FUJI ELECTRIC

Instruction Manual

MICRO CONTROLLER S Z SERIES

TYPE: PYW 4
5
7
9

Fuji Electric Co.,Ltd.

INP-TN1PYWf-E

INTRODUCTION

You are now the owner of Fuji's digital Temperature Controller.
Before using, be sure to check the instrument for correct specifications. (For details of operation, refer to the operation manual furnished separately.)
This instruction manual has been prepared for final users.

The product conforms to the requirements of the Electromagnetic compatibility Directive 89/336/EEC as detailed within the technical construction file number TN510404. The applicable standards used to demonstrate compliance are :

EN 50081-1 : 1992 Conducted and Radiated emissions

EN 50082-1 : 1992 Radiated immunity, ESD and FBT

(The unit meets Class A limits for conducted Emissions.)

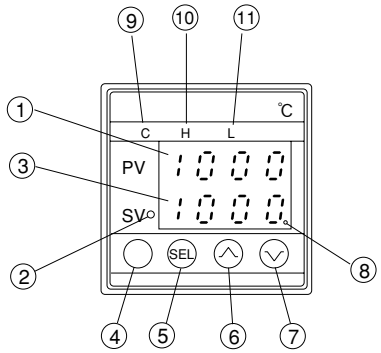
The unit also complies with the part of Immunity standards.

IEC 1000-4-2 : 1995 level 3, IEC 1000-4-3 : 1995 level 3

IEC 1000-4-4 : 1995 level 3, IEC 1000-4-8 : 1993 level 4

CONTENTS

1. FUNCTIONS OF THEIR KEYS AND DISPLAYS



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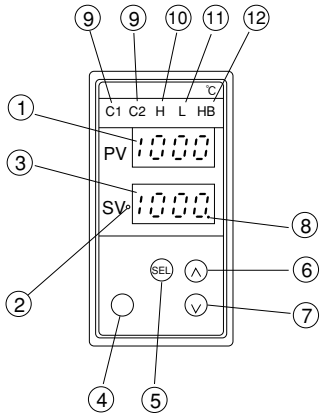

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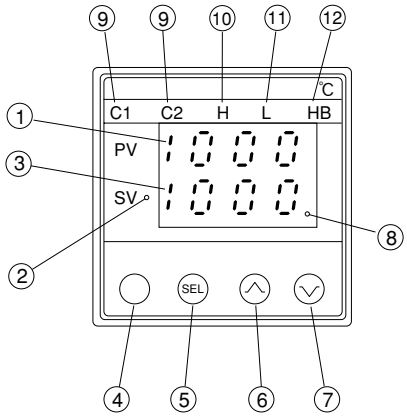


Type：PYW7, 9

Item	Function
① Measured value (PV) indication	Indication of measured value (PV).
② Set value (SV) lamp	Lamp is lit while indicating set value (SV).
③ Set value (SV) /parameter indication	Symbols and codes of set value (SV) and parameters are indicated.
④ Blank key	Used to select No. 2 block parameter.
⑤ Select key	Used to select No. 1 block parameter and to shift parameter in block.
⑥ Up-key	When this key is pressed once, numeric value increases by 1. When it is pressed continuously, the value keeps increasing.
⑦ Down-key	When this key is pressed once, numeric value decreases by 1. When it is pressed continuously, the value keeps decreasing.
⑧ Auto tuning lamp	Lamp flickers during PID auto-tuning.
⑨ Control output lamp	C : Lamp is lit at ON of control output. C1 : Lamp is lit at ON of control output "1". C2 : Lamp is lit at ON of control output "2". Note) C2 is used only for dual output type.
⑩ Alarm high limit lamp (option)	Lamp is lit at high alarm. It flickers when setting an alarm value.
⑪ Alarm low limit lamp (option)	Lamp is lit at low alarm. It flickers when setting an alarm value.
⑫ Heater break alarm lamp (option)	Lamp is lit at ON of heater break alarm output. It flickers when setting an operating point.

2. OPERATION

Turn ON the power and the measured value (PV) and set value (SV) indicators show [.][.][.][.], then a measured value and set value are indicated a few seconds later.
To ensure correct operation of the controller, it is necessary to set parameters fitted to operating conditions before operating. While setting parameters, be sure to turn OFF the system for the sake of safety.
The unit requires about 2 hours for thermal stability.
Be sure to make measurements 2 hours or more after power ON.

(1) Setting method of parameters

① Setting of set value (SV) (Example: Change form 350℃ to 355℃)

Key operation	Description	Indication
∧	Indication of operating condition (When key lock is released, SV lamp is lit.) (When key lock is engaged, SV lamp is not lit. Release the key lock.) Note) To release the key lock, refer to the Item ⑥ on page 4. Press the key until 355 is indicated. (Automatically registered for operation 3 seconds after setting.)	PV 353 SVo 350 PV 353 SVo 355

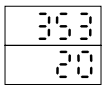
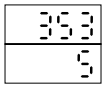
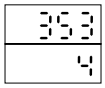
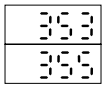
② Setting of low alarm (Example: Change of low alarm from 30℃ to 20℃) ... Option

Key operation	Description	Indication
SEL ↓ ∨ ↓ SEL	Press this key for 5 seconds continuously, and the alarm lamp (L) flickers indicating the present low alarm value. Press this key until 20 is indicated. (Automatically registered for operation 3 seconds after setting.) For indication of operating condition, press this key for 5 seconds continuously.	L 353 30 353 20 353 355

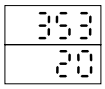
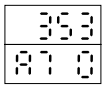
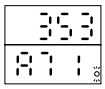
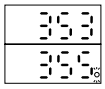
③ Setting of high alarm (Example: Change of high alarm from 480℃ to 485℃) ... Option

Key operation	Description	Indication
SEL ↓ SEL ↓ ∧ ↓ SEL	Press this key for 5 seconds continuously, and the alarm lamp (L) flickers indicating the present low alarm value. When the key is pressed once, the alarm lamp (H) flickers indicating the present high alarm value. Press this key until 485 is indicated. (Automatically registered for operation 3 seconds after setting.) For indication of operating condition, press the key for 5 seconds continuously.	L 353 20 H 353 480 H 353 485 353 355

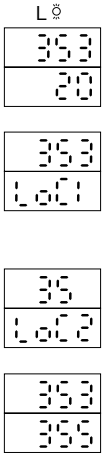
④ Setting of heater break alarm (detected value) (Example: Change form 5A to 4A)

Key operation	Description	Indication
SEL	Press this key for 5 seconds continuously, and the alarm lamp (L) flickers.	L 
SEL	When the key is pressed twice, the heater break alarm lamp (HB) flickers indicating the present detected value.	HB 
∨	Press this key once for setting 4A. (Setting range : 0 to 50A, alarm detection is OFF at "0.0" setting.) (Automatically registered for operation 3 seconds after setting.)	HB 
SEL	For indication of operating condition, press the key for 5 seconds continuously.	

⑤ Setting of auto-tuning (AT) startup operation (Example: Executed with standard type)

Key operation	Description	Indication
SEL	Press this key for 5 seconds continuously, and the alarm lamp (L) flickers indicating the present low alarm value.	L 
SEL	When the key is pressed 3 times, auto-tuning (AT) is indicated. • Code 0: Not executed • Code 1: Executed with standard type • Code 2: Executed with low PV type	
∧	Press this key once for setting 1. It is registered automatically 3 seconds after setting, and auto-tuning is started (lower right comma flickers).	
SEL	For indication of operating condition, press the key for 5 seconds continuously. (The lower right comma flickers during auto-tuning. It goes off at the end of auto-tuning).	

⑥ Setting of key lock (LOC) (Example: Change of set value (SV))

Key operation	Description	Indication
SEL ↓ SEL ↓ △ ↓ SEL	Press this key for 5 seconds continuously, and the alarm lamp (L) flickers. When the key is pressed 4 times, key lock (LOC) is indicated. The present setting code is indicated. • Code 0: Setting of all parameters can be changed. • Code 1: Parameter setting cannot be changed. • Code 2: Only the set value (SV) is settable. Press the key once for setting Code 2. (Autotically registered 3 seconds after setting.) For indication of operating condition, press the key for 5 seconds continuously.	

Cautions for setting

- ○ When setting data, press the key firmly with your finger.
- ○ After data is set, it is automatically registered 3 seconds later.
- ○ If the key is left as it is for about 30 seconds after setting, operating condition is automatically indicated.
- ○ If option functions are not provided, they are not indicated and are skipped.
- ○ Do not turn ON/OFF the power while pressing the ( ) key (blank key).
  If the key is pressed and the power is turned ON/OFF, the controller may not operate correctly.
  When this abnormal operation has been done, turn OFF the power immediately without more key operation.

3. AUTO TUNING (AT)

Auto-tuning has functions to perform measurement, calculation and setting of PID parameters automatically. The auto-tuning function should be used after the set value (SV), alarm setting (L, H) and proportional cycle (TC) are set up.

(a) Auto-tuning startup operation
Select parameter (AT) and set the required code 1 or 2.
Then, auto-tuning is started automatically 3 seconds later and the lower right comma begins to flicker.
At the end of auto-tuning, flashing goes off and the parameter (AT) is automatically reset to "0".

(b) When the auto-tuning is completed, the PID parameter is saved even if the power is turned OFF.
Auto-tuning is not required for the following operations. When the power is turned OFF in the middle, auto-tuning should be performed from the beginning.

(c) During auto-tuning, ON-OFF operation (2-position operation) is effected and PV may be oscillated greatly depending on process. If it is not desirable, do not use the auto-tuning function.

(d) Do not use auto-tuning for a quick response process such as pressure control, flow control, etc.

(e) When auto-tuning is not completed within 4 hours, it means that the auto-tuning function is abnormal. Check the input/output wiring and the control output operation (normal/reverse) control.

(f) When SV has largely changed or the operation of control object has been changed, carry out the auto-tuning again.

(g) During auto-tuning, PV and output vary as shown in Figs. 3-1 and 3-2.

① Standard type

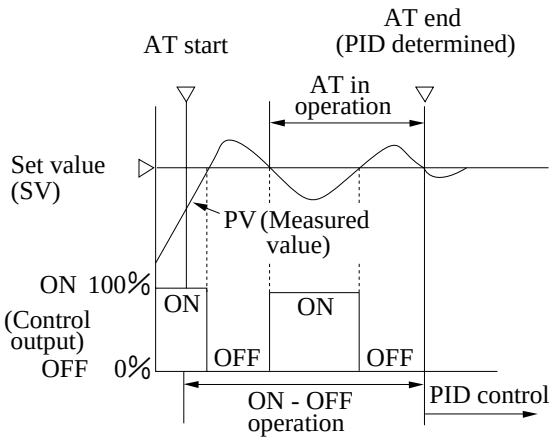


Fig. 3-1

② Low PV type

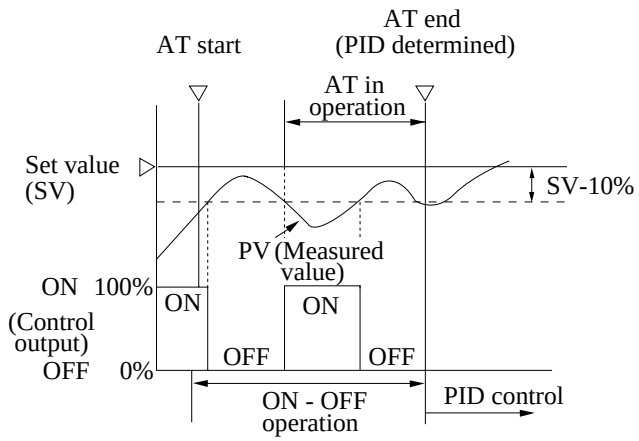


Fig. 3-2

When AT lamp is lit, ON-OF operation (2-position operation) is effected and measured value (PV) is oscillated.

Table 3-1

	Auto-tuning is not executed or released	Standard type (auto-tuning at SV value)	Low PV type (auto-tuning at SV value, -10% FS)
Setting code	0	1	2

4. FAULT INDICATION

The controller has a fault indicating function so that the cause of fault can be removed quickly. After the cause has been removed, be sure to turn off and then turn on the power switch.

Indication	Cause	Control output
‘-’‘-’‘-’‘-’	① Burnout of thermocouple sensor (upscale burnout) ② Burnout of resistance bulb sensor (upscale burnout)	① In case of upscale burnout (standard) OFF or less than 4 mA in reverse action ON or more than 20 mA in normal action ② In case of downscale burnout ON or more than 20 mA in reverse action OFF or less than 4 mA in normal action
‘_’ ‘_’ ‘_’ ‘_’	① Burnout of thermocouple sensor (downscale burnout) ② Burnout of resistance bulb sensor (downscale burnout)	
‘-’‘-’‘-’‘-’	① PV reading is more than +30% FS (Note)	Goes on control Note) When input voltage exceeds the break detecting point, sensor break is indicated and control output is emitted even when PV value is over the range of +30% FS.
‘_’ ‘_’ ‘_’ ‘_’	① Short-circuit of resistance bulb sensor (between A and B) ② PV reading is less than -30% FS (Note)	
HB Lamp ON	Heater burnout	Normal control

5. OPTIONAL FUNCTIONS

5.1 Cautions for use of dual output type (option)

(1) During PID auto-tuning operation, the cooling side output is OFF. At the cooling side output is OFF. At the completion of auto-tuning, both the heating and cooling sides operate with the same PID value.

(2) On the PID control, the heating and cooling sides are the same in setting and operation. ID operation cannot be set individually.

(3) When the heating side is set in 2-position operation, the cooling side is also set in 2-position operation.

5.2 RAMP SV function

RAMP SV is optional function. When RAMP SV function is ordered, HEATER BREAK ALARM is not available and when HEATER BREAK ALARM is orders RAMP SV function is not available.

Operation of the RAMP SV function

Set proper ramp rate by the parameter 5-r. Enter a new SV, then SV indicator indicates new target SV. Then real SV increments or decrements with ramp rate (5-r) value toward the new target SV (the real SV is not indicated). When the new SV is entered, SV indicator LED goes on flashing until real SV reaches to the new target SV.
It is possible to start automatically ramping SV when power on. The parameter r-5 determines the starting mode.

Range of 5-r: 1 to 999℃ (˚F)/minute or 0.1 to 99.9℃ (˚F)/minute and 0 or 0.0 is nonramping.
1 to 999 or 0.1 to 99.9 is automatically selected by range setting.

It is possible to start automatically ramping SV when power on. The parameter r-5 determines the starting mode.

r-5: 0: Initial SV starting
At power on, SV ramping does not work. But this is only for power on time.
At other time SV ramping is available.
1: Ramping SV start from initial PV
Ramping SV start from initial PV
At power on SV ramping starts from current PV value to final SV point.

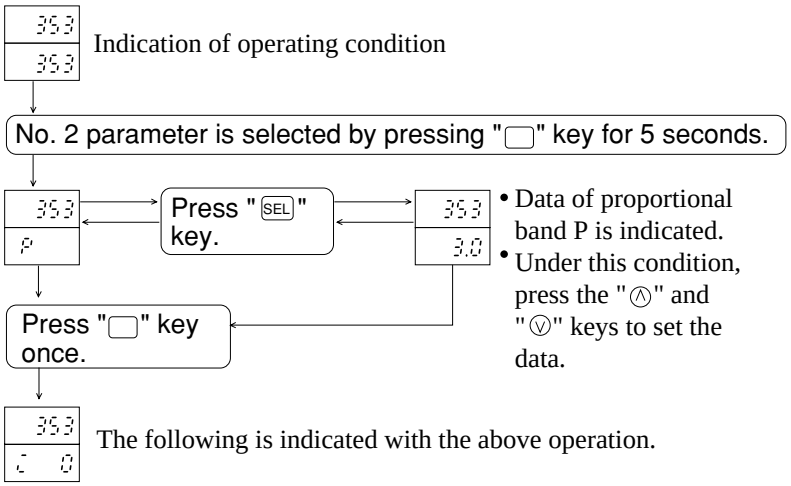
NOTE: When AUTOTUNING is done, ramping SV is inhibited.

6. NO. 2 BLOCK PARAMETER

The specifications (functions) of the controller can be changed by changing the No.2 block parameter at the time of ordering.

Cautions for setting

- By pressing the "▢" key at the final parameter "P – F", it returns to "P ". When the "▢" key is pressed for 5 seconds continuously, the operating condition is indicated.
- When the "▢" key is pressed for 5 seconds continuously in the middle, the operating condition is also indicated.



Caution

Parameters should be used within the setting ranges specified in the Instruction Manual.
Do not use parameters without the setting ranges to prevent abnormal operation and trouble.

Parameter indication symbol	Item	Meaning	Description	Initial value	Remarks
P	P	Proportional band	Setting range: 0.0 to 999.9% (at input range)	3.0	2-position operation at setting "0"
I	I	Integral time	Setting range: 0.0 to 9999 sec.	0	Integral operation OFF at setting "0"
d	D	Derivative time	Setting range: 0 to 3600 sec.	0	Derivative operation OFF at setting "0"
TC	TC	Proportional cycle of control output 1	Control output proportional cycle is settable. (setting range: 1 to 150sec)	Contact output: 30 SSR/SSC drive output: 2	Not indicated at current output
HYS	HYS	2-position operation hysteresis width	Setting of 2-position operation hysteresis width (setting range: 0.0 to 20.0% FS)	0.3	
Srr	Srr	SV ramp rate	Setting range: 1 to 999℃/min. or °F/min. Function is off when set to "0". Not indicated without ramp SV function.	0	Option
TC2	TC2	Proportional cycle of control output 2	Cooling side control output proportional cycle is settable (setting range: 1 to 150 sec)	Contact output: 30 SSR/SSC drive output: 2	Not indicated without control output 2 or with current output
CooL	CooL	Cooling side proportional band factor	Cooling side proportional band factor is settable (setting range: 0, 0.1 to 99.9) ON-OFF operation at setting "0"	1.0	Not indicated without control output 2 (cooling side output).
db	db	Cooling side proportional band shift	Cooling side output value is shifted setting range: -50.0 to +50.0)	0.0	
bAL	BAL	Output convergence value	Oershoot suppression function. Target output value is auto-matically set by auto-tuning.	50	Not indicated at the itme of delivery.
AR	AR	Antireset windup	Suppression of overshoot by integral operation (setting range: 0 to 201)	100	Not indicated at the itme of delivery.
rS	rS	Power-on start of ramp SV	0: Not ramping 1: Ramping starts from initial PV to SV	0	Option
P-n2	P-n2	Setting of input type	Input type is settable.	Unless otherwise specified, the following ranges are used at the time of delivery. Resistance bulb : 0 to 200℃ K thermocouple : 0 to 400℃ 4 to 20mA DC : 0 to 100%	See Page 15 for the table of input type and code.
P-SL	P-SL	Low range setting	Setting of low input range		
P-SU	P-SU	High range setting	Setting of high input range		
P-dP	P-dP	Decimal point setting	Decimal points of PV and SV indications are selected. Without decimal point "0". "2" "4" "8"	"0" unless specified	
P-Ab	P-Ab	Alarm setting	Setting of alarm (operation)	Function code 79 (high/low deviation alarm)	Code: See Page 15 and 16.
P-CT	P-CT	Setting of rated voltage of heater	Rated power voltage should be set when using heater break alarm. (seting range: 85 to 265V)	100	
PVOF	PVOF	PV offset	Indication of input value (PV) is shifted. SV indication remains unchanged. (setting range: -1999 to +2000)	0	
SVOF	SVOF	SV offset	Set value (SV) is shifted. SV indication remains unchanged. (setting range: -1999 to +2000)	0	
P-F	P-F	Selection of ℃/°F of set value input	Only the measured value is selected, so other parameters should be changed. ℃ indication: 0 °F indication: 1	℃: 0 unless specified.	°F conversion equation: $°F=\frac{9}{5}℃+32$

7. OUTLINE DIMENSIONS AND PANEL CUTOUT

(Unit : mm)

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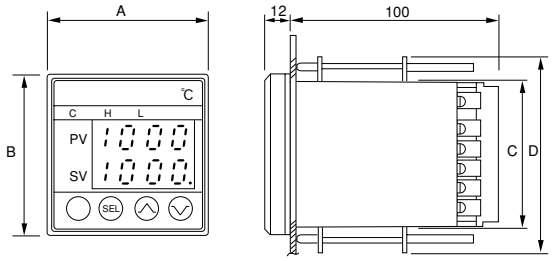
PYW7
PYW9</td><td>


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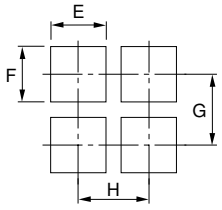
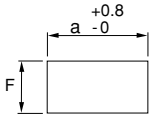


See Note 1)
for mounting closely PYW5.


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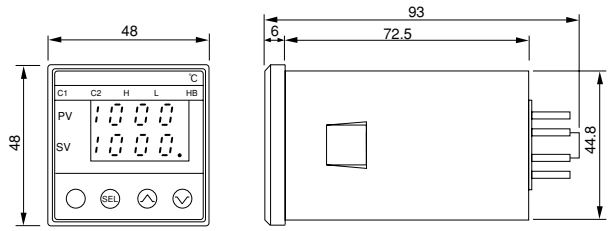
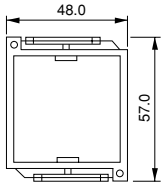
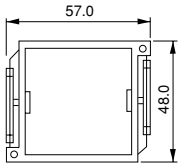


Panel thickness, 1 to 3.2mm
Horizontal closed mounting


Vertical closed mounting


Panel frame (inserted from the rear of instrument)
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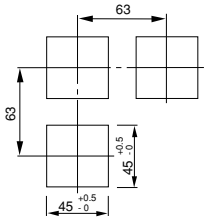
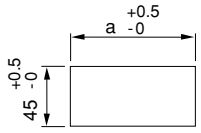
Mounting of "n" units


See Note 1)
for mounting closely
Horizontal
closed mounting


Vertical
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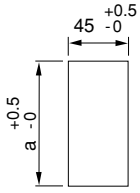

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<tr><td>a</td><td>93</td><td>141</td><td>189</td><td>237</td><td>285</td></tr>
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Note) Caution for tight mounting
When the power source is 200V AC, fan is recommended for radiation of heat.
Vertical closed mounting as allowed only when 100V AC (fan is recommended for radiation of heat).

8. SPECIFICATIONS

Input signal	Thermocouple/resistance bulb; thermistor (Fuji), 1 to 5V DC (input resistance, 400kΩ), 4 to 20mA DC (input resistance, 250Ω)
Control output signal	Contact (220V AC, 3A, 1c contact), 4 to 20mA DC (load resistance: less than 600Ω) SSR/SSC drive (24V DC typ./60mA at ON, 0.3V DC max. at OFF)
Control action	PID action (2-position action, proportional action possible)
Indicator accuracy	±0.5% FS ±1 digit ±5% FS ±1 digit (R, S thermocouple : 0 to 400℃)
Operating cycle	0.5 sec.
Indication system	7-segment LED, 4 digit
Effect of external resistance	About 0.5μV/Ω (Thermocouple input) Reading 0.015%/Ω (per wire), resistance bulb
Input range	See Page 15
Attachment	High/low alarm PYW4: Non-identified alarm (For the type, see Page 14.)
Power supply	85 to 265V AC, 50/60Hz
Power consumption	About 10VA/100V AC, about 18VA/220V AC
Dielectric strength	1500V AC (earth/power source, earth/relay output, earth/alarm)
Insulation resistance	50MΩ or more (500V DC)
Enclosure case	Plastic housing
Ambient temperature	-10 to +50℃
Ambient humidity	90% RH or less

9. CAUTIONS FOR INSTALLATION AND WIRING

○ Installation

- For installation of PYW9, PYW7 and PYW5, attach the mounting brackets (two) on the top and bottom and tighten with a flat blade screwdriver to the torque of about 1.5 kg•cm.
  (Plastic case is used. Do not tighten excessively.)
- For installation of PYW4, insert the supplied panel frame from the rear side and secure it firmly until the main unit is fitted to the panel. When it cannot be fitted firmly, tighten the 2 screws lightly. (If the screws are tightened excessively, the frame may slip off the stopper.)

○ Environment of installation location

- Do not install in a place with corrosive gases (sulfuric gas, ammonia, etc.)
- Do not install in a place subject to vibration, impact, water or high temperature.
- The instrument should be installed as far as away possible from a device generating high frequency noise.
- Do not install in a place where ambient temperature changes suddenly or radiation from furnace is present. Ambient temperature of installation location should be -10 to +50℃.

○ Wiring

- The controller is not equipped with a power switch and fuse.
  These should be installed as necessary (fuse rating: 250V, 1A).
- For thermocouple input, connect the specified compensating lead wire.
- For resistance bulb input, use a lead wire having a small resistance.
- Input signal and power cables connected to the instrument should be wired away from power line and load line to minimize inductive noise.
- For instrument with heater break alarm, use the same power source for the heater and the controller to minimize the variation of alarm operating point due to power voltage.
- Input signal cable should be separated from the output signal cable. Be sure to use shielded cables.

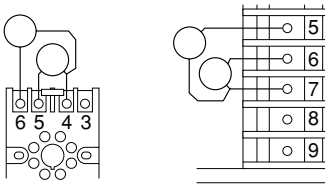
○ Removal of noise

- When external cables contain much noise, carry out the following steps.
- When connecting a contactor as a load of digital output such as a relay contact output, alarm output, etc., use a surge absorber on the coil of the contactor.
  Fuji Z-trap (ENB461D-14A, 220V AC)
- When the power cable contains much noise, use an insulating transformer and a noise filter.
  (Example) Noise filter, ZMB22R5-11, TDK
- Instrument power cable should preferably be twisted to avoid noise.
- It's advisable for you to use a Fuji Z-trap as shown below to protect relay contact from surge and to use longer.
  Z-trap (Ceramic surge absorber : manufactured by Fuji Electric)
  ENC241D-05A (100V AC)
  ENC471D-05A (200V AC)

Wiring

Connect between terminals of contact output

ex) PYW4
Socket (ATX2PSB) PYW9



○ Wiring of load circuit

• When the controller is used for frequent operation such as for proportional action, use SSR or SSC output type auxiliary relay, because if a load corresponding to the full capacity of output relay is connected, the life of it is shortened.

Electromagnetic relay:

Proportional cycle is more than 30 sec.

SSC, SSR:

Proportional cycle is more than 1 sec.

Contact output life:

Mechanical ..... More than 10^7 cycles (at no load)

Electrical ..... More than 10^5 cycles (at 220V AC/3A, resistive load)

○ Wiring for 1 to 5V DC input

• Use of the resistor (250 Ω) supplied for 4 to 20 mA DC input is not required.

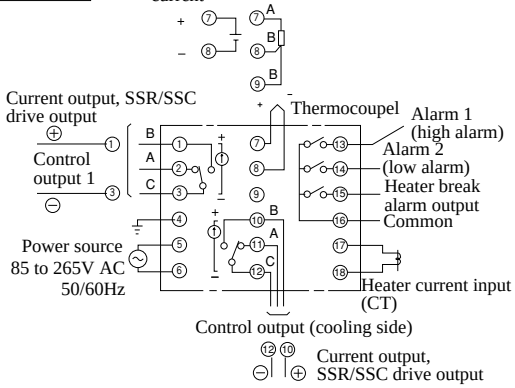
○ SSR/SSC drive output and 4 to 20 mA DC output are not isolated electrically fro the internal circuit. Use a non-grounded type resistance bulb or thermocouple as a sensor.

○ Current output ripple

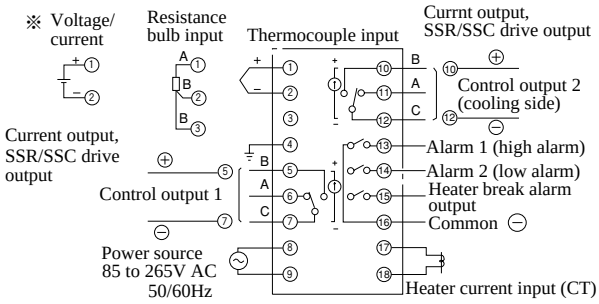
• Current output (4 to 20 mA DC) contains about 0.2mA/2 Hz ripples.

○ Terminal connection diagram

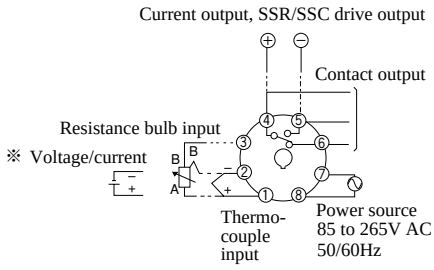
PYW7



PYW5, PYW9

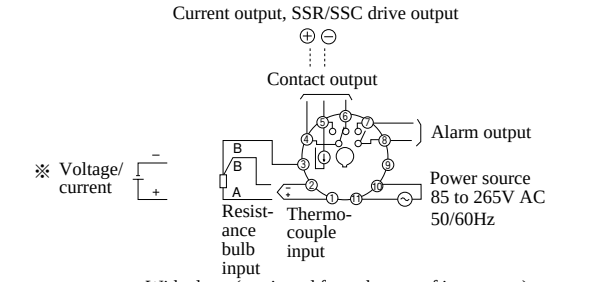


PYW4 Socket Type (standard)



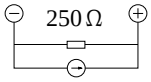
Without alarm (as viewed from the rear of instrument)

PYW4 Socket Type (with alarm)



With alarm (as viewed from the rear of instrument)

※ Current input



Use the supplied 250 Ω resistor for 4 to 20mA DC input.

10. APPENDIX

① Input type and code

Type	Code	Type	Code
Resistance bulb		Thermocouple	
・Pt 100 (IEC)	0	・J	2
		・K	3
		・R	4
1-5V DC, 4-20mA	31	・S	6
		・T	7
		・N	12
		・PL－Ⅱ	13

② Alalrm operation code table

	Function	Action	Function code
Deviation alarm	High/low alarm Without low alarm hold	AL SV AH	15
	High alarm	SV AH	10
	Low alarm Without low alarm hold	AL SV	5
	High/low alarm With low alarm hold	AL SV AH	79 Standard
	Low alarm With low alarm hold	AL SV	69
Absolute value alarm	High/high alarm *	AL AH	19
	High/low alarm Without low alarm hold	AL AH	3
	High alarm	AH	2
	Low alarm Without low alarm hold	AL	1
	High/low alarm With low alarm hold	AL AH	67
	Low alarm With low alarm hold	AL	65
	Low alarm Without low alarm hold *	AL AH SV	35

			Action	Function code
Absolute value+Deviation value	Absolute value / High alarm	Deviation / High alarm *	SV AL AH	23
	High alarm	Low alarm	AL SV AH	7
	Low alarm	High alarm	AL SV AH	11
	Low alarm With low alarm hold	High alarm	AL SV AH	75
	High alarm	Low alarm With low alarm hold	AL SV AH	71
Zone alarm	Low alarm / Absolute value	High alarm / Absolute value	AL AH	179
	Deviation	Absolute value	AL SV AH	183
	Absolute value	Deviation	AL SV AH	187
	Deviation	Deviation	AL SV AH	191

*: in case of PYW5, 7 or 9

③ Input range table

Input	Range (℃)	Range (℉)	Remarks
Pt 100 (IEC)	0～50,…400 (0.0～100.0,…300.0) −150, …100～50,…200 (−150.0, …100.0～50.0,…200.0)	32～122,…752 −238,…148～122,…392	Accuracy is not guaranteed when the range setting is below the minimum. Accuracy is not guaranteed when the reading is out of range. $^{\circ}F = \frac{9}{5}℃ + 32$ (NBC standards)
J	0～200, …1000 (0.0～200.0,…300.0)	32～392,…1832	
K	0～200, …1200 (0.0～200.0,…300.0)	32～392,…2192	
R and S	0～1000, …1600	32～1832,…2912	
T	0～200,…400 (0.0～200.0,…300.0) −200, …100～200,…400 (−199.9, …100.0～200.0,…300.0)	32～392,…752 −328,…148～392,…752	
N and PL—Ⅱ	0～200,…1300 (0.0～200.0,…300.0)	32～392,…2372	
1～5V DC 4～20mA DC	−1999～3000 (Engineering value setting)		Setting of decimal point is possible.

④ Code symbols

1	2	3	4	5	6	7	8		9	10	Description
P	Y	W					1	-		V	
			4								Front panel size: 48×48mm
			5								48×96mm
			7								72×72mm
			9								96×96mm
				T							Input signal: Thermocouple (℃)
				N							RTD (Pt100, IEC) (℃)
				R							Thermocouple (℉)
				S							RTD (Pt100, IEC) (℉)
				B							4 to 20 mA DC (Note 1)
					A						Control output 1: Relay contact reverse action
					B						Relay contact direct action
					C						SSR or SSC drive reverse action
					D						SSR or SSC drive direct action
					E						4 to 20 mA DC reverse action
					F						4 to 20 mA DC direct action
						Y					Control output 2 (Note 2): None
						A					Relay contact reverse action
						B					Relay contact direct action
						C					SSR or SSC drive reverse action
						D					SSR or SSC drive direct action
						E					4 to 20 mA DC reverse action
						F					4 to 20 mA DC direct action
									0		Additional functions: None
									1		With high/low alarm
									2		With heater break alarm (Note 3)
									3		With high/low alarm+heater break alarm (Note 3)
									4		Ramp SV
									5		Ramp SV with high/low alarm

Note 1) The supplied resistor (250Ω) should be connected to the therminal. (This resistor is not required for 1 to 5V DC input.)

Note 2) Not used for PYW4.

Note 3) Not used for PYW4 and 4 to 20mA DC output.