MULTISPAN TEMPERATURE CONTROLLER UTC-4201A

PV = Process value
SV = Set Value

TECHNICAL SPECIFICATION

INPUT SPECIFICATION:

Input Types	**Input**	**Range**
	J	0 to 600°C,
	K	0 to 1200°C,
	PT-100	-99 to 400°C,
	PT.1	-99.9 to 400.0°C,
Resolution	J,K,PT-100 = 1°C	
	PT.1 = 0.1°C	
Indication Accuracy	±1% of FSD ± 1°C (FSD:- full scale deflection)	

DISPLAY AND KEYS:

Display	Upper: 4 digit, 7 segment, 0.56" Red Lower: 4 digit, 7 segment, 0.33" Green
Keys	SET, INC, DEC, ENT

DIMENSION:

Size	48 (H) x 48 (W) x 95 (D) mm
Panel Cutout	45 (H) x 45 (W) mm

CONTROL METHOD:

Heating	1) PID control with Auto-Tuning 2) ON-OFF control
Cooling	1) BL.TP (Blower Time Proportion) 2) ON-OFF control
Alarm	Inband, Absolute Outband, High, Absolute Low

OUTPUT SPECIFICATION

	Relay Output
Relay	1 nos.
Relay Type	1 C/O (NO-C-NC)
Rating	5A, 230V AC/30 V DC
Analog Output	0 TO 10V DC

AUXILIARY SUPPLY:

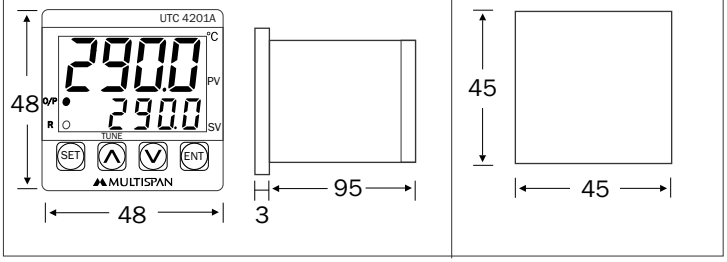
Supply voltage	100 to 270V AC, 50-60Hz
Power consumption (VA RATING)	Approx 4 VA @ 230V AC MAX

ENVIRONMENT CONDITION:

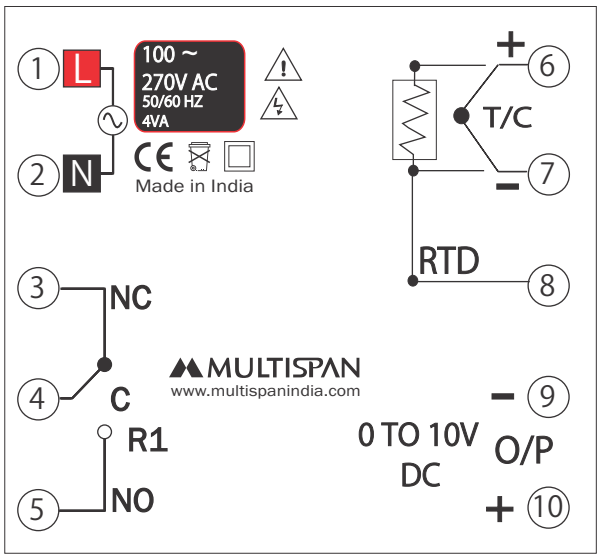
Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)
Protection Level	IP-65 (Front side) As per IS/IEC 60529 : 2001

MECHANICAL INSTALLATION

Outline Dimension (mm)	Panel Cutout Dimension (mm)

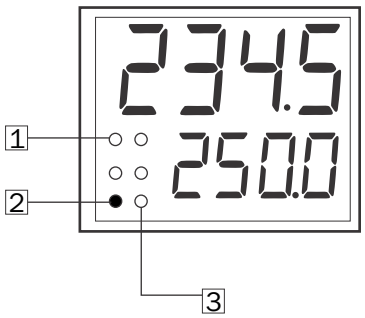


TERMINAL CONNECTION



MIMIC COMPONENTS
5 Ramsay Street, Booysens 2091, Johannesburg
sales@mimic.co.za www.mimic.co.za
P.O. Box 38493, Booysens 2016, Johannesburg, South Africa
TEL: +27(0)11 689-5700

STATUS LED DESCRIPTION



1 - Analog output

2 - Relay Output

3 - Auto tuning

KEY OPERATION

FUNCTION	PRESS KEY
OPERATOR MODE	
To enter in parameter setting	SET
For start/stop PID auto tuning	∧ Press 6 sec
To go in factory setting mode	∧ + ∨ Press 3 sec
PARAMETER SETTING MODE	
To set parameter value	SET
To increment parameter value.	∧
To decrement parameter value.	∨
Set parameter to be save & exit.	ENT

INSTALLATION GUIDELINES

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
4. Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown above.
2. Fit the unit into the panel with the help of clamp given.
3. The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oils steam, or other unwanted process byproducts.
4. Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 1.2 N.m.
5. Do not connect anything to unused terminals.

MAINTENANCE

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
3. Fusible resistor must not be replaced by operator.

SAFETY PRECAUTION

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

Read complete instructions prior to installation and operation of the unit.

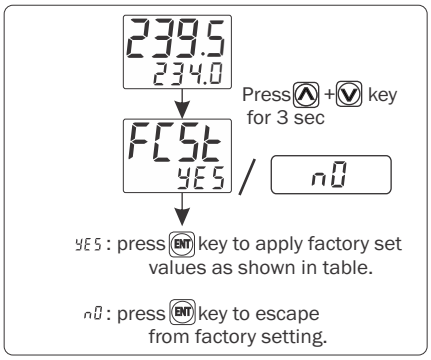
WARNING : Risk of electric shock.

WARNING GUIDELINES

WARNING : Risk of electric shock.

1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
3. Cable used for connection to power source, must have a cross section of 1mm or greater. These wires should have insulations capacity made of at least 1.5kV.
4. When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring for the RTD type, use a wiring material with a small lead resistance (5Ω max per line) and no resistance differentials among three wires should be present.
5. A better anti-noise effect can be expected by using standard power supply cable for the instrument.

FACTORY SETTING



FACTORY SETTING		
SR.	**PARAMETER**	**VALUES**
1	PB	20.0° C
2	IT	300
3	DT	75
4	CT	15 sec
5	MR	0°C
6	OFFSET	0°C
7	HYSTERISIS-1	3°C
8	C-PB	4.0° C
9	C-ON	1 Sec
10	C-OFF	48 Sec

PARAMETER MESSAGE DESCRIPTION

C.SEt	Controlling O/P Set Point
SEt	Set Point For O/P 1
LO'' 1	Low Set Point 1
HIG1	High Set Point 1
PASS	Password
InPt	Input (Sensor)
SLL	Set Low Limit
SHL	Set High Limit
OFSt	Offset
Pb	Proportional Band For PID Action
It	Integral Time Constant
dt	Derivative Time Constant
Ct	Cycle Time For PID Action
ñr	Manual Reset
C-Pb	Cooling PB
C-On	Cooling On Time
C-OF	Cooling Off Time
HYS 1	Hysterisis 1

PARAMETER MESSAGE DESCRIPTION

OUt 1	OutPut 1 Mode
Ctr 1	Control Action 1
ALñ 1	Alarm 1
S 1ñd	Set 1 Mode
r 1dL	Relay 1 Delay Time
ALtñ	Alarm Time
PI d	PID Action
OnOF	ON-OFF Action
bL.tP	Blower TP Action
HIGH	High Alarm
Ab-L	Absolute Low Alarm
I n-b	In Band Alarm
Ab-O	Absolute Out Band Alarm
HEAt	Heating Mode
COOL	Cooling Mode
ALrñ	Alarming Mode
OFF	OFF Mode
YES	Yes
nO	No
I ndI	Individual to Set 1
rLtu	Reletive to Set 1
FCSt	Factory Setting
AOUt	Analog Output
bASE	Basic Configuration
Pu	Retransmission O/P On PV
Su	Retransmission O/P On SV
4-20	Manual Selection Of 4-20 mA Analog O/P
PErC	Percentage wise Selection Of 4-20 mA Analog O/P (Manually)
COn	Controlling Output
LOPC	Low percentage
HI PC	High percentage
Frwd	Forword
rEur	Reverse

RANGE FOR CONTROL PARAMETER

SR.	PARAMETER	RANGE FOR J,K,PT-100	RANGE FOR PT.1 SENSOR
1	PB	0.0 to 999.9°C	0.0 to 999.9°C
2	IT	0 to 9999	0 to 9999
3	DT	0 to 9999	0 to 9999
4	CT	4 to 99 sec	4 to 99 sec
5	MR	-9 to 9°C	-9.0 to 9.0°C
6	OFFSET	-20 to 20°C	-20.0 to +20.0°C
7	HYS1	1 to 100°C	0.1 to 100.0°C
8	HYS2	1 to 100°C	0.1 to 100.0°C
9	C-PB	2.0 to 25.0°C	2.0 to 25.0°C
10	C-ON	1 to 20 sec	1 to 20 sec
11	C-OFF	5 to 200 sec	5 to 200 sec
12	R1DL	0.0 to 99.59 mm.ss	0.0 to 99.59 mm.ss
13	R2DL	0.0 to 99.59 mm.ss	0.0 to 99.59 mm.ss
14	ALTM	0 to 99 sec	0 to 99 sec

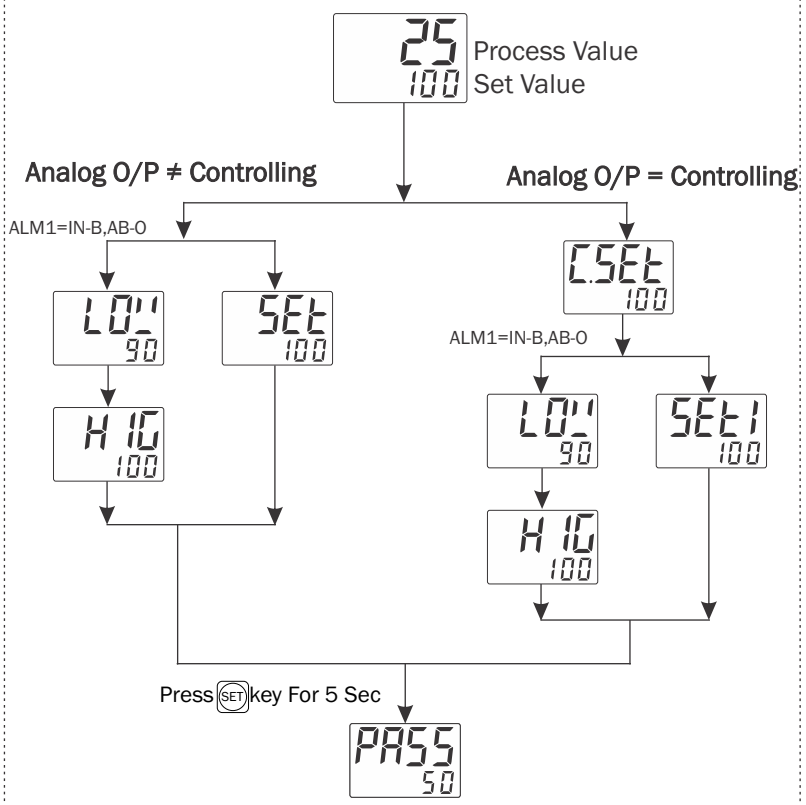
ERROR DISPLAY

When an error has occurred the display indicates error codes as given below.

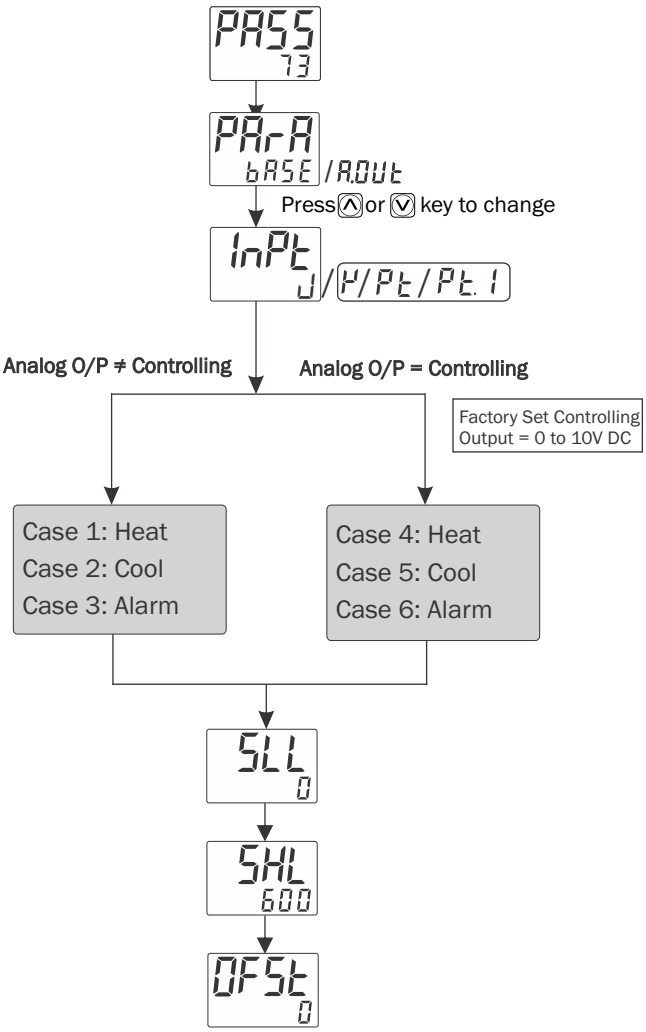
ERROR	MEANING
OPEn	Sensor is not connected Over range condition or sensor break
SrE	Sensor connection is reversed

PARAMETER SETTING

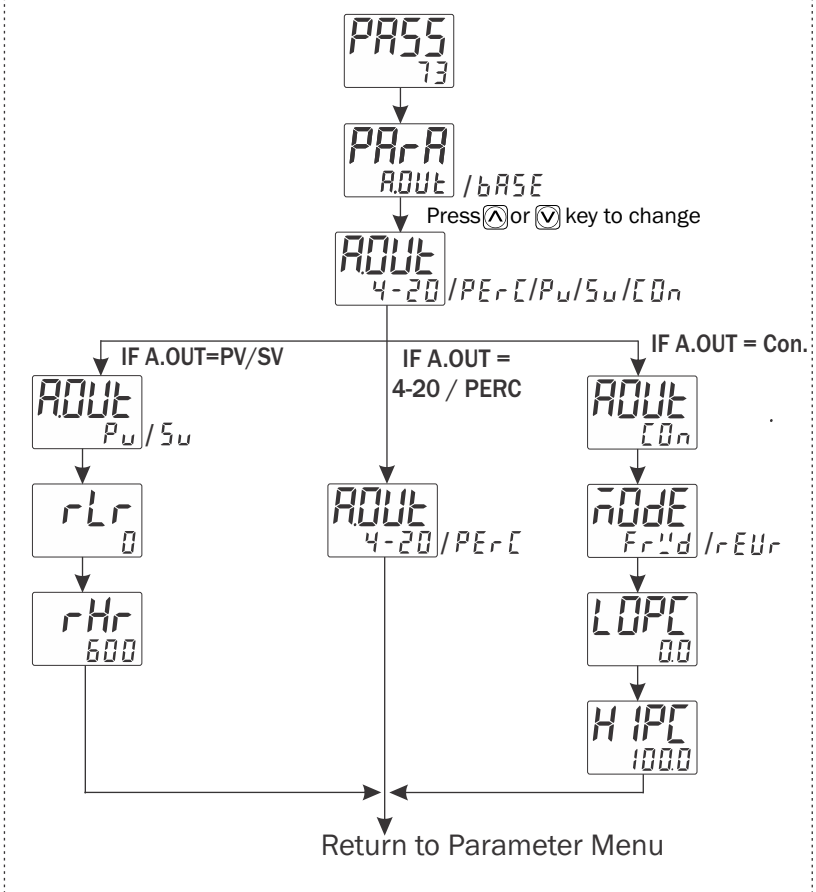
Set Point Setting



Basic Parameter

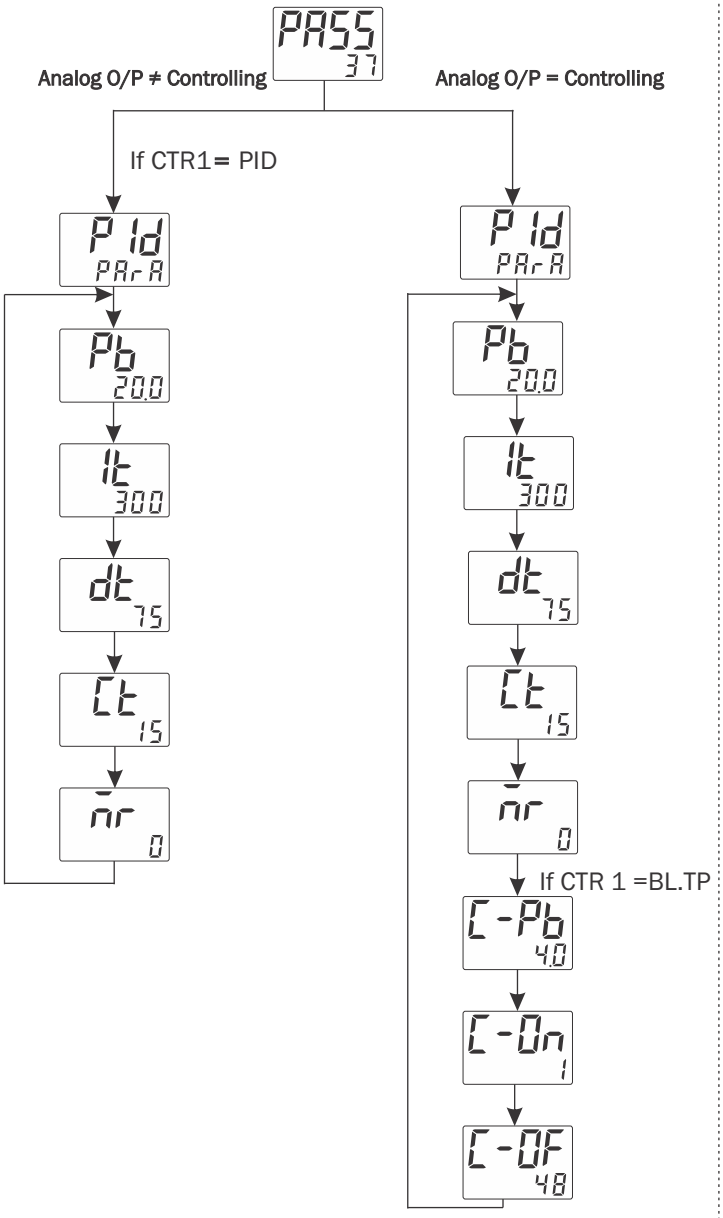


Analog Output Selection



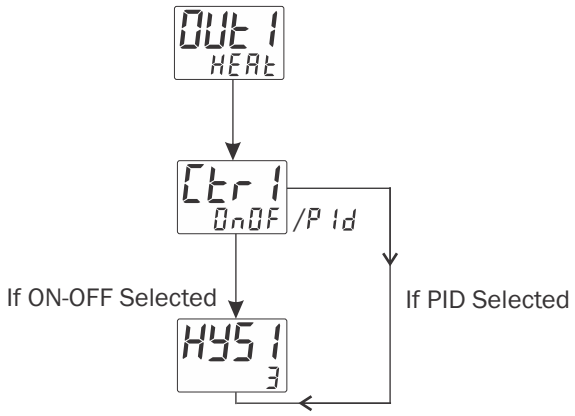
PARAMETER SETTING

Control Parameter Setting



Case - 1

Heat

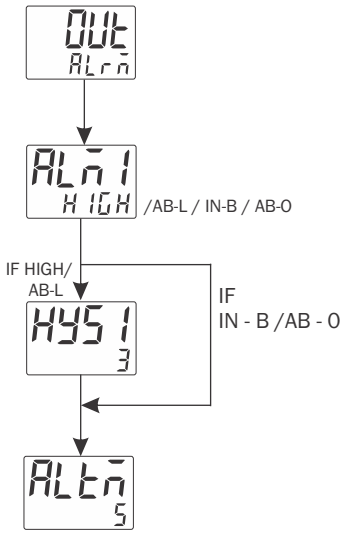


Case - 2

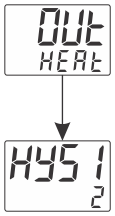
Cool

Case - 3 & 6

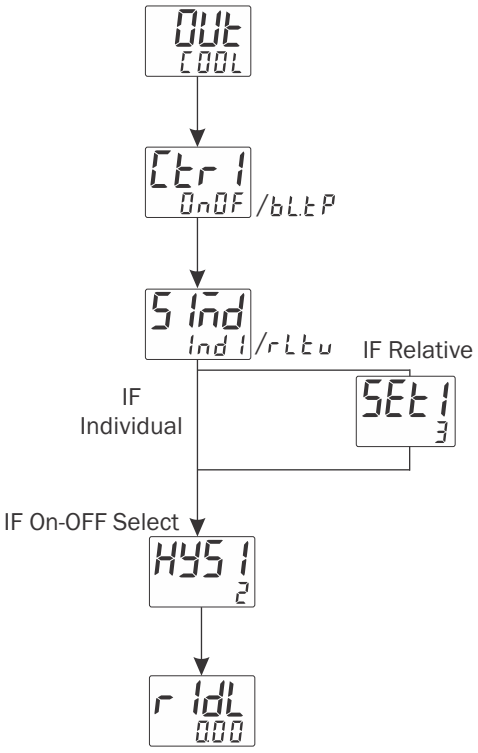
Alarm



Case - 4
Heat

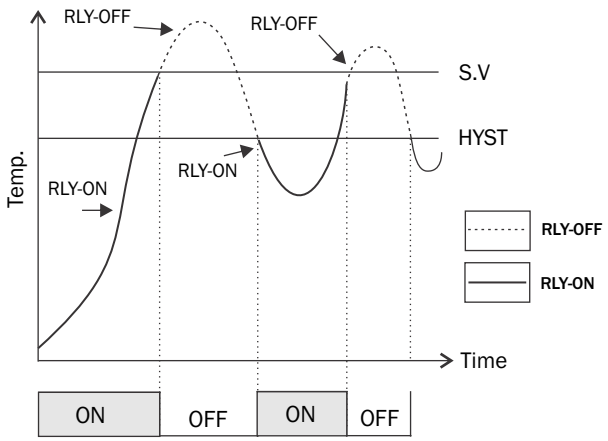


Case - 5
Cool

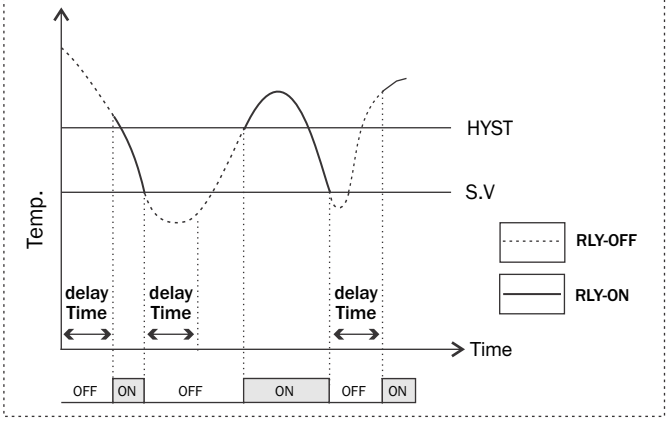


CONTROL FUNCTION

ON - OFF control (Heating)



ON - OFF control (Cooling)



Auto Tuning:-

→ The Auto-tuning function automatically computes and sets the Proportional band (Pb) , Integral time (It), Derivative time (dt), and cycle time as per process characteristics.

→ Tuning LED will turn “ON” during Auto-Tuning

→ If the power goes off before auto-tuning is completed, auto-tuning will be restarted at next power ON.