PROCESS & TEMPERATURE CONTROLLER

MULTISPAN PTC- 382

TECHNICAL SPECIFICATION

INPUT SPECIFICATION:

Input Types	Input	Range
Thermocouple	J	0 to 600°C
	K	0 to 1200°C
RTD	PT-100	-99 to 400°C
	PT.1	-99.9 to 400.0°C
Voltage	0-10V DC	-1999 to 9999
Current	0-20mA DC	-1999 to 9999
	4-20mA DC	-1999 to 9999
Resolution	J,K,PT-100 = 1°C	
	PT.1 = 0.1°C	
	0-10V DC,0-20mA DC,4-20mA DC = 0.1,0.01,0.001,0001	
Indication Accuracy	±1% of FSD ± 1 Count (FSD : full scale deflection)	

DISPLAY AND KEYS:

Display	4 digit,7 seg 0.8" RED
Keys	SET, ENT,INC,DEC

DIMENSION:

Size	51.5 (H) x 98 (W) x 84 (D) mm
Panel Cutout	46 (H) x 92 (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	High/Low/Inband/Outband/ Absolute Low/Absolute Outband

OUTPUT SPECIFICATION :

Relay Output	
Relay	2 nos.
Relay Type	1ST C/O (NO-C-NC) , 2ND C/O (NO-C)
Rating	5A ,230V AC/30 V DC
Transmitter supply	
24V DC	

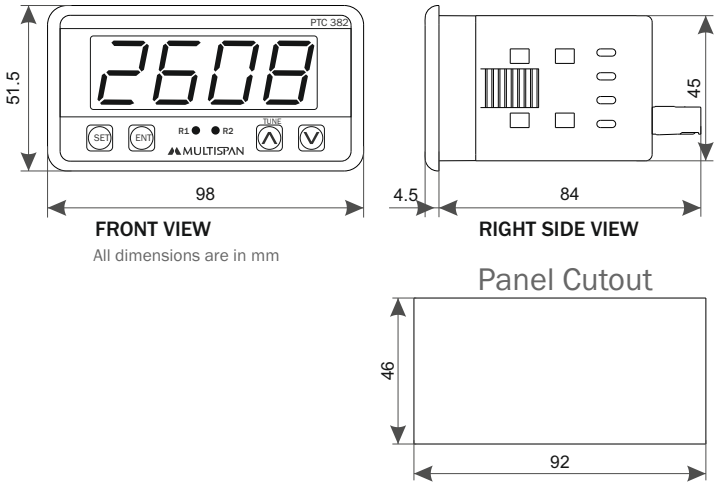
AUXILIARY SUPPLY :

Supply voltage	100 to 270V AC ,50-60Hz
Power consumption (VA RATING)	Approx 6 VA @ 230V AC MAX

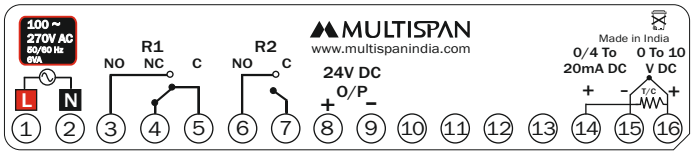
ENVIRONMENT CONDITION :

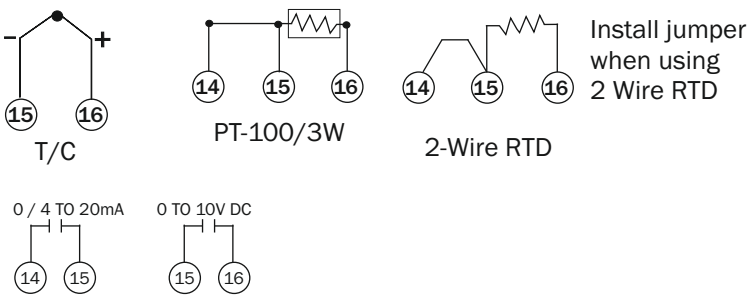
Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)
Protection Level	IP-65 (Front side) As per IS/IEC 60529 : 2001

MECHANICAL INSTALLATION

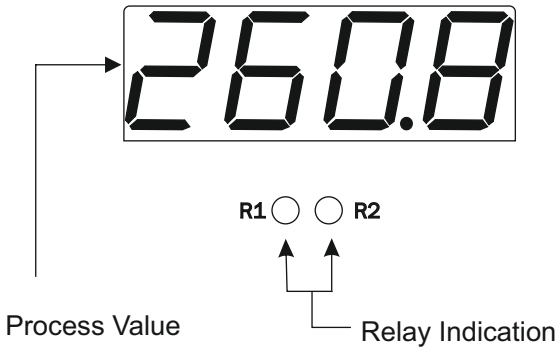


TERMINAL CONNECTION





DISPLAY INDICATION



KEY OPERATION

FUNCTION	PRESS KEY
OPERATOR MODE	
To enter in parameter setting	SET Press for 5 sec
For start/stop PID auto tuning	∧ Press 6 sec
To go in factory setting mode	∧ + ∨ Press 3 sec
To Reset soak process	ENT Long Press
PARAMETER SETTING MODE	
To set parameter value	SET
Set parameter to be save & exit.	ENT
To increment parameter value.	∧
To decrement parameter value.	∨

⚠ 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.

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 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 0.5 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.

INSTALLATION GUIDELINES

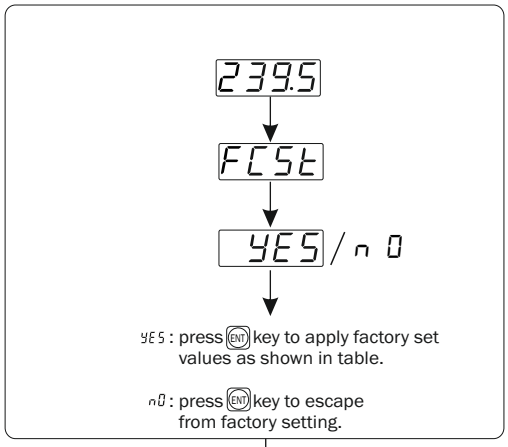
1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the 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.

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 $1mm^2$ 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	HYSTERISIS-2	3°C
9	C-PB	4.0° C
10	C-ON	1 Sec
11	C-OFF	48 Sec
12	CRFC	0

PARAMETER MESSAGE DESCRIPTION

SEt 1	Set Point 1 For O/P 1
SEt2	Set Point 2 For O/P 2
LOG1	Low Set Point 1
HIG1	High Set Point 1
LOG2	Low Set Point 2
HIG 2	High Set Point 2
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
rr	Manual Reset
C-Pb	Cooling PB
C-On	Cooling On Time
C-OF	Cooling Off Time
HYS 1	Hysterisis 1

PARAMETER MESSAGE DESCRIPTION

HYS2	Hysterisis 2
OUt 1	OutPut 1 Mode
SOAP	Soak Time Select
SPrd	Soak Mode
SPUt	Soak Unit
SPtr	Soak Time Value
rEr0	Soak Time Memory
End	Soak Time End
Ctr 1	Control Action 1
OUt2	Output 2 Mode
Ctr2	Control Action 2
ALr1	Alarm 1
ALr2	Alarm 2
S2rd	Set 2 Mode
r 1dL	Relay 1 Delay Time
r2dL	Relay 2 Delay Time
ALtr	Alarm Time
PI d	PID Action
OnOF	ON-OFF Action
bL.tP	Blower TP Action
HIGH	High Alarm
LOG	Low Alarm
Ot-b	OutBand Alarm
Ab-L	Absolute Low Alarm
In-b	In Band Alarm
Ab-O	Absolute Out Band Alarm
SEC	Second
rI n	Minute
HOUr	Hour
HEAt	Heating Mode
COOL	Cooling Mode
ALrr	Alarming Mode
OFF	OFF Mode
YES	Yes
no	No
SAvE	Save
Indi	Set 2 Individual to Set 1
rLtv	Set 2 Reletive to Set 1
FCSt	Factory Setting
bASE	Basic Configuration
PErC	Percentage wise Selection Of 4-20 mA Analog O/P (Manually)

PARAMETER MESSAGE DESCRIPTION

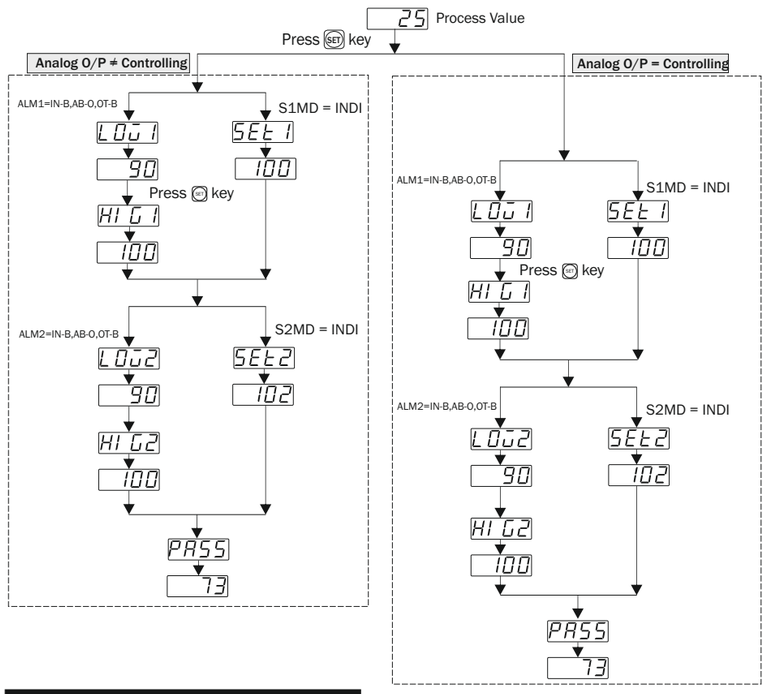
Lrn9	Low Range for analog input
Hrn9	High Range for analog input
CrFC	Correction Factor for analog input
FLtr	Filter Time
SLL	Signal Low Limit for 4-20mA input
rLY1	Relay 1 parameter setting
rLY2	Relay 2 parameter setting

SHPS	Soak Passing
SHrG	Soak Remaining
SHtn	Soak Time Normal

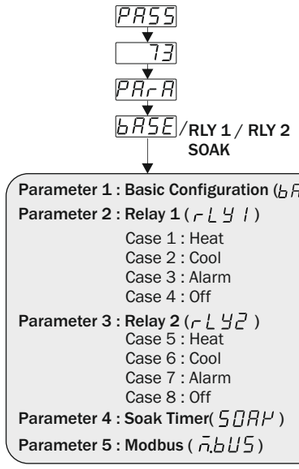
RANGE FOR CONTROL PARAMETER

SR.	PARAMETER	RANGE FOR J,K,PT-100	RANGE FOR PT.1	RANGE FOR ANALOG INPUT	
1	PB	0.0 to 999.9°C	0.0 to 999.9°C	0.0 to 999.9	
2	IT	0 to 9999	0 to 9999	0 to 9999	
3	DT	0 to 9999	0 to 9999	0 to 9999	
4	CT	4 to 99 sec	4 to 99 sec	4 to 99 sec	
5	MR	-9 to 9°C	-9.0 to 9.0°C	DP 3	-0.099 to 0.099
				DP 2	-0.99 to 0.99
				DP 1	-9.9 to 9.9
				DP 0	-99 to 99
6	OFFSET	-20 to 20°C	-20.0 to +20.0°C	DP 3	-0.999 to 0.999
				DP 2	-9.99 to 9.99
				DP 1	-99.9 to 99.9
				DP 0	-999 to 999
7	HYS1	1 to 100°C	0.1 to 100.0°C	DP 3	0.001 to 0.999
				DP 2	0.01to 9.99
				DP 1	0.1 to 99.9
				DP 0	1 to 999
8	HYS2	1 to 100°C	0.1 to 100.0°C	DP 3	0.001 to 0.999
				DP 2	0.01 to 9.99
				DP 1	0.1 to 99.9
				DP 0	1 to 999
9	C-PB	2.0 to 25.0°C	2.0 to 25.0°C	2.0 to 25.0	
10	C-ON	1 to 20 sec	1 to 20 sec	1 to 20 sec	
11	C-OF	5 to 200 sec	5 to 200 sec	5 to 200 sec	
12	R1DL	0.00 to 99.59 mm.ss	0.0 to 99.59 mm.ss	0.00 to 99.59 mm.ss	
13	R2DL	0.00 to 99.59 mm.ss	0.0 to 99.59 mm.ss	0.00 to 99.59 mm.ss	
14	ALTM	0 to 99 sec	0 to 99 sec	0 to 99 sec	
15	CRFC	-	-	DP 3	-0.999 to 0.999
				DP 2	-9.99 to 9.99
				DP 1	-99.9 to 99.9
				DP 0	-999 to 999
16	FLTR	-	-	0.1 to 10.0 Sec	
17	SLL	-	-	0.0 to 5.0 mA	

PARAMETER SETTING



Password 73 Explanation

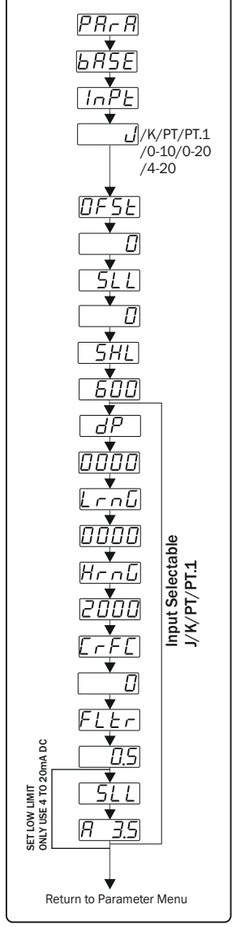


Parameter 1 : Basic Configuration (bASE)
Parameter 2 : Relay 1 (rLY1)
- Case 1 : Heat
- Case 2 : Cool
- Case 3 : Alarm
- Case 4 : Off

Parameter 3 : Relay 2 (rLY2)
- Case 5 : Heat
- Case 6 : Cool
- Case 7 : Alarm
- Case 8 : Off

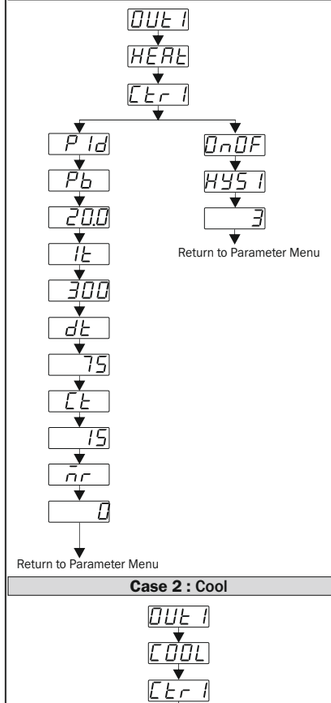
Parameter 4 : Soak Timer(SOAP)
Parameter 5 : Modbus (Addr)

Parameter 1 : Basic Configuration (bASE)

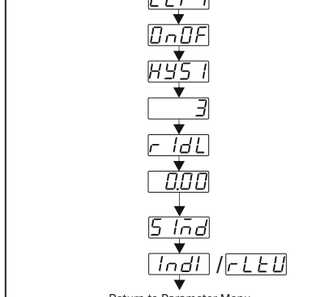


Parameter 2 : Relay 1 (rLY1)

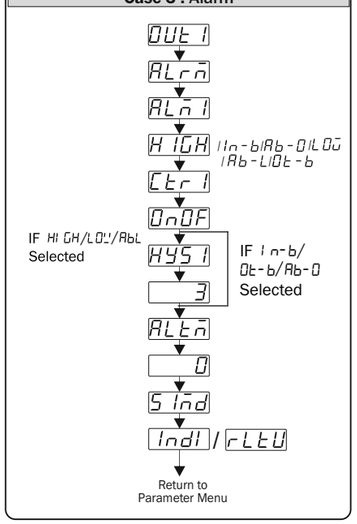
Case 1 : Heat



Case 2 : Cool

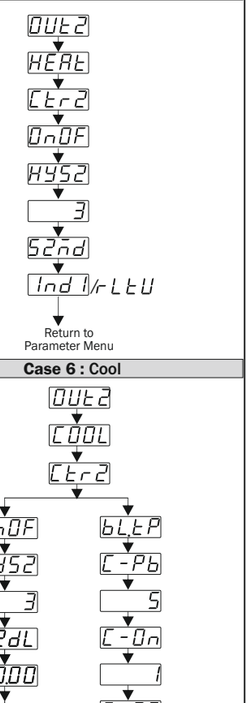


Case 3 : Alarm

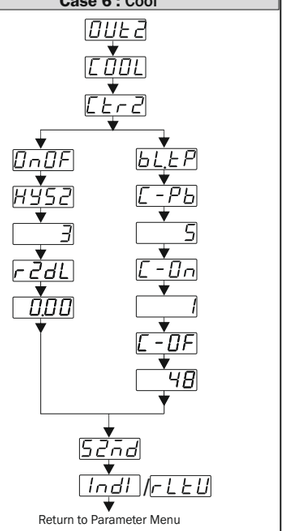


Parameter 3 : Relay 2 (rLY2)

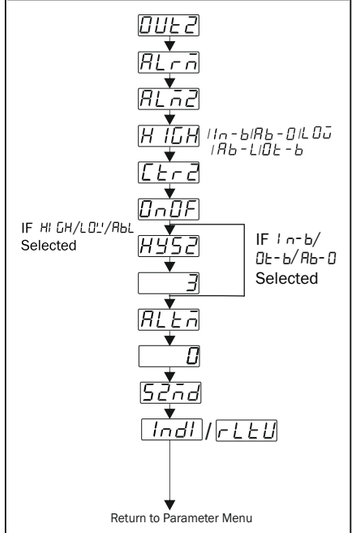
Case 5 : Heat



Case 6 : Cool

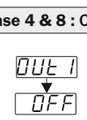


Case 7 : Alarm

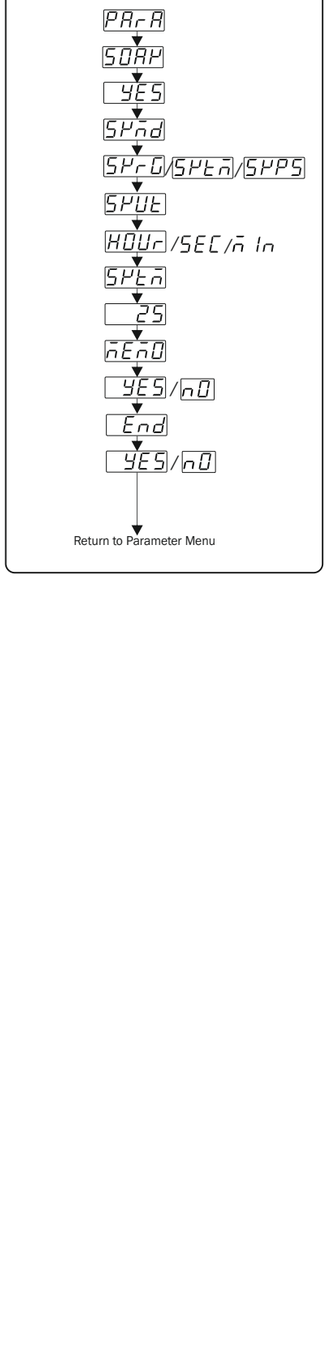


Note : In case 4 & 8 relay will be in off condition

Case 4 & 8 : OFF

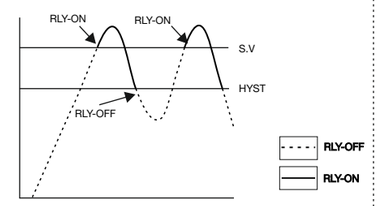


Parameter 5 : Soak Timer (SOAP)

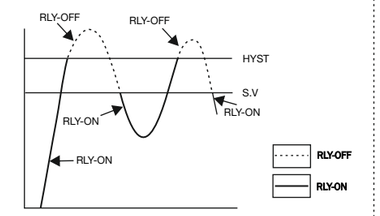


CONTROL FUNCTION

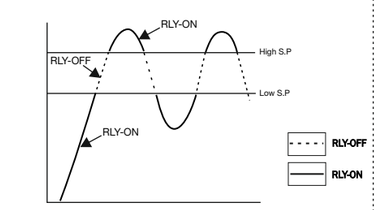
HIGH ALARM:



LOW ALARM:

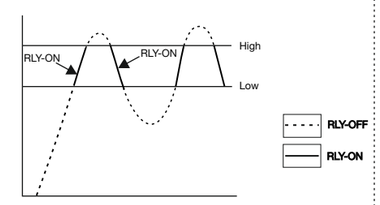


OUTBAND ALARM



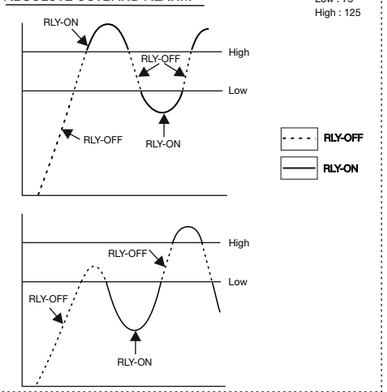
INBAND ALARM

Low : 75
High : 125



ABSOLUTE OUTBAND ALARM

Low : 75
High : 125



ABSOLUTE LOW ALARM