

<b>OMRON</b>
<b>Model GX-JC03/JC06</b> <b>EtherCAT 分支从站</b>
<b>安装手册</b>
感谢您购买本公司的 <b>EtherCAT 分支从站:GX-JC03/JC06</b> . 为了您能安全地使用本产品请务必阅读本说明书. 请妥善保管本说明书和参考手册, 同时请向最终客户寄送此类资料。 <b>EtherCAT<sup>(R)</sup></b> 的注册商标及专利技术属于德国的Beckhoff Automation GmbH, 是受特别保护的技术。 ©OMRON Corporation 2011 All Rights Reserved.
2104233-6B

## 安全上的注意事项

- 警告/注意标识的含义

<b>警告</b>	如不正确处理，则有可能对人身造成轻度或中度的伤害，严重情况下，甚至会导致重伤或死亡。另外可能会造成重大财物损失。
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<b>注意</b>	如不正确处理，则有可能对人身造成轻度或中度伤害，另外可能会造成财物损失。
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- 警告标识

<b>警告</b>	
通电中请勿触摸端子、请勿拆卸单元、触摸产品内部零件。请勿在打开盖板的状态下通电。否则有触电危险。	
请勿拆卸、修理、改造本单元。否则有发生故障、火灾、或者触电的危险。	
针对信号线断线、瞬停而引起的异常信号，请在使用处采取安全对策。异常动作可能会引起重大事故。	
异常停止回路、互锁回路、限制回路等等和安全保护相关的回路必须在本产品的外部构成控制回路。	
请确保在规定的范围内输入本单元的电压/电流。否则有发生故障、火灾的危险。	

## 注意

连接DC电源的时候，请注意电源的正负极(+/-)。

如果连接错误，系统有可能会发生异常。

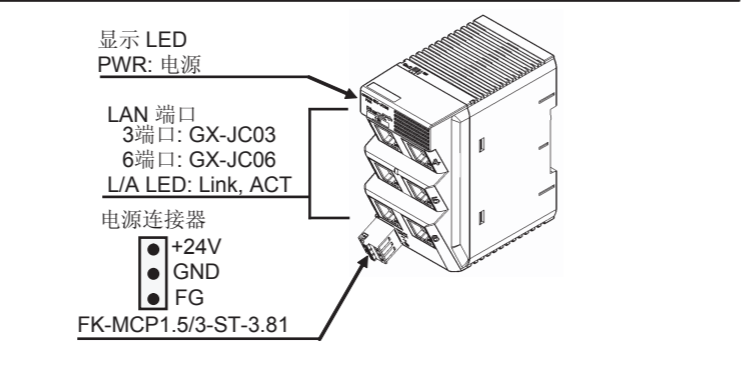
## 安全上的要点

- 运送单元时请使用专门的包装箱。在运输过程中请尽量避免过度振动和冲击。
- 请确保切实安装好DIN 导轨。
- 在数个系统中使用时，为防止某些干扰导致运行的不稳定，请勿捆扎电缆，各电缆之间务必留出5mm以上的间隔。
- 请确保采用锁定装置的设备(端子台、通信电缆等)被正确锁定到位。否则会引起故障。
- 通信距离以及连接台数请在EtherCAT规格范围内使用。
- 接线以及施工时，请注意不要让金属屑进入单元内部
- 请务必使用指定的通信电缆、连接器。
- 接线时，请注意端子的极性。
- 请使用本手册中指定的电源电压。否则，有可能会引起故障或火灾。
- 请不要拽拉或弯折电缆超过其允许的限度。
- 通信电缆接线时，请注意以下几点：
  - 通信电缆请远离动力线、高压线。
  - 请不要弯折通信电缆。
  - 请不要拽拉通信电缆超过其允许的限度。
  - 请不要在通信电缆上堆放重物。
  - 通信电缆请在电线槽内接线。
- 安装单元的时候需要接地。
- 通信电缆必须在控制单元及所有从站**OFF** 的状态下接线。
- 在电源状况不佳的地方使用时，请尽量供给稳定的额定电压和额定频率。为了确保电压及频率满足标准，在使用前可以进行适当的测量。否则会引起故障。为防止外部配线短路，请设置电流断路器等安全对策。否则会引起火灾。
- 用户程序在单元中正式运行前需充分检查。否则会导致不可预料的操作。
- 请充分确认接线、开关等的设定后再通电。
- 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。

## 使用上的注意

- 请按照参考手册，正确安装。否则可能会引起故障。
- 请勿使产品坠落或受异常振动和冲击，否则可能引起故障和误动作。
- 请勿在以下场所中使用：
  - 受日光直射的场所
  - 环境温度和相对湿度超过规格要求的场所
  - 温度变化剧烈，容易引起结露的场所
  - 有腐蚀性气体、可燃性气体的场所
  - 尘土、粉尘、盐分、铁粉较多的场所。
  - 有水、油、酸、药品等飞沫的场所
  - 对本体直接产生振动和冲击的场所
- 在以下场所使用时，请采取遮蔽措施：
  - 因静电等原因产生干扰的场所
  - 有较强电磁场的场所
  - 可能暴露于射线的场所
  - 靠近电源线的场所
- 请按照参考手册正确接线。
- 接线时，请使用正确的接线部品。
- 通信回路和电源接线时，请注意电压规格。如果使用错规格，可能引发故障。
- GX-JC06所有的端口都连接的情况下，拆除时，请先拆除端口4，5，6，再拆除端口1，2，3。
- 节点的初始设定为0，请使用工具进行设定。
- 请不要将本站与OMRON 的位置控制单元CJ1W-NC□81/ □82连接。

## 各部分的名称



<b>■ LED</b>			
PWR	绿	灯灭: 电源OFF 灯亮: 电源ON	
L/A	绿	灯灭: 无连接，或者没有确立连接 灯亮: 连接确立,无数据通信 闪烁: 连接确立,数据通信中	

<b>■ LAN 端口</b>			
单元名称	工具名称	说明	
1/IN	IN	Port1 (输入端口)	
2	X2	Port2 (输出端口)	
3	X3	Port3 (输出端口)	
4	X4	Port4 (输出端口)	
5	X5	Port5 (输出端口)	
6	X6	Port6 (输出端口)	

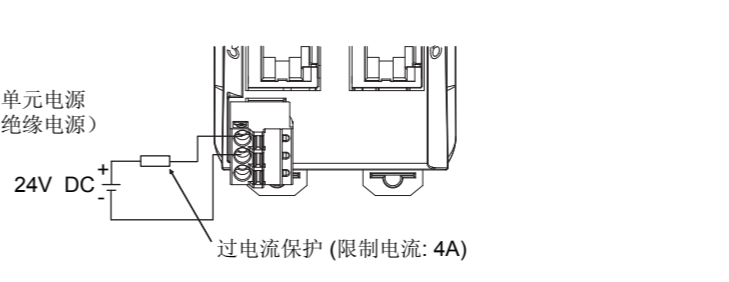
## 符合UL规格必须注意的事项

致美国或加拿大使用本产品的用户

本产品虽适用于**UL规格(UL1604)/CSA**规格No. 22. 2，但为了满足符合**UL规格/CSA**规格的相应条件，请用户务必注意以下内容。另外，以下内容是遵循美国及加拿大的电气工程接线规定而得出的接线条件，与产品参考手册及安全注意事项中记载的内容可能存在不同的情况。

### 电源连接器的连接

外部单元电源请使用绝缘电源，必须设有限制4A电流的过电流保护装置。



电线尺寸	限制电流
24 AWG	2A
22 AWG	3A
20 AWG	4A

### 通信电源的适用电线.

类型	线径	剥线长度
单线/绞线	AWG16-24	9mm

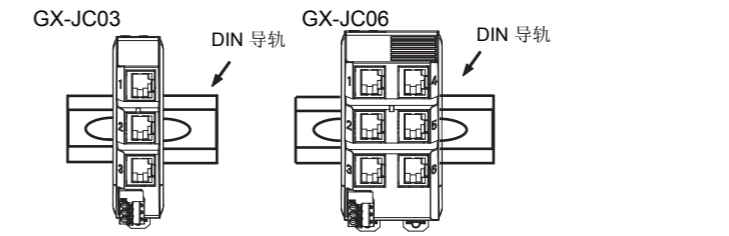
不能使用棒端子进行接线，请直接把单线或者绞线插入端子台孔中。

### LAN 电缆

规格	说明
双绞线 (下面带连接器的也可以)	100BASE-TX (等级是 5 或者以上) 双重屏蔽 (铝带 + 绞线)
RJ45 连接器	等级是 5 或者以上

### 安装方向

请垂直安装。



### 适用于危险场所 Class I Division 2

请根据Class I、Div. 2 的接线方法进行输入输出接线。

- 本机器只适用于 **Class I, Div.2, GroupA,B,C,D** 或者危险场所以外的场所。
- 警告: 爆炸的危险。更换元器件可能会影响 **Class I, Div.2**的适用性。
- 警告: 爆炸的危险。除非在机器电源关闭或者能确保周围安全性的情况下，否则请勿拆卸机器。

## 故障诊断

[PWR] indicator	[L/A] LED	内容	原因	对策
OFF	OFF	供电异常	①未供电 电源未连接 ②内部回路故障	①确认供电和电源的接线  ②更换从站
ON	OFF	未建立连接	①通信电缆脱落、未连接、短路 ②从站硬件故障 ③主站未启动	①确认通信电缆的连接。如果存在断线、短路，请更换通信电缆 ② 更换从站 ③ 确认主站的状态

## 一般规格

电源电压	DC 20.4V~28.8V
消费电流	GX-JC03: 80mA; GX-JC06: 170mA
使用周围温度	-10 to 55 <span> </span> °C
使用周围湿度	25% to 85% (没有结露)
保存周围温度	-25 to 65 <span> </span> °C
保存周围湿度	25% to 85% (没有结露)
外形尺寸	GX-JC03: 25mm×78mm×90mm; GX-JC06: 48mm×78mm×90mm

# 符合 EC 指令的条件

- 当本产品被装在系统中时候是符合EMC指令的。为了使客户的机器・装置符合EMC指令，请注意以下事项。
  - 请务必把本产品安装在控制柜内。
  - 请使用强化绝缘、或者双重绝缘的DC电源与DC电源单元，通信单元以及I/O单元连接。
  - 本产品虽然符合 (EN61131-2,EN61000-6-4)，但是根据使用的控制柜的构成、与连接的其他机器的关系、接线等不同，辐射干扰会发生变化。因此，即使本产品在EC指令适合品上使用，客户也要从机械・装置整体上确认、对应 EC指令适合性。

- 本产品为“class A”工业环境产品。如果使用于民用环境可能会引起电磁干扰。因此当使用于民用环境时请做好电磁干扰的对应措施。
- 当使用推荐电源 (S8\*\*)时，EMC的规格是可以确保的。

### 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门人员咨询并确认规格书，同时对额定值，功能等要留有余地地使用，要考虑到安全保险措施，同时寻求即使发生故障，也能将危险控制到最小程度的安全对策。

- 用于室外、或者用于有潜在的化学污染或电气干扰的场合，或者用于产品样本或使用说明书中所没有记载的条件和环境下。
- 用于原子能控制设备、燃烧装置、铁路、航空、车辆设备、医疗器械、娱乐机械、安全装置以及行政机关和个别产业的规定而配置的设备。
- 危及人身及财产的系统・机械・装置。
- 天然气、自来水、电力等供应系统和其他24小时连续运转的系统等可靠性要求高的设备。
- 除以上的a)～d) 条件和环境之外的其他要求高安全性的用途。

\*以上仅为一部分适用的条件和环境。请仔细阅读本公司最佳综合产品样本、规格书等最新版本的产品目录。

# OMRON

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# Model GX-JC03/JC06 EtherCAT Junction Slave

## Instruction Manual

Thank you for purchasing an OMRON EtherCAT Junction slave, Model GX-JC03/JC06. To secure safe operation, please be sure to read this manual. Keep this instruction manual in a safe location and be sure that it is readily available to your final users of the product. EtherCAT<sup>(R)</sup> is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

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## Safety Precautions

### Meanings of Signal Words

**Warning** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage.

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

### Warning Symbols

## Warning

Do not attempt to disassemble this unit and do not touch the interior of any Unit while the power is being supplied. In addition, do not turn on electricity in the state that founded a cover. Doing so may result in electric shock.

Do not attempt to disassemble, repair, or modify this unit. Any attempt to do so may result in malfunction, fire, or electric shock.

Take a fail-safe countermeasures by the customer to secure safety in case of an abnormal signal caused by broken signal line and momentary power interruption. Not doing so may result in serious accidents.

Emergency stop circuits, interlock circuits, limit circuits, and similar safe measures must be externally provided to Slave Unit.

Do not apply the voltage/current outside the specified range to this product. It may cause a malfunction or fire.

## Caution

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

## Precautions for Safe Use

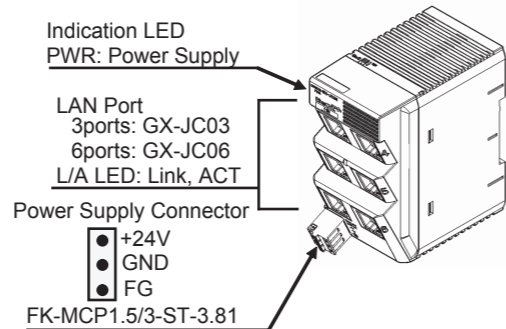
- When transporting this product, use special packing boxes and protect it from being to excessive vibration or impact during transportation.
- Mount the Units securely using DIN track.
- Always separate cables by at least 5 mm to prevent unstable operation due to interference. Do not bundle cables.
- Make sure that the terminal blocks, communications cables, and other items with locking devices are properly locked into place. Improper locking may result in malfunction.
- Do not extend connection distances or the number of connected nodes beyond the ranges given in the EtherCAT specifications.
- Do not allow foreign matter to enter this product.
- Always use the specified communications cables and connectors.
- Confirm the polarity of all terminals before wiring them.
- Always use the power supply voltage specified in the instruction manual. An incorrect voltage may result in malfunction or burning.
- Do not bend cables past their natural bending radius or pull on cables.
- Observe the following precautions when wiring the communications cable.
  - Separate the communications cables from the power lines or high-tension
  - Do not bend the communications cables past their natural bending radius.
  - Do not pull on the communications cables.
  - Do not place heavy objects on top of the communications cables.
  - Always lay communications cable inside ducts.
- Be sure to ground when installing the unit.
- Turn off the power of Controller and all slaves before wiring the communication
- 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.

- 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.
- Check the user program for proper execution before actually running it on the Unit. Not checking the program may result in unexpected operation.
- Check all wiring and switch settings to be sure they are correct.

## Precautions for Correct Use

- Install correctly according to instructions in the instruction manual. Improper installation of the Unit may result in malfunction.
- Do not drop any Unit or subject any Unit to excessive shock or vibration. Otherwise, Unit failure or malfunction may occur.
- Do not operate the control system in the following locations:
  - 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, acid, or chemicals.
  - Locations subject to shock or vibration.
- 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 possible exposure to radioactivity.
  - Locations close to power lines.
  - Locations subject to strong electromagnetic fields.
- Wire all connections correctly according to instructions in the instruction manual.
- Use the correct wiring materials to wire the Units.
- Confirm voltage specifications when wiring communications, the power supply. Incorrect wiring may result in malfunction.
- Please pull out the connector inserted in Port 4,5,6 at first when all the ports of GX-JC06 is used.
- Default node setting is 0, please set the node by tool.
- Please do not connect EtherCAT Junction unit with OMRON position control unit, Model CJ1W-NC□81/ □82.

## Each Part Name



### LED

PWR	Green	Extinction: Power OFF Lit: Power ON
L/A	Green	Extinction: No connect or No link when connection Lit: Link, No data communication Blinking: Link, Data communication

### LAN PORT

Name on Unit	Name on Tool	Detail
1/IN	IN	Port1 (IN port)
2	X2	Port2 (OUT port)
3	X3	Port3 (OUT port)
4	X4	Port4 (OUT port)
5	X5	Port5 (OUT port)
6	X6	Port6 (OUT port)

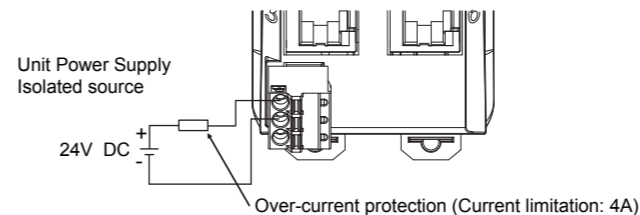
## Precautions for Compliance with UL Standatds and CSA Standards

### Notice to Users of EtherCAT Junction Slave in the USA and Canada.

Please use the following installation information instead of the general information in the instruction manuals in order to use the product under certified conditions of UL and CSA when the product is installed in the USA or Canada. These conditions are required by NFPA 70, National Electrical Code in the USA and the Canadian Electrical Code, Part in Canada and may vary from information given in the product manuals or safety precautions.

### Wiring for Unit power connector

The external power supply must be an isolated DC source. It must be equipped with an over-current protection with current limitation in 4A.



Minimum Wire size	Ampere rating of protection
24 AWG	2A
22 AWG	3A
20 AWG	4A

### Applicable wire size for Unit power source terminal block.

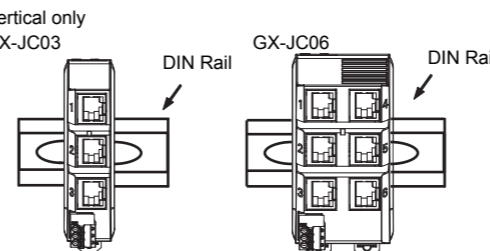
Type	Wire size	Strip length
Solid/Strand	AWG16-24	9mm

Do not use ferrule terminals. Insert the strand or solid wire directly into the holes on the terminal block.

### LAN Cable

Product name	Comment
Twist-pair cable (Cable with connectors below are also allowed)	100BASE-TX (Category 5 or higher) Double-shield (aluminum tape + braided shielding)
RJ45 connector	Category 5 or higher Shielded

### Direction for installation



### Compliance with Class I Division 2 Hazardous Location:

Input and output wiring must be in accordance with Class In Div.2 wiring methods and in accordance with the authority having jurisdiction.

- This equipment is suitable for use in Class I, Div.2, Group A, B, C, D or Non-Hazardous Locations Only.
  - WARNING : Explosion Hazard - Substitution of Components may Impair Suitability for Class I, Div.2.
  - WARNING : Explosion Hazard - Do not Disconnect Equipment Unless Power Has Been Switched off or the Area Is Known to Be Non-Hazardous.
  - This device is open-type and is required to be installed in an enclosure suitable for the environment and can only be accessed with the use of a tool or key.
1. Cet équipement convient à l'utilisation dans des emplacements de Classe I, Division 2, Groupes A, B, C, D, ou ne convient qu'à l'utilisation dans des endroits non dangereux.
2. AVERTISSEMENT : Risque d'explosion - La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Classe I, Division 2.
3. AVERTISSEMENT : Risque d'explosion - Avant de débrancher l'équipement, couper le courant ou s'assurer que l'emplacement est désigné non dangereux.
4. Ce dispositif est de type ouvert et doit être installé dans un coffret adapté à l'environnement et auquel on ne pourra accéder uniquement au moyen d'un outil ou d'une cle.

## Troubleshooting

[PWR] indicator	[L/A] LED	Contents	Cause	Measures
OFF	OFF	Power supply error	①Without power supply, power supply disconnection ②Internal power supply is broken.	①Check the power supply unit and cables. ②Replace the slave.
ON	OFF	Without establishing Link	①Communication cable comes off, disconnection and short. ②Slave's hardware is broken. ③Host master hasn't been started	①Check the connection of communication cable, Change the communication cable ② Replace the slave ③ Check status of the host master.

## Specification

Power supply Voltage	DC 20.4V~28.8V
Consumption Electric Power	GX-JC03: 80mA; GX-JC06: 170mA
Ambient operating temperature	-10 to 55 °C
Ambient operating humidity	25% to 85% (with no condensation)
Storage temperature	-25 to 65 °C
Storage humidity	25% to 85% (with no condensation)
Dimension	GX-JC03: 25mm×78mm×90mm; GX-JC06: 48mm×78mm×90mm

## Conformance to EC Directives

- This product is EMC-compliant when assembled in PLC system . To ensure the EC Directive conformance of customer's machinery or equipment in which the product is incorporated, be sure to observe the following precautions.
  - This product is defined as an in-panel device and must be installed within a control panel.
  - Reinforced insulation or double insulation must be used for the DC power supply connected to the DC power supply unit, communication unit, and I/O unit.
  - This product complies with the common emission standard (EN61131-2, EN61000-6-4) with regard to EMI. For the radiated emission requirement (10-m regulations), in particular, please note that the actual emission varies depending on the configuration of the control panel to be used, the connected devices, and wiring methods. Therefore, the customer must confirm the EC Directive conformance of the overall machinery or equipment by themselves, even if this EC conforming product is used.
- This is a class A product. In residential areas it may cause radio interference, in which case the user maybe required to take adequate measures to reduce interference.
- This product is EMC-compliant when the recommend power supply(S8\*\*) is used

## SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products. Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used. Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

See also product catalogs for Warranty and Limitations of Liability.



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Note: Specifications subject to change without notice.