

和文の説明は裏面にあります。

TTM-002W USER'S MANUAL DIN.DIGITAL TEMPERATURE CONTROLLER

Thank you for purchasing model TTM-002W

Digital Temperature Controller.

Please go through this Instruction Manual carefully and use the unit in proper manner.

If the unit is used in a manner not specified by the manufacturer, the protection provided the unit may be impaired

NOTICE/WARNING BEFORE OPERATION USE

The meaning of the symbols indicated on the label found at the side of the unit is as follows.

: Cautions,Danger,Refer to a manual : Alternating current

: Cautions, Danger of Electric Shock

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 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.

INSTALLATION CONDITIONS

Indoor use Altitude up to 2000m Pollution Degree 2

Mains supply voltage fluctuations can't exceed +15%+10 percent of nominal voltage. However, 24V does not exceed +10 percent."

TRANSIENT OVERVOLTAGES up to the levels of OVERVOLTAGE CATEGORY II.

TEMPORARY OVERVOLTAGES occurring on the MAINS supply

Short-term:1440V (may last up to 5S) Long-term:490V (may last longer than 5S)

ACCESSORY & CONFIGURATION

1) Please be sure that the unit enclosed in packing carton is a 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 : 1 copy

3) Model Configuration

TTM-002W - - - A

CODE Input Type Option

B Output 2 Relay contact B or P selectable

P Output 2 SSR drive voltage

D CT input When DI is selected this option is not usable.

When I output (4-20mA) is selected, this option is not provided.

E DI (Digital input) When CT is selected this option cannot be obtained.

X Communication RS-485

-24 Power supply Voltage 24VDC/AC

CODE Output 1 R Relay contact

P SSR drive voltage

I Current 4-20 mA DC

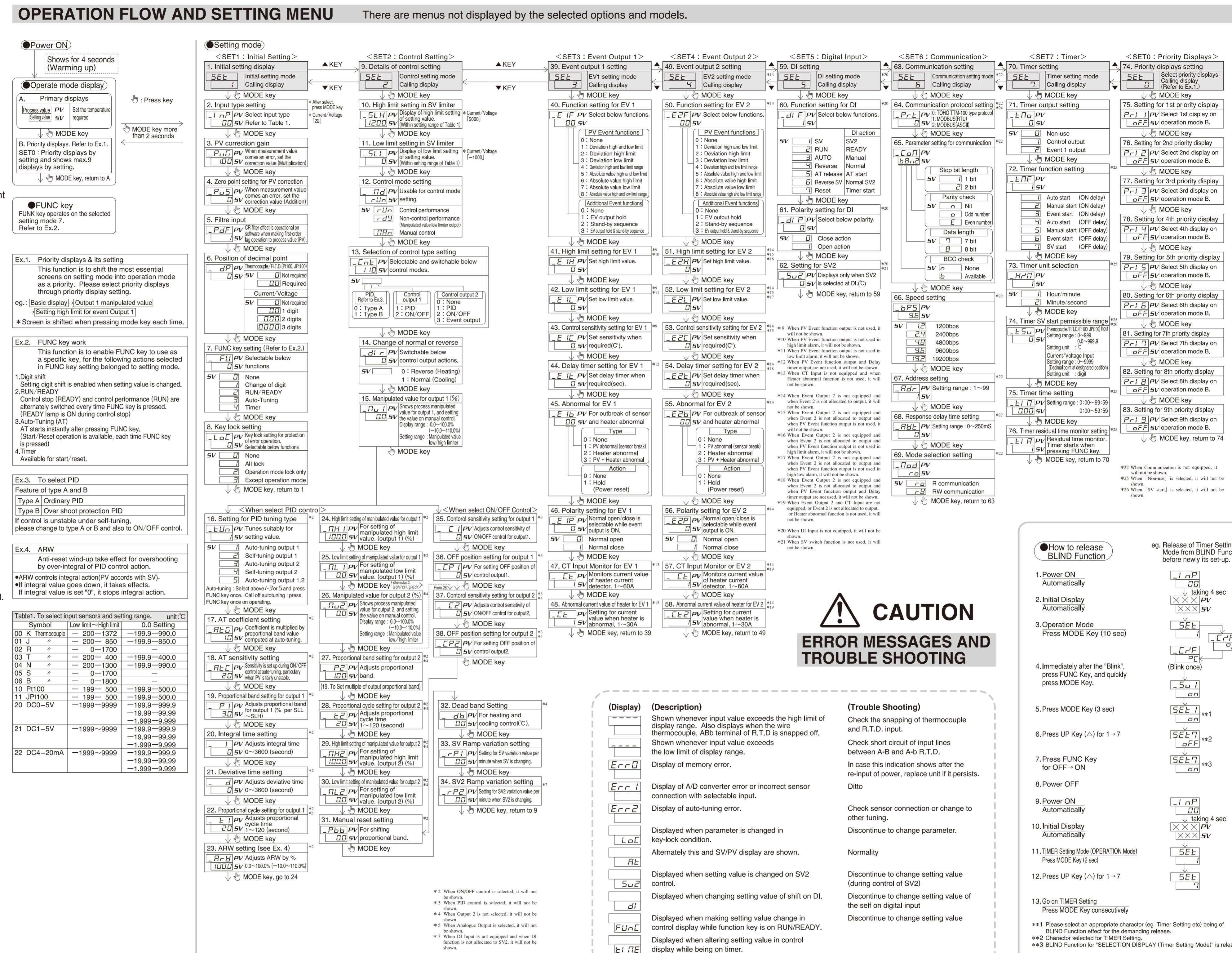
SPECIFICATIONS

Power Supply Voltage	100 to 240V AC , 50/60Hz or 24VDC/AC 50/60Hz
Power Consumption	Below 10 VA or 6VA(4W(24V))
Memory Element	EEPROM
Input of Sensor	Thermocouple, R.T.D./Pt100, J/Pt100 (Changeable by front key)
Control Output	Relay contact, SSR drive voltage, Current
Control Method	Two kinds of PID, ON/OFF
Operation Environment	0 to 50°C, 20 to 90%RH (Avoid making dew)
Storage Environment	-25 to 70°C, 5 to 95%RH (Avoid making dew)

Weight	TTM-002W Less than 180g,
Location of the Unit Setting	Keep away from the followings. • Gas of corrosion, dust and oily smoke. • The electric noise of generator. • The influence of electromagnetic field. • Mechanical vibration and shock. • The direct sunlight.
CAUTION	
Installation condition	Installation category II

PID constant will not be shown when Self-tuning is selected.
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OPERATION FLOW AND SETTING MENU



CAUTION BEFORE CONTROL

- Setting program is stored after power OFF, as non-volatile memory is equipped with TTM-002W controllers 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.

There are menus not displayed by the selected options and models.

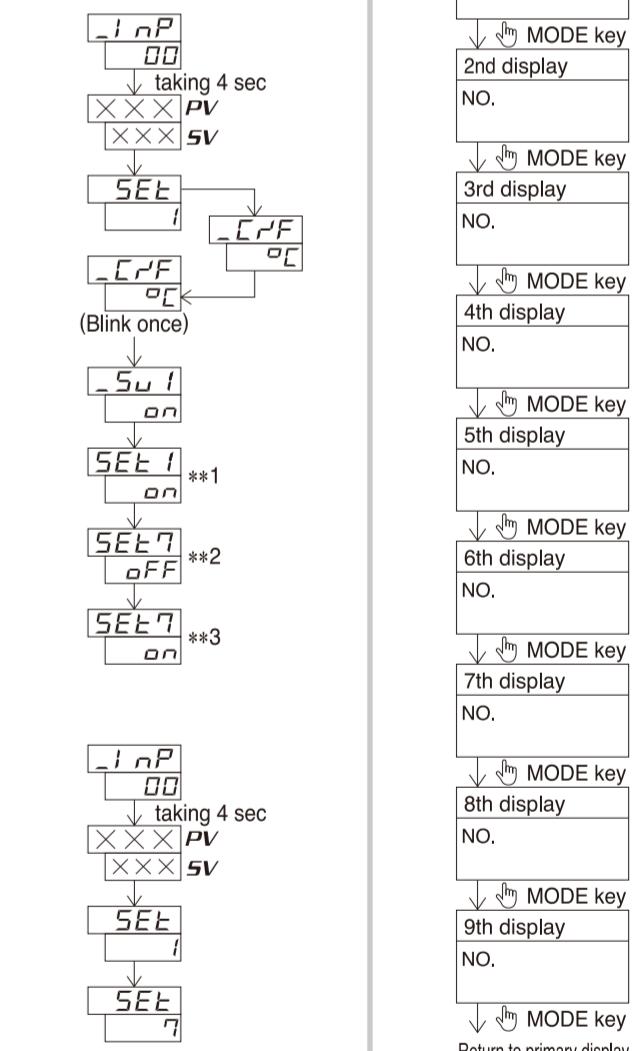
Merit	PID Control	ON/OFF Control
Better control result is achieved as opposed to that of ON/OFF control.	Life span of relay is generally longer, as it is ON when temperature is below SV and it is OFF when temperature is over SV (For heating control).	Control value is worse in comparison with that of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

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

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



Selection memo for priority displays.
Display NO. for record.
1st display NO.



*22 When Communication is not equipped, it will not be shown.
*23 When 'Non-use' is selected, it will not be shown.
*26 When [SV start] is selected, it will not be shown.

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, ABB 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
	Display of auto-tuning error.	Check sensor connection or change to other tuning.
	Displayed when parameter is changed in key-lock condition.	Discontinue to change parameter.
	Displayed when setting value is changed on SV2 control.	Alternately this and SV/PV display are shown.
	Displayed when setting value is changed on SV2 control.	Discontinuity to change setting value (during control of SV2)
	Displayed when making setting value change in control display while function key is on RUN/READY.	Discontinuity to change setting value of the self on digital input
	Displayed when altering setting value in control display while being on timer.	Discontinuity to change setting value

*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.