R4072	Low Word of PS0 pulse count remaining for output									

Register No.	Functions	Description
R4073	High Word of PS0 pulse count remaining for output	
R4074	Low Word of PS1 pulse count remaining for output	
R4075	High Word of PS1 pulse count remaining for output	
R4076	Low Word of PS2 pulse count remaining for output	
R4077	High Word of PS2 pulse count remaining for output	
R4078	Low Word of PS3 pulse count remaining for output	
R4079	High Word of PS3 pulse count remaining for output	
R4080	Current PS0 output frequency Low Word	
R4081	Current PS0 output frequency High Word	
R4082	Current PS1 output frequency Low Word	
R4083	Current PS1 output frequency High Word	
R4084	Current PS2 output frequency Low Word	
R4085	Current PS2 output frequency High Word	
R4086	Current PS3 output frequency Low Word	
R4087	Current PS3 output frequency High Word	
R4088	Current Ps value Low Word in PS0	
R4089	Current Ps value High Word in PS0	
R4090	Current Ps value Low Word in PS1	
R4091	Current Ps value High Word in PS1	
R4092	Current Ps value Low Word in PS2	
R4093	Current Ps value High Word in PS2	
R4094	Current Ps value Low Word in PS3	
R4095	Current Ps value High Word in PS3	
<input checked="" type="checkbox"/> R4136 <input checked="" type="checkbox"/> R4137 <input checked="" type="checkbox"/> R4138	Current scan time Maximum scan time Minimum scan time	<ul style="list-style-type: none"> • Error < ± 1 ms • Re-calculate when PLC changes from STOP to RUN
R4139	CPU Status	Bit0=0, PLC STOP =1, PLC RUN Bit1=1, Low battery Bit2=1, Ladder program checksum error Bit3=0, Ladder save in RAM =1, Ladder save in ROM-PACK Bit4=1, Watch-Dog error Bit5=1, MA type CPU Bit6=1, PLC ID Protection enable Bit7=1, Emergency STOP Bit8=0, V1. x version ASIC =1, V2. x version ASIC Bit9=1, V1. x version ladder program Bit10=1, ASIC malfunction Bit11=1, Ladder instruction CPU not support Bit12=0, V2.X version ASIC =1, V3.X version (Bit8=1) ASIC Bit13=1, MU type CPU Bit14=1, Calendar installed Bit15=1, MC type CPU

Register No.	Functions	Description																																																																						
R4140 R4141 R4142 R4143 R4144 R4145	} Telephone Number	• For MC only																																																																						
R4146	Communication Port 1 communication parameter setting	<p>• If R4146 high byte value is not equal to 55H, the default parameters will be:</p> <table border="0"> <tr> <td>Baud Rate 9600</td> <td rowspan="3">}</td> <td rowspan="3">Communication Port 1 is functioning normally or set to Modem or LINK</td> </tr> <tr> <td>Even Parity</td> </tr> <tr> <td>7 Data Bit</td> </tr> <tr> <td>1 Stop Bit</td> <td rowspan="3">}</td> <td rowspan="3">Communication Port 1 is set to ASCII Write</td> </tr> <tr> <td>Baud Rate 9600</td> </tr> <tr> <td>Even Parity</td> </tr> <tr> <td>8 Data Bit</td> <td rowspan="2">}</td> <td rowspan="2"></td> </tr> <tr> <td>1 Stop Bit</td> </tr> </table> <p>• If R4146 high byte value = 55H, the communication parameters are defined by low byte. Details are described as below:</p> <table border="0" style="margin-left: 40px;"> <tr> <td></td> <td style="text-align: center;">High Byte</td> <td style="text-align: center;">Low Byte</td> <td></td> </tr> <tr> <td>R4146</td> <td style="border: 1px solid black; padding: 2px 10px;">55</td> <td style="border: 1px solid black; padding: 2px 10px;">Communication Parameter</td> <td style="padding-left: 5px;">H</td> </tr> </table> <p>※ Each bit of R4146 low byte is defined as below:</p> <table border="1" style="margin-left: 40px; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="3">Bit</th> <th rowspan="2">Value</th> <th rowspan="2">Baud Rate</th> </tr> <tr> <th>B2</th> <th>B1</th> <th>B0</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>19200</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>1</td><td>9600</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>2</td><td>4800</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>3</td><td>2400</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>4</td><td>1200</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>5</td><td>600</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>6</td><td>Cannot be used</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>7</td><td>38400</td></tr> </tbody> </table> <p>B3: must be 0 B4: =0, 1 STOP Bit =1, 2 STOP Bit B5: =0, None Parity =1, With Parity B6: =0, 7 Data Bit =1, 8 Data Bit B7: =0, Even Parity =1, Odd Parity (R4146 default value = 0)</p>	Baud Rate 9600	}	Communication Port 1 is functioning normally or set to Modem or LINK	Even Parity	7 Data Bit	1 Stop Bit	}	Communication Port 1 is set to ASCII Write	Baud Rate 9600	Even Parity	8 Data Bit	}		1 Stop Bit		High Byte	Low Byte		R4146	55	Communication Parameter	H	Bit			Value	Baud Rate	B2	B1	B0	0	0	0	0	19200	0	0	1	1	9600	0	1	0	2	4800	0	1	1	3	2400	1	0	0	4	1200	1	0	1	5	600	1	1	0	6	Cannot be used	1	1	1	7	38400
Baud Rate 9600	}	Communication Port 1 is functioning normally or set to Modem or LINK																																																																						
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1	0	0	4	1200																																																																				
1	0	1	5	600																																																																				
1	1	0	6	Cannot be used																																																																				
1	1	1	7	38400																																																																				

Register No.	Functions	Description
R4147	Low byte: Port1 Time out value High byte: Port1 inter message delay time	Low byte: Unit in 0.1S, default is 5. LINK instruction uses this time to determine if it still needs to wait the response message. High byte: Transmission delay time between communication transactions of LINK instruction (FUN 97 Mode 0). Unit is 0.01S, default is 0
R4148	Low byte : Port1 fine time out value High byte: End of Frame time value	Low byte: The unit of time value in this byte is 0.01S. If the resolution of time out time for the application must better than 0.1S then can use this byte to set the desired time out value (0~2.55S) When use this byte to control the time out must set the low byte of R4147 to 0 otherwise it will not take effective. The default value of this byte is 0. High byte: Use this byte to control the timing of end of frame detection for the operation of LINK1, LINK2 mode1 and mode2 which do not use END sync. character to determine the end of message. The unit is 0.001S. The default value of this byte is 12.
R4149	Low byte: Port0 wild receiving control High byte: Port1 modem mode selection.	Low byte: =1, PLC will accept all 'application messages' coming from port0 even the target station number in the message is not matched with this PLC. ≠1, PLC only accepts the 'application messages' coming from port0 which target station number is matched with this PLC setting. High byte: =0 , CPU LINK of Port1 is not connected through a Modem. =55H, CPU LINK of Port1 is connected through a Modem.
R4150	Power on I/O service delay time setting	<ul style="list-style-type: none"> • While power on when PLC is ready for I/O operation it will delay by this time before the actual I/O operation is started. The unit is 0.01S. The default value is 100. • The R4151 value will be increased by 1 every 1mS. It can be used for a more precise timing application.
R4151	1ms time base timer register	
R4152	CV register of HSTA high speed timing count (0.1ms)	<ul style="list-style-type: none"> • When HSTA is act as 32-bit cyclic timer
R4153	High Word of HSTA CV register	
R4154	PV register of HSTA	
R4155	Low byte: Port1 wild receiving control High byte: Port2 wild receiving control	Low Byte: =1, PLC will accept all 'application messages' coming from port1 even the target station number in the message is not matched with this PLC setting. High Byte: =1, PLC will accept all 'application messages' coming from port2 even the target station number in the message is not matched with this PLC setting.

Register No.	Functions	Description																																																																																																																		
R4156	Port0 wild programming message receiving control	Low byte: =55H, PLC only accepts the 'programming messages' coming from Port0 which target station number is matched with this PLC. ≠55, PLC will accept all 'programming messages' coming from Port0 even the target station number of the message is not matched with this PLC setting. (Default)																																																																																																																		
R4157	Port2 time out value for non High Speed Link	This register is maintained by system. Do not modify the value of this register.																																																																																																																		
R4158	Port2 communication parameter for Non-High Speed CPU LINK	<ul style="list-style-type: none"> •R4158 High Byte must be 55H, and then the communication parameter can be determined by the low Byte. <table border="1" style="margin-left: 40px;"> <tr> <td></td> <td style="text-align: center;">High Byte</td> <td style="text-align: center;">Low Byte</td> <td></td> </tr> <tr> <td>R4158</td> <td style="border: 1px solid black; text-align: center;">55H</td> <td style="border: 1px solid black; text-align: center;">Communication Parameters</td> <td>H</td> </tr> </table> <ul style="list-style-type: none"> • Each bit of 4158 Low Byte is defined as below: B7=0 · Even Parity =1 · Odd Parity B6=0 · 7 Data Bit =1 · 8 Data Bit B5=0 · None Parity =1 · With Parity B4=0 · 1 Stop Bit =1 · 2 Stop Bit <table border="1" style="margin-left: 40px;"> <thead> <tr> <th colspan="4">BIT</th> <th rowspan="2">Value</th> <th rowspan="2">Baud Rate</th> </tr> <tr> <th>B3</th> <th>B2</th> <th>B1</th> <th>B0</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>4800</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>9600</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>0</td><td>2</td><td>19200</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>1</td><td>3</td><td>38400</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>0</td><td>4</td><td>76800</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>1</td><td>5</td><td>153600</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>0</td><td>6</td><td>307200</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>1</td><td>7</td><td>614400</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>0</td><td>8</td><td>9000</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>1</td><td>9</td><td>18000</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>0</td><td>A</td><td>36000</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>1</td><td>B</td><td>72000</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>0</td><td>C</td><td>144000</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>1</td><td>D</td><td>288000</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>0</td><td>E</td><td>576000</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>1</td><td>F</td><td>1152000(Reserved)</td></tr> </tbody> </table> <p style="margin-left: 40px;">The default value of R4158 is 5521H (9600, even parity, 7 data bit, 1 stop bit)</p>		High Byte	Low Byte		R4158	55H	Communication Parameters	H	BIT				Value	Baud Rate	B3	B2	B1	B0	0	0	0	0	0	4800	0	0	0	1	1	9600	0	0	1	0	2	19200	0	0	1	1	3	38400	0	1	0	0	4	76800	0	1	0	1	5	153600	0	1	1	0	6	307200	0	1	1	1	7	614400	1	0	0	0	8	9000	1	0	0	1	9	18000	1	0	1	0	A	36000	1	0	1	1	B	72000	1	1	0	0	C	144000	1	1	0	1	D	288000	1	1	1	0	E	576000	1	1	1	1	F	1152000(Reserved)
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1	1	1	1	F	1152000(Reserved)																																																																																																															

Register No.	Functions	Description																
R4159	Low byte: Port2 time out value High byte: Transaction delay time for Port2 mode0 operation	Low byte : Unit in 0.01S, default is 50. LINK2 instruction uses this time to determine if it still needs to wait the response message. High byte: Transmission delay time between communication transactions of LINK2 instruction (FUN 96 Mode 0). Unit in 0.01S, default is 0.																
R4160	Port2 time out value for High Speed CPU LINK	This register is maintained by system. Do not modify the register value.																
R4161	Port2 communication parameter for High Speed CPU LINK	<ul style="list-style-type: none"> The definition of communication parameter word is the same as that for R4158 but with the following exceptions Data Bit is fixed as 8 Bit Baud Rate must \geq 38400 <p>Default value is 5565H (153600 bps, 8 data bit, even parity, 1 stop bit)</p>																
R4162	Time base interrupt enable/disable control.	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>B7</td><td>B6</td><td>B5</td><td>B4</td><td>B3</td><td>B2</td><td>B1</td><td>B0</td> </tr> <tr> <td>100mS</td><td>50mS</td><td>10mS</td><td>5mS</td><td>4mS</td><td>3mS</td><td>2mS</td><td>1mS</td> </tr> </table> <p>Bit=0, Interruption enabled Bit=1, Interruption disabled</p>	B7	B6	B5	B4	B3	B2	B1	B0	100mS	50mS	10mS	5mS	4mS	3mS	2mS	1mS
B7	B6	B5	B4	B3	B2	B1	B0											
100mS	50mS	10mS	5mS	4mS	3mS	2mS	1mS											
R4163	Modem dialing control setting	<p>Low byte:</p> <p>=1, Ignore the dialing tone and the busy tone when dialing. =2, Wait the dialing tone but ignore the busy tone when dialing. =3, Ignore the dialing tone but detect the busy tone when dialing. =4, Wait the dialing tone and detect the busy tone when dialing. =Any other value treated as value equal 4.</p>																
R4164	V index register																	
R4165	Z index register																	
R4166	Reserved by the system																	
R4167	Total I/O points of main PLC unit	<p>=1, 20-point main unit. =2, 28-point main unit. =3, 40-point main unit.</p>																

Remark: All the special relays or registers attached with "▼" symbol shown in the above table are write prohibited.
For the special relays attached with "▼" symbol also has following characteristics

- . Forced and Enable/Disable operation is not allowed.
- . Can not referenced by TU/TD transitional contact (contact will always open)