

SM Series Users' Manual

1 Model types

Model name	SM-960n	SM-940n	SM-490n
Outer size	W96x H96xL107	W96x H48xL107	W48x H96xL107
Panel size	W92x H92+0.6	W92x H45+0.6	W45x H92+0.6
Input	K.J.T.R.C.RTD.Humidity.DC1~5V.0~10V.4~20mA		
Output	3 types of relay. 2 types of current(SSR convertible). RS485		

2 Caution

Warning

Safety device should be attached before using this product when there is any risk of major damages or injuries.

Danger

- Electronic shocks: Do not touch AC terminal while current flows.
- Turn OFF the power when checking.

Caution

- Do not tamper with the product in arbitrary way.
- Prevent dust, water, grease, and wiring dregs from coming into the product.
- Check the load capacities and the switching frequencies of relay, for duration of relay depends on them.
 - mechanical duration: a million times
 - electrical duration: a hundred thousand times at AC 250V AC 2A load
- Keep the wire of this product away from the high tension lines, power lines, and motor lines in order to avoid inductive noise.
- When connecting thermocouple and controller, use the regulated compensating wire for the extension part.
 - Error may occur in connection part, if using general wire.
- When using RTD sensor, connection should be made in 3 wired system. In the case of extension, make sure to use wires that share the same length and thickness.
 - Error may occur when circuit gets longer(Max 3M), though properly connected as above.
 - If error occurs, compensate the error by using BIAS compensation function.
- Turn OFF the power when lightning strikes.

3 Product Specification

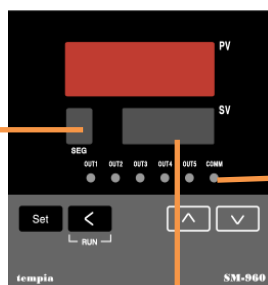
Model Construction	■OUT1: relay ■OUT2: relay ■OUT3: relay ■OUT4: Current., SSR ■OUT5: Current ■Communication : RS485 Communication ■Program Control: 3 Pattern 20 Segment ■Remote Function ■ 250mS
Sampling Period	
Allowable Signal Source Resistance	■Thermocouple: below100Ω Voltage: below 2KΩ
Allowable Line Resistance	■RTD: below 5Ω
Allowable Input Voltage	■within 10V
SSR Output	■ON Voltage: about 24 VDC(load resistance over 600Ω, limited at 30mA when disconnected) ■OUT4 (Basic SPEC) : OFF:0mA ON: 20mA OUT1~OUT3 are optional
Current Output	■Range: 4~20mA DC ■Load resistance: below 600Ω ■ambient temperature: 0~50℃, ambient humidity : 20~85%
Normal Operation Condition	■Thermocouple, Voltage Input: ±1μV/℃ or ±0.01% of maximum range ■RTD Input: below ± 0.05Ω/℃ ■Power Supply : 100~240V AC(within ±10%) 50~60Hz ■Power Consumption: 6.0W, below MAX.10VA
Influence of Ambient Temperature	
Power Specification	

4 Input Sensor

Input type and range

Input signal	Input type	Input code	Range	Grade
Thermocouple	K	<i>E</i>	-200~1370	±0.3% of total range
	K	<i>E.dot</i>	-199.9~600.0	
	J	<i>J</i>	-200~1200	
	T	<i>t</i>	-199.9~400.0	
	R	<i>r</i>	0~1700	
	C(W)	<i>C</i>	0~2300	
RTD	PT	<i>Pt</i>	-199.9~600.0	±0.3% of total range
Humidity	HUM	<i>HUñ</i>	0.0~100.0	±3% (valid range 20~90%)
DC Voltage	1~5V	<i>BIS</i>	-1999~9999	
	0~10V	<i>BID</i>	-1999~9999	
DC Current	4~20mA	<i>ñA20</i>	-1999~9999	

SEG code	OUT1 type
<i>H</i>	Heating ON/OFF
<i>C</i>	Cooling ON/OFF
<i>P</i>	Heating PID
<i>L</i>	Cooling PID
* <i>ā</i> (blink)	Current Quantity
* <i>r</i>	Remote control
<i>R</i> (blink)	Auto Tuning



OUT1 : Output1 (Relay)
 OUT2 : Output2 (Relay)
 OUT3 : Output3 (Relay)
 OUT4 : Output4 (Current output)
 OUT5 : Output5 (Current output)
 COMM : RS485 Communication

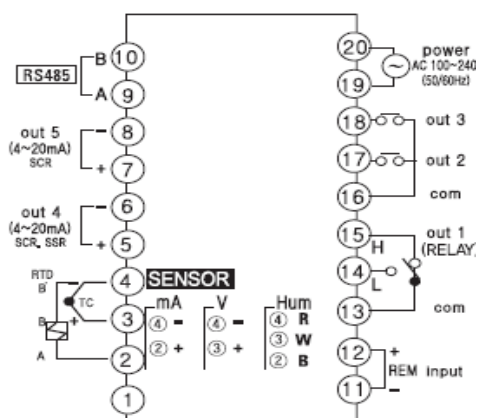
Current output, if out4,5 lamp blink
 The slower the blinking is, the less the current value is

'*' mark represents no OUT1
 (refer to special function)

Target Temperature(SV) change: Bottom screen(SV) blinks, If press 'SET' button once. At that moment, press ▲, ▼, and ◀ button to change set value

Button Type	Function
	<ul style="list-style-type: none"> ▶ line shift and auto tuning ▶ Auto tuning operates if press it for 3 sec in each output mode ▶ Auto tunin stops, if press it for 3 sec during auto tuning *refer to 12. Auto Tuning
	<ul style="list-style-type: none"> ▶ If press it once, SV blinks. Press ◀, ▲, ▼ button to change SV value of OUT1 ▶ Enter Output group by pressing it for 3 sec. Return by pressing it for 3 sec ▶ Move to next parameter, by pressing it once after entering each group
	<ul style="list-style-type: none"> ▶ Change function and up/down the set value
+	<ul style="list-style-type: none"> ▶ Enter Input group by pressing them at the same time for 3 sec

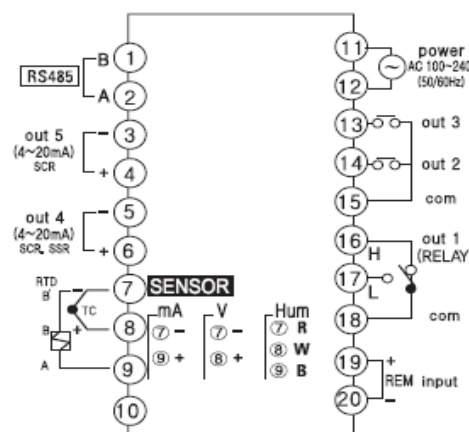
SM-960N



Caution! Please connect after turning power OFF

- Thermalcouple(K.J.R...) : 4-, 3+
- RTD sensor(PT): Connect A with a single wire of other colors, Connect B and B' with two wires of the same color
- Current Input: 2+, 4-
- Voltage Input: 3+, 4-
- Humidity Sensor Input: 2 with black, 3 with white, 4 with red
(Refer to website for types of Humidity Sensor)
- Current Output4: 5+, 6- (Voltage 1-5V output uses 250Ω *1/4W resistance)
- Current Output5: 7+, 8-
- OUT1 Relay Output: 13, 14
- RS485 Communication: 9, 10
- Remote Input: 12+, 11-

SM-490/940



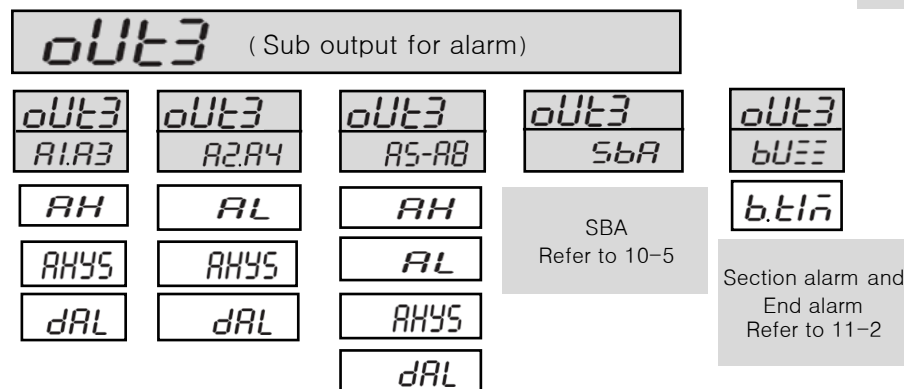
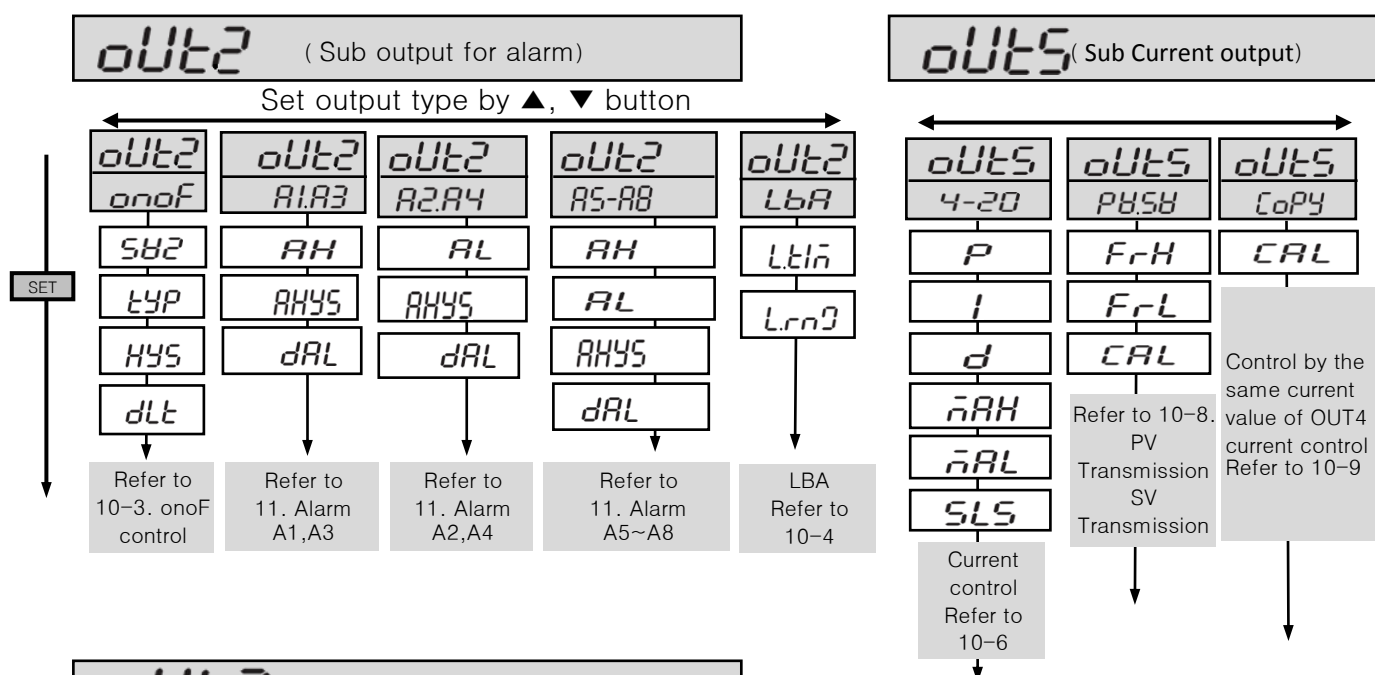
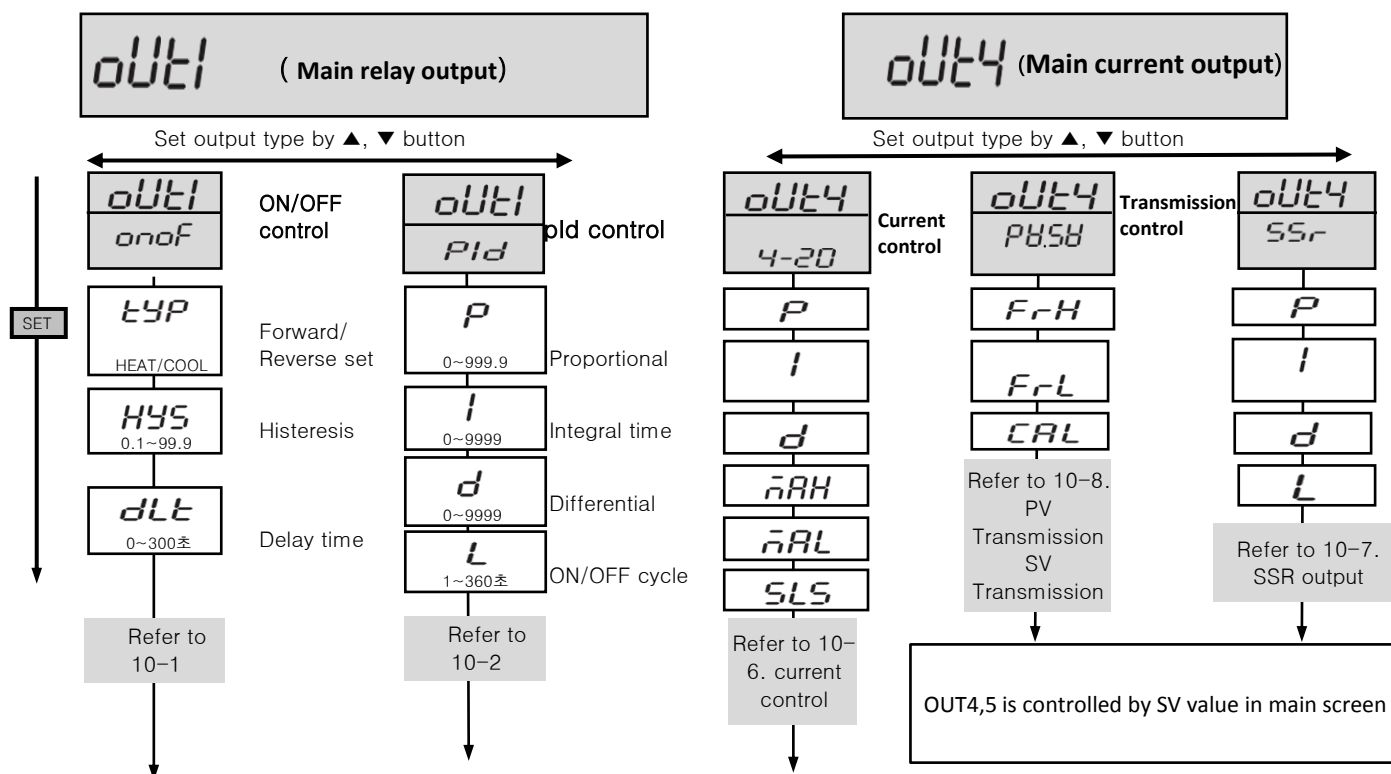
- Thermalcouple(K.J.R...) : 7-, 8+
- RTD sensor(PT): Connect A with a single wire of other colors, Connect B and B' with two wires of the same color
- Current Input: 9+, 7-
- Voltage Input: 8+, 7-
- Humidity Sensor Input: 9 with black, 8 with white, 7 with red
- Current Output4: 6+, 5- (Voltage 1-5V output uses 250Ω *1/4W resistance)
- Current Output5: 4+, 3-
- OUT1 Relay Output: 17, 18
- RS485 Communication: 1, 2
- Remote Input: 19+, 20-

Input Group

- Input group contains sensor type option and auxiliary functions not frequently used
- To enter Input Group: Press 'SET' button & ▲ button for 3 sec at the same time
- Parameter shift among groups: Press 'SET' button once
- Value(Function) Change: Press ▲ ▼ button
- Save and Return: Press 'SET' button for 3 sec
- " -- ➡ " : Parameter on the dotted arrow route is not displayed, if the related function is not selected

Parameter	Function
<div>In</div> <p>Input Sensor</p>	<p>Available Input Sensor : PT, K, (K.dot), J, T, R, C, HUM V15, V10, MA20</p> <pre> graph TD PONT --> SCH SCH --> SCL </pre> <p>PONT Decimal : Range 0~2</p> <p>SCH Scale "High"</p> <p>SCL Scale "Low": Set Scale "High" or "Low", if you select V15(1~5V), V10(0~10V), MA20(4~20mA)</p> <div style="border: 1px solid black; padding: 5px;"> <p>ex1) PONT:0 SCH :100 SCL:0 display 0~100 ex2) PONT:1 SCH :200 SCL:0 display 0.0~20.0 ex3) PONT:2 SCH :5000 SCL:0 display 0.00~50.00</p> </div>
<div>FILT</div>	<p>Measurement Value Filter(0~9) : Function to reduce the fluctuation of display value that might occur when it is installed at strong noise place, which is the characteristics of digital device. (The higher display value, the less fluctuation with display speed slowing down)</p>
<div>BIAS</div>	<p>Measurement Value Compensation(-50~50): Compensate the error due to too long or old sensor wire ex1)Display 60 if you set BIAS at 10, when the current measurement value is 50 ex2)Display 40 if you set BIAS at -10, when the current measurement value is 50</p>
<div>SETH</div> <div>SETL</div>	<p>Set the Highest Limit: If you set SETH value, SV value cannot be set above the configured value</p> <p>Set the Lowest Limit: SV value cannot be set below the configured value ex) If set at SETH:100, SETL:-10, SV can be set only between -10 and 100</p>
<div>Conn</div>	<p>Computer Remote Control: OFF(computer communication not used) : ON(Communication used) 1) Adr: Communication ID Number (assign 1~999 for each product) 2) bPS: Communication Speed (select among 2400, 4800, and 9600)</p> <p>*255 units of products can be connected with one computer *Refer to the website for the protocol and monitoring program for demo</p>
<div>rEn</div>	<p>■Remote Control: Control SV by DC4~20mA from external</p> <p>OFF : not used ON : used only for special cases(refer to special function S-c)</p>
<div>C--F</div>	<p>C: Celcius F: Fahrenheit</p>
<div>LoC</div>	<p>OFF: Lock cancelled IN: Lock only Input group ALL: Lock Input, Output, and Program group</p> <p>*If set as In or All, it is possible to enter the locked group but impossible to change the value</p>

- Output group contains control system and alarm selection
- Press 'SET' button for 3 sec to enter output group
- Press 'SET' button once to move into next parameters among group. Press ▲, ▼ button to change output types and functions
- Press 'SET' button for 3 sec after altering values to save and return



Same setting method as that of OUT2

10 Output Group Function

10-1.



■ **ON/OFF control:** OUT1 gets ON/OFF controlled, if set ONOF in OUT1

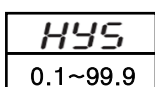
Parameters suitable for ON/OFF appear as sub function



■ If press 'SET' once after setting OUT1 as ONOF, TYP at top screen

and either HEAT or COOL at bottom screen will be displayed

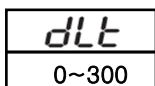
– Set HEAT for heating control or COOL for cooling control, by pressing ▲, ▼ button



■ If press 'SET' once after setting TYP, HYS at top screen and numbers of 1~99(0.1~99.9) will be displayed

– HYS represents the range between relay ON and relay OFF

– Set appropriate variation, by pressing ▲, ▼ button



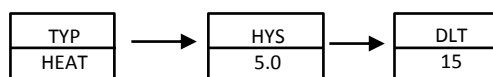
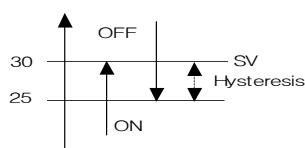
■ If press 'SET' once after setting HYS, DLT at top screen and numbers of 0~300

at bottom screen will be displayed

■ **DLT operates after delayed time(sec) set in DLT**

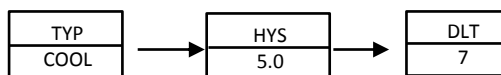
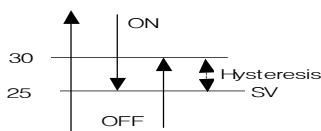
(Output lamp blinks during delaying time)

ex1) SV is set 30.0 and others as below,



→ It will operate at 25.0 after delaying for 15 sec as ON/OFF control heating type, and stop at 30.0

ex2) If SV is set at 25 and others as below



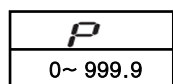
→ It will operate at 30.0 after delaying for 7 sec as ON/OFF control cooling type, and stop at 25.0

10-2.



■ If OUT1 is set as PID, OUT1 release PID control signal,

and parameters suitable for PID control are displayed at sub mode of OUT1



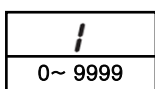
■ If you operate Auto Tuning, appropriate PID value will be automatically saved after considering the current heating characteristics(refer to 4-1)

■ If over-shooting occurs after executing Auto Tuning, Please manage PID value manually

• If P value is set higher: the speed gets slower while over-shooting decreases

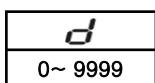
• If P value is set lower: the speed gets faster while over-shooting increases

• If P value is set '0', you can control ON/OFF (Refer to 12. Auto Tuning)



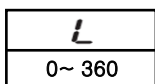
■ **Integral Value:** adjust proportional width with P value, and then adjust the speed with I value

The less integral value, The faster the speed



■ **Differential Value:** When the small periodic hunting occurs, Please lower D value

* Set I or D value for special cases. In general, it can be controlled appropriately by the value of Auto Tuning



■ **Control Period Cycle:** It represents time for repeating output On and OFF one by one

• If you set the cycle short, you can control precisely but the relay life time will be reduced (10~30 sec is proper)

10-3.



■ If press 'SET' once after finishing OUT1 mode, OUT2 mode shows up

– OUT2 contains functions such as ONOF, A1~A8(general alarm), and LbA(Loop Break alarm)



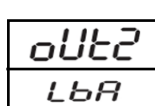
■ If Press 'SET' once after setting OUT2 as ONOF, SV2 at top screen

and target temperature at bottom screen will be displayed

– SV2 is separate target value from SV in OUT1. It works separately with no regard to OUT1

– TYP,HYS,DLT share same setting method as that of OUT1

10-4.



■ Press ▲, ▼ to set LbA(Loop Break Alarm) in OUT2 group

LbA (Loop BreakAlarm) : Function to check whether the controlled device has problem or not

LbA output will be ON, when there is no temperature change during time set at LbA by monitoring the temperature through the temperature sensor after controller send the operating signal

► **Major cause of LbA ON**

① Disconnection or break of sensor wiring

(*LbA will be immediately ON when "----" is displayed due to the break of sensor wiring)

③Abnormal load on heater and cooler ④Disconnection, wrong connection or damage of external wiring

►LbA Output will be OFF, when the problem is solved and the device is properly operated

L.ti \bar{n}

■If press 'SET' button once after selecting LbA, L.TiM at top screen and time(1~3600)
at bottom screen will be displayed

–L.TiM : Loop Break Monitoring Time

L.rn \bar{G}

■If press 'SET' button once after setting L.TiM, L.rnG at top screen and numbers of 0~30
at bottom screen will be displayed

–L.rnG : Alarm range

ex) L.tiM: 60 L.rnG: 2

LbA operates, when there is no temperature change over 2°C after heating or cooling for 60 sec

10-5.

oUt3
SbA

■Sensor Break Alarm(SBA): Set SBA by pressing ▲, ▼ button after entering OUT3

SBA (Sensor Break Alarm) :

"----" will be displayed at top screen(PV) and SBA signal is made at OUT3, when the sensor is disconnected or incompatible sensor is connected. SBA output will stop, if sensor is properly connected.

*It can be recognized no sensor disconnection, if you connect the thermocouple sensor that share the same type as but different feature from one that you set at 'IN' of Input group

10-6.

oUt4
4-20

■OUT4, OUT5 is mainly for current control (OUT4– Main, OUT5– Sub)

–Setting: Press ▲, ▼ button one by one in OUT4 or 5 for current output

P
0~999.9

■If press 'SET' once in 4-20, P at top screen and numbers of 0~100.0 at bottom screen will be displayed

If press 'SET' again, I and D value, which is the sub function, show up

–If you operate Auto Tuning, appropriate PID value will be automatically saved after considering the current heating characteristics(refer to 12)

MAH

■Function to limit the maximum current value

ex) If you set MAH as 15, the maximum current value will not be higher than 15mA

MAL

■Function to limit the minimum current value

ex) If you set MAL as 8, the minimum current value will not be lower than 8mA

SLS
0~3600

■It represents slow start time to take from the first current, which operates the controller, to reach maximum value

■It represents slow start time to take from the first current, which operates the controller, to reach maximum value

– Used for the device which can be damaged by excessive current when turning on

*Unit: sec, Range: 0~3600

– If you input time, it means the time to take to reach maximum value(20mA)

ex)If you set SLS at 100, it takes 100 sec for current value to reach 20mA

10-7.

oUt4
SSr

■If OUT4 is set as SSr, OUT4 will be SSr output that releases 0mA and 20mA currents repeatedly

Sub parameters are the same as that of relay PID

10-8.

oUt5
PV.SV

■If you use OUT4,5 as Transmission output

– Select PV or SV by pressing ▲, ▼ button in OUT4, 5

– PV Transmission: Convert the detected value in PV screen to 20mA current

– SV Transmission: Convert the set value in SV screen to 4~20mA current

FrH

■If press 'SET' once after selecting PV
at bottom screen will be displayed

FrL

■Transmission Output "High"

CaL

■Transmission Output "Low"

■Function to compensate the error when it occurs(Range: –10.00~10.00)

– When you set FrH: 100, FrL: 0

4mA current will be transmitted at 0°C and 20mA current at 100°C

– when exceed the range of FrH and FrL

3mA current will be transmitted below 0°C and 21mA current above 100°C

10-9.

oUt5
CoPy
CaL

■Function to copy current: If OUT5 is set as COPY, OUT5 outputs the same current as that of OUT4

■Function to copy current: If OUT5 is set as COPY, OUT5 outputs the same current as that of OUT4

– If press 'SET' once after setting OUT5 as COPY, CaL at top screen

and numbers of –10.00~10.00 at bottom screen will be displayed

– Function to compensate the current error that might occur (Range:–10.00~10.00mA)

11 Alarm


Select & Use the appropriate alarm among A1–A8 at OUT2,3


Code	Alarm Type	Function
A1	Absolute Alarm High	<p>■ Alarm operates above the set value of AH alarm ex) If SV is set at 100 and AH at 120, alarm works above 120 AH value is fixed at 120 even though SV value is changed, which is called 'Absolute Alarm'</p>
A2	Absolute Alarm Low	<p>■ Alarm operates below the set value of AL alarm</p>
A3	Variation Alarm High	<p>■ Alarm operates above AH value with regard to changed SV value ex) If SV is set at 100 and AH at 5, alarm works above 105 when SV is changed into 200, alarm works above 205, which is called Variation Alarm</p>
A4	Variation Alarm Low	<p>■ Alarm operates below AL value with regard to changed SV value</p>
A5	Absolute Alarm High & Low	<p>■ Alarm operates both above and below the set value of AH and AL alarm each AH: Absolute Alarm High AL: Absolute Alarm Low ex) If AH is set at 100 and AL at 50, alarm works above 100 and below 50 tip) AH value is higher than AL value.</p>
A6	Variation Alarm High & Low	<p>■ Alarm operates both above AH and below AL value with regard to changed SV value AH: Variation Alarm High AL: Variation Alarm Low ex) If SV is set at 100, AH at 8, and AL at 10, alarm works above 108 and below 90 When SV value is changed, alarm works according to the changed value</p>
A7	Absolute Alarm within Range	<p>■ Alarm operates between AH value and AL value (Setting method is same as A5) ex) If AH is set at 100 and AL at 50, alarm works between 100 and 50 tip) AH value is higher than AL value</p>
A8	Variation Alarm within Range	<p>■ Alarm operates between AH value and AL value with regard to changed SV value ex) If SV is set at 100, AH at 8, and AL at 10, alarm works between 108 and 90</p>
<p>* HHYS Alarm I-Set the range of 1–30 to prevent the relay vibration problem that results from the same starting & finishing time</p> <p>* DAL (delaying Alarm): Alarm signal doesn't work when the value is within the set range of alarm output at the moment of turning on. It works when the value accord with the set range of alarm output once again after detached from the range</p> <p>OFF : DAL not used ON : DAL used</p>		

12 Auto Tuning

■ PID AUTO TUNING is the control preparation that enables quick response and precise control. It is to calculate PID modification numbers for the optimal control and to set the value by measuring the thermal characteristics and thermal response speed of various controlled device.


■ Auto tuning should be done at the first stage after attaching the controller

■ when OUT1 is main output: Press  button for 3 sec after setting PID in OUT1 to operate auto tuning

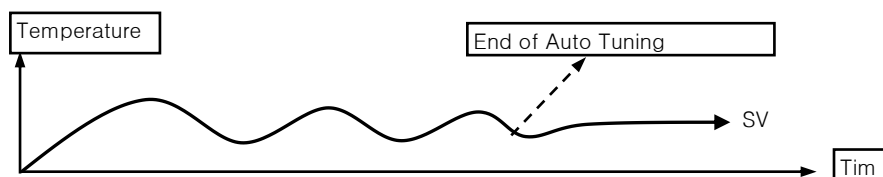
■ when OUT4 is main output: Press  button for 3 sec after setting 4~20,SSr in OUT4 to operate auto tuning
Whatever output you choose, OUT1, 4, 5 share PId value (It follows SV at display screen)

■ It is impossible to operate auto tuning in program control mode. Tuning should be done in general control (FIX control mode)

■ If one of OUT1, 4, 5, which don't operate auto tuning, is set as PId, CPID, 4~20, 20~4, SSr,
Auto tuning does not work in that output

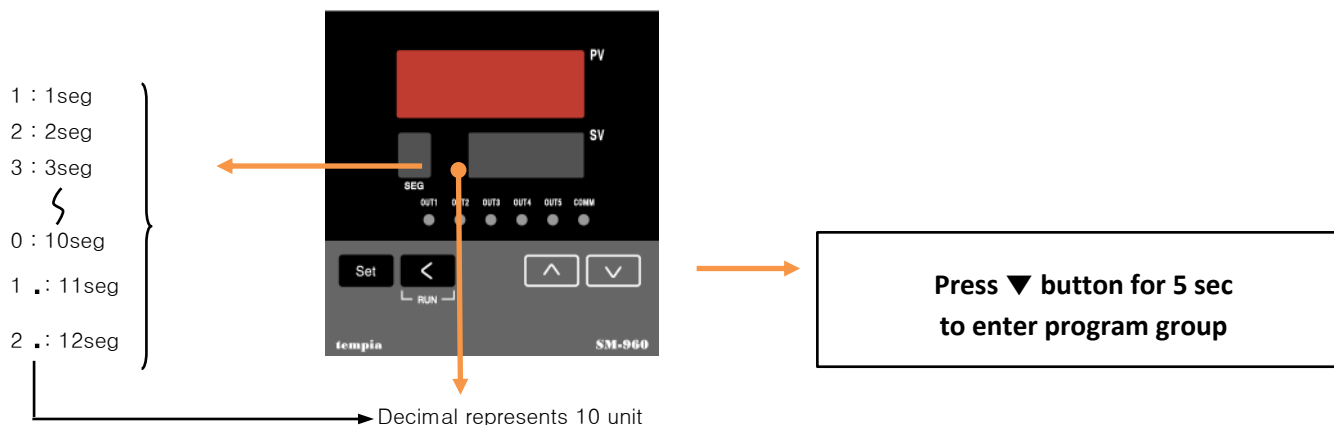
■ Press  button for 3 sec to stop auto tuning

■ Lamp blinks with 'A' displayed in SEG screen, while auto tuning is operating



- * Auto Tuning finishes after repeating On and OFF 3 times in 90% of SV value
- * 'A' in SEG screen disappears when auto tuning is done

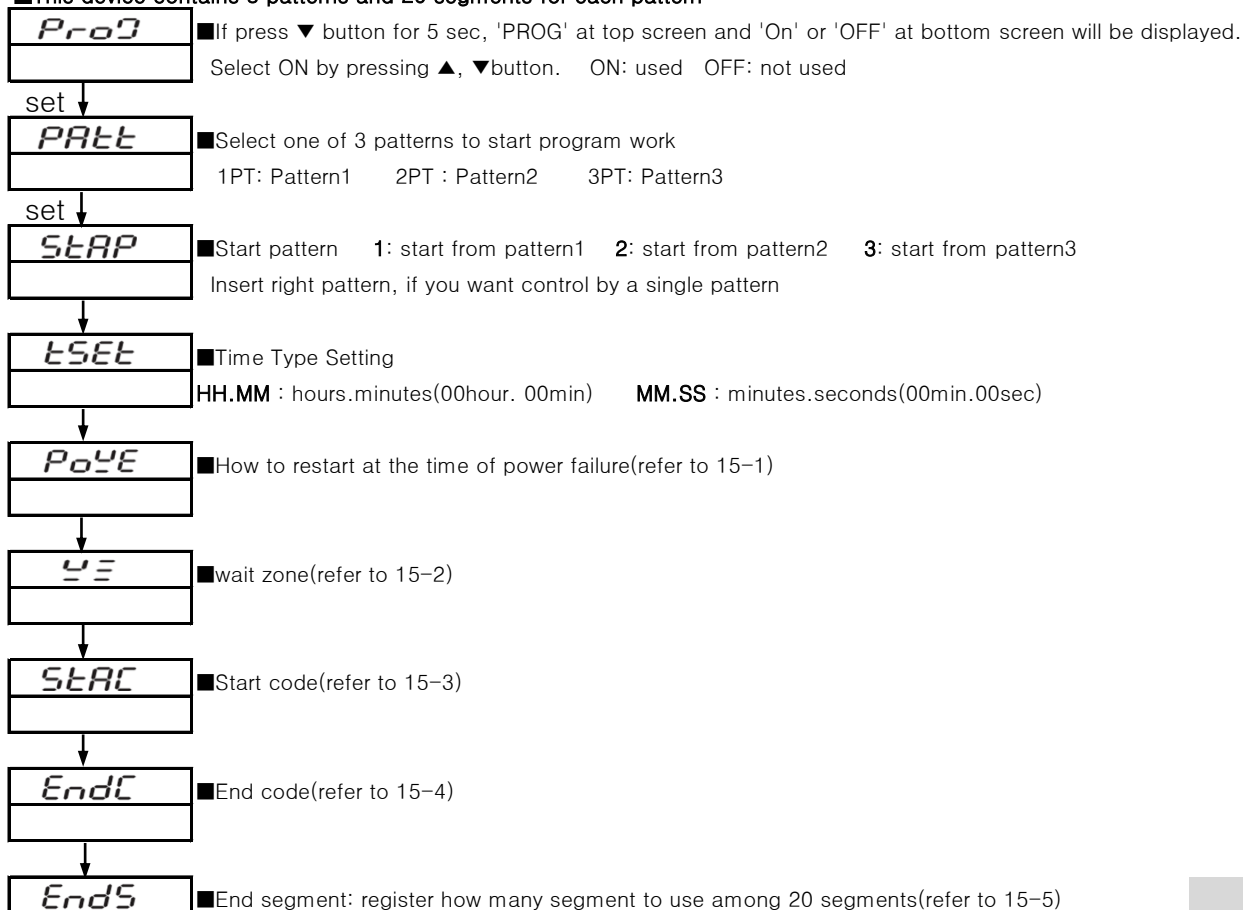
Display of program control and function of button

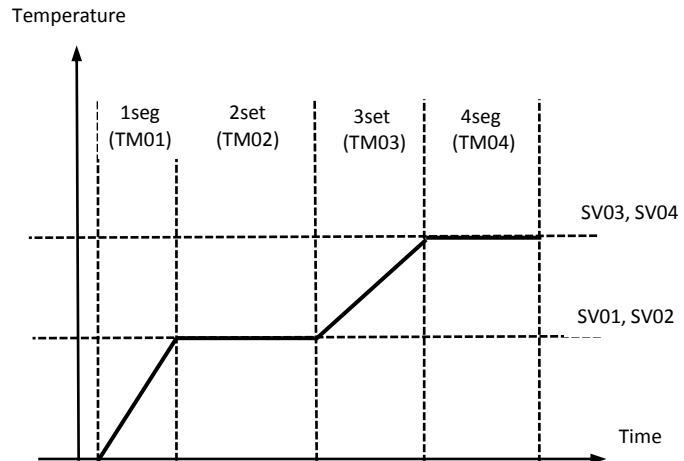
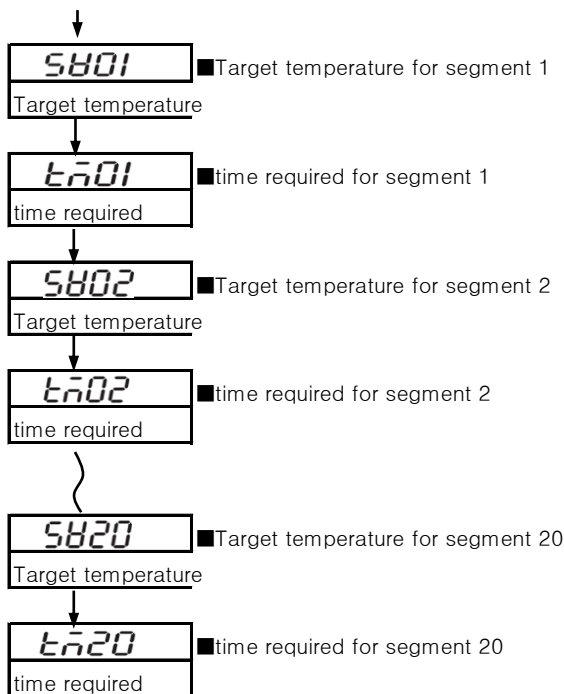


Button type	Function
	<ul style="list-style-type: none"> Program control operates if press this button for 3 sec after returning to main screen Hold the current SV value if press it once during operation <ul style="list-style-type: none"> current segment blinks in SEG screen, when holding(re-operate, if press it once) Program stops if press it for 3 sec Hold or stop, if you want to modify program or convert into general function
	<ul style="list-style-type: none"> If press it for 3 sec after setting, you can save the altered data and return to main screen If press it for over 3 sec, you can enter output group. Move to next parameter if press it one by one after entering If press it for 3 sec after entering output group, you can save the altered data and return to main screen
 	<ul style="list-style-type: none"> Press ▼ for 5 sec to enter program mode in main screen Up/down the value of each mode If press ▲ while program is operating, you can check the state of currently operating program

14 Program Group Setting

■ This device contains 3 patterns and 20 segments for each pattern





.If press 'SET' button for 3 sec after program setting, you can save the altered data and return to main screen
 .If press button for 3 sec in main screen, you can operate program that has been altered
 .If press button once during operation, it holds the current SV value. If press it again while holding, re-operate
 .If press button for 3 sec during operation, it stops at early stage. At that moment, PV screen displays current temperature, while SV screen displays "STOP" or "ALST" according to ENDC
 Nothing is display at SEG screen

15 Program Function

- 15-1. POWER: Select how to restart after recovering from power failure during operation
 ■ -restart from the beginning of progressing segment(The time of progressing segment is ignored)
 ■ -restart and stop of OUT1,4
 ■ -restart from the stopping point of progressing segment

(operating the remaining time except for the progressed time of segment)

- 15-2. ■ WAIT ZONE: Range(0~20.0)
 ■ WAIT TIME: Range(00:00~99:59) WTIM will not be displayed, if wait zone is set at 0
 ■Function to wait until PV value reaches target value without moving to next segment,
 if PV value didn't reach to the target value even though setting time of current segment is finished up

ex) WZ: 5 , WTIM : 20

It waits for 20 minutes without moving to next segment, if PV value does not reach within the range of 5°C of SV value

*When either WZ or WTIM is set at 0, wait function does not work.

(The number of segment in SEG screen blinks while wait function is working)

- 15-3. START CORD: Start Condition of the program
 ■ : The first segment time starts at the current temperature
 ■ : The first segment time starts at set temperature
 -If press 'SET' after selecting SSV, 'SSTP' at top screen and the number at bottom screen will be displayed
 the number will be the starting point, if you insert SSTP value by pressing ▲, ▼ button
 ex) If SSTP is set at 100 and current temperature is 50°C, the first segment starts at 100, not at 50

- 15-4. END CODE: End condition of the program
 ■ : Stop only main output(OUT1,4)
 ■ : Stop OUT1,2,3,4,5 all (But, End Alarm works)
 ■ : Keep the temperature of the last segment(SEG screen revolves)
 ■ : repeat in the same pattern 0: repeat indefinitely 1: only once without repetition
 2: repeat twice ~ ~ ~ 99: repeat 99 times
 ■ : Link from one pattern to another

(One pattern consists of 20 segments, and there are 3 patterns)

:You can link the next pattern, if you need more after using up all the 20 segment of a pattern

-If press 'SET' after selecting , one of 1PT, 2PT, 3PT is displayed. Select the pattern to link by pressing ▲, ▼

1PT : Link to Pattern1 2 PT : Link to Pattern2 3PT : Link to Pattern3 (Current pattern is not displayed)

Follow the setting condition of next pattern if linked to the next pattern

15-5. **EndS** END SEGMENT

- If you want to use 7 segment among 20 segment, insert 7 to make 7 segment the last segment
- Insert the number of segment to be used, or error might occur

16 Sub Function of Program

16-1. **BUZZ** : Program End Alarm

- If select 'BUZZ' in OUT3, 'b.TIM' at top screen and numbers of '00.00~03.00' will be displayed
- The number is the alarming time(Minutes.Seconds) after program ends
- ex) If b.TIME is set at 02.30, Alarm operates for 2 minutes 30 seconds after program ends

16-2. To check the states of program control currently operating

- If press **▲** button while program is working, 'SEG' will be displayed. If press **▲** button one by one after that, it is displayed as follows

SEG → **tEñP** → **tIñE** → **CUrr** → **PArt** → **rEPt** → **LIñt** Main screen

It returns to main screen, if there's no DISP manipulation for over 10 sec

- **SEG** : Segment number of currently operating program

- In order to ignore the currently progressing segment and to move to next segment,

Press 'SET' and **▲** button at the same time for 3 sec. Press 'SET' and **▼** button to move to the previous segment.

- **tEñP** : Target temperature of currently progressing segment

- **tIñE** : Remaining time of currently progressing segment

- **CUrr** : display of OUT4 current output(4~20, 20~4, PV, rPV, SV, rSV are displayed, if in case)

- **PArt** : Pattern number of currently progressing program

- **rEPt** : repeated number of pattern that is currently progressing(containing the current pattern)

- **LIñt** : the number of next pattern, in case of link from a pattern to another (nothing is displayed, if there's no link)

