

E5AC-T 数字式控制器

CHN 使用说明书

感谢您购买欧姆龙E5AC-T数字式控制器。本说明书描述了产品的功能、性能以及充分发挥产品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。
- 在使用该产品前应仔细阅读本说明书以确保正确的使用。
- 妥善保管该说明书以确保在需要时可以随时查阅。

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有关详细的应用步骤，请参阅《E5□C-T数字式控制器用户手册》(Cat. No. H188)。

警告符号

警告

通电期间，请勿触摸端子。否则会导致触电而致致命伤害。

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。调试工具端子或调试工具电缆连接的引脚上，否则会导致触电、火灾或机器误动作。在不将封盖用于防止异物进入端子口时，请将其安装于前面板调试工具端子口上。

请勿将该产品用于有易燃易爆气体的场合，否则有可能因爆炸而造成伤害。

绝对不要拆卸、改装以及修理该产品或接触任何内部零件。否则会导致触电、火灾或机器误动作。

注意 - 火灾或触电的危险

a) 该产品为UL认证的开放式过程控制设备，必须安装在能够防止火花进出的机壳中。
b) 在使用两个以上断开的情况下，维修前请先断开所有开关，确保本产品处于断电状态。
c) 信号输入为SELV(安全低电压电源)，回路受电。
d) 注意：为了减少火灾或触电的危险，请勿将不同的2类回路的输出互联。

如果输出继电器超过了预期的使用寿命，有时会发生触点熔焊或烧蚀。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随着输出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0.43~0.58 N·m的指定扭矩拧紧螺丝。

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。

控制器误动作可能会导致控制操作失败或阻止报警输出，导致财产损失。为了在控制器发生误动作时确保安全，应采取适当的安全措施，如使用单独的线路安装监控系统。

使用时的注意事项

在客户的应用中，欧姆龙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时所考虑到的风险，以及没有确认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情况。

详见产品规格书中保证及免责事项内容。

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。

- 该产品只应设计为室内使用。请勿在以下任何地方使用或存放该产品。
 - 直接受加热设备辐射热的地方。
 - 有液体或油飞溅的地方。
 - 阳光直射的地方。
 - 灰尘较多或有腐蚀性气体(特别是硫化物气体和氨气)的地方。
 - 温度剧烈变化的地方。
 - 结冰和结露的地方。
- 在额定的温度和湿度范围内使用/存储设备。必要时应采取强制冷却。
- 为了散热，不要堵塞该产品周围的空间。
- 不要堵塞产品的通风孔。
- 控制器的极性进行正确的接线。
- 请使用规定尺寸的压接端子(M3, 宽度小于或等于5.8mm)进行接线。使用标有AWG24~AWG18(相当于横截面积0.205~0.8231mm²)的铜绞线或实心电缆连接线和接线板。(铜线长度为6~8mm。一个端子内最多插入两根相同型号尺寸的导线或压接端子。
- 不用的端子不要接线。
- 在控制器与可以产生高频和浪涌的设备之间应保持足够的距离。将高压或大电流电源线与其它导线隔离，在端子接线时避免与电源线共端或并联。
- 在额定负载和供电电源下使用该产品。
- 使用开关或继电器触点以确保在两秒内将电源升为额定电压。如果电压是逐渐上升的，电源可能无法定位或发生输出动作。
- 在接通电源到开始实际操作前应确控制器的输出在电源上电后有2秒的延时。
- 在该产品的附近应有开关或断路器。开关或断路器应该在操作者便于够到的地方，并且有明显的断开标志。
- 清洁时，请用干的软布擦拭。请勿使用稀释剂、汽油、酒精等含溶剂的药品。否则会导致变形或变色。
- 在设计系统(如控制回路)的时候，需要考虑到控制器的输出在电源上电后有2秒的延时。当切换到初始设定菜单时，输出可能会关闭。在实施控制时需要考虑到这一点。
- 非挥发内存的写次数是有限的。所以在通信或其它操作需要频繁重复写数据时，请使用RAM写模式。
- 拆卸控制器进行废弃处理时，请使用适当的工具。
- 请勿将控制器同时连接到前面板调试工具端子和顶部调试工具端口。否则，控制器可能会被损坏或产生误动作。
- 请勿超过规格中给出的通信距离并使用指定的通信电缆。关于通信距离和电缆规格，请参阅《E5□C-T数字式控制器用户手册》(Cat. No. H188)。
- 连接了USB系列转换器时，请勿开、关控制器的电源。否则会导致控制器故障。
- 端子最高温度达75℃，请多加小心。使用耐热的75℃以上的导线连接端子。

规格

供电电压: 100~240 VAC, 50/60 Hz 或者 24 VAC, 50/60 Hz/24 VDC
 额定电压的85~110%
 最大5.0VA (100~240VAC)
 最大6VA (24VAC) (最大3.4W (24VDC))
 热电动势输入: (显示值的±0.3%或者±1°C中的较大值)
 最大16位数字
 铂电阻输入: (显示值的±0.2%或者±0.8°C中的较大值)
 最大16位数字
 模数转换器: 每个触点约7mA
 ON: 最大1kΩ, OFF: 最小100kΩ
 继电器输出: SPST-NO
 250VAC, 5A (阻性负载)
 继电器寿命: 100,000次运行
 电压输出(用于驱动SSR): 12VDC ±20%, 40mA
 线性电流输出: 4~20mA DC, 0~20mA DC
 最大500Ω
 继电器输出: SPST-NO, 250VAC, 5A (阻性负载)
 继电器寿命: 100,000次运行
 2路PID控制
 继电器输出: SPST-NO, 250VAC, 2A (阻性负载)
 继电器寿命: 100,000次运行
 4~20mA DC, 最大负载500Ω
 1~5VDC, 最小负载1kΩ
 温度输入: 铂电阻输入: 100,000次运行
 4~20mA DC, 最大负载500Ω
 1~5VDC, 最小负载1kΩ
 长时间过电压: 1200V (电源电压)
 短时间过电压: 250V (电源电压)

安全注意事项

警告符号的要点

表示潜在的紧急情况，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说明书。

接线

尺寸规格

尺寸(mm)

非焊接端子尺寸: M3

在包内含有:

- 主单元
- 使用说明书
- 防水密封盖 (Y925-P10): ①
- 两个适配器 (Y92F-51): ②
- 前面板设置工具端口盖 (Y925-P7): ③

另售件:

- 端子盖 (E53-00V24)
- USB串行转换器 (E58-C1F02)
- 转换器 (E58-C1F02-E)

* 请勿拆下接线板。否则，会导致故障或误动作。
 * 调试工具端口配置在控制器的顶部和前面。使用调试工具时，请通过这些端口将个人计算机与控制器相连。连接到顶部端口时，需要使用E58-C1F02 USB串行转换器。连接到前面板端口时，需要使用E58-C1F02-E USB串行转换器。使用该产品时，不可一直连接USB串行转换器。
 * 详细的连接方法，请参阅USB串行转换器附带的用户手册。
 * 如果前面板端口盖丢失或损坏，请另行订购。根据运行环境，防水密封盖可能会劣化、收缩或变形，因此请定期进行更换。

安装

单独安装 (mm)

紧密安装 (mm)

紧密安装无法确保防水性能。当有防水要求时，请在前面板的右侧安装防水密封盖。

将主单元插入面板(1~8mm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槽中。
 拧紧适配器顶部和底部的两颗安装螺丝使其保持平衡，最终使其扭矩保持在0.29至0.39N·m之间。
 当安装多台机器时，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)

请在灰色端子上连接任何器件。

控制输出1: 继电器输出 250VAC, 5A (阻性负载)
 控制输出2: 继电器输出 250VAC, 5A (阻性负载)
 控制输出3: 继电器输出 250VAC, 2A (阻性负载)

输入电源: 100~240 VAC, 24 VAC/DC (无极性)

辅助输出: 1~4个继电器输出, 1~4个电压输出 (SSR驱动专用)

传感器温度/模拟量输入: TC, I, V

电位器输入: 1~2个

通信: RS-485, RS-422, RS-232C, CT, COM

前面板的元件名称

温度单位: °C/°F, 温度单位
 根据温度单位的设定值显示°C或°F。

前面板调试工具端口: 通过该端口可将控制器连接到个人计算机以使用调试工具。

菜单键: 使用该键切换菜单。

模式键: 按此键改变显示内容。按该键1秒以上按方向键显示内容。

同时按下 \odot 键和 \odot 键并保持3秒钟以上即可切换为报警菜单。

同时按下 \odot 键和 \odot 键并保持1秒钟以上即可在运行/复位之间相互切换。

第一显示: 过程值或设定数据类型。
 第二显示: 设定值、设定数据输出或更改的输入值。
 第三显示: 显示程序No.、分段No.、分段剩余时间或MV(阀门开度)。

移动键 (PF键): 按此键后，设定的功能即会按高功能设定标准的“PF”启动运行。PF设置参数默认为设定为使能移位。

向上和向下键: 每按一次 \uparrow 键，第二显示上的值将增大或显示下一个值。每按一次 \downarrow 键，第二显示上的值将减小或显示上一个值。

动作指示: -SUB1~4: 显示辅助输出1~4。
 -OUT1~2: 显示控制输出1~2。
 线性电流输出时，0%输出以外均亮灯。
 -TUNE: AT(自动调整)时亮灯。
 -FSP: 指定SP模式为开启状态时亮灯。

-RST: 程序复位中亮灯。
 -CMW: 当通信写入允许时亮灯，禁止时熄灭。
 -Ovr: 当设定变更保护为ON(禁用)上、向下键时亮灯。
 -MANU: 手动模式时亮灯。
 -HOLD: 程序保持中亮灯。
 -WAIT: 程序待机中亮灯。

操作菜单

输入类型

输入类型	输入	设定	设定范围	
温度输入	铂电阻	Pt100	0 ~ -200 ~ -850 ~ -300 ~ -1500	
		2	0.0 ~ -100.0 ~ -199.9 ~ -900.0	
	热电偶	JPt100	3	-199.9 ~ -500.0 ~ -199.9 ~ -900.0
		K	5	-200 ~ -1300 ~ -300 ~ -2300
		J	7	-100 ~ -850 ~ -100 ~ -1500
		T	9	-200 ~ -400 ~ -300 ~ -700
		L	11	-200 ~ -600 ~ -300 ~ -1100
		E	12	-100 ~ -850 ~ -100 ~ -1500
		U	13	-200 ~ -400 ~ -300 ~ -700
		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
红外温度传感器	ES1B	21	0 ~ -90 ~ 0 ~ -190	
	60~120°C	22	0 ~ -120 ~ 0 ~ -240	
	115~165°C	23	0 ~ -165 ~ 0 ~ -320	
	140~260°C	24	0 ~ -260 ~ 0 ~ -500	
电流输入	4~20 mA	25	对比例缩放可采用下列范围: -1999~9999, -199.9~999.9, -19.99~99.99	
	0~20 mA	26		
电压输入	1~5 V	27		
	0~5 V	28		
	0~10 V	29		

*默认值是“5”。
 *当输入类型不是铂电阻而错误的将铂电阻接入时，将会显示SErr。若要清除SErr显示，需要正确接线并重新上电。

初始设定菜单

运行停止(控制/报警均停止) *4

通电之前检查接线。

操作菜单

输入类型: 25
 比例缩放上限(仅限设定模拟量输入时): 100
 比例缩放下限(仅限设定模拟量输入时): 0
 小数点位置(仅限设定模拟量输入时): 0.2
 温度单位: °C/°F
 SP上限: 1300
 SP下限: -200
 程序时间单位: 0
 时间设定/斜坡设定: 0
 斜坡时间设定单位: 0
 复位操作: 0
 通电后的操作: 0
 运行结束时的操作: 0
 PV开始: 0
 所有PID回路上限SP: 0
 控制周期(秒): 20
 电压输出(用于驱动SSR): 2

动作指示: 25
 控制输出1信号: 0.2
 传输输出信号: 4.20
 传输输出类型: 0.00
 传输输出上限: 0.00
 传输输出下限: 0.00
 事件输入分配1: 0
 事件输入分配2: 0
 事件输入分配3~6: 0
 闭合/浮动: 0
 电机校准: 0
 行程时间: 30
 转至高功能设定菜单: 0

初始设定菜单可以使用用户指定的工作条件(输入类型、报警类型等)。

程序设定菜单

显示程序选项: 5-NO
 使用的分段编号: 25
 操作菜单的PV/SP(1)(2): 25
 显示分段选项, END或0到分段编号-1: 在 \odot 程序SP模式下下移时

显示分段选项, END或0到分段编号-1: 在 \odot 程序SP模式下下移时

在此菜单中，输入程序的SP和时间。

按 \odot (不超过1秒) (此处省略了第三显示画面)

按 \odot (不超过1秒)

按 \odot (不超过1秒)

调整菜单

AT执行取消: 100%AT执行行-2
 40%AT执行行-1
 通信写入: 0.0
 SP模式: 0.0
 恒定SP: 0.0
 加热器电流值1~2监控(单位: A): 0.0
 加热器断线检测1~2(单位: A): 0.0
 PV输入偏移量 *3: 0.0
 等待时间: 0.0
 待机时间: 0.0
 比例带: 8.0
 积分时间(单位: 秒): 233
 微分时间(单位: 秒): 40
 手动复位清除PID控制期间的偏移量: 0.0
 MV上限: 100.0
 MV下限: 0.0

调整菜单用于在控制时输入设定值和偏移值。

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	偏差上/下限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
2	偏差上限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
3	偏差下限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
4	偏差上/下范围	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
5	偏差上/下限待机序列ON	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
6	偏差上限待机序列ON	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
7	偏差下限待机序列ON	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
8	绝对值上限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
9	绝对值下限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
10	绝对值上/下限待机序列ON	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
11	绝对值下限待机序列ON	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
12	LBA(仅对报警1)	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
13	PV变化率报警	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
14	SP绝对值上限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
15	SP绝对值下限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
16	MV绝对值上限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同
17	MV绝对值下限	ON/OFF	根据L、H值的不同而不同
		ON/OFF	根据L、H值的不同而不同

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端子之间提供了强化绝缘。

由于UL认证要求，请使用带有出厂接线(内部接线)的E54-CT1L或E54-CT3L电流互感器。使用经UL认证的UL类别OBA或XOBA7电流互感器进行现场接线(外部接线)，而非出厂接线(内部接线)。

在使用本产品时，请务必外接说明书上推荐的保险丝。

关于模拟输入

- 输入电压或电流时，请按照本产品的输入类别设定输入类型。
- 请勿将本产品用来测定“测量范围为H、III、IV”的回路。
- 请勿将本产品用来测定“即加电压超过30Vrms或60VDC”的对象。

如果产品未按本公司指定的方法使用，那么产品具备的保护功能很可能损坏。

PID设定菜单

显示PID选项: 0.0
 0.0
 0.0

有关其它信息，请参阅《E5□C-T数字式控制器用户手册》(Cat. No. H188)。

保护菜单

操作/调整保护: 0.0
 初始设定/通信保护: 0.0
 设定改变保护: 0.0

限制可以显示或改变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详细信息，请参阅《E5□C-T数字式控制器用户手册》(Cat. No. H188)。
 有关通信的详细信息，请参阅《E5□C-T数字式控制器通信手册》(Cat. No. H189)。

错误显示 (故障诊断)

当发生一个错误时，第一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
SErr (S.Err)	输入错误	检查输入类型参数的设置，检查输入接线并检查温度传感器是否存在被短接或断路。	控制输出 OFF 报警 同上报警报警工作
E333 (E333)	AD转换错误	确认输入异常后，请重新接通电源。如果显示不变，则须修理控制器。如果显示恢复正常，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	关闭电源再打开。如果显示不变，则须修理控制器。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

如果输入值超过了显示范围(-1999~9999)，即使它仍然在控制范围内，低于-1999的将显示Eccc，高于9999的显示5555。在这种情况下，控制输出和报警输出工作正常。关于控制的范围，请参阅《E5□C-T数字式控制器用户手册》(Cat. No. H188)。

* 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

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 地址: 中国(上海)自由贸易试验区金吉路789号
 电话: (86)21-50509888

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

E5AC-T Digital Controller

OMRON

EN INSTRUCTION MANUAL

Thank you for purchasing the OMRON E5AC-T 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.

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Refer to the *E5AC-T Digital Controllers User's Manual* (Cat. No. H185) for detailed application procedures.

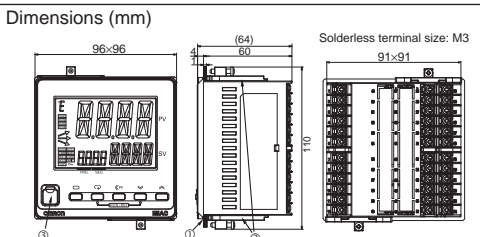
Safety Precautions

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.

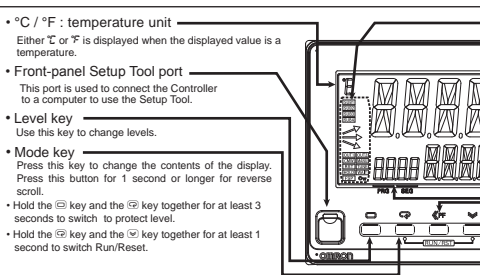
Wiring

Dimensions



Do not remove the terminal block. Doing so may result in failure or malfunction.
Setup Tool ports are provided on the top and front of the Digital Controller. Use these ports to connect a personal computer to the Digital Controller with the Setup Tool. The E58-CIF02 USB-Serial Conversion Cable is required to connect to the top-panel port. The E58-CIF02-E USB-Serial Conversion Cable is required to connect to the front-panel port. (Do not use the product with the USB-Serial Conversion Cable left permanently connected.) Refer to the instruction manual provided with the USB-Serial Conversion Cable for details on connection methods.
If the front-panel port cover is lost or damaged, order it separately. The Waterproof Packing should be periodically replaced because it may deteriorate, shrink, or harden depending on the operating environment.

Names of Parts on Front Panel



Operation Menu

Input Type

Input type	Input	Setting	Setting range
Temperature inputs	Platinum resistance thermometer	Pt100	0 -200 to 850 -300 to 1500
		JPt100	1 -199.9 to 500.0 -199.9 to 500.0
	Thermocouple	K	5 -200 to 1300 -200 to 2300
		J	7 -100 to 850 -100 to 1500
		T	8 -20.0 to 500.0 0.0 to 900.0
		E	10 -199.9 to 400.0 -199.9 to 700.0
		L	12 -100 to 850 -100 to 1500
		U	13 -200 to 400 -300 to 700
		N	14 -199.9 to 400.0 -199.9 to 700.0
		R	15 -200 to 1300 -300 to 2300
		S	16 100 to 1700 0 to 3000
		W	17 100 to 1700 0 to 3000
		PL	18 100 to 1700 0 to 3000
		ES1B	21 0 to 90 0 to 190
Infrared Thermosensors	60 to 120°C	22 0 to 120 0 to 240	
	115 to 165°C	23 0 to 165 0 to 320	
Analog input type	Current input	4 to 20mA	25 Use the following ranges for scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99
	Voltage input	0 to 5V	26 -1.999 to 9.999

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

Alarms

Setting	Alarm type	Alarm output function	
0	No alarm function	Positive alarm value (X) Negative alarm value (X)	
*1	Deviation upper/lower limit	ON OFF	Vary with 0.1% values
		ON OFF	Vary with 1% values
2	Deviation upper limit	ON OFF	
3	Deviation lower limit	ON OFF	
*1	Deviation upper/lower range	ON OFF	Vary with 0.1% values
		ON OFF	Vary with 1% values
*1	Deviation upper/lower limit standby sequence ON	ON OFF	Vary with 0.1% values
		ON OFF	Vary with 1% values
7	Deviation lower limit standby sequence ON	ON OFF	
8	Absolute value upper limit	ON OFF	
9	Absolute value lower limit	ON OFF	
10	Absolute value upper limit standby sequence ON	ON OFF	
11	Absolute value lower limit standby sequence ON	ON OFF	
12	LBA (only for alarm 1)	ON OFF	
13	PV Change Rate Alarm	ON OFF	
14	SP absolute value upper limit	ON OFF	
15	SP absolute value lower limit	ON OFF	
16	MV absolute value upper limit	ON OFF	
17	MV absolute value lower limit	ON OFF	

*The default alarm type is "2".
*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".
*2: Refer to the tables above for details of input types and alarm types.
*3: Only the value set to the %S: 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.
*4: Operation is stopped when moved to the initial setting level. (control/alarm are both stopped.)
*The grayed-out setting items are not displayed for some models and some settings of other setting items.

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, the Setup Tool ports, or between the pins on the connectors on the Setup Tool cable. Attach the cover to the front-panel Setup Tool port whenever you are not using it to prevent foreign objects from entering the port.

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 is UL listed as Open Type Process Control Equipment. It must be mounted in an enclosure that does not allow 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 0.43 to 0.58 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.

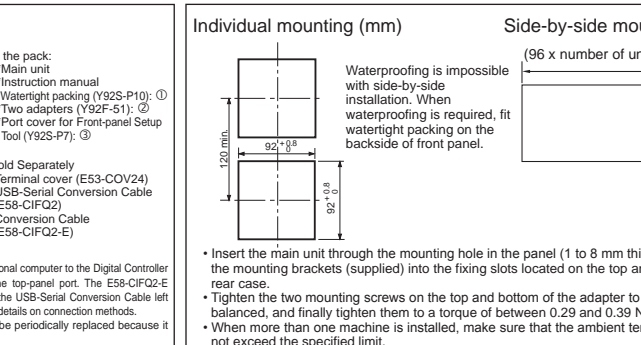
A malfunction in the Digital Controller may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage. To maintain safety in the event of malfunction of the Digital Controller, take appropriate safety measures, such as installing a monitoring device on a separate 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.

Installation



Insert the main unit through the mounting hole in the panel (1 to 8 mm thickness). Insert the mounting brackets (supplied) into the fixing slots located on the top and bottom of the rear case.

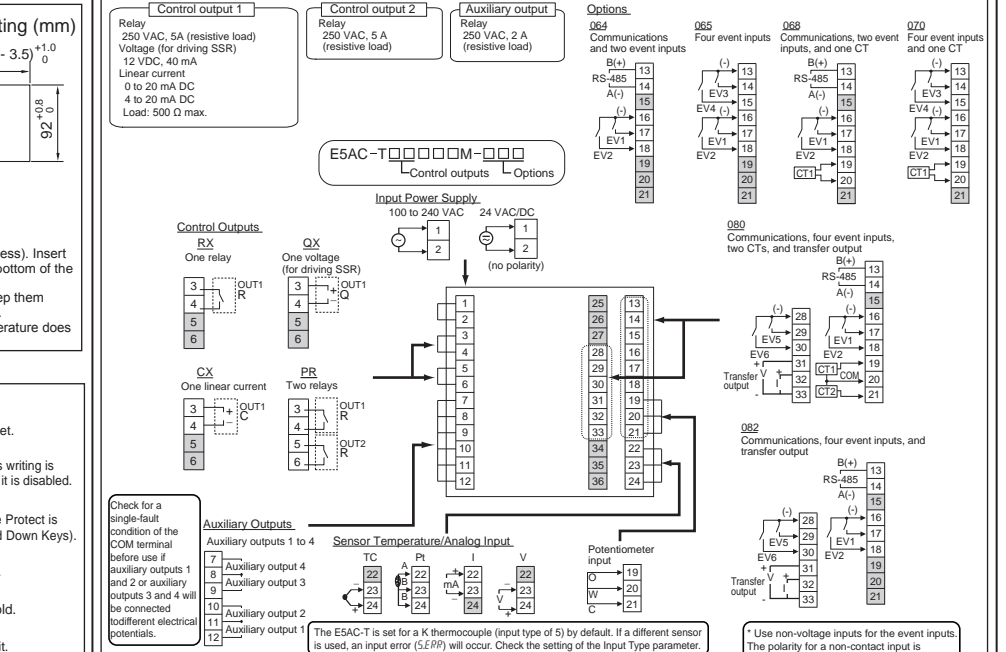
Tighten the two mounting screws on the top and bottom of the adapter to keep them balanced, and finally tighten them to a torque of between 0.29 and 0.39 N·m.

When more than one machine is installed, make sure that the ambient temperature does not exceed the specified limit.

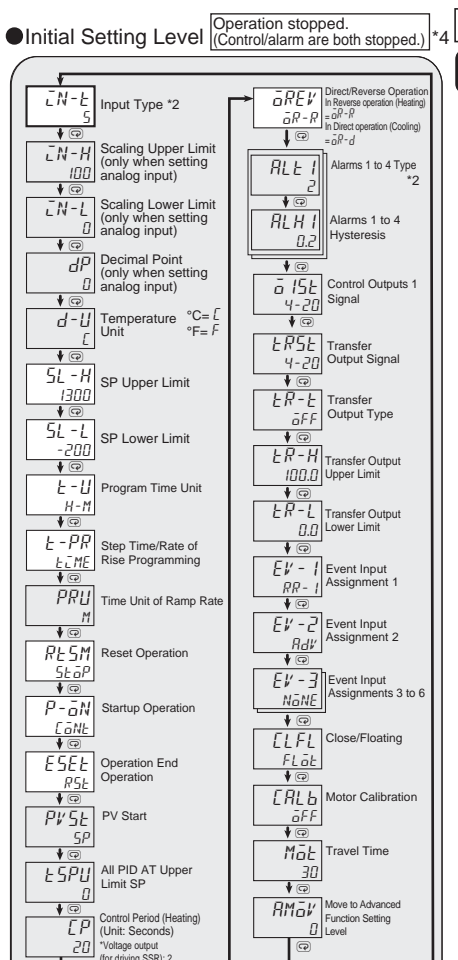
Precautions for Safe Use

- Be sure to observe the following precautions to prevent operation failure, malfunction, or adverse effects on the performance and functions of the product. Do not do so occasionally result in unexpected events.
- 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 large shocks.
 - Use/Store within the rated temperature and humidity ranges. Provide forced-cooling if required.
 - To allow heat to escape, do not block the area around the product. Do not block the ventilation holes on the product. Be sure to wire properly with correct polarity of terminals.
 - Use the specified size of crimped terminals (M3, width 5.8 mm or less) for wiring. To connect bare wires to the terminal block, use copper braided or solid wires with a gauge of AWG24 to AWG18 (equal to cross-sectional area of 0.205 to 0.8231 mm²). (The stripping length is 6 to 8 mm.) Up to two wires of same size and type, or two crimped terminals can be inserted into a single terminal.
 - Do not wire the terminals which are not used.
 - 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.
 - 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.
 - Use this product within the rated load and power supply.
 - 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.
 - 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.
 - Wipe off any dirt from the Digital Controller with a soft dry cloth. Never use thinners, benzene, alcohol, or any cleaners that contain these or other organic solvents. Deformation or discoloration may occur.
 - Design system (control panel, etc.) considering the 2 second of delay that the controller's output to be set after power ON.
 - The output will turn OFF when you move to the Initial Setting Level. Take this into consideration when performing control.
 - The number of non-volatile memory write operations is limited. Therefore, use RAM write mode when frequently overwriting data during communications or other operations.
 - When disassembling the Temperature Controller for disposal, use suitable tools.
 - Do not connect cables to both the front-panel Setup Tool port and the top-panel Setup Tool port at the same time. The Digital Controller may be damaged or may malfunction.
 - Do not exceed the communications distance that is given in the specifications and use the specified communications cable. Refer to the *E5AC-T Digital Controllers User's Manual* (Cat. No. H185) for the communications distance and cable specifications.
 - Do not turn the power supply to the Digital Controller ON or OFF while the USB-Serial Conversion Cable is connected. The Digital Controller may malfunction.
 - The terminals can reach temperatures of up to 75°C. Use wires with heat resistance of 75°C min to wire the terminals.

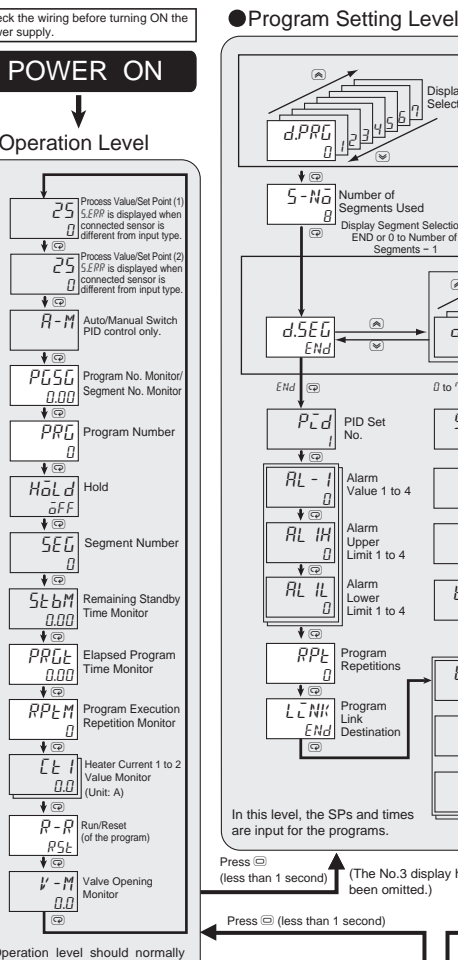
Connections



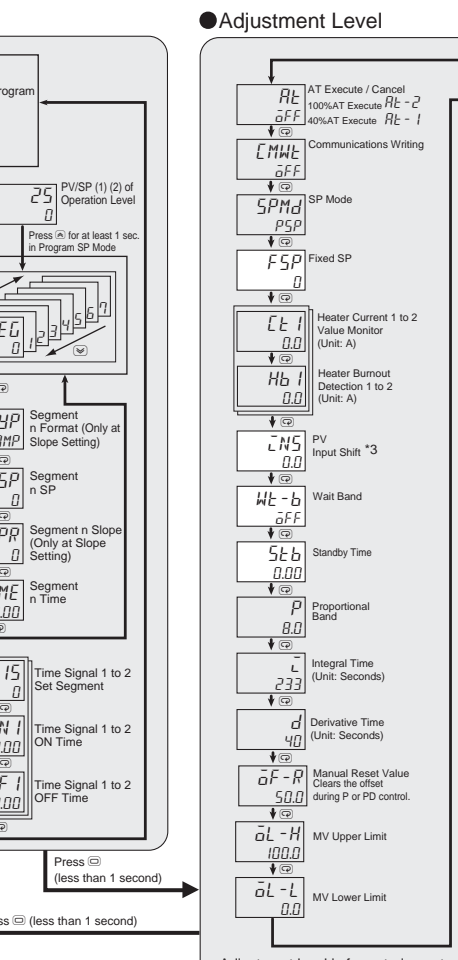
Initial Setting Level



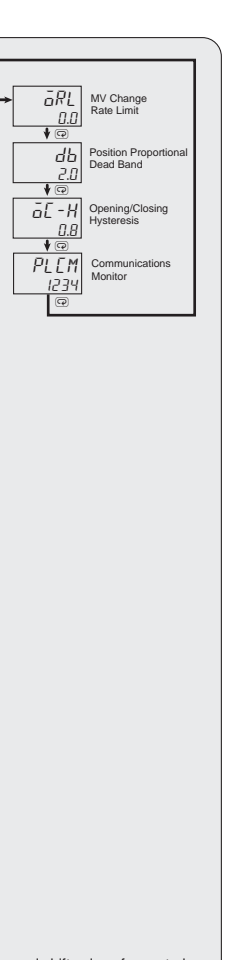
Operation Level



Program Setting Level



Adjustment Level



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.

Conformance to Safety Standard

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

Due to UL Listing requirements, use the E54-CT1L or E54-CT3L current transformer with the factory wiring (internal wiring). Use a UL category X0BA or X0BA7 current transformer that is UL Listed for field wiring (external wiring) and not the factory wiring (internal wiring).

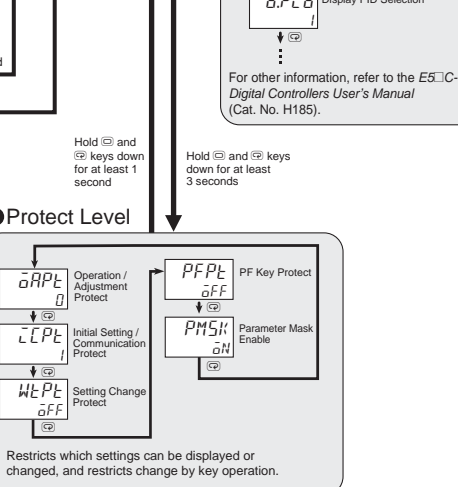
Always externally connect the recommended fuse that is specified in the Instruction Manual before you use the Digital Controller.

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.

Protect Level



Other functions

Refer to the *E5AC-T Digital Controllers User's Manual* (Cat. No. H185) for information on the Advanced Function Setting Level, Manual Control Level, and other functions. Refer to the *E5AC-T Digital Controllers Communications Manual* (Cat. No. H186) for information on communications.

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
SEPR (S. Err)	Input error	Check the setting of the Input Type parameter, check the input wiring, and check for broken or shorts in the temperature sensor.	Control output Alarm
E333 (E333)	A/D converter error	After the check of input error, turn the power OFF then back ON again. If the display remains the same, the controller should 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, [ECCC] will be displayed under -1999 and [3333] above 9999. Under these conditions, control output and alarm output will operate normally. Refer to the *E5AC-T Digital Controllers User's Manual* (Cat. No. H185) for the controllable ranges.

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