

Z Series Digital Temperature Controller **Micro Controller PXG Series**



- **Auto manual operation with A/M key**
- **Universal process value input**
- **Motorized valve control**
 - Position feed back
 - Servo control
- **Smart ramp-soak**
 - Increasing from 8 steps to 16 steps
 - Guaranty soak
- **Password function**
- **Alarm Flicker function**

PXG

Fuji Electric Systems Co., Ltd.

200ms sampling cycle and $\pm 0.3\%$ FS

Model: PXG

input Universal process value input

- Resistance bulb Pt100, Thermocouple (J,K,R,B,S,T,N,PL-II)
- DC voltage (1-5V,0-5V, 0-10V,2-10V,0-100mV)

input Remote-SV input

DC voltage (1-5V,0-5V)

input Position feedback input

100ohms to 2.5k ohms

input Digital input (Max 5 points)

input Transmitter power supply (PXG9 only)

input Control-output (5types)

- Relay contact
- SSR/SSC drive
- DC0-20mA/DC4-20mA
- Motor-operated valve manipulating
- DC0-5V/1-5V/0-10V/2-10V

input Digital output (Max 5 points)

RS485 modbus communication function

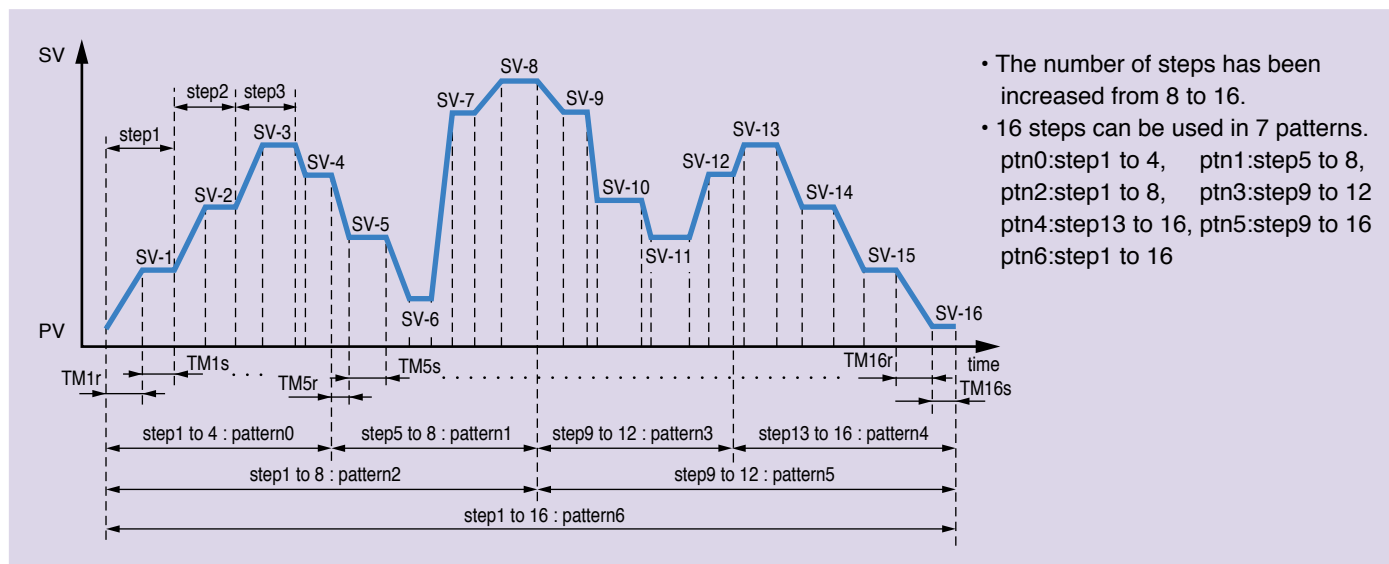
communication speed: 19200bps

PC loader interface and software through RS-232C Communication

PID palette (for 8 combinations)

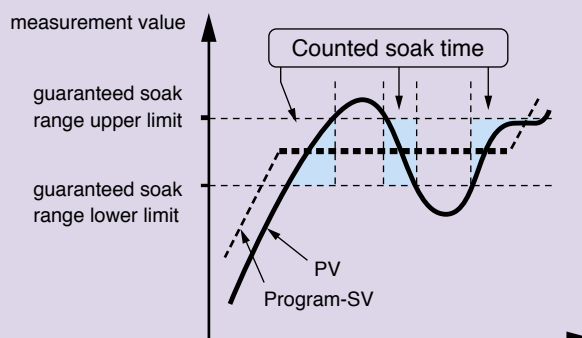
Smart Ramp-soak

1 Increasing from 8 steps to 16 steps



2 Guaranteed soak

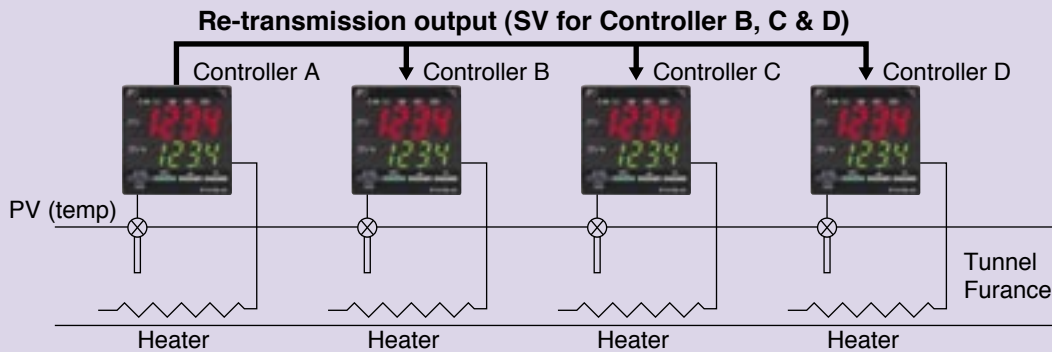
This function guaranteed the soak time. Only soak time within the specified range of temperature for SV is counted towards soak time.



Application example

1 Re-Transmission Output

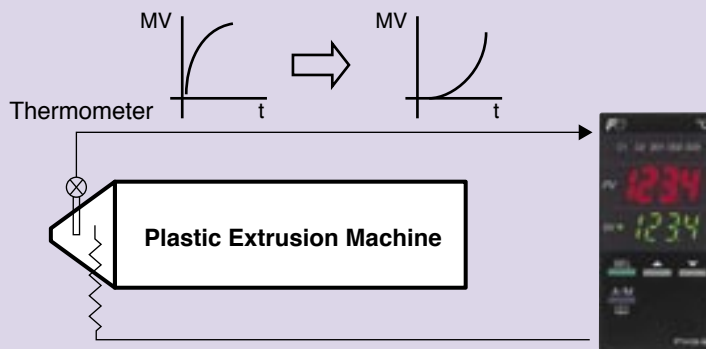
Averaging Temperature in Furnace



The PV of Controller A shall be treated as SV for other controller B, C & D so that the temperature in tunnel furnace can be equalized.

2 Soft Start Function

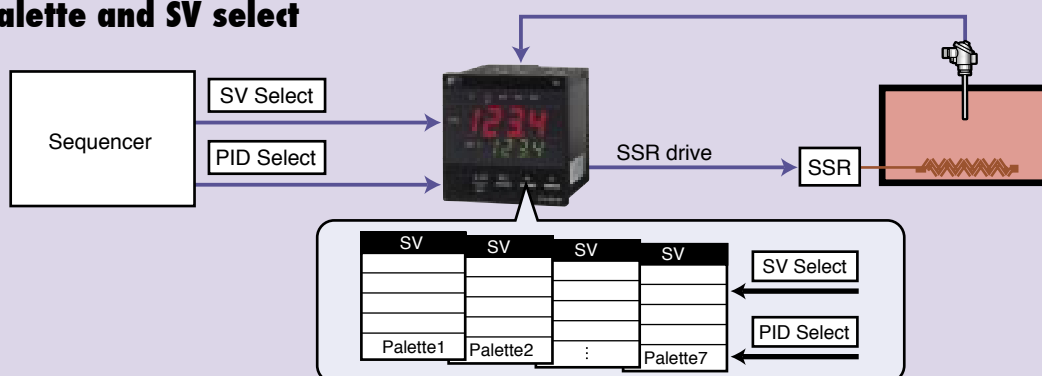
Plastic Extrusion Machine



To protect nozzle material at turning on power of the machine, immediate heating the nozzle shall be with soft start function.

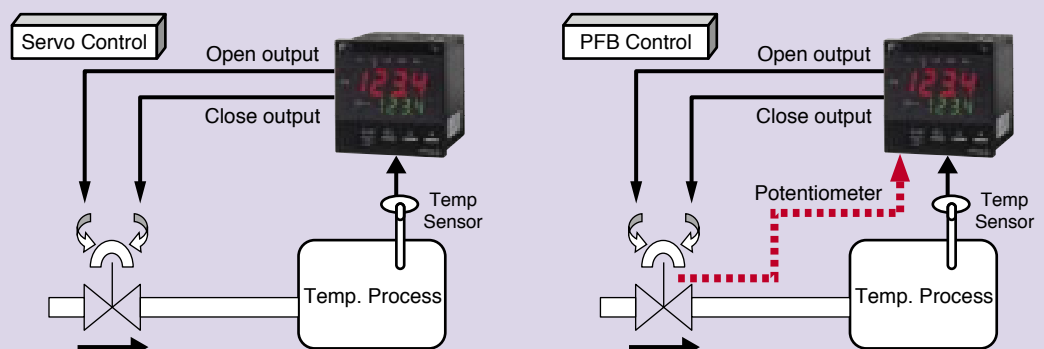
3 PID palette

PID Palette and SV select



4 Servo control and PFB control

PXG is available for both Servo control and position feedback (PFB) control.
ex. Combustion control.
(Burner and Boiler)



Ordering code

●PXG4 (Standard type)

PXG			4	5	6	7	8	9	10	11	12	13
Digit	Specifications	Note										
4	<Front panel size W x H> 48 x 48mm		4									
5	<Output 1> Relay contact SSR drive Current (0 to 20 mA DC/4 to 20 mA DC) Voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC)	Note1 Note1		A C E P								
6	<Output 2> None Relay contact SSR drive Current (0 to 20 mA DC/4 to 20 mA DC) Voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC) Re-transmission output, current (0 to 20 mA DC/4 to 20 mA DC) Re-transmission output, voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC)	Note2 Note4 Note2 Note4 Note2 Note4 Note2 Note4		Y A C E P R S								
7	<Option 1> None RS485 Digital input (No.1) + Digital input (No.2) Digital input (No.1) + RSV1 Digital input (No.1) + CT1 RS485 + Digital input (No.1) RS485 + RSV1 RS485 + CT1 RS485 + Digital input (No.1) + RSV1 Digital input (No.1) + RSV1 + Digital input (No.2)	Note1 Note3 Note1 Note3 Note4 Note4		Y M T H G V K J F 2								
8	<Revision symbol>						1					
9	<Digital output> (relay contact output) None digital output 1 point (No.1) digital output 2 points (No.1,2) digital output 3 points (No.1,2,3) digital output 2 points [independent common] (No. 1, 2)	Note3 Note2					0 1 F M J					
10	<Power source, instruction manual> 100 to 240 V AC, no instruction manual 100 to 240 V AC, Japanese instruction manual 100 to 240 V AC, English instruction manual 24 V AC/DC, no instruction manual 24 V AC/DC, Japanese instruction manual 24 V AC/DC, English instruction manual						N Y V C A B					
11	<Option 2>											
12	None							Y	0	0		
13												

- Note 1: If output 1 was for current or voltage output, option cannot be assigned to CT1.
(If 7th digit was assigned to G or J, 5th digit cannot be assigned to E nor P.)
- Note 2: If output 2 was for relay contact, SSR drive, current, voltage or retransmission output, 3 digital outputs cannot be assigned.
(If 6th digit was assigned to A, C, E, P, R or S, 9th digit cannot be assigned to M.)
- Note 3: If CT1 was selected in option 1, None in <Digital output> cannot be assigned.
(If 7th digit was assigned to G or J, 9th digit cannot be assigned to 0.)
- Note 4: If RSV1 in option 1 and digital input 1 were selected simultaneously, output 2 cannot be assigned.
(If 7th digit was assigned to F or 2, 6th digit cannot be assigned to A, C, E, P, R nor S.)

●PXG4 (Motor-operated valve control type)

PXG			4	5	6	7	8	9	10	11	12	13
Digit	Specifications	Note										
4	<Front panel size W x H> 48 x 48mm		4									
5	<Output 1> Motorized valve control output (Without PFB)	Note1		S								
6	<Output 2> None			Y								
7	<Option 1> None Digital input (No.1) + RSV1 Digital input (No.1,2,3) RS485 + Digital input (No.1) RS485 + RSV1			Y H D V K								
8	<Revision symbol>						1					
9	<Digital output> (relay contact output) None digital output 1 point (No.1) digital output 2 points (No.1,2) digital output 2 points [independent common] (No. 1, 2)						0 1 F J					
10	<Power source, instruction manual> 100 to 240 V AC, no instruction manual 100 to 240 V AC, Japanese instruction manual 100 to 240 V AC, English instruction manual 24 V AC/DC, no instruction manual 24 V AC/DC, Japanese instruction manual 24 V AC/DC, English instruction manual						N Y V C A B					
11	<Option 2>											
12	None							Y	0	0		
13												

- Note 1: If front panel size is 48 x 48, position feedback input (PFB input) function is not available.

●PXG5/PXG9 (Standard type)

PXG			4	5	6	7	8	9	10	11	12	13
Digit	Specifications	Note										
4	<Front panel size W x H> 48 x 96mm 96 x 96mm			5 9								
5	<Output 1> Relay contact SSR drive Current (0 to 20 mA DC/4 to 20 mA DC) Voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC)	Note1 Note1		A C E P								
6	<Output 2> None Relay contact SSR drive Current (0 to 20 mA DC/4 to 20 mA DC) Voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC) Re-transmission output, current (0 to 20 mA DC/4 to 20 mA DC) Re-transmission output, voltage (0 to 5 V DC/1 to 5 V DC/0 to 10 V DC/2 to 10 V DC) Transmitter power supply	Note3 Note3 Note3 Note3 Note3 Note3 Note3		Y A C E P R S T								
7	<Option 1> None RS485 Digital input (No.1) + Digital input (No.2) Digital input (No.1) + RSV1 Digital input (No.1) + CT1 RS485 + Digital input (No.1) RS485 + RSV1 RS485 + CT1 RS485 + Digital input (No.1) + RSV1 Digital input (No.1) + RSV1 + Digital input (No.2)	Note2 Note1 Note4 Note5 Note2 Note1 Note4 Note5 Note3 Note3		Y M T H G V K J F 2								
8	<Revision symbol>						1					
9	<Digital output> (relay contact output) None Digital output 1 point (No.1) Digital output 2 points (No.1,2) Digital output 3 points (No.1,2,3) Digital output 2 points [independent common] (No. 1, 2)	Note4					0 1 F M J					
10	<Power source, instruction manual> 100 to 240 V AC, no instruction manual 100 to 240 V AC, Japanese instruction manual 100 to 240 V AC, English instruction manual 24 V AC/DC, no instruction manual 24 V AC/DC, Japanese instruction manual 24 V AC/DC, English instruction manual						N Y V C A B					
11	<Option 2> None Digital input (No.3,4,5) + CT2 Digital input (No.3,4,5) Digital input (No.3,4,5) + digital output (No.4,5) [transistor output] Digital input (No.3,4,5) + RSV2	Note1 Note4 Note5 Note2							Y A B C D			
12	None										0	0
13												

- Note 1: If output 1 was for current or voltage output, option cannot be assigned to CT1 nor CT2.
(If 7th digit was assigned to G or J, or 11th digit to A, 5th digit cannot be assigned to E nor P.)
- Note 2: RSV1 in option 1 and RSV2 in option 2 cannot be assigned simultaneously.
(If 7th digit was assigned to H or K, 11th digit cannot be assigned to D.)
- Note 3: In case, in option 1, of DI 2 points + RSV1 or RS485 + DI 1 + RSV1, output 2 cannot be assigned.
(If 7th digit was assigned to F or 2, 6th digit cannot be assigned to A, C, E, P, R, nor S.)
- Note 4: In case of CT1 in option 1, or CT2 in option 2, digital output cannot be assigned to None.
(If 7th digit was assigned to G or J, or 11th digit to A, 9th digit cannot be assigned to 0.)
- Note 5: CT1 in option 1 and CT2 in option 2 cannot be selected simultaneously.
(If 7th digit was assigned to G or J, 11th digit cannot be assigned to A.)
- Note 6: Transmitter power supply is only for PXG9.

●PXG5/PXG9 (Motor-operated valve control type)

PXG			4	5	6	7	8	9	10	11	12	13
Digit	Specifications	Note										
4	<Front panel size W x H> 48 x 96mm 96 x 96mm			5 9								
5	<Output 1> Motorized valve control output (Without PFB) Motorized valve control output (With PFB)			S V								
6	<Output 2> None Auxiliary Digital output Transmitter power supply	Note1		Y A T								
7	<Option 1> None Digital input (No.1,2,3) + RSV1 RS485 + Digital input (No.1,2,3) RS485 + Digital input (No.1) + RSV1			Y E U F								
8	<Revision symbol>						1					
9	<Digital output> <relay contact output> None Digital output 1 point (No.1) Digital output 2 points (No.1,2) Digital output 3 points (No.1,2,3) Digital output 2 points [independent common] (No. 1, 2)						0 1 F M J					
10	<Power source, instruction manual> 100 to 240 V AC, no instruction manual 100 to 240 V AC, Japanese instruction manual 100 to 240 V AC, English instruction manual 24 V AC/DC, no instruction manual 24 V AC/DC, Japanese instruction manual 24 V AC/DC, English instruction manual						N Y V C A B					
11	<Option 2>									Y		
12	None										0	0
13												

- Note 1: Transmitter power supply is only PXG9.

Specifications

General	Size and Mass	48x48x78.8mm, 0.2kg 48x96x80mm, 0.3kg 96x96x81.5mm, 0.3kg
	Power supply	AC100(-15%) - 240V(+10%), 50/60Hz AC 24V(±10%), DC24V(±10%), 50/60Hz
	Power consumption	12VA or Less
	External terminal	Screw terminal (M3)
Input	Measuring value input	Sampling cycle : 200ms (300ms at position feedback control) Input type : Universal input, thermocouple, resistance bulb mV, voltage, current
	Digital input	Number of input : Up to 5 points (up to 3 points for motor-operated valve manipulating output)
Function	Control method	PID control with 8 palette Motor-operated valve control with/without position feedback
	Control mode	Auto/Manual/Remote
	Alarm output	Up to 5 points
	Memory back-up	by non-volatile memory
Indication	Accuracy	±0.3%FS
	PV indicator	LED 7 segments 4 digit (Red color)
	SV indicator	LED 7 segments 4 digit (Green color)
	Indication status	6 indicator lamps
output	Control output	Up to 2 points (heating and cooling control if 2 points) 1. Relay contact output Contact structure : 1 NO (SPST) contact Contact rating : AC220V/DC30V, 3A (Resistive load) AC220V/DC30V, 1A (Inductive load) 2. SSR/SSC drive output DC20V (DC18-24V)/Max current 20mA Load resistance : 850ohms MIN 3. DC0-20mA/DC4-20mA output Accuracy : ±5% FS Linearity : ±5% FS Load resistance : 600ohms MAX 4. Voltage output DC0-5V/DC1-5V/DC0-10V/DC2-10V 5. Motor-operated valve manipulating output Contact structure : 2 NO (SPST) contacts Contact rating : AC220V/DC30V, 1A Mechanical life : 20 million operations MIN Electrical life : 100,000 operations MIN Output interlock/Output interlock circuit : Provided Except for PXG4
	Re-transmission output	Current output : (DC0-20mA, DC4-20mA) Voltage output : (DC0-5V/DC1-5V/DC0-10V/DC2-10V) Output type : PV, SV, MV, DV, PFB
	Digital output	Number of outputs : Max.5 points Contact structure : 1 NO (SPST) contact/Open collector Contact rating : AC220V/DC30V, 1A/DC30V, 100mA
	Transmitter power supply For PXG9	DC24V(DC19.5-24V) Max current : 21.6mA, 400ohms
RS232C communication (Loader port interface)	Protocol	Modbus-RTU
	Speed	9600bps
RS485 communication(Optional)	Protocol	Modbus-RTU
	Speed	9600bps, 19200bps
Applied standards		UL, CE Mark

Outline Diagram and Panel Cut (Unit:mm)

Model	Outline	Panel Cat
PXG4		
PXG5		
PXG9		

⚠ Precautions for use

To ensure temperature process safety in case of PXG's failure, fit a separate over-temperature protection unit to isolate the heating circuit. Uncontrollability due to such failure may cause major accident.

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