

# PROGRAM CONTROLLER X (96mm)

DATA SHEET

PVX

The program controller X (PVX) is a high performance controller designed on the basis of many years of Fuji's successful experience and advanced technologies.

## FEATURES

1. **Display of 3 different datas**  
Three different datas such as measured value (PV), set value (SV) and time can be monitored simultaneously.
2. **20-segment program patterns (9 patterns)**  
Program patterns can be linked in series or repeated.
3. **Full multi-input type**  
The program controller accepts a large number of inputs (full multi-input). Up to 11 kinds of thermocouples, 1 resistance bulb, 6 different voltage inputs and a current input can be connected.
4. **Wide input/output functions (option)**  
The program controller is able to expand the input/output functions up to 8 points of digital inputs, 11 points of digital outputs and 2 points of auxiliary analog outputs.



## SPECIFICATIONS

- Panel size:** 96 × 96mm
- Input:** Full multi-input
- Thermocouple: J, K, R, B, T, E, S, N, U, WRe5-26, PL-II
  - Platinum resistance bulb: Pt100
  - DC voltage/current
- Input accuracy:** ±0.2% of full scale, ±1 digit
- Input sampling cycle:** 100ms
- Control action:** PID with auto-tuning
- Control output:**
- Relay contact
  - Voltage pulse output (for SSR drive)
  - Current output
- Alarm output:** 2 points (ALM1, ALM2)
- Program function:**
- Number of patterns: 9 patterns (max.)
  - Number of segments/patterns: 20 segments
  - Multi-memory (PID, etc.): 9 sets
  - Pattern linkage/repeat function: possible
  - Time setting: hour/minute or minute/second

- Operation mode:**
- Program operation
  - Fixed value (FIX) operation
  - Manual (MAN) operation

- Digital input/output:**
- Time signal output: 4 points (TS1, TS2, TS3, TS4)
  - External command input: 4 points (Reset, Run, Hold, Advance)
  - Pattern select input: BCD 1 digit (2<sup>3</sup>, 2<sup>2</sup>, 2<sup>1</sup>, 2<sup>0</sup>)
  - Status output (Output informations): 3 points (Reset, Run/Hold, End)

- Option:**
- Auxiliary analog output: 2 points (AO1, AO2)
  - Expansion digital output: 2 points (TS5, TS6 or ALM3, ALM4)

- Power source:** Flexible supply voltage: 100 to 240V AC

## FUNCTIONS AND PERFORMANCE

### 1. Input

#### (1) Input accuracy:

±0.2% of full scale, ±1 digit (under standard condition), cold junction compensation error: ±1°C

#### (2) Input:

Thermocouple (range code setting)	Resistance bulb (range code setting)
J : 0 to 400°C	Pt100Ω(*): 0 to 150°C
J : 0 to 800°C	0 to 300°C
K : 0 to 400°C	0 to 500°C
K : 0 to 800°C	0 to 600°C
K : 0 to 1200°C	-50 to 100°C
R : 0 to 1600°C	-100 to 200°C
B : 0 to 1800°C	-199.9 to 600°C
T : -199.9 to 200°C	-199.9 to 850°C
T : -150 to 400°C	
E : 0 to 800°C	
E : -199.9 to 800°C	
S : 0 to 1600°C	
N : 0 to 1300°C	
U : -199.9 to 400°C	
WRe5-26 : 0 to 2300°C	
PL-II : 0 to 1300°C	

(R: ±1% within the range of 0 to 400°C) °F display; possible  
 (B: ±5% within the range of 0 to 500°C) 0.1°C/°F display; possible (1000°C/°F span or less)

DC voltage/current (full programmable scale; -999 to 9999)

0 to 10mV DC, 0 to 100mV DC, 0 to 1V DC, 0 to 5V DC  
 1 to 5V DC, 0 to 10V DC, 4 to 20mA DC

Note: \* Pt100...IEC Pub751-1983

#### (3) Input sampling cycle: 100ms

### 2. Output

#### (1) Control output

##### Relay contact output :

220V AC/30V DC, 3A (resistive load)  
 SPDT contact  
 Electrical expected life: more than 10<sup>5</sup> operations  
 Minimum ON/OFF current: 0.1A (24V DC)

##### SSR drive output :

ON: 10 to 18V DC  
 OFF: max. 0.5V  
 Max. current: 20mA DC

##### Current output :

4 to 20mA DC (allowable load: 600Ω or less)

#### (2) Alarm output (ALM1, ALM2)

##### Relay contact output :

2 points  
 220V AC/30V DC, 1A (resistive load)  
 SPST contact  
 Electrical expected life: more than 10<sup>5</sup> operations  
 Minimum ON/OFF current: 0.1A(24V DC)

### 3. Program setting

#### (1) Program function

Number of patterns: 9 patterns (max.)

Number of segments/patterns: 20 segments

Multi-memory (PID, etc.): 9 sets

#### (2) Operation mode

Program operation  
 Fixed value (FIX) operation  
 Manual (MAN) operation

#### (3) Program operation

Pattern selection, program reset, start, stop and skip are possible with front panel key, digital input.

#### (4) Time setting

Setting of hour/minute or minute/second  
 Hour/minute: 0 (hr) 0 (min) to 99 (hr) 59 (min)  
 Minute/second: 0 (min) 0 (sec) to 99 (min) 59 (sec)

### 4. Control action

#### (1) Auto-tuning PID action

P: 0.0 to 999.9% (ON/OFF control, P=0)

I: 0 to 3200sec (integral action OFF, I=0)

D: 0.0 to 900.0sec (derivative action OFF, D=0)

#### (2) Multi-memory

PID, etc; up to 9 sets

### 5. Digital input/output

#### (1) Digital input

Usual specification :

16V DC, 15mA

External command input :

Reset: Program reset

Run: Program start

Hold: Program stop

Advance: Segment feed

Pattern select input :

BCD input; 1 digit (2<sup>3</sup>, 2<sup>2</sup>, 2<sup>1</sup>, 2<sup>0</sup>)

#### (2) Digital output

Time signal output (TS1, TS2, TS3, TS4)

Open-collector output: 4 points, 24V DC, 50mA

Status output :

Open-collector output: 3 points, 24V DC, 50mA

Reset: Program reset status

Run/Hold: Program start/stop status

End: Program end status

### 6. Option output

#### (1) Expansion digital output

Expansion alarm output (ALM3, ALM4) or expansion time signal output (TS5, TS6)

Open-collector output: 2 points, 24V DC, 50mA

#### (2) Auxiliary analog output

Output points : 1 or 2 points

Output data : Measured value, set value or manipulated value

Output accuracy : ±0.2% of full scale

Kinds of output :

1 to 5V DC

0 to 5V DC

0 to 10V DC

Additional function : Scaling

## 7. Operating conditions, etc.

**Power supply voltage:** 100 (-15%) to 240 (+10%) VAC, 50/60Hz

**Power consumption:** 30VA or less

**Ambient temperature:** 0 to 50°C

**Ambient humidity:** 90%RH or less (free from condensation)

**Memory backup:** Lithium battery  
(5 years expected: 0 to 40°C)

**Dimensions (H × W × D):** 96 × 96 × 173.5mm

**Mass{weight}:** 1kg (approx.)

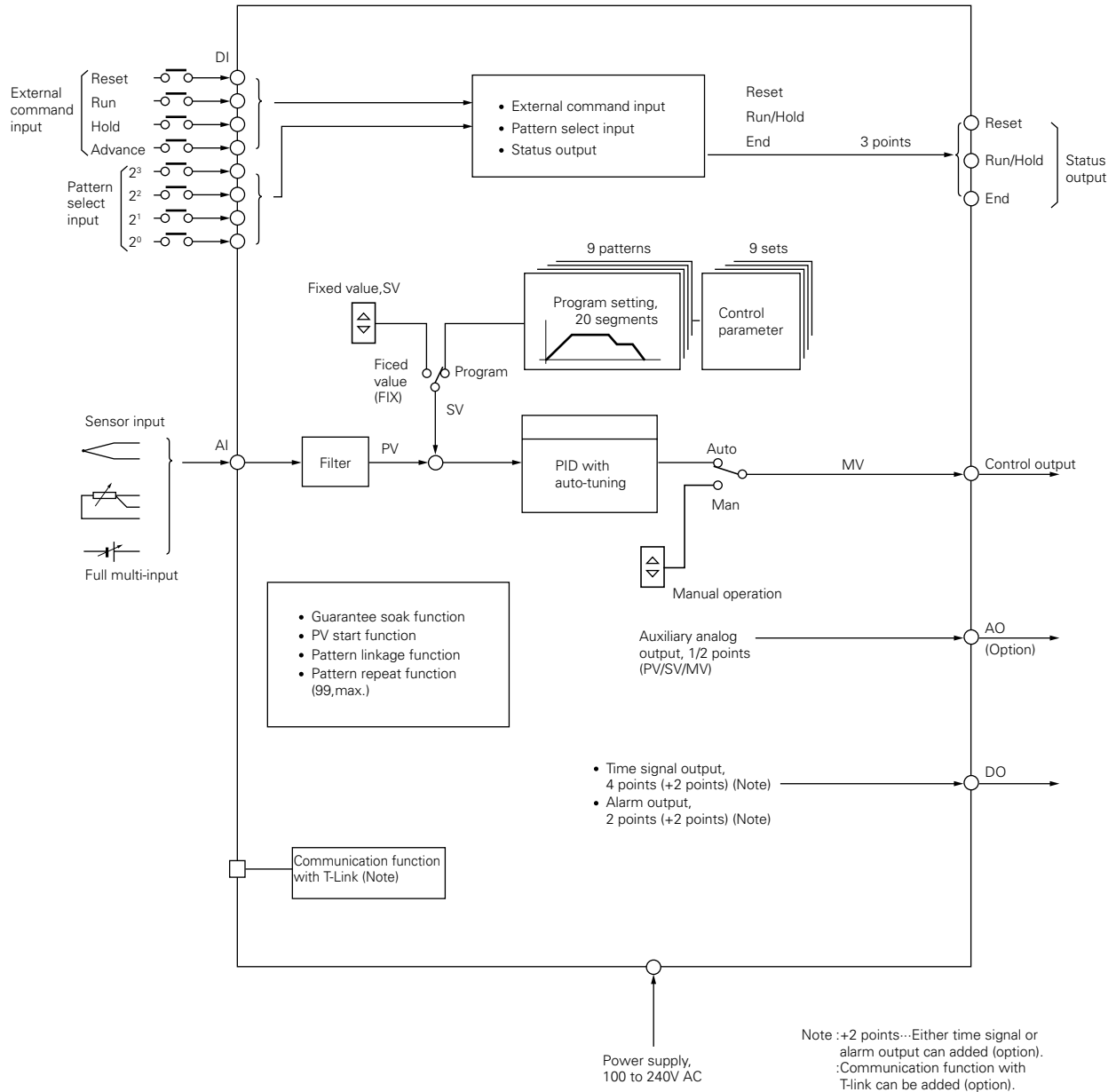
**Mounting angle:** Backward inclination within 15°

## CODE SYMBOLS

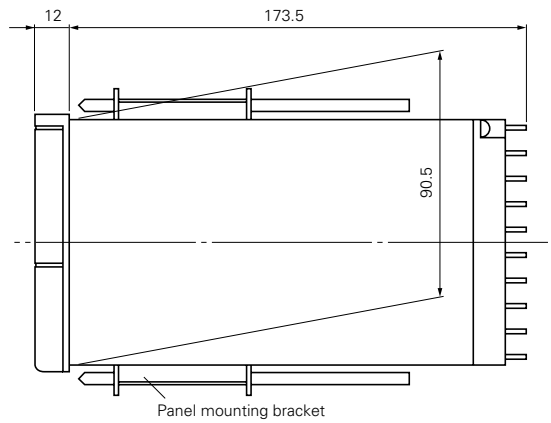
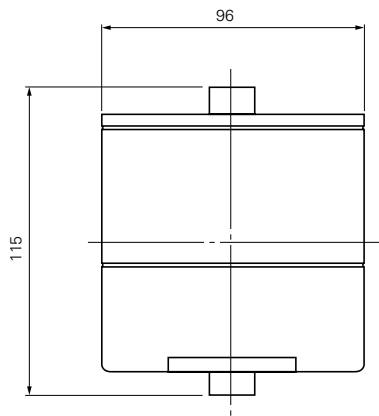
1 2 3 4 5 6 7 8 9 10 11 12 13													Description
P	V	X				T	S	1	-	Y		E	<b>Control output</b>
						1							Relay contact output
						2							SSR/SSC drive output
						3							Current output (4 to 20mA DC)
			C										<b>Digital input</b>
			P										External command input (4 points)
			D										Pattern select input (4 points)
													External command input +Pattern select input
						T							Time signal output, 1 to 4
							S						Output status
													<b>Expansion digital output (open-collector output, 2 points)</b>
										Y			Without
										T			Used as time signal (TS5, 6)
										A			Used as alarm (ALM3, 4)
													<b>Auxiliary analog output signal</b>
											0		Without
											1		Voltage output, 1 point
											2		Voltage output, 2 points
													Note:Prior to delivery from factory: 0 to 10V DC
													<b>Communication function</b>
										Y			Without
										T			With T-link
													<b>Front panel indication and instruction manual (option)</b>
												E	English

Note : If the range is not designated on order, the product will be delivered with the following range selected.  
K thermocouple 0 to 400°C.

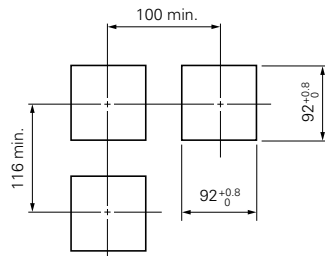
# FUNCTIONAL BLOCK DIAGRAM



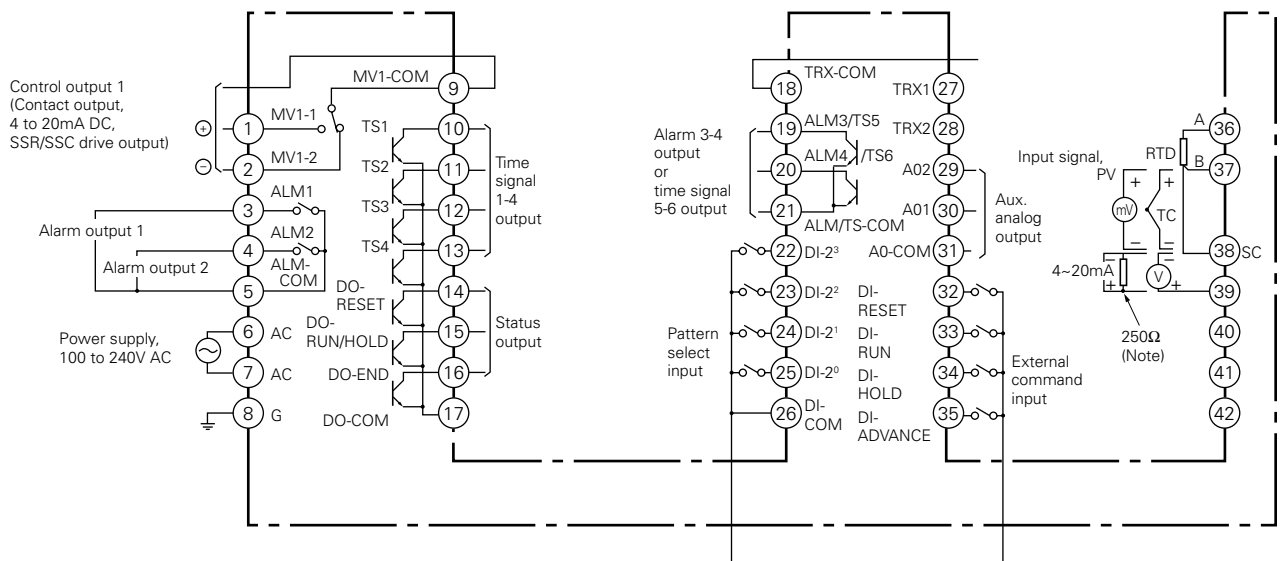
# OUTLINE DIAGRAM (Unit:mm)



Panel cutout



Connection diagram



Note: A resistor (250Ω±0.1%) should be used for 4 to 20mA DC input.

## SCOPE OF DELIVERY

Main unit and panel mounting bracket

⚠ Caution on Safety

\*Before using this product, be sure to read its instruction manual in advance.

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