

和文の説明は裏面にあります。

# TTX-700 USER'S MANUAL

MODULE TYPE DIGITAL TEMPERATURE CONTROLLER  
Thank you very much for purchasing TTX-700 Module Type Digital Temperature Controller. Please go through this Instruction Manual carefully and use the unit in proper manner.

## NOTICE/WARNING BEFORE OPERATION USE

- When having the purchased controller at hand, please be sure that its unit is a correct model (See the following "Model Configuration").
- The following symbol marks  $\Delta$  provide to prevent incident or damage. Kindly refer to the details of the WARNING/CAUTION when using for the first time.
- Another copy of the user's manual "Advanced Version" is provided at customer's request.

**WARNING** Due to mishandling, serious dangers may occur to the operator such as death, electrocution and a skin burn.

**CAUTION** Owing to mishandling, it may cause some damage to the unit or the operator getting slight injury.

**CAUTION**

- For prevention of its malfunction, do not push the front key with sharp points.
- Spare terminal must not be used for other purposes.

**WARNING**

- Make sure the correct wiring connection before turning on electricity. Mis-wiring may cause malfunction of the unit and fire.
- Never modify the unit to prevent damage or incident such as malfunction and fire etc.

- Please put this user's manual aside for your reference, when operating the unit.
- Copy or reprint of this manual, wholly or partially, is not allowed.
- The contents of this manual may change without notice in future.

## ACCESSORY & CONFIGURATION

- 1) Please be sure that the unit enclosed in packing carton is right model before using.
- 2) Kindly check the following accessory being contained in that carton box.
  - Installation Attachment (For installation, please see "INSTALLATION AND WIRING" on the back.)
  - This user's manual: 1copy
- 3) Model Configuration

TTX-700- <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/>	CH1 CH2 Option
CODE	Input Type
NIL	Thermocouple, R.T.D. 0-10mV
2	4-20mA, 0-5V, 0-5V, 0-10V
CODE	CH2 Output
R	Relay contact
P	SSR drive voltage
I	4-20mADC
V	1-5VDC
CODE	Option
A	Event Output
E	DI

## SPECIFICATIONS

Power Supply Voltage	24 VDC $\pm$ 10%
Power Consumption	Less than 4W
Memory Element	EEPROM
Input	Thermocouple, R.T.D., 0-10mV/0-5V, 1-5V, 0-10V, 4-20mA (Changeable by front key)
Control Output	Relay contact, SSR drive voltage, Current, Voltage
Control Method	Two types of PID, ON/OFF
Operation Environment	0-50°C, 20-90%RH (Avoid making dew)
Storage Environment	-25-70°C, 5-95%RH (Avoid making dew)
Weight	Less than 200g
Installation Environment	Keep away from the following location. <ul style="list-style-type: none"> <li>• Gas of corrosion, dust and oily smoke</li> <li>• The electric noise of generator</li> <li>• The influence of electromagnetic field</li> <li>• Mechanical vibration and shock</li> <li>• The direct sunlight</li> </ul>
Installation condition	Installation category II

## FRONT PANEL

**PV** Process value, character for setting mode display.

**SV** Setting value, input value for setting mode display.

**COM** Flash ON and OFF when communicating. Lights ON when communication is successful. Lights OFF when communication is not successful.

**RDY** Lights ON under Ready.

**DI** Lights ON when DI turn ON.

**MODE key** Executes a set function.

**CH key** CH1 key, CH2 key.

**UP key** UP key.

**DOWN key** DOWN key.

**FUNC key** Executes a set function.

**MODE key** Executes a set function.

**CH key** CH1 key, CH2 key.

**UP key** UP key.

**DOWN key** DOWN key.

**FUNC key** Executes a set function.

## OPERATION FLOW AND SETTING MENU

Setting display shows the existing options.

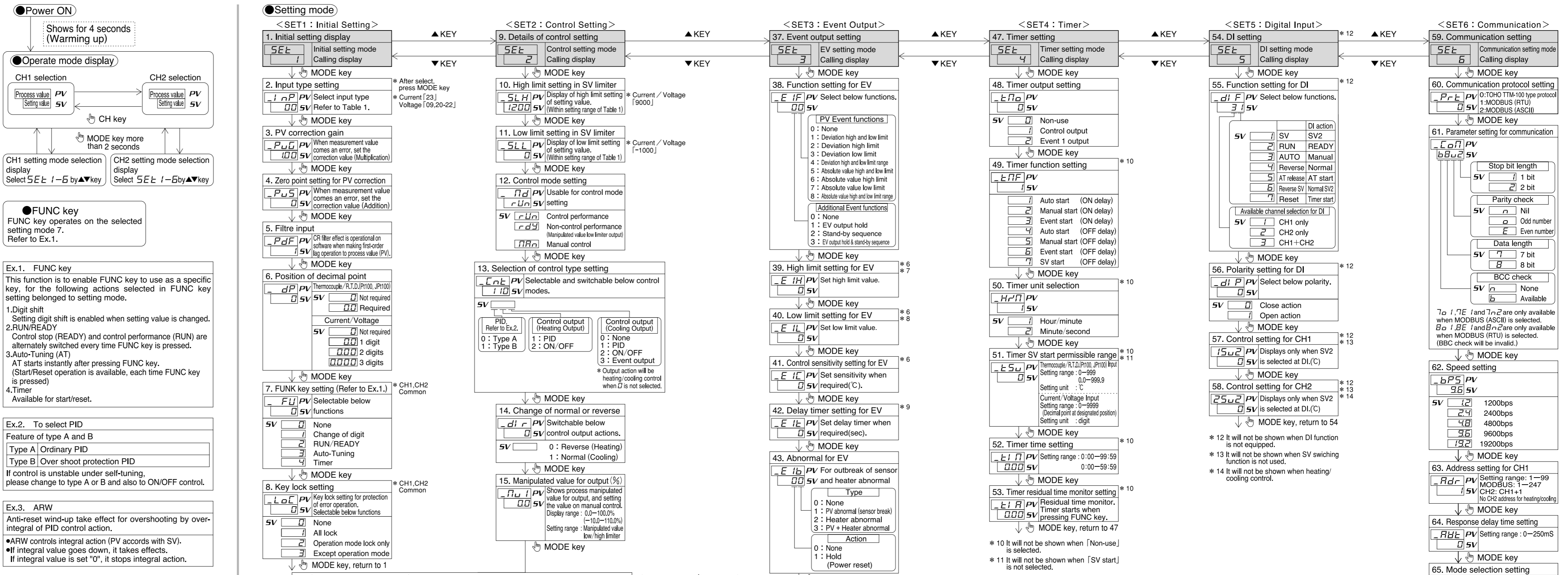


Table 1. To select input sensors and setting range.

Symbol	Setting range	Display range
00 K Thermocouple	200-1372	210-1380
01 J	200-850	210-860
02 R	0-1700	10-1710
03 T	200-400	210-410
04 N	200-1300	210-1310
05 S	0-1700	10-1710
06 B	0-1800	20-1802
09 0-10mV	1999-9999	1999-9999
10 Pt100	199-500	199-530
11 JPt100	199-500	199-520
20 0-10VDC	1999-9999	1999-9999
21 0-5VDC	1999-9999	1999-9999
22 1-5VDC	1999-9999	1999-9999
23 4-20mADC	1999-9999	1999-9999

\* However low limit setting -10%-high limit setting+10% within the left ranges. Decimal point can be changed optionally.

## CAUTION BEFORE CONTROL

- Setting program is stored after power OFF, as non-volatile memory is equipped with TTX-700 controller for setting storage.
- Either thermocouple or R.T.D.(Pt 100/JPt 100) is selectable input type, but Current/Voltage input needs to be selected individually. For suitable application, please select most appropriate input type and adjust input setup.
- PID or ON/OFF control is selective for the optimal performance and each detail of features is specified in the table on the right side.

	PID Control	ON/OFF Control
Merit	Better control result is achieved as opposed to that of ON/OFF control.	Life span of relay is generally longer, as it is ON when temperature is below SV and it is OFF when temperature is over SV (For heating control).
Demerit	Life span of relay is shorter, as output exists frequently with relay contact.	Control value is worse in comparison with that of PID control.

\* PID constants are automatically reckoned up to write in, when control begins or SV is altered on self-tuning.

## CAUTION ERROR MESSAGES AND TROUBLE SHOOTING

(Display)	(Description)	(Trouble Shooting)
---	Shown whenever input value exceeds the high limit of display range. Also displays when the wire thermocouple, A/B terminal of R.T.D. is snapped off.	Check the snapping of thermocouple and R.T.D. input.
---	Shown whenever input value exceeds the low limit of display range.	Check short circuit of input lines between A-B and A-b R.T.D.
---	Display of memory error.	In case this indication shows after the re-input of power, replace unit if it persists.
---	Display of A/D converter error or incorrect sensor connection with selectable input.	Ditto
---	Displayed when parameter is changed in key-lock condition.	Check sensor connection or change to other tuning.
---	Alternately this and SV/PV display are shown.	Discontinue to change parameter.
---	Displayed when setting value is changed on SV2 control.	Discontinue to change setting value (during control of SV2)
---	Displayed when changing setting value of shift on DI.	Discontinue to change setting value of the self on digital input
---	Displayed when making setting value change in control display while function key is on RUN/READY.	Discontinue to change setting value
---	Displayed when altering setting value in control display while being on timer.	Discontinue to change setting value

**How to release BLIND Function**

1. Power ON Automatically
2. Initial Display Automatically
3. Operation Mode Press MODE Key (10 sec)
4. Immediately after the "Blink", press MODE Key, and quickly press MODE Key.
5. Press MODE Key (3 sec)
6. Press UP Key ( $\Delta$ ) for 1-6
7. Press FUNC Key for OFF  $\rightarrow$  ON
8. Power OFF
9. Power ON Automatically
10. Initial Display Automatically
11. TIMER Setting Mode (OPERATION Mode) Press MODE Key (2 sec)
12. Press UP Key ( $\Delta$ ) for 1-6
13. Go on TIMER Setting Press MODE Key consecutively

\*\*1 Please select an appropriate character (eg. Timer Setting etc) being of BLIND Function effect for the demanding release.

\*\*2 Character selected for TIMER Setting.

\*\*3 BLIND Function for "SELECTION DISPLAY (Timer Setting Mode)" is released.

※See also "PARTS INDICATION" & "INSTALLATION AND WIRING" on the reverse.

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