Digital Controller

LEISTER®

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TEMPERATURE CONTROLLER

UNPACKING

Make sure that the package contains the following items. If all the items are not in the package or an item is damaged, contact your dealer immediately.

- E5CK ---------- 1
- Adapter ---------- 1
- Terminal Cover ---------- 1
  (E5CK-□□-500 only)
- This Instruction Manual ----- 1

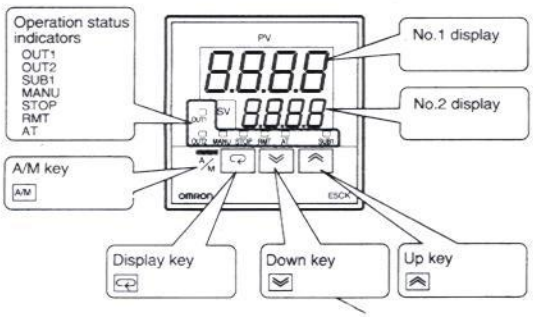
CORRECT USE OF THE E5CK

- If you remove the controller from its case, never touch nor apply shock to the electronic parts inside.
- Do not cover the bottom and the top of the controller.
- Do not use the controller in the following places:
- Places subject to icing, condensation, dust or corrosive gas (especially sulfide gas or ammonia gas)
- Places subject to vibration and large shocks
- Places subject to splashing liquid or oil atmosphere
- Places subject to intense temperature changes
- Places subject to heat radiation from a furnace.

MAIN SPECIFICATIONS

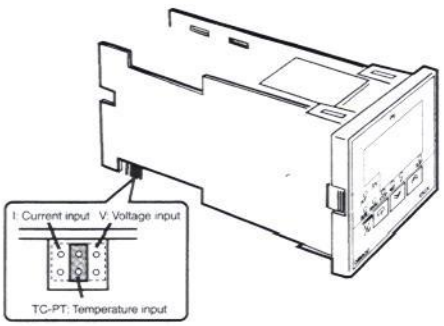
- Supply voltage : AC100-240V~, 50/60 Hz
- Power consumption : Approx. 15 VA
- Input : Thermocouple, platinum resistance thermometer, current input, voltage input
- Control output : According to output unit
- Auxiliary output : 1a AC 250 V, 1A (resistive load)
- Control method : ON/OFF or PID control
- Ambient temperature : -10 to 55°C
- Ambient humidity : 35 to 85%
- Storage temperature : -25 to 65°C
- Weight : Approx. 170 g
- Enclosure ratings : Front panel : NEMA4 for indoor use (IP66 equivalent)
- Setup environment : (Conforming to IEC 1010-1) Setup category II, Degree of contamination 2.

NAMES OF PARTS ON FRONT PANEL

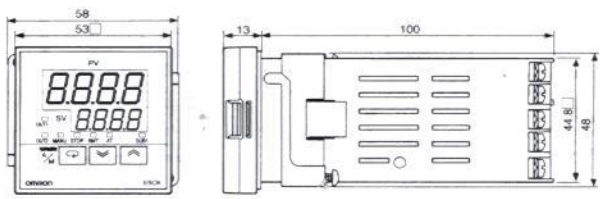


- No.1 display: Displays process values or parameter symbol.
- No.2 display: Displays set point, manipulated variable or parameter settings.
- Operation status indicators
- OUT1: Lights when the output function assigned to "CONTROL OUTPUT 1" is ON by pulse output.
- OUT2: Lights when the output function assigned to "CONTROL OUTPUT 2" is ON.
- SUB1: Lights when the output function assigned to "AUXILIARY OUTPUT 1" is ON.
- MANU: Lights in the manual operation mode.
- STOP: Lights when operation has stopped.
- RMT: Lights during remote operation.
- AT: Flashes during auto-tuning.
- A/M key: Switches between automatic and manual operation.
- Display key: Selects parameters.
- Down key: Each press returns the setting.
- Up key: Each press advances the setting.

INPUT TYPE JUMPER

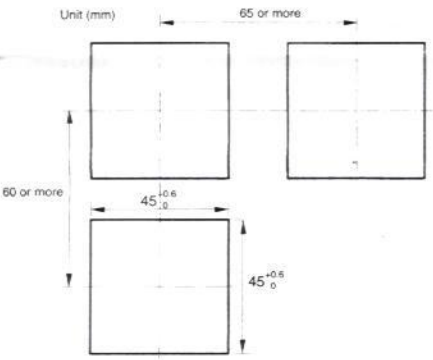


EXTERNAL DIMENSIONS (unit: mm)

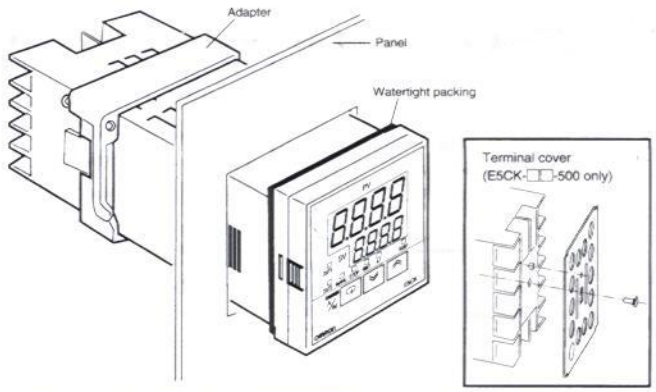


INSTALLATION

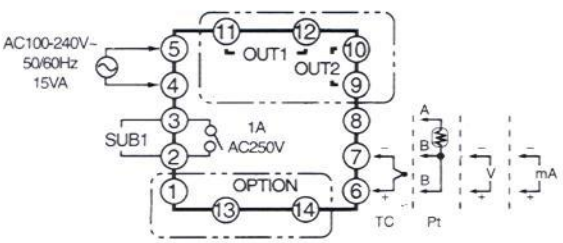
- Mounting Panels



- Mounting the Controller



WIRING TERMINALS

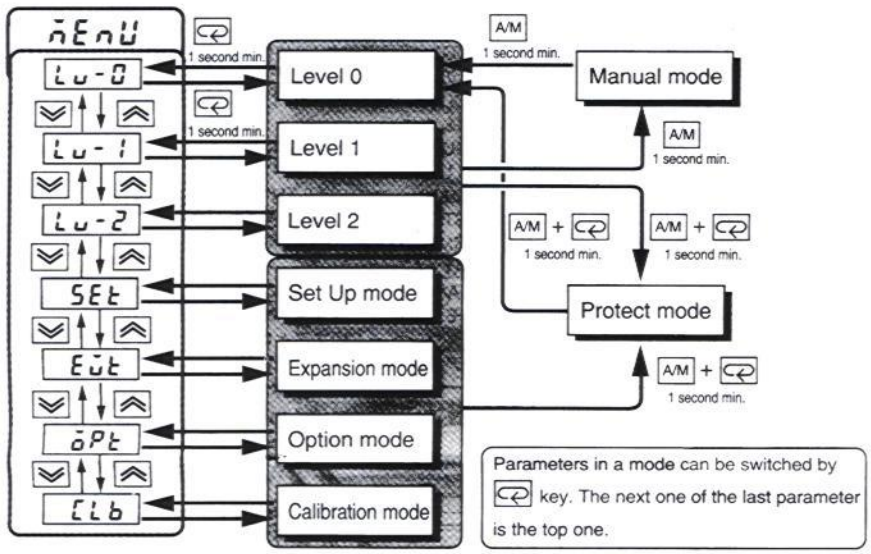


- OUT1/OUT2: Control outputs 1/2
  The interface varies according to the output unit. For details, see the relevant manual.
- SUB1: Auxiliary output 1
- OPTION: Option
  The interface varies according to the option unit. For details, see the relevant manual.

ERROR DISPLAY

S.Err	Input error	Input is in error.	Check the input wiring (incorrect, disconnected, or short-circuited), input type and input type jumper.
E111	Memory error	Internal memory is in error.	Repair.
E333	A/D converter error	Internal circuits are in error.	Repair.
R.Err	Calibration data error	The calibration data is in error. This message is displayed for two seconds when the power is turned ON.	Repair.
cccc / 3333	Display range exceeded	This is not an error. This is displayed when the display range is exceeded.	

■ PARAMETERS



Level 0

- PV/SP
- Set point during SP ramp
- MV monitor (Heat)
- MV monitor (Cool)
- Run/Stop

Manual mode

- Manual MV

Protect mode

- Security
- A/M Key protect

Level 1

- AT Execute/Cancel
- Set point 0
- Set point 1
- Alarm value 1
- Alarm value 2
- Alarm value 3
- Proportional band
- Integral time
- Derivative time
- Cooling coefficient
- Dead band
- Manual reset value
- Hysteresis (Heat)
- Hysteresis (Cool)
- Control period (Heat)
- Control period (Cool)

Level 2

- Remote/Local
- SP ramp time unit
- SP ramp set value
- LBA detection time
- MV at stop
- MV at PV error
- MV upper limit
- MV lower limit
- MV change rate limit
- Input digital filter
- Alarm 1 hysteresis
- Alarm 2 hysteresis
- Alarm 3 hysteresis
- Input shift upper limit
- Input shift lower limit

Set Up mode

- Input type
- Scaling upper limit
- Scaling lower limit
- Decimal point
- °C/°F selection
- Parameter initialize
- Control output 1 assignment
- Control output 2 assignment
- Auxiliary control 1 assignment
- Alarm 1 type
- Alarm 1 open in alarm
- Alarm 2 type
- Alarm 2 open in alarm
- Alarm 3 type
- Alarm 3 open in alarm
- Direct/Reveise operation

Expansion mode

- SP setting upper limit
- SP setting lower limit
- PID/ON/OFF
- ST
- ST stable band
- α
- AT calculated gain width
- Standby sequence reset method
- Automatic return of display mode
- AT hysteresis
- LBA detection width

Option mode

- Multi-SP function
- Event input assignment
- Communication stop bit
- Communcation data length
- Communication parity
- Communication buad rate
- Communication unit No.
- Transfer output type
- Transfer output upper limit
- Transfer output lower limit

• Input Type

Setting		Input Ranges	
0	JPt100	−199.9 ~ 650.0 (°C)	/ −199.9 ~ 999.9 (°F)
1	Pt100	−199.9 ~ 650.0 (°C)	/ −199.9 ~ 999.9 (°F)
2	K1	−200 ~ 1300 (°C)	/ −300 ~ 2300 (°F)
3	K2	0.0 ~ 500.0 (°C)	/ 0.0 ~ 900.0 (°F)
4	J1	−100 ~ 850 (°C)	/ −100 ~ 1500 (°F)
5	J2	0.0 ~ 400.0 (°C)	/ 0.0 ~ 750.0 (°F)
6	T	−199.9 ~ 400.0 (°C)	/ −199.9 ~ 700.0 (°F)
7	E	0 ~ 600 (°C)	/ 0 ~ 1100 (°F)
8	L1	−100 ~ 850 (°C)	/ −100 ~ 1500 (°F)
9	L2	0.0 ~ 400.0 (°C)	/ 0.0 ~ 750.0 (°F)
10	U	−199.9 ~ 400.0 (°C)	/ −199.9 ~ 700.0 (°F)
11	N	−200 ~ 1300 (°C)	/ −300 ~ 2300 (°F)
12	R	0 ~ 1700 (°C)	/ 0 ~ 3000 (°F)
13	S	0 ~ 1700 (°C)	/ 0 ~ 3000 (°F)
14	B	100 ~ 1800 (°C)	/ 300 ~ 3200 (°F)
15	W	0 ~ 2300 (°C)	/ 0 ~ 4100 (°F)
16	PLII	0 ~ 1300 (°C)	/ 0 ~ 2300 (°F)
17	4 ~ 20mA		
18	0 ~ 20mA		
19	1 ~ 5V		
20	0 ~ 5V		
21	0 ~ 10V		

• Alarm Type

	Alarm Type	Alarm Output Operation	
		X ≥ 0	X < 0
1	Deviation upper/ lower limit	ON/OFF, X, SP	ON at all times
2	Deviation upper limit	ON/OFF, X, SP	ON/OFF, X, SP
3	Deviation lower limit	ON/OFF, X, SP	ON/OFF, X, SP
4	Deviation upper/ lower range	ON/OFF, X, SP	OFF at all times
5	Deviation upper/ lower limit (standby sequence ON)	ON/OFF, X, SP	OFF at all times
6	Deviation upper limit (standby sequence ON)	ON/OFF, X, SP	ON/OFF, X, SP
7	Deviation lower limit (standby sequence ON)	ON/OFF, X, SP	ON/OFF, X, SP
8	Absolute value upper limit	ON/OFF, X, 0	ON/OFF, X, 0
9	Absolute value lower limit	ON/OFF, X, 0	ON/OFF, X, 0
10	Absolute value upper limit (standby sequence ON)	ON/OFF, X, 0	ON/OFF, X, 0
11	Absolute value lower limit (standby sequence ON)	ON/OFF, X, 0	ON/OFF, X, 0