

# Контроллеры автономные серии MP2200

## ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

**По вопросам продаж и поддержки обращайтесь:**

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Брянск (4832)59-03-52  
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Кемерово (3842)65-04-62  
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Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
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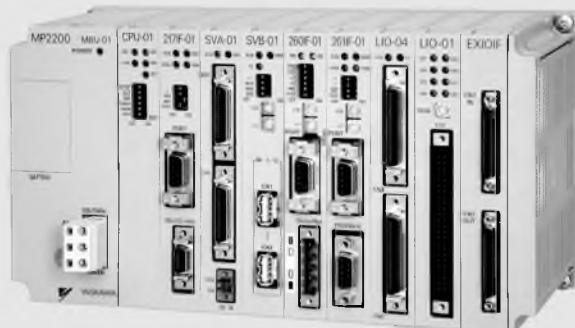
Смоленск (4812)29-41-54  
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MP2200 - MECHATROLINK-II

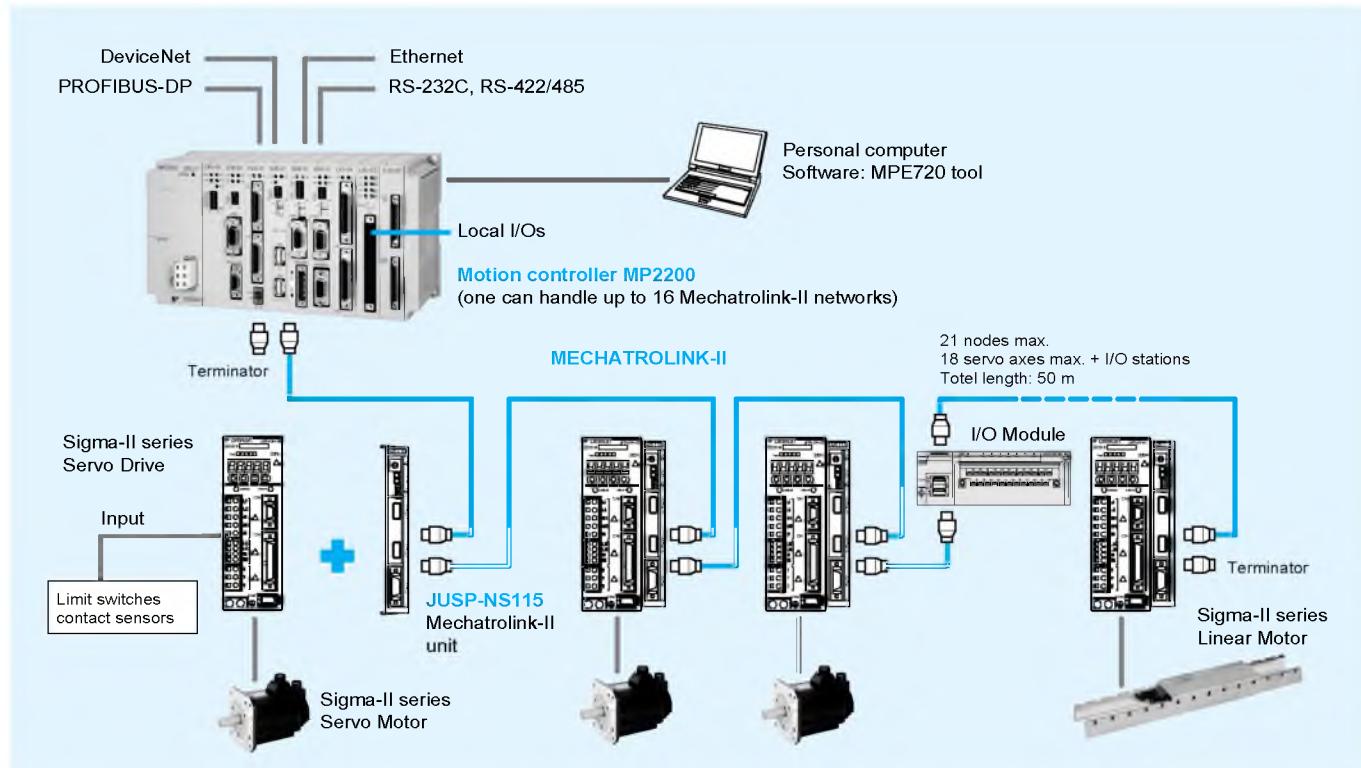
# Motion controller

## Stand-alone solution for advanced motion control

- Up to 256 axes controlled with minimum wiring
- Self configuration of nodes for an easy setup
- DeviceNet, PROFIBUS and ethernet network interfaces provide easy connectivity to any system
- Supports position, speed and torque control
- Electronic CAM profiles and axes synchronization
- The high-speed bus MECHATROLINK-II is specially designed for motion control
- Support for I/Os and pulse inputs locally and over the network
- Access to the complete system from one point.



## System configuration



## Specifications

### General specifications

#### Hardware specifications

| Items                           | Specifications   |
|---------------------------------|--|
| Environmental conditions        | Ambient operating temperature: 0 to 55 °C  |
|                                 | Ambient storage temperature: -25 to 85 °C  |
|                                 | Ambient operating humidity: 30% to 95% (with no condensation)  |
|                                 | Ambient storage humidity: 5% to 95% (with no condensation)   |
|                                 | Pollution level: Pollution level 1 (conforming to JIS B 3501)  |
|                                 | Corrosive gas: There must be no combustible or corrosive gas.  |
|                                 | Operating altitude: 2,000 m above sea level or lower   |
| Mechanical operating conditions | Vibration resistance: Conforming to JIS B 3502:<br>10 to 57 Hz with single-amplitude of 0.075 mm<br>57 to 150 Hz with fixed acceleration of 1 G<br>10 sweeps each in X, Y, and Z directions (sweep time: 1 octave/ |
|                                 | Shock resistance: Conforming to JIS B 3502:<br>Peak acceleration of 147 m/s <sup>2</sup> (15 G) twice for 11 ms each in the X, Y, and Z  |
| Electrical operating conditions | Noise resistance: Conforming to EN 61000-6-2, EN 55011 (Group 1, Class A)  |
| Installation requirements       | Ground: Ground to 100 Ω max.   |
|                                 | Cooling method: Natural cooling  |

#### Sequential function specifications

| Items  | Specifications   |
|--|--|
| Control method                               | Sequence: High-speed and low-speed scan methods  |
| Programming language                         | Ladder diagram: Relay circuit<br>Text-type language: Numeric operations, logic operations,   |
| Scanning                                     | Two scan levels: High-speed scan and low-speed scan<br>High-speed scan time setting: 0.5 to 32 ms (integral multiple of MECHATROLINK communication cycle)<br>Low-speed scan time setting: 2 to 300 ms (integral multiple of MECHATROLINK communication cycle)  |
| User drawings, functions and motion programs | Startup drawings (DWG.A): 64 drawings max. up to three hierarchical drawing levels<br>Interrupt processing drawings (DWG.I): 64 drawings max. up to three hierarchical drawing levels<br>High-speed scan process drawings (DWG.H): 200 drawings max. up to three hierarchical drawing levels<br>Low-speed scan process drawings (DWG.L): Number of steps: 500 drawings max. up to three hierarchical drawing levels<br>User functions: Up to 1,000 steps per drawing<br>Motion programs: Up to 500 functions<br>Revision history of drawings and motion programs: Up to 256<br>Security function for drawings and motion |
| Data memory                                  | Memory data (M) registers: 64 Kwords<br>System (S) registers: Drawing 8 Kwords<br>local (D) registers: Drawing Up to 16 Kwords per drawing<br>constant (#) registers: Input (I) Up to 16 Kwords per drawing<br>registers: 5 Kwords (including internal input registers) 5<br>Output (O) registers: Constant Kwords (including internal output registers)<br>(C) registers: 16 Kwords   |
| Trace memory                                 | Data trace: 128 Kwords (32 Kwords, 4 groups), 16 points defined  |
| Memory backup                                | Program memory: Flash memory: 8 MBytes (User area: 5.5 MBytes) definition files, ladder programs, motion programs, etc.<br>Data memory: Battery backup: 256 Kbytes, M registers, S registers, alarm history, trace data  |
| Data types                                   | Bit (relay): ON/OFF<br>Integer: -32768 to +32767<br>Double-length integer: -2147483648 to +2147483647<br>Real number: ± (1.175E-38 to 3.402E+38)   |
| Register designation method                  | Register number: Direct designation of register number<br>Symbolic designation: Up to 8 alphanumeric characters (up to 200 symbols per drawing)<br>With automatic number or symbol assignment  |

## Motion control function specifications

| Item                                     | Specifications  |   |
|--|---|---|
| Interface                                | MECHATROLINK-I, MECHATROLINK-II   |   |
| Number of controlled axes/module         | Up to 16 axes   |   |
| Control specifications                   | PTP control   | Linear, rotary, and infinite-length   |
|  | Interpolation   | Up to 16 linear axes, 2 circular axes, and 3 helical axes   |
|  | Speed reference output  | Yes   |
|  | Torque reference output   | Yes   |
|  | Phase control   | Yes   |
|  | Position control  | Positioning<br>External positioning<br>Zero point return<br>Interpolation<br>Interpolation with position detection function<br>JOG operation<br>STEP operation<br>Parameter changes during motion command execution |
|  |   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| Reference unit                           | mm, inch, deg, or pulse   |   |
| Reference unit minimum setting           | 1, 0.1, 0.01, 0.001, 0.0001, 0.00001  |   |
| Maximum programmable value               | -2147483648 to +2147483647 (signed 32-bit value)  |   |
| Speed reference unit                     | Reference unit/s designation: mm/s, inch/s, deg/s, pulse/s<br>Reference unit/min. designation: mm/min, inch/min, deg/min, pulse/min<br>Percentage designation: Percentage of rated speed              |   |
| Acceleration/deceleration type           | Linear, asymmetric, S-curve, exponent   |   |
| Acceleration/deceleration reference unit | Reference unit/s <sup>2</sup> designation: mm/s <sup>2</sup> , inch/s <sup>2</sup> , deg/s <sup>2</sup> , pulse/s <sup>2</sup><br>Acceleration/deceleration time constant: Time from 0 to rated speed |   |
| Override function                        | Positioning: 0.01% to 327.67% by axis   |   |
| Coordinate system                        | Rectangular coordinates   |   |
| Zero point return                        | DEC1+ phase-C pulse   | Yes   |
|  | ZERO signal   | Yes   |
|  | DEC1+ ZERO signal   | Yes   |
|  | Phase-C pulse   | Yes   |
|  | Only phase-C pulse  | Yes   |
|  | POT and phase-C pulse   | Yes   |
|  | POT   | Yes   |
|  | Home limit switch and phase-C pulse   | Yes   |
|  | HOME  | Yes   |
|  | NOT and phase-C pulse   | Yes   |
|  | NOT   | Yes   |
|  | INPUT and phase-C pulse   | Yes   |
|  | INPUT   | Yes   |
| Applicable servo drives                  | SGDH-@@@E-OY + NS115  |   |
| Applicable frequency inverters           | Varispeed V7, F7, G7 with MECHATROLINK-II interface<br>(for inverter version support contact your OMRON sales office)   |   |
| Encoders                                 | Incremental encoder<br>Yaskawa absolute encoder   |   |

## MP2200 base units

| Items                     | Specifications  | Appearance  |
|---------------------------|---|---|
| Model                     | JEPMC-BU2200 (MBU-01)<br>JEPMC-BU2210 (MBU-02)  |   |
| Power supply              | Input power voltage: 85 VAC to 276 VAC Current consumption: 1.5 A or less with I/O rating Inrush current: 10 A or less when completely discharged, 200 VAC input, output rating | Input power voltage: 24 VDC±20% Current consumption: 3.0 A or less with I/O rating Inrush current: 10 A or less when completely discharged, output rating |
| Motion network            | Not available for the base unit   |   |
| I/O signals               | Not available for the base unit   |   |
| Slot for optional modules | 9 slots   |   |
| Expansion configuration   | Maximum of 4 base units can be connected using the EXIOIF.  |   |
| Dimensions (mm)           | 130x240x108 (HxWxD)   |   |
| Weight                    | 665 g<br>640 g  |   |



## CPU module (CPU-01)

| Items                          | Specifications                          | Appearance |
|--------------------------------|---|------------|
| Model                          | JAPMC-CP2200                            |            |
| Max. number of controlled axes | 256 axes                                |            |
| High-speed scan                | 0.5 ms to 32 ms (in units of 0.5 ms)    |            |
| Low-speed scan                 | 2.0 ms to 300.0 ms (in units of 0.5 ms) |            |
| User memory capacity           | 8 MB                                    |            |
| Weight                         | 80 g                                    |            |



## Connection module between racks (EXIOIF)

| Items                     | Specifications           | Appearance  |
|---------------------------|--------------------------|---|
| Model                     | JAPMC-EX2200             |   |
| Number of expansion racks | 4 racks max.             |   |
| Rack No.                  | Automatically identified |   |
| Weight                    | 70 g                     |  |

## General-purpose serial communication module (217IF-01)

| Items                            | Specifications  | Appearance  |
|----------------------------------|---|---|
| Model                            | JAPMC-CM2310  |   |
| Port                             | For RS-232C communication   | For RS-422/485 communication  |
| Interface                        | One port  | One port (RS-422 or -485)   |
| Connector                        | D-sub 9 pins (female)   | MDR 14 pins (female)  |
| Max. transmission distance       | 15 m  | 300 m   |
| Transmission speed               | 76.8 kbps   | 76.8 kbps   |
| Access mode                      | Asynchronous (start-stop synchronization)   | Asynchronous (start-stop synchronization)   |
| Communication protocols          | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            |
| Media access control method      | 1:1   | 1:1 (RS-422), 1:N (RS-485)  |
| Transmission format (can be set) | Data bit length: 7 or 8 bits<br>Stop bits: 1 or 2 bits<br>Parity bits: even, odd, or none | Data bit length: 7 or 8 bits<br>Stop bits: 1 or 2 bits<br>Parity bits: even, odd, or none |

## Ethernet communication module (218IF-01)

| Items                                | Specifications  | Appearance  |
|--------------------------------------|---|---|
| Model                                | JAPMC-CM2300  |   |
| Port                                 | For ethernet communication  | Port  |
| Interface                            | One port (10BaseT)<br>(RJ-45 modular jack)                          | Interface   |
| Max. segment length                  | 100m  | Connector   |
| Transmission speed                   | 10 Mbps   | Max. transmission distance  |
| Access mode                          | IEEE802.3   | Transmission speed  |
| Flame format                         | Ethernet ver.2 (conforming to DIX)                                  | Access mode   |
| Connections                          | TCP/UDP/IP/ARP  | Communication protocols   |
| Max. number of words in transmission | 512 words<br>(1024 bytes)   | Media access control method   |
| Communication protocols              | Extended MEMOBUS,<br>MEMOBUS, MELSEC-A, non-protocol, or MODBUS/TCP | Transmission format (can be set)  |
| Max. number of connections           | 20 stations   | Data bit length: 7 or 8 bits<br>Stop bits: 1 or 2 bits<br>Parity bits: Even, odd, or none |

## DeviceNet communication module (260IF-01)

| Items                                   | Specifications  | Appearance  |
|---|---|---|
| Model                                   | JAPMC-CM2320  |   |
| Port                                    | For DeviceNet communication   | Port  |
| Number of circuits                      | 1   | Interface   |
| Applicable communication                | Conforms to DeviceNet master or slave<br>- I/O transmission<br>(polled I/O and bisstrobed I/O)<br>- Explicit messaging  | Connector   |
| I/O communication                       | 63 Nodes  | Max. transmission distance  |
|   | Max. I/O bytes  | 15m   |
| Message Communication (only for master) | Max. number of nodes  | Transmission speed  |
|   | Max. message length   | 76.8kbps  |
|   | Executed functions  | Access mode   |
| Switches on the front                   | Two rotary switches: Node address settings<br>DIP switch: Settings for transmission speed and switching master or slave | Communication protocols   |
| Indicators                              | 2 LEDs: MS or NS  | Media access control method   |
| Power voltage for communication         | 24 VDC±10%<br>(Using the specially designed cable)  | Transmission format (can be set)  |
| Max. current consumption                | Communication power: 45 mA<br>(supplied by transmission connectors)   | Data bit length: 7 or 8 bits<br>Stop bits: 1 or 2 bits<br>Parity bits: Even, odd, or none |

### PROFIBUS communication module (261IF-01)

| Items                | Specifications  |  |   | Appearance |
|----------------------|---|--|---|------------|
| Model                | JAPMC-CM2330  |  |   |            |
| Port                 | For PROFIBUS communication  | Port                                   | For RS-232C communication   |            |
| Functions            | DP slave  | Interface                              | One port  |            |
|                      | Cyclic communication<br>(DP standard function)  | Connector                              | D-sub 9 pins (female)   |            |
| Transmission speed   | 12M/6M/4M/3M/1.5M/750k/500k/<br>187.5k/93.75k/19.2k/9.6kbps<br>(automatic detection)        | Max.<br>transmission<br>distance       | 15 m  |            |
| Configuration        | By PROFIBUS master  | Transmission<br>speed                  | 76.8 kbps   |            |
| Slave address        | 1 to 64   | Access mode                            | Asynchronous (start-stop synchronization)   |            |
| I/O processing       | Total capacity of IW/OW registers:<br>64 words  | Communication<br>protocols             | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            |            |
|                      | Max. I/O allocation (IN and OUT each):<br>64 words  | Media access<br>control method         | 1:1   |            |
| Diagnostic functions | Display for status and slave<br>status using the EWS.<br>I/O error display for SW registers | Transmission<br>format<br>(can be set) | Data bit length: 7 or 8 bits<br>Stop bits: 1 or 2 bits<br>Parity bits: Even, odd, or none |            |

### Analogue reference motion control module (SVA-01)

| Items                      | Specifications  | Appearance |
|----------------------------|---|------------|
| Model                      | JAPMC-MC2300  |            |
| Number of axes             | 2 axes (CN1 & CN2) analogue output and encoder input.                     |            |
| Digital inputs (per axis)  | 6 inputs, PNP or NPN (including alarm, ready, zero and latch)             |            |
| Digital outputs (per axis) | 6 outputs, (including servo_on, alarm_reset, control_mode_select and SEN) |            |
| Encoder input (per axis)   | Differential line-driver (A/A,B/B,Z/Z). 4 Mpps (before multiplication).   |            |
| Analog outputs (per axis)  | 2 outputs ±10 V 16 bits (typically speed and torque references)           |            |
| Analog inputs (per axis)   | 2 inputs ±10 V 16 bits  |            |
| External supply            | 24 VDC (in CN3)   |            |
| LED's                      | RUN (green) ERR(red)  |            |

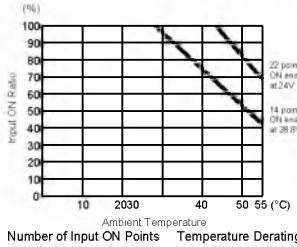
### MECHATROLINK-II motion control module (SVB-01)

| Items                         | Specifications   | Appearance |
|-------------------------------|--|------------|
| Model                         | JAPMC-MC2310   |            |
| Communication circuits        | 1 circuit  |            |
| Communication ports           | 2 ports  |            |
| Terminator                    | External resistor (JEPMC-W6022 required)   |            |
| Transmission speed            | 10 Mbps  |            |
| Communication cycle           | 0.5 ms, 1 ms, 1.5 ms, 2 ms   |            |
| Number of connecting stations | 21 stations (16 axes for servo drives and inverters) /2ms, 15 stations (15 axes for servo drives) /1.5 ms,<br>9 stations (9 axes for servo drives) /1 ms, 4 stations (4 axes for servo drives) /0.5 ms |            |
| Retry function                | Available with MECHATROLINK-II   |            |
| Slave function                | Available with MECHATROLINK-II   |            |
| Transmission distance         | See "MECHATROLINK-II repeater"   |            |

### I/O modules (LIO-01/-02)

| Items              | Specifications  | Appearance |
|--------------------|---|------------|
| Models             | JAPMC-IO2300 (NPN output), JAPMC-IO2301 (PNP output)  |            |
| Digital I/O        |   |            |
| Input signals      | 16 points (all connected) and 24 VDC±20%, 5 mA (TYP)<br>Sink mode or source mode input and photocoupler isolation<br>Min. ON voltage/current: 15 V/1.6 mA<br>Max. OFF voltage/current: 5 V/1.0 mA<br>Max. response time: OFF→ON 1 ms and ON→OFF 1 ms<br>Interruption (DI-00): DI-00 can be used for interruptions. If an interruption is enabled, the interrupt drawing is started when DI-00 is set to ON.<br>Pulse latch (DI-01): DI-01 can be used for pulse latching. If pulse latching is enabled, the pulse counter is latched when DI-01 is set to ON. |            |
| Output signals     | 16 points (all connected) and 24 VDC±20%, 100 mA max.<br>Open collector: Sink mode output (LIO-01 module)<br>Source mode output (LIO-02 module)<br>Photocoupler isolation and max. OFF current: 0.1 mA<br>Max. response time: OFF→ON 1 ms and ON→OFF 1 ms<br>Output protection: Fuse (for protection against fires caused by an overcurrent when outputting after a short circuit occurred)<br>If circuit protection is required, provide a fuse for each output  |            |
| Pulse input        |   |            |
| Number of channels | 1 (phase A, B, or Z input)  |            |
| Input circuit      | Phase A/B: 5 V differential inputs, no insulation, and max. frequency 4 MHz<br>Phase Z: 5 V/12 V photocoupler inputs and max. frequency 500 kHz   |            |
| Input method       | A/B (1, 2, or 4 multipliers), sign (1 or 2 multipliers), UP/DOWN (1 or 2 multipliers)   |            |
| Latch input        | Pulse latch with phase Z or DI-01<br>Min. response time: 5 µs when input with phase Z; 60 µs when input with DI-01  |            |
| Others             | Omnidirectional detection; preset and clear functions for counter values  |            |

## I/O modules (LIO-04)

| Items          | Specifications  | Appearance |
|----------------|---|------------|
| Model          | JAPMC-IO2303  |            |
| Input signals  | <p>32 points (8 points common) and 24 VDC±20%, 5 mA (TYP)<br/>           Sink mode or source mode input and photocoupler isolation<br/>           Min. ON voltage/current: 15 V/1.6 mA<br/>           Max. OFF voltage/current: 5 V/1.0 mA<br/>           Max. response time: OFF→ON 0.5 ms and ON→OFF 0.5 ms<br/>           Interruption (DI-00, DI-01, DI-16, DI-17):<br/>           DI-00, DI-01, DI-16, and DI-17 can be used for interruptions. If an interruption is enabled, the interrupt drawing is started when DI-00, DI-01, DI-16, or DI-17 is set to ON.<br/>           Note: See right for the derating conditions</p>  |            |
| Output signals | <p>32 points (8 points common) and 24 VDC±20%, 100 mA max.<br/>           Open collector: Sink mode output (NPN) and photocoupler isolation<br/>           Max. OFF current: 0.1 mA<br/>           Max. response time: OFF→ON 0.5 ms and ON→OFF 1 ms<br/>           Output protection: Fuse (for protection against fires caused by an overcurrent when outputting after a short-circuit occurred) If circuit protection is required, provide a fuse for each output circuit.</p>   |            |

## MECHATROLINK-II, 64 point I/O module (IO2310)

| Items               | Specifications  | Appearance |
|---------------------|---|------------|
| Model               | JEPMC-IO2310  |            |
| I/O signals         | <p>Input: 64 points, 24 VDC, 5mA, sink/source mode input<br/>           Output: 64 points, 24 VDC, 50mA when all points ON,(The Max. rating is 100 mA per point) sink mode output (NPN)<br/>           Signal connection method: Connector (FCN360)</p> |            |
| Module power supply | 20~28 VDC (20.4 V to 28.8 V)<br>Rated current: 0.5 A<br>Inrush current: 1 A   |            |
| Weight              | 590 g   |            |

## MECHATROLINK-II, counter module (PL2900)

| Items                    | Specifications   | Appearance |
|--------------------------|--|------------|
| Model                    | JEPMC-PL2900   |            |
| Number of input channels | 2  |            |
| Functions                | Pulse counter, notch output, registration input                            |            |
| Pulse input method       | Sign (1/2 multipliers), A/B (1/2/4 multipliers), UP/DOWN (1/2 multipliers) |            |
| Max. counter speed       | 1200 kpps (4 multipliers)  |            |
| Pulse input voltage      | 3/5/12/24 VDC  |            |
| External power supply    | 24 VDC, 120 mA or less   |            |
| Weight                   | 300 g  |            |

## MECHATROLINK-II, pulse output module (PL2910)

| Items                     | Specifications  | Appearance |
|---------------------------|---|------------|
| Model                     | JEPMC-PL2910  |            |
| Number of output channels | 2   |            |
| Functions                 | Pulse positioning, JOG run, zero-point return   |            |
| Pulse output method       | CW, CCW pulse, sign   |            |
| Max. output speed         | 500 kpps  |            |
| Pulse output voltage      | 5 V DC  |            |
| Pulse interface circuit   | Open collector output<br>5 VDC, 10 mA/circuit   |            |
| External control signal   | Digital input: 8 points/module, 5 VDC x 4 points, 24 VDC x 4 points<br>Digital output: 6 points/module, 5 VDC x 4 points, 24 VDC x 2 points |            |
| Weight                    | 300 g   |            |

## MECHATROLINK-II, analog input module (AN2900)

| Items                    | Specifications   | Appearance |
|--------------------------|--|------------|
| Model                    | JEPMC-AN2900   |            |
| Number of input channels | 4  |            |
| Input voltage range      | -10 V to +10 V   |            |
| Input impedance          | 1 MΩ min.  |            |
| Data format              | Binary, -32000 to +32000                               |            |
| Input delay time         | 4ms max.   |            |
| Error                    | ± 0.5% F.S. (at 25 °C), ± 1.0% F.S. (at 0 °C to 60 °C) |            |
| External power supply    | 24 VDC (20.4 VDC to 26.4 VDC), 120 mA max.             |            |
| Weight                   | 300 g  |            |

### MECHATROLINK-II, analog output module (AN2910)

| Items                       | Specifications   | Appearance |
|-----------------------------|--|------------|
| Model                       | JEPMC-AN2910   |            |
| Number of output channels   | 2  |            |
| Output voltage range        | -10 V to +10 V   |            |
| Max. allowable load current | ± 5 mA (2 kΩ)  |            |
| Data format                 | Binary, -32000 to +32000                               |            |
| Output delay time           | 1 ms   |            |
| Error                       | ± 0.2% F.S. (at 25 °C), ± 0.5% F.S. (at 0 °C to 60 °C) |            |
| External power supply       | 24VDC (20.4 VDC to 26.4 VDC), 120mA max.               |            |
| Weight                      | 300 g  |            |

### 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<br>(limited to the max. number of connectable stations of the controller (e.g., 21 stations for the MP2300)  |            |
| Restrictions            | <p>Between controller and repeater</p> <ul style="list-style-type: none"> <li>- Total cable length ≤ 30m: 15 stations max. including I/O and servo, etc. - 30m &lt; total cable length ≤ 50m: 14 stations max. including I/O and servo, etc. After repeater:</li> <li>- Total cable length ≤ 30m: 16 stations max. including I/O and servo, etc. - 30m &lt; total cable length ≤ 50m: 15 stations max. including I/O and servo, etc.</li> </ul> |            |
| Power supply            | 24VDC, 100mA  |            |
| Weight                  | 340 g   |            |
| Dimensions (mm)         | 30x160x77 (HxWxD)   |            |

### MECHATROLINK-II servo drive interface unit

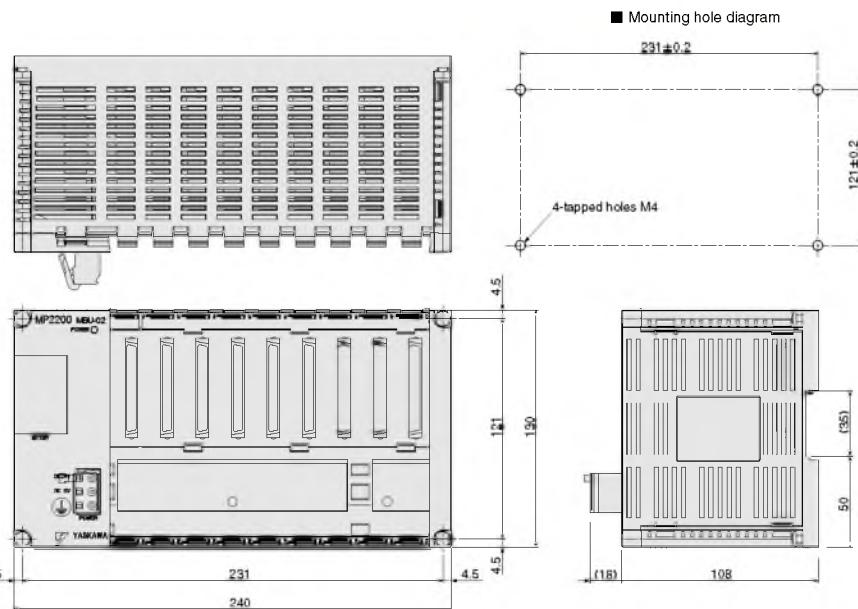
| Item                               | Details                                      |   |
|------------------------------------|--|---|
| Type                               | JUSP-NS115                                   |   |
| Applicable servo drive             | SGDH-@@@E models (version 38 or later)       |   |
| Installation method                | Mounted on the SGDH servo drive side: CN10.  |   |
| Basic specifications               | Power supply method                          | Supplied from the servo drive control power supply.   |
|                                    | Power consumption                            | 2 W   |
| MECHATROLINK-II communications     | Baud rate/transmission cycle                 | 10 Mbps / 1 ms or more. MECHATROLINK-II communications  |
| Command format                     | Operation specification                      | Positioning using MECHATROLINK-I/II communications.   |
|                                    | Reference input                              | MECHATROLINK-I/II communications<br>Commands: position, speed, torque, parameter read/write, monitor                                  |
| Position control functions         | Acceleration/deceleration method             | PI first/second-step, asymmetric, exponential, S-curve  |
|                                    | Fully closed control                         | Position control with fully closed feedback is possible.  |
| Fully closed system specifications | Encoder pulse output in the servo drive      | 5 V differential line-driver output (complies with EIA Standard RS-422A)  |
|                                    | Fully closed encoder pulse signal            | A quad B line-driver  |
|                                    | Maximum receivable frequency for servo drive | 1 Mpps  |
|                                    | Power supply for fully closed encoder        | To be prepared by customer.   |
| Input signals in the servo drive   | Signal allocation changes possible           | Forward/reverse run prohibited, zero point return deceleration LS<br>External latch signals 1, 2, 3<br>Forward/reverse torque control |
| Internal functions                 | Position data latch function                 | Position data latching is possible using phase C, and external signals 1, 2, 3  |
|                                    | Protection                                   | Parameters damage, parameter setting errors, communications errors, WDT errors, fully closed encoder detecting disconnection          |
|                                    | LED indicators                               | A: Alarm, R: MECHATROLINK-I/II communicating  |

### MECHATROLINK-II, frequency inverter interface units

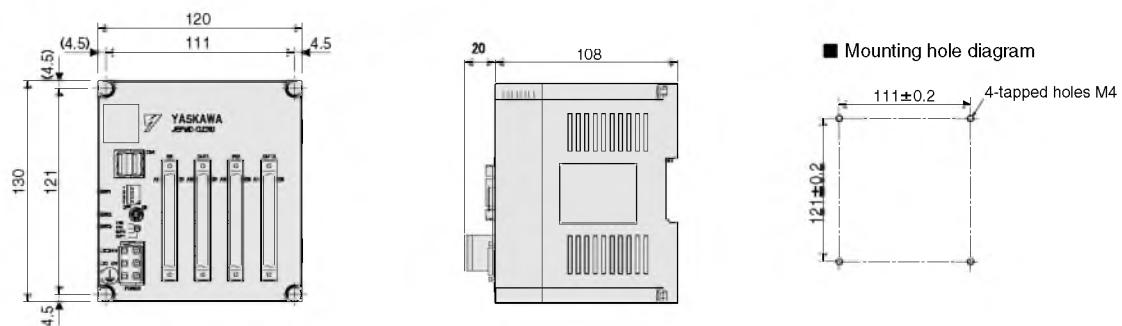
| Item                           | Details  |  |
|--------------------------------|--|--|
| Type                           | SI-T/V7  | SI-T   |
| Applicable inverter            | CIMR-V7 / 3G3-MV<br>(firmware 5740 or newer)   | CIMR-G7 / CIMR-F7<br>(firmware 656x for G7 / 4011 or newer for F7) |
|                                | Contact your OMRON sales office for information about firmware compatibility   |  |
| 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)<br>Dip switch for: ML-II address (high bit). ML-II/ML-I selection. 17 byte/32 byte data length selection. |  |

## Dimensions

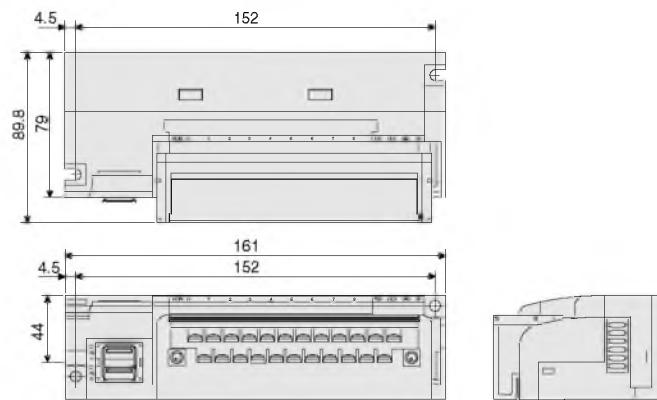
### MP2200 basic unit



### IO2310 I/O module

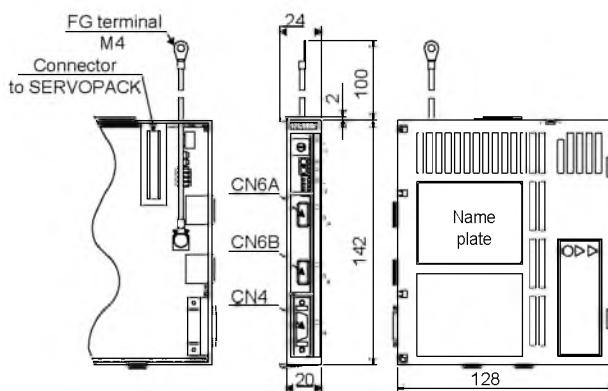


### I/O modules PL2900, PL2910, AN2900, AN2910



## MECHATROLINK-II servo drive interface unit

Units: mm Approx. weight: 0.2 kg



## Ordering information

### MP2200 - motion controller base unit

| Name  | Model name | Model        |
|---|------------|--------------|
| MP2200 base unit, 100 VAC/200 VAC input base unit | MBU-01     | JEPMC-BU2200 |
| MP2200 base unit, 24 VDC input base unit          | MBU-02     | JEPMC-BU2210 |

### MP2200 - CPU module

| Name           | Model name | Model        |
|----------------|------------|--------------|
| CPU for MP2200 | CPU-01     | JAPMC-CP2200 |

### MP2200 - motion control modules

| Name  | Model name | Model        |
|---|------------|--------------|
| Analogue reference motion control module (2 axes) | SVA-01     | JAPMC-MC2300 |
| 1 channel for MECHATROLINK-II communication       | SVB-01     | JAPMC-MC2310 |

### MP2200 - communication modules

| Name  | Model name | Model        |
|---|------------|--------------|
| General-purpose serial communication module (RS-232C / RS422 communication) | 217IF-01   | JAPMC-CM2310 |
| Ethernet communication module (RS-232C / ethernet communication)            | 218IF-01   | JAPMC-CM2300 |
| DeviceNet communication module (RS-232C / DeviceNet communication)          | 260IF-01   | JAPMC-CM2320 |
| PROFIBUS communication module (RS-232C / PROFIBUS communication)            | 261IF-01   | JAPMC-CM2330 |

### MP2200 - I/O and expansion modules

| Name  | Model name | Model        |
|---|------------|--------------|
| 16-point input, 16-point output (sink mode output / NPN), and 1-point pulse input   | LIO-01     | JAPMC-IO2300 |
| 16-point input, 16-point output (source mode output / PNP), and 1-point pulse input | LIO-02     | JAPMC-IO2301 |
| 32-point input and 32-point output  | LIO-04     | JAPMC-IO2303 |
| Expansion interface for MP2200  | EXIOIF     | JAPMC-EX2200 |

## MECHATROLINK-II - elated devices

| Name                           | Remarks   | Model  |
|--------------------------------|---|--|
| Distributed I/O modules        | 64-point input and 64-point output<br>Reversible counter: 2 channels<br>Pulse output: 2 channels<br>Analog input: -10 V to +10 V, 4 channels<br>Analog output: -10 V to +10 V, 2 channels | JEPMC-IO2310<br>JEPMC-PL2900<br>JEPMC-PL2910<br>JEPMC-AN2900<br>JEPMC-AN2910   |
| MECHATROLINK-II cables         | 0.5 meter<br>1 meter<br>3 meters<br>5 meters<br>10 meters<br>20 meters<br>30 meters   | JEPMC-W6003-A5<br>JEPMC-W6003-01<br>JEPMC-W6003-03<br>JEPMC-W6003-05<br>JEPMC-W6003-10<br>JEPMC-W6003-20<br>JEPMC-W6003-30 |
| MECHATROLINK-II terminator     | Terminating resistor  | JEPMC-W6022  |
| MECHATROLINK-II interface unit | For Sigma-II series servo drives (firmware version 38 or later)   | JUSP-NS115   |
|                                | For Varispeed V7 inverter (for inverter's version supported contact your OMRON sales office)  | SI-T/V7  |
|                                | For Varispeed F7, G7 inverter (for inverter's version supported contact your OMRON sales  | SI-T   |
| MECHATROLINK-II repeater       | MECHATROLINK-II repeater  | JEPMC-REP2000  |

**I/O cables**

|                          | <b>Remarks</b>                         | <b>Length m</b> | <b>Model</b>    |
|--------------------------|--|-----------------|-----------------|
| I/O cable for LIO-01, 02 | With connector on the LIO-01, -02 side | 0.5             | JEPMC-W2061-A5  |
|                          |  | 1.0             | JEPMC-W2061-01  |
|                          |  | 3.0             | JEPMC-W2061-03  |
| I/O cable for LIO-04     | With connector on the LIO-04 side      | 0.5             | JEPMC-W6060-05  |
|                          |  | 1.0             | JEPMC-W6060-10  |
|                          |  | 3.0             | JEPMC-W6060-30  |
| I/O cable for IO2310     | With connector on the IO2310 side      | 0.5             | JEPMC-W5410-05  |
|                          |  | 1.0             | JEPMC-W5410-10  |
|                          |  | 3.0             | JEPMC-W5410-30  |
| EXIOIF cable             | With connector on both sides           | 0.5             | JEPMC-W2091-A5  |
|                          |  | 1.0             | JEPMC-W2091-01  |
|                          |  | 3.0             | JEPMC-W2091-2A5 |

**Accessories**

| <b>Name</b>           | <b>Model</b> |
|-----------------------|--------------|
| Battery ER3V 3.6V     | JZSP-BA01    |
| Empty slot cover      | JEPMC-OP2300 |
| Brackets for DIN rail | JEPMC-OP300  |

**Computer software**

| <b>Specifications</b>  | <b>Model</b> |
|--|--------------|
| Programming software support from system design to maintenance. Intuitive ladder programming and editing functions. CAM data generation. Windows-based (Windows 95/98/NT4.0/2000/XP) | CPMC-MPE720  |

**Servo system**

**Note:** Refer to servo systems section for detailed information

**Frequency inverters**

**Note:** Refer to frequency inverters section for detailed information

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

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