




Specifications

Motion control unit

<b>Model</b>		<b>CJ1W-MCH71</b>
Classification		CJ-series CPU bus unit
Applicable PLCs		CJ-series V. 2.0 or later
Control method		MECHATROLINK-II (position, speed and torque control)
Controlled devices		Sigma-II series servo drives (ver. 38 or later) with MECHATROLINK-II interface, various I/O units and inverters V7, F7, G7 with MECHATROLINK-II interface (for inverter version support contact your OMRON sales office)
Programming language		BASIC type motion control language
Controlled axes		32 max, including 30 physical or virtual axes and 2 virtual axes
Automatic/manual mode		Automatic mode: mode for executing programs in the unit Manual Mode: mode for executing commands from the CPU unit (via allocated words)
Minimum setting unit		1, 0.1, 0.01, 0.001, 0.0001 (unit: mm, inch, degree, pulse)
Maximum command value		-2,147,483,648 to 2,147,483,647 pulses (32 bits with sign); infinite axis feed mode supported. Example: 16,384 pulses/rev after multiplication, a minimum setting unit of 0.001 mm and 1 mm/rev would result in -1,310,720,000 to 1,310,719,999 command units.
Control functions by command from CPU unit	Servo lock/unlock	Locks and unlocks the servo driver.
	Jogging	Executes continuous feeding for each axis independently at selectable speed.
	Origin search	Determines the machine origin in the direction set in the system parameters. Can be executed with an absolute encoder.
	Absolute origin setting	Sets the origin for when an absolute encoder is used. (Offset value: 32 bits [pulses] with sign)
	Machine lock	Stops the output of move commands to axes.
	Single block	Executes motion programs one block at a time.
Control functions by motion program	Positioning (PTP)	Executes positioning independently for each axis at a specified speed or the speed system parameter. (Simultaneous specification: up to eight axes/block, simultaneous execution: up to 32 blocks/unit)
	Linear interpolation	Executes linear interpolation for up to eight axes at a time at the specified interpolation feed speed. (Simultaneous specification: up to eight axes/block, simultaneous execution: up to 32 blocks/system)
	Circular interpolation	Executes circular interpolation for two axes in either clockwise or counterclockwise at the specified interpolation feed speed. Helical circular interpolation is also possible with single-axis linear interpolation added. (Simultaneous specification: two or three axes/block, simultaneous execution: up to 16 blocks/system)
	Other functions	Origin searches, interrupt feeding, timed positioning, traverse positioning, independent electronic CAM, synchronized electronic CAM, link operation, electronic gear, follow-up synchronization, speed reference, torque reference
Acceleration/deceleration curve, acceleration/deceleration time		Trapezoidal or S-curve, 60,000 ms max. (S-curve: constant 30,000 ms max.)
External I/O		One port for MECHATROLINK-II servo communications, one deceleration stop input, two general inputs, two general outputs
Feed rate		Rapid, interpolation feed rate: 1 to 2,147,483,647 (command units/min)
Override		0.00% to 327.67% (setting unit: 0.01%; Can be set for each axis or task.)
Motion programs	Number of tasks, number of programs	Up to 8 tasks and 256 programs/unit (8 parallel branches per task max.)
	Program numbers	0000 to 0499 for main program; 0500 to 0999 for subroutine
	Program capacity	In motion program conversion, 8,000 blocks/unit max. (2 Mbytes); number of blocks: 800 per program
	Data capacity	Position data: 10,240 points/unit; cam data: 32 max.; 16,000 points/unit
	Subroutine nesting	Five levels max.
	Start	Programs in other tasks can be started from a program or from the PLC
	Deceleration stop	Decelerates to a stop regardless of the block.
	Block stop	Decelerates to a stop after the block being executed is ended.
	Single block	Executes the program one block at a time.
Data exchange with CPU unit	Unit BIT area	Uses one unit number (25 words). Used for unit and tasks: 11 to 25 words (depending on the number of tasks)
	Unit data area	Uses one unit number (100 words). Used for unit and tasks: 32 to 74 words (depending on the number of tasks)
	Axes BIT area	Axes: 0 to 64 words (depending on the maximum axis number used). User configurable.
	Axes data area	Axes: 0 to 128 words (depending on the maximum axis number used). User configurable.
	General purpose	General I/O: 0 to 1,280 words (depending on the settings). User configurable.
Saving programs and data		Memory card backup (in CPU unit, 100,000 times max.)
Self-diagnostic functions		Watchdog, RAM check, etc.
Error detection functions		Deceleration stop inputs, unit number errors, CPU errors, software limit errors, etc.
Error log function		Read by IORD instruction from CPU unit.
Support software		Microsoft Windows 2000 or NT 4.0 (Processor: Pentium, 100 MHz min., with at least 64 MB of memory)
External power supply voltage		24 VDC (21.6 to 26.4 VDC)
Internal current consumption		0.6 A or less for 5 VDC
Weight (not including connectors)		300 g max.



**MECHATROLINK-II Repeater**

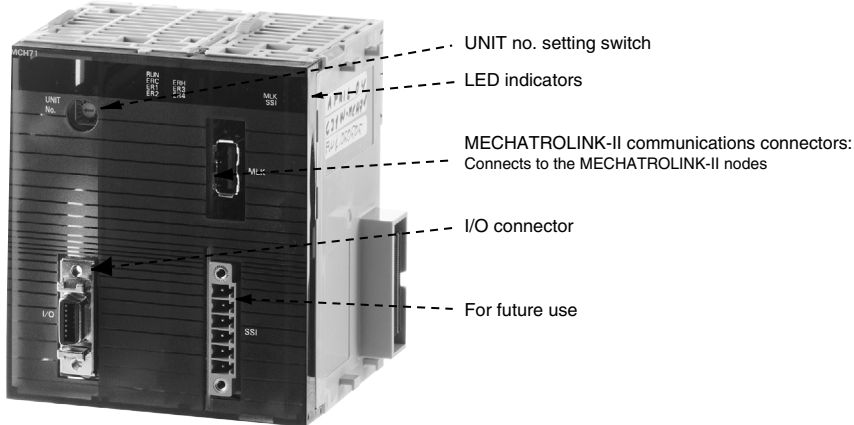
Items	Specifications	Appearance
Model	JEPMC-REP2000	
Communication type	MECHATROLINK-II	
Cable length	Between controller and repeater: 50 m., after repeater: 50 m	
Max. connected stations	Total stations on both sides of repeater: 30 (limited to the max. number of connectable stations of the controller (e.g., 30 stations for the CJ1W-MCH71))	
Restrictions	Between controller and repeater - Total cable length ≤ 30m: 15 stations max. including I/O and servo, etc. - 30 m < total cable length ≤ 50m: 14 stations max. including I/O and servo, etc. After repeater: - Total cable length ≤ 30m: 16 stations max. including I/O and servo, etc. - 30 m < total cable length ≤ 50m: 15 stations max. including I/O and servo, etc.	
Power supply	24 VDC, 100 mA	
Weight	340 g	
Dimensions (mm)	30x160x77 (HxWxD)	

**MECHATROLINK-II, frequency inverter interface units**

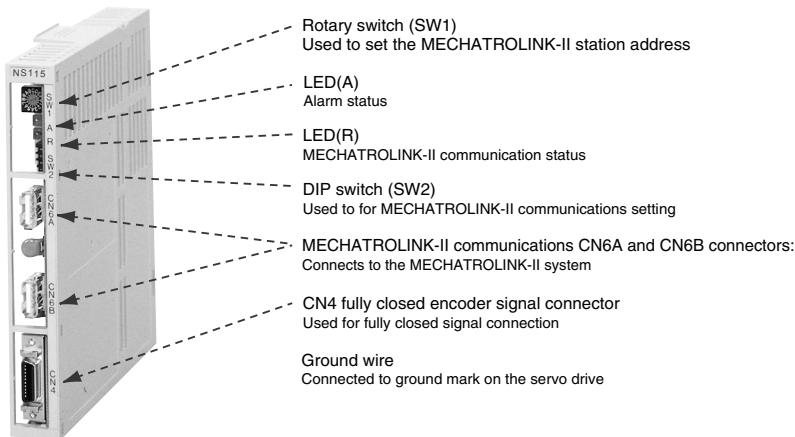
Item	Details	
Type	SI-T/V7	SI-T
Applicable inverter	CIMR-V7 / 3G3-MV (firmware 5740 or newer) Contact your OMRON sales office for information about firmware compatibility	CIMR-G7 / CIMR-F7 (firmware 656x/for G7 / 4011 or newer for F7)
Installation method	Mounted on the inverter	
Power supply	Supplied from the inverter	
MECHATROLINK-II communications	10 MHz, 0.5 ms to 8 ms for MECHATROLINK-II	
Operation	Read and write registers, read monitors, inverter operation, speed reference, torque reference (G7/F7 only).	
Inputs and outputs	The inputs and outputs in the inverter can be read and set by the MLII master	
Connectors	ML-II bus connector. DPRAM connector for the inverter	
Switches	Rotary switch for ML-II address (low byte) Dip switch for: ML-II address (high bit). ML-II/ML-I selection. 17 byte/32 byte data length selection.	

**Nomenclature**

**CJ1W-MCH71 - motion control unit**

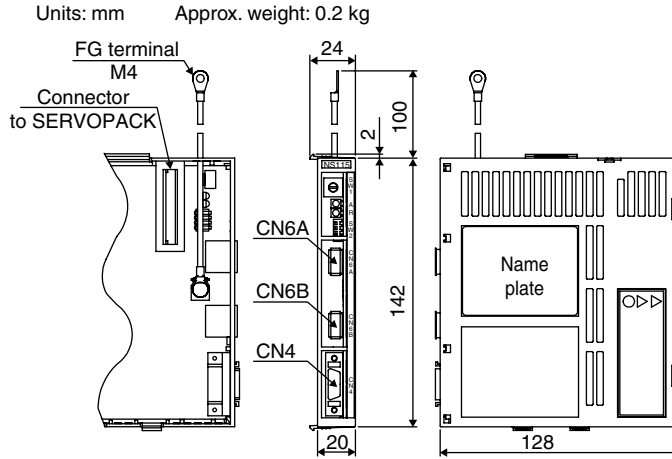


**JUSP-NS115 - MECHATROLINK-II interface unit**



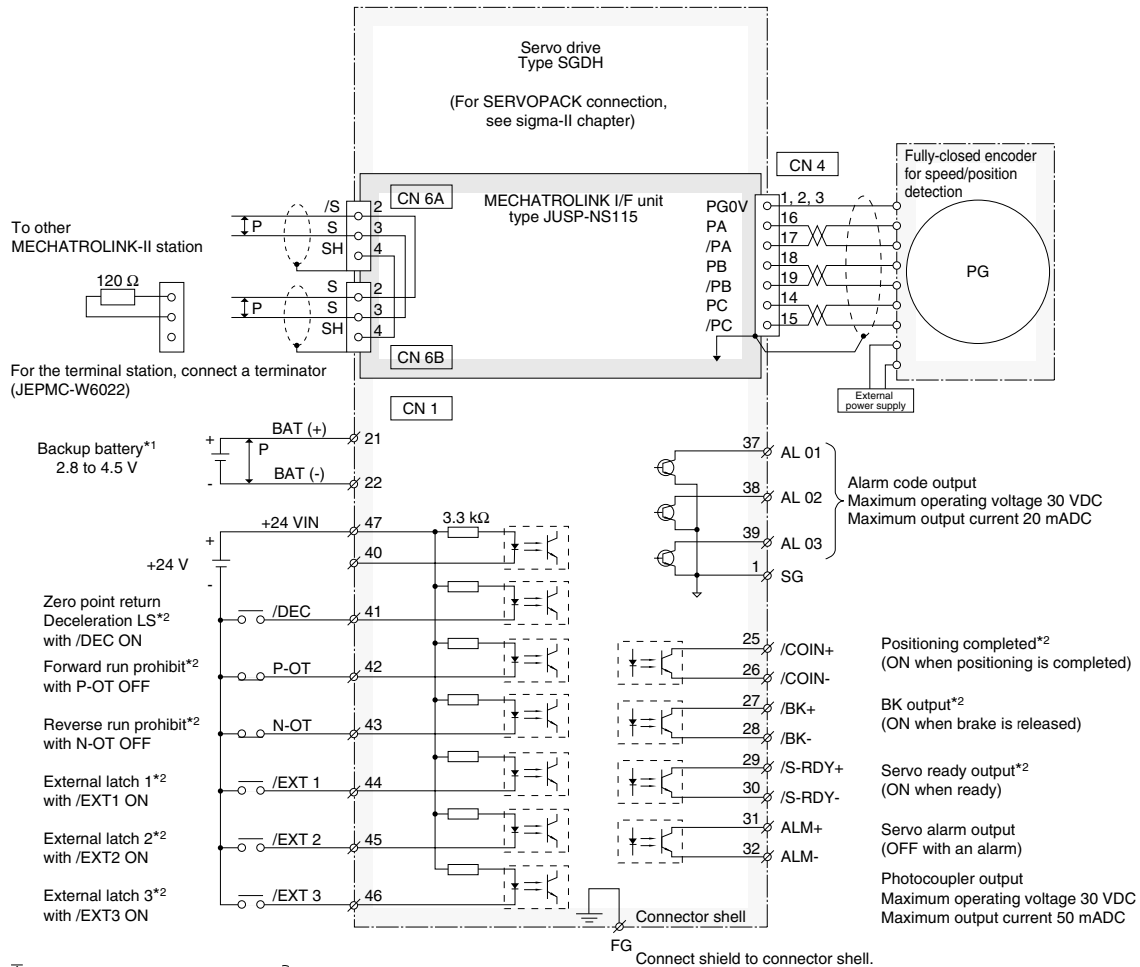


JUSP-NS115 - MECHATROLINK-II interface unit



Installation

MECHATROLINK-II interface connections



⌞ P represents twisted-pair wires. ○ represents shield.

\*1 Connect when using an absolute encoder and when the battery is not connected to CN8.  
 \*2 Set the signal assignment with the user constants.



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.