

CK3M-CPU1□1

CSM_CK3M-CPU1_1_DS_E_DITA_3_4

**Multi-axis control with
a fastest servo cycle time of 50 μ s/5
axes
enables precision machining**



CK3M-CPU1□1

Features

- Up to 16 axes can be controlled by analog commands using four CK3W-AX□□□□□ Axial Interface Units and an expansion rack
- The CK3M-CPU121 controls up to eight EtherCAT servo drives
- G-Code/ANSI C/original programming language
- EtherCAT slaves including vision and I/O can be connected
- Compact design (1/3 the size of conventional models*1)
- The EtherCAT network reduces wiring and machine size

*1. Compared with UMAC from OMRON's Delta Tau Data Systems, Inc.

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

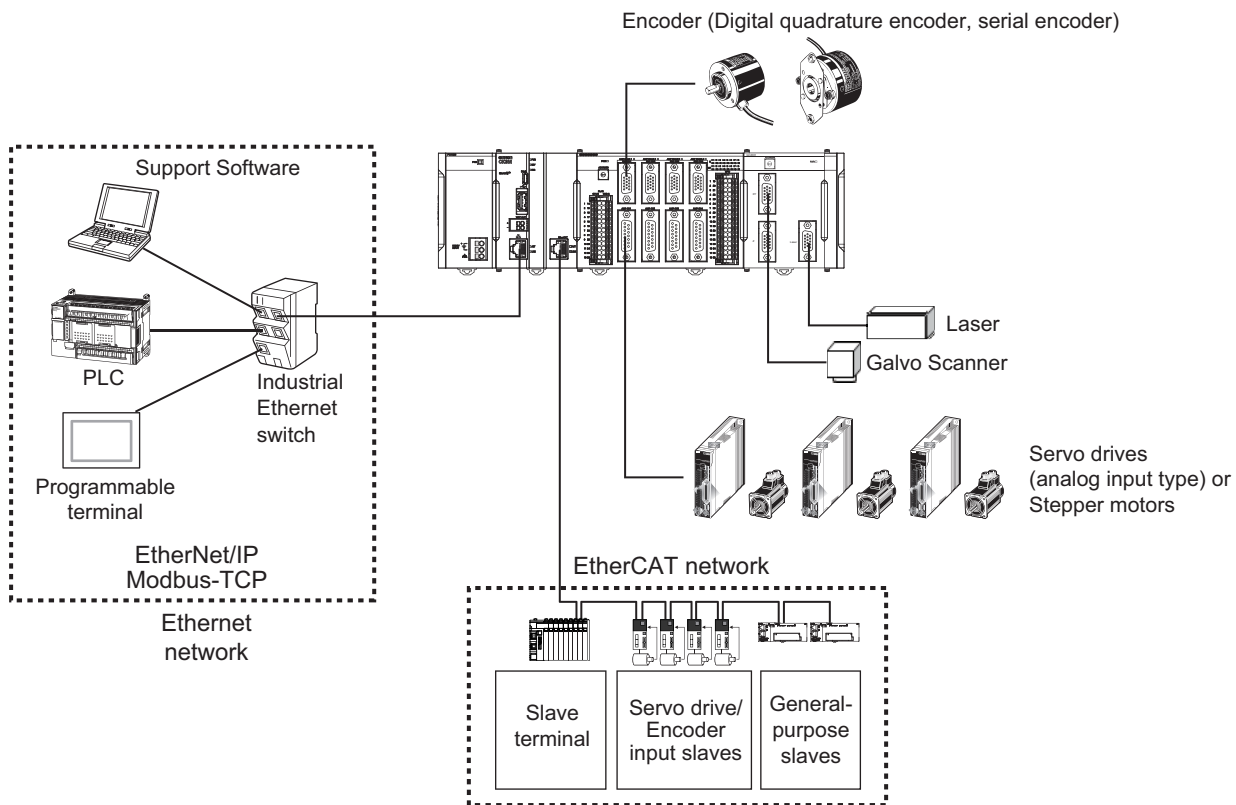
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The product photographs and figures that are used in this catalog may vary somewhat from the actual products.

PMAC is an abbreviation for Programmable Multi Axis Controller.

System Configurations

Basic System Configuration



*1. You will need this unit when you use the Galvo Scanner.

CK3W Unit Configuration (CPU Rack/Expansion Rack)

The following shows the configuration of CK3W Units.

CPU Rack

The CK3W Unit configuration in the CPU Rack consists of a Power Supply Unit, CPU Unit, CK3W-AX Unit, CK3W-MD Unit, CK3W-AD Unit, CK3W-ECS Unit, CK3W-GC Unit and End Cover.

Up to four CK3W Units (or up to two CK3W-AX Units) can be connected to the CPU Unit.

Expansion Rack

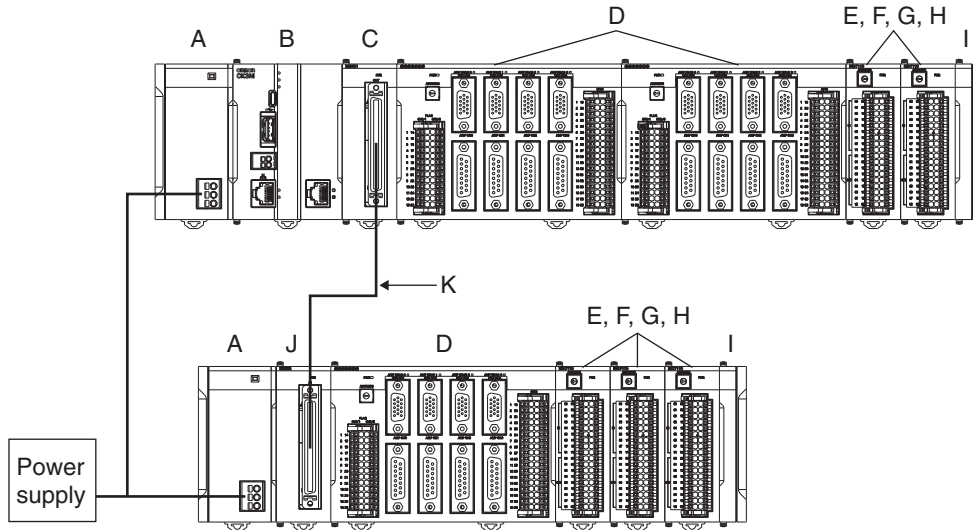
One Expansion Rack can be connected per CPU Unit.

To connect an Expansion Rack, use the Expansion Master Unit (CK3W-EXM01) and Expansion Slave Unit (CK3W-EXS02).

Up to four CK3W Units (or up to two CK3W-AX Units) can be installed to the Expansion Rack.

Connect the Expansion Master Unit (CK3W-EXM01) adjacent to the right side of the CPU Unit. Connect the Expansion Slave Unit (CK3W-EXS02) adjacent to the right side of the Power Supply Unit.

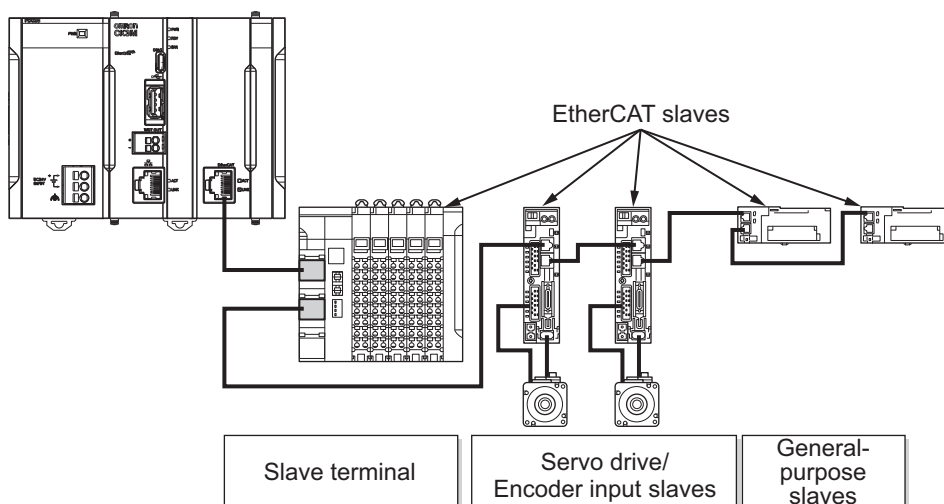
Unless the Expansion Master Unit (CK3W-EXM01) is connected adjacent to the right side of the CPU Unit, the Sys.Status register CK3WConfigErr becomes "5".



| Letter | Configuration | Remarks |
|--------|----------------------|---|
| A | Power Supply Unit | Input the 24 V power source. Always wire the CPU Rack and Expansion Rack to the same power supply. |
| B | CK3M-series CPU Unit | This is the Unit at the center of the motion control, which executes the motion program. |
| C | CK3W-EXM01 | Expansion Master Unit. Connect this Unit adjacent to the right side of the CPU Unit in the Expansion Rack. |
| D | CK3W-AX Unit | Axis Interface Unit. For axis control, connect this to a Servo Drive and encoder. |
| E | CK3W-MD Unit | Digital I/O Unit. You can add 16 digital inputs and 16 digital outputs. |
| F | CK3W-AD Unit | Analog Input Unit. You can add 4 or 8 voltage inputs. |
| G | CK3W-ECS Unit | Encoder Input Unit. You can connect four channels of the serial encoder. |
| H | CK3W-GC Unit | Laser Interface Unit. You can connect the Galvo Scanner compatible with the interface of XY2-100 or SL2-100. |
| I | End Cover | Must be connected to the right end of the CPU Rack and Expansion Rack. The CPU Unit and the Expansion Slave Unit are each provided with one End Cover. |
| J | CK3W-EXS02 | Expansion Slave Unit. Use this in the Expansion Rack. Connect this Unit adjacent to the right side of the Power Supply Unit. |
| K | Expansion cable | Use this cable to connect the Expansion Master Unit and the Expansion Slave Unit. The cable length is 30 cm. Be sure to use the CK3W-CAX003A (30 cm) cable. |

EtherCAT Network Configuration

The EtherCAT network configuration consists of a Power Supply Unit, CPU Unit, End Cover, and EtherCAT slaves. Use the built-in EtherCAT port on the CK3M-series CPU Unit to connect EtherCAT slaves.



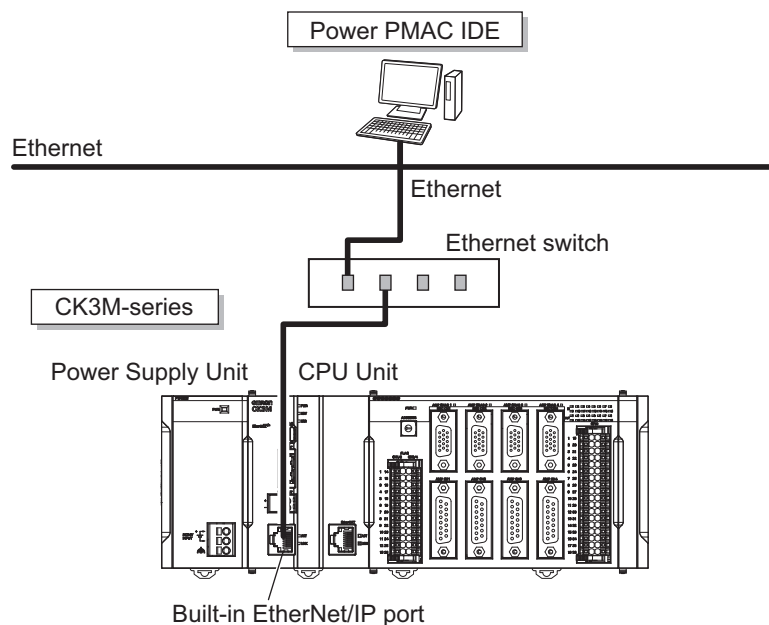
EtherCAT is synchronized with the servo cycle of the CK3M-series CPU Unit. This enables acquisition of the I/O data of slave terminals that are synchronized with the servo cycle.

Refer to the *CK3M-series Programmable Multi-Axis Controller User's Manual Hardware* (Cat.No.O036) for information on using the NX-series EtherCAT Coupler Unit.

Network Configuration

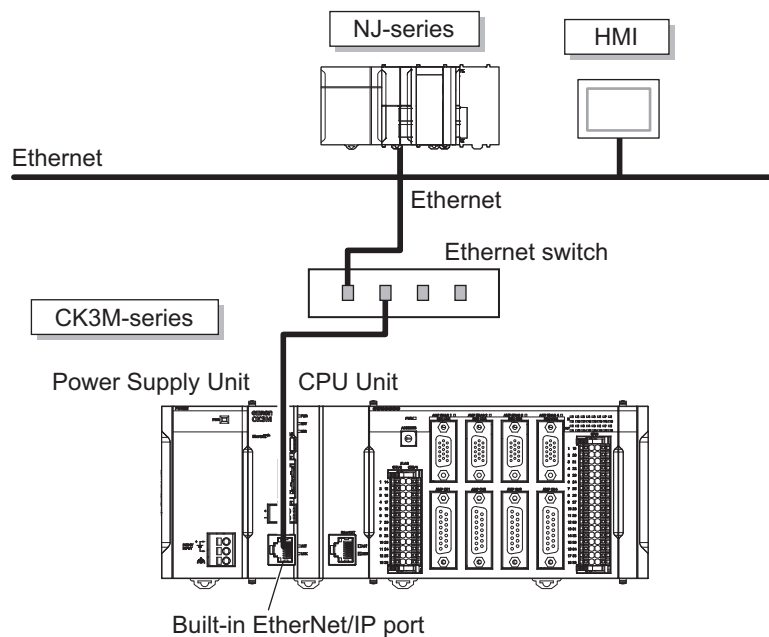
Connecting to the Power PMAC IDE

Connect the CK3M-series CPU Unit and the Power PMAC IDE through Ethernet.



Ethernet Network Configuration

The Ethernet communications port on the CK3M-series CPU Unit supports the Modbus-TCP protocol. It can be connected to devices such as PLCs and programmable terminals that support the Modbus-TCP protocol.



Ordering Information

CK3M CPU Unit

The models and outline of specifications are given below.

| Product name | Memory capacity | Port | Max. no. of controlled axes at EtherCAT port | Model |
|--------------|--|---|--|-------------|
| CPU Unit *1 | RAM: 1 GB Built-in flash memory: 1 GB | EtherNet/IP: 1 port EtherCAT: None | - | CK3M-CPU101 |
| | | EtherNet/IP: 1 port EtherCAT: 1 port (DC sync) | 4 | CK3M-CPU111 |
| | | EtherNet/IP: 1 port EtherCAT: 1 port (DC sync) | 8 | CK3M-CPU121 |

*1. One CK3W-TER11 End Cover is provided with the CK3M-CPU1□□ CPU Unit.

Support Software

The following table shows the Support Software used to configure, monitor, program, and debug the Motion Controller.

| Configuration software | | Application | How to Procure |
|------------------------|-----------------------|--|-------------------------------|
| Power PMAC IDE *1 | | This computer software is used to configure the Motion Controller, create user programs, and debug the programs. | This is free software. *2 |
| Power PMAC-NC | Power PMAC-NC SDK | This computer software is used to control working machines and other CNC machines with the Motion Controller. Use this software to customize HMI screens. The product contains extension source codes for customization. | This is non-free software. *2 |
| | Power PMAC-NC Runtime | This computer software is used to control working machines and other CNC machines with the Motion Controller. Use this software when you do not customize HMI screens. | This is non-free software. *2 |

*1. Refer to Version Information->Page 12 for the supported Power PMAC IDE versions.

*2. Contact your OMRON representative for information on how to procure.

Power Supply Units

The models and outline of specifications are given below.

| Product name | Specifications | Model |
|-------------------|---|------------|
| Power Supply Unit | Rated output voltage: 5 VDC/24 VDC Maximum output power: 5 VDC 23 W, 24 VDC 66 W | CK3W-PD048 |

Axial Interface Units

The models and outline of specifications are given below.

| Product name | Amplifier interface | Encoder interface | Output type | Model |
|---------------------|--------------------------|---|-------------|--------------|
| Axis Interface Unit | DirectPWM output | Digital quadrature encoder/serial encoder | NPN type | CK3W-AX1313N |
| | DA output (Filtered PWM) | | | CK3W-AX1414N |
| | DA output (True DAC) | | | CK3W-AX1515N |
| | DirectPWM output | Sinusoidal encoder/serial encoder | | CK3W-AX2323N |
| | DirectPWM output | Digital quadrature encoder/serial encoder | PNP type | CK3W-AX1313P |
| | DA output (Filtered PWM) | | | CK3W-AX1414P |
| | DA output (True DAC) | | | CK3W-AX1515P |
| | DirectPWM output | Sinusoidal encoder/serial encoder | | CK3W-AX2323P |

Digital I/O Units

| Product name | Number of inputs | Number of outputs | I/O type | Model |
|------------------|------------------|-------------------|----------|-------------|
| Digital I/O Unit | 16 | 16 | NPN | CK3W-MD7110 |
| | | | PNP | CK3W-MD7120 |

Analog Input Units

| Product name | Input range | Number of inputs | Model |
|-------------------|-------------|------------------|-------------|
| Analog Input Unit | -10 to 10 V | 4 | CK3W-AD2100 |
| | | 8 | CK3W-AD3100 |

Encoder Input Unit

| Product name | Encoder type | Number of inputs | Protocol | Model |
|--------------------|----------------|------------------|--|-------------|
| Encoder Input Unit | Serial encoder | 4 channels | BiSS-C, Endat2.2, and R88M-1L□□/1M□ Motor built-in encoder | CK3W-ECS300 |

Laser Interface Unit

| Product name | Communications method | Laser output | Model |
|----------------------|-----------------------|------------------------|-------------|
| Laser Interface Unit | XY2-100 | PWM output | CK3W-GC1100 |
| | | PWM output, TCR output | CK3W-GC1200 |
| | SL2-100 | PWM output | CK3W-GC2100 |
| | | PWM output, TCR output | CK3W-GC2200 |


Expansion Master Units and Expansion Slave Units

| Product name | Description | Model |
|-------------------------|---|--------------|
| Expansion Master Unit | Connect the Expansion Master Unit adjacent to the right side of the CPU unit | CK3W-EXM01 |
| Expansion Slave Unit *1 | Connect the Expansion Slave Unit adjacent to the right side of the power supply unit | CK3W-EXS02 |
| Expansion Cable | For connection between the Expansion Master Unit and the Expansion Slave Unit (0.3 m) | CK3W-CAX003A |

*1. One CK3W-TER11 End Cover is provided with the CK3W-EXS02 Expansion Slave Unit.

EtherCAT Coupler Units

You can use NX Units via the EtherCAT Coupler Unit that is connected to the built-in EtherCAT port on the CPU Unit.

| Product name | Communications cycle in DC Mode | Current consumption | Max. I/O power supply current | Model |
|--|------------------------------------|---------------------|-------------------------------|-----------|
| EtherCAT Coupler Unit *1  | 125 to 10,000 μ s *2 | 1.25 W max. | 10 A | NX-ECC203 |

*1. One NX-END01 End Cover is provided with the EtherCAT Coupler Unit.

*2. This depends on the specifications of the EtherCAT master.

Switching Hubs





| Product name | Specification | Manufacturer | Model |
|--------------------------|---|---------------------|----------|
| Industrial Switching Hub | 5 ports. Current consumption: 0.07 A Power supply connector included | OMRON Corporation | W4S1-05D |
| | Contact the manufacturer. | Cisco Systems, Inc. | - |
| | Contact the manufacturer. | CONTEC Co., Ltd. | - |
| | Contact the manufacturer. | PHOENIX CONTACT | - |

Recommended EtherCAT and Ethernet Communications Cables

Use a straight STP (shielded twisted-pair) cable of category 5 or higher with double shielding (aluminum tape and braiding) for EtherCAT. Use an STP (shielded twisted-pair) cable of category 5 or higher for Ethernet. Products for Ethernet 100BASE-TX described in the table below can be used for both 100BASE-TX and 10BASE-T.

Cable with Connectors

Cables with Connectors (For EtherCAT only)

| Item | Appearance | Recommended manufacturer | Cable length (m) | Model |
|--|---|--------------------------|------------------|----------------------|
| Cable with Connectors on Both Ends (RJ45/RJ45) Standard RJ45 plugs ^{*1} Wire gauge and number of pairs: AWG26, 4-pair cable Cable sheath material: LSZH ^{*2} Cable color: Yellow ^{*3} |  | OMRON | 0.3 | XS6W-6LSZH8SS30CM-Y |
| | | | 0.5 | XS6W-6LSZH8SS50CM-Y |
| | | | 1 | XS6W-6LSZH8SS100CM-Y |
| | | | 2 | XS6W-6LSZH8SS200CM-Y |
| | | | 3 | XS6W-6LSZH8SS300CM-Y |
| | | | 5 | XS6W-6LSZH8SS500CM-Y |
| Cable with Connectors on Both Ends (RJ45/RJ45) Rugged RJ45 plugs ^{*1} Wire gauge and number of pairs: AWG22, 2-pair cable Cable color: Light blue |  | OMRON | 0.3 | XS5W-T421-AMD-K |
| | | | 0.5 | XS5W-T421-BMD-K |
| | | | 1 | XS5W-T421-CMD-K |
| | | | 2 | XS5W-T421-DMD-K |
| | | | 5 | XS5W-T421-GMD-K |
| | | | 10 | XS5W-T421-JMD-K |
| Cable with Connectors on Both Ends (M12 Straight/M12 Straight) Shield strengthening connector cable ^{*4} M12/Smartclick connectors Wire gauge and number of pairs: AWG22, 2-pair cable Cable color: Black |  | OMRON | 0.5 | XS5W-T421-BM2-SS |
| | | | 1 | XS5W-T421-CM2-SS |
| | | | 2 | XS5W-T421-DM2-SS |
| | | | 3 | XS5W-T421-EM2-SS |
| | | | 5 | XS5W-T421-GM2-SS |
| | | | 10 | XS5W-T421-JM2-SS |
| Cable with Connectors on Both Ends (M12 Straight/RJ45) Shield strengthening connector cable ^{*4} M12/Smartclick connector and rugged RJ45 plug Wire gauge and number of pairs: AWG22, 2-pair cable Cable color: Black |  | OMRON | 0.5 | XS5W-T421-BMC-SS |
| | | | 1 | XS5W-T421-CMC-SS |
| | | | 2 | XS5W-T421-DMC-SS |
| | | | 3 | XS5W-T421-EMC-SS |
| | | | 5 | XS5W-T421-GMC-SS |
| | | | 10 | XS5W-T421-JMC-SS |

*1. Cables with standard RJ45 plugs are available in the following lengths: 0.2 m, 0.3 m, 0.5 m, 1 m, 1.5 m, 2 m, 3 m, 5 m, 7.5 m, 10 m, 15 m, 20 m. Cables with rugged RJ45 plugs are available in the following lengths: 0.3 m, 0.5 m, 1 m, 2 m, 3 m, 5 m, 10 m, 15 m. For details, refer to the *Industrial Ethernet Connectors Catalog* (Cat. No. G019).

*2. The lineup features Low Smoke Zero Halogen cables for in-cabinet use and PUR cables for out-of-cabinet use. Although the LSZH cable is single shielded, its communications and noise characteristics meet the standards.

*3. Cables colors are available in yellow, green, and blue.

*4. For details, contact your OMRON representative.

Cables/Connectors

| Product name | | | Recommended manufacturer | Model |
|---|---|-------------------------|--------------------------|---|
| Products for EtherCAT or Ethernet (1000BASE-T/100BASE-TX) | Wire gauge and number of pairs: AWG24, 4-pair cable | Cable | Hitachi Cable, Ltd. | NETSTAR-C5E SAB 0.5 x 4P CP ^{*1} |
| | | | Kuramo Electric Co. | KETH-SB ^{*1} |
| | | | JMACS Japan Co., Ltd. | IETP-SB ^{*1} |
| | | RJ45 Connector | Panduit Corporation | MPS588-C ^{*1} |
| Products for EtherCAT or Ethernet (100BASE-TX) | Wire gauge and number of pairs: AWG22, 2-pair cable | Cable | Kuramo Electric Co. | KETH-PSB-OMR ^{*2} |
| | | | JMACS Japan Co., Ltd. | PNET/B ^{*2} |
| | | RJ45 Assembly Connector | OMRON Corporation | XS6G-T421-1 ^{*2} |
| | | | | |

*1. We recommend you to use the Cable for EtherCAT or Ethernet marked with *1 and the RJ45 Connector marked with *1 together.

*2. We recommend you to use the Cable for EtherCAT or Ethernet marked with *2 and the RJ45 Assembly Connector marked with *2 together.

Note: Connect both ends of cable shielded wires to the connector hoods.

Optional Products/Maintenance Products/DIN Track Accessories

| Product name | | Model |
|---|---|------------|
| EtherCAT Junction Slave ^{*1} | 3 ports. Power supply voltage: 20.4 to 28.8 VDC (24 VDC -15 to +20%). Current consumption: 0.08 A | GX-JC03 |
| | 6 ports. Power supply voltage: 20.4 to 28.8 VDC (24 VDC -15 to +20%). Current consumption: 0.17 A | GX-JC06 |
| USB Flash Drive | OMRON USB Flash Drive (2 GB) | FZ-MEM2G |
| | OMRON USB Flash Drive (8 GB) | FZ-MEM8G |
| End Cover ^{*2} (for CK3M-CPU1□1 CPU Unit) | Must be connected to the right end of the CPU rack and expansion rack. The CPU unit and the expansion slave unit are each provided with one end cover. | CK3W-TER11 |
| DIN Track | Length: 0.5 m. Height: 7.3 mm | PFP-50N |
| | Length: 1 m. Height: 7.3 mm | PFP-100N |
| | Length: 1 m. Height: 16 mm | PFP-100N2 |
| End Plate | Stopper to prevent units from moving on the DIN track. The minimum order quantity is 10 units. | PFP-M |

*1. EtherCAT junction slaves cannot be used for EtherNet/IP and Ethernet.

*2. Use the CK3W-TER11 End Cover only for the CK3M-CPU1□1 CPU Unit or CK3W-EXS02 Expansion Slave Unit.

General Specifications

This section describes the Motion Controller specifications.

| Item | | Specification |
|-----------------------|-------------------------------|--|
| Enclosure | | Mounted in a panel |
| Grounding Method | | Ground to less than 100 Ω |
| Operating Environment | Ambient Operating Temperature | 0 to 55°C |
| | Ambient Operating Humidity | 10% to 95% (with no condensation or icing) |
| | Atmosphere | Must be free of corrosive gases. |
| | Ambient Storage Temperature | -25 to 70°C (with no condensation or icing) |
| | Vibration Resistance | Conforms to IEC 60068-2-6. 5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz, acceleration of 9.8 m/s ² 100 min each in X, Y, and Z directions (10 sweeps of 10 min each = 100 min total) |
| | Shock Resistance | Conforms to IEC 60068-2-27. 147 m/s ² , 3 times each in X, Y, and Z directions |
| Insulation Resistance | | 20 M Ω min. between isolated circuits (at 100 VDC) |
| Dielectric Strength | | 510 VAC between isolated circuits for 1 minute with a leakage current of 5 mA max. |
| Applicable Standards | | cULus, EU: EN 61326, RCM, KC, EAC |

Performance Specifications

The performance specifications are shown below.

| Item | | | CK3M-CPU101 | CK3M-CPU111 | CK3M-CPU121 |
|---|--|---|--|--|--|
| Memory | | | Main memory: 1 GB Built-In Flash Memory: 1 GB | | |
| Number of connectable CK3W Units (when using Expansion Rack) | | | 8 Units max. Or 4 CK3W-AX Units max. | | |
| External connection terminals | | | No EtherCAT | | For EtherCAT communications RJ45 × 1 (Shield supported) |
| | | | For Ethernet communications RJ45 × 1 (Shield supported) | | |
| | | | USB port For external memory connection, USB 2.0 host × 1 Type A | | |
| Motion control | CK3W-AX Unit | Maximum number of controlled axes | 16 axes (when using four CK3W-AX Units) | | |
| | | Control method | Speed and torque control using analog output Stepper motor control using pulse output Commutation control using DirectPWM output | | |
| | EtherCAT | Maximum number of controlled axes | None | 4 axes | 8 axes |
| | | Control method | | Issuing control commands using EtherCAT | |
| EtherCAT communications specifications | Communications protocol | | None | EtherCAT protocol | |
| | Baud rate | | | 100 Mbps | |
| | Physical layer | | | 100BASE-TX (IEEE 802.3) | |
| | Topology | | | Line, daisy chain, and branching | |
| | Transmission media | | | Twisted-pair cable of category 5 or higher (doubleshielded cable with aluminum tape and braiding) | |
| | Transmission distance | | | Distance between nodes: 100 m or less | |
| | Maximum number of slaves | | | 32 | |
| | Range of node addresses that can be set | | | 1 to 32 | |
| Ethernet communications specifications | Baud rate | | 100 Mbps | | |
| | Physical layer | | 100BASE-TX (IEEE 802.3) | | |
| | Frame length | | 1,514 bytes max. | | |
| | Media access method | | CSMA/CD | | |
| | Modulation | | Baseband | | |
| | Topology | | Star | | |
| | Transmission media | | Twisted-pair cable of category 5, 5e, or higher (shielded cable) *1 | | |
| | Maximum transmission distance between Ethernet switch and node | | 100 m | | |
| | Maximum number of cascade connections | | There are no restrictions if an Ethernet switch is used. | | |
| | EtherNet/IP tag data link (cyclic communications) *2 | Number of connections | | 32 | |
| | | Requested packet interval (RPI) | | 1 to 1,000 ms (0.5 ms units) | |
| | | Allowed communications bandwidth per Unit | | 3,200 pps *3 | |
| | | IO connection size | | Input: 504 bytes max. Output: 504 bytes max. | |
| EtherNet/IP CIP message service *2 | | UCMM (unconnected message) | | Number of servers that can perform communications simultaneously: 32 | |
| EtherNet/IP conformance test | | CT17 comoliant | | | |
| USB port | Physical layer | | USB 2.0 compliant, type A connector. Output voltage: 5 V, 0.5 A max. | | |
| | Transmission distance | | 3 m max. | | |
| Current consumption | | | CK3M-CPU101: 5 VDC 7.2 W max. CK3M-CPU111/CPU121: 5 VDC 7.8 W max. (including End Cover) | | |
| Dimensions (height × depth × width) | | | 90(H)/80(D)/63.2(W) | | |
| Weight (including End Cover) | | | 220 g max. | | 230 g max. |

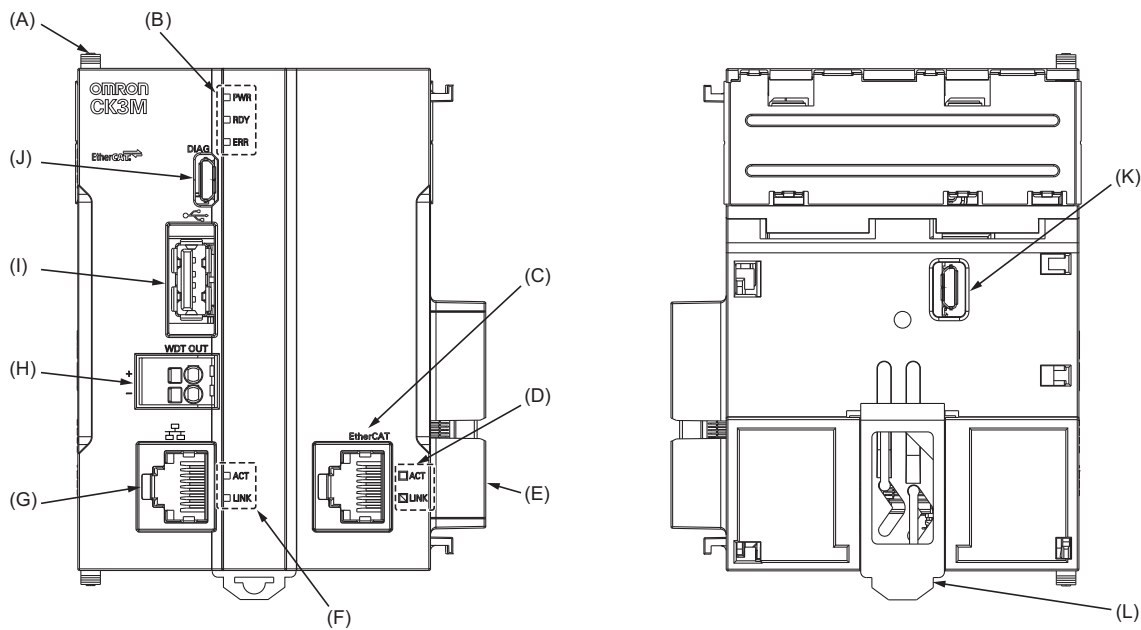
*1. Always use shielded cables for EtherNet/IP communications.

*2. EtherNet/IP is available only for targets and not available for originators. EtherNet/IP is available only for CPU Units with PMAC firmware revision version 2.6.0 or later whose date of production is September 8th, 2020 or later (Lot number 08920 and later). Use Power PMAC IDE Ver.4.4.1 or a later version.

*3. Represents Packet Per Second and indicates the number of sent or received packets that can be processed in a second.

Part Names and Functions

CPU Unit



| Letter | Name | Function |
|--------|---|---|
| A | Slider | Holds the Units together. |
| B | CPU Unit operation indicators | Shows the operation status of the CPU Unit using multiple indicators. |
| C | EtherCAT communications connector | Connects to an EtherCAT network communications cable. |
| D | EtherCAT communications port operation indicators | Shows the operation status of EtherCAT. |
| E | Unit connector | Connector that connects to the Unit. |
| F | Ethernet communications port operation indicators | Shows the operation status of Ethernet. |
| G | Ethernet communications connector | Connects to an Ethernet network communications cable. |
| H | Watchdog output terminal block | Normally in ON state, and switches to OFF when watchdog is activated. |
| I | USB 2.0 connector | USB 2.0 interface connector. Connects the USB memory. |
| J | USB connector for maintenance | Do not use. |
| K | USB connector for maintenance | Do not use. |
| L | DIN Track mounting hook | Used to mount the Unit to a DIN Track. |

Version Information

CK3W Units and Supported Versions of CPU Units and Power PMAC IDE

This section provides version information that you need to know when connecting a CK3W Unit to a CPU Unit and PowerPMAC IDE. The table below specifies the correspondence between each CK3W Unit and the versions of CPU Unit and Power PMAC IDE.

Be sure to use the version combinations listed in the table below.

| CK3W Unit | Supported version | |
|--|-----------------------------------|------------------------|
| | CPU Unit's PMAC firmware revision | Power PMAC IDE version |
| CK3W-AX1414□/-AX1515□ | All versions supported | Ver. 4.2 or later |
| CK3W-AX1313□/-AX2323□ | Ver. 2.5.2 or later | Ver. 4.3 or later |
| CK3W-MD7110/-MD7120 | Ver. 2.5.2 or later | Ver. 4.3 or later |
| CK3W-AD2100/-AD3100 | Ver. 2.5.2 or later | Ver. 4.3 or later |
| CK3W-EXM01/-EXS02 | Ver. 2.5.2 or later | Ver. 4.3 or later |
| CK3W-ECS300 | Ver.2.6.1 or later | Ver.4.5 or later |
| CK3W-GC1100 CK3W-GC1200 CK3W-GC2100 CK3W-GC2200 | Ver.2.6.1 or later | Ver.4.5 or later |

Restrictions on Using the NX-series EtherCAT Coupler Unit

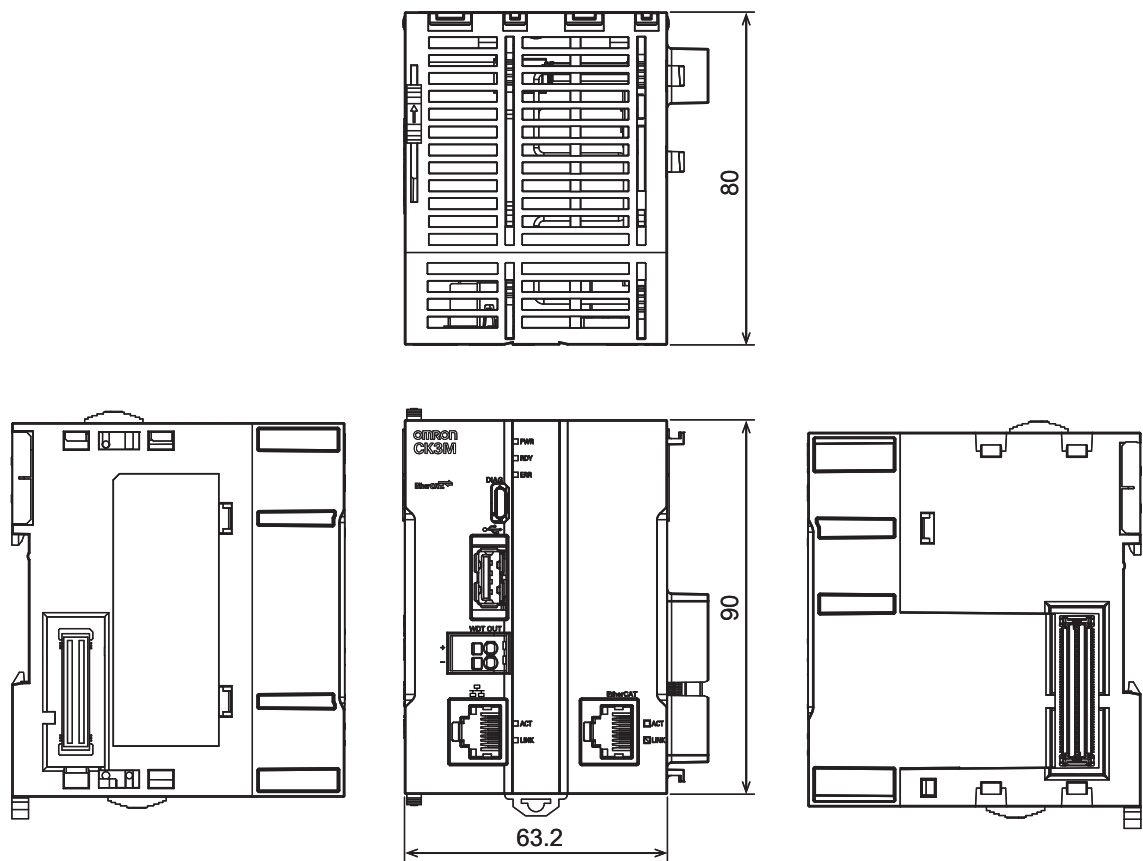
When OMRON NX-series EtherCAT Coupler Units are used as slaves with the CPU Unit as the EtherCAT master, the following models and unit versions of EtherCAT Coupler Units can be connected.

| Model | Unit version | Connectable/Unconnectable |
|-----------|--------------------|---------------------------|
| NX-ECC203 | Ver.1.4 or later | Connectable |
| | Ver.1.3 or earlier | |
| NX-ECC202 | All versions | Unconnectable |
| NX-ECC201 | All versions | |

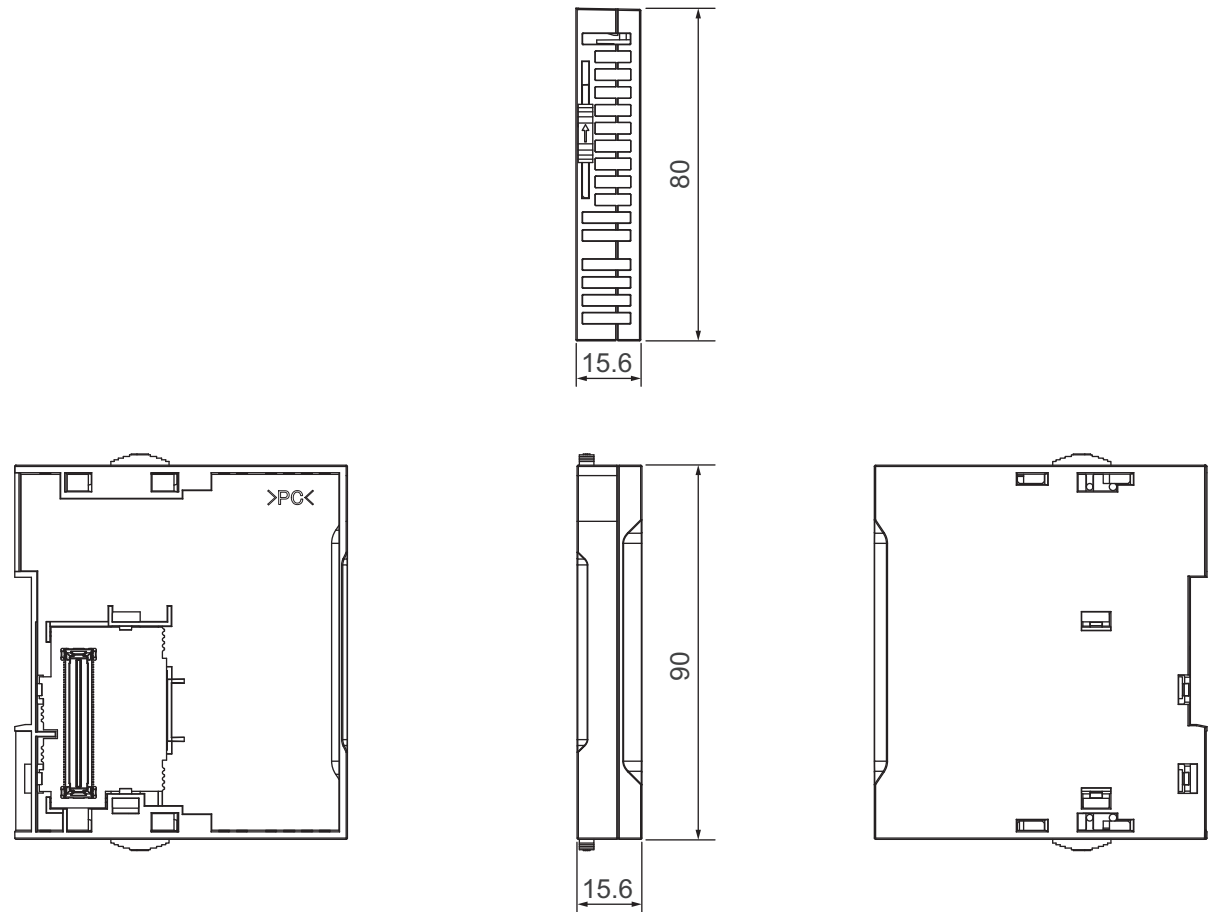
Dimensions

(Unit: mm)

CPU Unit



End Cover



Power Supply Unit

| Model | Unit width (mm) |
|------------|-----------------|
| CK3W-PD048 | 45 |

CPU Unit

| Model | Unit width (mm) |
|-------------|-----------------|
| CK3M-CPU101 | 63.2 |
| CK3M-CPU111 | |
| CK3M-CPU121 | |

End Cover

| Model | Unit width (mm) |
|------------|-----------------|
| CK3W-TER11 | 15.6 |

Axis Interface Unit

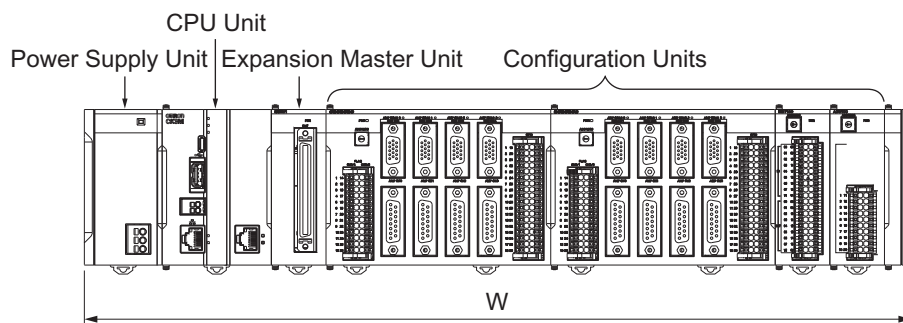
| Model | Unit width (mm) |
|--------------|-----------------|
| CK3W-AX1313N | 130 |
| CK3W-AX1414N | |
| CK3W-AX1515N | |
| CK3W-AX2323N | |
| CK3W-AX1313P | |
| CK3W-AX1414P | |
| CK3W-AX1515P | |
| CK3W-AX2323P | |

Digital I/O Unit, Analog Input Unit, Expansion Master Unit, and Expansion Slave Unit

| Model | Unit width (mm) |
|-------------|-----------------|
| CK3W-MD7110 | 31.6 |
| CK3W-MD7120 | |
| CK3W-AD2100 | |
| CK3W-AD3100 | |
| CK3W-EXM01 | |
| CK3W-EXS02 | |

Encoder Input Unit / Laser Interface Unit

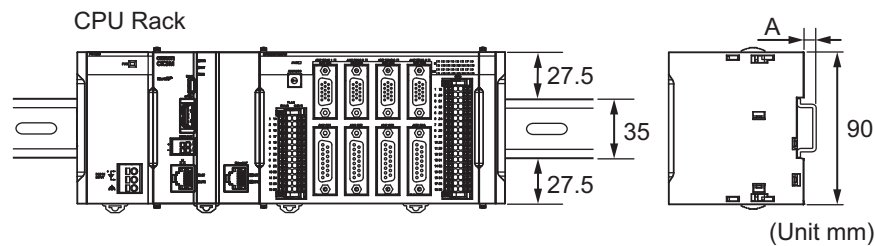
| Model | Unit width (mm) |
|-------------|-----------------|
| CK3W-ECS300 | 63.2 |
| CK3W-GC1100 | |
| CK3W-GC1200 | |
| CK3W-GC2100 | |
| CK3W-GC2200 | |

Design Example for Width W


| Name | Model | Unit width (mm) | Qty | Subtotal unit width (mm) |
|---|--------------|-----------------|-----|--------------------------|
| Power Supply Unit | CK3W-PD048 | 45 | 1 | 45 |
| CPU Unit | CK3M-CPU101 | 63.2 | 1 | 63.2 |
| Expansion Master Unit | CK3W-EXM01 | 31.6 | 1 | 31.6 |
| Axis Interface Unit | CK3W-AX1414N | 130 | 2 | 260 |
| Digital I/O Unit | CK3W-MD7110 | 31.6 | 1 | 31.6 |
| Analog Input Unit | CK3W-AD2100 | 31.6 | 1 | 31.6 |
| End Cover | CK3W-TER11 | 15.6 | 1 | 15.6 |
| Total W = 45 + 63.2 + 31.6 + 130 × 2 + 31.6 + 31.6 + 15.6 | | | | 478.6 |

Installation Dimensions

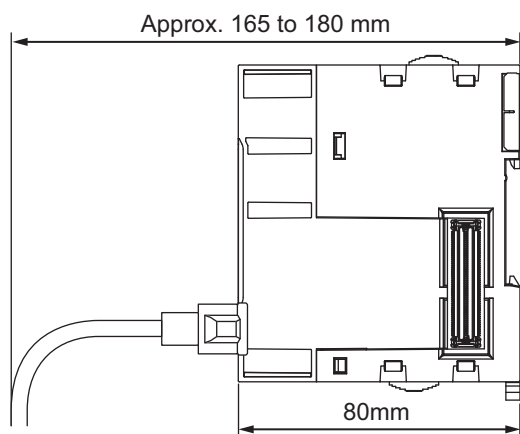
Installation Dimensions



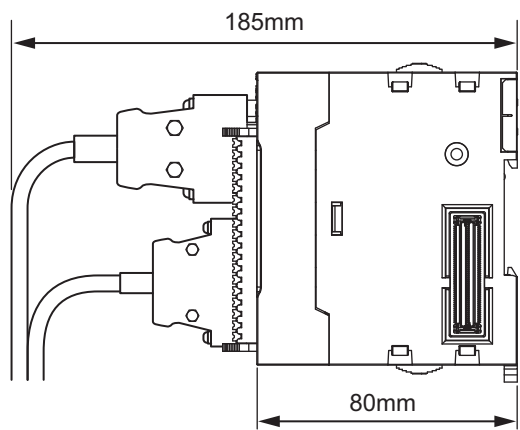
| DIN Track | A (mm) |
|-----------|--------|
| PFP-100N2 | 16 |
| PFP-100N | 7.3 |
| PFP-50N | 7.3 |

Installation Height

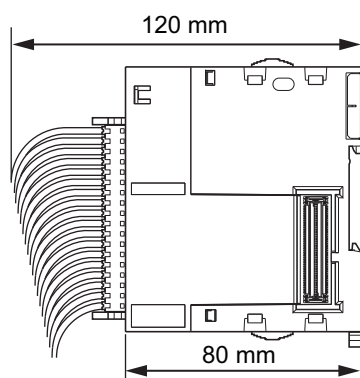
For CK3M-series CPU Unit



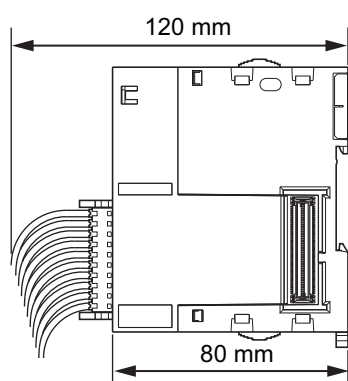
For CK3W-AX Unit



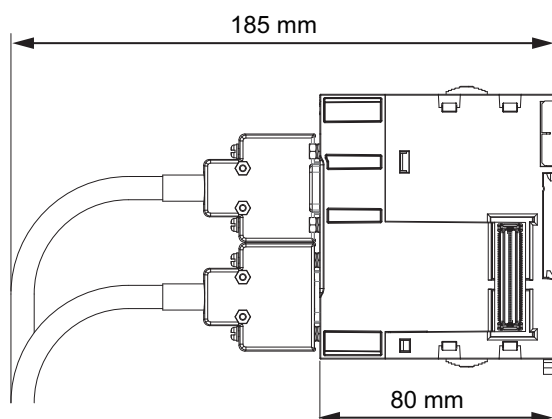
For CK3W-MD Unit



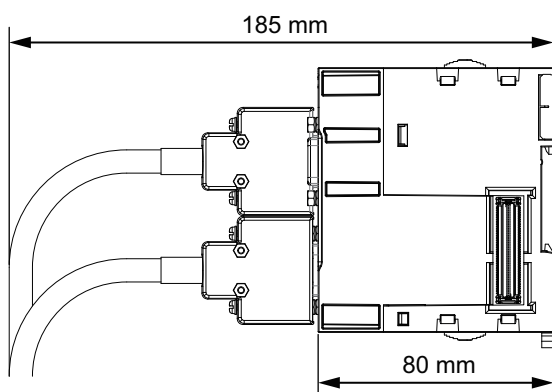
For CK3W-AD Unit



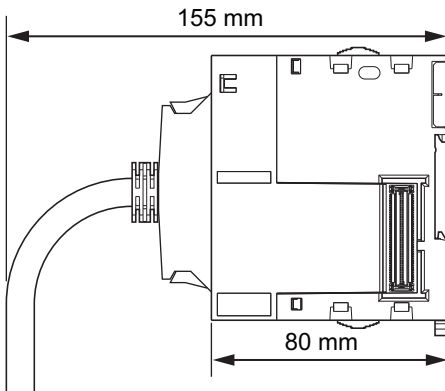
For CK3W-ECS Unit



For CK3W-GC Unit



For CK3W-EXM01 and CK3W-EXS02



Related Manuals

The following manuals are related. Use these manuals for reference. Contact your OMRON representative for information on how to procure these manuals.

| Manual name | Cat. No. | Application | Description |
|---|----------|--|---|
| CK3M-series Programmable Multi-Axis Controller Hardware User's Manual | O036 | Learning the basic specifications of the CK3M-series Programmable Multi-Axis Controller, including introductory information, design, installation, and maintenance. Mainly hardware information is provided. | An introduction to the entire CK3M-series system is provided along with the following information. <ul style="list-style-type: none"> • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection |
| Power PMAC User's Manual | O014 | Learning the features and usage examples of the CK3M-series Programmable Multi-Axis Controller. | The following information is provided on the CK3M-series Programmable Multi-Axis Controller. <ul style="list-style-type: none"> • Basic functions • Setup examples • Programming examples |
| Power PMAC Software Reference Manual | O015 | Learning how to program a CK3M-series Programmable Multi-Axis Controller. | The following information is provided on the CK3M-series Programmable Multi-Axis Controller. <ul style="list-style-type: none"> • Details of commands • Details of data structure |
| Power PMAC IDE User Manual | O016 | Learning how to operate Power PMAC IDE, the integrated development environment of the Controller. | Describes the operating procedures of Power PMAC IDE, and examples of how to start the system. |
| Power PMAC-NC Quick Start Manual | O017 | Briefly understanding the basic usage of Power PMAC-NC. | Describes the Quick setup procedure to run Power PMAC-NC on a desktop PC by showing some examples. |
| Power PMAC-NC .ini Configuration Manual | O018 | Configuring an application for CNC devices by using Power PMAC-NC. | Describes how to set up <i>PowerPmacNC.ini</i> , the setup data file to be loaded when Power PMAC-NC starts. |
| Power PMAC-NC Software User Manual | O019 | Learning about usage and features of Power PMAC-NC, Support Software required to use the Controller for CNC devices. | The following information is provided on Power PMAC-NC. <ul style="list-style-type: none"> • How to use the software • Features included in the software • Features that can be customized |
| Power PMAC-NC Mill G-Code Manual | O020 | Creating programs for CNC devices by using Power PMAC-NC. | Describes the basic G-code set that can be used for Power PMAC-NC, and relevant instructions. |

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