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.

Position Control Unit

Unit	Namo	Specifications		No. of unit	Cur consum	rent ption (A)	Model	Standards	
type	Name	Control method/Control output interface	Number of control axes	allocated	5 V system	24 V system	Model	Standards UC1, CE	
	Position	Open lean control by pulse train cutput/	1 axis	1	0.25	-	CJ1W-NC113		
	control unit	Open-collector output	2 axes	1	0.25	-	A) Vem Model Star CJ1W-NC113 CJ1W-NC213 UC1 CJ1W-NC213 CJ1W-NC233 UC1 CJ1W-NC233 CJ1W-NC233 UC1 CJ1W-NC433 CJ1W-NC433 UC1		
	20		4 axes *	2	0.36	-	CJ1W-NC413		
CJ1		39.		1 axis	1	0.25	-	CJ1W-NC133	UC1, CE
Special		Open-loop control by pulse train output/	2 axes	1	0.25	-	CJ1W-NC233		
10 Onits		Line-driver output	4 axes *	2	0.36	Ι	CJ1W-NC433		
	Space Unit	The ambient operation temperature range can be increased to 0 to 55°C if the CJ1W-SP001 CJ-series Space Unit is used.					CJ1W-SP001	UC1, CE	

Note: This unit cannot be used with the Machine Automation Controller NJ-series.

* The ambient operating temperature of the CJ1W-NC413/NC433 is 0 to 50°C. Allowable power supply voltage range for external power supply is 22.8 to 25.2 V DC.

Software

Name	Specifications	Number of licenses	Model	Standards
FA Integrated Tool Package CX-One Ver. 4. □	 The CX-One is a comprehensive software package that integrates Support Software for OMRON PLCs and components. CX-One runs on the following OS. OS: Windows XP (Service Pack 3 or higher, 32-bit version) / Windows Vista (32-bit/64-bit version) / Windows 7 (32-bit/64-bit version) / Windows 8 (32-bit/64-bit version) / Windows 8.1 (32-bit/64-bit version) / Windows 10 (32-bit/64-bit version) CX-One Ver.4. □ includes CX-Position Ver.2. □. For details, refer to the CX-One catalog (Cat. No.R134). 	1 license * DVD	CXONE-AL01D-V4	_

* Multi licenses (3, 10, 30, or 50 licenses) and DVD media without licenses are also available for the CX-One.

Servo Relay Unit/Cables

Name	Applicable units		Applicable drives	Number of control axes	Cable length	Model	Standards
	For CJ1W-NC113/133 (No communication supported)		-	1 axis	-	XW2B-20J6-1B	-
Servo Relay Unit	For CJ1W-NC213/233/413/433 (No communication supported)		-	2 axes	-	XW2B-40J6-2B	
	For CJ1W-NC113/133/213/233/413/433 (Communication supported)		-	2 axes	-	XW2B-40J6-4A	
			OMNUC G/G5 Series,		0.5m	XW2Z-050J-A14	
		For C I1W NC112	SMARTSTEP 2	1 avia	1m	Ingth Model Standard XW2B-20J6-1B - XW2B-40J6-2B - XW2B-40J6-2A - XW2Z-050J-A14 - XW2Z-050J-A14 - XW2Z-050J-A14 - XW2Z-050J-A14 - XW2Z-050J-A14 - XW2Z-050J-A16 - XW2Z-050J-A16 - XW2Z-050J-A15 - XW2Z-050J-A15 - XW2Z-050J-A17 - XW2Z-050J-A17 - XW2Z-050J-A18 - XW2Z-050J-A18 - XW2Z-050J-A18 - XW2Z-050J-A19 - XW2Z-050J-A19 - XW2Z-050J-A19 - XW2Z-050J-A19 - XW2Z-050J-A21 -	
				1 0115	0.5m		
			SMARTSTEF JUNIOL Selles		1m XW2Z-1		
	Open-collector output		OMNUC G/G5 Series,		0.5m	XW2Z-050J-A15	
		Ear C 11W/ NC012/412	SMARTSTEP 2	2 0 0 0 0	1m	XW2Z-100J-A15	
Position		10103100-100213/413	SMARTSTEP Junior Series	2 0,65	0.5m	XW2Z-050J-A17	
Control Unit					1m	XW2Z-100J-A17	
Servo Relay			OMNUC G/G5 Series,	1 avia	0.5m	XW2Z-050J-A18	_
Unit		For C 11W/ NC212	SMARTSTEP 2		1m	XW2Z-100J-A18	
			1 axis 0.5m		0.5m	XW2Z-050J-A20	
	Line driver output		SWARTSTEP JUNIOL Selles		1m	XW2Z-100J-A20	
	Line-unver output		OMNUC G/G5 Series,		0.5m	XW2Z-050J-A19	
			SMARTSTEP 2	- 2 axes	1m	XW2Z-100J-A19	
		FULUJ I W-INC233/413	SMARTSTEP Junior Series		0.5m	XW2Z-050J-A21	
					1m	XW2Z-100J-A21	

Accessories

The Position Control Unit includes the 40-pin solder-type connectors C500-CE404 (socket: Fujitsu FCN-361J040-AU, cover: Fujitsu FCN-360C040-J2).

Applicable Connectors

Name		Specifications	Model
		40 pin, soldered, right angle w/cover (included with the Unit)	C500-CE404
	ji ku	40 pin, crimped right angle w/cover	C500-CE405
External I/O Connectors		40 pin, Pressure welded, w/o cover	C500-CE403
	শে	40 pin, soldered, w/cover	C500-CE401
		40 pin, crimped w/cover	C500-CE402

Mountable Racks

	NJ system		CJ system (CJ1, CJ2)		CP1H system NSJ system *1		stem *1
Model	CPU Rack	Expansion Rack	CPU Rack	Expansion Backplane	CP1H PLC	NSJ Controller	Expansion Backplane
CJ1W-NC113/133/213/233/413/433	Not supported		10 Units	10 Units (per Expansion Backplane)	2 Units *2	Not Supported	8 Units

*1. Product no longer available to order.

*2. CJ Unit Adapter CP1W-EXT01 required.

Specifications

Basic Specifications

Itom	Model						
item	CJ1W-NC113/133	CJ1W-NC213/233	CJ1W-NC413/433				
	5 V DC (for the PCU itself)	5 V DC (for the PCU itself)					
Power supply voltage	24 V DC (external power supply)						
	5 V DC (external power supply; line	driver output only)					
	4.75 to 5.25 V DC (for the PCU itsel	f)					
Allowable power supply voltage range	21.6 to 26.4 V DC (external power s	22.8 to 25.2 V DC (external power supply)					
	4.75 to 5.25 V DC (external power supply; line driver output only)						
Internal current consumption	250 mA max. at 5 V DC	250 mA max. at 5 V DC	360 mA max. at 5 V DC				
Current consumption of external power supply	NC113: 30 mA max. at 24 V DC NC133: 10 mA max. at 24 V DC NC133: 60 mA max. at 5 V DC	NC213: 50 mA max. at 24 V DC NC233: 20 mA max. at 24 V DC NC233: 120 mA max. at 5 V DC	NC413: 100 mA max. at 24 V DC NC433: 30 mA max. at 24 V DC NC433: 230 mA max. at 5 V DC				
External dimensions	90 (H) × 31 (W) × 65 (D) (all models)						
Weight	100 g max.	100 g max.	150 g max.				
Ambient operating temperature	0 to 55°C	0 to 50°C *					

 Note:
 Specifications not listed above conform to CJ Series general specifications.

 *
 Refer to Operation Manual 3-3-5 Mounting Precaution for CJ1W-NC413/NC433 for information on the ambient operating temperature of the CJ1W-NC413/433.

Performance Specifications

	em	Model					
		CJ1W-NC113/133	CJ1W-NC213/233	CJ1W-NC413/433			
Applicable PLC models		CJ-series PLCs *1					
Unit type		Special I/O Unit					
I/O requirements	Words	5 words	10 words	20 words			
Controlled driver		Pulse-train input-type Servo Drive or stepping motor driver NC113/213/413 models have open collector output. NC133/233/433 models have line driver output.					
Control	Control system	Open-loop control by pulse train or	utput				
Control	Number of control axes	1 axis 2 axes 4 axes					
Control unit		Pulse					
Positioning operations		Two types: memory operation and	direct operation				
	Independent	1 axis	2 independent axes	4 independent axes			
	Linear interpolation	None	2 axes max.	4 axes max.			
	Speed control	1 axis	2 independent axes	4 independent axes			
	Interrupt feeding	1 axis	2 independent axes	4 independent axes			
Positions	Range	-1,073,741,823 to 1,073,741,823	pulses *2				
Data items		100/axis					
Speeds Range		1 pps to 500 kpps					
0,0000	Data items	100/axis					
Acceleration and Range		0 to 250 s, until maximum speed is	s reached.				
deceleration times	Data items	9/axis for acceleration and deceler	ation each				
Functions and settings	Origin search	Origin ipot signal: selectable (N.O. or N.C. contact) Origin compensation: -1,073,741,823 to 1,073,741,823 pulses Origin search speed: High-speed or proximity-speed can be set. Origin detection method: May be set to stop upon origin input signal after proximity input signal has turned ON, to stop upon origin input signal after proximity input signal has turned OFF, to stop upon origin input signal without using proximity input signal, or to stop upon origin input signal after limit input signal has turned OFF. N.O. = Normally open N.C. = Normally closed					
	Jogging	Jogging can be executed at a specified speed.					
	Dwell times	19/axis can be set from 0 to 9.99 s (unit: 0.01 s).					
	Acceleration/ deceleration curves	Trapezoidal or S-curve (Can be set separately for each axis.)					
	Zones	Zone Flag turns ON when present position is within a specified zone. Three zones can be set for each axis					
	Software limits	Can be set within a range of -1,073,741,823 to 1,073,741,823 pulses.					
	Backlash compensation	0 to 9,999 pulses. Compensation s	speed can also be set.				
	Teaching	With a command from the PLC, the	e present position can be taken as	the position data.			
	Deceleration stop	The STOP command causes positioning to decelerate to a stop according to the specified deceleration time.					
Functions and settings	Emergency stop	Pulse outputs are stopped by an external emergency stop command.					
	Present position preset	The PRESENT POSITION PRESET command can be used to change the present position to a specifi value.					
	Override	When the override enabling comm applying the override coefficient. P	and is executed during positioning, lossible to set to a value from 1 to 9	the target speed is changed by 99% (by an increment of 1%)			
	Data saving	 Saving to flash memory. (Can be written 100,000 times.) Reading from PLC area by data reading instruction. Reading by Support Software and saving to personal computer hard disk or floppy disk. 					
	Inputs	Prepare the following inputs for ea CW and CCW limit input signals, o signal, positioning completed signa	ch axis: rigin proximity input signal, origin ir al, interrupt input signal	nput signal, emergency stop input			
External I/O	Outputs	Prepare the following outputs for e Pulse outputs CW/CCW pulses, pulse outputs an Either error counter reset or origin-	ach axis: nd direction outputs can be switched adjustment command outputs can	d. be selected depending on the mode.			
Pulse output distribution	period	1-axis operation: 4 ms Linear interpolation: 8 ms					
Response time		Refer to Operation manual Append	dix A Performance Characteristics.				
Self-diagnostic function		Flash memory check, memory loss	s check, CPU bus check				
Error detection function		Overtravel, CPU error, software limit over, emergency stop					

*1. The additional functions supported by unit version 2.0 can be used only when the PCU is installed with a CJ1-H or CJ1M CPU Unit (either CPU Unit Ver. 2.0 or Pre-Ver. 2.0 CPU Unit). These functions cannot be used if the PCU is installed with a CJ1 CPU Unit. For details on Unit versions, refer to *Unit Versions of CJ-series Position Control Units* on Operation manual page vi. (Final order entry date for CJ1M:The end of March, 2021)

*2. When performing linear interpolation, the distances that can be moved will vary.

External Interface



LED Indicators

Name	Color	Status	Explanation
DUN	Croon	Lit	Lit during normal operation.
KUN	Green	Not lit	Hardware error, or PLC notified of PCU error.
FDC	Ded	Lit	An error has occurred.
ERC	Red	Not lit	No error has occurred.
	Ded	Lit	An error has occurred IN the CPU Unit.
ЕКП	Red	Not lit	No error has occurred at the CPU Unit.
		Lit	Pulses are being output to the X axis (either forward or reverse).
х	Orange	Flashing	An error has occurred, such as incorrect cable type for the X axis or faulty data.
		Not lit	None of the above has occurred.
		Lit	Pulses are being output to the Y axis (either forward or reverse).
Y	Orange	Flashing	An error has occurred, such as incorrect cable type for the Y axis or faulty data.
		Not lit	None of the above has occurred.
		Lit	Pulses are being output to the Z axis (either forward or reverse).
Z	Orange	Flashing	An error has occurred, such as incorrect cable type for the Z axis or faulty data.
		Not lit	None of the above has occurred.
		Lit	Pulses are being output to the U axis (either forward or reverse).
U	Orange	Flashing	An error has occurred, such as incorrect cable type for the U axis or faulty data.
		Not lit	None of the above has occurred.

Note: 1. For the CJ1W-NC113/NC133, this applies only to the X axis; for the CJ1W-NC213/NC233, it applies only to the X and Y axes. 2. When not all of the axes are used for the CJ1W-NC213/NC233/ NC413/NC433, either connect the CW/CCW limit inputs for the unused axes to the input power supply and turn them ON or set the contact logic to N.O. Connect the emergency stop to the input common and turn it ON. If it is not connected, the ERC indicator will light. Operation will be normal, however, for all axes that are used.

CJ1W-NC

Functions Supported by Each Unit Version of Position Control Unit

	Unit Version	Pre-Ver. 2.0	Ver. 2.0	Ver. 2.3			
Internal syste	em software version	1.0	2.0	2.3			
CJ-series Po	sition Control Units	CJ1W-NC113/133/213/233/413/433					
	Changing the acceleration for a multiple start during relative movement or absolute movement in direct operation	Not supported	Supported	Supported			
Functions	Changing acceleration/deceleration time during jog operation	Not supported	Supported	Supported			
	Setting acceleration/deceleration time for axis parameters until the target speed is reached	Not supported	Supported	Supported			
	Easy backup function	Not supported	Supported	Supported			
	Setting number of unused axes	Not supported	Not supported	Supported			
	Setting CW/CCW pulse output direction	Not supported	Not supported	Supported			
	Setting origin search pattern	Not supported	Not supported	Supported			
	Position data setting when origin signal stops	Not supported	Not supported	Supported			
	Setting jog operation	Not supported	Not supported	Supported			
	Setting deviation counter reset output signal	Not supported	Not supported	Supported			
	Checking parameters and data at startup	Not supported	Not supported	Supported			
Support Software		CX-Position Ver. 1.0 or later	CX-Position Ver. 1.0 *1 CX-Position Ver. 2.0 or later	CX-Position Ver. 1.0 *1 CX-Position Ver. 2.0 *2 CX-Position Ver. 2.1 *2 CX-Position Ver. 2.2 or later			

Note: The Position Control Unit must be installed with CJ1-H or CJ1M CPU Unit to use the above functions supported for Position Control Unit Ver. 2.0. These functions cannot be used if the Position Control Unit is installed with a CJ1 CPU Unit. (Final order entry date for CJ1M:The end of March, 2021)

*1. With CX-Position Ver. 1.0, new functions added to Position Control Units Ver. 2.0 or higher cannot be used.
*2. With CX-Position Ver. 2.0 and CX-Positon Ver. 2.1, new functions added to Position Control Units Ver. 2.3 or higher cannot be used.

CJ1W-NC

Connecting Connectors Using Servo Relay Units

Wiring requires the dedicated cables.

Position Control Unit Cables, Servo Relay Unit, Servo Drive Cable are sold separately.



The following icons represents applicable servo drives. BP : SMARTSTEP2 GT : OMNUC G Series KT : OMNUC G5 Series UT : OMNUC U Series (1 kW min.) UP : OMNUC U Series (750 W max.)

* Two Servo Drive Cables are required if 2-axis control is performed using one Position Control Unit.

Dimensions

(Unit: mm)

CJ1W-NC113/213/413 NC133/233/433





Note: The above diagram is for the CJ1W-NC413.

Mounted Dimensions



CJ1W-SP001



Related Manuals

Manual number English Japanese		Madal	Nama	Contento		
		Woder	Name	contents		
W397	SBCE-315	CJ1W-NC113/133/213/233/413/433	Position Control Units Operation Manual	Provides information on operating and installing Position Control Units, including details. on basic settings, memory operation, direct operation from CPU and other functions.		
W433	SBCE-324	CXONE-AL	CX-Position Operation Manual	Provides an overview of CX-Position, its functions, and the system configuration, installation, and troubleshooting.		