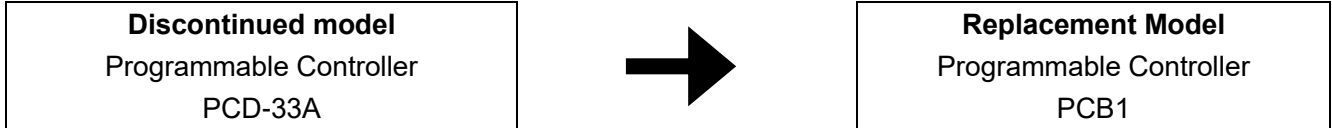


This data mainly describes the differences at the time of product replacement.
For correct and safe use, be sure to read the instruction manual for precautions on use.

● Notification of Program Controller PCD-33A Discontinuation



● Notes When Using Replacement Model

- The number of patterns is different.
9 patterns (linkable) → 10 patterns (linkable)
- The number of steps is different.
81 steps (9 steps/pattern) → 100 steps (10 steps/pattern)
- SV high limit and SV low limit functions are not available. → Scaling high limit, scaling low limit
- Case color black (OP: BK) is standard.
Case: Black color only
- Console communication (CMD-001) is available.
- Control output: Non-contact voltage is different.
 12_0^{+2} V DC → 12 V DC ± 15 %
- Serial communication: The selection of communication speed is different.
MAX 19200 bps (2400, 4800, 9600, 19200 bps) → MAX 38400 bps (9600, 19200, 38400 bps)
- The rated range of the input range is different. (See Input Range on p. 6)
- Depth of control panel interior is different.
Depth of control panel interior: 98.5 mm → 58.8 mm
- Alarm 1, 2 (standard) → Event output EV1 (standard), Event output EV2 (option: EV2 (DR)),
Event output EV3 (option: EV3 (D□))
- The power supply voltage terminals are different.
②(+)-③(-) → ⑬(+)-⑭(-)
- Control output (OUT1) terminal and contact structure (relay contact output) are different.
⑤(+)-⑥(-) → ⑮(+)-⑯(-)
1a1b → 1a
- Thermocouple input terminals are different.
⑱(+)-⑲(-) → ⑳(+)-㉑(-)
- RTD input terminals are different.
⑱(A)-⑲(B)-⑳(B) → ㉒(A)-㉓(B)-㉔(B)
- DC voltage input terminals are different.
⑱(+)-⑲(-) (0 to 1 V DC, 0 to 5 V, 1 to 5 V, 0 to 10 V DC) → ㉒(+)-㉔(-) (0 to 1 V DC)
㉑(+)-㉔(-) (0 to 5 V, 1 to 5 V, 0 to 10 V DC)
- Direct current input terminals are different. Also, a 50 Ω receiving resistor is not required.
⑱(+)-⑲(-) → ㉒(+)-㉔(-)
- Serial communication terminals are different.
⑪YA(-)-⑭YB(+)-⑰COM → ⑩YA(-)-⑪YB(+)-⑫SG
- External operation terminals are different.
Select input terminals ⑧-⑫ or ⑨-⑬.

- Weight is different.
Approx. 370 g → Approx. 220 g
- OUT1 proportional band setting range is different.
0 to 1000 °C, 0.0 to 999.9 °C, DC input 0.0 to 100.0 % → 0 to input span or 0.0 to input span,
DC input 0.0 to 1000.0 %
- The setting range of sensor correction is different. The slope of the sensor input value can be set using the sensor correction coefficient.
-100.0 to 100.0 °C (°F), DC input: -1000 to 1000 → -1000.0 to 1000.0 °C (°F),
DC input: -10000 to 10000
- Terminal covers
Option: TC → Sold separately (TC-BCD2)

● Differences Between Discontinued Model and Replacement Model

Case Color	External dimensions	Panel cut dimensions	Wiring connection	Rating performance	Action characteristics	Operation method
○	○	◎	×	○	○	○

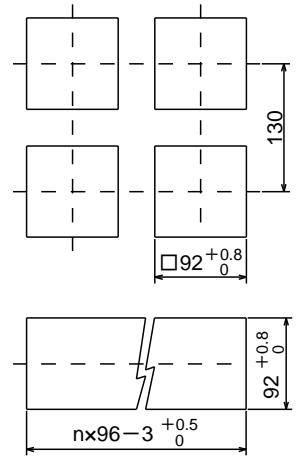
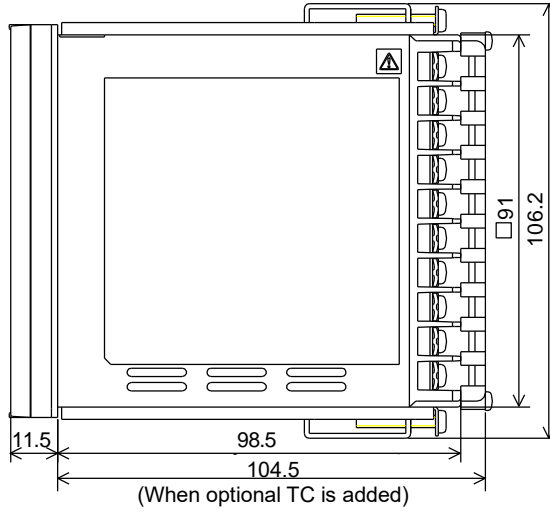
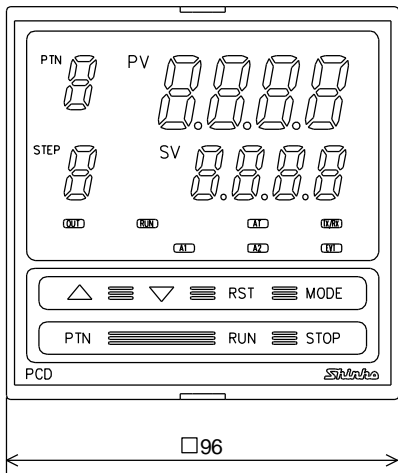
(◎: Compatible (no change) ○: Slight change ×: Large change)

● Discontinued Model and Replacement Model

Discontinued model	Replacement Model	Remarks
PCD-33A-R/M	PCB1R00-00	
PCD-33A-S/M	PCB1S00-00	
PCD-33A-A/M	PCB1A00-00	
PCD-33A-□/M, 1	PCB1□10-00	Power supply voltage 24 V AC/DC
PCD-33A-□/M [Alarm 1, 2(A1, A2)]	PCB1□□0-10	Alarm 1 and 2 (A1, A2) are selectable by event output EV1 and EV2 allocation
PCD-33A-□/M (External operation)	PCB1□□0-19	External operation are selectable by event input DI1 and DI2 allocation
PCD-33A-□/M, C5	PCB1□□0-□6	Serial communication
PCD-33A-□/M, C5, P24	PCB1□□0-46	
PCD-33A-□/M, SVTC	PCB1□□0-06	SVTC is selectable by communication protocol selection
PCD-33A-□/M, SVTC, P24	PCB1□□0-46	SVTC is selectable by communication protocol selection
PCD-33A-□/M, P24	PCB1□□0-40	Isolated power supply output
PCD-33A-□/M, TC	PCB1□□0-□□	Terminal cover sold separately (TC-BCD2)
PCD-33A-□/M, BK	PCB1□□0-□□	Standard case color is black

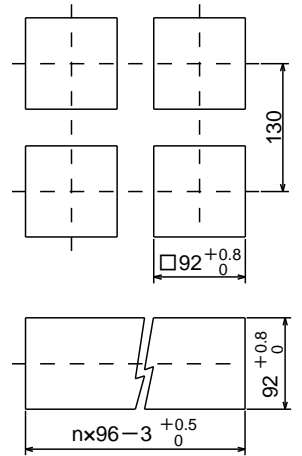
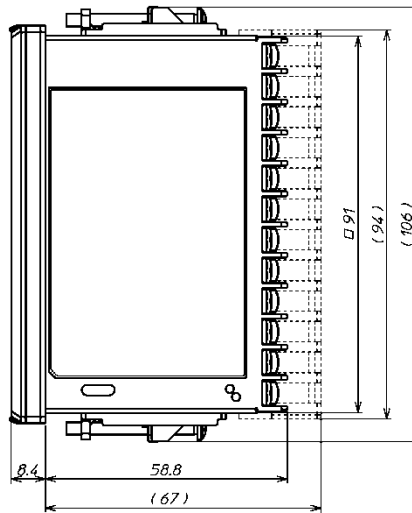
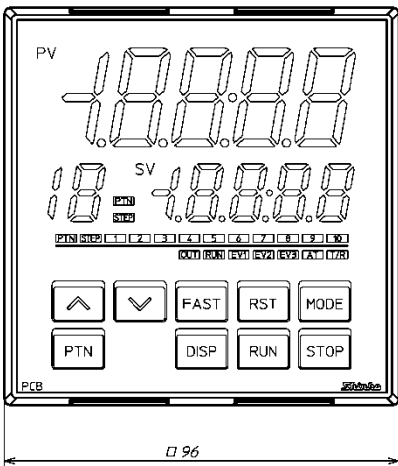
● Mounting Dimensions, Panel Cut Dimensions (unit: mm)

PCD-33A



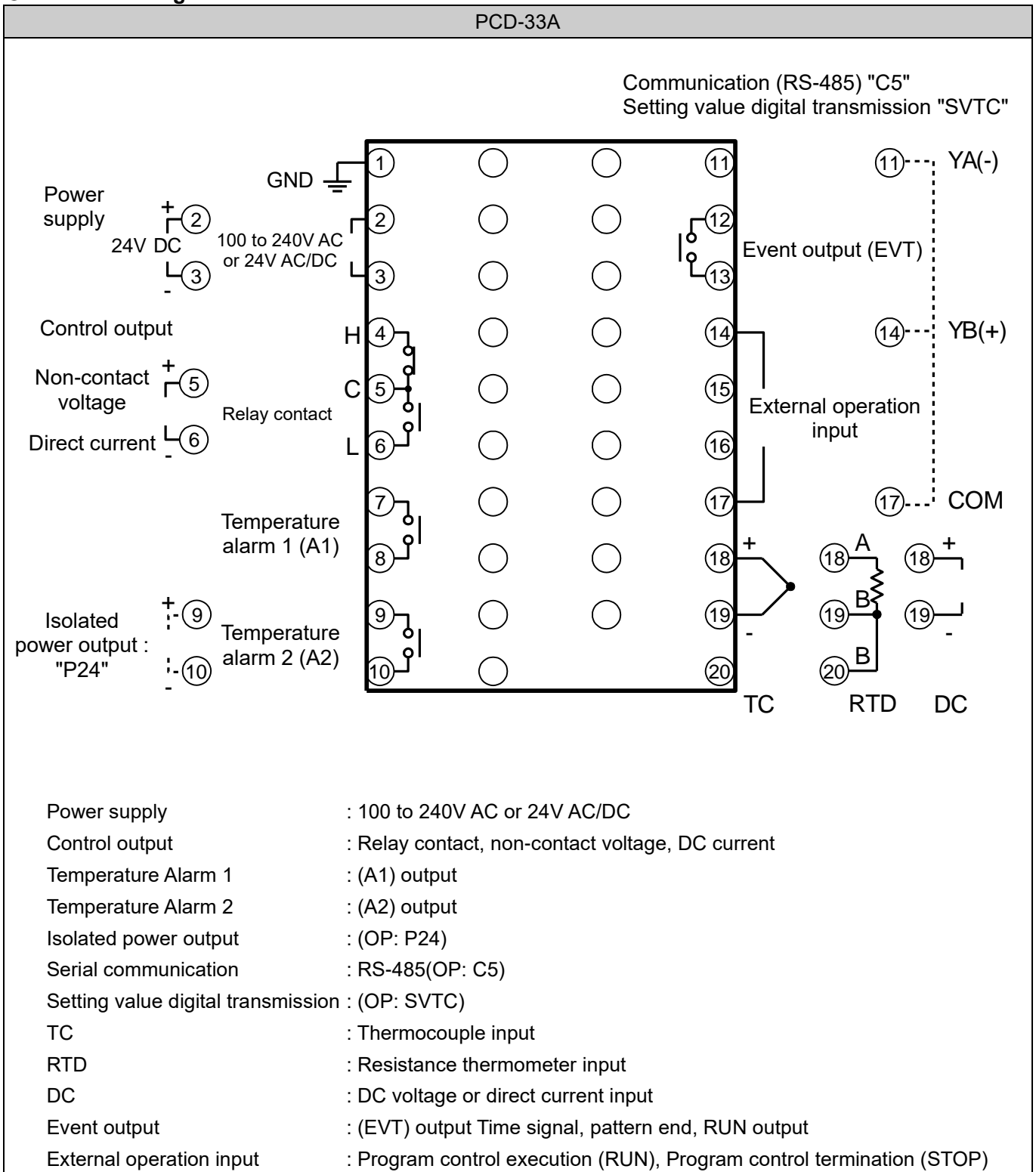
Horizontal close mounting
n: Number of units installed

PCB1



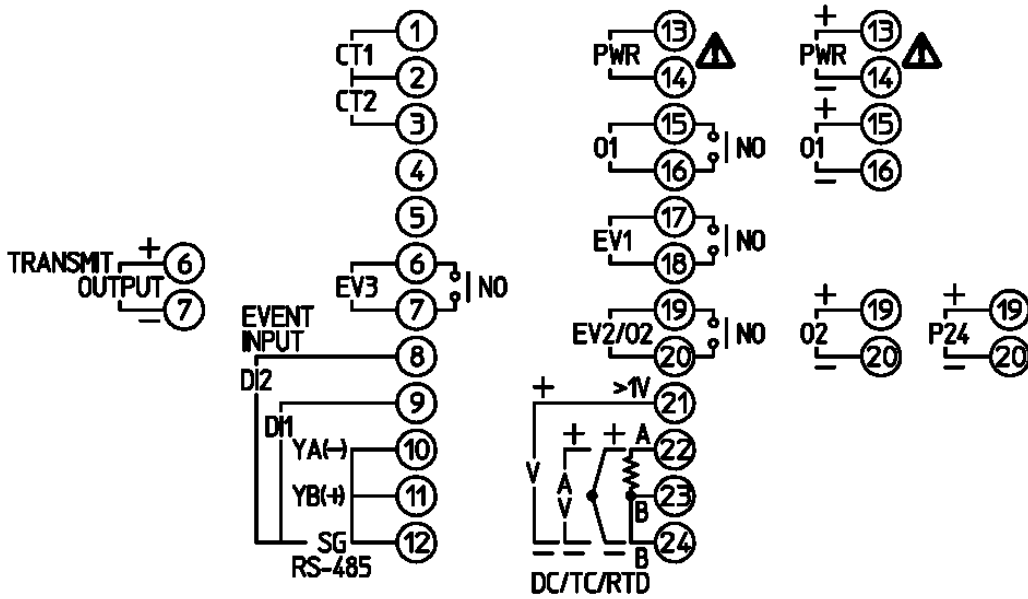
Horizontal close mounting
n: Number of units installed

● Terminal Arrangement



- The dotted line indicates the option.
- When option "C5" or "SVTC" is added, the external operation does not operate. "C5" and "SVTC" cannot be added at the same time.
- When using DC current, connect a receiving resistor (50 Ω) between the input terminals.

PCB1



Terminal symbol	Description
PWR	Power supply voltage 100 to 240 V AC or 24 V AC/DC (For a 24 V AC/DC power source, ensure polarity is correct when using DC).
O1	Control output OUT1
EV1	Event output EV1
EV2	Event output EV2 [Option: EV2, EV3(DR)]
O2	Control output OUT2 (Option: EV2, DS, DA, EV3D□)
P24	Isolated power supply output 24 V DC (Option: P24)
TC	Thermocouple input
RTD	RTD input
DC	Direct current • DC voltage input
CT1	Current transformer (CT) input 1 (Option: C5W, EIW, W)
CT2	Current transformer (CT) input 2 (Option: C5W, EIW, W)
RS-485	Serial communication RS-485 (Option: C5W, C5)
EVENT INPUT	Event input DI1 (Option: C5W, EIW, EIT, C5, EI) Event input DI2 (Option: C5W, EIW, EIT, C5, EI)
EV3	Event output EV3 (Option: EV3D□, EI)
TRANSMIT OUTPUT	Transmission output (Option: EIT)

	Main Terminal Number Replacement	
	PCD-33A	PCB1
Power supply voltage	②(+)-③(-)	⑬(+)-⑭(-)
Control output OUT1	⑤(+)-⑥(-)	⑮(+)-⑯(-)
Thermocouple input	⑱(+)-⑲(-)	⑳(+)-㉔(-)
RTD input	⑱(A)-⑲(B)-⑳(B)	⑳(A)-㉓(B)-㉔(B)
DC voltage input	⑱(+)-⑲(-) (0 to 1 V, 0 to 5 V, 1 to 5 V, 0 to 10 V DC)	⑳(+)-㉔(-) (0 to 1 V DC) ㉑(+)-㉔(-) (0 to 5 V, 1 to 5 V, 0 to 10 V DC)
DC current input	⑱(+)-⑲(-)	⑳(+)-㉔(-) (Receiving resistor (50 Ω) is not required)
Serial communication	⑪YA(-)-⑭YB(+)-⑰COM	⑩YA(-)-⑪YB(+)-⑫SG

● Input Range

Rated Scale

PCD-33A

Input		Input Range		Resolution
Thermocouple	K	-200 to 1370 °C	-320 to 2500 °F	1 °C(°F)
		-199.9 to 400.0 °C	-199.9 to 750.0 °F	0.1 °C(°F)
	J	-200 to 1000 °C	-320 to 1800 °F	1 °C(°F)
	R	0 to 1760 °C	0 to 3200 °F	1 °C(°F)
	S	0 to 1760 °C	0 to 3200 °F	1 °C(°F)
	B	0 to 1820 °C	0 to 3300 °F	1 °C(°F)
	E	-200 to 800 °C	-320 to 1500 °F	1 °C(°F)
	T	-199.9 to 400.0 °C	-199.9 to 750.0 °F	0.1 °C(°F)
	N	-200 to 1300 °C	-320 to 2300 °F	1 °C(°F)
	PL- II	0 to 1390 °C	0 to 2500 °F	1 °C(°F)
C(W/Re5-26)	0 to 2315 °C	0 to 4200 °F	1 °C(°F)	
RTD	Pt100	-199.9 to 850.0 °C	-199.9 to 999.9 °F	0.1 °C(°F)
		-200 to 850 °C	-300 to 1500 °F	1 °C(°F)
	JPt100	-199.9 to 500.0 °C	-199.9 to 900.0 °F	0.1 °C(°F)
		-200 to 500 °C	-300 to 900 °F	1 °C(°F)
Direct current DC voltage	4 to 20 mA DC	-1999 to 9999(*1)(*2)		1
	0 to 20 mA DC	-1999 to 9999(*1)(*2)		1
	0 to 1 V DC	-1999 to 9999(*1)		1
	0 to 5 V DC	-1999 to 9999(*1)		1
	1 to 5 V DC	-1999 to 9999(*1)		1
	0 to 10 V DC	-1999 to 9999(*1)		1

(*1): For direct current/voltage input, scaling and decimal point position can be selected.

(*2): Direct current input requires an optional receiving resistor (50 Ω).

PCB1

Input		Input Range		Resolution
Thermocouple	K	-200 to 1370 °C	-328 to 2498 °F	1 °C(°F)
		-200.0 to 400.0 °C	-328.0 to 752.0 °F	0.1 °C(°F)
	J	-200 to 1000 °C	-328 to 1832 °F	1 °C(°F)
	R	0 to 1760 °C	32 to 3200 °F	1 °C(°F)
	S	0 to 1760 °C	32 to 3200 °F	1 °C(°F)
	B	0 to 1820 °C	32 to 3308 °F	1 °C(°F)
	E	-200 to 800 °C	-328 to 1472 °F	1 °C(°F)
	T	-200.0 to 400.0 °C	-328.0 to 752.0 °F	0.1 °C(°F)
	N	-200 to 1300 °C	-328 to 2372 °F	1 °C(°F)
	PL-II	0 to 1390 °C	32 to 2534 °F	1 °C(°F)
C(W/Re5-26)	0 to 2315 °C	32 to 4199 °F	1 °C(°F)	
RTD	Pt100	-200.0 to 850.0 °C	-328.0 to 1562.0 °F	0.1 °C(°F)
		-200 to 850 °C	-328 to 1562 °F	1 °C(°F)
	JPt100	-200.0 to 500.0 °C	-328.0 to 932.0 °F	0.1 °C(°F)
		-200 to 500 °C	-328 to 932 °F	1 °C(°F)
Direct current DC voltage	4 to 20 mA	-2000 to 10000(*)		1
	0 to 20 mA	-2000 to 10000(*)		1
	0 to 1 V	-2000 to 10000(*)		1
	0 to 5 V	-2000 to 10000(*)		1
	1 to 5 V	-2000 to 10000(*)		1
	0 to 10 V	-2000 to 10000(*)		1

(*): Scaling and decimal point position can be selected.

●Rating Performance

Item		PCD-33A	PCB1
Depth of control panel interior		98.5 mm	58.8 mm
Weight		Approx. 370 g	Approx. 220 g
Power supply voltage	Commercial voltage	100 to 240 V AC (85 to 264 V AC)	100 to 240 V AC (85 to 264 V AC)
	Low voltage	24 V AC/DC (20 to 28 V AC/DC)	24 V AC/DC (20 to 28 V AC/DC)
Power consumption		Approx. 8 VA	100 to 240 V AC: Approx. 8 VA max. (When the maximum number of options are added: Approx. 11 VA max.) 24 V AC: Approx. 5 VA max. (When the maximum number of options are added: Approx. 8 VA max.) 24 V DC: Approx. 5 W max. (When the maximum number of options are added: Approx. 8 W max.)
Input	Thermocouple (TC)	K, J, R, S, B, E, T, N, PL- II, C(W/Re5-26) External resistance: 100 Ω or less (B: 40 Ω or less)	K, J, R, S, B, E, T, N, PL- II, C(W/Re5-26) External resistance: 100 Ω or less (B: 40 Ω or less)
	RTD	Pt100, JPt100 3-conductor type Allowable input conductor resistance: 10 Ω or less per line	Pt100, JPt100 3-conductor type Allowable input conductor resistance: 10 Ω or less per line
	Direct current (DC)	4 to 20 mA, 0 to 20 mA DC (sold separately shunt resistor) Input impedance: 50 Ω Allowable input current: 50 mA DC or less	4 to 20 mA, 0 to 20 mA DC (Built-in shunt resistor) Input impedance: 50 Ω Allowable input current: 50 mA DC or less
	DC voltage (DC)	0 to 1 V DC Input impedance: 1 MΩ or more Allowable input voltage: 5 V DC or less Allowable signal source resistance: 2 kΩ or less 0 to 5 V, 1 to 5 V, 0 to 10 V DC Input impedance: 100 kΩ以上 Allowable input voltage: 15 V DC or less Allowable signal source resistance: 100 Ω or less	0 to 1 V DC Input impedance: 1 MΩ or more Allowable input voltage: 5 V DC or less Allowable signal source resistance: 2 kΩ or less 0 to 5 V, 1 to 5 V, 0 to 10 V DC Input impedance: 100 kΩ以上 Allowable input voltage: 15 V DC or less Allowable signal source resistance: 100 Ω or less
	Range	Multi-range	Multi-range
PV filter		0 to 10.0 sec	0.0 to 10.0 sec
Display	PV display	7-segment LED Red 4-digits 18×8 mm (H x W)	7-segment LED Red 4.5-digits 24×11 mm (H x W)
	SV display	7-segment LED Green 4-digits 12.6×6 mm (H x W)	7-segment LED Green 4.5-digits 14×7 mm (H x W)
	PTN display	7-segment LED Green 1-digit 12.6×6 mm (H x W)	7-segment LED Orange 1.5-digits 14×7 mm (H x W)
	STEP display	7-segment LED Green 1-digit 12.6×6 mm (H x W)	7-segment LED Orange 1.5-digits 14×7 mm (H x W)

Item		PCD-33A	PCB1
Indication accuracy	TC	Within 0.2% of each input span 1 digit R, S inputs 0 to 200 °C (0 to 400 °F) within ±6 °C (12 °F) B input 0 to 300 °C (0 to 600 °F) is out of accuracy guarantee range K, J, E, N, T inputs less than 0 °C (32 °F) are within 0.4% of the input span 1 digit	Within 0.2% of each input span 1 digit R, S inputs 0 to 200 °C (32 to 392 °F) within ±6 °C (12 °F) B input 0 to 300 °C (32 to 572 °F) is out of accuracy guarantee range K, J, E, N, T inputs less than 0 °C (32 °F) are within 0.4% of the input span 1 digit
	RTD	Within ±0.1% of each input span ±1 digit	Within ±0.1% of each input span ±1 digit
	DC	Within ±0.2% of each input span ±1 digit	Within ±0.2% of each input span ±1 digit
Sampling period		250 ms	125 ms
Time indication accuracy		Within ±0.5 % of setting time	Within ±0.5 % of setting time
Program performance	Number of patterns	9 patterns (Linkable)	10 patterns (Linkable)
	Number of steps	81 (9 steps/pattern)	100 (10 steps/pattern)
	Number of repetitions		0 to 10000 times (Repetitions disabled when set to 0)
	Step time range	0 to 99 hours 59 minutes/step, or 0 to 99 minutes 59 seconds/step	0 to 99 hours 59 minutes/step, or 0 to 99 minutes 59 seconds/step
	Time setting accuracy	Within ±0.5 % of setting time	Within ±0.5 % of setting time
	Setting resolution	Temperature: See Rated Scale Time: 1 minute or 1 second	Temperature: See Rated Scale Time: 1 minute or 1 second
	Wait value	±(0 to 100) °C (°F) or ±(0.0 to 100.0) °C(°F) DC input: ±(0 to 1000)	0 to 20 % of input span DC input: 0 to 20 % of scaling span
	External operation	Input terminals ⑭-⑰ open to closed: RUN open from closed: STOP	(OP:EV2, EI) are added, and program control run (RUN)/stop (STOP) switching is selected by event input DI1 or DI2 allocation selection. Select input terminals ⑧-⑫ or ⑨-⑬. open to closed: RUN open from closed: STOP

Item		PCD-33A	PCB1
Control method		PID control ON/OFF control	PID control ON/OFF control
Control parameters	OUT1 Proportional band (P)	0 to 1000 °C (2000 °F) or 0.0 to 999.9 °C (999.9 °F) DC input: 0.0 to 100.0 %	0 to Input span °C (°F) or 0.0 to Input span °C (°F) DC input: 0.0 to 1000.0 %
	Integral time (I)	0 to 1000 sec	0 to 3600 sec
	Derivative time (D)	0 to 300 sec	0 to 1800 sec
	ARW	0 to 100 %	0 to 100 %
	ON/OFF hysteresis	0.1 to 100.0 °C (°F)	0.1 to 1000.0 °C (°F)
	Output high limit, Output low limit	0 to 100 % Direct current output: -5 to 105 %	0 to 100 % Direct current output: -5 to 105 %
Proportional cycle		1 to 120 sec	0.5, 1 to 120 sec
Control output (OUT1)	Relay contact	1a1b 3 A 250 V AC (resistive load) 1 A 250 V AC (inductive load $\cos \phi = 0.4$)	1a 3 A 250 V AC (resistive load) 1 A 250 V AC (inductive load $\cos \phi = 0.4$)
	Non-contact voltage	12 ⁺² ₀ V DC Max. 40 mA DC (short circuit protected)	12 V DC \pm 15 % Max. 40 mA DC (short circuit protected)
	Direct current	4 to 20 mA DC Load resistance: Max. 550 Ω	4 to 20 mA DC Load resistance: Max. 550 Ω
Alarm output		A1, A2, 2 points standard Factory default A1: No action A2: No action Relay contact 1a 3 A 250 V AC(resistive load) 1 A 250 V AC(inductive load $\cos \phi = 0.4$)	Event output EV1 1 point standard Event output EV2 (option) Event output EV3 (option) Select alarm output, heater burnout alarm output, loop break alarm output, time signal output, output during AT, pattern end output, output by communication command, RUN output, or heating/cooling control relay contact output from event output allocation Factory default EV1: No action Relay contact 1a 3 A 250 V AC(resistive load) 1 A 250 V AC(inductive load $\cos \phi = 0.4$)
Attached Functions	Sensor correction	-100.0 to 100.0 °C (°F) DC input: -1000 to 1000	-1000.0 to 1000.0 °C (°F) DC input: -10000 to 10000
	SV high limit, SV low limit function	SV high limit value: SV low limit value to input range high limit value SV low limit value: input range low limit value to SV high limit value	Not available Can be replaced by scaling upper limit and scaling lower limit settings
	Fixed value control	When [] is set for the step time, fixed value control is performed in step SV.	When [] is set for the step time, fixed value control is performed in step SV.
	Console communication	Not available	Available (CMD-001)
Environmental specification	Ambient temperature	0 to 50 °C	-10 to 55 °C
	Ambient humidity	35 to 85 %RH (Non-condensing)	35 to 85 %RH (Non-condensing)

●Optional Specifications

Item	PCD-33A	PCB1
Serial communication (OP: C5, C5W)	EIA RS-485 Communication protocol Shinko protocol SV digital transmission SV digital reception Modbus ASCII Modbus RTU Communication speed MAX 19200 bps (2400, 4800, 9600, 19200 bps)	EIA RS-485 Communication protocol Shinko protocol SV digital transmission SV digital reception Modbus ASCII Modbus RTU Communication speed MAX 38400 bps (9600, 19200, 38400 bps)
SV digital transmission (OP: SVTC)	Selectable by communication protocol selection When SV digital transmission is selected by communication protocol selection, step SV can be transmitted digitally in combination with serial communication (OP: C5) of our programmable controller. When SV digital reception is selected, step SV can be received by SVTC command in combination with our programmable controllers [PCA1 or PCB1 (SV digital transmission is selected in communication protocol selection)].	Selectable by communication protocol selection When SV digital transmission is selected by communication protocol selection, step SV can be transmitted digitally in combination with serial communication (OP: C5, C5W) of our programmable controller. When SV digital reception is selected, step SV can be received by SVTC command in combination with our programmable controllers [PCA1 or PCB1 (SV digital transmission is selected in communication protocol selection)].
Exterior color: black (OP: BK)	Case base color: black	Standard case color: black
Insulated power output (OP: P24)	Output voltage: 24 V ± 3 V DC (when load current is 30 mA DC) Ripple voltage: Within 200 mV DC (when load current is 30 mA DC) Max. load current: 30 mA DC	Output voltage: 24 V 3 V DC (when load current is 30 mA DC) Ripple voltage: Within 200 mV DC (when load current is 30 mA DC) Max. load current: 30 mA DC
Terminal cover (OP: TC)	Electric shock protection terminal cover	Sold separately (TC-BCD2)