Programmable controllers

PC-900 series

All-in-one:
Function
Performance Operation

Programmable controller

Max 10-patterns, up to 100-step programmable

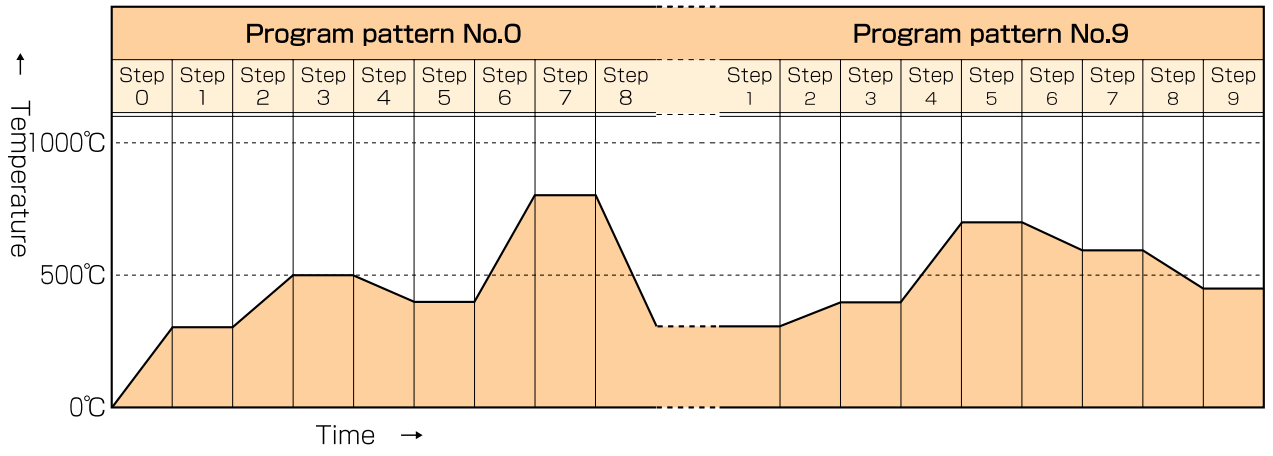
Input sampling period: 0.125sec

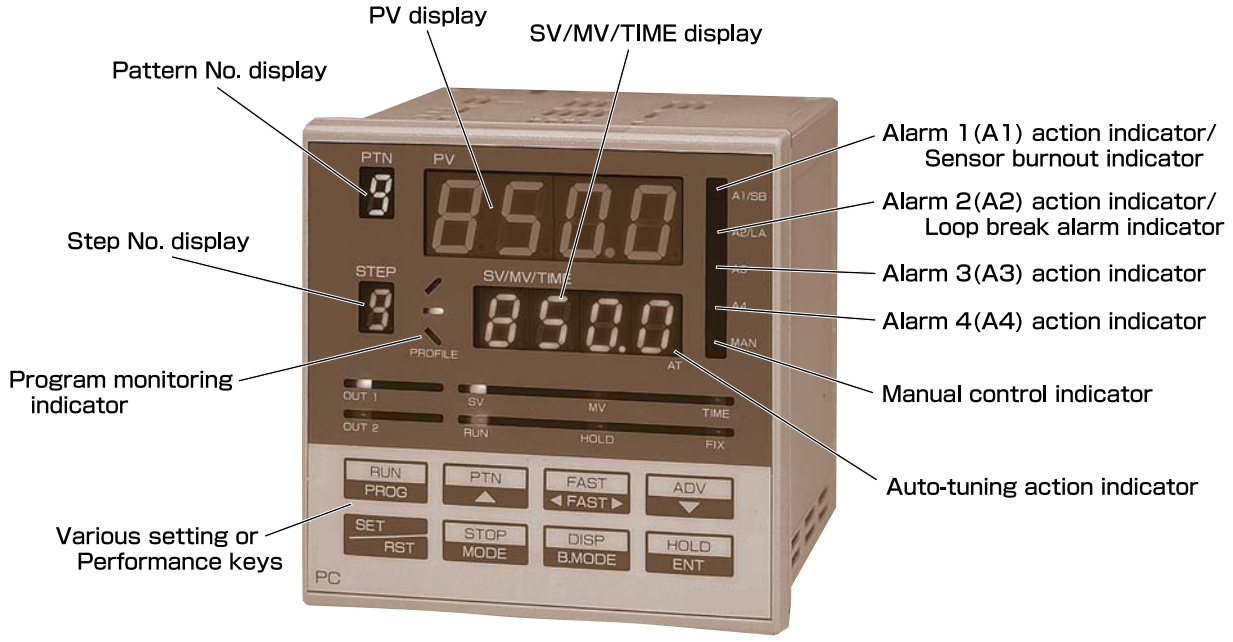
More accurate program step change

Standard Event input & output

Program control

Maximum 10-step per pattern are settable. When linking the pattern, up to 100 steps can be set.





■ Model

					Series name: PC-900 [96(W)×96(H)×100(D)mm]
PC－9 □	5－□／M,				
Control action	3				PID
	5				ON/OFF servo output PID
Alarm 1(A1)		5			Alarm type can be selected by keypad.
Control output		R			Relay contact: 1a1b or 1a×2
		S			Non-contact voltage (for SSR drive): 12^{+2}_{0}V DC
		A			DC current: 4 to 20mA DC
Input			M		Multi-input
Option				A2	Alarm type can be selected by keypad (*1) (*2)
				LA	Loop break alarm (*2) (*3)
				DR	Control output (OUT2) (Heating/Cooling control) (*1) (*4) — Relay contact: 1a
				DS	Non-contact voltage (SSR drive)
				DA	DC current: 4 to 20mA DC
				TA	Transmission output — 4 to 20mA DC
				TV	0 to 1V DC
				C	Serial communication(*5) — RS-232C
				C5	RS-485
				SVTC	Set value digital transmission (*5)
				TS	Time signal
				IP	Dust-proof/Drip-proof (IP54)
				TC	Terminal cover
				BK	Color black

(*1): A2 & D□ options cannot be added to the PC-955.
(*2): If options A2 and LA are added together, they'll utilize common output terminals.
D□ option cannot be added together with the A2 or LA option.
(*3): Even if this option is added to the PC-955, there is no output, only the indicator lights.
(*4): D□ option cannot be added together with the A2 or LA option.
(*5): If the C or C5 option is added, the SVTC option can be added.
However, if the SVTC option is added, only the C5 option can be added.

■ Rated scale

Input type		Scale	
Thermocouple	K	−200 to 1370 ℃	−320 to 2500 ˚F
	J	−200 to 1000 ℃	−320 to 1800 ˚F
	R	0 to 1760 ℃	0 to 3200 ˚F
	S	0 to 1760 ℃	0 to 3200 ˚F
	B	0 to 1820 ℃	0 to 3300 ˚F
	E	0 to 1000 ℃	0 to 1800 ˚F
	T	−199.9 to 400.0℃	−199.9 to 750.0˚F
	C(W/Re5-26)	0 to 2315 ℃	0 to 4200 ˚F
	N	0 to 1300 ℃	0 to 2300 ˚F
	PL-Ⅱ	0 to 1390 ℃	0 to 2500 ˚F
RTD	Pt100	−199.9 to 850.0℃	−199.9 to 999.9˚F
	Pt100	−200 to 850 ℃	−320 to 1560 ˚F
	JPt100	−199.9 to 500.0℃	−199.9 to 900.0˚F
Current	4 to 20mA	−1999 to 9999 (Decimal point place can be changed, and scaling is possible.)	
	0 to 20mA		
Voltage	0 to 1V		

■Standard specifications

Input	Thermocouple: K, J, R, S, B, E, T, C (W/Re5-26), N, PL-Ⅱ External resistance: 100Ω or less RTD : Pt100, JPt100 3-wire system (Resistance per wire: 10Ω or less) DC current : 4 to 20mA DC, 0 to 20mA DC Input impedance: 50Ω DC voltage : 0 to 1V DC Input impedance: 1MΩ or more Scale : Refer to the Rated scale. Resolution ・Thermocouple (except T type), RTD: 1℃ (1˚F) ・With decimal point : 0.1℃ (0.1˚F) ・DC current, voltage : 1 (Decimal point place change and scaling are possible.)
Accuracy (Setting and Indication)	Within±0.2% of each input scale±1digit, however, ・K, J or T : Less than 0℃ (32˚F) ------- Within ±0.4% of input span ±1digit ・R, S : 0 to 200℃ (400˚F) ---------- Within ±4℃ (8˚F) ・B : 0 to 300℃ (600˚F) ---------- Accuracy is not guaranteed. (The cold junction compensating accuracy ±1℃ ------ 0 to 50℃)
Time indication accuracy	Within±0.1% of setting time
Control action	Selectable by internal switch. ・Fuzzy overshoot suppression PID (with auto-tuning function) ・PID (with auto-tuning function) Proportional band (P): 0.0 to 999.9% (ON/OFF action when set to 0.0) ON/OFF action Hysteresis ----- Thermocouple, RTD input: 0.1 to 100.0℃ (˚F). DC input: 1 to 1000 (The placement of the decimal point follows the selection.) Integral time (I) : 0 to 3600sec (Off when set to 0) Derivative time (D) : 0 to 1800sec (Off when set to 0) Proportional cycle : 1 to 120sec (Not available for DC current output type). ARW : 0 to 100% Output limiter : 0 to 100% (Current output: −5 to 105%) Dead band : 0.1 to 100% of proportional band (Only for PC−955 type) Open output time : 0.1 to 999.9sec (Only for PC−955 type) Closed output time : 0.1 to 999.9sec (Only for PC−955 type)
Control output	Relay contact : 1a1b 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ϕ=0.4) Non-contact voltage: 12$^{+2}_{0}$V DC, Max. 40mA (Short circuit protected) DC current : 4 to 20mA DC(Isolated type) Load resistance: Max. 550Ω Relay contact : 1a ×2 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ϕ=0.4)(for control motor, only for PC−955)
Alarm 1 (A1) Alarm 3 (A3) Alarm 4 (A4)	Types Setting range ・No alarm ・High limit alarm (Deviation setting) : ±Input span (Off when set to 0) ・Low limit alarm (Deviation setting) : ±Input span (Off when set to 0) ・High/Low limits alarm (Deviation setting) : 0 to input span (Off when set to 0) ・High/Low limit range alarm (Deviation setting) : 0 to input span (Off when set to 0) ・Process high alarm : Input range low limit to input range high limit ・Process low alarm : Input range low limit to input range high limit Standby function : Selectable Alarm action delay timer : Can be specified (Setting range ----- 0 to 9999sec) Setting accuracy : Within ±0.2% of each input span ±1 digit Action : ON/OFF action Hysteresis : Thermocouple, RTD: 0.1 to 100.0℃ (˚F) DC input: 1 to 1000 (The placement of the decimal point follows the selection.) Control output : Relay contact 1a (Alarm 3, 4 : 1a×2) 3A 250V AC (Resistive load), 1A 250V AC (Inductive load cos ϕ=0.4) (Common terminal [A3, A4]: Max. 3A)

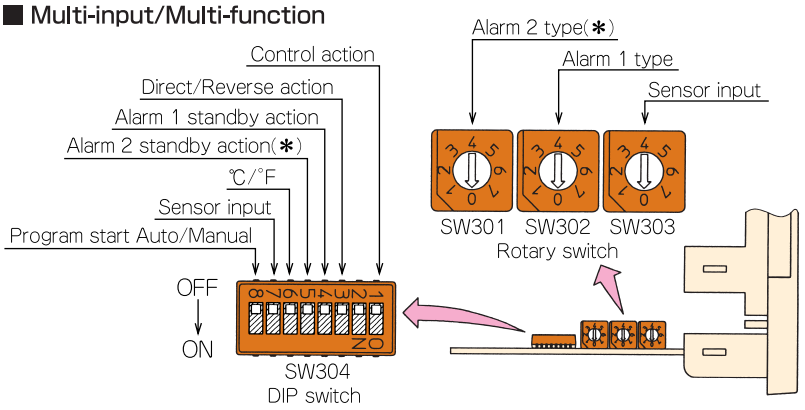
Input sampling period	0.125 seconds	**External dimensions**	96×96×110mm
Supply voltage	100 to 240V AC 50/60Hz, 24V AC/DC 50/60Hz	**Mounting**	Flush
Allowable voltage Fluctuation	100 to 240V AC: 85 to 264V AC, 24V AC/DC: 20 to 28V AC/DC	**Momentary power failure**	30ms or more
Power consumption	Approx. 15VA	**Insulation resistance**	10MΩ or more, at 500V DC
Environment	Ambient temperature: 0 to 50℃ (32 to 122˚F) Ambient humidity: 35 to 85% RH (Non-condensing)		

Dielectric strength	Between input terminal and ground terminal ------- 1.5kV AC for 1 minute Between input terminal and power terminal -------- 1.5kV AC for 1 minute Between power terminal and ground terminal ----- 1.5kV AC for 1 minute Between output terminal and ground terminal ----- 1.5kV AC for 1 minute Between output terminal and power terminal ------ 1.5kV AC for 1 minute
Case	Flame-resistance resin Color: Light gray
Weight	Approx. 500g
Safety standard	UL: Power Input rating 100-240V AC, 24V AC/DC File No. E159038
Attached functions	Set value lock, SV high/low limit, Sensor correction, Multi-range, Alarm action delay timer, Multi-function, Warm-up display, Wait, Hold, Advance, Regress, Pattern Repeat/Link, Time faster progress, Data clearing, Pattern number external selection, External operation, Power failure countermeasure, Fixed value control, Self-diagnosis, Automatic cold junction temperature compensation, Sensor burnout, PV start
Options	Alarm 2 (A2) [A2], Loop break alarm [LA], Heating/Cooling control [Control output (OUT2)][DR. DS, DA], Transmission output [TA, TV], Serial communication [C, C5], Set value digital transmission [SVTC], Time signal [TS], Dust-proof/Drip-proof [IP], Terminal cover [TC], Color black [BK] ※The alarm 2 (A2) [A2] and Heating/Cooling control [Control output (OUT2)][DR, DS, DA] cannot be applied to PC-955.

■Program performance

Number of patterns	10 (Linkable)
Number of steps	100 (10 steps/Pattern)
Number of repetitions	0 to 9999 times
Program time range	0 to 99 hours: 59min./step, or 0 to 99 min.：59 sec./step
Time setting accuracy	Within ±0.1% of setting time
Wait value	±(0 to 100)℃ (˚F) (no wait action when set to 0), however With decimal point: ±(0.0 to 100.0)℃ (˚F) DC input : ±(0 to 1000) (The placement of the decimal point follows the selection)

■ Multi-input/Multi-function

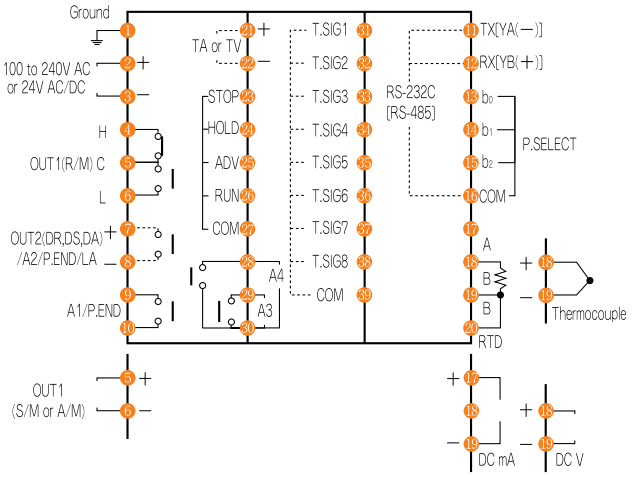


Item	Switch No.	Contents	Switch Status
Control action	1	PID action	OFF
		Fuzzy overshoot suppression PID action	ON
Direct/Reverse action	3	Reverse (Heating) action	OFF
		Direct (Cooling) action	ON
Alarm 1 (A1) standby function	4	No standby function	OFF
		Standby function	ON
Alarm 2 (A2) standby function (∗)	5	No standby function	OFF
		Standby function	ON
℃/°F change	6	℃	OFF
		°F	ON
Sensor input	7	K, J, R, B, N, PL-Ⅱ, Pt100, JPt100 (with decimal point)	OFF
		S, E, T, C, 4 to 20mA, 0 to 20mA 0 to 1V, Pt100 (no decimal point)	ON
Program start Auto/Manual	8	Manual start	OFF
		Automatic start	ON

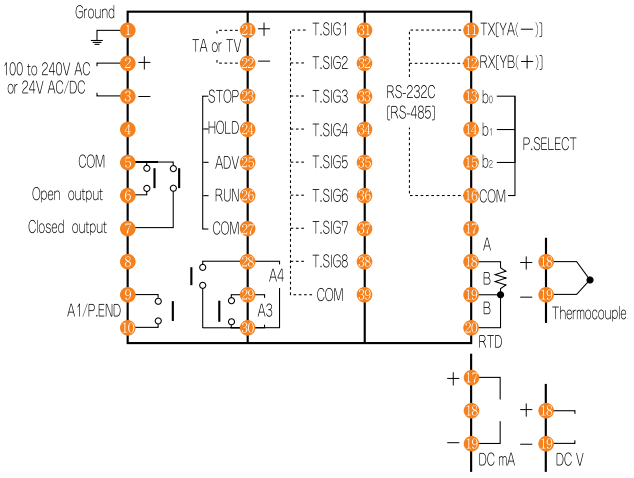
(∗): Not applicable to the PC-955 type.

■ Terminal arrangement

PC－935

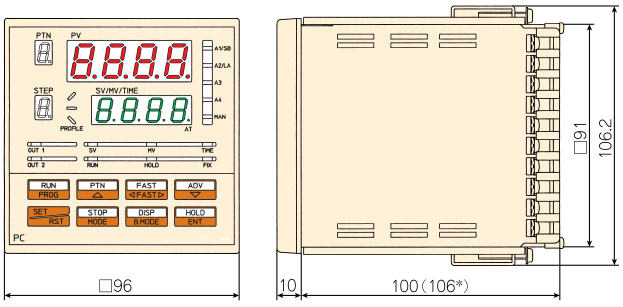


PC－955

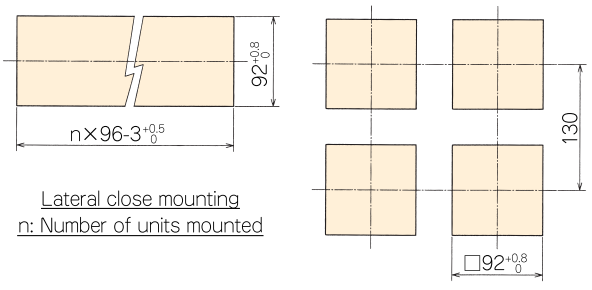


- A1 to A4 : Alarm 1 (A1) to Alarm 4 (A4)
- OUT1, OUT2 : Control output (OUT1), Control output (OUT2, Heating/Cooling control)
- DR, DS, DA : Heating/Cooling control (Relay contact output, Non-contact voltage output, DC Current output)
- TA, TV : Transmission output
- LA : Loop break alarm
- P.SELECT : Pattern number external selection
- P.END : Pattern end output
- T.SIG : Time signal
- Dotted lines show options, no terminal is equipped if it is not specified.

■ External dimensions (Scale : mm)



■ Panel cutout (Scale : mm)



Lateral close mounting
n: Number of units mounted

(∗): When using the terminal cover [Option code:TC].

SAFETY PRECAUTIONS

- To ensure safe and correct use, thoroughly read and understand the manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after consulting purpose of use with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as protection equipment against excessive temperature rise, etc. must be installed, as malfunction of this product could result in serious damage to the system or injury to personnel. Also proper periodic maintenance is required.
- This instrument must be used under the conditions and environment described in the manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in the manual.

Caution with respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument.
In the case of resale, ensure that this instrument is not illegally exported.

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