

E5CC Digital Controller

EN Instruction Manual

Thank you for purchasing the OMRON E5CC 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 *E5CC/E5EC Digital Controllers User's Manual* (Cat. No. H174) for detailed application procedures.

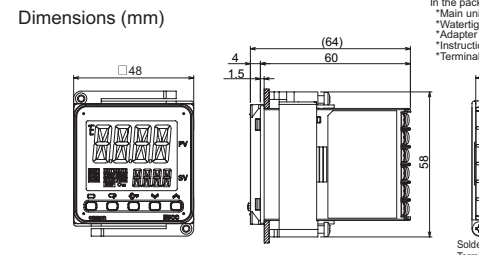
Safety Precautions

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.

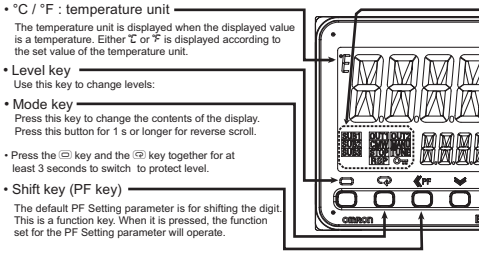
Wiring

Dimensions



* The main unit can be removed for maintenance without disconnecting the terminal wiring.
* Do not remove the terminal block. Doing so may result in failure or malfunction.
* A Setup Tool port is provided on the bottom of the product. Use this port to connect a personal computer to the product when using the Setup Tool. E5B-CIF01 USB-Serial Conversion Cable is required to connect the personal computer to the product. (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.

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 (°C) / -300 to 1500 (°F)
		JPt100	1 -199.9 to 500.0 (°C) / -199.9 to 900.0 (°F)
	Thermocouple	K	5 -199.9 to 500.0 (°C) / -199.9 to 900.0 (°F)
		J	5 -200 to 1300 (°C) / -300 to 2300 (°F)
		T	7 -100 to 850 (°C) / -100 to 1500 (°F)
		E	8 -20.0 to 400.0 (°C) / 0.0 to 750.0 (°F)
		L	9 -200 to 400 (°C) / -300 to 700 (°F)
		U	10 -199.9 to 400.0 (°C) / -199.9 to 700.0 (°F)
		N	11 -200 to 600 (°C) / -300 to 1100 (°F)
		E	12 -100 to 850 (°C) / -100 to 1500 (°F)
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, 0 to 5V, 27 -1.999 to 9.999
		0 to 20mA	26
	Voltage input	1 to 5V	27
		0 to 5V	28
		0 to 10V	29
		0 to 20mA	25
		0 to 1300 (°C)	0 to 2300 (°F)
		0 to 1700 (°C)	0 to 3000 (°F)
		0 to 1700 (°C)	0 to 3000 (°F)
		100 to 1800 (°C)	300 to 3200 (°F)

*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
		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	Vary with "L", "H" values
	3 Deviation lower limit	Vary with "L", "H" values
*1	4 Deviation upper/lower range	Vary with "L", "H" values
	5 Deviation upper/lower limit standby sequence ON	Vary with "L", "H" values
*1	6 Deviation upper limit standby sequence ON	Vary with "L", "H" values
	7 Deviation lower limit standby sequence ON	Vary with "L", "H" values
8	Absolute value upper limit	Vary with "L", "H" values
9	Absolute value lower limit	Vary with "L", "H" values
10	Absolute value upper limit standby sequence ON	Vary with "L", "H" values
11	Absolute value lower limit standby sequence ON	Vary with "L", "H" values
12	LBA (only for alarm 1)	Vary with "L", "H" values
14	SP absolute value upper limit	Vary with "L", "H" values
15	SP absolute value lower limit	Vary with "L", "H" values
16	MV absolute value upper limit	Vary with "L", "H" values
17	MV absolute value lower limit	Vary with "L", "H" values
18	RSP absolute value upper limit	Vary with "L", "H" values
19	RSP absolute value lower limit	Vary with "L", "H" values

*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"

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

Warning Symbols

CAUTION

Do not touch the terminals while power is being supplied. Doing so may occasionally result in minor injury due to electric shock.

Do not allow pieces of metal, wire clippings, or fine metallic shavings or filings from installation to enter the product. Doing so may occasionally result in electric shock, fire, or malfunction.

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 recognized 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 Nm.

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.

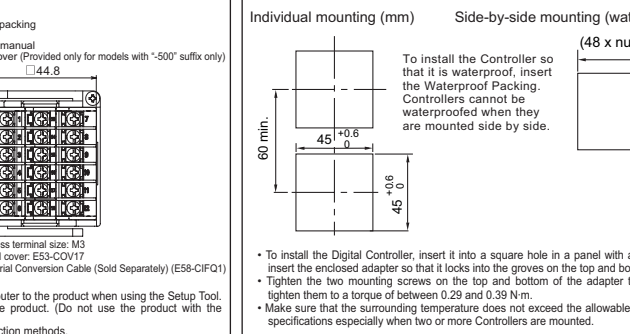
A malfunction in the Digital Controller may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage. To maintain safety in the event of malfunction of the Digital Controller, take appropriate safety measures, such as installing a monitoring device on a separate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

Do not allow dirt or foreign objects to enter the jacks on the Digital Controller or cable connector pins. Otherwise, fire may occasionally occur.

Suitability for Use

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product. Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used. Know and observe all prohibitions of use applicable to this product. 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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM. See also Product catalog for Warranty and Limitation of Liability.

Installation



To install the Controller so that it is waterproof, insert the Waterproof Packing. Controllers cannot be waterproofed when they are mounted side by side.

To install the Digital Controller, insert it into a square hole in a panel with a thickness of 1 to 5 mm, and then insert the enclosed adapter so that it locks into the grooves 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.
- Make sure that the surrounding temperature does not exceed the allowable operating temperature given in the specifications especially when two or more Controllers are mounted.

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. Not doing so may occasionally result in unexpected events.
- Use the product within specifications.
- 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 the product within the rated temperature and humidity ranges. Provide forward-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 (MC, with 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.
 - Use the product within the rated load and power supply.
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 - Use the specified size of crimped terminals (MC, with 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.
 - Use the product within the rated load and power supply.
 - Provide forward-cooling if required.
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