

MP2300 - MECHATROLINK-II

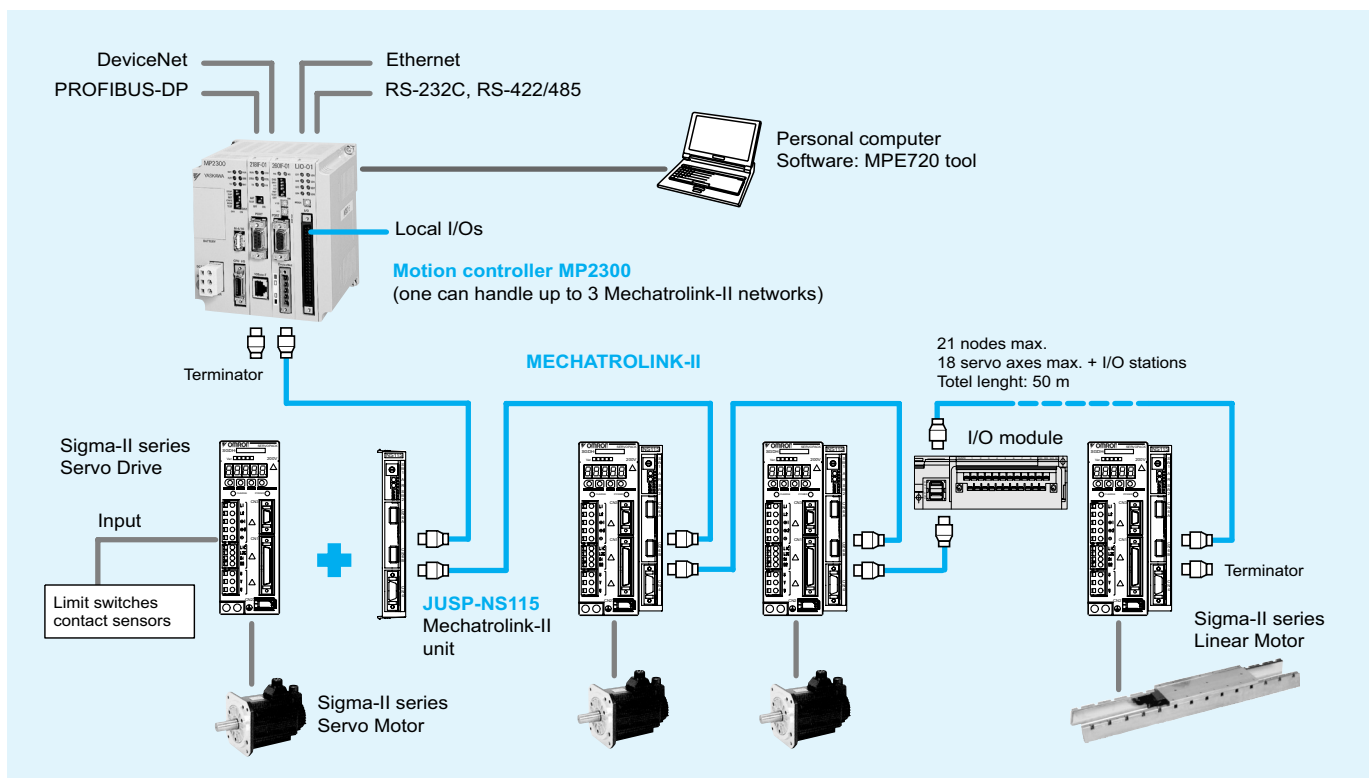
# Motion controller

**Stand-alone solution for advanced motion control**

- Up to 48 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 acceleration of 1G<br>10 sweeps each in X, Y, and Z directions (sweep time: 1 octave/min) |
|                                 | 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 directions  |
| 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, etc.   |   |
| Scanning                                     | Two scan levels: High-speed scan and low-speed scan<br>High-speed scan time setting: 1 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):<br>Interrupt processing drawings (DWG.I):<br>High-speed scan process drawings (DWG.H):<br>Low-speed scan process drawings (DWG.L):<br>Number of steps:<br>User functions:<br>Motion programs:<br>Revision history of drawings and motion programs<br>Security function for drawings and motion programs | 64 drawings max. up to three hierarchical drawing levels<br>64 drawings max. up to three hierarchical drawing levels<br>200 drawings max. up to three hierarchical drawing levels<br>500 drawings max. up to three hierarchical drawing levels<br>Up to 1,000 steps per drawing<br>Up to 500 functions<br>Up to 256 |
| Data memory                                  | Common data (M) registers:<br>System (S) registers:<br>Drawing local (D) registers:<br>Drawing constant (#) registers:<br>Input (I) registers:<br>Output (O) registers:<br>Constant (C) registers:  | 64 Kwords<br>8 Kwords<br>Up to 16 Kwords per drawing<br>Up to 16 Kwords per drawing<br>5 Kwords (including internal input registers)<br>5 Kwords (including internal output registers)<br>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   | Yes |
|   |  | External positioning                                      | Yes |
|   |  | Zero point return   | Yes |
|   |  | Interpolation   | Yes |
|   |  | Interpolation with position detection function            | Yes |
| JOG operation                                     |  | Yes   |     |
| STEP operation                                    |  | Yes   |     |
| Parameter changes during motion command execution | 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 (ms) |   |     |
| 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  |   |     |


MP2300 CPU (basic module)

| Items                     | Specifications  | Appearance  |
|---------------------------|---|---|
| Model                     | JEPMC-MP2300  |  |
| Power supply              | Input power voltage: 24 VDC±20%<br>Current consumption: 1 A<br>Inrush current: 40 A or less   |   |
| Motion network            | One channel for MECHATROLINK-II:<br>Twenty-one stations, including servo drives and I/O equipment, can be connected.<br>(16 axes for servo drives and inverters)<br>Transmission speed: 10Mbps (MECHATROLINK-II)<br>Transmission distance: See "MECHATROLINK-II repeater" |   |
| I/O signals               | Digital input: 8 points (one point can be used for interrupts),<br>24 VDC, 4 mA, and source mode or sink mode input<br>Digital output: 4 points, 24 VDC, 100 mA, open collector, and sink mode output (NPN)   |   |
| Slot for optional modules | 3 slots   |   |
| Dimensions (mm)           | 130x120x108 (HxWxD)   |   |
| Weight                    | 500 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)   |                              |   |
| Communication protocols          | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            |                              |   |
| Media access control method      | 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 |                              |   |


Ethernet communication module (218IF-01)

| Items                                | Specifications   |   | Appearance  |
|--------------------------------------|--|---|---|
| Model                                | JAPMC-CM2300   |   |  |
| Port                                 | For ethernet communication   | For RS-232C communication   |   |
| Interface                            | One port (10BaseT)<br>(RJ-45 modular jack)                             | One port  |   |
| Max. segment length                  | 100 m  | Connector   |   |
| Transmission speed                   | 10 Mbps  | D-sub 9 pins (female)   |   |
| Access mode                          | IEEE802.3  | Max. transmission distance  |   |
| Flame format                         | Ethernet ver.2 (conforming to DIX)                                     | 15 m  |   |
| Connections                          | TCP/UDP/IP/ARP   | Transmission speed  |   |
| Max. number of words in transmission | 512 words<br>(1024 bytes)  | 76.8 kbps   |   |
| Communication protocols              | Extended MEMOBUS,<br>MEMOBUS, MELSEC-A,<br>non-protocol, or MODBUS/TCP | Access mode   |   |
| Max. number of connections           | 20 stations  | Asynchronous (Start-stop synchronization)   |   |
|                                      |  | Communication protocols   |   |
|                                      |  | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            |   |
|                                      |  | Media access control method   |   |
|                                      |  | 1:1   |   |
|                                      |  | 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 |   |

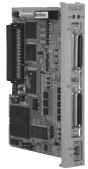
DeviceNet communication module (260IF-01)

| Items                                   | Specifications  |   | Appearance  |
|---|---|---|---|
| Model                                   | JAPMC-CM2320  |   |  |
| Port                                    | For DeviceNet communication   | For RS-232C communication   |   |
| Number of circuits                      | 1   | Interface   |   |
| Applicable communication                | Conforms to DeviceNet master or slave<br>- I/O transmission<br>(polled I/O and bistrobed I/O)<br>- Explicit messaging   | One port  |   |
| I/O communication                       | Max. number of slaves   | Connector   |   |
|   | Max. I/O bytes  | D-sub 9 pins (female)   |   |
| Message communication (only for master) | Max. number of nodes  | Max. transmission distance  |   |
|   | Max. message length   | 15 m  |   |
|   | Executed functions  | Transmission speed  |   |
| Switches on the front                   | Two rotary switches: Node address settings<br>DIP switch: Settings for transmission speed and switching master or slave | 76.8 kbps   |   |
| Indicators                              | 2 LEDs: MS or NS  | Access mode   |   |
| Power voltage for communication         | 24 VDC±10%<br>(using the specially designed cable)  | Asynchronous (start-stop synchronization)   |   |
| Max. current consumption                | Communication power: 45 mA<br>(supplied by transmission connectors)   | Communication protocols   |   |
|   |   | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol                            |   |
|   |   | Media access control method   |   |
|   |   | 1:1   |   |
|   |   | 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 |   |


**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 (DP standard function)  | Connector                        |   | D-sub 9 pins (female)  |
| Transmission speed   | 12M/6M/4M/3M/1.5M/750k/500k/187.5k/93.75k/19.2k/9.6kbps (automatic detection)                  | Max. transmission distance       |   | 15 m   |
| Configuration        | By PROFIBUS master   |                                  |   |  |
| Slave address        | 1 to 64  | Transmission speed               |   | 76.8 kbps  |
| I/O processing       | Total capacity of IW/OW registers: 64 words<br>Max. I/O allocation (IN and OUT each): 64 words | Access mode                      |   | Asynchronous (start-stop synchronization)                      |
|                      |  | Communication protocols          |   | MEMOBUS (master or slave)<br>MELSEC, HostLink, or non-protocol |
| Diagnostic functions | Display for status and slave status using the EWS.<br>I/O error display for SW registers       | Media access control method      |   | 1:1  |
|                      |  | 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 |  |


**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)**

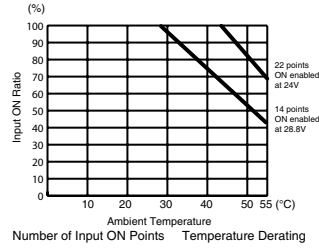
| Items                         | Specifications  | Appearance  |
|-------------------------------|---|---|
| Model                         | JAPMC-MC2310  |  |
| Communication circuits        | 1 circuit   |   |
| Communication ports           | 2 ports   |   |
| Terminator                    | External resistor (JEPMC-W6022 required)  |   |
| Transmission speed            | 10 Mbps   |   |
| Communication cycle           | 0.5ms, 1ms, 1.5ms, 2ms  |   |
| Number of connecting stations | 21 stations (16 axes for servo drives and inverters) /2 ms, 15 stations (15 axes for servo drives) /1.5 ms, 9 stations (9 axes for servo drives) /1ms, 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: 15V/1.6 mA<br>Max. OFF voltage/current: 5V/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 circuit.  |   |
| Pulse input        |   |   |
| Number of channels | 1 (Phase A, B, or Z input)  |   |
| Input circuit      | Phase A/B: 5V 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             | Coincident detection; preset and clear functions for counter values.  |   |

I/O modules (LIO-04)


| Items                 | Specifications   | Appearance  |
|-----------------------|--|---|
| <b>Model</b>          | JAPMC-IO2303   |  |
| <b>Input signals</b>  | <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> |   |
| <b>Output signals</b> | <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)<br/>                     If circuit protection is required, provide a fuse for each output circuit.</p>   |   |




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

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


MECHATROLINK-II, counter module (PL2900)

| Items                           | Specifications   | Appearance  |
|---------------------------------|--|---|
| <b>Model</b>                    | JEPMC-PL2900   |  |
| <b>Number of input channels</b> | 2  |   |
| <b>Functions</b>                | Pulse counter, notch output, registration input  |   |
| <b>Pulse input method</b>       | Sign (1/2 multipliers), A/B (1/2/4 multipliers), UP/DOWN (1/2 multipliers)                                 |   |
| <b>Max. counter speed</b>       | 1200 kpps (4 multipliers)  |   |
| <b>Pulse input voltage</b>      | 3/5/12/24 VDC  |   |
| <b>External power supply</b>    | For input signal: 24 VDC, For dividing load: 24 VDC, For module: 24 VDC (20.4 V to 26.4 V), 120 mA or less |   |
| <b>Weight</b>                   | 300 g  |   |

MECHATROLINK-II, pulse output module (PL2910)

| Items                            | Specifications  | Appearance  |
|----------------------------------|---|---|
| <b>Model</b>                     | JEPMC-PL2910  |  |
| <b>Number of output channels</b> | 2   |   |
| <b>Functions</b>                 | Pulse positioning, JOG run, zero-point return   |   |
| <b>Pulse output method</b>       | CW, CCW pulse, sign   |   |
| <b>Max. output speed</b>         | 500kpps   |   |
| <b>Pulse output voltage</b>      | 5VDC  |   |
| <b>Pulse interface circuit</b>   | Open collector output<br>5VDC, 10mA/circuit   |   |
| <b>External control signal</b>   | 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 |   |
| <b>Weight</b>                    | 300 g   |   |

MECHATROLINK-II, analog input module (AN2900)

| Items                           | Specifications   | Appearance  |
|---------------------------------|--|---|
| <b>Model</b>                    | JEPMC-AN2900   |  |
| <b>Number of input channels</b> | 4  |   |
| <b>Input voltage range</b>      | -10 V to +10 V   |   |
| <b>Input impedance</b>          | 1 MΩ min.  |   |
| <b>Data format</b>              | Binary, -32000 to +32000                               |   |
| <b>Input delay time</b>         | 4 ms max.  |   |
| <b>Error</b>                    | ± 0.5% F.S. (at 25 °C), ± 1.0% F.S. (at 0 °C to 60 °C) |   |
| <b>External power supply</b>    | 24 VDC (20.4 VDC to 26.4 VDC), 120 mA max.             |   |
| <b>Weight</b>                   | 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       | 24 VDC (20.4 VDC to 26.4 VDC), 120 mA 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 series))   |            |
| Restrictions            | Between controller and repeater<br>- Total cable length ≤ 30 m: 15 stations max. including I/O and servo, etc.<br>- 30 m < total cable length ≤ 50 m: 14 stations max. including I/O and servo, etc.<br>After repeater:<br>- Total cable length ≤ 30 m: 16 stations max. including I/O and servo, etc.<br>- 30 m < total cable length ≤ 50 m: 15 stations max. including I/O and servo, etc. |            |
| Power supply            | 24 VDC, 100 mA   |            |
| Weight                  | 340 g  |            |
| Dimensions (mm)         | 30x160x77 (HxWxD)  |            |

**MECHATROLINK-II, servo drive interface unit**

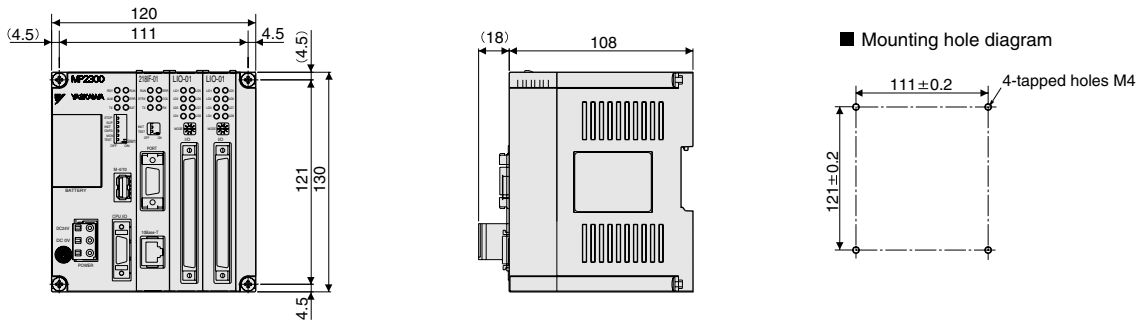
| Item                               | Details                                      |   |  |
|------------------------------------|--|---|--|
| Type                               | JUSP-NS115                                   |   |  |
| Applicable servo drive             | SGDH-□□□□E models (version 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 output                           |  |
| Position control functions         | Acceleration/deceleration method             | Linear 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-II communicating  |  |

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

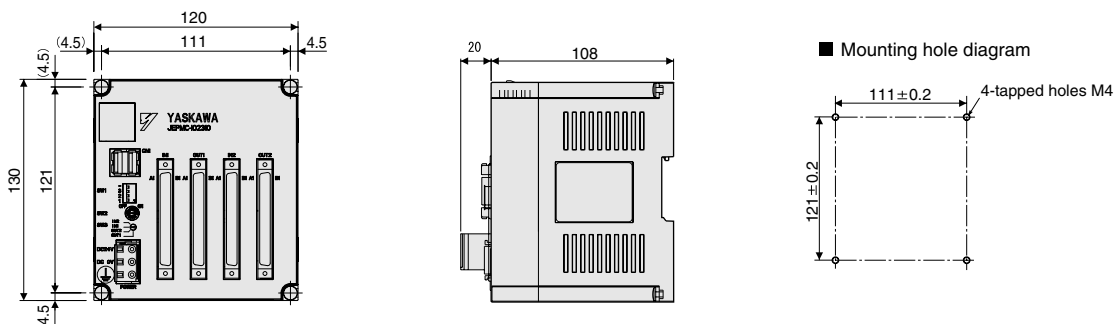
| Item                           | Details  |  |
|--------------------------------|--|--|
| Type                           | SI-T/V7  | SI-T   |
| Applicable inverter            | CIMR-V7 / 3G3-MV<br>(firmware 5740 or newer)   | CIMR-G7 / CIMR-F7<br>(firmware 656x/for G7 / 4011 or newer for F7) |
|                                | 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

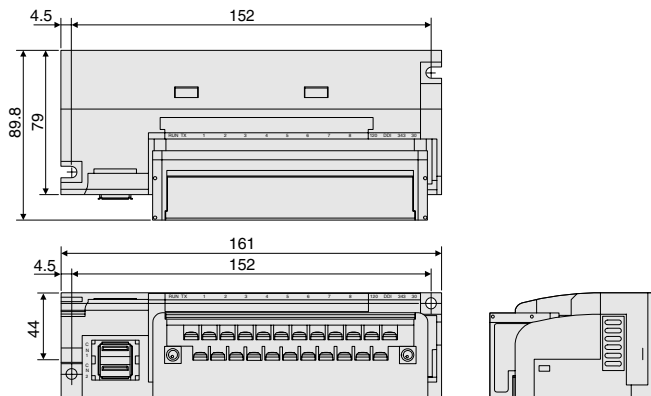
MP2300 basic module



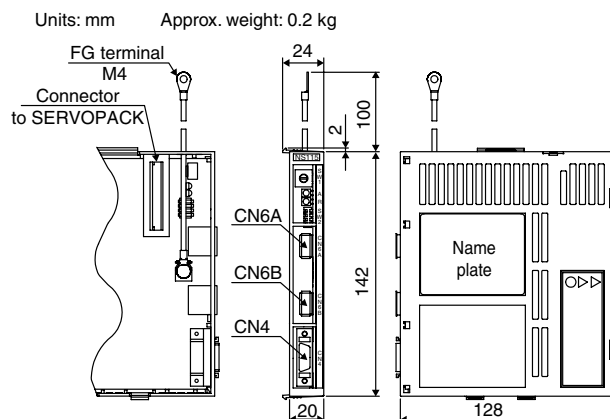
IO2310 I/O module



I/O modules PL2900, PL2910, AN2900, AN2910



MECHATROLINK-II servo drive interface unit





Ordering information

MP2300 - motion controller main unit

| Name  | Model name | Model        |
|---|------------|--------------|
| MP2300 basic module (CPU module included), 1 channel for MECHATROLINK-II, I/O | MP2300     | JEPMC-MP2300 |

MP2300 - motion control modules

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

MP2300 - communication modules

| Name  | Model name | Model        |
|---|------------|--------------|
| General-purpose serial communication module (RS-232C / RS422 communication) | 2171F-01   | JAPMC-CM2310 |
| Ethernet communication module (RS-232C / ethernet communication)            | 2181F-01   | JAPMC-CM2300 |
| DeviceNet communication module (RS-232C / DeviceNet communication)          | 2601F-01   | JAPMC-CM2320 |
| PROFIBUS communication module (RS-232C / PROFIBUS communication)            | 2611F-01   | JAPMC-CM2330 |

MP2300 - I/O 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 |

MECHATROLINK-II - related devices

| Name                           | Remarks   | Model          |
|--------------------------------|---|----------------|
| Distributed I/O modules        | 64-point input and 64-point output  | JEPMC-IO2310   |
|                                | Reversible counter: 2 channels  | JEPMC-PL2900   |
|                                | Pulse output: 2 channels  | JEPMC-PL2910   |
|                                | Analog input: -10 V to +10 V, 4 channels  | JEPMC-AN2900   |
|                                | Analog output: -10 V to +10 V, 2 channels   | JEPMC-AN2910   |
| MECHATROLINK-II cables         | 0.5 meter   | JEPMC-W6003-A5 |
|                                | 1 meter   | JEPMC-W6003-01 |
|                                | 3 meters  | JEPMC-W6003-03 |
|                                | 5 meters  | JEPMC-W6003-05 |
|                                | 10 meters   | JEPMC-W6003-10 |
|                                | 20 meters   | JEPMC-W6003-20 |
|                                | 30 meters   | 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<br>(for inverter version support contact your OMRON sales office)     | SI-T/V7        |
|                                | For Varispeed F7, G7 inverter<br>(for inverter version support contact your OMRON sales office) | SI-T           |
| MECHATROLINK-II repeater       | MECHATROLINK-II repeater  | JEPMC-REP2000  |

I/O cables

|                          | Remarks                                | Length m | Model          |
|--------------------------|--|----------|----------------|
| 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 MP2300     | With connector on the MP2300 side      | 0.5      | JEPMC-W2060-A5 |
|                          |  | 1.0      | JEPMC-W2060-01 |
|                          |  | 3.0      | JEPMC-W2060-03 |
| 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 |

Accessories

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

## Computer software

| Specifications   | Model       |
|--|-------------|
| Programming software to support from system design to maintenance.<br>Intuitive ladder programming and editing functions. CAM data generation<br>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 0.03527.