

A vertical bar on the left side of the page showing a temperature gradient from red at the top to yellow at the bottom.

tecaLOG Software

Product Manual

Volume 1.1D

When used with TC-5300 Temperature Controllers in:

Versatile Cold/Hot Plates

AHP-301CPV, AHP-1200CPV, AHP-1800CPV

AHP-1200DCP, AHP-2700CPV

TLC and RLC Liquid chiller/heaters

TLC-900, TLC-1800, RLC-900, RLC-1800

A background image of a blue and white iceberg floating in the ocean.

teca

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What's needed to run tecaLOG ???



Computer with USB1 or USB2 Port
Operating Systems: Win XP, 7 and 10
Memory: 8 GB or more is nice
4GB works

Installed, dotNET framework 4.0 or higher
available online or already on your computer

USB Driver PL-2303 USB-to-Serial
(Included & available on-line)



A CPV or TLC Product from
TECA and it's USB cable

Attention: Install USB Driver First!!! Before connecting the system to your computer USB port, and before installing the "tecaLog" software you need to install the USB Driver.

STEP 1: Open the "3 - USB Driver" folder and double click on the "PL2303_Prolific_DriverInstaller_v1.5.0.exe" and follow the on screen installation steps. (For more information on how to install the USB Driver please read the "um_pl2303_DriverInstallerManual_v1.5.0.pdf" in the "USB Driver" folder.)

STEP 2: Open the "2 - tecaLOG Software" folder and double click on the "tecaLog" executable file. Follow the on screen instructions to install the "tecaLog" software on your computer.

STEP 3: Reboot your computer.

STEP 4: Connect the TECA unit to your computer USB port, power up the unit and start the "tecaLog" software.

tecaLOG Software Features

- USB Communication
- Parameter saving and loading
- On/Off, Set Point, Unit selection
- Strip Chart display of Sensor Temperature, Set Point and Power
- Programmable Ramp/Soak routines
- Data Logging and File saving
- PID Parameter selection: Multi Range, Manual or Autotune
- Setting maximum and minimum range
- Setting Process Value and Set Value offsets

tecaLOG Main Window Display

File: Parameter Transfers

Settings: Decimal selection

Help: Minimal

Select a Comm Port: Initiates communication

Enable and Disable: Turns functions on and off

Sensor Temp: Displays sensor measured value

Set: Enter value, press "Set" to send to controller

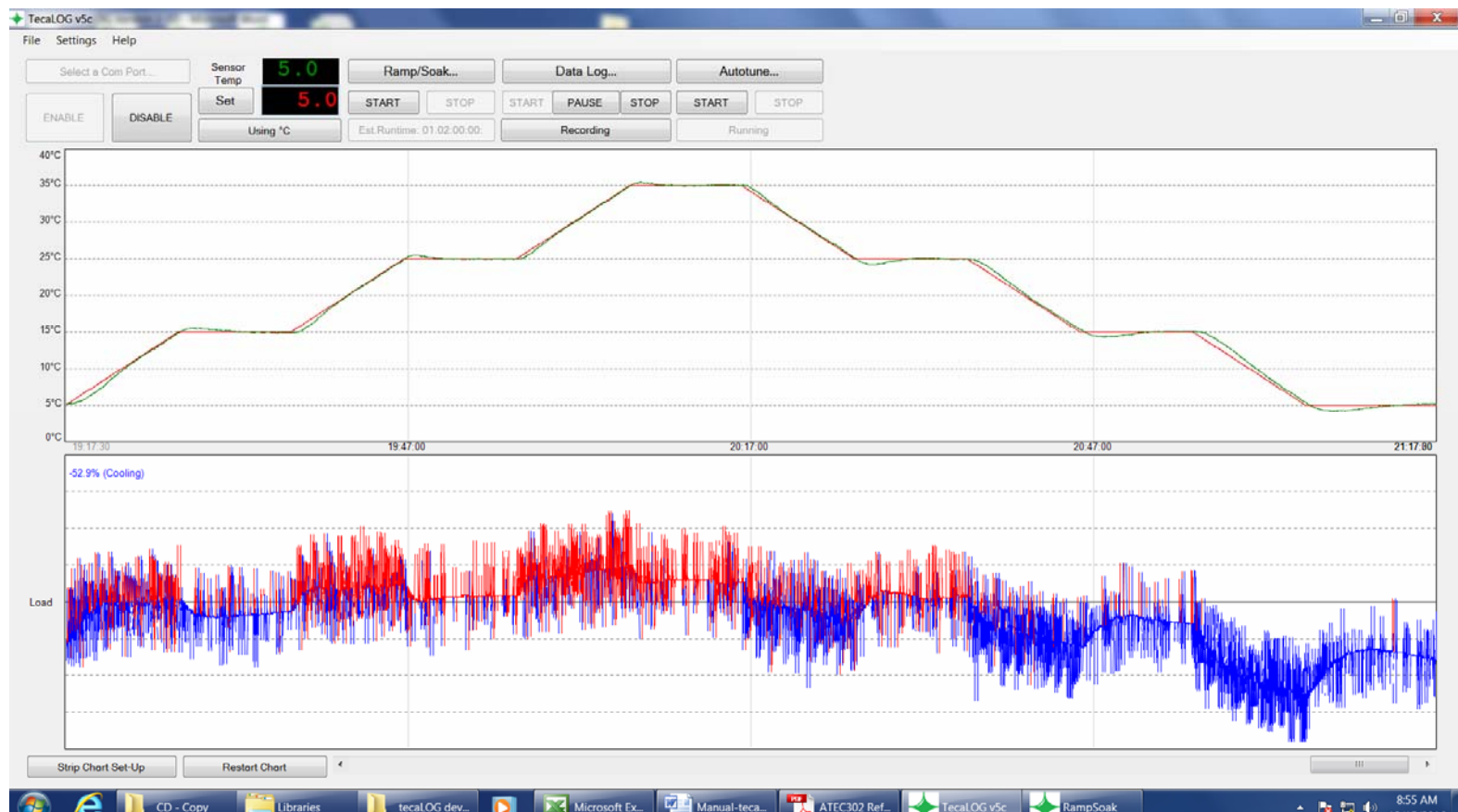
Ramp/Soak: Create and Run profiles

Data Log: Set up and start data logging function

Autotune: Methods of adjusting and saving PID values

Strip Chart: Displays Set, Sensor and Power on a time scale

Strip Chart Set Up: Adjust Strip Chart axis and display



Ramping and Soaking

Create and program ramp-soak profiles, with multiple loops of up to 8 steps.

Create and define 8 segments with set ramp times and soak times in minutes or seconds

Define loops within loops and repeat the profile with infinite loops

Visualize the profile and run time on screen. Time is displayed as days:hours:minutes:seconds

Define a small "Tolerance Band" to stop the clock until the set temperatures is reached.

Save and load the profile to a file or controller.

Hold a temperature or End operation when done or create an infinite loop.

The screenshot shows the RampSoak software interface. At the top, there are eight step graphs labeled Step 1 through Step 8. Each graph shows a temperature profile with a ramp and a soak period. The set points and soak times are: Step 1 (5°C, 5m), Step 2 (15°C, 5m), Step 3 (25°C, 5m), Step 4 (35°C, 5m), Step 5 (25°C, 5m), Step 6 (15°C, 5m), Step 7 (5°C, 5m, Repeat 10x), and Step 8 (20°C, 5m).

Below the graphs is a table titled "Step Program" with the following data:

Step	Set Point	Ramp Time	Soak Time	Function	# of Repea
1	5.0	5	5	NEXT	1
2	15.0	5	5	NEXT	1
3	25.0	5	5	NEXT	1
4	35.0	5	5	NEXT	1
5	25.0	5	5	NEXT	1
6	15.0	5	5	NEXT	1
7	5.0	5	5	Loop ba...	10
8	20.0	5	5	HOLD	10

At the bottom of the window, there are controls for "Time Units" (radio buttons for Seconds and Minutes, with Minutes selected) and a "Tolerance Band" set to 15.0. A note below the tolerance band states: "|PV-SV| must be <= 15.0° to advance to next step." There are also buttons for "OK", "Save to Controller", "Load from Controller", "Save to File", and "Load from File". The "Estimated Runtime" is shown as 13:00:00.

Data Logging

Use the provided tecaLOG software to log data directly to your computer. Select the file name and location, logging interval and file headings. The file will be saved (with a back-up) in a *.csv file format. Open directly into many spreadsheet applications.

Data Log Set-up

Select File... C:\Users\Andy\Desktop\tecaLOG development\TecaLOG v5c\Eng Win 7 Wednesday 12-14

Note:
Data will start to save to file when the 'START' button is clicked.
*.csv files may be read by Microsoft Excel.

Details

Record Data Interval		File Headings			
<input type="radio"/> 1 Second	<input type="radio"/> 1 Minute	<input checked="" type="checkbox"/> Use File Headings			
<input type="radio"/> 5 Seconds	<input type="radio"/> 5 Minutes	Data Unit	PV Heading	SV Heading	Load Heading
<input checked="" type="radio"/> 15 Seconds	<input type="radio"/> 15 Minutes	#	PV	SV	Load%
<input type="radio"/> 30 Seconds	<input type="radio"/> 30 Minutes				

Defaults OK Cancel

PID Auto Tune window

The screenshot shows the 'AutoTune' window with the following sections:

- Instructions:**
 - Fast Autotune to a Single Set Point...
 - Extended Range Autotune...
 - Manual Entry of PID Values...
- Temperature Limits:**
 - High Temperature Limit (°C/°F): 90.0
 - Low Temperature Limit (°C/°F): -40.0
- Value Offsets:**
 - Process Value Offset: 0.0 °C/°F
 - Set Value Offset: 0.0 °C/°F
- Parameter Table:**

Parameter	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Allowable Ranges
Proportional Band % - PB	5.7	5.3	4.8	4.3			0.0 - 100.0%
Integral Value - TI	1100	1044	969	867			0 - 3600 100mSec
Derivative Value - TD	275	20.0	261	25.0	242	30.0	0 - 900 100mSec
Initial I Value% - Mr	5.0	ASP1	5.4	ASP2	6.4	ASP3	7.0
Initial Band Value% - Ar	95.0		94.6		93.6		93.0
PBand	7.4		6.9		6.2		5.6
ARBand	7		6.5		5.8		5.2
- Formulas for PBands and ARBands:**
 - $PBand = (High\ Limit - Low\ Limit) * PB$
 - $ARBand = PBand * Ar$
- Right Panel:**
 - Sensor Value: 15.4
 - Set Value: 20.0
 - Start Autotune
 - Stop Autotune
 - Upload from Device
 - Download to Device
 - Save to File
 - Load from File
 - Close
 - Download & Close

Initiating the Auto Tune function

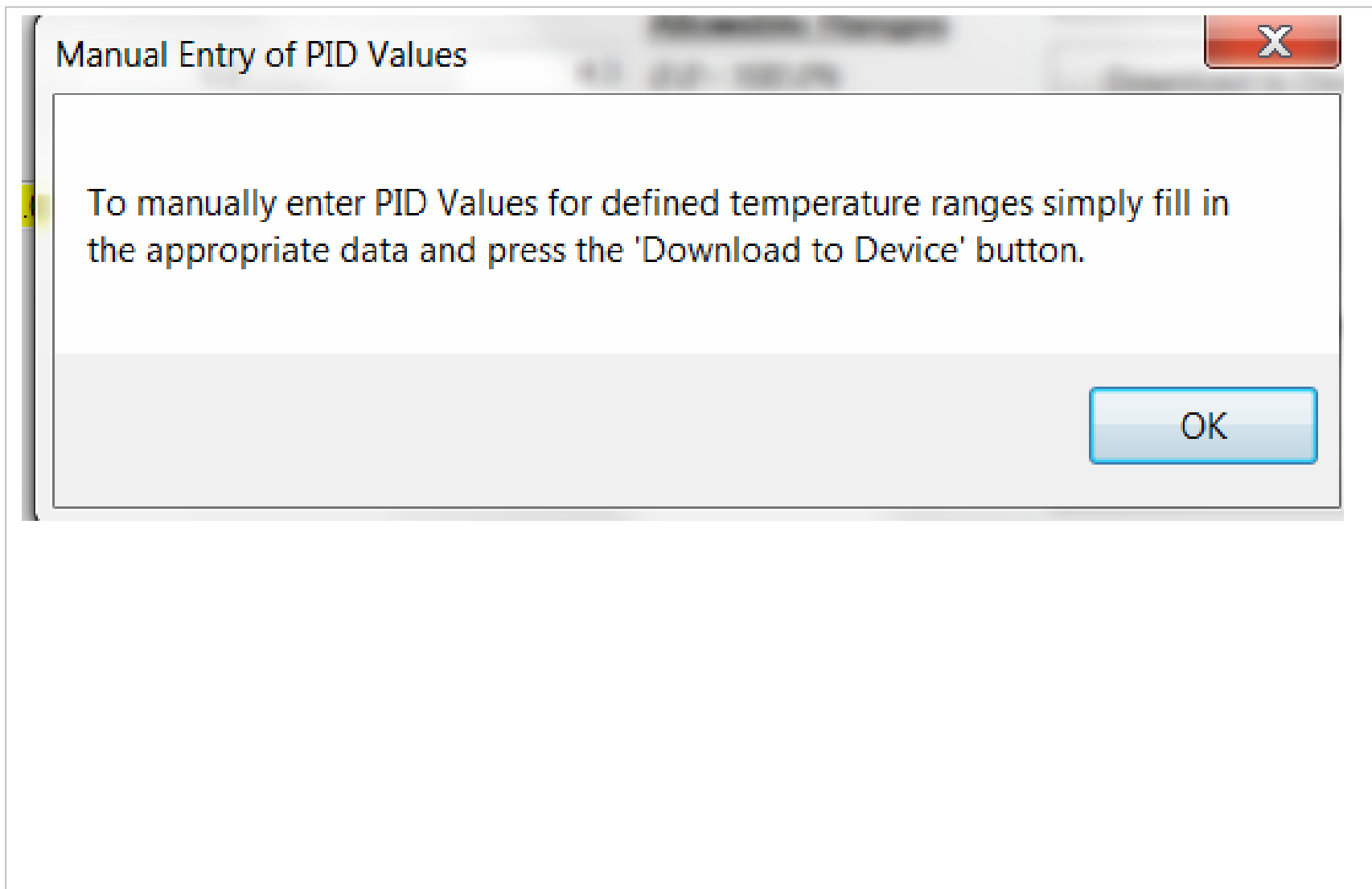
Fast Autotune to a Single Set Point

- 1 - Set controller to the desired Set Point and press the 'Set Value' button.
- 2 - When the Sensor temperature is within a few degrees of the Set Point press the 'Start Autotune' button.

The 'Running' indicator will darken in the main window and a flashing light will appear on the controller during the tuning session. The unit will return to controlling when the Autotune is complete.

OK

Manual Entry of PID values



Extended Range Autotune

