




SYSMAC CP系列
安全上的注意事项
感谢您购买本公司的可编程程序控制器（PLC）。为了能安全使用，请务必阅读该说明书和 PLC 主机的手册以及相应模块的参考手册。有关参考手册，可以与最近的代理商联系并索取最新版的资料。请妥善保管该说明书与参考用手册，同时请向最终用户寄送此类资料。
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安全上的注意事项






- 警告/注意表示的意义**

	警告	如果使用不正确，可能会引起人的轻伤或中度伤害，特殊情况还会引起重伤或死亡。也有可能引起物质方面重大损失。
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	注意	如果使用不正确，有时会引起轻伤或中度伤害，物品损坏等。
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- 警告表示**

	警告	
通电时请不要拆解产品，接触产品内部。否则有触电的危险。		
通电时请不要接触到接线端子。否则有触电的危险。		
考虑到即使由于可编程程序控制器（包含CPU单元及各单元，下面称作PC）的故障或PLC外部的原因导致出现异常时的系统整体的安全运行，所以请务必在PC外部采取安全措施。异常动作有引起重大事故的危險。 <p>(1) 请务必与异常停止电路、互锁电路、限制电路等安全保护相关的电路做成PC外部的控制电路。</p> <p>(2) 当PC通过自诊功能检测出异常时，或是执行运行中止故障诊断（FALS）指令时，要停止运行使所有输出为OFF。此时，为了使系统能在安全的一侧运行，请在PC外部采取相应对策。</p> <p>(3) 有时由于输出继电器的熔断或烧毁，输出晶体管的损坏等原因会造成PC的输出一直停在ON或OFF状态。然而，自诊断功能异常，如PLC I/O存储器 and 输入输出控制单元不能被检测到，可能是一个意想不到的输出。即使没有这些，为了使系统能在安全的一侧运行，请在PC外部采取相应对策。</p> <p>(4) 如果PC的DC24V输出（服务电源）过载或短路时，电压会下降，有时输出会变成OFF。此时，为了使系统能在安全的一侧运行，请在PC外部采取相应对策。</p>		
如因信号线断开、瞬间停电而产生异常信号时，请使用者采取安全保护措施。异常动作会引起重大事故。		
输入到模块的电压/电流请按规定电压/电流范围使用。一旦使用超出范围外的电压/电流将导致故障或火灾。		

	注意	
请确认了延长周期时间也没影响后再进行在线编辑。有时会出现不能读取输入信号的情况。		
向其他节点传送程序，以及变更IO存储器时，请务必先确认要变更节点的安全后再进行操作。否则会有受伤的危险。		
请按照手册中规定的扭矩拧好AC电源的端子台螺丝。螺丝松动的话有可能会起火或出错。		
请不要在通电中或电源切断后马上接触电源部分和输入输出端子部分的周围。否则会有灼伤的危险。		

在进行直流电源配线的时候，请注意+/-极性。如果连接错误，会引起系统误动作。	
PLC与电脑等外围设备相连接时，或连接输入和输出的外围设备时，请将外部电源放在0V一侧接地、或者不接地。请不要在24V侧接地。由于外围设备接地方法的不同，有引起外部电源短路的危险。	
请务必对做成的梯形图和数据进行充分的动作确认后再进行IOWR命令执行的模块设定或再设定。当设定的数据不正确时，可能会导致模块停止、装置或机械产生不可预料的运行。	
请在程序上，使用作为断电恢复时的保持区域的保持继电器、计数器的当前值/up标志、数据存储器的内容向外部输出的场合，请做好[电池异常标识（A402.04）为1（ON）时不向外部进行输出]等的对策。在CP1系列的CPU单元上，把用户程序或参数写入CPU单元，就会自动把这些数据备份到内置闪存。（闪存功能）然而，I/O记忆区域（包含保持继电器、计数器当前值/up标志、数据存储器）无法写进内置闪存。特别是数据是通过作为断电恢复时的保持区域的保持继电器，计数器现在值/up标志，数据存储器，电池被保持的，如果电池发生异常，有可能正确的值不能被保存。	

安全注意

- 考虑到外部配线的短路情况，请务必采取使用断路开关等安全措施。
- 安装单元应在彻底检查其端子台和连接器后进行。
- PLC端子台的螺丝、线缆的螺丝等请按照手册中规定的扭矩拧好。型号CP1W-CIF11/CIF12的端子台螺丝请使用2.5Lb In. (0.28N·m) 力矩。
- 请按照参考手册正确连接所有接线。
- 请使用参考手册中指定的电源电压。
- 请采取适当措施保证提供具有额定电压和频率的指定电源。请特别注意供电不稳定的地方，不正确的电源可能导致失灵。
- 接线时，如果出厂的单元上有防尘标签，请保留粘在单元上的标签再接线，通电前，请务必撕去标签。
- 为了便于散热，在完成全部接线后请撕去防尘标签。
- 接线请使用压接端子。请不要把仅仅是捻成一股的电线直接接到端子上台。
- 输入端施加的电压请不要超过额定电压。
- 切勿将超出最大开关容量的电压或负载接到输出端子。
- 安装时请务必进行D种接地（第3种接地）
- 请不要掉落产品或给产品过度的振动和冲击，否则可能出现产品故障或烧损的危险。
- 如果端子台、连接器、备选板上设有锁定结构装置，请确认已锁住后再使用。
- 当进行耐压试验时，请不要连接功能地端子。
- 请充分确认接线、开关等的设定之后再通电。
- 在开始操作前请先检查拨位开关、DM区的设置是否正确。
- 用户程序在单元中正式运行前需充分检查。
- 在把DM区、HR区的内容、程序、参数等恢复运行所需的数据传送到更换后的CPU单元、高性能I/O单元后再恢复运行。
- 请不要对本产品进行拆卸、修理或改造。
- 在着手下列任一项工作前，请将加在PLC上的电源关断（OFF）。
 - 从CPU单元上拆卸扩展单元时
 - 拆卸存储卡和备选板时
 - 设定拨位开关或旋转开关时
 - 连接电缆或电线时
 - 连接或断开连接器时
- 请确认对设备没有影响之后再进行下列操作
 - PLC动作模式的切换（包含电源启动时的动作模式设定）
 - 接点的强制设定/重置
 - 现在值或设定值的变更
- 请不要拽拉或弯折电缆超过其允许的限度。
- 请不要在电缆或其它接线上堆放物品。
- 当更换零件时，请务必确认新零件的额定值是否正确。
- 在接触单元前，为使人体所聚积的静电放电，请务必先接触接地金属物。
- 为了防止由静电产生的动作异常，所以在通电状态中请勿触摸扩展I/O的连接电缆。
- 数据传输中请不要将模块电源设定为OFF。
- 在运输或存储电路板时，为防止静电损坏LSI、IC，单元和电路板请用导电材料包装或者放入静电袋，并注意保持适当的存储温度。
- 请不要裸手接触部品安装部和基板内部，因为电路板上有关刺的引线和其它部件，否则可能引起伤害。
- 在组装连接器、接线前请充分确认接线号码。
- 接线请遵照参考手册的指示进行。
- 千万不要将CPU单元上RS-232口上的引脚6（5V电源）与其它设备连接，除非设备上用了转换适配器CJ1W-CIF11/NT-AL001、可编程终端NV3W-M□20L。否则会损坏外部设备或CPU单元。
- 请使用各单元手册中列出的专用电缆。请不要使用商用个人计算机RS-232电缆，否则可能危及外部设备或CPU单元。
- 如果不合适的数据链接表和参数被设置，可能导致不可预料的运行。即使已经设置了合适的数据链接表和参数，也请在启动或停止数据链接前确认控制系统不会受到不利影响。

- 只有确认没有异常发生后才能把路由表传输到CPU单元中。通过重启CPU总线单元会自动产生新的有效的表。在启动或停止路由表之前，请确认系统不会受到有害的影响。
- 客户程序、参数区域的数据备份在内置闪存中。备份过程中CPU单元前面的BKUP指示灯会亮。灯亮时请不要关闭PLC主机的电源，否则数据将不被保存。
- 写入存储卡时请不要关闭PLC主机的电源。有可能会导致存储卡内的数据不准确。在写存储卡的时候七段码LED将显示写入状态，且BKUP LED灯亮。请等到七段码LED写入的显示灯熄灭后，或者BKUP LED灯熄灭后再关闭PLC主机电源。只有CPIH装载七段码LED。
- 为了避免存储器的内容遭到破坏，所以请在电池交换前保持通电5分钟以上，并且在电源切断后5分钟内装上新电池。
- 与输入输出端子相连接的配线材料，请务必使用下列规格。AWG22-18（0.32～0.82 mm²）
- 关于主机及废旧电池的处理，请遵守当地相关废弃法律法规。



「廢電池請回收」

- 所有含有高氯酸盐成分在6ppb以上的锂原电池组的产品,当出口到或运输途经美国加利福尼亚州时,下面的预防措施必须被公示。

高氯酸盐材料 - 特殊处理可适用。参见http://www.dtsc.ca.gov/hazardouswaste/perchlorate
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- CP1系列的PLC含有一个高氯酸盐成分在6ppb以上的锂原电池。当含有CP1系列PLC的产品出口到或运输途经美国加利福尼亚州时,请在所有的产品包装和适当的货运包装上贴上标签。
- 更换电池的时候，为了CPU单元上的精密零部件不被静电损坏，为了避开误动作，推荐在无通电状态下实施。也可以不要关闭电源而在通电中更换电池，不过，那种情况下，必须通过触摸接地的金属等来使人体的静电放电之后才能进行更换。
- 更换电池可以通过熟练的技术人员来完成，这已被规定在UL标准中。更换的工作，请熟练的技术人员负责。另外，请更换手册中所描述的方法。
- 因为电池有漏液、破裂、发烧、起火等的可能，所以请绝对不要进行+，-的短路、充电、分解、加热、向火投入或给予强烈的冲击等行为。还有，因为有漏液的可能，请绝对不要给电池强烈的振动或让电池掉落地板等。
- 该产品在指定PLC系列内组装一套完整的PLC系统时,是适合EMC指令的。至于接地,线缆选择,以及任何其它EMC符合性的条件,请参考手册进行安装。
- 本产品为「class A」工业环境商品。如果使用于住宅环境可能会引起电磁干扰。因此当使用于住宅环境时请做好电磁干扰的应对措施。
- 请不要用螺丝刀等利器戳CP1W-DAM01的显示画面和按钮。

备选产品的说明

- 下列的各种备选产品请务必安装在PLC上使用。

欧姆龙备选产品	适用PLC		
RS-232C 备选板CP1W-CIF01	CP1L-EL/EM CPU单元CP1L-EM□□-□CP1L-EL□□-□	CP1L-L/M CPU单元CP1L-L□□-□CP1L-M□□-□	CP1H CPU单元CP1H-□□□-□
RS-422A/485 备选板CP1W-CIF11/CIF12	可使用	可使用	可使用
Ethernet 备选板CP1W-CIF41	不可使用		
Analog 备选板CP1W-MAB221/ADB21/DAB21V	可使用	不可使用	不可使用
数据访问模块CP1W-DAM01		可使用	可使用
存储器单元CP1W-ME05M			
I/O 连接线CP1W-CN811			
CJ单元适配器CP1W-EXT01	不可使用	不可使用	

连接CJ单元时的注意事项

- 用CJ单元适配器连接CJ系列高性能I/O单元、CPU高性能单元时，请将各单元连接并上下滑动，直到咔嚓一声响后才能确定已锁住。如果没有锁定可能导致功能不能正常实现。
- CJ单元适配器上附带的终端请务必安装在最右端的CJ系列单元上。如果终端没有安装可能导致不能正常工作。

使用注意

- 按照参考手册的指示进行正确设置。

- 请勿在下列场所保管和设置：
 - 阳光直射处
 - 周围温度和相对湿度超出规格值范围的场所
 - 温度急剧变化易引起结露的场所
 - 有腐蚀性气体和可燃性气体的场所
 - 尘埃、灰尘、盐分、铁粉较多的场所
 - 会被溅到水、油、药品等沫沫的场所
 - 给主机带来直接振动和冲击的场所

- 在以下场所使用时，请采取屏蔽措施：
 - 有静电或其它形式噪音处
 - 有较强电磁场的场所
 - 可能暴露于射线的场所
 - 靠近于动力电源的场所
- 请勿将接线时的垃圾或片状物掉落产品内，否则可能导致烧毁、故障或误动作。安装时请保证做好防护措施。

参考手册		
	型号/手册名称	Man. No.
	SYSMAC CP系列 CP1H	用户手册 W450
	SYSMAC CP系列 CP1L	用户手册 引进篇 W461
	SYSMAC CP系列 CP1L	用户手册 W462
	SYSMAC CP系列 CP1H/CP1L	编程手册 W451
	SYSMAC CP系列 CP1L-EL/EM	用户手册 W516
	SYSMAC CS/CJ/CP系列	通信指令参考 W342
	SYSMAC CX-Programmer (Ver.9) CXONE-AL□□C-V4/AL□□D-V4	操作手册 W446
	SYSMAC CX-Programmer Ver.9 CXONE-AL□□C-V4/AL□□D-V4	操作手册 功能模块篇 W447
	SYSMAC CX-Protocol Ver.1.9 WS02-PSTC1-E	操作手册 W344
	SYSMAC CX-Simulator Ver.1.9 WS02-SIMC1-E	操作手册 W366

使用时的承诺事项

在以下条件和环境中使用时，希望向本公司营业部人员咨询并确认规格书，同时对额定功能等要留有余余地地使用以及考虑到安全保险措施，同时寻求即使发生故障，也能将危险控制在最小程度的安全对策。

- a) 用于室外、有潜在的化学污染、电气辐射以及产品样本或随机说明书中所没有记载的条件和环境中的场合时
- b) 用于原子能控制、铁路、航空、车辆设备、燃烧装置、医疗器械、娱乐机械、安全机械、行政机关和特殊行业等
- c) 预计会对人身、财产产生很大影响的系统、机械、装置等
- d) 用于煤气、水管、电力等提供系统和24小时不间断运行系统等高信赖性的设备
- e) 按照上述a)～d)的标准，用于对安全性能要求高的场所

* 上述内容只是适合用途条件的一部分。其它请仔细阅读本公司最新版Best样本、综合目录、数据表等资料。

如有规格变更，恕不另行通知。

■联系方式

●制造商

欧姆龙(上海)有限公司
地址:中国上海市浦东新区金桥出口加工区金吉路 789 号
电话:(86)21-5050-9988

●技术咨询

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SYSMAC CP-series Programmable Controllers

Safety Precautions

OMRON Corporation

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Thank you for purchasing an OMRON Programmable Controller (PLC). To ensure safe operation, please be sure to read the safety precautions provided in this document along with all of the user manuals for the Programmable Controller. Please be sure you are using the most recent versions of the user manuals. Contact your nearest OMRON representative to obtain manuals. Keep these safety precautions and all user manuals in a safe location and be sure that they are readily available to the final user of the products.

■ General Precautions

The user must operate the product according to the performance specifications described in the operation manuals.

Before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, petrochemical plants, and other systems, machines, and equipment that may have a serious influence on lives and property if used improperly, consult your OMRON representative.

Make sure that the ratings and performance characteristics of the product are sufficient for the systems, machines, and equipment, and be sure to provide the systems, machines, and equipment with double safety mechanisms.

■ Safety Precautions

Definition of Precautionary Information

⚠ DANGER Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

⚠ Caution Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury, or property damage.

Warnings and Cautions

⚠ WARNING Do not attempt to take any Unit apart while the power is being supplied. Doing so may result in electric shock.

⚠ WARNING Do not touch any of the terminals or terminal blocks while the power is being supplied. Doing so may result in electric shock.

⚠ WARNING Do not attempt to disassemble, repair, or modify any Units. Any attempt to do so may result in malfunction, fire, or electric shock.

⚠ WARNING Provide safety measures in external circuits, i.e., not in the Programmable Controller (CPU Unit including associated Units; referred to as "PLC"), in order to ensure safety in the system if an abnormality occurs due to malfunction of the PLC or another external factor affecting the PLC operation. Not doing so may result in serious accidents.

• Emergency stop circuits, interlock circuits, limit circuits, and similar safety measures must be provided in external control circuits.

• The PLC will turn OFF all outputs when its self-diagnosis function detects any error or when a severe failure alarm (FALS) instruction is executed. Unexpected operation, however, may still occur for errors in the I/O control section, errors in I/O memory, and other errors that cannot be detected by the self-diagnosis function. As a countermeasure for such all errors, external safety measures must be provided to ensure safety in the system.

• The PLC outputs may remain ON or OFF due to deposition or burning of the output relays or destruction of the output transistors. As a countermeasure for such problems, external safety measures must be provided to ensure safety in the system.

• When the 24-VDC output (service power supply to the PLC) is overloaded or short-circuited, the voltage may drop and result in the outputs being turned OFF. As a countermeasure for such problems, external safety measures must be provided to ensure safety in the system.

⚠ WARNING Fail-safe measures must be taken by the customer to ensure safety in the event of incorrect, missing, or abnormal signals caused by broken signal lines, momentary power interruptions, or other causes. Not doing so may result in serious accidents.

⚠ WARNING Do not apply the voltage or current outside the specified range to this unit. It may cause a malfunction or fire.

⚠ Caution Pay careful attention to the polarities (+/−) when wiring the DC power supply. A wrong connection may cause malfunction of the system.

⚠ Caution Execute online edit only after confirming that no adverse effects will be caused by extending the cycle time. Otherwise, the input signals may not be readable.

⚠ Caution Confirm safety at the destination node before transferring a program to another node or editing the I/O area. Doing either of these without confirming safety may result in injury.

⚠ Caution

Tighten the screws on the terminal block of the AC Power Supply Unit to the torque specified in the operation manual. The loose screws may result in burning or malfunction.

⚠ Caution

Do not touch anywhere near the power supply parts or I/O terminals while the power is ON, and immediately after turning OFF the power. The hot surface may cause burn injury.

⚠ Caution

After programming (or re-programming) using the IOWR instruction, confirm that correct operation is possible with the new ladder program and data before starting actual operation. Any irregularities may cause the product to stop operating, resulting in unexpected operation in machinery or equipment.

⚠ Caution

The DM Area, counter present values and up flags, and HR Area can be held during power interruptions with a battery in program. If the contents of the DM Area, counter present values and up Flags, and HR Area are used to control external outputs, prevent inappropriate outputs from being made whenever the Battery Error Flag(A402.04) is 1(ON). The CP1 series CPU Units automatically back up the user program and parameter data to Flash Memory when these are written to the CPU Unit.(Flash Memory function.) I/O memory area (including the DM Area, counter present values and up flags, and HR Area), however, is not written in a built-in flash memory. If there is a battery error, the contents of these areas may not be accurate after a power interruption.

■ Operating Environment Precautions

⚠ Caution

Do not operate and keep the control system in the following places:

- Locations subject to direct sunlight
- Locations subject to temperatures or humidity outside the range specified in the specifications
- Locations subject to condensation as the result of severe changes in temperature
- Locations subject to corrosive or flammable gases
- Locations subject to dust (especially iron dust) or salts
- Locations subject to exposure to water, oil, or chemicals
- Locations subject to shock or vibration

⚠ Caution

Take appropriate and sufficient countermeasures when installing systems in the following locations:

- Locations subject to static electricity or other forms of noise
- Locations subject to strong electromagnetic fields
- Locations subject to possible exposure to radioactivity
- Locations close to power supplies

⚠ Caution

Please fit it as foreign matter such as chips or wiring rubbish inside the unit. It becomes a cause of damage by fire, failure and malfunction. Especially during construction, please take measures.

⚠ Caution

The operating environment of the PLC System can have a large effect on the longevity and reliability of the system. Improper operating environments can lead to malfunction, failure, and other unforeseeable problems with the PLC System. Be sure that the operating environment is within the specified conditions at installation and remains within the specified conditions during the life of the system.

■ Application Precautions

⚠ WARNING

Always heed these precautions. Failure to abide by the following precautions could lead to serious or possibly fatal injury.

- Always connect to 100 Ω or less when installing the Units. Not connecting to a ground of 100 Ω or less may result in electric shock.
- Always turn OFF the power supply to the PLC before attempting any of the following. Not turning OFF the power supply may result in malfunction or electric shock.
 - Mounting or dismounting Expansion Units or any other Units
 - Connecting or removing the Memory Cassette or Option Board
 - Setting DIP switches or rotary switches
 - Connecting or wiring the cables
 - Connecting or disconnecting the connectors

⚠ Caution

Failure to abide by the following precautions could lead to faulty operation of the PLC or the system, or could damage the PLC or PLC Units. Always heed these precautions.

- Always use the power supply voltage specified in the operation manuals. An incorrect voltage may result in malfunction or burning.
- Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied. Be particularly careful in places where the power supply is unstable. An incorrect power supply may result in malfunction.
- Install external breakers and take other safety measures against short-circuiting in external wiring. Insufficient safety measures against short-circuiting may result in burning.
- Do not apply voltages or connect loads to the output terminals in excess of the maximum switching capacity. Excess voltage or loads may result in burning.
- Disconnect the functional ground terminal when performing withstand voltage tests. Not disconnecting the functional ground terminal may result in burning.
- Be sure to use class-D grounding (The 3rd grounding) during installation work.
- Install the Unit properly as specified in the operation manual. Improper installation of the Unit may result in malfunction.
- Be sure that all the terminal screws and cable connector screws are tightened to the torque specified in the relevant manuals. Incorrect tightening torque may result in malfunction.
- The applicable tightening torque is 2.5 Lb In. (0.28 N·m) for CP1W-CIF11/CIF12.
- Leave the label attached to the Unit when wiring. Removing the label may result in malfunction.

- Remove the label after the completion of wiring to ensure proper heat dissipation. Leaving the label attached may result in malfunction.
- Use crimp terminals for wiring. Do not connect bare stranded wires directly to terminals. Connection of bare stranded wires may result in burning.
- Wire correctly and double-check all the wiring or the setting switches before turning ON the power supply. Incorrect wiring may result in burning.
- Mount the Unit only after checking the connectors and terminal blocks completely.
- Be sure that the terminal blocks, connectors, Option Boards, and other items with locking devices are properly locked into place. Improper locking may result in malfunction.
- Check the user program for proper execution before actually running it on the Unit. Not checking the program may result in an unexpected operation.
- Check that the DIP switches and data memory (DM) are properly set before starting operation.
- Confirm that no adverse effect will occur in the system before attempting any of the following. Not doing so may result in an unexpected operation.
 - Changing the operating mode of the PLC (including the setting of the startup operating mode).
 - Force-setting/force-resetting any bit in memory.
 - Changing the present value of any word or any set value in memory.

- Resume operation only after transferring to the new CPU Unit and/or Special I/O Units the contents of the DM, HR, and CNT Areas required for resuming operation. Not doing so may result in an unexpected operation.
- Do not pull on the cables or bend the cables beyond their natural limit. Doing either of these may break the cables.
- Do not place objects on top of the cables. Doing so may break the cables.

- When replacing parts, be sure to confirm that the rating of a new part is correct. Not doing so may result in malfunction or burning.

- Before touching the Unit, be sure to first touch a grounded metallic object in order to discharge any static built-up. Not doing so may result in malfunction or damage.
- Do not touch the Expansion I/O Unit Connecting Cable while the power is being supplied in order to prevent malfunction due to static electricity.

- Do not turn OFF the power supply to the Unit while data is being transferred.
- When transporting or storing the product, cover the PCBs and the Units or put there in the antistatic bag with electrically conductive materials to prevent LSIs and ICs from being damaged by static electricity, and also keep the product within the specified storage temperature range.

- Do not touch the mounted parts or the rear surface of PCBs because PCBs have sharp edges such as electrical leads.
- Double-check the pin numbers when assembling and wiring the connectors.
- Wire correctly according to specified procedures.
- Do not connect pin 6 (+5V) on the RS-232C Option Board on the CPU Unit to any external device other than the NT-AL001 or CJ1W-CIF11 Conversion Adapter or NV3W-M□20L Programmable terminal. The external device and the CPU Unit may be damaged.

- Use the dedicated connecting cables specified in operation manuals to connect the Units. Using commercially available RS-232C computer cables may cause failures in external devices or the CPU Unit.

- Check that data link tables and parameters are properly set before starting operation. Not doing so may result in unexpected operation. Even if the tables and parameters are properly set, confirm that no adverse effects will occur in the system before running or stopping data links.

- Transfer a routing table to the CPU Unit only after confirming that no adverse effects will be caused by restarting CPU Bus Units, which is automatically done to make the new tables effective.

- The user program and parameter area data in the CPU Unit is backed up in the built-in flash memory. The BKUP indicator will light on the front of the CPU Unit when the backup operation is in progress. Do not turn OFF the power supply to the CPU Unit when the BKUP indicator is lit. The data will not be backed up if power is turned OFF.

- Do not turn OFF the power supply to the PLC while the Memory Cassette is being accessed. Doing so may corrupt the data in the Memory Cassette. The 7-segment LED will light to indicate writing progress and the BKUP indicator will light while the Memory Cassette is being accessed. Wait for the 7-segment LED display and the BKUP indicator to go out before turning OFF the power supply to the PLC. The 7-segment LED is only used on CP1H units.

- When replacing the battery for a Unit, be sure to follow the procedure described in that Unit's operation manual.

- Always use the following size wire when connecting I/O Units, Special I/O Units, and CPU Bus Units: AWG22 to AWG18 (0.32 to 0.82 mm²).

- Dispose of the product and batteries according to local ordinances as they apply. Have qualified specialists properly dispose of used batteries as industrial waste.

- The following precaution must be displayed on all products containing lithium primary batteries with a perchlorate content of 6 ppb or higher when exporting them to or shipping them through California, USA.

Perchlorate Material - special handling may apply. See <http://www.dtscc.ca.gov/hazardouswaste/perchlorate>

The CP1 Series PLC contains a lithium primary battery with a perchlorate content of 6 ppb or higher. When exporting a product containing the CP1 Series PLC to or shipping such a product through California, USA, label all packing and shipping containers appropriately.

- To avoid malfunction and static damage to precision components of the CPU Unit, we recommend that the battery replacement work should be implemented unpowered state. It is possible to replace the battery without having to turn OFF the power while the power is on, in which case, please enter the replacement after discharge static electricity from your body such as by touching a grounded metal object.
- It is defined by UL standard that battery replacement should be performed by the skilled engineer. The skilled engineer needs to take the charge of the replacement. Moreover, please exchange the method indicated in the manual.
- Never short-circuit the positive and negative terminals of a battery or charge, disassemble, heat or incinerate the battery. Do not subject the battery to strong shocks or deform the battery by applying pressure. Doing any of these may result in leakage, rupture, heat generation, or ignition of the battery. Dispose of any battery that has been dropped on the floor or otherwise subjected to excessive shock. Batteries that have been subjected to shock may leak if they are used.
- This product is EMC compliant when assembled in a complete PLC system of the specified PLC Series. For earthing, selection of cable, and any other conditions for EMC compliance, refer to the manual for installation.
- This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.
- Don't push the buttons and LCD with sharp things.

■ Optional Products

- Be sure to install the following optional products in the PLC before use.

Optional product	Applicable PLC	Applicable PLC	Applicable PLC
	CP1L-EL/EM CPU Unit CP1L-EM□□-□ CP1L-EL□□-□	CP1L-LM CPU Unit CP1L-M□□-□ CP1L-L□□-□	CP1H CPU Unit CP1H-□□□□-□
RS-232C Option Board CP1W-CIF01	Can be used	Can be used	Can be used
RS-422A/485 Option Board CP1W-CIF11/CIF12			
Ethernet Option Board CP1W-CIF41	Can not be used		
Analog Option Board CP1W-MAB221/ADB21/ DAB21V	Can be used	Can not be used	Can not be used
Data Access Module CP1W-DAM01		Can be used	Can be used
Memory Cassette CP1W-ME05M			
I/O Connection Cable CP1W-CN611			
CJ-series Unit Adapter CP1W-EXT01	Can not be used	Can not be used	

■ CJ-series Unit Connection Precautions

- When connecting the CJ-series Unit Adapter to a CJ-series Special I/O Unit, or CPU Bus Unit, slide the upper and lower sliders until a click sound is heard to lock them securely. Desired functionality may not be achieved unless Units are securely locked in place.
- Be sure to mount the end cover supplied with the CJ-series Unit Adapter to the rightmost CJ-series Unit. Unless the end cover is properly mounted, the Units may not function properly.

■ Reference Manuals

Please be sure to read the related user manuals in order to use the PLC safely and properly. Be sure you are using the most current version of the manual.

Name	Cat No.
SYSMAC CP-series CP1H Programmable Controllers Operation Manual	W450
SYSMAC CP-series CP1L Programmable Controllers Introduction Manual	W461
SYSMAC CP-series CP1L Programmable Controllers Operation Manual	W462
SYSMAC CP-series CP1H/CP1L Programmable Controllers Programming Manual	W451
SYSMAC CP-series CP1L-EL/EM Programmable Controllers Operation Manual	W516
SYSMAC CS/CJ-series Communications Commands Reference Manual CS1G/H-CPU□□-EV1, CS1G/H-CPU□□H, CS1W-SCB21-V1/41-V1, CS1W-SCU21-V1, CJ1G-CPU□□, CJ1G/H-CPU□□H, CJ1M-CPU□□, CJ1W-SCU21-V1/41-V1, CP1H-XA40D□□, CP1H-XA40D□□, CP1H-Y20DT-D	W342
SYSMAC CJ-series Position Control Units Operation Manual CJ1W-NCF71	W426
SYSMAC CJ-series Motion Control Units Operation Manual CJ1W-MCH71	W435
SYSMAC CX-Programmer Ver. 9 Operation Manual CXONE-AL□□C-V4/AL□□D-V4	W446
SYSMAC CX-Programmer Ver. 9.□ Operation Manual Function Blocks/Structured Texts CXONE-AL□□C-V4/AL□□D-V4	W447
SYSMAC CX-Protocol Ver. 1.9 Operation Manual WS02-PSTC1-E	W344
SYSMAC CX-Simulator Ver. 1.9 Operation Manual WS02-SIMC1-E	W366

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Note: Specifications subject to change without notice.

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