

LHP-1200CPV
LHP-1800CPV
Versatile Cold/Hot Plate
Product Manual
Volume 2.1

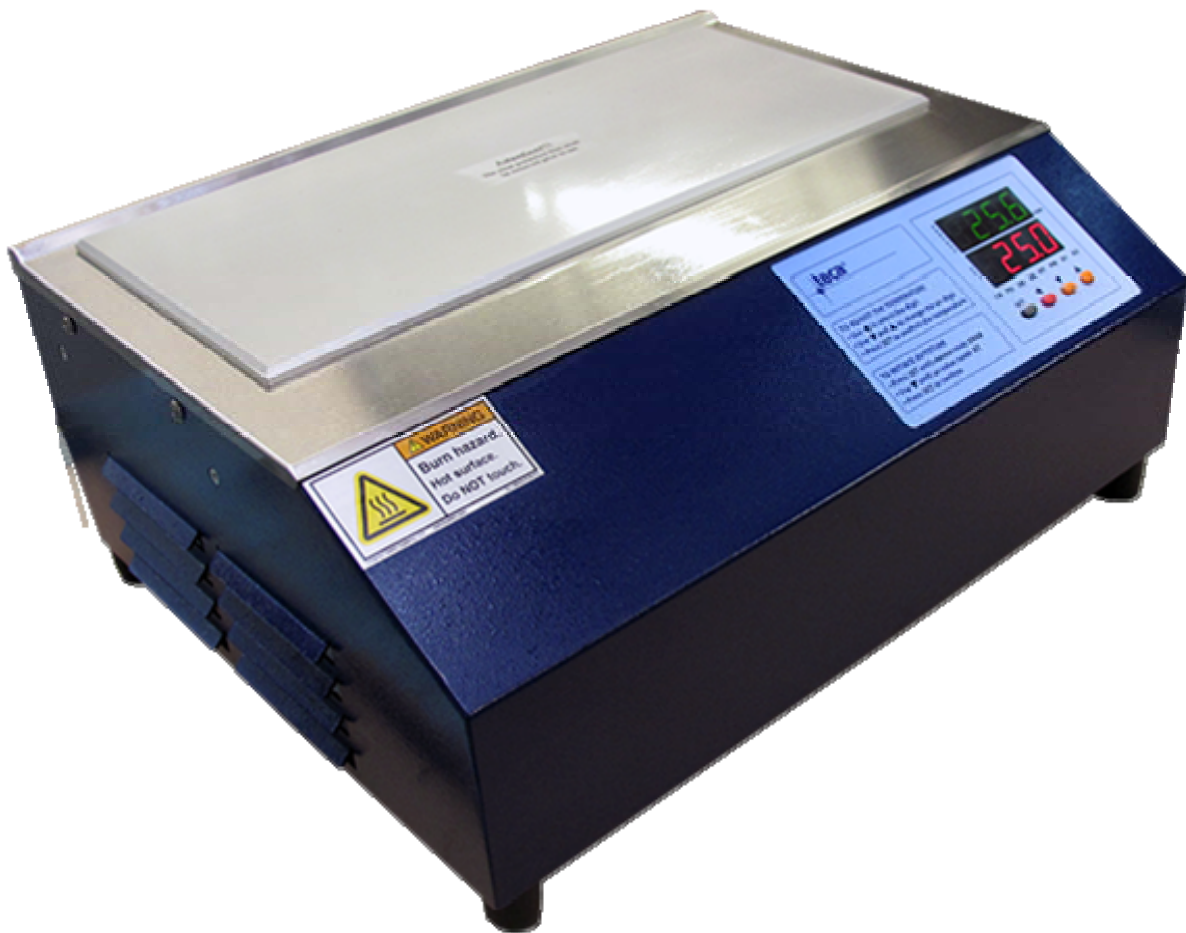
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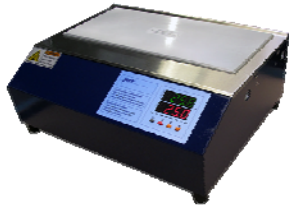
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LHP-1200CPV

Liquid Cooled Cooling and Heating Plate



What's in the Box ???

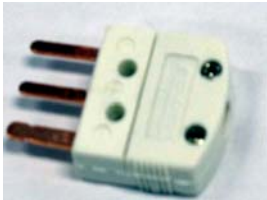


LHP-1200CPV
Versatile Cold/Warm Plate

Power Cord



Remote RTD Connector



Software
and
Manuals

CPV Product Manual in print and on CD,
tecaLOG software and documents on CD

O-Ring Adapters



Safety Features

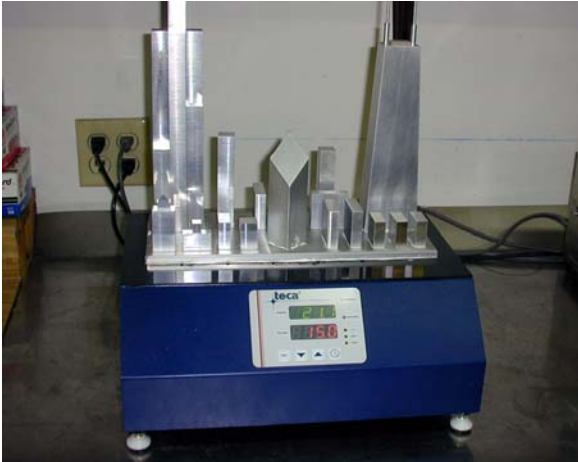
- Automatic recovery to set point after regain of power
- Program resume after regain of power
- Rear Condensate Guard
- Programmable over-temperature limits
- Hardwired safety overheat limits (95 C) will shut down everything and trip an alarm. System automatically recovers after cool down.
- System shut down upon sensor break, over and under range

Warnings

- Read and understand the manuals included with the product.
- This product must be operated with sufficient coolant flow. Operating this unit without coolant flow can damage the unit irreversibly and void the warranty.
- This product can get very COLD and very HOT. CAUTION should be used at all times. Do not touch any surface which may be at an extreme temperature range.
- This product should be serviced by a qualified technician.
- Caution: Risk of electrical shock. Always disconnect the power when performing any servicing.
- Exercise every possible caution if cooling any type of hazardous material. Follow all precautions necessary for the particular materials being cooled.
- Use the external sensor feature with caution. There may be a significant time delay between the cold plate temperature and the sensor temperature causing potentially dangerous overheat or freezing conditions.
- Do not operate this unit without coolant flow. Operating this unit without sufficient coolant flow could cause irreversible damage to the unit.

How do I use it? NOW!

Step 1: Locate the unit on a flat level surface like a bench. Make sure you have some room around it for good airflow.



DO
Give it room to “Breathe”



DON'T
Pile lots of stuff all around it.

Step 2: Connect the fluid ports of the unit to a liquid chiller with sufficient cooling capacity or to tap water. Fluid ports are 9/16 SAE J19260-1, also included 1/4-18 NPT O-Ring adapters for the fluid ports.



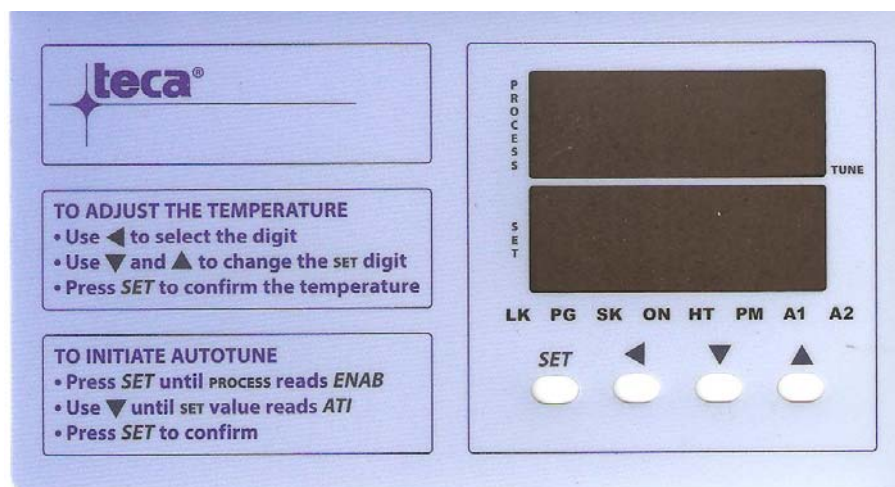
Step 3: Plug the cord in the back of the unit, the other end in the wall outlet and turn the unit on. The temperature controller will turn on, the fan will start to spin and the plate will begin to approach the set temperature.



Step 4: Now What? Adjust the Set Point.

Put something on the cold plate and adjust the set point by using the arrow keys. Press the left arrow button to highlight the digit to be changed then using the “UP” or “DOWN” buttons, adjust to the desired temperature, then press “SET” to finish adjusting the set point. If the unit seems to stop, press "SET" twice to show "EnAb" in the process, if the set display shows off press the up arrow unit "none" is shown. Then press set again.

Front Panel Layout and Basic Operation



SETTING TEMPERATURE

Left Arrow: To set temperature press to select and highlight the digit being changed.

Up Arrow KEY: Press to increase the digit (set point or parameter value).

Down Arrow KEY: Press to decrease the digit (set point or parameter value.).

Left Arrow: Press once to select set point.

SET KEY: Press to confirm new SET temperature.

OPERATING MODE

SET KEY: Press twice to bring up the following operation parameters, using the up and down arrow keys to scroll among them

oFF - Shuts down cooling and heating functions

At1 - Manual Autotune PID values to set point (USE THIS ONE)

At2 - Manual Autotune to 90% of set point

HAnd - Fixed % control, press again to bring up selection,

negative % is cooling, positive % is heating. USE WITH CAUTION

none - Normal Temperature Control Operation

Prog - Run stored Ramp Soak profile

LK: keypad Lock: LED lights on when keypad is enable.

PG: Program Ramp: LED lights on when temperature is ramping up/down.

SK: Program Soak: LED lights on when temperature is at soaking stage.

ON: Controller Enable: LED lights on when controller sends the Enable signal to the amplifier.

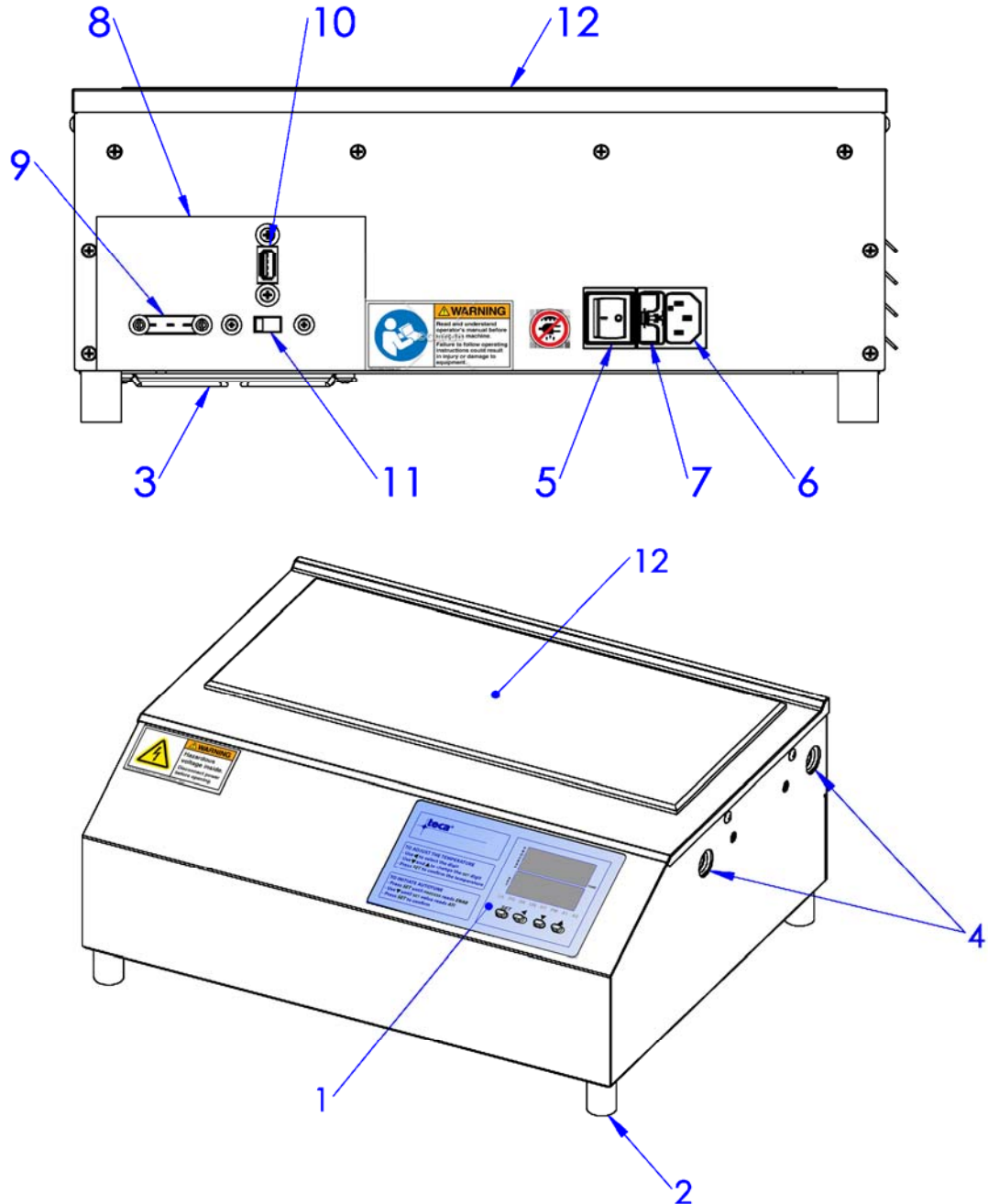
HT: LED indicator is on during the heating and off during the cooling.

PM: Pulse Width Modulation Signal: LED signal lighted when PWM signal is sent from controller to amplifier. During low duty cycle, the LED might not be bright enough to be seen.

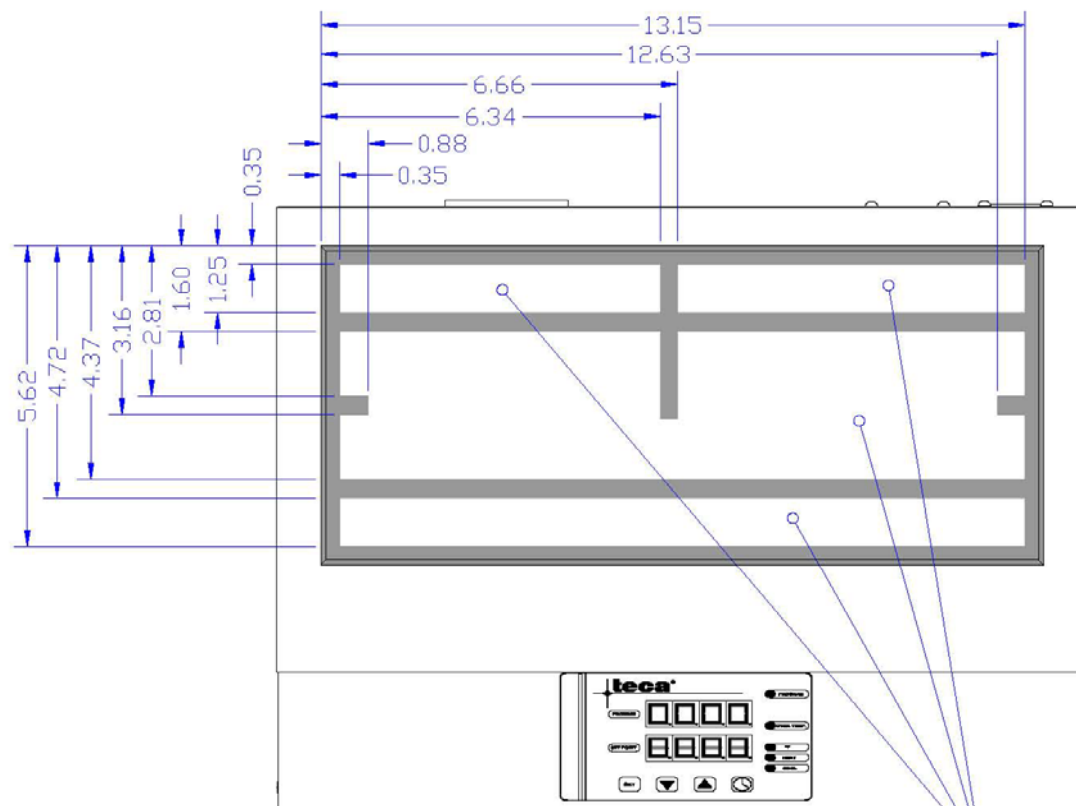
A1: Alarm #1 indicator: LED on when Alarm #1 is triggered.

A2: Alarm #2 indicator: LED on when Alarm #2 is triggered

Typical Physical Layout



- | | | | |
|---|------------------|----|------------------------------------|
| 1 | Front Panel | 7 | Fuse (5 x 20 mm, slow blow, 5 amp) |
| 2 | Feet | 8 | Name Plate |
| 3 | P.S. Air Exhaust | 9 | External RTD sensor connector |
| 4 | Fluid Ports | 10 | USB Comms Port |
| 5 | On-Off Switch | 11 | Internal/external RTD Switch |
| 6 | AC Input | 12 | Cold Plate Surface |



Machine-Safe areas (unshaded)
(maximum depth 0.250")

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FINISH:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

DECIMALS	ANGLE
.XX +/-	+/-
.XXX +/-	FRACTION
	+/-

MATERIAL:

THERMOELECTRIC COOLING AMERICA CORP.

AHP-1200CPV
COLD PLATE MACHINE-SAFE AREA

DRAWN BY:
AA

DATE: 07/03/09

D7615

DRAWING #

SK090701

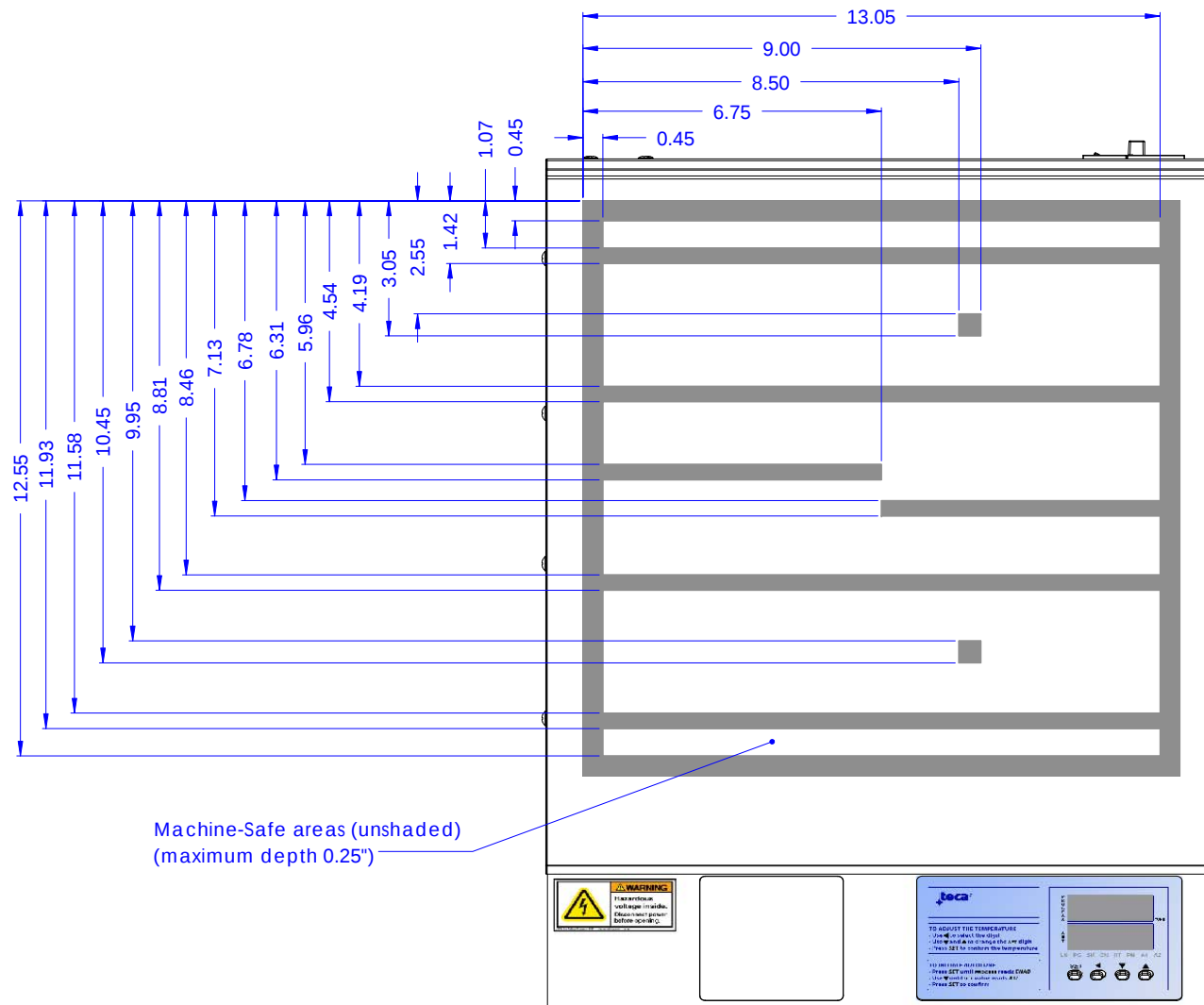
SCALE

MASTER:
MASTER

REV
LEVEL

SHEET

REV	DESCRIPTION	Date	APPROVED



UNLESS OTHERWISE SPECIFIED:		NAME	DATE	 ThermoElectric Cooling America Corporation Chicago, Illinois U.S.A.		
DIMENSIONS ARE IN INCHES		DRAWN	AA			11/04/15
TOLERANCES:		CHECKED			AHP-1800CPV COLD PLATE MACHINE -SAFE AREA	
FRACTIONAL ±		PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TECA CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TECA CORPORATION IS PROHIBITED.				
ANGULAR: MACH ± BEND ±						
TWO PLACE DECIMAL ±						
THREE PLACE DECIMAL ±						
INTERPRET GEOMETRIC TOLERANCING PER:						
MATERIAL				SIZE	DWG. NO.	REV
FINISH				A	SK151114	
DO NOT SCALE DRAWING					S0382	SHEET 1 OF 1

Using the external RTD sensor

Caution!! Use the external sensor feature with caution. There may be a large time delay between the fluid and the sensor temperatures causing overheating and under-cooling conditions. Fully evaluate the system conditions prior to and during the use of this feature. The RTD is a three wire, 100 ohm, single element, Class A.

Identify where and how you wish to use the external sensor. Take special consideration and thought with respect to system safety. The connector and switch directly behind the controller corresponds to its remote sensor.



Connect the sensor to the back of the chiller, slide the selector switch towards the connector, turn the unit on and verify the function and safety.

A faulty or disconnected RTD is signaled on the process display as oPEn

Over Temperature Safety

When an over temperature condition occurs the following will happen:

- System heating and cooling will be disabled
- Under extreme overheat conditions power will be interrupted

Two Point Calibration

1- Connect the standard RTD simulator to the remote sensor input terminals and adjust the slide switch to external.

2 - Press both “Up” and “Down” keys simultaneously for 5 seconds until PROCESS VALUE display shows “ LEVEL”. and the SET display shows "CABL".

3 - Press the "SET" key 7 times until the PROCESS VALUE display shows “ PtL”. and the SET display shows a low temperature value, typically "-50.0".

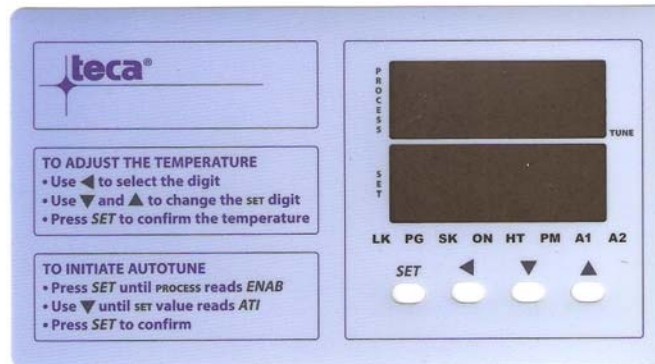
4 - Adjust your simulator to simulate your desired PtL, in this example -50.0 C. Allow everything to stabilize. Press and hold the SET key for 5 Seconds.

5 - Now the PROCESS VALUE display now should show “ PtH”. and the SET display a high temperature value, typically "150.0".

6 - Adjust your simulator to simulate your desired PtH, in this example 150 C. Allow everything to stabilize. Press and hold the SET key for 5 Seconds.

7 - The displays should now be as they were after Step two. To return to the operating menu press and hold the SET key and quickly press the up arrow key.

Complete Front Panel Operation AKA - Doing it the hard way



SET KEY: Press once to access the next programmable parameter.

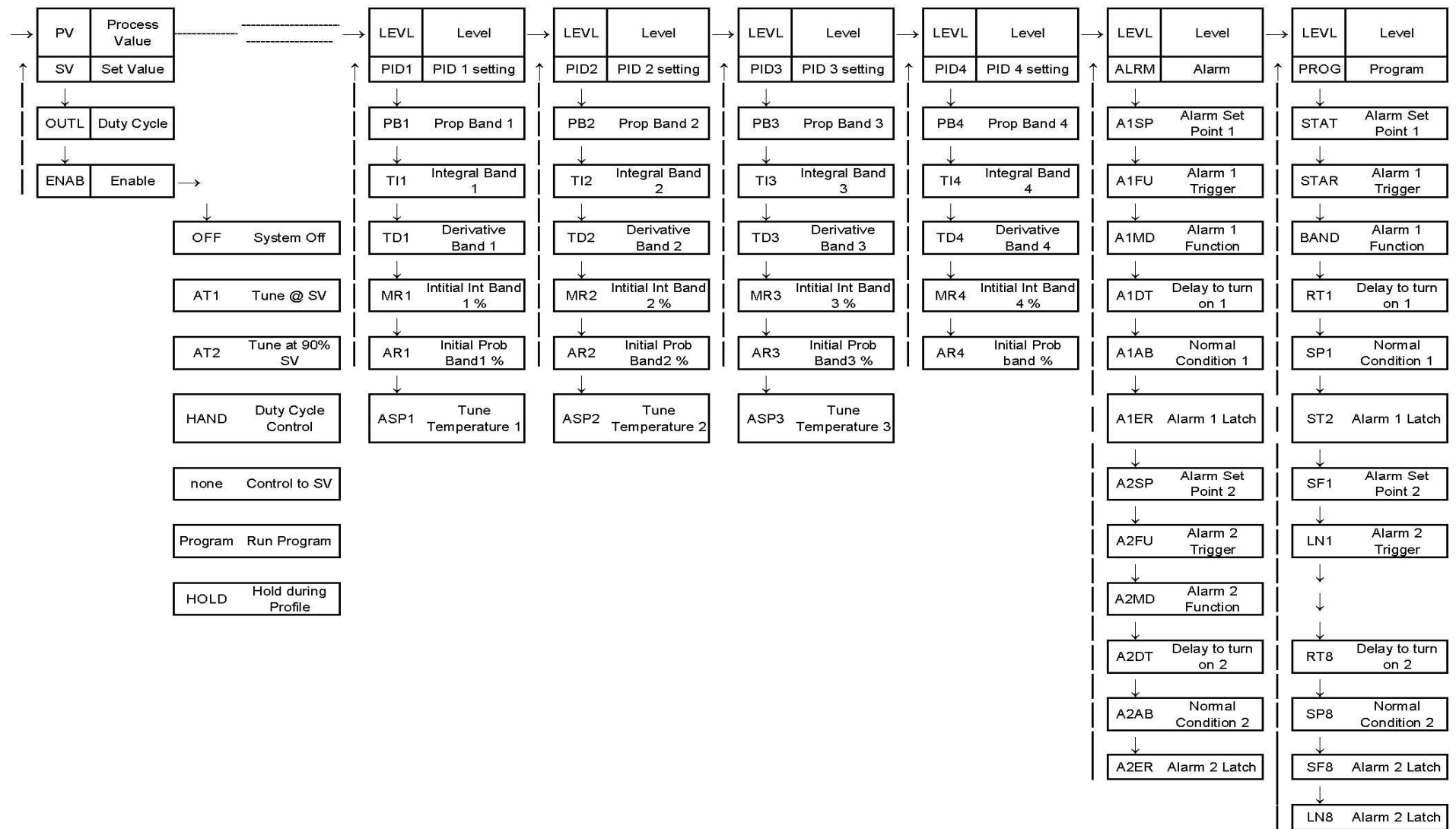
UP ARROW KEY: Press to increase the set point or parameter value.

DOWN ARROW KEY: Press to decrease the set point or parameter value.

LEFT ARROW KEY: Press once to select set point.

Press the SET and UP keys once to return the normal operation.

LEVEL KEY. Press the SET and SHIFT keys simultaneously for 5 seconds to select programming level, press SET key to the selected level.



[illegible]

