Calibrate-*it* Software	Model 9932
Fully automated calibration of RTDs, TCs, and thermistors	
Calibrates up to 100 sensors at up to 40 points	
Performs coefficient calculations	
Generates reports compliant to ANSI/NCSL Z540-1	

Few things matter in your work more than productivity. And few things can help make you more productive than well-written automation software. From free instrument control software to the world's best temperature calibration automation software, we've got what you need to be productive. It's all Windows based and it's all easy to use.

Interface-*it*

Our 9930 Interface-*it* package is included with every Hart dry-well and bath that has an RS-232 interface. It is designed as an interface-only package that lets you change the temperature, setpoints, and safety cutouts on your instrument from your PC.

This software has some basic data collection features, but it is not a full automation package. Several other companies advertise their software as automation software with fewer features than you get with Interface-*it*. Why do they do that? Read about some of our other packages and you'll find out.

Remember, Interface-*it* is *free!*

Calibrate-*it*

Calibrating sensors manually is expensive because of the cost of labor. It takes roughly four hours to calibrate a sensor at three points, and then there's another hour of paperwork to document the temperature data and create the certificate. This is much too time-consuming. Now there's a better way.

With Hart's new Calibrate-*it* software package, you place your test sensors in a heat source, connect them to a readout, and enter your setup data into your PC. Sometime later, hit your print button, take the reports out of your printer, sign them, and ship the sensors back to your customer. Your customers will love the fast turnaround.

It's your choice. Spend four hours the old way and handle everything manu-

ally, or fifteen minutes with our software and have plenty of time to read your E-mail.

This software package tests all thermocouple types, RTDs, SPRTs, and thermistors. Virtually any sensor with a resistance or voltage output can be tested. Up to 100 sensors can be tested at a time, and they don't all have to be the same type. You can select as few as 1 or as many as 40 temperatures at which to test your sensors.

Nobody makes more ultrastable heat sources and thermometer readouts for temperature calibration work than Hart Scientific. Calibrate-*it* software will run with virtually every one of them. You don't need to worry about special software drivers for each different piece of equipment. Just plug and play. Calibrate-*it* works with these Hart instruments:

Thermometers

- 1590 Super-Thermometer II (2590 Mighty Mux II optional)
- 1575 Super-Thermometer (2575 Mighty Mux optional)
- 1560 *Black Stac*k (with any combination of modules)
- 1529 Chub-E4
- 1502, 1503, 1504 Tweener Thermometers
- 1521, 1522 Handheld Thermometers

Heat Sources

- All Hart baths with RS-232
- All Hart dry-blocks with RS-232, including 9112 furnace
- Any other heat source. (Temperatures must be set manually.)

If you use the 1560 *Black Stack*, you can simultaneously calibrate up to 63 RTDs, 63 thermistors, 95 thermocouples or any combination. That's a lot of sensors.

Calibrate-*it* software allows you to track the serial numbers, model numbers, and recall dates of all test equipment and sensors under test. Customer data may also be stored for printing on reports.

With Calibrate-*it*, you make your own choices regarding precision and through-put. When setting up tests, you specify the required stability level at each set-point to ensure that readings are taken only under the conditions you require. You'll get exactly the level of precision you want based upon the equipment you have and how long you want a calibration to take.

Calibration reports are automatically created from your setup data and test results. Each report conforms completely to the requirements of ANSI/NCSL Z540-1. It's fast, it's accurate and it's complete.

This is true Windows software. It runs on any version of Windows 3.x, Windows 95/98/2000, and Windows NT4, and includes a context-sensitive, online help system. Just click the help button (or press F1) from any screen and you'll get the information you need. When you experience the interface of this software, you'll agree nothing could be easier.

No, this software isn't free, but it's hot.
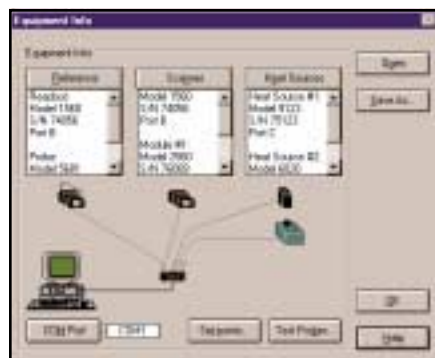
Generate-*it*

If you're going to buy the 9932 Calibrate-*it* package, you'll want to get our 2932 Generate-*it* software too.

This metrology tools package contains utilities for data analysis. Generate-

Calibrate-*it software can be used with any Hart thermometer readout, and it controls any combination of Hart dry-wells and baths. Choose from more than 9 readouts and 40 heat sources to calibrate up to 100 sensors automatically. Whether you need 1 mK accuracy for advanced metrology work or 1°C accuracy for industrial sensors, Hart has the equipment to fit your application. Add the optional* Generate-*it software to your package for quick and accurate generation of sensor coefficients and tables.*

Software

Instrument configuration screen.

Set-point configuration screen.

Test probe configuration screen.

"Calibrate-it has improved our work immensely. Before this, we were manual. It controls our baths and our Black Stack so we can test multiple probes at the same time. We would definitely recommend it."

—One of many happy Calibrate-*it* users

it calculates ITS-90 coefficients, residuals, and ratios for each sensor tested. Tables can be generated with any data you desire: temperature versus resistance, temperature versus ratio, or temperature versus EMF. Each report can be generated in °C, °F, or K and in selectable increments from 0.01 to 100.

For PRTs, Generate-*it* calculates coefficients for ITS-90, IPTS-68, Callendar-Van Dusen, and polynomial functions. For thermistors, Generate-*it* calculates coefficients for polynomial functions and Steinhart-Hart polynomials. Polynomial coefficients can be selected from 3rd to 6th order. Thermocouple coefficients can be generated for types B, E, J, K, N, R, S, T, and AuPt. This software even allows you to verify that the appropriate temperatures are used to calculate coefficients.

Need subranges in ITS-90? No problem. Want to print tables for any temperature range and in any incremental amounts? No problem. Need to generate formatted reports that conform to ANSI/NCSL Z540-1? No problem.

Data can also be exported to spreadsheets or other statistical analysis software as comma-delimited or tab-delimited text. Generate-*it* does all of that and more, but best of all it does it automatically when used with our Calibrate-*it* program. These two software packages are fully integrated. All the interface features of Calibrate-*it* are included with Generate-*it*, including online help and easy-to-use screens and menus.

There's not much you could ever want to do that these two packages won't do. This is real calibration software, not merely a data acquisition package with a fancy name!

Other software packages work with one or two instruments; they won't control the wide variety of heat sources our software does. Other software doesn't fully automate the calibration process. They try to. They pretend to. But they don't.

Calibrate-*it* and Generate-*it* control dry-wells, baths, readouts, and the entire calibration process. They store data on test equipment and on sensors under test. There's absolutely nothing even close to this software on the market. Nothing!

When you've got more work to do than you can do in a 12-hour day, and you still need some time to visit accounting to straighten out a few things, Calibrate-*it* and Generate-*it* will take care of business for you. Go home. Spend some time with your kids. Play a game of golf. It's your choice how you spend your time! Download a demo from our Web site today.

Report of Calibration

Report No: AC199702035-17

Hart Scientific
799 East Utah Valley Drive
American Fork, Utah
84003

Page 1 of 1

Model: 5614 Serial No: 360587	Customer: Hart Scientific
Description: 1/4" Secondary Standard Probe	799 East Utah Valley Drive
Calibration Range: Limited	American Fork, Utah
Received Condition: New	84003
Current: 1.0 mA	
Procedure: HARTTEST	

This paragraph is a text file that can contain any technical information about the test or test equipment. The length of this paragraph can vary.

Nominal Value (Set-point) (°C)	Actual Value (Reference) (°C)	UUT (Test Sensor) (Ohms)	Uncertainty (°C)	Tolerance (°C)
-20.00	-19.59117	92.36820	N/A	0.20
-10.00	-9.97563	96.21870	N/A	0.20
0.00	0.00573	100.20220	N/A	0.20
20.00	20.00493	108.14970	N/A	0.20
40.00	39.97670	116.03810	N/A	0.20
60.00	59.98407	123.89373	N/A	0.20

Test Equipment

Manufacturer	Model	Description	Serial Number	Recall Date
Hart Scientific, Inc.	1560	"Black Stack" Base Unit	1560-REF	03/31/1997
Hart Scientific, Inc.	2560	SPRT Module	2560-01	03/31/1997
Hart Scientific, Inc.	5614	Secondary Reference Temperature Std., 1/4" x 12"	5614-REF	03/31/1997
Hart Scientific, Inc.	2566	Thermocouple Scanner	2566-02	03/31/1997
Hart Scientific, Inc.	2562	PRT Scanner Module	2562-03	03/31/1997
Hart Scientific, Inc.	2563	Standards Thermistor Module	2563-04	03/31/1997
Hart Scientific, Inc.	9105	Low-Temperature Drywell	9105-01	03/31/1997
Hart Scientific, Inc.	9123	High-Speed Drywell	9123-01	03/31/1997

Like the paragraph, the notes are text from a text file that can contain any other information about the test or test equipment. The length of the notes can also vary.

Calibration Date: 02/25/1997	Technician: _____
Recall Date: 03/27/1997	
Temperature: 74°F	Cal E. Breight
Humidity: 35%	
Customer Order Id: 123	Approved By: _____

This report shall not be reproduced except in full without written approval of Hart Scientific

Calibrate-it software creates test reports that fully comply with ANSI/NCSL Z540-1 requirements. Among the features included in each report are report numbers, pagination, test procedure numbers, test data, stated uncertainties, and test results shown as tolerances. Two locations are also available on the report for special notes.