E5CC-U-800 数字式控制器 | OMRON

CHN 使用说明书

感谢您购买欧姆龙E5CC-U数字式控制器。
本手册描述了产品的功能、性能以及使产品达到最佳使用效果的应用方法。

请在使用该产品时注意以下事项：
· 使用该产品的人必须具备足够的电气系统知识。
· 在使用该产品前应通读并理解本手册以确保正确的使用。
· 妥善保管该手册以确保在需要时可以随时查阅。
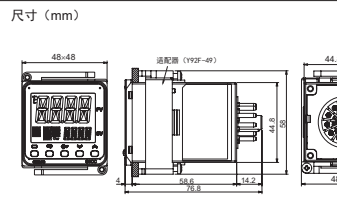
欧姆龙公司
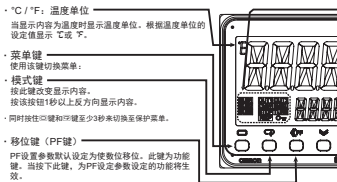©All Rights Reserved

有关详细的应用步骤，请参阅《E5□C数字式控制器用户手册》
(Man. No. H180)。

安全注意事项

● 警告符号的要点

| ⚠ 警告 | 表示潜在的危险情况，如不加以防止，很可能导致轻度或中度的人身伤害或财产损失。在使用该产品前应仔细阅读本手册。 |

● 警告符号

⚠ 警告

通电期间，请勿触摸端子。
否则会因触电而导致轻伤。

不得让金属物体、导线或安装时产生的切屑或湿气进入控制器。
否则会导致触电、火灾或机器误动作。

请勿将该产品用于有易燃易爆气体的场合。否则有可能因为爆炸而造成轻度伤害。

绝对不要拆卸、改或以及修理该产品或接触任何内部元件。否则会导致轻微触电、火灾或机器误动作。

注意一火灾或触电的危险
a) 该产品为UL认证的开放型过程控制设备。必须安装在能防止火花进出的机壳内。
b) 当该产品接入两个以上断电开关的情况下，维修前请先断开所有开关，确保本产品处于断电状态。
c) 注意：信号输入为SELV（安全低压电源），回路受限。
d) 注意：为了减少火灾或触电的危险，请勿将不同的2类输出的输出互联。

如果输出继电器超过了预期的使用寿命，有时会发生触点熔化或燃烧。始终要注意输出继电器的应用环境，并在额定负载及预期寿命以内使用。输出继电器的预期寿命需根据负载以及开关条件的变化而变化。

松动的螺丝可能导致火灾。请以指定的0.5 N·m的指定扭矩紧螺丝。

请设定适合系统控制的产品参数。如果设定不当，可能会因意外操作而造成财产损失或事故。

控制器误动作很可能造成控制操作失效或阻止报警输出，导致财产损失。为了在控制器发生误动作时确保安全，应采取出合适的安全措施，如使用单独的线路安装监控设备。

安全使用注意事项

请务必遵守以下注意事项，以避免操作失误、误动作或对产品特性及功能造成不良影响。否则，可能会导致意外事故。请在指定范围内使用本产品。

(1) 该产品只被设计为室内使用。请勿在室外使用。不要在以下任何地方使用或存放该产品。
· 直接受到温度剧烈变化的地方。
· 有灰尘或腐蚀性气体（特别是硫化物气体和氨气）的地方。
· 温度剧烈变化的地方。
· 结冰和凝露的地方。
· 有震动或大的冲击的地方。

(2) 在额定的温度和湿度范围内使用/存储该设备。必要时应采取强制冷却。
(3) 为有了散热，不要填塞该产品周围的空间。不要堵塞产品通风孔。
(4) 按指定的极性进行正确的接线。
(5) 使用指定尺寸（M3.5，宽度小于或等于7.2 mm）的压接端子进行接线。使用标有AWG24~AWG14（相当于横截面积0.205~2.081 mm²）的铜线或实心铜电线连接横截面积相同。（剥线长度为5~6 mm）一个端子应最多连接两根相同型尺寸的导线或压接端子。
(6) 不用的端子不要接线。
(7) 在控制器与可以开关电源线之间应尽量设置足够远的距离。将高压或大电流电源线与其它导体隔离，在进行接线时避免与电源共线的结果。
(8) 将控制器与可以供电电源之间尽量设置足够远的距离。

适用性

在客户的应用中，欧姆龙本不负责产品与任何客户端产品所涉及的规格、规范和标准保持一致性。请务必考虑本产品对于所应用的系统、机器和设备间的适用性。使用时请注意并遵守本产品的禁止事项。
在没有确认整个系统设计针对所有考虑到的风险，以及没有确保在设备和系统中该欧姆龙产品的额定使用条件和正确安装条件的情况下，禁止将本产品应用于对人身及财产存在严重危险的场合。
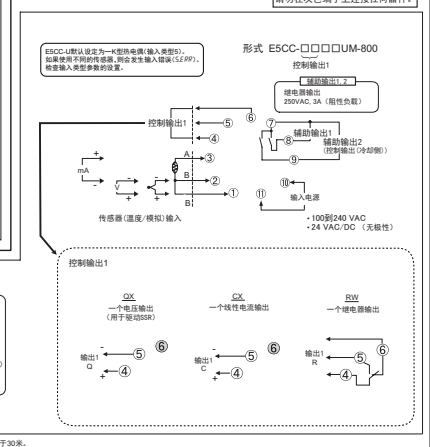详见产品规格书中保证及免责事项内容。

● 规格

供电电压	100~240 VAC, 50/60 Hz或24 VAC, 50/60 Hz/24 VDC
工作电压范围	额定电压的85~110%
功率消耗	最大5.2 VA (AC100-240V) 最大3.1 VA (AC24V) 最大1.6W (DC24V)
指示精度 （环境温度：23℃）	热电偶输入： （显示值的±1.0%或±2℃中的较大值） 最大±1位数 铂电阻输入： （显示值的±0.2%或±0.8℃中的较大值） 最大±1位数 模拟量输入： ±0.2 %FS 最大±1位数
控制输出1	继电器输出：SPDT, 250 VAC, 3 A（阻性负载） 电压输出（于驱动SSR）： 12 VDC ±20%，21 mA 线性电流输出：4~20 mA DC，0~20 mA DC 负载：最大500 Ω
控制方法 辅助输出	ON/OFF或2点PID控制 继电器输出1：SPST-NO, 250 VAC, 3 A（阻性负载） 继电器寿命次数：100,000次运行
环境温度	-10~55℃ （应避免结冰或结露）
环境湿度	RH 25~85%
存储温度	-25~65℃ （应避免结冰或结露）
高度	最高2,000米
推荐保险丝	T2A, 250 VAC, 时延，低熔断容量
重量	约100 g（控制器本体）
防护等级	前面板：IP50 后壳子：IP20 端子：IP00
安装环境	安装场所II，污染度2（IEC61010-1） 非膨胀内存 （写入次数：1,000,000）
内存保护	
瞬间过压	长时间过电压 250V +（电源电压） 短时间过电压 1200V +（电源电压）

■ 接线

● 尺寸规格

尺寸（mm）

在包装箱内有：
· 主单元
· 使用说明书
· 适配器（Y92F-49）

● 面板安装

单位（mm）

E5CC-U + P2CF-11

● 安装

单独安装（mm）　　　并排安装（mm）

（48×单元数量 - 2.5）

· 将主单元插入面板（1~5mm厚）的安装孔中。把安装支架（提供）插入后壳顶部和底部的固定挡内。
· 扩紧适配器顶部和底部的两颗安装螺丝使其保持平衡，最终使扭矩保持在0.29至0.39N·m之间。
· 当安装多台控制器时，请确保环境温度不超过规定限值。

● 连接（端子适用性因机器型号而异。）

请勿在灰色端子上连接任何器件。

E5CC-U输入设定为一K型热电偶（输入端5）。如果使用不同的热电偶，则会发生输入错误（S.ERR）。检查输入参数的设置。

形式 E5CC-□□□□UM-800

● 前面板的元件名称

■ 操作菜单

● 输入类型

输入类型	输入	设定	设定范围 ℃	设定范围 ℉
铂电阻温度计	Pt100	0	-200~850	-300~1500
		1	-199.9~500.0	-199.9~900.0
		2	0.0~100.0	0.0~210.0
	JP100	3	-199.9~500.0	-199.9~900.0
		4	0.0~100.0	0.0~210.0
热电偶	K	5	-200~1300	-300~2300
		6	-20.0~500.0	0.0~900.0
	J	7	-100~850	-100~1500
		8	-20.0~400.0	0.0~750.0
	T	9	-200~400	-300~700
		10	-199.9~400.0	-199.9~700.0
	E	11	-200~600	-300~1100
	L	12	-100~850	-100~1500
	U	13	-200~400	-300~700
		14	-199.9~400.0	-199.9~700.0
	N	15	-200~1300	-300~2300
	R	16	0~1700	0~3000
	S	17	0~1700	0~3000
	B	18	100~1800	300~3200
	W	19	0~2300	0~3200
	PL II	20	0~1300	0~2300
红外温度传感器ES1B	10~70℃	21	0~90	0~190
	60~120℃	22	0~120	0~240
	115~165℃	23	0~165	0~320
	140~260℃	24	0~260	0~500
电流输入	4~20mA	25	对比例缩放采用下列范围：-1999~9999，-199.9~999.9，-19.99~99.99，-1.999~9.999	
	0~20mA	26		
电压输入	1~5V	27		
	0~5V	28		
	0~10V	29		
	0~50mV	30		

*默认值是"5"。
*当输入类型不是铂电阻错误或将铂电阻接入时，将会显示S.ERR。为了清除S.ERR显示，需要正确接线并重新上电。

● 报警

设定	报警类型	报警输出功能 正报警值（X）	负报警值（X）
0	无报警功能	无输出	
*1 1	偏差上下限		根据L、H值的不同而不同
2	偏差上限		
3	偏差下限		
*1 4	偏差上下范围		根据L、H值的不同而不同
*1 5	偏差上下限待机序列ON		根据L、H值的不同而不同
6	偏差上限待机序列ON		
7	偏差下限待机序列ON		
8	绝对值上限		
9	绝对值下限		
10	绝对值上限待机序列ON		
11	绝对值下限待机序列ON		
12	LBA（仅对报警1）		
13	PV变化率报警		
14	SP绝对值上限		
15	SP绝对值下限		
16	MV绝对值上限		
17	MV绝对值下限		

*1: 要使参数1、4、5提供不同的报警类型，可对其设定上限与下限。下限和上限分别用字母 L 和 H 指示。
· 默认的报警类型为"2"

● 初始设定菜单

运行停止（控制/报警均停止。）*5

初始设定菜单可以使用户选择喜欢的工作条件（输入类型、报警类型、控制方法等等）。

*3: 关于输入类型和报警类型的详细情况，请参考旁边的表格。
*4: 只适用于有报警设定的型号。
*5: 当转至初始设定菜单时会停止运行。（控制/报警停止。）
*6: 对于某些型号以及其它设定的某些设定，不显示灰色设定项。
*7: 只有"ℓNS码：温度输入偏移"参数的设定值应占用整个温度范围。如果输入偏移设定值为1.2℃，则过程值为200℃时，经过输入偏移后按照201.2℃处理。而如果输入偏移设定为-1.2℃，则经过输入偏移后过程值按照198.8℃处理。

⚠ 符合EN/IEC标准

这是一种A类产品。
因其在住宅区中会导致无线电干扰，所以要求用户采取适当的措施减少干扰。

⚠ 符合安全标准

在输入电源、继电器输出之间以及其它端子间提供了强化绝缘。

务必使得每次输出输入上电的瞬间过压不要超过以下电压值。还请接观本产品的电源电压进行确认。
短时间过电压：1200V+（电源电压）
长时间过电压：250V+（电源电压）

关于保险丝
若产品本身设计，请务必外接的推荐的保险丝。

关于模拟输入
· 输入电压或电流时，请按照本产品的推荐设定输入类型。
· 请勿将本产品用来测定"测量范围为II、III、IV"的回路。
· 请勿将本产品用来测量"印加电压超过30Vrms或60VDC"的对象。
如果产品本来以本记指定的方法使用，那么产品具备的保护功能可能损坏。
本产品与插座P2DF-11（E）和P3GA-11配套取得了UL Listing的认证，请务必与对应的插座配合使用。

● 操作菜单

通电

操作时应正常使用操作菜单。

按住☐和🔼键至少1秒

● 保护菜单

限制您可以显示或变更的设定类型以及通过按键操作进行的更改。

■ 其它功能

有关高级功能设定菜单、手动控制菜单以及其它功能的信息，请参考《E5□C数字式控制器用户手册》(Man. No. H180)。

● 调整菜单

调整菜单用于在控制时输入设定值和偏移值。

● 错误显示（故障诊断）

当发生一个错误时，第二显示将显示错误代码。参考下表，根据错误代码采取适当的措施。

第一显示	含义	操作	出错状态 控制	报警
S.ERR (S. Err)	输入错误 *2	检查输入参数的设置，检查输入接线并检查温度传感器是否存在破坏或短路。	OFF	同上以上同报警工作
E333 (E333)	A/D转换错误 *2	检查输入错误之五，关掉电源再打开。如果显示不变，则需修理控制器。如果需要显示复正常，则故障原因可能是控制系统受到外部干扰，请检查外部干扰。	OFF	OFF
E111 (E111)	内存错误	关掉电源再打开。如果显示不变，则修理控制器。如果显示恢复正常，则可能是控制系统受到外部干扰，请检查外部干扰。	OFF	OFF

如果输入值超过显示范围（-1999~9999），即使仍处于控制范围内，低于-1999的将显示[ccccc]，高于9999的显示[ccccc]。在这种情况下，控制输出和报警输出均将正常工作。
*1: 当显示此范围时，请参阅《E5□C数字式控制器用户手册》(Man. No. H180)。
*2: 错误显示只针对"过程值/设定值"，而不针对其它状态。

■ 联系方式
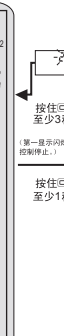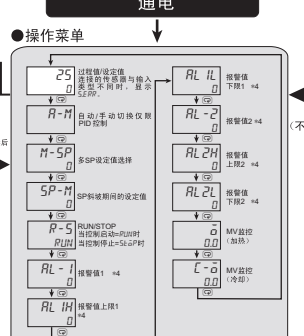
● 制造商
欧姆龙（上海）有限公司
地址：中国上海市浦东新区金桥出口加工区金吉路789号
电话：(86)21-50509988

● 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)21-5307-2222
技术咨询热线 400-820-4535
网址: http://www.fa.omron.com.cn

E5CC-U-800
Digital Controller

EN INSTRUCTION MANUAL

Thank you for purchasing the OMRON E5CC-U Digital Controller.
This manual describes the functions, performance, and application methods needed for optimum use of the product. Please observe the following items when using the product.
• This product is designed for use by qualified personnel with a knowledge of electrical systems.
• Before using the product, thoroughly read and understand this manual to ensure correct use.
• Keep this manual in a safe location so that it is available for reference whenever required.

OMRON Corporation
©All Rights Reserved

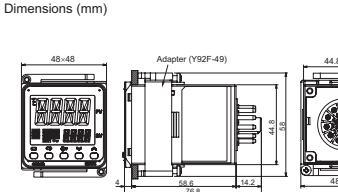Refer to the *E5□C Digital Controllers User's Manual* (Man. No. H174) for detailed application procedures.

Safety Precautions

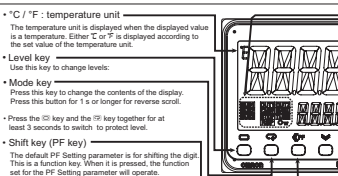### ●Key to Warning Symbols

⚠ **CAUTION** Indicates a potentially hazardous situation which, if not avoided, is likely to result in minor or moderate injury or property damage. Read this manual carefully before using the product.

2290018-2B(Side-B)

●Warning Symbols

⚠ **CAUTION**

Minor injury due to electric shock may occasionally occur.
Do not touch the terminals while power is being supplied.

Electric shock, fire, or malfunction may occasionally occur. Do not allow metal objects, conductors, cuttings from installation work, or moisture to enter the Digital Controller.

Do not use the product where subject to flammable or explosive gas. Otherwise, minor injury from explosion may occasionally occur.

Never disassemble, modify, or repair the product or touch any of the internal parts. Minor electric shock, fire, or malfunction may occasionally occur.

CAUTION - Risk of Fire and Electric Shock
a) This product with the socket P2CF-11, P2CF-11(E) or P3GA-11 is UL listed as Open Type Process Control Equipment. It must be mounted in an enclosure that does and fire to escape externally.
b) More than one disconnect switch may be required to de-energize the equipment before servicing.
c) Signal inputs are SELV, limited energy.
d) Caution: To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.
If the output relays are used past their life expectancy, contact fusing or burning may occasionally occur. Always consider the application conditions and use the output relays within their rated load and electrical life expectancy. The life expectancy of output relays varies considerably with the output load and switching conditions.

Loose screws may occasionally result in fire. Tighten the terminal screws to the specified torque of 0.5 N·m.

Set the parameters of the product so that they are suitable for the system being controlled. If they are not suitable, unexpected operation may occasionally result in property damage or accidents.
A malfunction in the Digital Controller may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage. To maintain safety in the event of malfunction of the Digital Controller, take appropriate safety measures, such as installing a monitoring device on a separate line.

Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product.

At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT 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 PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Precautions for Safe Use

Be sure to observe the following precautions to prevent operation failure, malfunction, or adverse affects on the performance and functions of the product. Not doing so may occasionally result in unexpected events.
Use the product within specifications.
(1) The product is designed for indoor use only. Do not use the product outdoors. Do not use or store the product in any of the following locations.
  •Places directly subject to heat radiated from heating equipment.
  •Places subject to splashing liquid or oil atmosphere.
  •Places subject to direct sunlight.
  •Places subject to dust or corrosive gas (in particular, sulfide gas and ammonia gas).
  •Places subject to intense temperature change.
  •Places subject to icing and condensation.
  •Places subject to vibration and shock.
(2) Use/store within the rated temperature and humidity ranges. Provide forced-cooling if required.
(3) To allow heat to escape, do not block the area around the product.
  Do not block the ventilation holes on the product.
(4) Be sure to wire properly with correct polarity of terminals.
(5) Use the specified type of crimped terminals (M3.5, width 7.2 mm or less) for wiring. To connect bare wires to the terminal block, use copper braided or solid wires with a gage of AWG24 to AWG14 (equal to cross-sectional area of 0.205 to 2.081 mm²). (The stripping length is 5 to 6 mm.) Up to two wires of same size and type, or two crimped terminals can be inserted into a single terminal.
(6) Do not wire the terminals which are not used.
(7) Allow as much space as possible between the controller and devices that generate a powerful high-frequency or surge. Separate the high-voltage or large-current power lines from other lines, and avoid parallel or common wiring with the power lines when you are wiring to the terminals.
(8) Use this product within the rated load and power supply.
(9) Make sure that the rated voltage is attained within two seconds of turning ON the power using a switch or relay contact. If the voltage is applied gradually, the power may not be reset or output malfunctions may occur.
(10) Make sure that the Digital Controller has 30 minutes or more to warm up after turning ON the power before starting actual control operations to ensure the correct temperature display.
(11) When executing self-tuning, turn the load and the unit ON simultaneously, or turn the load ON before you turn the controller ON.
(12) A switch or circuit breaker should be provided close to this unit. The switch or circuit breaker should be within easy reach of the operator, and must be marked as a disconnecting means for this unit.
(13) Wipe off any dirt from the Digital Controller with a soft dry cloth. Never use thinners, benzine, alcohol, or any cleaners that contain these or other organic solvents. Deformation or discoloration may occur.
(14) Design system (control panel, etc.) considering the 2 second of delay that the controller's output to be set after power ON.
(15) The output will turn OFF when you move to the Initial Setting Level. Take this into consideration when performing control.
(16) The number of non-volatile memory write operations is limited. Therefore, use RAM write mode when frequently overwriting data.
(17) When disassembling the Temperature Controller for disposal, use suitable tools.
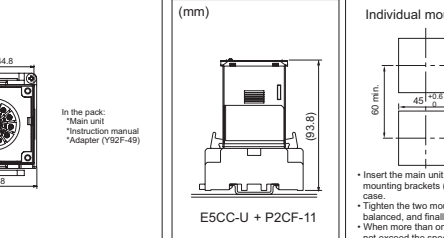(18) The terminals can reach temperatures of up to 65℃.

●Specifications

Power supply voltage	100 to 240 VAC, 50/60 Hz or 24 VAC, 50/60 Hz / 24 VDC
Operating voltage range	85 to 110% of the rated voltage
Power consumption	5.2 VA max. (100 to 240 VAC) 3.1 VA max. (24 VAC) 1.6 W max. (24 VDC)
Indication accuracy (Ambient temperature: 23℃)	Thermocouple: (±1.0 % of indication value or ±2°C, whichever is greater) ±1 digit max. Platinum resistance thermometer: (±0.2 % of indication value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2 % FS ±1 digit max.
Control output 1	Relay output: SPDT, 250VAC, 3A(resistive load) Electrical life of relay: 100,000 operations Voltage output (for driving SSR): 12 VDC ±20%, 21 mA Linear current output: 4 to 20 mADC, 0 to 20 mADC Load: 500Ω max.
Control method	ON/OFF or 2-PID control
Auxiliary outputs	Relay outputs: SPST-NO, 250 VAC, 3 A (resistive load) Electrical life of relay: 100,000 operations
Ambient temperature	-10 to 55°C (Avoid freezing or condensation)
Ambient humidity	25% to 85%
Storage temperature	-25 to 65°C (Avoid freezing or condensation)
Altitude	Max. 2,000m
Recommended fuse	T2A, 250 VAC, time-lag, low-breaking capacity
Weight	Approx. 100 g (Digital Controller only)
Degree of protection	Front panel: IP66 Rear case: IP20
Memory protection	Non-volatile memory (Number of write operations: 1,000,000)
Temporary overvoltage	Long-term:250V+(Power supply voltage) Short-term:1200V+(Power supply voltage)

■Wiring

●Dimensions
Dimensions (mm)

Adapter (Y92F-49)

In the pack:
*Main unit
*Instruction manual
*Adapter (Y92F-49)

●Surface mounting
(mm)

E5CC-U + P2CF-11

●Installation
Individual mounting (mm)   Side-by-side mounting (mm)
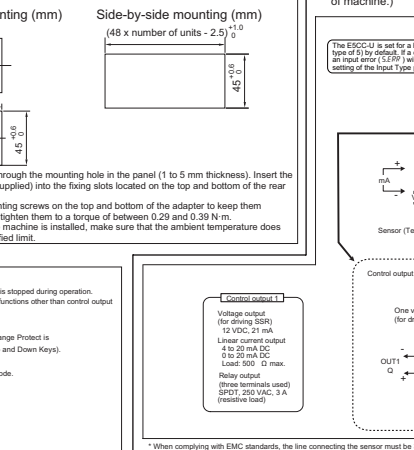(48 x number of units - 2.5)

• Insert the main unit through the mounting hole in the panel (1 to 5 mm thickness). Insert the mounting brackets (supplied) into the fixing slots located on the top and bottom of the rear case.
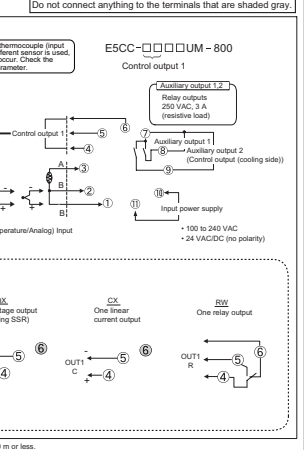• Tighten the two mounting screws on the top and bottom of the adapter to keep them balanced, and finally tighten them to a torque of between 0.29 and 0.39 N·m.
• When more than one machine is installed, make sure that the ambient temperature does not exceed the specified limit.
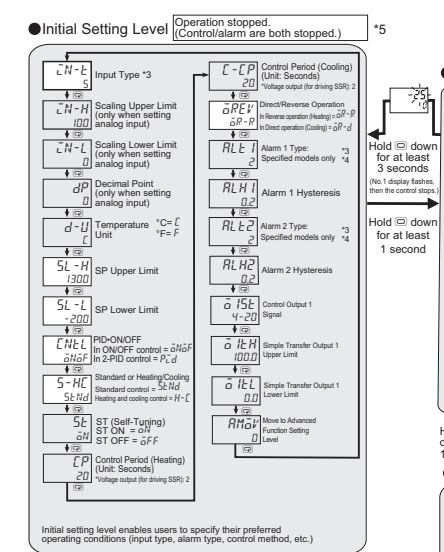
●Connections (The applicability of the electric terminals varies with the type of machine.)
Do not connect anything to the terminals that are shaded gray.

* When complying with EMC standards, the line connecting the sensor must be 30 m or less. If the cable length exceeds 30 m, compliance with EMC standards will not be possible.

●Names of Parts on Front Panel

• °C / °F : temperature unit
The temperature unit is displayed when the displayed value is a temperature. Either ℃ or ℉ is displayed according to the set value of the temperature unit.

• Level key
Use this key to change levels.

• Mode key
Press this key to change the contents of the display. Press this button for 1 s or longer for reverse scroll.
• Press the ◎ key and the ◎ key together for at least 3 seconds to switch to protect level.

• Shift key (PF key)
The default PF Setting parameter is for shifting the digit. This is a function key. When it is pressed, the function set for the PF Setting parameter will operate.

• No.1 display
Process value or set data type

• No.2 display
Set point, set data read-out value or changed input value

• Up and Down keys
Each press of ◎ key increments or advances the values displayed on the No.2 display.
Each press of ◎ key decrements or returns the values displayed on the No.2 display.

Operation indicators
• SUB1: Auxiliary output 1 indicator
• SUB2: Auxiliary output 2 indicator
• OUT1: Control output 1 indicator
For a current output, lit except for a 0% output.
• TUNE:
Flashing during ST(self-tuning).
Lit during AT(auto-tuning).

• STOP:
Lit when "Run/Stop" is stopped during operation. During control stop, functions other than control are valid.
• ●TI:
Lit when Setting Change Protect is ON (disables the Up and Down Keys).
• MANU:
Lit during Manual Mode.

■Operation Menu

●Input Type

Input type	Input	Setting	Setting range ℃	Setting range ℉
Platinum resistance thermometer	Pt100	0	-200 to 850	-300 to 1500
		1	-199.9 to 500.0	-199.9 to 900.0
		2	0.0 to 100.0	0.0 to 210.0
	JPt100	3	-199.9 to 500.0	-199.9 to 900.0
		4	0.0 to 100.0	0.0 to 210.0
Thermocouple	K	5	-200 to 1300	-300 to 2300
		6	-20.0 to 500.0	0.0 to 900.0
	J	7	-100 to 850	-100 to 1500
		8	-20.0 to 400.0	0.0 to 750.0
	T	9	-200 to 400	-300 to 700
		10	-199.9 to 400.0	-199.9 to 700.0
	E	11	-200 to 600	-300 to 1100
	L	12	-100 to 850	-100 to 1500
	U	13	-200 to 400	-300 to 700
		14	-199.9 to 400.0	-199.9 to 700.0
	N	15	-200 to 1300	-300 to 2300
	R	16	0 to 1700	0 to 3000
	S	17	0 to 1700	0 to 3000
	B	18	100 to 1800	300 to 3200
	W	19	0 to 2300	0 to 3200
	PL Ⅱ	20	0 to 1300	0 to 2300
Infrared Thermosensor ES1B	10 to 70°C	21	0 to 90	0 to 190
	60 to 120°C	22	0 to 120	0 to 240
	115 to 165°C	23	0 to 165	0 to 320
	140 to 260°C	24	0 to 260	0 to 500
Current input	4 to 20mA	25		
	0 to 20mA	26	Use the following ranges for scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99, -1.999 to 9.999	
Voltage input	1 to 5V	27		
	0 to 5V	28		
	0 to 10V	29		
	0 to 50mV	30		

*The default is "5".
*SERR will be displayed when a platinum resistance thermometer is mistakenly connected while input type is not set for it. To clear the SERR display, correct the wiring and cycle the power supply.

●Alarms

Setting	Alarm type	Alarm output function Positive alarm value (X)	Negative alarm value (X)
0	No alarm function	Output off	
*1 1	Deviation upper/lower limit		Vary with "L", "H" values
2	Deviation upper limit		
3	Deviation lower limit		
*1 4	Deviation upper/lower range		Vary with "L", "H" values
*1 5	Deviation upper/lower limit standby sequence ON		Vary with "L", "H" values
6	Deviation upper limit standby sequence ON		
7	Deviation lower limit standby sequence ON		
8	Absolute value upper limit		
9	Absolute value lower limit		
10	Absolute value upper limit standby sequence ON		
11	Absolute value lower limit standby sequence ON		
12	LBA (only for alarm 1)		
13	PV Change Rate Alarm		
14	SP absolute value upper limit		
15	SP absolute value lower limit		
16	MV absolute value upper limit		
17	MV absolute value lower limit		

*1: Upper and lower limits can be set for parameters 1, 4 and 5 to provide for different types of alarm. These are indicated by the letter "L" and "H".
• The default alarm type is "2".

●Initial Setting Level
Operation stopped. (Control/alarm are both stopped.) *5

*3: Refer to the adjoining tables for details of input types and alarm types.
*4: Applicable only to models with alarm functions.
*5: Operation is stopped when moved to the initial setting level. (control/alarm are both stopped.)
*6: The grayed-out setting items are not displayed for some models and some settings of other setting items.
*7: Only the value set to the L45: Temperature Input Shift parameter is applied to the entire temperature input range. When the process value is 200°C, the process value is treated as 201.2°C after input shift if the input shift value is set to 1.2°C. The process value is treated as 198.8°C after input shift if the input shift value is set to -1.2°C.

⚠ **Conformance to EN/IEC Standards**

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.

A 급 (업무용 방송통신기자재)
이 기기는 업무용(A 급) 전자파적합기기로서 판매자또는 사용자는 이 점을 주의하시기 바라며, 가정외의지역에서 사용하는 것을 목적으로 합니다.

⚠ **Conformance to Safety Standards**

Reinforced insulation is provided between input power supply, relay outputs, and between other terminals.

Do not allow temporary overvoltages on the primary circuit to exceed the following values.
Check the power supply voltage to the Digital Controller.
Short-term overvoltage: 1,200 V + (Power supply voltage)
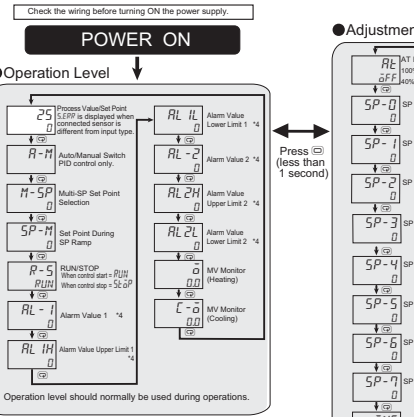Long-term overvoltage: 250 V + (Power supply voltage)
Always externally connect the recommended fuse that is specified in the Instruction Manual before you use the Digital Controller.

Analog Input
• If you input an analog voltage or current, set the Input Type parameter to the correct input type.
• Do not use the Digital Controller to measure a circuit with Measurement Category II, III, or IV.
• Do not use the Digital Controller to measure an energized circuit to which a voltage that exceeds 30 Vrms or 60 VDC is applied.
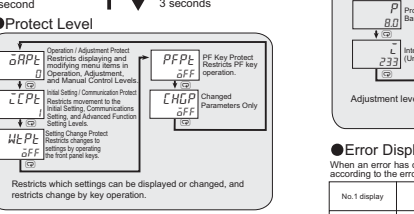The protection provided by the Digital Controller may be impaired if the Digital Controller is used in a manner that is not specified by the manufacturer.
This product with sokect P2CF-11(E) or P3GA-11 gets the UL Listing Certification.It must be used with the sokect which mentioned above.

Check the wiring before turning ON the power supply.

POWER ON

●Operation Level

Operation level should normally be used during operations.

Hold ◎ and ◎ keys down for at least 1 second
Hold ◎ and ◎ keys down for at least 3 seconds

●Protect Level

Restricts which settings can be displayed or changed, and restricts change by key operation.

■Other functions
Refer to the *E5□C Digital Controllers User's Manual* (Man. No. H174) for information on the Advanced Function Setting Level, Manual Control Level, and other functions.

●Adjustment Level

Adjustment level is for entering set values and shift values for control.
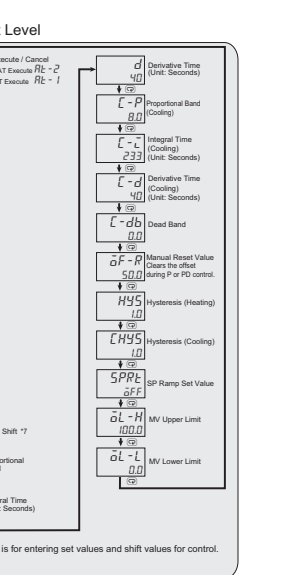
●Error Display (troubleshooting)
When an error has occurred, the No.1 display shows the error code. Take necessary measure according to the error code, referring the table below.

No.1 display	Meaning	Action	Status at error Control output	Alarm
S.ERR (S. Err)	Input error *2	Check the setting of the Input Type parameter, check the input wiring, and check for broken or shorts in the temperature sensor.	OFF	Operates as above the upper limit.
E333 (E333)	A/D converter error *2	After the check of input error, turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF
E111 (E111)	Memory error	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF

If the input value exceeds the display limit (-1999 to 9999), though it is within the control range, □□□□ will be displayed under -1999 and □□□□ above 9999. Under these conditions, control output and alarm output will operate normally.
Refer to the *E5□C Digital Controllers User's Manual* (Man. No. H174) for the controllable ranges.

*2: Error shown only for "Process value / Set point". Not shown for other status.

OMRON EUROPE B.V.
Wegalaan 67-69, NL-2132 JD Hoofddorp The Netherlands
Phone 31-2356-81-300
FAX 31-2356-81-388

OMRON ELECTRONICS LLC
One Commerce Drive Schaumburg, IL 60173-5302 U.S.A
Phone 1-847-843-7900
FAX 1-847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark, Singapore 119967
Phone 65-6835-3011
FAX 65-6835-2711

OMRON Corporation
Shiokoji Horikawa, Shimogyo-ku, Kyoto 600-8530 JAPAN