

**WSZ Series
Main Unit**

Model: WSZ-60MCT2-AC

**製品仕様書
Product Specifications**

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**富士電機株式会社
Fuji Electric Co.,Ltd.**

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1 .Main Unit 共通仕様
Specifications of Main Unit

Item		Specification	Note			
Execution Speed		0.33 us / per Sequence Command				
Program Capacity		20K Words				
Program Memory		SRAM + Lithium battery for Back-up	Option: FLASH ROM			
Sequence Command		36				
Application Command		300 (113 types)	Include Derived Commands			
Flow Chart (SFC) Command		4				
Single Point 《BIT Status》	X	Output Contact(DI)	X0 ~ X255 (256)	Corresponding to External Digital Input Point		
	Y	Output Relay(DO)	Y0 ~ Y255 (256)	Corresponding to External Digital Output Point		
	TR	Temporary Relay	TR0 ~ TR39 (40)			
	M	Internal Relay	Non-retentive	M0 ~ M799 (800)* M1400 ~ M1911 (512)	Can be configured as retentive type	
			Retentive	M800 ~ M1399 (600)*	Can be configured as non-retentive type	
		Special Relay	M1912 ~ M2001 (90)			
	S	Step Relay	Non-retentive	S0 ~ S499 (500)*	S20~S499 can be configured as retentive type	
			Retentive	S500 ~ S999 (500)*	Can be configured as non-retentive type	
	T	Timer "Time Up" Status Contact	T0 ~ T255 (256)			
	C	Counter "Count Up" Status Contact	C0 ~ C255 (256)			
Register 《WORD Data》	TMR	Current	0.01S Time base	T0 ~ T49 (50)*	T0 ~ T255 Numbers for each time base can be flexibly adjusted.	
		Time Value	0.1S Time base	T50 ~ T199 (150)*		
		Register	1S Time base	T200 ~ T255 (56)*		
	CTR	Current Counter Value Register	16-Bit	Retentive	C0 ~ C139 (140)*	Can be configured as non-retentive type
				Non-retentive	C140 ~ C199 (60)*	Can be configured as retentive type
			32-Bit	Retentive	C200 ~ C239 (40)*	Can be configured as non-retentive type
				Non-retentive	C240 ~ C255 (16)*	Can be configured as retentive type
	HR DR	Data Register	Retentive	R0 ~ R2999 (3000)* D0 ~ D3999 (4000)	Can be configured as non-retentive type	
			Non-retentive	R3000 ~ R3839 (840)*	Can be configured as retentive type	
	HR ROR	Data Register	Retentive	R5000 ~ R8071 (3072)*	When not configured as ROR, it can serve as normal register (for read/write)	
Read-only Register			R5000 ~ R8071 can be configured as ROR, default setting is (0)*	ROR is stored in special ROR area and not consume program space		
File Register			F0 ~ F8191 (8192)*	Must save/retrieved via special commands		
IR	Input register	R3840 ~ R3903 (64)	Corresponding to external numeric input			
OR	Output Register	R3904 ~ R3967 (64)	Corresponding to external numeric output			
SR	Special System Register	R3968 ~ R4167 (197) D4000 ~ D4095 (96)	Except R4152 ~ 4154			
Special Register	0.1ms High Speed Timer register		R4152 ~ R4154 (3)		Accuracy : ±20 seconds per day	
	High Speed Counter Register	Hardware(4 sets)	DR4096 ~ DR4110 (4x4)			
		Software (4 sets)	DR4112 ~ DR4126 (4x4)			
	Real Time Calendar Register		R4128 (sec)	R4128 (min)		R4130 (hour)
		R4132 (month)	R4133 (year)	R4134 (week)		
XR	Index Register	V Z (2), P0 ~ P9 (10)				
Interrupt Control	External Interrupt Control		32 (16 point input positive/negative edges)			
	Internal Interrupt Control		8 (1, 2 3, 4, 5, 10, 50, 100 ms)			
0.1 ms High Speed Timer (HST)		1 (16 bits), 4 (32 bits, derived from HHSC)				

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High Speed Counter	Hardware High Speed Counter (HHSC) /32Points	Channels	Total 4		<ul style="list-style-type: none"> • Total number of HHSC and SHSC is 8 • HHSC can change into High Speed Timer with 32 bits/0.1ms Time base.
			Up to 4	Up to 2	
		Counting modes	8 modes (U/D, U/D×2, P/R, P/R×2, A/B, A/B×2, A/B×3, A/B×4)		
	Counting frequency	Up to 200KHz (single-end input)	Up to 20KHz (single-end input)		
	Software High Speed Counter (SHSC) /32Points	Channels	Up to 4		
		Counting modes	3 modes (U/D, P/R, A/B)		
Counting frequency		Maximum sum up to 5KHz			
Communication Interface	Port0 (RS232)		Communication Speed 4.8Kbps ~ 921.6Kbps (9.6Kbps)*		
	Port1(RS232), Port2(RS485)		Communication Speed 4.8Kbps ~ 921.6Kbps (9.6Kbps)*		Port1 ~ 2 talk Original Modbus RTU Master/Slave Communication Protocol
NC Positioning Output (PSO)	Number of Axes		Total 4		
			Up to 4	Up to 2	
	Output Frequency		200KHz single-end transistor output	20KHz single-end transistor output	
	Output Pulse Mode		3 modes (U/D, P/R, A/B)		
Positioning Language		Special Positioning Programming Language			
HSPWM Output	Number of Points		Up to 4		
	Output Frequency		72Hz ~ 18.432KHz (with 0.1 resolution) 720Hz ~ 184.32KHz (with 1 resolution)		
Captured input	Points		Max.36 points (all of main units have the feature)		
			> 10 μs (super high speed/high speed input)		
	Captured pulse width		> 47 μs (medium speed input) > 470 μs (mid/low speed input)		
Setting of Digital Filter	X0 ~ X15		Frequency 14KHz ~ 1.8MHz		Chosen by frequency at high frequencies
			Time constant 0 ~ 1.5 ms/0 ~ 15 ms, adjustable by step of 0.1 ms/1 ms		Chosen by time constant at low frequencies
	X16 ~ X35		Time constant 1 ms~15 ms, adjustable by step of 1ms		

2. 入出力仕様

Digital Input and Output Specifications

DI: 36 points / DO: 24 points

For more DI/DO information, see the next pages.

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入力仕様
Specifications of Digital Input Circuit

Item Specifications		24 VDC Single-end Input				
		Main Unit			Expansion Unit	
		High Speed (HSC)	Medium Speed (HSC)	Midium low Speed (Capture input)	Low Speed	
Maximum input frequency / Accumulated time		200KHz	20KHz(HHSC) Total 5KHz(SHSC)	0.47ms	4.7ms	
Input Signal Voltage		24 VDC±10%				
Input Current Threshold	ON Current	8 mA	4 mA		2.3 mA	
	OFF Current	2 mA	1.5 mA		0.9 mA	
Maximum Input current		10.5 mA	7.6 mA		4.5 mA	
Input Status Indication		Displayed by LED: Lit when "ON", dark when "OFF"				
Isolation Type		Photo coupler signal isolation				
SINK/SRCE Wiring		Via variation of internal common terminal S/S and external common wiring				
List of Input Response Speed for Various Models	WSZ-24MCT2-AC	4(X0,1,4,5)	4 (X8,9,12,13)	6 (X2,3,6,7,10,11)	—	—
	WSZ-32MCT2-AC	6(X0,1,4,5,8,9)	2 (X12,13)	8 (X2,3,6,7,10,11,14,15)	4(X16~19)	—
	WSZ-40MCT2-AC	6(X0,1,4,5,8,9)	2 (X12,13)	8 (X2,3,6,7,10,11,14,15)	8(X16~23)	—
	WSZ-60MCT2-AC	8(X0,1,4,5,8,9,12,13)	—	8 (X2,3,6,7,10,11,14,15)	20(X16~35)	—
	Expansion Unit	—	—	—	—	All Input Points
Noise Filtering Time Constant		DHF(0 ~ 15ms) + AHF(0.47µs)	DHF(0 ~ 15ms) + AHF(4.7µs)	DHF(1 ~ 15ms) + AHF(0.47ms)	AHF(4.7ms)	

HSC : High Speed Counter
 HHSC : Hardware High Speed Counter
 SHSC : Software High Speed Counter
 DHF Digital Hardware Filter
 AHF Analog Hardware Filter

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出力仕様
Specifications of Digital Output Circuit

Item Specification \ Item		Single-End Transistor Output			
		Main Unit			Expansion Unit
		High Speed	Medium Speed	Low Speed	Low Speed
Maximum output Frequency *		200KHz	20KHz	On/Off	On/Off
Working Voltage		5 ~ 30 VDC			
Maximum Load Current	Resistive	0.5 A			0.1 A
	Inductive				
Maximum Voltage Drop / Conducting resistance		0.6 V	2.2 V		
Leakage Current		0.1 mA / 30 VDC			
Maximum Output Delay Time	ON OFF	2 μ s	15 μ s		
	OFF ON		30 μ s		
Output Status Indication		LED is bit when "ON", dark when "OFF"			
Over Current Protection		N/A			
Isolation Type		Photo Coupler Isolation,500VAC,1minute			
Output type		SINK			
List of output Response Speed for Various Models	WSZ-24MCT2-AC	4(Y0~3)	4(Y4~7)	2(Y8,9)	—
	WSZ-32MCT2-AC	6(Y0~5)	2(Y6,7)	4(Y8~11)	—
	WSZ-40MCT2-AC	6(Y0~5)	2(Y6,7)	8(Y8~15)	—
	WSZ-60MCT2-AC	8(Y0~7)	—	16(Y8~23)	—
	Expansion Unit	—	—	—	All output Points

* Half of the maximum frequency while A/B phase output

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3. 環境仕様

Environmental Specifications

Item		Specification	Note
Operating Ambient Temperature	Enclosure equipment	Minimum	5°C
		Maximum	40°C
	Open equipment	Minimum	5°C
		Maximum	55°C
Storage Temperature		-25°C +70°C	Permanent Installation
Relative Humidity (non-condensing, RH-2)		5% ~ 95%	
Pollution Level		Degree II	
Corrosion Resistance		By IEC-68 Standard	
Altitude		2000 m	
Vibration	Fixated by DIN RAIL	0.5G, for 2 hours each along the 3 axes	
	Secured by screws	2G, for 2 hours each along the 3 axes	
Shock		10G, 3 times each along the 3 axes	
Noise Suppression		1500Vp-p, width 1us	
Withstand Voltage		1500VAC, 1 minute	

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