

安全上的注意事项

感谢您购买本公司的可编程控制器 (PLC)。
为了能安全使用, 请务必阅读该说明书和 PLC 主机的手册以及相关模块的参考手册。
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。

欧姆龙 (上海) 有限公司

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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。

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。

● 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险。



- 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。
- 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。
- 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。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。
- 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。

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 I/O 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, 请将外部电源放在 0V 一侧接地、或者不接地。



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。



CPU 单元的电池电压下降、电池非安装时客户存储器会被保存到非易失性存储器内 (由于存储器的异常并不会停止运行)。
因此, 电池电压下降或电池非安装时 PLC 系统是可以运行的, 而 I/O 通过电池供电 (包括 DM/HR/CNT 区域) 给 I/O 存储区域, 将会变得不安稳。

当参考了梯形图中 DM 的 I/O 存储器区域的内容再向外部输出时, 请做好 [电池异常标识] 停止输出等的对策。

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器安全措施。
- 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, 请保留粘在单元上的标签。
- 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。
- 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)
- 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/重设
 - 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, 因为电路板上带有尖锐的引线和其它部件, 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 CJ1W-CIF11 或 NT-AL001 适配器。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, 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。
- 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。



●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>

CP1L-@@@@-@含有一个高氯酸盐成分在 6ppb 以上的锂原电池。当含有 CP1L-@@@@-@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。

- 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，EMC 符合性线缆的选择，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对应措施。
- 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。

备选产品	适用 PLC	
RS-232C 备选板 CP1W-CIF01	CP1L CPU 单元 CP1L-□□□□-□	CP1H CPU 单元 CP1H-□□□□-□
RS-422A/485 备选板 CP1W-CIF11/CIF12		
Ethernet 备选板 CP1W-CIF41		
数据访问模块 CP1W-DAM01		
存储器单元 CP1W-ME05M		
I/O 连接线 CP1W-CN811		
CJ 单元适配器 CP1W-EXT01		

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。
- 请勿在下列场所使用：
 - 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、药品等泡沫的场所
 - 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声处
 - 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

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 CS/CJ/CP 系列	通信指令参考 W342
SYSMAC CS/CJ 系列 串行通信板/单元 CJ1W-SCU21-V1/41-V1	用户手册 W336
SYSMAC CS/CJ 系列 Ethernet 单元 CJ1W-ETN11	用户手册 W343

型号/手册名称	Man. No.
SYSMAC CS/CJ 系列 Ethernet 单元 (100BASE-TX type) CS1W-ETN21、CJ1W-ETN21	用户手册 基础网络构筑篇 应用程序构筑篇 W420
DeviceNet	用户手册 W267
SYSMAC CS/CJ 系列 DeviceNet 单元	用户手册 W380
CompoBus/S 主单元 CJ1W-SRM21 Slave SRT1/SRT2 系列	用户手册 W266
SYSMAC CS/CJ 系列 Controller Link 单元 (wire type) CJ1W-CLK21-V1、 Repeat 单元 CS1W-RPT01/02/03	用户手册 W309
SYSMAC CS/CJ 系列 Process 输入输出单元 CJ1W-PTS□□/PDC□□	用户手册 W368
SYSMAC CS/CJ 系列 模拟量输入·输出单元 CJ1W-AD041-V1/081 (-V1) CJ1W-DA021/041/08V/08C CJ1W-MAD42	用户手册 W345
SYSMAC CJ 系列 温度调节单元 CJ1W-TC□□□□	用户手册 W396
SYSMAC CJ 系列 高速计数器单元 CJ1W-CT021	用户手册 W401
SYSMAC CJ 系列 位置控制单元 CJ1W-NC□□□□	用户手册 W397
SYSMAC CJ 系列 位置控制单元 CJ1W-NCF71	用户手册 W426
SYSMAC CJ 系列 动作控制单元 CJ1W-MCH71	用户手册 W435
CX-Programmer (Ver.7.1) WS02-CXPC1-JV7	操作手册 操作手册 功能模块篇 W446
CX-Net WS02-CXPC1-JV7	操作手册 W447
CX-Protocol Ver.1.7 WS02-PSTC1-J□	操作手册 W344
CX-Simulator Ver.1.7 WS02-CIMC1-J□	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地地使用以及考虑到安全措施，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。

- 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
- 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
- 预计会对人身、财产产生很大影响的系统、机械、装置等
- 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
- 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

欧姆龙自动化(中国)有限公司
 地址:中国上海市浦东新区银城中路 200 号中银大厦 2211 室
 电话:(86)21-5037-2222
 技术咨询热线:400-820-4535
 网址:HTTP://WWW.FA.OMRON.COM.CN

SYSMAC CP-series Programmable Controllers Safety Precautions

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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. As a countermeasure for such 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 contents of user memory are saved in non-volatile memory even when the battery is low or when no battery is inserted in the CPU Unit. (Operation will not stop due to a memory error.) Accordingly, the PLC System can be operated even when the battery is low or no battery is inserted. The I/O memory areas backed up by the battery (including the DM, HR, and CNT Areas), however, will be unstable in this condition. If the contents of these I/O memory areas are output by the program, use the Battery Error Flag to take suitable actions, such as stopping the outputs.

■ Operating Environment Precautions

⚠ Caution Do not operate 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 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.
- 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 LSPs 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. 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.

- 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.dtsc.ca.gov/hazardouswaste/perchlorate>

The CP1L-@@@-@ contains a lithium primary battery with a perchlorate content of 6 ppb or higher. When exporting a product containing the CP1L-@@@-@ to or shipping such a product through California, USA, label all packing and shipping containers appropriately.

- This product is EMC compliant when assembled in a complete PLC system of the specified PLC Series. For earthing, selection of cable 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
RS-232C Option Board CP1W-CIF01	CP1L CPU Unit	CP1H CPU Unit
RS-422A/485 Option Board CP1W-CIF11/CIF12	CP1L-□□□□-□	CP1H-□□□□-□
Ethernet Option Board CP1W-CIF41		
Data Access Module CP1W-DAM01		
Memory Cassette CP1W-ME05M		
I/O Connection Cable CP1W-CN811		
CJ-series Unit Adapter CP1W-EXT01		

■ 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 right-most 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 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-X40D□□-□, CP1H-XA40D□□-□, CP1H-Y20DT-D	W342
SYSMAC CS/CJ-series Serial Communications Boards/Units Operation Manual CS1W-SCB21-V1/41-V1, CS1W-SCU21-V1, CJ1W-SCU21-V1/41-V1	W336
SYSMAC CS/CJ-series Ethernet Unit Operation Manual CS1W-ETN01/11, CJ1W-ETN11	W343
SYSMAC CS/CJ-series Ethernet Unit (100Base-TX Type) CS1W-ETN21, CJ1W-ETN21 Operation Manual Construction of Networks	W420
DeviceNet Operation Manual	W267
SYSMAC CS/CJ-series DeviceNet Unit Operation Manual CS1W-DRM21(-V1), CJ1W-DRM21	W380
CompoBus/S Operation Manual C200HW-SRM21-V1, CJ1W-SRM21, CQM1-SRM21-V1	W266
SYSMAC CS/CJ-series Controller Link Units, Repeater Units Operation Manual CS1W-CLK21-V1 (wired), CJ1W-CLK21-V1 (wired) CS1W-RPT01/02/03	W309
SYSMAC CS/CJ-series Analog I/O Units Operation Manual CS1W-PTS□□/PTW□□/PDC□□/PTR□□/PPS□□/PMV□□ CJ1W-PTS□□/PDC□□	W368
SYSMAC CS/CJ-series Analog I/O Units Operation Manual CS1W-AD041(-V1)/081(-V1), CS1W-DA041/08V/08C, CS1W-MAD44, CJ1W-AD041-V1/081(-V1), CJ1W-DA021/041/08V/08C, CJ1W-MAD42	W345
SYSMAC CJ-series Temperature Control Unit Operation Manual CJ1W-TC001/002/003/004/101/102/103/104	W396
SYSMAC CJ-series High-speed Counter Unit Operation Manual CJ1W-CT021	W401
SYSMAC CJ-series Position Control Unit Operation Manual CJ1W-NC113/213/413/133/233/433	W397
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. 7.1 Operation Manual WS02-CXPC1-E-V61	W446
SYSMAC CX-Programmer Ver. 7.1 Operation Manual Function Blocks CS1-H, CJ1-H, CJ1M, CP1H CPU Units WS02-CXPC1-E-V61	W447
CX-Protocol Ver. 1.7 Operation Manual WS02-PSTC1-E	W344
CX-Simulator Ver. 1.7 Operation Manual WS02-CIMC1-E	W366

OMRON

OMRON Corporation (Manufacturer)
Shiokoji Horikawa, Shimogyo-ku,
Kyoto, 600-8530 Japan
Tel: (81)75-344-7109
Fax: (81)75-344-7149

OMRON ELECTRONICS LLC
1 East Commerce Drive,
Schaumburg, IL 60173
U.S.A.
Tel: (1)847-843-7900
Fax: (1)847-843-8568

Regional Headquarters

OMRON EUROPE B.V. (Importer in EU)
Wegalaan 67-69,
NL-2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300
Fax: (31)2356-81-388

OMRON ASIA PACIFIC PTE. LTD.
83 Clemenceau Avenue,
#11-01, UE Square,
Singapore 239920
Tel: (65)6835-3011
Fax: (65)6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of
China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai,
200120 China
Tel: (86)21-5037-2222
Fax: (86)21-5037-2200

Note: Specifications subject to change without notice.

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