SYSMAC CJ-series CJ2H CPU Units

Setting new standards in high-speed machine control

• Small, Fast, Flexible:

Inheriting and improving CJ1 features, the CJ2 CPU Units is the best choice for the machine control with high-speed and high-capacity.



CJ2H-CPU64

Features

- Even more program memory and data memory.
- Superior high-speed control performance: LOAD instructions execute in 16 ns, SINE instructions in 0.59 μs.
- Maximum throughputs with High-speed interrupt function
- Efficient debugging through highly improved Data tracing
- Secure system from memory error brought by Memory Self-restoration Function
- The more advanced motion control by the lower cost: Synchronous Unit Operation
- Increased I/O throughput speed by Immediate refreshing instructions with direct processing.

Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus,
- UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

CJ2H CPU Units

		Specifications						
Product name	I/O capacity/Mountable Units (Expansion Racks)	Program capacity	Data memory capacity	LD instruction execution time	5 V	24 V	Model	Standards
	2,560 points / 40 Units (3 Expansion Racks max.)	400K steps	832K words DM: 32K words EM: 32K words × 25 banks				CJ2H-CPU68	
CJ2H CPU Units		250K steps	512K words DM: 32K words EM: 32K words × 15 banks			_	CJ2H-CPU67	UC1, N, L, CE
		150K steps	352K words DM: 32K words EM: 32K words × 10 banks	0.016 μs -	0.42 *		CJ2H-CPU66	
		100K steps	160K words DM: 32K words EM: 32K words × 4 banks			CJ2H-CPU65		
		50K steps	160K words DM: 32K words EM: 32K words × 4 banks				CJ2H-CPU64	

* Add 0.15 A per Adapter when using NT-AL001 RS-232C/RS-422A Adapters. Add 0.04 A per Adapter when using CJ1W-CIF11 RS-422A Adapters.

Accessories

The following accessories come with CPU Unit:

Item	Specification			
Battery	CJ1W-BAT01			
End Cover	CJ1W-TER01 (necessary to be mouned at the right end of CPU Rack)			
End Plate	PFP-M (2 pcs)			
Serial Port (RS-232C) Connector	Connector set for serial port connection (D-SUB 9-pin male connector)			

General Specifications

	Item			CJ2H-			
	Item	CPU64	CPU65	CPU66	CPU67	CPU68	
Enclosure		Mounted in a par	iel				
Grounding		Less than 100 Ω					
CPU Rack Dimensio	ons	90 mm × 65 mm	\times 49 mm (H \times D \times V	V)			
Weight		190 g or less					
Current Consumption	on	5 VDC, 0.42 A					
	Ambient Operating Temperature	0 to 55°C					
	Ambient Operating Humidity	10% to 90%					
	Atmosphere	Must be free from	n corrosive gases.				
	Ambient Storage Temperature	-20 to 70°C (exc	uding battery)				
	Altitude	2,000 m or less					
	Pollution Degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.					
Use Environment	Noise Immunity	2 kV on power supply line (Conforms to IEC 61000-4-4.)					
Ose Environment	Overvoltage Category	Category II: Conforms to JIS B3502 and IEC 61131-2.					
	EMC Immunity Level	Zone B					
	Vibration Resistance	Conforms to JIS C60068-2-6. 5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz Acceleration of 9.8 m/s ² for 100 min in X, Y, and Z directions (10 sweeps of 10 min ead 100 min total)					
	Shock Resistance	Conforms to JIS C60068-2-27. 147 m/s ² , 3 times in X, Y, and Z directions (100 m/s ² for Relay Output Units)					
Dattan	Life	5 years at 25°C					
Battery	Model	CJ1W-BAT01					
Applicable Standard	ds	Conforms to cUL	us and EC Directive	es.			

Performance Specifications

Items				CJ2H-				
			CPU64	CPU65	CPU66	CPU67	CPU68	
User Memor	У		50K steps	100K steps	150K steps	250K steps	400K steps	
/O Bits	Overhead Dra		2,560 bits					
	Overhead Pro	cessing lime	Normal Mode: 100 µs					
	Execution Tim	le	Basic Instructions: 0. Special Instructions:	0.048 μs min.	•			
Processing Speed		I/O Interrupts and External Interrupts	Interrupt task startup time : 26 µs or 17 µs * Return time to cyclic task : 11 µs or 8 µs * * When High-speed interrupt function is used					
	Interrupts	Scheduled Interrupts	Return time to cyclic	time : 22 μs or 13 μs task : 11 μs or 8 μs * interrupt function is u	:			
Maximum N	umber of Conne	ectable Units	Total per CPU Rack Total per PLC: 40 Ur	or Expansion Rack: 1 nits max.	0 Units max.;			
Maximum N	umber of Expan	ision Racks	3 max.					
	I/O Area		2,560 bits (160 word	s): Words CIO 0000 to	o CIO 0159			
	Link Area		3,200 bits (200 word	s): Words CIO 1000 to	o CIO 1199			
	Synchronous	Data Refresh Area	1,536 bits (96 words): Words CIO 1200 to	CIO 1295			
	CPU Bus Unit	Area	6,400 bits (400 word	s): Words CIO 1500 to	o CIO 1899			
CIO Area	Special I/O Un	it Area		ds): Words CIO 2000				
	DeviceNet Are			s): Words CIO 3200 to				
	Internal I/O Ar	-	3,200 bits (200 word	s): Words CIO 1300 to ords): Words CIO 380	o CIO 1499			
Work Area			8,192 bits (512 word Cannot be used for e	s): Words W000 to Wexternal I/O.	511			
Holding Are	a		Bits in this area main Words H512 to H153	35: These words can b	511 atus when PLC is turne be used only for functio Ily for internal variable	on blocks. They can b		
Auxiliary Area		 Read-only: 31,744 bits (1,984 words) 7,168 bits (448 words): Words A0 to A447 24,576 bits (1,536 words): Words A10000 to A11535 * Read/write: 16,384 bits (1,024 words) in words A448 to A1471 * * A960 to A1471 and A10000 to A11535 cannot be accessed by CPU Bus Units, Special I/O Units, PTs, and Support Software that do not specifically support the CJ2 CPU Units. 						
Auxiliary Ar	ea		 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 b * A960 to A1471 and 	ords): Words A0 to A4 words): Words A100 its (1,024 words) in w d A10000 to A11535 c	00 to A11535 * /ords A448 to A1471 * cannot be accessed by	CPU Bus Units, Spe	ecial I/O Units, PTs, a	
			 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 b * A960 to A1471 and 	ords): Words A0 to A4 s words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically	00 to A11535 * /ords A448 to A1471 * cannot be accessed by	CPU Bus Units, Spe	ecial I/O Units, PTs, a	
Temporary A			 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 b * A960 to A1471 an Support Software 16 bits: TR0 to TR15 	ords): Words A0 to A4 words): Words A1000 its (1,024 words) in w d A10000 to A11535 c that do not specifically	00 to A11535 * /ords A448 to A1471 * cannot be accessed by	r CPU Bus Units, Spe J Units.	ecial I/O Units, PTs, ar	
Auxiliary Ar Temporary / Timer Area Counter Are	Area		7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 b * A960 to A1471 an Support Software 16 bits: TR0 to TR15 4,096 timer numbers	ords): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically c (T0000 to T4095 (se	00 to A11535 * vords A448 to A1471 * cannot be accessed by y support the CJ2 CPU	r CPU Bus Units, Spe J Units.)	ecial I/O Units, PTs, a	
Temporary / Timer Area Counter Are	Area		 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 b A960 to A1471 an Support Software 16 bits: TR0 to TR15 4,096 timer numbers 4,096 counter number 32k words * DM Area words for C M Bits in the EM Area 	brds): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 co that do not specifically is (T0000 to T4095 (se ers (C0000 to C4095 (Special I/O Units: D2000 a can be addressed eil	00 to A11535 * vords A448 to A1471 * annot be accessed by y support the CJ2 CPU parate from counters)	v CPU Bus Units, Spe J Units.)) vords × 96 Units) rds × 16 Units) These bits cannot be	addressed by CPU B	
Temporary / Timer Area Counter Are DM Area	Area		 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 tit A960 to A1471 an Support Software 16 bits: TR0 to TR15 4,096 timer numbers 4,096 counter numbers 32k words * DM Area words for C 8 bits in the EM Area Units, Special I/O 32k words/bank × 25 *1. Bits in the EM Area Bus Units, Specurits, Specurits *2. EM banks D to 1 that do not special 	brds): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically (T0000 to T4095 (sep ers (C0000 to C4095 (CPU Bus Units: D200 CPU Bus Units: D200 CPU Bus Units: D3000 a can be addressed eit Units, PTs, and Suppor is banks max.: E00_00 is lanks max.: E00_sou ia I /O Units, PTs, and B cannot be accessed fically support the CJ:	00 to A11535 * vords A448 to A1471 * cannot be accessed by y support the CJ2 CPL parate from counters) (separate from timers) (separate from timers) 000 to D29599 (100 wo 000 to D31599 (100 wo 000 to D31599 (100 wo ort Software that do no 000 to E18_32767 ma d either by bit or by wo d Support Software that d by CPU Bus Units. S	v CPU Bus Units, Spe J Units.)) vords × 96 Units) rds × 16 Units) These bits cannot be of specifically suppor ax. *1 *2 rd. These bits canno at do not specifically s Special I/O Units, PTs	addressed by CPU B t the CJ2 CPU Units. t be addressed by CF support the CJ2 CPU	
Temporary / Timer Area Counter Are DM Area	Area		 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 bits (1,536 Read/write: 16,384 bits (1,536 Read/write: 16,384 bits (1,536 A960 to A1471 and support Software 16 bits: TR0 to TR15 4,096 timer numbers 4,096 timer numbers 4,096 timer numbers 4,096 counter numbers 4,096 counter numbers 4,096 timer numbers 32k words/bank × 25 *1. Bits in the EM Area Units, Special I/O 32k words/bank × 25 *1. Bits in the EM Area Bus Units, Spec Units. *2. EM banks D to 1 that do not spec *3. Force-set/reset 1 	brds): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically (T0000 to T4095 (sep ers (C0000 to C4095 (CPU Bus Units: D200 CPU Bus Units: D200 CPU Bus Units: D3000 a can be addressed eit Units, PTs, and Suppor is banks max.: E00_00 is lanks max.: E00_sou ia I /O Units, PTs, and B cannot be accessed fically support the CJ:	00 to A11535 * ords A448 to A1471 * cannot be accessed by y support the CJ2 CPU parate from counters); (separate from timers) 000 to D29599 (100 wo ther by bit or by word.) ort Software that do no 000 to E18_32767 ma d either by bit or by word.) d Support Software that d by CPU Bus Units, S 2 CPU Units.	v CPU Bus Units, Spe J Units.)) vords × 96 Units) rds × 16 Units) These bits cannot be of specifically suppor ax. *1 *2 rd. These bits canno at do not specifically s Special I/O Units, PTs	addressed by CPU B t the CJ2 CPU Units. t be addressed by CF support the CJ2 CPU	
Temporary / Timer Area Counter Are DM Area	Area a Force-S/R	When EM force-S/R function is used #3	 7,168 bits (448 wc 24,576 bits (1,536) Read/write: 16,384 bits (1,536) Read/write: 16,384 bits (1,536) Read/write: 16,384 bits (1,536) A960 to A1471 and support Software 16 bits: TR0 to TR15 4,096 timer numbers 4,096 timer numbers 4,096 counter numbers 4,096 counter numbers 4,096 counter numbers 4,096 timer numbers 4,096 counter numbers 4,096 counter numbers 4,096 timer numbers 4,096 timer numbers 4,096 counter numbers 32k words * DM Area words for C Bits in the EM Area Units, Special I/O 32k words/bank × 25 *1. Bits in the EM A Bus Units, Specularits, Specul	brds): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically (70000 to T4095 (sep ers (C0000 to C4095 (CPU Bus Units: D200 PU Bus Units: D200 PU Bus Units: D200 CPU Bus Units: D200 a can be addressed eit Units, PTs, and Support banks max.: E00_00 rea can be addressed ial I/O Units, PTs, and 8 cannot be accessed ifically support the CJ to the EM Area is enail	00 to A11535 * ords A448 to A1471 * cannot be accessed by y support the CJ2 CPU (separate from counters)) (separate from timers) 000 to D29599 (100 wo to to D31599 (100 wo ther by bit or by word. ort Software that do no 000 to E18_32767 ma J either by bit or by wo d Support Software that d by CPU Bus Units, S 2 CPU Units. bled by specifying a s	v CPU Bus Units, Spe J Units.) ords × 96 Units) rds × 16 Units) These bits cannot be bits specifically suppor ax. *1 *2 rd. These bits canno at do not specifically s Special I/O Units, PTs tart bank in parameter 32K words × 15	addressed by CPU B t the CJ2 CPU Units. t be addressed by CF support the CJ2 CPU s, and Support Softwa er settings. (unit version 32K words × 25	
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Temporary / Timer Area Counter Are DM Area EM Area	Area a a Force-S/R Enabled Banks ters	function is used * 3 When automatic address allocation	 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 to × A960 to A1471 ansupport Software 16 bits: TR0 to TR15 4,096 timer numbers 4,096 counter numbers 4,096 counter numbers 32k words * DM Area words for S DM Area words for S DM Area words for C * Bits in the EM Area Units, Special I/O 32k words/bank × 25 *1. Bits in the EM Area Units, Special I/O 32k words/bank × 25 *2. EM banks D to 1 that do not spec *3. Force-set/reset 1 1.2 or higher) 32K words × 4 banks Bank 0 to 3 Bank 3 IR0 to IR15 These are special re 	brds): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically (T0000 to T4095 (sep ers (C0000 to C4095 (CPU Bus Units: D200 PU Bus Units: D200 PU Bus Units: D300 a can be addressed eit Units, PTs, and Support banks max.: E00_00 rea can be addressed ial I/O Units, PTs, and Banks max.: E00_00 rea can be addressed ial I/O Units, PTs, and 8 cannot be accessed to the EM Area is enal 32K words × 4 banks Bank 0 to 3 Bank 3	00 to A11535 * ords A448 to A1471 * cannot be accessed by parate from counters); (separate from counters); (separate from timers) 000 to D29599 (100 w 00 to D31599 (100 w 0 to D31599	CPU Bus Units, Spe J Units. Second State	addressed by CPU B t the CJ2 CPU Units. t be addressed by CF support the CJ2 CPU s, and Support Softwa er settings. (unit version 32K words × 25 banks Bank 0 to 18 Bank 11 to 18	
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Temporary / Timer Area Counter Are DM Area EM Area EM Area	Area a a Force-S/R Enabled Banks ters Flag Area d	function is used * 3 When automatic address allocation	 7,168 bits (448 wc 24,576 bits (1,536 Read/write: 16,384 to * A960 to A1471 an Support Software 16 bits: TR0 to TR15 4,096 counter numbers 32k words * DM Area words for C * Bits in the EM Area units, Special I/O 32k words/bank × 25 *1. Bits in the EM Area Units, Special I/O 32k words/bank × 25 *1. Bits in the EM Area Units, Spece Units. *2. EM banks D to 1 that do not spec *3. Force-set/reset 1 1.2 or higher) 32K words × 4 banks Bank 0 to 3 Bank 3 IR0 to IR15 These are special re be set so that they a 128 flags 128 MB, 256 MB, or PROGRAM Mode: P MONITOR Mode: P 	ords): Words A0 to A4 words): Words A1000 bits (1,024 words) in w d A10000 to A11535 c that do not specifically is (1,0000 to T4095 (set ers (C0000 to C4095 (CPU Bus Units: D2000 CPU Bus Units: D2000 CPU Bus Units: D3000 a can be addressed eit Units, PTs, and Support is banks max.: E00_00 is baba.: E00_00 is baba.: E00_00 is baba.: E00_00 is baba.:	00 to A11535 * ords A448 to A1471 * cannot be accessed by parate from counters); (separate from counters); (separate from timers) 000 to D29599 (100 w 00 to D31599 (100 w 0 to D31599	CPU Bus Units, Spe J Units. J ords × 96 Units) rds × 16 Units) These bits cannot be ot specifically suppor ax. *1 *2 rd. These bits cannot at do not specifically s gpecial I/O Units, PTs tart bank in parameter 32K words × 15 banks Bank 0 to E Bank 7 to E for indirect addressimmared by all tasks.) n be executed prior to s, such as online edited.	addressed by CPU B t the CJ2 CPU Units. t be addressed by CP support the CJ2 CPU s, and Support Softwa er settings. (unit versi 32K words × 25 banks Bank 0 to 18 Bank 11 to 18 g. (Index Registers c	

		Items				CJ2H-			
				CPU64	CPU65	CPU66	CPU67	CPU68	
Programmir	ng Langi	uages		Ladder Logic (LD), Sequential Function Charts (SFC), Structured Text (ST), and Instruction Lists (IL)					
Function	Maxim	um num	ber of definitions	2,048					
Blocks	Maxim	um num	ber of instances	2,048					
	Туре с	of Tasks		Cyclic tasks Interrupt tasks (Powe tasks)	er OFF interrupt tasks	, scheduled interrupt ta	asks, I/O interrupt tasks,	and external interrupt	
Tasks	Numbe	er of Tas	sks	Cyclic tasks: 128 Interrupt tasks: 256 (Interrupt tasks can t tasks is actually 384		sks to create extra cyc	lic tasks. Therefore, the	total number of cyclic	
	Туре с	of Symbo	bls		an be used only withi Can be used in all tas	n a single task in the F ks in the PLC.	′LC.		
Symbols (Variables)				UDINT BCD (two- ULINT BCD (four- REAL (two-word f LREAL (four-word CHANNEL (word) NUMBER (consta WORD (one-word DWORD (two-wo LWORD (four-wo STRING (1 to 255 TIMER (timer) *2 COUNTER (coun *1. Cannot be used	unsigned binary) unsigned binary) igned binary) igned binary) igned binary) vord unsigned BCD) vord unsigned BCD) vord unsigned BCD) vord unsigned BCD) loating-point) 1 floating-point) 1 floating-point) 1 floating-point) 1 floatage-point) 1 floatage-point 1 floatage-poin	*1			
	Maxim	um Sizo	of Symbol	32k words					
			•						
		•	s (Array Variables)	One-dimensional an					
	Numbe	er of Arr	ay Elements	32,000 elements max.					
	Memo	ry Capao	city	8,000 words		16,000 words	32,000 words		
			-	(Up to 32k words \times 2	25 banks when EM is	specified in CX-Progr	ammer)		
	Numbe	er of Sar	nplings	Bits = 31, one-word	data =16, two-word d	ata = 8, four-word data	a = 4		
Dete	Sampl	ing Cycl	e	1 to 2,550 ms (Unit:	1 ms)				
Data Tracing		r Condit	ions	ON/OFF of specified bit Data comparison of specified word Data size: 1 word, 2 words, 4 words Comparison Method: Equals (=), Greater Than (>), Greater Than or Equals (≥), Less Than (<), Less Than or Equals (≤), Not Equal (≠)					
	Delay	Value		-32,768 to +32,767 ms					
File Memory	/			Memory Card (128, 256, or 512 Mbytes) (Use the Memory Cards provided by OMRON.) EM file memory (Part of the EM Area can be converted for use as file memory.)					
Source/ Comment Memory			ces, comments, res, symbol tables	Capacity: 3.5 Mbytes					
	Logica	al Ports	Logical Ports	8 ports (Used for SEND, RECV, CMND, PMCR, TXDU, and RXDU instructions.)					
	for Co nicatio	mmu-	Extended Logical Ports	64 ports (Used for S	END2, RECV2, CMN	D2, and PMCR2 instru	uctions.)		
	CIP Co		Class 3 (Number of Connections)	Number of connection	ons: 64				
	nicatio Specif	ons ication	UCMM (Non-connection Type)	Maximum number of clients that can communicate at the same time: 32 Maximum number of servers that can communicate at the same time: 40					
Communi-	Periph	eral (US		USB 2.0-compliant E	B-type connector				
cations	- enpir	Baud F		12 Mbps max.					
			nission Distance	5 m max.					
	Seriel		Inssion Distance						
	Serial			Interface: Conforms	IU EIA HS-232U.				
			unications Method	Half-duplex					
			ronization Method	Start-stop					
	Baud Rate								
			Rate	0.3, 0.6, 1.2, 2.4, 4.8 15 m max.	3, 9.6, 19.2, 38.4, 57.	6, or 115.2 (kbps)			

Function Specifications

	F	unctions		Description		
	Minimum Cycle Time			A minimum cycle time can be set. (0.2 to 32,000 ms; Unit: 0.1 ms) The minimum cycle time setting can be changed in MONITOR mode.		
Cycle Time Management	Cycle Time Mo	nitoring		The cycle time is monitored. (0.01 to 40,000 ms; Unit: 0.01 ms)		
	Background Pr	rocessing		Instructions with long execution times can be executed over multiple cycles to prevent fluctuations in the cycle time.		
	Basic I/O		Cyclic Refreshing	Cyclic refreshing of Basic I/O Units, Special I/O Units, and CPU Bus Units		
	Units, Special	I/O Refreshing	Immediate Refreshing	I/O refreshing by immediate refreshing instructions		
	I/O Units, and CPU Bus	nenesiing	Refreshing by IORF	I/O refreshing by IORF instruction		
	Units	Unit Recogn	ition at Startup	The number of units recognized when the power is turned ON is displayed.		
		Input Respo	nse Time Setting	The input response times can be set for Basic I/O Units. The response time can be increased to reduce the effects of chattering and noise at input contacts. The response time can be decreased to enable detecting shorter input pulses.		
	Basic I/O Units	Load OFF F	unction	All of the outputs on Basic I/O Units can be turned OFF when an error occurs in RUN or MONITOR mode.		
Unit (I/O)		Basic I/O Unit Status Monitoring		Alarm information can be read from Basic I/O Units and the number of Units recognized can be read.		
Management		Unit Restart	Bits to Restart Units	A Special I/O Unit or CPU Bus Unit can be restarted.		
	Special I/O Units and CPU Bus Units	Synchronou	s Unit Operation	The start of processing for all the specified Units can be synchronized at a fixed interval. Maximum number of Units: 10 Units (Only Units that support Synchronous Operation Mode can be used.) Synchronous operation cycle: 0.5 to 10ms (default: 2 ms) Maximum number of words for synchronous data refreshing: 96 words (total of all Units)		
		Automatic I/O Allocation at Startup		I/O words can be automatically allocated to the Basic I/O Units that are connected in the PLC to start operation automatically without registering Units into I/O tables.		
	Configuration Management	I/O Table Creation		The current unit configuration can be registered in I/O tables to prevent it from being changed, to reserve words, and to set words.		
		Rack/Slot First Word Settings		The first words allocated to a Units on the Racks can be set.		
	Holding I/O Memory when Changing Operating Modes			The status of I/O memory can be held when the operating mode is changed or power is turned ON. The forced-set/reset status can be held when the operating mode is changed or power is turned ON.		
	File Memory			Files (such as program files, data files, and symbol table files) can be stored in Memory Card, EM File Memory, or Comment Memory.		
Memory Management	Built-in Flash M	lemory		The user program and Parameter Area can be backed up to an internal flash memory when they are transferred to the CPU Unit.		
	EM File Function	on		Parts of the EM Area can be treated as file memory.		
	Storing Commo	ents		I/O comments can be stored as symbol table files in a Memory Card, EM file memory, or comment memory.		
	EM Configurati	on		EM Area can be set as trace memory or EM file memory.		
	Automatic File	Transfer at S	tartup	A program file and parameter files can be read from a Memory Card when the power is turned ON.		
Memory Cards	Program Repla	cement durin	g PLC Operation	The whole user program can be read from a Memory Card to CPU Unit during operation.		
Valus	Function for Re Card	eading and W	riting Data from a Memory	Data in I/O memory in the CPU Unit can be written to a Memory Card in CSV/TXT format. Data in CSV/TXT format in the Memory Card can be read to I/O memory in the CPU Unit.		

	Funct	lion	Description		
Communicati			-		
	Peripheral (USB) Port Peripheral Bus Serial Port Host Link (SYSWAY) Communications No-protocol Communications NT Link Communications		Bus for communications with various kinds of Support Software running on a personal computer. High-speed communications are supported.		
			 Host Link commands or FINS commands placed between Host Link headers and terminators can be sent from a host computer or PT to read/write I/O memory, read/control the operating mode, and perform other operations for PLC. 		
			I/O instructions for communications ports (such as TXD/RXD instructions) can be used for data transfer with peripheral devices such as bar code readers and printers.		
			I/O memory in the PLC can be allocated and directly linked to various PT functions, including status control areas, status notification areas, touch switches, lamps, memory tables, and other objects.		
	Peripheral Bus		Bus for communications with various kinds of Support Software running on a personal computer. High-speed communications are supported.		
	Serial Gateway	,	This gateway enables receiving and automatically converting FINS to the CompoWay/F.		
	Scheduled Interru	pts	Tasks can be executed at a specified interval (minimum of 0.2 ms or 0.1 ms *, Unit: 0.1 ms). * When High-speed interrupt function is used.		
	Power OFF Interru	pts	A task can be executed when CPU Unit's power turns OFF.		
Interrupt	I/O Interrupt Tasks	•	A task can be executed when an input signal is input to an Interrupt Input Unit.		
	External Interrupt		A task can be executed when interrupts are requested from a Special I/O Unit or a CPU Bus Unit.		
	High-speed Interru	pt Function	Improves performance for executing interrupt tasks with certain restrictions.		
	Clock Function		Clock data is stored in memory. Accuracy (Accuracy depends on the temperature.) Ambient temperature of 55° C: -3.5 to +0.5 min error per month Ambient temperature of 25° C: -1.5 to +1.5 min error per month Ambient temperature of 0° C: -3 to +1 min error per month		
	Operation Start Til	me Storage	The time when operating mode was last changed to RUN mode or MONITOR mode is stored.		
Clock	Operation Stop Time Storage		The last time a fatal error occurred or the last time the operating mode was changed to PROGRAM mode is stored.		
	Startup Time Storage		The time when the power was turned ON is stored.		
	Power Interruption Time Storage		The time when the power is turned OFF is stored.		
	Total Power ON Ti	me Calculation	The total time that the PLC has been ON is stored in increments of 10 hours.		
	Power ON Clock D	ata Storage	A history of the times when the power was turned ON is stored.		
		erwritten Time Storage	The time that the user program was last overwritten is stored.		
	Parameter Date St	-	The time when the Parameter Area was overwritten is stored.		
Power	Memory Protection		Holding Area data, DM Area data, EM Area data, Counter Completion Flags, and counter present values are held even when power is turned OFF. CIO Area, Work Area, some Auxiliary Area data, and Timer Completion Flags, timer present values, index registers, and data registers can be protected by turning ON the IOM Hold Bit in the Auxiliary Area, and by also setting the IOM Hold Bit to "Hold" in the PLC Setup.		
Supply Management	Power OFF Detection Time Setting		The detection time for power interruptions can be set. AC power supply: 10 to 25 ms (variable) DC power supply: 2 to 5 ms (C I1W BD020) or 2 to 20 ms (C I1W BD025)		
	Power OFF Detect	ion Delay Time	DC power supply: 2 to 5 ms (CJ1W-PD022) or 2 to 20 ms (CJ1W-PD025) The detection of power interruptions can be delayed: 0 to 10 ms (Not supported by the CJ1W-PD022.)		
	Number of Power	Interruptions Counter	The number of times power has been interrupted is counted.		
Function Blo			Standard programming can be encapsulated as function blocks.		
		ction Block Definitions	Ladder programming or structured text		
	Online Editing		The program can be changed during operation (in MONITOR or PROGRAM mode), except for block programming areas.		
	Force-Set/Reset		Specified bits can be set or reset. Force-set/reset to the EM Area is enabled by specifying a start bank in parameter setting. (unit version 1.2 or higher)		
	Differentiate Monit	toring	ON/OFF changes in specified bits can be monitored.		
Debugging	Data Tracing	-	 The specified I/O memory data can be stored in the trace memory in the CPU Unit. The triggers can be set. The trace data can be uploaded during data tracing using CX-Programmer, which enables continuously logging the data by constantly uploading the trace data (trace data uploading during tracing). Data tracing can be automatically started when operation is started (i.e., when the operating mode is changed from PROGRAM mode to MONITOR or RUN mode). 		
	Storing Location of	of Error when an Error Occurs	The location and task number where execution stopped for a program error is recorded.		
	Storing Location of Error when an Error Occurs Program Check		The programs can be checked for items such as no END instruction and FALS/FAL errors at		

Envolution Envolut		Funct	ion	Description
Self- Generation Even Detection CPU Data UNDP endows and possible constraints. Non-failed encode (PAL) and failed encode (PAL). The failed failed failed (PAL) and failed encode (PAL). The failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL) and failed encode (PAL). The failed (PAL) and failed encode (PAL) and failed encode (PAL)				
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Self- dimensional and the second se		CPU Standby Dete		CPU Bus Units have not been recognized at the startup in RUN or MONITOR mode.
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Memory Self-restoration Function This function performs a parity check on the user program area and self-restoration data.		previous page)		
		Memory Self-resto	ration Function	This function performs a parity check on the user program area and self-restoration data.

	Function		Description
	Simple Backup Function		This function collectively backs up the data in CPU Unit (user programs, parameters, and I/O memory) and internal backup data in the I/O Units.
	Unsolicited Communications		A function that allows the PLC to use Network Communications Instruction to send required FINS commands to a computer connected via a Host Link
Maintenance	Remote Programming and Monitoring		Host Link communications can be used for remote programming and remote monitoring through a Controller Link, Ethernet, DeviceNet, or SYSMAC LINK Network. Communications across network layers can be performed. Controller Link or Ethernet: 8 layers DeviceNet or SYSMAC LINK: 3 layers
	Automatic Online Connection via Network Direct Connection		This function enables automatically connecting to the PLC online when the CX-Programmer is directly connected by a serial connection (peripheral (USB) port or serial port).
	Read Protection using Password	•	This function protects reading and displaying programs and tasks using passwords. Write protection: Set using the DIP switch. Read protection: Set a password using the CX-Programmer.
Convitu	FINS Write Protection		This function prohibits writing by using FINS commands sent over the network.
Security	Unit Name Function		This function allows the users to give any names to the Units. Names are verified at online connection to prevent wrong connection
	Hardware ID Using Lot Numbers		This function sets operation protection by identifying hardware using the user programs according to lot numbers stored in the Auxiliary Area.

Unit Versions

Units	Models	Unit version	
CJ2H CPU Units	CJ2H-CPU6□	Unit version 1.2	
		Unit version 1.1 *	

* Although the product of unit version 1.0 does not exist for the CJ2H CPU unit (CJ2H-CPU6), this unit version 1.1 means that the functions are added based on the same functionality as CJ2H-CPU6-EIP unit version 1.0.

Function Support by Unit Version

Unit Version 1.2 or Later

CX-Programmer version 8.3 or higher must be used to enable using the functions added for unit version 1.2.

Unit	CJ2H CPU Unit		
Model	CJ2H-CPU6□		
Unit version	Unit version 1.2 or higher	Other unit versions	
EM force-set/reset function	Supported.	Not supported.	

Note: User programs that use functions of CJ2H CPU Units with unit version 1.2 or later cannot be used with CJ2H CPU Units with unit version 1.1 or earlier. If an attempt is made to transfer a program that uses any of these functions from the CX-Programmer to a CPU Unit with unit version 1.1 or earlier , an error will be displayed and it will not be possible to download to the CPU Unit.

Unit Version 1.1 or Later

CX-Programmer version 8.1 or higher must be used to enable using the functions added for unit version 1.1.

Note: Although the product of unit version 1.0 does not exist for the CJ2H CPU unit (CJ2H-CPU6^[]), it describes here assuming that the functions are added with unit version 1.1 to the unit version 1.0 functions as well as CJ2H-CPU6^[]-EIP.

Unit	CJ2H CPU Unit	
Model	CJ2H-CPU6□	
Unit version	Unit version 1.1 or higher	
High-speed interrupt function Decreased overhead time for interrupt tasks Minimum interval setting of 0.1 ms for Scheduled Interrupt Task	Supported.	
Changing the minimum cycle time setting in MONITOR mode	Supported.	
Synchronous unit operation function	Supported.	
Addition of Immediate refreshing instruction only for specific Special I/O Units and CPU Bus Units For CJ1W-AD042 : Analog Input Direct Convert AIDC (216) For CJ1W-DA042V : Analog Output Direct Convert AODC (217) For CJ1W-SCU22/32/42 : Direct Receive Via Serial Communications Unit DRXDU (261) Direct Transmit Via Serial Communications Unit DTXDU (262)	Supported.	

Unit Versions and Programming Devices

The following tables show the relationship between unit versions and CX-Programmer versions.

Unit Versions and Programming Devices

		Functions		Required Programming Device				
CPU Unit				CX-Programmer				
				Ver.8.0	Ver.8.1/Ver.8.2	Ver. 8.3 or higher	 Programming Console 	
CJ2H-CPU6 Unit version 1.2	Functions	Using new functions	-	-	-	OK % 3		
	added for unit version 1.2	Not using new functions	-	_	OK *2	ОК		
CJ2H-CPU6□ Unit version 1.1	Functions	Using new functions	-	-	OK *2	ОК	- *4	
	added for unit version 1.1	Not using new functions	-	_	OK *2	ОК		
	Functions for un	Functions for unit version 1.0 *1		-	OK *2	OK		

*1. Although the product of unit version 1.0 does not exist for the CJ2H CPU unit (CJ2H-CPU6), the same functionality as CJ2H-CPU6-EIP unit version 1.0 is indicated here.

*2. CX-Programmer version 8.1 or higher is required to use CJ2 CPU Units (CJ2H-CPU6). However the functions of unit version 1.0 and only High-speed interrupt function and Changing the minimum cycle time setting in MONITOR mode are supported in CX-Programmer version 8.02.
 *3. CX-Programmer version 8.3 or higher is required to use the added functions in CJ2H CPU Units (CJ2H-CPU6) with unit version 1.2.

***4.** A Programming Console cannot be used with a CJ2H CPU Unit.

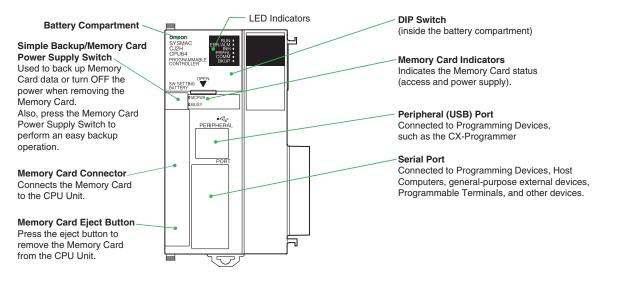
Device Type Setting

The unit version does not affect the setting made for the device type on the CX-Programmer. Select the device type as shown in the following table regardless of the unit version of the CPU Unit.

Series	CPU Unit group	CPU Unit model	Device type setting on CX-Programmer Ver. 8.0 or higher
CJ Series	CJ2H CPU Units	CJ2H-CPU6□	CJ2H

External Interface

A CJ2H CPU Unit (CJ2H-CPU6) provides two communications ports for external interfaces: a peripheral (USB) port and a serial port.



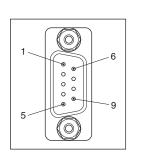
Peripheral (USB) Port

Item	Specification		
Baud Rate	12 Mbps max.		
Transmission Distance	5 m max.		
Interface	USB 2.0-compliant B-type connector		
Protocol	Peripheral Bus		

Serial Port

Item	Specification		
Communications method	Half duplex		
Synchronization	Start-stop		
Baud rate	0.3/0.6/1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2 kbps *		
Transmission distance	15 m max.		
Interface	EIA RS-232C		
Protocol	Host Link, NT Link, 1:N, No-protocol, or Peripheral Bus		

* Baud rates for the RS-232C are specified only up to 19.2 kbps. The CJ Series supports serial communications from 38.4 kbps to 115.2 kbps, but some computers cannot support these speeds. Lower the baud rate if necessary.



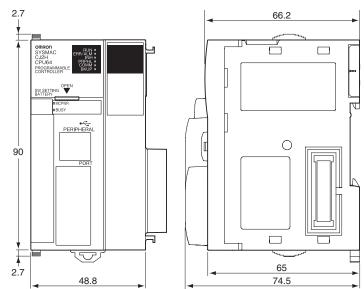
Pin No.	Signal	Name	Direction	
1	FG	Protection earth	-	
2	SD (TXD)	Send data	Output	
3	RD (RXD)	Receive data	Input	
4	RS (RTS)	Request to send	Output	
5	CS (CTS)	Clear to send	Input	
6	5 V	Power supply	-	
7	DR (DSR)	Data set ready	Input	
8	ER (DTR)	Data terminal ready	Output	
9	SG (0 V)	Signal ground	-	
Connector hood	FG	Protection earth	-	

Note: Do not use the 5-V power from pin 6 of the RS-232C port on the CPU Unit for anything but the NT-AL001-E Link Adapter. The external device or the CPU Unit may be damaged.

Dimensions

CJ2H CPU Unit CJ2H-CPU6□





(Unit: mm)

Related Manuals

Cat. No.	Model	Manual	Application	Description	
W472	CJ2H-CPU6□-EIP CJ2H-CPU6□	CJ-series CJ2 CPU Unit Hardware User's Manual	Hardware specifications for CJ2 CPU Units	Describes the following for CJ2 CPU Units: • Overview and features • Basic system configuration • Part nomenclature and functions • Mounting and setting procedure • Remedies for errors • Also refer to the <i>Software User's Manual</i> (W473).	
W473	CJ2H-CPU6□-EIP CJ2H-CPU6□	CJ-series CJ2 CPU Unit Software User's Manual	Software specifications for CJ2 CPU Units	Describes the following for CJ2 CPU Units: • CPU Unit operation • Internal memory • Programming • Settings • Functions built into the CPU Unit Also refer to the Hardware User's Manual (W472)	
W474	CJ2H-CPU6 -EIP CJ2H-CPU6 CS1G/H-CPU -H CS1G/H-CPU -V1 CJ1G/H-CPU -H CJ1G-CPU - CJ1M-CPU - NSJ (B)-G5D NSJ (B)-M3D	CS/CJ/NSJ-series Instructions Reference Manual	Information on instructions	Describes each programming instruction in detail. Also refer to the <i>Software User's Manual</i> (W473) when you do programming.	
W342	CJ2H-CPU6-EIP CJ2H-CPU6 CS1G/H-CPU-H CS1G/H-CPU-H CS1D-CPU-H CS1D-CPU-S CS1W-SCB-V1 CJ1H-CPU-H-R CJ1G/H-CPU-H-R CJ1G-CPU-P CJ1M-CPU-H-R CJ1G-CPU-P CJ1M-CPU-H-R CJ1G-CPU-P CJ1M-SCU-V1 CP1H-X CP1H-XA CP1H-XA CP1H-YA NSJ(B)-G5D NSJ(B)-M3D	CS/CJ/CP/NSJ-series Communications Command Reference Manual	Information on communications for CS/CJ/CP-series CPU Units and NSJ-series Controllers	Describes C-mode commands and FINS commands Refer to this manual for a detailed description of commands for communications with the CPU Unit using C mode commands or FINS commands. Note: This manual describes the communications commands that are addressed to CPU Units. The communications path that is used is not relevant and can include any of the following: serial ports on CPU Units, communications ports on Serial Communications Units/Boards, and Communications Units. For communications commands addressed to Special I/O Units or CPU Bus Units, refer to the operation manual for the related Unit.	
W446		CX-Programmer Operation Manual			
W447	WS02-CX -V	CX-Programmer Operation Manual Functions Blocks	Support Software for Windows computers CX-Programmer operating	Describes operating procedures for the CX-Programmer. Also refer to the <i>Software User's Manual</i> (W473) and <i>Instructions Reference Manual</i> (W474) when you do	
W469	/469	CX-Programmer Operation Manual SFC Programming	procedure	programming.	
W464	CXONE-AL C-V / CXONE-AL D-V	CS/CJ/CP/NSJ-series CX-Integrator Network Configuration Software Operation Manual	Network setup and monitoring	Describes the operating procedures for the CX-Integrator.	
W463	CXONE-AL C-V/ AL D-V	CX-One Setup Manual	Installing software from the CX- One	Provides an overview of the CX-One FA Integrated Tool Package and describes the installation procedure.	

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