

E5CC-U

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.

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Refer to the *E51C Digital Controllers User's Manual* (Man. No. H174) for detailed application procedures.

CU1 3686278-0B (Side-A)

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.

● 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, moisture, or other foreign matter 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.	⚡
Minor injury from explosion may occasionally occur. Do not use the product where subject to flammable or explosive gas.	💣
Fire may occasionally occur. Do not allow dirt or other foreign objects to enter a Setup Tool port, or between the pins on the connectors on the Setup Tool cable.	🔥
Minor electric shock, fire, or malfunction may occasionally occur. Never disassemble, modify, or repair the product or touch any of the internal parts.	⚠
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. (e) E5CC-U, E5GC products: Use wires with heat resistance of 65°C min to wire the terminals because the maximum terminal temperature is 65°C. Other models of products: Use wires with heat resistance of 75°C min to wire the terminals because the maximum terminal temperature is 75°C.	⚠
If the output relays are used past their life expectancy, contact fusing or burning may occasionally occur.	

If you replace only the Main Unit of the E5DC or E5DC-B, check the condition of the Terminal Unit.

If corroded terminals are used, contact failure in the terminals may cause the temperature inside the Digital Controller to increase, possibly resulting in fire. If the terminals are corroded, replace the Terminal Unit as well.

Loose screws may occasionally result in fire. Tighten the terminal screws to the specified torque of 0.43 to 0.58 N·m.*1

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.

*1 The specified torque is 0.5 N·m for the E5CC-U.

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 and the 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 effects 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 large shocks.

(2) Use and store the product within the rated ambient temperature and humidity range. When multiple Digital Controllers are mounted in close contact or stacked vertically, heat generated by the controllers can cause the internal temperature of each unit to rise, which may shorten their service life. In such cases, provide forced cooling, for example by directing airflow from a fan toward the controllers.

(3) To allow heat to escape, do not block the ventilation holes on the product. Do not block the ventilation holes on the product.

(4) Be sure to wire properly with correct polarity of terminals.

(5) To connect bare wires, use copper stranded or solid wires.

Use the wire sizes and stripping lengths given in the following table to prevent smoking and firing of the wiring material.

Model	Recommended wires	Stripping length
E5CC, E5EC, E5AC, E5DC, or E5GC (models with screw terminal blocks)	AWG24 to AWG18 (0.21 to 0.82 mm ²) Copper stranded or solid wires	6 to 8 mm
E5GC (models with screwless clamp terminal blocks)	AWG24 to AWG14 (0.21 to 2.06 mm ²) Copper stranded or solid wires	8 to 12 mm
E5CC-U (plug-in models)	AWG24 to AWG14 (0.21 to 2.06 mm ²) Copper stranded or solid wires	5 to 6 mm
E51C-B (models with Push-In Plus terminal blocks) *1	0.25 to 1.5 mm ² (equivalent to AWG24 to AWG16) Copper stranded or solid wires	With ferrules: 10 mm Without ferrules: 8 mm

*1 Use Ferrules with UL certification (R/C).

Connect only one wire to each terminal.

Use the specified size of crimped terminals to wire the E5CC, E5EC, E5AC, E5DC, and E5GC (models with screw terminal blocks) as well as the E5CC-U (plug-in models).

Crimp Terminal Sizes

Model	Crimp terminal size
E5CC, E5EC, E5AC, E5DC, or E5GC (models with screw terminal blocks)	M3, Width: 5.8 mm max.
E5CC-U (plug-in models)	M3.5, Width: 7.2 mm max.

• E51C-B (models with Push-In Plus terminal blocks)
Do not insert multiple wires into a single terminal (insertion) hole.

• E5CC (models with screw terminals)
You can connect up to two wires of the same size and type to a single terminal. You can also connect up to two wires of the same size and type to a single terminal.

• E5GC (models with screwless clamp terminal blocks)
When connecting two wires to a single terminal, be sure to use ferrules (twin ferrules). *1 Select ferrules that meet the following specifications:
- Outer diameter: 0.8 to 1.4 mm
- Length of exposed conductive part: 8 to 12 mm
- Must be a double crimp (twin) type

*1 The E5GC (models with screwless clamp terminal blocks) has been UL tested with a single stranded wire connected.

(6) Do not wire the terminals that are not used.

(7) To prevent inductive noise, keep the wiring of the Digital Controller separate from high-voltage or high-current power lines. Do not run the controller wiring parallel to or in the same conduit as power lines. Effective measures include using separate conduits or ducts and using shielded cables. Install surge absorbers or noise filters on nearby equipment that generates noise, especially devices with inductive components such as motors, transformers, solenoids, and magnetic coils. When using a noise filter on the power supply, check the voltage and current ratings, and install the filter as close to the Digital Controller as possible. Also, keep the controller as far as possible from equipment that generates strong high-frequency signals (such as high-frequency welders or sewing machines) or equipment that produces surges.

Use this product within the rated load and power supply.

(8) 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.

(9) 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.

(10) When executing self-tuning, turn on the power for both the load and the Digital Controller simultaneously, or turn on the load power before the controller power. If you turn on the controller power first and then the load power, proper self-tuning and optimal control cannot be achieved.

(11) 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 device.

(12) 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.

(13) Deformation or discoloration may occur.

(14) Design the system (control valve, etc.) considering a 2-second delay before the controller's output is 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 during communications or other operations.

(17) Always touch a grounded piece of metal before touching the Digital Controller to discharge static electricity from your body.

(18) Use suitable tools when taping the Digital Controller apart for disposal. Sharp parts inside the Digital Controller may cause injury.

(19) For compliance with Lloyd's standards, the E5CC, E5CC-U, E5CC-B, E5EC, E5EC-B, E5AC, and E5DC must be installed under the conditions that are specified in Shipping Standards.

(20) On models with two Setup Tool ports (E5EC, E5EC-B, E5AC, E5DC, E5DC-B, and E5GC), do not connect power cables to both ports at the same time. The Digital Controller may be damaged or may malfunction.

(21) Do not exceed the communications distance that is given in the specifications and use the specified communications cable.

(22) 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.

(23) Do not bend the communications cables past their natural bending radius. Do not pull on the communications cables.

(24) For the E5DC and E5DC-B, when you attach the Main Unit to the Terminal Unit, make sure that the hooks on the Main Unit are securely inserted into the Terminal Unit.

(25) For the E5CC-U, when you attach the Main Unit to the socket, make sure that the hooks on the socket are securely inserted into the Main Unit.

(26) Install the DIN Track vertically to the ground.

(27) For the E5DC and E5DC-B, always turn OFF the power supply before connecting the Main Unit to or disconnecting the Main Unit from the Terminal Unit, and never touch or apply shock to the terminals or electronic components. When connecting or disconnecting the Main Unit, do not allow the electronic components to touch the case.

(28) Observe the following precautions when you remove the terminal block or pull out (draw out) the interior of the E5CC.

- Turn OFF the power supply before you start and never touch or apply shock to the terminals or electronic components. When you insert the interior body of the Digital Controller, do not allow the electronic components to touch the case.
- Check for any corrosion on the terminals.
- When you insert the interior body into the rear case, confirm that the hooks on the top and bottom are securely engaged with the case.

(29) Observe the following precautions when wiring the E5CC-B.

- Do not wire anything to the release holes.
- Do not tilt or twist a flat-blade screwdriver while it is inserted into a release hole on the terminal block. The terminal block may be damaged.
- Insert a flat-blade screwdriver into the release holes at an angle. The terminal block may be damaged if you insert the screwdriver straight in.
- Do not allow the flat-blade screwdriver to fall out while it is inserted into a release hole.
- Do not do a wire twist in its natural bending radius or pull on it with excessive force. Doing so may cause the wire to break.
- Do not perform crossover wiring except for the input power supply and communications. (E5CC-B/E5EC-B only)
- Do not perform crossover wiring. (E5DC-B only)

(30) Use a commercial power supply for the power supply voltage input to a Digital Temperature Controller with AC input specifications.

Do not use the output from an inverter as the power supply.

Depending on the output characteristics of the inverter, temperature increases in the Digital Temperature Controller may cause smoke or fire damage even if the inverter has a specified output frequency of 50/60 Hz.

(31) Do not use the product if the front sheet is peeled off. The front sheet is a structural part of the product and is different from the protective film. The protective film is intended to prevent scratches during transportation. Remove the protective film before using the product.

● 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°C)	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. Relay output: SPDT, 250 VAC, 3 A (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 mA DC, 0 to 20 mA DC Load: 500 Ω 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 -10 to 55°C (Avoid freezing or condensation) 25% to 85% (Avoid freezing or condensation) Max. 2,000m TZA, 250 VAC, time-lag, low-breaking capacity Approx. 100 g (Digital Controller only) Front panel: IP50 Rear case: IP20 Terminal section: IP00 Installation category II, pollution degree 2 (as per IEC61010-1) Non-volatile memory (Number of write operations: 1,000,000) Long-term: 250V~(Power supply voltage) Short-term: 1200V~(Power supply voltage)
Ambient temperature	
Ambient humidity	
Storage temperature	
Altitude	
Recommended fuse	
Weight	
Degree of protection	
Installation environment	
Memory protection	
Temporary overvoltage	

■ Wiring

● Dimensions

Dimensions (mm)

48x48

Adapter (Y92F-49)

44.8x44.8

48x48

4

58.8

14.2

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

Sold Separately:
• USB-Serial Conversion Cable (E58-CIF02)

* A Setup Tool port is provided on the upper of the product. Use this port to connect a personal computer to the product when using the Setup Tool. E58-CIF02 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

• °C / °F : temperature unit
The temperature unit is displayed when the displayed value is a temperature. Either °C or °F 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 control 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.

TUNE:
Flashing during ST (self-tuning).
Lit during AT (auto-tuning).

● Surface mounting

(mm)

E5CC-U + P2CF-11

● Installation

Individual mounting (mm)

Side-by-side mounting (mm)

(48 x number of units - 2.5) ^{+1.0}/₋₀

60 mm

45 ^{+0.6}/₋₀

45 ^{+0.6}/₋₀

• 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.

Control output 1

Voltage output (for driving SSR)
12 VDC, 21 mA
Linear current output
4 to 20 mA DC
0 to 20 mA DC
Load: 500 Ω max.
Relay output (three terminals used)
SPDT, 250 VAC, 3 A (resistive load)

• STOP:
Lit when "Run/Stop" is stopped during operation. During control stop, functions other than control output are valid.

• CTT:
Lit when Setting Change Protect is ON (disables the Up and Down Keys).

• MANU:
Lit during Manual Mode.

* 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.

● Connections (The applicability of the electric terminals varies with the type of machine.)

Do not connect anything to the terminals that are shaded gray.

The E5CC-U is set for a K thermocouple (input type of S) by default. If a different sensor is used, an input error (5.EPR) will occur. Check the setting of the Input Type parameter.

E5CC-□□□□UM-000

Control output 1

* Check for a single-fault condition of the COM terminal before use. If auxiliary outputs 1 and 2 will be connected to different electrical potentials.

Auxiliary output 1, 2
Relay outputs
250 VAC, 3 A (resistive load)

Auxiliary output 1
Auxiliary output 2 (Control output (cooling side))

Control output 1

One voltage output (for driving SSR)
One linear current output
One relay output

OUT1 Q
OUT1 C
OUT1 R

Sensor (Temperature/Analog) Input

• 100 to 240 VAC
• 24 VAC/DC (no polarity)

* 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.

■ Operation Menu

● Input Type

Input type	Input	Setting	Setting range
Temperature inputs	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
	Thermocouple	JP1K100	3 -199.9 to 500.0 -199.9 to 900.0
		4	0.0 to 100.0 0.0 to 210.0
		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
Infrared Thermosensor	ES1B	11 -200 to 1300 -300 to 2300	
	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 -100 to 850 -100 to 1500	
	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	
	Current input	21	0 to 90 0 to 190
22		0 to 120 0 to 240	
23		0 to 165 0 to 320	
Voltage input	24	0 to 260 0 to 500	
	25	0 to 20mA 26	
	27	1 to 5V 27	
Analog input type	28	0 to 5V 28	
	29	0 to 10V 29	
	30	0 to 50mV 30	

*The default is "5".
5.EPR will be displayed when a platinum resistance thermometer is mistakenly connected while input type is not set for it. To clear the 5.EPR 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
		SP
2	Deviation upper limit	ON OFF
		SP
3	Deviation lower limit	ON OFF
		SP
4	Deviation upper/lower range	ON OFF
		SP
5	Deviation upper/lower limit standby sequence ON	ON OFF
		SP
6	Deviation upper limit standby sequence ON	ON OFF
		SP
7	Deviation lower limit standby sequence ON	ON OFF
		SP
8	Absolute value upper limit	ON OFF
		SP
9	Absolute value lower limit	ON OFF
		SP
10	Absolute value upper limit standby sequence ON	ON OFF
		SP
11	Absolute value lower limit standby sequence ON	ON OFF
		SP
12	LBA (only for alarm 1)	ON OFF
		SP
13	PV Change Rate Alarm	ON OFF
		SP
14	SP absolute value upper limit	ON OFF
		SP
15	SP absolute value lower limit	ON OFF
		SP
16	MV absolute value upper limit	ON OFF
		SP
17	MV absolute value lower limit	ON OFF
		SP

*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

Input Type *3

Scaling Upper Limit (only when setting analog input)

Scaling Lower Limit (only when setting analog input)

Decimal Point (only when setting analog input)

Temperature Unit

SP Upper Limit

SP Lower Limit

PID-ON/OFF In ON/OFF control = ON, In 2-PID control = OFF

Standard or Heating/Cooling Standard control = H, Heating and cooling control = C

ST (Self-Tuning) ST ON = ON, ST OFF = OFF

Program Pattern

Control Period (Heating) (Unit: Seconds) *Voltage output (for driving SSR) 2

Control Period (Cooling) (Unit: Seconds) *Voltage output (for driving SSR) 2

Direct/Reverse Operation In Reverse operation (Heating) = ON, In Direct operation (Cooling) = OFF

Alarm 1 Type: Specified models only

Alarm 1 Hysteresis *3 *4

Alarm 2 Type: Specified models only

Alarm 2 Hysteresis *3 *4

Control Output 1 Signal

Simple Transfer Output 1 Upper Limit

Simple Transfer Output 1 Lower Limit

Extraction of Square Root Enable (only when analog input is set)

Move to Advanced Function Setting Level

Initial setting level enables users to specify their preferred operating conditions (input type, alarm type, control method, etc.).

*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: The four numeric digits of the product code are displayed in the No. 2 display. The setting cannot be changed and there is nothing that you need to set.
*8: Only the value set to the ; 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 기기 (업무용 방송통신기자재)
이 기기는 업무용(A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의지방에서 사용하는 것을 목적으로 합니다.

Conformance to Safety Standards

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

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 socket P2CF-11(E) or P3GA-11 gets the UL Listing Certification. It must be used with the socket which mentioned above.

POWER ON

Check the wiring before turning ON the power supply.

Operation Level

Process Value/Set Point
5.EPR is displayed when connected sensor is different from input type.

Auto/Manual Switch
Upper Limit 1 *4

Multi-SP Set Point Selection

Set Point During SP Ramp

Program Start

Soak Time Remain

RUN/STOP
When control start = RUN, When control stop = STOP

Alarm Value Upper Limit 1 *4

Alarm Value Lower Limit 1 *4

Alarm Value Upper Limit 2 *4

Alarm Value Lower Limit 2 *4

Alarm Value Upper Limit 2 *4

Alarm Value Lower Limit 2 *4

MV Monitor (Heating)

MV Monitor (Cooling)

Alarm Value 1 *4

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

Move to Protect Level
Displayed only when password is set. Restricts moving.

Operation/Adjustment Protect
Restricts displaying and setting of Operation, Adjustment, and Manual Control Levels.

Initial Setting/Communications Protect
Restricts movement to the Initial Setting, Communications Setting, and Function Setting Levels.

Setting Change Protect
Restricts change to settings by operating the front panel keys.

PF Key Protect
Restricts PF key operation.

Changed Parameters Only

Parameter Mask Enable
Displayed only when a parameter mask is set.

Password to Move to Protect Level

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

● Other functions

Refer to the *E51C Digital Controllers User's Manual* (Man. No. H174) for information on the Advanced Function Setting Level, Manual Control Level, and other functions.

● 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
5.EPR (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.	Control output: OFF Alarm: 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 *E51C 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 statuses.

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