

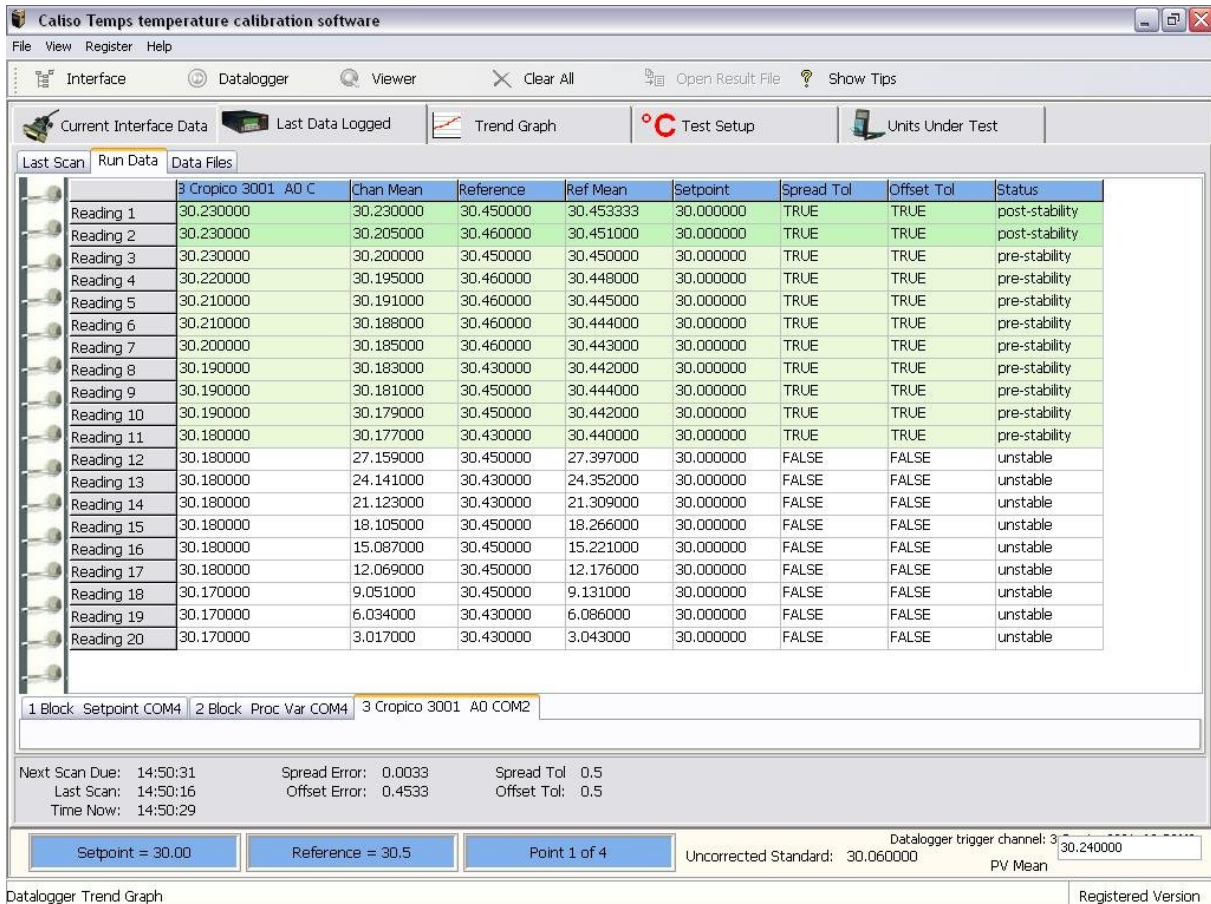



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## Caliso Temps - Temperature Calibration for the 21st Century

Several years in the making, Caliso Temps is simply the best temperature calibration software there is.

We've worked alongside manufacturers of some of the world's finest temperature calibration equipment to bring you software that's truly unique. Now, whatever equipment you use, or are about to purchase, the chances are that it will work with Caliso Temps. Before purchasing any temperature calibration instrument, make sure that it will work with Caliso Temps. Please let us know if you require any additions to the devices supported, we're always happy to do our best. We have just released drivers for Fluke 9190, 9118A, 1586A.



Caliso Temps temperature calibration software  
 File View Register Help  
 Interface Datalogger Viewer Clear All Open Result File Show Tips  
 Current Interface Data Last Data Logged Trend Graph °C Test Setup Units Under Test  
 Last Scan Run Data Data Files

	3 Cropico 3001 AO C	Chan Mean	Reference	Ref Mean	Setpoint	Spread Tol	Offset Tol	Status
Reading 1	30.230000	30.230000	30.450000	30.453333	30.000000	TRUE	TRUE	post-stability
Reading 2	30.230000	30.205000	30.460000	30.451000	30.000000	TRUE	TRUE	post-stability
Reading 3	30.230000	30.200000	30.450000	30.450000	30.000000	TRUE	TRUE	pre-stability
Reading 4	30.220000	30.195000	30.460000	30.448000	30.000000	TRUE	TRUE	pre-stability
Reading 5	30.210000	30.191000	30.460000	30.445000	30.000000	TRUE	TRUE	pre-stability
Reading 6	30.210000	30.188000	30.460000	30.444000	30.000000	TRUE	TRUE	pre-stability
Reading 7	30.200000	30.185000	30.460000	30.443000	30.000000	TRUE	TRUE	pre-stability
Reading 8	30.190000	30.183000	30.430000	30.442000	30.000000	TRUE	TRUE	pre-stability
Reading 9	30.190000	30.181000	30.450000	30.444000	30.000000	TRUE	TRUE	pre-stability
Reading 10	30.190000	30.179000	30.450000	30.442000	30.000000	TRUE	TRUE	pre-stability
Reading 11	30.180000	30.177000	30.430000	30.440000	30.000000	TRUE	TRUE	pre-stability
Reading 12	30.180000	27.159000	30.450000	27.397000	30.000000	FALSE	FALSE	unstable
Reading 13	30.180000	24.141000	30.430000	24.352000	30.000000	FALSE	FALSE	unstable
Reading 14	30.180000	21.123000	30.430000	21.309000	30.000000	FALSE	FALSE	unstable
Reading 15	30.180000	18.105000	30.450000	18.266000	30.000000	FALSE	FALSE	unstable
Reading 16	30.180000	15.087000	30.450000	15.221000	30.000000	FALSE	FALSE	unstable
Reading 17	30.180000	12.069000	30.450000	12.176000	30.000000	FALSE	FALSE	unstable
Reading 18	30.170000	9.051000	30.450000	9.131000	30.000000	FALSE	FALSE	unstable
Reading 19	30.170000	6.034000	30.430000	6.086000	30.000000	FALSE	FALSE	unstable
Reading 20	30.170000	3.017000	30.430000	3.043000	30.000000	FALSE	FALSE	unstable

1 Block Setpoint COM4 2 Block Proc.Var COM4 3 Cropico 3001 AO COM2  
 Next Scan Due: 14:50:31 Spread Error: 0.0033 Spread Tol: 0.5  
 Last Scan: 14:50:16 Offset Error: 0.4533 Offset Tol: 0.5  
 Time Now: 14:50:29  
 Setpoint = 30.00 Reference = 30.5 Point 1 of 4 Datalogger trigger channel: 3 30.240000  
 Uncorrected Standard: 30.060000 PV Mean  
 Datalogger Trend Graph Registered Version

Caliso Temps, together with suitable instruments, provides exceptional power and simplicity when it comes to automated temperature calibration.

Nowadays, most manufacturers will supply you with some sort of software that will allow you to connect their instruments to your computer. Some work OK, others unfortunately can only be described as terrible.

Furthermore, they will only work with one manufacturer's instruments, which means 2 things:

- You will need to learn how to use several different programs
- Unless you restrict yourself to one manufacturer, you will be unable to integrate ALL of your instruments into an automated system

**With Caliso Temps working for you, all of that becomes a thing of the past.**

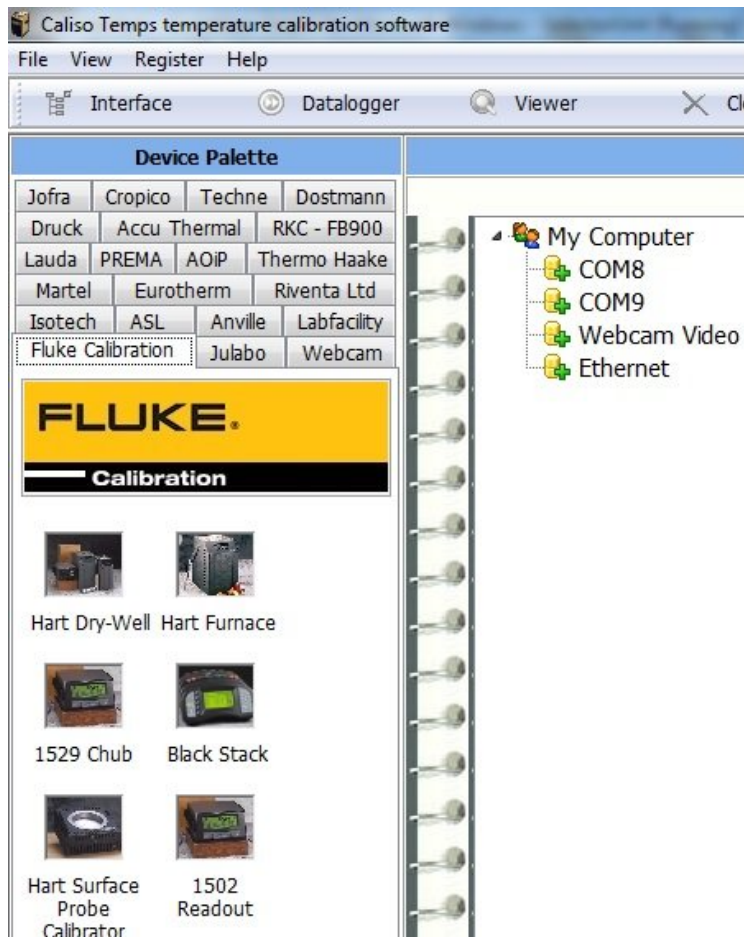
Caliso Temps is made up of 2 separate programs:

- **Laboratory Interface** where you connect your instruments and carry-out your calibration tests
- **Builder** where you analyse your data, perform calculations, and also design and make calibration certificates

Have a look at the images below and see for yourself just how good Caliso Temps really is.

1. The Interface

The left-hand panel of the Interface window is the Device Palette that, as you can see, has a number of tabs across the top. Each tab has the name of a temperature calibration equipment manufacturer such as Isotech, ASL, HART Scientific, LabFacility, etc. By clicking on each tab you will see a series of icons which represent the specific instruments supported for each manufacturer.



The large central panel of the interface is the Connected Devices list. There you will see listed under "My Computer" all the COM ports and web-cams available for connection.

To connect an instrument to a serial port simply select the manufacturer's tab on the Device Palette and drag and drop the icon of the required instrument on to the serial port on the Connected Devices panel. Click the Start button - and that's it, you are now connected. You can have as many instruments as you

have serial ports - all running together.

## 2. Web-cam support

Not every piece of temperature equipment is capable of communicating directly with your computer, these will include: · Simple digital temperature indicators. Mercury (or liquid) in glass thermometers · Paper chart recorders Nevertheless, you may still need to calibrate such devices. The Caliso Temps Laboratory Interface allows you to do this using standard, low cost digital cameras (web-cams). It does this by taking a still-image picture of whatever the camera is pointing at when the stability criteria for each set-point are met.

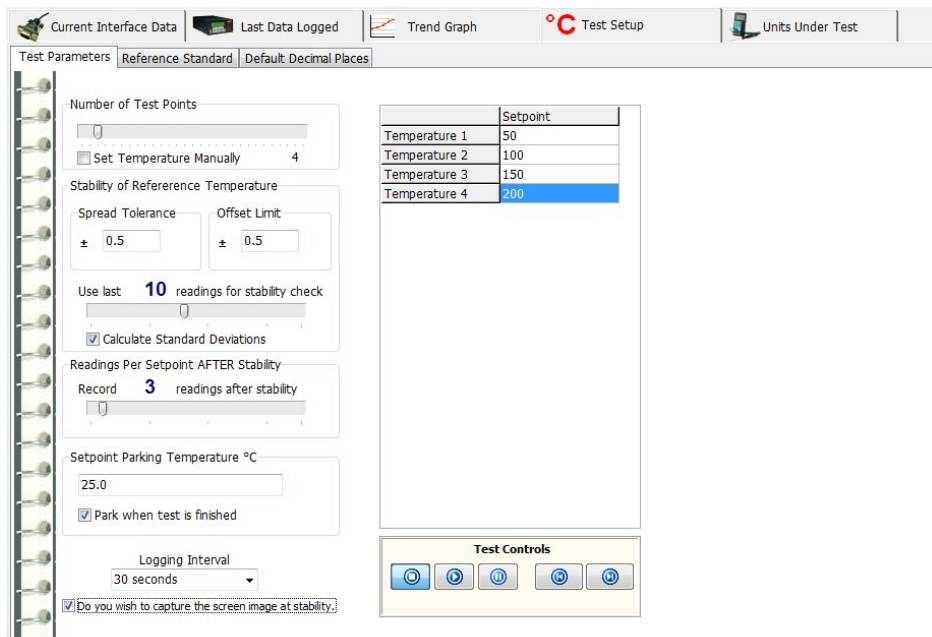


At the end of the test you will have a series of "JPG" images that capture the image of the instrument for each set-point. The temperatures may then be read from these images. In the top left-hand corner of each image you will see a red box that contains the date and time at which the image was captured together with the reference value at stability.

## 3. Test Setup

Configuring your calibration test is very simple. You just need to set a few parameters including:

- Number of test points
- The stability criteria for the reference temperature data
- The set-point values
- Logging Interval
- Bath, or block, parking temperature



The final step is to specify the location for your run data files. Start the test and you're away.

That's it, you need do no more! The software will now do the rest of the work for you, setting the block to the correct temperatures and recording data values for you. You could sit and watch, and that's what you'll probably do for a while. Then you'll realise that you could be doing something much more useful instead.

### 3. Run Data

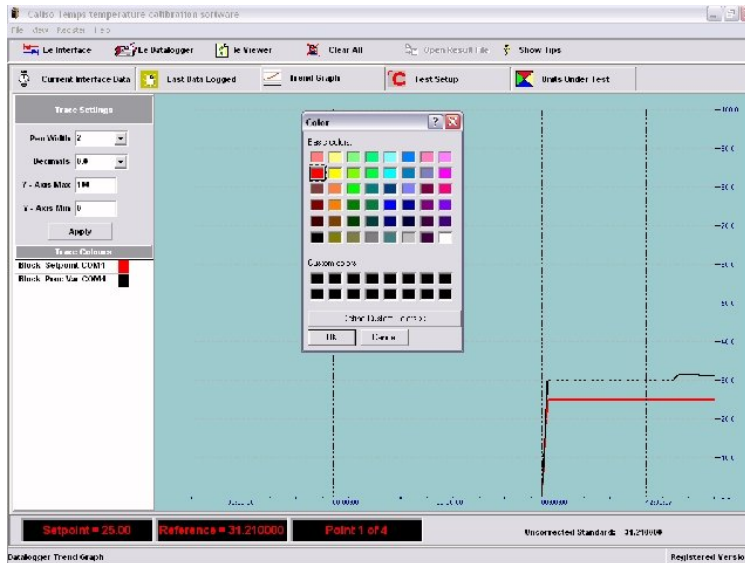
Run data is grouped according to the set-points used in the tests. You will see a spreadsheet-like grid containing data from individual set-points of your test run. Along the bottom you will see a row of tabs indicating the temperature of each individual set-point. Click these to show the data for each of the set-points.

The screenshot shows the 'Run Data' tab in the Caliso Builder software. The data is presented in a spreadsheet format with the following columns:

Channel Value	Channel Mean	Reference	Ref Mean	Setpoint	Setpoint Tol	Mean Tol	
<b>+88.579</b>	<b>88.579333</b>	<b>-29.630000</b>	<b>-29.636667</b>	<b>-30.0000</b>	<b>TRUE</b>	<b>TRUE</b>	<b>Post</b>
+88.579	88.579333	-29.640000	-29.640000	-30.0000	TRUE	TRUE	Post
+88.580	88.578000	-29.640000	-29.632500	-30.0000	TRUE	TRUE	Post
+88.579	88.576950	-29.640000	-29.632000	-30.0000	TRUE	TRUE	Pre
+88.579	88.575550	-29.630000	-29.631500	-30.0000	TRUE	TRUE	Pre
+88.580	88.573450	-29.640000	-29.631000	-30.0000	TRUE	TRUE	Pre
+88.580	88.570250	-29.630000	-29.629500	-30.0000	TRUE	TRUE	Pre
+88.580	88.565450	-29.630000	-29.627500	-30.0000	TRUE	TRUE	Pre
+88.580	88.565550	-29.630000	-29.623500	-30.0000	TRUE	TRUE	Pre
+88.579	88.542900	-29.630000	-29.616000	-30.0000	TRUE	TRUE	Pre
+88.579	88.521600	-29.640000	-29.601000	-30.0000	TRUE	TRUE	Pre
+88.580	88.487750	-29.640000	-29.572000	-30.0000	TRUE	TRUE	Pre
+88.580	88.425050	-29.630000	-29.569000	-30.0000	TRUE	TRUE	Pre
+88.580	88.346900	-29.630000	-29.682500	-30.0000	TRUE	TRUE	Pre
+88.579	88.334632	-29.630000	-29.685263	-30.0000	TRUE	TRUE	Pre
+88.579	88.321056	-29.630000	-29.688333	-30.0000	TRUE	TRUE	Pre
+88.578	88.305882	-29.630000	-29.691765	-30.0000	TRUE	TRUE	Pre
+88.577	88.288875	-29.630000	-29.695625	-30.0000	TRUE	TRUE	Pre
+88.576	88.269667	-29.630000	-29.700000	-30.0000	TRUE	TRUE	Pre
+88.575	88.247786	-29.630000	-29.705000	-30.0000	TRUE	TRUE	Pre

Caliso Temps Laboratory Interface produces two types of data file. The first is a text file, which contains in tab delimited format all of the logged data from the start to the finish of the test. It therefore contains a complete record of the calibration test regardless of any stability criteria that may apply. The file may be exported directly to a word processor or a spreadsheet (such as MS Excel). The second type of file is a CDT (Caliso Temperature Data) file and this is used in Builder to perform calculations of calibration co-efficient and to generate calibration certificates.

## 5 Trend Graphs



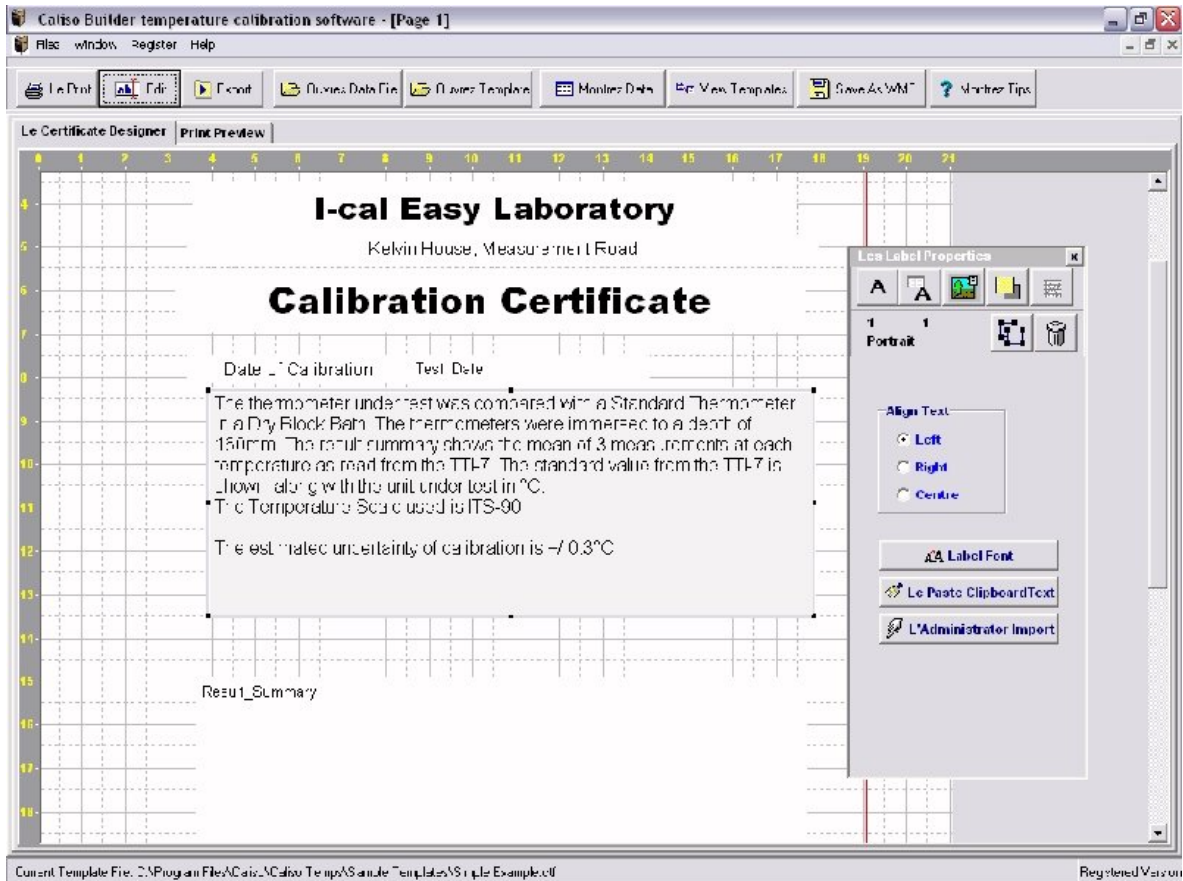
The trend-graph facility enables you to:

- Select a separate line colour for each channel
- Scale the Y-axis
- Select the number of decimal places displayed



## 6. Creating Calibration Certificates

Whilst some sample templates are included we feel sure that you will enjoy making calibration certificates using I-Cal-Easy Builder. All the tools needed to produce great looking certificates quickly and easily are here. Your certificate templates can contain several pages – you could, for example, have some pages in portrait and others in landscape, incorporate logos, text and, of course, calibration data.



## 7. Data Analysis

The Builder's Data Viewer enables you to turn raw calibration data into calibration information of the following types:

- Callender Van Dusen coefficients
- ITS-90 coefficients
- Thermocouple correction coefficients
- Polynomial regression coefficients

Calculated results are then saved in the Caliso Temperature Data file to provide a complete record of each device's calibration.

Caliso Builder temperature calibration software

File Window Register Help

Print Edit Export Open Data File Open Template View Data View Templates Save Image Show Tips

Results Run Data Instrument Data

Spread Tolerance   
 Offset Tolerance   
 Points for Mean

Standard	Unit Under Test	Setpoint	Uncertainty
-29.636667	88.579333	-30.0000	
0.180000	100.140000	0.0000	
29.850000	111.625333	29.8000	
125.050000	147.981333	125.0000	
0.116667	100.119667	0.0000	

Calculation Type

Callendar Van Dusen

A   
 B   
 C   
 R0

Nom 0 TMean = 0.1483335  
 Nom 0 RMean = 100.1298335

	Standard	Unit Under Test
0.0000	0.180000	100.140000
0.0000	0.116667	100.119667
Nom 0°C (in)		
-30.0000	-29.636667	88.579333
29.8000	29.850000	111.625333
125.0000	125.050000	147.981333

Clear Swap Calculate

Length:

**The Callendar Van Dusen Equation**

$$R_0(1 + AT + BT^2 - 100CT^3 + CT^4)$$

where:  
 R0 = resistance at 0°C  
 A, B, C are coefficients

7. Calibration Certificate - Job done!

**Congratulations!**

You are now about to take the final, and in some ways, simplest step. You have used Caliso Temps Laboratory Interface to set-up an automated temperature calibration, and saved the data in CTD format. You then used Caliso Temps Builder to design a certificate template that exactly matches your requirements, with Data Containers, text and graphics. All that remains to do now is to use all of this to make calibration certificates.

Caliso Builder temperature calibration software - [Page 1]

File window Register Help

Print Edit Print Open Data File Open Template Monitor Data View Template Save As WMF? Show Tips

Print Preview

Le Zoom

- 25%
- 40%
- 50%
- 75%
- 100%
- Fit Width
- Fit Height
- 100%

**Local Easy Laboratory**  
 Local Easy Measurement Box

**Calibration Certificate**

Date of Calibration: \_\_\_\_\_ Test Date: \_\_\_\_\_

The following units are being compared with Standard Thermocouples or an Ice Block Bath. The Reference is 2 hours in water at under 1°C above the maximum expected temperature range followed by 1 hour at 0°C and 10 minutes at 100°C. The voltage shall be recorded after each 5 minutes.

Read, Compare

The total number of the units under test was: \_\_\_\_\_ UUT (Units) Measured

The large amount of the thermocouples does not permit to be separated into small groups for comparison with reference thermocouples. The reference temperature is a 2 hours in 0°C water followed by 1 hour at 100°C water and 10 minutes at 0°C water.

Approval: \_\_\_\_\_ of \_\_\_\_\_  
 HAS CONDUCTED TESTING UNDER  
 your permission and, as indicated, has no liability.

Defective U	100	00000000	0
Good U	1	00000000	0
Pass U	1	00000000	0

The total number of the samples under test was: 00 00 00 00 00 00

Current Template File: C:\Program Files\Caliso Builder\Caliso Templates\Local Easy\Local Easy.rvt  
 Registered Version

